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Issue 1

Feb. 1992

SX-200[®] DIGITAL PABX

Generic 1005 Practices Index

NOTICE

The information contained in this document is believed to be accurate in all respects but is not warranted by **Mitel** Corporation (**MITEL®**). The information is subject to change without notice and should not **be** construed in any way as a commitment by **Mitel** or any of its affiliates or subsidiaries. **Mitel** and its affiliates and subsidiaries assume no responsibility for any errors or omissions in this document. Revisions of this document or new editions of it may be issued to incorporate such changes.

GENERAL

This Section contains a list of Practices for the **SX-200[®]** DIGITAL Private Automatic Branch Exchange, with the following software variants: Generic 1001, Generic 1002, Generic 1003, Generic 1004, Generic 1005, Generic 1005 **FPKG1**, and Generic 1005 **LIT96**.

Documentation Index

1.1 The **SX-200** DIGITAL PABX documentation is contained in 2 volumes as follows:

Volume 1 – Features and Services, Hardware (**9109-096-001-NA**) contains a system description, feature operation information and hardware descriptions of circuit cards and peripheral equipment.

Volume 2 – Installation and Administration (**9109-096-002-NA**) contains system installation, testing, data entry information, engineering, troubleshooting and maintenance information.

Table I-I Generic 1005 FD1 Practices Index

VOLUME 1	Features and Services, Hardware	9109-096-001-NA
Practice Number	Title	
9109-096-000-NA	Generic 1005 Practices Index	
3109-096-I 00-NA	General Description	
3109-096-I 05-NA	Features Description	
9109-096-220-NA	Automatic Route Selection and Toll Control	
9109-096-221-NA	Station Message Detail Recording	
9109-096-230-NA	Tenanting	
9109-096-450-NA	Traffic Measurement	
9109-096-602-NA	Hotel / Motel Feature Package Description	
9109-096-620-NA	ACD TELEMARKETER® Application Package	
9109-096-625-NA	Automated Attendant Application Package	
9109-096-I 25-NA	Circuit Card Descriptions	
9109-096-126-NA	Peripheral Devices	
VOLUME 2	Installation and Administration	9109-096-002-NA
Practice Number	Title	
9109-096-000-NA	Generic 1005 Practices Index	
9109-096-203-NA	Safety Instructions	
9109-096-200-NA	Installation Information	
9109-096-21 O-NA	Customer Data Entry	
9109-096-350-NA	Troubleshooting	
9109-096-351-NA	W-232 Maintenance Terminal	
9109-096-353-NA	General Maintenance Information	
9109-096-355-NA	Field-Replaceable Units	
9109496-I 80-NA	Engineering Information	

9109-096-100-NA

Issue 1

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SX-200[®] DIGITAL PABX

-General Description

IMPORTANT SAFETY INSTRUCTIONS

WARNING

Failure to follow all instructions may result in improper equipment operation and/or the risk of electric shock.

- Only qualified personnel should install and service this product.
- Read all instructions before attempting to install or use this product.
- Install all assemblies using the procedures described in this Practice.
- Configure this product with only the assemblies specified in this Practice.
- Grounding circuit continuity is vital for safe operation of telecommunication equipment. Never operate telecommunication equipment when the grounding conductor is disconnected. Ensure the grounding conductor is installed before connecting telecommunication cabling to any system.

EXPLANATIONS OF SYMBOLS AND NOTICES



**DANGEROUS
VOLTAGE**

A lightning bolt within **an** equilateral triangle indicates the presence of an uninsulated 'dangerous voltage' within the products enclosure. The uninsulated voltage represents a significant risk of electric shock to people.



INSTRUCTIONS

An exclamation mark within an equilateral triangle indicates that important operating and servicing instructions accompany the product.



**PROTECTIVE
GROUNDING
TERMINAL**

A ground symbol within a circle identifies the terminal for connection to an external protective conductor. The terminal must be connected to earth ground prior to making any other connections to the equipment.

DANGER

Danger indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Warning indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Caution indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury and/or damage to the equipment or property.

Table of Contents

1. INTRODUCTION

General	100 I-1
Reason for issue	100 I-1

2. SYSTEM OVERVIEW

General	100 2-1
Hardware Configurations	100 2-1
Physical Characteristics	100 2-3
System Requirements	100 2-3
Software Configurations and Supported Peripheral Devices	100 2-4
Generic1001	100 2-4
Generic1002	100 2-4
Generic1003	100 2-4
Generic1004	100 2-5
Generic 1005 FPKG 1 and Generic 1005 LIT96	100 2-5
Generic1005	100 2-5
Voice Capabilities	100 2-8
Data Capabilities	100 2-7
Customer Data Entry (CDE)	100 2-8

3. PHYSICAL DESCRIPTION

General	100 3-1
Control Cabinet for 336- , 456- , and 480-Port Configurations	100 3-1
336-port Control Cabinet	100 3-1
456-port Control Cabinet	100 3-1
480-port Control Cabinet	100 3-2
Analog Peripheral Cabinet (456- and 480-Port Configurations only)	100 3-2
672-Port Control Cabinet	100 3-6
672-Port Peripheral Cabinet	100 3-6
SX-200® FD Control Cabinet	100 3-9
SX-200 FD Peripheral Cabinet	100 3-9
Power Fail Transfer	100 3-9
Maintenance Panels	100 3-12
Power Supplies	100 3-12

4. HARDWARE OVERVIEW

General	100 4-1
336- , 456- , 480- , and 672- Port Configurations	100 4-1
SX-200 FD System configuration	100 4-2
Control Cabinet	100 4-2
Peripheral Cabinet	100 4-3
Peripheral Interface Cards	100 4-4

5. SOFTWARE OVERVIEW

General	100 5-1
---------------	---------

Physical Layer	100 5-1
Scheduling Layer	100 5-1
Communications Layer	100 5-1
Message Subsystem	100 5-1
Device Input/Output Layer	100 5-2
Utilities Layer	100 5-2
Main Control Processor Applications Software	100 5-2
Peripheral Control Processor Software	100 5-2
Database	100 5-2
6. MAINTENANCE	
General	100 6-1
Maintenance Objectives	100 6-1
RS-232 Maintenance Terminal	100 6-1
Diagnostic Log Files	100 6-1
Types of Diagnostics	100 6-2
7. FEATURES	100 7-1

List of Figures

Figure 2-1 SX-200 DIGITAL PABX Bay and Slot Assignment – 336-Port Configuration . . .	100 2-9
Figure 2-2 SX-200 DIGITAL PABX Bay and Slot Assignment – 456-Port Configuration , , ,	100 2-10
Figure 2-3 SX-200 DIGITAL PABX Bay and Slot Assignment – 480-Port Configuration , , ,	100 2-11
Figure 2-4 SX-200 DIGITAL PABX Bay and Slot Assignment – 672-Port Configuration , , ,	100 2-12
Figure 2-5 SX-200 FD Control Cabinet and Peripheral Cabinet – Bay and Slot Assignments	100 2-13
Figure 3-1 Universal Control Cabinet with Digital Peripheral Shelf	100 3-3
Figure 3-2 Universal Control Cabinet with Analog Peripheral Shelf , , ,	100 3-4
Figure 3-3 Analog Peripheral Cabinet	100 3-5
Figure 3-4 672-Port Control Cabinet	100 3-7
Figure 3-5 672-Port Peripheral Cabinet , ,	100 3-8
Figure 3-6 SX-200 FD Control Cabinet	100 3-10
Figure 3-7 SX-200 FD Peripheral Cabinet	100 3-11

List of Tables

Table 2-1 Physical Characteristics	100 2-3
Table 2-2 Environmental Requirements	100 2-3
Table 2-3 Electrical Requirements	100 2-3
Table 4-1 FIM LEDs	100 4-3
Table 7-1 PABX Features	100 7-1

1.

INTRODUCTION**General**

1.1 This practice describes the **SX-200®** DIGITAL PABX. It provides an overview of hardware features, as well as a summary of environmental, electrical, and maintenance considerations. Refer to the following sections for more detailed descriptions of related information:

- Practice **9109-096-105-NA**, Features Description
- Practice 9109-096-I **80-NA**, Engineering Information
- Practice **9109-096-200-NA**, Installation Information

Reason for issue

1.2 This practice describes the **SX-200** DIGITAL PABX with seven Generic software loads. This is the first issue with Generic 1005 FPKG 1 software, Generic 1005 LIT 96 software, and Generic 1005 software.

2.

SYSTEM OVERVIEW

General

2.1 The SX-200 DIGITAL PABX is a microprocessor controlled telephone system that **handles** both voice and data switching for installations up to 500 lines. The system is available in various hardware configurations ranging from 336 to 672 ports. All configurations of the system are electrically compatible with most

- . single line telephones,
- . MITEL® proprietary sets,
- . key telephone systems,
- . PABX telephone systems, and
- . central office exchanges.

The following subsections outline the various hardware configurations and the **software** versions (generics) available for each configuration. Refer to Section NO TAG of this practice for additional information about the hardware configurations, and to Section NO TAG for an overview of the software structure. Table 2-1 describes physical characteristics of the PABX.

Figure 2-1 through Figure 2-5 show the maximum number of trunk and line cards that each configuration can accommodate.

Hardware Configurations

2.2 The SX-200 DIGITAL PABX is available in five different hardware configurations:

- 336 ports in a single cabinet,
- 456 ports in two cabinets (upgrade to existing SX-200 PABX only),
- . 480 ports in two cabinets (existing SX-200 DIGITAL **PABXs** only),
- . 672 ports in two cabinets, and
- 672 ports in seven Peripheral cabinets (96 ports/cabinet) supported by a Control cabinet (SX-200 FD system).

The **336-** and **672-port** configurations use fully digital control circuits, line cards, and trunk cards. The **456-** and **480-port** configurations are hybrid systems, using digital control circuits with a mixture of digital and analog peripheral cards. Customers with installed SX-200 analog systems may upgrade to the latest in digital switching technology (**456-port**) while retaining their investment in cabinets, power supplies, line cards, and trunk cards.

The **336-port** configuration consists of a single cabinet with four fully digital card bays for a maximum of 336 digital peripheral ports. This configuration is used for new installations rather than upgrades,

The **456-port** configuration combines a digital Control cabinet with an analog peripheral cabinet. The **456-port** configuration has five card bays offering a maximum of 240 digital and 216 analog peripheral ports.

Note: The **456-port** configuration is available only as an upgrade. Customers can upgrade their installed **SX-200** PABX to an SX-200 DIGITAL PABX by adding a digital Control cabinet to the existing analog cabinet.

The **480-port** configuration is similar to the **456-port** configuration in that it combines a digital control cabinet with an analog peripheral cabinet. The **480-port** configuration has five card bays offering a maximum of 144 digital and 336 analog peripheral ports.

Note: The **480-port** configuration is no longer available for new installations. However, an installed **480-port** SX-200 PABX may be upgraded with new software Generics.

The 672-port, **2-cabinet** configuration has seven digital card bays providing a maximum of 672 digital peripheral ports. This configuration is used for both new installations and upgrades to existing **336-port** configurations. Since this system accepts only digital peripheral cards, it is recommended for sites that use data features extensively.

The SX-ZOO FD system consists of one Control cabinet and up to seven Peripheral cabinets, Each Peripheral cabinet provides up to 96 ports, giving a combined total of 672 ports for a fully configured system.

Fiber optic cables connect the Control Cabinet with the Peripheral Cabinets. The Peripheral Cabinets can be located up to 1 km from the Control Cabinet, allowing the system lines (extensions) and trunks to be physically distributed among several remote locations.

Physical Characteristics

Table 2-1 Physical Characteristics		
336-, 456-, 480- and 672- Port Configurations		
Height Per Cabinet	96.0 cm	38.0 inches
Width Per Cabinet	60.0 cm	23.5 inches
Depth Per Cabinet	70.0 cm	27.5 inches
Weight Fully Loaded	230 kg	500 pounds
SX-200 FD System Configurations		
Height Per Cabinet	48.0 cm	19.0 inches
Width Per Cabinet	22.9 cm	9.0 inches
Depth Per Cabinet	42.0 cm	16.5 inches
Weight Fully Loaded	151 kg	333 pounds

System Requirements

- 2.3 The environmental and electrical requirements for the SX-200 DIGITAL PABX are shown in Table 2-2 and Table 2-3 respectively.

Table 2-2 Environmental Requirements		
Operating Temperature	10 to 40° c	50 to 104° F
Storage Temperature	-20 to 50° c	-4 to 122° F
Relative Humidity (Operating) (non-condensing)	20 to 80%	20 to 80%
Relative Humidity (Storage) (non-condensing)	10 to 90%	10 to 90%

Table 2-3 Electrical Requirements	
AC Input Voltage	102 – 135 Vac (115 v – 9109-008-000-SA)
AC Input Voltage	204 – 270 Vac (230 v – 9109-008-002-NA)
AC Input Frequency	47-63 Hz
AC Input Power	125 Watts RMS for each bay
DC Output Power	100 Watts for each bay
Reserve Power	Uninterruptable Power Supply (or Battery Backup Unit in analog Peripheral cabinet only)

Software Configurations and Supported Peripheral Devices

- 2.4 Seven software configurations are available for the SX-200 DIGITAL PABX: Generic 1001, 1002, 1003, 1004, 1005 FPKG 1, 1005 LIT 96, and 1005. The following subsections outline the features offered and the hardware configurations supported by each generic

Generic 1001

The Generic 1001 software package combines a business feature package with a hotel/motel feature package. Features include:

- . Standard telephone business features
- . Advanced business features (such as ARS and Tenanting)
- . **SUPERSET 3™** and **SUPERSET 4®** stations
- . Liquid Crystal Display Console
- . Hotel/Motel features
- . Resale
- . Uniform Call Distribution

Generic 1001 software is available for the **336–** and **480–port** hardware configurations. Generic 1001 software requires only one disk drive, in Bay 2.

Generic 1002

Generic 1002 software includes all Generic 1001 features plus the following:

- . Additional basic telephone features
- . Associated modem lines
- . **SUPERSET 3™DN** and **SUPERSET 4™DN** Digital Stations
- . Data switching with **DATASET 1100 series datasets**

Generic 1002 software is available for the **336–** and **456–port** hardware configurations.

Generic 1003

Generic 1003 software includes all Generic 1002 features plus the following:

- . Additional basic telephone features
- . **SUPERSET DSS™** Module
- . Country Variant tone plans
- . T1/D4 trunking and features
- . **DATASET 2100 series**
- . Modem pooling
- . ACD with monitor and PC reporting

Generic 1003 software is available for all hardware configurations,

Generic 1004

Generic 1004 software includes all Generic 1003 features plus the following:

- . Additional basic telephone features
- . **CENTREX™** compatibility
- . ONS Voice Mail
- . Enhanced Subattendant
- . Call Forward enhancements
- . Office Features package and Digital Key System support
- . Enhanced Hotel / Motel (Front Desk Terminal)
- . Applications Platform Package

Generic **1004** software is available for all hardware configurations.

Generic 1005 FPKG 1 and Generic 1005 LIT 96

Generic 1005 FPKG 1 and Generic 1005 LIT 96 software include most of the Generic 1004 features plus the following:

- . **SUPERSET 401™**, **SUPERSET 410™**, and **SUPERSET 420™** telephones
- . Handsfree Answerback

The Generic 1004 features that are not supported in Generic 1005 FPKG 1 and Generic 1005 LIT 96 are listed below:

- . Applications Platform Package (includes **HCI™** and CCM)
- . Automatic Call Distribution
- Data communication features

Generic 1005 FPKG 1 and Generic 1005 LIT 96 software are only available for SX-200 FD system configurations. Generic 1005 LIT 96 software supports only one peripheral cabinet (96 ports).

Generic 1005

Generic 1005 software includes all Generic 1004 features plus the following:

- . **SUPERSET 401**, **SUPERSET 410**, **SUPERSET 420** and **SUPERSET 430™** telephones
- . **MiLink™** Data Module (DS1101M)
- . Automatic Number Identification/Dialed Number Identification Service feature
- . Handsfree Answerback

Generic 1005 software is available for all hardware configurations,

Voice Capabilities

- 2.5 The **SX-200** DIGITAL PABX interfaces to analog and digital peripheral devices using standard twisted-pair **office** wiring. Peripheral devices include, but are not limited to, the following:

Standard Telephones: Industry-standard rotary dial and DTMF telephones are supported; ONS lines provide an interface for these sets.

SUPERSET 3 Telephone: The electronic **SUPERSET 3** telephone provides speedcall capabilities and a number of features designed to simplify call handling.

SUPERSET 4 Telephone: The **SUPERSET 4** telephone is a more advanced electronic telephone, supplying visual features such as line status indication, time and date display, caller identification and word prompts to facilitate call handling.

SUPERSET 3 DN Telephone: The **SUPERSET 3** DN telephone is a microprocessor controlled electronic telephone set, containing digital electronic circuitry. It provides advanced call handling features such as programmable feature keys, digital communication with the host PABX and message waiting LED. A **DATASET 1101** Cartridge can be integrated into this set. A **SUPERSET 3** DN telephone is not available with Generic 1001.

SUPERSET 4 DN Telephone: The **SUPERSET 4** DN telephone is a microprocessor controlled electronic telephone set, containing digital electronic circuitry and liquid crystal displays (LCD). The **SUPERSET 4** DN telephone is a more sophisticated telephone set, employing all the features of a **SUPERSET 4** telephone with the addition of a calculator and programmable feature keys. A **DATASET 1101** Cartridge can be integrated into this set. A **SUPERSET 4** DN telephone is not available with Generic 1001.

SUPERSET 401 Telephone: The **SUPERSET 401** telephone is a single-line digital telephone. It has a **Trans/Conf** key, a **Message** key, and a message indicator lamp, as well as keys for adjusting the ringer and handset receiver volume. The **SUPERSET 401** telephone is available only with Generic 1005 FPKG 1, Generic 1005 LIT 96 and Generic 1005.

- **SUPERSET 410 Telephone:** The **SUPERSET 410** telephone is a multi-line digital telephone. In addition to its 10 fixed function keys, the **SUPERSET 410** has 6 keys that can be programmed as Speed Call keys, Feature Access keys or Line Appearances. A **MiLink** Data Module can be connected to this set to provide an interface for a data device. The **SUPERSET 410** telephone is available only with Generic 1005 FPKG 1, Generic 1005 LIT 96, and Generic 1005.

SUPERSET 420 Telephone: The **SUPERSET 420** is a multi-line digital telephone. It has 12 programmable keys with associated LCD indicators. These keys can be programmed as Speed Call keys, Feature Access keys or Line Appearances. Directly below the 12 programmable keys is a 2x16 alphanumeric bitmap graphics display and three softkeys. The three **softkeys** allow set users to select command prompts that appear in the display. The set also has a **Message** key and **Microphone** key with indicator lamps, and eight fixed function keys without indicator lamps. A **MiLink** Data Module can be connected to this set to provide an interface for a data device. The

SUPERSET 420 telephone is available only with Generic 1005 FPKG 1, Generic 1005 LIT 96, and Generic 1005.

SUPERSET 430 Telephone: The **SUPERSET 430** telephone is a multi-line digital telephone that provides advanced telephony features. The **SUPERSET 430** has 12 keys that can be programmed as Speed Call keys or Line Appearances. An alphanumeric bitmap graphics display and six **softkeys** allow users to select call handling features easily. A *MiLink* Data Module can be connected to this set to provide an interface for a data device. The **SUPERSET 430** telephone is available only with Generic 1005.

Attendant Console: The SX-200 DIGITAL PABX supports two types of Attendant consoles; the LCD Console and the **SUPERCONSOLE 1000™** attendant console. The LCD Console interfaces to a console module on the Universal card, while the **SUPERCONSOLE 1000** attendant console interfaces by one pair wiring to a DNIC circuit on a Digital Line card. The latter also provides a printer port and a tilt display. The **SUPERCONSOLE 1000** attendant console is not available for Generic **1001**.

SUPERSET DSS Module: The **SUPERSET DSS** Module provides a 32-position Busy Lamp Field and a **32-key** direct station select keypad. It increases the number of programmable feature keys on its associated **SUPERSET™** telephone. A **SUPERSET DSS** Module is not available with Generic 1001 or 1002.

Data Capabilities

- 2.6 The MITEL **datasets** provide data facilities for terminals, digital **SUPERSET** telephones, and other types of data circuits. The **DATASET 1100** series support asynchronous data communications at rates up to 19.2 kbps and interface with the SX-200 DIGITAL PABX through a Digital Line Card. The **DATASET 2100** series support asynchronous and synchronous data communications at rates up to 19.2 kbps and interface with the SX-200 DIGITAL PABX through a Digital Line Card. Data capabilities are not available with Generic 1001.

MiLink Data Module: The *MiLink* Data Module is connected to a modular jack located on the base of **SUPERSET 410**, **SUPERSET 420**, or **SUPERSET 430** telephones, and is used to interface a terminal, personal computer, or other peripheral device to a host computer. The *MiLink* Data Module interfaces to the PABX Digital Line Card through the same pair of wires that the telephone set voice circuit uses. It is available only with Generic 1005.

DATASET 1101 Cartridge: A **DATASET 1101** Cartridge is mounted within a **SUPERSET 3** DN or a **SUPERSET 4** DN telephone set. The cartridge is connected via an internal cable to the telephone set circuit and is used to interface a terminal, personal computer, or other peripheral device to a host computer. It interfaces to the PABX Digital Line Card through the same pair of wires that the telephone set voice circuit uses. The **DATASET 1101** Cartridge is not available with Generic **1001**.

DATASET 1102 Dual Rack Mounted Card: This dual rack mounted card supports two datasets, mounted on a common printed circuit board. It is installed in a DATASHELF 9100 within a DATACABINET 9000. Its primary function is to interface

between a host computer and DATASET 1101 Cartridges or DATASET 1103 Standalone **datasets** connected to the PABX. DATASET 1102 Dual Rack Mounted card is not available with Generic 1001.

DATASET 1103 Standalone: The DATASET 1103 Standalone is packaged in a flat case which can be placed under a standard desk telephone set. It is functionally the same as the DATASET 1101 Cartridge or one-half of the DATASET 1102 Dual Rack Mounted card. DATASET 1103 Standalone is not available with Generic 1001.

DATASET 2103 Standalone: The DATASET 2103 Standalone is a Synchronous/Asynchronous data set which is used with Mitel digital private automatic branch exchanges (PABX) to interface peripheral devices to the PABX. It is packaged in a flat case which can be placed under a standard desk telephone set. The DATASET 2103 Standalone can be connected to a Digital Line Card within the PABX by a single twisted pair (the telephone set is connected independently). DATASET 2103 Standalone is not available with Generics 1001 and 1002.

DATASET 2102 Rack Mounted: A DATASET 2102 Rack Mounted is a Synchronous/Asynchronous data set which is used with Mitel PABXs. It is installed in a DATASHELF 9100 within a DATACABINET 9000. It is functionally the same as the DATASET 2103 Standalone (it uses the same base printed circuit board). Each Rack Mounted DATASET 2102 Rack Mounted has LEDs on its front panel, but no switches or keys for manual operation. The DATASET 2102 Rack Mounted interfaces to a PABX Digital Line Card circuit through a single pair. Its primary function is to interface between a host computer and the PABX; DATASET 2103 Standalone datasets, distributed throughout an office, access DATASET 2102 Rack Mounted **datasets** through the PABX. DATASET 2102 Rack Mounted is not available with Generics 1001 and 1002.

Terminals and Printers: A VT100™ compatible terminal or IBM® PC can be connected to the system as a Maintenance terminal. Printers are used to create hard-copy records such as traffic reports, maintenance information, etc.

Customer Data Entry (CDE)

- 2.7 Customer Data Entry is accomplished from the Maintenance Terminal or from the Attendant Console. The console LCD guides the attendant through the data entry procedure by displaying a series of prompts and listing the required steps to be performed. The console display has four lines of 80 characters each. The two top lines display the steps to be taken, and the two bottom lines display the prompts which define the 10 function keys on the Attendant Console. For additional information, refer to Practice 9109-096-210-NA, Customer Data Entry.

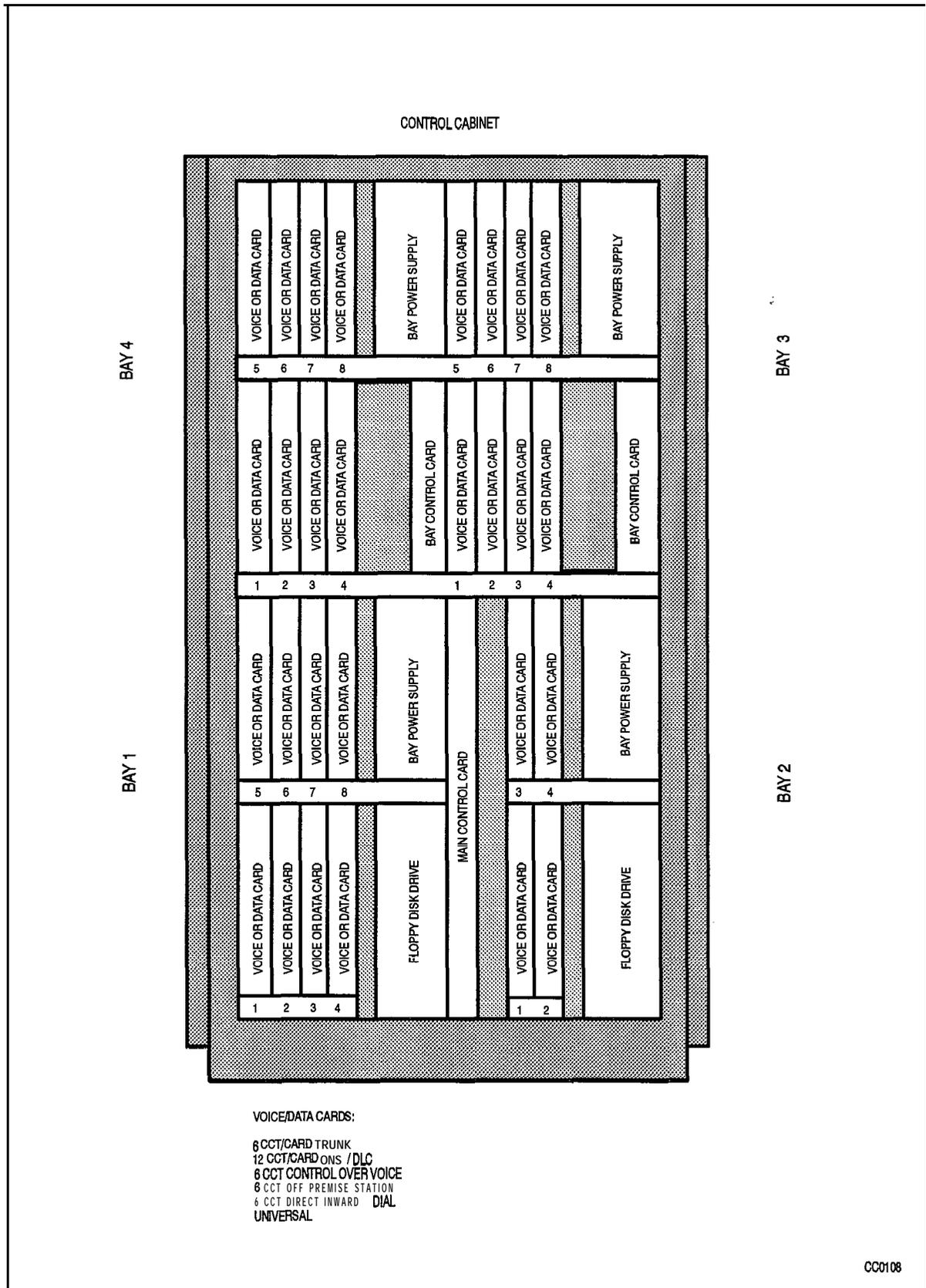


Figure 2-1 SX-200 DIGITAL PABX Bay and Slot Assignment – 336-Port Configuration

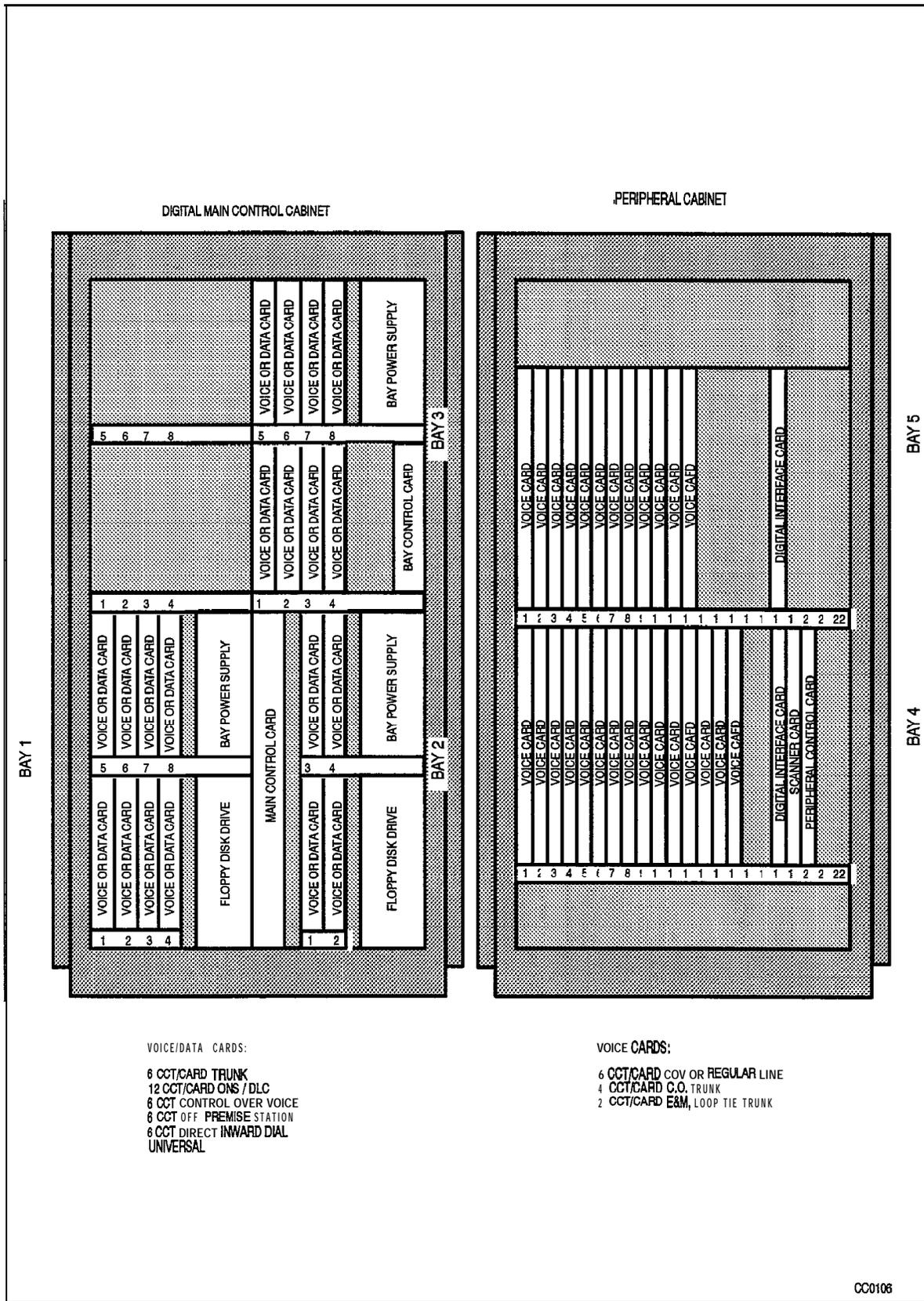


Figure 2-2 SX-200 DIGITAL PABX Bay and Slot Assignment – 456-Port Configuration

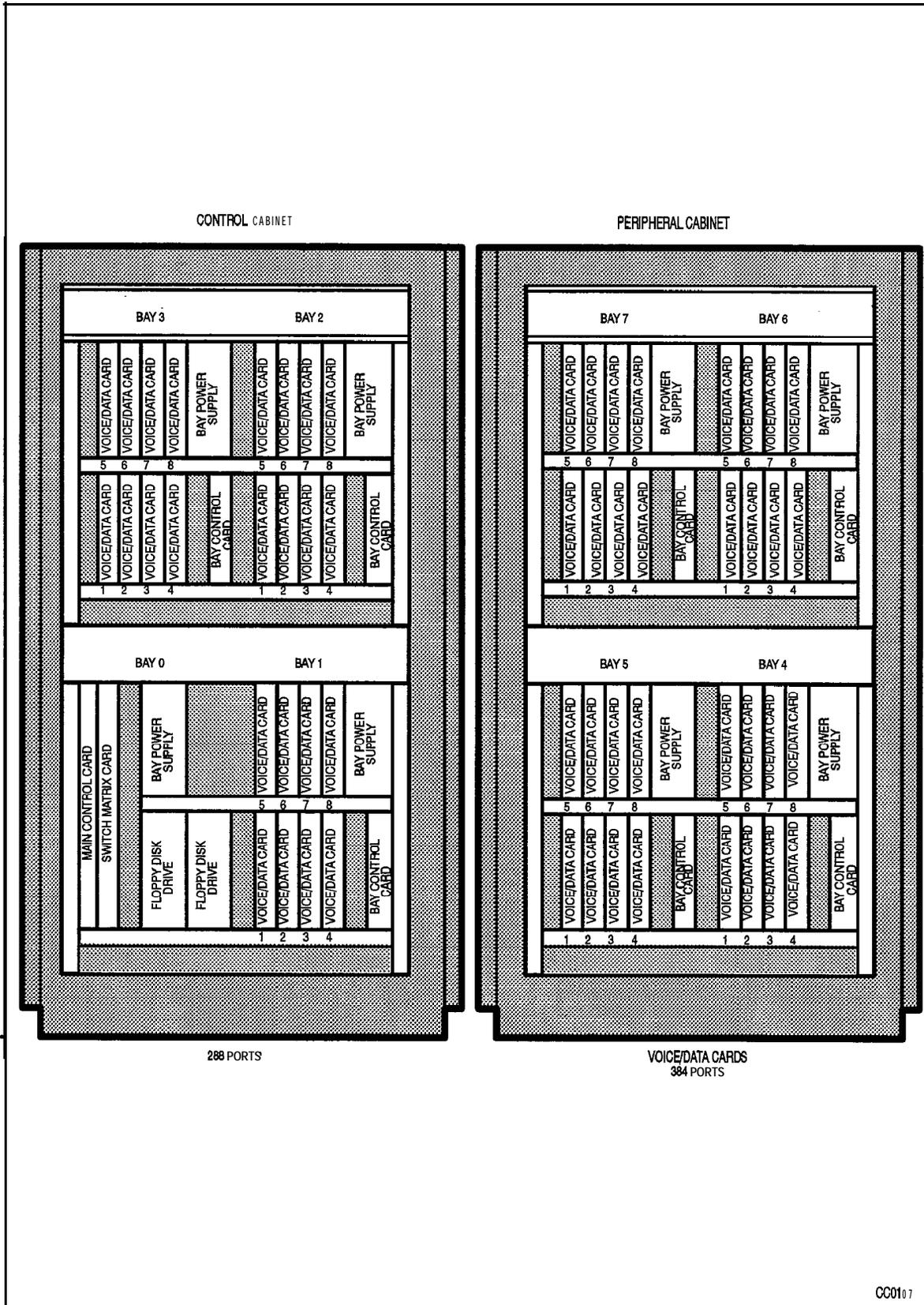


Figure 2-4 SX-200 DIGITAL PABX Bay and Slot Assignment - 672-Port Configuration

3.

PHYSICAL DESCRIPTION

General

- 3.1 The number of cabinets in an *SX-200* DIGITAL system depends upon the type of configuration:
- The 336-port configuration consists of a Control cabinet.
 - The 456-, 480-, and 672-port configurations consist of a Control cabinet and an optional Peripheral cabinet.
 - The *SX-200* FD system configuration consists of a Control Cabinet and up to seven Peripheral Cabinets.

Control Cabinet for 336-, 456-, and 480-Port Configurations

- 3.2 The Control Cabinet for the 336-, 456-, and 480-port configurations contains a 144 port digital Control shelf with Bay 1 and Bay 2 in the lower position (COMBO backplane). Its Floppy Disk Drives plug directly into the backplane, and its Main Control Card directly controls up to three 6-circuit Power Fail Transfer cards. Access to the control and peripheral cards is through the front door of the cabinet. The rear door allows access to line, trunk, and PCM cable entries, and to the PFT cards.

336-port Control Cabinet

The *SX-200* DIGITAL PABX 336-port Control cabinet (Figure 3-1) includes a digital shelf (Bays 3 and 4, 96 ports each) above the 144 port Control shelf. Bays 3 and 4 are similar to Bay 1, except each also has a Bay Control Card (but no Disk Drive). The Bay 4 backplane does not have to be added concurrently with the shelf and Bay 3 backplane. The 336-port PABX is a single cabinet system. It cannot have a Peripheral cabinet.

Digital Bay 1 contains: 1 Bay Power Supply, 1 Floppy Disk Drive (powered and controlled from Bay 2), and up to 8 Digital Peripheral cards.

Digital Bay 2 contains: 1 Main Control Card, 1 Bay Power Supply, 1 Floppy Disk Drive, and up to 4 Digital Peripheral cards.

Digital Bays 3 and 4 each contain: 1 Bay Power Supply, 1 Bay Control Card, and up to 8 Digital Peripheral cards.

456-port Control Cabinet

The *SX-200* DIGITAL PABX 456-port Control cabinet (Figure 3-1) includes a digital shelf (with Bay 3 only, 96 ports) above the 144 port Control shelf; Bay 3 is similar to Bay 1, except it also has a Bay Control Card (but no Disk Drive).

Note: The 456-port Control cabinet is a 336-port cabinet which does not have a digital Bay 4 (refer to Figure 2-2).

The 456-port Control cabinet may be connected to an existing optional 216-port analog Peripheral Cabinet (Bays 4 and 5).

Digital Bay 1 contains: 1 Bay Power Supply, 1 Floppy Disk Drive (powered and controlled from Bay 2), and up to 8 Digital Peripheral cards.

Digital Bay 2 contains: 1 Main Control Card, 1 Bay Power Supply, 1 Floppy Disk Drive, and up to 4 Digital Peripheral cards.

Digital Bay 3 contains: 1 Bay Power Supply, 1 Bay Control Card, and up to 8 Digital Peripheral cards.

480-port Control Cabinet

The SX-200 DIGITAL PABX 480-port Control cabinet includes an analog shelf (with Bay 3, 120 ports) above the 144 port Control shelf.

The 480-port Control cabinet (Figure 3-2) may be connected to an existing optional 216-port analog Peripheral Cabinet (Bays 4 and 5).

Digital Bay 1 contains: 1 Bay Power Supply, 1 Floppy Disk Drive (powered and controlled from Bay 2), and up to 8 Digital Peripheral cards.

Digital Bay 2 contains: 1 Main Control Card, 1 Bay Power Supply, 1 Floppy Disk Drive, and up to 4 Digital Peripheral cards.

Analog Bay 3 contains: 1 Peripheral Control Card, 1 Scanner card, 1 Digital Interface Card, and up to 15 Peripheral cards.

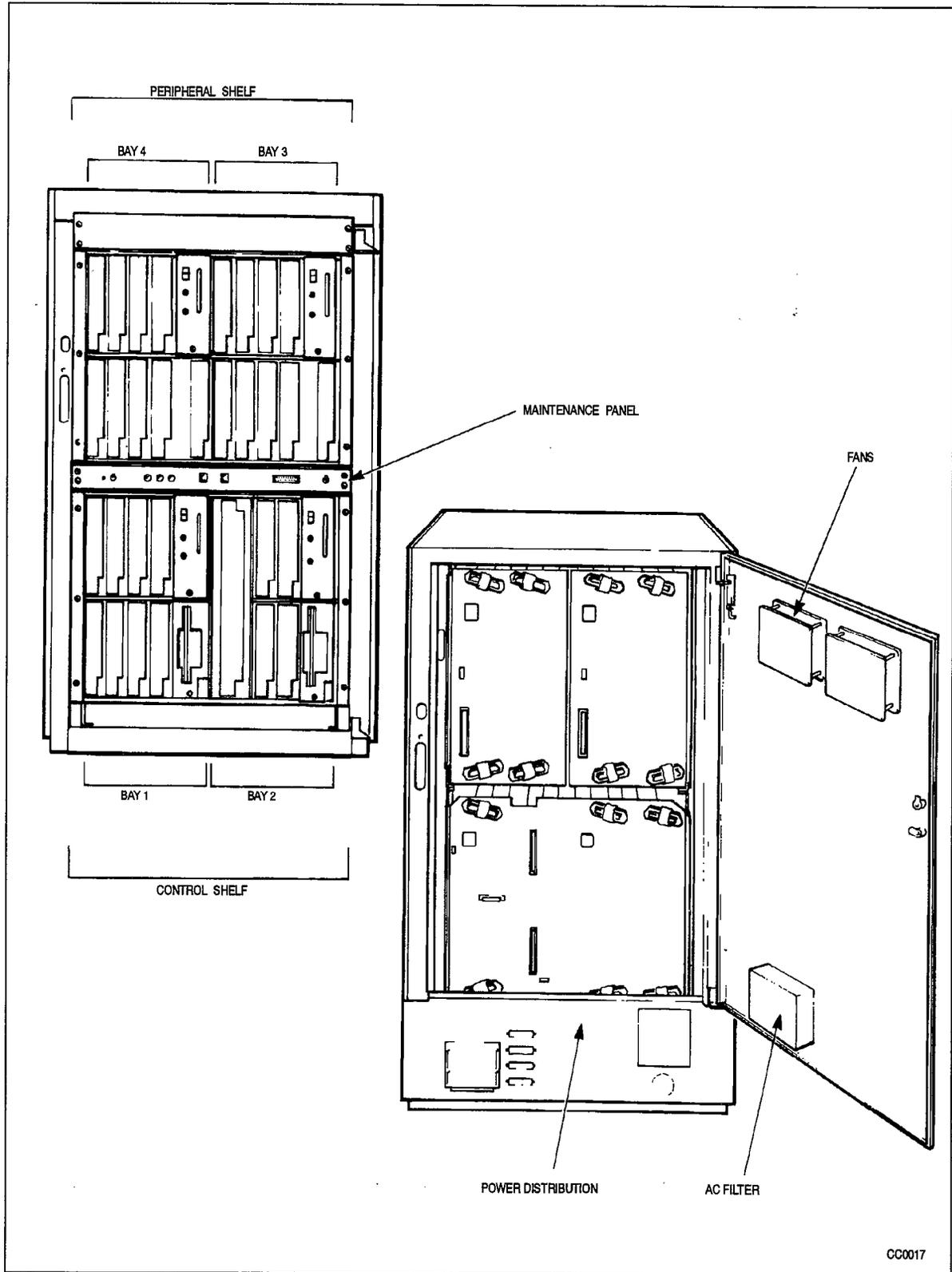
Note: The 480-port configuration is no longer available for new installations. However, an installed 480-port SX-200 PABX may be upgraded with new software Generics.

Analog Peripheral Cabinet (456- and 480- Port Configurations only)

3.3 The SX-200 DIGITAL PABX analog Peripheral cabinet contains a 120-port analog shelf (Bay 4) and an optional 96-port upper analog shelf (Bay 5) which are connected to and controlled by the Control shelf through the PCM cable and the Digital Interface Card. Refer to Figure 3-3.

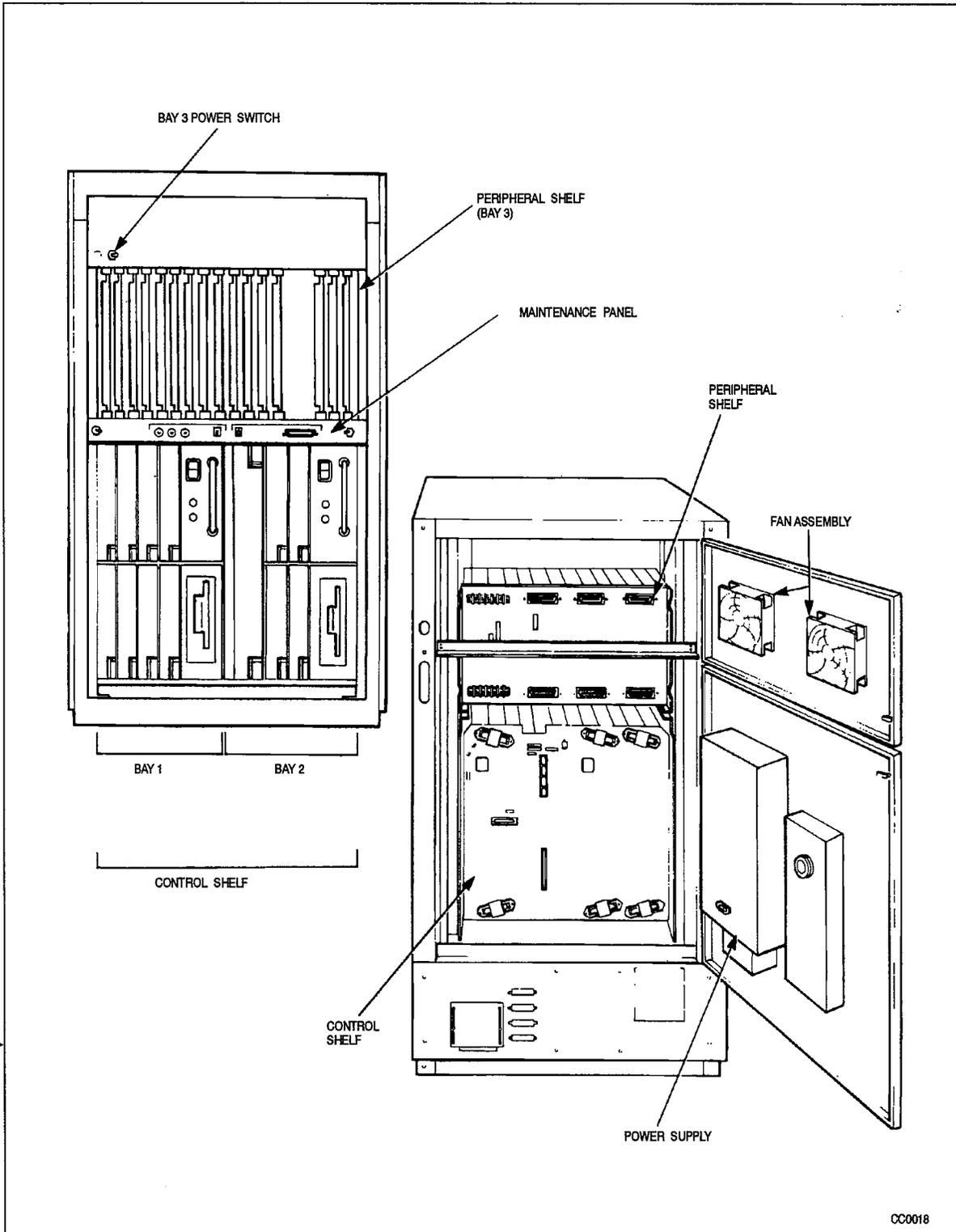
Analog Bay 4 contains: 1 Peripheral Control Card, 1 Scanner card, 1 Digital Interface Card, and up to 15 Peripheral cards.

Analog Bay 5 contains: 1 Digital Interface Card and up to 12 Peripheral cards.



CC0017

Figure 3-1 Universal Control Cabinet with Digital Peripheral Shelf



CC0018

Figure 3-2 Universal Control Cabinet with Analog Peripheral Shelf

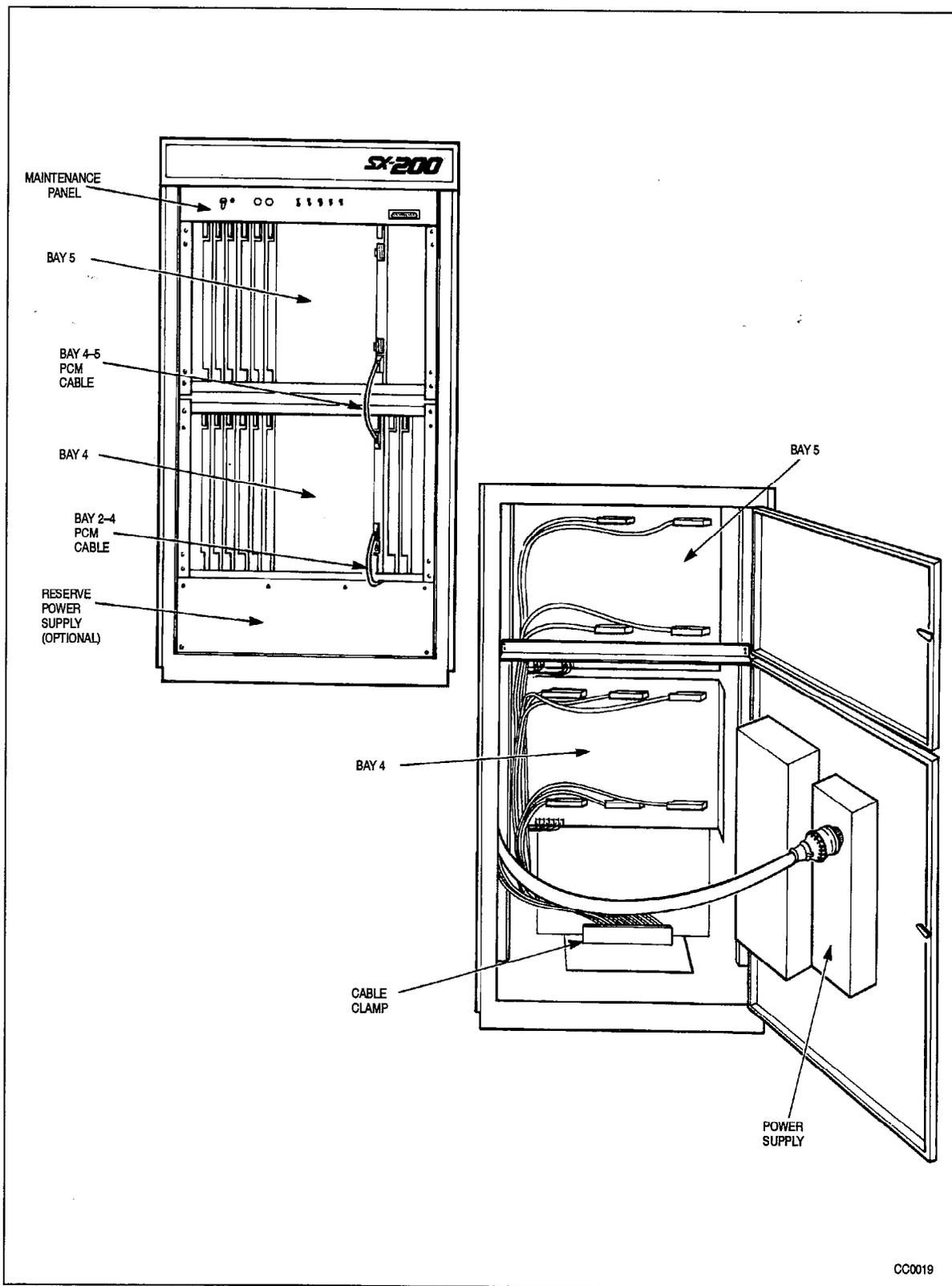


Figure 3-3 Analog Peripheral Cabinet

672-Port Control Cabinet

- 3.4 The *SX-200* DIGITAL 672-Port Control cabinet, shown in Figure 3-4, contains the Control shelf, Bay 0 in the lower left position, Bay 1 on the lower right, and Bays 2 and 3 in the upper shelf. The Control cabinet supports up to three 6-circuit power fail transfer cards. The 672-port configuration is not available with Generics 1001 and 1002.

Bay 0 contains: 1 Main Control Card, 1 Bay Power Supply, 1 Switch Matrix Card, and 2 Floppy Disk Drives.

Bays 1 to 3 each contain: 1 Bay Power Supply, 1 Bay Control Card, and up to 8 Digital Peripheral cards.

672-Port Peripheral Cabinet

- 3.5 The *SX-200* DIGITAL PABX 672-port optional Peripheral cabinet (shown in Figure 3-5) consists of 4 digital bays with 96 ports each. Each bay is connected to and controlled by Bay 0 in the Control cabinet. The 672-Port Peripheral cabinet also supports three 6-circuit power fail transfer cards, for a system total of 36 PFT circuits.

Bays 4 to 7 each contain: 1 Bay Power Supply, 1 Bay Control Card, and up to 8 Digital Peripheral cards

Note: An *SX-200* DIGITAL 672-port PABX may also be created by converting an installed 336-port Control cabinet to a Peripheral cabinet and adding a new 672-port Control cabinet.

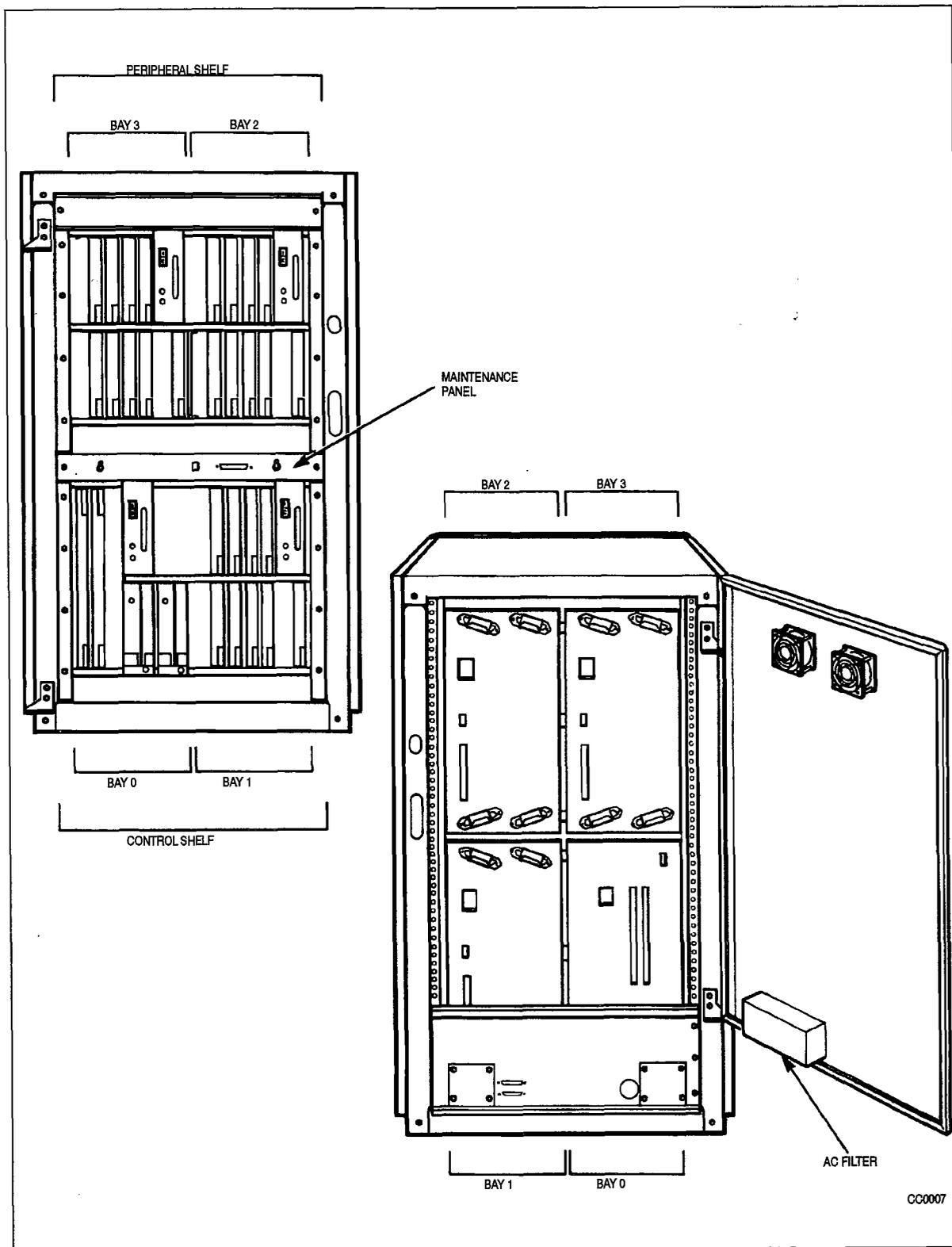


Figure 3-4 672-Port Control Cabinet

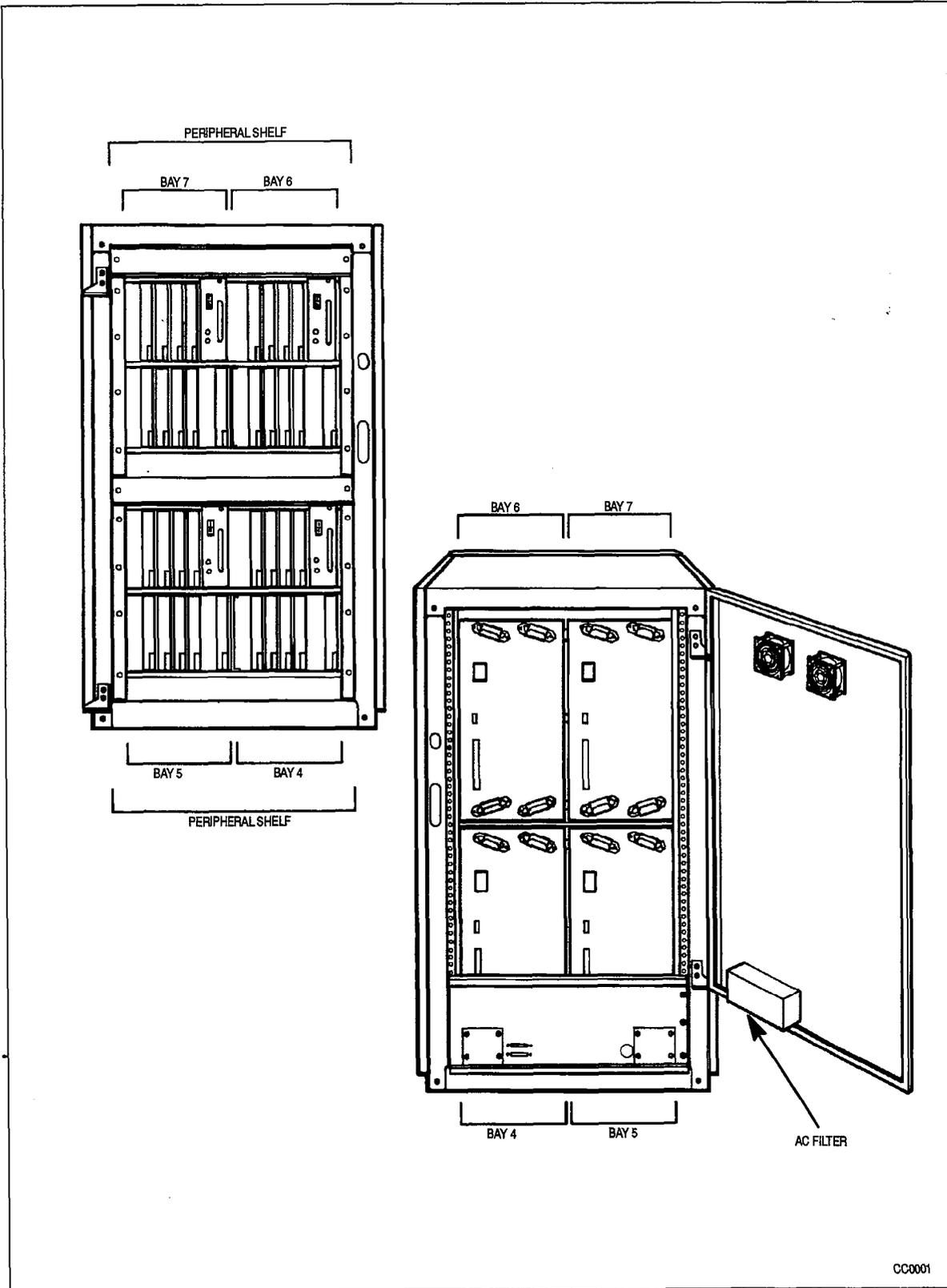


Figure 3-5 672-Port Peripheral Cabinet

SX-200 FD Control Cabinet

- 3.6 The *SX-200* FD Control Cabinet is similar to a Personal Computer (PC) Tower cabinet. The cabinet has a steel frame and is approximately 22.9 cm wide x 48 cm high x 42.0 cm deep (9 inches x 19 inches x 16.5 inches). The internal structure of the cabinet is designed to hold the system cards and components. The front panels are plastic and can be removed with a screwdriver, allowing access to the cards. The metal cover that encases the top and sides of the cabinet can also be lifted off the frame after removing some screws.

The Control cabinet has a single bay that holds one Main Control Card, one Personal Computer (PC) power supply, one Control Resource Card and two Disk Drives. One or two Quad Fiber Interface Module Carrier cards are set in the rear panel of the cabinet. A Quad Fiber Interface Carrier Card holds four Fiber Interface Modules.

Figure 3-6 shows the *SX-200* FD Control Cabinet.

SX-200 FD Peripheral Cabinet

- 3.7 The *SX-200* FD Peripheral Cabinet is identical in construction to the *SX-200* FD Control Cabinet. Each Peripheral Cabinet has a single bay that contains a Bay Power Supply, a Bay Control Card, a Peripheral Fiber Interface Carrier Card, a Fiber Interface Module, and up to eight Peripheral Interface Cards.

The *SX-200* FD Peripheral Cabinet is shown in Figure 3-7.

Power Fail Transfer

- 3.8 Power Fail Transfer cards can be provided to connect preselected DTMF or Rotary telephones directly to CO trunks in the event of system failure. The *SX-200* FD system uses an external System Fail Transfer Unit.

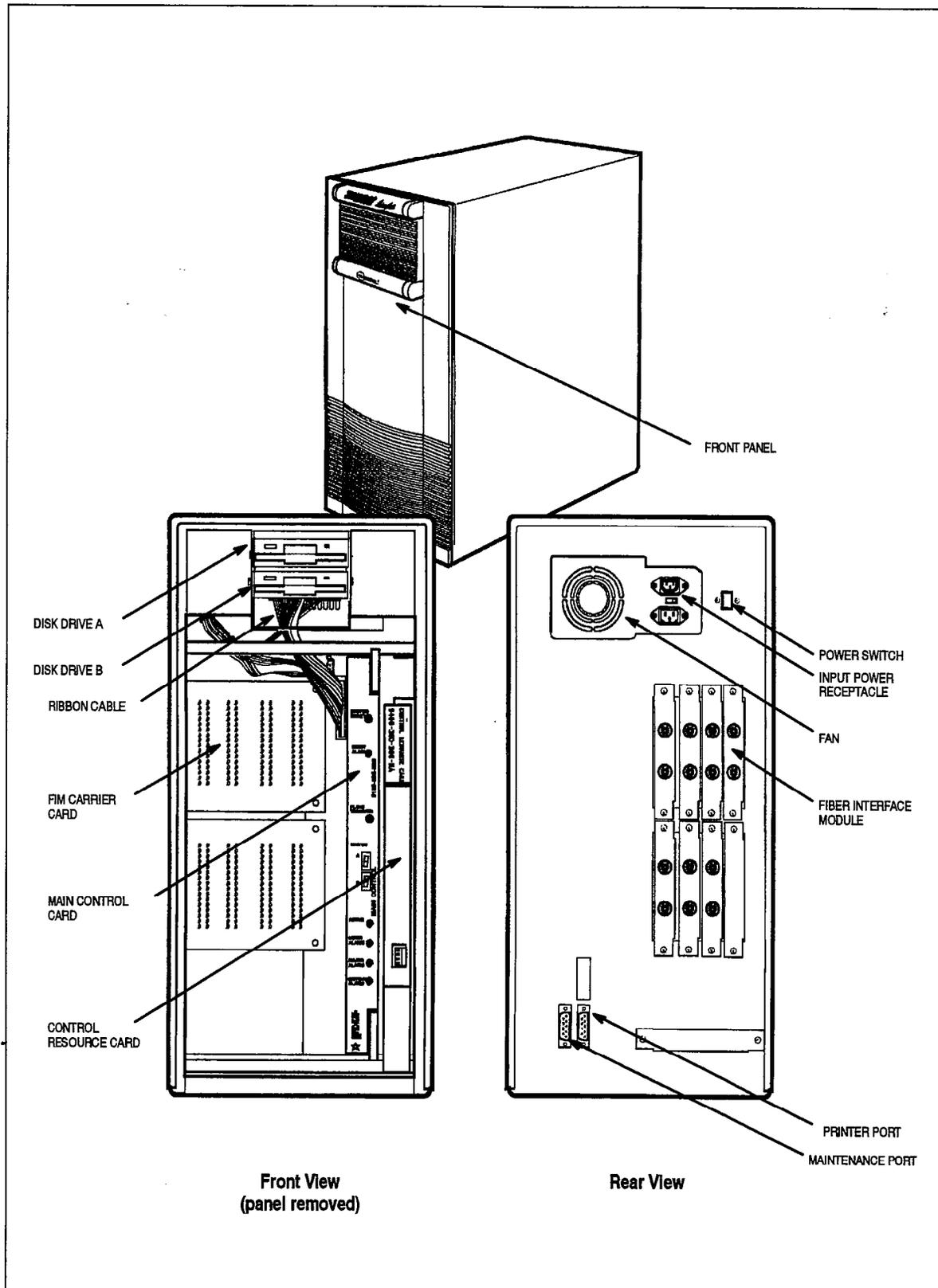


Figure 3-6 SX-200 FD Control Cabinet

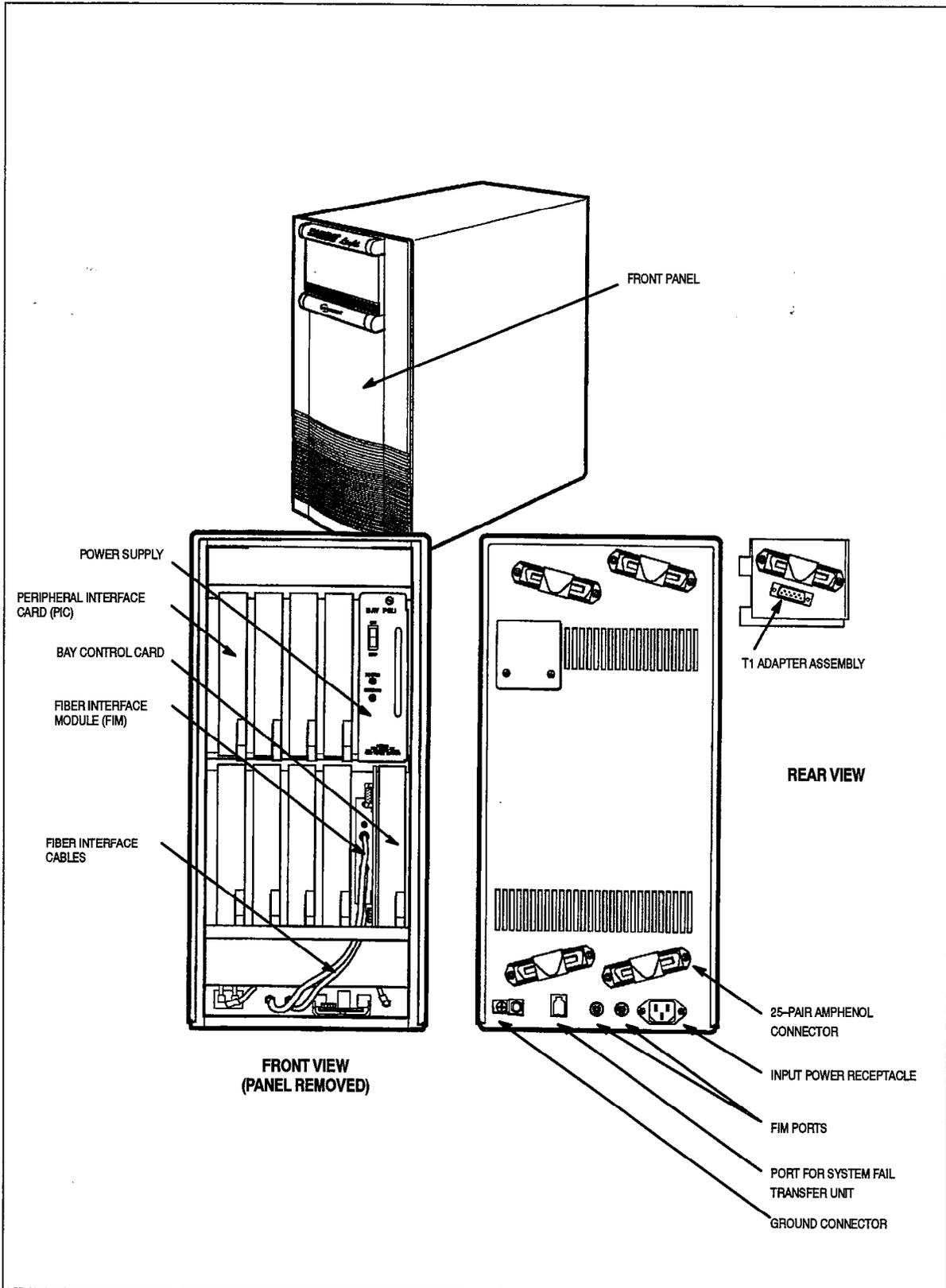


Figure 3-7 SX-200 FD Peripheral Cabinet

Maintenance Panels

3.9 The following cabinets have Maintenance Panels:

- the 336-, 456-, and 480-port Control cabinet,
- the 456-, and 480-port Analog Peripheral cabinet, and
- the 672-port Control cabinet.

Power fail transfer switches and connectors for a maintenance Attendant Console and a maintenance terminal are located on the Control cabinet Maintenance Panel. The Maintenance Panel on the Analog Peripheral cabinet is not functional, with the exception of the POWER switch, and the PFT POWER SUPPLY, COMMON CONTROL, and MASTER SWITCH switches.

The following cabinets do not have Maintenance Panels:

- the 672-port Peripheral cabinet,
- the SX-200 FD Control cabinet, and
- the SX-200 FD Peripheral cabinet.

A connector for a remote maintenance terminal is provided on the rear panel of the 336-, 456-, and 480-port Control cabinet, and on the rear panel of the SX-200 FD Control cabinet. A connector for a remote terminal is also provided on the Peripheral FIM Carrier Card in each Peripheral Cabinet. Although a maintenance terminal can be connected to each cabinet in an SX-200 FD System, only one maintenance terminal should be used at any time.

Power Supplies

3.10 The following identifies the power supply requirements for each configuration:

336-port configuration: requires four Bay Power Supplies: one for each bay.

456-port configuration: requires three Bay Power Supplies for Bays 1, 2, and 3; and one rear door power supply for Bays 4 and 5.

480-port configuration: requires two Bay Power Supplies for Bays 1 and 2; and two rear door power supplies, one for Bay 3, and one for Bays 4 and 5.

672-port configuration: requires eight Bay Power Supplies: one for each bay.

SX-200 FD system configuration: the Control cabinet requires a Personal Computer (PC) style power supply, and each Peripheral cabinet requires a Bay Power Supply.

4.

HARDWARE OVERVIEW

General

- 4.1 The heart of the system is the Main Control Card (MCC), a 16-bit microprocessor operating at a clock frequency of 8 megaHertz. The Main Controller, through its address, data, and control buses, interfaces to a floppy disk unit, memory, Direct Memory Access Controller (DMAC), a Digital Signal Processor (DSP), a Message Subsystem, and a DX Matrix or Switch Matrix Card/Module.

In the 336- and 456-Port configurations, the MCC controls digital Bays 1 and 2 directly.

In the 336-port configuration, the MCC controls Bays 3 and 4 through their Bay Control Cards.

In the 456-port configuration, the MCC controls Bay 3 through its Bay Control Card, and controls Bays 4 and 5 through two Digital Interface Cards (DIC) which communicate with the Main Control Card via the DX module.

In the 480-port configuration, the MCC controls Bays 3, 4, and 5 through three DICs which communicate with the Main Control Card via the DX module.

In the 672-port configuration, the MCC controls Bays 1 through 7 through their Bay Control Cards; Bay 0 (which has no peripheral cards) is controlled directly through the Bay 0 backplane.

In the *SX-200* FD system configuration, the MCC controls the digital bay in each Peripheral cabinet through the Peripheral cabinet's Bay Control Card.

336-, 456-, 480-, and 672- Port Configurations

- 4.2 The 336-, 456-, 480-, and 672-port configurations have the following main hardware components:

Main Control Card (MCC) – performs call processing and maintains overall control through communication with the Bay Control card or Peripheral Control card in each bay. In 336- and 456-port systems, the MCC directly controls Bays 1 and 2 (COMBO backplane only). The architecture of the Main Control Card varies according to system configuration.

Switch Matrix Card (SMC) – required only for a 672-port system; it is installed in Bay 0. It is used to expand the DX switching matrix which in other configurations is located on the Main Control Card. A DX Module is not installed on the MCC when a SMC is present.

Floppy Disk Drives – two floppy disk drives store all system software and Customer Data. Upon power-up, Call Processing and Maintenance software are downloaded

from the disk to the Main Controller Memory using Direct Memory Access (DMA). Generic 1001 requires only one disk drive.

Bay Control Card (BCC) – interfaces the peripheral cards of digital bays to the MCC (one BCC for each Bay, except Bays 1 and 2 of a 144–port Control backplane).

Peripheral Control Card (PCC) – controls all basic functions of the analog Peripheral Cards. The Peripheral Control Card also handles real time tasks, such as rotary digit collection, tone cadencing, signaling on trunks, and monitoring hardware activity via the Peripheral Control Bus. All events are reported to the Main Controller via the Message Subsystem.

Digital Interface Card (DIC) – provides an interface between the analog signals on the speech paths of the analog peripheral bays and the digital PCM links to the DX Module on the MCC. The DIC converts analog signals in the 300Hz – 3kHz band to PCM signals at 64 kilobits per second. The DIC accepts 32 analog voice inputs to provide a 2.048 Mbit/s (32 X 64 kb/s) PCM output bit stream to the DX module. It also converts a 2.048 Mb/s PCM bit stream from the DX Module to 32 analog voice signals, and provides the Message Subsystem interface.

Scanner Card – scans the Analog Peripheral ports to detect signals that require processor action. When processor action is required, an Interrupt Request is sent to the Peripheral Processor.

Peripheral Interface Cards – interface peripheral devices, such as telephones, *SUPERSET* telephones and datasets into the system. Functional descriptions for the Peripheral Interface Cards are provided at the end of this chapter.

SX-200 FD System configuration

Control Cabinet

4.3 The main hardware components of the Control cabinet are as follows:

Main Control Card – performs call processing and maintains overall control through communication with the Bay Control card in each Peripheral cabinet. A RAM Module, a Decryption Module, and a Stratum Clock Module plug into the Main Control Card.

Switch Matrix Module – increases the DX switching matrix of the Main Controller Card. The Switch Matrix Module plugs into the Main Control Card.

Control Resources Card – provides the additional circuitry required to support the distributed architecture.

Disk Drives – Two 3.5–inch disk drives are mounted in the front panel at the top of the cabinet. They are visible through openings in the front cover. The 3.5–inch floppy disks that the installer inserts in each drive store the system software and Customer Data. When the system is powered up, Call Processing and Maintenance software is downloaded from the floppy disks to the Main Controller Card Memory using Direct Memory Access (DMA).

Quad Fiber Interface Module Carrier Card – one or two 12.7 cm wide x 11.4 cm high (5 inch x 4.5 inch) carrier cards are set in the rear panel of the cabinet. Each card holds four Fiber Interface Modules (FIMs). Although two Quad FIM carrier cards will hold a total of eight FIMs, the maximum system configuration uses only seven FIMs. Two Ribbon cables connect each Quad FIM Carrier card to the Control Resource Card.

Fiber Interface Modules – support the transmission of voice and data signals over fiber optic cables. Each FIM in the Control cabinet connects to an identical FIM in a Peripheral cabinet with fiber pair cable. Connectors on the fiber cable plug into the Tx and Rx ports on each FIM. The Tx port on a Main Control cabinet FIM connects to the Rx port on the Peripheral cabinet FIM; the Control Module FIM Rx port connects to the Tx port on the same Peripheral cabinet FIM.

There are two LEDs on each FIM. The top LED indicates the status of the the FIM itself; the bottom LED indicates the status of the remote FIM:

Table 4-1 FIM LEDs	
LED State	FIM Status
Off	Power off, held in reset, or fiber optic cable severed
Flashing	Out of sync
On	In sync

Peripheral Cabinet

The main hardware components of the Peripheral Cabinet are listed below:

Bay Control Card – interfaces the Peripheral cards with the Main Control Card in the Control cabinet.

Peripheral Fiber Interface Module Carrier Card – supports the Fiber Interface Module, the RS-232 Maintenance Port and the System Fail Transfer circuit. The Fiber Interface Module plugs into the Peripheral FIM Carrier Card which plugs into the Bay Control Card.

Fiber Interface Module – supports the transmission of voice and data signals over fiber optic cables. The Fiber Interface Module plugs into the Peripheral FIM Carrier on the Bay Control Card.

The FIMs Tx and Rx ports connect internally to the Tx and Rx ports that are located on the rear panel near the bottom of the cabinet. The Tx and Rx ports on the cabinet rear panel connect via fiber optic cable to a Fiber Interface Module in the Main Control cabinet.

The two LEDs on each FIM indicate the status of the fiber optic link (refer to Table 4-1).

Peripheral Interface Cards – interface trunks and peripheral devices, such as telephones, *SUPERSET* telephones, and datasets into the system. Up to eight Peripheral Interface Cards (PICs) can be installed in Slots 1 to 8 of each Peripheral cabinet. The following section provides functional descriptions of the Peripheral Interface Cards.

Peripheral Backplane – the Bay Control Card, the Bay Power Supply, and the eight Peripheral Interface Cards plug into connectors on the peripheral backplane.

Peripheral Interface Cards

4.4 Digital Peripheral Cards measure 35.8 cm (14.1 inches) long and 15.8 cm (6.2 inches) high. The following Peripheral Interface cards are available for use in all configurations:

Universal Card. This card holds up to four modules as listed below:

- Receiver/Relay Module (4 DTMF Receivers and 2 Relays per Module)
- Music On Hold/Pager Module (one music input, one paging output)
- Console Module (interfaces to one console)
- E&M Trunk Module (one trunk).

Each module is assigned a power rating. The cumulative ratings of the modules on the Universal card cannot exceed a value of 10. The Universal card plugs into an upper (high power) slot of any digital Bay. The ratings of the modules are as follows:

- Receiver/Relay Module: 2
- Music On Hold/Pager Module: 1
- Console Module: 5
- E&M Trunk Module: 3

For example, a Universal Card could be configured with two Console Modules ($5 + 5 = 10$), or one Console Module, two Receiver/Relay Modules, and one Music On Hold/Pager Module ($5 + 2 + 2 + 1 = 10$).

ONS Line Card. There are 12 DTMF/Rotary line circuits per card. The card accepts up to three industry-standard DTMF/Rotary telephone sets per line circuit. The ONS line card interfaces the telephone analog input with the system's digital crosspoint network. It converts the analog telephone signals into the digital format used by the system, and converts the digital information back into the analog signals required by the telephone sets. This is a low power card that may be installed in any digital peripheral slot.

Digital Line Card. The Digital Line Card (DLC) interfaces *SUPERSET 3* DN telephones, *SUPERSET 4* DN telephones, *SUPERSET 401* telephones, *SUPERSET 410* telephones, *SUPERSET 420* telephones, *SUPERSET 430* telephones, asynchronous DATASETs, synchronous DATASETs, and the *SUPERCONSOLE 1000* Attendant Console to the *SX-200* Digital PABX through its Digital Network Interface

Circuits (DNIC). Each DNIC communicates via a tip-ring pair to a device which also communicates via a DNIC; the DNIC is a proprietary integrated circuit. The card has 12 circuits, and is a low power card that can plug into any digital peripheral slot. If a *SUPERCONSOLE1000* Attendant Console is connected to a DLC, that DLC must be installed in a high power slot.

LS/GS Trunk Card. The LS/GS Trunk Card contains six loop start or ground start trunks (jumper-selectable) and six message registration inputs. This is a low power card that may be installed in any digital peripheral slot.

Control Over Voice (COV) Line Card. The COV Line Card interfaces a *SUPERSET 3* telephone or a *SUPERSET 4* telephone to the PABX. Each COV card connects six *SUPERSET* telephones to the PABX. This is a high power card which can only plug into an upper digital peripheral slot.

Direct Inward Dial (DID) Trunk Card. The DID trunk card contains six 1-way Direct Inward Dial circuits. The DID trunk allows incoming trunk calls to dial directly to an extension within the PABX without Attendant intervention. It plugs into an upper (high power) slot of any digital Bay.

Off-Premise (OPS) Line Card. The OPS line card interfaces the PABX to extensions which are part of the system, but are located in a different building from the PABX. It contains additional protection circuitry to protect the PABX from extraneous high voltages or induced currents that may appear on the line. Each OPS card has six circuits which each connect to an extension. The OPS line card plugs into an upper (high power) slot of any digital Bay.

T1 Trunk Card. The T1 Trunk Card provides an interface to one 24-channel (D4 format) T1 trunk. It is a high power card; because of signal cable restrictions it must be positioned in slot 6 (slot 4 of COMBO Bay 2). T1 trunks are not available with Generics 1001 or 1002.

General Description

5.

SOFTWARE OVERVIEW

General

- 5.1 The *SX-200* DIGITAL PABX software is divided into two separate sections, one to run the Main Control processor and one to run the Peripheral Control processors.

Upon power-up, Call Processing and Maintenance routines are downloaded from the disk to the Main Controller Memory using Direct Memory Access (DMA). The Main Controller executes the Maintenance routines and logs all major occurrences to the disk, non-volatile random access memory, Main Control Card 7-segment displays, and the maintenance terminal (if equipped).

When the system is functional, the software relevant to the peripheral systems is downloaded from the Main Controller Memory to each Peripheral Controller's Memory. The transfer is accomplished via the Message Subsystem link, using a single 64 kilobit per second channel in each direction, for each Peripheral Controller (Peripheral Control Card or Bay Control Card).

Each software section has its own layers to carry out system functions. The layers defined below apply to both controllers unless otherwise specified.

Physical Layer

- 5.2 The physical layer consists of the operating hardware such as the microprocessor, its associated memory, and input/output devices.

Scheduling Layer

- 5.3 This layer provides for scheduling of the different events to be handled.

Communications Layer

- 5.4 This layer takes care of the Message Subsystem software. The messages between the processors are sent in HDLC formatted packets. The formatting, sending, receiving, and unpacking of these messages is handled by the Message Subsystem software. Messages are transmitted using a single 64 kb/s channel in each direction. If required, the transmission rate can be increased to 128 kb/s by using two channels.

Message Subsystem

- 5.5 The Message Subsystem is used as a communication link between the Main Controller and the Peripheral Controllers. Initially the Message Subsystem is used to

download software from the Main Controller memory to the Peripheral Controllers' memory using one or two channels per peripheral bay. During system operation, a single channel is used as a communication link between the Main and Peripheral Processors. Messages are sent in HDLC formatted frames, ensuring error-free transmission of data.

Device Input/Output Layer

- 5.6 This layer handles low level details of interfacing to input/output devices such as telephony devices and RS-232 ports.

Utilities Layer

- 5.7 This software layer provides general utilities needed for resource management, error handling, and command interpretation.

Main Control Processor Applications Software

- 5.8 The Main Control Processor Applications software is responsible for controlling all activities in the *SX-200* DIGITAL PABX. It communicates with the peripheral processors via the Communications software layer for such things as "origination", "digits received", etc. It also interprets Classes of Service, System Abbreviated Dial, Personal Speed Call, Automatic Route Selection, etc. The Main Control Processor software controls all Call Processing, Customer Data Entry, and Maintenance management applications.

Peripheral Control Processor Software

- 5.9 The peripheral processor handles tasks that are real-time intensive, such as debouncing switchhooks, collecting rotary dial pulses, tone cadencing, and signaling on trunks. The peripheral processor is also responsible for monitoring hardware activity, such as cards being added and removed, and reporting all events to the Main Control Processor via the Message Subsystem. The Main Control Processor acts as the manager of the tasks performed by the Peripheral Control Processor.

Database

- 5.10 The Call Processing software is stored on floppy disk. Upon system power-up, the disk data is transferred to the Main Control Dynamic Random Access Memory. Customer Data Entry information is kept on floppy disk for retrieval in case of major system failures. Other system information such as switchhook flash timing, trunk timings, and rotary digit translation for different countries, is routed to the Peripheral Control systems for processing.

6.

MAINTENANCE

General

- 6.1 This section briefly describes the maintenance diagnostics for the *SX-200* DIGITAL PABX. These diagnostics test the operation of the system hardware. The Main Control system has the responsibility of controlling and scheduling the diagnostics.

Upon power-up or reset conditions, the diagnostics software (if enabled) has temporary control of the entire system. Once the system has been verified and the PABX is operational, the diagnostics run as low priority background tasks.

Modular design and functional packaging of the equipment permits rapid location and replacement of defective components. Circuit malfunctions are detected by diagnostic routines automatically initiated by the Main Control Card (MCC). Diagnostic routines, detailed in Practice 9109-096-353-NA, General Maintenance Information, and Practice 9109-096-350-NA, Troubleshooting, direct service personnel to the defective circuit card or assembly, and identify the required field-replaceable unit. Diagnostic routines and maintenance procedures do not interfere with users unaffected by the malfunction.

Maintenance Objectives

- 6.2 The objectives of the maintenance routines are to isolate a fault to a replaceable card or module. Maintenance functions can be performed from either the Attendant Console or an RS-232 terminal.

RS-232 Maintenance Terminal

- 6.3 The Main Control system interfaces to an RS-232 Maintenance Terminal and to the Attendant Console in order to enable the user to access the diagnostic menu. The diagnostic menu will direct the user through the required procedures in order to interrogate the status of the diagnostic subsystem. The user can initiate maintenance routines with specific parameters via the terminal. Refer to Practice 9109-096-351-NA, RS-232 Maintenance Terminal. Results can be routed to the appropriate device (printer or terminal) according to the user's instructions.

Diagnostic Log Files

- 6.4 A file of the major occurrences in the diagnostic system is maintained on disk and/or in non-volatile RAM. This file can be directed to the RS-232 Maintenance Terminal, the Attendant Console, or a printer.

Types of Diagnostics

6.5 There are three types of diagnostic routines as listed below:

- Power-up
- Background
- Directed

The Power-up diagnostic routines consist of the complete set of diagnostics for the system. When enabled, they are executed upon system power-up and may last several minutes. These diagnostics will perform a rigorous check on the response and performance of the hardware and firmware. Any failures will be logged to the LED display, the disk, the non-volatile RAM, and the RS-232 terminal.

The Background diagnostic routines consist of the complete routines which are run during system operation. When enabled they are executed as low priority background routines during system operation.

Directed diagnostics are diagnostic routines that are selected by the maintenance person and then run on specified circuits or devices.

7.

FEATURES

Table 7-1 identifies features that are available to an *SX-200* DIGITAL PABX with Generic 1001, 1002, 1003, 1004, 1005 LIT 96, 1005 FPKG 1, or 1005 software. Generic 1005 LIT 96 software version supports only one *SX-200* FD peripheral cabinet (96 ports).

Table 7-1 PABX Features						
Feature	Generic					
	1001	1002	1003	1004	1005 FPKG 1 LIT 96	1005
Abbreviated Dial (System Speed Call)	*	*	*	*	*	*
Access Codes – Global Find		*	*	*	*	*
Account Code Access	*	*	*	*	*	*
Account Codes	*	*	*	*	*	*
Account Codes – Verified	*	*	*	*	*	*
Add Held	*	*	*	*	*	*
Alarm Indication	*	*	*	*	*	*
Alarm LEDs	*	*	*	*	*	*
Alarm Status Display	*	*	*	*	*	*
Analog Networking			*	*	*	*
Application Platform Package				*		*
Attendant Access (Dial 0)	*	*	*	*	*	*
Attendant Advisory Message Setup	*	*	*	*	*	*
Attendant Automatic Overflow		*	*	*	*	*
Attendant Abbreviated Dial Number Entry	*	*	*	*	*	*
Attendant Alarm Readout	*	*	*	*	*	*
Attendant Bell Off	*	*	*	*	*	*
Attendant Busy Override	*	*	*	*	*	*
Attendant Call Announce	*	*	*	*	*	*
Attendant Callback Busy / No Answer	*	*	*	*	*	*
Attendant Call Forward Setup and Cancel	*	*	*	*	*	*
Attendant Call Selection: LDN, Recall, Internal	*	*	*	*	*	*

**Table 7-1 PABX Features
(continued)**

Feature	Generic					
	1001	1002	1003	1004	1005 FPKG 1 LIT 96	1005
Attendant Called/Calling Name, Number, COS and COR Display		*	*	*	*	*
Attendant Call Splitting and Swapping	*	*	*	*	*	*
Attendant Calls Forwarded on No Answer	*	*	*	*	*	*
Attendant Calls Waiting Display	*	*	*	*	*	*
Attendant Conference	*	*	*	*	*	*
Attendant Console Display Language	*	*	*	*	*	*
Attendant Console LCD Display	*	*	*	*	*	*
Attendant Console LDN Keys	*	*	*	*	*	*
Attendant Console Lockout	*	*	*	*	*	*
Attendant Date and Time Display / Setup	*	*	*	*	*	*
Attendant Default Call Positions	*	*	*	*	*	*
Attendant Destination Key	*	*	*	*	*	*
Attendant Direct Trunk Select	*	*	*	*	*	*
Attendant DISA Code Setup Enable	*	*	*	*	*	*
Attendant Display of <i>SUPERSET</i> Messages	*	*	*	*	*	*
Attendant Do Not Disturb (DND) Setup and Cancel	*	*	*	*	*	*
Attendant Extension Busy-out	*	*	*	*	*	*
Attendant Flash over Trunk	*	*	*	*	*	*
Attendant Function Access	*	*	*	*	*	*
Attendant Hold Positions	*	*	*	*	*	*
Attendant Implicit New Call	*	*	*	*	*	*
Attendant Individual Directory Number	*	*	*	*	*	*
Attendant Interposition Calling and Transfer	*	*	*	*	*	*
Attendant Last Number Redial	*	*	*	*	*	*
Attendant Message Waiting Setup and Cancel	*	*	*	*	*	*
Attendant New Call Ring	*	*	*	*	*	*
Attendant Night Services	*	*	*	*	*	*
Attendant Outgoing Call Restriction Setup	*	*	*	*	*	*

**Table 7-1 PABX Features
(continued)**

Feature	Generic					
	1001	1002	1003	1004	1005 FPKG 1 LIT 96	1005
Attendant Override Announce	*	*	*	*	*	*
Attendant Paging Access	*	*	*	*	*	*
Attendant Paged Hold Access	*	*	*	*	*	*
Attendant Serial Call	*	*	*	*	*	*
Attendant Setup of Advisory Messages	*	*	*	*	*	*
Attendant Source Key	*	*	*	*	*	*
Attendant Timed Recall	*	*	*	*	*	*
Attendant Tone Signaling	*	*	*	*	*	*
Attendant Training Jacks	*	*	*	*	*	*
Attendant Transfer to Campon	*	*	*	*	*	*
Attendant Transparent Multi-Console Operation		*	*	*	*	*
Attendant Trunk Busy Out	*	*	*	*	*	*
Attendant Trunk Group Status Display	*	*	*	*	*	*
Auto-Answer	*	*	*	*	*	*
Auto-Answer for Directed Page Calls				*	*	*
Auto-Hold	*	*	*	*	*	*
Automated Attendant			*	*	*	*
Automatic Call Distribution (ACD) Feature Package			*	*		*
Automatic Diagnostics	*	*	*	*	*	*
Automatic Number Identification (ANI)	*	*	*	*	*	*
Automatic Number Identification/Dialed Number Identification Service (ANI/DNIS) on Incoming Trunks						*
Automatic Route Selection (ARS)	*	*	*	*	*	*
Background Music	*	*	*	*	*	*
Broker's Call	*	*	*	*	*	*
Busy and Hold Indications	*	*	*	*	*	*
Call Announce	*	*	*	*	*	*
Call Duration Display	*	*	*	*	*	*

**Table 7-1 PABX Features
(continued)**

Feature	Generic					
	1001	1002	1003	1004	1005 FPKG 1 LIT 96	1005
Call Forwarding	*	*	*	*	*	*
Call Forwarding – Display Prime as Forwarder			*	*	*	*
Call Hold	*	*	*	*	*	*
Call Hold (via HOLD key)	*	*	*	*	*	*
Call Hold Retrieve (via pressing line key)	*	*	*	*	*	*
Call-Me-Back Messages	*	*	*	*	*	*
Call Park	*	*	*	*	*	*
Call Retrieve	*	*	*	*	*	*
Call Rerouting	*	*	*	*	*	*
Call Split	*	*	*	*	*	*
Call Swap	*	*	*	*	*	*
Callback Busy (extension and ARS)	*	*	*	*	*	*
Callback (Busy and No Answer)	*	*	*	*	*	*
Callbacks	*	*	*	*	*	*
Called/Calling Party Identification	*	*	*	*	*	*
Campon	*	*	*	*	*	*
Camped-on Party Identification	*	*	*	*	*	*
Campon Warning Tone	*	*	*	*	*	*
Cancel	*	*	*	*	*	*
CDE Default Data	*	*	*	*	*	*
CDE Range Programming	*	*	*	*	*	*
CENTREX Compatibility (Flash over Trunk)				*	*	*
CENTREX Compatibility (Double Flash over Trunk)				*	*	*
Class of Restriction (COR)	*	*	*	*	*	*
Class of Service (COS)	*	*	*	*	*	*
Configuration Report	*	*	*	*	*	*
Consoleless Operation	*	*	*	*	*	*
Contact Monitor	*	*	*	*	*	*
Copy Database	*	*	*	*	*	*

**Table 7-1 PABX Features
(continued)**

Feature	Generic					
	1001	1002	1003	1004	1005 FPKG 1 LIT 96	1005
Country Variant Tone Plans			*	*	*	*
Customer Data Entry (CDE)	*	*	*	*	*	*
Customer Data Entry (CDE) Backup and Restore	*	*	*	*	*	*
Customer Data Print	*	*	*	*	*	*
Data Demultiplexer	*	*	*	*	*	*
Data Associated Data Line (ADL)		*	*	*		*
Data ADL Hotline		*	*	*		*
Data ADL Speed Call Originate		*	*	*		*
Data Abbreviated Dial For Data Calls		*	*	*		*
Data Auto-Answer		*	*	*		*
Data Associated Modem Line		*	*	*		*
Data Automatic Data Route Selection (ADRS)			*	*		*
Data Account Codes			*	*		*
Data Hunt Groups		*	*	*		*
Data Security		*	*	*	*	*
Data Station Message Detail Recording (DATA SMDR)		*	*	*		*
Data Station Queuing		*	*	*		*
Data Transceiver (DTRX)		*	*	*		
Data DTRX Call By Name		*	*	*		*
Data DTRX Call Originate/Disconnect		*	*	*		*
Data DTRX Help		*	*	*		*
Data DTRX Hotline		*	*	*		*
Data DTRX Messages		*	*	*		*
Data DTRX Queuing/Campon		*	*	*		*
Data Modem Pooling			*	*		*
Data Modem Pooling Queuing			*	*		*
Date/Time Display	*	*	*	*	*	*
Delay Ring Line Appearances	*	*	*	*	*	*
Device Error Analysis Statistics	*	*	*	*	*	*

**Table 7-1 PABX Features
(continued)**

Feature	Generic					
	1001	1002	1003	1004	1005 FPKG 1 LIT 96	1005
Device Interconnection Control	*	*	*	*	*	*
Device Status Report	*	*	*	*	*	*
Diagnostics	*	*	*	*	*	*
Dial Call Pickup	*	*	*	*	*	*
Dial Tone Disable	*	*	*	*	*	*
Dial Tone – Discriminating	*	*	*	*	*	*
Dictation Trunks	*	*	*	*	*	*
DID/Dial-in/TIE Intercepts	*	*	*	*	*	*
Digit Translation	*	*	*	*	*	*
Direct-In Lines (DIL)	*	*	*	*	*	*
Direct Inward Dialing (DID)	*	*	*	*	*	*
DID with Intercept to Recording	*	*	*	*	*	*
DID Trunk Support	*	*	*	*	*	*
Direct Inward System Access (DISA)	*	*	*	*	*	*
Direct Outward Dialing	*	*	*	*	*	*
Direct Station Select / Busy Lamp Field (DSS/ BLF)			*	*	*	*
Direct to ARS	*	*	*	*	*	*
Directed Call Pickup	*	*	*	*	*	*
Display Function	*	*	*	*	*	*
Do Not Disturb	*	*	*	*	*	*
Do Not Disturb Setup and Cancel with Indication	*	*	*	*	*	*
DTMF to Rotary Conversion	*	*	*	*	*	*
E&M Trunk Support	*	*	*	*	*	*
End-to-End Signaling	*	*	*	*	*	*
Enhanced Answering Position				*	*	*
Executive Busy Override	*	*	*	*	*	*
Expensive Route Warning (ARS)	*	*	*	*	*	*
External Call Forwarding	*	*	*	*	*	*
Feature Keys		*	*	*	*	*

**Table 7-1 PABX Features
(continued)**

Feature	Generic					
	1001	1002	1003	1004	1005 FPKG 1 LIT 96	1005
Flash – Calibrated	*	*	*	*	*	*
Flash Control	*	*	*	*	*	*
Flash Disable	*	*	*	*	*	*
Flash for Attendant	*	*	*	*	*	*
Flash for Dial 0 (Attendant)	*	*	*	*	*	*
Flash For Waiting Call		*	*	*	*	*
Flash Timing	*	*	*	*	*	*
Handsfree Answerback					*	*
Handsfree Operation	*	*	*	*	*	*
Hang Up Priority	*	*	*	*	*	*
Holiday Messages	*	*	*	*	*	*
Hot Line	*	*	*	*	*	*
Hotel/Motel Attendant Call Block Setup	*	*	*	*	*	*
Hotel/Motel Attendant Message Register Audit	*	*	*	*	*	*
Hotel/Motel Attendant Outgoing Call Restriction Setup	*	*	*	*	*	*
Hotel/Motel Automatic Wake-Up	*	*	*	*	*	*
Hotel/Motel Guest Room <i>SUPERSET 3</i> DN Telephone Key Setup			*	*	*	*
Hotel/Motel Maid in Room Status – <i>SUPERSET 4</i> and <i>SUPERSET 4</i> DN Telephones			*	*	*	*
Hotel/Motel Message Lamp Test	*	*	*	*	*	*
Hotel/Motel Message Register Audit	*	*	*	*	*	*
Hotel/Motel Message Registration	*	*	*	*	*	*
Hotel/Motel Property Management System (PMS)		*	*	*	*	*
Hotel/Motel Room Status Display – Attendant	*	*	*	*	*	*
Hotel/Motel Room Status Display – <i>SUPERSET 4</i> and <i>SUPERSET 4</i> DN Telephones			*	*	*	*
Hotel/Motel Room Status Printout	*	*	*	*	*	*
Hunt Groups	*	*	*	*	*	*

**Table 7-1 PABX Features
(continued)**

Feature	Generic					
	1001	1002	1003	1004	1005 FPKG 1 LIT 96	1005
Illegal Access Intercept	*	*	*	*	*	*
Immediate Line Selection	*	*	*	*	*	*
Immediate Ring	*	*	*	*	*	*
Immediate Ring Line Appearances	*	*	*	*	*	*
Inhibit Automatic Supervision	*	*	*	*	*	*
Inhibit Trunk Ring-Me-Back During Dialing	*	*	*	*	*	*
Intercept to Recorded Announcement	*	*	*	*	*	*
Intercom	*	*	*	*	*	*
Inward Restriction (DID)	*	*	*	*	*	*
Key Set / System support				*	*	*
Language Selection	*	*	*	*	*	*
Last Number Redial	*	*	*	*	*	*
Last Party Receives Dial Tone	*	*	*	*	*	*
Limited Wait for Dial Tone	*	*	*	*	*	*
Line Lockout	*	*	*	*	*	*
Line Lockout Alarm	*	*	*	*	*	*
Line Privacy	*	*	*	*	*	*
Line Types and Appearances for <i>SUPERSET</i> Telephones	*	*	*	*	*	*
Lockout Alarm	*	*	*	*	*	*
Logical Lines	*	*	*	*	*	*
Manual Line	*	*	*	*	*	*
Message Waiting Indication	*	*	*	*	*	*
Messaging – Advisory	*	*	*	*	*	*
Messaging – Call Me Back	*	*	*	*	*	*
Meter Pulse Collection	*	*	*	*	*	*
Microphone On/Off (<i>SUPERSET</i> telephones)	*	*	*	*	*	*
<i>MiLink</i> Data Module Support						*
Moving Stations and <i>SUPERSET</i> Telephones		*	*	*	*	*
Multi-Attendant Positions	*	*	*	*	*	*

**Table 7-1 PABX Features
(continued)**

Feature	Generic					
	1001	1002	1003	1004	1005 FPKG 1 LIT 96	1005
Multiline Appearance (key line and multiple call)	*	*	*	*	*	*
Multiple Trunk Groups	*	*	*	*	*	*
Music on Hold / Music on Campon	*	*	*	*	*	*
Names		*	*	*	*	*
Never a Consultee	*	*	*	*	*	*
Never a Forwardee	*	*	*	*	*	*
New Call Tone	*	*	*	*	*	*
Night Answer (TAFAS)	*	*	*	*	*	*
Night Bells	*	*	*	*	*	*
Night/Day Switching – <i>SUPERSET 4</i> and/or <i>SUPERSET 4</i> DN Telephones	*	*	*	*	*	*
Night Service Flexibility	*	*	*	*	*	*
Night Services	*	*	*	*	*	*
Night Switching (for Tenants)	*	*	*	*	*	*
Node Identification	*	*	*	*	*	*
No Dial Tone	*	*	*	*	*	*
Non-Busy Extensions	*	*	*	*	*	*
No Ring Line Appearances	*	*	*	*	*	*
Numbering Plan Flexibility (Conflict Dialing)	*	*	*	*	*	*
Off-Premise Extensions	*	*	*	*	*	*
Originate Only Extensions	*	*	*	*	*	*
Overlap Outpulsing	*	*	*	*	*	*
Override Security	*	*	*	*	*	*
Overriding Party Identification	*	*	*	*	*	*
Paging	*	*	*	*	*	*
Paging Access (all zones)	*	*	*	*	*	*
Parallel Connection of Industry-standard Telephones	*	*	*	*	*	*
Pickup Groups	*	*	*	*	*	*
Pickup – local and directed	*	*	*	*	*	*

**Table 7-1 PABX Features
(continued)**

Feature	Generic					
	1001	1002	1003	1004	1005 FPKG 1 LIT 96	1005
Power Fail Transfer (PFT)	*	*	*	*	*	*
Prime Line	*	*	*	*	*	*
Printer / Terminal Support	*	*	*	*	*	*
Priority Dial 0	*	*	*	*	*	*
Privacy Enable / Privacy Release	*	*	*	*	*	*
RAD Support	*	*	*	*	*	*
Recall	*	*	*	*	*	*
Receive Only Extensions	*	*	*	*	*	*
Remote Maintenance Administration and Test (RMATS) Access	*	*	*	*	*	*
Remove from Service, Return to Service	*	*	*	*	*	*
Resale Package	*	*	*	*	*	*
Ringer Tone Adjustment (<i>SUPERSET</i> telephones)	*	*	*	*	*	*
Ringer Volume Control (<i>SUPERSET</i> telephones)	*	*	*	*	*	*
Ringling – Discriminating	*	*	*	*	*	*
Ringling Plan	*	*	*	*	*	*
Ringling Time-out (Final Ringback)	*	*	*	*	*	*
Satellite PABX	*	*	*	*	*	*
Secretarial Line	*	*	*	*	*	*
Show, Set Date	*	*	*	*	*	*
Show, Set System Time	*	*	*	*	*	*
Speaker On/Off (<i>SUPERSET</i> telephones)	*	*	*	*	*	*
Speaker Volume Control (<i>SUPERSET</i> telephones)	*	*	*	*	*	*
Speed Call Keys (<i>SUPERSET</i> telephones)	*	*	*	*	*	*
Station Message Detail Recording (SMDR)	*	*	*	*	*	*
Subattendant – Basic features	*	*	*	*	*	*
Subattendant – Enhanced features				*	*	*
<i>SUPERSET 3</i> Telephone Support	*	*	*	*	*	*

**Table 7-1 PABX Features
(continued)**

Feature	Generic					
	1001	1002	1003	1004	1005 FPKG 1 LIT 96	1005
<i>SUPERSET 4</i> Telephone Support	*	*	*	*	*	*
<i>SUPERSET 3</i> DN Telephone Support		*	*	*	*	*
<i>SUPERSET 4</i> DN Telephone Support		*	*	*	*	*
<i>SUPERSET 401</i> Telephone Support					*	*
<i>SUPERSET 410</i> Telephone Support					*	*
<i>SUPERSET 420</i> Telephone Support					*	*
<i>SUPERSET 430</i> Telephone Support						*
<i>SUPERSET</i> Telephone Loop Test	*	*	*	*	*	*
Swap (Trade Calls)	*	*	*	*	*	*
Swap Campon	*	*	*	*	*	*
System Identifier	*	*	*	*	*	*
System Logging Facility	*	*	*	*	*	*
Tandem Operation	*	*	*	*	*	*
Tenanting	*	*	*	*	*	*
Test Line Function	*	*	*	*	*	*
Timed Reminder	*	*	*	*	*	*
Toll Control	*	*	*	*	*	*
Tone Demonstration Package	*	*	*	*	*	*
Tone Plans	*	*	*	*	*	*
Traffic Measurement	*	*	*	*	*	*
Transfer/Conference	*	*	*	*	*	*
Transfer, Consultation Hold/Add On	*	*	*	*	*	*
Transfer Dial Tone	*	*	*	*	*	*
Transfer Security (Recall)	*	*	*	*	*	*
Transfer With Privacy	*	*	*	*	*	*
Trunk Answer from Any Station (TAFAS) Day and Night	*	*	*	*	*	*
Trunk Campon Warning Tone	*	*	*	*	*	*
Trunk Circuit Descriptor Options	*	*	*	*	*	*
Trunk Dial Tone Detection	*	*	*	*	*	*

**Table 7-1 PABX Features
(continued)**

Feature	Generic					
	1001	1002	1003	1004	1005 FPKG 1 LIT 96	1005
Trunk Groups	*	*	*	*	*	*
Trunk Operation – Direct Inward Dial (DID)	*	*	*	*	*	*
Trunk Operation – Direct Inward System Access (DISA)	*	*	*	*	*	*
Trunk Operation – Non-Dial-In	*	*	*	*	*	*
Trunk Operation – Non-Dial-in CO	*	*	*	*	*	*
Trunk Operation – TIE	*	*	*	*	*	*
Trunk Recall	*	*	*	*	*	*
Trunk Support – CO (LS/GS)	*	*	*	*	*	*
Trunk Support – Direct Inward Dial (DID)	*	*	*	*	*	*
Trunk Support – E&M	*	*	*	*	*	*
Trunk Support – T1			*	*	*	*
Uniform Call Distribution (UCD)	*	*	*	*	*	*
User Programmable <i>SUPERSET</i> Telephones	*	*	*	*	*	*
Vacant Number Intercept	*	*	*	*	*	*
Variable Timers (fully programmable)	*	*	*	*	*	*
Voice Mail – COV Port		*	*	*	*	*
Voice Mail – ONS Port				*		*

SX-200® DIGITAL PABX

Features Description

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Table of Contents

1. INTRODUCTION

General	105 1-1
Reason for Issue	105 1-1
About this Practice	105 1-1

2. FEATURES

Abbreviated Dial	105 2-1
Access Codes – Global Find	105 2-3
Account Codes	105 2-3
Account Codes – Verified	105 2-7
Account Codes – Verified (Special DISA)	105 2-8
Add Held	105 2-9
Analog Networking	105 2-10
Application Platform Package	105 2-14
Attendant Abbreviated Dial Number Entry	105 2-15
Attendant Access (Dial 0)	105 2-16
Attendant Advisory Message Setup	105 2-17
Attendant Alarm Readout	105 2-17
Attendant Automatic Overflow	105 2-18
Attendant Bell Off	105 2-19
Attendant Busy Override	105 2-20
Attendant Call Announce	105 2-20
Attendant Callbacks – Busy/No Answer	105 2-21
Attendant Call Forward Setup and Cancel	105 2-21
Attendant Call Selection	105 2-23
Attendant Call Splitting and Swapping	105 2-24
Attendant Calls Forwarded On No Answer	105 2-25
Attendant Conference	105 2-26
Attendant Console Display Language	105 2-26
Attendant Console LCD Display	105 2-27
- Attendant Console LDN Keys	105 2-29
Attendant Console Lockout	105 2-30
Attendant Date and Time Setup	105 2-30
Attendant Default Call Positions	105 2-31
Attendant Destination (DEST) Key	105 2-32
Attendant Direct Trunk Select	105 2-33
Attendant DISA Code Setup	105 2-34
Attendant Do Not Disturb (DND) Setup, Cancel or Override	105 2-35
Attendant Extension Busy-Out	105 2-36
Attendant Flash Over Trunk	105 2-37
Attendant Function Access	105 2-38
Attendant Hold Positions	105 2-39

Features Description

Attendant Implicit New Call	105 2-41
Attendant Individual Directory Number	105 2-41
Attendant Interposition Calling and Transfer	105 2-42
Attendant Message Waiting Setup and Cancel	105 2-42
Attendant Multi-New Call Tone	105 2-44
Attendant New Call Ring	105 2-45
Attendant Night/Day Switching	105 2-45
Attendant Override Announce	105 2-46
Attendant Paging Access	105 2-46
Attendant Paged Hold Access	105 2-48
Attendant Serial Call	105 2-49
Attendant Source Key	105 2-50
Attendant Timed Recall	105 2-51
Attendant Tone Signalling	105 2-52
Attendant Training Jacks	105 2-53
Attendant Transfer To Campon	105 2-53
Attendant Transparent Multi-Console Operation	105 2-54
Attendant Trunk Busy-Out	105 2-55
Attendant Trunk Group Status Display	105 2-56
Auto-Answer	105 2-56
Auto-Answer For Directed Page Calls	105 2-59
Auto-Hold	105 2-60
Automated Attendant	105 2-61
Automatic Call Distribution (ACD)	105 2-61
Automatic Number Identification (ANI) on Outgoing Trunks	105 2-62
Automatic Number Identification (ANI)/ Dialed Number Identification Service (DNIS) on Incomig Trunks	105 2-63
Automatic Route Seletion (ARS)	105 2-6
Background Music	105 2-66
Broker's Call (Station Swap)	105 2-67
Broker's Call With Transfer (Transfer With Privacy)	105 2-69
Busy Lamp Field	105 2-70
Calculator	105 2-71
Call Announce	105 2-72
Call Announce Port	105 2-74
Call Forwarding – Generic 1004 and Generic 1005	105 2-75
Call Forwarding – Busy	105 2-79
Call Forwarding – Busy/Don't Answer	105 2-84
Call Forwarding – Follow Me	105 2-89
Call Forwarding – I'm Here	105 2-94
Call Forwarding – Don't Answer	105 2-97
Call Forwarding – External	105 2-102
Call Forwarding – Internal / External Split	105 2-108
Call Forwarding – Generic 1001, 1002, and 1003	105 2-115

Call Forwarding – Busy	105 2–118
Call Forwarding – Busy/Don't Answer	105 2–121
Call Forwarding – Follow Me	105 2–124
Call Forwarding – I'm Here	105 2–127
Call Forwarding – Don't Answer	105 2–129
Call Forwarding – External	105 2–132
Call Forwarding – Display Prime as Forwarder	105 2–136
Call Forwarding – Forward Call	105 2–136
Call Park	105 2–138
Callback	105 2–139
Callback – Busy	105 2–141
Callback – No Answer	105 2–143
Call Rerouting	105 2–145
Campon	105 2–146
Campon Warning Tone	105 2–149
<i>CENTREX™</i> Compatibility (Flash Over Trunk)	105 2–151
<i>CENTREX</i> Compatibility (Double Flash Over Trunk)	105 2–152
Class of Restriction (COR)	105 2–154
Class of Service (COS)	105 2–155
Clear All Features	105 2–156
Conference	105 2–156
Conflict Dialing	105 2–159
Consoleless Operation	105 2–160
Contact Monitor	105 2–160
Customer Data Entry	105 2–161
Customer Data Entry – Default Data	105 2–161
Customer Data Entry – Range Programming	105 2–162
Customer Data Print	105 2–163
Data: Associated Data Line (ADL)	105 2–164
Data: ADL Hotline	105 2–167
Data: ADL Speed Call Originate	105 2–167
Data: Abbreviated Dial for ADL Calls	105 2–171
Data: Associated Modem Line (AML)	105 2–171
Data: Auto-Answer	105 2–173
Data: Automatic Data Route Selection (ADRS)	105 2–174
Data Account Codes	105 2–174
Data Demultiplexer	105 2–177
Data Hunt Groups	105 2–177
Data Peripherals	105 2–178
Data Security	105 2–180
Data Station Message Detail Recording (Data SMDR)	105 2–180
Data Station Queuing	105 2–181
Data Transceiver (DTRX)	105 2–182
Data: DTRX Call by Name	105 2–184

Features Description

Data: DTRX Call Originate/Disconnect	105 2-185
Data: DTRX Help	105 2-187
Data: DTRX Hotline	105 2-187
Data: DTRX Messages	105 2-188
Data: Modem Pooling	105 2-190
Data: Modem Pooling Queuing	105 2-195
Device Interconnection Control	105 2-196
Dial Tone Disable	105 2-199
Dial Tone – Discriminating	105 2-199
Dictation Trunks	105 2-200
DID/Dial-in/Tie Intercepts	105 2-200
Digit Translation	105 2-203
Direct-in Lines (DIL)	105 2-204
Direct Station Select (DSS) Key	105 2-204
Direct to ARS	105 2-207
Direct Trunk Select	105 2-208
Disconnect Alarm	105 2-209
Do Not Disturb	105 2-210
DTMF-To-Rotary Dial Conversion	105 2-212
Expensive Route Warning	105 2-213
Feature Keys	105 2-214
Flash – Calibrated	105 2-218
Flash Control	105 2-219
Flash Disable	105 2-220
Flash For Dial 0 (Attendant)	105 2-221
Flash For Waiting Call	105 2-221
Flash Timing	105 2-222
Forward Campon	105 2-223
Handsfree Answerback	105 2-224
Handsfree Operation	105 2-226
Handset Receiver Volume Control	105 2-226
Headset Operation	105 2-227
Hold	105 2-228
Holiday Messages	105 2-232
Hot Line	105 2-233
Hotel / Motel	105 2-234
Hunt Groups	105 2-235
Illegal Access Intercept	105 2-237
Inhibit Trunk Ring-Me-Back During Dialing	105 2-238
Intercept to Recorded Announcement	105 2-239
Intercom Call (Intercom)	105 2-239
Inward Restriction (DID)	105 2-240

Key Set/System Support	105 2-240
Key Sets – CO Line Group Key	105 2-241
Key Sets – CO Line Key	105 2-242
Key Sets – CO Line – Select Direct	105 2-244
Key Sets – Hold Reminder	105 2-245
Key Sets – Intercom Key	105 2-245
Key Sets – Line Preference	105 2-246
Key Sets – Paging	105 2-247
Key Sets – Personal Speed Call	105 2-251
Language Change	105 2-252
Last Number Redial	105 2-253
Last Party Receives Dial Tone	105 2-254
Line Lockout	105 2-255
Line Privacy	105 2-256
Line Selection	105 2-257
Line Types and Appearances	105 2-258
Line Type: Personal O/G Line	105 2-260
Line Type: Key Line	105 2-260
Line Type: Multicall Line	105 2-261
Line Type: DTS Line	105 2-262
Line Type: Private Line	105 2-262
Local Switching	105 2-263
Lockout Alarm	105 2-263
Logical Lines	105 2-265
Maintenance	105 2-266
Manual Line (Dial 0 Hotline)	105 2-266
Messaging – Advisory	105 2-267
Messaging – Call Me Back	105 2-270
Meter Pulse Collection	105 2-275
MiLink Data Module	105 2-277
Moving Stations and <i>SUPERSET™</i> Telephones	105 2-278
Multi-Attendant Positions	105 2-278
Music On Hold (MOH)	105 2-279
Names	105 2-279
Never a Consultee	105 2-282
Never a Forwardee	105 2-283
New Call Ring	105 2-283
Night Bells	105 2-284
Night/Day Switching	105 2-285
Night Services	105 2-286
Night Services Flexibility	105 2-287
Node Identification	105 2-288
Non-Busy Extensions	105 2-288
Numbering Plan Flexibility (Conflict Dialing)	105 2-289
Off-Premise Extension (OPS)	105 2-290

Features Description

Originate Only Extensions	105 2-291
Overlap Outpulsing	105 2-291
Override (Intrude)	105 2-292
Override Announce	105 2-294
Override Security	105 2-295
PA Paging	105 2-295
Parallel Connection of Industry-Standard Telephones	105 2-298
Pickup Groups	105 2-298
Pickup – Local and Directed	105 2-299
Power Fail Transfer (PFT)	105 2-301
Printer / Terminal Support	105 2-302
Priority Dial 0	105 2-304
Privacy Enable/Privacy Release	105 2-304
RAD Support	105 2-306
Recall	105 2-308
Receive Only Extensions	105 2-311
Reminder	105 2-311
Resale Package	105 2-314
Ringer Control	105 2-315
Ringling Plan	105 2-317
Ringling-Discriminating	105 2-318
Ringling Time-Out (Final Ringback)	105 2-319
Satellite PABX	105 2-319
Secretarial Line	105 2-320
Speaker Volume Control	105 2-321
Speedcall	105 2-321
Split	105 2-327
Station Message Detail Recording (SMDR)	105 2-328
Subattendant – Basic Function	105 2-329
Subattendant – Enhanced Functions	105 2-330
Subattendant – Abbreviated Dial Programming	105 2-331
Subattendant – Advisory Message Setup	105 2-332
Subattendant – Call Forward Setup and Cancel	105 2-333
Subattendant – Calls Waiting Indication	105 2-336
Subattendant – Date and Time Setup	105 2-337
Subattendant – Hold Positions	105 2-338
Subattendant – LDN Keys	105 2-340
Subattendant – Paged Hold Access	105 2-341
Subattendant – Recall	105 2-343
Subattendant – Station DND Setup	105 2-344
<i>SUPERSET 3™</i> Telephone	105 2-345
<i>SUPERSET 4®</i> Telephone	105 2-346
<i>SUPERSET 3™</i> DN Telephone	105 2-346
<i>SUPERSET 4™</i> DN Telephone	105 2-347
<i>SUPERSET 401™</i> Telephone	105 2-347

<i>SUPERSET 410™</i> Telephone	105 2-348
<i>SUPERSET 420™</i> Telephone	105 2-348
<i>SUPERSET 430™</i> Telephone	105 2-349
<i>SUPERSET DSS™</i> Module	105 2-350
<i>SUPERSET</i> LCD Display	105 2-352
Swap (Trade Calls)	105 2-353
Swap Campon	105 2-354
System Identifier	105 2-357
Tandem Operation	105 2-357
Tenancing	105 2-358
Toll Control	105 2-359
Tone Demonstration	105 2-359
Tone Plans	105 2-362
Traffic Measurement	105 2-362
Transfer	105 2-363
Transfer Dial Tone	105 2-366
Transfer Security (Recall)	105 2-367
Trunk Answer From Any Station (TAFAS)	105 2-368
Trunk Circuit Descriptor Options	105 2-370
Trunk Dial Tone Detection	105 2-370
Trunk Groups	105 2-371
Trunk Operation – Direct Inward Dial (DID)	105 2-372
Trunk Operation – Direct Inward System Access (DISA)	105 2-374
Trunk Operation – Non-Dial-in CO	105 2-376
Trunk Operation – Tie	105 2-377
Trunk Recall	105 2-379
Trunk Support – CO (LS/GS)	105 2-380
Trunk Support – Direct Inward Dial (DID)	105 2-380
Trunk Support – E&M	105 2-381
Trunk Support – T1	105 2-382
Uniform Call Distribution (UCD)	105 2-384
Vacant Number Intercept	105 2-387
Voice Mail – COV Port	105 2-388
Voice Mail – ONS Port	105 2-389

List of Tables

Table 2-1	Glossary of Analog Networking Terms	105 2-13
Table 2-2	Information Elements for Analog Networking	105 2-13
Table 2-3	Call Forwarding Types Available With Generic 1004 and Generic 1005	105 2-75
Table 2-4	DTRX Messages	105 2-188
Table 2-5	Digit Translation Plans	105 2-203

1.

INTRODUCTION

General

- 1.1 This Practice describes the features provided by the MITEL® *SX-200*® DIGITAL Private Automatic Branch Exchange (PABX).

Reason for Issue

- 1.2 This Practice includes information for Generic 1005 software. This issue also consolidates all features for Generics 1001, 1002, 1003, 1004 and 1005 into one Practice.

About this Practice

- 1.3 The feature descriptions in this practice are arranged alphabetically. An index contains detailed cross references for all PABX features, Class of Service (COS) Options, and System Options.

Each feature is described under four subheadings as follows:

- Description:** Gives a brief description of the feature.
- Conditions:** Lists the conditions and limitations of the feature.
- Programming:** Summarizes the required system programming steps to activate the feature.
- Operation:** Describes the operations which the end user must perform to use this feature.

Most feature descriptions in this Practice make reference to one or more of the following:

- Class of Service (COS) Options
- System Options
- Feature Access Codes

These terms are explained briefly following.

Features in the *SX-200* DIGITAL PABX are controlled by enabling COS options that are accessed through Customer Data Programming (CDE). COS options include attendant feature options and station feature options. Refer to the Index at the end of this Practice for detailed cross references to each of the COS options. Indexing to COS options is by both COS number and feature name.

Features Description

System Options and Timers – includes the selectable system options and variable timers. Refer to the Index at the end of this Practice for detailed cross references to each of the System Options. Indexing is by both System Option number and name.

Feature Access Codes – are the set of access codes that the user is required to enter to access features. Refer to the Index at the end of this Practice for detailed cross references to each of the Features. Indexing is by both Feature number and name.

2.

FEATURES

- 2.1 This section of the practice describes the features which apply to the *SX-200* DIGITAL PABX.

Some features are available to all devices, while others are available to specific devices such as extensions, datasets, consoles, trunks, or *SUPERSET™* telephones; certain features are available only with specific software releases. Throughout the text, specific descriptions are provided where required.

Abbreviated Dial

Description The Abbreviated Dial feature allows trunks and extensions to be accessed by dialing a 2- to 8-digit number which is then translated by the system into the actual number. The actual number can contain up to 26 digits.

The Abbreviated Dial feature can also give system-wide access to a defined set of long distance numbers, while denying general access to long-distance dialing.

Abbreviated Dial numbers can also be used as dial-in trunk prefixes, as routing points for automatic call distribution (ACD) interflow, automated attendant, and as call-forwarding points.

The attendant or customer data entry (CDE) programmer can program or display system Abbreviated Dial numbers. These numbers can be marked as confidential to prevent them from appearing on display telephones or in SMDR reports.

Special codes can be embedded within the Abbreviated Dial number for different features. The following codes can be inserted into a stored number:

- *1 = Pause for 5 seconds
- *3 = Wait for user to manually insert digits (2 digits)
- *5 = Call to Call Announce Port. This code must be at the end of the number; it cannot have digits following it.
- ** = DTMF digit * (G1004 and G1005 only)
- # = DTMF digit #

Example: For example, a typical number for external directory assistance is 9+1+(area code)+5551212; the area code is to be dialed manually. The number to be stored would be 91*3035551212.

Conditions

The following conditions apply to this feature:

- Tie, DID, and DISA trunks, extensions, *SUPERSET* telephones, data devices, and consoles can access Abbreviated Dial numbers directly.
- Calls can be forwarded to Abbreviated Dial numbers.
- No Toll Control is done for external calls using Abbreviated Dial.
- Through the Automated Attendant feature, all devices can directly dial Abbreviated Dial numbers.
- Confidential numbers can only be viewed from CDE or by consoles with COS Option 110 (Attendant Abbreviated Dial Confidential Number Display) enabled.
- Access to Abbreviated Dial numbers is available to: Interflow points in ACD Paths, and Automated Attendant default destinations.
- Abbreviated Dial Numbers dialed after automatic route selection (ARS) leading digits will be interpreted as ARS digits to be outpulsed rather than as an Abbreviated Dial number.
- If an Abbreviated Dial number is to appear in another speed dial number (Abbreviated Dial or Speedcall), then the Abbreviated Dial number index must be three digits in length (leading zeros required).

Programming

Enable COS Option 245 (Abbreviated Dialing Access) for non-console devices to access Abbreviated Dial directly. Consoles do not need this option enabled to access Abbreviated Dial directly.

Enter the desired Abbreviated Dial index numbers, and the digit strings to be dialed, into CDE Form 31 (System Abbreviated Dial Entry). These can also be entered from the Attendant Console. See *Attendant Abbreviated Dial Number Entry*.

Assign an access code to Feature 24 (Abbreviated Dial Access) in CDE Form 02 (Feature Access Codes).

- Operation

To dial an Abbreviated Dial number, when dial tone is heard:

- Dial the Abbreviated Dial access code.
- Dial the desired Abbreviated Dial index number (one to three digits).

Access Codes – Global Find

- Description** The Access Codes feature allows the user to view all access codes in the system. The system reports the type of device associated with the access code and its location (Bay/Slot/Circuit). The user can also query the system about a particular access code. Data in Customer Data Entry Form 35 (Global Find Access Code), is generated by the system and cannot be modified.
- Conditions** Not available in Generic 1001.
- Programming** None.
- Operation** Refer to Practice 9109–096–210–NA, Customer Data Entry.

Account Codes

- Description** Account codes are typically used to charge the cost of outgoing trunk calls to departmental cost centers or project accounts. The account code can be optional or mandatory, and appears on all Station Message Detail Recording (SMDR) records. An account code can apply to both incoming and outgoing trunk calls.
- Account codes can range from 4 to 12 digits.
- For verified account codes, see *Account Codes – Verified* in this section.
- Account codes can also apply to data calls. See *Data Account Codes* in the Data Features section of this guide.
- Conditions** The following conditions apply to this feature:
- If Verified Account Codes are used, Account Codes can be four, six, eight or 12 digits in length.
 - If the Account Code is of the Variable Length type, the account code digits must be followed by a "#", except where the entered code length is 12 digits.
 - Rotary-dial type telephones always have a digit length of six, as they can not dial the # character.

- The user of a *SUPERSET 4®*, *SUPERSET 4™ DN*, *SUPERSET 420™*, or *SUPERSET 430™* telephone can also enter account code(s) during a call.
- A "*" or a "#" is not allowed in an account code.
- A "#" is only allowed to be dialed if the account codes are of the variable length type.
- If no SMDR buffers are available, the extension user receives busy tone when the account code entry is attempted.
- If you enable Forced Account Codes for industry-standard telephones that also have the Direct To ARS feature enabled, users must dial an account code before they can originate a call.
- The Direct To ARS feature applies to *SUPERSET* telephones when a valid account code has been entered.
- The system will not force extension users to enter an account code for an external call unless the SMDR feature is programmed to record the call and the account code.
- For *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420*, and *SUPERSET 430* telephones, an account code can only be entered during a call if the call is a 2-party call, the other party being a trunk (of any type).
- For a *SUPERSET 4 DN*, *SUPERSET 420* and *SUPERSET 430* telephones, the **Account Code** softkey is present, providing that a consultation hold is not in progress and the set has completed dialing.
- In addition to station and *SUPERSET* telephones and consoles, DISA and Tie trunks can also access account codes. If an error is made when entering a verified account code, the trunk is dropped.

Programming To force an extension user, TIE or DISA trunk to use account codes for long distance calls, enable COS Option 201 (Account Code, Forced Entry – Long Distance Calls) for the device. Refer to Practice 9109-096-220-NA, Automatic Route Selection and Toll Control, for the designation of Long Distance calls.

To force an extension user tie or DISA trunk to use account codes for all external calls, enable COS Option 200 (Account Code, Forced Entry – External Calls) for the device's Class of Service.

Set Account Code Length (System Option 55) (44 in Generic 1001) in CDE Form 04 (System Options/System Timers).

Assign a feature access code to Feature 01, Account Code Access in CDE Form 02 (Feature Access Codes).

COS Option 700 (SMDR – Does Not Apply) must be disabled in the extension's, or tie, or DISA trunk COS before the extension may use account codes.

COS Option 806 (SMDR – Record Incoming Calls) must be enabled in an incoming trunk COS to permit account codes to be used on incoming calls on the trunk to a *SUPERSET* telephone.

Enable all of required SMDR options as outlined in Practice 9109–096–221–NA, Station Message Detail Recording.

Enable System Option 36 (End Of Dial Character) for use with variable length account codes.

To provide feature key activation for account codes at *SUPERSET 3™* DN, or *SUPERSET 410™* program an ACCOUNT CODE feature key. (See Feature Keys.)

Operation

Operation varies depending upon the type of device as described below.

Industry Standard, *SUPERSET 3™*, and *SUPERSET 401™* Telephones:

To access a trunk via account code entry:

- Dial the access code for account code entry.
- Dial the account code digits (if System Option 55 – Account Code Length is selected, account code digits must be followed by a “#” to indicate end of account code).
- Dial tone is returned. The account code entered now applies to the trunk call immediately made while still listening to dial tone.
- Dial the trunk call.

At the completion of the call, an SMDR record is printed. This printout includes the time of call, trunk used, duration of call, and the Account Code.

SUPERSET 4 Telephones:

During a call, or immediately prior to dialing (listening to dial tone):

- Press the SELECT FEATURES key.
- Dial 5 (feature number 5 is Account Code (5:ACC CODE)).
- Dial account code digits (DTMF tones are not heard) and if dialing, dial tone is removed.
- Press the SAVE key. The prompt PLEASE TRY LATER occurs if the recording process is busy. The display reverts to the condition applicable at that time; if dial tone had been removed, it is resumed.

There are two ways to correct an entry:

1. Press the ← key to back space and erase one or more incorrect digits.
2. Press the EXIT key to cancel the entire entry.

At the completion of the call, an SMDR record is printed. This printout includes the time of call, trunk used, duration of call, and the Account Code.

SUPERSET 3 DN and SUPERSET 410 Telephones:

To access a trunk via account code entry:

- Press the ACCOUNT CODE feature key.
- Dial the account code digits (if System Option 55 – Account Code Length is selected, account code digits must be followed by a “#” to indicate end of account code)
- Dial tone is returned. The account code entered now applies to the trunk call immediately made while still listening to dial tone.
- Dial the trunk call.

At the completion of the call, an SMDR record is printed. This printout includes the time of call, trunk used, duration of call, and the Account Code.

SUPERSET 420 Telephones:

- During a call, press **SuperKey**.
- Press the **No** softkey until ACCOUNT CODE? appears in the display.
- Press the **Yes** softkey.
- Enter the Account Code. Press the softkey to erase incorrect digits.
- Press the **Save** softkey.

SUPERSET 4 DN and SUPERSET 430 Telephones:

- During a call, press the **Account Code** softkey. The LCD second line shows ENTER ACCOUNT CODE:.
- Enter the Account Code. Press the softkey to erase incorrect digits.
- Press **Save** softkey.

Account Codes – Verified

Description The Account Codes – Verified feature helps to ensure accuracy for accounting purposes, and helps to prevent fraudulent use of Direct Inward System Access (DISA) lines and outgoing trunks. Verified account codes control access to trunks and external (DISA) access to the system by checking the dialed account code against a list of preprogrammed codes.

The caller's COS and COR can be changed (traveling class of service) when a valid account code is entered. This can give the caller access to different features and external call privileges. If the caller's COS is changed and the direct to ARS feature is enabled in the COS, the direct to ARS feature operates immediately.

Each verified account code has an active/inactive status. This allows accounts to be denied access when problems are encountered such as nonpayment of billings.

See *Account Codes Verified (Special DISA), Resale Package, Trunk Operation (DISA)*. See also *Analog Networking* for the use of Verified Account Codes in networking.

Conditions The following conditions apply to this feature:

- When there is a COR and COS associated with an account code, the COS and COR apply to the device for the duration of the call. Once the device has completed the call (goes on-hook), the old COS and COR are restored.
- The match for account code is attempted when the account code is completely entered. For fixed length account codes this is the account code length and for variable length account codes this is when the “#” is entered.
- The caller is given reorder tone if there is no exact match for the account code entered.
- By default, all Account Codes are active.

Programming Enable System Option 05 (Verified Account Codes).

Select the number of account code digits (VARIABLE or 4 – 12 digits) via System Option 55) (44 in Generic 1001) (Account Code Length).

Enter the Verified Account Codes, COS, and COR into CDE Form 33 (Account Code Entry) as required.

Activate or deactivate Verified Account Codes in CDE Form 33 (Account Code Entry) as required.

Operation See *Account Codes*.

Account Codes – Verified (Special DISA)

Description Verified Account Codes can be used to replace the Direct Inward System Access (DISA) code. A caller who accesses a Special DISA trunk must dial an Account Code rather than the DISA Code. By using a Verified Account Code, each DISA trunk can have access to its own COS options through the COS and COR associated with the account code. SMDR records each of these calls.

Conditions The following conditions apply to this feature:

- There is no minimum digits dialed before the trunk is given re-order tone as is the case with regular DISA. The rules for dialing invalid verified account codes apply.
- The use of a Verified Account Code rather than the DISA Code for entry in to the system applies on an individual trunk basis. DISA trunks not selected to use the Verified Account Code still use the DISA Code.

Programming See programming under *Trunk Operation – Direct Inward System Access (DISA)* and *Account Codes – Verified*.

Enable COS Option 808 (Special DISA) (810 in Generic 1001) for the DISA trunk(s).

Operation To access the feature from an external line:

- Access the PABX on a specified DISA trunk – ringback is heard, followed by dial tone.
- Dial the DISA Account Code – if the system verifies the account code, dial tone is returned; if not, the trunk is dropped.
- Dial the required number.

Add Held

Description Add Held allows a user engaged in an active call on a *SUPERSET 4*, a *SUPERSET 4 DN*, a *SUPERSET 420*, or a *SUPERSET 430* telephone to add a call that is on hold on another line to the current line.

Conditions The following conditions apply to this feature:

- This feature is applicable to *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420*, and *SUPERSET 430* telephones only.
- The set must have, in addition to its prime line, an appearance of another line.
- A private trunk line cannot be added into an established call.
- The feature can be used to add parties into conference calls or to transfer calls in progress to continue on another line.
- A conference on hold on a line cannot be added.
- The party doing the add held must not have a consultation hold in progress and must not be talking to a third party.
- The console cannot be involved in the call being added to.
- The line being added to can be a private trunk line only if dialing on the line (there can be no established call on the line).
- There must be less than five parties in the current call.
- The current call must not be on consultation hold.
- There must be no other parties in the current call performing an add held at the same time.

Programming Enable COS Option 302 (Flash in Conference) in the set's COS to allow it to add a held line while talking to another party.

Operation ***SUPERSET 420* Telephones:**

- Establish a call, with a call on hold on another line.
- Press the **Addheld** softkey. SELECT HELD LINE appears in the display.
- Press the flashing line key of the call on hold. The call on hold is added to your current call.

***SUPERSET 4*, *SUPERSET 4 DN*, and *SUPERSET 430* Telephones:**

- Establish a call, with a call on hold on another line.

- Press the **Add Held** softkey to add a call on a previously held line to the current call. The LCD display prompts the user to press the line select key associated with the call on hold, and the call on the line is added to the current call.

Analog Networking

Description Analog Networking allows an *SX-200* DIGITAL PABX to send and receive caller information over a private network. The other nodes in the network can be any combination of of MITEL *SX-200* DIGITAL PABXs and *SX-2000® Integrated Communications™* systems. Analog Networking uses the ARS Modified Digit feature to insert feature access codes and other codes (called information elements) into the outgoing digit string (refer to information elements in Table 2-1). The information elements consist of special codes for inserting the caller's extension number, account code, and node identification. A glossary of analog networking terms can be found in Table 2-1.

The *SX-200* DIGITAL PABX with Analog Networking can function as an end node, an intermediate node, or a hub. As an end node, network elements are transmitted into the network via DTMF digits. As an intermediate node, all information elements received by the intermediate node are passed on to the next node. As a hub, the *SX-200* DIGITAL PABX receives information elements to provide Calling Party Identification.

The information elements are:

Caller's Extension Number: Consoles and *SUPERSET* Display Telephones show the caller's extension number when a user answers a call. The caller's extension number replaces the trunk number or trunk name in the display, and the trunk number in SMDR records.

Caller's Dialed Account Code: The existing account code access code identifies the beginning of a Caller's Dialed Account Code. The account code is written into the SMDR record associated with the call. Verified account codes can be used to implement Travelling Class Marks, by providing a COS and COR with the account code, which, at the destination node, replaces the COS and COR associated with the trunk being used. The destination node processes the call using the COS and COR associated with the caller's Verified Account Code that was passed on the trunk.

PABX Node ID: This information element is associated only with the originating node and must be imbedded with another information element because it has no access code of its own (usually it is the first digit of the extension number).

Analog Networking is not available with Generic 1001 or Generic 1002.

Conditions

The following conditions apply to this feature:

- SMDR for outgoing calls must be enabled for the account code to be sent to the destination. Refer to Practice 9109-096-221-NA, Station Message Detail Recording.
- This feature matches that on the *SX-2000 Integrated Communications System*.
- The calling extension number and account code are prefixed with an appropriate feature access code.
- If data associated with an information element (such as an account code) is not available, no digits are outpulsed for that element. This could cause the call to fail at the far end because the feature access code is sent, but not the data associated with it.
- The Analog Network feature transmits additional digits, increasing post dialing delay.
- SMDR can be instructed not to record the digit modification done for passing the network information.
- Dial pulse trunks cannot be used for Analog Networking because the # digit is not available on them.
- Analog Networking does not work with System Option 36 (End of Dial Character #) enabled.
- The destination node trunk must be a dial-in type trunk (Tie, DID, or DISA).
- Only the last five digits of the calling extension number are displayed on *SUPERSET* Display telephones and consoles.
- The # digit is required after the account code if the far end expects a variable length account code.
- The node identification provides a combined access code or calling extension number for the far end. If not associated with one of these elements, then it must match the same access code in the far end.
- If a device is forwarded to an analog network trunk, then the extension number of the forwarding telephone is sent as the calling extension number.
- On an intermediate node call (if incoming and caller's extension were received on the trunk), the caller's extension number received on the trunk is sent as the caller's extension number, even if the incoming trunk was forwarded to an outgoing trunk or routed to ARS.

Programming

In CDE Form 22 (ARS: Modified Digit Table), program the caller information elements that are to be transmitted on the trunk.

Enable COS Option 806 (SMDR - Record Incoming Calls) if SMDR is to record incoming caller information; refer to Practice 9109-096-221-NA, Station Message Detail Recording.

In CDE Form 02 (Feature Access Codes) assign a feature access code to Feature 39 (Analog Network Accept Caller's Extension) for PABXs that will be receiving analog network trunk calls.

Enable System Option 06 (Analog Networking SMDR) to overwrite the trunk ID information with the calling party's extension number.

Programming Example

This example shows how CO type trunks can be used with Analog Networking. The trunks are programmed as DISA trunks on the destination node so that the network information can be dialed on the far end and accepted. The DISA access code must be sent prior to the analog networking information. Because the originating node must receive dial tone from the destination node before dialing the DISA access code, precede the DISA access code with a pause (the number and type of pauses depend on the trunk and the destination node DISA answer time). For example, if the destination node has a DISA answer time of 4 seconds, a DISA access code of 3333, and an accept caller's extension access code 49, the following modified digit string is required:

*2 3333 49 *6 # where:

- *2 is 10 second pause (in originating node) – to wait for dial tone from the far end
- 3333 is DISA access code (in destination node)
- 49 is accept callers extension (in destination node)
- *6 is insert callers extension number (in originating node)
- # is callers extension terminator (in destination node)

Operation

The *SX-200* DIGITAL PABX detects an incoming network information element on an incoming analog network call, and then displays the calling extension number on the called console or *SUPERSET* Display telephone.

Table 2-1 Glossary of Analog Networking Terms

Term	Definition
COS	Class of Service
COR	Class of restriction
ARS	Automatic Route Select
ANI	Automatic Number Identification
Travelling Class Marks	A means of tagging the call with the caller's level of authorization (COS and COR), based on account codes, to be used by the private network in the handling of the call.
End Node	A network node that supplies network information elements to the network, but does not receive information elements from the network; (i.e., information flows from the end node out into the network.)
Intermediate Node	A network node linking at least two other network nodes. Information elements received by Node B from Node A, are supplied to Node C.
Hub	A node in the network that uses information elements from other nodes in the network in order to provide some network feature.
Information Elements	The following information elements are available: Caller's Extension Number, Caller's Dialed Account Code, and Primary Node-ID of the PABX.
Null Network Element	This is a network element's access code followed immediately by a terminator.
Marker	This is a special character to identify Information Elements that are programmed in CDE Form 22 (ARS Modified Digit Table); currently "*6", "*7", and "*8" are used.

Table 2-2 Information Elements for Analog Networking

Information Element	Feature Access Code	Delimiter	Comments
Caller's extension number	Accept Caller's Extension (destination node)	*6	The extension number passed in intermediate node or the extension number of the forwarding party or the extension number associated with the telephone is sent.
Caller's dialed account code	Verifiable Account Code (destination node)	*7	The account code the caller dialed is sent. If the trunk at the destination is a special DISA trunk and this information element appears first in the digit string, the feature access code is not required.
PABX Node ID	Node ID (originating node)	*8	The Node ID of this PABX is sent. This marker usually precedes the caller's Extension marker, forming a compound extension number.

Application Platform Package

Description The Application Platform Package (or MITEL Application Interface – MAI) allows Mitel computer-based applications to have access to SX-200 DIGITAL features. The MAI is used in conjunction with an external host computer connected via an RS-232 link to a DATASET 2100 device. The DATASET device is connected to a Digital Line Card port on the PABX via a single twisted pair.

The appropriate Decryption Module must have been installed on the Main Control card in order for this feature to operate.

Conditions The protocol is based on the following communications standards: CCITT X.409, CCITT X.410 and LAPB (CCITT X.25).

This feature is available in Generic 1004 and Generic 1005 only.

Only one MAI port can be programmed on the system.

Programming The following steps are required:

- Program a Digital Line card into Form 01 (System Configuration).
- Enable System Option 19 (Mitel Application Package) in Form 04 (System Options and Timers).
- A data circuit descriptor must be set up for the MAI port. This is done in Form 11 (Data Circuit Descriptors). Only 3 fields require modification:
 - DATASET 2100: Operating Mode SYNCHRONOUS
 - SYNC: Rate Adaption Scheme X.31
 - SYNC: Clock Source SYSTEM
 - Ensure the Session Inactivity Timer in the corresponding Data Circuit Descriptor is set to 0
- The descriptor is then assigned to the circuit in Form 12 (Data Assignment) in the CDN field.
- Within Form 34 (Directed I/O) enter the extension number of the DATASET, press the MAI softkey and the AUTOPRINT softkey.

Operation Operation is dependent upon the application.

Attendant Abbreviated Dial Number Entry

Description This feature allows the Attendant to program system Abbreviated Dial numbers from the Attendant Console. Selected attendants have the option of making Abbreviated Dial numbers confidential. This restricts the viewing and changing of the number to only those attendants permitted to do so.

See *Abbreviated Dial*.

Conditions The following conditions apply to this feature:

- Only one device (console or terminal) can be programming system Abbreviated Dial numbers at one time.
- While the console is using the Abbreviated Dial Number Entry feature, CDE Form 31 (System Abbreviated Dial Entry) cannot be accessed. Similarly, the console cannot use the Abbreviated Dial number entry feature while CDE Form 31 (System Abbreviated Dial Entry) is being accessed.
- Except for in the *3 and *5 codes described below, the digit * may not appear in Abbreviated Dial numbers in Generic 1001, Generic 1002 and Generic 1003.
- The number programmed is not limited to external numbers – it can be any access code in the system.

Programming To allow Abbreviated Dial programming, enable Class of Service (COS) Option 111 (Attendant Abbreviated Dial Programming) for the console.

To allow the display of confidential Abbreviated Dial numbers, enable COS Option 110 (Attendant Abbreviated Dial Confidential Number Display) for the console. This option applies to both programming and dialing of the confidential Abbreviated Dial numbers.

The console has unrestricted use of all Abbreviated Dial numbers, but program an access code in CDE Form 02 (Feature Access Codes) for Feature 24 (Abbreviated Dial Access).

See *Abbreviated Dial* for further information.

Operation To program an abbreviated dial number, perform the following procedure:

- Press the FUNCTION key.
- Press the ATT FUNCTION softkey.
- Press the ABBR DIAL softkey.
- Enter the desired index number.

- Press the ENTER softkey.
- Press the PRIVATE softkey (only if this is to be a confidential number).
- Enter the desired index number.
- Press the SET softkey.
- Press the EXIT softkey.

To view abbreviated dial numbers, enter the following:

- Press the FUNCTION key.
- Press the ATT FUNCTION softkey.
- Press the ABBR DIAL softkey.
- Enter the desired index number.
- Press the EXIT softkey.

Attendant Access (Dial 0)

Description A feature access code (usually 0) is provided for reaching the attendant. The destination can change based on night/day service. The destination can be a device type other than a console or LDN. There is also a second class of dial 0. See *Priority Dial 0* in this practice.

The attendant can be reached by dialing:

- attendant access code (usually 0), which is to a console directory number,
- console directory number, or
- attendant access code which is routed to an LDN key.

Conditions The following conditions apply to this feature:

- The Attendant Access code can generally be used in the system wherever an attendant individual directory number can be programmed except in the call rerouting table; this can include Call Forwarding.
- If there is no feature access code defined, the Dial 0 routing point is still used by several features.

Programming Assign an access code to Feature 11 (Extension General Attendant Access).

Assign access codes to the Dial 0 entry in CDE Form 19 (Call Rerouting Table) for the tenant of the caller.

Operation Dial Attendant Access Code.

Attendant Advisory Message Setup

Description There are eight default and seven programmable messages for use on *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420*, and *SUPERSET 430* LCD displays. The Attendant can read a set's currently displayed message, or read through the available messages and choose one for display on the set; see *Messaging – Advisory*.

Conditions None

Programming None

Operation To read all of the available messages, perform the following procedure:

- Press the FUNCTION key.
- Press the ATT FUNCTION softkey.
- Press the STATIONS softkey.
- Enter a *SUPERSET 4*, a *SUPERSET 4 DN*, a *SUPERSET 420*, or a *SUPERSET 430* extension number.
- Press the SET UP MSG softkey.

The messages will appear at the start of the second line on the console's LCD display. All of the available messages can be read by pressing the NEXT softkey. An OFF softkey is presented for the message currently displayed (if any) on the specified *SUPERSET 4* telephone. All other messages will result in an ON softkey being presented.

To set up or remove a message from a *SUPERSET 4* telephone, enter the same keys as above in the same order, and press the ON or OFF softkey as required.

Attendant Alarm Readout

Description The Attendant Console can display the alarm logs presently active in the system. The Attendant can cause a readout of the alarm messages one by one using the softkeys. The message indicates the fault and its location.

Conditions For the Attendant to access the alarms, the following conditions must apply:

- There must be no other console accessing alarms.

- There must be no console or maintenance terminal accessing Maintenance or CDE function.
- There must be no current Test Line access.
- Logs can be reviewed only once from the Attendant console.
- The ALARM softkey indicator appears only if an alarm state currently exists.

Programming Enable COS Option 102 (Attendant Display of System Alarms) for the console.

Operation To obtain an alarm readout, press the following keys in sequence:

- FUNCTION key.
- ALARM softkey.
- MORE softkey.
- CANCEL softkey.

Attendant Automatic Overflow

Description Attendant automatic overflow provides a recorded announcement to incoming calls that are not answered by the attendant within a pre-defined time. This feature operates primarily during peak periods of incoming traffic.

This feature is not available in Generic 1001.

For more information on the operation and programming see feature *RAD Support*.

Conditions An answering machine should not be used. Because the connection to the Recorded Announcement Device is listen only, the caller cannot leave a message.

Programming In the Console's Class of Service, enable COS Option 118 (Attendant Call Forward – No Answer Timer) and set it for the time to wait before giving the recorded announcement; enable COS Option 705 (Automatic Overflow from Attendant) in the caller's COS (trunk, extension, or *SUPERSET* telephone). Enter the extension of a recording device hunt group into CDE Form 19 (Call Rerouting Table) under "UCD/Attendant Recording Routing for This Tenant", under the Console's tenant.

Operation When an incoming call is not answered within the programmed time, a recording is connected to the caller to advise the caller that there are many incoming calls and the call will be answered shortly. The actual message given is a pre-recorded message, recorded by the customer on a customer-provided Recorded Announcement Device. The position of an incoming call being held in the calls waiting to be answered queue, is maintained while receiving the recorded message. The recorded message will be terminated as soon as an Attendant becomes available. If the incoming call is still waiting to be answered after the complete message has been delivered, the incoming call is connected to system Music on Hold.

Attendant Bell Off

Description This feature allows the Attendant to mute the console ringer. Incoming calls are indicated by a flashing Answer Key LED and LDN softkeys displayed on the console. When the console ringer is disabled, "BELL OFF" appears on the second line of the console LCD display.

Conditions The following conditions apply to this feature:

- The system default state for this feature at power-up is "BELL ON".
- The status of the bell is ignored by Lockout Alarms ringing at the console.
- There is no bell on the console if Attendant Tone Signalling has been enabled on the console.

Programming Enable COS Option 100 (Attendant Bell Off) for the console.

Operation To disable the console ringer, press the following keys:

- FUNCTION key.
- BELL OFF softkey.

To enable the console ringer, press the following keys:

- FUNCTION key.
- BELL ON softkey.

Attendant Busy Override

- Description** This option allows the attendant who encounters a busy connection, to override the connection and enter the call; see *Override (Intrude)*.
- Conditions** The following conditions apply to this feature:
- This applies to override of trunk calls through the Attendant Direct Trunk Select feature. See *Override (Intrude)* for more conditions.
- Programming** Enable COS Option 500 (Override) for the console.
- Operation** Having reached a busy number:
- Press and hold down the console OVERRIDE softkey
 - all parties in the connection hear a warning tone and the Attendant is connected to the call.
 - Release the OVERRIDE softkey
 - the Attendant is released from the call.
- Note:** If the call cannot be overridden, re-order tone is returned, and the console LCD displays "CANT".

Attendant Call Announce

- Description** This feature allows the Attendant to make an announcement through a *SUPERSET 4* telephone's Call Announce Port; see *Call Announce*.
- Optionally, the Attendant may override to a *SUPERSET 4* telephone Call Announce Port rather than intruding into the call; see *Override Announce*.
- Conditions** None.
- Programming** None.
- Operation** The Console accesses the *SUPERSET 4* telephone by placing an Abbreviated Dial call to its Call Announce port. The *SUPERSET 4* telephone is connected to the Console, and conversation takes place between the Console and the Call Announce port of the *SUPERSET 4* telephone.

Attendant Callbacks – Busy/No Answer

- Description** The Attendant can set up a callback if the called destination is busy or does not answer. The Attendant can also cancel all callbacks in the system.
- See *Expensive Route Warning* for callbacks to ARS for less expensive routes.
- See *Callbacks* for details on callbacks.
- Conditions** The following conditions apply to this feature:
- See *Callbacks*.
 - When clearing all callbacks, callbacks are only cancelled for a console or an extension if the Device Interconnection Control checks pass between the device and the console.
 - See *Attendant Default Call Position* for information on the call position where the CALLBACK softkey appears.
- Programming** None.
- Operation** Having reached a busy or non-answering number, press the CALLBACK softkey. The console rings as soon as the destination becomes available. When the Attendant answers the ring, CALLBACK appears on the display. As soon as the attendant answers the callback, the called party rings.

Attendant Call Forward Setup and Cancel

- Description** The Attendant Call Forward Setup and Cancel feature allows the Attendant to set up, review and cancel Call Forwarding for any extension. The extension for which the Attendant sets up forwarding need not have any of the Call Forwarding features in its COS. The Attendant may also set up Call Forwarding from the extension to the Attendant. The Attendant can also cancel Call Forwarding for all extensions at once.
- Conditions** The following conditions apply to this feature:
- The extension or console to which the calls are forwarded must not have Option 234 (Never a Forwardee) in its COS.

- Valid forward destinations are: hunt groups (not data or modem pool), consoles, telephones, Abbreviated Dial numbers, Dial 0 access code, LDN, Night Bells, and ACD paths.
- The cancel of all Forwarding by the Console only applies to extensions for which Device Interconnection Control checks pass between the Console and the extension.

Programming In Generic 1004 and Generic 1005, enable COS Option 123 – Attendant Call Forward Setup and Cancel in the Attendant COS, and if split call forwarding is required, enable COS Option 260 (Internal/External Split Call Forwarding).

Operation To set up Call Forwarding to an internal number, perform the following procedure:

- Press the FUNCTION key.
- Press the ATT FUNCTION softkey.
- Press the STATIONS softkey.
- Dial the extension number.
- Press the CALL FWD softkey.
- Press the EXTERNAL or INTERNAL softkey (only when split forwarding enabled).
- Enter the desired call forward destination extension number.
- Press the ALWAYS or NO ANSWER or ON BUSY or BUSY/NO ANS softkey.

To set up Call Forwarding to an external number, press the following keys in this sequence:

- Press the FUNCTION key.
- Press the ATT FUNCTION softkey.
- Press the STATIONS softkey.
- Dial the extension number.
- Press the CALL FWD softkey.
- Press the EXTERNAL or INTERNAL softkey (only when split forwarding enabled).
- Enter the desired call forward destination speed call number.
- Press the ALWAYS or NO ANSWER or ON BUSY or BUSY/NO ANS softkey.

To review Call Forwarding for an extension, press the following keys, in this sequence:

- Press the FUNCTION key.

- Press the ATT FUNCTION softkey.
- Press the STATIONS softkey.
- Dial the extension number.
- Press the CALL FWD softkey.
- Press the EXTERNAL or INTERNAL softkey (only when split forwarding enabled).

To cancel Call Forwarding for a single extension, press the following keys, in this sequence:

- Press the FUNCTION key.
- Press the ATT FUNCTION softkey.
- Press the STATIONS softkey.
- Dial the extension number.
- Press the CALL FWD softkey.
- Press the EXTERNAL or INTERNAL softkey (only when split forwarding enabled).
- Press the CANCEL softkey.

To cancel Call Forwarding at all stations:

- Press the FUNCTION key.
- Press the ATT FUNCTION softkey.
- Press the STATIONS softkey.
- Press the MORE . . . softkey.
- Press the CAN. ALL FWD softkey.

Attendant Call Selection

Description The attendant console has up to ten call selection positions that appear as softkeys when the console is receiving an incoming call. The system sets up some positions by default for certain call types. Other positions are user defined LDN keys.

Calls arriving at the console are queued on a first come first served basis and the answer LED indicator flashes. The LCD display also indicates the number of calls waiting.

The attendant call selection feature allows the attendant to answer calls in sequence or by call type. Pressing the answer key answers calls in the order that they arrived at the console regardless of call type. Using a selection

position softkey answers calls by call type regardless of the time they arrived at the console.

Conditions None.

Programming For setting up answering positions other than the defaults listed in ATTENDANT DEFAULT CALL POSITIONS, see *Console LDN Keys*.

Operation To answer the first call in the Attendant queue, press the ANSWER key – the tone ringer stops, the prompt associated with the call type is removed if there are no more calls of that type calling, the display shows the number of the calling trunk or extension and the Attendant is connected to the calling party.

To answer a specific call type, press the softkey associated with the desired call type – the tone ringer stops, the ANSWER LED indicator indicates steadily, the display shows the number of the originating party, and the Attendant is connected to the calling party.

Attendant Call Splitting and Swapping

Description During the setting up of a call between two parties, the attendant may be required to speak to both parties, or to speak privately with either party. The Attendant can do this by using the CONF, SOURCE, and DEST softkeys.

Conditions None.

Programming None.

Operation Establish a 3-party conference via the CONF softkey – the Attendant may now speak to both parties.

Press either the SOURCE or DEST softkey to split the call and talk to the selected party privately. The Attendant may alternate between the parties by pressing one of the two softkeys, as required to select the desired party.

Press the RELEASE key to disconnect the Attendant from the conference, leaving the two parties connected.

Press the CANCEL key to drop the conference, disconnecting both parties from the Attendant, and leaving the console in idle mode.

Attendant Calls Forwarded On No Answer

Description Calls directed to the LDN of a console which are not answered within a predetermined time-out period are rerouted to a NIGHT 1 destination (if there is one). For CO trunks, the reroute is to the trunk's NIGHT 1 answerpoint. For DID trunks, the reroute is to the Attendant DID Access NIGHT 1 answer point for the trunk's tenant. For dial-in Tie trunks, the reroute is to the Attendant Dial-in Tie Access NIGHT 1 answer point for the trunk's tenant. For sets, consoles, and DISA trunks, the reroute is to the Dial 0 NIGHT 1 Answer Point for the set's or console's or trunk's tenant.

See *Call Rerouting* for how this fits in with recalls to the console.

Conditions The following conditions apply to this feature:

- Rerouting does not occur unless the NIGHT 1 and day service answer points are different.
- No further rerouting is done for DID/TIE trunks after a DID/TIE BUSY or ALWAYS reroute, or after a DID/TIE trunk is routed to the Night Access Point for DID or TIE trunks.
- No reroute is done for calls directed to the LDN from a DND, Vacant or Illegal number intercept, or from a DID/TIE intercept routing.
- No reroute is done for a call recalling to the console (calling the default RECALL softkey).
- The feature applies after forwarding has occurred to an LDN.
- This feature is mutually exclusive with Attendant Automatic Overflow; also see *Attendant Automatic Overflow*.

Programming Enable COS Option 107 (Attendant Automatic Call Forward – No Answer) for the console where the LDN is programmed. If the LDN is on more than one console then the association of LDN to a COS is to the console programmed with the the lowest Bay/Slot/Circuit.

Set the time-out period via COS Option 118 (Attendant Call Forward – No Answer Timer) for the console where the LDN is programmed; the default time is 30 seconds.

Enter a NIGHT 1 routing point for the appropriate call types via CDE Form19 (Call Rerouting Table).

Operation When the call arrives at the console, the timer for the Forward On No Answer is started. When the timeout occurs, the caller is routed to the appropriate answer point.

Attendant Conference

Description This feature allows the Attendant to enter into a conference with the destination party and the source party of a call. The Attendant may also initiate a 3-party conference call. When the Attendant is in a conference, a periodic warning beep is given to all internal parties if System Option 10 (Attendant Conference Beeps) is enabled.

Conditions The following conditions apply to this feature:

- The console may be involved in a conference with a maximum of two other parties.
- A conference cannot be created involving another console or a Call Announce Port.
- Device interconnection checks do not apply to the conference.

Programming To enable Attendant conference warning beeps, enable System Option 10 (Attendant Conference Beeps).

COS Option 120 (Attendant Conference Disable) must be DISABLED in the Console's COS.

Operation To enter into a conference with the source and destination parties, press the CONF softkey.

To initiate a conference, perform the following procedure:

- Dial the first party and establish a connection.
- Dial the second party and establish a connection.
- Press the CONF softkey. The three parties are now in a conference.

Attendant Console Display Language

Description This feature allows the Attendant to change the display of Attendant Console softkeys from English to French, or from French to English.

Conditions None.

Programming None.

- Operation** To change from English to French, press the following keys:
- FUNCTION key.
 - FRANCAIS softkey.
- To change from French to English, press the following keys:
- FUNCTION key.
 - ENGLISH softkey.

Attendant Console LCD Display

- Description** The *SX-200* DIGITAL PABX continually displays the time of day on the right-hand portion of the status line of the Attendant Console LCD display. When the console is idle, the date (month, day, year) is also displayed. The displayed time is used by Message Waiting, Traffic Measurement, SMDR, *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420*, and *SUPERSET 430* telephones, and other features. The Console attendant can change the date and/or time (see *Attendant Date and Time Setup*).
- The Attendant Console may have calls from outside trunks and extensions queued that are waiting to be answered. The total number of calls in the queue is displayed in the Attendant Console queue (Calls Waiting) area of the display located in the top right corner of the LCD display.
- The Attendant can put a party on softhold or hardhold that also has a call (one party or Conference) on softhold. This is called stacked hold (not available with Generic 1001 and Generic 1002).
- When the Attendant Console establishes or answers a call, the display provides information about the call. The available items of call information are:
- Extension Number and Set Name
 - Tenant Name (not available with Generic 1001 or Generic 1002)
 - Trunk Name
 - Trunk Group Name
 - Trunk number
 - COS and Class of Restriction (COR)
 - COS Name (not available with Generic 1001 or Generic 1002)
 - Call Forward Recall Information.
 - On Hold information (Extension Number or Conference) of the calling party is provided if that party has a call on softhold (not available with Generic 1001 and Generic 1002).

The system programmer can assign names to Sets, Classes of Service, Tenants, Trunks and Trunk Groups; see *Names*.

Conditions

The following conditions apply to this feature:

- A name must be programmed for the set. Names are programmed in CDE Form 09 (Station/*SUPERSET* Telephones). Users of *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420*, and *SUPERSET 430* telephones can program their name at their set.
- The COS number and COR number appear only if there is no COS Name programmed.
- Names associated with trunks appear only after the console answers a trunk call.
- If the Attendant answers a call and that caller has a call (one party or Conference) on softhold, the Attendant does not take over the caller's softhold (not available with Generic 1001 and Generic 1002).
- When a HOLD key is pressed to put someone on hold, only the party that is talking to the Attendant will be put on hardhold. If there is a softhold party (either the SOURCE or DEST), this party will be connected to the Attendant. The Attendant must press the CANCEL or RELEASE key to hangup on this call (not available with Generic 1001 and Generic 1002).
- The Tenant name appears only on rerouted TIE, DID, or Dial-In calls where the Tenant name is programmed in the CDE Call Rerouting Table. If the Tenant name is displayed, no other trunk information appears.
- The Trunk Group Name appears only if there is no Trunk Name programmed.
- The Trunk number appears only if there is no Trunk Name or Trunk Group name programmed.
- If there are no calls in the Calls Waiting queue, there is nothing in the CW area of the LCD display.
- The maximum number of calls waiting that can be displayed at the console is 99.

Note: The actual queue maximum is 200 calls waiting.

Programming

None.

Operation

When the Attendant Console establishes or answers a call, the display provides information described above about the call. For Attendant Calls Waiting operation refer to *Attendant Call Selection and/or Attendant Hold Positions* for operational details.

Attendant Console LDN Keys

Description Each console has nine programmable listed directory number (LDN) positions. Each LDN position can be programmed as the answer point for a particular type of call. Each LDN key can be given a descriptive label, allowing the attendant to answer the call with an appropriate response.

LDNs can appear at more than one console in a system to allow calls to be presented to specified consoles simultaneously.

LDN's may also appear at subattendant positions. See feature description for *Subattendant Console LDN Keys*.

The attendant console can answer calls from an LDN by either using the ANSWER key or by selecting the LDN key directly. See *Attendant Call Selection* in this document.

Conditions The following conditions apply to this feature:

- Any or all LDN keys and labels may be programmed to appear.
- Each console must have its own LDN numbers explicitly programmed in CDE Form 08 (Attendant LDN Assignments).
- There are several default call positions provided by the system for various call types; see *Attendant Default Call Positions*.
- The RECALL key (key #1) cannot be changed.
- Station and *SUPERSET* telephones and consoles cannot directly dial an LDN.
- Each LDN key is provided with a default label. For key F2, the label is 'INTERNAL'. For key F3 to key F0 it is 'LDN n', where n is from 1 to 8. An LDN programmed at the key can have a label that replaces the default label.
- It is recommended that key F2 not be assigned to an LDN key since some calls are directed to that key by the system; see *Attendant Default Call Positions*.
- If the Trunk Answer From Any Station (TAFAS) feature is used then it is recommended that key F0 not be programmed as an LDN or that calls not be routed to the LDN when TAFAS calls are also to be answered; see *Attendant Default Call Positions*.
- For multi-appearance LDN keys, the console (or subattendant position) with the lowest physical location number (bay #/ slot #/ circuit #) is always the owner of an LDN.

Programming Assign access codes to the console's LDN positions via CDE Form 08 (Attendant LDN Assignments). The feature descriptions in this practice identify which features can use Console LDN keys as answer points.

Operation The Attendant may selectively answer any incoming call type by pressing the appropriate LDN softkey.

Attendant Console Lockout

Description The Attendant can enter an access code to restrict the capabilities of the Attendant Console. This prevents system tampering via the console during breaks, etc. When the console is locked out, the following restrictions take effect:

- no outgoing trunk calls can be made.
- there is no Attendant function access.

The Attendant Console can still be used to initiate internal calls, and to answer incoming trunk calls.

Conditions The Attendant can lock out the console at any time as long as there is no source party connected.

Programming Assign an access code to Feature 17 (Console Lockout Access Code).

Operation To lock out the console:

- Enter the Console Lockout access code.
 - The display changes to “Console in Restricted Service”.

To return the console to normal operation:

- Re-enter the code.

Attendant Date and Time Setup

Description The SX-200 DIGITAL PABX continually displays the time of day on the right-hand portion of the status line of the Attendant Console LCD display. When the console is idle, the date (month, day, year) is also displayed. The displayed time is used by Message Waiting, Traffic Measurement, SMDR, *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420*, and *SUPERSET 430* telephones, and other features. The time may be displayed in 12- or 24-hour format. The Console can change the date and/or time.

A subattendant may also change the time and date. See *Subattendant Date and Time Setup*.

- Conditions** A date/time change may cause some traffic measurements to be lost, and can also affect ACD Reports. Care must be given when setting this COS Option.
- Programming** Enable COS Option 122 (Attendant Setup Time/Date). If 12-hour time display is required, no clock options are required. If 24-hour time display is required, enable System Option 01 (24-Hour Clock).
- Operation** To set Time-of-Day, perform the following procedure:
- Press the FUNCTION key.
 - Press the ATT FUNCTION softkey.
 - Press the SET TIME softkey.
 - Enter the desired time.
 - Press the SET or PM softkey.
- To set date, enter the following in order:
- Press the FUNCTION key.
 - Press the ATT FUNCTION softkey.
 - Press the SET DATE softkey.
 - Enter the desired date.
 - Press the SET softkey.

Attendant Default Call Positions

Description Three incoming call indicators are provided by the system to identify calls to the console directory number. In addition to these call indicators are LDN keys on the console; see *Console LDN Keys*.

The three default positions are:

- F0 (NIGHT BELL) – calls ringing any night bell in the console's tenant group (see *TAFAS*).
- F1 (RECALL) – recalls of calls handled by the console, or for multiple console operation, by any console in the system (see *Recall*).
- F2 (INTERNAL) – calls directed to the console's internal directory number.

- Conditions** The following conditions apply to this feature:
- The INTERNAL position uses whatever label is programmed at key F2. The label is by default INTERNAL but an LDN key with a different label may be programmed at the same key. This does not affect the direction of internal calls to this position – only the label used changes.
 - Callbacks ringing the console appear at the INTERNAL position.
 - If key F0 is programmed with an LDN, calls to the LDN take precedence over Night Bell calls. In this case, the key label shows the name programmed for the LDN key. Pressing the key answers calls to the LDN. Calls to the Night Bell appear at key F0 only after all LDN calls have been handled; the label changes to NIGHT BELL.
 - Serial calls, being recalls, appear at the RECALL position.
 - The RECALL position (key F1) cannot be changed and cannot have an LDN key programmed at the same key.

Programming None.

Operation None.

Attendant Destination (DEST) Key

Description This feature allows the Attendant to press a softkey (DEST) to speak to the destination party of a call, to SWAP between the destination and source parties or to SPLIT a conference call.

The destination party's extension number, COS, and COR are displayed on the second line of the console's LCD display and the source party is put on consultation hold.

See Attendant Call Splitting and Swapping.

Conditions This softkey only appears when the Attendant Console is connected to a multi-party call and the source party can be put on consultation hold.

Programming None.

Operation Press the DEST softkey – the console is connected to the destination party and the source party is put on consultation hold.

Attendant Direct Trunk Select

- Description** The console can be used to directly access (seize) a trunk for maintenance or operational procedures.
- Conditions** The following conditions apply to this feature:
- For viewing the status of and accessing a trunk, the attendant must be allowed to connect to the trunk. See *Device Interconnection Control*.
 - For accessing the trunk, the trunk must not be in the process of being seized by another device in the system.
 - SMDR applies to the call when a trunk is accessed. If there are no SMDR records available, the call continues without an SMDR record; see *Station Message Detail Recording*.
 - Trunks cannot be accessed by "Attendant Function" if the console's COS has COS Option 200 (Account Code, Forced Entry – External Calls) or COS Option 201 (Account Code, Forced Entry – Long Distance Calls) enabled.
 - When an LS/GS trunk is used as a dictation trunk, the M/MM leads are used to make the trunk busy while the tape is removed or the unit is powered down. If a console tries to access this type of busy trunk, only the EXIT softkey appears (the OVERRIDE softkey and FORCE RLS softkey are not available) and the message "Trunk busy due to M/MM leads" is displayed.
- Programming** None
- Operation** To check the current status of a trunk, perform the following procedure:
- Press the FUNCTION key.
 - Press the ATT FUNCTION softkey.
 - Press the TRUNKS softkey.
 - Enter the desired trunk number.
 - Press the STATUS softkey.
 - Press the EXIT softkey.
- To select a trunk for Attendant access only, enter the following softkeys:
- Press the FUNCTION key.
 - Press the ATT FUNCTION softkey.
 - Press the TRUNKS softkey.
 - Enter the desired trunk number.
 - Press the ATT ACCESS softkey.

To override a call on a busy trunk:

- Press the OVERRIDE softkey (see Conditions).

To force-release a non-idle trunk (a call in progress is dropped), enter the following softkeys:

- Press the FUNCTION key.
- Press the ATT FUNCTION softkey.
- Press the TRUNKS softkey.
- Enter the desired trunk number.
- Press the ATT ACCESS softkey.
- Press the FORCE RLS softkey (see Conditions).

To release a trunk from Attendant access, press the RELEASE key.

Attendant DISA Code Setup

Description This option allows the Attendant to change the Direct Inward System Access (DISA) security code (Feature 19) in CDE Form 02 (Feature Access Codes) that a DISA caller must dial to access the system.

Conditions The following conditions apply to this feature:

- The DISA code cannot conflict with the numbering plan.
- The DISA code is limited to a maximum of five digits.
- The DISA code cannot be displayed.
- An Attendant cannot delete the DISA code; it may only be deleted via CDE Form 02 (Feature Access Codes). Refer to Practice 9109-096-210-NA, Customer Data Entry, for further details.
- While the DISA code (Feature 19) in CDE Form 02 (Feature Access Codes) is being setup from the Console, CDE Form 02 cannot be accessed from Customer Data Entry. Similarly, while Feature 19 in CDE Form 02 (Feature Access Codes) is being accessed from Customer Data Entry, the DISA code cannot be changed from the console.

Programming Enable COS Option 103 (Attendant DISA Code Setup) for the console.

Operation To change the DISA access code, perform the following procedure:

- Press the FUNCTION key.
- Press the ATT FUNCTION softkey.

- Press the MORE... softkey.
- Press the DISA CODE softkey.
- Enter a new DISA access code.
- Press the SET softkey.

Attendant Do Not Disturb (DND) Setup, Cancel or Override

- Description** The Attendant can set up or cancel Do Not Disturb (DND) for an extension.
- When calling an extension with DND enabled, the Attendant can override DND.
- See *Do Not Disturb*.
- Conditions** If the extension does not have COS Option 121 – Attendant Station Do Not Disturb (Generic 1004 and 1005 only) enabled in its COS, the extension is not able to alter the DND setting; it can only be done through the console.
- Programming** Enable COS Option 121 – Attendant Station Do Not Disturb (Generic 1004 and 1005 only) in the console COS.
- Operation** To set up Do Not Disturb on an extension, perform the following procedure:
- Press the FUNCTION key.
 - Press the ATT FUNCTION softkey.
 - Press the STATIONS softkey.
 - Enter the extension number.
 - Press the NO DISTB softkey.
 - Press the EXIT softkey.
- or
- Press the FUNCTION key.
 - Press the GUEST ROOM softkey.
 - Enter the extension/room number.
 - Press the NO DISTB softkey.
 - Press the EXIT softkey.

To cancel Do Not Disturb on an extension, press the same keys in the same order.

To set up or cancel Do Not Disturb while talking to an extension, toggle the NO DISTB softkey.

Attendant Extension Busy-Out

Description This feature allows the Attendant to busy out any extension (the extension is removed from service and cannot originate or receive any calls), and to remove the busy-out condition. The same operation is provided in Maintenance. Refer to Practice 9109-096-351-NA, RS-232 Maintenance Terminal. If the Attendant dials the number of a busied-out extension, the console displays the extension number and "BSY OUT" in the Destination display and the Attendant will receive reorder tone.

Conditions The following conditions apply to this feature:

- If the extension is idle when the Attendant sets the busy-out condition, the extension is busied-out immediately.
- If the extension is not idle when the Attendant sets the busy-out condition, the extension is busied-out as soon as the extension becomes idle.
- The extension is treated as being busy with regard to forwarding. If the extension has "Call Forwarding - Busy" or "Call Forwarding - Follow Me" set up, the forwarding occurs.
- If the extension is a member of a hunt group, all calls to the hunt group bypass the busied-out extension.
- A locked out extension cannot be busied out.

Programming Enable COS Option 112 (Attendant Station Busy-Out).

Operation To busy out an extension, perform the following procedure:

- Press the FUNCTION key.
- Press the ATT FUNCTION softkey.
- Press the STATIONS softkey.
- Enter the extension number.
- Press the BUSY OUT softkey.
- Press the SET softkey.

To remove the Busy–Out condition from an extension, perform the following procedure:

- Press the FUNCTION key.
- Press the ATT FUNCTION softkey.
- Press the STATIONS softkey.
- Enter the extension number.
- Press the BUSY OUT softkey.
- Press the CLEAR softkey.

Attendant Flash Over Trunk

Description The Attendant can flash on a trunk (any type) by pressing the FLASH softkey. A flash is sent out on the trunk, and dialing is restarted on the trunk.

Conditions The following conditions apply to this feature:

- There must be only one party at the console.
- The attendant may flash on incoming and outgoing trunks.
- The trunk must be in a trunk group.
- The feature is not available when the console is locked out.
- The flash duration is based on the trunk hardware used. For trunks in Digital bays, the duration is programmed using the Flash Duration Trunk Circuit Descriptor Option. For all other trunks, the time is approximately 200 ms.
- The flash type is programmable for certain trunks. See *Trunk Circuit Descriptor Options* (Generic 1004 and 1005). The Flash Over Trunk Option is ignored when an attendant does a flash on a trunk.
- If the trunk is the source party then the trunk becomes the destination party.
- Dialing continues until an inter–digit timeout or the maximum number of digits (26) have been dialed. Digits dialed on the console keypad are sent out on the trunk (tone or pulse) by the system, based on the DTMF Trunk Circuit Descriptor Option for the trunk.
- When dialing is restarted:
 - If COS Option 802 (Limited Wait For Dial Tone) is not enabled for the trunk then the system will wait indefinitely for dial tone to be detected. COS Option 805 (Trunk No Dial Tone Alarm) does not apply.

- Tones are turned off at the console and must be turned on again if needed later; see *Attendant Tone Signalling*.
- The trunk's SMDR is completed before dialing is restarted. SMDR applies to the dialing that is started on the trunk.

Programming None

Operation While the attendant is connected to an outgoing trunk:

- Press the FLASH softkey.
- Dial as required.

Attendant Function Access

Description By pressing the Console FUNCTION key and the ATT FUNCTION softkey, the Attendant can access Attendant Functions, which include:

- ABBR DIAL
- ALARM (read alarms)
- APPLICATION (To access CDE or Maintenance)
- BELL ON/OFF (if named)
- BUSY OUT
- CALL FORWARD
- CANCEL ALL CALLBACKS
- CANCEL ALL CALL FORWARDING
- DAY/NIGHT 1/NIGHT 2 switching
- DO NOT DISTURB SETUP AND CANCEL
- FLEXIBLE NIGHT SERVICE
- FORCED TRUNK RELEASE
- FRANCAIS (French language prompts and messages on console)
- GUEST ROOM functions (if enabled)
- MESSAGE WAITING SETUP AND CANCEL
- SEND MESSAGE
- SET DATE
- SET TIME
- SET UP MESSAGE
- STATIONS

- SYSTEM IDENTIFIER
- TRUNK STATUS/ACCESS/BUSY OUT.

For more information about Attendant Functions, refer to the individual feature descriptions in this practice.

Conditions	Attendant Functions are not available if the Attendant Console Lockout option (Feature 17) is invoked.
Programming	None.
Operation	Press the FUNCTION key – the Attendant Function softkeys appear on the console LCD display. One of the softkeys is MORE. Press this key for access to more functions. Press MORE again to return to the first set of functions.

Attendant Hold Positions

Description	The Attendant may place an extension or trunk on hold in one of eight HOLD positions. There are four keys; HOLD1, HOLD2, and HOLD3 are for hold positions 1 through 3, HOLD4 is for hold positions 4 through 8. A call hold recall time of 10 to 240 seconds may be programmed (default is 30).
Conditions	The following conditions apply to this feature: <ul style="list-style-type: none">• A HOLD key LED is on when it has a call on hold.• If music is available on the system the held party receives music on hold while on hold, even after the party starts alerting the console after a hold time-out. If no music is provided, the caller hears silence rather than ringback.• When the call hold timeout occurs, the call alerts the console at that HOLD key – the call does not appear at any LDN position nor does it recall. The calls waiting display is updated.• The console can selectively answer the held call by selecting individual HOLD keys.• Non-busy extensions cannot be placed on hold.• Conference calls cannot be placed on hold.• If the current party is a Call Announce Port at the console, the call on hold cannot be retrieved. If the source has a call on consultation hold, the call on hold cannot be retrieved.

- If the Attendant with a call on hold is talking to a destination, and presses the HOLD key to retrieve the call, the destination party is placed on consultation hold and becomes the source. The held call is connected to the attendant and becomes the destination. The attendant can switch between parties by pressing the SRC and DEST keys on the console, or can connect the parties by pressing the RELEASE key.
- If the Attendant is visually impaired and unable to see the HOLD key LED, enable COS 121 – Attendant Hold Position Security (not available with Generic 1001 and Generic 1002). When COS 121 is enabled, an error beep sounds if the Attendant attempts to put a call on hold by pressing a HOLD key that already has a party on hold.

Programming Program COS Option 116 (Attendant–Timed Recall – Hold) in the console’s COS to set the time–out period (default time is 30 seconds).

Enable COS Option 121 – Attendant Hold Position Security (not available with Generic 1001 and Generic 1002) for Consoles that require an error beep to sound when the Attendant presses a HOLD key that already has a party on hold.

Operation To put a Call on Hold at the console:

- Press the ANSWER key when call rings console.
- Press an idle HOLD key (1–4); call is put on hold at this HOLD key.

To Retrieve a Call on Hold at the console:

- Press the HOLD key to speak with the call on hold.

Note: If the call has been recalled by a call hold time–out, the HOLD key indicator flashes.

If the call is to be retrieved before a time–out, the Attendant may press the HOLD key where the call is being held. By pressing the HOLD key, the call is transferred to the SOURCE, or to the DEST if there is a SOURCE already.

If HOLD key 4 is used, the user must next press one of the softkey hold slots (HOLD slots 4 through 8) for both holding and retrieving.

Attendant Implicit New Call

Description When the Attendant presses a key on the console dial pad, by default a new call is initiated. When the first key is pressed, an existing party is automatically placed on hold. At the completion of dialing, the Attendant can transfer the call to the dialed destination by releasing from the call.

By pressing the TONES ON softkey (if available), this feature is temporarily disabled. See *Attendant Tone Signalling*.

Conditions None.

Programming None.

Operation Press any dial pad key.

- Immediately, the current call (if one exists) is placed on hold, and a new call is initiated.

Attendant Individual Directory Number

Description Each Attendant Console has a unique directory number identifying that console.

The directory number is in addition to the general attendant access number (usually 0) used to obtain the attendant or any LDN keys programmed at that console. A calling party has the choice of either dialing the general attendant access number, or dialing the directory number which is dedicated to a particular attendant position (useful when there is more than one attendant position).

Conditions The following conditions apply to this feature:

- Calls to an individual Directory Number are not presented to other attendants (if any).
- Calls directed to the Directory Number appear at a default softkey position provided by the system; see *Attendant Default Call Positions*.

Programming Program the Directory Number of each attendant position in CDE Form 07 (Console Assignments).

Operation None.

Attendant Interposition Calling and Transfer

Description In a multiple console environment, an Attendant can call or transfer a call to any other Attendant using the individual Attendant Directory Number. The call is transferred in the same method as a call to an extension.

Conditions The following condition applies to this feature:

- Since Consoles cannot be put on hold, normal Attendant operations (hold, swap, etc) are not available when talking to another Console.

Programming Program the Directory Number of each attendant position in CDE Form 07 (Console Assignments).

Operation When the call has been answered, dial the Directory Number of the attendant console to which the call is to be transferred.

While listening to ring back or when the Attendant answers, press the RELEASE key to transfer the SOURCE caller to the called console.

Attendant Message Waiting Setup and Cancel

Description The Attendant Message Waiting Setup and Cancel feature allows the Attendant to inform extension users that there is a message waiting. The message waiting indication may take the form of:

- a message on the display of a *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420*, or *SUPERSET 430* telephone,
- a continuously flashing lamp on the extension (if equipped), or
- a distinctive ringing pattern repeated every 20 minutes. The pattern is three cycles of 3.5 ips ringing.

When the user returns and calls the attendant, the "MSW" indicator appears on the console display to indicate that there is a message waiting for that extension.

As an option, the system can be programmed to print a message on a system printer indicating each instance of a new message waiting. See *Attendant Message Waiting Setup And Cancel*.

When Transparent Multi-Console Operation is used, a console may review or cancel a message waiting indication for any station; without this feature,

only the console that set Message Waiting for a specific station can review or cancel it. Also see *Attendant Transparent Multi-console Operation*.

A message may also be setup and cancelled from the Front Desk. See Practice 9109-096-602-NA, Hotel / Motel Feature Package Description.

Conditions

The following conditions apply to this feature:

- If either message waiting COS Option is enabled, the extension rings every 20 minutes when idle, or until the message waiting is canceled. If the message waiting indication is given by a lamp, the lamp flashes (at 60 ipm).
- If the message waiting indication is given by ringing the extension, the first ring starts 10 seconds after the extension becomes idle.
- The message waiting lamp or display indicator on *SUPERSET* telephones is always lit for any message irrespective of COS options.
- If the extension has Do Not Disturb enabled, the ringing indication is not given.
- All consoles with this feature must be in the same tenant, and have COS Option 320 (Transparent Multi-Console Operation) enabled.
- Any console within this tenant with COS Option 320 (Transparent Multi-Console Operation) enabled may cancel Message Waiting, instead of just the console that set it.

Programming

Enable COS option 232 (Message Waiting Setup – Lamp) and/or COS Option 231 (Message Waiting Setup – Bell) for each extension on which the console is to place a message.

COS Option 231 enables ringing at an extension; both COS Option 231 and COS Option 232 enable ringing at a *SUPERSET* telephone.

Enable COS Option 320 (Transparent Multi-Console Operation) for each console that is to operate in Transparent Multi-Console Operation mode.

Operation

To set up Message Waiting on an extension, perform the following procedure:

- Press the FUNCTION key.
- Press the ATT FUNCTION softkey.
- Press the STATIONS softkey.
- Enter the extension number.
- Press the SEND MSG softkey.
- Press the EXIT softkey.

or

- Press the FUNCTION key.
- Press the GUEST ROOM softkey.
- Enter the extension/room number softkey.
- Press the SEND MSG softkey.
- Press the EXIT softkey.

To cancel Message Waiting on an extension:

- Press the CANCEL MSG softkey.

Attendant Multi–New Call Tone

Description If an attendant is actively engaged with an incoming call, the first call placed in the Attendant Call Waiting queue signals the attendant with a single burst of tone. As long as there are one or more calls waiting in the queue, the attendant will continue to hear the single burst of tone at the programmed time interval. The presence of any calls waiting is also shown by the call waiting indication on the top line of the display; see *Attendant Calls Waiting Display*.

Conditions The following conditions apply to this feature:

- This feature is disabled if the attendant bell is turned off from the console. Refer to Attendant Bell Off.
- The frequency of the new call tone is controlled by COS Option 404 (Recording Failure to Hangup Timer).
- This feature is only available in Generic 1003, Generic 1004 and Generic 1005.

Programming Enable COS Option 106 (Attendant New Call Tone) for the console.

Enable COS Option 122 (Attendant Multi–New Call Tone) for the console.

Set the desired time on COS Option 404 (Recording Failure to Hangup Timer). The default for COS Option 404 is 30 seconds.

Operation None

Attendant New Call Ring

- Description** If an attendant is already actively engaged with an incoming call, the first call placed in the attendant call waiting queue signals the attendant with a single burst of ringing. Subsequent calls do not alert the attendant when they are added to the queue. Their presence is shown by the call waiting indication on the top line of the display; see *Attendant Calls Waiting Display*.
- Conditions** The following conditions apply to this feature:
- This feature is disabled if the attendant bell is turned off from the console. Refer to Attendant Bell Off.
 - This feature is disabled if TONES ON is on.
- Programming** Enable COS Option 106 (Attendant New Call Tone) for the console.
- Operation** None

Attendant Night/Day Switching

- Description** The Attendant may select NIGHT1 service, NIGHT2 service, or DAY service via softkeys; also see *Night Services*.
- Conditions** The following conditions apply to this feature:
- When NIGHT1 or NIGHT2 has been selected by an Attendant Console, the status is displayed on the right-hand side of the destination line of the display for all affected consoles.
 - The console switches service for tenants controlled by that console; refer to CDE Form 06 (Tenant Night Switching Control) and to Practice 9109-096-230-NA, Tenanting.
- Programming** Refer to *Night Services* and to *Tenanting*.
- Operation** To switch to NIGHT1, NIGHT2, or DAY service, select the following keys:
- FUNCTION
 - NIGHT 1 or NIGHT 2 or DAY SERVICE

Attendant Override Announce

Description This feature allows an Attendant reaching a busy *SUPERSET* telephone to override to the called set's Call Announce Port. This operation takes precedence over normal override; see *Override Announce*.

Conditions The following conditions apply to this feature:

- See *Override Announce*.
- If a *SUPERSET 4* telephone being overridden has a Call Announce Port and the Attendant has Override Announce enabled, the conversation with the Attendant is through the telephone's speaker and microphone.

Programming To allow the Attendant to override to *SUPERSET 4* telephone Call Announce Ports, enable COS Option 500 (Override) and COS Option 501 (Override Announce) for the console.

Operation Having reached a busy number, press and hold down the console OVER-RIDE softkey.

Release the OVERRIDE key – the Attendant is released from the call.

Attendant Paging Access

Description The Attendant can access a paging zone or zones by using the PAGE key on the Attendant Console. Pressing the PAGE key connects the console handset directly to the zones of the paging equipment programmed for default access for the console. This overrides any extension announcement in progress. The Attendant can alternatively access the paging circuit by dialing the associated access code followed by a digit 0 – 9 for the zone required (0 accesses all zones).

See also *Attendant Paged Hold Access And Paging*.

Conditions The following conditions apply to this feature:

- If the attendant is to connect to specific zones, program an access code in Feature 13 (Paging Access to Specific Zones) in CDE Form 02 (Feature Access Codes).
- Any extension(s) using the paging zone(s) that the console is attempting to access is overridden and removed from the pager and given

busy tone. A *SUPERSET 4* telephone displays the message KICKED OFF.

- The console bell is turned off while the PAGE key is held down.
- If System Option 03 (Single Paging Amplifier) is enabled then the Attendant cannot override the current pager user(s).
- A console cannot override another console in a paging zone.
- For paging on all zones simultaneously, all zones must be either not in use or the console must be able to override the user of the zone(s).
- While the PAGE key is held down, all other console keys are non-operational.
- When on a pager that has been accessed by a feature access code, tone signalling can be turned on using the TONES ON softkey. See *Attendant Tone Signalling*.

Programming Enable one or more of the following COS Options for the console in CDE Form 03 (COS Define) as shown in the following table.

COS Option Number	Description
303	Paging Zone 1 Access
304	Paging Zone 2 Access
305	Paging Zone 3 Access
306	Paging Zone 4 Access
307	Paging Zone 5 Access
308	Paging Zone 6 Access
309	Paging Zone 7 Access
310	Paging Zone 8 Access
311	Paging Zone 9 Access
312	Paging Default (0 to 9) (0 Gives All Enabled Zones)

For access to the default zone, assign an access code to Feature 12 (Paging Access to Default Zone) in CDE Form 02 (Feature Access Codes).

Assign an access code to Feature 13 (Paging Access to Specific Zones) in CDE Form 02 (Feature Access Codes) for access to zones other than the default zones.

Operation

To connect to the default paging zone, hold down the PAGE key. The connection remains until the PAGE key is released.

To connect to a paging zone other than the default zone, dial the 'Paging Access To Specific Zones' access code, followed by the desired paging zone number (1-9).

While the console's default page zone is in use, the PAGE key LED is lit on all consoles for which the same default zone applies.

If the paging zone(s) cannot be accessed, busy tone is returned.

Attendant Paged Hold Access

Description The attendant can put a party on hold and page for someone to pick up the call from the attendant hold position. When paging the called party, the attendant announces the digit string that must be dialed to pick up the call.

Also see *Attendant Paging Access*.

Conditions The following conditions apply to this feature:

- Consoles, industry-standard telephones, *SUPERSET* telephones, DISA trunks and TIE trunks can pickup the held calls.
- The party picking up the call must be able to connect to the held party; see *Device Interconnection Control*.
- The attendant cannot pick up a held call if it has a source party.
- An extension cannot pick up the held party if the extension has a consultation hold in progress and the held party has COS Option 233 (Never A Consultee) enabled.
- A station or *SUPERSET* telephone (with a consultation hold in progress) cannot pick up the held trunk if the station or *SUPERSET* telephone has COS Option 214, (Cannot dial a trunk after flashing) enabled.
- A station or *SUPERSET* telephone with a conference with a trunk on consultation hold cannot pick up the held trunk if the station or *SUPERSET* telephone has COS Option 215, (Cannot Dial a Trunk if Holding or in Conf With a Trunk) enabled.

Programming Assign an access code to Feature 16 (Hold Pickup Access – Attendant Hold Slots).

Enable COS Option 225 (Hold Pickup Access – Attendant Hold Slots) in the COS of the device from which the pickup call is made.

Operation If paging the default paging zone:

- Put the calling party on hold using one of the console HOLD slots.

- When the Attendant presses the PAGE key, the console displays the access code assigned to Feature 16 followed by two digits that identify the console, followed by n. The “n” digit represents the hold slot number. The Attendant should learn the Hold Pickup Access code; it is not displayed when specific zone paging is used.
- Page the second party, specifying the displayed number (the last number being the number of the hold slot)
 - When the second party dials the displayed number, the second and held parties are connected.
 - If the paged party does not call, the held party recalls to the Attendant automatically; see *Attendant Hold Positions*.

If paging a zone other than the default zone:

- Put the calling party on hold using one of the console HOLD slots.
- Dial the ‘Paging Access To Specific Zones’ access code, followed by the desired zone.
- Page the second party, specifying the console’s Hold Pickup Access Code, followed by the number of the hold slot, e.g. 677002 (where 677 is the Access Code, 00 is the Console, and 2 is the Hold Slot number).
 - The paged party dials the announced code. If the paged party does not call, the held party recalls the Attendant automatically.

Attendant Serial Call

Description The attendant serial call feature allows an incoming trunk call to be set as a serial call before being transferred by the attendant. After the call is finished, the serial call recalls the attendant. This allows a caller to speak to several individuals in the PABX without the need for transfers by the called extensions.

Conditions The following conditions apply to this feature:

- Attendant Serial Call is available on all trunk calls for all trunk types.
- Serial call returns a trunk to the console that established the call under the following conditions:
 - The party, except a console, that is talking to a serial trunk hangs up.
 - ACD interflows a serial trunk to a DROP CALL interflow point.
 - A final ringback time out occurs for the serial trunk and it is not ringing a console, LDN or night bell.
- Transparent Multi-Console Operation has no effect on Serial Call.

- The RING AGAIN softkey does not appear for a serial trunk call that recalls back to the console (however it recalls).
- A serial call that is released to a Subattendant will not have its recall point changed to the Subattendant telephone; see *Subattendant*.
- Enabling serial call clears any previous serial call setting by another console and any recall point set up to any other device; see *Recall*.
- Serial calls appear at the RECALL call position at the console; see *Attendant Default Call Positions*.

Programming Enable COS Option 109 (Attendant Serial Call) for the console.

Operation To establish a Serial Call:

- Answer an incoming trunk call.
- Press the SERIAL CALL key.
- Dial the required destination extension number.
- Press the RELEASE key.

To answer a Serial Recall:

- ANSWER lamp flashes and RECALL softkey appears.
- Press the ANSWER key – ANSWER lamp is lit; SER, SRC, and SERIAL CALL is displayed on console.
- The Attendant is connected to the recalling trunk.

To cancel a Serial Recall:

- ANSWER lamp flashes and RECALL softkey appears.
- Press the ANSWER key – ANSWER lamp is lit; SER, SRC, and SERIAL CALL is displayed on the console.
- Press the SERIAL CALL key and the RELEASE key; SERIAL CALL goes out and the call is cleared.

Attendant Source Key

Description This feature allows the Attendant to press the SOURCE softkey to speak to the source party of a call, to swap between the source and destination parties or to split up a conference call.

The source party's extension number, COS, and COR are displayed on the first line of the console's LCD display and the destination party is put on consultation hold.

A party that is on consultation hold at the console does not hear system music.

See *Attendant Call Splitting And Swapping*.

Conditions This softkey only appears when the Attendant Console is connected to a multi-party call and the destination party can be put on Consultation Hold.

Programming None.

Operation Press the SOURCE softkey – the console is connected to the source party and the destination party is put on Consultation Hold.

Attendant Timed Recall

Description This feature automatically alerts the Attendant when a call extended through the console or a call held at the console has not been answered within the preselected time.

Selectable recall times include:

COS Option	Name	Timer Range
115	Attendant-Timed Recall – No Answer	5 to 240 s (0 = disable)
116	Attendant-Timed Recall – Hold	10 to 240 s
117	Attendant-Timed Recall – Campon	5 to 240 s (0 = disable)

For full details of Recall, see *Recall*. Also see *Attendant Transparent Multi-console Operation*.

Conditions The following conditions apply to this feature:

- A value of 0 for COS Options 115 and COS Option 117 disables the Recall; however, the final ring timeout applies.
- Recalls to the console are inoperative during Night Service unless the console is the night answer point.

Programming Select the desired recall times for COS Options 115 (Attendant-Timed Recall – NO ANSWER), 116 (Attendant-Timed Recall – HOLD), and 117 (Attendant-Timed Recall – CAMPON), in the Attendant console's COS.

COS Options 115 (Attendant-Timed Recall – NO ANSWER), 116 (Attendant-Timed Recall – HOLD), and 117 (Attendant-Timed Recall – CAMPON) apply to Attendant consoles only. They do not apply to sets.

Operation See *Recall*.

Attendant Tone Signalling

Description The attendant console usually does not transmit DTMF tones. Applications such as voice mail, however, may require the attendant to transmit tones. The attendant tone signalling feature allows the console to transmit DTMF tones during a call.

Conditions The following conditions apply to this feature:

- The TONES ON/OFF softkey does not appear if the Attendant is receiving an Audible Lockout Alarm (if enabled).
- The tones remain on unless turned off or the attendant places a party on hold, or retrieves a party from hold, or goes idle.
- The key appears if the console is talking to a trunk, *SUPERSET* telephone or industry-standard telephone or the console is on the pager through dialing a pager access code (not through the PAGE key).
- Dialing on the keypad by the attendant usually starts a new call implicitly, and puts the current party on consultation hold as the source party. With TONES ON enabled, this feature is disabled and either tones must be turned off or the call must be put on hold at one of the attendant hold positions before another call can be started.
- New Call Tone is disabled while TONES ON is enabled.

Programming Enable COS Option 119 (Attendant Tone Signalling) for the Attendant Console.

Operation Do the following:

- During a call, press the TONES ON key.
- Send DTMF tones (by pressing dial pad keys).
- Press TONES OFF to terminate DTMF signalling.

Attendant Training Jacks

- Description** Training jacks are provided on the Attendant Console for use by a Supervisor or Trainer who is training a new attendant. Each console is equipped with two Attendant jacks; either jack may be used by the Attendant, while the other provides a monitoring, Supervisor, or training function.
- Conditions** Removal of both headsets and/or handsets does not automatically switch the console into Night Service.
- Programming** None.
- Operation** Console or system operation does not change in any way.

Attendant Transfer To Campon

- Description** This feature allows the Attendant to connect calls to a busy extension, hunt group or trunk group for automatic completion when the called busy party becomes free. The attendant itself cannot camp on but can transfer calls into campon; see *Campon*. For details of recall from Campon, see *Recall*.
- Conditions** The following conditions apply to this feature:
- Calls that are not completed within the campon time-out will recall; see *Recall*.
 - The transferred party must be able to connect to the busy party; see *Device Interconnection Control*.
 - A transfer cannot be made to a locked-out extension.
- Programming** Specify a time-out period in COS Option 117 (Attendant-Timed Recall – CAMPON); (default time is 30 seconds). A value of 0 disables recall from Campon to the Attendant.
- Enable COS Option 301 (Campon) for the console to transfer to internal devices; enable COS Option 237 (Outgoing Trunk Campon) for transfers to busy trunk groups.
- Operation** To camp a call onto a busy number:

- Attempt a call to a busy extension.
- Press the RELEASE key.
 - this automatically camps on the calling party to the busy number. If the transfer is not allowed then a beep tone is heard, CANT is displayed on the console, and no transfer is done

Attendant Transparent Multi-Console Operation

- Description** The Attendant Transparent Multi-Console Operation feature allows some features to apply to a group of consoles within a Tenant. Messages set by any console in this group can be read or canceled by any consoles within this group. Recalls to the RECALL softkey for any console in the group can be answered by any of the consoles in the group.
- Conditions** The following conditions apply to this feature:
- Transparent Multi-Console Operation must be enabled for each participating console.
 - When a *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420*, or *SUPERSET 430* telephone user presses the CALL softkey to call the console in response to a message received, if the message was left by a console with the Transparent Multi-Console Operation feature enabled, the call is turned into a normal Dial 0 call and routes to the Dial 0 point of the *SUPERSET* telephone.
- Programming** Enable COS Option 320 (Transparent Multi-Console Operation) for each console within this tenant that is to be a member of the group.
- Assign access codes to the Dial 0 entry in CDE Form 19 (Call Rerouting Table) for the tenant of the caller. To have the calls ring the attendant in the group, the access code must be an LDN on the consoles in the console group.
- Operation** One attendant can read or cancel another attendant's message waiting indications.
- Calls that have been extended by one attendant will recall at multiple attendant consoles.

Attendant Trunk Busy-Out

Description The Attendant may busy-out a trunk to prevent access to the trunk, and may remove the busy condition as required. If the Trunk Busy-Out Enable option is not selected, the Attendant may still access individual trunks, but is unable to force them into a busy condition.

Conditions The following conditions apply to this feature:

- As with station and *SUPERSET* telephones, if the trunk is not idle when the busy is attempted, the busy out will be pending and will be processed when the trunk becomes idle.
- The console must be able to connect to the trunk; see *Device Interconnection Control*.

Programming Enable COS Option 114 (Attendant Trunk Busy-Out) for the console.

Operation To busy out a trunk, perform the following procedure:

- Press the FUNCTION key.
- Press the ATT FUNCTION softkey.
- Press the TRUNKS softkey.
- Enter trunk number.
- Press the BUSY OUT softkey.
- Press the SET softkey.

To return a trunk to service, perform the following procedure:

- Press the FUNCTION key.
- Press the ATT FUNCTION softkey.
- Press the TRUNKS softkey.
- Enter trunk number.
- Press the BUSY OUT softkey.
- Press the CLEAR softkey.

Attendant Trunk Group Status Display

- Description** This feature allows the Attendant to display the status of the trunk groups in the PABX. If this feature is activated while the console is idle, the display is refreshed approximately every 5 seconds, to allow a constant up-to-date monitoring of the trunk groups.
- Conditions** A black square appears under a trunk group number if all the trunks in that group are busy.
- Programming** None.
- Operation** To obtain a trunk group status report, press the following keys:
- TRUNK GROUP key
 - MORE or EXT softkey.

Auto-Answer

- Description** When the Auto-Answer feature is active, incoming calls ring briefly, then the set answers the call in Handsfree mode; see *Handsfree Operation*. When the caller hangs up, a short burst of tone is heard over the *SUPERSET* telephone's speaker and the set goes idle. Call origination is not affected.
- This feature is available on *SUPERSET 3*, *SUPERSET 4*, *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 420*, and *SUPERSET 430* telephones.
- Conditions** The following conditions apply to this feature:
- A directed page to a *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 420* or *SUPERSET 430* in auto-answer mode is handled like a normal directed page: the set rings briefly, then the set speaker turns on, but the set microphone remains off.
 - There are no restrictions on the connection of Auto-Answer *SUPERSET* telephones and loop start CO and DISA trunks.
 - Auto Answer is not available on industry standard telephones, *SUPERSET 401* telephones, or *SUPERSET 410* telephones. Auto-Answer is available, however, on *SUPERSET 410* telephones when a headset is used (see *Headset Operation*).

- The set does not actually warble; instead an alerting tone is heard through the speaker. Call end tone is heard when the call is completed.
- If Auto-Answer is used with the headset feature then the tones are heard in the headset and not through the speaker.
- The feature prevents calls directed at the prime line of the *SUPERSET* telephone from ringing other appearances of the prime line because the call is automatically answered. If the call is not automatically answered (the prime appearance or the *SUPERSET* telephone is busy) then the other appearances ring if possible.
- The feature only operates for calls directed at the prime line of a *SUPERSET* telephone.
- The feature prevents any other line appearances on the set from causing the set to ring. Instead, the new call ring is used to notify the set user of new calls on other lines.
- In some cases where the *SUPERSET* telephone would be put suspended at the end of a call, a set with Auto-Answer enabled goes idle immediately.
- Auto-Answer is ignored when callbacks, recalls and hold timeout recalls ring the *SUPERSET* telephone.
- In ACD, agents can be forced into Auto-Answer mode upon login; refer to Practice 9109-096-620-NA, *ACD TELEMARKETER®* Application Package.

Programming Enable COS Option 600 *SUPERSET* (Auto-Answer) in the telephone's COS.

To enable Auto Answer for a *SUPERSET 410* telephone that is equipped with a headset, enable COS Option 600 *SUPERSET* (Auto-Answer) and COS Option 612 (*SUPERSET* Telephone – Headset Operation) in the *SUPERSET 410* telephone's COS.

To provide access code activation of Auto-Answer, program a Feature 02 (Auto-Answer) access code in CDE Form 02 (Feature Access Codes).

To provide feature key activation of Auto-Answer at *SUPERSET 3DN*, *SUPERSET 4 DN*, *SUPERSET 410*, *SUPERSET 420*, or *SUPERSET 430* telephones, program an AUTO-ANSWER feature key. (See Feature Keys.)

Operation Operation varies depending on the type of *SUPERSET* telephone as described below.

***SUPERSET 3* Telephones:**

To activate Auto-Answer:

- Dial the Auto-Answer feature access code, followed by the digit "1".

To deactivate Auto-Answer:

- Dial the Auto-Answer feature access code, followed by the digit "2".

SUPERSET 4 Telephones:

To activate Auto-Answer:

- Press the SELECT FEATURES key.
- Dial 3. (Feature 3 is Auto-Answer (3:AUTO ANS)).
- Press the ON softkey.

To deactivate Auto-Answer:

- Press the SELECT FEATURES key.
- Dial 3. (Feature 3 is Auto-Answer (3:AUTO ANS)).
- Press the OFF softkey.

SUPERSET 420 Telephones:

To activate Auto-Answer:

- Press **SuperKey**.
- Press the **No** softkey until AUTO ANSWER? appears in the display.
- Press the **TurnOn** softkey. AUTO ANSWER ON appears briefly in the display. The display returns to showing the date and time.

To deactivate Auto-Answer:

- Press **SuperKey**.
- Press the **No** softkey until AUTO ANSWER? appears in the display.
- Press the **TurnOff** softkey. AUTO ANSWER OFF appears briefly in the display. The display returns to showing the date and time.

Note: You can also use the AUTO-ANSWER feature key to turn Auto Answer on and off.

SUPERSET 3 DN, SUPERSET 4 DN and SUPERSET 430 Telephones:

To activate Auto-Answer:

- Press the AUTO-ANSWER feature key. The adjacent LCD indicator darkens, or,
- Dial the Auto-Answer feature access code, followed by the digit "1". If a feature key has been programmed, the adjacent LCD indicator darkens.

To deactivate Auto-Answer:

- Press the AUTO-ANSWER feature key. The adjacent LCD indicator clears, or,

- Dial the Auto-Answer feature access code, followed by the digit "2". If a feature key has been programmed, the adjacent LCD indicator clears.

Auto-Answer For Directed Page Calls

Description This feature enables users of *SUPERSET 3 DN* and *SUPERSET 4 DN* telephones to respond handsfree to a directed page. If a directed page from a Key Set Telephone is broadcast over the user's set, the set microphone is activated automatically allowing the user to speak handsfree to the calling party.

The *Auto-Answer in Response to Directed Page Calls* feature is only available on *SUPERSET 3 DN* and *SUPERSET 4 DN* telephones. Note that the *Handsfree Answerback* feature provides a similar type of functionality for *SUPERSET 410*, *SUPERSET 420* and *SUPERSET 430* telephones.

Conditions The following conditions apply to this feature:

- COS Option 600 (Auto-Answer) and COS Option 682 (Key System – Auto-Answer – Internal Calls) cannot be enabled at the same time.
- This feature is only available Generic 1005.
- If this feature is used in combination with the headset feature then calling tones are heard through the headset and not through the speaker.
- A Directed Page cannot be made to a set that has DND enabled.
- A directed page can only be made from a *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 401*, *SUPERSET 410*, *SUPERSET 420*, or *SUPERSET 430* that has been programmed as a Key Set (refer to Key Set/System Support).

Programming Enable COS Option 682 *SUPERSET* (Key System – Auto-Answer – Internal Calls) in the telephone's COS.

To provide feature key activation of Auto-Answer in response to Directed Page Calls at *SUPERSET 3 DN*, or *SUPERSET 4 DN* telephones, program an AUTO-ANSWER feature key. (See Feature Keys.)

Operation ***SUPERSET 3 DN* and *SUPERSET 4 DN* Telephones:**

To activate Auto-Answer for Directed Page Calls:

- Press the AUTO-ANSWER feature key. The adjacent LCD indicator darkens, or,

- Dial the Auto–Answer feature access code, followed by the digit “1”. If a feature key has been programmed, the adjacent LCD indicator darkens.

To deactivate Auto–Answer for Directed Page Calls:

- Press the AUTO–ANSWER feature key. The adjacent LCD indicator clears, or,
- Dial the Auto–Answer feature access code, followed by the digit “2”. If a feature key has been programmed, the adjacent LCD indicator clears.

Auto–Hold

Description	A <i>SUPERSET</i> telephone user automatically places a call on hold when another Line Select or Speedcall key on the telephone is pressed. When this is not desirable, a COS option can be programmed which allows a call to be placed on hold only by pressing the HOLD key.
Conditions	The following conditions apply to this feature: <ul style="list-style-type: none">• Auto–Hold is not available on <i>SUPERSET 401</i> telephones or on Industry Standard Telephones.• When this feature is disabled, calls can only be placed on hold by pressing the HOLD key.• See <i>Hold</i> for conditions on putting a call on hold. If the hold is not allowed then the Line Select or Speedcall key is ignored.• When this feature is disabled, and another line is selected, the call on the current line is dropped.• The auto–hold only occurs when a Line Select key is pressed while dialing or talking, or when a Speedcall key is pressed while talking.• If a Line Select key is pressed when dialing, if there is a consultation hold in progress then that party is automatically placed on hold.
Programming	Enable COS Option 601 (<i>SUPERSET</i> – Auto–Hold Disable) to disable the Auto–Hold feature.
Operation	Establish a call. Press any Speedcall key or Line Select key; the call is placed on hold. If a Speedcall key is pressed, the system prompts for a line to use to start the Speedcall call.

Automated Attendant

Description The automated attendant feature connects incoming calls from a DTMF telephone to a recording and a receiver. The recording directs the caller to dial one or more digits to be routed to a specific answering point, such as sales, service, parts, or general office. Once a digit has been dialed, the system can add prefix digits in front of the dialed digit to provide a valid extension number, a hunt group number, a system abbreviated dial number, or a feature access code, to route the call to a specific answering point. If a digit is not dialed (or cannot be dialed because the incoming telephone is not DTMF) the incoming caller is routed to a default answering point at the completion of the recording.

This feature is available in Generic 1003, Generic 1004 and Generic 1005 with *ACD TELEMARKETER* Application Package.

For details refer to Practice 9109-096-625-NA, Automated Attendant Application Package.

Conditions Refer to Practice 9109-096-625-NA, Automated Attendant Application Package.

Programming The following System Options apply:

- 16 – Automated Attendant
- 59 – Receivers Reserved for Non-Auto-Attendant Use.

Refer to Practice 9109-096-625-NA, Automated Attendant Application Package.

Operation None.

Automatic Call Distribution (ACD)

Description Automatic Call Distribution (ACD) is a method of distributing calls evenly among trained operators (Agents). Refer to Practice 9109-096-620-NA, *ACD TELEMARKETER* Application Package for more information.

Automatic Call Distribution is not available with Generic 1001 or Generic 1002.

Conditions Refer to Practice 9109-096-620-NA, *ACD TELEMARKETER* Application Package.

Programming The following System Options apply:

- 41 – Automatic Call Distribution
- 42 – ACD Silent Monitoring
- 43 – ACD Silent Monitoring Beeps
- 44 – ACD Reports.

The following COS Options apply:

- 650 – ACD Agent Template
- 651 – ACD Supervisor Template
- 652 – ACD Senior Supervisor Template
- 653 – ACD Agent Always Auto-Answer
- 812 – Loop Start Trunk to ACD Path Connect.

The following Feature Access Codes apply:

- 44 – ACD Login/Logout
- 45 – ACD Silent Monitoring.

Refer to Practice 9109-096-620-NA, *ACD TELEMARKETER* Application Package for further information.

Operation Refer to Practice 9109-096-620-NA, *ACD TELEMARKETER* Application Package.

Automatic Number Identification (ANI) on Outgoing Trunks

Description This feature is a mechanism that allows the PABX to identify a calling party on an outgoing trunk. The identifying information consists of the calling party's extension number which is transmitted (tones or pulses) on the trunk, after the PABX has successfully dialed an external number on that trunk.

Conditions The following conditions apply to this feature:

- The far-end must provide answer supervision and be capable of handling the ANI protocol.
- The extension numbers of station and *SUPERSET* telephones and consoles are sent.
- If the caller has forwarded to the ANI trunk then the forwarding extension's number is sent.

Programming Enable COS Option 800 (ANI Applies) for the trunk.

Enable Circuit Descriptor option "Far End Gives Supervision" for the trunk.

The Circuit Descriptor option "DTMF" for the trunk must match the far end.

Operation When a call is made on an ANI trunk, an answer supervision received on the ANI trunk is treated as a signal to send the calling party's extension number. During transmission of the calling extension number, the calling party is not connected to the speech path. This inhibits putting any noise (that could be mistaken for DTMF signalling) onto the line until all dialing is finished. Once the extension number has been sent, the calling party's audio will be cut through and no further signalling will occur.

Automatic Number Identification (ANI)/ Dialed Number Identification Service (DNIS) on Incoming Trunks

Description This feature allows the PABX to identify Automatic Number Identification (ANI) numbers and Dialed Number Identification Service (DNIS) numbers that are transmitted to the PABX on an incoming trunk. ANI provides the telephone number of the calling party; DNIS provides the telephone number dialed by the calling party.

The *SX-200* DIGITAL PABX can receive ANI and DNIS numbers on specific types of incoming non-DISA trunks. After receiving ANI and DNIS numbers for an incoming call, the *SX-200* DIGITAL PABX can then make the numbers available to other functions within the system. You can program the *SX-200* DIGITAL PABX to provide ANI and DNIS numbers to *SUPERSET* display telephones, to *SUPERSET* consoles, to SMDR printers, and to application platform packages.

On a *SUPERSET* console, the ANI and DNIS digits for an incoming call are displayed after the call is answered. The ANI digits appear where the trunk information is normally displayed; the DNIS digits overwrite the COS and COR fields on the console display. When ANI digits are not received, the trunk information is shown instead; when DNIS digits are not received, the COS and COR fields are visible. By default, ANI and DNIS numbers are not displayed.

On *SUPERSET* display telephones, the display shows DNIS digits while the call is unanswered. After the user answers the call, the ANI digits are displayed. Whenever ANI digits are not available for a call, the display shows the DNIS digits during both the unanswered and answered states. Whenever DNIS digits are not available, the display shows the ANI digits during both the unanswered and answered states. If neither are available, the display shows the normal trunk information. By default, ANI and DNIS numbers are not displayed.

If COS Option 613 (Display ANI Information Only) is enabled, the *SUPERSET* telephone displays the ANI digits during both the unanswered and answered states. In this case, if ANI digits are not provided, the display shows the normal trunk information.

You can program the system to record ANI and DNIS digits in the SMDR reports. The digits are recorded at the end of the trunk SMDR record. Both ANI and DNIS numbers are recorded up to a maximum of 10 digits in length. By default, ANI and DNIS numbers are not recorded in SMDR reports.

This feature is available in Generic 1005 systems only.

Conditions

The following conditions apply to this feature:

- Only non-DISA trunks that are programmed with a T1 E&M, or T1 DID/TIE trunk circuit descriptor can receive ANI and DNIS digits.
- Incoming trunks must use DTMF signalling, and have a Wink Timer.
- Only MCI and US Sprint standards are supported.
- If US Sprint standard is used, calls cannot be routed to extensions that have an * in their access number.
- The PABX waits a maximum of 200 ms for each ANI/DNIS digit. If it doesn't receive a digit within the 200 ms timeout period, the PABX routes the call through to the extension.
- The PABX uses the DNIS digits that are collected for an incoming call to route the trunk call through the system.
- The ANI and DNIS digit displays take priority over Analog Networking digits, trunk group names, trunk names and trunk numbers.
- If the PABX doesn't receive any ANI or DNIS digits for a call, then the console or set display shows the trunk information of the call instead.
- ANI and DNIS digit displays follow standard Call Forwarding rules (See Call Forwarding).
- On *SUPERSET* Consoles, Tenant Names and Calling Line Identification displays take priority over ANIS digits, and the following displays take priority over DNIS digits:
 - Intercept reasoning (FROM xxxx DND)
 - Forwarding Information (FWD FROM xxxx).

Programming

Enable COS Option 811 (ANI/DNIS Trunk) and disable COS Option 801 (Incoming Trunk Call Rotary) for the trunk in Form 03.

In Form 13, assign the ANIS/DNIS trunk with one of the following Trunk Circuit Descriptors:

- T1 E&M
- T1 DID/TIE

In the circuit descriptor options subform of Form 13, program the following options for the ANI/DNIS trunk:

- Set the "Incoming Start Type" option to "Wink".
- Set the "Wink Timer" to the required standard (100–350 ms for MCI; 140–290 ms for US Sprint).
- Set the "Debounce Timer" to 100 ms or greater.

Define the ANI/DNIS trunk as a (non–dial–in) trunk in Form 14, or as a TIE or DID trunk (non–DISA) in Form 15.

To program the PABX to display ANI and DNIS digits on a *SUPERSET* display set or console, enable COS Option 502 (Display ANI/DNIS Information) in the Class of Service for the set/console.

When COS Option 502 (Display ANI/DNIS Information) is enabled, *SUPERSET* display telephones show the DNIS digits during the ringing state, and ANI digits during the answered state. To program a *SUPERSET* display telephone to show the ANI digits during both the unanswered and answered states, enable COS Option 613 (Display ANI Information Only) in the Class of Service for the set. By default, COS Option 613 (Display ANI Information Only) is disabled.

If you want ANI and DNIS digits recorded in the SMDR records, enable COS Option 806 (SMDR–Record Incoming Calls) and COS Option 814 (SMDR–Record ANI/DNIS) in the Class of Service for the trunk.

Operation None.

Automatic Route Selection (ARS)

Description The *SX–200* DIGITAL PABX Automatic Route Selection (ARS) feature package combines the concepts of standard ARS (selecting optimum call routes, inserting/deleting routing digits) and Toll Control (allowing/disallowing specific extensions the ability to make specific types of external/long distance calls).

Also provided are:

- a universal numbering plan capability,
- six time–of–day zones,
- three day zones for week days, and
- overlap outpulsing.

Features Description

Refer to Practice 9109–096–220–NA, Automatic Route Selection and Toll Control.

Conditions Refer to Practice 9109–096–220–NA, Automatic Route Selection and Toll Control.

Programming System Option 47 – ARS Unknown Digit Length Timeout applies (36 in Generic 1001). Refer to Practice 9109–096–220–NA, Automatic Route Selection and Toll Control, for further information.

Operation Refer to Practice 9109–096–220–NA, Automatic Route Selection and Toll Control.

Background Music

Description This feature permits the user of a *SUPERSET 4*, *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 410*, *SUPERSET 420*, or *SUPERSET 430* telephone to have background music played through the speaker of the telephone when idle. The Music On Hold source provides the music; see *Music On Hold*. This feature is available only on a *SUPERSET 4* telephone in Generic 1001.

Conditions The following conditions apply to this feature:

- This feature applies only to *SUPERSET 3 DN*, *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 410*, *SUPERSET 420*, and *SUPERSET 430* telephones.
- Background music is automatically temporarily suspended when a call is placed or received; it is restored after the *SUPERSET* telephone is returned to idle. In Generic 1001, music is not restored after interruption.

Programming Enable COS Option 602, Background Music in the set's COS.

To activate and deactivate music on a *SUPERSET 3 DN*, *SUPERSET 410*, or *SUPERSET 420* telephone, program a MUSIC feature key. (See Feature Keys.)

Operation Operation varies depending on the type of *SUPERSET* telephone:

***SUPERSET 4* Telephones:**

- Press the softkey under the musical note appearing on the LCD display.

- Adjust the set's speaker volume control as necessary (this adjustment also affects Handsfree volume).
- To turn off the music, press the musical note softkey again.

SUPERSET 3 DN, SUPERSET 410 and SUPERSET 420 Telephones:

To turn on background music:

- Press the MUSIC feature key. The adjacent LCD indicator darkens. Music is heard through the set's speaker. Adjust the set's speaker volume as desired. This adjustment does not affect the Handsfree speaker volume.

To turn off background music:

- Press the MUSIC feature key. The adjacent LCD indicator, which was dark, clears.

SUPERSET 4 DN and SUPERSET 430 Telephones:

To receive background music:

- Press the **Music On** softkey. Music is heard through the set's speaker. Adjust the set's speaker volume as desired. This adjustment does not affect the Handsfree speaker volume.

To turn off background music:

- Press the **Music Off** softkey.

Broker's Call (Station Swap)

Description Broker's Call allows the user to speak privately with two separate parties. When the user hangs up, the two parties are not connected. This feature applies to *SUPERSET 401* telephones and industry standard telephones.

Users that have this feature enabled can't transfer calls. However, a variant on Broker's Call is the Broker's Call with Transfer feature. The Broker's Call with Transfer feature enables the user to speak privately with two separate parties while allowing transfers; see *Broker's Call with Transfer*.

Conditions The following conditions apply to this feature:

- Enable COS Option 203 (Broker's Call) in the COS of industry-standard telephones and *SUPERSET 401* telephones that require the Broker's Call feature. Users of *SUPERSET 3*, *SUPERSET 3 DN*, *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 410*, *SUPERSET 420*,

and *SUPERSET 430* telephones perform Broker's Calls using a SWAP feature key or SWAP softkey (see *Swap-Trade Calls*).

- Industry-standard telephones and *SUPERSET 401* telephones that have COS Option 203 (Broker's Call) enabled cannot set up conference calls or make call transfers.
- This feature prevents an industry-standard telephone or *SUPERSET 401* telephone from putting a conference on consultation hold; reorder tone is returned if it is attempted.
- If the extension originating the Broker's Call hangs up with a party on hold, the held party recalls to the extension instead of being transferred to a third party (see *Station Transfer Security*). COS Option 403 (Trunk Recall Partial Inhibit) is an exception to this.
- An extension with the Broker's Call feature may access the Call Hold, Call Hold and Retrieve, and Paging features after flashing on a call.
- COS Option 203 (Broker's Call) and the following COS Options are mutually exclusive:
 - 302 (Flash-In Conference)
 - 252 (Broker's Call With Transfer) – (250 – Transfer With Privacy in Generic 1001)
 - 223 (Flash Disable)
 - 224 (Flash for Attendant).
- The following COS Options do not apply to an extension with Broker's Call enabled:
 - 214 (Cannot Dial a Trunk after Flashing)
 - 215 (Cannot Dial a Trunk if Holding or Conf With One).

Programming Enable COS Option 203 (Broker's Call) for the extension.

Operation Operation varies depending on the type of telephone as described below.

Industry-standard Telephones:

A normal 2-party call is established, and the extension user requires to consult a third party:

- Flash the switchhook – dial tone is heard, and the second party is placed in consultation hold.
- Dial the number of the third party and establish a private 2-party conversation.
- To alternate between calls, flash the switchhook.

***SUPERSET 401* Telephones:**

A normal 2-party call is established, and the extension user requires to consult a third party:

- Press the **Flash** key – dial tone is heard, and the second party is placed in consultation hold.
- Dial the number of the third party and establish a private 2-party conversation.
- To alternate between calls, press the **Flash** key.

Broker's Call With Transfer (Transfer With Privacy)

Description

The Broker's Call With Transfer (Transfer With Privacy) is similar to the Broker's Call feature but users are also able to transfer calls. A flash is interpreted as a Swap instead of an attempt to conference (see Broker's Call). A conference cannot be formed by an extension that has Broker's Call With Transfer enabled. However, unlike Broker's Call, when the extension goes on-hook to transfer an extension, the transfer is not prevented. As well, some consultation COS option checks are not done with the Broker's Call feature but they are done for Broker's Call With Transfer. Also see *Broker's Call (Trade Calls)* for general information about Broker's Calls.

This feature applies to *SUPERSET 401* telephones and industry standard telephones.

Conditions

The following conditions apply to this feature:

- COS Option 252 (Broker's Call With Transfer) (previously Transfer With Privacy) is mutually exclusive with the following options:
 - 302 (Flash-in Conference)
 - 224 (Flash for Attendant)
 - 223 (Flash Disable)
 - 203 (Broker's Call).
- An extension with COS Option 233 (Never a Consultee) may not be consulted.
- COS Options 214 (Cannot Dial a Trunk After Flashing) and 215 (Cannot Dial a Trunk After Flashing If Holding or in Conference With One), do not apply to an extension with COS Option 252 (Broker's Call With Transfer) (previously Transfer With Privacy) enabled.

Note: COS Option 252 (Broker's Call With Transfer) is numbered 250 in Generic 1001.

Programming If desired for extensions enable COS Option 252 (Broker's Call With Transfer) (previously Transfer With Privacy).

Operation **Industry-standard Telephones:**

A normal 2-party call is established, and the extension user requires to consult a third party:

- Flash the switchhook – dial tone is heard, and the second party is placed in consultation hold.
- Dial the number of the third party and establish a private 2-party conversation.
- To alternate between calls, flash the switchhook.
- Hang up to connect both parties.

SUPERSET 401 Telephones:

A normal 2-party call is established, and the extension user requires to consult a third party:

- Press the **Flash** key – dial tone is heard, and the second party is placed in consultation hold.
- Dial the number of the third party and establish a private 2-party conversation.
- To alternate between calls, press the **Flash** key.
- Hang up to connect both parties.

Busy Lamp Field

Description A Busy Lamp Field (BLF) on the *SUPERSET™ DSS* Module, indicates to the user, the status (idle, busy, DND) of a line appearance for a device such as, normal stations, *SUPERSET* prime lines, key system telephone intercom lines, logical lines and trunks. Any *SUPERSET* telephone with line keys may be programmed to use BLF indicators. When a *SUPERSET DSS* Module is added to a *SUPERSET* telephone and the *SUPERSET DSS* Module is programmed for BLF, the *SUPERSET DSS* Module provides the user with 32 BLF indicators arranged in two rows of 16. Up to a maximum of 64 BLF indicators can be added to one *SUPERSET* telephone by using two *SUPERSET DSS* Modules.

Note: When the *SUPERSET DSS* Module is programmed for BLF functions, the keys associated with each of the BLF indicators have no function. The function of the key is part of the Direct Station Select feature – see *Direct Station Select* in this document.

The BLF indicator of a trunk line appearance, indicates the state of the trunk (idle or not idle).

The BLF indicator of logical lines, indicates whether or not a call to the line will find the line busy. If the line is a multi-call line, the BLF indicator indicates idle until there are no free line appearances to ring. If the line is a key line, the BLF indicator indicates whether or not the line is occupied.

Conditions This feature is not available in Generic 1001.

Programming To program BLF indications of line appearances on the *SUPERSET DSS* Module, perform the following steps:

- While in CDE Form 09 (*Station /SUPERSET Telephones*) or CDE Form 45 (*Key System Telephones*), position the cursor on the *SUPERSET DSS* module (BLF in the TYP field), press the EXPAND SET softkey (Expand Set sub-form is displayed).
- Move cursor to the desired key.
- Move cursor to the TYPE column (use TAB key if necessary).
- Press the BLF/DSS softkey (Type becomes “Busy Lamp”).
- Press TAB key 3 times to get to EXT NUM column (or 4 times to get to the TRK NUM column).
- Enter the number of the device to be monitored by the Line Appearance.
- Press the ENTER softkey.

Operation When answering an incoming call for one of the monitored stations, the attendant or *SUPERSET* user can scan the Busy Lamp Field on the *SUPERSET DSS* module(s) to instantly determine its current status.

Calculator

Description *SUPERSET 4 DN* and *SUPERSET 430* telephones provide a basic four function calculator using the telephone keypad, display, and softkeys. The calculator has 2 modes of operation – General and Programmer. Once the calculator feature is accessed, the # key may be used to switch between the two modes. The default mode is the General mode.

General Mode: In this mode of operation, the calculator allows for arithmetic operations. The telephone keypad is used as the numeric keypad; the * key is used as the decimal point key. Arithmetic operators (\times , $+$, $-$, \div), clear entry/clear (CE/CLR) and another decimal point key appear on the softkeys. The display is on the top line of the LCD display.

Programmer Mode: In this mode of operation, the calculator allows for integer arithmetic / logical operations in either decimal or hexadecimal. In this mode, each softkey has 2 functions – the active function is designated by the ► pointer. To change to the second function, press the 2ND FUNCTION softkey. The display is on the top line of the LCD display. The second line of the display is the status register (nzvc – negative, zero, overflow, carry). When a bit in the status register is set, the corresponding letter is capitalized. The RADIX softkey switches between hexadecimal and decimal. The CLR softkey clears the displayed value (if there is no pending operator. Pressing the CLR softkey twice will always clear the status register. All operations are 32-bit. To enter hexadecimal characters A through F, enter the following: A=*1, B=*2, C=*3, D=*4, E=*5 and F=*6.

Conditions This feature is available only on *SUPERSET 4 DN* and *SUPERSET 430* telephones.

Programming None

Operation The calculator feature operates as follows:

- Press **SuperKey**.
- Press **Calculator** softkey.
- Press **SuperKey** when completed.

Call Announce

Description This feature allows a caller to announce a call through a *SUPERSET 4* telephone's speaker (Call Announce Port) prior to transferring it. When the held party is released to the *SUPERSET* telephone the transfer is made to the *SUPERSET* telephone itself – if the set is idle, it rings; if it is busy, the call camps on. Also see *Call Announce Port*.

Conditions The following conditions apply to this feature:

- Call Announce operates only on *SUPERSET 4* telephones.
- The *SUPERSET 4* telephone can be on a call at the time.

- Call Announce operates on a *SUPERSET 4* telephone regardless of the type of device originating the call.
- The user can perform a Call Announce via a Speedcall key or Abbreviated Dial number only.
- The *SUPERSET 4* telephone must not be Handsfree (using the speaker) at the time.
- The Call Announce Port can only handle one caller at a time.
- If the Call Announce Port is busy then the call continues as usual as if the *SUPERSET 4* telephone had been dialed directly.
- The feature is ignored if the *SUPERSET 4* telephone has the Non-busy Extension feature enabled.
- The call announce cannot be put on hold or consultation hold or conferenced with a party on consultation hold.

Programming Program the set extension number followed by *5 into a Speed Call number or Abbreviated Dial number, as required.

Enable COS Option 501 (Override Announce) in the caller's COS.

Program the Call Announce Port for the *SUPERSET 4* telephone in CDE Form 09 (Station/*SUPERSET* Telephones).

Operation If a call is to be transferred, place it on Consultation Hold (flash the switchhook, press the **Flash** key, or press TRANS/CONF key, as appropriate for type of set).

Press the SPEED CALL key or dial the Abbreviated Dial number of the set with the Call Announce Port (CAP).

The CAP answers automatically; make the announcement.

Hang up; if there is a call on hold, it rings or camps on to the destination.

Call Announce Port

Description The Call Announce Port is an auxiliary port that allows a caller to communicate through the Handsfree speaker of a *SUPERSET 4* telephone. This is possible while there is a call in progress at the telephone on the telephone's handset. The Call Announce Port itself occupies a separate line circuit and is connected to the second pair on the *SUPERSET 4* telephone. See *Call Announce, Override Announce, and Intercom* for details on the uses of a Call Announce Port.

Conditions The following conditions apply to this feature:

- A Call Announce Port is available only on a *SUPERSET 4* telephone.
- The *SUPERSET 4* telephone can be busy or idle, but cannot be operating in Handsfree mode, when the Call Announce Port is accessed.
- The Call Announce Port must be programmed for and connected to the black/yellow (auxiliary) pair of its associated *SUPERSET 4* telephone.
- The Call Announce Port (CAP) must be connected to a COV card, a digital OPS card or an analog Line Circuit card; hardware restrictions prevent an ONS port being used for a CAP.
- The Call Announce Port can accept only one caller at a time.
- A Call Announce Port cannot be put on hold or consultation hold or conferenced with a party on consultation hold.
- The *SUPERSET 4* telephone must not be Handsfree (using the speaker) at the time that the call to the Call Announce Port is made. The CAP is considered busy if this is the case.
- No device connection checking is done between a Call Announce Port and calling devices.

Programming Program the Call Announce Port for the *SUPERSET 4* telephone in CDE Form 09 (Station/*SUPERSET* Telephones).

Operation See the features which access a *Call Announce Port*.

Call Forwarding – Generic 1004 and Generic 1005

Description Call Forwarding allows a user to forward calls from the normal extension to an alternate destination. The user may establish Call Forwarding for many reasons. Call Forwarding is set up by the extension, or by an attendant console, subattendant, or another extension for the extension (for example – I'm here). Call Forwarding destinations are internal to the PABX, except for Call Forwarding – External which forwards calls to an external destination, by system Abbreviated Dial number, personal Speedcall key, or personal Speedcall. Table 2-3 lists the types of Call Forwarding available with Generic 1004/Generic 1005; each is described separately in this section.

Table 2-3 Call Forwarding Types Available With Generic 1004 and Generic 1005

Call Forwarding – Busy
Call Forwarding – Don't Answer
Call Forwarding – Follow Me
Call Forwarding – I'm Here
Call Forwarding – External (destination)
Call Forwarding – Internal / External Split (according to source)
Call Forwarding – Busy / No Answer

Feature Access Codes Which Activate Call Forwarding Types

To activate Call Forwarding, the extension must dial the digits programmed for one of the following feature access codes.

- 03 – Call Forwarding – All Calls
(split forwarding must be disabled)
- 04 – Call Forwarding – Internal Only
(split forwarding must be enabled)
- 05 – Call Forwarding – External Only
(split forwarding must be enabled)
- 06 – Call Forwarding – I'm Here
- 07 – Call Forwarding – Cancel I'm Here.

Condition Codes To Be Dialed Following Feature Access Codes 03 – 05

After dialing a feature access code, the user must dial the condition code to identify the condition under which the call is to be forwarded. This does not apply for Call Forward – I'm Here and Cancel I'm Here.

- 1 – Always (Unconditionally)
- 2 – Busy
- 3 – No Answer
- 4 – Busy or No Answer

Two examples of call forwarding from an extension are:

Internal calls are to be forwarded to 1701 when not answered	External calls are to be forwarded to 1702 when busy or not answered
Go off-hook and receive dial tone	Go off-hook and receive dial tone
Dial Call Forward Internal access code – 65	Dial Call Forward External access code – 62
Dial Condition code for No Answer – 3	Dial Condition code for Busy/No Answer – 4
Dial destination extension number – 1701	Dial destination extension number – 1702
Receive dial tone and hang up	Receive dial tone and hang up

Conditions

The following conditions apply to the Call Forwarding feature:

- Valid call forwarding destinations are: Dial 0 access code, night bell, LDN's, hunt groups (not data or modem pooling type), industry-standard telephones, *SUPERSET* telephones, consoles, ACD Paths, personal Speedcall keys, system Abbreviated Dial numbers, or personal speedcalls.
- An extension is considered BUSY for forwarding busy if the extension is not idle, has Do Not Disturb activated, or has its prime line appearance busy.
- Forwarding is operational for when the called party is a logical line if the line appears on only a single telephone in the system. The forwarding setting of the *SUPERSET* telephone where the line is programmed is used to forward calls.
- Forwarding can be set up to the Dial 0 access code. The destination is translated from the access code to the routing point based upon the current NIGHT/DAY service at the time of forwarding (giving NIGHT/DAY based forwarding). Priority Dial 0 can be used as well, with the feature being checked for on the forwarding extension.
- Forwarding does not apply if the calling extension is the party to which the call would be forwarded.
- Forwarding does not apply if the forwarder is an industry-standard telephone, *SUPERSET* telephone, or console and has COS Option 234 (Never a Forwarder) in its COS.
- An extension can set up forwarding to an LDN.
- Forwarding cannot be programmed from an extension to itself.
- Forwarding is ignored when callbacks are honored, except when Call Forwarding No Answer is programmed and enabled.

- No forwarding is done if the caller is the Attendant, and the forwarding destination is the Dial 0 Access Code.
- If the extension is a member of a Hunt Group and has forwarding enabled, the extension will still be rung if called via the hunt group (its immediate forwarding is ignored, except for Call Forward – No Answer). If it is called directly, its forwarding is honoured.
- With Split Forwarding disabled, only one type of forwarding may be active at an extension at any time: if an extension has one type of forwarding active and the user enters a new forwarding type, the first type of forwarding is canceled. With Split Forwarding enabled, there can be two destinations; one for internal calls, and one for external calls.
- Forwarding must be enabled in the set's COS. The different types of forwarding are enabled separately; see *Programming*.
- With multihop forwarding, calls may be forwarded twice (maximum) on any combination of conditions.
- When forwarding to a speedcall or abbreviated dial number, the forwarding always occurs regardless of the outcome of the call, unless to an illegal forwarding destination, in which case forwarding is ignored. For example, if Toll Control denies access to an external number or the forwarding is to an invalid number, no forwarding occurs. For forwarding to a personal speedcall key, the contents of the key are examined as per the validity of forwarding; if unsuitable, the forwarding is de-programmed and no forwarding occurs.
- *SUPERSET* telephone key or multicall line appearances of extension numbers do not ring or provide visual indication of incoming calls if the extension has activated Forwarding – Follow Me or Forwarding – Busy, if the caller is actually forwarded.
- Forwarding is not done if the forward destination is busy (it is busy if: Do Not Disturb is activated, it is not idle, or its prime line appearance is not idle). An exception is for Subattendant *SUPERSET* telephones and enhanced answering positions. In these cases, the *SUPERSET* telephone is considered busy if there are no idle appearances of its prime line or multicall appearances of itself; see *Enhanced Answering Position* (Generic 1004/Generic1005).
- When Call Forwarding – Follow Me is activated, calls are always forwarded, even if the forward destination is busy.
- If the *SUPERSET* telephone being forwarded to has the Auto-Answer feature activated then the caller is answered with that feature; see *Auto-Answer*.
- Connection checking is done between the calling party and the party being forwarded to; see *Device Interconnection Control*.
- If forwarding is activated but for some reason the forwarding is not done, the call continues as if forwarding was not active. If the call for-

ward –don't answer timer expires and no forwarding is performed, the recall no answer timer is started; see *Recall*.

- For *SUPERSET* display telephones and the console, the forwarding party's identity is displayed when the forwarded party rings the *SUPERSET* telephone or is answered at the console. In a multi-hop forwarding situation, the first hop forwarder is displayed.
- If a caller is a trunk or a party with a single trunk on soft hold, System Option 21 (Incoming to Outgoing Call Forward) is checked; otherwise, check the COS Option 208 (Call Forward – External) of the forwarder, console or extension is externally call forwarded, the forwarding continues only if System Option 21 (Incoming to Outgoing Call Forward) is enabled.
- Forwarding – I'm here can only be cancelled from the extension that set it up originally by using the Cancel I'm Here feature access code; it can also be canceled by the Attendant or by the forwarded party by dialing the CLEAR ALL FEATURES Access Code. The forwarded party can re-program the forwarding via normal forwarding programming or via the CLEAR ALL FEATURES Access Code.
- When a *SUPERSET* display telephone receives a forwarded call, the display shows the number or name of the set that forwarded the call.
- If COS Option 258 (Display Prime Line as Forwarder) is disabled, the logical line will appear as the forwarder for all types of forwarding.
- If Call Forwarding is enabled at a set, you hear broken dial tone followed by regular dial tone when you go off-hook.

Programming Assign access codes to the desired types of Forwarding in CDE Form 02 (Feature Access Codes):

- Feature Access Code 03 (Call Forwarding – All Calls) *
 - Feature Access Code 04 (Call Forwarding – Internal Only) **
 - Feature Access Code 05 (Call Forwarding – External Only) **
 - Feature Access Code 06 (Call Forwarding – I'm Here)
 - Feature Access Code 07 (Call Forwarding – Cancel I'm Here)
- * Available only if COS Option 260 (Internal / External Split Call Forward) is disabled.
- ** Available only if COS Option 260 (Internal / External Split Call Forward) is enabled.

Programming is done in two steps:

- Select one of five types of Call Forwarding – internal, external, both (int + ext), I'm Here, and Cancel I'm Here.
- Dial the feature access code.

- Dial one of four Condition codes under which a call is forwarded (does not apply for Call Forward – I'm Here and Cancel I'm Here):
1 – always, 2 – busy, 3 – no answer, 4 – busy/no answer.

Enable System Option 21 (Incoming to Outgoing Call Forward) to allow trunks to be call forwarded externally.

Enable one or more of the following COS Options as required:

- 206 Call Forwarding – Busy
- 207 Call Forwarding – Don't Answer
- 208 Call Forwarding – External
- 209 Call Forwarding – Follow Me
- 210 Call Forwarding – Inhibit on Dial-in Trunks
- 222 Call Forwarding – Inhibit on Hold Timeout
- 253 Call Forwarding – Don't Answer Timer (251 in Generic 1001)
- 258 Display Prime As Forwarder (Generic 1003, 1004, and 1005 only)
- 260 Internal / External Split Call Forward

Operation Operation varies depending upon the device type as described in the following sections.

Call Forwarding – Busy

Generic 1004 and 1005

Description This feature forwards all calls when the extension is busy. While the extension is idle, calls may be made and received normally.

Conditions The following conditions apply to this feature:

- Refer to conditions listed under the heading, *Call Forwarding – Generic 1004 and Generic 1005*.

Programming Enable COS Option 206 (Call Forwarding – Busy) in the extension's COS.

Ensure Feature Access Code 03 (Call Forwarding – All Calls) has a feature access code programmed.

For feature key activation of call forwarding on a *SUPERSET 3 DN*, *SUPERSET 410*, or *SUPERSET 420* telephone, program a CALL FORWARD feature key. (See Feature Keys.)

Operation Operation varies depending upon the device type as described below.

Industry-standard and SUPERSET 401 Telephones:

To set up Call Forwarding – Busy:

- Lift the handset – wait for dial tone.
- Dial the access code for Call Forwarding – All Calls.
- Dial the Condition code for the desired type of forwarding.
- Dial the number to which calls are to be forwarded.
- Dial tone returns.
- Hang up – the extension is available for normal use.

To cancel Forwarding (all types):

- Lift the handset – wait for dial tone.
 - Dial Call Forwarding – All Calls feature access code.
 - Hang up – the forwarding is canceled.
- or
- Lift the handset – wait for dial tone.
 - Dial the Clear All Features access code (see *Clear All Features*). This also cancels all forwarding at the telephone.

SUPERSET 3 Telephones:

To program Call Forwarding – Busy:

- Follow the same procedure as for industry-standard telephones; it is also possible to dial the codes and extension destination directly on the keypad and then press the **Speaker On/Off** key to go on-hook.

SUPERSET 3 DN and SUPERSET 410 Telephones:

To program Call Forwarding – Busy:

- Follow the same procedure as for industry-standard telephones; it is also possible to dial the codes and extension destination directly on the keypad and then press the **Speaker On/Off** key to go on-hook.

To activate or deactivate Forwarding already programmed:

- Press the CALL FORWARD feature key, if programmed. The LCD indicator is dark (activated) to indicate forwarding active, clear to indicate not active.

SUPERSET 4 Telephones:

To display the current Forwarding type and destination (split forwarding disabled):

- Press the DISPLAY key.

- Press the CALL FWD softkey – read the display.
- Press the EXIT softkey.

To activate Forwarding already programmed (split forwarding disabled):

- Press the SELECT FEATURES key.
- Dial 1 (feature number 1 is Forwarding (1:FWD)) – the current type and destination are displayed.
- Press the ON softkey to activate forwarding; if activation is not desired, press the EXIT softkey.

Note: A Feature Key may be used here instead.

Forwarding is now active; the word FWD is displayed in the top left corner of the LCD as a reminder.

To deactivate Forwarding (split forwarding disabled):

- Press the SELECT FEATURES key.
- Dial 1 (feature number 1 is Forwarding (1:FWD)) – the current type and destination are displayed.
- Press the OFF softkey to deactivate forwarding; if deactivation is not desired, press the EXIT softkey.

Note: A Feature Key may be used here instead.

To Set Up or Modify Call Forwarding – Busy (split forwarding disabled):

- With the handset on-hook, press the PROGRAM feature key.
- Press the CALL FWD feature key.

The alphanumeric display shows a Forwarding type. If the displayed type is not the one required, press the NO softkey; another type is displayed. Repeat until Call Forwarding – Busy; then press the YES softkey.

To forward the call within the PABX:

- Dial the forwarding destination.
- Check the number on the display
 - To correct an error, use the ← key.
- Press the SAVE softkey.

SUPERSET 420 Telephones:

To display the current forwarding type and destination (split forwarding disabled):

- Press **SuperKey**.

- Press the **No** softkey until CALL FORWARDING? appears in the display.
- Press the **Yes** softkey. The display shows the current forwarding type and destination, if programmed.
- Press **SuperKey** to return to normal display.

To activate Forwarding already programmed:

- Press the CALL FORWARD Feature key. The indicator beside the key turns on to indicate that Call Forwarding is activated. (Refer to Feature Keys for instructions on programming this feature key).

or, if a CALL FORWARD Feature key isn't programmed,

- Press **SuperKey**.
- Press the **No** softkey until CALL FORWARDING? appears in the display.
- Press the **Yes** softkey.
- Press the **Change** softkey.
- Press the **TurnOn** softkey. An asterisk appears next to the destination to indicate that call forwarding is activated.
- Press **SuperKey** to return to normal display.

To deactivate Forwarding:

- Press the CALL FORWARD Feature key. The indicator beside the key turns off to indicate that Call Forwarding is deactivated.

or, if a CALL FORWARD Feature key isn't programmed,

- Press **SuperKey**.
- Press the **No** softkey until CALL FORWARDING? appears in the display.
- Press the **Yes** softkey.
- Press the **Change** softkey.
- Press the **TurnOff** softkey. The asterisk next to the destination disappears.
- Press **SuperKey** to return to normal display.

To program Call Forwarding – Busy (split forwarding disabled):

- Press **SuperKey**.
- Press the **No** softkey until CALL FORWARDING? appears in the display.
- Press the **Yes** softkey. The display shows the current forwarding type and destination, if programmed.

- Press the **Change** softkey.
- Press the **Prog** softkey.
- Press the **No** softkey until WHEN SET'S BUSY? appears in the display.
- Press the **Yes** softkey.
- Enter the destination number. If an invalid number is entered, the display shows INVALID. Use the ← softkey to back space and erase the entry. Enter the correct number (can be a speedcall key, if programmed).
- Press the **Save** softkey. The type of forwarding, the forwarding destination and an * appear momentarily in the display. The display then returns to showing the date and time. Call Forwarding is now programmed and enabled.

Note: The asterisk indicates that Call Forwarding is enabled.

SUPERSET 4 DN and SUPERSET 430 Telephones:

To display the current forwarding type and destination (split forwarding disabled):

- Press **SuperKey**.
- Find the **Forwarding** softkey. (Use the **More** softkey).
- Press the **Forwarding** softkey. The display shows the current forwarding type and destination, if programmed.
- Press **SuperKey** to return to normal display.

To activate Forwarding already programmed (split forwarding disabled):

- Press the **Turn FWD On** softkey. <FWD ON> appears in the upper right corner of the LCD.

To deactivate Forwarding (split forwarding disabled):

- Press the **Turn FWD Off** softkey. <FWD ON> disappears from the display.

To set up Forwarding – Busy (split forwarding disabled):

- Press **SuperKey**.
- Find the **Forwarding** softkey. (Use the **More** softkey).
- Press the **Forwarding** softkey. The display shows the current forwarding type and destination, if programmed.
- Press the **Change** softkey. Softkeys appear for the types of forwarding enabled in the set's COS.
- Select Call Forwarding – Busy. The display requests the destination number.

- Enter the destination number. If an invalid number is entered, the display shows INVALID NUMBER. Use the ← softkey to back space and erase the entry. Enter the correct number (can be a speedcall key, if programmed) or press the CURRENT NO. softkey to restore the previously programmed destination, if available (only available when the current forward destination is anything but a speedcall).
- Press the **Save/On** softkey. The display returns to normal. <FWD ON> appears in the top right corner.

Call Forwarding – Busy/Don't Answer

Generic 1004 and 1005

Description This feature forwards all calls received when the extension is busy or that are not answered within a selected time-out period. While the extension is idle, calls may be made and received normally.

Conditions The following conditions apply to this feature:

- COS Option 260 (Split Forwarding) must be disabled.
- Refer to conditions listed under the heading, *Call Forwarding – Generic 1004 and Generic 1005*.
- For Call Forwarding – Don't Answer, a caller camps on to the forwarding destination if allowed to camp on; see *Campon* for audio details.
- Call Forwarding – Don't Answer has no effect when a *SUPERSET* telephone answers the call using the Auto-Answer feature.
- *SUPERSET* telephone key or multicall DELAY RING line appearances of extension numbers do not ring if the extension has activated Forwarding – Don't Answer and the call is forwarded. The delay ring timer is the same as the call forward – don't answer timer. However, the *SUPERSET* telephone provides visual indication of the incoming call. The *SUPERSET* telephone user can answer the call before the forwarding occurs.

Programming Enable COS Options 206 (Call Forwarding – Busy), and 207 (Call Forwarding – Don't Answer) in the extension's COS.

Ensure Feature Access Code 03 (Call Forwarding – All Calls) has a feature access code programmed.

For feature key activation of call forwarding on a *SUPERSET 3 DN*, *SUPERSET 410*, or *SUPERSET 420* telephone, program a CALL FORWARD feature key. (See Feature Keys.)

Operation Operation varies depending upon the device type as described below:

Industry-standard and SUPERSET 401 Telephones:

To set up Call Forwarding – Busy/Don't Answer:

- Lift the handset – wait for dial tone.
- Dial the access code for Call Forwarding – All Calls.
- Dial the Condition code for the desired type of forwarding Busy/No Answer.
- Dial the number to which calls are to be forwarded.
- Dial tone returns.
- Hang up – the extension is available for normal use.

To cancel Forwarding (all types):

- Lift the handset – wait for dial tone.
- Dial the Call Forwarding – All Calls access code.
- Hang up – the forwarding is canceled.

or

- Lift the handset – wait for dial tone.
- Dial the Clear All Features access code (see *Clear All Features*). This also cancels all forwarding at the telephone.

SUPERSET 3 Telephones:

To select Call Forwarding – Busy/Don't Answer:

- Follow the same procedure as for industry-standard telephones; it is also possible to dial the codes and extension destination directly on the keypad and then press the **Speaker On/Off** key to go on-hook.

SUPERSET 3 DN and SUPERSET 410 Telephones:

To set up Call Forwarding – Busy/Don't Answer:

- Follow the same procedure as for industry-standard telephones; it is also possible to dial the codes and extension destination directly on the keypad and then press the **Speaker On/Off** key to go on-hook.

To activate or deactivate Forwarding already programmed:

- Press the CALL FORWARD feature key, if programmed. The LCD indicator is dark (activated) to indicate forwarding active, clear to indicate not active.

SUPERSET 4 Telephones:

To display the current Forwarding type and destination:

- Press the DISPLAY key.

- Press the CALL FWD softkey – read the display.
- Press the EXIT softkey.

To activate Forwarding already programmed:

- Press the SELECT FEATURES key.
- Dial 1 (feature number 1 is Forwarding (1:FWD)) – the current type and destination are displayed.
- Press the ON softkey to activate forwarding; if activation is not desired, press the EXIT softkey.

Note: A Feature Key may be used here instead.

Forwarding is now active; the word FWD is displayed in the top left corner of the LCD as a reminder.

To deactivate Forwarding:

- Press the SELECT FEATURES key.
- Dial 1 (feature number 1 is Forwarding (1:FWD)) – the current type and destination are displayed.
- Press the OFF softkey to deactivate forwarding; if deactivation is not desired, press the EXIT softkey.

Note: A Feature Key may be used here instead.

To Set Up or Modify Call Forwarding – Busy/Don't Answer:

- With the handset on-hook, press the PROGRAM feature key.
- Press the CALL FWD feature key.

The alphanumeric display shows a Forwarding type. If the displayed type is not the one required, press the NO softkey; another type is displayed. Repeat until Call Forwarding – Busy/Don't Answer is displayed; then press the YES softkey.

To forward the call within the PABX:

- Dial the forwarding destination number.
- Check that the number on the display is correct.
 - To correct an error, use the ← key.
- Press the SAVE softkey.

***SUPERSET 420* Telephones:**

To display the current forwarding type and destination:

- Press **SuperKey**.

- Press the **No** softkey until CALL FORWARDING? appears in the display.
- Press the **Yes** softkey. The display shows the current forwarding type and destination, if programmed.
- Press **SuperKey** to return to normal display.

To activate Forwarding already programmed (split forwarding disabled):

- Press the CALL FORWARD Feature key. The indicator beside the key turns on to indicate that Call Forwarding is activated. (Refer to Feature Keys for instructions on programming this feature key.)

or, if a CALL FORWARD Feature key isn't programmed,

- Press **SuperKey**.
- Press the **No** softkey until CALL FORWARDING? appears in the display.
- Press the **Yes** softkey.
- Press the **Change** softkey.
- Press the **TurnOn** softkey. An asterisk appears next to the destination to indicate that call forwarding is activated.
- Press **SuperKey** to return to normal display.

To deactivate Forwarding (split forwarding disabled):

- Press the CALL FORWARD Feature key. The indicator beside the key turns off to indicate that Call Forwarding is deactivated.

or, if a CALL FORWARD Feature key isn't programmed,

- Press **SuperKey**.
- Press the **No** softkey until CALL FORWARDING? appears in the display.
- Press the **Yes** softkey.
- Press the **Change** softkey.
- Press the **TurnOff** softkey. The asterisk next to the destination disappears.
- Press **SuperKey** to return to normal display.

To program Call Forwarding – Busy/Don't Answer:

- Press **SuperKey**.
- Press the **No** softkey until CALL FORWARDING? appears in the display.
- Press the **Yes** softkey. The display shows the current forwarding type and destination, if programmed.

- Press the **Change** softkey.
- Press the **Prog** softkey.
- Press the **No** softkey until BUSY/NO ANSWER? appears in the display.
- Press the **Yes** softkey.
- Enter the destination number. If an invalid number is entered, the display shows INVALID. Use the **←** softkey to back space and erase the entry. Enter the correct number (can be a speedcall key, if programmed).
- Press the **Save** softkey. The type of forwarding, the forwarding destination and an * appear momentarily in the display. The display then returns to showing the date and time. Call Forwarding is now programmed and enabled.

Note: The asterisk indicates that Call Forwarding is enabled.

SUPERSET 4 DN and SUPERSET 430 Telephones:

To display the current forwarding type and destination:

- Press **SuperKey**.
- Find the **Forwarding** softkey. (Use the More softkey).
- Press the **Forwarding** softkey. The display shows the current forwarding type and destination, if programmed.
- Press **SuperKey** to return to normal display.

To activate Forwarding already programmed:

- Press the **Turn FWD On** softkey. <FWD ON> appears in the upper right corner of the LCD.

To deactivate Forwarding:

- Press the **Turn FWD Off** softkey. <FWD ON> disappears.

To Set Up Call Forwarding – Busy/Don't Answer:

- Press **SuperKey**.
- Find the **Forwarding** softkey. (Use the **More** softkey).
- Press the **Forwarding** softkey. The display shows the current forwarding type and destination, if programmed.
- Press the **Change** softkey. Softkeys appear for the types of forwarding enabled in the set's COS.
- Select Call Forwarding – Busy/Don't Answer. The display requests the destination number.
- Enter the destination number. If an invalid number is entered, the dis-

play shows INVALID NUMBER. Use the ← softkey to back space and erase the entry. Enter the correct number (can be a speedcall key, if programmed) or press the Current No. softkey to restore the previously programmed destination, if available (only available when the current forward destination is anything but a speedcall).

- Press the **Save/On** softkey. The display returns to normal. <FWD ON> appears in the top right corner.

Call Forwarding – Follow Me

Generic 1004 and 1005

- Description** This type of forwarding is unconditional. All calls are forwarded to the programmed destination. The number to which the calls are forwarded is the only party that may call the forwarding extension while Forwarding – Follow Me is active. The extension may originate calls in the normal manner.
- Conditions** The following conditions apply to this feature:
- COS Option 260 (Split Forwarding) must be disabled.
 - Refer to conditions listed under the heading, *Call Forwarding – Generic 1004/Generic 1005*.
- Programming** Enable COS Option 209 (Call Forwarding – Follow Me) in the extension's COS.
- Ensure Feature Access Code 03 (Call Forwarding – All Calls) has a feature access code programmed.
- For feature key activation of call forwarding on a *SUPERSET 3 DN*, *SUPERSET 410*, or *SUPERSET 420* telephone, program a CALL FORWARD feature key. (See Feature Keys.)
- Operation** Operation varies depending upon the device type as described below.
- Industry-standard and SUPERSET 401 Telephones:**
- To set up Call Forwarding – Follow Me:
- Lift the handset – wait for dial tone.
 - Dial the access code for Call Forwarding – All Calls.
 - Dial the Condition code for the desired type of forwarding Alarms.
 - Dial the number to which calls are to be forwarded.
 - Dial tone returns.
 - Hang up – the extension is available for normal use.

To cancel Forwarding (all types):

- Lift the handset – wait for dial tone.
- Dial the Call Forwarding All Calls access code.
- Hang up – the forwarding is canceled.

or

- Lift the handset – wait for dial tone.
- Dial the Clear All Features access code (see *Clear All Features*). This also cancels all forwarding at the telephone.

SUPERSET 3 Telephones:

To select Call Forwarding – Follow Me:

- Follow the same procedure as for industry–standard telephones; it is also possible to dial the codes and extension destination directly on the keypad and then press the **Speaker On/Off** key to go on–hook.

SUPERSET 3 DN and SUPERSET 410 Telephones:

To set up Call Forwarding – Follow Me:

- Follow the same procedure as for industry–standard telephones; it is also possible to dial the codes and extension destination directly on the keypad and then press the **Speaker On/Off** key to go on–hook

To activate or deactivate Forwarding already programmed:

- Press the CALL FORWARD feature key, if programmed. The LCD indicator is dark (activated) to indicate forwarding active, clear to indicate not active.

SUPERSET 4 Telephones:

To display the current Forwarding type and destination:

- Press the DISPLAY key.
- Press the CALL FWD softkey – read the display.
- Press the EXIT softkey.

To activate Forwarding already programmed:

- Press the SELECT FEATURES key.
- Dial 1 (feature number 1 is Forwarding (1:FWD)) – the current type and destination are displayed.
- Press the ON softkey to activate forwarding; if activation is not desired,press the EXIT softkey.

Note: A Feature Key may be used here instead.

Forwarding is now active; the word FWD is displayed in the top left corner of the LCD as a reminder.

To deactivate Forwarding:

- Press the SELECT FEATURES key.
- Dial 1 (feature number 1 is Forwarding (1:FWD)) – the current type and destination are displayed.
- Press the OFF softkey to deactivate forwarding; if deactivation is not desired, press the EXIT softkey.

Note: A Feature Key may be used here instead.

To Set Up or Modify Call Forwarding – Follow Me:

- With the handset on-hook, press the PROGRAM feature key.
- Press the CALL FWD feature key.

The alphanumeric display shows a Forwarding type. If the displayed type is not the one required, press the NO softkey; another type is displayed. Repeat until Call Forwarding – Follow Me is displayed. When the displayed type appears, press the YES softkey.

Dial the forwarding destination. If the call is to be forwarded to an outside number, press the SPEED CALL key associated with that number or dial the Abbreviated Dial number, if available.

- Check that the destination number on the display is correct.
 - To correct an error, use the ← key.
- Press the SAVE softkey.

SUPERSET 420 Telephones:

To display the current forwarding type and destination:

- Press **SuperKey**.
- Press the **No** softkey until CALL FORWARDING? appears in the display.
- Press the **Yes** softkey. The display shows the current forwarding type and destination, if programmed.
- Press **SuperKey** to return to normal display.

To activate Forwarding already programmed (split forwarding disabled):

- Press the CALL FORWARD Feature key. The indicator beside the key turns on to indicate that Call Forwarding is activated. (Refer to Feature Keys for instructions on programming this feature key.)

or, if a CALL FORWARD Feature key isn't programmed,

- Press **SuperKey**.
- Press the **No** softkey until CALL FORWARDING? appears in the display.
- Press the **Yes** softkey.
- Press the **Change** softkey.
- Press the **TurnOn** softkey. An asterisk appears next to the destination to indicate that call forwarding is activated.
- Press **SuperKey** to return to normal display.

To deactivate Forwarding (split forwarding disabled):

- Press the CALL FORWARD Feature key. The indicator beside the key turns off to indicate that Call Forwarding is deactivated.

or, if a CALL FORWARD Feature key isn't programmed,
- Press **SuperKey**.
- Press the **No** softkey until CALL FORWARDING? appears in the display.
- Press the **Yes** softkey.
- Press the **Change** softkey.
- Press the **TurnOff** softkey. The asterisk next to the destination disappears.
- Press **SuperKey** to return to normal display.

To program Call Forwarding – Follow Me:

- Press **SuperKey**.
- Press the **No** softkey until CALL FORWARDING? appears in the display.
- Press the **Yes** softkey. The display shows the current forwarding type and destination, if programmed.
- Press the **Change** softkey.
- Press the **Prog** softkey.
- Press the **No** softkey until ALWAYS FORWARD? appears in the display.
- Press the **Yes** softkey.
- Enter the destination number. If an invalid number is entered, the display shows INVALID. Use the ← softkey to back space and erase the entry. Enter the correct number (can be a speedcall key, if programmed).
- Press the **Save** softkey. The type of forwarding, the forwarding destination and an * appear momentarily in the display. The display then

returns to showing the date and time. Call Forwarding is now programmed and enabled.

Note: The asterisk indicates that Call Forwarding is enabled.

SUPERSET 4 DN and SUPERSET 430 Telephones:

To display the current forwarding type and destination:

- Press **SuperKey**.
- Find the **Forwarding** softkey. (Use the More softkey).
- Press the **Forwarding** softkey. The display shows the current forwarding type and destination, if programmed.
- Press **SuperKey** to return to normal display.

To activate Forwarding already programmed:

- Press the **Turn FWD On** softkey. <FWD ON> appears in the upper right corner of the LCD.

To deactivate Forwarding:

- Press the **Turn FWD Off** softkey. <FWD ON> disappears from the display.

To Set Up Forwarding – Follow Me:

- Press **SuperKey**.
- Find the **Forwarding** softkey. (Use the More softkey).
- Press the **Forwarding** softkey. The display shows the current forwarding type and destination, if programmed.
- Press the **Change** softkey. Softkeys appear for the types of forwarding enabled in the set's COS.
- Select **Always**. The display requests the destination number.
- Enter the destination number. If an invalid number is entered, the display shows INVALID NUMBER. Use the ← softkey to back space and erase the entry. Enter the correct number (can be a speedcall key, if programmed) or press the Current No. softkey to restore the previously programmed destination, if available (only available when the current forward destination is anything but a speedcall).
- Press the **Save/On** softkey. The display returns to normal. <FWD ON> appears in the top right corner.

Call Forwarding – I'm Here

Generic 1004 and 1005

Description This type of forwarding operates the same as Forwarding – Follow Me, but it is activated from another extension. All calls are forwarded to the new location. The forwarded extension can originate calls in the normal manner.

Conditions The following conditions apply to this feature:

- COS Option 234 (Never a Forwardee) must be disabled for this extension.
- For a display telephone to receive the I'm Here message prompt, it must have COS Option 234 (Never a Forwardee) disabled and COS Option 209 (Call Forward – Follow Me) enabled.

Programming Enable COS Option 209 (Call Forwarding – Follow Me) in the extension's COS. Program access codes for Feature Access Code 06 (Call Forwarding – I'm Here) and Feature Access Code 07 (Call Forwarding – Cancel I'm Here).

Operation Operation varies depending upon the device types as described below.

Industry-standard and SUPERSET 401 Telephones:

To select Call Forwarding – I'm Here:

- At another extension, lift the handset – wait for dial tone.
- Dial the Call Forwarding – I'm Here access code.
- Dial your own extension number – dial tone returns.
- Hang up – the extension is available for normal use.

To cancel Call Forwarding I'm Here from the telephone which set Call Forward – I'm Here:

- Lift the handset – wait for dial tone.
- Dial the Cancel I'm Here access code.
- Dial the extension whose forwarding is to be canceled; hang up – the forwarding is canceled for that extension.

or

- Hang up – all I'm Here forwarding to this extension is canceled.

SUPERSET 3, SUPERSET 3 DN, and SUPERSET 410 Telephones:

To select Call Forwarding – I'm Here:

- At another extension, dial the Call Forwarding – I'm Here access code.

- Dial your own extension number – dial tone returns.
- Press the **Speaker On/Off** key – the extension is available for normal use.

To cancel Call Forwarding I'm Here from the telephone which set Call Forward – I'm Here:

- Dial the Cancel I'm Here access code.
- Dial the extension whose forwarding is to be canceled and press the **Speaker On/Off** key. The forwarding is canceled for that extension.
or
- Press the **Speaker On/Off** key to cancel all I'm Here forwarding to this extension.

***SUPERSET 4* Telephones:**

To select Call Forwarding – I'm Here, using softkeys:

- At the destination *SUPERSET 4* telephone, press PROGRAM softkey.
- Press CALL FWD softkey.
- Select either EXT CALLS? or INT CALLS? (display toggles) (if COS Option 260 Internal / External Split Call Forward enabled).
- Press NO softkey until I'M HERE option appears.
- Press YES softkey (the set responds with FR:).
- Enter extension number from which calls are to be forwarded.
- Press the SAVE softkey.

All calls are forwarded from the specified extension.

To cancel Call Forwarding I'm Here:

- Press the **Speaker On/Off** key.
- Dial the Cancel I'm Here access code.
- Dial the extension whose forwarding is to be canceled and press the **Speaker On/Off** key. The forwarding is canceled for that extension.
or
- Press the **Speaker On/Off** key to cancel all I'm Here forwarding to this extension.

***SUPERSET 420* Telephones:**

To set up and turn on Call Forwarding – I'm Here:

- At the destination *SUPERSET 420* telephone, press **SuperKey**.
- Press the **No** softkey until CALL FORWARDING? appears in the display.

- Press the **Yes** softkey.
- Press the **No** softkey until I'M HERE? appears in the display.
- Press the **Yes** softkey.
- Enter extension number from which calls are to be forwarded. If an invalid number is entered, the display shows INVALID. Use the **←** softkey to back space and erase the entry.
- Press the **Save** softkey. The extension number and name from which your calls will be forwarded to, appear momentarily in the display. The display then returns to showing the date and time. Call Forwarding is now programmed and enabled.

To cancel Call Forwarding I'm Here:

- Press the **Speaker** key.
 - Dial the Cancel I'm Here access code.
 - Dial the extension whose forwarding is to be canceled and press the **Speaker** key. The forwarding is canceled for that extension.
- or
- Press the **Speaker** key to cancel all I'm Here forwarding to this extension.

SUPERSET 4 DN and SUPERSET 430 Telephones:

To set up and activate Call Forwarding – I'm Here, using softkeys:

- At the destination *SUPERSET 4 DN* telephone, find and press the **Forwarding** softkey.
- Press **Change** softkey (necessary only if Split Forwarding is disabled).
- Press **To Me** softkey.
- Enter extension number from which calls are to be forwarded.
- Press **Save/On** softkey.
- NOW FROM XXXXX ALWAYS is displayed.

To cancel Call Forwarding I'm Here:

- Press the **Speaker On/Off** key.
 - Dial the Cancel I'm Here access code.
 - Dial the extension whose forwarding is to be canceled and press the **Speaker On/Off** key. The forwarding is canceled for that extension.
- or
- Press the **Speaker On/Off** key to cancel all I'm Here forwarding to this extension.

Call Forwarding – Don't AnswerGeneric 1004 and 1005

- Description** This feature forwards all calls that are not answered within a selected time-out period. Calls may be made and received normally.
- Conditions** The following conditions apply to this feature:
- For Call Forwarding – Don't Answer, a caller camps on to the forwarding destination if allowed to camp on; see *Camp on* for audio details.
 - Call Forwarding – Don't Answer has no effect when a *SUPERSET* telephone answers the call using the Auto-Answer feature.
 - *SUPERSET* telephone key or multicall DELAY RING line appearances of extension numbers do not ring if the extension has activated Call Forwarding – Don't Answer and the call is forwarded. The delay ring timer is the same as the call forward – don't answer timer. However, the *SUPERSET* telephone provides visual indication of the incoming call. The *SUPERSET* telephone user can answer the call before the forwarding occurs.
 - Refer to conditions listed under the heading, *Call Forwarding – Generic 1004 and Generic 1005*.
- Programming** Enable COS Option 207 (Call Forwarding – Don't Answer) in the extension's COS:
- Ensure Feature Access Code 03 (Call Forwarding – All Calls) has a feature access code programmed.
- For feature key activation of call forwarding on a *SUPERSET 3 DN*, *SUPERSET 410*, or *SUPERSET 420* telephone, program a CALL FORWARD feature key. (See Feature Keys.)
- Operation** Operation varies depending upon the device type as described below.
- Industry-standard and *SUPERSET 401* Telephones:**
- To set up Call Forwarding – Don't Answer:
- Lift the handset – wait for dial tone.
 - Dial the access code for Call Forwarding – Don't Answer.
 - Dial the Condition code for No Answer.
 - Dial the number to which calls are to be forwarded.
 - Dial tone returns.
 - Hang up – the extension is available for normal use.

To cancel Forwarding (all types):

- Lift the handset – wait for dial tone.
- Dial Call Forwarding All Calls access code.
- Hang up – the forwarding is canceled, or,
- Lift the handset – wait for dial tone.
- Dial the Clear All Features access code (see *Clear All Features*). This also cancels all forwarding at the telephone.

SUPERSET 3 Telephones:

To select Call Forwarding – Don't Answer:

- Follow the same procedure as for industry-standard telephones; it is also possible to dial the codes and extension destination directly on the keypad and then press the **Speaker On/Off** key to go on-hook.

SUPERSET 3 DN and SUPERSET 410 Telephones:

To set up Call Forwarding – Don't Answer:

- Follow the same procedure as for industry-standard telephones; it is also possible to dial the codes and extension destination directly on the keypad and then press the **Speaker On/Off** key to go on-hook.

To activate or deactivate Forwarding already programmed:

- Press the CALL FORWARD feature key, if programmed. The LCD indicator is dark (activated) to indicate forwarding active, clear to indicate not active.

SUPERSET 4 Telephones:

To display the current Forwarding type and destination:

- Press the DISPLAY key.
- Press the CALL FWD softkey – read the display (if Split Forwarding is enabled, press the NEXT softkey).
- Press the EXIT softkey.

To activate Forwarding already programmed:

- Press the SELECT FEATURES key.
- Dial 1 (feature number 1 is Forwarding (1:FWD)) – the current type and destination are displayed.

Note: If Split Forwarding is enabled, press the NEXT softkey to examine settings for internal calls.

- Press the ON softkey to activate forwarding; if activation is not desired, press the EXIT softkey.

Forwarding is now active; the word FWD is displayed in the top left corner of the LCD as a reminder.

To deactivate Forwarding:

- Press the SELECT FEATURES key.
- Dial 1 (feature number 1 is Forwarding (1:FWD)) – the current type and destination are displayed.
- Press the OFF softkey to deactivate forwarding; if deactivation is not desired, press the EXIT softkey.

Note: If Split Forwarding is enabled, press the NEXT softkey to examine settings for internal calls.

To Set Up or Modify Call Forwarding – Don't Answer:

- With the handset on-hook, press the PROGRAM feature key.
- Press the CALL FWD feature key.

The alphanumeric display shows a Forwarding type. If the displayed type is not the one required, press the NO softkey; another type is displayed. Repeat until Call Forwarding – Don't Answer is displayed; then press the YES softkey.

Dial the forwarding destination. If the call is to be forwarded to an outside number, press the SPEED CALL key associated with that number or dial the Abbreviated Dial number, if available.

- Check that the number on the display is correct.
 - To correct an error, use the ← key.
- Press the SAVE softkey.

***SUPERSET 420* Telephones:**

To display the current forwarding type and destination:

- Press **SuperKey**.
- Press the **No** softkey until CALL FORWARDING? appears in the display.
- Press the **Yes** softkey. The display shows the current forwarding type and destination, if programmed.
- Press **SuperKey** to return to normal display.

To activate Forwarding already programmed:

- Press the CALL FORWARD Feature key. The indicator beside the key turns on to indicate that Call Forwarding is activated. (Refer to Feature Keys for instructions on programming this feature key).

or, if a CALL FORWARD Feature key isn't programmed,

- Press **SuperKey**.
- Press the **No** softkey until CALL FORWARDING? appears in the display.
- Press the **Yes** softkey.
- Press the **Change** softkey.
- Press the **TurnOn** softkey. An asterisk appears next to the destination to indicate that call forwarding is activated.
- Press **SuperKey** to return to normal display.

To deactivate Forwarding:

- Press the CALL FORWARD Feature key. The indicator beside the key turns off to indicate that Call Forwarding is deactivated.
- or, if a CALL FORWARD Feature key isn't programmed,
- Press **SuperKey**.
 - Press the **No** softkey until CALL FORWARDING? appears in the display.
 - Press the **Yes** softkey.
 - Press the **Change** softkey.
 - Press the **TurnOff** softkey. The asterisk next to the destination disappears.
 - Press **SuperKey** to return to normal display.

To program Call Forwarding – Don't Answer:

- Press **SuperKey**.
- Press the **No** softkey until CALL FORWARDING? appears in the display.
- Press the **Yes** softkey. The display shows the current forwarding type and destination, if programmed.
- Press the **Change** softkey.
- Press the **Prog** softkey.
- Press the **No** softkey until WHEN NO ANSWER? appears in the display.
- Press the **Yes** softkey.
- Enter the destination number. If an invalid number is entered, the display shows INVALID. Use the ← softkey to back space and erase the entry. Enter the correct number (can be a speedcall key, if programmed).
- Press the **Save** softkey. The type of forwarding, the forwarding destination, and an * appear momentarily in the display. The display then

returns to showing the date and time. Call Forwarding is now programmed and enabled.

Note: The asterisk indicates that Call Forwarding is enabled.

SUPERSET 4 DN and SUPERSET 430 Telephones

To display the current forwarding type and destination:

- Press **SuperKey**.
- Find the Forwarding softkey. (Use the More softkey).
- Press the **Forwarding** softkey. The display shows the current forwarding type and destination, if programmed.
- Press **SuperKey** to return to normal display.

To activate Forwarding already programmed:

- Press the **Turn FWD On** softkey. <FWD ON> appears in the upper right corner of the LCD.

To deactivate Forwarding:

- Press the **Turn FWD Off** softkey. <FWD ON> disappears from the display.

To Set Up Call Forwarding – Don't Answer:

- Press **SuperKey**.
- Find the **Forwarding** softkey. (Use the More softkey).
- Press the **Forwarding** softkey. The display shows the current forwarding type and destination, if programmed.
- Press the **Change** softkey. Softkeys appear for the types of forwarding enabled in the set's COS. This only applies if Split Forwarding is disabled.
- Select Call Forwarding – Don't Answer. The display requests the destination number.
- Enter the destination number. If an invalid number is entered, the display shows INVALID NUMBER. Use the ← softkey to back space and erase the entry. Enter the correct number (can be a speedcall key, if programmed) or press the **Current No.** softkey to restore the previously programmed destination, (if available).
- Press the **Save/On** or **Save/Off** softkey. The display returns to normal. <FWD ON> appears in the top right corner only if either internal or external forwarding is enabled.

Call Forwarding – External**Generic 1004 and 1005**

Description This feature forwards all calls received based on one of the conditions selected from above, to a personal Speed Call key, system Abbreviated Dial number, or a key system personal speedcall.

Conditions The following conditions apply to this feature:

- Call Forwarding – External requires a receiver for dialing. If one is not available then forwarding is ignored in Call Forward – Don't Answer. If it is done during a reroute, the caller is dropped or given reorder tone.
- An extension with COS Option 200 (Account Code, Forced Entry – External Calls) in its COS cannot set up the Call Forwarding – External feature.
- An extension must have COS Option 245 (Abbreviated Dialing Access) enabled, COS Option 208 (Call Forwarding External) enabled, and COS Option 200 (Account Code, Forced Entry – External Calls) disabled in its COS to be able to program call forwarding to system Abbreviated Dial numbers. The option is not needed for callers which are forwarded to abbreviated dial numbers.
- Toll Control applies to the calling party for Call Forwarding – External to personal speed call keys or to Key System personal speedcalls.
- Toll Control is not done for forwarding to external numbers using the system Abbreviated Dial feature.
- No Toll Control checking is done for CO trunks which are externally call forwarded.
- A trunk or a party with a single party trunk on hold can only be forwarded externally if System Option 21 (Incoming to Outgoing Call Forward) is enabled.
- An extension cannot set up forwarding to an external number unless it has COS Option 208 (Call Forwarding – External) in its COS.
- Once a call is forwarded externally, no more forwarding hops occur.
- Campon to busy trunk groups after forwarding external is possible if the caller is allowed to campon to trunk groups; see *Campon*.
- When the Attendant or a *SUPERSET 4* or *SUPERSET 4* DN telephone calls an extension that is forwarded to an external number, the display shows the external number and indicates the extension which forwarded the call. If the Speed Call or Abbreviated Dial number is private, text indicating a private number appears on the display instead of the external number. The Console can display the number if it has COS Option 110 (Attendant Abbr. Dial Confidential Number Display) enabled in its COS.

- Consoles and extensions can transfer a party on consultation hold as soon as forwarding to an external number starts, at any point in dialing the external number.
- The reference is to the stored Speedcall key number or the personal or system Abbreviated Dial number. If this stored number is changed, then the forwarding destination changes also.

Programming Enable COS Option 208 (Call Forwarding – External) in the extension's COS.

Enable COS Option 245 (Abbreviated Dialing Access) for the extension to allow forwarding to system Abbreviated Dial numbers or to Key System personal speedcalls.

Disable COS Option 200 (Account Code, Forced – External Calls) in the extension's COS.

Enable System Option 21 (Incoming to Outgoing Call Forward) to allow trunks to be externally call forwarded.

Ensure Feature Access Code 03 (Call Forwarding – All Calls) has a feature access code programmed.

For feature key activation of call forwarding on a *SUPERSET 3 DN*, *SUPERSET 410*, or *SUPERSET 420* telephone, program a CALL FORWARD feature key. (See Feature Keys.)

Operation Operation varies depending upon the device type as described below.

Industry-standard and SUPERSET 401 Telephones:

To set up Call Forwarding – External at an Extension:

- Lift the handset – dial tone is heard.
- Dial the Call Forward – All Calls access code.
- Dial the condition code for the desired type of Forwarding.
- Dial the Abbreviated Dial Index Number, which contains the external telephone number to which calls are to be forwarded. Dial tone is returned if the above codes are valid; reorder tone is returned if the codes are invalid.
- Replace the handset – Call Forwarding – External is now active.

To cancel Call Forwarding – External at an Extension:

- Lift the handset – dial tone is returned.
- Dial the Call Forward – All Calls access code (assuming Split Call Forwarding is disabled).
- Replace the handset – Call Forwarding – External is now inactive.

or

- Lift the Handset – dial tone is returned.
- Dial the Clear All feature access codes – Dial tone is returned.
- Replace the handset.

***SUPERSET 3* Telephones:**

To select Forwarding – External:

- Follow the same procedure as for industry–standard telephones; it is also possible to dial the codes and extension destination directly on the keypad and then press the **Speaker On/Off** key to go on–hook.

***SUPERSET 3 DN and SUPERSET 410* Telephones:**

To set up Forwarding – External:

- Follow the same procedure as for industry–standard telephones; it is also possible to dial the codes and extension destination directly on the keypad and then press the **Speaker On/Off** key to go on–hook.

To activate or deactivate Forwarding already programmed:

- Press the CALL FORWARD feature key, if programmed. The LCD indicator is dark (activated) to indicate forwarding active, clear to indicate not active.

***SUPERSET 4* Telephones:**

To display the current Forwarding type and destination:

Note: If Split Forwarding is enabled, press the NEXT softkey to examine settings for internal calls.

- Press the DISPLAY key.
- Press the CALL FWD softkey – read the display.
- Press the EXIT softkey.

To activate Forwarding already programmed:

- Press the SELECT FEATURES key.
- Dial 1 (feature number 1 is Forwarding (1:FWD)) – the current type and destination are displayed.
- Press the ON softkey to activate forwarding; if activation is not desired,press the EXIT softkey.

Forwarding is now active; the word FWD is displayed in the top left corner of the LCD as a reminder.

To deactivate Forwarding:

- Press the SELECT FEATURES key.
- Dial 1 (feature number 1 is Forwarding (1:FWD)) – the current type and destination are displayed.
- Press the OFF softkey to deactivate forwarding; if deactivation is not desired, press the EXIT softkey.

To Set Up or Modify Call Forwarding – External:

- With the handset on-hook, press the PROGRAM feature key.
- Press the CALL FWD feature key.

The alphanumeric display shows a Forwarding type. If the displayed type is not the one required, press the NO softkey; another type is displayed. Repeat until the required type is displayed; then press the YES softkey.

Press the SPEED CALL key associated with that number on the *SUPERSET* telephone or associated *SUPERSET DSS* Module, or dial the Abbreviated Dial number, if available.

- Check that the destination number indicated on the display is correct.

To correct an error, use the ← key.

- Press the SAVE softkey.

***SUPERSET 420* Telephones:**

To display the current forwarding type and external destination:

- Press **SuperKey**.
- Press the **No** softkey until CALL FORWARDING? appears in the display.
- Press the **Yes** softkey. The display shows the current forwarding type and external destination, if programmed.
- Press **SuperKey** to return to normal display.

To activate Forwarding already programmed:

- Press the CALL FORWARD Feature key. The indicator beside the key turns on to indicate that Call Forwarding is activated. (Refer to Feature Keys for instructions on programming this feature key)

or, if a CALL FORWARD Feature key isn't programmed,

- Press **SuperKey**.
- Press the **No** softkey until CALL FORWARDING? appears in the display.
- Press the **Yes** softkey.

- Press the **Change** softkey.
- Press the **TurnOn** softkey. An asterisk appears next to the destination to indicate that call forwarding is activated.
- Press **SuperKey** to return to normal display.

To deactivate Forwarding to an external destination:

- Press the CALL FORWARD Feature key. The indicator beside the key turns off to indicate that Call Forwarding is deactivated.

or, if a CALL FORWARD Feature key isn't programmed,

- Press **SuperKey**.
- Press the **No** softkey until CALL FORWARDING? appears in the display.
- Press the **Yes** softkey.
- Press the **Change** softkey.
- Press the **TurnOff** softkey. The asterisk next to the destination disappears.
- Press **SuperKey** to return to normal display.

To program the set to forward all calls to an external number:

- Press **SuperKey**.
- Press the **No** softkey until CALL FORWARDING? appears in the display.
- Press the **Yes** softkey. The display shows the current forwarding type and destination, if programmed.
- Press the **Change** softkey.
- Press the **Program** softkey.
- Press the **No** softkey until the desired type of call forwarding appears in the display.
- Press the **Yes** softkey.
- Enter the destination number, or press a SPEED CALL key on the *SUPERSET* telephone or associated *SUPERSET DSS* Module. If an invalid number is entered, the display shows INVALID NUMBER. Use the **←** softkey to back space and erase the entry.
- Press the **Save** softkey. The type of forwarding, the forwarding destination, and an * appear momentarily in the display. The display then returns to showing the date and time. Call Forwarding is now programmed and enabled.

Note: The asterisk indicates that Call Forwarding is enabled.

SUPERSET 4 DN and SUPERSET 430 Telephones:

To display the current forwarding type and destination:

- Press **SuperKey**.
- Find the **Forwarding** softkey. (Use the More softkey).
- Press the **Forwarding** softkey. The display shows the current forwarding type and destination, if programmed.
- Press **SuperKey** to return to normal display.

To activate Forwarding already programmed:

- Press the **Turn FWD On** softkey. <FWD ON> appears in the upper right corner of the LCD.

To deactivate Forwarding:

- Press the **Turn FWD Off** softkey. <FWD ON> disappears from the display.

To Set Up Call Forwarding – External:

- Press **SuperKey**.
- Find the **Forwarding** softkey. (Use the More softkey).
- Press the **Forwarding** softkey. The display shows the current forwarding type and destination, if programmed.
- Press the **Change** softkey. Softkeys appear for the types of forwarding enabled in the set's COS. This only applies if Split Forwarding is disabled.
- Select the required type. The display requests the destination number.
- Enter the destination number, or press a SPEED CALL key on the *SUPERSET* telephone or associated *SUPERSET DSS* Module. If an invalid number is entered, the display shows INVALID NUMBER. Use the **←** softkey to back space and erase the entry. Enter the correct number (can be a speedcall key, if programmed) or press the **Current No.** softkey to restore the previously programmed destination, (if available).
- Press the **Save/On** softkey. The display returns to normal. <FWD ON> appears in the top right corner. If Split Forwarding is enabled, the **Save/Off** softkey is also available.

Call Forwarding – Internal / External Split

Generic 1004 and 1005

Description Calls may be forwarded to different destinations according to the source of the call – either an internal call from within the PABX or an external call from outside of the PABX.

- Conditions** The following conditions apply to this feature:
- COS Option 260 (Internal / External Split Call Forward) must be enabled for the extension to allow forwarding according to the source of the call.
 - For Call Forwarding, internal calls are defined as those originating from within the PABX, including TIE trunks and DISA trunks. DISA trunks set up as night only DISA trunks are considered external trunks during day service.
 - For Call Forwarding, external calls are defined as those originating from outside of the PABX, including CO trunks, DID trunks, and calls coming from or transferred from a Console or Enhanced Subattendant.
 - A feature key which turns forwarding ON or OFF, turns both internal and external on or off together.
 - To allow call forwarding to an external destination, COS Option 208 (Call Forwarding – External) must be enabled.

Programming Enable COS Option 260 (Internal / External Split Call Forward) for the extension to allow forwarding according to the source of the call.

Enable the desired Call Forwarding type in the extension's COS.

Ensure Feature Access Code 04 (Call Forwarding – Internal Only) and Feature Access Code 05 (Call Forwarding – External Calls Only) have feature access codes programmed.

For feature key activation of call forwarding on a *SUPERSET 3 DN*, *SUPERSET 410*, or *SUPERSET 420* telephone, program a CALL FORWARD feature key. (See Feature Keys.)

Operation Operation varies depending upon the device type as described below.

Industry-standard and SUPERSET 401 Telephones:

To set up Call Forwarding for internally originated calls:

- Lift the handset – wait for dial tone.
- Dial Access code 04 – Call Forwarding – Internal Calls Only.
- Dial the Condition code for the desired type of forwarding.

- Dial the number to which calls are to be forwarded.
- Dial tone returns.
- Hang up – the extension is available for normal use.

To set up Call Forwarding for externally originated calls:

- Lift the handset – wait for dial tone.
- Dial Access code 05 – Call Forwarding – External Calls Only
- Dial the Condition code for the desired type of forwarding.
- Dial the number to which calls are to be forwarded.
- Dial tone returns.
- Hang up – the extension is available for normal use.

To cancel Forwarding (all types):

- Lift the handset – wait for dial tone.
- Dial the external forwarding access code.
- Hang up – external forwarding is canceled.
- Dial the internal forwarding access code.
- Hang up – internal forwarding is canceled.

or

- Lift the handset – wait for dial tone.
- Dial the Clear All Features access code (see *Clear All Features*). This also cancels all forwarding at the telephone.

SUPERSET 3 Telephones:

To select Call Forwarding:

- Follow the same procedure as for industry-standard telephones; it is also possible to dial the codes and extension destination directly on the keypad and then press the **Speaker On/Off** key to go on-hook.

SUPERSET 3 DN and SUPERSET 410 Telephones:

To set up Split Call Forwarding (all types except I'm Here):

- Follow the same procedure as for industry-standard telephones; it is also possible to dial the codes and extension destination directly on the keypad and then press the **Speaker On/Off** key to go on-hook.

To activate or deactivate Forwarding already programmed:

- Press the CALL FORWARD feature access key, if programmed. The LCD indicator is dark (activated) to indicate either internal or external forwarding active, clear to indicate not active.

***SUPERSET 4* Telephones:**

To display the current Forwarding type and destination:

- Press the DISPLAY key.
- Press the CALL FWD softkey – External forwarding is displayed; press the NEXT softkey, the ON softkey, or the OFF softkey to go to Internal Forwarding – read the display.
- Press the EXIT softkey.

To activate Forwarding already programmed:

- Press the SELECT FEATURES key.
- Dial 1 (feature number 1 is Forwarding (1:FWD)) – the current External type and destination are displayed; press NEXT softkey to move to Internal forwarding.
- Press the ON softkey to activate external forwarding, and move to the internal forwarding display; if activation is not desired, press the EXIT softkey.

To deactivate Forwarding:

- Press the SELECT FEATURES key.
- Dial 1 (feature number 1 is Forwarding (1:FWD)) – the current External type and destination are displayed; press NEXT softkey to move to Internal forwarding.
- Press the OFF softkey to deactivate forwarding; if deactivation is not desired, press the EXIT softkey.

To Set Up or Modify Forwarding:

- With the handset on-hook, press the PROGRAM feature key.
- Press the CALL FWD feature key.

The alphanumeric display shows EXT CALLS?; press NO to toggle to INT CALLS? and again to toggle back. When the displayed type appears, press the YES softkey. Similarly, toggle the NO softkey to select the desired condition.

If the call is to be forwarded within the PABX, dial the forwarding destination. If the call is to be forwarded to an outside number, press the SPEED CALL key associated with that number or dial the Abbreviated Dial number, if available.

- Check that the destination number indicated on the display is correct.
 - To correct an error, use the ← key.
- Press the SAVE softkey.

SUPERSET 420 Telephones:

To display the current forwarding type and destination:

- Press **SuperKey**.
- Press the **No** softkey until CALL FORWARDING? appears in the display.
- Press the **Yes** softkey. The display shows the current forwarding type and destination, if programmed.
- EXTERNAL CALLS? * appears in the display. The asterisk (*) is present only if call forwarding is on.
- Press the **Review** softkey to display the current call forwarding setting for the external incoming calls that arrive at your set.
- Press the **Next** softkey. INTERNAL CALLS? * appears in the display. The asterisk (*) is present only if call forwarding is on.
- Press the **Review** softkey to display the current call forwarding setting for the internal calls that arrive at your set.
- Press **SuperKey** to return to normal display.

To activate call forwarding if it is already programmed:

- Press the CALL FORWARD Feature key. The indicator beside the key turns on to indicate that Call Forwarding is activated. Note that if both External and Internal call forwarding are programmed, both will be enabled. (Refer to Feature Keys for instructions on programming this feature key.)

or, you can activate either external forwarding, internal forwarding, or both using the softkeys.

To activate external forwarding using the softkeys:

- Press **SuperKey**.
- Press the **No** softkey until CALL FORWARDING? appears in the display.
- Press the **Yes** softkey.
- EXTERNAL CALLS? appears in the display.
- Press the **Change** softkey. The current call forwarding setting for external incoming calls is displayed.
- Press the **TurnOn** softkey.
- Press **SuperKey** to return to normal display.

To activate internal forwarding using the softkeys:

- Press **SuperKey**
- Press the **No** softkey until CALL FORWARDING? appears in the display.

- Press the **Yes** softkey.
- EXTERNAL CALLS? appears in the display.
- Press the **No** softkey. INTERNAL CALLS? appears in the display.
- Press the **Change** softkey. The current call forwarding setting for internal calls is displayed.
- Press the **TurnOn** softkey.
- Press **SuperKey** to return to normal display.

To deactivate Forwarding:

- Press the CALL FORWARD Feature key. The indicator beside the key turns off to indicate that Call Forwarding is deactivated. Note that if both External and Internal call forwarding are programmed, both will be turned off.

or, you can deactivate either external forwarding, internal forwarding, or both using the softkeys.

To deactivate external forwarding using the softkeys:

- Press **SuperKey**.
- Press the **No** softkey until CALL FORWARDING? appears in the display.
- Press the **Yes** softkey.
- EXTERNAL CALLS? appears in the display.
- Press the **Change** softkey. The current call forwarding setting for external incoming calls is displayed
- Press the **TurnOff** softkey.
- Press **SuperKey** to return to normal display.

To deactivate internal forwarding using the softkeys:

- Press **SuperKey**
- Press the **No** softkey until CALL FORWARDING? appears in the display.
- Press the **Yes** softkey.
- EXTERNAL CALLS? appears in the display.
- Press the **No** softkey. INTERNAL CALLS? appears in the display.
- Press the **Change** softkey. The current call forwarding setting for internal calls is displayed.
- Press the **TurnOff** softkey.
- Press **SuperKey** to return to normal display.

To program Call Forwarding – Internal/External Split:

To program forwarding of your external calls:

- Press **SuperKey**.
- Press the **No** softkey until CALL FORWARDING? appears in the display.
- Press the **Yes** softkey. EXTERNAL CALLS? * appears in the display. The asterisk (*) is present only if call forwarding is on.
- Press the **Change** softkey.
- Press the **Program** softkey.
- Press the **No** softkey until the desired call forwarding type appears in the display. When the desired type is displayed, press the **Yes** softkey.
- Enter the number of the destination, or press a SPEED CALL key on the *SUPERSET* telephone or associated *SUPERSET DSS* Module. If an invalid number is entered, the display shows INVALID NUMBER. Use the **←** softkey to back space and erase the entry.
- Press the **Save** softkey. The type of forwarding and the forwarding destination appear momentarily in the display. Then, the display shows INTERNAL CALLS?
- Press **SuperKey** to return to normal display.

To program the forwarding of your internal calls:

- Press **SuperKey**.
- Press the **No** softkey until CALL FORWARDING? appears in the display.
- Press the **Yes** softkey. EXTERNAL CALLS? * appears. The asterisk (*) is present only if call forwarding is on.
- Press the **No** softkey. INTERNAL CALLS? * appears. The asterisk (*) is present only if call forwarding is on.
- Press the **Change** softkey.
- Press the **Program** softkey.
- Press the **No** softkey until the desired call forwarding type appears in the display. When the desired type is displayed, press the **Yes** softkey.
- Enter the destination number. If an invalid number is entered, the display shows INVALID. Use the **←** softkey to back space and erase the entry.
- Press the **Save** softkey. The type of forwarding, the forwarding destination, and an * appear momentarily in the display. Call Forwarding of your internal incoming calls is now programmed and enabled.
Note: The asterisk indicates that Call Forwarding is enabled.
- Press **SuperKey** to return to normal display.

SUPERSET 4 DN and SUPERSET 430 Telephones:

To display the current forwarding type and destination:

- Press **SuperKey**.
- Find the **Forwarding** softkey. (Use the **More** softkey).
- Press the **Forwarding** softkey. The display shows both EXTERNAL and INTERNAL forwarding type and displays the condition keys.
- Press **SuperKey** to return to normal display.

To activate Forwarding already programmed:

- Press the **Turn FWD On** softkey. <FWD ON> appears in the upper right corner of the LCD.

To deactivate Forwarding:

- Press the **Turn FWD Off** softkey. <FWD ON> disappears.

To Set Up Forwarding:

- Press **SuperKey**.
- Find the **Forwarding** softkey. (Use the More softkey).
- Press the **Forwarding** softkey. The display shows the current forwarding types and destinations, for external and internal calls. Softkeys appear for the types of forwarding enabled in the set's COS.
- Select the desired type of forwarding by using the appropriate softkey.
- Settings according to the selected type are displayed for both EXTERNAL and INTERNAL. Select the EXTERNAL or INTERNAL softkey to change the programming, then enter the destination number.
- Enter the destination number. If an invalid number is entered, the display shows INVALID NUMBER. Use the **←** softkey to back space and erase the entry. Enter the correct number (can be a speedcall key, if programmed) or press the **Current No.** softkey to restore the previously programmed destination, (if available).
- Press the **Save/On** or **Save/Off** softkey. The display returns to allow the user to program the other type of forwarding, ie. internal or external. **Save/On** softkey saves the new destination and enables forwarding; **Save/Off** softkey saves the new destination and disables forwarding.
- Pressing the **SuperKey** moves the user back to the idle set display. If either internal or external forwarding is enabled (SAVE/ON), <FWD ON> appears in the top right corner if the **Save/On** softkey was pressed for either internal or external forwarding.

Call Forwarding – Generic 1001, 1002, and 1003

Description Call Forwarding allows the telephone user to redirect calls placed to the telephone's extension number. The calls can be redirected to many types of devices and external numbers. The type of forwarding selected determines under what conditions the call is redirected. Call Forwarding destinations are internal to the PABX, except Call Forwarding – External. The types are:

- Call Forwarding – Busy (When Set's Busy)
- Call Forwarding – Busy/Don't Answer (Busy/No Answer)
- Call Forwarding – Follow Me (Always Forward)
- Call Forwarding – I'm Here
- Call Forwarding – Don't Answer (When No Answer)
- Call Forwarding – External.

Conditions The following conditions apply to this feature:

- Valid call forwarding destinations are: Dial 0 access code, hunt groups (not data type), industry-standard telephones, *SUPERSET* telephones, consoles, ACD Paths, personal Speedcall keys, system Abbreviated Dial numbers.
- For Call Forwarding, an extension is considered BUSY if the extension is not idle; has its prime line appearance not idle, or the device is otherwise in use or unavailable (in Do Not Disturb or out of service). The exception is a subattendant position which has at least one idle multical appearance of itself.
- Forwarding is operational for logical lines if the line is a single appearance line. The forwarding setting of the *SUPERSET* telephone where the line is programmed is used to forward calls.
- Forwarding can be set up to the Dial 0 access code. The destination is translated from the access code to the routing point based upon the current NIGHT/DAY service at the time of forwarding (giving NIGHT/DAY based forwarding). Priority Dial 0 can be used as well, with the feature being checked for on the forwarding extension.
- Forwarding does not apply if the calling extension is the party to which the call would be forwarded.
- Forwarding does not apply if the forwarder has COS Option 234 (Never a Forwarder) in its COS.
- Forwarding directly to an LDN can only be set up by an Attendant. An extension can set up forwarding to an LDN indirectly by using the Dial 0 code.
- Forwarding cannot be programmed from an extension to itself.

- Forwarding is ignored when callbacks are honored, except No Answer forwarding is performed if it is programmed and enabled.
- No forwarding is done if the caller is the Attendant, and the forwarding destination is the Dial 0 Access Code.
- If the extension is a member of a Hunt Group and has forwarding enabled, the system excludes it from hunting.
- Only one type of forwarding may be active at an extension at any time: if an extension has one type of forwarding active and the user enters a new forwarding type, the first type of forwarding is canceled.
- Forwarding must be enabled in the set's COS. The different types of forwarding are enabled separately; see *Programming*.
- A call may be forwarded twice if the first forward is of the "Follow Me" or "Busy" type, and the second is of the "Don't Answer" type. Otherwise a call can be forwarded only once.
- An extension must have COS Option 245 (Abbreviated Dialing Access) in its COS to be able to program call forwarding to system Abbreviated Dial numbers. The option is not needed for callers which are forwarded to abbreviated dial numbers.
- When forwarding to a speedcall or abbreviated dial number, the forwarding always occurs regardless of the outcome of the call, unless to a vacant number, in which case forwarding is ignored. For example, if Toll Control denies access to an external number or the forwarding is to an invalid number then the caller receives reorder tone.
- *SUPERSET* telephone key or multicall line appearances of extension numbers do not ring or provide visual indication of incoming calls if the extension has activated Forwarding – Follow Me, Forwarding – Busy, or Forwarding – I'm Here.
- Forwarding is not done if the forward destination is busy (it is busy if: Do Not Disturb is activated, it is not idle, or its prime line appearance is not idle). An exception is for Subattendant *SUPERSET* telephones. For Subattendants, the *SUPERSET* telephone is considered busy if there are no idle appearances of its prime line; see *Subattendant* (Generic 1001, 1002, and 1003).
- When Call Forwarding – Follow Me is activated, calls are always forwarded, even if the forward destination is busy.
- If the *SUPERSET* telephone being forwarded to has the Auto-Answer feature activated then the caller is answered with that feature; see *Auto-Answer*.
- Connection checking is done between the calling party and the party being forwarded to; see *Device Interconnection Control*.
- If forwarding is activated but for some reason the forwarding is not done, the call continues as if forwarding was not active. If the call forward –don't answer timer expires and no forwarding is performed, the recall no answer timer is started; see *Recall*.

- For display *SUPERSET* telephones and the console, the forwarding party's identity are displayed when the forwarded party rings the *SUPERSET* telephone or is answered at the console.
- If a console or extension is externally call forwarded, the forwarding continues only if System Option 21 (Incoming to Outgoing Call Forward) is enabled.
- Forwarding – I'm here can only be changed from the forwarding set or the console, not from the other extension.
- When a *SUPERSET 4* telephone receives a forwarded call, the display shows the number or name of the telephone that forwarded the call.
- When a *SUPERSET 4* DN telephone receives a forwarded call, the display shows the number or name of the telephone that forwarded the call.
- If COS Option 258 is disabled, the logical line appears as the forwarder for all types of forwarding.

Programming Enable the COS Options, Feature Access Codes, and System Options listed below, as required, to enable Call Forwarding for the PABX.

Enable COS Option 219 (Discriminating Dial Tone) if discriminating dial tone is desired; it will then be heard by any extension which has the Call Forward condition set to Always.

Enable COS Option 245 (Abbreviated Dialing Access), enable COS Option 208 (Call Forwarding – External), and disable COS Option 200 (Account Code, Forced Entry – External Calls), for the extension to allow forwarding to system Abbreviated Dial numbers.

Enable System Option 21 (Incoming to Outgoing Call Forward) to allow trunks to be externally call forwarded.

Assign access codes to the desired types of Forwarding in CDE Form 02 (Feature Access Codes):

- Feature Access Code 03 (Call Forwarding – Busy)
- Feature Access Code 04 (Call Forwarding – Don't Answer)
- Feature Access Code 05 (Call Forwarding – Busy/Don't Answer)
- Feature Access Code 06 (Call Forwarding – Follow Me)
- Feature Access Code 07 (Call Forwarding – I'm Here).

Set COS Option 253, Call Forward – Don't Answer Timer (251 in Generic 1001), for two to six rings.

Enable one or more of the following COS Options as required:

- 206 Call Forwarding – Busy
- 207 Call Forwarding – Don't Answer
- 208 Call Forwarding – External
- 209 Call Forwarding – Follow Me
- 210 Call Forwarding – Inhibit on Dial-in Trunks
- 222 Call Forwarding – Inhibit on Hold Timeout
- 253 Call Forwarding – Don't Answer Timer (251 in Generic 1001)
- 258 Display Prime as Forwarder (Generic 1003).

Operation Operation varies depending upon the device type and the Call Forwarding type.

Call Forwarding – Busy

Generic 1001, 1002 and 1003

Description This feature forwards all calls when the extension is busy. While the extension is idle, calls may be made and received normally.

Conditions See conditions for *Call Forwarding – Generic 1001, Generic 1002, and Generic 1003*.

Ensure Feature Access Code 03 (Call Forwarding – Busy) has a feature access code programmed.

Programming Enable COS Option 206 (Call Forwarding – Busy).

Operation Operation varies depending upon the device type and the Call Forwarding type.

Industry-standard Telephones:

To set up Forwarding:

- Lift the handset – wait for dial tone.
- Dial the access code for Call Forwarding – Busy.
- Dial the number to which calls are to be forwarded.
- Dial tone returns.
- Hang up – the extension is available for normal use.

To cancel Forwarding (all types):

- Lift the handset – wait for dial tone.
- Dial any forwarding access code.
- Hang up – the forwarding is canceled.

or

- Lift the handset – wait for dial tone.
- Dial the Clear All Features access code (see *Clear All Features*). This also cancels all forwarding at the telephone.

SUPERSET 3 Telephones:

To select Forwarding (all types except I'm Here):

- Follow the same procedure as for industry-standard telephones; it is also possible to go off-hook using the SPEAKER ON/OFF key.

SUPERSET 3 DN Telephones:

To set up Call Forwarding – Busy:

- Follow the same procedure as for industry-standard telephones; it is also possible to go off-hook using the SPEAKER ON/OFF key.

To activate or deactivate Forwarding already programmed:

- Press the CALL FORWARD feature access key, if programmed. The LCD indicator is dark (activated) to indicate forwarding active, clear to indicate not active.

SUPERSET 4 Telephones:

To display the current Forwarding type and destination:

- Press the DISPLAY key.
- Press the CALL FWD softkey – read the display.
- Press the EXIT softkey.

To activate Forwarding already programmed:

- Press the SELECT FEATURES key.
- Dial 1 (feature number 1 is Forwarding (1:FWD)) – the current type and destination are displayed.
- Press the ON softkey to activate forwarding; if activation is not desired, press the EXIT softkey.

Forwarding is now active; the word FWD is displayed in the top left corner of the LCD as a reminder.

To deactivate Forwarding:

- Press the **SELECT FEATURES** key
- Dial 1 (feature number 1 is Forwarding (1:FWD)) – the current type and destination are displayed.
- Press the **OFF** softkey to deactivate forwarding; if deactivation is not desired, press the **EXIT** softkey.

To Set Up or Modify Forwarding:

- With the handset on-hook, press the **PROGRAM** feature key.
- Press the **CALL FWD** feature key.
- For internal destination, dial the desired forwarding destination

The alphanumeric display shows a Forwarding type. If the displayed type is not the one required, press the **NO** softkey; another type is displayed. Repeat until the desired type is displayed. When the displayed type appears, press the **YES** softkey.

- For external forwarding, press the **SPEED CALL** key associated with the number or dial the Abbreviated Dial number, if available, or enter digits from the keypad.
- Check that the destination number indicated on the display is correct.
 - To correct an error, use the **←** key.
- If the destination is correct, press the **SAVE** softkey.

SUPERSET 4 DN Telephones:

To display the current forwarding type and destination:

- Press **SuperKey**.
- Find the **Forwarding** softkey. (Use the **More** softkey).
- Press the **Forwarding** softkey. The display shows the current forwarding type and destination, if programmed.
- Press **SuperKey** to return to normal display.

To activate Forwarding already programmed:

- Press the **Turn FWD On** softkey. <FWD ON> appears in the upper right corner of the LCD.

To deactivate Forwarding:

- Press the **Turn FWD Off** softkey. <FWD ON> disappears from the display.

To Set Up Forwarding:

- Press **SuperKey**.

- Find the **Forwarding** softkey. (Use the **More** softkey).
- Press the **Forwarding** softkey. The display shows the current forwarding type and destination, if programmed.
- Press the **Change** softkey. Softkeys appear for the types of forwarding enabled in the set's COS.
- Select the desired forwarding type. The display requests the destination number.
- Enter the destination number. If an invalid number is entered, the display shows INVALID NUMBER. Use the **←** softkey to back space and erase the entry. Enter the correct number (can be a speedcall key, if programmed) or press the **Current No.** softkey to restore the previously programmed destination, (if available).
- Press the **Save/On** softkey. The display returns to normal. <FWD ON> appears in the top right corner.

Call Forwarding – Busy/Don't Answer

Generic 1001, 1002 and 1003

Description This feature forwards all calls received when the extension is busy or that are not answered within a selected time-out period. While the extension is idle, calls may be made and received normally.

Conditions The following conditions apply to this feature:

- For Call Forwarding – Don't Answer, a caller camps on to the forwarding destination if allowed to camp on; see *Camp on For* audio details.
- Call Forwarding – Don't Answer has no effect when a *SUPERSET* telephone answers the call using the Auto-Answer feature.
- *SUPERSET* telephone key or multicall DELAY RING line appearances of extension numbers do not ring if the extension has activated Forwarding – Don't Answer and the call is forwarded. The delay ring timer is the same as the call forward – don't answer timer. However, the *SUPERSET* telephone provides visual indication of the incoming call. The *SUPERSET* telephone user can answer the call before the forwarding occurs.
- See conditions for *Call Forwarding – Generic 1001, Generic 1002, and Generic 1003*.

Programming Enable the following Forwarding types in the extension's COS:

- COS Option 206 (Call Forwarding – Busy)
- COS Option 207 (Call Forwarding – Don't Answer).

Ensure Feature Access Code 05 (Call Forwarding – Busy/Don't Answer) has a feature access code programmed.

Set COS Option 253, Call Forward – Don't Answer Timer (251 in Generic 1001), for two to six rings.

Operation

Operation varies depending upon the device type and the Call Forwarding type.

Industry–standard Telephones:

To set up Call Forwarding – Busy/Don't Answer:

- Lift the handset – wait for dial tone.
- Dial the access code for Call Forwarding – Busy / Don't Answer.
- Dial the number to which calls are to be forwarded.
- Dial tone returns.
- Hang up – the extension is available for normal use.

To cancel Forwarding (all types):

- Lift the handset – wait for dial tone.
 - Dial any forwarding access code.
 - Hang up – the forwarding is canceled
- or
- Lift the handset – wait for dial tone.
 - Dial the Clear All Features access code (see *Clear All Features*). This also cancels all forwarding at the telephone.

SUPERSET 3 Telephones:

To select Forwarding:

- Follow the same procedure as for industry–standard telephones; it is also possible to go off-hook using the SPEAKER ON/OFF key.

SUPERSET 3 DN Telephones:

To set up Forwarding:

- Follow the same procedure as for industry–standard telephones; it is also possible to go off-hook using the SPEAKER ON/OFF key.

To activate or deactivate Forwarding already programmed:

- Press the CALL FORWARD feature access key, if programmed. The LCD indicator is dark (activated) to indicate forwarding active, clear to indicate not active.

SUPERSET 4 Telephones:

To display the current Forwarding type and destination:

- Press the DISPLAY key.
- Press the CALL FWD softkey – read the display.
- Press the EXIT softkey.

To activate Forwarding already programmed:

- Press the SELECT FEATURES key.
- Dial 1 (feature number 1 is Forwarding (1:FWD)) – the current type and destination are displayed.
- Press the ON softkey to activate forwarding; if activation is not desired, press the EXIT softkey.

Forwarding is now active; the word FWD is displayed in the top left corner of the LCD as a reminder.

To deactivate Forwarding:

- Press the SELECT FEATURES key.
- Dial 1 (feature number 1 is Forwarding (1:FWD)) – the current type and destination are displayed.
- Press the OFF softkey to deactivate forwarding; if deactivation is not desired, press the EXIT softkey.

To Set Up or Modify Forwarding:

- With the handset on-hook, press the PROGRAM feature key.
- Press the CALL FWD feature key.

The alphanumeric display shows a Forwarding type. If the displayed type is not the one required, press the NO softkey; another type is displayed. Repeat until Call Forwarding – Busy/Don't Answer is displayed; then press the YES softkey.

- Dial the forwarding destination, or press a Speedcall key.
- Check the number on the display.
 - To correct an error, use the ← key.
- Press the SAVE softkey when the correct destination is displayed.

SUPERSET 4 DN Telephones:

To display the current forwarding type and destination:

- Press **SuperKey**.
- Find the Forwarding softkey. (Use the **More** softkey).

- Press the **Forwarding** softkey. The display shows the current forwarding type and destination, if programmed.
- Press **SuperKey** to return to normal display.

To activate Forwarding already programmed:

- Press the **Turn FWD On** softkey. <FWD ON> appears in the upper right corner of the LCD.

To deactivate Forwarding:

- Press the **Turn FWD Off** softkey. <FWD ON> disappears from the display.

To Set Up Forwarding:

- Press **SuperKey**.
- Find the **Forwarding** softkey. (Use the **More** softkey).
- Press the **Forwarding** softkey. The display shows the current forwarding type and destination, if programmed.
- Press the **Change** softkey. Softkeys appear for the types of forwarding enabled in the set's COS.
- Select Call Forwarding – Busy/Don't Answer. The display requests the destination number.
- Enter the destination number. If an invalid number is entered, the display shows INVALID NUMBER. Use the **←** softkey to back space and erase the entry. Enter the correct number (can be a speedcall key, if programmed) or press the **Current No.** softkey to restore the previously programmed destination, (if available).
- Press the **Save/On** softkey. The display returns to normal. <FWD ON> appears in the top right corner.

Call Forwarding – Follow Me

Generic 1001, 1002 and 1003

Description	This type of forwarding is unconditional. All calls are forwarded to the programmed destination. The number to which the calls are forwarded is the only party that will ring the forwarding extension while Forwarding – Follow Me is active. The extension may originate calls in the normal manner.
Conditions	See conditions for <i>Call Forwarding – Generic 1001, Generic 1002, and Generic 1003</i> .
Programming	Enable COS Option 209 (Call Forwarding – Follow Me) in the extension's COS.

Ensure Feature Access Code 06 (Call Forwarding – Follow Me) has a feature access code programmed.

Operation

Operation varies depending upon the device type and the Call Forwarding type.

Industry–standard Telephones:

To set up Call Forwarding – Follow Me:

- Lift the handset – wait for dial tone.
- Dial the access code for Call Forwarding – Follow Me.
- Dial the number to which calls are to be forwarded.
- Dial tone returns.
- Hang up – the extension is available for normal use.

To cancel Forwarding (all types):

- Lift the handset – wait for dial tone.
- Dial any forwarding access code.
- Hang up – the forwarding is canceled.

or

- Lift the handset – wait for dial tone.
- Dial the Clear All Features access code (see *Clear All Features*). This also cancels all forwarding at the telephone.

SUPERSET 3 Telephones:

To select Call Forwarding – Follow Me:

- Follow the same procedure as for industry–standard telephones; it is also possible to go off-hook using the SPEAKER ON/OFF key.

SUPERSET 3 DN Telephones:

To set up Call Forwarding – Follow Me:

- Follow the same procedure as for industry–standard telephones; it is also possible to go off-hook using the SPEAKER ON/OFF key.

To activate or deactivate Forwarding already programmed:

- Press the CALL FORWARD feature access key, if programmed. The LCD indicator is dark (activated) to indicate forwarding active, clear to indicate not active.

SUPERSET 4 Telephones:

To display the current Forwarding type and destination:

- Press the DISPLAY key.
- Press the CALL FWD softkey – read the display.
- Press the EXIT softkey.

To activate Forwarding already programmed:

- Press the SELECT FEATURES key.
- Dial 1 (feature number 1 is Forwarding (1:FWD)) – the current type and destination are displayed.
- Press the ON softkey to activate forwarding; if activation is not desired, press the EXIT softkey.

Forwarding is now active; the word FWD is displayed in the top left corner of the LCD as a reminder.

To deactivate Forwarding:

- Press the SELECT FEATURES key.
- Dial 1 (feature number 1 is Forwarding (1:FWD)) – the current type and destination are displayed.
- Press the OFF softkey to deactivate forwarding; if deactivation is not desired, press the EXIT softkey.

To Set Up or Modify Call Forwarding – Follow Me:

- With the handset on-hook, press the PROGRAM feature key.
- Press the CALL FWD feature key.

The alphanumeric display shows a Forwarding type. If the displayed type is not the one required, press the NO softkey; another type is displayed. Repeat until Call Forwarding – Follow Me is displayed; then press the YES softkey.

- Dial the forwarding destination, or press a Speedcall key.
- Check the number on the display.
 - To correct an error, use the ← key.
- Press the SAVE softkey when the correct destination is displayed.

SUPERSET 4 DN Telephones:

To display the current forwarding type and destination:

- Press **SuperKey**.
- Find the **Forwarding** softkey. (Use the **More** softkey).
- Press the **Forwarding** softkey. The display shows the current forwarding type and destination, if programmed.
- Press **SuperKey** to return to normal display.

To activate Forwarding already programmed:

- Press the **Turn FWD On** softkey. <FWD ON> appears in the upper right corner of the LCD.

To deactivate Forwarding:

- Press the **Turn FWD Off** softkey. <FWD ON> disappears from the display.

To Set Up Forwarding:

- Press **SuperKey**.
- Find the **Forwarding** softkey. (Use the More softkey).
- Press the **Forwarding** softkey. The display shows the current forwarding type and destination, if programmed.
- Press the **Change** softkey. Softkeys appear for the types of forwarding enabled in the set's COS.
- Select **Always**. The display requests the destination number.
- Enter the destination number. If an invalid number is entered, the display shows INVALID NUMBER. Use the ← softkey to back space and erase the entry. Enter the correct number (can be a speedcall key, if programmed) or press the **Current No.** softkey to restore the previously programmed destination, (if available).
- Press the **Save/On** softkey. The display returns to normal. <FWD ON> appears in the top right corner.

Call Forwarding – I'm Here

Generic 1001, 1002 and 1003

Description	This type of forwarding operates the same as Forwarding – Follow Me, but it is activated from another extension. All calls are forwarded to the new location. The forwarded extension can originate calls in the normal manner.
Conditions	See conditions for <i>Call Forwarding – Generic 1001, Generic 1002, and Generic 1003</i> .
Programming	<p>Enable COS Option 209 (Call Forwarding – Follow Me) in the extension's COS.</p> <p>Ensure Feature Access Code 07 (Call Forwarding – I'm Here) has a feature access code programmed.</p>

Operation Operation varies depending upon the device type and the Call Forwarding type.

For all telephones:

To select Forwarding – I'm Here:

- At another extension, lift the handset – wait for dial tone.
- Dial the Call Forwarding – I'm Here access code.
- Dial your own extension number – dial tone returns.
- Hang up – the extension is available for normal use.

To cancel Call Forwarding – I'm Here from the forwarded telephone:

- Lift the handset – wait for dial tone.
- Dial any forwarding access code.
- Hang up – the forwarding is canceled.

or

- Lift the handset – wait for dial tone.
- Dial the Clear All Features access code (see *Clear All Features*). This also cancels all forwarding at the telephone.

Note: The Attendant can also clear Call Forwarding at an extension.

***SUPERSET 4* Telephones:**

To select Call Forwarding – I'm Here, using softkeys:

- At the destination *SUPERSET 4* telephone, press PROGRAM softkey.
- Press CALL FWD softkey.
- Press NO softkey until I'M HERE option appears.
- Press YES softkey.
- The set responds with FR:
- Enter extension number from which calls are to be forwarded. All calls are forwarded from the specified extension.

***SUPERSET 4 DN* Telephones:**

To select Call Forwarding – I'm Here, using softkeys:

- At the destination *SUPERSET 4 DN* telephone, press PROGRAM softkey.
- Press CALL FWD softkey.
- Press CHANGE softkey.

- Press TO ME softkey.
- Enter extension number from which calls are to be forwarded.
- Press SAVE/ON softkey.
- FORWARDED ALWAYS is displayed.

Call Forwarding – Don't Answer
Generic 1001, 1002 and 1003

- Description** This feature forwards all calls that are not answered within a selected time-out period. Calls may be made and received normally.
- Conditions** The following conditions apply to this feature:
- For forwarding – Don't Answer, a caller camps on to the forwarding destination if allowed to campon; see *Campon* for audio details.
 - Forwarding – Don't Answer has no effect when a *SUPERSET* telephone answers the call using the Auto-Answer feature.
 - *SUPERSET* telephone key or multicall DELAY RING line appearances of extension numbers do not ring if the extension has activated Forwarding – Don't Answer and the call is forwarded. The delay ring timer is the same as the call forward – don't answer timer. However, the *SUPERSET* telephone provides visual indication of the incoming call. The *SUPERSET* telephone user can answer the call before the forwarding occurs.
- Programming** Enable COS Option 207 (Call Forwarding – Don't Answer) in the extension's COS.
- Set COS Option 253, Call Forward – Don't Answer Timer (251 in Generic 1001), for two to six rings.
- Ensure Feature Access Code 04 (Call Forwarding – Don't Answer) has a feature access code programmed.
- Operation** Operation varies depending upon the device type and the Call Forwarding type.
- Industry-standard Telephones
- To set up Call Forwarding – Don't Answer:
- Lift the handset – wait for dial tone.
 - Dial the access code for Call Forwarding – Don't Answer.

- Dial the number to which calls are to be forwarded.
- Dial tone returns.
- Hang up – the extension is available for normal use.

To cancel Call Forwarding – Don't Answer:

- Lift the handset – wait for dial tone.
 - Dial any forwarding access code.
 - Hang up – the forwarding is canceled.
- or
- Lift the handset – wait for dial tone.
 - Dial the Clear All Features access code (see *Clear All Features*). This also cancels all forwarding at the telephone.

SUPERSET 3 Telephones:

To select Call Forwarding – Don't Answer:

- Follow the same procedure as for industry–standard telephones; it is also possible to go off-hook using the SPEAKER ON/OFF key.

SUPERSET 3 DN Telephones:

To set up Call Forwarding – Don't Answer:

- Follow the same procedure as for industry–standard telephones; it is also possible to go off-hook using the SPEAKER ON/OFF key.

To activate or deactivate Call Forwarding – Don't Answer already programmed:

- Press the CALL FORWARD feature access key, if programmed. The LCD indicator is dark (activated) to indicate forwarding active, clear to indicate not active.

SUPERSET 4 Telephones:

To display the current Forwarding type and destination:

- Press the DISPLAY key.
- Press the CALL FWD softkey – read the display.
- Press the EXIT softkey.

To activate Forwarding already programmed:

- Press the SELECT FEATURES key.
- Dial 1 (feature number 1 is Forwarding (1:FWD)) – the current type and destination are displayed.
- Press the ON softkey to activate forwarding; if activation is not desired, press the EXIT softkey.

Forwarding is now active; the word FWD is displayed in the top left corner of the LCD as a reminder.

To deactivate Forwarding:

- Press the SELECT FEATURES key
- Dial 1 (feature number 1 is Forwarding (1:FWD)) – the current type and destination are displayed.
- Press the OFF softkey to deactivate forwarding; if deactivation is not desired, press the EXIT softkey.

To Set Up or Modify Call Forwarding – Don't Answer:

- With the handset on-hook, press the PROGRAM feature key.
- Press the CALL FWD feature key.

The alphanumeric display shows a Forwarding type. If the displayed type is not the one required, press the NO softkey; another type is displayed. Repeat until the desired type is displayed. When the displayed type appears, press the YES softkey.

- Dial the forwarding destination, or press a Speedcall key.
- Check the number on the display.
 - To correct an error, use the ← key.
- Press the SAVE softkey when the correct destination is displayed.

SUPERSET 4 DN Telephones:

To display the current forwarding type and destination:

- Press **SuperKey**.
- Find the **Forwarding** softkey. (Use the **More** softkey).
- Press the **Forwarding** softkey. The display shows the current forwarding type and destination, if programmed.
- Press **SuperKey** to return to normal display.

To activate Forwarding already programmed:

- Press the **Turn FWD On** softkey. <FWD ON> appears in the upper right corner of the LCD.

To deactivate Forwarding:

- Press the **Turn FWD Off** softkey. <FWD ON> disappears from the display.

To Set Up Forwarding:

- Press **SuperKey**.
- Find the **Forwarding** softkey. (Use the **More** softkey).

- Press the **Forwarding** softkey. The display shows the current forwarding type and destination, if programmed.
- Press the **Change** softkey. Softkeys appear for the types of forwarding enabled in the set's COS.
- Select Call Forwarding – **Don't Answer**. The display requests the destination number.
- Enter the destination number. If an invalid number is entered, the display shows INVALID NUMBER. Use the **←** softkey to back space and erase the entry. Enter the correct number (can be a speedcall key, if programmed) or press the **Current No.** softkey to restore the previously programmed destination, (if available).
- Press the **Save/On** softkey. The display returns to normal. <FWD ON> appears in the top right corner.

Call Forwarding – External

Generic 1001, 1002 and 1003

Description This feature forwards all calls received based on one of the conditions selected from above, to a Speed Call or system Abbreviated Dial number, which is an external number.

Conditions The following conditions apply to this feature:

- Forwarding – External requires a receiver for dialing. If one is not available then forwarding is ignored in Call Forward – Don't Answer. If it is done during a reroute, the caller is dropped or given reorder tone.
- An extension with COS Option 200 (Account Code, Forced Entry – External Calls) in its COS cannot set up the External Forwarding feature.
- Toll Control applies to the calling party for External Call Forwarding to personal speed call keys.
- Toll Control is not done for forwarding to external numbers using the system Abbreviated Dial feature.
- No Toll Control checking is done for CO trunks which are externally call forwarded.
- A trunk can only be forwarded externally if System Option 21 (Incoming to Outgoing Call Forward) is enabled.
- An extension is not forwarded to an external number unless it has COS Option 208 (Call Forwarding – External) in its COS.
- Campon to busy trunk groups after forwarding external is possible if the caller is allowed to campon to trunk groups; see *Campon*.

- When the Attendant or a *SUPERSET 4* or *SUPERSET 4 DN* telephone calls an extension that is forwarded to an external number, the display shows the external number and indicates the extension which forwarded the call. If the Speed Call or Abbreviated Dial number is private, text indicating a private number appears on the display instead of the external number. The Console can display the number if it has COS Option 110 (Attendant Abbr. Dial Confidential Number Display) enabled in its COS.
- Consoles and extensions can transfer a party on consultation hold as soon as forwarding to an external number starts, at any point in dialing the external number.
- The reference is to the stored Speedcall key number or the Abbreviated Dial number. If this stored number is changed, then the forwarding destination changes also.

Programming Enable COS Option 208 (Call Forwarding – External) in the extension's COS.

Enable COS Option 245 (Abbreviated Dialing Access) for the extension to allow forwarding to system Abbreviated Dial numbers.

Enable System Option 21 (Incoming to Outgoing Call Forward) to allow trunks to be externally call forwarded.

Operation Operation varies depending upon the type of telephone as described below.

Industry-standard Telephones:

To set up Call Forwarding – External at an Extension:

- Lift the handset – dial tone is heard.
- Dial the Call Forwarding Access Code.
- Dial the Abbreviated Dial Access Code.
- Dial the Abbreviated Dial Index Number, which contains the external telephone number to which calls are to be forwarded. Dial tone is returned if the above codes are valid; reorder tone is returned if the codes are invalid.
- Replace the handset; Call Forwarding – External is now active.

To cancel Call Forwarding – External at an Extension:

- Lift the handset – dial tone is returned.
- Dial any Call Forward access code.
- Replace the handset – External Forwarding is now inactive.

or

- Lift the Handset – dial tone is returned.
- Dial the CLEAR ALL FEATURES Access Code – Dial tone is returned.
- Replace the handset.

***SUPERSET 3* Telephones:**

To select Call Forwarding – External:

- Follow the same procedure as for industry–standard telephones; it is also possible to go off-hook using the SPEAKER ON/OFF key.

***SUPERSET 3 DN* Telephones:**

To set up Call Forwarding – External:

- Follow the same procedure as for industry–standard telephones; it is also possible to go off-hook using the SPEAKER ON/OFF key.

To activate or deactivate Forwarding already programmed:

- Press the CALL FORWARD feature access key, if programmed. The LCD indicator is dark (activated) to indicate forwarding active, clear to indicate not active.

***SUPERSET 4* Telephones:**

To display the current Forwarding type and destination:

- Press the DISPLAY key.
- Press the CALL FWD softkey – read the display.
- Press the EXIT softkey.

To activate Forwarding already programmed:

- Press the SELECT FEATURES key.
- Dial 1 (feature number 1 is Forwarding (1:FWD)) – the current type and destination are displayed.
- Press the ON softkey to activate forwarding; if activation is not desired, press the EXIT softkey.

Forwarding is now active; the word FWD is displayed in the top left corner of the LCD as a reminder.

To deactivate Forwarding:

- Press the SELECT FEATURES key.
- Dial 1 (feature number 1 is Forwarding (1:FWD)) – the current type and destination are displayed.
- Press the OFF softkey to deactivate forwarding; if deactivation is not desired, press the EXIT softkey.

To Set Up or Modify Forwarding:

- With the handset on-hook, press the PROGRAM feature key.
- Press the CALL FWD feature key.

The alphanumeric display shows a Forwarding type. If the displayed type is not the one required, press the NO softkey; another type is displayed; select type of forwarding, then press the YES softkey.

- Dial the forwarding destination.
or
- Press the SPEED CALL key associated with that number or dial the Abbreviated Dial number, if available.
- Check the number on the display.
 - To correct an error, use the ← key.
- Press the SAVE softkey when the correct destination is displayed.

SUPERSET 4 DN Telephones:

To display the current forwarding type and destination:

- Press **SuperKey**.
- Find the **Forwarding** softkey. (Use the More softkey).
- Press the **Forwarding** softkey. The display shows the current forwarding type and destination, if programmed.
- Press **SuperKey** to return to normal display.

To activate Forwarding already programmed:

- Press the **Turn FWD On** softkey. <FWD ON> appears in the upper right corner of the LCD.

To deactivate Forwarding:

- Press the **Turn FWD Off** softkey. <FWD ON> disappears from the display.

To Set Up Forwarding:

- Press **SuperKey**.
- Find the **Forwarding** softkey. (Use the **More** softkey).
- Press the **Forwarding** softkey. The display shows the current forwarding type and destination, if programmed.
- Press the **Change** softkey. Softkeys appear for the types of forwarding enabled in the set's COS.
- Select type of forwarding desired; the display requests the destination number.

- Enter the destination number. If an invalid number is entered, the display shows INVALID NUMBER. Use the **←** softkey to back space and erase the entry. Enter the correct number (can be a speedcall key, if programmed) or press the **Current No.** softkey to restore the previously programmed destination, (if available).
- Press the **Save/On** softkey. The display returns to normal. <FWD ON> appears in the top right corner.

Call Forwarding – Display Prime as Forwarder

Description This feature displays either the forwarder's prime line or the logical line on the forwarder's set display. If COS Option 258 (Display Prime as Forwarder) is enabled, the prime line of the set that forwarded the call is displayed. If this COS is disabled, the logical line appears as the forwarder for all types of forwarding.

Conditions The following conditions apply to this feature:

- This feature is available in Generic 1003, 1004 and 1005.
- COS Option 258 is only checked if the forwarder is a logical line.
- Calls to logical lines are only forwarded if the logical line appears only on one set.
- This feature is only applicable when the forwarder's set is a display set.

Programming Enable COS Option 258 (Display Prime as Forwarder) in the COS of the extension where the logical line appears.

Operation None.

Call Forwarding – Forward Call

Description This feature allows a *SUPERSET 4*, *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 410*, *SUPERSET 420*, or *SUPERSET 430* telephone user to force an incoming call to be forwarded to a pre-programmed forward destination.

SUPERSET 4 telephone users can only forward a caller that is camped on. From the other sets, users can forward both ringing calls and camped-on

calls, depending upon the software generic (see conditions). *SUPERSET 4 DN* or *SUPERSET 430* telephone users can view the calling party identity on the LCD display, and decide if it is to be forwarded or not, rather than having the system forward it automatically.

Conditions

The following conditions apply to this feature:

- In Generic 1002 and Generic 1003, this feature is only available to *SUPERSET 4* and *SUPERSET 4 DN* telephones.
- In Generic 1004, this feature is available to *SUPERSET 4*, *SUPERSET 3 DN* and *SUPERSET 4 DN* telephones.
- In Generic 1005 this feature is available to *SUPERSET 4*, *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 410*, *SUPERSET 420*, and *SUPERSET 430* telephones.
- This feature will apply to telephones which have forwarding programmed, but not enabled, or have Call Forward No Answer programmed.
- The conditions which apply to *Call Forward – No Answer* also apply to this feature.
- The feature applies only to prime line (or intercom line) calls, and only to calls which can normally be forwarded (i.e., not callbacks or wake-ups, etc.).

Programming

The following programming is required:

- For *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 410*, *SUPERSET 420* and *SUPERSET 430* telephones, program call forwarding as described in *Call Forwarding*.
- To activate this feature from a *SUPERSET 3 DN*, *SUPERSET 410*, or *SUPERSET 420* telephone, you must program a FORWARD CALL feature key. (See Feature Keys.)

Operation

To forward a ringing call:

***SUPERSET 3 DN* and *SUPERSET 410* Telephones:**

- Press the FORWARD CALL feature key.

***SUPERSET 420* Telephones:**

- Press the Forward softkey.

***SUPERSET 4 DN* and *SUPERSET 430* Telephones:**

- Press the Forward Call softkey.

Call Park

Description This feature allows users of industry-standard telephones or *SUPERSET 401* telephones to put a call on hold (parked) and then replace the handset. The call may be retrieved at the extension at which the call was parked, or from any other extension in the system. If Music On Hold is available, the parked party hears music. The parking extension may not originate or receive new calls until the parked call is retrieved. It can only access paging equipment.

Conditions The following conditions apply to this feature:

- This feature is available only at industry-standard telephones and *SUPERSET 401* telephones.
- If there is no system music then the caller on hold hears silence.
- COS Options 401 (Call Park) and 403 (Trunk Recall Partial Inhibit) are mutually exclusive.
- The paging and call park feature access codes are the only access codes that the parking industry-standard telephone can dial after the park is done.
- The industry-standard telephone is considered busy by the Campon and Callback features until the parked party is retrieved.
- The parked call can only be picked up from another extension once the parking extension has gone on-hook.
- When the call is parked, the timer for COS Option 254, Call Hold Recall Timer (252 in Generic 1001), is started.
- When the Call Hold Recall timer times out, the industry-standard telephone audibly starts to ring. Forwarding on the extension is ignored and the timer for COS Option 115 (Attendant Timed Recall – No Answer) is started. Music or silence continues for the parked party. When the Recall No Answer timer expires, recall handling is done; see *Recall*.

Programming Assign an access code to Feature 33 (32 in Generic 1001) (Call Park).

Enable COS Option 254 (Call Hold Recall Timer) for the extension, to set the Call Park recall time.

Enable COS Option 401 (Call Park) for the extension that parks the call and for extensions using the Call Park access code to pick up the parked call.

Enable COS Option 218 (Directed Call Pickup) for others to pick up the parked call.

- Operation** To park a call:
- Flash the switchhook (standard telephone), or press the **Flash** key (*SUPERSET 401*) – wait for dial tone.
 - Dial the Call Park access code – wait for dial tone.
 - Replace the handset, or access paging equipment; see *PA Paging*.
- To retrieve a parked call from the original extension:
- Lift the handset – connection is made.
- To retrieve a parked call from another extension:
- Dial the Call Park or the Directed Call Pickup access code.
 - Dial the number of the extension where the call was parked.
 - The call is connected to the remote extension.

Callback

Description The Callback feature allows a user to be notified when a busy device becomes free or when a set has been used after a no answer condition was encountered.

Callback busy allows a user who has encountered a busy set, hunt group or trunk group to have the call completed when the required set, hunt group or trunk group becomes idle. The system continuously monitors the originating set or console and the required device. When the originating set or console is idle and the call can now be completed, the system calls the originating set or console; when that set or console answers, it calls the required device.

Callback No Answer allows a user, after dialing an extension which does not answer, to have the call completed later after the called party uses the telephone. The system continuously monitors the originating set or console and the called set. When the called set goes off-hook and then returns to idle, the callback is handled in the same way as Callback Busy.

Up to 100 Callback requests may be active within the system at any time; however, a maximum of only 25 ARS callbacks is permitted in these requests.

See *Attendant Callback Busy/No Answer and Callback Busy/No Answer*.

Conditions The following conditions apply to this feature:

- If more than one callback request is active on any device, the requests are queued and serviced in order of placement.

- Duplicate callback requests supercede the original request.
- If the two parties involved in a callback hold a telephone conversation (not a conference) before the callback is honored, the callback is canceled automatically.
- Callbacks to a busy ARS digit string are NOT canceled if the same ARS digit string to which the callback was set is successfully dialed.
- A callback is canceled as soon as the telephone that originated it is rung, even if a conversation is not established.
- Internal callbacks outstanding for more than 8 hours are canceled automatically; callbacks to a busy ARS digit string are canceled after 1 hour.
- If a callback is not answered by the originating set or console within 20 seconds, it is automatically canceled.
- If the called party becomes busy before the originating party answers the callback, the originating party hears busy tone when the callback is answered. The callback is purged.
- When a callback is placed to a hunt group, it is placed to the whole hunt group and not to any particular member.
- The scan for an idle hunt group member for the callback does not alter the next extension to hunt for in a circular hunt group.
- Callback – Busy must be activated within 10 seconds of receiving busy tone.
- Campons to extensions are honored before callbacks.
- Originate Only extensions do not have access to this feature.
- Call Forwarding is ignored when a callback rings at the originating set.
- Callbacks ringing at a set cannot be picked up using CALL PICKUP.
- If a *SUPERSET* telephone originates a callback, the callback always rings the set's Prime Line. If the prime line has Key line appearances, the system places the key appearances into a simulated busy state to prevent them from ringing during the callback. If the prime line has Multiline appearances, they remain unchanged.
- A callback only rings a *SUPERSET* or industry-standard telephone if the set and the prime line are available.

Programming None.

Operation None.

Callback – Busy

- Description** The Callback – Busy feature allows a user who has encountered a busy telephone, hunt group, or trunk group to have the call completed when the required telephone, hunt group, or trunk group becomes idle.
- See *Callbacks* for details on Callbacks.
- See *Expensive Route Warning* for Callbacks to less expensive ARS routes.
- Conditions** Originate Only extensions do not have access to this feature.
- Programming** Enable COS Option 300 (Automatic Callback) in the set's COS.
- Assign an access code to Feature 20 (Callback – Busy).
- For feature key activation of callback on *SUPERSET 3 DN* or *SUPERSET 410* telephones, program a CALLBACK feature key. (See Feature Keys.)
- If Callback – Busy is to be permitted on outgoing trunks, also enable COS Option 236 (Outgoing Trunk Callback) in the set's COS.
- Operation** Operation varies depending on the type of telephone as described below.
- Industry-standard, SUPERSET 3, and SUPERSET 401 Telephones:**
- The called extension, hunt group, or trunk group is busy. To set a callback:
- Dial the Callback – Busy access code within 10 seconds. Dial tone is returned. Your set is now ready for normal use.
 - When the busy extension, hunt group, or trunk group becomes idle, your set rings.
 - Lift the handset – ringback or audio for ARS dialing is heard.
 - The required extension rings or the trunk is seized.
- SUPERSET 4 Telephones:**
- The called extension, hunt group, or trunk group is busy. To set a callback:
- Press the CALLBACK softkey – dial tone is returned. Your set is available for normal use.
 - When the busy extension, hunt group, or Trunk Group becomes idle, your set rings. The LCD displays CALLBACK.
 - Go off-hook – ringback or audio for ARS dialing is heard.
 - The required extension rings or the trunk is seized.

SUPERSET 3 DN and SUPERSET 410 Telephones:

The called extension, hunt group, or trunk group is busy. To set a callback:

- Press the **CALLBACK** feature key – dial tone is returned. Your set is available for normal use.
- When the busy extension, hunt group, or Trunk Group becomes idle, your set rings.
- Go off-hook – ringback or audio for ARS dialing is heard.
- The required extension rings or the trunk is seized.

Note: You can also follow the steps given for industry-standard telephones to set a Callback – Busy on *SUPERSET 3 DN* and *SUPERSET 410* telephones.

SUPERSET 420 Telephones:

The called extension, hunt group or Trunk Group is busy. To set a callback:

- Press the **Callback** softkey – if you're off-hook, dial tone is returned; if you're using handsfree operation, the set goes idle. **CALLBACK SET...** appears briefly in the display. Your set is available for normal use.
- When the busy extension, hunt group, or Trunk Group becomes idle, your set rings. Your set's LCD indicates that a callback is calling.
- Go off-hook – ringback or audio for ARS dialing is heard.
- The required extension rings or the trunk is seized.

SUPERSET 4 DN and SUPERSET 430 Telephones:

The called extension or Trunk Group is busy. To set a callback:

- Press the **Call Me Back** softkey – if you're off-hook, dial tone is returned; if you're using handsfree operation, the set goes idle. **CALLBACK SET...** appears briefly in the display. Your set is available for normal use.
- When the busy extension, hunt group, or Trunk Group becomes idle, your set rings. Your set's LCD indicates that a callback is calling.
- Go off-hook – ringback or audio for ARS dialing is heard.
- The required extension rings or the trunk is seized.

Callback – No Answer

Description Callback – No Answer allows a user, after dialing an extension that does not answer, to have the system complete the call after the called party returns and uses the telephone. The system continuously monitors the originating telephone and the called telephone. When the called telephone goes off-hook, the callback is handled in the same way as Callback – Busy.

Callback – No Answer is not available in Generic 1001.

See *Callbacks* for details on Callbacks.

Conditions The following conditions apply to this feature:

- Callback – No Answer cannot be activated by access code while listening to ringback; see *Operation*.
- Callback – No Answer can be activated on extension numbers only.
- Originate Only extensions do not have access to this feature.

Programming Enable COS Option 300 (Automatic Callback) in the set's COS.

Assign an access code to Feature 43 (Callback – No Answer).

For feature key activation of callback on a *SUPERSET 3 DN* or a *SUPERSET 410* telephone, program a *CALLBACK* feature key. (See Feature Keys.)

Operation Operation varies depending upon the type of telephone as described below.

Industry-standard and *SUPERSET 401* Telephones:

The called extension does not answer. To set a callback:

- Hang up.
- Go off-hook again.
- Dial the Callback – No Answer access code.
- Dial the unanswered set's extension number. Dial tone is returned. Your set is available for normal use.
- The next time the called (unanswered) set goes on-hook, your set rings.
- Lift the handset to call the extension.

SUPERSET 3 DN and SUPERSET 410 Telephones:

The called extension doesn't answer. To set a callback, follow the steps given for industry-standard telephones, or:

- Press the **CALLBACK** feature key – dial tone is returned. Your set is available for normal use.
- When the called (unanswered) set goes on-hook, your set rings.
- Go off-hook to call the extension.

Note: You can also follow the steps given for industry-standard telephones to set a Callback – Busy on *SUPERSET 3 DN* and *SUPERSET 410* telephones.

SUPERSET 4 Telephones:

The called extension doesn't answer. To set a callback:

- Press the **CALLBACK** softkey – if you're off-hook, dial tone is returned; if you're using handsfree operation, the set goes idle. Your set is available for normal use.
- When the called (unanswered) set goes on-hook, your set rings. Your set's LCD displays **CALLBACK**.
- Go off-hook to call the extension.

SUPERSET 420 Telephones

The called extension doesn't answer. To set a callback:

- Press the **Callback** softkey – if you're off-hook, dial tone is returned; if you're using handsfree operation, the set goes idle. **CALLBACK SET...** appears briefly in the display. Your set is available for normal use.
- When the called (unanswered) set goes on-hook, your set rings. Your set's LCD indicates that a callback is calling.
- Go off-hook to call the extension.

SUPERSET 4 DN and SUPERSET 430 Telephones:

The called extension doesn't answer. To set a callback:

- Press the **Call Me Back** softkey – if you're off-hook, dial tone is returned; if you're using handsfree operation, the set goes idle. **CALLBACK SET...** appears briefly in the display. Your set is available for normal use.
- When the called (unanswered) set goes on-hook, your set rings. Your set's LCD indicates that a callback is calling.
- Go off-hook to call the extension.

Call Rerouting

Description This feature provides flexibility for the routing of incoming calls, attendant access, call interception, and routing for various features. Different types of calls can be routed to different answering points in DAY, NIGHT 1, and NIGHT 2 service for each tenant.

Rerouted calls are processed differently than normal calls. The system considers rerouted calls to be important calls that must get through. Some features on the reroute point are ignored because of this.

Also see *Did/Dial-in/Tie Intercepts, Night Services, Trunk Support CO (LS/GS), and Uniform Call Distribution.*

Conditions The following conditions apply to this feature:

- Do Not Disturb is ignored on reroute points.
- Rerouted callers are automatically camped on to the reroute point regardless of COS options. Campon is not done for consoles.
- Valid access codes for reroute types, with the exceptions listed below, are: LDNs, consoles, industry-standard telephones, *SUPERSET* telephones, logical lines, hunt groups (all types except data hunt groups), ACD paths and Night Bells.
- Console access codes are not valid rerouting points for the following:
 - DID always routing to this tenant.
 - DID forward on busy/no answer.
 - Dial-in Tie always routing to this tenant.
 - Dial-in Tie forward on busy/no answer.
- LDN Access Codes are not valid rerouting points for Non-dial-in trunks alternate recall points.
- Only Recording Hunt Groups are valid for recording routing.
- CO trunks use rerouting when they originate, following the routing points programmed for each individual trunk; see *Trunk Support CO (LS/GS)*.
- Forwarding is examined on a reroute point (regardless of the number of forwardings already done). See *Call Forwarding*.
- Whenever a DID trunk reroutes to the Night 1 point of its Attendant Access Night Point, it does not recall due to a no answer on that point. The same applies for Tie trunks and the Tie Attendant Access Night Point and for DISA trunks, and for internal extensions and the Dial 0 point.

- Device Interconnection checking is done between the rerouted party and the reroute point. For LDN keys as reroute points, the checking is done between the calling party and the console with the lowest Bay/Slot/Circuit PLID where the LDN key appears. If the connection is not allowed then the reroute point is ignored.

Programming All Call Rerouting entries are programmed in CDE Form 19 (Call Rerouting Table). Enter a valid extension number or LDN access code in one of the DAY, N1 or N2 service columns as desired. Whether the tenant of the calling or called party is used depends upon the feature selected.

Also see *Night Services*.

Operation See *Attendant Night/Day Switching and SUPERSET Night/Day Switching* for changing the night/day service.

Campon

Description A device is able to indicate to a busy party that communication is desired, and to be connected when the party is free. Also, the user can make a continuing request for a trunk when the Trunk Group is busy, and be connected to a trunk when one becomes free.

When calling an extension, hunt group, or ARS, if the destination is busy, the caller usually receives a tone for a period and then camps on to the busy device. The tone given indicates whether or not campon is allowed during the period, or is done at the end of the period. For some calls, the period is skipped.

The busy called extension receives a tone alerting the party that there is a call waiting; see *Campon Warning Tone*.

An extension can consult the first waiting party (in hunt groups as well) using the SWAP CAMPON feature.

Campon may be initiated on a trunk group that has been programmed to give the expensive route warning; see *Expensive Route Warning*.

For recall from Campon, see *Recall*.

Conditions The following conditions apply to this feature:

- The identity of the first waiting party appears for a few seconds on a *SUPERSET 4* telephone in talking mode (then reverts to normal display); on a *SUPERSET 4 DN* and *SUPERSET 430* telephones the identification display occurs in any mode.

- On *SUPERSET 4 DN* and *SUPERSET 430* telephones, the camped on party identification display takes precedence over the held party display.
- Calls camped on to a device are serviced in two groups, trunks and internal callers, with trunks being served first. Within each group calls are serviced on a first-come, first-served basis.
- When a party camps on to a busy trunk group, the DTMF receiver used to reach the trunk group is released. The campon to the trunk group is honored when a trunk group is free and a DTMF receiver is free.
- The Attendant or an extension can transfer a call to a busy destination. The transferred party camps on immediately.
- The transferred party can camp on as long as the transferring party can camp on. COS checks are done on the transferring party and the transfer is disallowed if the transferring party cannot camp on.
- The transferred party hears system music while camped on; if there is no system music, silence is heard.
- All devices except the console can camp on; consoles and extensions can transfer a call into campon.
- If Campon is allowed for a call, special busy tone is supplied for 10 seconds, after which the device is camped on automatically.
- If campon is not allowed for the call then busy tone is heard for 30 seconds and then the call is disconnected.
- DID and CO trunk calls that campon to busy devices receive ringback tone.
- Tie and DISA trunk calls that campon to busy devices receive busy tone (the same audio as internal callers).
- If there is no busy intercept then a DID trunk immediately camps on to a busy device if the trunk is allowed to campon to the device.
- On busy tone timeout, a serial call is dropped, and does not recall.
- On *SUPERSET 4*, *SUPERSET 4 DN*, and *SUPERSET 430* telephones a **Campon** softkey is provided. On *SUPERSET 420* telephones a **Wait** softkey is provided. On *SUPERSET 3 DN*, and *SUPERSET 410* telephones, a **CAMPON** feature key can be programmed to activate Campon. (See Feature Keys).
- If a *SUPERSET* telephone is using the display or **SuperKey** feature while camped on to ARS, the campon is not honored when ARS becomes available; it is only honored after the telephone exits from the feature and ARS is available.
- Industry-standard telephones and *SUPERSET* telephones that camp on to a device without using a softkey hear busy tone while camped on.

- All trunk types and station and *SUPERSET* telephones can camp on.
- Calls can camp on to busy industry–standard telephones, *SUPERSET* telephones, logical lines, hunt groups, and trunk groups.
- Campon is done immediately for reroute points that are busy regardless of Campon COS options; see *Call Rerouting*.
- Campon is done for Automated Attendant hunt groups regardless of campon COS options; see *Automated Attendant*.
- Campon tones are not passed to lines which have COS Option 216 (Data Security) enabled in their COS.
- The Campon warning tone applies to the party being transferred to.

Programming Enable COS Option 301 (Campon) for the device to allow it to camp on.

If Campon is to be permitted on outgoing trunks, enable COS Option 237 (Outgoing Trunk Campon) for the device in addition to COS Option 301 (Campon).

Operation Operation varies depending upon the device as described below:

Industry–standard, *SUPERSET 3*, and *SUPERSET 401* Telephones:

To camp on to a busy device:

- Dial the number – special busy tone is returned.
- After 10 seconds of special busy tone, Campon is done and busy tone is returned. The called extension receives campon warning tone.
- When the called extension goes on–hook, the calling extension hears ringing tone and the called extension is rung, or,
- The called trunk group becomes idle – the system dials the originally dialed digits.

***SUPERSET 3* DN and *SUPERSET 410* Telephones:**

If the set does not have a CAMPON feature key programmed, use the procedure for industry–standard telephones, above. If the CAMPON feature key is programmed, use the following procedure.

To camp on:

- Dial the number – busy tone is returned.
- Press the CAMPON feature key. Remain off–hook.

***SUPERSET 4* Telephones:**

- While receiving special busy tone, press the CAMP ON softkey. Remain off–hook.

SUPERSET 420 Telephones:

- While receiving special busy tone, press the **Wait** softkey. Remain off-hook. WAITING XXXX appears in your display, where XXXX is the number of the busy extension.

SUPERSET 4 DN and SUPERSET 430 Telephones:

- While receiving special busy tone, press the **I Will Wait** softkey. Remain off-hook.

To Transfer into Busy:

- Put a party on consultation hold.
- Dial the extension to transfer the call to. Special busy tone is heard.
- Hang up.

Console

See *Attendant Transfer To Campon*.

Campon Warning Tone

Description	When a device camps on to an extension or hunt group, a warning tone is sent to the extension user over the current call. The warning tone can be programmed to repeat every 5 to 15 seconds.
Conditions	The following conditions apply to this feature: <ul style="list-style-type: none">• A different tone is given for internal and external calls. When an industry-standard telephone or <i>SUPERSET</i> telephone calls, a single burst of 440 Hz tone is given for 200 ms. For trunks and consoles calling, a double burst of the same tone is given.• The tone is not heard by other parties involved in the call with the busy extension, but a short silent period may be noticed.• COS Options 242 (Repeated Campon Beeps) and 216 (Data Security) are mutually exclusive.• COS Option 216 (Data Security) prevents the tone from being applied to particular extensions. This has no effect on the SWAP CAMPON feature.• Repeated campon beeps applies only when trunks are camped on.• Trunks camped onto extensions with Repeated Campon Beeps do not recall.

- For hunt groups, the tone is given to the first busy member of the hunt group that is not Do Not Disturb and that is logged in (UCD).
- The COS of this member is used to check if repeated campon beeps on a hunt group applies to the first party in the hunt group. The tone is applied irrespective of the line that is in use.
- If the extension selected from the hunt group for the tone has Data Security enabled then no tone is given. No other extension is selected.
- The tone is not given to members of recording hunt groups.
- The feature applies to *SUPERSET* telephones only if their prime line is a key line (in which case all parties on the line get the tone) or their prime line has no appearances and they are on their prime line appearance.
- The feature applies to logical lines only if the line is a key line or a single appearance multicall line. The first *SUPERSET* telephone where the line appears gets the tone. All parties on the key line get the tone.
- The warning tone is applied only if the party to get the tone is talking to another party or is held by another party.
- Music is removed while the Campon tone is applied (digital Bays only).
- Extensions in analog bays do not receive Campon tone if they are connected to Music on Hold.

Programming Enable COS Option 242 (Repeated Campon Beeps) for the extension if trunk calls should continue to notify the extension. For hunt groups, this option should be enabled for the first extension in the hunt group.

Enable COS Option 216 (Data Security) for the extensions that should not receive the warning tone. For hunt groups, this option should be enabled for each extension in the group.

Set the cycle time for the repeated beeps via COS Option 255, Repeated Campon Beeps Timer (253 in Generic 1001). The default setting is 10 seconds.

Operation A call camps on and a tone is heard. For *SUPERSET* telephones, the SWAP CAMPON feature can be used to consult with the party that camped on. Alternatively, for any extension, finish the current call; hang up, and the camped on party rings the extension.

CENTREX™ Compatibility (Flash Over Trunk)

Description This feature provides the ability to send a switch-hook flash out over a trunk. Flashing over a trunk allows for the use of *CENTREX* features by telephones within the PBX. Callers must follow instructions specified by the local central office concerning which access codes to dial, and when to wait for dial tone. After sending the flash over the trunk, the system will wait for dial tone from the central office, or for the Limited Wait For Dial Tone timer.

Speed Call

The access code for Flash Over Trunk, followed by digits which activate *CENTREX* features may be programmed into a speedcall key, or a system abbreviated dial number. Any central office access code with an asterisk (*) in it must be entered as **. See *Abbreviated Dial* in this document for information on special codes.

Conditions The following conditions apply to this feature:

- This feature is available in Generic 1004 and 1005.
- Only one SMDR record will be generated by a call using this feature; also, digits dialed after the flash are not appended to the SMDR record.
- The trunk must be in a trunk group in order to flash over the trunk
- Ensure that the DTMF option in CDE Form 13 – Trunk Circuit Descriptors (Select Options Subform) is set up to the option which is understood by the local central office. If this is not done, the local central office will not receive the digits dialed after the flash.
- If the user makes an error while dialing digits to the local central office, the user must wait for it to timeout and return to the previous state (there is no CANCEL function, and no back arrow key).
- This feature may be used by telephones only.
- The feature will not function if there is a conference on consultation hold. It will only function if there is one trunk on consultation hold.

Programming Perform the following:

- Enable COS Option 257 (Flash Over Trunk) in the COS of the telephone(s) permitted to flash over trunks.
- Assign a feature access code to Feature 46 (Flash Over Trunk) in Form 02 (Feature Access Codes).
- In the Select Options Subform of CDE Form 13 (Trunk Circuit Descriptors), set the Flash Over Trunk option to YES, set the Flash Type

option to either LOOP FLSH or RING GND, and set the Flash Timer to an appropriate value (if applicable). Note: the trunk must be in a trunk group.

Operation

Generally:

- While talking on a trunk, press the TRANS/CONF key, the **Flash** key (*SUPERSET 401* telephone), or flash the switch-hook (2500 telephone).
- Dial the Flash Over Trunk access code.
- Dial the applicable *CENTREX* codes, and follow the *CENTREX* instructions.

Example: CENTREX Transfer:

- Answer call from *CENTREX* line.
- Press the TRANS/CONF key, the **Flash** key (*SUPERSET 401* telephone), or flash the switch-hook (2500 telephone).
- Dial the Flash Over Trunk feature access code.
- Dial the *CENTREX* number of the second external party.
- Announce the caller.
- Hang up. Caller is transferred within the *CENTREX* and trunk is released.

CENTREX Compatibility (Double Flash Over Trunk)

Description

This feature provides the ability to send a double switch-hook flash out over a trunk. Flashing over a trunk enables a telephone on the PBX to use *CENTREX* features. Callers must follow the instructions specified by the local central office concerning when a double flash should be used.

A *CENTREX* caller can put a *CENTREX* extension on softhold and dial another extension (by sending out a Flash Over Trunk followed by the digits of the extension). If the caller hears busy or ringing, the caller can put the *CENTREX* extension on softhold again, and dial the Double Flash Over Trunk feature access code. This sends out two flashes on the trunk, with one second between the flashes. When the *CENTREX* service receives the double flash, it clears down the ringing/busy tone. The caller returns to a talking state with the trunk that was on softhold.

Conditions

The following conditions apply to this feature:

- This feature is available in Generic 1004 and 1005.

- Only one SMDR record will be generated by a call using this feature.
- The trunk must be in a trunk group in order to flash over the trunk.
- This feature may be used by telephones only.
- This feature cannot be used with a PABX conference on consultation hold. It only works if there is one trunk is on consultation hold.
- The feature will not function if there is a conference on consultation hold. It will only function if there is one trunk on consultation hold.

Programming Perform the following:

- Enable COS Option 257 (Flash Over Trunk) in the COS of the telephone(s) permitted to flash over trunks.
- Assign a feature access code to Feature 53 (Double Flash Over Trunk) in Form 02 (Feature Access Codes).
- In the Select Options Subform of CDE Form 13 (Trunk Circuit Descriptors), set the Flash Over Trunk option to YES, set the Flash Type option to either LOOP FLSH or RING GND, and set the Flash Timer to an appropriate value (if applicable). Note: the trunk must be in a trunk group.

Operation **Generally:**

- While on a busy or ringing *CENTREX* trunk, press the TRANS/CONF key, press the **Flash** key (*SUPERSET 401* telephone), or flash the switch-hook (2500 set).
- Dial the Double Flash Over Trunk access code.

Example: CENTREX Transfer:

- Answer call from a *CENTREX* line.
- Press the TRANS/CONF key, press the **Flash** key (*SUPERSET 401* telephone), or flash the switch-hook (2500 telephone). The *CENTREX* trunk is placed on softhold.
- Dial the Flash Over Trunk feature access code.
- Dial the *CENTREX* number of a second *CENTREX* extension.
- When the second *CENTREX* extension rings or is busy, press the TRANS/CONF key, press the **Flash** key (*SUPERSET 401* telephone), or flash the switch-hook (2500 telephone). Until the ARS unknown digit length timeout expires, the flashhook is ignored and the TRANS/CONF key or **Flash** key is not available.
- Dial the Double Flash Over Trunk feature access code (the CO cancels the second call, clears the ringing/busy tone and reconnects the caller to the softheld *CENTREX* party. The PABX then returns the caller to the original softheld *CENTREX* trunk).

Class of Restriction (COR)

Description Fifty Class Of Restriction (COR) groups are available in the system to provide 50 different levels of outgoing call capabilities. Each extension, *SUPERSET* telephone, dataset, console or dial-in trunk is assigned a COR which defines the outgoing call capabilities for that device. All devices with the same COR have access to the same outgoing call capabilities. By using CORs, the amount of ARS programming is reduced.

The Class of Restriction allows the system to restrict which trunk can not be accessed by a user. For example, COR 01 could restrict users from accessing CO trunks (local and DDD), WATS, and TIE lines. COR 02 could restrict users from accessing WATS, tie lines, and DDD (but allow local calls). COR 03 could restrict users from accessing DDD and WATS (but allow local calls and tie line calls).

Note: All extensions belong to COR group 1 in the default database.

Conditions The following conditions apply to this feature:

- CO trunks do not have a COR. When they access ARS, it is either using the COR of the transferring or forwarding party, or no COR at all, giving universal access.
- The COR may change temporarily for a caller through Verified Account Codes.
- The maximum dialed digits feature is based on the COR of the caller. Refer to Practice 9109-096-220-NA, Automatic Route Selection and Toll Control.

Programming Assign a COR number to each extension, *SUPERSET* telephone, dataset, Dial-In Trunk and console via CDE Form 09 (Station /*SUPERSET Telephones*), 07 (Console Assignments), 15 (Dial-In Trunks) and 12 (Data Assignment).

Refer to Practice 9109-096-220, Automatic Route Selection and Toll Control, for additional information on COR programming.

Operation None.

Class of Service (COS)

Description Each extension, trunk, *SUPERSET* telephone, dataset, ACD Position, or console is assigned a Class Of Service (COS) which defines the features available for that device. All devices with the same COS (which defines the COS Options) have access to the same features. Fifty Classes Of Service are available in the system to provide 50 different levels of feature accessibility. Each COS can have a name associated with it. COS names are not available with Generic 1001 and Generic 1002.

In the default database, all devices belong to COS 1.

Conditions The following conditions apply to this feature:

- Several COS options are mutually exclusive; these are identified with the description of each feature.
- The COS may change temporarily for a caller through Verified Account Codes (Travelling Class Marks).
- The COS used is sometimes that of the caller and sometimes that of the called party. Check the feature to determine whose COS is used.
- LDNs do not have a COS. The COS for an LDN is determined from the lowest Bay/Slot/Circuit PLID of the console where the LDN is programmed.
- Logical lines do not have a COS. The COS is determined from the first *SUPERSET* telephone on which it is programmed. See *Logical Lines*.

Programming Assign the desired features to each COS via CDE Form 03 (COS Define).

Assign a COS to each console, extension, Dial-In Trunk, Non Dial-in Trunk, dataset, and ACD position via CDE Forms 07,09, 12, 14, 15, 39 and 40.

Operation None.

Clear All Features

Description An extension user may cancel all Call Forwarding, Do Not Disturb, and Callbacks active at that extension.

Conditions None.

Programming Enable COS Option 221 (Clear All Features) for the extension.
Assign an Access Code to Feature 25 (Clear All Features).

Operation To cancel all Call Forwardings, Callbacks, and Do Not Disturb:

- Lift the handset – dial tone is returned.
- Dial the Clear All Features feature Access Code.
- Dial tone is returned.
- Replace the handset.

Conference

Description This feature allows a set user to establish a conference of up to five parties (including the originating extension), without the assistance of the Attendant.

See *Device Interconnection Control* for information on controlling trunk conferencing, and *Attendant Conference*.

- Conditions** The following conditions apply to this feature:
- A maximum of six conferences may take place at one time; the maximum number of conferees permitted at one time is 18; the maximum number of conferees permitted in one conference is 5.
 - An Attendant console cannot be a member of a set-initiated conference.
 - Only one party may flash out of the conference at a time.
 - An extension with COS Option 203 (Broker's Call) or 252 (Broker's Call With Transfer) (250 – Transfer With Privacy in Generic 1001) enabled cannot set up a conference. The switch-hook flash is interpreted as a SWAP and not as a conference attempt.
 - A non-busy extension forms conferences automatically.

- The Override feature forms a conference call.
- If an industry-standard telephone attempts to conference with a trunk that gives answer supervision and the trunk has not given answer supervision yet then the trunk is dropped.
- Two conference calls cannot be conferenced together.
- All *SUPERSET* telephones in a conference, with the exception of the *SUPERSET 401* telephone, can put the conference on hold.
- Another method of creating conferences is through key line privacy; see *Privacy Enable/Privacy Release*.
- See *Flash Control* for controlling flashing on an extension.

Programming Enable COS Option 302 (Flash in Conference) for the extension. This allows an extension to create conferences of greater than three parties.

Operation Operation depends upon the type of device as described below.

Industry-Standard Telephones:

To establish a conference:

- Establish a 2-party call.
- Flash the switchhook.
- Transfer dial tone is returned (if programmed).
- Dial the number of the next conferee.
- When the conferee answers, flash the switchhook – a conference is established.

Any extension in the conference may add additional conferees to the conference by repeating the above steps.

***SUPERSET 401* Telephones:**

To establish a conference:

- While on a call, press the **Flash** key.
- Transfer dial tone is returned (if programmed).
- Dial the number of the desired extension
or,
Dial the telephone number of the desired external party.
- When the called party answers, press the **Flash** key to form the conference.

Any extension in the conference may add additional conferees to the conference by repeating the above steps.

SUPERSET 3, SUPERSET 3 DN, SUPERSET 410, and SUPERSET 420 Telephones:

To establish a conference:

- While on a call, press the **Trans/Conf** key.
- Transfer dial tone is returned (if programmed).
- Dial the number of the desired extension
or,
Dial the telephone number of the desired external party.
- When the called party answers, press the **Trans/Conf** key to form the conference. If you receive busy tone, or if the called party doesn't answer, press the **Cancel** key. You'll be connected with the original party.

Any extension in the conference may add additional conferees to the conference by repeating the above steps.

SUPERSET 4 Telephones:

To establish a conference:

- While on a call, press the TRANS/CONF softkey.
- Transfer dial tone is returned (if programmed).
- Dial the number of the desired extension
or,
Dial the telephone number of the desired external party.
- When the called party answers, press the CONF softkey to form the conference. If you receive busy tone, or if the called party doesn't answer, press the CANCEL softkey. You'll be connected with the original party.

Any extension in the conference may add additional conferees to the conference by repeating the above steps.

SUPERSET 4 DN and SUPERSET 430 Telephones:

To establish a conference:

- While on a call, press the **Trans/Conf** softkey.
- Transfer dial tone is returned (if programmed).
- Dial the number of the desired extension
or,
Dial the telephone number of the desired external party.
- When the called party answers, press the **Trans/Conf** softkey to form the conference. If you receive busy tone, or if the called party doesn't answer, press the **Back To Held** softkey. You'll be connected with the original party.

Any extension in the conference may add additional conferees to the conference by repeating the above steps.

Conflict Dialing

Description The system can differentiate between conflicting extension numbers such as "52345" and "5234". This implies that extensions can be programmed as 1-, 2-, 3-, 4-, or 5-digit numbers with the first digits being identical. The system selects the shorter extension number if the next digit is not dialed within a preselected time.

A conflict exists between two extension numbers if the first number is contained in the second number, starting with the first digit. For example, 1234 conflicts with 12345 but 1234 does not conflict with 123 (123 conflicts with 1234).

Conditions The following conditions apply to this feature:

- First digit conflict between the access codes assigned to Executive Busy Override and the Callback – Busy features, and other numbers within the numbering plan, are permitted.
- Feature Access Codes are not permitted to conflict with any other access codes in the system.
- Extension numbers may not conflict with Feature Access Codes.
- ARS leading digit strings are not permitted to conflict with any other access codes in the system. Extension numbers may conflict with ARS leading digits.
- Modem Pool Hunt group access codes cannot conflict with any other access code in the system and no access code may conflict with a Modem Pool Hunt group access code.
- Conflict dialing applies to features that need to have access codes entered (call forwarding for example). This includes the programming features on the *SUPERSET* telephones.
- Normal system inter-digit timeout is 15 seconds (not ARS dialing). If a conflict exists, the Dialing Conflict Timer applies.

Programming Select an appropriate time-out period for System Option 50 (39 in Generic 1001) (Dialing Conflict Timer 2–10 s).

Operation None.

Consoleless Operation

- Description** The system may be operated without the use of an Attendant Console. Under these conditions all features associated with the console are not available. *SUPERSET* telephones may be used as Subattendant positions. These may switch the system night service (see *Night/Day Switching*) and have enhanced call handling and recall capabilities (see *Subattendant*).
- Conditions** Some Attendant features are not available at Subattendant positions.
- Programming** No attendant consoles are programmed.
- Operation** None.

Contact Monitor

- Description** This feature allows a station line circuit to be used for monitoring an alarm contact. The contact to be monitored is connected across Tip and Ring of the circuit. When the contact closes, a call is originated by the station line circuit and the call is directed to its tenant's Dial 0 or Priority Dial 0 Routing Point. The PABX handles the call as a call reroute; see *Call Rerouting, Attendant Access (Dial 0), and Priority Dial 0*.
- Conditions** The following conditions apply to this feature:
- Contact Monitor is available on OPS, ONS, and analog Line cards.
 - COS Options 400 (Contact Monitor) and 241 (Receive Only) are mutually exclusive.
 - The contact signal is non-latching; if the contact opens, the Dial 0 call is terminated.
 - If the station line circuit has COS 239 (Priority Dial 0) enabled then the Priority Dial 0 Routing point is used.
 - If there is no Routing point then the origination is still processed (the station line circuit is now busy) and the station set is given reorder tone.
 - If the call is answered at a console, the console display indicates that the caller is a contact monitor.

Programming Enable COS Option 400 (Contact Monitor) for the extension.

Operation Close the contact and a call is made to the Dial 0 Routing point or to the Priority Dial 0 Routing point.

Customer Data Entry

Description Customer Data Entry is a full screen application, using softkey prompts and simple graphics, for entering and changing customer programming.

Enter customer data from a terminal via the RS-232 connector on the Maintenance panel or the rear of the Universal Control cabinet, or from an Attendant Console (a screen of reduced height is used).

Customer Data Entry can also be performed from a remote location, using a terminal connected to the PABX via modems.

Conditions None.

Programming Refer to Practice 9109-096-210-NA, Customer Data Entry, for detailed programming information.

Operation None.

Customer Data Entry – Default Data

Description The system is preprogrammed with default Class-Of-Service (COS) Options and Class-Of-Restriction Options; if no alternates are programmed, the system defaults to the preprogrammed data. The Feature Access Codes can be entered during Customer Data Entry.

Conditions None

Programming Refer to Practice 9109-096-210-NA, Customer Data Entry.

Operation Default data in the database includes:

- Device Interconnection Table

- T1 Link Descriptor
- Test Line – The location of the Test Line is Bay 2, Slot 1, Circuit 1 in all *SX-200* systems.
- Console – The default location for an Attendant Console is Bay 2, Slot 3, Circuit 1 in 336-, 456-, and 480-port systems; in 672-port systems and *SX-200* FD systems it is Bay 1, Slot 5, Circuit 1.
- Class of Service Timers
- System Timers
- Trunk Circuit Descriptors
- Data Terminal Equipment (DTE) Profile
- Data Circuit Descriptors
- System Printouts.

Customer Data Entry – Range Programming

Description This feature allows range programming for blocks of extensions. By entering a range of equipment numbers, one may assign extension numbers, COR, tenant, and COS to a selected block of equipment numbers. The start extension number and defaults for the other values are entered by the programmer. The extensions are assigned sequentially starting at the entered value, and the COS, tenant and COR are assigned to the entire group.

Conditions Refer to Practice 9109-096-210-NA, Customer Data Entry.

Programming Refer to Practice 9109-096-210-NA, Customer Data Entry.

Operation None.

Customer Data Print

- Description** This feature provides a means of displaying the current state of programming of the *SX-200* DIGITAL PABX. Each or all of the CDE forms may be printed, one at a time, in a presentable format.
- Conditions** The printer must be PABX compatible; refer to *Directed Input/Output*.
- Programming** See *Printer/Terminal Support* for details on directing the output to the desired printer.
- Operation** Refer to Practice 9109-096-210-NA, Customer Data Entry, for user information.

Data: Associated Data Line (ADL)

Description The associated data line feature allows a telephone user to originate and disconnect a data call. The association between a telephone (used for dialing or disconnecting the call) and a dataset the call is switched to, once the setup is complete.

The user can establish a basic ADL call from an industry-standard telephone or a *SUPERSET* telephone by dialing an access code and the number of the destination.

The associated data line operates with either asynchronous or synchronous devices.

The data destination of any data call can be predetermined via the *HOTLINE* feature (see *Data: ADL Hotline*). Industry Standard DTMF and rotary telephones, *SUPERSET* telephones, and Digital *SUPERSET* telephones can be used in ADL calls. Either the originator or destination can terminate the data call.

This feature is not available in Generic 1001.

This feature allows the user to establish a basic ADL call by dialing an access code and the number of the destination from an industry-standard telephone or a *SUPERSET* telephone.

Data destinations include:

- data station extension number
- data hunt group access code
- modem hunt group access code followed by ARS digit string.

Included with originate/disconnect capabilities of ADL are the following:

- Data call originate using *SPEED CALL* key or *Abbreviated Dial*
- ADL queuing
- Data call disconnect using *SPEED CALL* key or *Abbreviated Dial*, or the *Disconnect* or *CALL/ATTN* key.

The Associated Data Line can be used to originate or disconnect a data call, operating in either asynchronous or synchronous mode.

Conditions The following conditions apply to this feature:

- The attendant console cannot use the ADL feature.
- Program the associated voice line (AVL) in CDE Form 12 (Data Assignment).

- Ensure that both the originating and destination datasets are both in the same Operating Mode (asynchronous or synchronous), as programmed in CDE Form 11 (Data Circuit Descriptor).

Programming Assign Feature Access Code 28 (ADL Call Setup) and Feature Access Code 29 (ADL Disconnect) in CDE Form 02 (Feature Access Codes).

Enable COS Option 900 (Data Station Queuing). When COS 900 is enabled on a voice telephone, queuing to a busy data destination is allowed on an ADL call.

Program ADL Auto Baud, and Operating Mode (Synchronous or Asynchronous) in the subform of CDE Form 11 (Data Circuit Descriptor). Operating Mode applies only to DATASET 2100 Series datasets.

To associate a voice telephone with a dataset, enter a valid extension number for the voice telephone in the AVL field of CDE Form 12 (Data Assignment).

Feature keys on *SUPERSET 3DN* and *SUPERSET 4DN* telephones can be programmed to originate and disconnect data calls (see Feature Keys).

Operation **ADL Call Originate**

If the Originating dataset does not have ADL Autobaud:

- Dial the ADL access code (if the associated dataset is not idle; reorder tone is heard and the *SUPERSET* telephone displays the message "PLEASE TRY LATER").
- Dial the digits of the destination.
- A high pitched connect tone is heard (if the destination is busy, then busy tone is heard).
- The originating party hangs up the voice telephone and the call is switched to the associated dataset ("HANG UP" or "NEW CALL" prompt can also be used).
- If the *SUPERSET* telephone has a voice party on Hold, the CANCEL key establishes the data call and transfers the voice call to the party on hold.

When Originating dataset has ADL Autobaud:

- Dial the ADL access code (if the associated dataset is not idle; reorder tone is heard and the *SUPERSET* telephone displays the message "PLEASE TRY LATER").
- Dial the digits of the destination (busy tone is heard if the destination is busy).
- When ringback tone is heard, the originator must enter the autobaud character (usually carriage return) so that the dataset can determine

the baud rate (this character must be entered within 30 seconds or the call is released; otherwise reorder tone is heard and PLEASE TRY LATER is displayed).

- Connect tone is returned to the originator.
- Hang up the voice telephone.
- Call is switched to the associated dataset.

Note: Once the ADL call has been established, the telephone is free to be used. If a voice call had been established, the other party can be placed on hold by pressing the TRANS/CONF key (**Flash** key on the *SUPERSET 401* telephone), and the ADL call can be established. Pressing the CANCEL or BACK TO HELD softkey reconnects the telephone to the party on hold.

When an ADL Call Origination is unsuccessful, reorder tone is returned and one of the following messages is displayed on the display *SUPERSET* telephone:

- The voice telephone has not been programmed as an AVL to an associated dataset. The set displays "NO ACCESS".
- The associated dataset is not idle. The set displays "PLEASE TRY LATER".
- The user dials the number of a device which cannot handle data. The set displays "INVALID #".
- The baud rates of the source and destination are not compatible and neither have Flow Control programmed. The call is barred. The calling set receives reorder tone and displays "NO ACCESS".
- The associated terminal is not asserting DTR and is NOT programmed for auto-answer. The set displays "NO ACCESS".

ADL Call Disconnect

The source or destination can disconnect an ADL call by:

- dialing the ADL disconnect access code.
- pressing a pre-programmed Attention or Break key on the terminal.
- pressing the DISCONNECT key or the CALL/ATTN key on the dataset.
- by either dataset dropping DTR for the preprogrammed time.

If the call is not set up via the ADL feature, doing an ADL disconnect causes the set to display "INVALID #".

Data: ADL Hotline

Description This feature establishes a data call between two preassigned DTEs when the user dials the ADL access code from the associated telephone.

This feature is not available in Generic 1001.

Conditions Refer to *Associated Data Line*.

Programming Assign the hotline number in CDE Form 12 (Data Assignment).

Operation To originate an ADL hotline call:

- Dial the ADL access code. The call is automatically connected to the preassigned destination. Also, a carriage return <CR> may be required depending upon the programmed ADL Autobaud option. See *Associated Data Line* – “Operation: ADL Call Originate”.
- If the destination is busy and queuing is enabled, the originating station is queued.
- If the destination is not a valid data device, the message “INVALID #” and reorder tone is returned.

Data: ADL Speed Call Originate

Description An ADL user can originate an ADL call using a personal Speed Call number.

This feature is not available in Generic 1001.

Conditions None.

Programming The programming procedure to be followed varies depending upon the type of telephone to be programmed. Follow the appropriate procedure described below:

***SUPERSET 3* Telephones:**

At the user's telephone:

- Press the PROGRAM/SAVE key while the set is idle (if a call is received or originated, the telephone immediately exits from the speedcall activity).

- Press an unused Speed Call key (if a previously defined key is selected, the previously stored number is erased).
- Dial the ADL access code.
- If required, dial the Account Code access code and the Account Code.
- Dial the number of the data destination.
- Press the PROGRAM/SAVE key to save the number.

***SUPERSET 4* Telephones:**

At the user's telephone:

- With the handset on-hook, press the PROGRAM softkey.
- Press the SPEED CALL softkey.
- Press an unused Speed Call key.
- Dial the ADL access code.
- If required, dial the Account Code access code and the Account Code.
- Dial the number of the data destination.
- Check the number to be saved, if correct press the SAVE softkey.

***SUPERSET 3 DN* Telephones:**

At the user's telephone:

- With the handset on-hook, press the **Program** key.
- Press an unused Speed Call Key.
- Dial the ADL access code.
- If required, dial the Account Code access code and the Account Code.
- Dial the number of the data destination.
- Press the **Program** key; the speed call number is now saved.

***SUPERSET 410* Telephones:**

At the user's telephone:

- Press **SuperKey**.
- Press a personal Speed Call key (if a previously defined Speed Call key is selected, the previously stored number is erased).
- Dial the ADL access code.
- If required, dial the Account Code access code and the Account Code.
- Dial the number of the data destination.
- Press **Superkey** to save the number.

SUPERSET 420 Telephones:

At the user's telephone:

- Press **SuperKey**.
- Press the **No** softkey until Personal Keys? appears in the display.
- Press the **Yes** softkey.
- Press an unused personal key.
- Press the **Change** softkey. SPEED CALL? appears in the display.
- Press the **Yes** softkey.
- Dial the ADL access code.
- If required, dial the Account Code access code and the Account Code.
- Dial the number of the data destination.
- Press the **Save** softkey.
- Press **SuperKey** to return to the date and time display.

SUPERSET 4 DN and SUPERSET 430 Telephones:

At the user's telephone:

- With the handset on-hook, press **SuperKey**.
- Press the **Speed Call** softkey.
- Press an unused Line Appearance key.
- Dial the ADL access code.
- If required, dial the Account Code access code and the Account Code.
- Dial the number of the data destination.
- Check the number to be saved, if correct press the **Save** softkey.

Operation

Operation varies depending upon the type of telephone as described below.

SUPERSET 3 Telephones:

To originate a data speed call:

- Press the programmed speed call key.
- Go on-hook when connect tone is heard.
- Call is transferred to the associated dataset.

To originate a data speed call with voice party on hold:

- Press the programmed Speedcall key.
- If ADL Autobaud is programmed, press Carriage Return key.

- When the connect tone is heard, press the **Cancel** key to establish the data call and transfer the voice call back to the party on hold.

***SUPERSET 4* Telephones:**

To originate a data speed call:

- Press the programmed Speed Call key.
- Go on-hook when connect tone is heard.
- Call is transferred to the associated dataset.

To originate a data speed call with voice party on hold:

- Press the programmed Speed Call key.
- If ADL Autobaud is programmed, press Carriage Return key.
- When the connect tone is heard, press the **CANCEL** softkey to establish the data call and transfer the voice call back to the party on hold.

***SUPERSET 3 DN, SUPERSET 410, and SUPERSET 420* Telephones:**

To originate a data speed call:

- Press the programmed Speed Call key.
- Go on-hook when connect tone is heard.
- Call is transferred to the associated dataset.

To originate a data speed call with voice party on hold:

- Press the programmed Speed Call key.
- If ADL Autobaud is programmed, press Carriage Return key.
- When the connect tone is heard, press the **Cancel** key to establish the data call and transfer the voice call back to the party on hold.

***SUPERSET 4 DN and SUPERSET 430* Telephones:**

To originate a data speed call:

- Press the programmed speed call key.
- Go on-hook when connect tone is heard.
- Call is transferred to the associated dataset.

To originate a data speed call with voice party on hold:

- Press the programmed speed call key.
- If ADL Autobaud is programmed, press Carriage Return key.
- When the connect tone is heard, press the **Back To Held** softkey to establish the data call and transfer the voice call back to the party on hold, or press **New Call** softkey to establish the data call and make a new voice call.

Data: Abbreviated Dial for ADL Calls

Description An ADL user can originate an ADL call using a System Abbreviated Dial number.

This feature is not available in Generic 1001.

Conditions Reorder tone is returned if the user enters an invalid Abbreviated Dial number.

Programming Enable COS Option 245 (Abbreviated Dialing Access) in the Class of Service for the associated voice line.

Assign an access code to Feature 24 (Abbreviated Dial Access) in CDE Form 02 (Feature Access Codes).

Enter the desired Abbreviated Dial numbers into CDE Form 31 (System Abbreviated Dial Entry), or enter them from the Attendant Console. See *Attendant Abbreviated Dial Number Entry*.

Operation To originate an Abbreviated Dial call:

- If the Abbreviated Dial number entry does not include the ADL access code, dial the ADL access code.
- Dial the Abbreviated Dial access code.
- Dial the desired Abbreviated Dial number (one to three digits).
- Hang up when connect tone is heard. The call is transferred to the associated dataset.

See also *ADL Call Originate* in this Section.

Data: Associated Modem Line (AML)

Description This feature allows voice only calls, data only calls, simultaneous voice/data calls, and alternating voice/data calls through the *SX-200* DIGITAL PABX. A standard ONS voice port is associated with one or more *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 410*, *SUPERSET 420* or *SUPERSET 430* telephones through CDE programming. This ONS port is connected to data terminal equipment (DTE) via a modem. Data calls are set up using the associated telephone.

This feature is not available in Generic 1001.

Conditions

The following conditions apply to this feature:

- This feature is available only on *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 410*, *SUPERSET 420*, and *SUPERSET 430* telephones.
- In a data call, both modems must operate at the same baud rate; one modem must be in Originate mode, the other in Answer mode.
- The only effect of AML on voice calls is that the SWAP (Trade Calls) softkey appears on calls to a station which has an Associated Modem Line or on trunk calls.
- When two telephones assigned the same modem port converse, the SWAP (Trade Calls) softkey does not appear; data communication between these telephones is not possible.
- If the set user presses the SWAP (Trade Calls) softkey when the data port is already in use, the message DATA BUSY appears on the display. Hang up or press the CANCEL softkey.
- An AML data device may be associated with more than one telephone (only one can use it at a time); however, a telephone may be associated with only one AML data device.

Programming

Enable COS Option 607 (*SUPERSET* Telephone – Associated Modem Line) for the telephone.

Enter the associated modem ONS port extension number in the ASSOC field of the associated telephone entry in CDE Form 09 (Station /*SUPERSET* Telephones).

Enter the extension number of the associated telephone in the ASSOC field of the modem port entry in CDE Form 09 (Station/*SUPERSET*Telephones), if the terminal is to be able to dial a call on behalf of the associated telephone.

Operation

To make a Data Call from the *SUPERSET* telephone:

- Dial the number of the destination modem; when the destination modem answers, it returns a modem answer tone.
- Press the SWAP (Trade Calls) softkey.

Note: If the modem line is already connected to a call, or the modem is attempting to make a data connection, the message "DATA BUSY" appears. The CANCEL softkey is then the only key available.

- Put the modem on-line; the data call is now established.
- Press the HANG UP (or New Call) softkey.

The *SUPERSET* telephone is now available for voice calls. In this way, it is possible to have simultaneous voice and data calls. The data call terminates when the modem goes on-hook.

To make an alternating voice/data call:

- At the *SUPERSET* telephone, establish a normal voice call with the destination set.
- At both telephones, press the SWAP (Trade Calls) softkey to switch to data communication and put the modem on-line.
- When data communication is complete, press the SWAP (Trade Calls) softkey at both telephones to return to voice communications.

To make a Data Call from the Modem port:

- Following the modem manufacturer's instructions, have the modem go off-hook and dial the destination modem number.

To make a voice call on behalf of the associated voice line:

- Following the modem manufacturer's instructions of how to dial a call from the attached DTE, have the modem go off-hook and dial the destination telephone number, followed by *. The call is transferred to the *SUPERSET* telephone. The modem is available for data calls.

Data: Auto-Answer

Description This feature supports automatic answering destination data devices. When the destination data device detects ringing, it answers, then signals to the calling device that it is ready to receive data.

This feature is not available in Generic 1001.

Conditions The destination data device must have its DTR signal low when idle.

Programming In the destination data device's CDE Form 11 (Data Circuit Descriptors) subform (Data Circuit Descriptor Options), set Action Taken If the Idle DTE Has DTR Low (Auto Answer) to one of the following:

- RI – the system toggles RI high 2.5 seconds then low 2.5 seconds until the dataset responds with DTR high.
- DSR – the system raises DSR. The dataset responds with DTR high.
- DCD – the system raises DCD. The dataset responds with DTR high.

Operation The destination data device must respond with DTR high within 1 minute of receiving the Auto-Answer signal.

Data: Automatic Data Route Selection (ADRS)

Description Outgoing trunk Data calls are processed by the same Automatic Route Selection (ARS) system as voice trunk calls; see *Automatic Route Selection*.

This feature is not available in Generic 1001 or Generic 1002.

Conditions None.

Programming Trunks should be grouped into Trunk Groups according to the maximum data rate they can support. For more information, refer to Practice 9109-096-220-NA, Automatic Route Selection and Toll Control.

Operation None.

Data Account Codes

Description Verified and Non-verified Account Codes can be applied to Data Calls, internal, external or long distance. The Account Code appears in the DATA SMDR and TRUNK SMDR records.

This feature is not available in Generic 1001 or Generic 1002.

Internal data calls generate a DATA SMDR record only; external data calls generate both a DATA SMDR and a TRUNK SMDR record.

Conditions The following conditions apply to this feature:

- For Data or Modem Pooling calls, the user can enter an Account Code only during call setup. Only the last account code entered is stored in DATA SMDR and TRUNK SMDR records.
- If variable length account codes are enabled, a user dialing an Account Code must follow it with the # symbol. This is not necessary if the entered account code is twelve digits long. Thus, rotary dial telephones cannot have access to variable length account codes of less than twelve digits.
- Account Code entry for incoming callers is permitted only on DISA or Tie trunks. When PABX dial tone is returned, a Special DISA caller can enter another account code during call setup. Only this second code appears in the TRUNK SMDR and DATA SMDR reports.
- The user can include Account Codes in Speed Call numbers.

Programming If Verified Account Codes are to be used, enable System Option 05 (Verified Account Codes) in CDE Form 04 (System Options/System Timers); enter the required Account Codes into CDE Form 33 (Account Code Entry).

Set System Option 55, (44 in Generic 1001) Account Code Length in CDE Form 04 (System Options/System Timers) to a value between 4 and 12, or to VARIABLE.

To require account code entry on internal ADL or DTRX data calls, enable COS Option 326 (Account Code Forced Entry – Data Internal Calls) for the originating dataset.

To require account code entry for incoming or internal modem pooling calls, enable COS Option 326 (Account Code, Forced Entry – Data Internal Calls) in the COS for the Pooled Modem.

Enable one of the following options in the COS form for the originating data device, as required, for outgoing calls:

- COS Option 327 (Account Code, Forced Entry – Data External Calls)
- COS Option 328 (Account Code, Forced Entry – Data Long Distance Calls).

Disable COS Option 700 (SMDR – Does Not Apply) in the Class of Service form for the data device.

Enable COS Option 808 (Special DISA) (810 in Generic 1001) in the COS for the data device.

Disable COS Option 906 (Data SMDR – Does Not Apply) in the originating data device's Class of Service for ADL or DTRX calls.

To record incoming calls, enable COS Option 806 (SMDR – Record Incoming Calls).

For incoming and internal modem pooling calls, disable COS Option 906 (Data SMDR – Does Not Apply) in the originator's pooled modem's Class of Service.

Operation

ADL

From the set:

- Dial the ADL access code.
- Dial the Account Code access code.
- Dial the Account Code.
- Dial the destination.

DTRX

From the terminal, at the * prompt, enter:

CALL destination ACCOUNT account code.

DISA (Incoming)

When the PABX answers:

- Dial the DISA access code – the system returns dial tone.
- Dial the Account Code access code.
- Dial the Account Code.
- Dial the destination number.

Special DISA (Incoming)

When the PABX answers:

- Enter the Account Code – if it is valid, the PABX returns dial tone.
- Dial the destination number.

Incoming Tie Trunk or Internal Modem Pooling Caller

- Dial the Account Code access code.
- Dial the Account Code.
- Dial the destination number.

Direct-In-Line (to an Attendant)

When the Attendant answers:

- Have the Attendant dial the Account Code access code.
- Have the Attendant dial the Account Code.
- Have the Attendant dial the destination number.

Data Demultiplexer

Description The Mitel Data Demultiplexer used with *SX-100*[®] and *SX-200* PABX systems may be used with the *SX-200* DIGITAL PABX. The PABX provides digit identifiers in front of each printed line in order to route the RS-232 output to various storage devices. Refer to Mitel Data Demultiplexer Programming, Installation and Technical Manual 9160-080-300-NA for additional information on the device. The Directed Input/Output feature of the *SX-200* DIGITAL PABX replaces the Data Demultiplexer feature.

Conditions The printout type and the digit identifier used for it are as follows:

CDE data print	- 0
ACD	- 0
Traffic Measurement	- 0
TRUNK SMDR	- 1
DATA-SMDR	- 1
Printer tests	- 1
Hotel/Motel	- 2
Maintenance	- 3

Programming Enable System Option 15 (Data Demultiplexer).

Refer to Mitel Data Demultiplexer Programming, Installation and Technical Manual 9160-080-300-NA, for further programming information.

Operation Refer to Mitel Data Demultiplexer Programming, Installation and Technical Manual 9160-080-300-NA, for additional information.

Data Hunt Groups

Description Datasets can be assigned to a Data Hunt Group. The system supports both Terminal and Circular hunting; see *Hunt Groups*.

This feature is not available in Generic 1001.

Conditions The following conditions apply to this feature:

- Only datasets can be assigned to a Data Hunt Group.
- The system can support a total of 50 hunt groups; a hunt group may have a maximum of 50 members.

Programming Enter the dataset extension numbers into CDE Form 17 (Hunt Groups). When the first dataset is entered, the system sets the hunt group type to Data. The system then accepts only datasets as subsequent entries.

Specify TERMINAL or CIRCULAR hunting as desired.

Program an access code for the Hunt Group.

If desired, program a name for the Data Hunt Group. This is useful for DTRX calls. See *DTRX Call By Name*. If desired, program an overflow point for the Data Hunt Group.

Operation Call the data hunt group using its access code or name. See *ADL Call Origination, DTRX Call Origination, and Modem Pooling*.

Data Peripherals

Description The *SX-200* DIGITAL PABX supports several different data devices; MITEL also provides several data support devices for use with MITEL data devices.

Mitel data devices are proprietary limited-distance modems that provide data facilities for terminals, digital *SUPERSET* telephones, and other types of data devices. These data sets serve as the interface between the DNIC digital line card in the PABX, and the data devices connected to the system, transmitting data and control signals over a single twisted pair of wires. The datasets are available in two series – DATASET 1100 series and DATASET 2100 series.

DATASET 1100 series supports asynchronous data communications at rates from 110 bps to 19.2 kbps. The data sets are RS-232C compatible, provide end-to-end error correction, auto-baud detection and auto-parity generation.

The DATASET 1100 series is available in four package options:

- DATASET 1101 Cartridge
- DATASET 1102 Dual Rack-Mounted Card
- DATASET 1103 Standalone
- *MiLink™* Data Module.

DATASET 2100 series supports asynchronous data communications from 110 bps to 19.2 kbps, and synchronous data communications at rates from 1200 bps to 19.2 kbps. In asynchronous mode these data sets have the

same operating characteristics as the DATASET 1100 series. In synchronous mode, the DATASET 2100 series uses X.31 protocol.

The DATASET 2100 series is available in two package options:

- DATASET 2102 Rack-Mounted Card
- DATASET 2103 Standalone.

All datasets interface to a PABX digital line card circuit through a single pair.

These devices are not available in Generic 1001.

Refer to Practice 9109-096-126-NA, Peripherals Devices, for information on the cabinet and shelf that is available for rack mounted data devices.

A Modem Interconnect Panel is available for installation within the DATACABINET 9000 cabinet; refer to Practice 9109-096-126-NA, Peripherals Devices. The Modem Interconnect Panel is required for Modem Pooling.

For information on using data devices as printer ports, see Directed Input/Output.

For details on the the *SUPERCONSOLE 1000*[™] printer port, see Directed Input/Output.

For details on data circuit descriptor options, refer to Practice 9109-096-210-NA, Customer Data Entry.

Refer to Practice 9109-096-125-NA, Circuit Card Descriptions, for a description of the Digital Line Card.

Conditions Refer to Practice 9109-096-126-NA, Peripherals Devices.

Programming Program a Digital Line Card card into the system's physical configuration table via CDE Form 01 (System Configuration).

Select options for the data circuit descriptors via CDE Form 11 (Data Circuit Descriptors).

Assign a circuit descriptor and select options for specific data circuits via CDE Form 12 (Data Assignment).

Operation None.

Data Security

Description Data Security protects an established data call from receiving any intrusion or warning tones (for example, Campon or Override) that would interfere with the data signals present on the line. Any extension with Data Security in its COS cannot be overridden or receive Campon tone; it may be camped on to, but is secure against any form of audio intrusion.

This feature is not available in Generic 1001.

Conditions The following COS Options must be disabled to permit correct operation of Data Security:

- COS Option 242 (Repeated Campon Beeps)
- COS Option 607 (*SUPERSET* Telephone – Associated Modem Line).

Programming Enable COS Option 216 (Data Security) for the extension.

Operation None.

Data Station Message Detail Recording (Data SMDR)

Description The Data SMDR feature produces a detailed record of all internal and external data calls. The printout format is similar to the trunk SMDR record and includes “data call indicator”, “type of data call” and “reason for disconnect” fields. Data SMDR records differ in appearance from voice SMDR records. This allows a call costing device to maintain separate totals for data and voice calls.

The DATA SMDR feature is not available in Generic 1001.

The “External Data Call Indicator” field shows EX if the data call used a pooled modem and a trunk; it is not available in Generic 1001 or 1002.

The “Associated SMDR Record Indicator” field shows an asterisk when the data call has an associated “Trunk SMDR” record; it is not available in Generic 1001 or Generic 1002.

Refer to Practice 9109–096–221–NA, Station Message Detail Recording, for details.

Programming The following COS options and System Options/Timers can be selected:

COS Option	COS Option Number
Data SMDR—Does Not Apply	906
Data SMDR—Extended Record	907
Data SMDR—Overwrite Buffer	908

System Option	System Option Number
Data SMDR – Indicate Long Calls	39

Specify a port for printing Data SMDR records in CDE Form 34 (Directed I/O).

Operation None.

Data Station Queuing

Description Data Station Queuing is similar to the Campon feature provided for telephones. An extension user encountering a busy dataset or Data Hunt Group can camp on to the destination and remain in the queue until a destination becomes available or terminate the call at any time.

This feature is not available in Generic 1001.

Conditions The following conditions apply to this feature:

- The user can camp on to datasets, Data Hunt Groups, Trunk Groups, or Modem Pool Hunt Groups only.
- The destination cannot be camped onto if it is busied out or in Do Not Disturb.

Programming Enable COS Option 900 (Data Station Queuing) in the originating device's Class of Service.

ADL from Industry—standard, SUPERSET 3, SUPERSET 3 DN, SUPERSET 401, and SUPERSET 420 Telephones:

The telephone calls a busy data device:

- The telephone receives Special Busy tone for 2 seconds, then the telephone receives Busy tone while it is queued.

ADL from SUPERSET 4 Telephones:

The set calls a busy data device:

- The set receives Special Busy tone. The display shows "BUSY". The CAMP ON softkey appears.
- Press the CAMP ON softkey within 10 seconds. The display shows "CAMPING ON" while the set is queued.

ADL from SUPERSET 420 Telephones:

The set calls a busy data device:

- The set receives Special Busy tone. The display shows "BUSY". The Wait softkey appears.
- Press the Wait softkey within 10 seconds. While the set is queued, the display shows the extension number of the busy data device followed by the "WAITING" prompt (e.g., 4410 WAITING).

ADL from SUPERSET 4 DN and SUPERSET 430 Telephones:

The set calls a busy data device:

- The set receives Special Busy tone. The display shows "BUSY". The I Will Wait softkey appears.
- Press the I Will Wait softkey within 10 seconds. The display shows "WAITING FOR" and the extension number while the set is queued.

DTRX

Queuing is automatic. The originator receives the message "Call is Queued".

Data Transceiver (DTRX)

Description

The Data Transceiver (DTRX) allows the data user to set up a data call from a data terminal (DTE). The system has four DTRX channels; four users can communicate with the DTRX simultaneously. When the requested call is established, the DTRX is dropped, making it available for other data callers.

This feature is not available in Generic 1001.

Users requesting a busy destination are queued until the destination is available. Up to 20 callers can queue. Subsequent callers requesting busy destinations are sent the message "System Busy, Try Again Later".

When all DTRX channels are busy, callers queue for DTRX service. Up to 28 callers can queue, including those queued for destinations. Subsequent callers are prompted to try again later.

Conditions The following conditions apply to this feature:

- A dataset connects each Data Terminal (DTE) to the system on a DNIC circuit.
- The DTE connected to the dataset must be an ASCII data device using an RS-232C interface.
- All DTRX commands (except ACCOUNT) may be abbreviated to its minimum unique character string.
- To connect to a Data Transceiver, a data device must have a DTE Profile number programmed in CDE Form 12 (Data Assignment).

Programming The DTRX feature is associated with the DTE Profile and Data Circuit Descriptor options. Refer to *CDE Form 29 (DTE Profile)* and *CDE Form 11 (Data Circuit Descriptor Options)*.

Enable or disable COS Option 900 (Data Station Queuing) as desired. This option, when enabled, allows automatic queuing to the destination when the originator encounters a busy data device.

Enable or disable COS Option 901 (DTRX Herald Display) as desired. When enabled, this option allows display of the programmable herald (e.g. Welcome to MITEL Data Switching).

If DTRX Herald Display is enabled, set COS Option 905 (DTRX Herald Text Select) to 1, 2, 3, or 4. The options are as follows:

- [1] Welcome to MITEL SX-200 DIGITAL Data Switching
- [2] Welcome to MITEL Data Switching
- [3] Welcome to Data Switching
- [4] Data Call Switching

Enable or disable COS Option 902 (DTRX Message Code) as desired. Enabling this option displays the machine message code. The code is divided into three segments:

- the first character describes the application; either "G" for general messages, or "D" for DTRX application messages
- the next two digits identify the message category
- the last two digits identify the message

for example, D0102, where:

- D = DTRX application
- 01 = Information
- 02 = Connected

Enable or disable COS Option 903 (DTRX Message Code Text) as desired. Enabling this option allows display of the message text (e.g. Connected); the message category is not displayed. The text also displays a user action if appropriate (e.g. System Busy, Please Wait). If the Message Code option is also enabled, the complete message is displayed.

Enable or disable COS 904 (DTRX Complete Message Text) as desired. This option displays the message code, the message category, and the text (e.g.D0207 Call Failure – Destination Not Ready).

Operation See *Data: DTRX Call Originate/Disconnect*.

Data: DTRX Call by Name

Description The Data Transceiver (DTRX) Call by Name feature allows the user to call a data hunt group or modem pool hunt group by name instead of number. This feature is not available in Generic 1001.

Conditions The hunt group must have a name programmed.

Modem pools are not available in Generic 1001 or 1002.

Programming Assign names to data and modem pool hunt groups in CDE Form 17 (Hunt Groups).

Operation At the DTE, in response to the * prompt:

1. enter CALL or C.
2. enter the name. (Example: C SYS)
 or,
1. enter CALL
2. enter the modem pool hunt group name,
3. enter the destination number. (Example: C MODEMS 5551234)

Data: DTRX Call Originate/Disconnect

Description The DTRX Call Originate/Disconnect call is initiated and controlled from a terminal keyboard.

This feature is not available in Generic 1001.

Conditions The following conditions apply to this feature:

- Unless the user originates the call from the keyboard, the device is assigned the last baud rate used. (The default baud rate is used if Always Use Default Baud Rate When Called is enabled in the device's Data Circuit Descriptors).
- Autobaud is invoked when keyboard origination is used. (Keyboard Origination (Autobaud) must be enabled in the device's Data Circuit Descriptors).
- Heralds and call progress messages are only displayed if programmed; see *Data Transceiver (DTRX)*.

Programming Assign the originating dataset a DTE Profile number in CDE Form 12 (Data Assignment).

Program the Data Circuit Descriptor Options in CDE Form 11 (Data Circuit Descriptors) subform.

Program the DTE Profile in CDE Form 29 (DTE Profile).

Feature keys on *SUPERSET 3 DN* or *SUPERSET 4 DN* telephones can be programmed to originate and disconnect data calls. (See Feature Keys).

Operation DTRX operation is described below.

DTRX Originate

- Press the RETURN or ENTER key on the DTE keyboard. (Keyboard Origination must be enabled in the Data Circuit Descriptors).

OR

- Press the ATTENTION key on the dataset.

OR

- Switch power ON at the data device (i.e. raise DTR). (The option, "Originate a DTRX Call With Low to High Transition of DTR" must be enabled in the Data Circuit Descriptors).

OR

- Press the CALL/ATTN key on a dataset equipped Digital *SUPERSET* telephone.

The system attempts to seize DTRX. If DTRX is available, the * prompt is displayed.

- Enter CALL (or C)
- Enter the destination directory number at the keyboard, followed by RETURN or ENTER.
- DTRX sends the digits to system's main control for call processing.
- Call progress messages are supplied, if programmed.

DTRX Disconnect

The DTRX is dropped when the originator is connected to the destination. To disconnect the current DTRX-originated data call and reconnect to DTRX:

- Switch the DTE off and on. (The option "Originate a DTRX Call With Low to High Transition Of DTR" must be enabled in the Data Circuit Descriptors). It must remain off for longer than the duration of the DTR OFF Disconnect timer duration.

OR

- Press the BREAK key (if enabled).

OR

- Press the PBX Attention Character key (if programmed).

OR

- Press the ATTENTION key on the dataset.

OR

- Press the DATA CALL ORIGINATE/ATTENTION key on the Digital *SUPERSET* telephone.

To disconnect from DTRX and return to idle state:

- At the * prompt, enter BYE or <CTRL E>. "Goodbye" message is displayed.
- While connected to DTRX, wait for the DTRX inactivity time out. (This is programmed in the DTE Profile).
- Turn off the data terminal (DTR dropped).
- Press the DISCONNECT key on the dataset.
- Press the DATA CALL DISCONNECT key on the Digital *SUPERSET* telephone.

The first two disconnect methods are possible only while communicating with the DTRX, i.e. no call in progress. The other methods can be used at anytime and also disconnect the current call. Also, the system can automatically disconnect users who remain inactive too long while connected to a destination. If programmed, the Session Inactivity Disconnect Timer controls the time-out period.

Data: DTRX Help

- Description** The Data Transceiver (DTRX) Help feature provides on-line help. The topics covered include:
- CALL
 - HELP
 - ACCOUNT
 - MONITOR (ACD only)
 - BYE
- This feature is not available in Generic 1001.
- Conditions** None
- Programming** None
- Operation** At the * prompt, type HELP and the topic name, followed by <RETURN>. DTRX responds with the required information and returns to the * prompt.
- If the topic is not known, just type HELP followed by <RETURN>.
- DTRX responds with a list of topics and the ? prompt. Type the required topic name, followed by <RETURN>.
- To exit from Help, type <RETURN> at the ? prompt.

Data: DTRX Hotline

- Description** A dataset can be programmed to connect automatically to a predetermined destination when a user originates a DTRX data call.
- This feature is not available in Generic 1001.
- Conditions** Unlike normal DTRX call origination, if the user presses ATTENTION, BREAK, or CALL/ATTN while the dataset is queued or connected to its hotline destination, the system drops the call and does not reconnect the user to DTRX.
- Programming** Assign the Hotline number in CDE Form 12 (Data Assignment).
- Operation** See *DTRX Call Originate/Disconnect*.

Data: DTRX Messages

Description The Data Transceiver (DTRX) Messages feature provides several messages to inform the user of call progress and error conditions.

This feature is not available in Generic 1001.

Table 2-4 DTRX Messages

Message	Meaning
D0101 Information – Ringing	The destination is available and is now ringing.
D0102 Information – Connected	The user is now connected to the destination. This is the last message displayed in a successful call. The DTRX is now dropped.
D0201 Call Failure – Busy	The destination is busy and queuing is not enabled. The user is then returned to the DTRX * prompt.
D0203 Call Failure – Invalid Number, Check Directory	The directory number does not exist. The user is returned to the DTRX * prompt.
D0204 Call Failure – Out of Order, Call Communications Department	The destination data device has been busied out. This can indicate a fault in the destination data device.
D0205 Call Failure – No Answer	The destination auto answer dataset did not respond. The user is returned to the DTRX * prompt.
D0207 Call Failure – Destination Not Ready	The DTR signal of the destination device (non auto answer) indicates it is not ready. The user is returned to the DTRX * prompt.
D0208 Call Failure – Destination Powered Off, Try Again Later	The destination dataset has no power or is not connected to the PABX.
D0209 Call Failure – Destination Not Compatible	The destination is a voice device and thus incompatible.
D0210 Call Failure – Address Incomplete, Check Directory	Further addressing information is required to complete the call. The user is returned to the DTRX * prompt.
D0211 Call Failure – Modem Failure, Try Again	The setup to the Pooled Modem has failed. The user is returned to the DTRX * prompt.
D0212 Call Failure – No Modem Available, Try Again Later	There are no idle members in the Modem Pool Hunt Group and queuing is not enabled. The user is returned to the DTRX * prompt.
D0218 Call Failure – Destination Not Compatible	The destination device's data rate is not compatible with that of the source device. (Speed conversion is allowed if XON/XOFF Flow Control is enabled). The user is returned to the DTRX * prompt.
D0301 Call Not Allowed – No Access, Call Communications Department	Access to the destination device is not allowed. This can be due to tenanting, because the data station is programmed as Receive Only, or because the destination is not accessible by the caller. The user is returned to the DTRX * prompt.

Table 2-4 DTRX Messages (continued)	
Message	Meaning
D0503 Facility – Call is Queued	The destination is busy and queuing is enabled. The "Queue Position" message follows if the destination is a dataset. The DTRX is dropped until it is needed to display the call progress messages, or the next queue position. When the destination device becomes free, the "Ringling" and "Connected" messages follow.
D0504 Facility – Queue Position nn	This message occurs after every system clock minute. It indicates the user's new queue position, if changed. If the position has not changed, "." is appended to the displayed position number. (e.g. Queue Position 02..). The DTRX is obtained for this write operation and is dropped after it is completed.
D0506 Facility – Destination Queue Full	There is no room in the queue. The user is returned to the DTRX * prompt.
D0507 Facility – Invalid Account, Check Account Code	The entered account code is programmed as inactive (Verified Account Code), is invalid or is not the length specified in CDE Form 04 (System Options/System Timers).
D0512 Facility – Facility Not Available	For ACD only, when "MONITOR ACD" is selected. This message is displayed if the user enters MONITOR ACD in an ACD software load and System Option 41 (Automatic Call Distribution) is disabled.
D0517 Facility – Change Your Speed to [xxxxx]	The system has changed the data rate of the dataset to be compatible with the destination. The user must change the terminal's data rate as indicated. The DTRX is dropped at this point.
G0101 Information – Welcome to MITEL Data Switching	If DTRX Herald is not enabled, only the "*" prompt appears.
G0104 Information – Goodbye	DTRX dropped due to timeout or user request ("BYE" command or <CTRL E> at DTRX * prompt).
G0105 Information – System Busy, Please Wait	There are no DTRX links currently available.
G0108 Information – Call Disconnected	The system has disconnected the call. This could be due to a link failure. Check the DATA SMDR reports for more information.
G0109 Information – Call Disconnected By User	The user disconnected the call using the Disconnect key.
G0110 Information – Call Disconnected By Destination	The destination data station disconnected the call.
G0201 System Error – System Busy, Try Again Later	There are no free DTRX work areas in system memory.
G0301 User Error – User Has been Inactive for too Long	DTRX or data call dropped due to inactivity timer expiry. If in DTRX, "Goodbye" message follows.
G0302 User Error – Unrecognized Command, Check User Manual	The system could not understand some part of the input command string. Consult the HELP facility.
G0303 User Error – Ambiguous Command, Check User Manual	The command the user entered was too abbreviated. The system could not determine which command was intended.
G0307 User Error – No Help Information Available	The help facility has no information on the command specified.

Data: Modem Pooling

Description Modem Pooling is a data application feature using voice communication lines. Modem pooling permits communication between modems and DATASET 2100 Series datasets. Each pooled modem consists of a modem and a dataset. The dataset connects to a Digital Line Circuit, and communicates with datasets within the PABX. The pooled modem connects to an ONS or OPS Line Circuit, which communicates directly with internal modems, or with external modems via trunks.

This feature is not available in Generic 1001 or Generic 1002.

A collection of pooled modems organized into a hunt group is called a Modem Pool Hunt Group.

A dataset user can access a modem pool hunt group to obtain a pooled modem for data transmission to a modem user over the Public Network. If the modem pool hunt group or the trunk group is busy, the user can queue for it; see *Modem Pooling Queuing*.

A modem user, internal or external, can access a modem pool hunt group to obtain a pooled modem for communication with a dataset within the PABX. If the modem pool hunt group or the destination dataset is busy, the user can queue for it; see *Modem Pooling Queuing*.

Modem Pooling calls may also be made by using System Abbreviated Dial numbers, or by using Speedcall from a *SUPERSET 4* or *SUPERSET 4 DN* telephone.

Conditions The following conditions apply to this feature:

- COS Option 217 (Direct to ARS) is ignored for outgoing data calls.
- If the originator does not dial a specific Modem Pool Hunt Group access code, a pooled modem is selected from the default modem pool hunt group, if programmed.
- On incoming or internal calls, the system prints TRUNK SMDR reports for the trunk and Data SMDR reports for the pooled modem if they are enabled in the respective COS. The reports can be correlated by the originating device's identity and the time the call was started. COS Option 806 (SMDR – Record Incoming Calls) must be enabled to generate SMDR records for incoming calls. COS Option 906 (Data SMDR – Does Not Apply) must be disabled for pooled modems to generate SMDR records for incoming calls.
- On external ADL or DTRX-originated calls, the system generates a TRUNK SMDR report for the pooled modem and a Data SMDR report for the originating data station.

- Only DATASET 2102 and 2103 datasets can be used as modem pool devices.
- All pooled modems in the Modem Pool Hunt Group must have the same Operating Mode (all Originate or all Answer or all Both).
- The pooled modems in the default modem pool hunt group can only be programmed for Both (Answer and Originate) mode.
- A direct-connect modem cannot be connected to a COV line; an acoustically-coupled modem must be used.
- A dictation trunk can't be used for an outgoing modem pool.

Programming Programming varies depending upon the modem configuration as described below.

Internal/Incoming Modem Users

Modem users can be a: trunk, station (ONS/OPS), *SUPERSET* telephone (with acoustically-coupled modem), or a console (can only transfer a modem).

To permit a modem user to make calls to datasets, enable COS Option 704 (Incoming/Internal Modem Pooling Access) in its COS. This is required because the system normally bars calls between voice and data devices. Modems of pooled modems within the modem pool hunt group should be in auto-answer mode.

If desired, Enable Option 900 (Data Station Queuing) in the modem user's COS; see *Modem Pooling Queuing*.

Pooled Modem

Pooled modems are programmed in CDE Form 36 (Modem Assignment); for each pooled modem, assign:

- Bay/Slot/Circuit location of its ONS (or OPS) Line (system-supplied),
- Data Circuit Descriptor Number (CDN) that applies to its dataset,
- Bay/Slot/Circuit location of its dataset's Digital Line,
- extension number
- tenant (default is 1),
- DTE Profile Number (optional),
- Class of Service (COS) (default is 1) and Class of Restriction (COR) (default is 1),
- mode: Answer, Originate, or Both (default is Both).
- auto-dial capability: Auto dial or Non Auto dial (default is Non Auto dial).

Modem Pool Hunt Group

- Program the extension numbers of the required pooled modems to a Hunt Group in CDE Form 17 (Hunt Groups).
- Assign an access code to the Modem Pool Hunt Group.
- If desired, make this the Default modem pool hunt group. Users do not need to dial the Modem Pool access code. Only one Default modem pool hunt group can be programmed in the system.
- Only pooled modems of the same Operating Mode can be assigned to the same modem pool hunt group.
- Assign a Hunt Group Name to allow access via the DTRX Call by Name feature.
- To provide immediate DTRX access for incoming or internal modem pooling callers, enable DTRX for the Modem Pool Hunt Group in the Options subform of CDE Form 17 (Hunt Groups). If DTRX is disabled, DTRX callers must wait for the interdigit time-out (up to 15 seconds) before receiving a response. The DTRX option does not affect outgoing modem pooling calls. The DTRX option can only be enabled if DTE is programmed in the pooled modem and the mode of the hunt group is Answer or Both.

Operation

Internal Modem User (Station, *SUPERSET* Telephone, or Console)

- Dial:
 - Data Station or Data Hunt Group access code (where default modem pool hunt group is selected, if programmed)
 - or,
 - Modem Pool Hunt Group access code for DTRX access
 - or,
 - Modem Pool Hunt Group access code plus Data Station or Data Hunt Group access code.
- When answer tone is heard, the modem pooling call is established. Put the modem on line.

Incoming DISA Trunk Modem Call

- From the Public Network, using a DTMF telephone, dial the DISA telephone number. The PABX answers and returns dial tone.
- Dial the DISA Access Code (normal DISA trunk) or Account Code (if a Special DISA trunk). Once access is allowed, the system returns dial tone.
- Dial:
 - Data Station or Data Hunt Group access code (where default modem pool hunt group is selected, if programmed)
 - or,

- Modem Pool Hunt Group access code for DTRX access
or,
- Modem Pool Hunt Group access code plus Data Station or Data Hunt Group access code.
- When answer tone is heard, the modem pooling call is established. Put the modem on line.
- If DTRX access is used, enter CALL followed by the destination data number or name at the DTRX prompt.

Incoming Tie Trunk Modem Call

- Dial the TIE number to reach the remote PABX.
- Dial:
 - Data Station or Data Hunt Group access code (where default modem pool hunt group is selected, if programmed)
or,
 - Modem Pool Hunt Group access code for DTRX access
or,
 - Modem Pool Hunt Group access code plus Data Station or Data Hunt Group access code.
- When answer tone is heard, the modem pooling call is established; put the modem on line.
- If DTRX access is used, enter CALL followed by the destination data number or name at the DTRX prompt.

Incoming DID Trunk Modem Call

The Central Office passes on to the PABX a pre-arranged number of the caller's dialed digits. The resulting digit string formed is one of the following:

- Data Station or Data Hunt Group access code where default modem pool hunt group is selected, if programmed.
- Modem Pool Hunt Group access code for DTRX access.
- Modem Pool Hunt Group access code plus Data Station or Data Hunt Group access code.
- When answer tone is heard, the modem pooling call is established; put the modem on line.
- If DTRX access is used, enter CALL followed by the destination data number or name at the DTRX prompt.

Incoming Direct-In-Line (DIL) Modem Call

- From the public network, dial the DIL telephone number.
- The call is directed to the programmed Answer Point,

- a data station or a data hunt group where the programmed default modem pool hunt group is selected
- or,
- a modem pool hunt group access code for DTRX access.

Transferring a Modem Pooling Call (Incoming/Internal Call On Hold)

- The transferor must have COS Option 704 (Incoming/Internal Modem Pooling Access) enabled; the transferor can be a station, *SUPERSET* telephone, or a console.
- Dial:
 - Data Station or Data Hunt Group access code (where default modem pool hunt group is selected, if programmed)
 - or,
 - Modem Pool Hunt Group access code for DTRX access
 - or,
 - Modem Pool Hunt Group access code plus Data Station or Data Hunt Group access code.
- Once the call is set up successfully, the pooled modem returns answer tone.
- When answer tone is heard, transfer the call as follows:
 - press RELEASE key at console
 - or,
 - press RELEASE softkey or hang up at a *SUPERSET 4* telephone
 - or,
 - press RELEASE ME softkey or hang up at a *SUPERSET 4 DN*, *SUPERSET 420*, or *SUPERSET 430* telephone.
 - or,
 - hang up at an industry-standard telephone, a *SUPERSET 3* telephone, a *SUPERSET 3 DN* telephone, a *SUPERSET 401* telephone, or a *SUPERSET 410* telephone.
- To cancel the modem pooling call setup, proceed as follows:
 - press CANCEL key at console
 - or,
 - press CANCEL softkey at a *SUPERSET 4* telephone
 - or,
 - press BACK TO HELD softkey at a *SUPERSET 4 DN* telephone, a *SUPERSET 420* telephone, or a *SUPERSET 430* telephone
 - or,
 - press the **Trans/Conf** key at a *SUPERSET 3 DN* telephone or a *SUPERSET 410* telephone
 - or,
 - press the **Flash** key at a *SUPERSET 401*

- or,
- flash the hook switch at an industry–standard telephone.

External ADL Modem Pooling Call

- Dial the ADL access code.
- Dial the Modem Pool access code, unless the default modem pool is to be used.
- Dial the external destination (dial the ARS leading digit string and the destination number). Re–order tone is returned if the data connection cannot be made.
- When answer tone is heard, hang up the voice telephone. The data call is established.

External DTRX Modem Pooling Call

- Originate a DTRX session (see *Data: DTRX Call Originate/Disconnect*)
- Enter “CALL” followed by the Modem Pool Hunt Group access code, (omit the Modem Pool Hunt Group access code if the default modem pool hunt group is to be used),
- Enter the destination name or number. (For external calls, dial the ARS leading digit string and the destination number).
- Press RETURN.
- The DTE displays RINGING while the destination is ringing and CONNECTED when the data connection is established.

Data: Modem Pooling Queuing

Description Modem Pooling callers who encounter a busy Modem Pool Hunt Group, destination dataset, Data Hunt Group, or Trunk Group can queue for it.

This feature is not available in Generic 1001 or Generic 1002.

Conditions The following conditions apply to this feature:

- DID trunk callers cannot queue. They receive busy tone unless an answerpoint is programmed in the Call Rerouting table for DID Recall Points on Busy.
- DIL trunks can queue for a modem pool hunt group, dataset, or Data Hunt Group, but they receive ringback tone, not busy.
- Trunk callers have higher priority than internal callers for queuing.

Programming Enable COS Option 900 (Data Station Queuing) in the caller's Class of Service.

Operation Operation varies depending upon the modem configuration as described below.

Incoming Modem Pool Queuing

The modem pool hunt group or destination is busy. Special busy tone is returned for 2 seconds, followed by Busy tone when the campon occurs. *SUPERSET 4* telephone users receive Busy tone but must press the CAMPON softkey within 10 seconds.

ADL Outgoing Modem Pool Queuing

The modem pool hunt group or trunk group is busy. Special busy tone is returned for 2 seconds, followed by Busy tone when the campon occurs. *SUPERSET 4* telephone users receive Busy tone but must press the CAMPON softkey within 10 seconds.

DTRX Outgoing Modem Pool Queuing

The originator receives the message "Call is Queued".

Device Interconnection Control

Description This feature provides a means of disallowing connection between devices of different types. The feature is primarily intended to control trunk interconnection but applies to other devices as well. This is intended to provide a method of meeting interconnection regulations imposed by various regulatory authorities.

The checks apply when a device calls another device, when a transfer (supervised or unsupervised) is attempted and when the console attempts to perform operations on devices. The sections in this practice mention Device Interconnection checks where they apply.

See *Flash Control* for details on controlling the ability of extensions to flash when extensions are involved with trunk calls.

There are three aspects of the feature: Tenant Interconnection, the Device Interconnection Table, and COS Options.

Tenant Interconnection, CDE Form 05 (Tenanting Interconnection Table) is described in Practice 9109-096-230-NA, Tenanting. The check for tenant connection is done when the Device Interconnection Table check is done.

The other aspects of interconnection are done only if the tenant connection check passes.

The Device Interconnection Table is a table that the installer can program to limit interconnection from one device type with another and with itself. This restriction can be applied in either direction if desired. The Device Interconnection Table alone applies when the two devices in question are not both trunks. When two trunks are to be connected together, the Device Interconnection Table restrictions apply. In this case, COS Options may apply additional restrictions.

The COS Options apply additional checks when trunks are to be connected together. The COS Options do not override the Device Interconnection Table but add finer control to the table. The Options apply when a third party (a console, extension or trunk) attempts to leave two or more trunks connected together by a supervised transfer. The COS of the third party is used for the checks.

The following rules apply for the COS Option checks:

- CO to CO trunk checks COS Option 313 (CO Trunk To CO Trunk Connect)
- CO to Tie checks COS Option 314 (CO Trunk To Tie Trunk Connect)
- Tie to CO checks Cos Option 314 (CO Trunk To Tie Trunk Connect) and 319 (Extension non-CO Trunk To Trunk Connect)
- CO to DID checks COS Options 315 (CO Trunk To DID Trunk Connect)
- DID to CO checks COS Options 315 (CO Trunk To DID Trunk Connect) and 319 (Extension Non-CO Trunk To Trunk Connect)
- Tie to Tie checks COS Option 316 (Tie Trunk To Tie Trunk Connect) and 319 (Extension Non-CO Trunk To Trunk Connect)
- DID to Tie, Tie to DID checks COS Option 317 (Tie Trunk To DID Trunk Connect) and 319 (Extension Non-CO Trunk To Trunk Connect)
- DID to DID checks COS Option 318 (DID Trunk To DID Trunk Connect)
- For DISA trunks, the underlying circuit descriptor trunk types are checked against the device interconnection COS Options.
- Incoming Tie trunks have no COS Option checking.

Conditions

The following conditions apply to this feature:

- When a device hangs up from a three party call, the Device Interconnection feature applies between the remaining parties. The third party that is used in the COS option checks is the party that hung up. If the two remaining parties cannot connect, then the call is cleared down.
- When a device hangs up from a four or five party conference call, if there are only trunks left in the call, the Device Interconnection feature is applied between each trunk in the call (both ways). The third party

that is used in the COS option checks is the party that hung up from the call. If at least one trunk can connect to one other trunk in the conference then the Device Interconnection check passes. If no trunks can connect to any other trunks in the call then the call is completely cleared down.

- If the Console is not allowed connection to a device, it cannot exercise features affecting that device.
- Device Interconnection applies directly to trunks, stations, sets, data stations, modem pools, and consoles.
- Connection is always allowed to Night Bells, Call Announce Ports, and LDNs.
- Device connection checking is done when an ACD position is directly dialed. The checks apply between the caller and the set where the position is logged in.
- No checking is done for ACD calls from an ACD path.
- No checking is done between callers and members of recording or auto attendant hunt groups.
- Checking is done with hunt groups using the tenant of the first programmed member of the hunt group.
- Checking is done with logical lines using the tenant of the *SUPERSET* telephone where the first appearance of the line resides.
- When a trunk is accessing ARS directly, or for trunks transferred into ARS before a trunk is seized, the COS used is that of the trunk itself.
- When an extension times out from reorder tone with a conference on hold, the above rules apply to the call that is left; it is as if the extension had hung up from the call.

Programming Set the interconnection rules in CDE Form 30 (Device Interconnection Table) as required.

Enable the appropriate trunk connection COS Options, see *Descriptions*.

Operation None.

Dial Tone Disable

- Description** Assignment of this feature to a dial-in trunk suppresses dial tone on an incoming trunk call. If this feature is assigned to an extension, the extension does not receive dial tone whenever dialing is initiated.
- Conditions** When applied to DISA trunks, the option suppresses the initial dial tone returned for dialing the DISA feature access code. The second dial tone, after a successful code is dialed, is not affected by the option.
- Programming** Enable COS Option 701 (No Dial Tone) for the device.
- Operation** None.

Dial Tone – Discriminating

- Description** An extension having a feature enabled that prevents calls from ringing the extension hears a distinct dial tone (350/440 Hz, 400 ms on, 100 ms off for six cycles, then continuous tone) when going off-hook to make a call. These features include Do Not Disturb, Call Forwarding – Follow Me, or Call Forwarding – I Am Here.
- Conditions** The following conditions apply to this feature:
- The tone heard is the same one that is used for Transfer Dial Tone.
 - COS Option 701 (No Dial Tone) must be disabled.
- Programming** Enable COS Option 219 (Discriminating Dial Tone) for the extension.
- Operation** None.

Dictation Trunks

- Description** This feature indefinitely extends the dialing stage on a trunk to allow tone-to-pulse or pulse-to-tone conversion, based on Trunk Circuit Descriptors, of all digits dialed during a trunk call. Without the feature, only DTMF signalling is possible from extensions so equipped.
- Conditions** The following conditions apply to this feature:
- A DTMF receiver circuit is used for the duration of the call.
 - Dictation trunks cannot be put on hold but callers can be transferred to dictation trunks.
 - The dialing stage cannot be terminated on the trunk during the call.
 - A dictation trunk can't be used for an outgoing modem pool.
- Programming** Set the switches on the analog CO trunks cards to the appropriate setting; refer to Practice 9109-096-200-NA, Installation Information.
- Enable appropriate options for the trunks via CDE Form 13 (Trunk Circuit Descriptors); also see *Trunk Circuit Descriptor Options*.
- Operation** Dial the necessary digits to access the dictation trunk. The system keeps the extension in dialing mode on the trunk and converts all digits dialed to the appropriate format for the trunk selected (tone or pulse).

DID/Dial-in/Tie Intercepts

- Description** This feature allows a customer to specify that all DID and Dial-in Tie Trunk calls directed to a busy extension (or one which does not answer within a selected time period) are rerouted to a call rerouting point. As well, the trunks can be programmed to be redirected immediately or to be redirected under certain error conditions. See *Recall* for how this fits in with general recall operation.
- When a DID trunk dials in, the following conditions are tested in the following order:
- If calling an LDN and the DID Attendant Access Night point is defined, then the trunk is rerouted to that point.

- If calling a station, *SUPERSET* telephone, hunt group, or logical line and the DID Routing Point is defined, then the trunk is rerouted to that point.
- If calling a busy industry—standard telephone, *SUPERSET* telephone, or logical line and the extension has forwarding – busy/always programmed, then the trunk is forwarded.
- If calling a busy industry—standard telephone, *SUPERSET* telephone, logical line, or hunt group and the DID Recall Points on Busy is defined, then the trunk is rerouted to that point.
- If calling a station or *SUPERSET* telephone with Do Not Disturb enabled and a Do Not Disturb Intercept point is defined, then the trunk is rerouted to that point.
- If the station or *SUPERSET* telephone called does not answer and the extension has forwarding – no answer programmed, then the trunk is forwarded.
- If the industry—standard telephone, *SUPERSET* telephone, hunt group member, or logical line called does not answer and the DID no answer point is defined, then the trunk is rerouted to that point.

The above applies, except for DND intercept, for Tie trunks, but using the equivalent Tie routing points.

Conditions

The following conditions apply to this feature:

- If an illegal number is dialed or an illegal feature is attempted and the DID Intercept Routing point is defined, then the DID trunk is rerouted to that point. The tenant of the trunk is used. The same applies for Tie trunks and the Dial-in Tie Intercept point. If no point is specified, reorder tone is given.
- Calls routed to an LDN or to a console through the DID/Tie intercepts are identified as intercepted calls on the console display, when they are answered.
- Calls routed to an LDN through DID Intercept busy/no answer routing point, show the tenant name of the called party when answered at the console.
- If a vacant number is dialed and the DID Vacant Number Routing point is defined, then the DID trunk is rerouted to that point. The tenant of the trunk is used. The same applies for Tie trunks and the Dial-in Tie Vacant Number Routing point.
- The DID or Tie no answer point applies in recall situations if the trunk was ringing a party and has not been answered yet by any device in the system (excluding recordings). See *Last Number Redial*.
- The reroute for no answer does not occur if calling a console, LDN or Night Bell. It also does not occur if already ringing the reroute point.
- The reroute point on busy or no answer cannot be a console.

- The tenant of the called party is used to determine the rerouting point. When a logical line is called, the tenant of the first appearance of the line is used. When a hunt group is called, the tenant of the first member of the hunt group is used. When an LDN is called, the tenant of the console with the lowest Bay/Slot/Circuit plid where the LDN appears is used.
- The answer time timing for reroute/no answer is taken from COS Option 115 (Attendant Timed Recall – No Answer) of the trunk used for the reroute on no answer. If the time value is zero, then no reroute is done.
- The application of busy and attendant night access points applies only when the trunk initially dials in. The no answer point applies when ringing any extension unless the trunk has been answered. This includes ringing an extension after a call forward no answer on the initial dialed destination.
- COS Option 210 (Call Forwarding Inhibit on Dial-In Trunks) for the called party is checked on the always, busy, and no answer routing points. If the COS option is enabled for the point, then the reroute is not done.
- Extensions may be restricted from receiving DID trunk calls directly from DID trunks, by selecting COS Option 226 (Inward Restriction – DID) for the extension.
- For DID and Tie calls, the routing for all calls is done once dialing is completed.
- The busy and no answer points do not apply when calling consoles, LDNs, or Night Bells.

Programming Enter the desired rerouting points via CDE Form 19 (Call Rerouting Table) in the appropriate tenant.

To disable rerouting when a particular station or *SUPERSET* telephone is called, enable COS Option 210 (Call Forwarding Inhibit on Dial-In Trunks) for the required extension(s).

See DID Call Inhibit for details on blocking DID trunk calls altogether to a particular extension.

Operation None.

Digit Translation

Description The SX-200 DIGITAL PABX may be programmed to provide one of four Digit Translation Plans for rotary telephone sets. The default Digit Translation Plan is Plan 0.

Table 2-5 Digit Translation Plans				
Digit	Plan 0	Plan 1	Plan 2	Plan 3
1	1 pulse	2 pulses	9 pulses	10 pulses
2	2 pulses	3 pulses	8 pulses	9 pulses
3	3 pulses	4 pulses	7 pulses	8 pulses
4	4 pulses	5 pulses	6 pulses	7 pulses
5	5 pulses	6 pulses	5 pulses	6 pulses
6	6 pulses	7 pulses	4 pulses	5 pulses
7	7 pulses	8 pulses	3 pulses	4 pulses
8	8 pulses	9 pulses	2 pulses	3 pulses
9	9 pulses	10 pulses	1 pulse	2 pulses
0	10 pulses	1 pulse	10 pulses	1 pulse

Conditions Only one translation plan may be in effect at a time.

Programming Select the desired translation plan via System Option 46 (Digit Translation Plan) (35 in Generic 1001).

Operation None.

Direct-in Lines (DIL)

Description This feature allows non-dial-in type trunks to ring specific answering points, rather than at the Attendant Console; this may vary with Night Service changes. An answering point may be one of the following in addition to a console or LDN:

- an ACD Path
- an extension number (Industry-standard telephone, *SUPERSET* telephone, logical line)
- a hunt group access code
- a modem pool access code
- a Night Bell access code.

See *Recall* for effects on recall.

Conditions Refer to *Trunk Operation – Non-dial-in CO*.

Programming In CDE Form 14 (Non-Dial-In Trunks) enter the desired answering points for each of the DAY, NIGHT1, and NIGHT2 modes of operation.

Operation None.

Direct Station Select (DSS) Key

Description The Direct Station Select (DSS) Keys on the *SUPERSET DSS* Module function together with the adjacent Busy Lamp Field (BLF) indicator. While the BLF line appearance indicator monitors the status of another device, the corresponding DSS key can be used to call, and connect calls to that device.

The DSS key operates when the line appearance of the device is:

- idle – pressing the DSS key will initiate a call to the associated device.
- talking to another party that can be put on soft hold – pressing the DSS key will put the other party on consultation hold, and initiate a call to the associated device.
- listening to dial tone – pressing the DSS key will initiate a call to the associated device.

The DSS key is inoperable in all other states. For example, if the device is talking to one party with another party on soft hold, the DSS key will have no effect.

Secretarial Option

The BLF indicator associated with the DSS key always displays the status of the BLF party, thus limiting the need for supervised transfers. An Automatic Transfer option is available to users with the SECRETARIAL enabled on their DSS keys. To transfer a call, the DSS key is pressed – the call is transferred with an automatic release to the BLF party.

If the BLF party is idle, the transferred party rings it. If the BLF party is busy, the system camps on the transferred call. If the two parties are not allowed to be connected together because of device interconnection restrictions, the system prevents the automatic transfer. ie., The same conditions apply to these transfers as to any others.

See also *Busy Lamp Field* in this document.

Conditions

The following conditions apply to this feature:

- This feature is not available in Generic 1001.
- DSS keys will not function on line appearances associated with trunks.
- DSS keys will not function when any feature associated with a template such as Hotel/Motel and Automatic Call Distribution are placed on the line appearance.

Programming To Program DSS Keys:

- While in CDE Form 09 (Station/*SUPERSET* Telephones) or CDE Form 45 (Key System Telephones), position the cursor on the desired device and press the EXPAND SET softkey (Expand Set sub-form is displayed).
- Move cursor to the desired key.
- Move cursor to the TYPE column (use TAB key if necessary).
- Press the BLF/DSS softkey (Type becomes "Busy Lamp").
- Press the TAB key twice to get to the DSS column.
- Press the DSS softkey (YES appears in the DSS column).
- Press the TAB key to get to the EXT NUM column.
- Enter the extension number of the device to be monitored by the BLF appearance.
- Press the ENTER softkey.

To Program DSS Keys with Secretarial Option:

- While in CDE Form 09 (Station/*SUPERSET* Telephones) or CDE Form 45 (Key System Telephones), position the cursor on the desired device and press the EXPAND SET softkey (Expand Set sub-form is displayed).
- Move cursor to the desired key.
- Move cursor to the TYPE column (use TAB key if necessary).
- Press the BLF/DSS softkey (Type becomes "Busy Lamp").
- Press the TAB key to get to the SEC column (see Note).
- Press the SECRETARIAL softkey (YES appears in the SEC column).
- Press the TAB key to get to the DSS column.
- Press the DSS softkey (YES appears in the DSS column).
- Press the TAB key to get to the EXT NUM column.
- Enter the extension number of the device to be monitored by the BLF appearance.
- Press the ENTER softkey.

Note: This field is the SEC field in Generic 1004 and Generic 1005, but is called the SECRETARIAL field in Generic 1003.

Operation

To call the BLF party:

- Press the DSS key.

To transfer a call to a station (without Secretarial option):

- Press the DSS key.
- press the RELEASE key/softkey.

To transfer a call to a station (Secretarial option):

- Press the DSS key.

Direct to ARS

- Description** This option allows an industry-standard telephone to be directly routed to ARS without dialing, and for other devices to be routed after dialing a valid account code. The system dials up to five digits automatically for the extension.
- Conditions** The following conditions apply to this feature:
- For industry-standard telephones, the feature only applies when the station initially starts a call. Once the initial trunk call has been established, normal operation resumes (for example, flashing is not affected).
 - This feature applies to all devices that can access Account Codes, only after a valid account code is entered; see *Account Codes*.
 - Direct to ARS conflicts with the maintenance test-line function.
 - The Contact Monitor and Manual Line features cannot access the Direct To ARS feature.
 - Industry-standard telephones cannot have the Forced Account Code feature enabled.
 - There must be an existing ARS Leading Digit string that matches the Direct to ARS code.
- Programming** Enable COS Option 217 (Direct To ARS) for the extension.
- To program an ARS, use the leading digits string as the feature access code.
- Assign an access code to Feature 37 (36 in Generic 1001) (Direct to ARS).
- Operation** For Industry-standard Telephone: lift the handset and the PABX automatically dials the ARS access code.
- For other devices: enter a valid account code and the PABX automatically dials the ARS access code.

Direct Trunk Select

Description This feature allows the user to directly access an outside trunk for both incoming and outgoing calls without the need of trunk access codes. The trunk is assigned to a line appearance of the telephone through system programming. Telephones having the Direct Trunk Select feature can be programmed for ring, delayed ring, or no ring.

Direct Trunk Select calls bypass the system's Automatic Route Selection feature and are therefore unaffected by COR (Toll Control). An Account Code can be entered while established in a call.

Conditions The following conditions apply to this feature:

- Direction and Ring variants can be programmed independently for each appearance. The Direction variant allows control of the type of trunk call, incoming or outgoing or both.
- If a DTS trunk has a DAY number programmed in Form 14, it will be ignored. Instead, they will be routed to the telephone(s) with the DTS appearance.
- It can appear on several *SUPERSET* telephones.
- This feature is not available on *SUPERSET 401* telephones.
- There can be only one appearance of any one Direct Trunk Select line on a *SUPERSET* telephone.
- The calls on the trunks bypass ARS but do use the SMDR feature if enabled.
- The user can transfer calls on this line to other extensions.
- When the far end hangs up on a Direct Trunk Select line, all parties connected are cleared down, and the trunk occupies the line while it clears down.
- When the trunk hangs up, all parties in the call on the line are put idle.
- DTS trunks are unavailable to ARS, regardless of ARS programming.
- Only CO type trunks can be programmed in a Direct Trunk Select configuration. Incoming-only trunks are not compatible.
- Incoming Direct Trunk Select calls do not follow Call Forwarding as programmed on the set.
- Do Not Disturb is overridden by an incoming Direct Trunk Select call.
- DTS trunks are not available on key system telephones.

Programming Program trunks that are to be selected directly, instead of through ARS, in the *SUPERSET* Telephone Lines subform of CDE Form 09 (Station/*SUPERSET* Telephones). These trunks must be programmed into hunt group(s).

Operation To access Direct Trunk Select:

- Lift the handset. PABX dial tone is heard.
- Press a Direct Trunk Select line key. Central Office dial tone is returned.
- Dial the external number.

To answer an incoming Direct Trunk Select call:

- Lift the handset and press the Direct Trunk Select line key, when the set rings and/or the line appearance flashes.

Disconnect Alarm

Description This feature provides an alarm indication when a *SUPERSET* telephone is unplugged.

Conditions The alarm is not cleared by the *SUPERSET* telephone being plugged back in.

Programming Enable COS Option 603 (*SUPERSET* Disconnect Alarm) in the *SUPERSET* telephone's COS.

Operation Unplug the *SUPERSET* telephone – an alarm is generated; see *Attendant Alarm Readout* for reading alarms.

Do Not Disturb

Description Do Not Disturb prevents incoming calls from ringing the telephone. It also prevents incoming Directed and Group Paging announcements from occurring over the set speaker. Outgoing calls are unaffected.

Callers to a telephone with Do Not Disturb active receive reorder tone; the message DO NOT DISTURB appears on display sets. The alternative is to program the system to reroute such calls to a predetermined answering point; see *Call Rerouting*.

Consoles, *SUPERSET 4* DN telephones and *SUPERSET 430* telephones can override Do Not Disturb.

Conditions The following conditions apply to this feature:

- If Do Not Disturb is activated, users hear broken dial tone followed by normal dial tone when they go off-hook.
- Either the set user or the Attendant can set up or cancel Do Not Disturb.
- The console, a *SUPERSET 4* DN telephone, or a *SUPERSET 430* telephone can override Do Not Disturb if COS Option 500 (Override) is enabled in its COS, and COS Option 238 (Override Security) is disabled in the called extension's COS.
- When overriding Do Not Disturb, the Auto-Answer feature is ignored.
- When overriding Do Not Disturb, if the called set becomes busy in the meantime, then the overriding console, *SUPERSET 4* DN telephone, or *SUPERSET 430* telephone will attempt to intrude on the call; see *Override (Intrude)*.
- A Hunt Group member that activates Do Not Disturb is treated as busy during hunting.
- While Do Not Disturb is active, Forwarding works as if the extension were busy.
- If the set user activates a callback, the callback is honored, even if Do Not Disturb is active.
- When a Reminder expires, it ignores Do Not Disturb.
- Call Rerouting ignores Do Not Disturb.
- If Discriminating Dial Tone is enabled then discriminating dial tone is heard at an extension when it has Do Not Disturb activated; see *Discriminating Dial Tone*.
- DID trunks ignore DND if there is no Do Not Disturb routing point for the extension's tenant.

- If a call is placed on hold by the telephone with Do Not Disturb set, is not retrieved, and recalls when the hold times out, the telephone with Do Not Disturb set does not ring and does not see the recalling call.
- If there are multiple call line appearances of the Do Not Disturb station or *SUPERSET* telephone then the behavior of the feature changes. If the extension is dialed, busy tone is heard if there are no free appearances to ring and at least one *SUPERSET* telephone where the line appears does not have Do Not Disturb activated. If all *SUPERSET* telephones where the line appears have Do Not Disturb activated, then the caller gets Do Not Disturb Reorder Tone. If at least one appearance is free then the call to the extension proceeds as if the Do Not Disturb was not activated. If the prime appearance is free then the appearance silently rings.
- Consoles are never directed to the Do Not Disturb reroute point.

Programming To enable the Do Not Disturb feature, assign an access code to Feature 10 (Do Not Disturb) in Form 02. To permit a set user to activate Do Not Disturb, enable COS Option 220 (Do Not Disturb) in the set's COS.

For feature key activation of Do Not Disturb at a *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 410*, *SUPERSET 420*, or *SUPERSET 430* telephone, program a DO NOT DISTURB feature key. (See Feature Keys.)

To intercept calls dialed to a Do Not Disturb extension, program CDE Form 19 (Call Rerouting Table) for the extension's tenant.

Operation Operation varies depending upon the type of device as described below.

Industry-standard, *SUPERSET 3*, and *SUPERSET 401* Telephones:

To activate Do Not Disturb:

- Dial the Do Not Disturb access code followed by the digit 1.
- Dial tone is heard.
- Hang up.

To remove Do Not Disturb from the extension:

- Dial the Do Not Disturb access code followed by the digit 2.
- Dial tone is returned.
- Hang up.

***SUPERSET 4* Telephones:**

To Set Do Not Disturb:

- Press the SELECT FEATURES key.
- Dial '2' (feature number 2 is Do Not Disturb (2:NO DIST'B)).

- Press the ON feature key. The words NO DIST'B are displayed in the upper left corner of the LCD as a reminder while Do Not Disturb is in effect.

To Cancel Do Not Disturb:

- Press the SELECT FEATURES key.
- Dial '2'.
- Press the OFF feature key.

SUPERSET 3 DN, SUPERSET 4 DN, SUPERSET 410, SUPERSET 420, and SUPERSET 430 Telephones:

To activate Do Not Disturb:

- Press the DO NOT DISTURB feature key. The adjacent LCD indicator darkens.

To remove Do Not Disturb from the extension:

- Press the DO NOT DISTURB feature key. The adjacent LCD indicator, which was dark, clears.

DTMF-To-Rotary Dial Conversion

Description	This feature automatically converts DTMF tones from DTMF equipment to rotary dial outpulsing on outgoing trunks which have been programmed as rotary dial trunks. The DTMF digits also appear on the trunk, as early line split is not provided.
Conditions	None.
Programming	Specify the trunk as non-DTMF in CDE Form 13 (Trunk Circuit Descriptors).
Operation	None.

Expensive Route Warning

- Description** A trunk route can be programmed to give an expensive route warning tone (three short tones). On *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420* and *SUPERSET 430* telephones, and on the console, the LCD displays a message. The user can continue with the call or hang up and try again later when a less expensive route may be available. *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420*, and *SUPERSET 430* telephones provide the additional options of camping on to wait for a less expensive route or placing a callback on a less expensive route.
- Conditions** The following conditions apply to this feature:
- If Callback is activated, the callback is to the least cost non-expensive route.
 - If the caller waits (camps on), the caller waits for the least cost route.
 - Campon and callback to an expensive route are available to *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420*, and *SUPERSET 430* telephones. These options are also available to *SUPERSET 3 DN*, *SUPERSET 410*, and *SUPERSET 430* telephones that have CAMPON and CALLBACK feature keys programmed.
 - Warning tone is supplied to all devices (including incoming tandem trunks).
- Programming** Program Warning Tone (WT) in CDE Form 24 (ARS Route Lists). Refer to Practice 9109-096-220-NA, Automatic Route Selection and Toll Control, for designating expensive routes.
- Enable COS Option 301 (Campon) and COS Option 237 (Outgoing Trunk Campon) in the COS for the extension to allow campon for less expensive routes.
- Enable COS Option 300 (Automatic Callback) and COS Option 236 (Outgoing Trunk Callback) in the COS for the extension to allow callbacks to less expensive routes.
- Operation** A trunk or extension attempts an external call and ARS cannot find a route that does not have the expensive route designation. The warning tone is provided; if no action is taken by the caller, the call proceeds after a 5 second delay.
- For *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420* and *SUPERSET 430* telephones, see Callback – Busy for the operation of the **Callback** softkey and see Campon for the operation of the **CAMPON/I Will Wait/Wait** softkeys.

Feature Keys

Description The programmable line keys on *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 410*, *SUPERSET 420* and *SUPERSET 430* telephones (commonly used for speedcall and line appearances), may also be used for feature activation. Rather than dialing a feature access code, the user simply presses a feature key. This feature is not available in Generic 1001.

The Feature Keys available on *SUPERSET 3 DN* and *SUPERSET 410* telephones include:

- Speedcall
- *Call Forward
- Account Code
- *Do Not Disturb
- Forward Call (Generic 1004 and 1005)
- *Auto Answer (On *SUPERSET 410* telephones this feature is only available during headset operation)
- *Music
- Direct Page (key system telephones only)
- Paging (PA Paging in Generic 1004 and 1005 only)
- Call Pickup
- I Will Wait (Campon)
- Callback
- Trade Calls (Swap)
- Privacy Release
- Intrude (Override)
- Night Answer
- Forward Call (Generic 1004 and 1005 only)

For the feature keys listed above and marked with an asterisk (*), an indication on the adjacent LCD indicator indicates when the feature is active. For the remaining feature keys listed, an indication on the adjacent LCD indicator indicates when the feature becomes available to the user. The LCD indicator for Direct Page is not used.

Fewer features are available as Feature Keys on the *SUPERSET 4 DN*, *SUPERSET 420*, and *SUPERSET 430* telephones because most features are provided via softkeys.

The Feature Keys available on a *SUPERSET 420* telephone are:

- Speedcall
- Call Forward
- Account Code
- Do Not Disturb
- Auto Answer
- Music
- Direct Page (Generic 1004 and 1005 – Key Set telephones only)
- PA Pager Access
- Privacy Release
- Intrude (Override)
- Night Answer

The Feature Keys available on *SUPERSET 4 DN* and *SUPERSET 430* telephones are:

- Speedcall
- Do Not Disturb
- Auto Answer
- Direct Page (Generic 1004 and 1005 – Key Set telephones only)
- Data Call/Attn (*SUPERSET 4 DN* only)
- Data Call/Disc (*SUPERSET 4 DN* only)

For each of the keys listed above an indication on the adjacent LCD indicator is provided when the feature becomes active.

Conditions

The following conditions apply to this feature:

- The keys are effective only when the feature is applicable. For example, the Override feature key would not be effective if there were no calls in progress.
- The Data Disc, Call/Attn, Auto-Answer, Call Forward, and Do Not Disturb feature keys are effective at all times.
- The feature keys do not preclude the use of feature access codes.
- Line/personal keys on *SUPERSET 3 DN/ SUPERSET 410* telephones that aren't assigned to a line default to being Speed Call keys. However, if you program a personal key as another type of feature key, for example as a DO NOT DISTURB key, you can't program a speed call number into the key until you reprogram it as a PERSONAL SPEED CALL key.
- The Auto Answer feature is only available on a *SUPERSET 410* telephone when the headset feature is enabled.

Programming Feature keys may be programmed in 2 ways:

1. From CDE:

- Enter the Expand Set Subform of CDE Form 09 (Station/*SUPERSET* Telephones) or CDE Form 45 (Key System Telephones).
 - In the TYPE field, select feature key via the FEATURE softkey.
 - Press the softkey corresponding to the desired feature.
- 2. From the *SUPERSET* Telephone.** Programming from the telephone is available in Generic1004 and Generic 1005.

General:

- Assign an access code to Feature Access Code 47 (Program Feature Key) in CDE Form 02.

***SUPERSET 3 DN* telephones:**

- Dial the Program Feature Key access code.
- Press the desired line key.
- Dial the feature code for the desired feature key (see following table).
- Press the **Program** key.
- Press the **Speaker** key.

***SUPERSET 410* telephones:**

- Dial the Program Feature Key access code.
- Press an unused personal key.
- Dial the feature code for the desired feature key (see following table).
- Press the **Speaker** key.

Feature Code	Feature Key
00	Speedcall*
01	Call Forward
02	Account Code
03	Do Not Disturb
04	Auto Answer**
05	Music
06	Direct Page
07	PA Paging
08	Pickup
09	Campon (I Will Wait)
10	Callback
11	Swap (Trade Calls)
12	Privacy Release
13	Override (Intrude)
14	Night Answer
15	Forward Call

* After dialing 00, dial the number to be stored.

** Only available on *SUPERSET 410* telephones during headset operation.

***SUPERSET 420* telephones:**

- Press **SuperKey**.
- Press the **No** softkey until PERSONAL KEYS? appears in the display.
- Press the **Yes** softkey.
- Press a personal key that isn't assigned to a line.
- Press the **Change** softkey. SPEED CALL? appears.
- Press the **Yes** softkey to program the key as a speed call key
or
Press the **No** softkey. Another feature key option is displayed.
- Press the **No** softkey until the desired feature key option is displayed.
- When the desired option is displayed, press the **Yes** softkey to program the personal key.
- Press **SuperKey** to return to the date and time display.

To determine what feature, if any, is programmed for a personal key:

- Press **SuperKey**.
- Press the personal key. The function of the key is displayed.
- Press **SuperKey** to exit.

SUPERSET 4 DN and SUPERSET 430 telephones:

- Press **SuperKey**.
- Press the **More** softkey.
- Press the **Feature** softkey.
- Press the desired line key.
- Press the **Change** softkey.
- Press the softkey of the desired feature.
- Press **SuperKey**.

Operation Rather than dialing the feature access code for the desired feature, simply press the feature key. Refer to the specific feature for further details.

Flash – Calibrated

Description Telephone users access many PABX features using a switch hook flash from industry-standard telephones. Calibrated Flash allows the system to consistently create the proper flash time thus preventing confusion between flash and hang up attempts. On rotary dial sets, the user sends a calibrated flash by dialing the digit "1". On DTMF sets equipped with a flash key, the user presses this key to send a switch hook flash to the PABX.

Conditions The following conditions apply to this feature:

- For rotary dial telephones in analog Bays, the Calibrated Flash feature and Message Waiting are mutually exclusive.
- DTMF sets equipped with a flash button must have a calibrated flash time of 50 to 140 ms.
- Rotary dial set users can perform a calibrated flash at any time, except while dialing a number. (During dialing, the system interprets the digit 1 as part of the number).
- To use rotary dial telephones and the Calibrated Flash feature in analog bays, a calibrated flash line card PN9110-310-000-NA, must be installed.
- For ONS and OPS line cards, flash timers have no effect on the calibrated flash detection circuits.
- For DTMF telephones in analog Bays, the Calibrated Flash card must be used if the telephone sends a flash between 50 and 140 ms; the card expands it to a 200 ms flash.

Programming In CDE Form 04 (System Options/System Timers):

- Enable System Option 37 (Calibrated Flash).
- Set System Option 52 (Minimum Flash Timer) (41 in Generic 1001) to 200ms if a Calibrated Flash line card is used.
- Enable System Option 38 (Switch-hook Flash).

In the CDE Form 03 (COS Define):

- Disable COS Option 223 (Flash Disable) to allow a flash to be processed.

Operation In an established call:

- From a rotary set, dial the digit 1 and proceed as appropriate for the feature.
- From a DTMF set, press the calibrated flash button and proceed as appropriate for the feature.

Flash Control

Description This set of options limits the use of consultation hold (switch-hook flash) under certain conditions when an extension is in a call with a trunk or attempts to establish a call with a trunk.

Flash On Incoming Trunk

This feature allows extension users to place an incoming trunk on consultation hold. This enables the trunk call to be transferred, held, or added to a conference. The option does not apply when the extension is talking to a DISA trunk that has dialed into the system.

Flash on Outgoing Trunk

This option is the same as the previous option but it applies to outgoing trunks.

Cannot Dial a Trunk After Flashing

This option prohibits the extension user from accessing a trunk, through dialing or picking up a trunk on hold at another extension, while a consultation hold is in progress. The option does not apply to industry-standard telephones with COS Option 203 (Broker's Call) or COS Option 252 (Broker's Call With Transfer) (250 – Transfer With Privacy in Generic 1001) in their COS or when picking up trunk calls that are ringing at another extension.

Cannot Dial a Trunk If Holding or in Conference with a Trunk

This option prevents devices from dialing a trunk call or picking up a trunk from another extension while another trunk is in a call (conference or two party) on consultation hold. This option does not apply to industry-standard telephones with COS Option 203 (Broker's Call) or COS Option 252 (Broker's Call With Transfer) (250 – Transfer With Privacy in Generic 1001) in their COS.

- Conditions** The following conditions apply to this feature:
- The options are disabled if the extension has COS Option 223 (Flash Disable) enabled in its COS.
 - The options are disabled for industry-standard telephones if System Option 38 (Switch-hook Flash) is disabled.
- Programming** Enable any or all of the following COS Options for the extension:
212 (Can Flash if Talking To An Incoming Trunk)
213 (Can Flash if Talking To An Outgoing Trunk)
214 (Cannot Dial a Trunk After Flashing)
215 (Cannot Dial a Trunk if Holding or in Conference with a Trunk)
- Operation** None

Flash Disable

- Description** An extension may be inhibited from using all services requiring the use of the switch hook flash. For *SUPERSET* telephones, this prevents the extension from putting a call on consultation hold.
- Conditions** The following conditions apply to this feature:
- COS Options 223 (Flash Disable) is mutually exclusive with:
 - COS Option 224 (Flash for Attendant)
 - COS Option 203 (Broker's Call)
 - COS Option 252 (Broker's Call With Transfer) (250 – Transfer With Privacy in Generic 1001)
 - COS Option 302 (Flash In Conference).
- Programming** Enable COS Option 223 (Flash Disable) for the extension.
- Enable System Option 38 (Switch-hook Flash) to allow flashing for all Industry-Standard telephones in the system.
- Operation** None.

Flash For Dial 0 (Attendant)

- Description** An extension can be set to ring the Dial 0 Routing Point (usually the Attendant) automatically if a transfer is attempted while in an established call.
- Conditions** The following conditions apply to this feature:
- The extension cannot access any other feature requiring a switch hook flash; such as Broker's Call, or Transfer/Conference, or Call Hold.
 - The conditions for consultation hold must be met before the call can proceed; see *Transfer*.
 - The extension calls the DIAL 0 or PRIORITY DIAL 0 routing, based on the extension's tenant, COS, and the current NIGHT/DAY service. If there is no point specified for the given conditions then no call is made and reorder tone is supplied.
 - This only applies if there is not a call on Consultation Hold.
- Programming** Enable COS Option 224 (Flash for Attendant) for the extension.
- Operation** While on an established call, flash the switch-hook or press the **Transfer** softkey. The extension rings the Dial 0 (Attendant) Routing Point; the other party is placed on consultation hold.

Flash For Waiting Call

- Description** This feature allows a user to place a call (2-party or multi-party) on consultation hold and connect to a waiting call. This is accomplished via a switchhook flash.
- See *Campan Warning Tone* to allow the telephone to receive an audible notification of waiting calls.
- This is not available with Generic 1001.
- Conditions** The following conditions apply to this feature:
- This feature takes precedence over any other feature which uses the switchhook flash.
 - The feature *Flash Disable* will not prevent this feature from functioning.

- When this feature is enabled, the features *Flash For Attendant*, *Broker's Call*, and *Broker's Call With Transfer* will operate normally, provided that there are no calls waiting.
- The use of this feature in conjunction with other features which use the switchhook flash may be complicated. The system will provide an indication that there is a call waiting (campon warning tone); however, the system does not provide an indication when the call is no longer waiting.
- The first waiting caller is connected; see *Campon* for details on the ordering of waiting calls.

Programming The following steps are required:

- Enable System Option 38 – Switch-hook Flash
- Enable COS Option 205 – Flash For Waiting Call in the telephone's COS.
- Enable campon for calling devices – see programming under *Campon*

Operation Upon hearing campon warning tone, flash the switchhook. The current call is placed on consultation hold, and the waiting call is connected.

Flash Timing

Description The flash timer is a systemwide programmable item; its value applies to all industry-standard telephones in the system.

Minimum Flash Timer (10 ms units) 20 – 50 units 200 to 500 ms

Maximum Flash Timer (10 ms units) 20 – 150 units 200 to 1500 ms

Conditions None

Programming Set the desired times in Form 04 (System Options/System Timers) – System Options 52 (41 in Generic 1001) – Minimum Flash Timer) and 53 (42 in Generic 1001) – Maximum Flash Timer.

Operation None

Forward Campon

Description Calls that camp on to a *SUPERSET 3 DN*, *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 410*, *SUPERSET 420*, or *SUPERSET 430* telephone can be selectively forwarded to the telephone's call forwarding destination. When a party camps on to a busy telephone that has call forwarding programmed (it may be active or inactive), the person at the busy telephone can press a softkey or the FORWARD CALL feature key to forward that waiting party to the call forwarding destination.

See *Call Forwarding* for selecting a call forwarding destination. See *Campon* and *Swap Campon* also. This feature is not available with Generic 1001.

Conditions The following conditions apply to this feature:

- The softkey on the *SUPERSET 4* and *SUPERSET 420* telephones is only displayed for the first 10 seconds after a new caller camps on. After that time the softkey is removed.
- The feature key on *SUPERSET 3 DN* and *SUPERSET 410* telephones is only displayed for the first 10 seconds after a new caller camps on. After that time the feature key is removed.
- The feature forwards the first waiting caller. See *Campon* for information on the ordering of waiting callers.
- The feature is only available if the forwarding destination is idle; see *Call Forwarding*.
- The feature is not available if the forwarding destination is a Speedcall key or System Abbreviated Dial number.

Programming Program a forwarding destination for the *SUPERSET* telephone.

For *SUPERSET 3 DN* and *SUPERSET 410* telephones, program a FORWARD CALL feature key.

Operation Operation varies depending upon the type of device as described below.

***SUPERSET 3 DN* and *SUPERSET 410* Telephones:**

- A new caller camps on to the telephone while you are talking to another party.
- Press the FORWARD CALL feature key. The waiting caller is forwarded to the forward destination.

***SUPERSET 4* Telephones:**

- A new caller camps on to the telephone while the telephone is talking to another party.
- Press the **Call FWD** softkey. The waiting caller is forwarded to the forward destination.

***SUPERSET 420* Telephones:**

- A new caller camps on to the telephone while the telephone is talking to another party.
- Press the **Forward** softkey. The waiting caller is forwarded to the forward destination.

***SUPERSET 4 DN* and *SUPERSET 430* Telephones:**

- A new caller camps on to the telephone while you are talking to another party.
- Press the **Call Waiting** softkey.
- Press the **FWD Waiting** softkey. The waiting caller is forwarded to the forward destination.

Handsfree Answerback

Description This feature enables users of *SUPERSET 410*, *SUPERSET 420*, and *SUPERSET 430* telephones to respond handsfree to a directed page. In order to respond to a directed page handsfree, the user must turn on the set's microphone lamp in advance. Then, if a directed page from a Key Set Telephone is broadcast over the users set, the set microphone is activated automatically allowing the user to speak handsfree to the calling party.

After a *SUPERSET 410*, *SUPERSET 420*, or *SUPERSET 430* telephone user answers a directed page using handsfree answerback, both the *SUPERSET* telephone user and the caller are limited to talking to each other, switching to the handset or headset, and terminating the call. They do not have access to any other features.

Conditions The following conditions apply to this feature:

- This feature is only available in Generic 1005.
- A directed page can only be made from a *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 401*, *SUPERSET 410*, *SUPERSET 420*, or *SUPERSET 430* that has been programmed as a Key Set (refer to Key Set/System Support).

- During a handsfree answerback call, pressing the **Microphone** key toggles the set microphone on and off. A *SUPERSET 410* user can only toggle the set's microphone during handsfree answerback operation.
- The user can switch from handsfree answerback operation to the handset by lifting the receiver, or to the headset by pressing the **Speaker** key or the prime line key. If both parties switch out of handsfree answerback operation, they will have access to all the features available during a normal call.
- A directed page cannot be made to a set that has DND enabled.
- Other callers cannot override (intrude) a handsfree answerback call, or transfer a call to either party in a handsfree answerback call. Callers can, however, campon to either party. The parties in the handsfree answerback call cannot talk to the camped on caller until they both switch out of handsfree answerback mode, or until one of the parties goes on-hook.
- Other callers cannot barge in on a call that is in handsfree answerback mode, even if both parties in the directed page call have the Line Privacy feature disabled.
- If a *SUPERSET 410* telephone user initiates a direct page call, the set microphone isn't enabled and can't be turned on at any time (refer to Key Sets-Paging).

Programming Enable COS Option 683 (Key System – Direct Paging Handsfree Answerback) in the set's class of service. By default, this COS Option is disabled.

Operation To set your telephone for handsfree answerback:

- Press the **Microphone** key. The microphone lamp on the set turns on. You are now able to answer any directed paging calls to your set using handsfree answerback.

To answer a directed page handsfree:

- When you hear a short tone from the set speaker listen for the caller.
- Speak towards the set in a normal tone of voice. Note that your Microphone lamp must be on.
- Press the **Speaker** key or **Cancel** key to end the call

Note: If a you receive a directed page call while your set microphone lamp is off, you can answer the page call by pressing the **Microphone** key. The microphone lamp turns on and your set goes into handsfree answerback mode.

Handsfree Operation

Description This feature enables users of *SUPERSET 3*, *SUPERSET 3 DN*, *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420*, and *SUPERSET 430* telephones to have a telephone conversation without lifting the handset.

Conditions The following conditions apply to this feature:

- The MUTE or MIC key can be used to turn off the microphone on *SUPERSET* telephones. Refer to Practice 9109–096–126–NA, Peripherals Devices.
- Calls can be changed from Handsfree to the handset by lifting the handset from the set and pressing the **Speaker** key. The call can be changed back to Handsfree by pressing the **Speaker** key and then putting the handset back into the handset cradle.
- Handsfree cannot be used while the *SUPERSET* telephone is using the pager.
- Calls can be ended by using the **Speaker** or **Cancel** key or the hangup prompt.
- COS Option 604 (*PBX SUPERSET* Telephone – Automatic Outgoing Line) affects Handsfree dialing; see *Line Selection*.
- Key Set Line Preference affects Handsfree dialing.

Programming None.

Operation To initiate handsfree dialing:

- Press a dial pad key or a SPEEDCALL key; the system selects a line to dial on, or,
- Press a Line Select key; the system selects a line to dial on, or,
- Press the **Speaker** key; the system selects a line to dial on.

Handset Receiver Volume Control

Description *SUPERSET 401*, *SUPERSET 410*, *SUPERSET 420*, and *SUPERSET 430* telephone users can adjust the volume of the set's handset receiver. The handset receiver volume is independent of the set speaker. (see Speaker Volume Control).

- Conditions** None.
- Programming** None.
- Operation** To adjust the handset receiver volume:
- During a conversation using the handset, press the **VOL** and **^** **VOL** **∨** keys repeatedly to increase or decrease the handset receiver volume.

Headset Operation

- Description** *SUPERSET* telephones can be equipped with headsets instead of handsets. The headset user answers incoming calls by pressing the line select key or the **Speaker On/Off** key and hangs up by pressing the **Cancel** key or **Hangup** softkey. The user can combine headset operation with the auto-answer feature for complete handsfree operation. Note that the auto-answer feature is available on a *SUPERSET 410* telephone when it is equipped with a headset (see Feature Keys for instructions on programming an AUTO-ANSWER feature key for the *SUPERSET 410* telephone).
- Conditions** The following conditions apply to this feature:
- Sets with Headset Operation enabled must be operated only with headsets.
 - *SUPERSET* telephone compatible headsets must be supplied by the user.
 - The handset must be out of its cradle for the headset to operate.
- Programming** Enable COS Option 612 (*SUPERSET* Telephone – Headset Operation) in the set's COS.
- Operation** A call is ringing at the set:
- Press the appropriate Line Select key, or,
 - Press the **Speaker On/Off** key, or,
 - With Auto-Answer, the call is answered automatically.
- To terminate the call:
- Press the **Speaker On/Off** key or **Hangup** softkey.

Hold

Description This feature enables the telephone user to place the current call on hold, then replace the handset or use the telephone for other calls. While the call is held, the user can select all features normally available on the telephone. The held call can be retrieved at the telephone that placed it on hold or at another telephone.

Do not confuse the Call Hold feature described here with the temporary Consultation Hold that occurs during a call transfer; see *Transfer*.

See *Add Held And Auto-hold* for set Hold features.

See *Attendant Hold Positions* for Attendant Hold features.

see *Subattendant Hold Positions* for Subattendant hold features.

Conditions The following conditions apply to this feature:

- When the hold is done, the *SUPERSET* telephone user enters the select line feature to choose another line; see *Line Selection*.
- System music is heard if it is available and continues even if the held party starts recalling to the *SUPERSET* telephone. If music is not programmed, silence is provided until the Hold Timeout period, when ringback is provided.
- All *SUPERSET* telephones in a conference call can put the conference call on hold.
- The HOLD button is only available when talking to another party or when in a conference call. A hold can be done implicitly at other times through AUTO-HOLD.
- For industry-standard and *SUPERSET 401* telephones, COS Option 211 (Call Hold and Retrieve Access) must be enabled in the set's COS.
- At industry-standard and *SUPERSET 401* telephones, the Call Hold feature does not operate if COS Option 223 (Flash Disable) or COS Option 224 (Flash For Attendant) is enabled in the set's COS.
- An industry-standard or *SUPERSET 401* telephone can have only one extension or trunk on hold at a time. It cannot put a conference call on hold.
- When an industry-standard or *SUPERSET 401* telephone puts a call on hold it is free to make and receive other calls.
- When the user of an industry-standard or *SUPERSET 401* telephone attempts to place a second call on hold, the call currently on hold is swapped with the call being placed on hold (i.e., when the second call is placed on hold, the user is reconnected to the first call that was placed on hold).

- When an industry-standard or *SUPERSET 401* telephone puts a call on hold, the call is not occupying the station's key line if it has one programmed. A *SUPERSET* telephone with an appearance of the line can put a call on hold on the industry-standard telephone's key line as well.
- The Call Hold Access Code does not apply to *SUPERSET* telephones that have a HOLD key.
- If a call is on hold at a *SUPERSET* telephone's prime line, other calls can be made only if the set has other line appearances programmed.
- There is no time limit on holding conference calls on a line.
- There is no time limit on holding calls on a personal outgoing line.

Hold Retrieve

- Calls can be retrieved remotely when calls are held on industry-standard telephone key lines or *SUPERSET* telephone prime line (key or multicall) appearances.
- Calls cannot be retrieved from Logical Lines, Direct Trunk Select, Private Trunk and Private Outgoing lines or from Multicall Line appearances that are not a *SUPERSET* telephone Prime Line appearance.
- Calls held on key line appearances on a *SUPERSET* telephone can be retrieved by retrieving the call at the industry-standard telephone or *SUPERSET* telephone whose key line it is.
- A held call cannot be retrieved if the retrieving party has a consultation hold in progress and the held party is an industry-standard telephone or a *SUPERSET* telephone with COS Option 233 (Never A Consultee) enabled, or if the held party is a trunk and the retrieving party is not an industry-standard telephone or is an industry-standard telephone with COS Option 203 (Broker's Call) disabled and COS Option 214 (Cannot Dial A Trunk After Flashing) or COS Option 215 (Cannot Dial A Trunk If Holding Or in Conference With a Trunk) is enabled and the retrieving extension has a trunk in the call on consultation hold.
- When a two party call on a key, Private Trunk or Direct Trunk Select line is put on hold, other *SUPERSET* telephones where the line appears can select the held line to connect to the held party.
- Conference calls on hold cannot be retrieved from other sets. They can be taken from hold through other appearances of the line only if the line was put on hold at those appearances as well.
- When a call is retrieved from an industry-standard or *SUPERSET 401* telephone, the first check is for a call held by the telephone itself. If no call is being held, and if the industry-standard or *SUPERSET 401* telephone has a key line appearance, then the line is checked for a held call.
- The activity of the holding set does not affect the ability of other devices to retrieve held calls.

- Industry-standard telephones, *SUPERSET* telephones, and TIE trunks can retrieve remotely-held calls.

Hold Timeout

- When the held party starts ringing the holding set, the ringing is done as if the held party had just called the holding line. That is, all appearances of the line ring, with delay ring etc. operational.
- If Auto-Answer is activated on the holding *SUPERSET* telephone then it is ignored when the held party rings the set.
- If call forward – don't answer is activated on the holding set, the forwarding is done unless COS Option 222 (Call Forwarding Inhibit on Hold Timeout) is in the holding set's COS. Other types of call forwarding are ignored.
- Once the held party starts ringing the holding set, the Call Hold Retrieve feature access code no longer picks up the held party because it is ringing the holding party. The Directed Call Pickup feature can then be used.
- Recall no answer is operational when the held party rings the holding set.
- If a party held by an industry-standard or *SUPERSET 401* telephone attempts to ring the holding telephone, while the holding telephone is busy, then a recall is performed. See *Recall*.
- The Do Not Disturb feature is ignored when a held party rings an industry-standard or *SUPERSET 401* telephone.
- The party is held on the line for the time in COS Option 254, Call Hold Recall Timer (252 in Generic 1001) in the holding extension's COS. After that time, the held party starts ringing the line it is held on. For PBX sets only. At key sets, the party does not ring the line back at all. only a periodic beep is given. See *Keypad Hold Reminder*

A call cannot be put on hold:

- if an Attendant is in the call
- when a party in the call is being rung back (Station Transfer Security)
- if there is a party in the call with the Non-Busy Extension feature enabled
- if there is a Call Announce Port in the call
- if a party in the call has the call on Consultation Hold
- if there is an Override in progress and the set is not the party being overridden
- if the set is a *SUPERSET 4 DN* or *SUPERSET 430* telephone using the Call Waiting feature
- if there is a Direct Trunk Select trunk in the call

- if the call is on Consultation Hold
- if the trunk in a two party call is still dialing digits out.

Programming Assign an access code to Feature 21 (Call Hold) for industry-standard telephones to put a call on hold.

Assign an access code to Feature 22 (Call Hold Retrieve – Local) to allow industry-standard and *SUPERSET 401* telephone users to retrieve calls on hold at their sets.

Assign an access code to Feature 23 (Call Hold Retrieve – Remote) to allow devices to retrieve calls at other extensions.

Enable COS Option 211 (Call Hold and Retrieve Access) for the station set to put a call on hold, and for all devices to retrieve a call.

Set COS Option 254, Call Hold Recall Timer (252 in Generic 1001) in the holding extension's COS to the desired Call Hold recall time (1 to 10 minutes).

Enable COS Option 222 (Call Forwarding Inhibit On Hold Timeout) in the extension's COS, if forwarding is not desired on a hold time-out.

Operation Operation varies depending upon the type of device as described below.

Industry-Standard and *SUPERSET 401* Telephones:

To place a call on hold:

- Flash the switch-hook (industry-standard telephones)
or
Press the **Flash** key (*SUPERSET 401* telephones).
Transfer dial tone is returned.
- Dial the Call Hold code.
- Dial tone is returned.

The caller is held and hears music, if provided. The extension may make or receive calls or access features in the normal manner.

To retrieve the call locally:

- Obtain dial tone.
- Dial the Call Hold Retrieve – Local access code.
- The set is reconnected to the held call.

To retrieve the call remotely (from another extension):

- Obtain dial tone.
- Dial the Call Hold Retrieve – Remote access code.

- Dial the number of the extension holding the call.
- The call is connected to the remote extension.

***SUPERSET 3, SUPERSET 3 DN, SUPERSET 4, SUPERSET 4 DN, SUPERSET 410, SUPERSET 420, SUPERSET 430* Telephones:**

To Place a Call on Hold:

- Inform the caller, then press the red **Hold** key. The call is held and the caller hears music, if provided.
- The line status display associated with the call on hold flashes as a reminder.
- The set may select another line to make calls or to access features in the normal manner, or hang up.

To Retrieve the Call at a *SUPERSET* telephone that has an appearance of the held line:

- Press the Line Select key associated with the call on hold. The call is connected to the remote set.

The set user can add a call on hold to another line to form a conference or to move an established call from one line to another; see *Add Held*.

To Retrieve the Call at a *SUPERSET* telephone that does not have an appearance of the held line:

- Obtain dial tone.
- Dial the Call Hold Retrieve – Remote access code.
- Dial the number of the extension holding the call.
- The call is connected to the *SUPERSET* telephone.

Holiday Messages

Description	<p><i>SUPERSET</i> telephones can display a holiday message at Christmas and New Year's.</p> <p>Every minute, the holiday messages alternate with the usual time and date message that appear on the <i>SUPERSET</i> telephone display.</p>
Conditions	<p>The Christmas message is displayed from December 23 to December 27 and the New Year's message from January 1 to January 4.</p>

Programming Enable System Option 20 (Holiday Messages) to show holiday messages.

Operation The regular message and the holiday message alternate every minute.

Hot Line

Description Individual telephones can be programmed through CDE as Hotlines. The Hotline feature enables a Manual Line to be set up as a Hot Line. Upon going off-hook, it automatically dials a pre-programmed number (internal or external). The number is specified as the call forwarding destination for that extension.

Conditions The following conditions apply to this feature:

- The extension must be programmed as a Manual Line.
- Manual Line and Automatic Callback are mutually exclusive.
- The extension must have access to Abbreviated Dial, and External Call Forwarding (if it is to dial an external number).
- The type of forwarding programmed has no effect on the feature.
- If the extension is called, then the forwarding feature still works as usual.
- The Hot Line call is a reroute to the forward number; see *Call Rerouting*.
- Valid Hot Line destinations include all valid Call Forwarding destinations.
- A DTMF receiver circuit is needed for the Hot Line call regardless of the type of the destination.

Programming Enable COS Option 228 (Manual Line) for the extension.

The Attendant must program a "Call Forward – Follow Me" destination number for that extension; see *Attendant Call Forward Setup And Cancel*.

If programming the destination number from the extension then enable one of the call forwarding COS options in the extension's Class of Service.

Operation Lift handset; the extension is rerouted to the forwarding destination automatically.

Hotel / Motel

Description The *SX-200* DIGITAL PABX system supports hotel/motel functions. For information on this feature, refer to Practice 9109-096-602-NA, Hotel/Motel Feature Package Description.

Conditions Hotel/Motel is not compatible with the Property Management System (PMS).

Programming The following System Options apply:

- 02 – Message Lamp Test Enable
- 04 – Message Waiting and Message Register Clear Print
- 09 – Attendant Call Block
- 11 – Automatic Wakeup
- 12 – Auto Wakeup Alarm
- 13 – Auto Wakeup Print
- 14 – Auto Wakeup Music
- 23 – Message Register Count Additional Supervisions
- 24 – Message Register Audit
- 25 – Message Register Zero After Audit
- 27 – Room Status Audit
- 32 – Outgoing Call Restriction
- 33 – Room Status
- 34 – Auto Room Status Conversion / Auto Wakeup Print
- 35 – Property Management System
- 40 – Message Register Follows Talker
- 49 – Pseudo Answer Supervision Timer (38 in Generic 1001)
- 56 – Auto Room Status Conversion / Auto Wakeup Print Timer (45 in Generic 1001)
- 57 – Vacant/Reserved Room Default Call Restriction (46 in Generic 1001)
- 58 – Occupied Room Default Call Restriction

The following COS Options apply:

- 101 – Attendant O/G Restriction / Room Status Setup
- 105 – Attendant Guest Room Key

- 113 – Attendant Call Block Key
- 202 – Alarm Call
- 204 – Call Block Applies
- 220 – Do Not Disturb
- 230 – Message Register Overflow Alarm
- 231 – Message Waiting Setup – Bell
- 232 – Message Waiting Setup – Lamp
- 244 – Room Status Applies
- 608 – *SUPERSET* Telephone – Room Status Display
- 610 – *SUPERSET* Telephone – Guest Room Template
- 703 – Message Register Applies

The following Feature Access Codes apply:

- 35 – Maid In Room (34 in Generic 1001)
- 36 – *SUPERSET 4* Telephone Room Status Display
(35 in Generic 1001)
- 40 – *SUPERSET 4* Telephone Maid In Room Status Display

Refer to Practice 9109-096-602-NA, Hotel/Motel Feature Package Description, for further information.

Operation

Refer to Practice 9109-096-602-NA, Hotel/Motel Feature Package Description.

Hunt Groups

Description

Hunt groups, or master number hunting, allows a collection of devices to share a common access code. A caller can be routed to or dial the access code (the master hunt number of the hunt group), and have the call completed to an available extension in that hunt group. Extensions within a hunt group may still be accessed directly by dialing the extension number.

A Hunt Group is busy if all members of the Hunt Group are busy.

If all devices in a Hunt Group are busy and there is an Overflow point programmed, the call is forwarded to the Overflow point (if it is available). If there is no Overflow point programmed or if it is busy, then the caller finds the hunt group busy. See *Campon* for information on Campon to busy hunt groups.

If the caller camps on then the first extension in the Hunt Group list without Do Not Disturb activated receives a campon beep and Swap Campon capability for the first party camped on to the hunt group; see *Swap Campon*.

See *Trunk Groups* for details on trunk groups.

Some special types of hunt groups include:

- Recording hunt group; see *Recording Device Support*.
- UCD Agent Hunt Group; see *Uniform Call Distribution*.
- Automated Attendant Hunt Group; see *Automated Attendant*.
- Voice Mail hunt group; see *Voice Mail – ONS Port*.

Two types of hunting are provided by the system, Circular and Terminal:

- Circular Hunting starts at the extension after the last extension in the hunt group to which a call was completed (the extension rung), and hunts overall extensions in the hunt group in the sequence programmed. Hunting stops at the first idle extension found.
- Terminal Hunting starts at the first extension in the hunt group and terminates at the first idle extension found. Hunting takes place in the order in which the extensions were programmed into the hunt group.

Conditions

The following conditions apply to this feature:

- An extension must be programmed before programming it into a Hunt Group.
- A maximum of 50 hunt groups may be programmed (99 in Generic1004 and Generic 1005).
- A hunt group may have a maximum of 50 members.
- The overflow is only checked once, when the call is initially made to the Hunt Group; there is no overflow group in Generic 1001.
- An Extension cannot be assigned to more than one Hunt Group.
- An extension in a hunt group is passed in the hunt, if:
 - it is busy
 - Do Not Disturb is set
 - it is busied-out
 - it is locked out
 - it is a *SUPERSET* telephone with a busy prime line
 - Call Forwarding is in effect (except in Generic1004 and Generic 1005).
- The following overflow points are allowed: hunt groups, sets, extensions, datasets, consoles, LDNs, Night Bells, and ACD paths.
- Data hunt groups can have only other data devices (or data hunt groups) for an Overflow point.

- A hunt group can have only one Overflow point; however, a device can be the Overflow point for more than one hunt group.
- Overflow is not permitted if the overflow point has forwarding active.
- Do not delete programming for a hunt group overflow point. A hunt group should always have a valid overflow point.
- When a hunt group overflows to another hunt group, overflow to the second hunt group's overflow point is not permitted.
- All tenant and COS checks involving a hunt group use the first programmed member of the hunt group.
- Recall never involves hunt groups (unless a reroute through CALL RE-ROUTING) – recall can only occur to the individual hunt group members.
- If there is no hold timeout point and recordings are given, then for loop start trunks that do not provide release supervision, the system does not disconnect the trunk. It is important to provide a routing point for these unanswered calls to ensure that the loop start trunk is either answered, or timed out for no answer and then released.

Programming Program all extensions via CDE Form 09 (Station/*SUPERSET* Telephones). Program datasets via CDE Form 12 (Data Assignment).

Program the Hunt Group via CDE Form 17 (Hunt Groups).

Enter the desired extension numbers of sets, datasets.
Enter the hunt group access code.
Enter the appropriate options for the hunt group.

Operation None.

Illegal Access Intercept

Description Calls to restricted access codes or extension numbers can be routed to a given answering point for completion. This point can be an LDN position on the Attendant Console (see *Console LDN Keys*) or any valid reroute point. Illegal number intercept points can be programmed to be different or the same for DAY, NIGHT1, and NIGHT2 operation.

Conditions The following conditions apply to this feature:

- If the required programming is not done, such calls receive reorder tone.
- Only sets, DISA trunks, and CO trunks are routed to the answering point.

- See *DID/Dial-in/Tie Intercepts* for illegal number handling for DID and Tie trunks.
- If the call is routed to a console, the call is shown as an intercept call at the console.

Programming To cause all calls to restricted numbers to be routed to a specific answering point, access CDE Form 19 (Call Rerouting Table) and enter the desired answering point access code, into the appropriate column for the "Station Illegal Number Routing For This Tenant" Call Type.

Operation None.

Inhibit Trunk Ring-Back During Dialing

Description This feature inhibits the operation of a particular instance of the Station Transfer Security feature. If an industry-standard telephone is dialing and goes on-hook while a trunk is on consultation hold, that trunk does not ringback the station and is instead dropped. This prevents trunk lock-ups when the flash on the trunk was intended as a hang-up and the station user did not expect a trunk to be on consultation hold.

Conditions The following conditions apply to this feature:

- COS Options 401 (Call Park) and 403 (Trunk Recall Partial Inhibit) are mutually exclusive.
- This only operates for industry-standard telephones.
- This only operates for single trunks on consultation hold. Non-trunks and conference calls ring back the industry-standard telephone.
- Serial trunks are not dropped; they recall back to the console.
- If the station has called another party that has external call forwarding enabled and hangs up during the dialing of the external number, the held trunk is transferred to the external number and is not dropped.

Programming Enable COS Option 403 (Trunk Recall Partial Inhibit) for the extension.

Operation Establish a trunk call.

Flash.
Dial tone is returned.

Hang up.
Trunk is dropped.

Intercept to Recorded Announcement

Description Incoming trunk calls can be intercepted to groups of recording devices after dialing vacant numbers, reaching busy extensions, obtaining no answer, or as required.

Conditions None.

Programming See *RAD Support*.

Enter the extension of the recording device hunt group into CDE Form 19 (Call Rerouting Table) for the appropriate routing.

Operation None.

Intercom Call (Intercom)

Description Line Select keys on a *SUPERSET 4* telephone that are not used for lines or Speed calls may be used as intercom connections. Whenever a *SUPERSET 4* telephone user presses an intercom key, the system accesses the *SUPERSET 4* telephone programmed to that intercom key and the caller is connected to the called *SUPERSET 4* telephone's Call Announce Port.

Note: Do not confuse this feature with the *Key Sets – Intercom Key* feature.

Conditions The *SUPERSET 4* telephone receiving the intercom call must be equipped with a Call Announce Port. (See *Call Announce*.)

Programming See *Call Announce*.

Operation To access an intercom number from a *SUPERSET 4* telephone:

- Press the appropriate key – the calling *SUPERSET 4* telephone is connected as an intercom call to the called *SUPERSET 4* telephone's Call Announce Port.

The caller hears only one short ringback tone and the called party receives only a short warning tone before the connection is made. If the called *SUPERSET 4* telephone does not have a Call Announce Port, or has one that is busy, or is busy itself, the caller receives busy tone.

Inward Restriction (DID)

Description	An extension may be restricted to not receive calls directly from DID trunk calls.
Conditions	None.
Programming	Enable COS Option 226 (Inward Restriction – DID) for the extension.
Operation	None.

Key Set/System Support

Description	<p>The <i>SX-200</i> DIGITAL PABX supports key system functionality. Combined with Tenanting and other features, this allows for departmental key applications. A series of Key System features are provided; they are:</p> <ul style="list-style-type: none">• Key Sets – CO Line Group Key• Key Sets – CO Line Key• Key Sets – CO Line – Direct Select• Key Sets – Hold Reminder• Key Sets – Intercom Key• Key Sets – Line Preference• Key Sets – Paging• Key Sets – Personal Speed Call. <p>All of the Key System features listed above are available on <i>SUPERSET 3 DN</i>, <i>SUPERSET 4 DN</i>, <i>SUPERSET 410</i>, <i>SUPERSET 420</i>, and <i>SUPERSET 430</i> telephones that have been programmed as Key System telephones. In addition, as Key System telephones, these sets can be associated with <i>SUPERSET DSS</i> Module(s) – refer to <i>DSS Module</i> in this document. <i>SUPERSET 401</i> telephones that have been programmed as Key System telephones only have access to the Key Sets – Paging feature and five personal speed calls</p>
Conditions	<p>The following conditions apply to this feature:</p> <ul style="list-style-type: none">• Key System features will not function on PABX telephones.• Key Set/System Support is not available in Generics 1001, 1002, or 1003.

Programming Programming for Key System telephones, sub-attendants and *SUPERSET DSS* Modules is done in CDE Forms 45 (Key System Telephones) and CDE Form 46 (Key System Toll Control). Refer to the specific feature for programming details.

Refer to Practice 9109-096-210-NA, Customer Data Entry, for further details on programming.

Operation Refer to the specific feature.

Key Sets – CO Line Group Key

Description This is a key type which is available only on Key Set telephones. It is used to originate calls to parties outside the system. The key accesses a group of CO lines without having a dedicated appearance for each line on the set. Toll control is handled by ARS. The LCD indicator corresponding to the key has no function.

Conditions The following conditions apply to this feature:

- The CO Line Group key needs an available internal line to make the call. The CO Line Group key cannot be used while listening to external dial tone.
- If there is no available line when pressed, the system will prompt the user for a line and when the line is selected, the CO Line Group will be called. i.e., you can press the CO Grp or CO Grp then line. The line selection follows the line selection section.
- The backspace arrow isn't available on the console or on *SUPERSET* Display Sets when dialing out using a CO Line Key.
- Redial does not operate on a CO Line Group key.
- Key Set/System Support is not available in Generics 1001, 1002, or 1003.
- CO Line Group keys can only be programmed on *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 410*, *SUPERSET 420*, and *SUPERSET 430* telephone sets that have been programmed as Key System telephones.

Programming The following programming steps are required:

- Enter trunks in CDE Form 14 (Non-Dial-In Trunks) for the CO line group.

- Assign those trunks to CO Line Groups in CDE Form 16 (Trunk Groups).
- Enter ARS leading digits into CDE Form 26 (ARS: Digit Strings) for the CO line groups.
- Enter the CO line group numbers into CDE Form 23 (ARS: Route Definition).
- Program the remaining ARS tables (CDE Forms 20 – 27).
- Enter the CO Line Group key and the associated ARS leading digit(s) into the Expand Set Subform of CDE Form 45 (Key System Telephones).

Operation

To originate a call:

- If the origination line preference is programmed as a CO Line Group key, all the user has to do is to go off-hook to originate the call, providing there is a free internal line.
- Acquire internal dial tone (via the Intercom key, or some other means)
- Press the CO Line Group key
- Dial the required digits to complete the call.

Key Sets – CO Line Key

Description

This is a key type which is available only on Key Set telephones. It is used to originate and answer calls to or from parties outside the system. The key accesses a specific trunk directly. A CO Line key may be shared by any number of Key System sets, but only one may access it at a time. One other party can join in on a call on the line if the CO line is non-private, or privacy is released. The LCD indicator corresponding to the key functions as described in Practice 9109-096-126-NA, Peripherals Devices. Dialing is checked against Key System Toll Control; if a call is not answered, it reroutes as programmed in CDE Form 19.

Conditions

The following conditions apply to this feature:

- Calls made via a CO Line key are subject to key system Toll Control restrictions.
- Auto answer will not operate on a CO Line key.
- If another key is selected while dialing on a CO Line, the CO Line will be cleared down. If another key is selected while there is a call on the CO Line, the CO Line call will be put on hold.

- When camping on to a busy CO Line, there is no campon warning tone given.
- When a callback is set on a busy CO Line, the call will be returned to the Intercom key. When the callback is answered, the call will switch back to the CO Line key – both must be idle for a successful callback.
- On SMDR records, the ARS leading digit field will be blank for outgoing CO Line calls.
- The Back Arrow, for deleting misdialed digits, is not available when dialing on the CO line key.
- Key Set/System Support is not available in Generics 1001, 1002, or 1003.
- CO Line keys can only be programmed on *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 410*, *SUPERSET 420*, and *SUPERSET 430* telephone sets that have been programmed as Key System telephones.

Programming The following programming steps are required:

- Enter the trunk into CDE Form 14 (Non-Dial-In Trunks).
- Enter routing as desired in Form 14.
- Enter a routing point for CO Line Routing Points on No Answer in Form 19 (Call Rerouting Table).
- Enter the trunk into a group in CDE Form 16 (Trunk Groups).
- Enter the CO Line key into the Expand Set Subform of CDE Form 45 (Key System Telephones).
- Enter digit strings into CDE Form 46 (Key System Toll Control) for analysis of dialed digits on the CO line. To add to restriction, enter a suitable COR.
- Enter COR group members into CDE Form 20 (ARS: COR Group Definition) to restrict users from dialing specific digit strings.
- Specify the maximum permitted number of dialed digits for each COR group in CDE Form 27 (ARS: Maximum Dialed Digits).

Operation To originate a call:

- Press an idle CO Line key
or
- Go off-hook (if CO Line key is the preference — see *Key Sets – Line Preference*).
- Dial outgoing digits; ARS codes are not required.

To answer a call:

- Press the ringing CO Line key

or

- Go off-hook (if it is the first ringing line).

Key Sets – CO Line – Select Direct

Description Allows a key system telephone user to directly access a specific CO trunk which may or may not appear on the user's telephone set. This feature must be accessed through any internal line.

Conditions The following conditions apply to this feature:

- Calls made in this manner are subject to key system Toll Control restrictions.
- If the CO trunk is busy, the user is not permitted to barge in under any circumstances.
- If the CO trunk is busy, the user may set up campon or callback. If callback is set up, the call is returned to the Intercom line.
- It is possible to use speed call to access this feature: store the Direct CO Line access code and the three-digit trunk number.
- Key Set/System Support is not available in Generics 1001, 1002, or 1003.
- CO Line – Select Direct keys only be programmed on *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 410*, *SUPERSET 420*, and *SUPERSET 430* telephone sets that have been programmed as Key System telephones.

Programming The following programming steps are required:

- Enable COS Option 680 (Key System – Direct CO Access) in the telephone's COS.
- Assign an access code to Feature Access Code 50 (Direct CO Line Select) in Form 02 (Feature Access Codes).
- See *Key Sets – CO Line Key* for information on toll control programming.

Operation To access a CO trunk:

- Dial the Direct CO Access access code.
- Dial the 3-digit trunk number. (Trunk numbers are 1 thru 200 – if a user is accessing trunk number one, one, two or three digits can be dialed, eg., 1, 01, or 001.)

Note: It is possible to use speed call to access this feature: store the Direct CO Line access code and the three-digit trunk number. See *Key Sets – Personal Speed Call*.

Key Sets – Hold Reminder

Description This allows the system to remind a user that there is a call on hold on the set. The user will hear a single burst of tone at a regular (and programmable) interval until the call is retrieved from hold.

Conditions The following conditions apply to this feature:

- This feature is available only on key system telephones.
- A held party will never recall.
- Key Set/System Support is not available in Generics 1001, 1002, or 1003.
- The Hold Reminder feature is available only on *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 410*, *SUPERSET 420*, and *SUPERSET 430* telephone sets that have been programmed as Key System telephones.

See *Hold* for more details on holding calls.

Programming Only one step required:

- Set a time for COS Option 681 (Key Set/Sub Att – Call Hold Notify Timer) in the telephone's COS (Note: a time of 0 indicates that there will be NO hold remind timer).

Operation To retrieve a call after hearing the hold reminder:

- Press the flashing held party's key
or
- Press the **Hold** key.

Key Sets – Intercom Key

Description By default, the first key on a key system telephone is the Intercom key – it can be neither deleted nor moved. This is the line with which the user may place/accept internal calls, enable/disable features, access CO Line Groups and access specific CO lines (via the Direct CO Line Select feature). There may be only one Intercom line on a telephone set.

- Conditions** The following conditions apply to this feature:
- Key Set/System Support is not available in Generics 1001, 1002, or 1003.
 - An Intercom key can only be programmed on *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 410*, *SUPERSET 420*, and *SUPERSET 430* telephone sets that have been programmed as Key System telephones.
- Programming** It is not necessary to program the Intercom key – it is hard-coded, and is always the first entry in the Expand Set Subform of CDE Form 45 (Key System Telephones).
- Operation** To originate a call:
- Press the **Intercom** key
 - or
 - Go off-hook (if the **Intercom** key is the preference — see *Key Sets – Line Preference*)
- To answer a call:
- Press the ringing **Intercom** key
 - or
 - Go off-hook (if it is the first ringing line).

Key Sets – Line Preference

- Description** Allows the system to automatically select which line is used when the set goes off-hook to originate a call. One of the following may be selected:
- Intercom key
 - CO Line key
 - CO Line Group key
 - Personal O/G key
 - Manual (user must press a line key to originate a call).
- The user may override the line preference by pressing another line key prior to going off-hook for a call origination.
- Conditions** The following conditions apply to this feature:
- This feature has no effect on the answering of calls.

- Key Set/System Support is not available in Generics 1001, 1002, or 1003.
- This feature is available only to *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 410*, *SUPERSET 420*, and *SUPERSET 430* telephone sets that have been programmed as Key System telephones.

Programming To select or change the line preference:

- From within the Expand Set Subform of CDE Form 45 (Key System Telephones), press the LINE PREF softkey, and choose the desired line type.

Operation None.

Key Sets – Paging

Description Key system telephones have access to three different types of paging:

1. PA Paging – based on a Pager and paging zones (see *PA Paging* in this document).
2. Group Page (and Meet Me Answer) – based on the telephone speaker.
3. Directed Page – also based on the telephone speaker.

The last 2 items are applicable to key system telephones only. In both types of key set paging, both the paging party and the paged party receive a single burst of tone to indicate that a page is about to occur. As well, only idle telephones may be paged via Directed Page or Group Page.

Directed Page: Allows a party to page a specific Key System telephone set via its telephone speaker. The connection is one-way audio, and is terminated when the paging party hangs up. Another party attempting to call a set that is being paged in this manner will receive busy tone. The paged party can answer the page as if it were a normal incoming call to the **Intercom** key.

Group Page (Also known as All Page): Allows a party to page all telephones in a paging group simultaneously via their telephone speakers. The connection(s) are one-way audio to each telephone in the page group, and are terminated when the paging party hangs up. A telephone being paged in this manner may originate and receive calls – when this occurs, the paging on that telephone is terminated.

If all the telephones in a paging group become busy during a user's group paging announcement, the user hears two beeps. The user receives the two beeps as soon as the last idle telephone in the paging group becomes busy.

The two beeps indicate to the user that nobody can hear the remainder of his or her announcement.

Meet Me Answer: Allows a party to respond to a group page. It does not apply to Directed Page. A paged party may respond in this manner if the paging party and the paged party are in the same page group. If a party is involved in a call, but hears the page from another telephone, they may put the current call on hold, and respond to the page. The paged party must respond to the group page within 15 minutes of the termination of the group page – after this, the system cancels the page. A paged party should not try to respond after another group page has been made to another party. If the paging party has not hung up, a Meet Me Answer response will be connected immediately as a normal 2-way conversation. If the paging party has hung up, the response will be treated like a normal telephone to telephone call. Once connected, the call is treated like a normal call, with all other existing features accessible.

Conditions

The following conditions apply to this feature:

- Key Set/System Support is not available in Generics 1001, 1002, or 1003.
- This feature is available only to *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 401*, *SUPERSET 410*, *SUPERSET 420*, and *SUPERSET 430* telephones that have been programmed as Key System telephones.
- A Directed Page or Group Page cannot be made to a set that has DND enabled.
- A party may initiate a group page only if they are a member of a page group.
- Only one group page may be performed to a page group at any one time.
- If a telephone was listening to background music, a group page will cause the music to be turned off. The music will be turned on again when the paging is terminated.
- COS Option 600 (Auto Answer) does not enable *SUPERSET* telephone users to respond handsfree to a directed page.

To allow a *SUPERSET 410*, *SUPERSET 420*, or *SUPERSET 430* telephone user to respond handsfree to a directed page, enable COS Option 683 (Key System – Direct Paging Handsfree Answerback) in the set's class of service.

To allow a *SUPERSET 3 DN* or *SUPERSET 4 DN* telephone user to respond handsfree to a directed page, enable COS Option 682 (Key System – Auto-Answer – Internal Calls) in the set's class of service. Note that COS Option 600 (Auto Answer) and COS Option 682 (Key

System – Auto–Answer – Internal Calls) cannot be enabled at the same time.

Programming For Group Page and Directed Page:

- Program the Direct Paging feature access code (48) in Form 02, or program a Direct Paging Feature Key in the Expand Set Subform of CDE Form 45 (Key System Telephones).
- Program a page group number for each key system telephone in the PAGE field in CDE Form 45 (Key System Telephones) for Group Page.

For Meet Me Answer:

- Assign an access code to Feature Access Code 49 (Key System – Group Page – Meet Me Answer) in Form 02 (Feature Access Codes).

Operation **To Initiate a Directed Page:**

SUPERSET 401 Telephones:

- Lift the handset.
- Dial the Direct Paging feature access code.
- Dial the extension number.
- Broadcast the page message.

SUPERSET 410 Telephones:

- Lift the handset.
- Dial the Direct Paging feature access code, or press the DIRECT PAGE feature key.
- Dial the extension number, or press the DSS key of the party to be paged.
- Broadcast the page message.

SUPERSET 3 DN, SUPERSET 4 DN, SUPERSET 420 and SUPERSET 430 Telephones:

- Dial the Direct Paging feature access code, or press the DIRECT PAGE feature key.
- Dial the extension number, or press the DSS key of the party to be paged.
- Broadcast the page message.

To answer a Directed Page:

- Answer as if it were a normal incoming call.

To initiate a Group Page:

SUPERSET 401 Telephones

- Lift the handset.
- Dial the Direct Paging feature access code.
- Dial the end-of-dial character (#).
- Broadcast the page message.

SUPERSET 410 Telephones

- Lift the handset.
- Dial the Direct Paging feature access code, or press the DIRECT PAGE feature key.
- Dial the end-of-dial character (#).
- Broadcast the page message.

*SUPERSET 3 DN, SUPERSET 4 DN, SUPERSET 420
and SUPERSET 430* Telephones

- Dial the Direct Paging feature access code, or press the DIRECT PAGE feature key.
- Dial the end-of-dial character (#).
- Broadcast the page message.

To answer a Group Page:

- Lift the handset.
- Dial the Group Page – Meet Me Answer access code.

Key Sets – Personal Speed Call

Description Allows the user of a key system telephone to program and access up to five personal speed call numbers. The telephone user enters the numbers at the telephone – they may then be accessed via an access code, followed by an index number. These personal speed call numbers may only be accessed from the telephone on which they were entered.

This feature applies only to key system telephone sets. Note that, in addition to this feature, key system users also have access to the Abbreviated Dial feature – see *Abbreviated Dial* in this document.

Conditions The following conditions apply to this feature:

- Personal speed call numbers may be dialed at any time on any line, provided that they are the first digits dialed.
- There may be a maximum of 5 stored numbers on one telephone set.
- The maximum length of a stored number is 25 digits.
- Key Set/System Support is not available in Generics 1001, 1002, or 1003.
- This feature is available only on *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 401*, *SUPERSET 410*, *SUPERSET 420*, and *SUPERSET 430* telephone sets that have been programmed as Key System telephones.

Programming Assign feature access codes 51 (Key System – Store Personal Speed Call) and code 52 (Key System – Retrieve Personal Speed Call) in Form 02 (Feature Access Codes).

Note: The Retrieve Personal Speed Call access code must begin with an asterisk (*).

Operation **To store a personal speed call number:**

- Dial the Store Personal Speed Call access code
- Dial the desired index number (1 – 5)
- Dial the number to be stored.
- Hang up.

To dial a personal speed call number:

- Dial the Retrieve Personal Speed Call access code
- Dial the index number for the desired stored number.

Language Change

Description This feature allows *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420*, and *SUPERSET 430* telephones to be used with a second language. The display text and softkey text are in the second language.

Conditions The following conditions apply to this feature:

- The second language for the *SUPERSET 4* telephone is based upon the telephone itself.
- The language for the *SUPERSET 4 DN*, *SUPERSET 420*, and *SUPERSET 430* telephones is selected by a softkey. The language chosen stays with the Digital Line Card port if the telephone itself is changed.

Programming None.

Operation Operation varies depending upon the type of set as described below.

***SUPERSET 4* Telephone**

- Plug in the telephone with the appropriate language. The system responds with the appropriate language.

***SUPERSET 420* Telephones:**

- Press **SuperKey**.
- Press the **No** softkey until LANGUAGE? appears in the display.
- Press the **Yes** softkey.
- Press the **Change** softkey.
- Select the desired language.
- Press **SuperKey**.

***SUPERSET 4 DN* and *SUPERSET 430* Telephones:**

- Press the **SuperKey**.
- Find and press the **Language** softkey.
- Choose the desired language.

Last Number Redial

Description This feature allows the Attendant Console and *SUPERSET* telephone users to redial the last manually-dialed internal or external number with a single key operation.

Conditions The following conditions apply to this feature on Attendant Consoles:

- The redial number is changed when an internal destination is successfully dialed or a trunk group is dialed and found busy or an external number is successfully dialed.
- The REDIAL softkey does not appear until a destination has been dialed and the number can be changed.
- The number is not updated after a call is made using the Abbreviated Dial feature.
- The number is not updated after an external call is made using a CO Line Group key.
- The REDIAL softkey can be used while calls are ringing the console.
- If a call is directed to an LDN programmed at the same key as the REDIAL key (softkey 9), the LDN label replaces the REDIAL softkey and the Redial feature is not available.
- The REDIAL key does not appear when the console is locked out; see *Attendant Console Lockout*.

The following conditions apply to this feature on *SUPERSET* telephones:

- The redial feature is not available when a consultation hold is in progress.
- The redial number is changed when an internal destination is successfully dialed or a trunk group is dialed and found busy or an external number is successfully dialed.
- The REDIAL softkey appears when the conditions mentioned immediately above are met.
- The feature applies to consoles also; see *Attendant Last Number Redial*.
- The number is not updated when dialing on Direct Trunk Select or Private Trunk lines.
- The number is not updated after a call is made using Speedcall or System Abbreviated Dial.
- When the REDIAL softkey is pressed, the rules for initiating dialing and selecting a line apply as if the user had selected a Speedcall key; see *Line Selection*.

- The Redial number contains only the digits dialed until ARS dialing is completed, and the two parties are talking without further ARS processing. Digits dialed during the established call are not stored in the Redial number.
- The Forced Account codes feature disables Last Number Redial.
- Hotel/Motel internal only call restrictions applied to this extension disables Last Number Redial.

Programming Enable System Option 29 (*SUPERSET* Telephone Last Number Redial).

Operation Operation varies depending upon the device as described below.

***SUPERSET 3, SUPERSET 3 DN, SUPERSET 410, and SUPERSET 420* Telephones:**

- Press the **Redial** key.

Users of *SUPERSET 420* telephones can display the telephone number that is stored in the **Redial** key.

- Press the **SuperKey** and then press the **Redial** key.
The Redial number appears in the display. If the number contains more than 16 digits, the More softkey will be present.
- Press the **More** softkey to display the remaining digits.
- Press the **SuperKey** to exit.

***Attendant Console, SUPERSET 4, SUPERSET 4 DN, and SUPERSET 430* Telephones:**

- Press the **Redial** softkey.

Last Party Receives Dial Tone

Description This feature allows the last party left on a call, after the other party(s) hang up, to receive dial tone and be able to dial. Normally, this party would receive silence and after 30 seconds be locked out; see *Line Lock-out*.

Conditions The following conditions apply to this feature:

- The feature applies only to station and *SUPERSET* telephones.
- The feature has no effect on *SUPERSET* telephones which have the handset in the cradle, have the auto answer feature set, or are on a line that cannot be used for originating calls.

- The feature has no effect on station sets that are members of recording hunt groups.
- This feature does not work on telephones with either COS Option 228 (Manual Line) or COS Option 241 (Receive Only) enabled in their Class of Service.

Programming Enable System Option 22 (Last Party Clear – Dial Tone).

Operation Establish a call. All of the parties in the call except one hang up. The remaining extension hears dial tone and can dial a new call.

Line Lockout

Description The PABX locks out an extension if the extension goes off-hook and does not dial digits or go back on-hook for a length of time. Lockout also occurs if the extension does not hang up at the end of a call. In the locked-out state, the extension cannot originate or receive calls, and appears busy to potential callers.

See *Lockout Alarm* for an alarm generated from Line Lockout.

Conditions The following conditions apply to this feature:

- Dial tone time-out is 15 seconds, with an additional 30 seconds of re-order tone before lockout is applied to the extension.
- Calls cannot be transferred to locked out extensions.
- Locked out extensions are not hunted in hunt groups.

Programming None.

Operation To remove the extension from the locked-out state, go back on-hook.

Line Privacy

Description This feature ensures that conversations on Key, Direct Trunk Select, and Private Trunk Lines are private if so desired. When such a line is in use at one set, other appearances of the line cannot join the conversation.

Conditions The following conditions apply to this feature:

- By default, Line Privacy is enabled for every line.
- *SUPERSET 3 DN*, *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 410*, *SUPERSET 420*, and *SUPERSET 430* telephones can use the Privacy Release feature to disable privacy during a call.
- A maximum of five parties can be on the line at a time (including the industry-standard telephone, *SUPERSET* telephone, or trunk).
- Line Privacy cannot be programmed to be disabled on key lines of logical lines.
- Direct line selection by the user is the only way to join a call in progress on a line. The system does not choose an occupied line automatically; see *Line Selection*.

Programming To disable line privacy, disable COS Option 240 (Line Privacy) in the COS of the industry-standard telephone, *SUPERSET* telephone, or trunk of the line.

Operation The two modes of operation are described below.

Line Privacy Enabled

When the line is in use, attempts by other *SUPERSET* telephones with appearances to access the line are ignored. If it is a key line of an industry-standard telephone, and the telephone goes off-hook then it receives busy tone.

Line Privacy Disabled

When the line is in use, any other appearance that accesses the line joins the conversation, preceded by the override warning tone. For key lines of industry-standard telephones this includes the station when it goes off-hook.

Line Selection

Description The *SUPERSET* telephones are equipped to have many line appearances programmed on them. When the user of the telephone initiates dialing, the system selects a line for dialing if programmed to do this. When the set is ringing and the user goes off-hook, the system selects the line to answer. The user can also select a specific line to place or answer a call.

When the user goes off-hook to dial, the system checks for an available line appearance. The system looks at the prime line first. If it is idle then it is selected. Otherwise the rest of the lines on the set are scanned for the first personal line that is idle or a single appearance key or multicall line that is idle and is not an in-only line. If such a line is found then it is selected for dialing. Direct Trunk Select, CO Line and Private Trunk lines are never automatically selected and key and multicall lines that have more than one appearance (in the system) are never selected. If a line is selected then the user is put dialing on that line. If there are no available lines then the user is prompted to select a line to dial on. For add features to control line selection on key sets, see *Key Sets – Line Preference*.

If the user initiated dialing by dialing a digit or pressing a Speedcall key, the same line selection process is done as with going off-hook. When the system or the user selects a line, the system then automatically initiates Speedcall dialing for the SPEEDCALL key initially pressed.

In Generic 1004 and Generic 1005, this automatic selection can be disabled using COS Option 604 (*PBX SUPERSET Telephone – Automatic Outgoing Line*). If disabled, the user must always manually select a line when originating a call. Handsfree dialing on the keypad to initiate a call from idle is ignored. Note that this COS option does not apply to *SUPERSET 401* telephones. *SUPERSET 401* telephones provide dial tone regardless of whether COS Option 604 is enabled or not.

When a user goes off-hook to answer a call, the system scans the set from the prime line up the set, to find a line that is actually ringing the set. The system selects the first line found and answers the call on that line.

If this feature is not selected, handsfree dialing is prevented. Also, when a speedcall key is pressed, the set will wait for a line select key before dialing. In Generic 1004, the set will also wait for a line key selection after (a) the SPEAKER key is pressed, or (b) when the set goes off-hook.

Conditions The following conditions apply to this feature:

- The line selection mode is entered when a line is put on hold on a *SUPERSET* telephone; see *Hold*.

- If the user presses a Speedcall key and has to select a line to use, if a Direct Trunk Select or Private Trunk line is selected then the Speedcall key is ignored.
- Line selection after pressing the REDIAL softkey is treated the same as pressing a Speedcall key.

Programming Enable COS Option 604 for *SUPERSET* telephones to have the system select a line for outgoing calls.

Operation None.

Line Types and Appearances

Description *SUPERSET* telephones are equipped with keys that can be used as Line Select Keys to provide additional lines to the telephones, appearances of other telephones, and direct access to trunk lines.

SUPERSET telephones have two components then – the telephone and the lines on the telephone. The telephone and the lines are not always busy at the same time. The system sometimes has to distinguish between the *SUPERSET* telephone and the lines on the telephone. One or more lines (except the Prime line) may be in use, but the telephone itself is still idle and available for a call.

Lines have root devices, which can be telephones, *SUPERSET* telephones, or logical lines.

Every *SUPERSET* telephone must have a Prime Line (or Intercom). The *SX-200* DIGITAL system identifies the set by its Prime Line extension number.

- A prime line can be a multicall or key line depending upon the type of the next programmed appearance of the prime line. If an appearance of a prime line is programmed at other sets as a multicall line, then the prime line is a multicall line. If an appearance of a prime line is programmed at other sets as a key line, then the prime line is a key line.
- The prime line is always a both way and immediate ring line.

Line types:

- Personal Outgoing Line
- Key Line
- Multicall Line
- Direct Trunk Select (DTS) Line
- Private Line.

Other line types are describe under Subattendant and Key Set feature headings.

Line Appearance Variants

1. Direction: Both Way, Incoming Only, Outgoing Only. — This allows an appearance of a line to be restricted to being used for originating or receiving calls, or both.

Note: The outgoing direction for a line on a set is ONLY available if the line is programmed for no ring; if programmed for delayed ring or immediate ring then the line must be either both way or incoming only.

2. Ring: No Ring, Delayed Ring, Immediate Ring. — This allows new calls to an appearance to cause a *SUPERSET* telephone to ring immediately, ring after a delay or not ring at all. The delay time is from COS Option 253, Call Forward – Don't Answer Timer (251 in Generic 1001). The Class of Service used is derived from the root device (trunk, *SUPERSET* telephone, industry-standard telephone) of the line. For logical lines, the first *SUPERSET* telephone where the line is programmed is used. The use of the Call Forward – Don't Answer time prevents delay ring calls from ringing an extension or line from which they could be forwarded momentarily.
3. Secretarial: non-secretarial, secretarial. — This allows special interaction with the Do Not Disturb feature; see *Secretarial Line*.

Line Ringing

For key line types, there can be only one caller calling the line at a time. When the caller calls the line, all of the appearances indicate a ringing line and the *SUPERSET* telephones where the appearances appear may start to ring if the *SUPERSET* telephones are idle.

Each line on a *SUPERSET* telephone that rings can cause the *SUPERSET* telephone to ring if the set is not in use and as long as the set does not have the Auto-Answer feature activated. If the *SUPERSET* telephone is in use and off-hook or the Auto-Answer feature is enabled then each line that starts to ring causes the set to warble briefly if the set is off-hook. This new call ring can be limited with COS Option 611 (*SUPERSET* Telephone – Limited New Call Ring) so that only the first ringing line on a telephone provides the short ring.

Conditions

The following conditions apply to this feature:

- Any line of any line type can have a maximum of sixteen appearances, including the prime line of a set.
- An extension or trunk can be the root of only one line type.
- See *Call Forwarding* for details on lines and forwarding.
- For some features, the programmed sequence of appearance is important; the Review feature in CDE allows the sequence to be viewed.

Programming Specify a time for COS Option 253, Call Forward – Don't Answer (251 in Generic 1001), in the Class of Service of the appropriate device for the delay ring time for a line.

For *SUPERSET* telephones with heavy call traffic on several lines on the set, enable COS Option 611 (*SUPERSET* Telephone – Limited New Call Ring) to limit the new call ring given to the set.

Operation None.

Line Type: Personal O/G Line

Description This line is an outgoing-only line that allows the user to make an outgoing call without making the Prime Line busy to incoming calls.

Conditions The following conditions apply to this feature:

- It has no extension number associated with it.
- There can only be one per *SUPERSET* telephone.

Programming From within the Expand Set Subform of either CDE Form 09 (Station/*SUPERSET* Telephones) or CDE Form 45 (Key System Telephones), move the cursor to the TYPE field. Press the PERSONAL O/G softkey.

Operation None.

Line Type: Key Line

Description This is an appearance of an extension number that can be an industry-standard telephone's line, a *SUPERSET* telephone's Prime Line or a logical line. If the line is in use at one set, the other appearances of the line are busy and unavailable for separate calls. See the *Line Privacy* feature description in this Practice for joining established calls on key lines.

Conditions The following conditions apply to this feature:

- Direction and Ring Variants can be programmed independently for each appearance.
- It can appear on several *SUPERSET* telephones.
- There can be only one appearance of any one key line on a *SUPERSET* telephone.

Programming From within the Expand Set Subform of either CDE Form 09 (Station/*SUPERSET* Telephones) or CDE Form 45 (Key System Telephones), move the cursor to the TYPE field. Press the KEY LINE softkey.

Operation None.

Line Type: Multicall Line

Description A multicall line is an appearance of one extension number on two or more telephones. This extension number can be for another *SUPERSET* telephone or an industry-standard telephone. When one appearance of a multicall line is in use, the other appearances are still available to make or answer calls.

- Call direction, ring and secretarial variants can be programmed independently for each appearance.
- There can be up to 15 appearances of any one multicall line on a given *SUPERSET* telephone.

Conditions The following conditions apply to this feature:

- Direction, Ring and Secretarial Variants can be programmed independently for each appearance.
- It can appear on several *SUPERSET* telephones.
- There can be up to fifteen appearances of any one multicall line on a given *SUPERSET* telephone.
- The Secretarial Operation feature description in this Practice only applies to multicall lines.
- When a multicall line is called, there can be as many callers ringing the line as there are appearances that are free to be rung. When a caller rings the line, the first appearance of the called line is rung on all *SUPERSET* telephones where the line appears. The next caller of the line makes the next appearance on all *SUPERSET* telephones (the next level or tier of appearances) ring. On a single *SUPERSET* telephone, the appearances of a multicall line are rung in order from lowest key number to highest key number.

Programming From within the Expand Set Subform of either CDE Form 09 (Station/*SUPERSET* Telephones) or CDE Form 45 (Key System Telephones), move the cursor to the TYPE field. Press the MULTI-CALL softkey.

Operation None.

Line Type: DTS Line

Description A Direct Trunk Select (DTS) Line operates like a key line, but it directly accesses a specified CO trunk. It can be used for incoming and outgoing calls.

- The DTS trunk can appear on several *SUPERSET* telephones.
- There can be only one appearance of any one direct trunk select line on a *SUPERSET* telephone.
- Direction and ring variants can be programmed independently for each appearance. The direction variant allows control of the type of trunk call, incoming or outgoing or both.
- The user can transfer calls on this line to other extensions.
- DTS outgoing calls bypass ARS.
- DTS calls use the SMDR feature if enabled.

For further information, see *Direct Trunk Select* in this document.

Conditions See *Direct Trunk Select*.

Programming From within the Expand Set Subform of either CDE Form 09 (Station/*SUPERSET* Telephones) or CDE Form 45 (Key System Telephones), move the cursor to the TYPE field. Press the DIR TRK ACC softkey. Note that the trunk must be programmed into a trunk group.

Operation None.

Line Type: Private Line

Description Like a DTS Line, a Private Line accesses a specified dedicated CO trunk directly. However, the user can only transfer established calls on this line to other *SUPERSET* telephones that have an appearance of the line, using Privacy Release. See *Privacy Enable/Privacy Release. SUPERSET 4* telephones are registered multi functional (MF) to accommodate this type of operation where the operating TELCO provides a less expensive rate for trunks connected to private trunk lines.

Conditions The same conditions apply as for Direct Trunk Select Lines.

Programming From within the Expand Set Subform of either CDE Form 09 (Station/*SUPERSET* Telephones) or CDE Form 45 (Key System Telephones), move the cursor to the TYPE field. Press the PRIVATE TRK softkey.

Operation None.

Local Switching

Description Local switching increases the traffic capacity of the system by directly connecting two lines in the same analog equipment bay, bypassing the normal switching route to the main control card.

This increases the traffic capacity of the system.

Conditions The following conditions apply to this feature:

- Local switching can only be achieved for 2-party calls; all conference type calls are routed through the DX Switching Matrix.
- Local switching applies only to analog bay line circuits.
- Local switching applies to outbound calls once dialing has been completed.
- The Traffic Measurement feature can be used to check the usage of local switching in analog bays.

Programming None.

Operation None.

Lockout Alarm

Description The system locks out any set that remains off-hook and not connected to another set or trunk for more than 45 seconds. The lockout alarm feature:

- generates an audible alarm through the console
- activates the alarm relays
- displays the location of the locked out device.

When a set is locked out, if lockout alarm is enabled, all consoles warble with a long–short–long cadence. This cadence overrides other cadences that might be active. The attendant can display the time and date the lockout alarm occurred, the extension number of the device, and a message stating that the device has been off–hook too long.

Conditions

The following conditions apply to this feature:

- COS Option 227 (Lockout Alarm Applies) must be enabled for the stations or sets for this feature to operate.
- COS Option 102 (Attendant Display of System Alarms) must be enabled for the alarm icon to flash when a lockout alarm occurs.
- A lockout alarm occurs 45 seconds after the station or set goes off–hook.
- The alarm totals are updated when a lockout alarm occurs.
- There can be 32 Lockout Alarms active at any one time; further Lockout Alarm(s) are only recorded in the Maintenance logs.
- The Lockout Alarm cadence still rings if COS Option 100 (Attendant Bell Off) is enabled.
- The Lockout Alarm feature operates with COS Option 701 (No Dial Tone) enabled.
- When a console is in restricted service, the Lockout Alarm cadence rings but the user is not able to read the alarm or turn the warbling off. The restricted access code must be re–dialed before the user can read the alarm.
- When no DTMF receivers are available, the 45 second time period before the Lockout Alarm occurs is increased by the time required to wait for an available receiver.

Programming

Enable COS Option 227 (Lockout Alarm Applies) in the Class of Service of the extensions for which the feature applies.

Enable COS Option 102 (Attendant Display of System Alarms) for those consoles which can read and cancel the Lockout Alarms.

Enable COS Option 108 (Attendant Audible Lockout Alarm) to cause the console to audibly ring for a Lockout Alarm.

Operation

Display a lockout alarm on a console by pressing the following:

FUNCTION hardkey – APPLICATION softkey – SHOW LOCKOUT softkey

Logical Lines

Description A logical line is a line on a *SUPERSET* telephone that is not an appearance of any station or other *SUPERSET* telephone. Each logical line has its own extension number. A logical line can appear on up to 16 multi-line *SUPERSET* telephones. Logical line extension numbers can be used in many places where station or *SUPERSET* telephone lines can be programmed (Call Rerouting, etc).

Conditions The following conditions apply to this feature:

- Logical lines are either key or multicall type lines. Logical lines are not available to single-line sets.
- The *SUPERSET* telephone where the first appearance of the logical line resides is used for COS, COR, and Tenant checks.
- Logical lines may be viewed by using CDE Form 09 (Station/*SUPERSET* Telephones) review procedures.
- Logical lines are created implicitly when a vacant extension number is programmed in for a line key.

Programming Refer to CDE Form 09 (Station/*SUPERSET* Telephones).

Maintenance

- Description** The SX-200 DIGITAL PABX provides extensive maintenance coverage. All types of peripheral hardware are periodically tested automatically by the system. Maintenance users may also test individual circuits on demand. The system also maintains a fault / event history log (maintenance log).
- Conditions** None.
- Programming** Feature Access Code 18 (Maintenance Functions – Test Line) allows a maintenance telephone to be used for testing – see Practice 9109-096-353-NA, General Maintenance Information, for further information.
- Operation** Refer to Practice 9109-096-353-NA, General Maintenance Information.

Manual Line (Dial 0 Hotline)

- Description** When a manual line extension goes offhook it is routed directly to the extension's dial 0 routing point. The extension can still receive calls.
- Conditions** The following conditions apply to this feature:
- The extension does not receive dial tone, but does receive ringback tone.
 - If there is no Dial 0 routing point for the current night service then reorder tone is given to the extension.
 - Priority Dial 0 applies.
 - The call is made as a reroute to the Dial 0 point.
 - COS Option 228 (Manual Line) and COS Option 300 (Automatic Callback) are mutually exclusive.
- Programming** Enable COS Option 228 (Manual Line) for the extension.
- Enter appropriate answer point (e.g., an Attendant LDN) in Station Dial 0 Routing in CDE Form 19 (Call Rerouting Table) for the extension's tenant.
- Operation** To originate a call, lift the handset; the dial 0 point rings.

Messaging – Advisory

Description This feature allows *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420*, and *SUPERSET 430* telephone users to program a short message to appear on display sets and consoles that call their set. The message replaces the time and date display on the sets where it is activated; see *Attendant Setup Of Set Advisory Messages*.

The system provides the following system-wide messages:

Message Number	Default Message
01	IN A MEETING
02	OUT OF TOWN
03	ON VACATION
04	OUT ON A CALL
05	OUT TO LUNCH
06	GONE FOR DAY
07	GONE HOME
08	IN TOMORROW
09 through 15	(BLANK)

Optionally, set users can be permitted to change these messages.

Note: Any changes to a message apply system-wide; the system has only one set of 15 messages.

Conditions The following conditions apply to this feature:

- This feature applies only to *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420*, and *SUPERSET 430* telephones.
- A message currently in use cannot be altered.
- The message is not displayed by the telephone that set it when it is in Night Service; however, another telephone (or console) calling that telephone receives the message on its display.

Programming To permit set users to create or change messages, enable COS Option 605 (*SUPERSET Telephone– Message Program*) in the set's COS.

Operation Operation varies depending upon the type of set as described below.

***SUPERSET 4* Telephones:**

To Activate an Advisory Message:

- Press the MSG softkey (and SEND MSG softkey, if required). If displayed message is inappropriate, press the NEXT softkey repeatedly to cycle through the messages, or dial the message number (01 to 15), if known.
- When the desired message appears, press the ON softkey. The selected message is now active and displayed on the LCD. Any *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420*, or *SUPERSET 430* telephone, or console calling the set receives the message on its display.

To Deactivate an Advisory Message:

- Repeat procedure for activating a message, except press the OFF softkey.

To Program Advisory Messages:

- Press the PROGRAM softkey.
- Press the MSG softkey.
- If required, press the SEND MSG softkey.
- In response to display DIAL IN MSG. NUM., dial message number (01 through 15).

Messages 01 through 08 are preprogrammed as described. Selecting a message number in this group causes the existing message to be overwritten.

- The display shows NOW ENTER MSG. Dial in the message as follows:

Both numeric and alpha characters can be used in a message.

Keys 2 through 9 and * on the keypad are identified with alpha characters. Press the key associated with the first character in the message, and a character is displayed in the alphanumeric display. If this character is not correct, repeated presses on the key cycle the display through all the characters for that key. When the displayed character is correct, press the NEXT softkey. The * key also gives four special characters (. Q Z ') when pressed repeatedly; the #, 1, and 0 keys provide no special characters.

Repeat the above step for remaining characters in the message. For spaces, press the NEXT softkey again.

There are two ways to correct a programming error:

1. Use the  softkey to backspace and clear an incorrect entry.
2. To cancel the entire procedure before the message has been saved, press the EXIT softkey.

When the message is complete, press the SAVE softkey.

SUPERSET 420 Telephones:

To Activate an Advisory Message:

- Press **SuperKey**.
- Press the **No** softkey until ADVISORY? appears in the display.
- Press the **Yes** softkey. Message #1, IN A MEETING, appears in the display.
- Press the **TurnOn** softkey to select the IN A MEETING message or,
Press the **Next** softkey until the desired message is displayed. You can also display a specific advisory message by dialing its 2-digit number (see preceding table).
- When the desired message is displayed, press the **TurnOn** softkey. The selected message is displayed on your set.

To Deactivate an Advisory Message:

- Press **SuperKey**.
- Press the **No** softkey until ADVISORY? appears in the display.
- Press the **Yes** softkey. The message that is currently programmed at your set appears in the display.
- Press the **TurnOff** softkey. The is turned off and your set displays the date and time.

SUPERSET 4 DN and SUPERSET 430 Telephones:

To Activate an Advisory Message:

- Press the **Messaging** softkey.
- Press the **Advisory** softkey.
- If displayed message is inappropriate, press the **Next Msg** softkey repeatedly to cycle through the repertoire of messages. If the message number is known, press the **Show Msg No.** softkey, dial the message number (01 through 15) and press the **Enter** softkey.
- Press the **Turn Msg On** softkey. The selected message is now displayed on the LCD. Any *SUPERSET 4 DN* telephone, *SUPERSET 4* telephone or console calling the set receives the message on its display.

To Deactivate an Advisory Message:

- Press the **Messaging** softkey.
- Press the **Advisory** softkey.
- Press the **Turn Msg Off** softkey.

To Program an Advisory Message:

- Press the **Messaging** softkey.

- Press the **Advisory** softkey.
- Press the **Show Msg No.** softkey or the Next softkey. Dial an unused message number, unless an existing message is to be changed.
- Press the **Create** softkey. Dial in the message as follows:

Letters are displayed on the LCD as they are dialed on the telephone keypad. The first press of any of these keys displays the first letter that appears on its key cap. The second press of the same key changes the display to the second letter and so on. When all the letters associated with a key have been displayed, the number is displayed. Further presses cycle through the letters again. When the desired letter is displayed, enter it by pressing the **→** softkey or by entering the next letter, if it is on a different key. (The **→** key is also used to enter spaces). Follow the same procedure to find and enter the other letters in the name.

Telephone keypad key caps 1, *, 0, and # are not marked with all the characters they can enter. They are as follows:

Key	Characters
1	! ? % 1
*	' - *
0	@ & \$ 0
#	, / #

When the message is complete, press the **Save** softkey. The message is now saved.

Messaging – Call Me Back

Description A set user calling a busy or unanswered set can leave a message for the party to return the call. The Message Waiting indication can be:

- A flashing lamp on the set at 0.5 seconds on, 3.5 seconds off (if equipped),
- An indication on the set's display (if equipped),
- Ringing at the set with a distinctive ringing pattern.

The Message Waiting indication continues until the set user reads the message. Messages can be read at any time (i.e., when the set is idle or during a call).

On *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420*, and *SUPERSET 430* telephones, the display provides the time of the call, and the caller's extension number and name (if programmed).

Optionally, the system can be programmed to record each occurrence of Message Waiting on the system printer. See *Hotel / Motel*.

Messages can be left at industry-standard and *SUPERSET* telephones.

Conditions

The following conditions apply to this feature:

- Only one message exists between any two parties in the system at any-time. Leaving a message from A to B cancels the message left from B to A.
- The message waiting indication is not active while the set is in use.
- When sending a message using a feature access code, if the destination set cannot receive messages, reorder tone is returned.
- Messages cannot be left for members of a recording group, an Automated Attendant recording group, or a COV voice mail port.
- A message is canceled automatically if the sender and receiver have a telephone conversation before the message is read or the receiver leaves a message for the sender. Note that this does not apply to messages from the console. These must be canceled at the Console.
- The system cancels the message automatically after 24 hours if System Option 7 (Cancel 24-hour Message Waiting) is enabled; otherwise, it is not canceled by the system.
- 100 messages can be active at a time (in Generic 1003, Generic 1004 and Generic 1005 this number is 250).
- If COS Option 231 – Message Waiting Setup – Bell is enabled in the industry-standard or *SUPERSET* telephone's COS:
 - Message Waiting indication is three cycles of 3.5 impulse per second (ips) ringing. This is in addition to the visual indicators on *SUPERSET* telephones.
 - The set receives ringing each time it returns to idle (10 seconds after) and every 20 minutes while the set is idle until the message is read, canceled or acted upon.

Programming

To allow industry-standard and *SUPERSET 3* telephones in a COS to receive messages, enable COS Option 231, Message Waiting Setup – Bell or COS Option 232, Message Waiting Setup – Lamp if the industry-standard telephone is equipped with a message waiting lamp.

Note: These two COS Options are mutually exclusive. Neither of them is required for messaging on other *SUPERSET* telephones.

To allow users of industry-standard and *SUPERSET 3* telephones to send messages, enable COS Option 259 (Message Sending) in their COS. If your system has Generic 1005 software, you must also enable COS Option 259 (Message Sending) in the COS of *SUPERSET* telephones to allow users to send messages using the **Message** key.

Note: In Generic 1001, Generic 1002, Generic 1003, and Generic 1004, COS Option 259 (Message Sending) enables and disables the sending of

messages using the Send Message Feature access code. It does not affect the use of the **Message** key on *SUPERSET* telephones. In Generic 1005, COS Option 259 enables and disables both methods of sending messages.

Industry-standard and *SUPERSET 3* telephones need access codes to send or answer messages. In CDE Form 02 (Feature Access Codes), assign access codes to Feature 41 (Send Message) and Feature 42 (Call Message Sender of Oldest Message). This feature is not available with Generic 1002.

Enable COS Option 231 (Message Waiting Setup – Bell) to allow *SUPERSET 4*, *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 410*, *SUPERSET 420*, and *SUPERSET 430* telephones to warble when a message is sent.

In CDE form 04 (System Options/System Timers), enable System Option 07 (Cancel 24-hour Message Waiting) if messages are to be canceled by the system.

Operation

Industry-standard and *SUPERSET 3* Telephones:

To send a message to a busy or unanswered set:

- Dial the Send Message access code.
- Dial the extension number.
- Dial tone is returned. Re-order tone is returned if the other telephone cannot receive messages.

To answer a message:

- Go off-hook.
- Dial the Call Message Sender of Oldest Message access code.
- Message sender is called. Re-order tone is returned if there are no messages waiting.

SUPERSET 4 Telephones:

To Send a Message:

- Dial the Extension number.
- Press the SEND MSG softkey. This softkey appears only if the called telephone is able to receive messages, or,
- Follow the procedure given for industry-standard telephones.

To Cancel a Previously Sent Message:

- Call the extension.
- Press the MSG softkey. The message is canceled and the call is terminated (MESSAGE REMOVED is displayed in Generic 1004 and Generic 1005).

Message waiting is indicated on the receiving *SUPERSET 4* telephone by the word MSG flashing on and off. In addition, the LCD shows the number of messages waiting when new messages arrive.

To read messages while the telephone is idle:

- Press the MSG softkey. The display indicates the number of messages to be read.
- Press the READ MSG softkey. The message is displayed.
- To call the message sender, press the CALL softkey, or,
- To clear the message, press the CANCEL softkey.

If there are more messages to be read, the NEXT softkey appears. To read additional messages:

- Press the NEXT softkey. Follow the procedure above for each message.

To read messages during a call, proceed as follows:

- Press the SELECT FEATURES key.
- Dial '4' (feature 4 is message (4:MSG)).
- Press the READ MSG softkey. The message is displayed. To cancel a message once it has been read, press the CANCEL softkey.

In Generic 1001, 1002 and 1003 the display returns to the normal idle display if there are no more messages. In Generic 1004 and 1005, the display shows NO MORE MESSAGES. Press the EXIT softkey to return to the idle display.

If there are more messages, the NEXT softkey appears. To read additional messages:

- Press the NEXT feature key. Follow the procedure above for each message.

SUPERSET 3 DN, SUPERSET 401, and SUPERSET 410 Telephones:

To send a message waiting signal:

- While receiving busy tone or ringback, press the Message key if the Message LED is on steady.
- Dial tone is returned, or,
- Follow the procedure given for industry-standard telephones. This is convenient when leaving a message without calling the message recipient.

The Message LED flashes whenever the telephone is idle and has a message waiting for it.

To answer a message waiting signal:

- Lift the handset and press the **Message** key (*SUPERSET 401* telephones)

or,

Press the **Message** key (*SUPERSET 3 DN, SUPERSET 410*).

- The Message sender is called. Nothing happens if there are no messages waiting.

To cancel a message waiting signal at your set:

- Press the **Message** key. You automatically ring the extension of the person that left the message signal.
- Press the **Message** key again to cancel the message waiting signal, and send a message signal back to the station that sent the original signal.

SUPERSET 420 Telephones:

To send a message waiting signal:

- Press the **Message** key if you receive busy or no answer when you call a station (your Message Lamp must be on steady). MESSAGE SENT appears briefly in the display and the call is terminated,
or,
Follow the procedure given for industry–standard telephones. This is convenient when leaving a message without calling the message recipient.

The Message LED flashes whenever the telephone is idle and has a message waiting for it.

To respond to a message waiting signal at your set:

- Press the **Message** key if your Message Lamp is flashing.

The extension number of the caller, and the time that the message signal was sent appears in the display.

or

The name of the caller appears in the display. Press the **More** softkey to display the extension number of the caller, and the time that the message signal was sent.

- Press the **Call *** softkey to ring the extension,
or,
Press the **Erase** softkey to delete the message signal.
- Press **SuperKey** to return to the date and time display.

SUPERSET 4 DN and SUPERSET 430 Telephones:

To send a message:

- While receiving busy tone or ringback, press the **Leave a Msg** softkey. This softkey appears only if the other telephone is able to receive messages.
- The top line of the display briefly shows a confirmation and the call is terminated, or,
- Follow the procedure given for industry–standard telephones.

The Message LED flashes whenever the telephone is idle and has a message waiting for it. Also, the second line of the LCD shows on the right the number of messages waiting; e.g., < 1 MSG >.

To read the messages:

- If engaged in a call, press the **SuperKey**.
- Press the **Messaging** softkey; the top line of the LCD shows the number of messages waiting.
- Press the **Read Msg** softkey. The LCD second line shows the extension number and the time of the call.
- Press the **Call¹** softkey to call the party that left the message. This softkey appears only when the telephone can dial the call (e.g., idle or listening to dial tone), or,
- Press the **Erase** softkey to cancel the message.

If there are more messages, the Next Msg softkey appears. To read these messages:

- Press the **Next Msg** softkey; the next message is displayed. Follow the procedure above for each message.
- When there are no more messages, press the **SuperKey** to exit.

To view messages sent:

The *SUPERSET 4* DN telephone also has a feature to view messages that it has sent. To view the messages:

- Press **Messaging** softkey.
- Press **Msgs I Sent** softkey.
 - For each message, the set displays the name, extension number, time and date that the message was sent.
 - A softkey also appears that allows message to be canceled.

Meter Pulse Collection

Description Meter pulses are often used to calculate the cost of outgoing trunk calls thus allowing the call to be charged back to the originator. The system can be set up to detect and collect certain types of meter pulses sent to a trunk circuit during outgoing calls; these are then recorded in the trunk's SMDR reports. Types of meter pulses which can be detected by the PABX without additional hardware include:

¹This softkey will not appear on Key System telephones which have no free internal lines.

- Tip–Ring reversals
- XT lead signalling (Analog CO Trunk)
- M&MM lead signalling (Digital LS/GS Trunk).

Refer to Practice 9109–096–200–NA, Installation Information, for location of correct leads and proper interface to the sending equipment.

Other types of meter pulses common in the telephone industry include 50Hz, 12 kHz, and 16 kHz type pulses. Detection of these types requires the addition of an external interface which converts these pulses to a ground signal which is then applied to the XT Lead for the analog CO Trunks, or to the M or MM lead for the Digital LS/GS trunks (for Digital LS/GS trunks, –48 Vdc must be applied to the other lead so that when the ground is applied to the M or MM lead, current flows through the circuit and gets detected as a pulse).

This feature is associated with the Message Registration feature. See *Hotel/Motel Features* for additional information.

Conditions

The following conditions apply to this feature:

- The PABX can only detect and collect the types of meter pulses identified above.
- The trunk must provide answer supervision. This is counted as the first meter pulse.
- Meter pulses are not recorded for ACD agents if System Option 44 (ACD Reports) is enabled.
- The system can record a maximum of 65535 pulses.
- Pulses are always recorded regardless of what is happening to the trunk (hold, talking etc).

Programming

In the COS for the trunk, enable COS Option 247 (SMDR – Record Meter Pulses) in CDE Form 3 (COS Define).

Enable System Option 23 (Message Register Count Additional Supervisions) in CDE Form 4 (System Options/System Timers).

Enable Option (Far–end Gives Answer Supervision) in CDE Form 13 (Trunk Circuit Descriptors).

Operation

As meter pulses are received, they are collected by the PABX and reported in the trunk's SMDR record.

MiLink Data Module

Description The *MiLink* Data Module is a limited distance, asynchronous, digital data-set that converts the data signals of RS-232 serial devices to high-speed digital signals. It allows an RS-232 device, such as a computer or display terminal, to be connected to the *SX-200* DIGITAL system through a *SUPERSET 410*, *SUPERSET 420*, or *SUPERSET 430* telephone. The 2-pair cable that connects the *SUPERSET* telephone to the switch carries both voice and data signals, allowing a user to use the RS-232 device and the *SUPERSET* telephone simultaneously.

The *MiLink* Data Module is positioned beside or under the user's *SUPERSET 410*, *SUPERSET 420*, or *SUPERSET 430* telephone, and connects to a modular jack located on the base of the telephone. The RS-232 device connects to a DB-25 pin connector on the *MiLink* Data Module. A 9 Vac wall-mount power supply provides power to the *MiLink* Data Module.

There are three indicator lamps and two buttons on the front plate:

- POWER indicator lamp – on steady when the *MiLink* Data Module is receiving power; flashes when synchronization is not achieved.
- READY (RxD) indicator lamp – on steady when a call is established; flashes when the *MiLink* Data Module is receiving data; off when the *MiLink* Data Module is idle.
- DEVICE (TxD) indicator lamp – on steady when the attached RS-232 device is powered up and ready to transmit; flashes when the *MiLink* Data Module is transmitting data.
- ATTENTION button – used to signal the system that the user is ready to originate a DTRX call.
- DISCONNECT button – signals the system to disconnect the data session.

Conditions The following conditions apply to this feature:

- The *MiLink* Data Module can be used only in Generic 1005.
- The *MiLink* Data Module is only used with *SUPERSET 410*, *SUPERSET 420* and *SUPERSET 430* telephones.

Programming Refer to Practice 9109-096-205-NA, Customer Data Entry, for programming.

Operation Refer to the data features described in this guide for operating instructions.

Moving Stations and *SUPERSET* Telephones

- Description** This feature allows extensions to be moved easily from one circuit to another. Previous programming for the extension, such as name, COR, COS, etc. is preserved and moved with the extension.
- Conditions** The device must be idle when the move is attempted and the new location must have nothing programmed.
- This feature is not available in Generic 1001.
- Programming** Refer to Practice 9109–096–210–NA, Customer Data Entry, for full details of programming.
- Operation** Refer to Practice 9109–096–210–NA, Customer Data Entry, for full details of operation.

Multi–Attendant Positions

- Description** The system can handle multiple Attendant Consoles with unique Hold Slots for each Attendant. Incoming trunk calls can be programmed to appear at all consoles, or specific console(s). Similarly, extension Dial 0 calls, Priority Dial 0 calls, Intercept to Attendant calls, etc., can be programmed to appear at all consoles, or at a specific console(s).
- Any console in a particular tenant group can switch that tenant group to Night Service or to Day Service; see *Attendant Night/Day Switching*.
- See *Tenanting, Recall, and Console LDN Keys*; see also *Attendant Transparent Multi–console Operation*.
- Conditions** The following conditions apply to this feature:
- When a call appears at more than one console, the first console to answer is connected to the call; other consoles stop being alerted for this call.
 - There is a maximum of eleven consoles per system.
- Programming** Assign consoles via CDE Form 07 (Console Assignments).
- Operation** All operations are identical for all Attendant Consoles in the same COS and Tenant group.

Music On Hold (MOH)

Description A customer-provided music source can be connected to the System via a Music On Hold/Pager module on the Universal Card for use with Campon, Hold, UCD, ACD, and other Features.

See *Campon* and *Hold*.

Refer to Practice 9109-096-200-NA, Installation Information, for wiring details.

Conditions The following conditions apply to this feature:

- The music source should be between 50 and 500 mV rms.
- Input to the system is 600 ohms ac transformer coupled. A dc voltage should not be applied to this input.
- Only one source of music may be programmed for the system.

Programming Program a Music on Hold module into CDE Form 18 (Miscellaneous System Ports).

Operation None.

Names

Description The system programmer can assign names to Extensions, Classes of Service, Tenants, Trunks, Trunk Groups, ACD Paths, ACD Positions, ACD Agent Groups, and Hunt Groups. *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420*, or *SUPERSET 430* telephone users can program their name from their set.

Conditions The following conditions apply to this feature:

- With Generic 1002, names can only be assigned to *SUPERSET 4* and *SUPERSET 4 DN* telephones.
- Trunk, Trunk Group, ACD Path, ACD Agent Group, Tenant, and Class of Service names can be up to 8 characters long.
- Extension and ACD Position names can be up to 10 characters long; hunt group names can be up to 12 characters long.

- Hunt groups must have an access code programmed before a hunt group name can be added.
- The programmer cannot enter names from the Attendant Console because it has no alphabetic keyboard.
- Tenant and COS names appear only on consoles. Set and trunk names appear on consoles, *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420*, and *SUPERSET 430* telephones.
- Mixed case is only allowed for hunt groups.
- Programming the name of a *SUPERSET* telephone in CDE overwrites the name programmed at the *SUPERSET* telephone. Also, programming the name at the *SUPERSET* telephone overwrites the name in CDE.
- The characters \, ~, |, {, } are invalid except for hunt group names.
- Trunk groups cannot include single or double quotation marks.
- Hunt group names cannot start with a digit (0 through 9), # or * or have a blank or a – in them.
- Analog Networking information may replace trunk or trunk group names on displays; see *Analog Networking*.

Programming Refer to the following forms in Practice 9109–096–210–NA, Customer Data Entry, for further information:

Name Type	CDE Form
ACD Path Names	Form 41 (ACD Paths)
ACD Position Names	Form 39 (ACD Agent Groups) and Form 40 (ACD Supervisors)
Class of Service Names	Form 03 (Class of Service Define)
Hunt Group Names	Form 17 (Hunt Groups)
Set Names	Form 09 (Station/SUPERSET Telephones)
Trunk Names	Form 15 (Dial-In Trunks) or CDE Form 14 (Non-Dial-In Trunks)
Trunk Group Names	Form 16 (Trunk Groups)
Tenant Names	Form 19 (Call Rerouting Table)

Operation ***SUPERSET 4* Telephones:**

- Press the PROGRAM softkey.
- Press the NAME softkey; the display shows: DIAL IN NAME.

Enter the name using the telephone keypad. Above each key are printed its associated letters, e.g., the “2” key has the letters “abc” above it. To choose the first letter, press the key once; to choose the second letter, press the key twice, etc. When the last associated letter appears, a subsequent press displays the key number. Further key presses cycle through the letters

again. When the desired letter is displayed, press the **→** softkey to enter it. To correct an erroneous entry, use the **←** softkey. The * key also gives the four special characters . Q Z and / when pressed repeatedly. The #, 1 and 0 keys do not provide special characters.

When the name is complete:

- Press the **SAVE** softkey.

SUPERSET 420 Telephones:

To program a new name or change an existing name:

- Press **SuperKey**.
- Press the **No** softkey until **NAME?** appears in the display.
- Press the **Yes** softkey
 - If a name isn't currently programmed, **ENTER NAME** appears in the display.
 - If a name is programmed, the name is displayed. Press the **Change** softkey. **ENTER NAME** appears in the display.

Enter the name using the telephone keypad. Above each key are printed its associated letters, e.g., the "2" key has the letters "abc" above it. To choose the first letter, press the key once; to choose the second letter, press the key twice, etc. When the last associated letter appears, a subsequent press displays the key number. Further key presses cycle through the letters again. When the desired letter is displayed, press the **→** softkey to enter it. To correct an erroneous entry, use the **←** softkey.

Telephone keypad key caps 1, *, 0, and # are not marked with all the characters they can enter. They are as follows:

Key	Characters
1	! ? % 1
*	' - *
0	@ & \$ 0
#	. , / #

- When the name is complete, press the **Save** softkey.

To program a new name or change an existing name:

- Press **SuperKey**.
- Press the **No** softkey until **NAME?** appears in the display.
- Press the **Yes** softkey. The name currently programmed for the set is displayed.
- Press the **Erase** softkey. **NAME ERASED** appears briefly in the display and then shows the date and time.

SUPERSET 4 DN and SUPERSET 430 Telephones:

To program a name:

- Press the **SuperKey**.
- Press the **Your Name** softkey. The display changes to ENTER NAME:

Letters are displayed on the LCD as they are dialed on the telephone keypad. The first press of any of these keys displays the first letter that appears on its key cap. The second press of the same key changes the display to the second letter and so on. When all the letters associated with a key have been displayed, the number is displayed. Further presses cycle through the letters again. When the desired letter is displayed, enter it by pressing the **→** softkey or by entering the next letter, if it is on a different key. (The **→** key is also used to enter spaces). Follow the same procedure to find and enter the other letters in the name. If an error is made, press the **←** softkey to back up and change a letter.

Telephone keypad key caps 1, *, 0, and # are not marked with all the characters they can enter. They are as follows:

Key	Characters
1	! ? % 1
*	' - *
0	@ & \$ 0
#	., / #

- When the name is complete, press the **Save** softkey.

Never a Consultee

- Description** This feature protects an extension from being dialed or retrieved by extensions that have a consultation hold in progress.
- Conditions** The following conditions apply to this feature:
- The feature is checked when a caller is retrieved from being held by an extension or by the console.
- Programming** Enable COS Option 233 (Never a Consulted) for the extension.
- Operation** An extension establishes a call. The extension flashes, putting the call on consultation hold, and dials a third party that has the feature enabled. The call to the third party is blocked and the calling extension receives reorder tone.

Never a Forwardee

- Description** This feature prevents an extension or console from having any calls forwarded to it by another extension. Extensions are prevented from setting up forwarding to extensions or consoles with the feature enabled.
- Conditions** The following conditions apply to this feature:
- Calls directed to the extension via hunting or speedcall are not affected by the selection of this feature.
 - Calls directed to the extension by speedcall are not affected by the selection of this feature.
 - If an extension attempts to forward a call to an extension with this feature enabled (the feature was enabled after the forwarding was setup), the forwarding is ignored.
- Programming** Enable COS Option 234 (Never a Forwardee) for the extension or console.
- Operation** None.

New Call Ring

- Description** When a *SUPERSET* telephone is busy, and a new call attempts to ring the set, a single burst of ringing will alert the user that another call is waiting.
- Conditions** The tone is not heard if the *SUPERSET* telephone is using the speaker in handsfree mode.
- Programming** None.
- Operation** None.

Night Bells

Description This feature allows incoming and internal calls to be directed to common alerting devices. The call can be answered from the Attendant Console or from an extension with TAFAS Access; see *Trunk Answer From Any Station (TAFAS)*.

The system provides a contact closure which operates the alerting device.

Night Bells are activated by relays on a Universal Card Receiver/Relay module; refer to Practice 9109-096-200-NA, Installation Information.

The extension number assigned to the Night Bell can be used as an answer point or alternate answer point for most features in the system.

Conditions The following conditions apply to this feature:

- Up to 25 night bells can be programmed.
- See *Attendant Default Call Positions* for a description of the console NIGHT-BELL softkey.
- More than one caller can ring a Night Bell at a time – it is always available to be called and no caller will find it busy.
- Extensions can dial a Night Bell directly.
- The Night Bell itself has no tenant. Tenant checks are done using the tenant of the Night Bell's caller.
- Standard ringing cadence only is used for Night Bells.
- Calls can be transferred to Night Bells.
- Recall features do not operate when ringing a Night Bell.

Programming Assign each Night Bell in CDE Form 18 (Miscellaneous System Ports).

Operation See *Trunk Answer From Any Station (TAFAS)*.

Night/Day Switching

- Description** *SUPERSET 4, SUPERSET 4 DN, SUPERSET 420, or SUPERSET 430* telephone users can put the system (or particular tenant group or groups) into DAY service or one of two different night service modes, NIGHT1 or NIGHT2. In Night Service, *SUPERSET 4, SUPERSET 4 DN, SUPERSET 420, or SUPERSET 430* telephones display NIGHT 1 SERVICE or NIGHT 2 SERVICE as appropriate. Also see *Night Services, Tenanting, and Attendant Night/Day Service Switching*.
- Conditions** The following conditions apply to this feature:
- This feature is available at *SUPERSET 4, SUPERSET 4 DN, SUPERSET 420, and SUPERSET 430* telephones only.
 - Tenanting restrictions can be applied; see *Tenanting*. Refer to Practice 9109-096-230-NA, Tenanting.
- Programming** Enable COS Option 609 (*SUPERSET* Telephone – Night Service Switching) in the set's Class of Service.
- Operation** Operation varies depending upon the type of telephone as described below.
- SUPERSET 4* Telephones:**
- Press the SELECT FEATURES key.
 - Press the NIGHT ANS softkey. One of the two alternative modes is displayed, followed by a question mark, e.g., "NIGHT 1 ?". The YES, NO and EXIT softkeys appear.
 - If the mode shown is the one desired, press YES. If not, press NO and the other alternative is displayed; then press YES. To leave the system in its UNIVERSAL current mode, press EXIT.
- SUPERSET 420* Telephones:**
- Press **SuperKey**.
 - Press the **No** softkey until NIGHT SERVICE? appears in the display.
 - Press the **Yes** softkey. The current service mode is displayed: DAY SERVICE, NIGHT 1, or NIGHT 2.
 - Press the **Change** softkey.
 - If the mode shown is the one desired, press the **Yes** softkey. If not, press the **No** softkey and the other alternative is displayed; then press the **Yes** softkey. To leave the system in its current mode, press **SuperKey**.
 - Press **SuperKey**.

SUPERSET 4 DN and SUPERSET 430 Telephones:

- Press the **SuperKey**.
- Press the **More** softkey until the **Night Answer** softkey appears.
- Press the **Night Answer** softkey. The top display line indicates which mode is currently active (e.g. CURRENTLY DAY SERVICE). Softkeys appear for the two alternatives.
- Press the softkey for the desired mode; or, to leave the system in the current mode, press the **Backup** softkey or the **SuperKey**.

Night Services

- Description** The PABX has three different service modes: DAY, NIGHT1, or NIGHT2. When the PABX or tenant group is in night service mode, incoming trunk calls and calls to the Attendant may be rerouted to specified extensions or be caused to activate common alerting devices (Night Bells).
- Conditions** The following conditions apply to this feature:
- This feature is available on a per tenant basis.
 - Some features, such as Alternate Recall Point, Attendant Call Forward–No Answer, and Call Rerouting, operate differently under NIGHT1 and NIGHT2.
- Programming** CDE Form 14 (Non–Dial–In Trunks) and CDE Form 19 (Call Rerouting Table) programming is directly affected by Night Services.
- Operation** See *Attendant Night/Day Switching, Night/Day Switching, Call Rerouting, Trunk Operation – Non–dial–in CO, Attendant Access (Dial 0)*.

Night Services Flexibility

- Description** This option allows the Attendant to change the night service assignment of non-dial-in trunks. The system allows full flexibility of trunk assignment.
- Conditions** The following conditions apply to this feature:
- The console must be able to connect to the trunk (see *Device Interconnection Control*).
 - CDE is prevented from accessing Form 14 (Non-dial-In Trunks) when the console is updating the night point of a trunk. Similarly, the console is prevented from changing the night service while CDE is accessing form 14.
 - The rules for the assigned access codes are the same as in CDE.
- Programming** Enable COS Option 104 (Attendant Flexible Night Service Setup) for the Console.
- Operation** Change the night service assignment of non-dial-in trunks from the console, as follows:
- Press FUNCTION.
 - Press ATT. FUNCTION.
 - Press MORE.
 - Press FLEX NIGHT.
- The display prompts for trunk number.
- Enter trunk number.
 - Press either NIGHT1 or NIGHT2.
 - Enter new destination.
 - Press SET.
- The trunk is now routed to the new destination when the PABX is in Night 1 or Night 2 (as programmed above).

Node Identification

- Description** The node identification feature works with the analog networking feature to provide consistent dialing of extension numbers throughout a network of SX-200 DIGITAL PABXs.
- For any extension, the node identification digits plus the extension number uniquely identifies the extension from all others on the network. The extension can be reached by dialing the same string of digits from any node in the network.
- For the use of the node identification code in analog networking, see *Analog Networking* in this section.
- Conditions** The following conditions apply to this feature:
- The node identification code must match the ARS leading digits specified in the other nodes in the network to reach that node.
 - Dial tone is not returned after the node identification code is dialed.
 - Any device may access the node identification code.
 - Within any node, it is not necessary to dial the Node Identification digits to access extensions within that node.
- Programming** In CDE Form 02 (Feature Access Codes) assign an access code to Feature 34 (33 in Generic 1001) (Node ID).
- Operation** Dial the Node Identification code and then the extension number.

Non-Busy Extensions

- Description** An extension with the non-busy extension feature enabled never appears busy to the PABX. If a new call is directed at a non busy extension that is already in a call, the PABX automatically overrides the existing call. After a warning tone, the new caller joins the conversation.
- Conditions** The following conditions apply to this feature:
- The Override Security and Data Security features are ignored for the parties in the established call.
 - The feature does not work for members of recording hunt groups.
 - The feature is ignored when the console calls the set.

- The same conditions for override and key lines apply.
- This feature conflicts with any feature requiring a switch-hook flash.
- The Non-Busy Extension can be in conversation with no more than four other parties. Additional callers receive busy tone.
- Only calls dialed directly to the set override; Recalls, Call Reroutes, Callbacks, ignore the feature.
- A call transferred to a Non-Busy Extension does not override a conversation in progress.

The override is disallowed under the following conditions:

- if the caller has a consultation hold in progress and any party in the call has a consultation hold in progress.
 - if a console is in the call already.
 - if the established call is a three party call that is on consultation hold.
 - if one of the parties in the call has the call on hold.
 - if the set is overriding another extension or had called another non-busy extension.
- The feature is not available to CO trunks when they originate.
 - If the override is not permitted, then normal busy destination processing results.
 - The Call Announce feature takes precedence over this feature.
 - No connection checks are done when the caller is added into the call.
 - Once on a call with a non-busy extension, regardless of how the call was established, no party in the call except the non-busy extension can flash out of the call or put it on hold.

Programming Enable COS Option 243 (Non-Busy Extension) for the extension.

Operation A new incoming call joins in to an established call automatically (with a burst of warning tone).

Numbering Plan Flexibility (Conflict Dialing)

Description The numbering plan used within the system is completely flexible. The user may select any combination of 1-, 2-, 3-, 4-, and 5-digit numbers.

Also see *Conflict Dialing*.

Conditions Leading digits of extension numbers must not match Feature Access codes except codes 20 (Call Back Busy), and 31 (Executive Busy Override).

Programming Assign the required extension numbers.

Operation None.

Off-Premise Extension (OPS)

Description Industry-standard telephones not in the immediate vicinity of the PABX can be directly connected to the PABX without the use of special trunks. The 6-circuit OPS Line Card (Off-Premises) is only available in Digital bays. Refer to Practice 9109-096-125-NA, Circuit Card Descriptions.

Conditions The following conditions apply to this feature:

- The 6-Circuit OPS Line Card is used in Digital bays, the 8-Station Line Card in Analog bays.
- If the extension is located more than 2 kilometers away, it may be necessary to add a compromise balance network into the circuit. COS Option 402 (Long Loop – Off-Premises Extension Only) does this.
- An adjustment is made to the Loss/Gain settings for the line using COS Option 402 (Long Loop – Off-Premises Extension Only).
- There is no equivalent feature for *SUPERSET* telephones.
- Circuits on OPS Line cards may be used for the Call Announce feature.
- COS Option 402 (Long Loop – Off-Premises Extension Only) applies to OPS Line Card circuits only.

Programming Program the OPS Line Card in CDE Form 01 (System Configuration).

If necessary, enable COS Option 402 (Long Loop – Off-Premises Extension Only) for the extension.

Operation None

Originate Only Extensions

- Description** This feature allows an extension or dataset to originate calls. The extension can only receive calls that are forwarded from another extension. The system treats calls dialed to originate only extensions as illegal numbers.
- Conditions** The following conditions apply to this feature:
- An extension with this COS option may receive calls via Call Forwarding (unless COS Option 234 (Never a Forwardee) is selected in its COS).
 - Only calls directly dialed to an Originate Only extension are invalid.
 - COS Option 235 (Originate Only) is mutually exclusive with COS Option 300 (Automatic Callback), COS Option 241 (Receive Only), and COS Option 243 (Non-busy Extension).
- Programming** Enable COS Option 235 (Originate Only) for the extension.
- Operation** None.

Overlap Outputting

- Description** Overlap outputting occurs when the PABX begins dialing on a trunk before the user has dialed all digits in the destination's telephone number. By default, the ARS package outputs digits as soon as the trunk seizure is acknowledged. This provides a shorter total dialing time, especially on non-DTMF trunks. This feature can be turned off, forcing the ARS package to collect all dialed digits before outputting the resulting digit string on the outgoing trunk. Refer to Practice 9109-096-220-NA, Automatic Route Selection and Toll Control, for more information.
- Conditions** None.
- Programming** Enable System Option 26 (No Overlap Outputting) to disable the feature.
- Operation** None.

Override (Intrude)

Description This feature allows a user who encounters a busy extension to enter the conversation. Before override voice contact is established, the overriding party and both parties in the original conversation receive a warning tone. The tone is repeated at regular intervals while the overriding party is connected to the existing call. Display *SUPERSET* telephones display the name and/or extension number of the overriding party.

An override can be done to the Call Announce Port of a *SUPERSET 4* telephone; see *Override Announce*.

For override of a telephone with Do Not Disturb set; see *Do Not Disturb*.

Conditions The following conditions apply to this feature:

- If there is a call-me-back message outstanding between the overriding party and the overridden party, it is canceled. This is not done if the console overrides.
- The overriding party cannot manipulate the original connection in any way.
- If the overridden extension puts the call on consultation hold or goes on-hook, the intruding extension is dropped and receives reorder tone. Display telephones will read DISCONNECTED (KICKED OFF in Generic 1001).
- If *SUPERSET* telephones involved in a conversation have multicall appearances, an override only occurs if all appearances are busy. Otherwise, the calling extension receives ringing and the idle multicall appearance rings if programmed to do so.
- The warning tone is given to all internal parties in the call being overridden.
- If the overridden call collapses to a two party call with just the overriding and the overridden party, then the override condition is cleared and a normal two-party call continues.
- If a key line is overridden, if the root extension of the line is in the call on the line then that telephone is overridden. If the extension is not in the call on the line then the first "I-busy" *SUPERSET* telephone using one of the key line appearances is overridden.
- If a logical key line is overridden then the first "I-busy" *SUPERSET* telephone using one of the line appearances is overridden.
- An extension can only be overridden when talking to a party or in a conference call.
- If the caller is prevented from overriding when the override is attempted, the caller receives reorder tone.

- If the extension called becomes idle while the caller is listening to busy tone, when the caller attempts to override, an override is not done. Instead, a new call attempt is made to the extension as if the extension was dialed again.

The user cannot override:

- a telephone on hold,
- an industry-standard telephone, *SUPERSET* telephone, DISA trunk, or TIE trunk, with COS Option 216, Data Security or COS Option 238, Override Security in its COS,
- an extension with a call on consultation hold and the extension does not have the non-busy extension feature enabled (see *Non-busy Extensions*),
- a consultee,
- a busy hunt group,
- a logical multicall line,
- an industry-standard telephone key line that is holding a party (but is not holding the party on the key line),
- a conference call on consultation hold,
- a 4 party call with one party flashed out of the conference,
- a call with a Call Announce Port in it,
- a call that has another party in the call with the Non-busy Extension feature enabled,
- a call with the attendant in it,
- a call with 5 parties in it,
- an extension that is overriding another extension,
- a member of a recording hunt group.

Programming To allow extensions in a COS to override, enable COS Option 500 (Override) in that COS.

Industry-standard telephones, *SUPERSET 3*, *SUPERSET 3 DN*, *SUPERSET 401*, and *SUPERSET 410* telephones need an access code to perform Override. Assign an access code to Feature 31 (30 in Generic 1001) (Executive Busy Override). This access code must be a single digit.

To provide feature key activation of Override from a *SUPERSET 3 DN*, a *SUPERSET 410*, or a *SUPERSET 420* telephone, program an OVERRIDE (INTRUDE) feature key. (See Feature Keys.)

Operation Operation varies depending upon the type of set as described below.

Industry-standard, SUPERSET 3 and SUPERSET 401 Telephones:

- While receiving busy tone, dial the Executive Busy Override Access Code. After the warning tone, you are connected to the call.

SUPERSET 3 DN, SUPERSET 410 and SUPERSET 420 Telephones:

- While receiving busy tone, press the INTRUDE feature key. After the warning tone, you are connected to the call.

SUPERSET 4 Telephones:

- While receiving busy tone, press the OVERRIDE softkey; this softkey appears only when override is permitted.
- After a warning tone, you are connected to the call.

SUPERSET 4 DN and SUPERSET 430 Telephones:

- While receiving busy tone, press the **Intrude** softkey; this softkey appears only when override is permitted.
- After a warning tone, you are connected to the call.

Override Announce

Description This feature allows a caller reaching a busy *SUPERSET 4* telephone to override to the called set's Call Announce Port. This operation takes precedence over normal override.

Conditions The following conditions apply to this feature:

- The *SUPERSET 4* telephone must be on a call.
- If the *SUPERSET 4* telephone being called does not have a Call Announce Port, or is in Handsfree mode (the speaker is turned on), a normal Override occurs; see *Override*.
- If the *SUPERSET 4* telephone has the Non-busy Extension feature enabled then a normal override is performed.
- If the Call Announce Port is busy or there are not enough resources to complete the override to the Call Announce Port, reorder tone is returned.
- The *SUPERSET 4* telephone being called cannot:
 - itself be overriding another party
 - have a conference on consultation hold
 - be in a 4 party call that has been put on consultation hold by one of the parties in the call.

- If a key line is called and if the root of the key line is the first party in the call, then an Override Announce is done if the party picked to be overridden has a Call Announce Port programmed; otherwise a normal Override is done.

- Programming** Enable COS option 501 (Override Announce) in the overriding set's COS.
- Program an Executive Busy Override feature by assigning an access code to Feature 31) (30 in Generic 1001) in CDE Form 02 (Feature Access Codes).
- Operation** Same as Override; see Override.

Override Security

- Description** This option provides an extension, DISA trunk, or Dial-in Tie trunk with security against Override (Intrude); see *Attendant Busy Override* and *Override (Intrude)*.
- Conditions** The following conditions apply to this feature:
- The feature is ignored by the non-busy extension feature.
 - The feature also provides an extension with security against having Do Not Disturb overridden; see *Do Not Disturb*.
- Programming** Enable COS Option 238 (Override Security) for the extension or trunk.
- Operation** None.

PA Paging

- Description** An extension, Tie trunk, or DISA trunk can be permitted to access the paging equipment by dialing the required access code. Access may be restricted to any of the nine zones depending upon the access code dialed. If an extension tries to access busy paging equipment, busy tone is returned.
- Paging equipment may be connected to the SX-200 DIGITAL PABX via a Paging/Music-on-Hold module on the Universal Card. Up to nine paging zones, with separate or simultaneous access, can be provided. Refer to Practice 9109-096-125-NA, Circuit Card Descriptions, for additional information.
- Also see *Attendant Paging Access*.

Conditions

The following conditions apply to this feature:

- A short burst of tone is provided when paging equipment is successfully accessed.
- Campon or Callback may not be activated on busy paging equipment.
- Paging amplifiers and loudspeakers are customer-provided equipment.
- The Attendant can override any extension using paging equipment to make an announcement. The extension receives busy tone when it is removed from the pager.
- If System Option 03 (Single Paging Amplifier) is enabled, only one user at a time can access all paging in the system and the Attendant cannot override the parties on the pager.
- Accessing the pager operates a relay on the pager module which may be used for controlling an external paging amplifier.
- *SUPERSET* telephone users cannot access Paging while in Handsfree mode.
- If access to all zones is attempted and at least 1 zone is busy then no paging is done and busy tone is returned.
- Access is to a single zone or simultaneously to all zones programmed in the device's COS.
- The PAGE softkey is not available to *SUPERSET 4 DN* and *SUPERSET 430* telephones with the HEADSET OPERATION feature unless there is a consultation hold in progress.

Programming

Specify the paging equipment in use in CDE Form 18 (Miscellaneous System Ports).

Enable System Option 03, Single Paging Amplifier, if the PABX has only one paging amplifier output.

Enable one or more of the following COS Options for the extension in CDE Form 3 (COS Options) as shown in the following table.

COS Option Number	Description
303	Paging Zone 1 Access
304	Paging Zone 2 Access
305	Paging Zone 3 Access
306	Paging Zone 4 Access
307	Paging Zone 5 Access
308	Paging Zone 6 Access
309	Paging Zone 7 Access
310	Paging Zone 8 Access
311	Paging Zone 9 Access
312	Paging Default (0 to 9) (0 Gives All Enabled Zones)

For access to the default zone, assign an access code to Feature 12 (Paging Access to Default Zone) in CDE Form 02 (Feature Access Codes).

Assign an access code to Feature 13 (Paging Access to Specific Zones) for access to zones other than the default zones.

To provide convenient access to this feature from a *SUPERSET 3 DN*, *SUPERSET 410*, or *SUPERSET 420* telephone, program a PA PAGE feature key (see Feature Keys).

Operation

Operation varies depending upon the device as described below.

Industry–Standard, *SUPERSET 3*, and *SUPERSET 401* Telephones:

- Lift the handset.
- Dial the appropriate Paging access code.
- If access code is for specific zone paging, dial the zone number (0 through 9).
- A tone is returned. Make announcement.
- Hang up.

***SUPERSET 3 DN*, *SUPERSET 410*, and *SUPERSET 420* Telephones:**

Note: If a PA PAGE feature key is not programmed for the set, follow the Industry–Standard telephone operation.

- Go off–hook.
- Press and hold down the PA PAGE feature key for default zone access.
- Wait for a short burst of tone.
- Make the required announcement.

***SUPERSET 4* Telephones:**

- Go off–hook.
- Press and hold down the PAGE softkey for default zone access.
- Wait for a short burst of tone.
- Make the required announcement.

***SUPERSET 4 DN* and *SUPERSET 430* Telephones:**

- Go off–hook.
- Press and hold down the **Pager** softkey for default zone access.
- Wait for a short burst of tone.
- Make the required announcement.

Parallel Connection of Industry-Standard Telephones

- Description** A maximum of three industry-standard telephones equipped with bells can be connected (hard-wired) together on one ONS line of the SX-200 DIGITAL PABX.
- Conditions** The following conditions apply to this feature:
- When one industry-standard telephone is in use, if any other of the industry-standard telephones goes off-hook, it then joins in the call (without proper conferencing facilities).
 - All of the industry-standard telephones ring when the extension number is called.
 - If the telephones are equipped with Message Waiting lamps, further restrictions may apply.
- Programming** None.
- Operation** None.

Pickup Groups

- Description** Extensions can be programmed as pickup groups, permitting users to answer calls on any other extension within their particular group; see *Pickup – Local and Directed*.
- Conditions** The following conditions apply to this feature:
- A maximum of 50 Pickup groups are permitted per system, with a maximum of 50 extensions permitted per group.
 - Calls are picked up in the group in order of the extensions in the pickup group. The search for a ringing extension starts with the first extension in the group and ends with the last in the group.
 - An extension can only be in one pickup group at a time.
- Programming** Assign the desired extensions to the appropriate pickup groups via CDE Form 10 (Pickup Groups).
- Operation** See *Pickup – Local And Directed*.

Pickup – Local and Directed

Description

A telephone can be assigned to a pickup group, and can answer any ringing telephone within that group. This is Local Pickup.

Directed Call Pickup allows an extension user to answer any ringing telephone within the system.

See *Pickup Groups*.

Conditions

The following conditions apply to this feature:

- Local Pickup operates only for extensions within the same Pickup Group.
- For ringing *SUPERSET* telephones, the ringing line is scanned for from the prime line up the *SUPERSET* telephone until a line that can be picked up is found.
- For Directed Call Pickup, the scan is done on the extension specified and not on the line appearances of that extension (unless the *SUPERSET* telephone has multicall line appearances of itself).
- For pickup groups, the scan for a ringing extension always starts with the first pickup group member (terminal scanning) each time a pickup is attempted. A ringing extension is determined to be ringing based on the scan on the extension for a ringing line that can be picked up.
- Reorder tone is returned if there is no call to pick up (or it is already picked up).
- The following call types cannot be picked up:
 - callbacks,
 - wakeup/reminders,
 - calls to members of recording hunt groups,
 - calls ringing back an extension (Station Transfer Security),
 - Direct Trunk Select or Private Trunk lines,
 - silently ringing line appearances or delay ring line appearances that have not begun to ring,
 - console calls when a consultation hold is in progress,
 - callers that cannot connect to the party picking up the call (see *Device Interconnection Control*),
 - the party picking up the call and the ringing extension cannot connect,
 - the *SUPERSET* telephone is Auto-Answering the call.
- Calls cannot be picked up using a Personal Outgoing Line in systems which have Generic 1001 or Generic 1002 software. However, this functionality is available in all subsequent releases.

Programming Program Pickup Groups in CDE Form 10 (Pickup Groups).

Assign an access code to Feature 08 (Dial Call Pickup).

Assign an access code to Feature 09 (Directed Call Pickup).

To provide convenient access to this feature from a *SUPERSET 3* DN or *SUPERSET 410* telephone, program a PICKUP feature key (see Feature Keys).

To permit sets in a COS to pick up calls outside their Pickup Group, enable COS Option 218 (Directed Call Pickup) in that COS.

Operation **Local Pickup – Industry–standard, *SUPERSET 3*, and *SUPERSET 401* Telephones:**

When a telephone in the same Pickup Group rings:

- Lift the handset – dial tone is returned.
- Dial the Call Pickup code – the call is connected.

Local Pickup – *SUPERSET 3* DN and *SUPERSET 410* Telephones:

When a telephone in the same Pickup Group rings:

- Lift the handset – dial tone returned.
- Press the PICKUP feature key – the call is connected.

Local Pickup – *SUPERSET 4* Telephones:

When a telephone in the same Pickup Group rings:

- Lift the handset – dial tone returned.
- Press the PICKUP softkey – the call is connected.

Local Pickup – *SUPERSET 420* Telephones:

When a telephone in the same Pickup Group rings:

- Lift the handset – dial tone returned.
- Press the **Pickup** softkey – the call is connected.

Local Pickup – *SUPERSET 4* DN, and *SUPERSET 430* Telephones:

When a telephone in the same Pickup Group rings:

- Lift the handset – dial tone returned.
- Press the **Pickup Call** softkey – the call is connected.

Directed Pickup – All Telephone Types

When a telephone outside the Pickup Group rings:

- Go off-hook – dial tone is returned.
- Dial the Directed Call Pickup code.
- Dial the extension number of the ringing telephone – the call is connected.

Power Fail Transfer (PFT)

Description

In the event of a common control or power failure which would cause a major loss of call processing, preselected CO trunks are automatically switched to designated extensions. Failure transfer may be selected automatically under control of the system, or manually by setting the maintenance panel transfer switches to TRANSFER. When normal system operation is restored, calls on the transfer circuits remain in effect until they are terminated.

Note that the *SX-200* FD system has System Fail Transfer (SFT) rather than Power Fail Transfer. In *SX-200* FD systems, Power Fail Transfer Cards are not used. Instead, the peripheral cabinets are connected to System Fail Transfer Units. In addition, there are no Master Transfer Switches on the *SX-200* FD cabinets.

Generally, the circumstances which cause a power fail transfer in *SX-200* 336-, 480-, 672-port systems, and which cause a system fail transfer in the *SX-200* FD system are:

- The main control card stops functioning (all bays are cut over into PFT/SFT mode).
- The link between the main controller and one of the equipment bays stops functioning (the affected bay is cut over into PFT/SFT mode).
- On power-up, one of the bays fails to initialize properly (the affected bay is cut over into PFT/SFT mode). PFT/SFT follows a Critical Alarm.
- Commercial power failure with no PABX backup power source (UPS).
- Bay Power Supply or rear door power supply failure.

Conditions

The following conditions apply to this feature:

- If a transfer takes place, any existing calls on the transferred trunks are dropped.
- Ground start trunks require a Ground-to-Loop converter (6-circuit PFT cards only).
- If trunks are rotary dial only, DTMF sets may not be used for dialing.
- *SUPERSET* telephones and consoles cannot be Power Fail Transfer extensions.

Programming None.

Operation To manually activate PFT, set the maintenance panel Master Transfer Switches to TRANSFER, as required. Note that the *SX-200* FD system does not have Master Transfer Switches.

Printer / Terminal Support

Description This feature allows the routing of printouts to the system printer port, to any data port, or to the printer port on the *SUPERCONSOLE 1000* Attendant Console. If no new port is specified through CDE, printouts default to the system printer port. All printer ports are RS-232C interface. Printout types include:

- Traffic Measurement
- SMDR (Trunk, Data, ACD)
- CDE
- Hotel/Motel system printouts
- PMS interface port
- ACD Reports
- Maintenance Logs.

Customer programming printouts may be directed to any or all of seven user-defined printers. A maximum of six DNIC-based printer ports can be defined; the remaining port is the system printer port.

CDE forms may be printed individually or collectively.

Certain CDE forms require the user to specify which sub-forms are to be printed (in a "from - to" format).

Conditions The following conditions apply to this feature:

- Printouts may be sent to more than one printer at a time. The time required to print is determined by the slowest printer.
- Not more than five printouts may be directed to one printer.
- Some printouts can be guaranteed. If there is a printer failure, the information is preserved and printed when the printer is ready again.
- If the printer runs out of paper and can send flow control information, the system suspends printing until the printer is ready again.

- If the printer or dataset is powered down, the system waits until the printer or dataset is ready again.
- Printers must have an RS-232C interface.
- A functioning printer must always be connected to the port assigned for SMDR printouts. If the printer fails or is disconnected, outgoing trunk calls are disabled as soon as the internal storage buffer is full if 'No Overwrite' (COS Option 702) is enabled in the COS for the trunk. The system's internal SMDR record buffer holds 200 SMDR records; this provides sufficient time for printer maintenance.
- The PMS printer port must be dedicated to PMS only; it cannot be shared with any other application.
- The *SUPERCONSOLE 1000* Attendant Console printer port limitations are described in Practice 9109-096-126-NA, Peripherals Devices.

Programming For a printer connected via a dataset, define an appropriate Data Circuit Descriptor in CDE Form 11 (Data Circuit Descriptor). Program the dataset in Form 12 (Data Assignment) using the new Data.

Complete programming of CDE Form 34 (Directed I/O); specify the printer ports available, and then direct each printout to its associated printer.

After assigning the *SUPERCONSOLE 1000* Attendant Console in CDE Form 07 (Console Assignments), program subcircuit 2 of the console's Bay/Slot/Circuit location as a DSCONS in CDE Form 12 (Data Assignment), if the console port is to be a printer port.

Note: Printer connected to a printer port must have parameters set up as shown in Practice 9109-096-351-NA, RS-232 Maintenance Terminal.

Operation The system checks CDE Form 34 (Directed I/O) whenever it generates a printout, to determine to which printer port it should route the printout.

Priority Dial 0

- Description** Priority Dial 0 is a second class of Dial 0 call, with its own separate DAY/NIGHT routing points. This feature can be used to provide an alternate Dial 0 routing for extensions in the system.
- Conditions** The following conditions apply to this feature:
- Priority Dial 0 calls can be routed to the same type of answering points as Dial 0 calls.
 - Wherever Dial 0 routing is used in the system, Priority Dial 0 is checked.
 - Priority Dial 0 calls may be routed to the same point as Dial 0 calls or they may be routed to an LDN key which distinguishes Dial 0 and Priority Dial 0 calls.
- Programming** Enable COS Option 239 (Priority Dial 0) for the required extension.
- Program an Access Code (usually 0) in CDE Form 02 (Feature Access Codes) for Feature 11 (Extension General Attendant Access).
- Operation** Dial the access code.

Privacy Enable/Privacy Release

- Description** A *SUPERSET 4*, *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 410*, *SUPERSET 420*, or *SUPERSET 430* telephone may have line appearances of Key, Direct Trunk Select, CO Line and Private Trunk lines that are shared with other sets. When Privacy is enabled, while a conversation is in progress on a line, other sets with an appearance of that line are denied access. See *Line Privacy*. The user of the line can, however, use the Privacy Release feature to allow the other sets to join the conversation.
- Conditions** The following conditions apply to this feature:
- On a CO Line, there can be up to a maximum of two parties on the CO Line. Privacy release is not available after a second party has joined the established call.
 - Privacy release is unavailable on a CO Line after a second party joins an established call.

- Privacy is effective only against other appearances of the line; it has no effect on Override.
- Privacy Release is available only on *SUPERSET 4*, *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 410*, *SUPERSET 420*, and *SUPERSET 430* telephones.

Programming To allow Privacy Release operation at a *SUPERSET 3 DN*, *SUPERSET 410* or *SUPERSET 420* telephone, program a PRIVACY RELEASE feature key (see Feature Keys).

Operation ***SUPERSET 3 DN*, *SUPERSET 410*, and *SUPERSET 420* Telephones:**

- During an established call, press the PRIVACY RELEASE feature key. The LCD shows the status of privacy on the line as follows:
 - LCD clear indicates Private.
 - LCD dark indicates Not Private.
- Another telephone user with an appearance of the same line can now enter the conversation by pressing the appropriate Line Appearance key.
- Reestablish privacy by pressing the key again.

***SUPERSET 4* Telephones:**

- During an established call, press the PRIVACY REL softkey. Another telephone user with an appearance of the same line can now enter the conversation by pressing the appropriate Line Select key.
- Reestablish privacy by pressing the PRIVACY softkey.

***SUPERSET 4 DN* and *SUPERSET 430* Telephones:**

- During an established call, press the **Rel Privacy** softkey. Another telephone user with an appearance of the same line can now enter the conversation by pressing the appropriate Line Select key.
- Reestablish privacy by pressing the **Make Private** softkey.

RAD Support

- Description** Recorded Announcement Devices (RAD) are supported in the system as recording hunt groups. These special hunt groups have features and restrictions on them that allow efficient use of the recording resources. Recording hunt groups are used in ACD, UCD, Hotel/Motel Wakeup, Automatic Attendant Overflow, and Automated Attendant.
- For ACD, Attendant Automatic Overflow, and Automated Attendant, more than one caller at a time (a listen only conference) can listen to a recording in the recording hunt group. For UCD and Hotel/Motel Wakeup, only one caller at a time can listen to a recording in the recording hunt group.
- For some applications, there is support for various kinds of recording devices and support for various recording device failures. These features only apply when the members of the group are accessed through the group – they do not operate when an individual member of the recording hunt group is called directly by dialing its individual extension number.
- When a recording is playing for ACD, Automatic Attendant Overflow, and Automated Attendant, the Recording Message Length Timer (programmed on the recording group) applies. When the timer expires and the recording is still playing, the system terminates the recording. For some devices this acts as a safety timer for recording devices that fail to terminate their recording. For tape based recording devices, this allows the system to not play the dead time at the end of the tape.
- When an error occurs, a maintenance log is created and the failed recording device is put into the Do Not Disturb state. There are two error conditions handled for members of recording groups:
- When a recording is rung, if the recording does not answer within 20 seconds, the ringing is canceled and the recording is put into Do Not Disturb.
 - When the system ends the recording, due to the message length timer or the caller hanging up, then the Recording Failure To Hangup Timer (in the recording device's COS) is started (not for UCD or Hotel/Motel Wakeup). If the recording fails to hang up during this time then the recording is put into Do Not Disturb.
- See *Attendant Automatic Overflow*, *Automated Attendant*, *Uniform Call Distribution (UCD)*, and *Automatic Wakeup*. Also see *Automatic Call Distribution* and refer to Practice 9109–096–620–NA, *ACD TELEMARKETER* Application Package.

- Conditions** The following conditions apply to this feature:
- Hunt group overflow does not apply to recording hunt groups.
 - Industry–standard telephones only can be members of recording hunt groups.

- There is no limit to the number of simultaneous listeners to a recording.
- Recalls never occur to recordings that are not directly dialed.
- Trunks (all types) are answered before listening to a recording.
- Local switching is not used when recording devices are accessed from one of the features using the recording hunt group.

The following restrictions apply to members of recording hunt groups:

- they cannot have line appearances of them programmed on any *SUPERSET* telephone in the system
- they cannot originate calls (regardless of any options in the system)
- a flash is always ignored
- they cannot have call me back messages left at them
- they cannot be overridden
- campon warning tone is never applied
- they cannot be an alternate music source port in ACD
- calls ringing them cannot be picked up using the Directed Pickup feature
- the Last Party Clear Dial Tone feature does not operate for recording devices
- standard ringing is always applied when ringing.

Programming For recording hunt groups used in Automatic Call Distribution, Attendant Automatic Overflow, and Automated Attendant, select a time for COS Option 404 (Recording Failure to Hangup Timer) in the COS of the recording hunt group members.

Since some RADs won't answer calls that use discriminating ringing (non-standard ringing), ensure that COS Option 809 (Standard Ring Applies) is enabled in the COS of the incoming trunks.

See *CDE Form 17 (Hunt Groups)* for details on programming the hunt group itself.

Operation Not applicable.

Recall

Description The recall feature ensures that calls do not remain unanswered or on hold for an extended period. Any call that has been extended by a console, or an external call that has been extended by an extension to another party, recalls the console or extension if the call is not answered or remains on hold at the end of a timeout period.

The recall feature also works for outgoing external calls. When a trunk is seized, the calling party becomes the recall point. If the trunk is transferred somewhere in the system, recall is by default to the party that made the call.

Setting Up the Recall Point

When a console answers a call, regardless of where the call came from, that caller's recall point is always set to be that console. The call recalls back to the console (at the Recall call position) unless some other recall feature has been added. Performing an unsupervised transfer of a call to another party in the system does not change the recall point of the transferred party. For a supervised transfer, the recall point of the transferred party (if it is an internal party) is cleared, which prevents any recall back to the console. If the console is transferring a non-serial trunk to a Subattendant extension, the recall point is set to be the Subattendant.

Extensions only affect the recall point of trunk calls when the trunk is answered (this includes answering calls via features such as Auto-Answer, directed pickup or TAFAS). The recall point is only set to the answering extension if the trunk call is not a serial trunk and the trunk has not had a recall point set up already. If the extension is a Subattendant, and the trunk is not a serial call trunk, then the trunk recall point is changed even if it is already set-up.

The recall feature works for outgoing external calls as well. When a trunk is seized, the recall point is set to be the calling party. If the trunk is transferred somewhere in the system, recall is by default back to the party that made the call unless the recall point is altered.

When A Recall Is Done

Recall is done when ringing a device, camping on to a device or being held by a device.

When ringing another device in the system and forwarding is done, then the Recall No Answer Timer is started for the device and when the timer expires, a recall is attempted. If calling an LDN and the Attendant Calls Forwarded On No Answer feature is active then the timer for that feature is started instead; see *Attendant Calls Forwarded On No Answer*.

When camping on to another device, the attendant campon recall timer is started. When the timer expires, a recall is attempted.

When a call is held by an industry-standard telephone after the call hold Recall timer timeout, (COS Option 254 — 252 in Generic 1001), a recall is attempted if the industry-standard telephone is not idle.

Recall Processing

When a recall is attempted, the following decisions are made:

- if ringing a console, LDN, or Night Bell, then no recall at all is done.
- if the caller is a CO or DISA trunk and the Non Dial-in Alternate Recall Point is defined and the trunk is not already calling that point then a reroute is done to that point; see *Alternate Trunk Recall*.
- if a DID or Tie trunk is ringing a party, then DID/Tie Trunk Routing On No Answer is checked. This is only done if the recall point is not set up for the caller; see *DID/Dial-in/Tie Intercepts*.
- if the recall point has not been set up, then the Final Ringback Timer is started if the caller is recalling from ringing. Otherwise recall is attempted again after 10 seconds.
- if the recall point is set up and is not busy, then that point is called.
- if the recall point is set up and is busy, and if recalling from ringing, then the Recall No Answer Timer is started again. Otherwise, recall is attempted again after 10 seconds.

Conditions

The following conditions apply to this feature:

- Ringing an extension from a hold timeout for *SUPERSET* telephones or industry-standard telephones that are idle or have Do Not Disturb activated is handled as a recall after a ring no-answer timeout.
- Unlike a reroute point, a busy recall point does not have Recalls camp onto it. If the recall point has Do Not Disturb activated then no recalls to the point are done.
- A *SUPERSET* telephone with the Subattendant – Basic Function feature has less stringent tests for being available to handle a recall; see *Subattendant*.
- The serial call feature is similar to the basic recall in that it sets up the recall point for the serial trunk; see *Attendant Serial Call*.
- Recall occurs from campon after the Attendant-Timed Recall (CAMPON) time. The timer value is taken from the caller's recall point's COS. If no recall point has been setup then the timer value is taken from the caller's COS. If the timer value is 0 in the caller's COS then the final ringback timer is started and no recall is done.
- For a recall from campon to the console or an LDN key, the recalling party is not removed from campon. If the busy destination becomes available before the recall is answered at the console then the recall stops and the recalling party rings the now available party.
- For recall from ringing, the Attendant-Timed Recall (NO ANSWER) timer value is taken from the caller's recall point's COS. If no recall point has

been set up then the timer value is taken from the caller's COS. If the timer value is 0 in the caller's COS then the Final Ringback Timer is started and no recall is done.

- When a recall timer is needed for the recall point, if the recall point is an LDN key then the COS of the console with the lowest Bay/Slot/Circuit PLID where the LDN is programmed is used.
- No recall is done when a device is receiving busy tone and it does not camp on to the busy device.
- No recall of any kind is done for Direct Trunk Select and private trunks that are ringing in.
- Listening to recordings has no effect on recall for Uniform Call Distribution, Automated Attendant, Attendant Automatic Overflow, and Automatic Call Distribution callers.
- When a reroute is performed for UCD Busy Agent timeout, the recall point for the waiting caller is cleared.
- Whenever an internal caller talks to another device, the recall point of the internal caller is cleared.
- Enabling repeated campon beeps for a trunk prevents recall from campon; see *Campon Warning Tone*.
- The Auto-Answer feature is ignored for recalls directly back to a *SUPERSET* telephone.
- See *Attendant* and *Subattendant Hold Positions* and *Hold* for details on Hold Timeout handling.
- A console never recalls to any other device.
- A call recalls to extensions and consoles through a recall point. Recall to other device types must use features available through the Call Rerouting table.
- When a *SUPERSET* telephone answers a call on a non-prime line, the recall point for the caller, if it is altered, is set to the answering *SUPERSET* telephone and not to the line that was answered.
- Recalls to a console recall call position are directed to the Recall call position of a group of consoles if the Transparent Multi-Console Operation feature is used.
- Subattendant Recalls are not affected by Transparent Multi-Console Operation feature.

Programming Select values for COS Options 117 (Attendant-Timed Recall – CAM-PON), 115 (Attendant-Timed Recall (NO ANSWER)) and System Option 51 (Final Ring Timeout) (40 in Generic 1001) for the recall point, console, or extension, or in the caller's COS (see Conditions to determine which COS is used); see *Attendant-timed Recall*.

Operation None.

Receive Only Extensions

- Description** An industry-standard telephone with this class of service (COS) option, can receive calls but cannot originate calls. The industry-standard telephone may, however, originate calls and select features specified in its COS after having received a call, and placed the call on hold by flashing.
- Conditions** The following conditions apply to this feature:
- If the station tries to originate a call, the attempted call is ignored.
 - If used in conjunction with the Flash Disable feature, ALL types of call origination are blocked.
 - See *Never A Forwarder* and *Callbacks*.
 - COS Options 241 (Receive Only) and 400 (Contact Monitor) are mutually exclusive.
- Programming** Enable COS Option 241 (Receive Only) for the extension.
- Operation** None.

Reminder

- Description** An extension user can program the telephone to provide a single ringing burst at a particular time. This feature acts as a reminder for appointments, meetings, etc.
- Conditions** Do Not Disturb has no effect on Reminder.
- Programming** Enable COS Option 202 (Alarm Call) in the extension's COS.
- To enable industry-standard, *SUPERSET 3*, *SUPERSET 3 DN*, *SUPERSET 401*, and *SUPERSET 410* telephones to use this feature, enable System Option 11 (Automatic Wakeup), and assign an access code to Feature 32 (31 in Generic 1001) (Automatic Wakeup).
- Operation** Operation varies depending upon the type of set as described below.
- Industry-standard, *SUPERSET 3*, *SUPERSET 3 DN*, *SUPERSET 401*, and *SUPERSET 410* Telephones:**
- To set or modify the Current Reminder Setting:
- Obtain dial tone.

- Dial the Automatic Wakeup code.
- Dial in the wakeup time. The time is specified by dialing the hour and minutes in 24-hour time format.
- Reorder tone is returned for an invalid time; dial tone is returned for a valid time.

To cancel a reminder:

- Obtain dial tone.
- Dial the Automatic Wakeup code, followed by four 9's.
- Replace the handset. The reminder is canceled.

SUPERSET 4 Telephones:

To Set or Modify a Timed Reminder:

- With the handset on-hook, press the PROGRAM softkey.
- Press the REMINDER softkey.
- Dial the desired time in 24-hour format. In case of error, use the ← softkey to back space and clear the incorrect entry. To cancel the entire entry, press the EXIT key. If there was a reminder already programmed, it remains in effect.

To Display the Current Reminder Setting:

- Press the DISPLAY key.
- Press the REMINDER softkey.
- The LCD displays an acknowledgement if the reminder has expired.

To Acknowledge a Timed Reminder:

- Press the SAVE softkey.

At the programmed time, the telephone rings once and the LCD shows DISPLAY REMINDER. The reminder softkey prompt flashes.

To acknowledge a timed reminder:

- If idle, press the REMINDER softkey; the word ACKNOWLEDGED appears on the LCD.
- If on a call when the reminder expires, the REMINDER softkey begins flashing, but pressing it does nothing. Press the DISPLAY key and then the REMINDER softkey to acknowledge it.

To Cancel a Timed Reminder:

- With the handset on-hook, press the PROGRAM softkey.
- Press the REMINDER softkey.
- Press the CANCEL softkey.

SUPERSET 420 Telephones:

To Set Up a Reminder:

- Press **SuperKey**.
- Press the **No** softkey until TIMED REMINDER? appears in the display.
- Press the **Yes** softkey. ENTER TIME HH:MM appears.
- Dial the desired time in a 12-hour format (e.g. 01:45). In case of error, use the ← key.
- Specify AM or PM by pressing the **AM/PM** softkey.
- Press the **Save** softkey. REMINDER SAVED appears briefly in the display.

To Display the Current Reminder Setting:

- Press **SuperKey**.
- Press the **No** softkey until TIMED REMINDER? appears in the display.
- Press the **Yes** softkey. The current reminder time is displayed.
- Press **SuperKey** to return to normal display

To Cancel a Reminder before it occurs:

- Press **SuperKey**.
- Press the **No** softkey until TIMED REMINDER? appears in the display.
- Press the **Yes** softkey. The current reminder time is displayed.
- Press the **Cancel** softkey. REMINDER CANCELLED appears briefly in the display.

To Change a Reminder before it occurs:

- Press **SuperKey**.
- Press the **No** softkey until TIMED REMINDER? appears in the display.
- Press the **Yes** softkey. The current reminder time is displayed.
- Press the **Change** softkey. ENTER TIME HH:MM appears.
- Dial the desired time in a 12-hour format (e.g. 01:45). In case of error, use the ← key.
- Specify AM or PM by pressing the **AM/PM** softkey.
- Press the **Save** softkey. REMINDER SAVED appears briefly in the display.

To Acknowledge an Alarm that has occurred:

- You hear a short burst of ringing. REMINDER EXPIRED is shown in the display.
- Press the **Confirm** softkey to acknowledge the alarm. ACKNOWLEDGED appears briefly in the display.

SUPERSET 4 DN and SUPERSET 430 Telephones:

To Set Up a Reminder:

- Press the **SuperKey**.
- Find and press the **Reminder** softkey.
- Dial the desired time in 24-hour format. In case of error, use the **←** key.
- When the telephone is idle, a flashing **Acknowledge** softkey appears. The softkey disappears when pressed and the LCD second line shows ACKNOWLEDGED for about 2 seconds.

To Display the Current Reminder Setting:

- Press the **SuperKey**.
- Find and press the **Reminder** softkey; the current reminder time is displayed.
- Press the **SuperKey** to return to normal display.

To Cancel a Reminder before it occurs:

- Press the **SuperKey**.
- Press the **Reminder** softkey. The current Reminder time is displayed.
- Press the **Cancel** softkey.

Resale Package

Description

The Resale Package is a method of offering the system's Automatic Route Selection (ARS) "Least Cost Routing" facilities to external users requiring low cost Long Distance calling, much like the offerings of other Common Carriers.

DISA trunks are installed for external access to the system. The external user dials up one of the DISA trunks, enters a verified account code, and dials the desired external number. The Direct to ARS feature can be used to route the caller directly to ARS.

This feature is actually a specialized application of the *SX-200* DIGITAL PABX Automatic Route Selection, Toll Control, and Verified Account Code features.

- Conditions** The following conditions apply to this feature:
- Verified Account Codes can be activated and/or deactivated for problem accounts.
 - See *Automatic Route Selection* and *Verified Account Codes*.
- Programming** Program DISA trunks in CDE Forms 01 (System Configuration), 13 (Trunk Circuit Descriptors), and 15 (Dial-In Trunks) – see *Trunk Operation – Direct Inward System Access (DISA)*.
- Program verified account codes in CDE Form 33 (Account Code Entry); also see *Verified Account Codes (Special DISA)*.
- Operation** Dial into system via DISA trunk.
- Enter a verified account code.
- Make call as required.

Ringer Control

- Description** *SUPERSET* telephone users may adjust the set's ringer.
- Conditions**
- *SUPERSET 3* telephone users may adjust both the ringer pitch and the ringer volume.
 - *SUPERSET 3* DN and *SUPERSET 4* telephone users may adjust the ringer volume.
 - *SUPERSET 4* DN, *SUPERSET 401*, *SUPERSET 420* and *SUPERSET 430* telephone users may adjust both the ringer volume and the ringer pitch.
- Programming** None.
- Operation** *To adjust ringer volume:*
- SUPERSET 3* Telephones:**
- Use the Volume control screw located under the removable faceplate.

SUPERSET 3 DN, SUPERSET 401, and SUPERSET 410 Telephones:

- While the set is ringing, press the **Vol** ^ and **Vol** v keys to increase and decrease the ringer volume.

SUPERSET 4 Telephones:

- Use the Ringer dial at the top left-hand corner of the set.

SUPERSET420 Telephones:

- Press **SuperKey**.
- Press the **No** softkey until RINGER ADJUST? appears in the display.
- Press the **Yes** softkey.
- ADJUST PITCH? appears in the display.
- Press the **No** softkey.
- ADJUST VOLUME? appears in the display.
- Press the **Yes** softkey.
- Press the **Vol** ^ and **Vol** v keys repeatedly to increase and decrease the ringer volume.
- Press **SuperKey** to exit.

SUPERSET 4 DN and SUPERSET 430 Telephones:

- Press **SuperKey**.
- Press the **More** softkey.
- Press the **Ring Adjust** softkey.
- Press the **Ringer Vol** softkey.
- Press the **Vol** ^ and **Vol** v keys repeatedly to increase and decrease the ringer volume.
- Press **SuperKey** to exit.

To adjust ringer pitch:

SUPERSET 3 Telephones:

- Use the **Pitch** control screw located under the removable faceplate.
- *SUPERSET 3 DN, SUPERSET 401, and SUPERSET 410 telephones:*
- Lift the handset – dial tone is returned.
- Dial the Tone Demonstration Feature Access Code.
- Dial the code for Ringer Pitch Adjust (33 – see Tone Demonstration).

- Press the **Vol** \wedge and **Vol** \vee keys repeatedly to increase and decrease the pitch.
- Replace the handset.

SUPERSET 420 telephones:

- Press **SuperKey**.
- Press the **No** softkey until RINGER ADJUST? appears in the display.
- Press the **Yes** softkey.
- ADJUST PITCH? appears in the display.
- Press the **Yes** softkey.
- Press the **Vol** \wedge and **Vol** \vee keys repeatedly to increase and decrease the pitch.
- Press **SuperKey** to exit.

SUPERSET 4 DN and SUPERSET 430 telephones:

- Press **SuperKey**.
- Press the **More** softkey.
- Press the **Ring Adjust** softkey.
- Press the **Ringer Pitch** softkey.
- Press the **Vol** \wedge and **Vol** \vee keys repeatedly to increase and decrease the pitch.
- Press **SuperKey**.

Ringling Plan

Description	The <i>SX-200</i> DIGITAL PABX provides the North American ringing plan, used with the tone plan and rotary dial pulse-to-digit conversion features to enable the system to be used in the North American marketplace. The ringing plan is stored in the database on the system floppy disk. Refer to Practice 9109-096-180-NA, Engineering Information, for ringing plan information.
Conditions	None.
Programming	None.
Operation	None.

Ringling-Discriminating

Description This feature provides two different ringing cadences to allow a user to distinguish between internal incoming calls (standard ringing) and external incoming or Attendant calls (discriminating ringing). The system can also be programmed to provide discriminating ringing for all calls.

Standard ringing 1 seconds on, 3 seconds off

Discriminating ringing 400 msec on, 200 msec off, 400 msec on, 3 seconds off,

Conditions The following conditions apply to this feature:

- Discriminating Ringing does not apply to Night Bells or Recorded Announcement Devices.
- The feature applies to both the prime and additional lines on a *SUPERSET* telephone.
- In an unsupervised transfer situation, the ringing cadence of the called party is not changed after the transfer is done.

Programming To provide discriminating ringing on incoming trunk and Attendant calls:

Enable System Option 17 (Discriminating Ringing).

Disable System Option 18 (Discriminating Ringing Always).

To provide discriminating ringing for all calls:

Enable System Option 18 (Discriminating Ringing Always).

If System Options 17 and 18 are not selected, standard ringing is provided for all calls.

To provide only standard ringing for specific trunks or consoles calling (while still providing discriminating ringing to others), select COS Option 809 (Standard Ring Applies) (811 in Generic 1001) for the specific trunks or consoles.

Operation None.

Ringling Time-Out (Final Ringback)

- Description** A call to an extension can ring for 1 to 30 minutes before the call is dropped (default ringing time is 1 minute).
- Conditions** This is only done when forwarding and all recall possibilities have been exhausted; see *Forwarding and Recall*.
- Programming** Enable System Option 51 (Final Ring Timeout) (40 in Generic 1001), and set it to the desired time-out period.
- Operation** None.

Satellite PABX

- Description** The SX-200 DIGITAL PABX can be installed as a satellite PABX. In this configuration, the SX-200 DIGITAL PABX has no direct connection to the serving central office for incoming traffic. The satellite PABX has no directory number and receives all its incoming calls over tie trunks from another PABX. Enabling the satellite PABX system option automatically adjusts any required settings for the loss and level plan.
- Conditions** Some gain settings for the loss and level plan must be adjusted before the SX-200 DIGITAL PABX can operate as a satellite PABX. Once the Satellite PABX System Option is enabled, these gain adjustments are done automatically.
- Programming** Enable System Option 31 (Satellite PBX).

Refer to Practice 9109-096-180-NA, Engineering Information, for loss and level plans.
- Operation** None.

Secretarial Line

Description A *SUPERSET* telephone programmed with a secretarial Multicall line appearance of another extension can override the Do Not Disturb feature on the second set. The second telephone has Do Not Disturb active and the first telephone answers the calls. The secretary can override the second telephone's Do Not Disturb at any time by making the call on one of the Multicall line appearances of the second telephone's Prime Line. If it is important to contact the second telephone, the first telephone can ring the second telephone, despite the Do Not Disturb feature.

See *Line Appearances* for information on Multicall appearances.

Conditions The following conditions apply to this feature:

- The calling *SUPERSET* telephone has to make the call on the line appearance for the feature to operate.
- See *Do Not Disturb* for the interaction of Do Not Disturb with multicall line appearances.
- Only *SUPERSET 3*, *SUPERSET 3DN*, *SUPERSET 4*, *SUPERSET 4DN*, *SUPERSET 410*, *SUPERSET 420*, and *SUPERSET 430* telephones can be secretarial sets; the other telephone can be of any type.
- *SUPERSET 401* telephones can not be a secretarial sets.

Programming Program the secretarial set with at least one Multicall appearance, Secretarial variant, of the other extension, in the secretarial set's subform of CDE Form 09 (Station/*SUPERSET* Telephones).

Operation The other extension has Do Not Disturb enabled and there is an incoming call. At the secretarial set:

- The multicall appearance rings.
- Answer the call; the call needs to be transferred to the other extension.
- Press the **Trans/Conf** key (**Flash** key on the *SUPERSET 401* telephone) and dial the other extension's number.
- The other extension rings. Consult privately and/or hang up to transfer the call.

Speaker Volume Control

- Description** *SUPERSET* users may control the volume of the set's speaker.
- Conditions** Not available on *SUPERSET 401* telephones.
- Programming** None.
- Operation** To control speaker volume:
- SUPERSET 3* Telephones:**
- Use the volume control slide located on the left-hand edge of the set.
- SUPERSET 4* Telephones:**
- Use the SPEAKER dial at the top left-hand corner of the set.
- SUPERSET 3 DN, SUPERSET 4 DN, SUPERSET 401*
SUPERSET 410, SUPERSET 420, and SUPERSET 430 Telephones:**
- While your set is idle, or during a handsfree conversation, press the **Vol ^** and **Vol v** keys repeatedly to increase or decrease the speaker volume.

Speedcall

- Description** This feature allows a *SUPERSET* telephone user to save frequently dialed telephone numbers and to access these numbers by pressing a single key. Only unassigned Line Select keys can be used to save Speedcall numbers.
- Access codes for features such as Directed Call Pickup, Remote Call Hold Retrieve, and Call Forwarding may be programmed into Speedcall numbers. Forwarding to a Speedcall number can be programmed; see *Call Forwarding*.
- Conditions** The following conditions apply to this feature:
- The quantity of Speedcall numbers available to a *SUPERSET* telephone user is dependent on the number of lines programmed to appear at the set.
 - Speedcall numbers can be made private so that they are not displayed when reviewed or used (similar to private Abbreviated Dial numbers).

- Only unassigned Line Select keys may be programmed with Speedcall numbers.
- Except for in the *3, *5 and ** codes described below, the asterisk (*) may not appear in Speedcall numbers; *5 must be the last digit in the string.
- *3, *5 and ** are ignored in the digit string if ARS leading digits were dialed manually before the Speedcall was selected.
- The same set of Speedcall numbers can be programmed for multiple extensions by using key templates; see *Guest Room SUPERSET Key Programming*.
- COS Option 610 – (*SUPERSET* Telephone – Guest Room Template) and Speedcall are mutually exclusive on a *SUPERSET 3* DN or *SUPERSET 4* DN telephone.
- A Speedcall key can be used whenever the *SUPERSET* telephone is idle or when dialing if the manually dialed digits are ARS leading digits. The Speedcall digits will be appended to the ARS digit string; otherwise, the manually dialed digits will be replaced by the Speedcall digits).
- If ARS leading digits appear in the Speedcall string, a *3nn is interpreted as insert manual digits.
- When Speedcalls are used in ARS, there is a minimum display update of 5 seconds to allow the user to view the number.
- See *Line Selection* for operation when the prime line is not free for the call and another line has not been selected.
- Private numbers are not displayed in SMDR reports.
- A Speedcall number may contain an Abbreviated Dial number.
- COS Option 807 – (SMDR – Display Private Speedcall) must be enabled to display private numbers in SMDR reports (not available with Generic 1001 and 1002).
- Personal Speedcall numbers cannot be saved if a Copy Database or Verify Database operation is in progress.

Programming All programming is done at the telephone.

Operation Operation varies depending upon the type of set as described below.

Note: The following codes can be inserted into a stored number:

*3nn – wait for nn manually dialed digits

nn can range from 01 to 14

e.g., the general number for external directory assistance is 9+1+(area code)+555-1212; the area code is to be dialed manually. The number to be stored would be 91*3035551212.

** – dial an asterisk

*5 – call to Call Announce Port. This code must be at the end of the number. See *Call Announce*.

SUPERSET 3 Telephones:

To Set Up or modify a Speed Call Number:

- If a call is received or originated at any time during the programming of a Speedcall, the Speedcall activity is immediately exited.
- While the set is idle and the handset is on-hook, press the PROGRAM/SAVE feature key.
- Choose and press an unused Speedcall key on the telephone or associated *SUPERSET DSS* Module.
- Dial the number to be stored or dial a Feature Access Code followed by the applicable digits.
- Press the PROGRAM/SAVE key; the Speedcall number is now saved.

To dial a call using Speedcall:

- Press the programmed Speedcall key with the telephone on-hook (If COS Option 604 is enabled), or,
- Pick up the handset or press the **Speaker On/Off** key, then press the Speedcall key.

To access a feature assigned to a Speed Call key:

- Press the programmed Speedcall key with the telephone on-hook, or,
- Pick up the handset or press the **Speaker On/Off** key, then press the Speedcall key.

SUPERSET 4 Telephones:

To check saved numbers:

- Press the DISPLAY key
- Press the required Line Select key on the telephone or associated *SUPERSET DSS* Module. The currently saved Speedcall number is displayed on the LCD. If the saved number is more than 16 digits long, the **→** softkey appears. Press the **→** softkey to view the remaining characters.

To Set Up or Modify a Speedcall Number:

- With the handset on-hook, press the PROGRAM softkey.
- The telephone prompts SELECT A S/C KEY.
- Press an unused Speedcall key.
- If desired, press the PRIVATE softkey so that the telephone does not display the digits when dialing a Speedcall. This also prevents the Display feature from revealing the number.

- The set prompts: ENTER NUMBER
- Dial the number to be stored or dial a Feature Access Code followed by the applicable digits.
- Check the entry on the LCD. If correct, press the SAVE softkey.
- The set responds with THANK YOU. There is a two second delay and then the telephone runs through the Speedcall programming sequence again, allowing the user to continue storing Speedcall numbers. Press the EXIT softkey at anytime to quit the programming mode.
- To correct an error before saving the entry, use the EXIT softkey to cancel the entire entry, and then re-enter the digits.

To Use a Speedcall key as a Feature Access Code:

- Press the programmed Speedcall key with the telephone on-hook.
- Press the HANG UP softkey or the SPEAKER ON/OFF key.

SUPERSET 3 DN Telephones:

To Enter or Change a Speedcall Number:

- With the handset on-hook, press the **Program** key.
- Press an unused Speedcall key on the telephone or associated *SUPERSET DSS* Module.
- Dial the number to be stored or press the **Redial** key to save the last number dialed. If no entry is made, the current entry is cleared.
- Press the **Program** key; the Speedcall number is now saved.

Note: A feature key can be programmed in this case – see *Feature Keys*.

To dial a call using Speedcall:

- Press the programmed Speedcall key with the telephone on-hook; if Immediate Line Select is enabled, or,
- Pick up the handset or press the **Speaker On/Off** key, then press the Speedcall key.

To Set Up a Speedcall key as a Feature Access Code:

- With the handset on-hook press the **Program** key.
- Press an unassigned Speedcall key.
- Dial the Feature Access code and the extension number of the applicable set. To correct an entry, press the CANCEL feature key, then press the **Program** key, and restart the sequence.
- Press the **Program** key.

SUPERSET 410 Telephones:

To Program, Change or Clear a Speedcall Number:

- With the handset on-hook, press **SuperKey**.
- Press a personal Speed Call key. (For instructions on how to program a personal key as a Speed Call key, refer to *Feature Keys*.)
- Dial the number to be stored or press the **Redial** key to save the last number dialed. If no entry is made, the current entry is cleared.
- Press **SuperKey**; the Speedcall number is now saved.

To dial a call using a Speedcall key:

- Press the programmed Speedcall key with the telephone on-hook; if Immediate Line Select is enabled, or,
- Pick up the handset or press the **Speaker** key, then press the Speedcall key.

To Set Up a Speedcall key as a Feature Access Code:

- With the handset on-hook, press **SuperKey**.
- Press a personal Speed Call key. (For instructions on how to program a personal key as a Speed Call key, refer to *Feature Keys*.)
- Dial 00.
- Dial the Feature Access code and the extension number of the applicable set.
- Press **SuperKey**.

SUPERSET 420 Telephones:

To Program, Change or Clear a Speedcall Number:

- Press **SuperKey**.
- Press the **No** softkey until PERSONAL KEYS? appears in the display.
- Press a personal key that isn't assigned to a line.
- Press the **Change** softkey. SPEED CALL? appears in the display.
- Press the **Yes** softkey.
- Dial the number to be stored or press the **Redial** key to save the last number dialed. If no entry is made, the current entry is cleared.
- Press the **Save** softkey.
- Press **SuperKey**; the Speedcall number is now saved.

To dial a call using a Speedcall key:

- Press the programmed Speedcall key with the telephone on-hook; if Immediate Line Select is enabled, or,

- Pick up the handset or press the **Speaker** key, then press the Speedcall key.

SUPERSET 4 DN and SUPERSET 430 Telephones:

To check saved numbers:

- Press the **SuperKey**.
- Find and press the **Display Keys** softkey (use the **More** softkey).
- Press the required Line Appearance key. The Speedcall number currently saved is displayed on the LCD.

To program a Speedcall number:

- Press the **SuperKey**.
- Press the **More** softkey until the **Feature** softkey appears.
- Press the **Feature** softkey.
- Press an available personal key.
- Press the **Change** softkey.
- Press the **Speed Call** softkey.
- Dial the number to be stored. (If the redial number is to be saved, press the **Redial** softkey).
- If desired, press the **Make Private** softkey to prevent the DISPLAY KEYS function from revealing the number.
- Check the entry on the LCD. If correct, press the **Save** softkey. To correct an error before saving the entry, use the **←** softkey to backspace and clear the incorrect entry, or press the **Backup** softkey to cancel the entire entry. Then re-enter the correct digits.

To dial a call using a Speedcall key:

- Press the programmed Speedcall key with the telephone on-hook; if Immediate Line Select is enabled, or,
- Pick up the handset or press the **Speaker** key, then press the Speedcall key.

Split

- Description** Split allows a *SUPERSET* telephone user, engaged in a conference call, to split the call between the conferees. Once active, swapping can take place between the calls, or the conference can be reestablished.
- Conditions** The following conditions apply to this feature:
- This feature is available only on *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420*, and *SUPERSET 430* telephones.
 - A 3-party conference must be active.
 - Any one of the three parties may initiate Split.
 - The party initiating Split must press the CONF feature key to re-establish 3-way conversation.
 - There cannot be a console in the call.
 - There can be no parties in the call holding the call.
 - The call cannot be on consultation hold.
 - There cannot be an extension with the Non-Busy Extension feature enabled.
 - The other two parties cannot be Direct Trunk Select Line trunks.
 - There cannot be a *SUPERSET* telephone in the call using the Add Held feature at the time.
 - There can be no industry-standard telephone in the call with the Broker's Call feature enabled.
- Programming** None.
- Operation** ***SUPERSET 4* Telephones:**
- A 3-party conference is established.
 - Press the SPLIT softkey. The LCD indicates which party is connected. The other party is on hold.
 - To converse with the other party press the SWAP softkey.
 - To re-establish the conference, press the CONF softkey.
- SUPERSET 4 DN*, *SUPERSET 420*, and *SUPERSET 430* Telephones:**
- A 3-party conference is established.
 - Press the **Split** softkey. The LCD indicates which party is connected. The other party is on hold.
 - To converse with the other party press the **Trade Calls** softkey.
 - To re-establish the conference, press the **Conference** softkey.

Station Message Detail Recording (SMDR)

Description Station Message Detail Recording (SMDR) allows data to be collected for each outgoing and incoming trunk call. This data can be output to a printer or a data recording device for subsequent processing.

Refer to Practice 9109-096-221-NA, Station Message Detail Recording.

Conditions None.

Programming The following System Options apply:

- 06 – Analog Networking SMDR
- 08 – Five Digit SMDR
- 28 – SMDR – Indicate Long Calls
- 39 – Data SMDR – Indicate Long Calls
- 44 – ACD Reports
- 49 – Pseudo Answer Supervision Timer (38 in Generic 1001).

The following COS Options apply:

- 246 – SMDR – Extended Record (805 in Generic 1001)
- 247 – SMDR – Record Meter Pulses (808 in Generic 1001)
- 700 – SMDR – Does Not Apply
- 702 – SMDR – Overwrite Buffer
- 803 – SMDR – Drop Calls < n Digits
- 804 – SMDR – Drop Incomplete Outgoing Calls
- 806 – SMDR – Record Incoming Calls (807 in Generic 1001)
- 807 – SMDR – Display Private Speedcall (Generic 1003, 1004, and 1005)
- 906 – Data SMDR – Does Not Apply
- 907 – Data SMDR – Extended Record
- 908 – Data SMDR – Overwrite Buffer

Refer to Practice 9109-096-221-NA, Station Message Detail Recording.

Operation None.

Subattendant – Basic Function

Description

This feature provides a *SUPERSET* telephone with enhanced recall and call queuing capabilities, allowing the set to be used as a subattendant position.

Any calls that are handled by the subattendant will recall the subattendant instead of the attendant. Recalls to the subattendant ring the set's prime line.

A *SUPERSET* telephone is normally considered to be busy when the set and/or the prime line appearances are busy. A *SUPERSET* telephone that is programmed as a subattendant is considered busy only if the prime line and all of the line appearances of the prime line are busy. The state of the telephone itself is not checked. Therefore, a subattendant telephone can receive as many calls as there are multicall appearances of its prime line on the telephone.

The *Night/Day Switching* feature can be used to allow the user to select DAY, NIGHT1, or NIGHT2 service for the system.

A subattendant position telephone can also be used as the alternate trunk recall point – see *Trunk Recall*.

Note: This feature is not related to, and does not interact with the Subattendant – Enhanced Function features.

Conditions

The following conditions apply to this feature:

- The set to be used as an enhanced answering position should be programmed in its own COS.
- The *SUPERSET* telephone should have at least one multicall line appearance of its prime.
- Line appearance checking is done for re-routes, forwarding, and recalls.
- There can be as many calls ringing at the enhanced answering position set as there are multicall appearances of its prime line on the telephone.
- A message set up on a telephone by the subattendant is automatically cancelled when that telephone calls, and is answered by the subattendant that set up the message.

Programming

Enable COS Option 606 (*SUPERSET* Telephone – Enhanced Answering Position in Generic 1004 and Generic 1005) (*SUPERSET* Subattendant in Generic 1001, Generic 1002, and Generic 1003) in the class of service form of the subattendant telephone.

Note: Prior to the release of Generic 1004, the feature *SUPERSET* Telephone – Enhanced Answering Position was known as *SUPERSET* Subattendant.

Program the unused line appearance keys of the enhanced answering position telephone as a Multicall appearance of its prime line. Incoming calls that are waiting to be answered queue up on these keys.

Operation None.

Subattendant – Enhanced Functions

Description The enhanced Subattendant functions allow *SUPERSET 4 DN* and *SUPERSET 430* telephones to be used as a subattendant position for multi-tenanting, consoleless operations (but can be used in conjunction with a console) where call clearing of twenty five calls per hour is considered to be busy. The functions of the *SUPERSET 4 DN* or *SUPERSET 430* telephone remain unchanged; the Enhanced Subattendant functions are an addition. This feature is available only in Generic 1004 and Generic 1005.

The subattendant position can perform functions for extension users; eg. setup and cancel call forwarding, advisory messages, and toggle do not disturb on and off. The Enhanced Subattendant features include:

- System Abbreviated Dial Programming
- Station Advisory Message Programming
- Station Call Forward Setup and Cancel
- Calls Waiting Indication
- Hold Positions
- Listed Directory Number (LDN) Keys
- Enhanced Zone Paging
- Station Do Not Disturb Setup and Cancel
- System Time and Date Setup
- Enhanced Recalling Capabilities

Note: The Subattendant – Enhanced Functions feature is not related to, and does not interact with the Subattendant – Basic Function feature.

Conditions The following conditions apply to this feature:

- The subattendant can program an extension call forwarding or do not disturb function without enabling the extension Call Forwarding COS Options.

- Programming** In either CDE Form 09 (Station/*SUPERSET* Telephones) or CDE Form 45 (Key System Telephones):
- Press the **DEVICE TYPE** softkey to set or change the device type. Use the **SUB ATT** softkey to set/change it to subattendant. The subattendant device type must be set before any other fields. If the device is already programmed, it must be deleted and re-entered.
 - Press the **EXPAND SET** softkey to get to the Expand Set Subform – (subattendant keys are defined here) – refer to the specific Subattendant feature for further information.
- Operation** Refer to the specific Subattendant feature.

Subattendant – Abbreviated Dial Programming

- Description** The Subattendant – Abbreviated Dial Programming feature allows the subattendant to program system abbreviated dial numbers from the subattendant telephone set. The subattendant has the option of making abbreviated dial numbers confidential.
- Conditions** The following conditions apply:
- This feature is available only to *SUPERSET 4DN* or *SUPERSET 430* telephones that have been programmed with enhanced Subattendant functionality (see *Subattendant – Enhanced Functions*).
 - Only one device can program System Abbreviated Dial Numbers at a time.
- Programming** The following steps are required:
- In Form 3, enable COS Option 111 (Attendant Abbreviated Dial Programming) in the subattendant COS.
 - For the display of confidential abbreviated dial numbers, enable COS Option 110 (Attendant Abbreviated Dial Confidential Number Display).
- Operation** To program an abbreviated dial number:
- Press the **SuperKey**.
 - Press the **More** softkey.
 - Press the **Feature Key** softkey.
 - Press the **System** softkey.
 - Enter an Abbreviated Dial index number.

- Press the **Enter** softkey.
- Enter the new number (see *Abbreviated Dial* for details on special character entry).
- Press the **Make Private** softkey (if desired).
- Press the **Save** softkey.
- Press the **SuperKey**.

Subattendant – Advisory Message Setup

- Description** There are eight default advisory messages and seven programmable advisory messages that the subattendant may setup on behalf of another extension. The subattendant can read another extension's currently displayed advisory message, or read through the available advisory messages and choose one for display on the set, or program one for display.
- Conditions** The following conditions apply:
- This feature is available only to *SUPERSET 4DN* or *SUPERSET 430* telephones that have been programmed with enhanced Subattendant functionality (see *Subattendant – Enhanced Functions*).
 - Messages can only be setup for *SUPERSET* telephones.
- Programming** Enable COS Option 150 – Sub-attendant Station Setup Advisory Message in the subattendant COS.
- Operation** To remotely set up an advisory message on a *SUPERSET* telephone; from the Subattendant position:
- Press **SuperKey**.
 - Press the **Stations** softkey.
 - Enter the extension number of the applicable *SUPERSET* telephone.
 - Press the **Advisory Msg** softkey.
 - Find the desired message – use the **Next Msg (Previous Msg)** and/or **Show Msg No.** softkeys to move through the list of existing messages. Stop at the desired message.
 - Press the **Turn Msg On** softkey.
- or
- Press the **Create Msg** softkey to create a custom message.

- Press the **Turn Msg On** softkey.

To cancel an advisory message on a *SUPERSET* telephone:

- Press **SuperKey**.
- Press the **Stations** softkey.
- Enter the extension number of the applicable *SUPERSET* telephone.
- Press the **Advisory Msg** softkey.
 - The currently displayed message will be displayed
- Press the **Turn Msg Off** softkey.

Subattendant – Call Forward Setup and Cancel

Description The Subattendant – Call Forward Setup and Cancel feature allows the subattendant to setup, review, and cancel Call Forwarding for any extension. The extension for which the subattendant sets up forwarding need not have any of the Call Forwarding features in its COS. The subattendant may also set up Call Forwarding from the extension to the subattendant.

All forwarding types can be setup or cancelled in this function, whether or not forwarding types have been previously defined for either the subattendant or the affected extension.

Standard Call Forwarding routes all calls to the same destination. In Generic 1004 and 1005, Split Call Forwarding is also available. Split Call Forwarding allows the Subattendant to route internal and external calls to different destinations (see Call Forwarding – Internal/External Split).

Conditions The following conditions apply:

- For general conditions see *Call Forwarding – Generic 1004* or *Call Forwarding – Generic 1005*.
- This feature is available only to *SUPERSET 4DN* or *SUPERSET 430* telephones that have been programmed with enhanced Subattendant functionality (see *Subattendant – Enhanced Functions*).

Programming The following programming is required:

- Enable COS Option 123 (Attendant Call Forward Setup and Cancel) in the subattendant COS.
- If Split Call Forwarding is desired, enable COS Option 260 (Internal/External Split Call Forward) for the extension.

Operation

To remotely set up call forwarding for an extension from the Subattendant telephone:

- Press **SuperKey**.
- Press the **Stations** softkey.
- Enter the extension number of the extension being setup.
- Press the **Forwarding** softkey.
- Press the **Change** softkey.
- Press the appropriate softkey for desired type of Forwarding (see note 1).
- Enter the number of the extension that you want the calls forwarded to.
or
- Press the **Current No.** softkey if the number displayed is the number that you want the calls forwarded to.
- Press the **Save/On** or **Save/Off** softkey.
- Press **SuperKey** to exit or you may continue and setup the other Forwarding type (if Split Forwarding is enabled).

To remotely cancel call forwarding for an extension from the Subattendant telephone:

- Press **SuperKey**.
- Press the **Stations** softkey.
- Enter the extension number of the extension having Forwarding cancelled.
- Press the **Forwarding** softkey.
- Press the **Turn FWD Off** softkey.
- Press **SuperKey** to exit.

To remotely set up Call Forwarding – Internal/External Split for an extension from the Subattendant telephone:

- Press **SuperKey**.
- Press the **Stations** softkey.
- Enter the number of the extension being set up.
- Press the **Forwarding** softkey.
- Press the **Change** softkey.
- Press the appropriate softkey for desired type of Forwarding (see note 1).
- Press either the **Internal** or the **External** softkey (see note 2).
- Enter the number of the extension that you want the calls forwarded to.
or,

- Press the **Current No.** softkey if the number displayed is the number that you want the calls forwarded to.
- Press the **Save/On** or **Save/Off** softkey.
- Press **SuperKey** to exit
or,
- Continue and set up the other Forwarding type.
- Press **SuperKey** to exit.

To remotely cancel Call Forwarding – Internal/External Split for an extension from the Subattendant telephone:

- Press **SuperKey**.
- Press the **Stations** softkey.
- Enter the number of the extension that you want to cancel Forwarding from.
- Press the **Forwarding** softkey.
- Press the **Int FWD Off** or the **Ext FWD Off** softkey.
- Press **SuperKey** to exit
or,
- Continue and turn off the other Call Forwarding type.
- Press **SuperKey** to exit.

To remotely review call forwarding for an extension from the Subattendant telephone:

- Press **SuperKey**.
- Press the **Stations** softkey.
- Enter the extension number number of extension being set up.
- Press the **Forwarding** softkey.
- Press **SuperKey** when done.

Notes: 1. For programming details see *Call Forwarding – Generic 1004 and Generic 1005* in this document.

2. The **Internal/External** softkeys will be shown only if COS Option 260 (Internal / External Split Call Forward) is enabled. See *Call Forwarding – Generic 1004 and Generic 1005* in this document.

Subattendant – Calls Waiting Indication

Description The Calls Waiting indicator appears in all call processing states and is displayed in the subattendant C/W (Calls Waiting) area of the display. The Calls Waiting indicator appears in the top right corner of the display, directly below the area where the Forwarding flag appears. The Call Waiting flag takes precedence over the Message Waiting and Mic On flags when clashes occur.

The subattendant may have calls from outside trunks and extensions queued that are waiting to be answered. The number shown by the the Calls Waiting indicator, is the total number of calls in the queue. This includes only calls ringing LDN's (or the **Recall** key) that appear on the subattendant telephone and any calls ringing the night bell.

Each new call ringing the subattendant position increments the indicator. The indicator decrements each time a caller hangs up.

Conditions The following conditions apply to this feature:

- This feature is available only to *SUPERSET 4DN* or *SUPERSET 430* telephones that have been programmed with enhanced Subattendant functionality (see *Subattendant – Enhanced Functions*).
- If there are no calls in the Calls Waiting queue, there is nothing in the CW area of the LCD display and either the Msg Waiting or Mic On flag may occur.
- The maximum number of calls waiting that can be displayed at the subattendant is 99 (the actual queue maximum is 200).
- Only night bell callers allowed to connect to the subattendant as specified in Form 5, Tenant Interconnection, will be counted on the Subattendant C/W.

Programming None.

Operation None.

Subattendant – Date and Time Setup

Description When the subattendant position is idle, it continually displays the time and date (day, month, year) on the LCD display. The Subattendant can change the system time and/or date by using the subattendant **SuperKey** and softkeys.

The time may be displayed in 12-hour or 24-hour format depending on the system Feature settings.

Conditions The following conditions apply:

- This feature is available only to *SUPERSET 4DN* or *SUPERSET 430* telephones that have been programmed with enhanced Subattendant functionality (see *Subattendant – Enhanced Functions*).
- A time/date change may cause some traffic measurements to be lost, and can also affect Automatic Call Distribution (ACD) Reports. Care must be taken when setting the COS Option for this Feature.

Programming Enable COS Option 122 – Attendant Setup Time/Date, for 24 –hour clock; disable for 12-hour clock.

Operation To set the time from a Subattendant telephone:

- Press **SuperKey**.
- Press the **More** softkey three times.
- Press the **Time** softkey.
- Enter the time in the correct format.
- Press the **AM** or **PM** softkeys (if necessary).
- Press the **Save** softkey.

To set the date:

- Press **SuperKey**.
- Press the **More** softkey three times.
- Press the **Date** softkey.
- Enter the date in the indicated format.
- Press the **Save** softkey.

Subattendant – Hold Positions

Description This feature provides the subattendant with up to three hold position keys. When enabled, the hold position keys permit the subattendant to answer other Listed Directory Numbers (LDN) or the Prime (Intercom) line without having to release current calls on the subattendants telephone first. It is recommended that at least one hold position be programmed, otherwise the subattendant will have to release incoming calls on the prime line of the subattendant telephone before being able to answer other incoming LDN or Prime line calls.

The subattendant can transfer a current incoming call to one of the hold positions by selecting the corresponding hold position key. The call is then placed in the hold position, releasing the prime line for the subattendant to receive another incoming call.

The indicator for the hold position to which the call has been transferred flashes, indicating to the subattendant that a call is currently occupying that hold position. The **Add Held** softkey appears when a call is transferred to a hold position.

Should all programmed hold positions at a subattendant position become occupied, incoming calls on the subattendant prime line may be placed on hold by selecting the red **Hold** key. The red **Hold** key places the incoming call on a hard hold on the subattendant prime line, but since the line is occupied, subsequent LDN calls and Recalls cannot be answered until the call on hard hold is released. The subattendant may select a held party (via the **Hold** key) while dialing on the Prime (Intercom) Line.

Recall

COS Option 116 – Attendant–Timed Recall – Hold timer applies to calls placed in subattendant hold positions. If this timer times–out for a call being held in one of the hold positions, the indicator associated with the hold position flashes and a new call ring is given, indicating to the subattendant that the hold position is recalling (at this point the Call Hold Notify timer is started).

COS Option 681 – Key Set/Sub Att – Call Hold Notify Timer also applies to calls placed in subattendant hold positions. This timer starts after the expiration of the Timer Recall Hold timer. Every time this timer expires, a new call ring is given, and the timer is restarted. This will continue until the call is retrieved from hold. If this is not programmed there will be no notifications and the caller will remain on hold until retrieved. This should not be confused with COS Option 254 – Call Hold Recall Timer, which is used in conjunction with hard held lines on the subattendant set, rather than the hold positions.

Add Held Prompt

An **Add Held** prompt softkey is provided to permit the subattendant to pickup calls currently in hold positions and add them to an existing conversation on one of the set's active lines to create a three party conference.

Conditions

The following conditions apply to this feature:

- This feature is available only to *SUPERSET 4DN* or *SUPERSET 430* telephones that have been programmed with enhanced Subattendant functionality (see *Subattendant – Enhanced Functions*).
- Each subattendant position can be programmed to provide up to three Hold Positions.

Programming

To program Hold Positions:

- Enter the Expand Set Subform of CDE Form 09 (Station/*SUPERSET* Telephones) or CDE Form 45 (Key System Telephones), and program one or more keys as hold positions via the **Hold Pos** softkey.
 - Note that the given telephone must be a subattendant device type to be offered the **Hold Pos** softkey.

Related programming:

- Set an appropriate value for COS Option 116 – Attendant–Timed Recall (Hold) timer in the Subattendant COS.
- Set an appropriate value for COS Option 681 – Key Set/Sub Att – Call Hold Notify Timer in the Subattendant COS.

Operation

To place a call on hold using a Subattendant Hold Position key:

- Press a free Hold Position key.

The associated line appearance indicator flashes, and the **Add Held** softkey is enabled.

To retrieve call from Subattendant Hold Position key:

- Press the desired Hold Position key.

The associated line appearance indicator changes from a flashing state to an inactive (off) state, while the prime line appearance indicator indicates an active (on) line condition. The held call is transferred to prime line.

To add a held call to current conversation:

- In Off–hook state select the **Add Held** softkey, or while in Handsfree mode, press the **Add Held** softkey after choosing a line.
- Press the desired Hold Position key.

The held call is transferred to current conversation and associated line appearance indicator changes from a flashing state to an inactive (off) state.

Subattendant – LDN Keys

Description Each subattendant can have up to three keys programmed as listed directory number (LDN) keys. The LDN keys appear on the Subattendant telephone line keys. The LDNs may be programmed to appear on other Subattendant telephones or Attendant consoles to permit greater call handling flexibility. When this occurs, the COS and Tenant of the subattendant LDN is taken from the subattendant or console with the lowest bay, slot and circuit on which the LDN is programmed.

The LDN keys and the **Recall** key (see *Subattendant – Recall*) act as call queueing indicators. Unlike line keys; they cannot be selected to dial on and conversations cannot be held on them. When a subattendant LDN call is answered, the call is automatically connected to the prime line (or intercom line) of the subattendant telephone.

Each LDN position can be programmed as the answer point for a trunk or reroute destination for a particular type of call. To ensure that the prime line is free to answer any LDN calls, the subattendant prime line cannot be programmed to appear on other devices.

The subattendant can answer a LDN call three ways:

- by going offhook; the longest waiting LDN call is then automatically connected to the subattendant's prime line, or
- by pressing the **Speaker** key; the longest waiting LDN call is then automatically connected to the subattendant prime line, or
- by selecting the the LDN key directly.

LDN keys with "ring type" set to NO RING are not automatically selected when the subattendant goes offhook (or selects the **Speaker** key), therefore must be answered manually by selecting the No Ring LDN key.

Once answered by the subattendant, an LDN call is treated as though it were a regular call received on a *SUPERSET 4 DN* or *SUPERSET 430* telephone, with the exception of Serial Calls.

Conditions The following conditions apply to this feature:

- This feature is available only to *SUPERSET 4 DN* or *SUPERSET 430* telephones that have been programmed with enhanced Subattendant functionality (see *Subattendant – Enhanced Functions*).
- Subattendant LDNs and Recall calls will override the Subattendant DND settings and will ring the DND Subattendant telephone on the LDN or **Recall** key.
- Station and *SUPERSET* telephones and consoles cannot directly dial an LDN.

- There is a maximum of three LDN keys per Subattendant position.
- For multi-appearance LDN keys, the console (or subattendant position) with the lowest physical location number (bay #/ slot #/ circuit #) is always the owner of an LDN.

Programming To program LDN keys, enter the Expand Set Subform of CDE Form 09 (Station/*SUPERSET* Telephones) or CDE Form 45 (Key System Telephones), and:

- Program one or more keys as LDN Keys via the LDN softkey.
- Select a ring type for each LDN.
- Enter an access code in the EXT NUM field for each LDN – this may be a unique number, or an existing LDN number.
- Enter a label for each LDN.

Note: If a subattendant desires to always automatically clear down the current call when another line, LDN, Recall or Hold position is selected, enable COS Option 601 (*SUPERSET* – Auto Hold Disable) in the Subattendant COS.

Operation The Subattendant can selectively answer any incoming call type by pressing the appropriate LDN softkey, or calls may be answered on a first-come first-served basis by using the **Speaker** key (Hands Free Operation) or by going offhook.

Subattendant – Paged Hold Access

Description The subattendant can place an incoming call on hold, page for the called party, then inform the called party of the digits to dial, the called party can then pick up the incoming call directly from the subattendant hold position. When the subattendant accesses a PA Pager with a call on hold position, the Hold Pickup Access code is displayed along with the subattendant identifier code. The Subattendant would then instruct the paged party to call those digits followed by the hold position number to pick up their call. Also see *PA Paging* in this document.

Conditions The following conditions apply to this feature:

- This feature is available only to *SUPERSET 4DN* or *SUPERSET 430* telephones that have been programmed with enhanced Subattendant functionality (see *Subattendant – Enhanced Functions*).

- Consoles, subattendants, industry-standard telephones, *SUPERSET* telephones, DISA trunks and TIE trunks can pickup the held calls.
- The party picking up the call must be able to connect to the held party; see *Device Interconnection Control*.
- An extension cannot pick up the held party if the extension has a consultation hold in progress and the held party has COS Option 233 (Never A Consultee) enabled.
- A station or *SUPERSET* telephone (with a consultation hold in progress) cannot pick up the held trunk if the station or *SUPERSET* telephone has COS Option 214, (Cannot dial a trunk after flashing) enabled.
- A station or *SUPERSET* telephone in a conference with a trunk on consultation hold cannot pick up the held trunk if the station or *SUPERSET* telephone has COS Option 215, (Cannot Dial a Trunk if Holding or in Conf With a Trunk) enabled.

Programming The following programming is required:

- Assign an access code to Feature 16 (Hold Pickup Access – Attendant Hold Slots).
- Enable COS Option 225 (Hold Pickup – Attendant Page Access) in the COS of the device from which the pickup call is made.

Operation If paging the default paging zone:

- Place the incoming calling party on hold by using one of the subattendant hold positions.
- Press the **Page** softkey – when the subattendant accesses the PA Paging function, the subattendant telephone display indicates:
 - the Feature Access Code, assigned to Feature 16,
 - followed by two digits that identify the subattendant,
 - followed by the hold position number.
- Page the desired party, specifying the displayed number (the last number being the hold position number); e.g., 677002 (where 677 is the Feature Access Code, 00 is the Subattendant identifier, and 2 is the Hold Position number).

When the paged party dials the Subattendant Hold Pickup Access Code number, the paged and held parties are connected.

Note: If the paged party does not call, the held party recalls the subattendant automatically after the hold recall timeout; see *Subattendant – Hold Positions* in this document.

If paging a zone other than the default zone:

- Place the incoming calling party on hold by using one of the subattendant hold positions.

- Dial the 'Paging Access To Specific Zones' access code, followed by the desired zone.
- Page the desired party, specifying the Subattendant Hold Pickup Access Code and the Subattendant Identifier, followed by the hold position number.

When the paged party dials the Subattendant Hold Pickup Access Code number, the paged and held parties are connected.

Note: If the paged party does not call, the held party recalls the subattendant automatically after the hold recall timeout; see *Subattendant – Hold Positions* in this document.

Subattendant – Recall

Description

The recall feature ensures that calls do not remain unanswered or on hold for an unlimited period of time. Any call that has been extended by a subattendant, recalls the subattendant position if the call is not answered or remains on hold at the end of a timeout period.

The LDN keys (see *Subattendant – LDN Keys*) and the **Recall** key act as call queueing indicators. Unlike line keys; they cannot be selected to dial on and conversations cannot be held on them. When a subattendant Recall is answered, the call is automatically connected to the prime line (or intercom line) of the subattendant telephone.

To ensure that the prime line is free to answer any recall calls, the subattendant prime line cannot be programmed to appear on other devices. To avoid recall calls tying up the prime line of the subattendant it is important to program the **Recall** key. Recall calls to the subattendant will then be queued on the **Recall** key.

The subattendant can answer a Recall call three ways:

- by going offhook; the longest waiting Recall call is then automatically connected to the subattendant prime line, or
- by selecting the **Speaker** key; the longest waiting Recall call is then automatically connected to the subattendant prime line, or
- by selecting the the **Recall** key directly.

For further information on the recall feature, refer to *Recall* in this document.

Conditions

The following conditions apply to this feature:

- This feature is available only to *SUPERSET 4DN* or *SUPERSET 430* telephones that have been programmed with enhanced Subattendant functionality (see *Subattendant – Enhanced Functions*).

- Subattendant Recall calls will override the Subattendant DND settings and will ring the DND Subattendant telephone on the **Recall** key.
- Station and *SUPERSET* telephones and consoles cannot directly dial a **Recall** key.
- There is a maximum of one **Recall** key per Subattendant position.
- Also see *Conditions* under *Recall*.

Programming To program a Recall key, enter the Expand Set Subform of Form 09 (Station/*SUPERSET* Telephones) or Form 45 (Key System Telephones), and:

- Program a **Recall** key via the **Recall** softkey.

Also see *Programming*, under *Recall* in this document.

Operation When a call recalls to the subattendant position, press the **Recall** key, go off-hook, or press the **Speaker On/Off** key (handsfree mode).

Subattendant – Station DND Setup

Description The subattendant can set up or cancel Do Not Disturb (DND) for an extension by selecting the **Do Not Disturb** softkey under the Subattendant Stations function.

Selection of the **Do Not Disturb** softkey causes the extension information on the subattendant display to be updated to indicate that the extension status has been changed to Do Not Disturb if the station was not already Do Not Disturb or if the device was already in the Do Not Disturb state when the softkey was selected, the Do Not Disturb indicator is turned off. The corresponding set will also have its DND indicator updated. See *Do Not Disturb* in this document.

Conditions This feature is available only to *SUPERSET 4 DN* or *SUPERSET 430* telephones that have been programmed with enhanced Subattendant functionality (see *Subattendant – Enhanced Functions*).

Programming Enable COS Option 121 – Attendant Station Do Not Disturb (Generic 1004 and 1005) in the Subattendant COS.

Operation To remotely set up Do Not Disturb on an extension from the subattendant position set:

- Press **SuperKey**.

- Press the **Stations** softkey.
- Enter extension number.
- Press the **Do Not Disturb** softkey.
 - In top right hand portion of display, the extension's current state indication changes to DND.
- Press **SuperKey** to exit.

To cancel Do Not Disturb on an extension:

- Press **SuperKey**.
- Press the **Stations** softkey.
- Enter extension number.
- Press the **Do Not Disturb** softkey.
- Press **SuperKey** to exit.
 - In top right hand portion of display, DND indication changes to the current state of the extension.

***SUPERSET 3* Telephone**

Description The *SX-200* DIGITAL PABX system supports *SUPERSET 3* electronic telephone sets. The *SUPERSET 3* telephone has 12 keys designed for use as Speed Call numbers and 3 keys with LED indicators that are also available as line appearance indicators. The first (leftmost) one of the 3 keys must be the Prime Line appearance. In addition to these 15 keys, there is one red key (hold) and seven feature keys.

Refer to Practice 9109-096-126-NA, Peripherals Devices.

Conditions None.

Programming Refer to Practice 9109-096-210-NA, Customer Data Entry; program *SUPERSET 3* telephones in CDE Form 09 (Station/*SUPERSET* Telephones); select their COS Options in CDE Form 03 (COS Define).

Operation Refer to the specific feature.

SUPERSET 4 Telephone

Description The *SX-200* DIGITAL PABX system supports *SUPERSET 4* electronic telephone sets. The *SUPERSET 4* telephone has one line appearance (Prime Line). Fourteen keys may be programmed as Speed Call numbers, line appearance keys, or feature access keys. In addition to the 15 keys, there is one red key (hold), four feature keys and six softkeys. The *SUPERSET 4* telephone incorporates a Liquid Crystal Display (LCD) for line status indication, user prompting and displays such as message waiting, time and date.

Refer to Practice 9109-096-126-NA, Peripherals Devices.

Conditions None

Programming Refer to Practice 9109-096-210-NA, Customer Data Entry; program *SUPERSET 4* telephones in CDE Form 09 (Station/*SUPERSET* Telephones); select their COS Options in CDE Form 03 (COS Define).

Program an access code for Feature 26 (*SUPERSET 4* Telephones Loopback Test) to be able to perform a local test on *SUPERSET 4* telephones.

Operation Refer to the specific feature.

SUPERSET 3 DN Telephone

Description The *SX-200* DIGITAL PABX system supports *SUPERSET 3 DN* electronic telephone sets. The *SUPERSET 3 DN* telephone has 12 keys with LCD indicators available as Speed Call keys, Feature Access keys or Line Appearances. The lowest key must be the Prime Line appearance. In addition to these 12 keys, there is one red key (hold) and 9 fixed function keys.

Refer to Practice 9109-096-126-NA, Peripherals Devices.

Conditions None.

Programming Refer to Practice 9109-096-210-NA, Customer Data Entry; program *SUPERSET 3 DN* telephones in CDE Form 09 (Station/*SUPERSET* Telephones); select their COS Options in CDE Form 03 (COS Define).

Operation Refer to the specific feature.

SUPERSET 4 DN Telephone

Description The SX-200 DIGITAL PABX system supports *SUPERSET 4 DN* electronic telephone sets. The *SUPERSET 4 DN* telephone can have up to 11 Speed Call numbers and one line appearance (Prime Line). The set can alternately have up to 12 line appearances (including Prime Line) and no Speed Dial numbers. In addition to these 12 keys, there is one red key (hold), the **SuperKey**, four feature keys and six softkeys. The *SUPERSET 4 DN* telephone incorporates a Liquid Crystal Display (LCD) for line status indication, user prompting and displays such as message waiting, time and date.

Refer to Practice 9109-096-126-NA, Peripherals Devices.

Conditions None.

Programming Refer to Practice 9109-096-210-NA, Customer Data Entry; program *SUPERSET 4 DN* telephones in CDE Form 09 (Station/*SUPERSET* Telephones); select their COS Options in CDE Form 03 (COS Define).

Operation Refer to the specific feature.

SUPERSET 401 Telephone

Description The SX-200 DIGITAL PABX system supports *SUPERSET 401* electronic telephone sets. The *SUPERSET 401* is a single-line digital telephone that employs DNIC line transmission technology. It provides a **Flash** key, a **Message** key, and a message indicator lamp, as well as keys for adjusting the ringer and handset receiver volume.

Refer to Practice 9109-096-126-NA, Peripherals Devices.

Conditions None.

Programming Refer to Practice 9109-096-210-NA, Customer Data Entry; program *SUPERSET 401* telephones in CDE Form 09 (Station/*SUPERSET* Telephones); select their COS Options in CDE Form 03 (COS Define).

Operation Refer to the specific feature.

SUPERSET 410 Telephone

Description The *SX-200* DIGITAL PABX system supports *SUPERSET 410* electronic telephone sets. The *SUPERSET 410* is a multi-line digital telephone that employs DNIC line transmission technology. The *SUPERSET 410* telephone has 6 programmable keys, each with an associated LCD indicator. These keys can be programmed as Speed Call keys, Feature Access keys or Line Appearances. The lowest key must be the Prime Line appearance. In addition, there is a **Message** key and a **Microphone** key, a red **Hold** key, and 7 other fixed function keys. The **Message** key and **Microphone** key both have an associated indicator lamp.

The *MiLink* Data Module can be connected to a jack on the base of this set.

Refer to Practice 9109-096-126-NA, Peripherals Devices.

Conditions None.

Programming Refer to Practice 9109-096-210-NA, Customer Data Entry; program *SUPERSET 410* telephones in CDE Form 09 (Station/*SUPERSET* Telephones); select their COS Options in CDE Form 03 (COS Define).

Operation Refer to the specific feature.

SUPERSET 420 Telephone

Description The *SX-200* DIGITAL PABX system supports *SUPERSET 420* electronic telephone sets. The *SUPERSET 420* is a multi-line digital telephone that employs DNIC line transmission technology. The *SUPERSET 420* telephone has 12 programmable keys with associated LCD indicators. These keys can be programmed as Speed Call keys, Feature Access keys or Line Appearances. The lowest key must be the Prime Line appearance.

Directly below the 12 programmable keys is a 2 x16 alphanumeric display and three softkeys. The three softkeys allow set users to select command prompts that appear in the display. The set also provides a **Message** key and **Microphone** key with indicator lamps, and 8 fixed function keys without indicator lamps.

The *MiLink* Data Module can be connected to a jack on the base of this set.

Refer to Practice 9109-096-126-NA, Peripherals Devices.

Conditions	None.
Programming	Refer to Practice 9109-096-210-NA, Customer Data Entry; program <i>SUPERSET 420</i> telephones in CDE Form 09 (Station/ <i>SUPERSET</i> Telephones); select their COS Options in CDE Form 03 (COS Define).
Operation	Refer to the specific feature.

***SUPERSET 430* Telephone**

Description	<p>The <i>SX-200</i> DIGITAL PABX system supports <i>SUPERSET 430</i> electronic telephone sets. The <i>SUPERSET 430</i> is a multi-line digital telephone that employs DNIC line transmission technology. The <i>SUPERSET 430</i> telephone has 12 programmable keys with associated LCD indicators. These keys can be programmed as Speed Call keys or Line Appearances.</p> <p>Directly below the 12 programmable keys is a 4 x 40 alphanumeric display and six softkeys. The softkeys allow set users to select command prompts that appear in the display. The set also provides a Message key and Microphone key with indicator lamps, and 5 fixed function keys without indicator lamps.</p> <p>The <i>MiLink</i> Data Module can be connected to a jack on the base of this set.</p> <p>Refer to Practice 9109-096-126-NA, Peripherals Devices.</p>
Conditions	None.
Programming	Refer to Practice 9109-096-210-NA, Customer Data Entry; program <i>SUPERSET 430</i> telephones in CDE Form 09 (Station/ <i>SUPERSET</i> Telephones); select their COS Options in CDE Form 03 (COS Define).
Operation	Refer to the specific feature.

SUPERSET DSS Module

Description The *SUPERSET DSS* Module can be a stand-alone unit, or it can be associated with another device to extend the number of programmable line keys available to the user.

Up to two *SUPERSET DSS* modules can be associated with a device, providing up to 64 Busy Lamp Field (BLF) indicators, and optionally, up to 64 Direct Station Select (DSS) keys. The *SUPERSET DSS* Module can be used for three purposes:

(a) As a stand alone device, the *SUPERSET DSS* Module is a Busy Lamp Field (BLF) with 32 indicators arranged in 2 rows of 16. In this configuration the keys associated with the BLF indicators have no function.

(b) When associated with one of the following:

- LCD attendant console,
- *SUPERCONSOLE 1000* attendant console,

the keys can be programmed with BLF/DSS functionality.

(c) When associated with one of the following telephones:

- *SUPERSET 3* telephone,
- *SUPERSET 4* telephone,
- *SUPERSET 3 DN* telephone,
- *SUPERSET 4 DN* telephone,
- *SUPERSET 410* telephone,
- *SUPERSET 420* telephone,
- *SUPERSET 430* telephone,

the *SUPERSET DSS* Module can be used as an extension of the associated device's line keys. These can be programmed to be any of the following; i.e., speedcall keys, feature keys, private lines, DSS keys, BLF appearances, or anything else that is programmable in the Expand Set Subform of CDE Form 09 (Station/*SUPERSET* Telephones) or CDE Form 45 (Key System Telephones).

Note: For functional information on Busy Lamp Field and Direct Station Select, refer to the description under the appropriate feature heading in this document, i.e., *Busy Lamp Field* or *Direct Station Select (DSS) Key*.

The *SUPERSET DSS* Module is a DNIC device and connects to one DNIC port on a digital line card.

- Conditions** The following conditions apply to this feature:
- The *SUPERSET DSS* Module is not available in Generic 1001.
 - The *SUPERSET DSS* Module cannot be associated with a set where there is a logged in Automatic Call Distribution (ACD) position. An ACD position is prevented from logging in at a set with an associated module.
 - The *SUPERSET DSS* Module can only be Standalone mode when DSS keys have not been programmed.
 - All line, speedcall, and feature key information is preserved when a *SUPERSET DSS* Module is moved in CDE from *SUPERSET* telephone to *SUPERSET* telephone providing;
 - no active calls present on the lines
 - the rules for programming lines and feature keys are not violated with the addition of keys on the *SUPERSET DSS* Module to the new *SUPERSET*.
 - A *SUPERSET DSS* Module can be moved in CDE from *SUPERSET* telephone to Attendant Console and vice versa, providing that the only the BLF line appearance indicators are programmed. Any programmed speedcall keys are purged.
 - *SUPERSET DSS* Modules cannot be associated with *SUPERSET* telephones programmed with key templates.
 - Line and feature keys programmed on a *SUPERSET DSS* Module are subject to the same rules in CDE as though the line had been programmed on the associated *SUPERSET* telephone.
- Programming** A *SUPERSET DSS* module is programmed for subcircuit 1 of a DNIC circuit but requires both DNIC sub-circuits. Therefore, it can only be programmed for DNIC circuits that have both sub-circuits available. Programming a *SUPERSET DSS* module prevents subcircuit 2 from appearing in Form 12, Data Assignment form.
- See *Busy Lamp Field* or *Direct Station Select* in this document.
- Operation** See *Busy Lamp Field* or *Direct Station Select* in this document for Busy Lamp Field or Direct Station Select key operation.
- When associated with a *SUPERSET* telephone and used for other key types, the operation is the same as if the BLF indicator and DSS key were on the *SUPERSET* telephone itself.

SUPERSET LCD Display

Description The *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420*, and *SUPERSET 430* telephones are equipped with a liquid crystal display (LCD). The display (not to be mistaken for the LCD line appearance indicators) indicates the date and time of day, along with softkey names for the set's softkeys. A redial number is displayed, if applicable. Also, when a *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420*, or *SUPERSET 430* telephone accesses a trunk and establishes a call, the duration of the call is displayed. For other information displayed, details can be found under the appropriate feature heading.

Conditions The following conditions apply to this feature:

- This feature is only available on *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420*, and *SUPERSET 430* telephones.
- The duration shown is the time that all parties in the PABX spend talking on the trunk call. If a trunk is transferred from extension to extension, the time is not restarted.
- The duration display does not indicate the complete time that the trunk has been answered where recordings are involved. The recording answers the trunk but the call duration counting does not start until the trunk is answered by an extension.
- The duration display indicates the time up to a maximum of ten hours (0 thru 9:59). After ten hours, the duration display resets to zero then continues to count for another ten hours.
- If Analog Networking is enabled, the extension number of the party calling from the other node is displayed.
- If the trunk has a name, the trunk name is displayed. If the trunk has no name programmed, the group name of the trunk is displayed. For *SUPERSET 4 DN*, *SUPERSET 420*, and *SUPERSET 430* telephones, the digits dialed are displayed instead of the name for outgoing trunk calls.

Programming None.

Operation None.

Swap (Trade Calls)

- Description** This feature permits a *SUPERSET* telephone user to alternate conversation between two calls. Call Swap places one call on hold while conversation continues with the other call. This feature is similar to the Broker's Call feature available on industry-standard telephones.
- Conditions** The following conditions apply to this feature:
- Swap operates only on *SUPERSET* telephones.
 - There must be a party in conversation and a party on consultation hold for Swap to operate.
 - A swap cannot be done when talking to the console, a Call Announce Port, or a non-busy extension.
 - The **Swap** key on a *SUPERSET 3* telephone, and the SWAP/TRADE CALLS feature key on a *SUPERSET 3 DN* or *SUPERSET 410* telephone, performs a Swap Campon if a camped on caller is present and may be swapped in. Only one of the Swap or Swap Campon functions is available at the telephone at one time; see *Swap Campon*.
 - If there is another party in the call with a consultation hold then the Swap cannot be done.
- Programming** For feature key activation of Swap from a *SUPERSET 3 DN*, *SUPERSET 410* telephone, program a SWAP/TRADE CALLS feature key (see Feature Keys).
- Operation** Operation varies depending upon the type of set as follows:
- SUPERSET 3* Telephones:**
- There is a party on consultation hold and a party in conversation (e.g., the **Trans/Conf** key has been pressed and a new party called); proceed as follows:
- Press the **Swap** key repeatedly to alternately place one call on hold and connect to the other call.
- SUPERSET 3DN* and *SUPERSET 410* Telephones:**
- There is a party on consultation hold and a party in conversation (e.g., the **Trans/Conf** key has been pressed and a new party called); proceed as follows:
- Press the SWAP/TRADE CALLS feature key repeatedly to alternately place one call on hold and connect to the other call.

***SUPERSET 4* Telephones:**

There is a party on consultation hold and a party in conversation (e.g., TRANS/CONF has been pressed and a new party called, or a conference has been split). Proceed as follows:

- Press the SWAP softkey repeatedly to alternately place one call on hold and connect to the other call.

***SUPERSET 4 DN, SUPERSET 420 and SUPERSET 430* Telephones:**

There is a party on consultation hold and a party in conversation (e.g., TRANS/CONF has been pressed and a new party called, or a conference has been split). Proceed as follows:

- Press the **Split** softkey to break up the three party conference. The party in conversation is held, the held party is connected to the set.
- Press the **Trade Calls** softkey repeatedly to alternately place one call on hold and connect to the other call.

Swap Campon

Description This feature allows the user of a telephone to place the current call on hold and converse with a camped-on party. The telephone user can alternate between the two calls as required, form a 3-party conference, or release the telephone from the call, leaving the other two parties connected. This also applies to members of hunt groups. The first extension in the hunt group that does not have Do Not Disturb activated and is logged in (UCD agent hunt groups) is able to swap in the first waiting caller on the hunt group.

Normally the *SUPERSET 3*, *SUPERSET 3 DN*, and *SUPERSET 410* telephone Swap operation is a “swap calls” operation; but it becomes a “swap campon” operation when there is a party camped on, and a Swap Campon is possible.

Conditions The following conditions apply to this feature:

- For *SUPERSET 3 DN* and *SUPERSET 410* telephones, this feature is accessed by a SWAP/TRADE CALLS feature key.
- For an industry standard telephone, this feature is accessed by a switch-hook flash.
- The feature is only available when talking in a call.
- When a call camps on to a key line then all *SUPERSET* telephones using an appearance of the line are able to use the feature.
- The caller that is swapped in is the first waiting caller; see *Campon*.

- The feature is unavailable when:
 - a consultation hold is already in progress,
 - overriding a call or another party in the call is being overridden,
 - a console is in the current call,
 - another party has the current call on consultation hold,
 - a party has the call on hold,
 - the call is ringing back a party in the call (Station Transfer Security),
 - a Non-busy Extension is in the call,
 - the current call is a conference call with a CO line in the call.
- For industry standard telephones, flashing for a waiting call takes priority over the flash features *Flash for Attendant*, and *Flash for Dial Tone*.
- For industry standard telephone, COS Option 223 Flash Disable is ignored for this feature.

Programming For industry standard telephones enable COS Option 205 (flash for waiting call) and enable System Option 38 (switch-hook flash).

For feature key activation of Swap from a *SUPERSET 3 DN* or *SUPERSET 410* telephone, program a SWAP/TRADE CALLS feature key (See Feature Keys.)

Operation **Industry Standard and *SUPERSET 401* Telephones:**

A call is in progress at the extension; a second caller camps on;

- Flash the switch-hook or press the **Flash** key (*SUPERSET 401* telephone). The current call is put on hold. The telephone is connected to the second caller.
- To return to the original conversation, flash switch-hook or press the **Flash** key if the telephone is a Broker.
- To form a conference, flash the switch-hook or press the **Flash** key if the telephone is not a Broker.
- To exit from the 3-party conference, while leaving the two other parties connected, hangup.

***SUPERSET 3* Telephones:**

A call is in progress at the extension; a second caller camps on;

- Press the **Swap** key. The current call is put on hold: the telephone is connected to the second caller.
- To return to the original conversation, press the **Swap** key again.
- To form a conference, press the **Trans/Conf** key.
- To exit from the 3-party conference, while leaving the two other parties connected, hangup.

SUPERSET 3 DN and SUPERSET 410 Telephones:

A call is in progress at the extension; a second caller camps on;

- Press the SWAP/TRADE CALLS feature key. The current call is put on hold: the telephone is connected to the second caller.
- To return to the original conversation, press the SWAP/TRADE CALLS feature key.
- To form a conference, press the **Trans/Conf** key.
- To exit from the 3-party conference, while leaving the two other parties connected, hangup.

SUPERSET 4 Telephones:

A call is in progress at the set; a second caller camps on; the SWAP CAMPON softkey appears:

- Press the SWAP CAMPON softkey; the current call is put on hold and the telephone is connected to the second caller.
- To return to the original conversation, press the SWAP softkey, or,
- To form a conference, press the CON softkey, or,
- To exit from the 3-party conference, while leaving the two other parties connected, press the RELEASE softkey.

SUPERSET 420 Telephones:

A call is in progress at the set; a second caller camps on; the **Trade** softkey appears:

- Press the **Trade** softkey. The current call is put on hold. The telephone is connected to the second caller.
- To return to the original conversation, press the **Trade** softkey again,

or
- Press the **Trans/Conf** key to form a conference. To exit from the conference, while leaving the two other parties connected, press the **Cancel** key.

SUPERSET 4 DN and SUPERSET 430 Telephones:

A call is in progress at the set; a second caller camps on; the **Call Waiting** softkey appears:

- Press the **Call Waiting** softkey. The current call is put on hold; the telephone is connected to the second caller.
- To return to the original conversation, press the **Trade Calls** softkey, or,
- To form a conference, press the **Conference** softkey. To exit from the conference call, while leaving the two other parties connected, press the **Release Me** softkey.

System Identifier

- Description** A unique 1- to 3-digit identifier may be assigned to the system. It appears on traffic measurement and SMDR reports to identify the system when central polling equipment is used for Traffic Measurement, Trunk SMDR, ACD, DATA SMDR, ACD SMDR, and Analog Networking.
- Conditions** The System Identifier is programmed only from the Attendant Console.
- Programming** Refer to Practice 9109-096-126-NA, Peripherals Devices.
- Operation** None.

Tandem Operation

- Description** The SX-200 DIGITAL PABX supports two PABXs connected in tandem using tie trunks to connect the two systems together. See the analog networking, satellite PABX, and resale package features in this section. See *Analog Networking, Satellite PABX, and Resale Package*.
- Conditions** The following conditions apply to this feature:
- Appropriate Automatic Route Selection (ARS) must be provided.
 - When a supervision is received from an outgoing trunk, if the calling party on the trunk is an incoming DID or Tie trunk then the supervision is passed on to the incoming DID or Tie trunk (the incoming trunk is given another answer supervision).
 - Device interconnection must be set up appropriately to ensure that valid trunk connections are allowed. Device interconnection must be checked carefully when using loop start CO or DISA trunks to make outbound calls; see *Device Interconnection Control*.
- Programming** None.
- Operation** None.

Tenancing

Description Economy of scale makes sharing PABX services practical. Using the tenancing features, up to 25 small businesses, or departments of a larger business, can share the services of an *SX-200* DIGITAL PABX. Logically, the PABX is divided into 25 separate PABXs, each providing its tenant with customized features and services.

Consoles, night bells, CO trunks, and dial-in trunks can either be shared between tenants or allocated individually to each tenant. Switching to night service can be done centrally, or by an individual tenant. Calls through the PABX can be blocked, so tenants can only call each other on CO trunks.

Unanswered or after-hours calls can be answered by a "landlord" console. Tenants can gain additional flexibility by using *SUPERSET 4*, *SUPERSET 4 DN*, or *SUPERSET 430* telephones as subattendant positions. The main console position could be handled by a *SUPERSET 4*, *SUPERSET 4 DN*, or *SUPERSET 430* telephone, using line keys to receive tenant recalls.

Data calls may be assigned to separate tenants, as required, to control access to data devices.

Refer to Practice 9109-096-230-NA, Tenancing.

Conditions The following conditions apply to this feature:

- A maximum of 25 Tenant groups may be programmed.
- If tenancing is used to segregate departments, CDE Form 06 (Tenant Night Switching Assignment) must be programmed accordingly.
- Tenants may have names associated with them; tenant names are not available in Generic 1002.

Programming Assign consoles to the desired tenant groups via CDE Form 07 (Console Assignments).

Assign extensions and *SUPERSET* telephones to the desired tenant groups via CDE Form 09 (Station/*SUPERSET* Telephones).

Assign trunks to the desired tenant groups via CDE Forms 14 (Non-Dial-In Trunks) and 15 (Dial-In Trunks).

Assign the desired tenant name, day and night service numbers in CDE Form 19 (Call Rerouting Table).

Program CDE Form 06 (Tenant Night Switching Control) if tenancing is used to segregate departments.

Operation None.

Toll Control

- Description** The toll control feature forms part of the automatic route selection (ARS) feature. It allows the PABX to restrict external calls placed by designated groups of extensions. This may mean denying all outside calls, denying calls to specific locations, denying calls over expensive routes, or any combination of these.
- See Automatic Route Selection (ARS) and Class of Restriction (COR) in this section; note that this is not Key System Toll Control.
- Conditions** Refer to Practice 9109-096-220-NA, Automatic Route Selection and Toll Control.
- Programming** Refer to Practice 9109-096-220-NA, Automatic Route Selection and Toll Control.
- Operation** None.

Tone Demonstration

- Description** The tone demonstration feature familiarizes users with the tones the system generates. This feature also allows *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 401*, *SUPERSET 410*, *SUPERSET 420*, and *SUPERSET 430* users to adjust ringer volume and pitch.
- Conditions** The following conditions apply to this feature:
- The *SUPERSET 4 DN* and *SUPERSET 430* telephones also have a special feature RING ADJUST to adjust the ringer volume and pitch.
 - If no new tone is selected after a while then the tone demonstration feature is canceled and regular dial tone to allow normal dialing is returned to the extension.
- Programming** Assign an access code to Feature 27 (Tone Demonstration).
- Operation** Dial the Tone Demonstration feature access code plus the code for the tone to be played. The codes, the tones, and the main uses of each tone in the system are as follows:
- 1-10, 16, 22, 25 – Code is Unassigned

11 – Dial Tone

This tone is heard when dialing can start, for internal callers as well as for external callers. ARS dial tone, Interrupted dial tone and Transfer dial tone use this basic tone.

12 – Transfer Dial Tone

This tone is heard when dialing can start and the extension has a party on consultation hold; see *Transfer Dial Tone*. The tone is the same as Interrupted dial tone.

13 – Busy Tone

This tone is heard when:

- a busy device is reached and campon to the device is not allowed (device type, COS options, etc.)
- during campon to a busy device
- devices are busy when a feature is accessed such as paging.

14 – Special Busy Tone

This tone is heard by the calling party when a busy device is reached and campon to the device is allowed. Only some types of external callers receive this tone; see *Campon*.

15 – Standard Ringback Tone

This tone is heard by the calling party when a device is being rung. This is supplied to internal and external callers.

17 – Reorder Tone

This tone is heard when an illegal operation is attempted or when an invalid number is dialed (or no number is dialed at all); see *Illegal Number Intercept* and *Vacant Number Intercept* also. This is the same tone as Busy tone; however, the cadence is different.

18 – Conference Tone

This tone can be heard when the attendant is in a conference; see *Attendant Conference*.

19 – Call Waiting (Campon) Tone

This tone is heard by a busy extension when another extension camps onto the busy extension; see *Campon Warning Tone*.

20 – Intrusion (Override) Tone

This tone is heard by a device overriding a call; see *Override (Intrude)*.

21 – Interrupted Dial Tone

If Call Forwarding or Do Not Disturb is activated at a set, a user hears interrupted dial tone followed by regular dial tone when the user goes off-hook. Interrupted dial tone is regular dial tone broken by short intervals of silence.

23 – Waiting Tone (Silence or Music on Hold)

This is the tone supplied to devices on hold or consultation hold and to devices camped on to busy devices, see *Music On Hold* and *Campon*. Industry-standard telephones do not hear this tone.

24 – Paging Tone

This tone is heard when the pager is successfully accessed; see *Paging*.

26 – Trunk Camp-on Double Beep Tone

This tone is heard by an extension when an external call or the attendant camps onto the extension; see *Campon Warning Tone*.

27 – ARS Warning Tone

This tone is heard when an expensive route is accessed in ARS; see *Expensive Route Warning*.

28 – ARS Dial Tone

This tone is heard if dial tone is supplied from ARS during an outbound call. Refer to Practice 9109-096-220-NA, Automatic Route Selection and Toll Control.

29 – Override Warning Tone

This tone is heard by parties in a call while a conversation is being overridden; see *Override (Intrude)*.

30 – Privacy Release Tone

This tone is heard when an extension enters an existing call on a key, Direct Trunk Select, or Private trunk line; see *Privacy/Privacy Release*.

31 – Auto-Answer Call End Tone

This tone is heard when a *SUPERSET* telephone that has the Auto-Answer feature enabled ends a call; see *Auto-answer*.

32 – Attendant Error Tone

This tone is heard when the attendant attempts an illegal operation.

33 – Ringer Pitch Adjust

Dialing this code starts the *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 401*, *SUPERSET 410*, *SUPERSET 420*, or *SUPERSET 430* telephone ringing, and enables the ringer pitch adjust mode for the volume

keys on the telephone. Refer to Practice 9109-096-126-NA, Peripherals Devices.

Tone Plans

Description Numerous tones can be generated when dialing telephone numbers in North America. To accommodate these, the system loads the North American tone plan from floppy disk. Separate software loads containing other tone plans are available. Loading the appropriate software, allows the PABX to operate in countries that do not use the North American tone plan.

Refer to *Call Progress Tones*, in Practice 9109-096-180-NA, Engineering Information, for details of North American tone plans.

Conditions None.

Programming Tone plans are selected via System Option 60 (Tone Plan) in CDE Form 04 (System Options and Timers).

Operation None.

Traffic Measurement

Description Traffic measurements can be made on SX-200 DIGITAL PABX systems, and the results printed through a printer port (see *Directed Input/Output*). The types of measurements made include the following:

- DTMF Receiver activity
- DTRX Calls
- Console activity
- Feature activity
- Guest Room activity
- Hunt group activity
- Line and Trunk activity
- PCM Channel activity
- Trunk activity
- Trunk group activity.

Information is accumulated during a user-programmed time period, and is then available for output. Programming is done from the Maintenance Terminal or from the Attendant Console.

Refer to Practice 9109-096-450-NA, Traffic Measurement.

Conditions None.

Programming Refer to Practice 9109-096-450-NA, Traffic Measurement.

Operation None.

Transfer

Description This feature allows a telephone user, on an established call, to put the call on consultation hold, dial a third party, and transfer the second party to the third party. The transfer can be done before the third party answers, after the third party answers, or if the third party is busy (Transfer Into Campon).

A *SUPERSET* telephone user can consult privately with each party using the Swap feature (see *Swap*) and then form a conference or perform a transfer.

The user of an industry-standard telephone or *SUPERSET 401* telephone can consult privately with the third party only once prior to transferring or conferencing.

Conditions The following conditions apply to this feature:

- When an extension with a consultation hold in progress calls the console and the console answers, the console has the caller as the DEST party and the party held by the caller as the SOURCE party. The calling party no longer has the third party on consultation hold – it is on hold by the console.
- When a party is transferred to a third party while the third party is ringing, the display of the third party is updated to show the identity of the new caller.
- The *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420*, and *SUPERSET 430* telephones provide visual indications on the display that a consultation hold is in progress. *SUPERSET 4 DN* and *SUPERSET 430* telephones identify the call on consultation hold.
- For transfers to campon, see *Campon*.

- Device Interconnection checking is done between the party being transferred and the party being transferred to. An exception is when a Direct Trunk Select Trunk line is being transferred.
- See *Station Transfer Security* for situations where the transferring party accidentally hangs-up or attempts an illegal transfer.
- Private trunk lines cannot be transferred.
- Conferences can be put on consultation hold.
- Single parties on consultation hold receive system music.
- Calls may not be transferred to the paging circuit, to a conference, or to a Call Announce Port.
- COS Options 223 (Flash Disable), 400 (Contact Monitor), 228 (Manual Line), 224 (Flash for Attendant) prevent an extension from putting a party on consultation hold.
- COS Option 214 (Cannot Dial a Trunk After Flashing) and COS Option 215 (Cannot Dial a Trunk if Holding or Conf with One) prevent trunks from being accessed as the third party under certain circumstances.
- An extension with COS Option 233 (Never a Consultee) may not be consulted.
- See *Transfer Dial Tone* for special dial tone on transfer.
- A call cannot be put on consultation hold if:
 - the party is an attendant,
 - the party is a Call Announce Port,
 - the call has an incoming trunk in it and the Flash on incoming trunk feature is enabled (the same applies for outgoing trunks),
 - the call is on a private trunk line,
 - there is a party in the call using the ADD HELD feature enabled,
 - a party in the call is holding the call,
 - an extension in the call has the Non Busy Extension feature,
 - the call is ringing back one of the parties in the call (Station Transfer Security),
 - another party in the call is being overridden,
 - the extension is overriding a party in the call,
 - there are 5 parties in the call,
 - the call is already on consultation hold,
 - the call is a conference and the extension has the Broker's Call or Transfer With Privacy feature,
 - the call is a conference and the Flash In Conference option is disabled.

Programming See *Flash Control* for restrictions on consultation hold.

See *Conference* for programming to allow conferences of more than three parties.

Operation Industry-standard Telephones:

On an established call:

- Flash the switch-hook – dial tone is returned; the current party (second party) is on Consultation Hold and hears music, if provided.
- Dial the number of the third party.
- If desired, wait for the third party to answer (if the number is busy or does not answer, flash the switch-hook to return to the held call).
- If desired, consult privately with the third party.

SUPERSET 3 DN and SUPERSET 4 Telephones:

On an Established Call:

- Press the **Trans/Conf** key – transfer dial tone is returned, the current party (second party) is on Consultation Hold and hears music, if provided.
- Dial the number of the third party.
- If desired, wait for the third party to answer (if the number is busy or does not answer, press the **Cancel** key to return to the held call).
- If desired, consult privately with this party.
- If desired, switch between parties by pressing the **SWAP** feature key. The conversation with each party is private.
- To connect both parties: hang up, or press the **Release** softkey (if provided).

SUPERSET 401 Telephones:

On an Established Call:

- Press the **Flash** key – transfer dial tone is returned, the current party (second party) is on Consultation Hold and hears music, if provided.
- Dial the number of the third party.
- Replace the handset,
or,
Wait until the called party answers and then introduce the caller being transferred. After introducing the caller, hang up. If you receive busy tone, or if the called party doesn't answer, hang up. You will be recalled by the original party.

SUPERSET 410 and SUPERSET 420 Telephones:

On an Established Call:

- Press the **Trans/Conf** key – transfer dial tone is returned, the current party (second party) is on Consultation Hold and hears music, if provided.
- Dial the number of the third party.

- Replace the handset,
or,
Wait until the called party answers and then introduce the caller being transferred. After introducing the caller, hang up. If you receive busy tone, or if the called party doesn't answer, press the **Cancel** key to return to the original call.

SUPERSET 4 DN and SUPERSET 430 Telephones:

On an Established Call:

- Press the **Trans/Conf** softkey – transfer dial tone is returned. The current party (second party) is on Consultation Hold and hears music, if provided.
- Dial the number of the third party.
- If desired, wait for the third party to answer. (If the number is busy or does not answer, press the **Back To Held** softkey to return to the held party. If another call is desired without returning to the held party (e.g., wrong number), use the **New Call** softkey).
- If desired, consult privately with this party.
- If desired, switch between parties by pressing the **Trade Calls** softkey. The conversation with each party is private.
- To connect both parties: hang up, or press the **Release Me** softkey.

Transfer Dial Tone

Description The transfer dial tone feature supplies a tone to indicate that an extension has a call on consultation hold. Transfer dial tone is returned when an extension places an established call on hold to consult with another party or to transfer the call. Transfer dial tone is 350/440 Hz, three bursts of 100 ms on, 100 ms off, followed by continuous tone. Regular dial tone is 350/440 Hz continuous tone.

Conditions The following conditions apply to this feature:

- The console is not affected.
- COS Option 701 (No Dial Tone) must be disabled.
- The *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 420*, and *SUPERSET 430* telephones have indicators on the display to show that there is a consultation hold in progress.
- This is the same tone used for Discriminating Dial Tone.

-
- Programming** Enable COS Option 251, Transfer Dial Tone (249 in Generic 1001) for the extension.
- Operation** Establish a call.
- Place call on consultation hold. Transfer dial tone is returned to indicate consultation hold.

Transfer Security (Recall)

Description This feature is designed to prevent the dropping of mishandled calls. If an extension, during transfer, hangs up before completing dialing, or if the transfer is not allowed, the call that was placed on hold by the original extension flashing, automatically calls back to that extension. This also applies to conference calls.

- Conditions** The following conditions apply to this feature:
- See *Inhibit Trunk Ring-me-back During Dialing* for an exception for this feature.
 - *SUPERSET* telephones with displays indicate the special ring-me-back calls.
 - The ring back only affects the party being rung back – other appearances of the line do not ring.
 - The features available to extensions ringing an extension (callback, messaging) are available to the extension ringing back.
 - The parties in a conference ringing back do not hear any tones.
 - There is no time limit on the conference ringing back.
 - Forwarding – no answer and recall operate for a single caller ringing back. All types of forwarding, and recall are ignored for a conference ringing back.
 - The Trunk Recall Partial Inhibit feature blocks this feature in a particular situation.
 - The Directed Call Pickup feature has no effect on calls ringing back.
 - Other appearances of the extension being rung back cannot answer the call.
 - An attempted flash to go back to a consultation hold could be interpreted by the system (if it is too long) as a hang up attempt. The industry-standard telephone user could then possibly find itself reconnected to the held party with no ringing heard at the station.
 - If an illegal transfer is attempted then the transferring extension is rung back.

Programming None.

Operation None.

Trunk Answer From Any Station (TAFAS)

Description This feature allows the user to answer incoming calls appearing at common alerting devices (night bells). The user can answer calls for a single tenant or for all tenants in the system. The answering extension can then invoke any feature associated with the incoming call that is normally available at that extension. TAFAS can also be used to answer certain calls which ring at the console during the day.

Conditions The following conditions apply to this feature:

- Tie trunks, industry-standard telephones, *SUPERSET* telephones, and consoles can access the feature.
- The NIGHT BELL softkey appears at the console only if the appropriate COS options are enabled for the console and a call of the correct tenant is ringing the Night Bell.
- Extensions cannot have a consultation hold in progress when attempting to answer the TAFAS call.
- Night Bells have no tenant assignment; the tenant used is always that of the caller.
- Device Interconnection Control checks must pass between the caller and the device answering the call.
- Only calls dialed to a console directory number, LDN key, or Night Bell may be answered during Day Service.
- All calls ringing all consoles, LDN keys, or Night Bells in the system are available, depending upon the tenant checks made.
- Recall is handled as if the caller had directly dialed or originated to the extension and the extension had answered; see *Recall*.

Programming To restrict access to the device's tenant only, assign an Access Code to Feature 15, TAFAS – Local Tenant and enable COS Option 249, TAFAS Access – Tenant (247 in Generic 1001) for this device.

To allow access to all tenants, assign an Access Code to Feature 14, TAFAS – Any) and enable COS Option 248, TAFAS Access – Any (246 in Generic 1001) for this device.

If desired, enable COS Option 250, TAFAS Access During Day Service (248 in Generic 1001); this permits set users to answer calls ringing the console during the day.

Operation

Operation varies depending upon the device type as described below.

Industry Standard, SUPERSET 3, and SUPERSET 401 Telephones:

To answer a TAFAS call:

- When the alerting device is heard, go off-hook.
- When dial tone is heard, dial the appropriate TAFAS code.

The incoming call is now connected to the answering device.

SUPERSET 3 DN, SUPERSET 410, and SUPERSET 420 Telephones:

To answer a TAFAS call (in the local Tenant group) or any TAFAS call:

- When the alerting device is heard, go off-hook.
- Press the NIGHT ANSWER feature key.

The incoming call is now connected to the extension.

SUPERSET 4 Telephones:

To answer a TAFAS call (in the local Tenant group) or any TAFAS call:

- When the alerting device is heard, go off-hook.
- Press the NIGHT ANS softkey.

The incoming call is now connected to the extension.

SUPERSET 4 DN and SUPERSET 430 Telephones:

To answer a TAFAS call (in the local Tenant group) or any TAFAS call:

- When the alerting device is heard, go off-hook.
- Press the **Night Answer** softkey.

The incoming call is now connected to the extension.

Attendant Console:

To answer a TAFAS call at the console:

- When you hear the alerting device, press the NIGHT BELL softkey.

The incoming call is now connected to the console.

Trunk Circuit Descriptor Options

- Description** Trunk circuit descriptors specify the programmable hardware parameters of each trunk circuit in the *SX-200* DIGITAL PABX. These are complemented by the switch settings on the *SX-200* analog trunk card types. The system supports a maximum of 25 different trunk circuit descriptors. Each trunk in the system must have a trunk circuit descriptor number with an associated set of selected options.
- Conditions** None.
- Programming** Select Trunk Circuit Descriptors in CDE Form 13 –Trunk Circuit Descriptors. If the system is to provide pseudo answer supervision, set an appropriate time for the time-out period via System Option 49 – Pseudo Answer Supervision Timer (Note: this is System Option 38 in Generic 1001). See Practice 9109-096-210-NA, Customer Data Entry.
- Operation** None.

Trunk Dial Tone Detection

- Description** After accessing a trunk the system tries to detect dial tone on it. If dial tone is detected before time-out, the system begins sending digits. If no dial tone is detected after the time-out period and limited wait is specified, the system automatically begins sending digits. Otherwise it removes the trunk from service and indicates an alarm. Dial tone detection, without the alarm, can also occur in the middle of trunk dialing; see *Automatic Route Selection*.
- Conditions** The following conditions apply to this feature:
- Enabling Limited Wait For Dial Tone disables the No Dial Tone Alarm.
 - The no dial tone alarm time is set at 10 seconds.
 - When the trunk is removed from service, the party dialing on the trunk ends dialing and is given busy tone.
 - 50 simultaneous dial tone detections can occur in the system at any one-time.
 - If dial tone detection resources are not available and the alarm is enabled then the trunk is removed from service. If the alarm is not enabled then dial tone is assumed to have been supplied and dialing commences after a short pause.

Programming Set System Option 48 (Limited Wait for Dial Tone) (37 in Generic 1001) for 1–15 seconds.

To program a trunk to wait the limited time for dial tone, select COS Option 802 (Limited Wait for Dial Tone) for the trunk.

To enable the no dial tone alarm for a trunk, enable COS Option 805 (Trunk No Dial Tone Alarm).

Operation None.

Trunk Groups

Description Trunk groups are defined and used in the ARS forms in CDE to control extension access to trunks, to define trunk options, and to apply features to trunk groups. For further information, refer to Practice 9109–096–220–NA, Automatic Route Selection and Toll Control, and to Practice 9109–096–210–NA, Customer Data Entry.

Conditions The following conditions apply to this feature:

- SMDR is applied to trunks on a per trunk group basis; refer to Practice 9109–096–221–NA, Station Message Detail Recording.
- A maximum of 50 individual trunk groups are available.
- A maximum of 50 trunks are permitted in an individual trunk group.
- A trunk may be a member of only one trunk group.
- Individual trunks must be programmed before they are entered into trunk groups.
- Direct Trunk Select and Private Trunk line trunks must be in trunk groups before outgoing calls can be made on the trunk lines.
- Direct Trunk Select and Private Trunk Line trunks are never hunted from a trunk group.
- A trunk is selected from a trunk group if it is idle, if it is not being seized by another party, if a no seize alarm is not pending and if the caller and the trunk can connect together.
- A trunk does not need to be in a trunk group to originate a call.
- Trunk groups can have circular or terminal hunting.

Programming Program trunks into Trunk Groups via CDE Form 16 (Trunk Groups).

Each trunk group may also be given a unique name via CDE Form16 (Trunk Groups).

System Option 49 (38 in Generic 1001) – Pseudo Answer Supervision Timer applies to all trunks in the system.

Refer to Practice 9109–096–220–NA, Automatic Route Selection and Toll Control.

Operation None.

Trunk Operation – Direct Inward Dial (DID)

Description The DID trunk type is one of the four trunk types, independent of the hardware actually used to support the types, used in the system.

DID trunks allow incoming trunk calls to reach extensions without attendant intervention or assistance. The length of the incoming number, the number of digits to be absorbed, and a prefix digit, if required, can also be specified through CDE programming.

Calls arriving at the PABX on DID type trunks are assumed to be outside calls. Callers therefore receive different call progress tones. Call handling differs from tie and DISA trunk type calls, which are assumed to be internal calls.

For the hardware that supports the DID trunk type operation, see *Trunk Support – Direct Inward Dial (DID)*, *Trunk Support – T1*, and *Trunk Support – E&M*.

Also see *DID/Dial-In/Tie Intercepts*.

Conditions The following conditions apply to this feature:

- If the DID trunk sends less digits than expected, the trunk receives reorder tone from the PABX system after the inter digit time-out (15 s).
- DID trunks can dial any access code for any type of device.
- An extension with Option 226 (Inward Restriction DID) in its COS cannot receive a call directly from a DID trunk. It is treated by the system as an illegal number.
- Calls attempted using vacant or illegal numbers can be routed to answering points for completion; see *Illegal Access Intercept and Vacant Number Intercept*.
- DID trunks receive ringback tone when calling and camping onto a busy device. They receive busy tone if they reach a busy device and no busy

intercept occurs (see *DID/Dial-In/Tie Intercepts*) and the trunk cannot camp on (see *Campon*). If it can camp on, it does so immediately.

- DID trunks ignore the DND feature if enabled on the called extension if there is no Do Not Disturb Routing for the called extension's tenant; also see *DID/Dial-In/Tie Intercepts*.
- DID trunks are answered before being connected to a recording device.
- If there is no DID rerouting, DID trunks ignore the DND that is enabled on the called party.
- The attempt to call the destination is done only when the specified number of digits to be received on the trunk have been received. Extra digits are ignored and no matches are done for access codes that contain less than the specified number of digits.
- Digits are absorbed before the prefix digits are inserted.
- The trunk may be programmed to ignore incoming DTMF digits, and recognize only rotary digits.
- A DTMF receiver is needed when a DID trunk originates. If there is no receiver available then the trunk waits indefinitely until a receiver is available. Digits received on the trunk are stored and processed when a receiver is available. The Traffic Measurement feature can be used to track the wait for receiver.
- If a seize error occurs on a DID trunk then the trunk is given reorder tone.
- Prefix digits are used for matching access codes only after the DID trunk has dialed at least one digit that is not absorbed and the expected number of digits have been received. The prefix digits by themselves cannot be used to match an access code.

Programming To program a trunk to ignore incoming DTMF digits during origination of the call, enable COS Option 801 (Incoming Trunk Call Rotary) for the trunk.

Program a DID trunk in CDE Form 15 (Dial-in Trunks).

Operation None.

Trunk Operation – Direct Inward System Access (DISA)

Description The DISA feature allows an external caller to access the system by dialing the directory number of a special DISA trunk and then dialing a security code. After the code is dialed, the system returns dial tone to the caller, who may then access features in the DISA trunk's COS except those which require a switch-hook flash.

Optionally, the external caller can be forced to enter a special account code rather than the standard DISA security code.; see *Verified Account Codes (Special DISA)*.

DISA trunks can be supported on many different hardware types. See *Trunk Support – T1, Trunk Support – Tie, Trunk Support – E&M*.

A trunk can be programmed as DISA at all times, or during night service only.

Conditions The following conditions apply to this feature:

- After the trunk originates, the system waits a programmable time, and then answers the trunk; then dial tone is returned.
- After the preprogrammed wait, the system answers the trunk before dialing begins.
- The outside caller must use a DTMF telephone.
- The security code may be one to five digits in length.
- The same security code applies to all DISA calls.
- If a caller dials an invalid code, the call is dropped only after three digits have been dialed. This makes it a bit more difficult for unwanted callers to determine what the security code is. This does not apply when a verified account code is used.
- Three service modes — DAY, NIGHT1, or NIGHT2 — are available to tenant groups (see *Night Services*). If COS Option 810 (DISA During Night Service Only) is enabled for a trunk, the DISA feature is disabled for the trunk's tenant during DAY service mode. Therefore, during DAY service mode, an external caller can call in on the trunk without entering the DISA security code.
- Reorder tone is not returned to the caller when an invalid security code is dialed.
- A switch-hook flash is not possible on a DISA trunk.
- DISA trunks follow the illegal, do not disturb and vacant number routing as an internal industry-standard telephone would.
- A DISA trunk is given the same call progress tones as an internal extension.

- The Alternate Trunk Recall feature applies to DISA trunks.
- If a loop start CO trunk is the hardware supporting the trunk then loop start interconnection rules apply and the restrictions on loop start CO trunks applies; see Device Interconnection Control and *Trunk Operation – Non-dial-in*.
- If the DISA trunk caller cannot complete a call then the caller must hang up and try again.
- If there is no DTMF receiver available for dialing when the DISA trunk originates a call, the initial answer delay period is extended indefinitely until a DTMF receiver is available.
- No call progress tone is provided by the PABX to the trunk in the initial answer delay period.
- Up to seven digits can be absorbed from the trunk.
- Access to the allowed features is controlled by the COS assigned to the trunk.
- The features available to DISA trunks include:
 - account codes
 - ARS
 - console hold slot retrieve
 - paging
 - system Abbreviated Dial.

Programming If the trunk is to be a DISA trunk during Night Service only, enable COS Option 810 (DISA During Night Service Only) (812 in Generic 1001) for the trunk, and set the DISA trunk DAY service routing in CDE Form 19 (Call Rerouting Table) for the trunk's tenant.

Select options for the DISA trunk type via CDE Form 13 (Trunk Circuit Descriptors).

Select options for the specific DISA trunk via CDE Form 15 (Dial-In Trunks). Assignment of a DISA circuit descriptor to a trunk changes the trunk to a DISA trunk.

Assign a DISA access code to Feature 19 (Direct Inward System Access); see *Attendant DISA Code Setup*.

Select the DISA answer timer via System Option 54 (43 in Generic 1001) (DISA Answer Timer: 1–8 Seconds).

Enable COS Option 812 (Loop Start Trunk to ACD Path Connect) to allow loop start DISA trunks to access the ACD feature.

Operation

To access the System:

Dial the required directory number from a DTMF telephone.

The system waits the DISA answer time before answering the trunk and supplying dial tone.

Dial the DISA security code – dial tone is returned again.

Dial the required feature access code or extension.

Trunk Operation – Non-Dial-in CO

Description

CO trunks usually carry calls between the local central office and the PABX. Calls arriving on CO trunks are assumed to be outside callers. Callers therefore receive different call progress tones. Call handling differs from tie and DISA trunk type calls, which are assumed to be internal calls.

CO trunks are assigned an origination point for DAY, NIGHT 1, and NIGHT 2 service. They can optionally be assigned as a dedicated line on a *SUPERSET* telephone.

For the hardware that supports CO trunk type operation, see *Trunk Support – CO (LS/GS)*, *Trunk Support – Tie*, *Trunk Support – DID*, *Trunk Support – E&M*, and *Trunk Support – T1*.

The NIGHT1 or NIGHT2 service for CO trunks can be changed directly from the Attendant console; see *Flexible Night Service*.

Also see *Direct-In Lines*.

Conditions

The following conditions apply to this feature:

- A DISA trunk may be programmed to be a CO trunk type during day service. See *Trunk Operation – Direct Inward System Access (DISA)*.
- Connection checking is done between the trunk and the destination point when the trunk originates.
- If the trunk origination is blocked then the trunk stays idle and the PABX does no further processing of the call.
- Trunks are always answered before listening to a recording device.
- The processing of the origination follows the operation of call rerouting; see *Call Rerouting*.

- For trunks assigned to DTS or Private Trunk lines, the trunk originates to the line and ignores the NIGHT/DAY points programmed.
- The audio heard by the caller before answer depends upon the hardware/circuit descriptor connected to that trunk. For CO trunks, CO tones provided by the Central Office are heard; for trunks, based on dial-in hardware circuits, PABX call progress tones provided by the PABX are heard.
- The trunk receives ringback tone when it camps on to a device.
- The Device Interconnection feature can be used to prevent loop start trunk interconnection.
- If a CO trunk in a bay fails to get resources required for a call when it originates, the trunk will wait for resources to become available.
- If the trunk is routed out to an external trunk call and the CO trunk has not been answered yet, the CO trunk is answered when dialing is finished on the outgoing trunk.
- CO trunks cannot dial ARS directly; however, ARS can be accessed via System Abbreviated Dial.
- If no routing points are programmed in form 14 and there is no key appearance of the trunk, the trunk will not ring.

Programming Select options for the specific trunk circuits via CDE Form 14 (Non-Dial-In Trunks) for incoming calls.

Enable COS Option 812 (Loop Start Trunk to ACD Path Connect) to allow loop start trunks to access the ACD feature.

Refer to Practice 9109-096-220-NA, Automatic Route Selection and Toll Control, for the selection of options for outgoing calls.

Operation None.

Trunk Operation – Tie

Description The Tie trunk is one of four trunk types, and independent of the hardware actually used to support the types, used in the system.

Tie trunks allow incoming trunk calls to reach extensions directly, without Attendant intervention or assistance. The number of digits expected from the trunk is unknown. Digit absorption and adding prefix digits can be done.

Calls coming into the PABX on Tie type trunks are assumed to be callers from inside the company, similar to DISA trunk type calls. The callers therefore receive the same call progress tones that internal callers hear and may have access to many extension features.

For the hardware that supports the Tie trunk type operation, see *Trunk Support – E&M, Trunk Support – T1, and Trunk Support – Direct Inward Dial (DID)*.

See *Dial Tone Disable* for dial tone control for the Tie trunk.

Conditions The following conditions apply to this feature:

- Tie trunks have access to the following extension features:
 - account code
 - ARS
 - console hold slot retrieve
 - directed pickup
 - hold retrieve
 - paging
 - system Abbreviated Dial.
- For Tie intercept handling, see *DID/Dial-In/Tie Intercepts*.
- Tie trunks dialing extensions with Do Not Disturb enabled are handled in the same way as extensions.
- Tie trunk dialing follows the same rules as for extensions.
- Up to 7 digits can be absorbed and 2 digits can be prefixed.
- The prefix digits are used for matching access codes only after the Tie trunk has dialed at least one digit that is not absorbed. The prefix digits by themselves cannot be used to match an access code.
- The limit to the number of digits that a Tie trunk can dial is the same as for an internal extension (25). This includes the prefix digits but not the absorbed digits.
- The trunk may be programmed to ignore incoming DTMF digits, and to recognize only rotary digits.
- A DTMF receiver is needed when a Tie trunk originates. If there is no receiver available then the trunk waits indefinitely until a receiver is available. Digits received on the trunk are stored and processed when a receiver is available. The Traffic Measurement feature can be used to track the wait for a receiver.
- For incoming answer supervision when directed to ARS, see *Tandem Operation*.

Programming To program a trunk to ignore incoming DTMF digits, enable COS Option 801 (Incoming Trunk Call Rotary) for the trunk.

Operation None.

Trunk Recall

- Description** The feature provides an alternate recall point for trunks in the system. The alternate recall point can be specified for each tenant and each NIGHT/DAY service. Under the following conditions, trunks are rerouted to the alternative call point:
- for all trunk types, when an extension with a trunk on consultation hold is listening to reorder tone and times out, the trunk is removed from consultation hold and rerouted.
 - for DISA and CO trunks, when a trunk recalls from campon or ringing an extension; see *Recall*.
- Conditions** The following conditions apply to this feature:
- This feature does not apply to DTS or private trunks ringing into the *SUPERSET* telephone where the line appears.
 - For the reorder tone case, the reroute is done before recalling serial trunks.
 - For the reorder tone case, the tenant group of the extension is used to determine the routing point.
 - For the reorder tone case, if there is no point programmed for the current NIGHT/DAY service then the trunk is dropped; Serial trunks recall.
 - An LDN key cannot be the routing point.
 - For recall situations, the tenant of the called party is used to determine the rerouting point. When a logical line is called, the tenant of the first appearance of the line is used. When a hunt group is called, the tenant of the first member of the hunt group is used.
 - The feature does not operate when calling an LDN, Night Bell, or console.
- Programming** In CDE Form 19 (Call Rerouting Table), program the recall points for Non-Dial-In Trunk Alternate Recall Point in the tenant of the called party.
- Operation** None.

Trunk Support – CO (LS/GS)

- Description** The *SX-200* DIGITAL PABX supports CO (LS/GS) trunks with the CO trunk card in analog peripheral bays, and the LS/GS trunk card in digital bays.
- For loop start CO trunks that do not provide release supervision, take caution when routing to Auto-Answer telephones or to UCD/ACD applications that do not provide termination for a music/recording sequence. In these cases, since the system does not disconnect the trunk, the call may stay up indefinitely.
- Conditions** None.
- Programming** Enter the trunk into the system's physical configuration table via CDE Form 01 (System Configuration).
- Select options for the CO trunk type via CDE Form 13 (Trunk Circuit Descriptors).
- Select options for the specific trunk circuits via CDE Form 14 (Non-Dial-In Trunks) for incoming calls.
- Refer to Practice 9109-096-220-NA, Automatic Route Selection and Toll Control, for the selection of options for outgoing calls.
- Operation** None.

Trunk Support – Direct Inward Dial (DID)

- Description** The following types of DID trunks are supported in the *SX-200* DIGITAL PABX:
- wink Start
 - delay Dial
 - immediate Dial.
- DID trunks support Tie, CO, DID, and DISA operation.
- Conditions** The following conditions apply to this feature:
- Analog Bay DID trunks can be used outgoing.

- Digital DID trunk cards are incoming only.
- Digital DID trunk cards do not support DISA type operation.

Programming	<p>Enter the trunk into the system's physical configuration table via CDE Form 01 (System Configuration).</p> <p>Select options for the DID trunk type via CDE Form 13 (Trunk Circuit Descriptors).</p> <p>Select options for the specific trunk circuits via CDE Form 15 (Dial-In Trunks).</p>
Operation	None.

Trunk Support – E&M

Description	<p>E&M trunks are supported with the E&M Trunk card in the analog Peripheral bays and the E&M Trunk module on the Universal card, in the digital Peripheral bays.</p> <p>The signalling schemes supported include: type I and type V, 2-wire or 4-wire.</p> <p>E&M trunks support Tie, CO, DID, and DISA operation.</p>
Conditions	None.
Programming	<p>Enter the trunk into the system's physical configuration table via CDE Form 01 (System Configuration).</p> <p>Select options for the E&M trunk type via CDE Form 13 (Trunk Circuit Descriptors).</p> <p>Select options for the specific trunk circuits via CDE Forms 14 (Non-Dial-In Trunks) and CDE Form 15 (Dial-In Trunks).</p>
Operation	None.

Trunk Support – T1

Description The SX-200 DIGITAL PABX supports T1 trunks using T1 D4 Channel associated signalling (CAS), also referred to as DS-1.

T1 trunk cards support DID, tie, CO and DISA operation on a per circuit basis. For each circuit, the circuit descriptor can be programmed through CDE to alter the signalling scheme to one of E&M, did loop-tie, CO (loop and ground start), DISA E&M, DISA DID loop-tie, DISA CO (loop or ground start).

The PABX provides for a Stratum 3 or 4 clock source. The PABX can be used in master mode to serve as a clock source for the network, or in slave mode to use the network as its clock source. In slave mode the system prevents data losses due to clock rate differences by adjusting its internal T1 clock module to remain in phase with the incoming frame clock rate.

T1 trunks are not available with Generic 1001 or Generic 1002.

T1 Trunk Maintenance

The PABX automatically monitors various errors on a link and maintains a 24-hour sliding window for each link. Thresholds are programmable on a link basis for these errors. When the thresholds are exceeded, based upon the threshold type (maintenance, service, or network synchronization), the PABX generates maintenance logs, removes the link from service, or causes the link to not be used as a network synchronization source. Once the link is removed from service or is removed from network synchronization, a programmable timer starts. When this time is elapsed, if the link does not exceed a specified number of errors, the link is again made available for use. All of this activity is logged in maintenance and the cumulative error counts (24-hour basis) are available in Maintenance error reports (refer to Practice 9109-096-351-NA, RS-232 Maintenance Terminal).

There are two different states for a T1 trunk that is out of service, a yellow or red alarm. A yellow alarm is the result of a link-based event. The link transmits a yellow alarm condition on the link, which signals the far end that the link is out of service. This is the action taken on the service threshold limits or the reception of a yellow alarm condition from the far end.

A red alarm is based upon loss of synchronization on the link. Maintenance logs are generated for any change in alarm status, and can be seen by using the Maintenance SHOW STATUS command.

A link monitoring tool is available for troubleshooting T1 links, and for specifying a manual network synchronization source. Refer to Practice 9109-096-351-NA, RS-232 Maintenance Terminal.

T1 Trunk Synchronization

The PABX provides for Stratum 3 or 4 clock source, and can be used in master or slave mode. There is a programmable list of links to be used in network synchronization, with each link backing up the other links, should the previous link exceed the error thresholds (Slip Rates, Bit Error Rates (BER), and Framing Losses) programmed in the link descriptors. There are three network synchronization modes in the PABX: Auto, Manual, and Freerun. Auto mode is when the PABX chooses the network synchronization source automatically. Manual mode is when a link is specifically selected as the network synchronization source (this only lasts for 24 hours, at which point the system reverts to auto or freerun mode). Freerun mode is when there is no clock source or no link to be used as a network synchronization source. The PABX changes modes based on user actions, thresholds, and events on the T1 links. Maintenance logs notify the installer of these changes.

Conditions

The following conditions apply to this feature:

- T1 trunks are not available with Generic 1001 or Generic 1002.
- There are 12 link descriptors available.
- There can be up to 8 network synchronization sources for network synchronization.
- One link provides 24 trunks.
- If a link descriptor is not assigned (it is recommended that one is assigned) then the default values in the link descriptors will apply. A link cannot be a network synchronization source without a link descriptor.
- If the last available network synchronization source specified is removed from service then the PABX is put into free-run mode.
- When a network source link is returned to service or is again ready for use as a network synchronization source, then the system will review the list of network synchronization sources and possibly select the returned link (depending upon the current network synchronization source and the order of the links in the list).
- A link is removed from service immediately, regardless of activity on the link, when its service threshold limits are exceeded.
- The T1 Link Monitor feature is not available in maintenance until at least one circuit is programmed (CDE forms 14 or 15) on a link in the PABX.
- The T1 Clock Module clock rate is adjusted by the system if there are entries made in CDE Form 44 (Network Synchronization) and one of the links there is available. If no network synchronization source is available, then the clock rate will not be adjusted by the PABX.
- The threshold error counts are cleared when the T1 card is plugged in or any of the values in the link descriptor assigned to the link are changed in CDE Form 42 (T1 Link Descriptors). A change in link status has no effect.

- Changing the entries in CDE Form 44 (T1 Network Synchronization) will override manual mode and change the PABX mode to freerun or auto.
- The term link is synonymous with a T1 trunk card.
- The normal maintenance busy-out feature applies to a circuit on a link and not the link itself. The link remains active but the circuit(s) are disabled.

Programming Enter the trunk into the system's physical configuration table via CDE Form 01 (System Configuration).

Specify options for the T1 link descriptors via CDE Form 42 (T1 Link Descriptors).

Specify options for the T1 trunk types via CDE Form 13 (Trunk Circuit Descriptors).

Specify options for specific trunk circuits via CDE Forms 14 (Non-dial-in Trunks) and 15 (Dial-in Trunks).

Assign link descriptors to the various T1 links via CDE Form 43 (T1Link Assignment).

If the T1 clock module is used, assign the primary and backup T1 links to be used as sources for network synchronization via CDE Form 44 (T1 Network Synchronization). The order that the links are programmed in the form gives the order in which the links are used as sources.

Operation None.

Uniform Call Distribution (UCD)

Description Uniform Call Distribution (UCD) concentrates incoming trunk traffic onto one or more special agent hunt groups. Trained operators (Agents) answer the calls. If all Agents are busy, the caller camps on and may be connected to a recording hunt group, where the caller hears recorded announcements. The caller retains his position in the queue. If the Agents are still busy when the recording ends, the system connects the call to Music On Hold (if provided). After a pre-determined time, the unanswered call is rerouted to a designated answering point.

The call rings an agent immediately when one is available.

Agents can log in and out of the agent hunt group to control the arrival of calls from the agent hunt group (except with Generic 1001 and Generic 1002).

When a caller is connected to a Recorded Announcement Device (RAD), full two-way audio is provided. This allows the caller to leave a message with the RAD device (if desired), while waiting for the UDC group.

See *RAD Support* for details on recording devices.

For night service handling, trunk calls can be routed to a recording device directly; see *Intercept To Recorded Announcement*.

Conditions

The following conditions apply to this feature:

- If there is no hold timeout point and recordings are given, then for loop start trunks that do not provide release supervision, the system does not disconnect the trunk; the trunk remains on music on hold. It is important to provide a routing point for these unanswered calls to ensure that the loop start trunk is either answered, or timed out for no answer and then released.
- Agent Hunt Groups are special hunt groups; hunt group conditions plus some additional features apply to them.
- Circular hunting is advised for the agent hunt group to distribute the calls in the group. There is no distribution of calls based on workload or waiting time; see *Automatic Call Distribution (ACD)*.
- Campon to agent hunt groups follows the normal campon to hunt groups. The recording and reroute features are available once a caller has camped on to the agent hunt group.
- Features available for hunt groups, such as Trunk Campon Warning Tone and Swap Campon, are available to agent hunt groups.
- The recording hunt group is selected from the tenant of the first programmed member of the hunt group.
- If there is no recording programmed, then no music is provided; it is only provided after the recording.
- The system provides a recording for the caller as soon as a recording device is available.
- At least one hunt of the agent hunt group is done before the waiting timeout is done (regardless of the waiting timeout length).
- If the waiting timeout time is set to 0 seconds then the timeout effectively is an overflow busy point for the agent hunt group.
- A reroute is done for the waiting timeout.
- If the caller is listening to a recording at the time of the waiting timeout, the recording is terminated before the reroute is done. If the waiting timeout occurs while listening to music and if a campon is done on the reroute point then music is maintained while waiting for the busy reroute point. Otherwise it is removed and normal call progress tones provided.
- The waiting timeout is ignored if the caller is ringing an agent at the time.

- If the waiting timeout occurs while ringing a recording device then the ringing recording device stops ringing and the caller is rerouted to the timeout point.
- By default all agents are logged into an agent hunt group.
- Logging out of an agent hunt group only prevents calls from being presented to the agent set from the agent hunt group. Other features are not affected. This is in addition to the effects of Do Not Disturb and Forwarding on hunt group members.
- An agent that is logged out will not be selected to receive campon beeps and the Swap Campon capability for the hunt group; see *Swap Campon And Campon Warning Tone*.
- When an agent becomes available and is rung by a waiting caller, the recording or music is removed and the caller hears ringback tone.
- UCD agent hunt groups and ACD agent groups are completely separate and different entities. The first is a collection of devices, and the second is a collection of agent id codes.
- The Campon Warning tone can be turned off for members of the agent hunt group; see *Campon Warning Tone*.

Programming Enter a series of extension numbers into a hunt group in CDE Form 17 (Hunt Groups). Press the GROUP TYPE softkey, followed by the AGENT softkey.

Program a recording hunt group in CDE Form 17 (Hunt Groups); see *Recording Support*.

Enter the extension of the recording device hunt group into CDE Form 19 (Call Rerouting Table), under "UCD Recording Routing For This Tenant". The Tenant number is that of the first programmed member of the Agent hunt group.

Enter an On Hold Time-out period via COS Option 256, UCD Music On Hold Timer (254 in Generic 1001), for each incoming trunk.

Enter an On Hold Time-out answering point extension into CDE Form 19 (Call Rerouting Table), under "UCD Time-Out Routing For This Tenant". The tenant number is that of the first programmed member of the Agent hunt group.

Assign an access code to Feature 38 (UCD Login/Logout Code) in CDE Form 02 (Feature Access Codes); this feature is not available with Generic 1001 or Generic 1002.

Enable COS Option 301 (Campon) for the incoming trunk to camp onto the UCD group.

To permit a *SUPERSET* telephone to be used as a Call Distribution Agent Position with a headset, select COS Option 205 (Call Distribution Agent Position) for the *SUPERSET* telephone (Generic 1001 only).

- Operation** To log in at an Agent Set:
- Dial the UCD Login/Logout Code, followed by 1.
- To log out at an Agent Set:
- Dial the UCD Login/Logout Code, followed by 2.

Vacant Number Intercept

Description Calls to unassigned (vacant) access codes can be routed to a given answering point for completion. This point can be an LDN position on the Attendant Console (see *Console LDN Keys*) or any valid routing point. Vacant number intercept points can be programmed to be different or the same for DAY, NIGHT1, and NIGHT2 modes of system operation.

See *DID/Dial-In/Tie Intercepts* for the same feature for DID and Tie trunks.

- Conditions** The following conditions apply to this feature:
- If the required programming is not done, such calls receive reorder tone.
 - Telephones, DISA trunks, and CO trunks only are routed to the answer-point.
 - See *DID/Dial-In/Tie Intercepts* for vacant number handling for DID and Tie trunks.
 - If the call is routed to a console, the call is shown as an intercept call at the console.

Programming To cause all calls to vacant numbers to be routed to a specific answering point, program CDE Form 19 (Call Rerouting Table) with the desired answering point access code, in the appropriate column for the "Station Vacant Number Routing For This Tenant" call type.

Operation None.

Voice Mail – COV Port

Description Voice Mail devices may use the MITEL COV (*SUPERSET 3* and *SUPERSET 4* telephones) interface. For further information, refer to document 9150–953–003–NA, *VX Voice Processor Installation and Repair Manual VX–200/VX–400/VX–800 Systems*.

Conditions None

Programming Program the COV Voice Mail Port(s) with the following Class of Service Options:

- COS Option 212 (Can Flash if Talking to an Incoming Trunk)
- COS Option 213 (Can Flash if Talking to an Outgoing Trunk)
- COS Option 216 (Data Security)
- COS Option 229 (COV Voice Mail Port)
- COS Option 238 (Override Security)
- COS Option 301 (Camp-on)
- COS Option 604 (*PBX SUPERSET* Telephone–Automatic Outgoing Line)
- COS Option 606 (*SUPERSET* Telephone–Enhanced Answering Position)
- COS Option 609 (*SUPERSET* Telephone – Night Service Switching)

Note: Disable all other options including Call Forwarding

Define Hunt Group in CDE Form 17 (Hunt Groups) by programming the following fields:

EXT NUM Enter the extension number of each voice mail port that is a member of the voice mail hunt group.

ACCESS CODE The access code is the system access number for the VX Voice Processing system. Define the access code of the voice mail hunt group by using the ACCESS CODE softkey (softkey 7).

NAME Enter the name of the voice mail hunt group. Enter a name for the voice mail hunt group by using the OPTIONS softkey (softkey 4).

Note: Do not program an overflow destination for this hunt group. This will ensure that calls can camp on to the busy group.

Operation Refer to document 9150–953–003–NA, *VX Voice Processor Installation and Repair Manual VX–200/VX–400/VX–800 Systems*.

Voice Mail – ONS Port

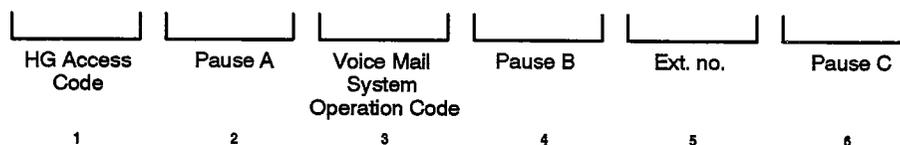
Description This feature allows for an integrated interface between the SX-200 DIGITAL PABX and an ONS Voice Mail system. The integration is based on the use of system abbreviated dial numbers. This eliminates several dialing steps involved in the sending and retrieving of voice mail messages.

Special codes entered in the System Abbreviated Dial form (CDE Form 31) allows for customizing of SX-200 DIGITAL PABX operation to suit the operation of the particular voice mail system. The special codes are:

Code	Description
*1	5 second pause
*3	Insert manual digits (2 digits expected)
*6	Tone out caller extension number
*9	1 second pause
**	DTMF digit *
#	DTMF digit #
0-9	DTMF digits 0 – 9.

Event Timing

Description The following example describes the feature's timing requirements:



- 1: Access code of the Voice Mail port hunt group
- 2: Length of time required for the Voice Mail system to prepare to receive an optional operation code after answering the call.
- 3: Digit(s) indicating the type of operation to be performed Voice Mail system (record or playback message).
- 4: Length of time required for the Voice Mail system to receive a mail box number, after receiving the operation code.
- 5: Usually *6: For a forwarded call, *6 translates into the originally called party's extension number. For non-forwarded calls, *6 translates into the caller's extension number.
- 6: The shortest *1 / *9 combination to ensure that the ONS Voice Mail port receives all of the digits (must be included to pulse speed dial number to Voice Mail system).

Conditions The following conditions apply to this feature:

- This feature is available in Generic 1004 and 1005 only.
- This feature does not conflict with the *Voice Mail – COV Port* feature – both systems may be installed simultaneously.
- This feature does not conflict with other ONS voice mail systems – they may be installed simultaneously.
- The *1, *6, *9, codes are only operational with the ONS Voice Mail feature. If the abbreviated dial number dials anything but an ONS Voice Mail hunt group, the codes are ignored.
- Callers hear ringback while the digits are pulsed to the Voice Mail system. Audio is not cut through until after the last pause has been executed.

Programming General:

- Set up the desired call forwarding for the telephones using this voice mail feature.
- Enable the following COS Options in the ONS Voice Mail port(s) COS:
 - COS Option 212 (Can Flash if Talking to an Incoming Trunk)
 - COS Option 216 (Data Security)
 - COS Option 259 (Message Sending)
 - COS Option 261 (ONS Voice Mail Port)
- Enable the following COS Option in the COS of the mailbox holder:
 - COS Option 231 (Message Waiting Setup –Bell), or
 - COS Option 232 (Message Waiting Setup – Lamp)
- Place all ONS Voice Mail circuits in the same hunt group in Form 17 (Hunt Groups) – assign an access code to the group.
- Assign a an access code to feature 24 (Abbreviated Dial Access) in Form 02 (Feature Access Codes). Note: if the ONS Voice Mail device has the ability to dial into the PBX to set up message waiting on a telephone, assign an access code to feature 41 (Send Message).
- If the ONS Voice Mail system requires dial tone on hang up to release the port, enable System Option 22 (Last Party Clear – Dial Tone).
- If trunk calls are to reach the ONS Voice Mail system via a forwarding system abbreviated dial number, enable System Option 21 (Incoming to Outgoing Call Forward).

CDE Form 31 (System Abbreviated Dial Entry) Programming:**For Message Forward:**

- Enter an index number for message forward in the INDEX NUMBER field
- Enter the following in the DIGIT STRING field:
 - the ONS Voice Mail hunt group access code,
 - any combination of the *1 and *9 codes combining to result in an answer pause suitable to the voice mail system,
 - the voice mail system access code for the type of call forwarding which corresponds to the mailbox owner's call forwarding,
 - *6,
 - the shortest *1 / *9 combination to ensure that the ONS Voice Mail port receives all of the digits.

For Message Retrieve:

- Enter an index number for message retrieve in the INDEX NUMBER field
- Enter the following in the DIGIT STRING field:
 - the ONS Voice Mail hunt group access code,
 - any combination of the *1 and *9 codes combining to result in an answer pause suitable to the voice mail system,
 - the voice mail system access code for message retrieval,
 - *6,
 - the shortest *1 / *9 combination to ensure that the ONS Voice Mail port receives all of the digits.

Operation**Forward message:**

- Dial extension number and leave message.

Retrieve message:

- Dial the System Abbreviated Dial Access Code + the message retrieve abbreviated dial index number.

A

- Abbreviated Dial, 2-1
- Abbreviated Dial For ADL Calls, 2-171
- Account Codes, 2-3
- Account Codes – Global Find, 2-3
- Account Codes – Verified, 2-7
- Account Codes – Verified (Special DISA), 2-8
- Add Held, 2-9
- ADL Hotline, 2-167
- ADL Speed Call Originate, 2-167
- Analog Networking, 2-10
 - Glossary of Terms, 2-13
 - Information Elements for, 2-13
- Application Platform Package (APP), 2-14
- Associated Data Line (ADL), 2-164
- Associated Modem Line (AML), 2-171
- Attendant Abbreviated Dial Number Entry, 2-15
- Attendant Access, 2-16
- Attendant Advisory Message Setup, 2-17
- Attendant Alarm Readout, 2-17
- Attendant Automatic Overflow, 2-18
- Attendant Bell Off, 2-19
- Attendant Busy Override, 2-20
- Attendant Call Announce, 2-20
- Attendant Call Forward Setup and Cancel, 2-21
- Attendant Call Selection, 2-23
- Attendant Call Splitting and Swapping, 2-24
- Attendant Callbacks – Busy/No Answer, 2-21
- Attendant Calls Forwarded On No Answer, 2-25
- Attendant Conference, 2-26
- Attendant Console Display Language, 2-26
- Attendant Console LCD Display, 2-27
- Attendant Console LDN Keys, 2-29
- Attendant Console Lockout, 2-30
- Attendant Date and Time Setup, 2-30
- Attendant Default Call Positions, 2-31
- Attendant Destination (DEST) Key, 2-32
- Attendant Direct Trunk Select, 2-33
- Attendant DISA Code Setup, 2-34
- Attendant Do Not Disturb (DND) Setup, Cancel or Override, 2-35
- Attendant Extension Busy-Out, 2-36
- Attendant Flash Over Trunk, 2-37
- Attendant Function Access, 2-38
- Attendant Hold Positions, 2-39
- Attendant Implicit New Call, 2-41
- Attendant Individual Directory Number, 2-41
- Attendant Interposition Calling and Transfer, 2-42
- Attendant Message Waiting Setup and Cancel, 2-42
- Attendant Multi-New Call Tone, 2-44
- Attendant New Call Ring, 2-45
- Attendant Night/Day Switching, 2-45
- Attendant Override Announce, 2-46
- Attendant Paged Hold Access, 2-48
- Attendant Paging Access, 2-46
- Attendant Serial Call, 2-49
- Attendant Source Key, 2-50
- Attendant Timed Recall, 2-51
- Attendant Tone Signaling, 2-52
- Attendant Training Jacks, 2-53
- Attendant Transfer To Campon, 2-53
- Attendant Transparent Multi-Console Operation, 2-54
- Attendant Trunk Busy-Out, 2-55
- Attendant Trunk Group Status Display, 2-56
- Auto Answer, 2-56, 2-59
- Auto-Answer, 2-173
- Auto-Hold, 2-60
- Automated Attendant, 2-61
- Automatic Call Distribution (ACD), 2-61
- Automatic Data Route Selection (ADRS), 2-174
- Automatic Number Identification (ANI), 2-62
- Automatic Number Identification (ANI) on Incoming Trunks, 2-63
- Automatic Route Selection (ARS), 2-65

B

Background Music, 2-66
BLF, 2-70
Brokers Call, 2-67, 2-136, 2-345
Brokers Call With Transfer, 2-69
Busy Lamp Field, 2-70

C

Calculator, 2-71
Call Announce, 2-72
Call Announce Port, 2-74
Call Forwarding – Busy (Generic 1001, 1002, and 1003), 2-118
Call Forwarding – Busy (Generic 1004 and 1005), 2-79
Call Forwarding – Busy/Don't Answer (Generic 1001, 1002, and 1003), 2-121
Call Forwarding – Busy/Don't Answer (Generic 1004 and 1005), 2-84
Call Forwarding – Display Prime as Forwarder, 2-136
Call Forwarding – Don't Answer (Generic 1001, 1002, and 1003), 2-129
Call Forwarding – Don't Answer (Generic 1004 and 1005), 2-97
Call Forwarding – External (Generic 1001, 1002, and 1003), 2-132
Call Forwarding – External (Generic 1004 and 1005), 2-102
Call Forwarding – Follow Me (Generic 1001, 1002, and 1003), 2-124
Call Forwarding – Follow Me (Generic 1004 and 1005), 2-89
Call Forwarding – Generic 1001, 1002, and 1003, 2-115
Call Forwarding – Generic 1004 and 1005, 2-75
Call Forwarding – I'm Here (Generic 1001, 1002, and 1003), 2-127
Call Forwarding – I'm Here (Generic 1004 and 1005), 2-94
Call Forwarding – Internal/External Split (Generic 1004 and 1005), 2-108
Call Park, 2-138
Call Rerouting, 2-145
Callback, 2-139
Callback – Busy, 2-141
Callback – No Answer, 2-143
Campon, 2-146
Campon Warning Tone, 2-149
CDE Form Name
 Account Code Entry (33), 2-7, 2-175, 2-315
 ACD Agent Groups (39), 2-155, 2-280
 ACD Paths (41), 2-280
 ACD Supervisors (40), 2-155, 2-280
 ARS Route Lists (24), 2-213
 ARS: COR Group Definition (20), 2-243
 ARS: Digit Strings (26), 2-242
 ARS: Maximum Dialed Digits (27), 2-243
 ARS: Modified Digit Table (22), 2-11, 2-13
 ARS: Route Definition (23), 2-242
 Attendant LDN Assignments (08), 2-29
 Call Rerouting Table (19), 2-16, 2-18, 2-25, 2-54, 2-146, 2-202, 2-211, 2-238, 2-239, 2-266, 2-280, 2-286, 2-358, 2-375, 2-379, 2-386, 2-387
 Console Assignments (07), 2-41, 2-42, 2-154, 2-155, 2-278, 2-303, 2-358
 COS Define (03), 2-4, 2-47, 2-155, 2-219, 2-276, 2-280, 2-296, 2-345, 2-346, 2-347, 2-348, 2-349
 Data Assignment (12), 2-154, 2-155, 2-164, 2-165, 2-167, 2-179, 2-183, 2-185, 2-187, 2-237, 2-303
 Data Circuit Descriptor (11), 2-165, 2-173, 2-179, 2-183, 2-185, 2-303
 Device Interconnection Table (30), 2-197, 2-198
 Dial-In Trunks (15), 2-154, 2-155, 2-280, 2-315, 2-358, 2-373, 2-375, 2-381, 2-384
 Directed I/O (34), 2-181, 2-303
 DTE Profile (29), 2-183, 2-185
 Feature Access Codes (02), 2-2, 2-4, 2-12, 2-15, 2-34, 2-46, 2-47, 2-57, 2-78, 2-117, 2-165, 2-171, 2-272, 2-288, 2-295, 2-297, 2-304, 2-386
 Global Find Access Code (35), 2-3
 Hunt Groups (17), 2-178, 2-184, 2-192, 2-237, 2-280, 2-307, 2-386, 2-388, 2-390
 Key System Telephones (45), 2-71, 2-205, 2-206, 2-216, 2-241, 2-242, 2-243, 2-246, 2-247, 2-249, 2-260, 2-261,

- 2-262, 2-263, 2-331, 2-339, 2-341,
2-344, 2-350
 - Key System Toll Control (46), 2-241, 2-243
 - Miscellaneous System Ports (18), 2-279,
2-284, 2-296
 - Modem Assignment (36), 2-191
 - Network Synchronization (44), 2-383, 2-384
 - Non-Dial-In Trunks (14), 2-155, 2-204,
2-241, 2-243, 2-280, 2-286, 2-287,
2-358, 2-377, 2-380, 2-381, 2-384
 - Pickup Groups (10), 2-298, 2-300
 - Station/*SUPERSET* Telephones (09), 2-28,
2-71, 2-73, 2-74, 2-154, 2-155, 2-172,
2-205, 2-206, 2-209, 2-216, 2-237,
2-260, 2-261, 2-262, 2-263, 2-265,
2-280, 2-320, 2-331, 2-339, 2-341,
2-344, 2-345, 2-346, 2-347, 2-348,
2-349, 2-350, 2-358
 - System Abbreviated Dial Entry (31), 2-2,
2-15, 2-171, 2-391
 - System Configuration (01), 2-179, 2-290,
2-315, 2-380, 2-381, 2-384
 - System Options/System Timers (04), 2-4,
2-175, 2-189, 2-219, 2-272, 2-276
 - T1 Link Assignment (43), 2-384
 - T1 Link Descriptors (42), 2-384
 - Tenant Night Switching Control (06), 2-45,
2-358
 - Tenanting Interconnection Table (05), 2-196
 - Trunk Circuit Descriptors (13), 2-151, 2-153,
2-200, 2-212, 2-276, 2-315, 2-370,
2-375, 2-380, 2-381, 2-384
 - Trunk Groups (16), 2-242, 2-243, 2-280,
2-371, 2-372
- CDE Form Number
- 01 (System Configuration), 2-179, 2-290,
2-315, 2-380, 2-381, 2-384
 - 02 (Feature Access Codes), 2-2, 2-4, 2-12,
2-15, 2-34, 2-46, 2-47, 2-57, 2-78,
2-117, 2-165, 2-171, 2-272, 2-288,
2-295, 2-297, 2-304, 2-386
 - 03 (COS Define), 2-47, 2-155, 2-219,
2-276, 2-280, 2-296, 2-345, 2-346,
2-347, 2-348, 2-349
 - 04 (System Options/System Timers), 2-4,
2-175, 2-189, 2-219, 2-272, 2-276
 - 05 (Tenanting Interconnection Table), 2-196
 - 06 (Tenant Night Switching Control), 2-45,
2-358
 - 07 (Console Assignments), 2-41, 2-42,
2-154, 2-155, 2-278, 2-303, 2-358
 - 08 (Attendant LDN Assignments), 2-29
 - 09 (Station/*SUPERSET* Telephones), 2-28,
2-71, 2-73, 2-74, 2-154, 2-155, 2-172,
2-205, 2-206, 2-209, 2-216, 2-237,
2-260, 2-261, 2-262, 2-263, 2-265,
2-280, 2-320, 2-331, 2-339, 2-341,
2-344, 2-345, 2-346, 2-347, 2-348,
2-349, 2-350, 2-358
 - 10 (Pickup Groups), 2-298, 2-300
 - 11 (Data Circuit Descriptor), 2-165, 2-173,
2-179, 2-183, 2-185, 2-303
 - 12 (Data Assignment), 2-154, 2-155, 2-164,
2-165, 2-167, 2-179, 2-183, 2-185,
2-187, 2-237, 2-303
 - 13 (Trunk Circuit Descriptors), 2-151, 2-153,
2-200, 2-212, 2-276, 2-315, 2-370,
2-375, 2-380, 2-381, 2-384
 - 14 (Non-Dial-In Trunks), 2-155, 2-204,
2-241, 2-243, 2-280, 2-286, 2-287,
2-358, 2-377, 2-380, 2-381, 2-384
 - 15 (Dial-In Trunks), 2-154, 2-155, 2-280,
2-315, 2-358, 2-373, 2-375, 2-381,
2-384
 - 16 (Trunk Groups), 2-242, 2-243, 2-280,
2-371, 2-372
 - 17 (Hunt Groups), 2-178, 2-184, 2-192,
2-237, 2-280, 2-307, 2-386, 2-388,
2-390
 - 18 (Miscellaneous System Ports), 2-279,
2-284, 2-296
 - 19 (Call Rerouting Table), 2-16, 2-18, 2-25,
2-54, 2-146, 2-202, 2-211, 2-238,
2-239, 2-266, 2-280, 2-286, 2-358,
2-375, 2-379, 2-386, 2-387
 - 20 (ARS: COR Group Definition), 2-243
 - 22 (ARS: Modified Digit Table), 2-11, 2-13
 - 23 (ARS: Route Definition), 2-242
 - 24 (ARS Route Lists), 2-213
 - 26 (ARS: Digit Strings), 2-242
 - 27 (ARS: Maximum Dialed Digits), 2-243
 - 29 (DTE Profile), 2-183, 2-185
 - 30 (Device Interconnection Table), 2-197,
2-198
 - 31 (System Abbreviated Dial Entry), 2-2,
2-15, 2-171, 2-391
 - 33 (Account Code Entry), 2-7, 2-175, 2-315
 - 34 (Directed I/O), 2-181, 2-303
 - 35 (Global Find Access Code), 2-3
 - 36 (Modem Assignment), 2-191
 - 39 (ACD Agent Groups), 2-155, 2-280
 - 40 (ACD Supervisors), 2-155, 2-280
 - 41 (ACD Paths), 2-280
 - 42 (T1 Link Descriptors), 2-384
 - 43 (T1 Link Assignment), 2-384
 - 44 (Network Synchronization), 2-383, 2-384
 - 45 (Key System Telephones), 2-71, 2-205,
2-206, 2-216, 2-241, 2-242, 2-243,
2-246, 2-247, 2-249, 2-260, 2-261,

- 2-262, 2-263, 2-331, 2-339, 2-341, 2-344, 2-350
- 46 (Key System Toll Control), 2-241, 2-243
- CENTREX Compatibility (Double Flash Over Trunk)**, 2-152
- CENTREX Compatibility (Flash Over Trunk)**, 2-151
- Class of Restriction (COR)**, 2-154
- Class of Service**, 2-155
- Clear All Features**, 2-156
- CO Line – Select Direct**, 2-244
- CO Line Group Key**, 2-241
- CO Line Key**, 2-242
- Conference**, 2-9, 2-69, 2-74, 2-156, 2-228, 2-229, 2-292, 2-293, 2-327, 2-354, 2-356, 2-364
- Conflict Dialing**, 2-159
- Console Keys**
 - Alarm, 2-18
 - Answer, 2-19, 2-40
 - Att Function, 2-38
 - Call, 2-54
 - Callback, 2-21
 - Cancel, 2-24
 - Conference (CONF), 2-24, 2-26
 - Destination (DEST), 2-24, 2-32
 - Flash, 2-37, 2-38
 - Function, 2-38
 - Hold, 2-39
 - LDN, 2-19, 2-31, 2-32, 2-41
 - Override, 2-20, 2-46
 - Page, 2-46, 2-47, 2-49, 2-52
 - Recall, 2-25, 2-32, 2-54
 - Redial, 2-253
 - Release, 2-24, 2-42, 2-54
 - Ring Again, 2-50
 - Source, 2-24, 2-50, 2-51
 - Tones On, 2-47
 - Tones On/Off, 2-41, 2-52
- Consoleless Operation**, 2-160
- Contact Monitor**, 2-160
- COR**, 2-208
- COS Option Name**
 - Abbreviated Dialing Access (245), 2-2, 2-102, 2-103, 2-116, 2-117, 2-133, 2-171
 - Account Code Forced Entry – Data Internal Calls (326), 2-175
 - Account Code Forced Entry – External Calls (200), 2-4, 2-33, 2-102, 2-103, 2-132
 - Account Code Forced Entry – LD Calls (201), 2-4, 2-33
 - Account Code, Forced Entry – Data External Calls (327), 2-175
 - Account Code, Forced Entry – Data Long Distance Calls (328), 2-175
 - ACD Agent Always Auto-Answer (653), 2-62
 - ACD Agent Template (650), 2-62
 - ACD Senior Supervisor Template (652), 2-62
 - ACD Supervisor Template (651), 2-62
 - Alarm Call (202), 2-235, 2-311
 - ANI Applies (800), 2-63
 - ANI/DNIS Trunk (811), 2-64
 - Attendant Abbreviated Dial Confidential Number Display (110), 2-2, 2-15, 2-102, 2-133, 2-331
 - Attendant Abbreviated Dial Programming (111), 2-15, 2-331
 - Attendant Audible Lockout Alarm (108), 2-264
 - Attendant Automatic Call Forward – No Answer (107), 2-25
 - Attendant Bell Off (100), 2-19, 2-264
 - Attendant Call Block Key (113), 2-235
 - Attendant Call Forward – No Answer Timer (118), 2-18, 2-25
 - Attendant Call Forward Setup and Cancel (123), 2-22, 2-333
 - Attendant Conference Disable (120), 2-26
 - Attendant DISA Code Setup (103), 2-34
 - Attendant Display of System Alarms (102), 2-18, 2-264
 - Attendant Flexible Night Service Setup (104), 2-287
 - Attendant Guest Room Key (105), 2-234
 - Attendant Multi-New Call Tone (122), 2-44
 - Attendant New Call Tone (106), 2-44, 2-45
 - Attendant O/G Restriction / Room Status Setup (101), 2-234
 - Attendant Serial Call (109), 2-50
 - Attendant Setup Time/Date (122), 2-31, 2-337
 - Attendant Station Busy-Out (112), 2-36
 - Attendant Station Do Not Disturb (121), 2-35, 2-344
 - Attendant Timed Recall – Campon (117), 2-51, 2-53, 2-310
 - Attendant Timed Recall – No Answer (115), 2-51, 2-138, 2-202, 2-310
 - Attendant Tone Signalling (119), 2-52
 - Attendant Trunk Busy-Out (114), 2-55
 - Attendant-Timed Recall – Hold (116), 2-40, 2-51, 2-338, 2-339
 - Attendant Hold Position (121), 2-40

- Automatic Callback (300), 2-141, 2-143, 2-213, 2-266, 2-291
- Automatic Overflow from Attendant (705), 2-18
- Brokers Call (203), 2-67, 2-68, 2-69, 2-156, 2-219, 2-220, 2-229
- Brokers Call With Transfer (252), (previously Transfer With Privacy), 2-68, 2-69, 2-70, 2-156, 2-219, 2-220
- Call Block Applies (204), 2-235
- Call Distribution Agent Position (205) – (Generic 1001), 2-387
- Call Forward – Don't Answer Timer (253), 2-117, 2-122, 2-129, 2-259, 2-260
- Call Forwarding – Busy (206), 2-79, 2-84, 2-118, 2-121
- Call Forwarding – Don't Answer (207), 2-84, 2-121, 2-129
- Call Forwarding – External (208), 2-102, 2-103, 2-132, 2-133
- Call Forwarding – Follow Me (209), 2-89, 2-94, 2-97, 2-124, 2-127
- Call Forwarding Inhibit on Dial-In Trunks (210), 2-202
- Call Forwarding Inhibit On Hold Timeout (222), 2-231
- Call Hold and Retrieve Access (211), 2-228, 2-231
- Call Hold Recall Timer (254), 2-138, 2-230, 2-231
- Call Park (401), 2-138
- Camp-on (301), 2-388
- Campon (301), 2-53, 2-148, 2-213, 2-386
- Can Flash if Talking to an Incoming Trunk (212), 2-220, 2-390
- Can Flash if Talking to an incoming Trunk (212), 2-388
- Can Flash if Talking to an Outgoing Trunk (213), 2-220, 2-388
- Cannot Dial a Trunk if Holding or in Conf With a Trunk (215), 2-68, 2-69
- Cannot Dial a Trunk if Holding or in Conference With a Trunk (215), 2-229, 2-364
- Cannot Dial a Trunk After Flashing (214), 2-48, 2-68, 2-69, 2-220, 2-229, 2-342, 2-364
- Cannot Dial a Trunk if Holding or in Conf With a Trunk (215), 2-342
- Cannot Dial a Trunk if Holding or in Conference With a Trunk (215), 2-48, 2-220
- Clear All Features (221), 2-156
- CO Trunk to CO Trunk Connect (313), 2-197
- CO Trunk to DID Trunk Connect (315), 2-197
- CO Trunk to Tie Trunk Connect (314), 2-197
- Contact Monitor (400), 2-160, 2-161, 2-311, 2-364
- COV Voice Mail Port (229), 2-388
- Data Security (216), 2-148, 2-149, 2-150, 2-180, 2-293, 2-388, 2-390
- Data SMDR – Does Not Apply (906), 2-181, 2-190, 2-328
- Data SMDR – Extended Record (907), 2-181, 2-328
- Data SMDR – Overwrite Buffer (908), 2-181, 2-328
- Data SMDR – Does Not Apply (906), 2-175
- Data Station Queuing (900), 2-165, 2-181, 2-183, 2-191, 2-196
- DID Trunk to DID Trunk Connect (318), 2-197
- Direct to ARS (217), 2-190, 2-207
- Directed Call Pickup (218), 2-138, 2-300
- DISA During Night Service Only (810), 2-375
- DISA During Night Service Only (812) – (Generic 1001), 2-375
- Discriminating Dial Tone (219), 2-117, 2-199
- Display ANI Information Only (613), 2-65
- Display ANI/DNIS Information (502), 2-65
- Display Prime as Forwarder (258), 2-78, 2-117, 2-136
- Do Not Disturb (220), 2-211, 2-235
- DTRX Complete Message Text (904), 2-184
- DTRX Herald Display (901), 2-183
- DTRX Herald Text Select (905), 2-183
- DTRX Message Code (902), 2-183
- DTRX Message Code Text (903), 2-184
- Extension Non-CO Trunk To Trunk Connect (319), 2-197
- Flash Disable (223), 2-68, 2-69, 2-219, 2-220, 2-228, 2-364
- Flash for Attendant (224), 2-68, 2-69, 2-220, 2-221, 2-228, 2-364
- Flash For Waiting Call (205), 2-222, 2-355
- Flash in Conference (302), 2-9, 2-68, 2-69, 2-157, 2-220
- Flash Over Trunk (257), 2-151, 2-153
- Hold Pickup – Attendant Paged Access (225), 2-48, 2-49, 2-342
- Incoming Trunk Call Rotary (801), 2-373, 2-378
- Incoming/Internal Modem Pooling Access (704), 2-191, 2-194
- Internal / External Split Call Forward (260), 2-22, 2-78, 2-108, 2-335
- Inward Restriction – DID (226), 2-202, 2-240, 2-372
- Key Set/Sub Att – Call Hold Notify Timer (681), 2-245, 2-338, 2-339
- Key System – Direct CO Access (680), 2-244
- Key System – Direct Paging Handsfree Answerback (683), 2-225
- Limited Wait for Dial Tone (802), 2-37, 2-371
- Line Privacy (240), 2-256

- Lockout Alarm Applies (227), 2-264
Long Loop – Off Premises Extension Only (402), 2-290
Loop Start Trunk to ACD Path Connect (812), 2-62, 2-375, 2-377
Manual Line (228), 2-233, 2-255, 2-266, 2-364
Message Register Applies (703), 2-235
Message Register Overflow Alarm (230), 2-235
Message Sending (259), 2-271, 2-390
Message Waiting Setup – Bell (231), 2-43, 2-235, 2-271, 2-272, 2-390
Message Waiting Setup – Lamp (232), 2-43, 2-235, 2-271, 2-390
Never a Consultee (233), 2-48, 2-69, 2-229, 2-282, 2-342, 2-364
Never a Forwarder (234), 2-21, 2-76, 2-115, 2-283, 2-291
No Dial Tone (701), 2-199, 2-264, 2-366
Non-Busy Extension (243), 2-289, 2-291
ONS Voice Mail Port (261), 2-390
Originate Only (235), 2-291
Outgoing Trunk Callback (236), 2-141, 2-213
Outgoing Trunk Campon (237), 2-53, 2-148, 2-213
Override (500), 2-20, 2-46, 2-210, 2-293
Override Announce (501), 2-46, 2-73, 2-295
Override Security (238), 2-210, 2-293, 2-295, 2-388
Paging Zone Access (303 – 312), 2-47, 2-296
PBX *SUPERSET* Telephone–Automatic Outgoing Line (604), 2-226, 2-257, 2-258, 2-388
Priority Dial 0 (239), 2-160, 2-304
Receive Only (241), 2-160, 2-255, 2-291, 2-311
Recording Failure to Hangup Timer (404), 2-44, 2-307
Repeated Campon Beeps (242), 2-149, 2-150, 2-180
Repeated Campon Beeps Timer (255), 2-150
Room Status Applies (244), 2-235
SMDR – Does Not Apply (700), 2-4, 2-175, 2-328
SMDR – Drop Calls < n Digits (803), 2-328
SMDR – Drop Incomplete Outgoing Calls (804), 2-328
SMDR – Extended Record (246) – (805 in Generic 1001), 2-328
SMDR – Overwrite Buffer (702), 2-303, 2-328
SMDR – Record Incoming Calls (806), 2-5, 2-11, 2-175, 2-190, 2-328
SMDR – Record Meter Pulses (247) – (808 in Generic 1001), 2-276, 2-328
SMDR–Record ANI/DNIS (814), 2-65
SMDR–Record Incoming Calls (806), 2-65
Special DISA (808), 2-8, 2-175
Special DISA (810) – (Generic 1001), 2-8, 2-175
Standard Ring Applies (809), 2-307, 2-318
Standard Ring Applies (811) – (Generic 1001), 2-318
Subattendant Station Setup Advisory Message (150), 2-332
SUPERSET Telephone – Guest Room Template (610), 2-235, 2-322
SUPERSET Auto-Answer (600), 2-57
SUPERSET Auto-Hold Disable (601), 2-60
SUPERSET Background Music (602), 2-66
SUPERSET Disconnect Alarm (603), 2-209
SUPERSET Key System – Auto-Answer – Internal Calls (682), 2-59
SUPERSET Subattendant (606), 2-329
SUPERSET Telephone – Associated Modem Line (607), 2-172, 2-180
SUPERSET Telephone – Enhanced Answering Position – (Generic 1004 only), 2-329
SUPERSET Telephone – Headset Operation (612), 2-227
SUPERSET Telephone – Immediate Line Select (604) – (Generic 1001 only), 2-257, 2-258
SUPERSET Telephone – Limited New Call Ring (611), 2-259, 2-260
SUPERSET Telephone – Message Program (605), 2-267
SUPERSET Telephone – Night Service Switching (609), 2-285
SUPERSET Telephone – Room Status Display (608), 2-235
SUPERSET Telephone–Enhanced Answering Position (606), 2-388
SUPERSET Telephone–Night Service Switching (609), 2-388
TAFAS Access – Any (248), 2-368
TAFAS Access – Tenant (249 / 247), 2-368
TAFAS Access During Day (250), 2-369
Tie Trunk to DID Trunk Connect (317), 2-197
Tie Trunk to Tie Trunk Connect (316), 2-197
Transfer Dial Tone (251), 2-367
Transparent Multi-Console Operation (320), 2-43, 2-54
Trunk No Dial Tone Alarm (805), 2-37, 2-371
Trunk Recall Partial Inhibit (403), 2-68, 2-138, 2-238
UCD Music on Hold Timer (256), 2-386
COS Option Number
100 (Attendant Bell Off), 2-19, 2-264

- 101 (Attendant O/G Restriction / Room Status Setup), 2-234
- 102 (Attendant Display of System Alarms), 2-18, 2-264
- 103 (Attendant DISA Code Setup), 2-34
- 104 (Attendant Flexible Night Service Setup), 2-287
- 105 (Attendant Guest Room Key), 2-234
- 106 (Attendant New Call Tone), 2-44, 2-45
- 107 (Attendant Automatic Call Forward – No Answer), 2-25
- 108 (Attendant Audible Lockout Alarm), 2-264
- 109 (Attendant Serial Call), 2-50
- 110 (Attendant Abbreviated Dial Confidential Number Display), 2-2, 2-15, 2-102, 2-133, 2-331
- 111 (Attendant Abbreviated Dial Programming), 2-15, 2-331
- 112 (Attendant Station Busy–Out), 2-36
- 113 (Attendant Call Block Key), 2-235
- 114 (Attendant Trunk Busy–Out), 2-55
- 115 (Attendant Timed Recall – No Answer), 2-51, 2-138, 2-202, 2-310
- 116 (Attendant–Timed Recall – Hold), 2-40, 2-51, 2-338, 2-339
- 117 (Attendant Timed Recall – Campon), 2-51, 2-53, 2-310
- 118 (Attendant Call Forward – No Answer Timer), 2-18, 2-25
- 119 (Attendant Tone Signalling), 2-52
- 120 (Attendant Conference Disable), 2-26
- 121 (Attendant Hold Position), 2-40
- 121 (Attendant Station Do Not Disturb), 2-35, 2-344
- 122 (Attendant Multi–New Call Tone), 2-44
- 122 (Attendant Setup Time/Date), 2-31, 2-337
- 123 (Attendant Call Forward Setup and Cancel), 2-22, 2-333
- 150 (Subattendant Station Setup Advisory Message), 2-332
- 200 (Account Code Forced Entry – External Calls), 2-4, 2-33, 2-102, 2-103, 2-132
- 201 (Account Code Forced Entry – Long Distance Calls), 2-4, 2-33
- 202 (Alarm Call), 2-235, 2-311
- 203 (Brokers Call), 2-67, 2-68, 2-69, 2-156, 2-219, 2-220, 2-229
- 204 (Call Block Applies), 2-235
- 205 (Call Distribution Agent Position) – (Generic 1001), 2-387
- 205 (Flash For Waiting Call), 2-222, 2-355
- 206 (Call Forwarding – Busy), 2-79, 2-84, 2-118, 2-121
- 207 (Call Forwarding – Don't Answer), 2-84, 2-121, 2-129
- 208 (Call Forwarding – External), 2-102, 2-103, 2-132, 2-133
- 209 (Call Forwarding – Follow Me), 2-89, 2-94, 2-97, 2-124, 2-127
- 210 (Call Forwarding Inhibit on Dial–In Trunks), 2-202
- 211 (Call Hold and Retrieve Access), 2-228, 2-231
- 212 (Can Flash if Talking to an Incoming Trunk), 2-220, 2-388, 2-390
- 213 (Can Flash if Talking to an Outgoing Trunk), 2-220, 2-388
- 214 (Cannot Dial a Trunk After Flashing), 2-48, 2-68, 2-69, 2-220, 2-229, 2-342, 2-364
- 215 (Cannot Dial a Trunk if Holding or in Conference With a Trunk), 2-48, 2-68, 2-69, 2-220, 2-229, 2-342, 2-364
- 216 (Data Security), 2-148, 2-149, 2-150, 2-180, 2-293, 2-388, 2-390
- 217 (Direct to ARS), 2-190, 2-207
- 218 (Directed Call Pickup), 2-138, 2-300
- 219 (Discriminating Dial Tone), 2-117, 2-199
- 220 (Do Not Disturb), 2-211, 2-235
- 221 (Clear All Features), 2-156
- 222 (Call Forwarding Inhibit On Hold Timeout), 2-231
- 223 (Flash Disable), 2-68, 2-69, 2-219, 2-220, 2-228, 2-364
- 224 (Flash for Attendant), 2-68, 2-69, 2-220, 2-221, 2-228, 2-364
- 225 (Hold Pickup – Attendant Paged Access), 2-48, 2-49, 2-342
- 226 (Inward Restriction –DID), 2-202, 2-240, 2-372
- 227 (Lockout Alarm Applies), 2-264
- 228 (Manual Line), 2-233, 2-255, 2-266, 2-364
- 229 (COV Voice Mail Port), 2-388
- 230 (Message Register Overflow Alarm), 2-235
- 231 (Message Waiting Setup – Bell), 2-43, 2-235, 2-271, 2-272, 2-390
- 232 (Message Waiting Setup – Lamp), 2-43, 2-235, 2-271, 2-390
- 233 (Never a Consultee), 2-48, 2-69, 2-229, 2-282, 2-342, 2-364
- 234 (Never a Forwardee), 2-21, 2-76, 2-115, 2-283, 2-291
- 235 (Originate Only), 2-291
- 236 (Outgoing Trunk Callback), 2-141, 2-213
- 237 (Outgoing Trunk Campon), 2-53, 2-148, 2-213
- 238 (Override Security), 2-210, 2-293, 2-295, 2-388

- 239 (Priority Dial 0), 2-160, 2-304
- 240 (Line Privacy), 2-256
- 241 (Receive Only), 2-160, 2-255, 2-291, 2-311
- 242 (Repeated Campon Beeps), 2-149, 2-150, 2-180
- 243 (Non-Busy Extension), 2-289, 2-291
- 244 (Room Status Applies), 2-235
- 245 (Abbreviated Dialing Access), 2-2, 2-102, 2-103, 2-116, 2-117, 2-133, 2-171
- 246 (SMDR – Extended Record) – (805 in Generic 1001), 2-328
- 246 (TAFAS Access Any – Generic 1001 only), 2-368
- 247 (SMDR – Record Meter Pulses) – (808 in Generic 1001), 2-276, 2-328
- 247 (TAFAS Access Tenant – Generic 1001 only), 2-368
- 248 (TAFAS Access – Any), 2-368
- 248 (TAFAS Access During Day – Generic 1001 only), 2-369
- 249 (TAFAS Access – Tenant), 2-368
- 249 (Transfer Dial Tone – Generic 1001 only), 2-367
- 250 (TAFAS Access During Day), 2-369
- 250 (Transfer With Privacy – Generic 1001 only), 2-68, 2-70, 2-156, 2-219, 2-220
- 251 (Call Forward – Don't Answer Timer), (Generic 1001 only), 2-117, 2-122, 2-129, 2-259, 2-260
- 251 (Transfer Dial Tone), 2-367
- 252 (Brokers Call With Transfer), (previously Transfer With Privacy), 2-68, 2-69, 2-70, 2-156, 2-219, 2-220
- 252 (Call Hold Recall Timer – Generic 1001 only), 2-138, 2-230, 2-231
- 253 (Call Forward – Don't Answer Timer), 2-117, 2-122, 2-129, 2-259, 2-260
- 253 (Repeated Campon Beeps – Generic 1001 only), 2-150
- 254 (Call Hold Recall Timer), 2-138, 2-230, 2-231, 2-338
- 254 (UCD Music On Hold Timer – Generic 1001 only), 2-386
- 255 (Repeated Campon Beeps Timer), 2-150
- 256 (UCD Music on Hold Timer), 2-386
- 257 (Flash Over Trunk), 2-151, 2-153
- 258 (Display Prime as Forwarder), 2-78, 2-117, 2-136
- 259 (Message Sending), 2-271, 2-390
- 260 (Internal / External Split Call Forward), 2-22, 2-78, 2-108, 2-335
- 261 (ONS Voice Mail Port), 2-390
- 300 (Automatic Callback), 2-141, 2-143, 2-213, 2-266, 2-291
- 301 (Camp-on), 2-388
- 301 (Campon), 2-53, 2-148, 2-213, 2-386
- 302 (Flash in Conference), 2-9, 2-68, 2-69, 2-157, 2-220
- 303 – 312 (Paging Zone Access), 2-47, 2-296
- 313 (CO Trunk to CO Trunk Connect), 2-197
- 314 (CO Trunk to Tie Trunk Connect), 2-197
- 315 (CO Trunk to DID Trunk Connect), 2-197
- 316 (Tie Trunk to Tie Trunk Connect), 2-197
- 317 (Tie Trunk to DID Trunk Connect), 2-197
- 318 (DID Trunk to DID Trunk Connect), 2-197
- 319 (Extension Non-CO Trunk To Trunk Connect), 2-197
- 320 (Transparent Multi-Console Operation), 2-43, 2-54
- 326 (Account Code Forced Entry – Data Internal Calls), 2-175
- 327 (Account Code, Forced Entry – Data External Calls), 2-175
- 328 (Account Code, Forced Entry – Data Long Distance Calls), 2-175
- 400 (Contact Monitor), 2-160, 2-161, 2-311, 2-364
- 401 (Call Park), 2-138
- 402 (Long Loop – Off Premises Extension Only), 2-290
- 403 (Trunk Recall Partial Inhibit), 2-68, 2-138, 2-238
- 404 (Recording Failure to Hangup Timer), 2-44, 2-307
- 500 (Override), 2-20, 2-46, 2-210, 2-293
- 501 (Override Announce), 2-46, 2-73, 2-295
- 502 (Display ANI/DNIS Information), 2-65
- 600 (*SUPERSET* Auto-Answer), 2-57
- 601 (*SUPERSET* Auto-Hold Disable), 2-60
- 602 (*SUPERSET* Background Music), 2-66
- 603 (*SUPERSET* Disconnect Alarm), 2-209
- 604 (PBX *SUPERSET* Telephone-Automatic Outgoing Line), 2-226, 2-388
- 604 (*SUPERSET* Telephone – Immediate Line Select) – (Generic 1001 only), 2-257, 2-258
- 604 (PBX *SUPERSET* Telephone-Automatic Outgoing Line), 2-257, 2-258
- 605 (*SUPERSET* Telephone – Message Program), 2-267
- 606 (*SUPERSET* Subattendant), 2-329
- 606 (*SUPERSET* Telephone – Enhanced Answering Position – (Generic 1004 only), 2-329
- 606 (*SUPERSET* Telephone-Enhanced Answering Position), 2-388
- 607 (*SUPERSET* Telephone – Associated Modem Line), 2-172, 2-180

- 608 (*SUPERSET* Telephone – Room Status Display), 2-235
- 609 (*SUPERSET* Telephone – Night Service Switching), 2-285
- 609 (*SUPERSET* Telephone–Night Service Switching), 2-388
- 610 (*SUPERSET* Telephone – Guest Room Template), 2-235, 2-322
- 611 (*SUPERSET* Telephone – Limited New Call Ring), 2-259, 2-260
- 612 (*SUPERSET* Telephone – Headset Operation), 2-227
- 613 (Display ANI Information Only), 2-65
- 650 (ACD Agent Template), 2-62
- 651 (ACD Supervisor Template), 2-62
- 652 (ACD Senior Supervisor Template), 2-62
- 653 (ACD Agent Always Auto-Answer), 2-62
- 680 (Key System – Direct CO Access), 2-244
- 681 (Key Set/Sub Att – Call Hold Notify Timer), 2-245, 2-338, 2-339
- 682 (*SUPERSET* Key System – Auto-Answer – Internal Calls), 2-59
- 683 (Key System – Direct Paging Handsfree Answerback), 2-225
- 700 (SMDR – Does Not Apply), 2-4, 2-175, 2-328
- 701 (No Dial Tone), 2-199, 2-264, 2-366
- 702 (SMDR – Overwrite Buffer), 2-303, 2-328
- 703 (Message Register Applies), 2-235
- 704 (Incoming/Internal Modem Pooling Access), 2-191, 2-194
- 705 (Automatic Overflow from Attendant), 2-18
- 800 (ANI Applies), 2-63
- 801 (Incoming Trunk Call Rotary), 2-373, 2-378
- 802 (Limited Wait for Dial Tone), 2-37, 2-371
- 803 (SMDR – Drop Calls < n Digits), 2-328
- 804 (SMDR – Drop Incomplete Outgoing Calls), 2-328
- 805 (SMDR – Extended Record) – (Generic 1001 only), 2-328
- 805 (Trunk No Dial Tone Alarm), 2-37, 2-371
- 806 (SMDR – Record Incoming Calls), 2-5, 2-11, 2-175, 2-190, 2-328
- 806 (SMDR–Record Incoming Calls), 2-65
- 807 (SMDR – Record Incoming Calls) – (Generic 1001), 2-328
- 808 (SMDR – Record Meter Pulses) – (Generic 1001), 2-328
- 808 (Special DISA), 2-8, 2-175
- 809 (Standard Ring Applies), 2-307, 2-318
- 810 (DISA During Night Service Only), 2-375
- 810 (Special DISA) – (Generic 1001), 2-8, 2-175
- 811 (ANI/DNIS Trunk), 2-64
- 811 (Standard Ring Applies) – (Generic 1001), 2-318
- 812 (DISA During Night Service Only) – (Generic 1001), 2-375
- 812 (Loop Start Trunk to ACD Path Connect), 2-62, 2-375, 2-377
- 814 (SMDR–Record ANI/DNIS), 2-65
- 900 (Data Station Queuing), 2-165, 2-181, 2-183, 2-191, 2-196
- 901 (DTRX Herald Display), 2-183
- 902 (DTRX Message Code), 2-183
- 903 (DTRX Message Code Text), 2-184
- 904 (DTRX Complete Message Text), 2-184
- 905 (DTRX Herald Text Select), 2-183
- 906 (Data SMDR – Does Not Apply), 2-175, 2-181, 2-190, 2-328
- 907 (Data SMDR – Extended Record), 2-181, 2-328
- 908 (Data SMDR – Overwrite Buffer), 2-181, 2-328
- Customer Data Entry, 2-161
- Customer Data Entry – Default Data, 2-161
- Customer Data Entry – Range Programming, 2-162
- Customer Data Print, 2-163

D

- Data Account Codes, 2-174
- Data Demultiplexer, 2-177
- Data Hunt Groups, 2-177
- Data Peripherals, 2-178
- Data Security, 2-180
- Data Station Message Detail Recording (DATA SMDR), 2-180
- Data Station Queuing, 2-181
- Data Transceiver (DTRX), 2-182
- Default Database, 2-155
- Device Interconnection Control, 2-196
- Dial 0, 2-16
- Dial 0 Hotline, 2-266
- Dial Tone – Discriminating, 2-199
- Dial Tone Disable, 2-199
- Dialed Number Identification (DNIS) on Incoming Trunks, 2-63

Dictation Trunks, 2-200
 DID Trunks, 2-193, 2-195
 DID/Dial-in/TIE Intercepts, 2-200
 Digit Translation, 2-203
 Direct Station Select (DSS) Key, 2-204
 Direct to ARS, 2-207
 Direct Trunk Select, 2-208
 Direct-in Lines, 2-204
 DISA, 2-2, 2-4, 2-11, 2-12, 2-13, 2-376, 2-379, 2-380
 Access Code, 2-8, 2-12, 2-199, 2-374, 2-375
 Account Code, 2-8
 Answer Timer, 2-375
 Circuit Descriptor, 2-375
 DISA Trunks, 2-8, 2-145, 2-147, 2-174, 2-176, 2-192, 2-199, 2-219, 2-237, 2-295, 2-309, 2-314, 2-357, 2-374, 2-375, 2-376, 2-377, 2-387
 Disconnect Alarm, 2-209
 Do Not Disturb, 2-210
 Double Flash Over Trunk, (See CENTREX Compatibility), 2-152
 DTMF-to-Rotary Dial Conversion, 2-212
 DTRX Call by Name, 2-184
 DTRX Call Originate/Disconnect, 2-185
 DTRX Help, 2-187
 DTRX Hotline, 2-187
 DTRX Messages, 2-188
 DTS Line, 2-262

E

Expensive Route Warning, 2-213

F

Feature Keys, 2-214
 Feature Access Code, 2-16, 2-57, 2-58, 2-60, 2-61, 2-138, 2-159, 2-161, 2-230, 2-289, 2-323, 2-324, 2-325
 Feature Access Code Name

Abbreviated Dial Access (24), 2-2, 2-15, 2-171
 Account Code Access (01), 2-4
 ACD Login/Logout (44), 2-62
 ACD Silent Monitoring (45), 2-62
 ADL Call Setup (28), 2-165
 ADL Disconnect (29), 2-165
 Analog Network Accept Callers Extension (39), 2-12
 Auto-Answer (02), 2-57
 Automatic Wakeup (31) – (Generic 1001), 2-311
 Automatic Wakeup (32) – (31 in Generic 1001), 2-311
 Call Forwarding – All Calls (03), 2-78
 Call Forwarding – Busy (03), 2-117
 Call Forwarding – Busy/Don't Answer (05), 2-117
 Call Forwarding – Cancel I'm Here (07), 2-78
 Call Forwarding – Don't Answer (04), 2-117
 Call Forwarding – External Only (05), 2-78
 Call Forwarding – Follow Me (06), 2-117
 Call Forwarding – I'm Here (06), 2-78
 Call Forwarding – I'm Here (07), 2-117
 Call Forwarding – Internal Only (04), 2-78
 Call Hold (21), 2-231
 Call Hold Retrieve – Local (22), 2-231
 Call Hold Retrieve – Remote (23), 2-231
 Call Message Sender of Oldest Message (42), 2-272
 Call Park (32) – (Generic 1001), 2-138
 Call Park (33) – (32 in Generic 1001), 2-138
 Callback – Busy (20), 2-141
 Callback – No Answer (43), 2-143
 Clear All Features (25), 2-156
 Console Lockout Access Code (17), 2-30
 Console Lockout Access Code(17), 2-39
 Dial Call Pickup (08), 2-300
 Direct CO Line Select (50), 2-244
 Direct Inward System Access – DISA (19), 2-34, 2-375
 Direct to ARS (36) – (Generic 1001), 2-207
 Direct to ARS (37) – (36 in Generic 1001), 2-207
 Directed Call Pickup (09), 2-300
 Do Not Disturb (10), 2-211
 Executive Busy Override (30) – (Generic1001), 2-293, 2-295
 Executive Busy Override (31) – (30 in Generic1001), 2-293, 2-295
 Extension General Attendant Access (11), 2-16, 2-304
 Flash Over Trunk (46), 2-151, 2-153

- Hold Pickup Access – Att Hold Slots (16),
2–48, 2–342
- Key System – Direct Paging Access (48),
2–249
- Key System – Group Page – Meet Me Answer
(49), 2–249
- Key System – Retrieve Personal Speed Call
(52), 2–251
- Key System – Store Personal Speed Call (51),
2–251
- Maid In Room (34) – (Generic 1001), 2–235
- Maid In Room (35) – (34 in Generic 1001),
2–235
- Maintenance Functions – Test Line (18), 2–266
- Node ID (33) – (Generic 1001), 2–288
- Node ID (34) – (33 in Generic 1001), 2–288
- Paging Access to Default Zone (12), 2–47,
2–297
- Paging Access to Specific Zones (13), 2–46,
2–47, 2–297
- Program Feature Key (47), 2–216
- Send Message (41), 2–272
- SUPERSET 4* Set Maid In Room Status Display
(40), 2–235
- SUPERSET 4* Set Room Status Display (35) –
(Generic 1001), 2–235
- SUPERSET 4* Set Room Status Display (36) –
(35 in Generic 1001), 2–235
- SUPERSET 4* Telephones Loopback Test (26),
2–346
- Tone Demonstration (27), 2–359
- Trunk Answer From Any Station – Any (14),
2–29, 2–368
- Trunk Answer From Any Station – Local Tenant
(15), 2–29, 2–368
- UCD Login/Logout Code (38), 2–386
- Feature Access Code Numbers**
- 01 (Account Code Access), 2–4
- 02 (Auto-Answer), 2–57
- 03 (Call Forwarding – All Calls), 2–78
- 03 (Call Forwarding – Busy), 2–117
- 04 (Call Forwarding – Don't Answer), 2–117
- 04 (Call Forwarding – Internal Only), 2–78
- 05 (Call Forwarding – Busy/Don't Answer),
2–117
- 05 (Call Forwarding – External Only), 2–78
- 06 (Call Forwarding – Follow Me), 2–117
- 06 (Call Forwarding – I'm Here), 2–78
- 07 (Call Forwarding – Cancel I'm Here), 2–78
- 07 (Call Forwarding – I'm Here), 2–117
- 08 (Dial Call Pickup), 2–300
- 09 (Directed Call Pickup), 2–300
- 10 (Do Not Disturb), 2–211
- 11 (Extension General Attendant Access),
2–16, 2–304
- 12 (Paging Access to Default Zone), 2–47,
2–297
- 13 (Paging Access to Specific Zones), 2–46,
2–47, 2–297
- 14 (Trunk Answer From Any Station – Any),
2–29, 2–368
- 15 (Trunk Answer From Any Station – Local
Tenant), 2–29, 2–368
- 16 (Hold Pickup Access – Att Hold Slots),
2–48, 2–342
- 17 (Console Lockout Access Code), 2–30,
2–39
- 18 (Maintenance Functions – Test Line), 2–266
- 19 (Direct Inward System Access – DISA),
2–34, 2–375
- 20 (Callback – Busy), 2–141
- 21 (Call Hold), 2–231
- 22 (Call Hold Retrieve – Local), 2–231
- 23 (Call Hold Retrieve – Remote), 2–231
- 24 (Abbreviated Dial Access), 2–2, 2–15,
2–171
- 25 (Clear All Features), 2–156
- 26 (*SUPERSET 4* Telephones Loopback Test),
2–346
- 27 (Tone Demonstration), 2–359
- 28 (ADL Call Setup), 2–165
- 29 (ADL Disconnect), 2–165
- 30 (Executive Busy Override) – (Generic1001),
2–293, 2–295
- 31 (Automatic Wakeup) – (Generic 1001),
2–311
- 31 (Executive Busy Override) – (30 in Gener-
ic1001), 2–293, 2–295
- 32 (Automatic Wakeup) – (31 in Generic 1001),
2–311
- 32 (Call Park) – (Generic 1001), 2–138
- 33 (Call Park) – (32 in Generic 1001), 2–138
- 33 (Node ID) – (Generic 1001), 2–288
- 34 (Maid In Room) – (Generic 1001), 2–235
- 34 (Node ID) – (33 in Generic 1001), 2–288
- 35 (Maid In Room) – (34 in Generic 1001),
2–235
- 35 (*SUPERSET 4* Set Room Status Display) –
(Generic 1001), 2–235
- 36 (Direct to ARS) – (Generic 1001), 2–207
- 36 (*SUPERSET 4* Set Room Status Display) –
(35 in Generic 1001), 2–235
- 37 (Direct to ARS) – (36 in Generic 1001),
2–207
- 38 (UCD Login/Logout Code), 2–386
- 39 (Analog Network Accept Callers Extension),
2–12
- 40 (*SUPERSET 4* Set Maid In Room Status
Display), 2–235
- 41 (Send Message), 2–272

- 42 (Call Message Sender of Oldest Message), 2-272
- 43 (Callback – No Answer), 2-143
- 44 (ACD Login/Logout), 2-62
- 45 (ACD Silent Monitoring), 2-62
- 46 (Flash Over Trunk), 2-151, 2-153
- 47 (Program Feature Key), 2-216
- 48 (Key System – Direct Paging Access), 2-249
- 49 (Key System – Group Page – Meet Me Answer), 2-249
- 50 (Direct CO Line Select), 2-244
- 51 (Key System – Store Personal Speed Call), 2-251
- 52 (Key System – Retrieve Personal Speed Call), 2-251

- Final Ringback, 2-319
- Flash – Calibrated, 2-218
- Flash Control, 2-219
- Flash Disable, 2-220
- Flash for Dial 0 (Attendant), 2-221
- Flash Over Trunk, (See *CENTREX* Compatibility), 2-151
- Flash Timing, 2-222
- Forward Campon, 2-223

G

- Generic 1002, 2-10, 2-27, 2-61, 2-155, 2-272, 2-279, 2-358, 2-382, 2-383, 2-384, 2-386

H

- Handset Receiver Volume Control, 2-226
- Handsfree Answerback, 2-224
- Handsfree Operation, 2-226
- Headset Operation, 2-227
- Hold, 2-228
- Hold Reminder, 2-245
- Holiday Messages, 2-232
- Hot Line, 2-233
- Hotel / Motel, 2-234
- Hunt Groups, 2-235

I

- Illegal Access Intercept, 2-237
- Inhibit Trunk Ring–Me–Back During Dialing, 2-238
- Intercept to Recorded Announcement, 2-239
- Intercom Call, 2-239
- Intercom Key, 2-245
- Intrude, 2-292
- Inward Restriction (DID), 2-240

K

- Key Line, 2-260
- Key Set/System Support, 2-240

L

- Language Change, 2-252
- Last Number Redial, 2-253
- Last Party Receives Dial Tone, 2-254
- LDN, 2-29, 2-340
- Line Lockout, 2-255
- Line Preference, 2-246
- Line Privacy, 2-256
- Line Selection, 2-257
- Line Types and Appearances, 2-258
- Listed Directory Numbers, 2-29, 2-340
- Local Switching, 2-263
- Lockout Alarm, 2-263
- Logical Lines, 2-265

M

- Maintenance, 2-266
- Manual Line, 2-266
- Messaging – Advisory, 2-267
- Messaging – Call Me Back, 2-270
- Meter Pulse Collection, 2-275

MiLink Data Module, 2-277
 MITEL Application Interface (MAI), 2-14
 Modem Pooling, 2-190
 Modem Pooling Queuing, 2-195
 Moving Stations and *SUPERSET* Telephones,
 2-278
 Multi-Attendant Positions, 2-278
 Multicall Line, 2-261
 Music on Hold (MOH), 2-279

N

Names, 2-279
 Never a Consultee, 2-282
 Never a Forwardee, 2-283
 New Call Ring, 2-283
 Night Bells, 2-284
 Night Services, 2-286
 Night Services Flexibility, 2-287
 Night/Day Switching – *SUPERSET 4* and
SUPERSET 4 DN Telephones, 2-285
 Node Identification, 2-288
 Non-Busy Extensions, 2-288
 Numbering Plan Flexibility (Conflict Dialing),
 2-289

O

Off-Premise Extension (OPS), 2-290
 Originate Only Extensions, 2-141, 2-143,
 2-291
 Overlap Outputting, 2-291
 Override, 2-292
 Override Announce, 2-294
 Override Security, 2-295

P

PA Paging, 2-295
 Paging, 2-247

Parallel Connection of Industry-Standard Tele-
 phones, 2-298
 Personal O/G Line, 2-260
 Personal Speed Call, 2-251
 Pickup – Local and Directed, 2-299
 Pickup Groups, 2-298
 Power Fail Transfer (PFT), 2-301
 Printer / Terminal Support, 2-302
 Priority Dial 0, 2-304
 Privacy Enable, 2-304
 Privacy Release, 2-304
 Private Line, 2-262

R

RAD, 2-19, 2-306, 2-385
 RAD Support, 2-18, 2-306
 Recall, 2-308
 Receive Only Extensions, 2-311
 Reminder, 2-311
 Resale Package, 2-314
 Ringing Plan, 2-317
 Ringing Time-Out, 2-319
 Ringing-Discriminating, 2-318

S

Satellite PABX, 2-319
 Secretarial Line, 2-320
 Speaker Volume Control, 2-321
 Speedcall, 2-321
 Split, 2-327
 Station Message Detail Recording (SMDR),
 2-328
 Station Swap, 2-67
 Station Transfer Security, 2-367
 Subattendant – Basic Function, 2-329
 Subattendant – Enhanced Functions (G1004
 only), 2-330

- Subattendant – Abbreviated Dial Programming, 2-331
- Subattendant – Advisory Message Setup, 2-332
- Subattendant – Call Forward Setup and Cancel, 2-333
- Subattendant – Calls Waiting Indication, 2-336
- Subattendant – Hold Positions, 2-338
- Subattendant – Listed Directory Number (LDN) Keys, 2-340, 2-343
- Subattendant – Paged Hold Access, 2-341
- Subattendant – Station DND Setup, 2-344
- Subattendant – Time and Date Setup, 2-337
- SUPERSET 3 Telephone*, 2-345
- SUPERSET 3 DN Telephone*, 2-346
- SUPERSET 4 Telephone*, 2-346
- SUPERSET 401 Telephone*, 2-347
- SUPERSET 410 Telephone*, 2-348
- SUPERSET 420 Telephone*, 2-348
- SUPERSET 430 Telephone*, 2-349
- SUPERSET 4 DN Telephone*, 2-347
- SUPERSET DSS Module*, 2-350
- SUPERSET LCD Display*, 2-352
- Swap (Trade Calls), 2-353
- Swap Campon, 2-354
- System Identifier, 2-357
- System Option Name
 - 24-Hour Clock (01), 2-31
 - Account Code Length (44) – (Generic 1001), 2-4, 2-7, 2-175
 - Account Code Length (55) – (44 in Generic 1001), 2-4, 2-5, 2-6, 2-7, 2-175
 - ACD Reports (44), 2-62, 2-276, 2-328
 - ACD Silent Monitoring (42), 2-62
 - ACD Silent Monitoring Beeps (43), 2-62
 - Analog Networking SMDR (06), 2-12, 2-328
 - ARS Unknown Digit Length Timeout (36) – (Generic 1001), 2-66
 - ARS Unknown Digit Length Timeout (47) – (36 in G1001), 2-66
 - Attendant Call Block (09), 2-234
 - Attendant Conference Beeps (10), 2-26
 - Auto Room Status Conversion / Auto Wakeup Print (34), 2-234
 - Auto Room Status Conversion / Auto Wakeup Print Timer (45) – (Generic 1001), 2-234
 - Auto Room Status Conversion / Auto Wakeup Print Timer (56) – (45 in Generic 1001), 2-234
 - Auto Wakeup Alarm (12), 2-234
 - Auto Wakeup Music (14), 2-234
 - Auto Wakeup Print (13), 2-234
 - Automated Attendant (16), 2-61
 - Automatic Call Distribution (41), 2-62, 2-189
 - Automatic Wakeup (11), 2-234, 2-311
 - Calibrated Flash (37), 2-219
 - Cancel 24-Hour Message Waiting (07), 2-271, 2-272
 - Data Demultiplexer (15), 2-177
 - Data SMDR – Indicate Long Calls (39), 2-181, 2-328
 - Dialing Conflict Timer (39) (Generic 1001), 2-159
 - Dialing Conflict Timer (50) (39 in Generic 1001), 2-159
 - Digit Translation Plan (46) – (35 in Generic 1001), 2-203
 - Digit Translation Plan 0 – 3 (35) – (Generic 1001), 2-203
 - DISA Answer Timer (43) – (Generic 1001), 2-375
 - DISA Answer Timer (54) – (43 in Generic 1001), 2-375
 - Discriminating Ringing (17), 2-318
 - Discriminating Ringing Always (18), 2-318
 - End of Dial Character # Enabled (36), 2-11
 - Final Ring Timeout (40) – (Generic 1001), 2-310, 2-319
 - Final Ring Timeout (51) – (40 in Generic 1001), 2-310, 2-319
 - Five Digit SMDR (08), 2-328
 - Holiday Messages (20), 2-233
 - Incoming to Outgoing Call Forward (21), 2-78, 2-79, 2-102, 2-103, 2-117, 2-132, 2-133, 2-390
 - Last Party Clear – Dial Tone (22), 2-255, 2-390
 - Limited Wait for Dial Tone (37) – (Generic 1001), 2-371
 - Limited Wait for Dial Tone (48) – (37 Generic 1001), 2-371
 - Maximum Flash Timer (42) – (Generic 1001), 2-222
 - Maximum Flash Timer (53) – (42 in Generic 1001), 2-222
 - Message Lamp Test Enable (02), 2-234
 - Message Register Audit (24), 2-234
 - Message Register Count Additional Supervisions (23), 2-234, 2-276
 - Message Register Follows Talker (40), 2-234
 - Message Register Zero After Audit (25), 2-234
 - Message Waiting and Message Register Clear Print (04), 2-234

- Minimum Flash Timer (41) – (Generic 1001), 2-219, 2-222
- Minimum Flash Timer (52) – (41 in Generic 1001), 2-219, 2-222
- Mitel Application Package (19), 2-14
- No Overlap Outpulsing (26), 2-291
- Occupied Room Default Call Restriction (58), 2-234
- Outgoing Call Restriction (32), 2-234
- Property Management System (35), 2-234
- Pseudo Answer Supervision Timer (38) – (Generic 1001), 2-234, 2-328, 2-370, 2-372
- Pseudo Answer Supervision Timer (49) – (38 in Generic 1001), 2-234, 2-328, 2-370, 2-372
- Receivers Reserved for Non-Auto-Attendant Use (59), 2-61
- Room Status (33), 2-234
- Room Status Audit (27), 2-234
- Satellite PBX (31), 2-319
- Single Paging Amplifier (03), 2-47, 2-296
- SMDR – Indicate Long Calls (28), 2-328
- SUPERSET* Last Number Redial (29), 2-254
- Switch-hook Flash (38), 2-219, 2-220, 2-222, 2-355
- Tone Plan (60), 2-362
- Vacant Room Default Call Restriction (57) – (46 in Generic 1001), 2-234
- Vacant/Reserved Room Default Call Restriction (46) – (Generic 1001), 2-234
- Verified Account Codes (05), 2-7, 2-175
- System Option Number
- 01 (24-Hour Clock), 2-31
- 02 (Message Lamp Test Enable), 2-234
- 03 (Single Paging Amplifier), 2-47, 2-296
- 04 (Message Waiting and Message Register Clear Print), 2-234
- 05 (Verified Account Codes), 2-7, 2-175
- 06 (Analog Networking SMDR), 2-12, 2-328
- 07 (Cancel 24-Hour Message Waiting), 2-271, 2-272
- 08 (Five Digit SMDR), 2-328
- 09 (Attendant Call Block), 2-234
- 10 (Attendant Conference Beeps), 2-26
- 11 (Automatic Wakeup), 2-234, 2-311
- 12 (Auto Wakeup Alarm), 2-234
- 13 (Auto Wakeup Print), 2-234
- 14 (Auto Wakeup Music), 2-234
- 15 (Data Demultiplexer), 2-177
- 16 (Automated Attendant), 2-61
- 17 (Discriminating Ringing), 2-318
- 18 (Discriminating Ringing Always), 2-318
- 19 (Mitel Application Package), 2-14
- 20 (Holiday Messages), 2-233
- 21 (Incoming to Outgoing Call Forward), 2-78, 2-79, 2-102, 2-103, 2-117, 2-132, 2-133, 2-390
- 22 (Last Party Clear – Dial Tone), 2-255, 2-390
- 23 (Message Register Count Additional Supervisions), 2-234, 2-276
- 24 (Message Register Audit), 2-234
- 25 (Message Register Zero After Audit), 2-234
- 26 (No Overlap Outpulsing), 2-291
- 27 (Room Status Audit), 2-234
- 28 (SMDR – Indicate Long Calls), 2-328
- 29 (*SUPERSET* Last Number Redial), 2-254
- 31 (Satellite PBX), 2-319
- 32 (Outgoing Call Restriction), 2-234
- 33 (Room Status), 2-234
- 34 (Auto Room Status Conversion / Auto Wakeup Print), 2-234
- 35 (Digit Translation Plan 0-3) – (Generic 1001), 2-203
- 35 (Property Management System), 2-234
- 36 (ARS Unknown Digit Length Timeout) – (Generic 1001), 2-66
- 36 (End of Dial Character # Enabled), 2-11
- 37 (Calibrated Flash), 2-219
- 37 (Limited Wait for Dial Tone) – (Generic 1001), 2-371
- 38 (Pseudo Answer Supervision Timer) – (Generic 1001), 2-234, 2-328, 2-370, 2-372
- 38 (Switch-hook Flash), 2-219, 2-220, 2-222, 2-355
- 39 (Data SMDR – Indicate Long Calls), 2-181, 2-328
- 39 (Dialing Conflict Timer) – (Generic 1001), 2-159
- 40 (Final Ring Timeout) – (Generic 1001), 2-310, 2-319
- 40 (Message Register Follows Talker), 2-234
- 41 (Automatic Call Distribution), 2-62, 2-189
- 41 (Minimum Flash Timer) – (Generic 1001), 2-219, 2-222
- 42 (ACD Silent Monitoring), 2-62
- 42 (Maximum Flash Timer) – (Generic 1001), 2-222
- 43 (ACD Silent Monitoring Beeps), 2-62
- 43 (DISA Answer Timer) – (Generic 1001), 2-375
- 44 (Account Code Length) – (Generic 1001), 2-4, 2-7, 2-175
- 44 (ACD Reports), 2-62, 2-276, 2-328
- 45 (Auto Room Status Conversion / Auto Wakeup Print Timer) – (Generic 1001), 2-234
- 46 (Digit Translation Plan) – (35 in Generic 1001), 2-203

- 46 (Vacant/Reserved Room Default Call Restriction) – (Generic 1001), 2–234
- 47 (ARS Unknown Digit Length Timeout) – (36 in G1001), 2–66
- 48 (Limited Wait for Dial Tone) – (37 in Generic 1001), 2–371
- 49 (Pseudo Answer Supervision Timer) – (38 in Generic 1001), 2–234, 2–328, 2–370, 2–372
- 50 (Dialing Conflict Timer) – (39 in Generic 1001), 2–159
- 51 (Final Ring Timeout) – (40 in Generic 1001), 2–310, 2–319
- 52 (Minimum Flash Timer) – (41 in Generic 1001), 2–219, 2–222
- 53 (Maximum Flash Timer) – (42 in Generic 1001), 2–222
- 54 (DISA Answer Timer) – (43 in Generic 1001), 2–375
- 55 (Account Code Length) – (44 in Generic 1001), 2–5, 2–6
- 55 (Account Code Length) – (44 in Generic 1001), 2–4, 2–7, 2–175
- 56 (Auto Room Status Conversion / Auto Wakeup Print Timer) – (45 in Generic 1001), 2–234
- 57 (Vacant/Reserved Room Default Call Restriction) – (46 in Generic 1001), 2–234
- 58 (Occupied Room Default Call Restriction), 2–234
- 59 (Receivers Reserved for Non-Auto-Attendant Use), 2–61
- 60 (Tone Plan), 2–362

T

- Tandem Operation, 2–357
- Tenancing, 2–358
- Tie Trunks, 2–174, 2–176, 2–193

Timers

- Attendant Automatic Call Forward – No Answer, 2–25
- Attendant Timed Recall, 2–309
- Dialing Conflict Timer, 2–159
- DISA Answer Timer, 2–375
- DTR Off Disconnect Timer, 2–186
- Final Ringback Timer, 2–309, 2–310
- Flash Timer, 2–218, 2–219, 2–222
- Music On Hold Timer, 2–386
- Pseudo Answer Supervision Timer, 2–370
- Recall No Answer Timer, 2–308, 2–309
- Recorded Message Length Timer, 2–306
- Recording Failure to Hangup Timer, 2–306

- Repeated Campon Beeps Timer, 2–150
- Session Inactivity Disconnect Timer, 2–186, 2–189

- Toll Control, 2–359
- Tone Demonstration, 2–359
- Tone Plans, 2–362
- Trade Calls, 2–353
- Traffic Measurement, 2–362
- Transfer, 2–363
- Transfer Dial Tone, 2–366
- Transfer with Privacy, 2–69
- Trunk Answer From Any Station (TAFAS), 2–368
- Trunk Circuit Descriptor Options, 2–370
- Trunk Dial Tone Detection, 2–370
- Trunk Groups, 2–371
- Trunk Operation
 - Direct Inward Dial (DID), 2–372
 - Direct Inward System Access (DISA), 2–374
 - Non-Dial-in CO, 2–376
 - Tie, 2–377
- Trunk Recall, 2–379
- Trunk Support
 - CO (LS/GS), 2–380
 - Direct Inward Dial (DID), 2–380
 - E&M, 2–381
 - T1, 2–382

U

- Uniform Call Distribution (UCD), 2–384

V

- Vacant Number Intercept, 2–387
- Voice Mail
 - Voice Mail – COV Port, 2–388
 - Voice Mail – ONS Port, 2–389

SX-200® DIGITAL PABX

Automatic Route Selection and Toll Control

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Table of Contents

1. GENERAL

Introduction	220 1-1
Reason for Issue	220 1-1
ARS: General Description	220 1-1

2. NUMBERING PLANS

General	220 2-1
North American Numbering Plan	220 2-1

3. CALL ROUTING OPTIONS

General	220 3-1
Direct Distance Dialing	220 3-1
Tie Line Service	220 3-1
Foreign Exchange Service (FX)	220 3-2
Wide Area Telephone Service (WATS)	220 3-3
Specialized Common Carrier Service (SCC)	220 3-4

4. DETAILED DESCRIPTION

Introduction	220 4-1
Alternative Routing	220 4-1
Least Cost Routing	220 4-1
Toll Control	220 4-2
Overlap Outpulsing	220 4-2
Expensive Route Warning Tone	220 4-3
Callback Queueing	220 4-3
Camp-on Queueing	220 4-3
Return Dial Tone	220 4-3
Maximum Digits Dialed	220 4-4

5. ARS TABLES

General	220 5-1
ARS Digit Strings Tables (CDE Form 26)	220 5-3
ARS Maximum Dialed Digits (CDE Form 27)	220 5-7
ARS Route Plans Table (CDE Form 25)	220 5-8
ARS Day Zone Definition Table (CDE Form)	220 5-9
ARS Route Lists Table (CDE Form 24)	220 5-10
ARS Route Definition Table (CDE Form 23)	220 5-12
ARS Modified Digit Table (CDE Form 22)	220 5-13
ARS COR Group Definition Table (CDE Form 20)	220 5-15
KEY SYSTEM TOLL CONTROL (CDE FORM 46)	220 5-16
Examples	220 5-19

6. ARS OPERATION AND PROGRAMMING

General	220 6-1
---------------	---------

Programming Process – General	220 6–1
Programming Process – Key System Telephones	220 6–2
System Programming	220 6–2

7. APPLICATION

General	220 7–1
Scenario	220 7–1
Trunk Groups	220 7–1
COR Assignments	220 7–2
ARS Form Completion	220 7–2
ARS Digit Strings	220 7–5
Route Definition Table	220 7–6
Route List Table	220 7–6
Route Plan Table	220 7–7
Day Zone Table	220 7–10
COR Group Definition Table	220 7–10
Modified Digits Table	220 7–10
Scenario – KEY SYSTEM TOLL CONTROL	220 7–10

8. AUTOMATIC DATA ROUTE SELECTION (ADRS)

General	220 8–1
Application	220 8–1
Trunk Groups	220 8–1
COR Groups	220 8–2
Voice Station Requirements	220 8–2
Data Station Requirements	220 8–3
Day Zones	220 8–4
Modified Digits	220 8–4
Route Definition	220 8–5
Route Lists	220 8–5
Route Plan	220 8–6
Scenarios	220 8–8
Example 1	220 8–8
Example 2	220 8–8
Example 3	220 8–9
Example 4	220 8–9
Example 5	220 8–10

List of Figures

Figure 3-1	Typical Tie Line	220 3-2
Figure 3-2	Typical Foreign Exchange Line	220 3-3
Figure 3-3	Canadian WATS Zoning (Zone 1 Being Area Code 613)	220 3-4
Figure 3-4	Typical SCC Arrangement	220 3-5
Figure 5-1	ARS Table Hierarchy	220 5-2
Figure 5-2	FORM 26 – ARS Digit Strings Table – Leading Digits	220 5-4
Figure 5-3	ARS Digit Strings – Nested Table	220 5-6
Figure 5-4	FORM 27 – ARS Maximum Dialed Digits	220 5-7
Figure 5-5	FORM 25 – ARS Route Plans Table	220 5-9
Figure 5-6	FORM 21 – ARS Day Zone Definition	220 5-10
Figure 5-7	Form 24 – ARS Route Lists Table	220 5-11
Figure 5-8	FORM 23 – ARS Route Definition Table	220 5-13
Figure 5-9	FORM 22 – ARS Modified Digit Table	220 5-14
Figure 5-10	FORM 20 – COR Group Definition Table	220 5-15
Figure 5-11	FORM 46 – Key System Toll Control	220 5-18
Figure 7-1	Trunking Network	220 7-3
Figure 7-2	Table Network (Part 1)	220 7-8
Figure 7-3	Table Network (Part 2)	220 7-9
Figure 7-4	Typical Key System Toll Control Form	220 7-11

List of Tables

Table 8-1	Trunk Groups	220 8-2
Table 8-2	COR Groups	220 8-2
Table 8-3	Customer Requirements Table	220 8-3
Table 8-4	Digit Modification	220 8-4
Table 8-5	Route Definition	220 8-5
Table 8-6	Route List Table	220 8-6

1.

GENERAL**Introduction**

- 1.1 This Practice contains a comprehensive description of the Automatic Route Selection (ARS) and Toll Control features of the *SX-200*® DIGITAL PABX. The Toll Control feature will allow or deny specific telephones access to certain routes (usually long distance) that are available to the PABX. Parts 2 and 3 provide the reader with background information on the North American Numbering Plan and on the routing options offered to PABX owners by telecommunications companies. A clear understanding of these sections is essential in order to fully implement ARS. The remainder of the document is dedicated to a detailed description of ARS, which concludes with a description of how an ARS plan is prepared on paper, with a scenario centering around a fictitious company.

Reason for Issue

- 1.2 This Practice is issued to provide a description of the operation and available features of the *SX-200* DIGITAL PABX Automatic Route Selection (ARS) and Toll Control software. This is the first issue for Generic 1005. Key System Telephone Toll Control is also included.

ARS: General Description

- 1.3 Within this practice references are made to "the customer", "the installation company", and "the user". These are defined as follows:
- The customer is the owner of the *SX-200* DIGITAL PABX.
 - The installation company is a company which is authorized by MITEL® to sell and install the *SX-200* DIGITAL PABX. This company works closely with customers to determine their requirements and then installs and programs the system accordingly.
 - The user is a person who makes use of the facilities of the PABX through one of the system's peripheral devices (telephone sets).

When a trunk call is initiated from within a PABX, there are a number of factors which govern its routing and connection. They are:

- (a) route availability, where a route is defined as a collection of similar trunks within a trunk group,
- (b) cost, when more than one route exists,
- (c) caller's toll restriction (i.e., whether the caller is allowed to make such a call, and if so, on what routes).

ARS is a standard feature of the SX-200 DIGITAL PABX. The ARS feature begins automatically every time a trunk call is initiated and routes the call accordingly. The process is totally transparent to the caller, no access code is required, and the process does not depend on a fixed numbering plan.

2.

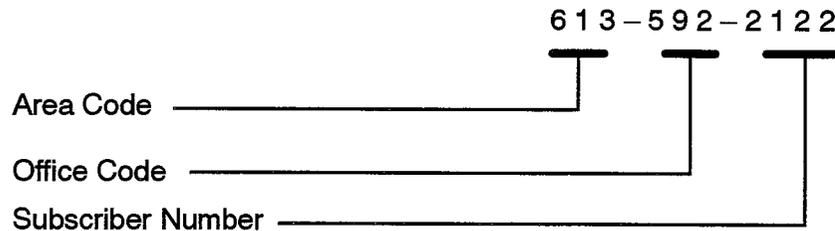
NUMBERING PLANS

General

- 2.1 The ARS feature is universal and is compatible with any numbering plan which may be employed by any public network. It is, however, necessary to understand the numbering plan of the public network which serves the PABX in order to make full use of the toll control application of the ARS feature.

North American Numbering Plan

- 2.2 The purpose of any numbering plan is to enable any subscriber in the network to be connected to any other subscriber in the network. When the North American numbering plan was introduced, subscribers were assigned a unique digit string comprising a maximum of 10 digits, compiled as follows:



The area code defines a geographic telephone area, the office code identifies a central office (CO) within the area, and the subscriber number identifies a subscriber of the CO.

It was possible to create a distinction between area and office codes by ensuring that the second digit of the area code was 1 or 0 and the second digit of the office code was any digit in the range 2 through 9. However, as the number of COs within each area grew, it became necessary to augment the supply of office codes by allowing the second digit of the code to be in the range 0 through 9. This produced a conflict between area and office codes which was resolved by the introduction of the digit 1 as prefix to all area codes (e.g., 1-613-592-2122).

The prefix digit 1 has now been generally adopted as a toll prefix in large areas, where toll charges are incurred for calls made between offices in the same area (e.g., 1-256-2122).

In addition to the digit strings described above, there are sets of numbers which are reserved for special services; for example, 411 for directory assistance. These numbers do not conflict with area or office codes.

The present North American numbering plan comprises digit strings of one, three, seven, eight, and eleven digits.

Some examples are:

Operator	0
Service Number	411
Local Call	592-1111
Toll Call Within an Area	1-256-2222
Toll Call to Another Area	1-416-486-3333
Toll Call Within an Area (NO 1 prefix)	256-2222

3.

CALL ROUTING OPTIONS

General

- 3.1 Telephone companies offer a number of different methods of routing calls over the public network (e.g., DDD, tie lines, WATS lines), with each having a different cost structure. Correct use of these trunks can provide substantial cost savings to the user.

To determine which routing options are best suited to any given PABX, a traffic survey should be completed by the installation company prior to installation. The Traffic Measurement and Station Message Detail Recording features of the *SX-200* DIGITAL PABX allow the use of these routes to be monitored once the system is installed, so that they may be modified as traffic demands change.

The *SX-200* DIGITAL PABX supports the following long distance services:

- Direct Distance Dialing (DDD)
- Tie Line
- Foreign Exchange
- Wide Area Telephone Service (WATS)
- Specialized Common Carrier (SCC)

Direct Distance Dialing

- 3.2 Direct Distance Dialing allows telephone users to call subscribers within the home and international networks without the assistance of the operator. Connections are completed over standard trunk routes and are charged on a usage basis at a rate which varies with distance, time of day, and day of the week. DDD rates are given in the local telephone directory or you can contact the local Telephone Company for rate information which is not listed.

Tie Line Service

- 3.3 Tie Line Service provides a "tie" between two PABXs. The charge for each tie line is a flat rate charge based on the airline mileage of the line. Figure 3-1 shows a typical tie line connection between an *SX-200* DIGITAL PABX in Ottawa and an *SX-200* DIGITAL PABX in Toronto.

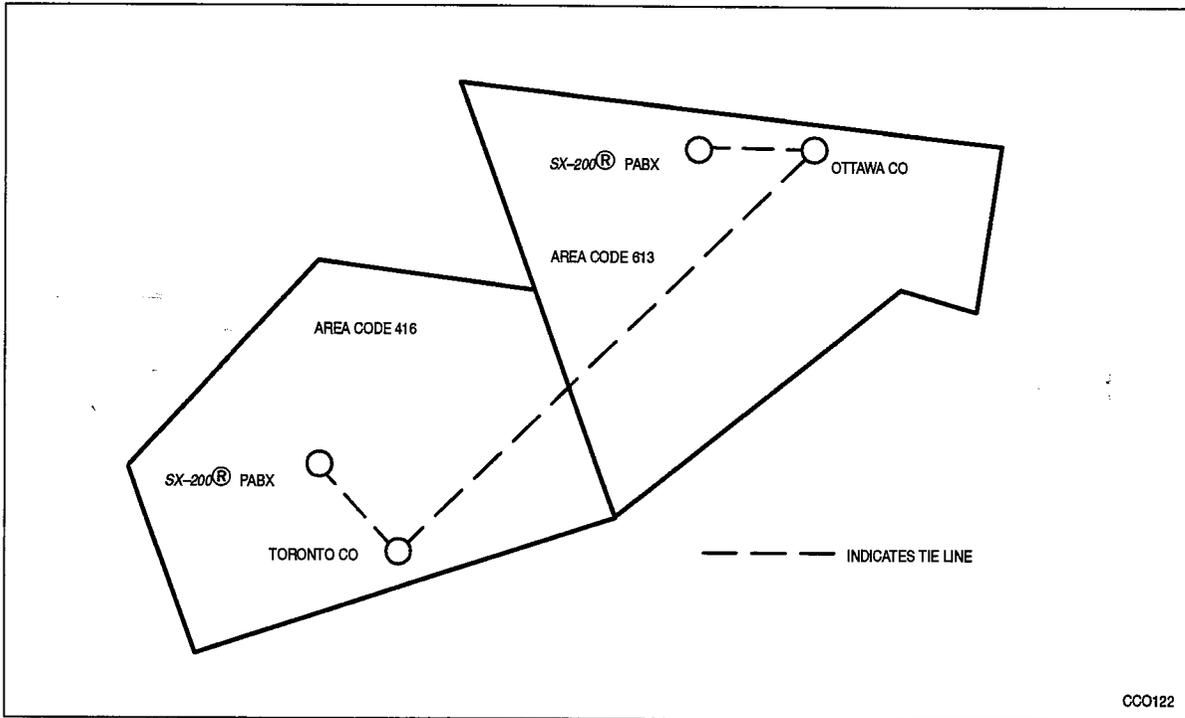


Figure 3-1 Typical Tie Line

Foreign Exchange Service (FX)

3.4 A Foreign Exchange (FX) Line can be thought of as a tie line between a PABX and a Central Office (CO) which is located in a telephone area other than that designated for the PABX. Via an FX Line, the PABX appears as a local subscriber to the distant CO and is billed accordingly for calls which are placed through that CO. FX lines have two applications. The first offers a method of reducing telephone costs in business situations where many toll calls are made to destinations which are within close proximity to one another. For example, a company located in Ottawa which does much of its business with companies located in and around Toronto could benefit from an FX line, as shown in Figure 3-2. The second application allows a company to offer the use of the FX to its customers to permit them to call the company office (the PABX) without incurring toll charges.

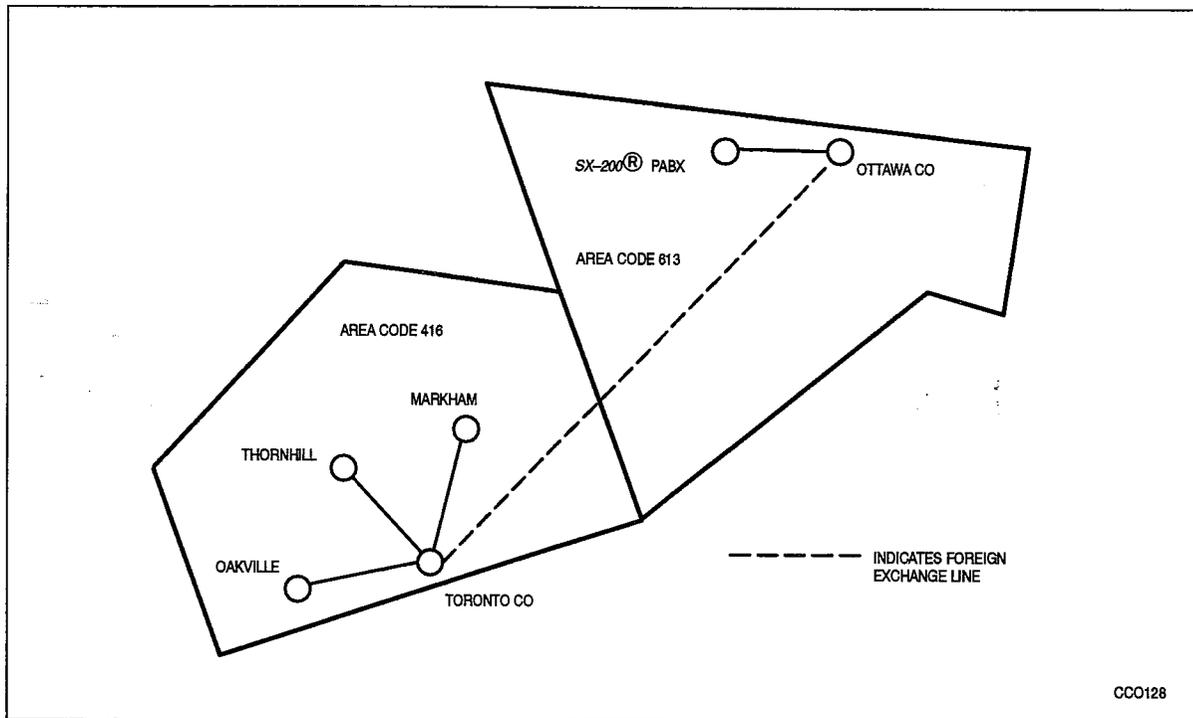


Figure 3-2 Typical Foreign Exchange Line

Wide Area Telephone Service (WATS)

- 3.5 Wide Area Telephone Service (WATS) is designed to meet the needs of customers who make or receive a large number of long distance calls to or from the same geographical region(s) within the home country. Calls are originated via Outward WATS lines and received over Inward WATS lines (800 Service). Generally, each WATS line is arranged to provide either inward or outward service, but not both.

WATS divides the country into geographical regions known as zones. Zones are incremental, numbering 1 through n, from the home zone. For example, zone 4 provides a WATS subscriber in the home zone (zone 1) with access to all telephone subscribers in zones 1, 2, 3 and 4. Likewise, zone n provides a WATS subscriber in the home zone with access to all telephone subscribers in all zones. Figure 3-3 shows Canadian WATS zones 1 through 6 and the zone numbering which is unique to WATS subscribers within Area Code 613, where MITEL Corporation headquarters is located.

The rates for both Outward and Inward WATS are based on the zone and the hours of service subscribed to by the customer.

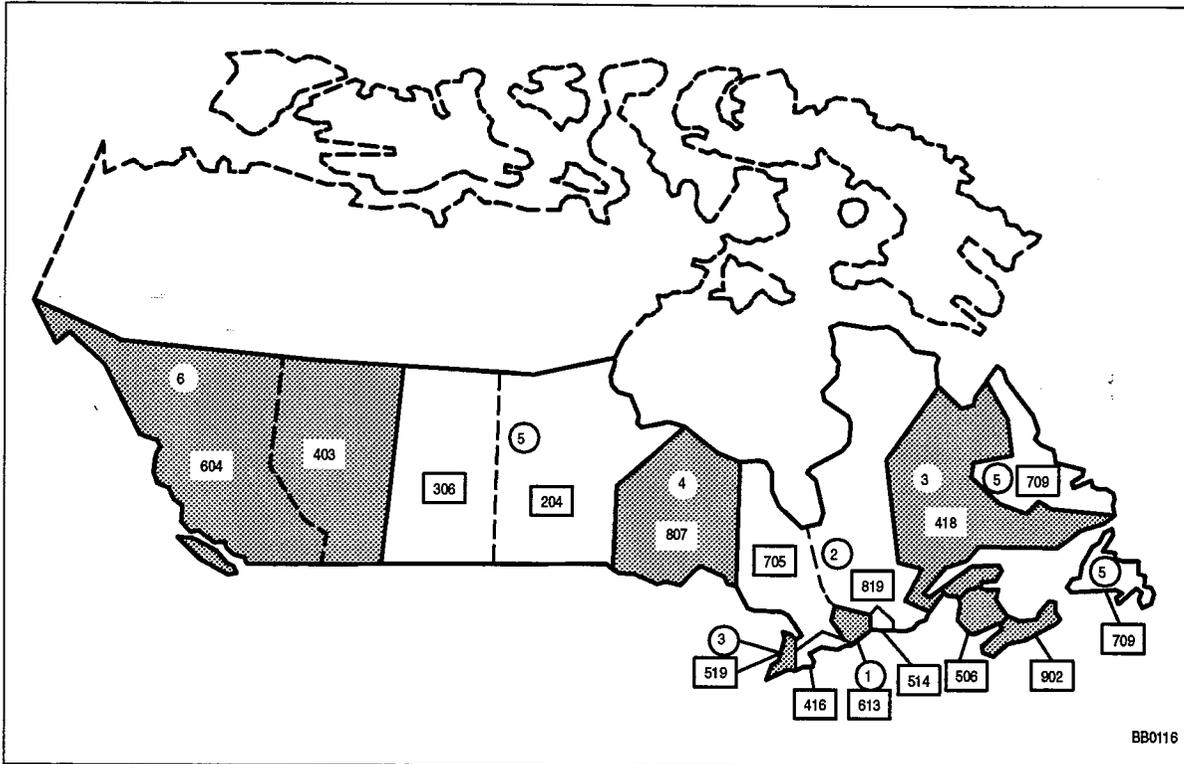


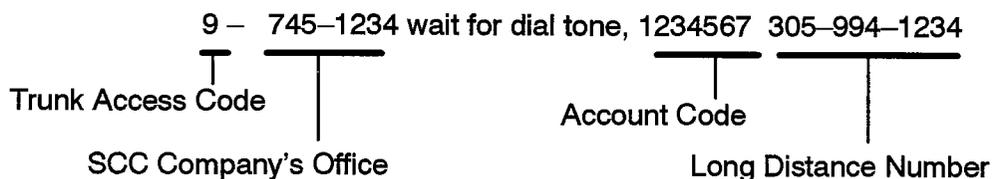
Figure 3-3 Canadian WATS Zoning (Zone 1 Being Area Code 613)

Specialized Common Carrier Service (SCC)

3.6 Specialized Common Carrier Service, offered by private companies, provides telephone service between major locations at a rate which may be less than that charged by the telephone companies. The rate is based on a monthly subscription fee plus a usage charge. Specialized Common Carriers must be approved by local Communications Regulations and may not be universally available. Currently, SCC services are not available in Canada.

The restriction of this service is that some SCC directories are limited to major locations. Therefore, to avoid additional toll charges, the SCC company office must be within a local dialing distance. A typical SCC arrangement is shown in Figure 3-4.

When a business subscribes to an SCC, it is issued with an account code (normally seven digits). Calls can then be routed via the company's office by dialing a digit string similar to that shown in the following example:



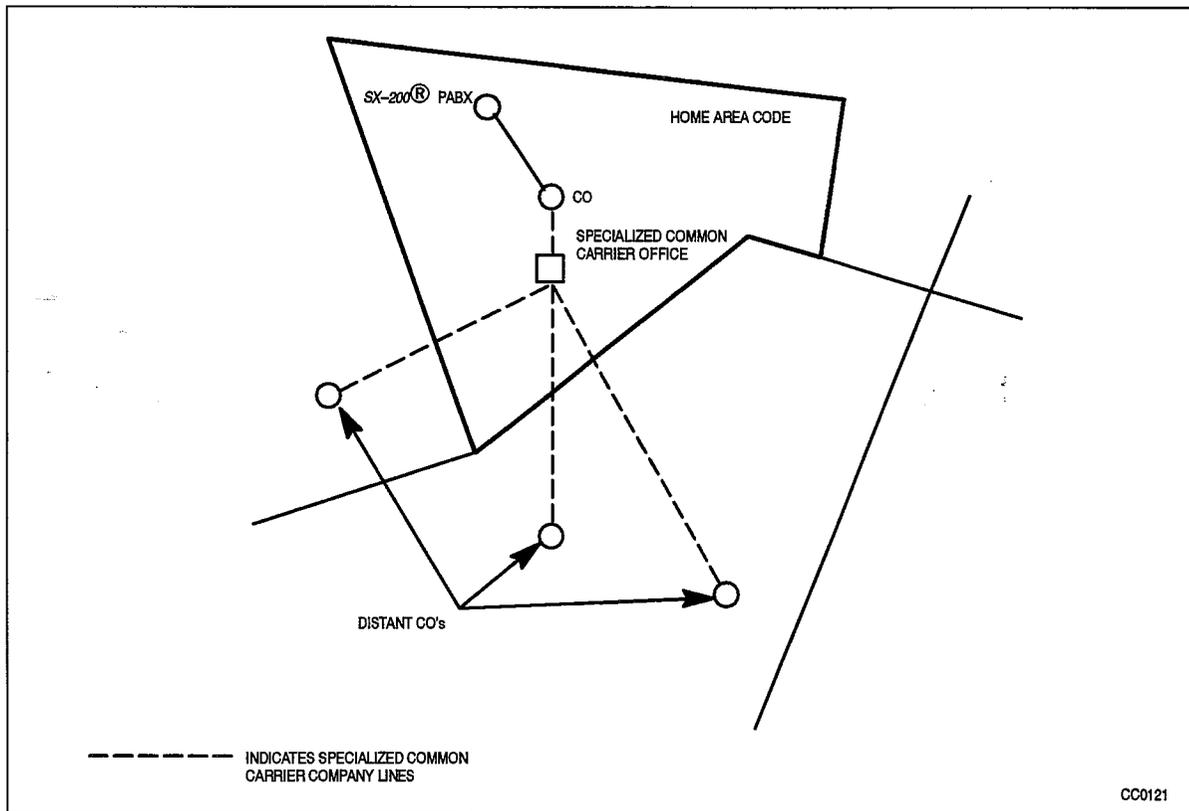


Figure 3-4 Typical SCC Arrangement

4.

DETAILED DESCRIPTION

Introduction

- 4.1 The ARS feature is part of the *SX-200* DIGITAL PABX software package. It automatically selects one of a preprogrammed (programmed during CDE) list of trunk routes every time an outgoing call is made. The routes are selected based upon the digits dialed, in order of cost (i.e., least expensive route first), and in accordance with the caller's toll restriction. The use of digit analysis and digit modification within the ARS package allows the system to recognize and modify any digit string which is dialed by the user, alleviating the need for the user to dial special trunk access codes, or to dial a different digit string for each of the various routes to the same destination.

The complete ARS package provides the following:

- Alternative Routing
- Least Cost Routing
- Toll Control
- Overlap Outpulsing
- Expensive Route Warning
- Callback Queueing
- Camp-on Queueing
- Return Dial Tone

Alternative Routing

- 4.2 Alternative Routing is the automatic selection of an alternate trunk route when the first choice is busy. Routes (e.g., tie trunks or WATS lines) are preprogrammed in an implied sequence of selection within the Route Lists Table as described in paragraph 5.7 .

Least Cost Routing

- 4.3 Least Cost Routing enables the customer to capitalize on the cost benefits offered by each type of trunk by allowing the installation company to define, via the Route Plans and Route Lists Tables, the order in which the trunk groups are to be selected. A number of different Route Lists can be defined to account for the fluctuation in rates with respect to the day and time of the week. Route lists are associated with day and time zones through the programming of the Day Zones and Route Plans Tables, described in paragraphs 5.5 and 5.4 .

Toll Control

- 4.4 Toll Control is an integral part of the ARS feature package. It allows the customer to restrict user access to specific trunk routes and/or specific directory numbers.

Every peripheral device which is capable of accessing a trunk is assigned a class of restriction (COR). These CORs are arranged within COR Groups which are associated with trunk groups through the programming of the Route Definition table. The Route Definition table defines a trunk group, how the digits dialed are to be modified, and which classes of restriction CANNOT access the route. A maximum of 50 COR Groups, each containing a maximum of 25 COR members, can be programmed. A COR Group is simply a list comprised of several COR members. Once constructed, the group is assigned a number (1 to 50). This is the number used in route definition.

Toll control takes place in the following way. Each time a trunk call is initiated, the system checks that the COR of the originating device is NOT included in the COR Group assigned to the selected trunk route, verifying that the call is toll allowed (that is, the user is authorized to make the call).

CORs are assigned to peripheral devices during the initial system programming, in accordance with the customer's requirements, and can be modified at any time from an attendant workstation or CDE terminal by the proper authority (e.g., the telecommunications manager).

Overlap Outputting

- 4.5 The basic principle of overlap outputting is to seize a trunk and commence outputting as soon as sufficient digits have been received to identify the route. This is necessary in order to minimize the post-dialing delay which would otherwise be experienced due to the serialization of digit collection, trunk seizure and digit outputting. The number of digits collected prior to outputting can be programmed by the customer during Customer Data Entry. These digits may be subject to digit modification prior to being passed to the appropriate sender (dial pulse or DTMF) for outputting. Subsequent digits are collected by the system and are outputted. At the end of dialing, indicated by an interdigit time-out, or the dialing of a complete digit string of known length, the dialing sender is disconnected. System Option 26, No Overlap Outputting, inhibits overlap outputting for all calls.

When overlap outputting is used, ARS destinations must not have conflicting length differences. Such conflicts will cause the first match to be used, not necessarily the best or specified match. If the following ARS example is used with overlap outputting, the first match on 95 will always select route 2. Route 1 will never be selected.

Leading Digits	Digits to Analyse	Route
9	56	1
9	5	2

The post-dialing delay (i.e., the time lapse between the completion of station dialing and the receipt of ringback) which would be experienced when using a DTMF trunk, is minimum (slightly more than 1 second for a 10-digit number). If no overlap outputting

is enabled, the delay for a 10-digit number outputted over a dial pulse trunk would be approximately 16 seconds at 10 pulses per second (pps).

Trunk routes are seized only after the ARS process has determined the validity of the call with respect to the caller's class of restriction. In this way, false traffic will not be generated at the CO (or distant PABX) by aborted seizures.

Expensive Route Warning Tone

- 4.6 The Expensive Route Warning Tone is a programmable option which presents a tone to the user during call setup, and, if a *SUPERSET 4®*, *SUPERSET 4™DN*, *SUPERSET 420™* or *SUPERSET 430™* telephone is used, the message EXPENSIVE ROUTE appears on the LCD when the route selected by ARS is programmed as an expensive route. Any route but the first one may be programmed to deliver an Expensive Route Warning Tone. When alerted by the warning, the user then has the option of whether or not to continue the call.

Callback Queueing

- 4.7 Callback Queueing (Automatic Callback) allows a user who encounters busy tone after dialing an ARS digit string (i.e., all trunks busy) to dial a callback access code, or, if a *SUPERSET 4*, *SUPERSET 4DN*, *SUPERSET 420* or *SUPERSET 430* telephone is used, to select CALLBACK, and be placed in a queue for the first available trunk. When a trunk becomes free, it will be seized, the originating device will be rung back, and, when answered, the previously entered digits will be automatically outputted. When honouring a callback, expensive route choices are skipped when ARS scans for an available trunk.

Camp-on Queueing

- 4.8 Camp-on Queueing allows the user who encounters busy tone after dialing an ARS digit string (i.e., all trunks busy) to wait off-hook, or, if a *SUPERSET 4*, *SUPERSET 4DN*, *SUPERSET 420* or *SUPERSET 430* telephone is used, to select CAMP ON and remain off-hook until a trunk becomes free. (When a non-display telephone is used, the user remains off-hook for 10 seconds and is automatically camped on to the busy trunk group.) When a trunk becomes free, the system seizes it automatically and the previously entered digits are automatically outputted. Expensive route choices are skipped when ARS scans for an available trunk when honouring a camp-on.

Return Dial Tone

- 4.9 Return Dial Tone is a programmable option which allows the system to simulate CO dial tone for customers who consider that its absence would confuse the users of their system. For further information, refer to ARS Digit Strings Tables, paragraph 5.2 .

Maximum Digits Dialed

4.10 The maximum number of digits that may be dialed is 26.

5.

ARS TABLES

General

5.1 The ARS package is a network of tables which contain data relevant to the setting up of a trunk call, such as routing options and CORs. The tables are interconnected through a series of indices and pointers. A total of nine tables make up the ARS network. They are, in order of programming:

- ARS Digit Strings Table
- ARS Nested Digit Strings Table
- ARS Maximum Number of Dialed Digits
- Route Plans Table
- Day Zone Definition Table
- Route Lists Table
- Route Definition Table
- Modified Digit Table
- COR Group Definition Table

The hierarchy for the tables is shown in Figure 5-1. The system follows this hierarchy in deciding which routes to select and which users are toll-restricted on the selected routes. The following paragraphs describe the layout and fields of each table. Refer to Practice 9109-096-210-NA, Customer Data Entry, for further information. The way in which the tables combine to form the ARS network is described in general in Part 6., and in the scenario given in Part 7.

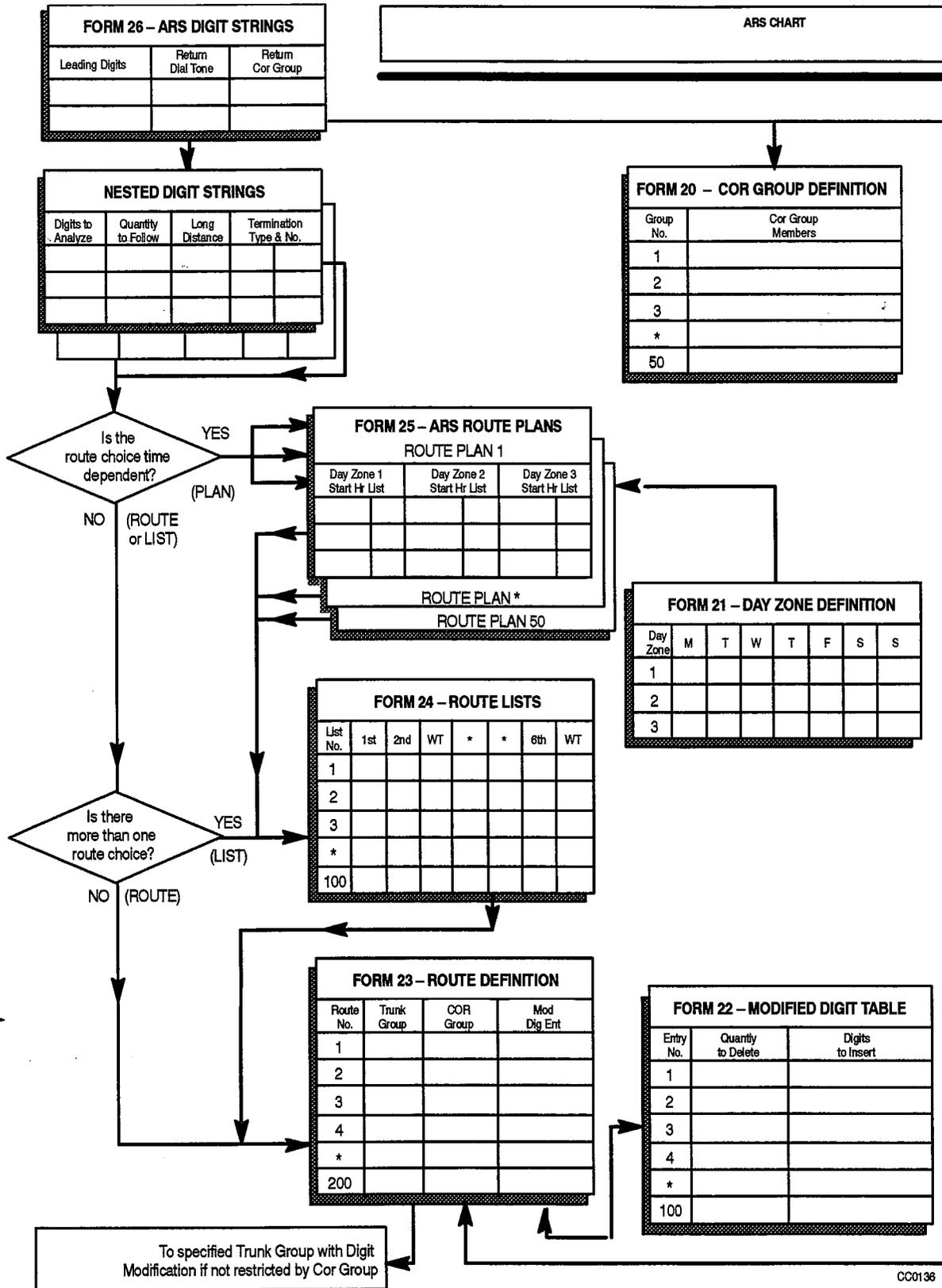


Figure 5-1 ARS Table Hierarchy

ARS Digit Strings Tables (CDE Form 26)

- 5.2 The ARS Digit Strings tables consist of one primary and one nested table. The nested table is accessed from the primary table by pressing the SHOW STRINGS softkey on the Attendant Console or CDE terminal. (**Note:** If no leading digits are entered on the primary table, the nested table cannot be accessed.) The primary table permits the programming of leading digit information. Actual digit strings and routing information for each of the leading digit entries is programmed on the nested table.

The primary table is shown in Figure 5-2 and the nested table in Figure 5-3. The primary (leading digits) table is comprised of three fields:

Leading Digits: This is essentially the same as a trunk group access code (e.g., the digit 9) but it may be any digit combination that the customer desires to be analyzed. A maximum of 100 leading digit combinations may be specified.

Return Dial Tone: This field allows a simulated dial tone to be returned to the call originator, after the dial 9 access code for trunks has been received by the system, since the Central Office dial tone is not returned until digit analysis has been completed and a trunk seized. A YES or NO value is entered via the appropriate softkey on the Attendant Console or CDE terminal. The default value is NO.

Restricted COR Group: This field is optional and may be programmed with a COR group number between 1 and 50. Programming a COR group number in this field will define which group members will NOT be permitted to dial the specified leading digits. If access to specified leading digits is unrestricted, the field is left blank. For example, if all users are permitted to dial the leading digit 9, the field would be left blank. If only those peripheral devices tagged as COR 1 are permitted to dial a given leading digit combination, the COR group must contain ALL CORs EXCEPT COR 1.

4:23 PM 14-NOV-91		alarm status = MAJOR		
LEADING DIGITS		RETURN DIAL TONE		RESTRICTED COR GROUP
9 8		YES NO		Unrestricted Unrestricted
8		YES		Unrestricted
1-	2-	3-INSERT	4-	5-
6-QUIT	7-LEADING DIG	8-DELETE	9-SHOW STRINGS	0-

Figure 5-2 FORM 26 – ARS Digit Strings Table – Leading Digits

The nested form specifies the actual digit strings which are to be analyzed. The form is comprised of four fields; the fourth field being subdivided into two. The fields are:

Digits to be Analyzed: Each line in this programmable field constitutes one entry. Digits programmed in this field are used by the system in conjunction with the leading digits to select the appropriate route. The following wildcard digits may be specified to simplify entering the digit strings:

- NOX
- N1X
- X
- 1N1X
- 1NOX
- 0N1X
- 0NOX
- 10XXX0NOX
- 10XXX0N1X
- 10XXX1NOX
- 10XXX1N1X
- 10XXX0
- 10XXX1

where N is any digit from 2 through 9 and X is any digit from 0 through 9.

Wildcard digit sequences beginning with N, 0, and 1 may ONLY be used at the BEGINNING of the digit string; X may ONLY be used at the END of the digit string. The wildcard digits allow for the following cases:

To cover routing for any area code NOT SPECIFICALLY ROUTED, N0X and N1X followed by seven digits would cover all unspecified area codes. They each represent half of the area codes in North America.

For example, N0X-555-1212 and N1X-555-1212 covers routing for all free directory assistance calls.

To cover routing for any area code NOT SPECIFICALLY IDENTIFIED and where dialing is preceded by a 1 or 0 long distance access code, 1N1X, 1N0X, 0N1X, and 0N0X followed by seven digits would cover all unspecified area codes. This allows wild card restriction of 555 and 976 numbers. These wildcard sequences are only available in Generic 1004 and Generic 1005.

For example, 1N0X-976-XXXX, 1N1X-976-XXXX, 0N0X-976-XXXX, and 0N1X-976-XXXX cover routing for all 976- calls.

If routes are to be selected based on office codes, blocks of office codes can be specified; for example, 82X, 83X, etc.

The wildcard sequences 10XXX0N0X, 10XXX0N1X, 10XXX1N0X, 10XXX1N1X, 10XXX0, and 10XXX1 are designed for the call aggregator market (i.e., hotels, motels, hospitals, universities) to prevent unauthorized calls from being billed to the originating line, while allowing consumers access to the long distance carrier of their choice. They are available in Generic 1004 and Generic 1005 only and are accessed by pressing the ** MORE ** softkey twice and three times.

1-10XXX0N0X	2- 10XXX0N1X	3- INSERT	4- 10XXX1N0X	5- **MORE**
6-QUIT	7- FIND STRING	8- DELETE	9- 10XXX1N1X	0-

The system sorts digit strings in such a way that explicitly stated digit strings will be routed to their routes, while all others will be covered by wildcards. The ordering of digit strings is performed automatically by CDE after each string is entered. If two routes are defined for 416 and 416-555-1212, CDE will ensure that the specific string will occur first in the digits to be analyzed field. The number of entries which can be made in this field is limited only by the amount of available system memory.

Quantity to Follow: This programmable field specifies the number of digits to be dialed AFTER the digits to be analyzed, and may be specified as UNKNOWN. The advantage of specifying the quantity to follow; i.e., 9-592 + 4 digits, is that when the final digit is received, outpulsing can begin, and the DTMF receiver can be dropped; if UNKNOWN is specified, the interdigit time-out must occur before this happens, tying up PABX resources for a longer time than necessary on each call. The total number of digits in this field, and in the digits to be analyzed field, plus the leading digits (from the primary table), must be no greater than 26 digits.

Long Distance: This programmable field is used to specify digit strings which are to be treated as long distance in order to enforce COS option 201, Account Code, Forced Entry – Long Distance Calls. In Generic 1003, Generic 1004 and Generic 1005, this field is also used for Room Status Restriction in Hotel/Motel applications to restrict long distance calls. A caller with this COS option must enter an account code prior to dialing one of the designated digit strings. A YES or NO value must be specified.

Termination Type and Number: Digits dialed may terminate on a Route, a Route List, or a Route Plan. These two subfields combine to index where each valid digit string is to be found. The first subfield is programmed with one of ROUTE, LIST, or PLAN, depending on whether a Route, Route List, or Route Plan is indexed. The second subfield contains the number of the entry within the table referenced in the first subfield. For example, many destinations can be accessed only by direct distance dialing (DDD). For such a destination, ROUTE is specified as the termination type. Free calls such as the 555-1212 directory assistance case (in North America) always terminate directly on a route for DDD. If several route choices are available, a LIST is specified as the termination type, if the choices do not vary with time of day. A Route Plan, with Day and Time Zone variations, is not required. This situation arises where an FX route is always preferred over DDD. In a situation where multiple route choices are offered, with preferences depending on time of day and day of the week, a termination type of PLAN is specified.

4:34 PM 14-NOV-91		alarm status = MAJOR			
DIGITS TO BE ANALYZED		QTY TO FOLLOW	LONG DISTANCE	TERM TYPE AND NUM	
416		7	NO	ROUTE	1
604		7	YES	LIST	1
N0X		7	NO	PLAN	2
N1X		7	NO	ROUTE	3
N0X		7	NO	PLAN	2
1-10XXX0N0X	2-10XXX0N1X	3-INSERT	4-10XXX1N0X	5- ** MORE **	
6-QUIT	7-FIND STRING	8-DELETE	9-10XXX1N1X	0-	

Figure 5-3 ARS Digit Strings – Nested Table

ARS Maximum Dialed Digits (CDE Form 27)

- 5.3 Countries with open numbering plans require an ARS package that restricts the user based on the number of digits dialed. Each Class of Restriction has a maximum number of digits which can be dialed associated with it. If the maximum is exceeded, the call follows intercept handling for Illegal Number Routing. The table, shown in Figure 5-4, is comprised of two fields:

COR: The COR field cannot be modified.

Maximum Number of Dialed Digits: This field is programmable and a value must be specified for each COR. The allowable range is from 1 to 26 digits plus the default value of Unlimited. If a COR group has limited access, UNKNOWN must be entered in the Quantity to Follow column in the nested form of Form 26, ARS: Digit Strings. This ensures that ARS will not drop after analyzing the first digits. As well, System Option 47, ARS Unknown Digit Length Time-out, must be set at an appropriate value so that ARS is not terminated before the CO drops its receivers. In addition, the End-of Dial key (#) which is optional via CDE should be disabled. This prevents the user from dialing undetected digits after the system's DTMF receiver has been dropped. If a COR group has unlimited access, UNKNOWN is not required in the Quantity to Follow column in the nested form of Form 26 and a quantity can be specified.

Note: The default value of Unlimited is used in North America and must be specified in this column.

COR		MAXIMUM NUMBER OF DIALED DIGITS		
1		Unlimited		
2		Unlimited		
3		Unlimited		
4		Unlimited		
5		Unlimited		
6		Unlimited		
7		Unlimited		
8		Unlimited		
9		Unlimited		
10		Unlimited		
11		Unlimited		
12		Unlimited		
1	<input type="checkbox"/>	Unlimited		
1-	2-	3-	4-TOP	5-BOTTOM
6-QUIT	7-	8-COR	9-	0-

Figure 5-4 FORM 27 – ARS Maximum Dialed Digits

ARS Route Plans Table (CDE Form 25)

- 5.4 The SX-200 DIGITAL PABX ARS package accommodates a maximum of 50 Route Plans, each of which is contained within a dedicated Route Plans table. The header of each table contains the Time Zone and the number of the Day Zone which is to be associated with the Route Plan. When first accessed, Route Plan 1 is displayed. By selecting the ROUTE PLAN softkey, the current route plan is identified, and the display prompts for the route plan desired: ROUTE PLAN = . Entering a number (1 through 50) results in the associated plan being displayed.

This table defines which Route List (see Route Lists Table) is to be used in any given Time Zone (1 through 6), in any given Day Zone (1 through 3). Up to six Time Zones may be defined for each Day Zone, creating a total of 18 possible Time Zones per week. A different Route List may be specified for each of these. When Time Zone 1 is in effect, the Route List used at a given time is determined by specifying a START HOUR. The hour is specified as a 2-digit number (00 through 23). The last START HOUR will create a time period which extends from that time up to the first START HOUR listed which creates a Time Zone loop for each Day Zone. If no Route List is specified for a given START HOUR entry, all calls accessing the Route Plan containing this omission WILL BE DENIED.

The Route Plans table is referenced from the ARS Digit String table. The layout of the table is shown in Figure 5-5.

The Route Plans table contains four fields:

Time Zone: This non-programmable field lists the six Time Zone numbers associated with the currently accessed Route Plan.

Day Zone 1: This programmable field consists of two sub-fields, used to assign the Start Hour and Route List number. The Start Hour subfield indicates the time (in 24-hour format, 00 to 23) from which the Route List is available. The Route List is available until the start hour of the next Time Zone. (**Note:** Day Zones are planned on the Day Zone Definition table. Day Zone 1 is typically Monday through Friday; Day Zone 2 is typically Saturday; and Day Zone 3 is typically Sunday.) This field on the Route Plans table informs the system as to what times each Day Zone is to be in effect. The Route List subfield informs the system as to what Route List is to be used during these times in these Day Zones.

Day Zone 2, and Day Zone 3: These programmable fields are identical to Day Zone 1.

TIME ZONE		DAY ZONE 1		DAY ZONE 2		DAY ZONE 3		
		START HOUR	ROUTE LIST	START HOUR	ROUTE LIST	START HOUR	ROUTE LIST	
>	01	12	003	14	005	18	010	
	02							
	03							
	04							
	05							
	06							
	01	<input type="checkbox"/>	12	003	14	005	18	010
6-QUIT			7-ROUTE PLAN		8-DELETE		9-	0-

12:48 PM 11-JUN-90 alarm status = MAJOR

Figure 5-5 FORM 25 – ARS Route Plans Table

ARS Day Zone Definition Table (CDE Form 21)

- 5.5 Since telephone call rates vary during the day and with the days of the week, the system must be able to select the least expensive route based on this schedule. The Day Zone Definition table does this. The week may be broken into a maximum of three zones. Typically, these are (1) Monday through Friday, (2) Saturday, and (3) Sunday. The information from this table is used in Route Plan definition. Refer to Figure 5-6.

The system allows for one definition of three Day Zones. The Day Zone Definition table accommodates this feature. The table has eight fields:

Day Zone: This is a non-programmable field which lists the zone numbers 1 through 3.

Mon-Sun: These seven programmable fields either ENABLE (shown by *) or DISABLE (shown by a blank) a given day zone on a given day of the week. Positioning the cursor on the desired day of the week results in softkey 1 showing the opposite function to what is entered in that field. For example, if Day Zone 1, MON, is ENABLED (an asterisk is displayed), the softkey will show DISABLE. Pressing the softkey will disable that day zone for that day. The MON field will then be blank for Day Zone 1 and the softkey will now show ENABLE. There must be at least one day zone defined for each day of the week. A user cannot exit from this form if any day does not have one zone defined.

12:51 PM 11-JUN-90		alarm status = MAJOR					
DAY ZONE	MON.	TUE.	WED.	THU.	FRI.	SAT.	SUN.
01 02 03	*	*	*	*	*	*	*
01	*	*	*	*	*		<input type="checkbox"/>
1-ENABLE	2-		3-		4-		5-
6-QUIT	7-		8-		9-		0-

Figure 5-6 FORM 21 – ARS Day Zone Definition

ARS Route Lists Table (CDE Form 24)

5.6 The Route Lists table contains a maximum of 100 one-line entries, each of which defines up to six routes. The routes within each entry are listed in the order in which they are to be tried; i.e., least expensive (Route 1) to most expensive (Route 6). If there are two or more routes to a given set of locations, and the order in which they are to be tried changes with the time of day because of rate changes, two lists must be programmed to reflect this.

The table makes provision for the assignment of an Expensive Route Warning to each of the second through sixth routes, as required by the customer.

Layout of the table is shown in Figure 5-7. The seven fields which comprise the table are described below:

List Number: This non-programmable field lists the Route List entries. Up to 100 Route Lists, each having up to six route choices, may be programmed.

First: This programmable field defines the first choice (least expensive) route. This route is identified by a 1-, 2-, or 3-digit number in the range of 1 through 200. The number in this field is the Route Number from the Route Definition table.

Second: This programmable field contains one subfield. This field defines the second choice route. This route is identified by a 1-, 2-, or 3-digit number in the range of 1 through 200. The number in this field is the Route Number from the Route Definition table. The subfield enables the Expensive Route Warning (WT), associating the warning with this route. When the warning is required, ON is entered; when the tone is not required, the WT subfield is left blank. The default value is no expensive route warning (blank subfield).

Third through Sixth: These programmable fields are identical to the second field, defining the third, fourth, fifth and sixth route choices.

12:54 PM 11-JUN-90				alarm status = MAJOR							
LIST NUM	FIRST	SECOND	WT	THIRD	WT	FOURTH	WT	FIFTH	WT	SIXTH	WT
01	3	2	ON								
02	2	3									
03											
04											
05											
06											
07											
08											
09											
10											
11											
12											
02	<input type="checkbox"/> 2	3									
1-		2-		3-		4-TOP		5-BOTTOM			
6-QUIT		7-LIST NUM		8-DELETE		9-		0-			

Figure 5-7 Form 24 – ARS Route Lists Table

ARS Route Definition Table (CDE Form 23)

- 5.7 The Route Definition table contains a maximum of 200 one-line entries. Each entry identifies a route. A route comprises a Trunk Group, the COR Group associated with the Trunk Group, and an index to the Digit Modification Table. The layout of the Route Definition table is shown in Figure 5-8.

The same trunk group may be used to create several routes; for example, a call in the U.S.A. may be routed via either the primary or secondary Specialized Common Carrier service (SCC). Also, COR groups may be varied so that different COR groups are assigned to the same trunk group. Because of these variations, more routes are required than trunk groups. The SX-200 DIGITAL PABX therefore allows for programming of up to 200 routes which allows for a worst-case situation where four routes are assigned to each of the 50 trunk groups.

The Route Definition table contains five fields:

Route Number: This non-programmable field lists the 200 route numbers.

Trunk Group Number: This programmable field identifies the trunk group associated with each route. Entries are made in the form of 1- or 2-digit numbers in the range of 1 through 50. A maximum of 50 trunk groups may be programmed.

COR Group: This programmable field identifies the COR group associated with each trunk group. Entries are made in the form of 1- or 2-digit numbers in the range of 1 through 25. A maximum of 25 COR groups may be programmed.

Modified Digit Entry: This programmable field is the Entry Number on the Modified Digit table. Entries are made in the form of 1- to 3-digit numbers in the range of 1 through 100. This entry is used by the system as an index to the Modified Digit table.

Comments: This programmable field permits the CDE programmer to enter any comment desired against each entry number. The maximum length of the comment is 20 characters.

1:13 PM 11-JUN-90		alarm status = MAJOR		
ROUTE NUM	TRUNK GROUP	COR GROUP	MOD DIGIT ENTRY	COMMENTS
01	1	1	1	Local DDD
02	1	2	2	Long Distance DDD
03	2	1	3	Band 2 WATS
04				
05				
06				
07				
08				
09				
10				
11				
12				
03	2	1	3	Band 2 WATS
1-	2-	3-	4-TOP	5-BOTTOM
6-QUIT	7-ROUTE NUM	8-DELETE	9-	0-

Figure 5-8 FORM 23 – ARS Route Definition Table

ARS Modified Digit Table (CDE Form 22)

- 5.8 The Modified Digit Table contains a maximum of one hundred 1-line entries. These are sequences indexed through a numerical index, 1 through 100, and are associated with routes through the Route Definition table. Refer to Figure 5-9.

The purpose of digit modification is to allow the station user to dial calls in a consistent pattern, irrespective of the destination of the call, or how it is routed. This table directs the system as to how digits are to be inserted into or deleted from the dialing sequence. For example, an FX trunk is installed between two cities, permitting calls to be placed between the two as if they were local calls. A caller in one of the cities placing a call to the other city would dial the distant area code, unaware that the system will automatically select the FX routing for the call. The Modified Digits Table would instruct the system to delete the dialed area code from the dialing sequence when the FX route was chosen by the ARS package.

Note: The system will not automatically delete or insert any digits. The digits to be inserted or deleted must be programmed in CDE.

The Modified Digit table contains four fields:

Entry Number: This non-programmable field lists the entry numbers 1 through 100. The entry number is used in route definition.

Quantity to Delete: This programmable field defines the number of leading digits that the system must delete from a valid digit string prior to outpulsing. A maximum of 25 digits may be specified.

Digits to be Inserted: This programmable field defines the digits and dial tone markers which are to be inserted in place of the digits deleted by the previous field. These digits are prefixed to the modified valid digit string and outpulsed over the trunk. The digits may be telephony digits 0 through 9, and for DTMF trunks 0 through 9, * and #. A maximum of 38 digits can be inserted; including any pauses and wait for dial tone symbols. Special number sequences are:

- *1 = Pause for five seconds
- *2 = Wait for dial tone
- *3 = Switch to DTMF for Subsequent Digits
- *4 = Do not display further modified digits on sets or SMDR
- *5 = Pause 10 seconds
- *6 = Insert caller's ID (for analog networking – not in Generic 1001/1002)
- *7 = Insert caller's dialed account code (for analog networking – not in Generic 1001/1002)
- *8 = Insert PBX node ID number (for analog networking – not in Generic 1001/1002)
- *9 = Pause for 1 second (Generics 1003, 1004 and 1005 only)

To generate * on a trunk, ** must be inserted.

Comments: This programmable field permits the CDE programmer to enter comments against each entry number. The maximum length for comments is 20 characters.

1:18 PM 11-JUN-90		alarm status = MAJOR		
ENTRY	QTY TO DEL	DIGITS TO BE INSERTED		COMMENTS
01	1	*1416		Tie Line: Toronto Tie Line: Boston Tie Line: Phoenix
02	1	*1617		
03	1	*1602		
04				
05				
06				
07				
08				
09				
10				
11				
12				
03	1	*1602		Tie Line: Phoenix
1-	2-	3-	4-TOP	5-BOTTOM
6-QUIT	7-ENTRY NUM	8-DELETE	9-	0-

Figure 5-9 FORM 22 – ARS Modified Digit Table

ARS COR Group Definition Table (CDE Form 20)

5.9 The CORs of the peripheral devices are grouped within the Class of Restriction Group Definition Table. These COR groups are referenced from the Route Definition table and their contents are interrogated to determine whether or not the calling device has insufficient privilege to complete the call. Absence of the calling device's COR from a COR group indicates to the system that the call CAN be completed. A maximum of 50 COR groups, each containing a maximum of 25 members, can be programmed. COR members are numbered in the range 1 through 25; COR groups are numbered in the range 1 through 50. Refer to Figure 5-10.

The COR Group Definition Table has three fields:

COR Group: This is a non-programmable field which lists the COR group numbers 1 through 50.

COR Group Members: This programmable field is used to specify which COR group members are to be associated with the specified Group Number. COR member numbers range from 1 to 25 and may be entered in any order (member numbers must be separated with spaces); where entries are consecutive, they must be entered in the format 1-13.

Comments: This programmable field is used by the programmer to enter any 20-character-long reminder against each group number.

12:44 PM 11-JUN-90
alarm status = MAJOR

COR GROUP	COR GROUP MEMBERS (SEPARATE WITH SPACES)	COMMENTS		
01	15 19-22	Long Distance DDD WATS band 2 access nnn		
02	1-12			
03	5 7 14			
04				
05				
06				
07				
08				
09				
10				
11				
12				
03	5 7 14	nnn		
1-	2-	3-	4-TOP	5-BOTTOM
6-QUIT	7-COR GROUP	8-DELETE	9-	0-

Figure 5-10 FORM 20 – COR Group Definition Table

KEY SYSTEM TOLL CONTROL (CDE FORM 46)

5.10 When a key system telephone user makes a CO trunk call, either by pressing a CO line key or by dialing a direct CO line access code followed by a trunk number, the dialed digits are subject to digit analysis according to the digit strings in CDE Form 46, Key System Toll Control. Digit analysis is performed as follows:

1. Try to match the dialed digits against the digit string entries.

If there is a unique match, go to step 2.

If there is a partial match, wait for the inter-digit timer to time out before deciding if the user may make a call.

If there is no match, allow the user to make the call, without checking the termination type or COR.

2. Check if the user needs to dial an account code to make this call (is the LONG DISTANCE option YES or NO?) If the option is NO, go to step 3. If the option is YES and the user has already dialed the account code, go to step 3; otherwise the call is toll denied.

3. Check if the termination type and the selected trunk match. If the termination type is a trunk group, the selected trunk must be a member of the trunk group to qualify for a match, otherwise the call is toll denied. If the termination type is a trunk, the selected trunk must match the termination trunk. If the termination type matches, go to step 4; otherwise, the call is toll denied.

4. Check if the user's COR is a member of the specified COR group. If it is, deny the call; otherwise, allow the call.

Note: The CO trunk is not seized until enough digit analysis is done to determine that the call may be allowed.

CDE Form 46, which specifies the actual digit strings to be analyzed, has five fields:

Digits to be Analyzed: Each line in this programmable field constitutes one entry. The following wildcard digits may be specified to simplify entering the digit strings (N is any digit from 2 to 9, X is any digit from 0 to 9):

- N0X
- N1X
- X
- 1N1X
- 1N0X
- 0N1X
- 0N0X
- 10XXX0N0X

- 10XXX0N1X
- 10XXX1N0X
- 10XXX1N1X
- 10XXX0
- 10XXX1

Wildcard digit sequences which begin with N, 1, or 0 may ONLY be used at the BEGINNING of the digit string; X may ONLY be used at the END of the digit string. The wildcard digits allow for the following cases:

For any area code NOT SPECIFICALLY IDENTIFIED, N0X and N1X followed by seven digits would cover all unspecified area codes. They each represent half of the area codes in North America.

For example, N0X-555-1212 and N1X-555-1212 covers routing for all free directory assistance calls.

For any area code NOT SPECIFICALLY IDENTIFIED and where dialing is preceded by a 1 or 0 long distance access code, 1N1X, 1N0X, 0N1X, and 0N0X followed by seven digits would cover all unspecified area codes. This allows wild card restriction of 555 and 976 numbers. These wildcard sequences are only available in Generic 1004 and Generic 1005.

For example, 1N0X-976-XXXX, 1N1X-976-XXXX, 0N0X-976-XXXX, and 0N1X-976-XXXX cover routing for all 976- calls.

If routes are to be selected based on office codes, blocks of office codes can be specified; for example, 82X, 83X, etc.

The wildcard sequences 10XXX0N0X, 10XXX0N1X, 10XXX1N0X, 10XXX1N1X, 10XXX0, and 10XXX1 are designed for the call aggregator market (i.e., hotels, motels, hospitals, universities) to prevent unauthorized calls from being billed to the originating line, while allowing consumers access to the long distance carrier of their choice. They are available in Generic 1004 and Generic 1005 only and are accessed by pressing the ** MORE ** softkey twice and three times.

1- 10XXX0N0X	2- 10XXX0N1X	3- INSERT	4- 10XXX1N0X	5- **MORE**
6- QUIT	7- FIND STRING	8- DELETE	9- 10XXX1N1X	0-

The system sorts digit strings in such a way that explicitly stated digit strings will be routed to their routes, while all others will be covered by wildcards. The ordering of digit strings is performed automatically by CDE after each string is entered. If two routes are defined for 416 and 416-555-1212, CDE will ensure that the specific string will occur first in the digits to be analyzed field. The number of entries which can be made in this field is limited only by the amount of available system memory.

4:00 PM 11-JUN-90		alarm status = MAJOR			
DIGITS TO BE ANALYZED	QTY TO FOLLOW	LONG DST	TERM TYPE AND NUM		COR GROUP
416	7	NO	TRUNK	12	1
555	7	NO	TRUNK	10	1
> N0X	Unknown	YES	TRUNK	11	2
N0X	Unknown	YES	TRUNK	11	2
1-	2- X	3-	4-N0X	5- ** MORE **	
6-QUIT	7-FIND STRING	8-DELETE	9-N1X	0-	

Figure 5-11 FORM 46 – Key System Toll Control

Quantity to Follow: This programmable field specifies the number of digits to be dialed AFTER the digits to be analyzed, and may be specified as UNKNOWN. The advantage of specifying the quantity to follow; i.e., 9-592 + 4 digits, is that when the final digit is received, outpulsing can begin, and the DTMF receiver can be dropped; if UNKNOWN is specified, the interdigit time-out must occur before this happens, tying up PABX resources for a longer time than necessary on each call. The total number of digits in this field, and in the digits to be analyzed field, must not exceed 26.

Long Distance: This programmable field is used to specify digit strings which are to be treated as long distance in order to enforce COS option 201, Account Code, Forced Entry – Long Distance Calls. A YES or NO value must be specified. With a YES option, a Key System caller must dial a specified internal number and enter an account code to receive dial tone, then select an external line, and then dial the called number.

Termination Type and Number: Digits dialed may terminate on a trunk or a trunk group. Trunks are numbered 1 to 200, and groups are numbered 1 to 50; if only a number is specified, termination type defaults to trunk group.

COR Group: This programmable field identifies the COR group by a number in the range of 1 through 50. If the field is left blank, every COR group can access the digit string. Users with CORs in the listed COR group number are restricted from dialing the specific digit string.

Examples

A key set user selects trunk 12 and dials 416. From Figure 5–11, the first entry matches the dialed digits. The next step is to check if the user must dial an account code to make the call. For this example, the LONG DISTANCE field is NO; therefore the user is not required to dial an account code. The next step is to check if the termination type matches. The final step is to check if the user's COR is specified in COR GROUP 1; if it is not a member, the user is allowed to make the call, otherwise the call is toll denied.

If the user selects trunk 10 and dials 416, reorder tone is returned. The user is allowed to dial 555 + 7 digits, and any combination of digits other than 416 and NOX types using trunk 10.

To dial an NOX type, the user must access trunk 11.

To dial 613, the user may use trunk 10, 11, or 12 to make the call.

6.

ARS OPERATION AND PROGRAMMING

General

- 6.1 The object of ARS is to choose one route for a call to take from one location to another (usually the least expensive) when several routes are available. The ARS package is the software program which instructs the system on how to make the choice. The choice the system eventually does make depends upon the parameters defined within it by the CDE programmer. These are not arbitrary. The parameters are determined by the needs of the *SX-200* DIGITAL PABX.

Programming the ARS features properly requires (1) an understanding of what the customer needs, and (2) what the system must know to reflect those needs. It is important for the ARS programmer to have a good understanding of the cost structure of the different routes leading from the PABX to any called destination, since it is largely on the basis of cost that route selection takes place.

Programming Process – General

- 6.2 In general, the ARS programming process follows this plan:
1. Determine the customer's needs. The needs of the customer will determine what types of calls will be permitted by which peripheral devices. Knowing this, the ARS programmer can assign classes of restriction to the peripheral devices on CDE Form 9, Stations/*SUPERSET* Telephones.
 2. Determine the customer's facilities. The ARS programmer must know with what types of trunks the customer is equipped (CDE Form 14, Non-Dial-In Trunks and 15, Dial-In Trunks) and the relative cost of each to the customer.
 3. Define CORs and COR Groups on CDE Form 20, ARS: Class of Restriction Groups, and apply these to Trunk Groups. The COR Group tables specify which classes of restriction will be toll-denied on a given route.
 4. Define Day Zones (i.e., when rates will vary), Modified Digits, Routes, Lists, and Plans.
 5. Define Digit Strings. The Leading Digits and Digit Strings data are most important, since these form the link between what the set user dials, and what plan, list, or route is used.
 6. Specify the maximum number of digits dialed by each COR. For North America: UNLIMITED (no further programming required).

Note that the ARS decision hierarchy, as shown in Figure 5–1, is essentially the inverse of the programming procedure. The first data programmed (COR members) are the last used in the ARS decision. The last data programmed (Digit Strings and Leading Digits) are the first used in the ARS decision, and point towards the required route, route list, or route plan. The rationale for this dual approach to the ARS structure is this: From the system's viewpoint, COR groups and members define the "rank" in importance of each user to the system. When ARS is given a digit string, it will ultimately accept or reject the call on the basis of the rank of the peripheral device attempting to make the call, but in order to do this, it must first determine how the desired call is to be routed. From a programming viewpoint, it is necessary to identify who possesses what rank before access to the various routes can be allowed or denied. In this way, digit analysis programming must take place with the COR of the peripheral devices always in mind.

Programming Process – Key System Telephones

- 6.3 Key system toll control checks for a digit string match; if one exists, the call is denied. If there is no match, the call is allowed. In general, the ARS programming process follows these steps:
1. Determine what types of calls will be permitted by which peripheral devices. Knowing this, the ARS programmer can assign classes of restriction to the peripheral devices on CDE Form 45, Key System Telephones.
 2. Determine what types of trunks the customer has from CDE Form 14, Non-Dial-In Trunks, and which ones each telephone may access.
 3. Define CORs and COR Groups on CDE Form 20, ARS: Class of Restriction Groups, that apply to these Trunks and/or Trunk Groups. The COR Group tables specify which classes of restriction will be toll-denied on a given trunk. Members of a listed COR Group are restricted from dialing the specific digit string.
 4. Define Digit Strings. The Digit Strings data is most important, since it forms the link between what the set user dials, and whether the call is allowed or denied.
 5. Specify the quantity of digits still to be dialed (or unknown) for each digit string.
 6. Specify whether or not long distance is allowed.

System Programming

- 6.4 When the paper forms are complete, the data must be entered into the system memory through the CDE terminal or Attendant Console. This is part of the Customer Data Entry process, described in Practice 9109–096–210–NA, Customer Data Entry.

7.

APPLICATION**General**

- 7.1 ARS is implemented on the *SX-200* DIGITAL PABX in a 2-stage process. First, data must be collected concerning the customer's needs and the facilities, such as trunk groups, that they possess. From this data, the ARS plan can be formulated on paper. Second, the plan must be transferred from paper to the system memory, through the Attendant Console or CDE terminal. Refer to Practice 9109-096-210-NA, Customer Data Entry.

Scenario

- 7.2 This scenario begins with the first stage of ARS implementation, namely, the data collection and ARS plan formulation stage. For the purposes of this scenario, a fictitious company is established.

The company has two Canadian locations: its headquarters in Ottawa, and a service office in Winnipeg. The company also has (1) a plant in Boca Raton, Florida, (2) major accounts and suppliers in the Toronto area, and (3) must be able to make international telephone calls. The *SX-200* DIGITAL PABX located in Ottawa is to be programmed.

Trunk Groups

In consulting the traffic studies performed by the *SX-200* DIGITAL PABX installation company, it was decided, in conjunction with the customer, that the PABX in Ottawa would be most cost-effective when connected to the public network via four trunk groups, and an SCC (specialized common carrier) link. The trunk groups were defined as follows:

Trunk Group 1: Local Trunks, and Specialized Common Carrier account, for calls to the Boca Raton plant.

Trunk Group 2: Zone 2 WATS Trunks (covering area codes 613, 416, 705, 819, and 514).

Trunk Group 3: Ottawa-to-Toronto FX Line.

Trunk Group 4: Two-way Tie Line to the Winnipeg office.

The cost guidelines which apply to these groups are:

Tie Lines and FX Lines are always less expensive than any other trunk group.

WATS is less expensive than Direct Distance Dialing during the hours of 08:00 through 18:00, Monday through Friday, and 08:00 through 12:00 on Saturday.

SCC is less expensive than Direct Distance Dialing during the hours of 8:00 through 18:00, Monday through Friday, and 08:00 through 12:00, on Saturday.

The following office codes are to be allowed:

Toronto: 471, 825, 678

Winnipeg: 786

Ottawa: All office codes

Boca Raton: 994

The trunking network for this scenario is shown in Figure 7-1.

COR Assignments

The employees at the company's head office in Ottawa were separated into COR groups for purposes of toll control.

COR numbers were assigned to the various workers as follows:

COR 1: Executive. The executive level can access all trunk groups, including the international network.

COR 2: Upper Management. This level can access WATS, FX, Tie, and local trunks, and can access the SCC office.

COR 3: Middle Management. This level can access FX, Tie, and local trunks, and can access the SCC office with free calls to any area.

COR 4: Technical Staff. This level can access FX, Tie, and local trunks.

COR 5: Administrative Staff. This level can access Tie and local trunks.

For all other stations not previously assigned, the following COR was given:

COR 6: This level can access the internal network only.

Note: It should be remembered that toll control can be applied not only to individual digit strings, but to trunk groups as well. An example of this is described later in this scenario.

ARS Form Completion

Because ARS involves trunks and trunk groups (both incoming and outgoing), the *SX-200* DIGITAL PABX forms concerning trunks and trunk groups must first be completed before starting the ARS tables.

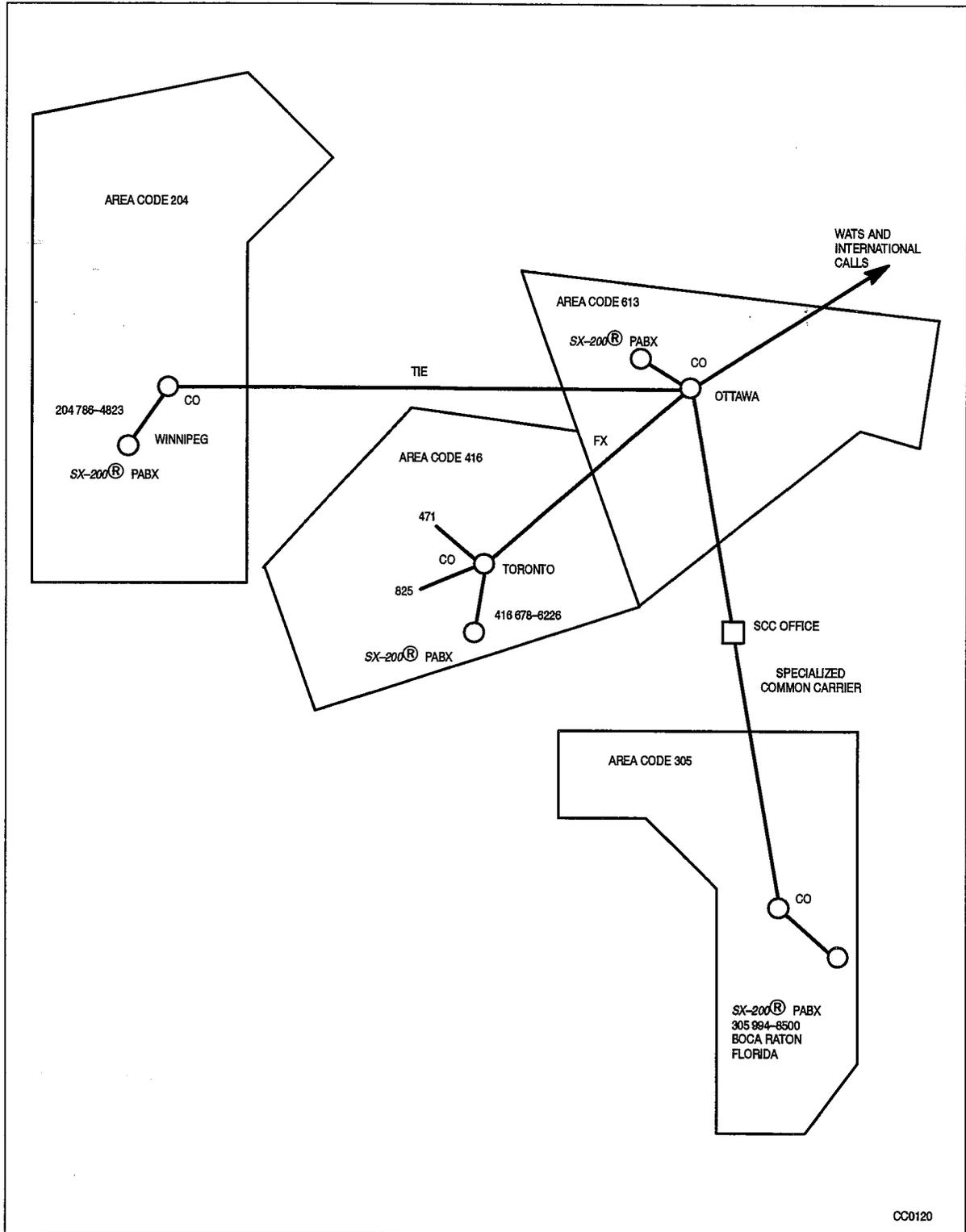


Figure 7-1 Trunking Network

The ARS tables in Figure 7-2 and Figure 7-3 have been completed using the raw data produced in this scenario. The order in which they were completed is the order in which they would normally be programmed. A detailed description of the contents of the tables is given in the paragraphs immediately following Steps 1 through 3.

Complete the COR Group Definition table, listing in each COR Group the COR members to be included. The COMMENTS field may include reminders concerning which level within the company is contained within each group, or comments concerning the destinations being restricted by each COR Group.

Complete the Day Zone table to provide day zones which satisfy the effect of changing rates for the trunk groups involved.

Complete the Modified Digits table. This table instructs the system as to which digits should be outpulsed and which should be absorbed by the system. For example, if the "outside line" access code 9 is not to be outpulsed, the system should be instructed to delete the leading digit 9 from any digit string being analyzed. Similarly, if long-distance DDD calls are permitted, the system could be instructed to insert the digit 1 into the digit string, after 9 has been deleted. Since in this scenario it is known that the SCC network will be accessed, the system can be told to insert the SCC number and account code. The user would then simply dial a 7-digit telephone number (in this case, the office in Boca Raton). Digit modification need not consider specific user-dialed digit strings, but the various dialing possibilities MUST be considered.

Complete the Route Definition table. Determine how many routes are available for the given trunks and complete the table accordingly. For example, if Trunk Group 1 has five routes available, each route must appear on this table with its own Route Number.

Complete the Route List table. Assign each route defined a level of "choice". If Trunk Group 1 has five routes available, order these according to First, Second, Third, Fourth and Fifth choices. The priority of the routes is normally dependent on cost.

Complete the Route Plan table. This will permit the system to select a route list on the basis of fluctuating costs due to time of day and day of the week. The hours at which the rates change must be entered in the START HOUR column.

List the leading digits which are to be considered valid by the system; i.e., those which satisfy the customer's required access to the public network. The following order is recommended: (1) directory inquiry numbers and local office codes; (2) codes which provide unrestricted access to toll routes (i.e., 0 and 01); (3) specific toll route codes; (4) tie lines; (5) FX lines; (6) WATS lines; (7) calls to be completed via specialized common carriers. As each leading digits string is entered, specify the number of digits to follow in the QTY TO FOLLOW column.

Complete the nested digit strings table. Digit strings index a route, route list, or route plan depending on the type of call initiated by the digit string. Analyze each digit string individually and complete the nested digit strings table accordingly, ensuring that each digit string terminates appropriately (route, list, or plan).

If necessary, specify the maximum number of dialed digits, otherwise the default value of UNLIMITED applies (for North America).

ARS Digit Strings

The contents of the ARS Digit Strings tables have been composed in accordance with the requirements of the scenario. Each entry is described below.

The leading digit has been specified as 9, which, in this scenario, represents the trunk access code of the PABX. Return dial tone is not required, therefore YES is specified in the RETURN DIAL TONE field.

Entries 1 and 2 contain digit strings which define free service calls to any area code, using the wildcard digits N0X and N1X. These calls are completed over local trunks and only one Route is required (ROUTE 9).

Entries 3 through 5 contain the complete digit strings for emergency services, repair services, and directory assistance. As such, there are no digits to follow and a 0 is placed in the QTY TO FOLLOW column. These calls can only be completed over one route (i.e., local trunks), and are therefore assigned to the first available route (ROUTE 1) in the Route Definition table.

Entries 6 through 12 contain a cross section of office codes in the Ottawa area. In reality, it is likely that all office codes would have to be listed. The number of digits to follow in each case is four; i.e., the remaining number of digits required to complete a local call. These calls can only be completed over one route; i.e., local trunks. A route (Route 1), having the same trunk group, COR and digit modification requirements as those required for entries 4 through 10 has previously been defined. Therefore, ROUTE 1 can be entered in the TERM TYPE AND NUM column of these entries.

Entry 13 provides an example of how access to an individual telephone number can be controlled. Access to this number (a local stockbroker) is restricted to the executive level by indexing it to a route (ROUTE 2) which is associated (through COR Group 3) with COR 1. The number of digits to follow is 0.

Entries 14 and 15 contain digits which allow unlimited access to the toll call network; i.e., digit 0 for operator assistance and 01 for access to the international network. The number of digits to follow for entry 14 is 0. The number of digits to follow for entry 15 is UNKNOWN, since it is dependent on the call destination. The QTY TO FOLLOW entry for this string therefore contains the word UNKNOWN. A route exists (ROUTE 2) and satisfies the COR and digit modification requirements for entries 14 and 15. ROUTE 2 is therefore entered in the TERM TYPE AND NUM column of these entries.

Entry 16 contains the complete digit string for the service office in Winnipeg. As such, the number of digits to follow is 0. This call can be completed over either of two routes: the Tie Trunk or DDD. Since these routes are not time-dependent (Tie Trunks are always less expensive than DDD), a LIST (LIST 1) is defined in the TERM TYPE AND NUM column.

Entry 17 is an example of a toll number within the home area; therefore, a new digit modification sequence must be defined which inserts the toll digit 1 prior to outpulsing. This digit modification sequence is defined in entry 2 of the Modified Digits table and is referenced from a newly defined route within the Route Definition table (ROUTE 3).

Entry 18 contains the digit string which defines the number of the plant in Boca Raton. Calls to this destination can be completed over two routes: SCC or DDD. The tariff structure for SCC is similar to WATS in that SCC is less expensive than DDD during business hours. As such, the two routes for entry 18 are indexed via the Route Plan table and Route List Definition table. The number of digits to follow is 0 and the first available route plan is PLAN 1.

Entries 19 through 21 contain the digit strings which define toll routes to specific COs within area code 416. The number of digits required to complete a call to any of these offices is 4. These calls can be completed over any one of three routes: FX, WATS, or DDD. These routes are time-dependent (i.e., during some times WATS is less expensive than DDD, and at others, DDD is less expensive), and as such, they are indexed to PLAN 2 in the TERM TYPE AND NUM column.

Entry 22 contains a digit string which defines the area code 416. The digits to follow can be any combination of seven digits. This provides a user, having the required COR, with unrestricted access to any CO within the area defined by area code 416. Like entries 19 through 21, these calls can be completed over any one of three routes which are time-dependent. However, unlike entries 19 through 21, user access is not restricted to specific COs, and therefore an additional set of routes having the relevant CORs is required. Consequently, additional Route Lists are required to list the new routes and an additional Route Plan is required to associate the new route lists with day and time zones. PLAN 3 is therefore entered in the TERM TYPE AND NUM column.

Entries 23 through 25 contain digit strings which define the three area codes which, in conjunction with entry 22, define the area codes accessible through Zone 2 WATS. Unlike entry 22, calls made via entry 23 through 25 can only be completed over either of two routes: WATS or DDD. These two routes are time-dependent and are therefore indexed to PLAN 3 in the TERM TYPE AND NUM column.

Route Definition Table

Calling devices which are routed to ROUTE 1 from the ARS Digit Strings tables are allowed to complete calls over the CO Trunk Group 1 if they are part of COR Group 1. The digit modification sequence for such calls is defined in Modified Digits table entry 1. Similarly, devices are routed via ROUTES 2 through 9 from the Route List table.

Route List Table

List number 1 is referenced from the ARS Digit Strings table. It provides alternate routing by listing two routes: ROUTE 4 and ROUTE 5. The routes are listed in order of cost (ROUTE 5 is identified in the Route Definition Table as the Tie Line between Ottawa and Winnipeg), and as such it is always less expensive than the alternative DDD route defined by ROUTE 4.

List numbers 2 and 3 are referenced from ROUTE PLAN 1. Within that plan, they are assigned to time zones such that for any given time zone, they define the least cost routing. Each entry lists two routes: ROUTES 3 and 6 (ROUTE 3 being DDD and ROUTE 6 being identified within the Route Definition Table as SCC).

List numbers 4 and 5 are referenced from ROUTE PLAN 2. They list three routes (2, 7 and 8) in order of cost for the Day and Time zones defined within ROUTE PLAN 2.

List numbers 6 and 7 are referenced from ROUTE PLAN 3. They are similar to entries 4 and 5 with the exception that the FX line is not included.

Route Plan Table

ROUTE PLANS 1 through 3 are referenced from the ARS Digit Strings tables. They assign Route Lists to the day and time zones which are defined in the associated Day Zone table. In ROUTE PLAN 1, least cost routing is provided by ROUTE LIST 2 during Day Zone 1, Time Zones 1 and 2, and Day Zone 2, Time Zone 1, and by ROUTE LIST 3 in the remaining day/time zones.

ARS FORMS WORKSHEET

FORM 26 – ARS: DIGIT STRINGS

Leading Digits	Return	Dial Tone (Y/N)	COR Group
9		Y	

NESTED FORM

Digits to Analyse	Quantity to Follow	Long Distance	Termination Type & Number	
NOX5551212	0		R	9
NI X5551212	0		R	9
911	0		R	1
411	0		R	1
611	0		R	1
449	4		R	1
445	4		R	1
643	4		R	1
663	4		R	1
830	4		R	1
832	4		R	1
592	4		R	1
5928246	0		R	2
0	0		R	2
01	Unknown		R	2
2047884023	0		L	1
824	4		R	3
3059448500	0		P	1
416678	4		P	2
416471	4		P	2
416825	4		P	2
416	7		P	3
514	7		P	3
705	7		P	3
819	7		P	3

26 DIGITS MAX (INCLUDING LEADING DIGITS)

FORM 21 – ARS: DAY ZONE DEFINITION

Day Zone	MON	TUE	WED	THU	FRI	SAT	SUN
1	*	*	*	*	*		
2						*	
3							*

SPECIFY A DAY ZONE FOR EACH DAY OF THE WEEK WITH AN ASTERISK (*)

FORM 25 – ARS: ROUTE PLANS

ROUTE PLAN #:

Time Zone	Day Zone 1		Day Zone 2		Day Zone 3	
	Start Hour	Route List	Start Hour	Route List	Start Hour	Route List
1	8	2	8	2	8	3
2	12	2	12	3	12	3
3	18	3	18	3	18	3
4						
5						
6						

ROUTE PLAN #:

1	8	4	8	4	8	5
2	12	4	12	5	12	5
3	18	5	18	5	18	5
4						
5						
6						

ROUTE PLAN #:

1	8	7	8	7	8	6
2	12	7	12	6	12	6
3	18	6	18	6	18	6
4						
5						
6						

THERE ARE A MAXIMUM OF 50 ROUTE PLANS.
IF THIS FORM IS USED, FILL OUT FORM 21 BELOW

IF TIME OF DAY IS A FACTOR

PLAN

ROUTE IF ONLY ONE ROUTE

LIST IF MORE THAN ONE ROUTE

A →

C →

B →

A

C

B

Figure 7-2 Table Network (Part 1)

220 7-8

Revision 0

9109-096-220-NA

Issue 1

CC0137

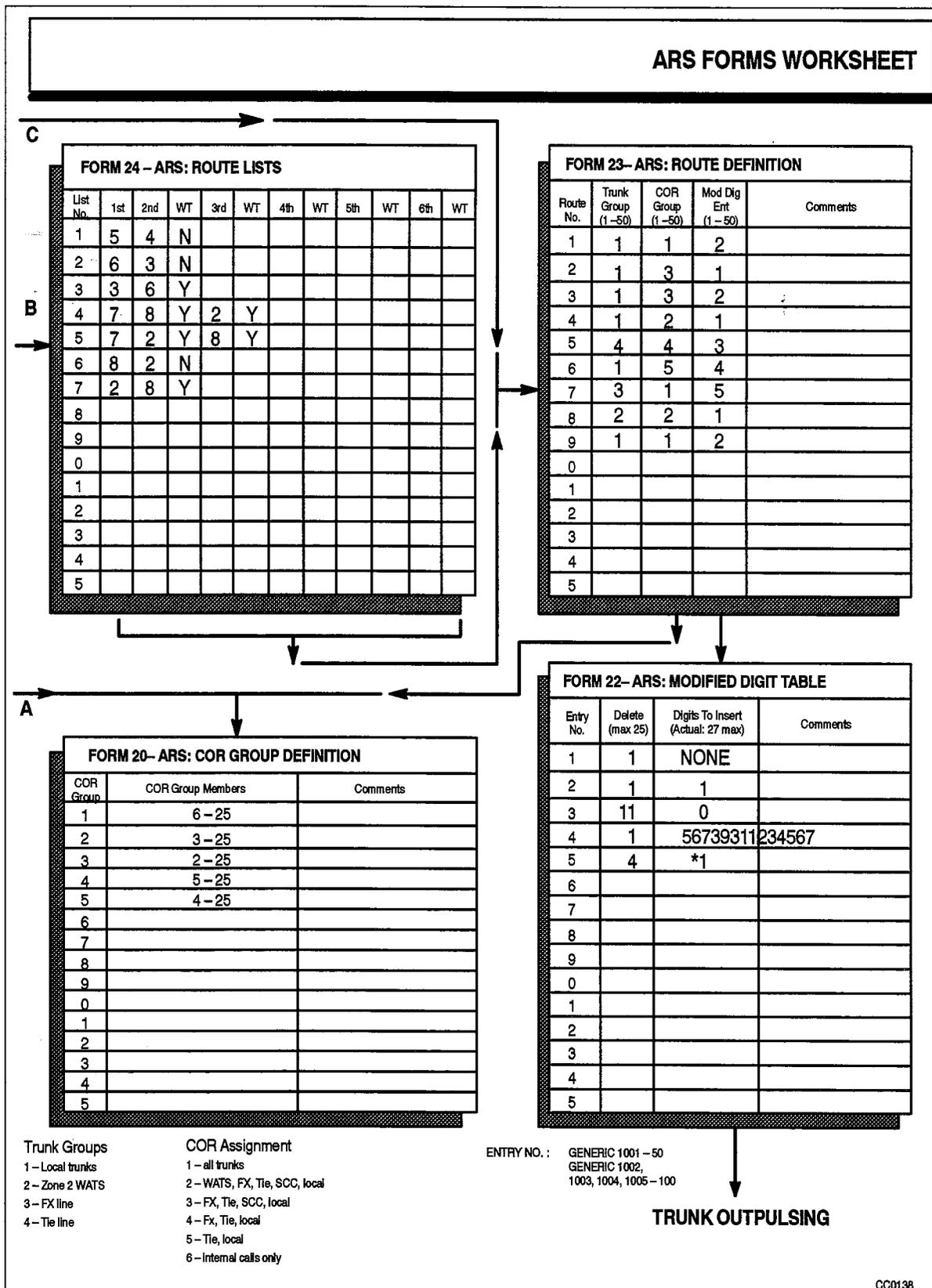


Figure 7-3 Table Network (Part 2)

Day Zone Table

The Day Zone table defines three time zones for each day. These are combined in the Route Plan table to form nine day and time zones.

In this scenario, three trunk groups are time-dependent: the WATS lines and the CO and SCC trunks. The tariff structure for these two groups is such that WATS is less expensive than DDD on Monday through Friday from 08:00 – 18:00 and on Saturday from 08:00 – 12:00.

COR Group Definition Table

All entries in the COR Group Definition table are referenced from the Route Definition table. Group 1 contains CORs 6 through 25. Peripheral devices which have been assigned any of these CORs are restricted from completing calls via routes which reference COR Group 1. Similarly, COR Groups 2 through 5 define different levels of service.

Modified Digits Table

All entries in the Modified Digits table are referenced from the Route Definition table.

Entry Number 1 is associated with digit strings in the ARS Digit Strings table where the digits to be outpulsed are identical to those dialed by the user. As such, only the leading digit of the string is absorbed and no digits need be inserted.

Entry Number 2 is associated with digit strings in the ARS Digit Strings table which represent toll calls and therefore require the leading digit to be absorbed and the toll digit 1 to be inserted.

Entry Number 3 is associated with digit strings in the ARS Digit Strings table which are outpulsed over the Tie Line to Winnipeg, and as such, all digits dialed by the user are deleted and a 0 for the distant attendant is inserted.

Entry Number 4 is associated with calls which are completed via the SCC link. The SCC account code is inserted in the digits to be outpulsed.

Entry Number 5 is associated with the digit strings in the ARS Digit Strings table which are outpulsed over the FX Line to Toronto. The first four digits are deleted and a dial tone marker is inserted in the DIGITS TO BE INSERTED column.

Scenario – KEY SYSTEM TOLL CONTROL

- 7.3 When a Key System telephone selects a CO line to make a call, toll control is invoked before the trunk is seized. Key System Toll Control is essentially a verification to determine if the dialed digits are restricted from being dialed on the selected trunk; otherwise, the call is allowed. As digits are received, they are analyzed; if there is no digit match on the selected trunk, the call is allowed. If there is a match, the long distance and type of termination is checked to see if the call should be denied; then the COR Group is checked to see if the caller is allowed to make this call.

A typical CDE Form 46, Key System Toll Control (shown following) has been composed for this scenario and each entry is described below.

- Entry 1 allows users who are not included in COR Group 1 can make long distance calls to Area Code 416 on trunk 1.

Area code 416 may be dialed by non-members of COR Group 1.

- Entry 2 allows non-members of COR Group 1 to dial 555 numbers using Trunk 2.

555 + 7 digits, and any combination of digits other than 416 and NOX types is allowed using trunk 10.

- Entry 3 allows non-members of COR Group 3 to dial 976 numbers using any trunks in Trunk group 4.

Denied to dial any 976 + 4 digits calls.

- Entry 4 allows non-members of COR Group 2 to dial NOX calls using Trunk 3.

Allowed to dial NOX long distance calls.

DIGITS TO BE ANALYZED		QTY TO FOLLOW	LONG DST	TERM TYPE AND NUM		COR GROUP
416		7	NO	TRUNK	1	1
555		7	NO	TRUNK	2	1
976		4	NO	GROUP	4	3
NOX		Unknown	YES	TRUNK	3	2
976		4	NO	GROUP	4	3
1-	2- X	3-INSERT		4-NOX		5- ** MORE **
6-QUIT	7-FIND STRING	8-DELETE		9-N1X		0-

Figure 7-4 Typical Key System Toll Control Form

Digits to be Analyzed Strings: These digits are analyzed to find a match, or to determine that there is no match.

Quantity to Follow: The number of digits which are to follow the digit string is listed here.

Long Distance: This column allows or does not allow a long distance call.

Term Type and Number: The type of termination for this key (either trunk or trunk group) and its number are programmed in this column. After the digits are analyzed, this column is checked to verify that the selected trunk is included so that the call may be allowed.

COR Group: The COR Group Definition table lists the COR members to be included in each COR Group. The COMMENTS field may include reminders concerning the destinations being restricted by each COR Group. The last check that is made before allowing a call is whether or not the caller is a member of a restricted group.

8.**AUTOMATIC DATA ROUTE
SELECTION (ADRS)****General**

- 8.1 Similar to voice calls, outgoing data calls are dependent upon the digits dialed, time of day, and restrictions set up during CDE. An additional requirement of ADRS is the grouping of trunks by their ability to carry data at a maximum baud rate. Since trunks can presently be grouped and named, no modifications are required to the existing program. ADRS is not available with Generic 1001 and Generic 1005 FPKG 1 and LIT 96.

Application

- 8.2 This section is intended as an example of an ADRS/ARS program which could be used by a programmer in Kanata. In this section, a bottom-up path through the steps taken by the programmer will be followed. This is not intended to represent the full CDE requirements.

In the following example, Mitel has three locations: Kanata, Florida, and England. The programmer needs the following information:

1. Knowledge of available trunks (number, type, and line speed)
2. The assigned class of restriction
3. Toll Control requirements
4. Internal numbering plan specifics

The following outgoing trunks are available:

1. Eight CO trunks, comprising five 600 baud lines, two 1200 baud lines and one 4800 baud line
2. A 1200 baud TIE line to Florida

Trunk Groups

The CO trunks are defined in CDE Form 14, Non Dial-In Trunks, and the Tie trunk is defined in CDE Form 15, Dial-In Trunks. The following tables list trunks that are grouped according to their common characteristics in CDE Form 16, Trunk Groups. In this example, shown in Table 8-1, all trunks of the same type and speed are considered to form a group.

Table 8-1 Trunk Groups		
Trk Grp #	Trunk Type	Group Members
1	600 baud CO	1, 2, 3, 4, 5
2	1200 baud CO	6, 7
3	4800 baud CO	8
4	1200 baud Tie	9

COR Groups

CDE Form 20, COR Group Definition, is set up to create all necessary COR groupings, as shown in Table 8-2:

Table 8-2 COR Groups		
COR Group	COR Group Members	Comments
1	1	President
2	1-3	Pres & Upper Mgr
3	1-6	Pres & Managers
4	1-9	All but Admin
5	1-15	All

Voice Station Requirements

Table 8-3 summarizes the customer's requirements and the following restrictions are imposed for outgoing voice calls:

1. Everyone is allowed to call Florida using the Tie trunk.
2. Technical staff, all management, and the president are allowed to call anywhere in North America using any trunks.
3. Middle management is allowed to call the England office only during evening hours when the discount rate applies.
4. Upper management is allowed to call the England office any time.
5. The president is allowed to call any number (including the operator 9-0) any time.
6. Administration staff are NOT allowed any long distance calls.

Data Station Requirements

The following restrictions apply for outgoing data calls:

1. The president is unrestricted and can use lines of any speed during the day or night.
2. The 4800 baud CO trunk is used for data calls only.
3. The president and all management are allowed use of the 4800 baud line subject to the time of day restrictions imposed by voice station requirements.
4. Technical staff are allowed use of the 4800 baud line at night only, but for local calls only.
5. Technical staff, all management, and the president can use any trunk to Florida (subject to time of day restrictions listed above).
6. The 1200 baud Tie line to Florida is only cheaper than CO trunks with lower or the same baud rates during the day.
7. Administration staff are NOT allowed outgoing calls originating at a data station.

Table 8-3 Customer Requirements Table

Digit String	Route Type	Time	COR's
System Abbreviated Dial Number (England)	600 Baud CO	Day	1..3
	600 Baud CO	Night	1..6
	1200 Baud CO	Day	1..3
	1200 Baud CO	Night	1..6
	4800 Baud CO	Day	1..3
	4800 Baud CO	Night	1..6
System Abbreviated Dial Number (Florida)	1200 Baud Tie line	—	1..15
	600 Baud CO	—	1..9
	1200 Baud CO	—	1..9
	4800 Baud CO	—	1..6
9-305-994-8500 (Florida)	1200 Baud Tie line	—	1..15
	600 Baud CO	—	1..9
	1200 Baud CO	—	1..9
	4800 Baud CO	—	1..6
9-0 (Operator Long Distance)	600 Baud CO	—	1
	1200 Baud CO	—	1
	4800 Baud CO	—	1

Page 1 of 2

**Table 8-3 Customer Requirements Table
(continued)**

Digit String	Route Type	Time	COR's
9-Else (Local)	600 Baud CO	-	1..9
	1200 Baud CO	-	1..9
	4800 Baud CO	Day	1..6
	4800 Baud CO	Night	1..9
9-1-Else (Long Distance)	600 Baud CO	-	1..9
	1200 Baud CO	-	1..9
	4800 Baud CO	-	1..6
			Page 2 of 2

Day Zones

In this example, the Day Zones are as follows:

- Day Zone 1, Monday to Friday
- Day Zone 2, Saturday
- Day Zone 3, Sunday

Day Zones are entered on CDE Form 21, ARS: Day Zone Definition.

Modified Digits

CDE Form 22, ARS: Modified Digit Table, defines digits which are replaced before outpulsing. Four digits are deleted because there are four digits in each system abbreviated dial number, described later in this section. The digit modification table used in this example is shown in Table 8-4.

Table 8-4 Digit Modification

Entry	QTY to DEL	Digits to Be Inserted
1	4	011-44-62872821
2	4	None
3	4	1-305-994-8500
4	1	1
5	1	None

Route Definition

CDE Form 23, ARS: Route Definition, as shown in Table 8-5, is derived from the Customer requirements table, Table 8-3. The Route Definition table finalizes the customer requirements table by specifying a trunk group number and the digit modification to use for the dialed digit string.

Route Num	Trunk Group	COR Group	Mod Digit Entry
1	1	2	1
2	1	3	1
3	2	2	1
4	2	3	1
5	3	2	1
6	3	3	1
7	4	5	2
8	1	4	3
9	2	4	3
10	3	3	3
11	4	5	2
12	1	4	4
13	2	4	4
14	3	4	4
15	1	1	4
16	2	1	4
17	3	1	4
18	1	4	4
19	2	4	4
20	3	4	4
21	3	4	4
22	1	4	5
23	2	4	5
24	3	4	5

Route Lists

If a call can use more than one route, Digit Translation accesses CDE Form 24, ARS: Route Lists, instead of a route. For example, if the digit string 8822 were produced, route 7, 8, 9 or 10 can be used to complete the call. Note here that the routes in each route list are entered in order of ascending cost. Table 8-6 defines the route lists for this example.

Table 8-6 Route List Table						
List Num	First	Second	WT	Third	WT	Fourth
1	1	3		5		
2	2	4		6		
3	7	8		9		10
4	8	9		10		7
5	11	12		13		14
6	12	13		11		14
7	15	16		17		
8	18	19		20		
9	18	19		21		
10	22	23		24		

Route Plan

CDE Form 25, ARS: Route Plans, is used when time of day dependencies exist for a given digit string. Each entry in the route plan identifies either a route or route list from which a trunk group is selected. For this example, the three time zones are:

- Time Zone 1 (TZ1) = (08 .. 17)
- Time Zone 2 (TZ2) = (18 .. 22)
- Time Zone 3 (TZ3) = (23, 0..7)

The following route plans were created according to the customer's requirements:

ROUTE PLAN 1

Time Zone	Day Zone 1		Day Zone 2		Day Zone 3	
	Start Hr	Rte List	Start Hr	Rte List	Start Hr	Rte List
1	08	1	08	1	08	1
2	18	2	18	2	18	2
3	23	2	23	2	23	2

ROUTE PLAN 2

Time Zone	Day Zone 1		Day Zone 2		Day Zone 3	
	Start Hr	Rte List	Start Hr	Rte List	Start Hr	Rte List
1	08	3	08	3	08	3
2	18	4	18	4	18	4
3	23	4	23	4	23	4

ROUTE PLAN 3

Time Zone	Day Zone 1		Day Zone 2		Day Zone 3	
	Start Hr	Rte List	Start Hr	Rte List	Start Hr	Rte List
1	08	5	08	5	08	5
2	18	6	18	6	18	6
3	23	6	23	6	23	6

ROUTE PLAN 4

Time Zone	Day Zone 1		Day Zone 2		Day Zone 3	
	Start Hr	Rte List	Start Hr	Rte List	Start Hr	Rte List
1	08	8	08	8	08	8
2	18	9	18	9	18	9
3	23	9	23	9	23	9

The ARS programmer defines the digit string for the Tie trunk in CDE Form 26, ARS: Digit Strings. This trunk is programmed as shown below:

Leading Digits	Return Dial Tone	Restricted COR Group
89	NO	Unrestricted

In CDE Form 31, System Abbreviated Dial Entry, the following index numbers are defined:

Index Number	Digit String
22	3059948500
23	89
30	0114462872821

These numbering plans result in the following system abbreviated dial numbers (sometimes referred to as system speed call numbers):

Location	Directory Number	Speed Call Number
Florida	305-994-8500	8822
Florida	89 (Tie Trunk)	8823
England	011-44-62872821	8830

An originator can dial either the speed call digit string or the full CO trunk directory number for Florida, but only the speed call digit string is used for any calls to England.

Scenarios

8.3 The following examples illustrate how the ADRS/ARS system uses the tables in the above application. Each example assumes a [Monday..Friday] day zone (DZ1).

Abbreviations used are as follows:

RP1 = Route Plan 1
RL1 = Route List 1
R1 = Route 1
DZ1 = Day Zone 1
TZ1 = Time

Example 1

At 1:00 PM, a member of the administration staff dials the digit string 9-416-652-5555 from a 600 baud data terminal.

Digit translation follows the path 9-else to select RP4.

1:00 PM represents TZ1 and RP4 [DZ1, TZ1] selects RL8.

RL8 contains the routes R18, R19, R20.

Each of the routes in the route list has legal COR values of [1..9], barring their use since administration staff COR is [10..15].

The call cannot be completed.

Example 2

A member of middle management dials the digit string 8830 from a 1200 baud data terminal at 10:00 AM.

Digit translation follows the path 8-8-3-0 to select RP1.

10:00 AM represents TZ1 and RP1 [DZ1, TZ1] selects RL1.

RL1 contains the routes R1, R3, R5.

Each of the routes in the route list allows only COR values from [1..3] which bars their use, since a middle manager's COR is [4..6].

The call cannot be completed.

Example 3

At 9:00 PM, a member of upper management dials the digit string 9-305-994-8500 from a 600 baud data terminal.

Digit translation follows the path 9-3-0-5-9-9-4-8-5-0-0 to select RP3.

9:00 PM represents TZ2 and RP3 [DZ1, TZ2] selects RL6.

RL6 contains the routes R12, R13, R11, R14.

Each of these routes will allow the call since :

1. They all allow COR values 2..3 (upper management)
2. The originator's baud rate of 600 is less than or equal to the baud rate of all trunk groups.

The call can be completed.

Observe the order in which the trunk groups are selected. All CO trunks of baud rates less than or equal to the Tie trunk are selected before the Tie trunk. Since the call originated during the night, the CO trunks are less expensive than the Tie trunk and, as stipulated in the requirements, least cost route selection is demonstrated.

Example 4

At 10:00 PM, a member of the technical staff dials the digit string 8822 from a 4800 baud data terminal.

Digit translation follows the path 8-8-2-2 to select RP2.

10:00 PM is TZ2, RP2 [DZ1, TZ2] selects RL4.

RL4 contains the routes R8, R9, R10, R7.

R7 allows technical staff's COR. R7 uses Trunk Group 4. Trunks in Trunk Group 4 are each 1200 baud. The call is barred from completion on R7 based on incompatible baud rates.

R8 allows technical staff's COR. R8 uses Trunk Group 1. Trunks in Trunk Group 1 are each 600 baud. The call is barred from completion on R8 based on incompatible baud rates.

R9 allows technical staff's COR. R9 uses Trunk Group 2. Trunks in Trunk Group 2 are each 1200 baud. The call is barred from completion on R9 based on incompatible baud rates.

R10 does not allow the technical staff COR so the call is barred on R10.

The call cannot be completed.

Example 5

At 9:00 AM, a member of the administration staff dials the digit string 8822 from a 1200 baud data terminal.

Digit translation follows the path 8-8-2-2 to select RP2.

9:00 AM is TZ1, RP2 [DZ1, TZ1] selects RL3.

RL3 contains the routes R7, R8, R9, R10.

R7 is the Tie trunk to Florida. The call completes.

If the Tie trunk is already in use, the call does not complete since no other route in the route list allows administration COR [10..15].

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SX-200® DIGITAL PABX

Station Message Detail Recording

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Table of Contents

1. INTRODUCTION

General	221 1-1
Reason for Reissue	221 1-1
Brief Description	221 1-1

2. DETAILED DESCRIPTION – TRUNK SMDR

General	221 2-1
Trunk Call Record Buffers	221 2-1
Recorded Information	221 2-2
Call Timing	221 2-7
Trunk SMDR Call Record Examples	221 2-8
5-Digit SMDR Option	221 2-10

3. DETAILED DESCRIPTION – DATA SMDR

General	221 3-1
Recorded Information	221 3-1
Data SMDR Call Record Examples	221 3-8
Data Call Record Buffers	221 3-11

4. ACD TELEMARKETER REPORTING SYSTEM SMDR

General	221 4-1
Recorded Information	221 4-1
ACD Call Record Examples	221 4-6

5. EXTERNAL DEVICES

General	221 5-1
Printer	221 5-1
Tape Machine	221 5-1
Cabling	221 5-1

6. SMDR PROGRAMMING AND CONTROL

General	221 6-1
TRUNK SMDR and acd smdr Programming Options	221 6-1
Data SMDR Programming Options	221 6-3

7. OPERATIONAL PARAMETERS

General	221 7-1
Non-Recording Conditions	221 7-1
Attendant-Handled Calls	221 7-1
Incoming Calls	221 7-2
Data SMDR	221 7-2
General	221 A-1

APPENDIX A. ACCOUNT CODES

Description	221 A-1
Account Code Terminator	221 A-1
Forced Account Codes	221 A-1
Operation	221 A-2
Account Code entry at the start of an outgoing call	221 A-2
Account code entry during a call on a <i>SUPERSET 4®</i> telephone	221 A-2
Account code entry during a call on a <i>SUPERSET 420™</i> telephone:	221 A-2
Account code entry during a call on a <i>SUPERSET 4™DN/SUPERSET 430™</i> telephone: ..	221 A-2

APPENDIX B. DATA ACCOUNT CODES

General	221 B-1
Description	221 B-1
Incoming, Outgoing, and Internal Data Calls	221 B-1
Incoming Data Calls	221 B-1
Outgoing and Internal Data Calls	221 B-2
Incoming Call over Special DISA Trunk	221 B-3
System Abbreviated Dial Numbers	221 B-3
Forced Account Codes	221 B-4

List of Tables

Table 2-1	Summary of Fields in Trunk SMDR Records	221 2-5
Table 2-2	SMDR Fields Changed for 5- digit Trunk SMDR	221 2-10
Table 3-1	Summary of Fields in a Data SMDR Record	221 3-4
Table 3-2	Data Call Disconnect Reasons	221 3-5
Table 3-3	Typical Data SMDR Call Records (Excluding Account Codes and System ID) ...	221 3-8
Table 4-1	Summary of Fields in ACD SMDR Records	221 4-2
Table 6-1	CDE-Selected SMDR COS and System Options	221 6-3
Table 6-2	CDE-Selected Data SMDR COS and System Options	221 6-4

List of Charts

Chart 2-1	Trunk SMDR Printouts	221 2-8
Chart 2-2	5-Digit Trunk SMDR Printouts	221 2-11

1.

INTRODUCTION

General

- 1.1 This document describes the Station Message Detail Recording (SMDR) feature of the *SX-200*® DIGITAL Private Automatic Branch Exchange (PABX). The document includes a detailed description of the feature and its operational parameters. Refer to Practice 9109-096-126-NA, Peripheral Devices and Practice 9109-096-200-NA, Installation Information, for information on the installation of external devices (e.g., printers).

Reason for Reissue

- 1.2 This Practice is reissued to describe the SMDR feature of the *SX-200* DIGITAL PABX and its associated options for Generic 1005. Changes have been made to SMDR to interface with the MITEL® *ACD Telemarketer*® Reporting System and this Practice has been expanded to describe SMDR for the *ACD Telemarketer* Reporting System.

Brief Description

- 1.3 The Station Message Detail Recording or "call detail recording" feature of the *SX-200* DIGITAL PABX is an integral part of the system which can generate a descriptive call record for every incoming and outgoing trunk call made via the PABX. These call records can be routed to an RS-232 port for processing or printing. They allow the customer to evaluate the use of the system's trunks and determine whether the quantity and type of trunks are the most economical mix for the traffic being handled by the PABX. In addition, the customer can analyze the use of the trunk network by corporate personnel. Misuse can then be corrected through modifications to the toll control assignment.

Data SMDR provides a record of each data call which is made within the PABX so that all data-related traffic may be analyzed.

ACD Telemarketer Reporting System SMDR provides a record of each ACD call which occurs within the PABX so that all ACD-related traffic may be analyzed.

Note: Features which are not available with a specific Generic do not appear in the SMDR reports for that Generic software load. For example, ACD and data call account codes, which are not available with Generics 1001, 1002 and 1005 FPKG 1 and LIT96, do not appear in their respective SMDR reports.

2.

DETAILED DESCRIPTION – TRUNK SMDR

General

- 2.1 The SMDR data collection process is initiated every time a trunk (incoming or outgoing) is seized. The collection process forms part of the system's call processing routines; as such, data is collected on a per-call basis for the duration of each call. The data is formatted into an SMDR record and is routed to a printer output port. The records can be routed directly to the output port as described in Part 4. of this Practice.

When SMDR (outgoing and incoming) is selected, a record is generated for every trunk call regardless of the call duration, the identity of the originating party or whether the call is completed. When two or more trunks are involved in a call, a separate record is generated for each trunk, allowing each trunk to be analyzed for costing purposes. When a station which is involved in a trunk call invokes a transfer to another station, only one record is generated; however, the number of the second station appears in the SMDR call record. A call may be transferred several times but only the first and second party is recorded. If account codes are entered, a record is generated for each account code.

An SMDR record is not generated for:

- calls which encounter busy trunks,
- internal calls between stations or between a station and the Attendant,
- calls made from stations or going to trunks whose class of service includes SMDR disable.

Note: Automatic Number Identification (ANI) and Dialed Number Identification Service (DNIS) information can also be reported in an SMDR trunk record. This is available in Generic 1005 only when COS Options 814, SMDR – Record ANI/DNIS, and 806, SMDR – Record Incoming Calls, are enabled. Please refer to Practice 9109–096–105–NA, Features Description, for a complete operational description of ANI/DNIS.

Trunk Call Record Buffers

- 2.2 The PABX has 200 buffers (75 in Generic 1001) which store call record information. If all buffers become full, there are two options: overwrite the oldest record, or do not allow trunk calls until buffers are available.

Recorded Information

2.3 Each SMDR call record occupies a single 85 character line (88 if a 3-digit system identifier is included). The information which may be included in a call record is as follows:

- Call Start time and date
- Calling party
- Called party
- Call duration
- Call completion status (e.g., called number busy)
- Digits dialed on the trunk (maximum 26 digits)
- Meter pulses (optional)
- Outgoing and incoming trunk numbers
- Long calls identified (optional)
- Time to answer incoming calls
- Identifies the second station in a transfer or in a conference
- Identifies conferences and transfers
- Indicates when the Attendant was involved in the call
- ARS leading digits
- Account code (optional)
- System identifier (optional)
- ANI digits (optional)
- DNIS digits (optional)

The definition of the data and its position in the record is given in Table 2-1. The table has five columns: the first identifies the data; the second defines the data's position within the record; the third indicates the format of the data; the fourth describes the data; and the fifth provides additional notes.

A description of the call record fields detailed in Table 2-1 is as follows:

Note: Five-digit SMDR is described later in this section; see 5-DIGIT SMDR OPTION.

Long Call Indicator (z): This optional field contains a dash (-) for calls 5 to 9 minutes, 59 seconds, a percent symbol (%) for calls 10 to 29 minutes, 59 seconds, or a plus symbol (+) for calls of 30 minutes or more. This is useful when records are to be scanned manually.

Date (mm/dd): The date is reported numerically as a 2-digit month followed by a 2-digit day separated by a (/) slash. The year is not reported.

Start Time (hh:mmp): The start time of a call is reported in hours and minutes. System option "24 Hour Clock" determines whether a 12-hour or 24-hour format is used. The letter "p" indicates pm in 12-hour format.

Duration of Call (hh:mm:ss): The call duration is reported in hours, minutes and seconds with leading zeroes being output (maximum time that can be recorded is 18 hours, 12 minutes, 15 seconds).

Calling Party (pppp): This is the identity of the party that originated the call. If a 5-digit extension numbering plan is used, only the last four digits will be used by SMDR to identify the calling party. It may be a station, the Attendant, or an incoming trunk, as described below:

Station Number as Calling Party (cccc): A station number may be one to four digits (0-9, *, #) which are left-justified; i.e., no leading zeroes.

Attendant as Originating Party: Calls originated by the Attendant which do not involve a third party report a calling party of the console directory number. If the Attendant calls an outside party on behalf of a station or trunk, that station or trunk is reported as the caller but the Attendant Flag symbol (*) appears in the "Attendant was Involved" field.

Trunk Number as Calling Party (Tnnn or Xnnn): When the originating party is an incoming CO trunk, "Tnnn" appears on the record, where "nnn" is the number of the trunk. When the originating party is an incoming non-CO trunk, "Xnnn" appears in the trunk record. The "T" or "X" ensures that CO Attendant trunks may be distinguished from TIE trunks. The trunk number is the trunk ID specified during customer data entry in the Trunk Assignment tables.

Attendant (f): This 1-digit field contains an asterisk (*) when a call is originated by or initially answered by the Attendant. This flag will not appear when a call is transferred to the Attendant.

Time to Answer (ttt): This is the number of seconds from the time the incoming trunk is seized until the call is answered. If the call is never answered, this field displays ***. It applies to incoming calls only. Leading zeroes are output and the field remains at 255 when an overflow is reached.

Leading Digits (up to 5 ARS leading digits): This field applies to outgoing calls. For incoming calls, this field reports Time to Answer (see above). Leading digits correspond to digits programmed in the ARS digit string form during CDE. Leading digits reported may be from one to four digits long (0-9, *, #) (only the first 4 of 5 digits are reported). The field is left-justified and space filled.

Digits Dialed on the Trunk (xxx—x): The maximum number of digits (0-9, *, #) recorded is 26. When the SMDR Meter Pulse On option is selected, this number is reduced to 20. This field does not include the trunk group access code on outgoing calls. The digits recorded are the actual digits outputted on the trunk after digit modification has been performed. On dial-in trunk calls, the digits dialed in on the trunk are recorded. When more than 26 digits are dialed, only the first 26 are recorded and the rest are ignored.

Meter Pulses (mmmm): The number of reversals (i.e., meter pulses) received from an outgoing trunk can be recorded when COS Option 247 (SMDR – Record Meter Pulses) is enabled. However, the maximum number of digits dialed on a trunk that are recorded is reduced from 26 to 20. The range of the count of meter pulses is 00000 to 65535, with leading zeroes being output. Meter pulses are used most frequently in Hotel/Motel applications, where each call generates a pulse, and for outside North America, where a number of meter pulses is generated for each toll call, proportional to the distance and duration of the call. Refer to meter pulses in Practice 9109–096–105–NA, Features Description.

Call Completion Status (h) (Outgoing Calls): This field is used to report the completion status of an outgoing call in so far as the PABX is able to determine it. When the trunk group is programmed to receive “Answer Supervision” and a supervision is received, an “A” is reported.

Call Completion Status (h) (Incoming Calls): The PABX can monitor the outcome of the call and provide a comprehensive report on the call’s completion. From a dial-in trunk, but not a direct-in-line trunk, if the station or hunt group to which the call is directed is busy, a “B” is recorded. When an incoming dial-in trunk dials an invalid number and receives reorder tone, an “E” is reported. The field is blank for incomplete calls. A “T” is reported if the incoming trunk is answered with TAFAS. When an incoming call is forwarded by the Attendant to a busy station, a “B” appears in the call completion status field. Recall no answer is indicated by an “N” or an “R”; an “N” indicates that a transferor did not answer a recall, and an “R” indicates that the transferor did answer the recall.

Speed Call or Call Forward Flags (C,R, or F): This field contains a “C” when the number is speed dialed and an “F” when the call is forwarded through the external call forward feature. Otherwise, “R” will appear (routed via ARS, the default for outgoing trunk calls).

Called Party (qqqq): This is the party to whom the call is directed. It may be a station number, the Attendant, or the trunk number for outgoing calls. The format in which the called party is output is identical to that used for the calling party. See Calling Party (pppp). For incoming calls to the Attendant, the called party is recorded as the Attendant unless the Attendant transfers it to a station. For direct-in lines, it would be the station number. On outgoing calls handled by the Attendant, the called party would be the trunk number which the call went out on.

Transfer/Conference Call (K): This field identifies calls that involve three or more parties. It contains a “T” for supervised transfers, “X” for unsupervised transfers (i.e., dead transfer or transfer into busy) and a “C” for 3-way conversations and conferences.

Third Party (rrrr): The third party field contains the number of the station to which a trunk call has been transferred. When several transfers take place during a trunk call, the first party is the only one reported. The format is identical to that of the Calling Party (pppp).

Account Code (aa...a): Account codes are typically used to charge the cost of calls either to internal departmental cost centers or to project accounts for billing to specific projects. An extension may have the option or be forced to enter an account code for

trunk calls. The account code may be 1–12 digits (the default value is six digits). If COS Option 246 (SMDR – Extended Record) is enabled, up to 12 digits of the Account Code are recorded. Otherwise, only the first eight digits of the Account Code are recorded.

System Identifier (iii): This optional 3–digit field may contain values from “000” to “999”. “000” indicates that no identifier has been entered. The system identifier is programmed at the System level and is printed only if COS Option 246 (SMDR – Extended Record) is enabled.

ANI Digits (nn....n): This optional field may contain up to 10 digits. If COS Options 806 (SMDR – Record Incoming Calls) and 814 (SMDR – Record ANI/DNIS) are enabled, the ANI digits received from an incoming trunk will be recorded. If no ANI digits are received, this field will be blank.

DNIS Digits (dd....d): This optional field may contain up to 10 digits. If COS Options 806 (SMDR – Record Incoming Calls) and 814 (SMDR – Record ANI/DNIS) are enabled, the DNIS digits received from an incoming trunk will be recorded. If no DNIS digits are received, this field will be blank.

Table 2–1 Summary of Fields in Trunk SMDR Records

Name	Columns	Format	Definition	Notes
Long Call (Optional)	1	z	– = 5–9 min % = 10–29 min + = 30 or more min	
Date	2–6	mm/dd	mm = Month dd = Day	mm = 01–12 dd = 01–31
Spacer	7			
Start Time	8–13	hh:mmp	hh = Hours mm = Minutes p = PM (12–hour clock)	00–23 00–59
Spacer	14			
Duration of call	15–22	hh:mm:ss	hh:mm:ss = duration in hours:minutes:seconds	hh = 00–18 mm = 00–59 ss = 00–59 maximum = 18:12:15
Spacer	23			
Calling Party	24–27	pppp	cccc = Extension Number Tnnn = Trunk Number (CO) Xnnn = Trunk Number (Non-CO) mmmm = Attendant Console Directory Number	c = 0–9, *, # nnn = 001–200 m = 0–9, *, #
Spacer	28			

**Table 2-1 Summary of Fields in Trunk SMDR Records
(continued)**

Name	Columns	Format	Definition	Notes
Attendant	29	f	* = Attendant — = Attendant not involved	Attendant answered or initiated the call, then transferred it to an extension.
Leading Digits	30-33	cccc	cccc = Access Code (outgoing and tandem calls only)	c = 0-9, *, #, left-justified
Time to answer (Alternate)	30-32	ttt	ttt = time in seconds *** = Call unanswered	ttt = 000 - 255, leading zeroes output, incoming calls only
Digits dialed on the trunk	34-59	xx ... x	Up to 26 (20 if metering) digits dialed on the trunk	x = 0-9, *, or #; private speed call numbers are not recorded
Meter (Optional)	55-59	mmmmm	mmmmm = number of meter pulses	mmmmm = 00000 to 65535, leading zeroes output
Call Completion Status	60	h	A = Answer Supervision B = Callee is Busy E = Caller Error T = TAFAS answered R = Incoming call recalled and was answered by transferor N = Incoming call recalled and was not answered by transferor	Outgoing Incoming Direct/Dial-In Incoming/Dial-In Incoming Incoming/Outgoing
Speed Call or Call Forward Flags	61	C,R, or F	C = Number was Speed called (ARS implied) F = Forwarded through External Call Forward R = default (ARS implied)	Outgoing - All trunk calls are ARS by default.
Called Party	62-65	qqqq	cccc = Extension Number Tnnn = Trunk Number (CO) Xnnn = Trunk Number (Non-CO) mmmm = Attendant Console Directory Number	c = 0-9, *, # nnn = 001-200 m = 0-9, *, #
Transfer/Conference Call	66	K	T = Supervised Transfer X = Unsupervised Transfer C = 3-Way or Conference	
Spacer	67			
Third Party	68-71	rrrr	cccc = Extension Number Tnnn = CO Trunk Number Xnnn = Non-CO Trunk Number mmm = Attendant	c = 0-9, *, # n = 001 - 200 m = 0 - 9, *, #

Table 2-1 Summary of Fields in Trunk SMDR Records (continued)				
Name	Columns	Format	Definition	Notes
Spacer	72			
Account Code (Optional)	73-84	aa ... a	Length of 1 to 12 digits	a = 0-9, space-filled
Spacer (Optional)	85			
System Identifier (Optional)	86-88	iii	Programmed at System level	i = 0-9 iii = 000-999 000 = no code entered
Spacer (Optional)	89			
ANI Digits (Optional)	90-99	nn ... n	Up to 10 digits from an incoming ANI/DNIS trunk	n = 0-9, *, #
Spacer (Optional)	100-102			
DNIS Digits (Optional)	103-112	dd ... d	Up to 10 digits from an incoming ANI/DNIS trunk	d = 0-9, *, #

Call Timing

- 2.4 The timing functions which apply to incoming and outgoing calls are described as follows:

Incoming Call – Three timing aspects of an incoming call are recorded on an SMDR call record: the date, the time taken for the called party to answer and the duration of the call. The time to answer is the difference between the time when the called device is seized and the time when the called party answers. The duration of the call is the difference between the time when the call is answered and the time when the call is released; i.e., call clear-down.

Outgoing Call – For an outgoing call, the date, the call start time and the call duration are recorded on an SMDR call record. The call start time is recorded as either the time when the called device is seized, or, in the case of answer supervision, the time when the called device answers. Call answer is determined by an answer supervision signal provided by the trunk. The call duration is the difference between the time when the call is answered and the time when the call is released; i.e., call clear-down. To be recorded, calls must either be answered or exceed the duration specified by the Pseudo Answer Supervision Timer, unless SMDR is specifically programmed. Otherwise; see part 6., SMDR Programming and Control.

Trunk SMDR Call Record Examples

- 2.5 Examples of typical trunk SMDR call records, excluding account codes and system identifiers, are shown in Chart 2-1.

Chart 2-1 Trunk SMDR Printouts

2-PARTY OUTGOING CALL

-06/13 11:42 00:08:29 214 9 16135922122 ART054

On June 13th at 11:42 AM, Extension 214 obtained Trunk Number 54 and dialed "1-613-592-2122". Answer supervision was provided. The conversation lasted 8 minutes, 29 seconds.

2-PARTY OUTGOING CALL

05/17 10:51 00:01:52 213 9 201 ARX082

On May 17th at 10:51 AM, Extension 213 accessed an identified trunk group, then dialed 201 to obtain an extension in the other PABX. The other PABX provided answer supervision and the conversation lasted 1 minute, 52 seconds. The trunk number was 082.

2-PARTY INCOMING CALL

01/30 15:10 00:02:22 T102 008 201 201

On January 30th at 3:10 PM, incoming Direct-in Trunk Number 102 rang in to Extension 201. The extension answered after 8 seconds and they talked for 2 minutes, 22 seconds.

2-PARTY INCOMING CALL

03/12 09:11 00:01:12 X116 007 63 224

On March 12th at 9:11 AM, Dial-in Tie Trunk 116 dialed Hunt Group with Access Code "63". Extension 224 answered after 7 seconds, and the conversation lasted 1 minute, 12 seconds.

ATTENDANT-HANDLED CALL - OUTGOING TRUNK

+01/30 15:27 00:35:11 201 *9 16545996951 ART052

On January 30th, Extension 201 dialed the Attendant and asked for an outside line. The Attendant dialed 1-654-599-6951. At 3:27 PM, the other party answered and the conversation lasted 35 minutes, 11 seconds. Trunk Number 52 was used.

ATTENDANT-HANDLED CALL – INCOMING TRUNK

04/05 13:42 00:00:31 T090 009 1234

On April 5th at 1:42 PM, Trunk 90 rang into the Attendant. After 9 seconds, the Attendant at 1234 answered. The trunk party spoke to the Attendant for 31 seconds, then hung up.

CALLING EXTENSION TRANSFER CALL

04/02 09:36 00:04:55 103 9 5922122 RT162T 100

On April 2nd at 9:36 AM, Extension 103 dialed ARS leading digit code followed by 592-2122. The called party answered and after conversing, the caller transferred the called party to Extension 100. After further conversation, Extension 100 hung up. The total period for both conversations was 4 minutes, 55 seconds. Trunk Number 162 was used for the call.

CALLED EXTENSION TRANSFER CALL

03/12 07:42 00:03:06 T162 *003 241 T 215

On March 12th at 7:42 AM, Trunk 162 rang the console and requested to speak to Extension 241. The Attendant took 3 seconds to answer the call. After speaking to Extension 241, the latter extension then transferred the call to Extension 215. The total conversation lasted 3 minutes, 6 seconds.

ANALOG NETWORKING – OUTGOING CALL

01/16 09:52 00:02:21 2664 9 7082664#95921022 RX124

On January 16th at 09:52 AM, extension 2664 accessed a tie trunk and dialed 95921022. The call lasted 2 minutes and 21 seconds. The Analog Networking feature caused the Analog Network access code (708 as defined in Modified Digits Table) and the calling extension (2664) to be passed onto the trunk.

ANALOG NETWORKING – INCOMING CALL

01/13 15:26 00:01:18 4300 004 *94300#2777 2777

On January 13th at 3:26 PM, extension 2777 received a call from an incoming tie trunk. The incoming digits dialed on the trunk were 2777 (the called extension); the Analog Networking feature added *9 (network feature access code as defined in CDE) and 4300 (the calling party identification for that tie trunk). The call lasted 1 minute, 18 seconds.

5-Digit SMDR Option

2.6 For those environments where a five digit record of parties in a call is required, the calling, called, and transferred parties may be identified by five digits instead of four digits. The Trunk SMDR record is modified as detailed in Table 2-2. The remainder of the record remains the same as for four digit numbers. System Option 08, Five Digit SMDR, must be enabled; otherwise, regular 4-digit Trunk SMDR is in effect.

Calling Party (ppppp): This is the identity of the party that originated the call. It may be a station, the Attendant, or an incoming trunk, as described below.

Called Party (qqqqq): This is the party to whom the call is directed. It may be a station number, the Attendant, or the trunk number for outgoing calls. The format in which the called party is output is identical to that used for the calling party. See Calling Party (ppppp).

Third Party (rrrrr): The third party field contains the number of the station to which a trunk call has been transferred. When several transfers take place during a trunk call, the first party is the only one reported. The format is identical to that of the Calling Party (ppppp).

Table 2-2 SMDR Fields Changed for 5- digit Trunk SMDR

Name	Columns	Format	Definition	Notes
Calling Party	24-28	ppppp	cccc = Extension Number Tnnn = Trunk Number (CO) Xnnn = Trunk Number (Non-CO) mmmmm = Attendant Console aaaaa = Agent ID Number	cccc = 0-9, *, # nnn = 001-200 mmmmm = 0-9, *, # aaaaa = 0-9, *, # left-justified
Called Party	62-66	qqqqq	cccc = Extension Number Tnnn = Trunk Number (CO) Xnnn = Trunk Number (Non-CO) mmmmm = Attendant Console aaaaa = Agent ID Number ppppp = ACD Path Number	cccc = 0-9, *, # nnn = 001-200 mmmmm = 0-9, *, # aaaaa = 0-9, *, # ppppp = 0-9, *, # left-justified
Transfer/ Conference Call	67	K	T = Supervised Transfer X = Unsupervised Transfer C = 3-Way or Conference	

Table 2-2 SMDR Fields Changed for 5-digit Trunk SMDR (continued)				
Name	Columns	Format	Definition	Notes
Third Party	68-72	rrrrr	ccccc = Extension Number Tnnn = CO Trunk Number Xnnn = Non-CO Trunk Number mmmmm = Attendant aaaaa = Agent ID Number ppppp = ACD Path Number	ccccc = 0-9, *, # n = 001 - 200 mmmmm = 0 - 9, *, # aaaaa = 0-9, *, # ppppp = 0-9, *, # left-justified
Note: The changes in data for columns 28, 66, 67, and 72 may affect call costing machines connected to the PABX, unless the call costing machines are programmed for these new fields.				
				Page 2 of 2

Examples of typical trunk SMDR call records (with 5-digit fields) are shown in Chart 2-2.

Chart 2-2 5-Digit Trunk SMDR Printouts

INCOMING CALL WITH TRANSFER

06/13 11:42 00:08:29 1701 9 5922122 RT001 C10065

On June 13th at 11:42 AM, Extension 1701 dialed 592-2122 via Trunk 001 and added Extension 10065 to make a conference call. The conversation lasted 8 minutes, 29 seconds.

OUTGOING CALL PLACED VIA ATTENDANT

05/17 10:51 00:01:52 10065 *9 5922122 RT002

On May 17th at 10:51 AM, Extension 10065 had the attendant place a call to 592-2122 via Trunk 002. The conversation lasted 1 minute, 52 seconds.

INCOMING CALL WITH TRANSFER BY ATTENDANT AND THEN BY CALLED EXTENSION

04/02 09:36 00:04:55 T002 *004 10065T 1701

On April 2nd at 9:36 AM, a call is received on trunk 002 and answered by the Attendant. The call is transferred to Extension 10065, who then transfers it to Extension 1701. The total period for both conversations was 4 minutes, 55 seconds.

3.

DETAILED DESCRIPTION – DATA SMDR

General

- 3.1 The Data SMDR feature allows the printing out of detailed records for external and internal data calls in a format similar to existing Trunk SMDR printouts.

Note: Data SMDR is not available with Generic 1001 and Generic 1005 FPKG 1 and LIT96.

The major differences between a Data SMDR record and a Trunk SMDR record are: the month and day are separated by a dash (–) rather than a slash (/) and the “Digits Dialed on a Trunk” field is replaced by three fields: “Data Call Indicator”, “Type of Data Call”, and “Reason for Disconnect”. When an external data call uses a Pooled modem to interface the internal data device to analog trunks, the Data SMDR record shows the call between the data device and the Pooled Modem, while the Trunk SMDR record shows the call between the trunk and the Pooled Modem. An internal modem pooling call shows the Data SMDR record between the pooled modem and the data device.

The Data SMDR function operates with the trunk SMDR feature in the PABX. Its printouts may be directed to a specific printer port by programming it in CDE Form 34, Directed IO. The Data SMDR record format is such that an application processor can print the records with other call records but not cost them. Through CDE, a data user can have the option or be forced to enter a data account code.

Recorded Information

- 3.2 Each Data SMDR call record occupies a single line of 85 characters (88 if it includes a 3–digit system identifier). The information included in a Data SMDR record includes:
- Long Call Indicator (optional)
 - Date
 - Call Start Time
 - Duration of Call
 - Calling Party
 - Calling Party Disconnect
 - Data Call Identifier
 - Data Call Type
 - Party Which Caused the Disconnect

- Call Completion Status
- Indication If Call Was Speed Dialed
- System Identifier (optional)
- Called Party
- Called Party Disconnect
- External Indicator
- Trunk SMDR Indicator
- Account Code

A summary of the fields printed in a Data SMDR record is shown in Table 3–1. Many of these fields are the same as in a Trunk SMDR record.

A description of the fields printed in a Data SMDR record follows:

Long Call Indicator (z): This optional field contains a dash (–) for calls of 5 to 9 minutes, 59 seconds, a percent symbol (%) for calls of 10 to 29 minutes, 59 seconds, a plus symbol (+) for calls of 30 or more minutes, or a space () for durations less than five minutes. This is useful when records are to be scanned manually.

Date (mm–dd): The date that the data call was initiated is reported numerically as a 2–digit month followed by a 2–digit day separated by a (–) dash. The year is not reported.

Start Time (hh:mmp): The start time of a call is reported in hours and minutes. System Option “24 Hour Clock” determines whether a 12–hour or 24–hour format is used. The letter “p” indicates pm in a 12–hour format.

Duration of Call (hh:mm:ss): The call duration is reported in hours, minutes and seconds with leading zeroes being output (maximum time that can be recorded is 99 hours, 59 minutes, and 59 seconds).

Calling Party (ppppp): This is the identity of the party that originated the call. A 5–digit extension numbering plan is used. The extension number is a data device (either a data station or a pooled modem) originating a data call. The pooled modem’s extension number is for an incoming modem pooling call. It may be a station or an incoming trunk, as described below:

Station Number as Calling Party (ccccc): A station number may be one to five digits (0–9, *, #). If less than five digits, they are left–justified; i.e., no leading zeroes.

Trunk Number as Calling Party (Tnnn or Xnnn): When the originating party is an incoming CO trunk, “Tnnn” appears on the record, where “nnn” is the number of the trunk. When the originating party is an incoming non–CO trunk, “Xnnn” appears in the trunk records. The “T” or “X” ensures that CO Attendant trunks may be distinguished from TIE trunks. The trunk number is the trunk ID specified during customer data entry in the Trunk Assignment tables.

Calling Party Disconnect: The carat character (^) indicates that the calling party caused the call to be disconnected.

Data Call Indicator: (DATA) indicates a Data SMDR record.

Type of Data Call: This field has four possible values: DTRX, ADL, HM, or ACD. HM indicates that a Monitor HM session originated from DTRX occurred. ACD indicates that a Monitor ACD session originated from DTRX occurred. This field may be left blank if the data call is an incoming or internal modem pooling call without DTRX access. ACD is available in Generics 1003, 1004 and 1005. HM is available in Generics 1004 and 1005.

Reason For Disconnect: This field reports the reason the data call was terminated. Table 3–2 gives possible reasons for disconnecting a data call.

Call Completion Status: Two values are available: B (Busy) or E (Error).

The busy flag “B” is set if the called party is busy and the caller queues for completion to the called data device. If the caller terminates while in the queue, the busy flag will be set. If the call is completed after being queued, the busy flag will not be set.

The error flag “E” is set if the error was “user preventable”. User preventable errors include:

- dialing the extension of a non–data device,
- originator’s baud rate not compatible with destination,
- originator, programmed for autobaud, not entering the auto–baud character within 30 seconds,
- accessing the wrong Modem Pool,
- attempting a call which requires a Pooled Modem, but not dialing a Modem Pool access code and there is NO default Modem Pool.

Speed Call Indicator: A flag is set if the data call is dialed via system abbreviated dial or personal speed call on a *SUPERSET™* telephone.

Called Party (qqqqq): This is the party to whom the call is directed. It may be a 5–digit data station number or a pooled modem number for outgoing modem pooling calls (the called party may not appear in a Data SMDR record which has an error flag set). The format in which the called party is output is identical to that used for the calling party.

Called Party Disconnect: The carat character (^) indicates that the called party caused the call to be disconnected.

External Data Call Indicator: “EX” is displayed in this field when the data call involves a pooled modem and a trunk, regardless of the direction of the call (incoming or outgoing). This indicator is not dependent on the existence of a trunk SMDR record.

Only external data calls involving trunks and a pooled modem are flagged. Internal data calls using a pooled modem are not indicated in this field.

Trunk SMDR Indicator: This field displays an asterisk (*) when there is a trunk SMDR record associated with this data call. This facilitates the matching of data SMDR records with SMDR records.

Speed Call or Call Forward Flags (S): This field contains an "S" when the number is speed dialed.

Account Code (aa...a): Account codes are typically used for security purposes to charge the cost of calls either to internal departmental cost centers or to project accounts for billing to specific projects. Data account codes may be optional or a data caller may be forced to enter an account code when making an internal or an external data call. The account code may be 1–12 digits (the default value is six digits).

System Identifier (iii): This optional 3–digit field may contain values from "000" to "999". "000" indicates that no identifier has been entered. The system identifier is programmed at the System level and is printed only if COS Option 246 (SMDR – Extended Record) is enabled.

Table 3–1 Summary of Fields in a Data SMDR Record

Field	Column	Format	Definition
Long Call (Optional)	1	Z	– = 5 to 9 minutes, 59 seconds % = 10 to 29 minutes, 59 seconds + = 30 or more minutes
Date	2–6	mm–dd	mm = Month dd = Day
Spacer	7		
Start Time	8–13	hh:mm	hh = Hours mm = Minutes
Spacer	14		
Duration of Call	15–22	hh:mm:ss	hh = Hours mm = Minutes ss = Seconds
Spacer	23		
Calling Party	24–28	ppppp	ppppp = Extension Number
Calling Party Disconnect	29	^	Indicates that the calling party caused the disconnect.
Spaces	30–33		
Data Call Indicator	34–37	DATA	Flags a data call.
Spacer	38		
Type of Data Call	39–42	XXXX	XXXX = DTRX or ADL or ACD or HM or blank (blank only for incoming or internal modem pooling call).
Spaces	43–44		
Reason for Disconnect	45–58	14 char's	14 character explanation – see Table 3–2

**Table 3-1 Summary of Fields in a Data SMDR Record
(continued)**

Field	Column	Format	Definition
Spacer	59		
Call Completion Status	60	h	B = Callee is busy E = Caller error
Speed Call Indicator	61	S	S = Number was speed called
Called Party	62-66	qqqqq	qqqqq = Extension Number
Called Party Disconnect	67	^	Indicates that the called party caused the disconnect.
Spacer	68		
External Indicator	69-70	EX	Indicates this was an external data call.
Trunk SMDR Indicator	71	*	Indicates that there is an associated Trunk SMDR report.
Spacer	72		
Account Code	73-84	aa. . . a	a = 0-9 space filled; length of 1-12 digits
Spacer	85		
System Identifier (optional)	86-88	iii	i = 0 to 9 iii = 000 to 999 000 = no code entered

Page 2of 2

Table 3-2 Data Call Disconnect Reasons

Reason	Explanation
ADL DISCONNECT	ADL disconnect code dialed.
ANSWER: DTR HI	The device is programmed for Auto Answer and has DTR high.
ANSWER: DTR LO	The device is not programmed for Auto Answer and has DTR low. This may appear on an originator also.
ATTN BUTTON	Call/attn button on the DATASET or call/attn key on digital <i>SUPERSET</i> was pressed.
ATTN CHARACTER	Programmed attention character detected.
BREAK DETECTED	Break character detected.
BUSIED OUT	The destination data device is busied out.

Page 1of 3

**Table 3-2 Data Call Disconnect Reasons
(continued)**

Reason	Explanation
BUSY	The called party is already involved in a call. If the busy indicator (column 60) does not accompany this reason, then the state of the device may be transient. Try again. If this reason persists with no busy indicator, reset the device.
CALL DUR OVFLW	The duration of the Call Timer has overflowed. The call has not been terminated (the SMDR record has been printed) but this is to inform the system that there has been a call of long duration (exceeding the timer limit of 99 hours, 59 minutes, 59 seconds). It might be advisable to check with the originator.
CARD REMOVED	The digital line card was removed.
DIALER HANGUP	DATA originator hangs up the voice line before the data call was connected.
DISC BUTTON	Disconnect button on the DATASET or data disconnect key on digital SUPERSET was pressed.
DTR DROPPED	DTR for one or both parties dropped for longer than the programmed interval.
HDLC DISC	Communication has been lost to the DATASET.
INACTIVITY	Session activity timer expired; refer to CDE Form 11.
INCOMPATIBLE	The two data devices are not compatible; one is synchronous, the other is asynchronous.
INTERCONNECT	The two data parties are prevented from being connected by the interconnection table.
INVALID ACCT	The originator used an invalid account code when making a data call.
INVALID DEVICE	The Pooled Modem data set is not a DATASET 2102 or a DATASET 2103. The attached device is not a valid DATASET; possibly it is a digital SUPERSET. If the device is valid, reset the device.
INVALID NUMBER	The originator of the data call dialed a wrong number OR the originating data device has an invalid hotline number programmed.
INVALID POOL	The wrong type of modem pool was accessed or no modem pool access code was dialed and there is no default pool.
LINK ABORT/ LINK FAILURE	An error has occurred in the data link layer of the DATASET communication. Repeated occurrences may indicate faulty hardware, wiring or electrical interference.
MODEM HUNG UP	The pooled modem hung up.
NO ACCESS	The user failed to enter an access code when System Option Forced Account Code is on.
NO ADAPTER	The pooled modem is missing its modem adapter. This reason may also appear if the adapter is not a MITEL Modem Adapter.
NO ANSWER	The dialed destination has not responded to the programmed auto-answer stimulus. Check the Data Circuit Descriptor; the called modem did not respond with answer tone.
NO AUTOBAUD	The originator, who is programmed for autobaud, did not enter a carriage return.

**Table 3–2 Data Call Disconnect Reasons
(continued)**

Reason	Explanation
NO CHANNEL	There are no available channels. This would indicate a busy system.
NO JUNCTOR	There are no available junctors. This would indicate a busy system.
NO SEIZE ACK	The trunk used in this outgoing data call did not receive a 'seize ack' from the far end telephone office.
ORIGINATE ONLY	The called party has the "Originate Only" Class Of Service enabled.
PM: DCD LO	The pooled modem is programmed to have DCD as "Communication Established Indicator" and DCD has NOT come HIGH 15 seconds after the offhook.
PM: DSR LO	The pooled modem is programmed to have DSR as "Communication Established Indicator" and DSR has NOT come HIGH 15 seconds after the offhook.
PM: NO OFFHOOK	The pooled modem has not gone offhook after 10 seconds of waiting. outgoing – DTR has been raised and the MI/MIC leads have been toggled with a 2.5 sec ON, 2.5 sec OFF cycle. incoming – RI has been detected, DTR has been raised.
PM: RI LO	The pooled modem has had ringing voltage applied to its analog side for 10 seconds and has not detected RI on the digital side. Possible faulty RS–232 connection between the modem and the DATASET.
POWERED OFF	The dialed destination is not powered up.
RECEIVER FAIL	At some point in the data call, especially when queuing is involved, a receiver was not available or did not function as expected.
SET FAILURE	The set failed, dropping the call. See Maintenance Logs for details.
SET POWER UP	The DATASET went through a power up sequence. This occurs if there is a power supply problem to the dataset.
SET UNPLUGGED	Twisted pair connection broken or power removed.
SETUP FAILURE	The call has failed during setup. The cause is unknown and probably obscure. In this case it is best that the user try the call again. If this persists, the DATASET should be reset. Further occurrence of this reason code may indicate a faulty data device or RS–232 connection.
SPEED MISMATCH	Ranges of baud rates of the two DATASETs are not compatible.
SYSTEM DISC	The system has disconnected for one of several reasons, none of which is a problem. – The destination is busy and the originator cannot (or did not) queue, – The connection is not allowed due to invalid tenant interconnection, – The connection is not allowed due to type of devices involved.
TENANTING	The two data parties are in different tenant groups.
UNDECODABLE	Reason unknown.

Data SMDR Call Record Examples

3.3 Examples of typical Data SMDR call records are shown in Table 3-3.

Table 3-3 Typical Data SMDR Call Records (Excluding Account Codes and System ID)

DTRX CALL FROM ANOTHER SET WHICH PRESSED BREAK KEY

03-13 11:25 00:01:24 1411 ^ DATA DTRX BREAK DETECTED 1410

On March 13th at 11:25, an originating DTRX call from 1411 was answered by 1410. Extension 1411 pressed the BREAK key, disconnecting the call. The call lasted 1 minute, 24 seconds.

DTRX CALL NOT ANSWERED – TERMINAL POWERED DOWN

03-13 11:25 00:00:04 1411 ^ DATA DTRX ANSWER:DTRLO B 1402

On March 13th at 11:25, Extension 1411 dialed Extension 1402 (which was busy); Extension 1411 was queued. Extension 1411 dropped DTR (terminal powered down).

DTRX CALL TO A WRONG OR INVALID NUMBER

03-13 11:25 00:01:03 1411 ^ DATA DTRX INVALID NUMBERS 1412

On March 13th at 11:25, Extension 1411 called Extension 1412, which was an invalid number. The call lasted 1 minute, 3 seconds.

DTRX CALL TIMES OUT AFTER BEING ESTABLISHED

03-13 11:25 00:01:01 1411 DATA DTRX INACTIVITY 1412 ^

On March 13th at 11:25, Extension 1411 called Extension 1412. The call timed out after one minute.

03-13 11:25 00:01:30 1411 DATA DTRX SET UNPLUGGED 1412 ^

On March 13th at 11:25, Extension 1411 called Extension 1412. Extension 1412 removed power from its dataset. The call lasted 1 minute, 30 seconds.

DTRX CALL DROPS DTR

03-13 11:25 00:01:08 1411 DATA DTRX DTR DROPPED 1412 ^

On March 13th at 11:25, Extension 1411 called Extension 1412. Extension 1412 powered off its terminal and dropped DTR. The call lasted 1 minute, 8 seconds.

CALL ANOTHER SET AND PRESS THE ATTN KEY

03-13 11:25 00:01:24 1411 ^ DATA DTRX ATTN BUTTON 1410

On March 13th at 11:25, Extension 1411 called Extension 1410. The call was terminated when extension 1411 pressed the ATTN key. The call lasted 1 minute, 24 seconds.

DURING A DTRX CALL, THE CALLING SET PRESSED THE DISC KEY

03-13 11:25 00:01:24 1411 ^ DATA DTRX DISC BUTTON 1410

On March 13th at 11:25, Extension 1411 called Extension 1410. During the call, Extension 1411 pressed the DISC key. The call lasted 1 minute, 24 seconds.

DURING A DTRX CALL, THE CALLED EXTENSION PRESSES THE DISC KEY

03-13 11:25 00:01:24 1411 DATA DTRX DISC BUTTON 1410 ^

On March 13th at 11:25, Extension 1411 called Extension 1410. Extension 1410 pressed the DISC key. The call lasted 1 minute, 24 seconds.

DURING A DTRX CALL, THE CALLED EXTENSION PRESSES THE BREAK KEY

03-13 11:25 00:01:24 1411 DATA DTRX BREAK DETECTED 1410 ^

On March 13th at 11:25, Extension 1411 called Extension 1410. Extension 1410 pressed the BREAK key. The call lasted 1 minute, 24 seconds.

OUTGOING DTRX CALL DISCONNECTED WHEN THE FAR END HUNG UP

+ 03-13 11:25 00:14:46 1410 DATA DTRX MODEM HUNGUP 898 ^EX*

On March 13th at 11:25, Extension 1410 made an outgoing DTRX call. The far end modem hung up which then caused the pooled modem to also hang up. The call lasted 2 hours, 14 minutes, 46 seconds. There is a corresponding trunk record.

OUTGOING ADL CALLER HANGS UP PREMATURELY

03-13 11:25 00:01:01 1410 ^ DATA ADL DIALER HANGUP S898 EX

On March 13th at 11:25, Extension 1410 made an ADL call to an abbreviated dial number which was an outgoing number. Pooled modem 898 was selected from the default pool. Before the call was completed, the ADL originator hung up. The call lasted 1 minute, 1 second.

ADL CALL DISCONNECTED BY CALLING PARTY

03-13 11:25 00:01:24 1410 ^ DATA ADL ADL DISCONNECT 1411

On March 13th at 11:25, Extension 1410 made an ADL call to Extension 1411 and disconnected the call after 1 minute, 24 seconds.

ADL CALL AND CALLED PARTY PRESSES ATTN KEY

03-13 11:25 00:01:24 1410 DATA ADL ATTN BUTTON 1411 ^

On March 13th at 11:25, Extension 1410 made an ADL call to Extension 1411. The call was terminated when Extension 1411 pressed the ATTN key. The call lasted 1 minute, 24 seconds.

ADL CALL DIALED AN INVALID NUMBER

03-13 11:25 00:01:01 1410 ^ DATA ADL INVALID NUMBERS 1412

On March 13th at 11:25, Extension 1410 dialed an invalid number. The system disconnected the call. The call lasted 1 minute, 1 second.

ADL CALL CAMPS ON BUT CALLED TERMINAL IS TURNED OFF

03-13 11:25 00:01:24 1410 DATA ADL ANSWER:DTRLO 1411 ^

On March 13th at 11:25, Extension 1410 camped a call onto extension 1411. Extension 1411 turned its terminal off. The camp-on lasted 1 minute, 24 seconds.

ADL CALL AND CALLED PARTY UNPLUGGED DATASET LINE

03-13 11:25 00:01:24 1410 DATA ADL SET UNPLUGGED 1411 ^

On March 13th at 11:25, Extension 1410 called Extension 1411. Extension 1411 unplugged its dataset from the Digital Line Card. The call lasted 1 minute, 24 seconds.

ADL CALL TO ANOTHER DATASET, THEN DROPPED BY PRESSING DISCONNECT BUTTON

03-13 11:25 00:01:24 1410 ^ DATA ADL DISC BUTTON 1411

On March 13th at 11:25, Extension 1410 established a call with extension 1411. Extension 1410 presses its Disconnect Button to disconnect the call. The call lasted 1 minute, 24 seconds.

ADL CALL – NO HANGUP AFTER PRESSING <CR>

03-13 11:25 00:00:22 1410 ^ DATA ADL SETUP FAILURE 1411

On March 13th at 11:25, Extension 1410 made an ADL call to Extension 1411 but did not hang up after pressing <CR> (Carriage Return). The call lasted 22 seconds.

Data Call Record Buffers

- 3.4 There are 128 buffers which are dedicated for Data SMDR. Data SMDR records can be directed to any IO port, independent of other directed IO, including trunk SMDR. The one error that can occur is a lack of available buffers which occurs when records are being queued for printing while the printer is not printing.

If the port to which the Data SMDR records are directed is not guaranteed to print (refer to CDE Form 34, Directed IO), and no Data SMDR buffers are available, the oldest records are automatically overwritten, irrespective of the state of COS Option 908, Data SMDR – Overwrite Buffer.

If the port to which the Data SMDR records are directed is guaranteed to print, and no Data SMDR buffers are available, the state of COS Option 908, Data SMDR–Overwrite Buffer will determine the action. If OVERWRITE is enabled in CDE, the oldest buffer in the queue will be overwritten; therefore, all calls are not guaranteed to be recorded. If the OVERWRITE option is disabled, data calls will be barred, due to lack of resources, once the buffers are full.

An external data call causes a Data SMDR record and a trunk SMDR record to be printed.

4.

ACD TELEMARKETER™ REPORTING SYSTEM SMDR

General

- 4.1 A new SMDR record is created every time an ACD path is seized. At the completion of the call, the data is formatted and routed to an RS-232 output port. The contents of this record describe how the call progressed through the ACD path. This information is required by the *ACD TELEMARKETER* Reporting System.

- Notes:**
1. *ACD TELEMARKETER* Reporting System and ACD SMDR are not available with Generics 1001,1002, 1003 Basic and Generic 1005 FPKG 1 and LIT96.
 2. Reporting Automatic Number Identification (ANI) and Dialed Number Identification Service (DNIS) in an SMDR record is only available with Generic 1005.

If the call is transferred to an ACD path, either by the Attendant or from another telephone, a second SMDR record is created. The first record is the usual incoming trunk SMDR record that shows the call being transferred to the ACD path. The second record contains details about how the call progressed through the ACD path.

If an ACD call interflows out of an ACD path without being answered, a second call record is created.

Two System Options must be enabled to allow creation of SMDR reports for the *ACD TELEMARKETER* feature:

- System Option 41, Automatic Call Distribution, must be enabled to allow programming of ACD paths.
- System Option 44, ACD Reports, must be enabled to generate the SMDR reports for the reporting system (System Option 41 must be enabled first).

Recorded Information

- 4.2 Each *ACD TELEMARKETER* Reporting System SMDR call record occupies a single 85 character line. The information which may be included in a call record is as follows:
- Call Start time and date
 - Calling party
 - Called party
 - Call duration
 - Call completion status (e.g., called number busy)

- Long calls (optional)
- Time to answer incoming calls
- Conferences and transfers
- Second station in a transfer or a conference
- Attendant involvement in a call

Table 4-1 defines the SMDR record data and its position in the record. The table has five columns: the first identifies the data; the second defines the data's position within the record; the third indicates the format of the data; the fourth describes the data; and the fifth provides additional notes.

A description of the call record fields follows Table 4-1.

Table 4-1 Summary of Fields in ACD SMDR Records				
Name	Columns	Format	Definition	Notes
Long Call (Optional)	1	z	- = 5-9 min % = 10-29 min + = 30 or more min	
Date	2-6	mm/dd	mm = Month dd = Day	mm = 01-12 dd = 01-31
Spacer	7			
Start Time	8-13	hh:mmp	hh = Hours mm = Minutes p = pm (12-hour format)	hh = 00-23 mm = 00-59
Spacer	14			
Duration of call	15-22	hh:mm:ss	hh:mm:ss = duration in hours:minutes:seconds	hh = 00-18, mm = 00-59 ss = 00-59 maximum = 18:12:15
Spacer	23			
Calling Party	24-27	pppp	cccc = Extension Number Tnnn = CO Trunk Number Xnnn = Non-CO Trunk Number mmmm = Attendant Console Directory Number aaaa = Agent ID Number	c = 0-9, *, # nnn = 001-200 m = 0-9, *, # a = 0-9, *, #
Spacer	28			
Time to answer	30-32	ttt	ttt = time in seconds (000-255) *** = Call unanswered	leading zeroes output, incoming calls only

**Table 4-1 Summary of Fields in ACD SMDR Records
(continued)**

Name	Columns	Format	Definition	Notes
ACD Call Information	34-59	xxx...x	Incoming ACD Calls: P = path identifier XXXX = ACD path G1 = primary agent group number O1 = first overflow group number O2 = second overflow group number O3 = third overflow group number A1 = agent group number that answered call I = call interflowed YYYY = ACD path number to which call interflowed	Displays path of call in the ACD system (ACD path followed by agent group numbers). With 5 digit SMDR, only the last four digits are recorded.
Called Party	62-65	qqqq	cccc = Extension Number Tnnn = Trunk Number (CO) Xnnn = Trunk Number (Non-CO) mmmm = Attendant Console Directory Number aaaa = Agent ID Number pppp = ACD Path Number	c = 0-9, *, # nnn = 001-200 m = 0-9, *, # a = 0-9, *, # p = 0-9, *, #
Transfer/ Conference Call	66	K	T = Supervised Transfer X = Unsupervised Transfer C = 3-Way or Conference	
Spacer	67			
Third Party	68-71	rrrr	cccc = Extension Number Tnnn = CO Trunk Number Xnnn = Non-CO Trunk Number mmmm = Attendant aaaa = Agent ID Number pppp = ACD Path Number	c = 0-9, *, # nnn = 001-200 m = 0-9, *, # a = 0-9, *, # p = 0-9, *, #
System Identifier (Optional)	86-88	iii	Programmed at System level	i = 0-9 iii = 000-999 000 = "No Code entered"
Spacer (Optional)	89			
ANI Digits (Optional)	90-99	nn n	Up to 10 digits from an incoming ANI/DNIS trunk	n = 0-9, *, #
Spacer (Optional)	100-102			

**Table 4-1 Summary of Fields in ACD SMDR Records
(continued)**

Name	Columns	Format	Definition	Notes
DNIS Digits (Optional)	103-112	dd d	Up to 10 digits from an incoming ANI/DNIS trunk	d = 0-9, *, #

Page 3 of 3

The following paragraphs define each of the fields listed in Table 4-1:

Long Call Indicator (z): This optional field contains a dash (-) for calls of 5 to 9 minutes, 59 seconds, a percent symbol (%) for calls of 10 to 29 minutes, 59 seconds, or a plus symbol (+) for calls of 30 or more minutes. This is useful when records are to be scanned manually.

Date (mm/dd): The date is reported numerically as a 2-digit month followed by a 2-digit day separated by a (/) slash. The year is not reported.

Start Time (hh:mmp): The start time of a call is reported in hours and minutes. System Option "24 Hour Clock" determines whether a 12-hour or 24-hour format is used. The letter "p" indicates pm when a 12-hour format is used.

Duration of Call (hh:mm:ss): The call duration is reported in hours, minutes and seconds with leading zeroes being output (maximum time that can be recorded is 18 hours, 12 minutes, 15 seconds).

Calling Party (pppp): This is the identity of the party that originated the call. If a 5-digit extension numbering plan is used, only the last four digits will be used by SMDR to identify the calling party. It is usually an incoming trunk but may be a station or the Attendant. When the originating party is an incoming CO trunk, "Tnnn" appears on the record, where "nnn" is the number of the trunk. When the originating party is an incoming non-CO trunk, "Xnnn" appears in the record.

Time to Answer (ttt): This is the number of seconds from the time the call is presented to the ACD system until the call is answered. If the call is never answered, this field displays ***. It applies to incoming calls only. Leading zeroes are output and the field remains at 255 when more than 255 seconds are required.

ACD Call Information: (PXXXX G1 O1 O2 O3 A1 or PXXXX O1 O2 O3 IYYYY). O1, O2, or O3 only appear if they are programmed and the call overflows to these groups. If the Interflow point is not an ACD path access code, only "I" appears after the last overflow group number. If the Interflow point is an ACD path, the "I" is followed by the 4-digit path access code.

Called Party (qqqq): This is the agent to whom the call is directed. The format in which the called party is output is identical to that used for the calling party. See Calling Party (pppp). For direct-in lines (typical ACD application), it is the Agent ID number. If an Agent answers an incoming call, the Agent ID appears in this field.

Transfer/Conference Call (K): This field identifies calls that involve three or more parties. It contains a "T" for supervised transfers, "X" for unsupervised transfers (i.e., dead transfer or transfer into busy) and a "C" for 3-way conversations and conferences.

Third Party (rrrr): The third party field contains the number of the station to which a trunk call has been transferred. When several transfers take place during a trunk call, the first party is the only one reported. The format is identical to that of the Calling Party (pppp). When a call is transferred to an ACD system, the ACD Path Access Code appears in this field.

System Identifier (iii): This optional 3-digit field may contain values from "000" to "999". "000" indicates that no identifier has been entered. The system identifier is programmed at the System level and is printed only if COS Option 246, SMDR – Extended Record, is enabled.

ANI Digits (nn n): This optional field may contain up to 10 digits. If COS Options 806 (SMDR – Record Incoming Calls) and 814 (SMDR – Record ANI/DNIS) are enabled, the ANI digits received from an incoming trunk will be recorded. If no ANI digits are received, this field will be blank.

DNIS Digits (dd d): This optional field may contain up to 10 digits. If COS Options 806 (SMDR – Record Incoming Calls) and 814 (SMDR – Record ANI/DNIS) are enabled, the DNIS digits received from an incoming trunk will be recorded. If no DNIS digits are received, this field will be blank.

ACD Call Record Examples

4.3 The following subsections show examples of typical SMDR call records for various types of ACD calls. The examples omit system identifiers.

ACD CALLS ANSWERED BY AGENTS

07/01 08:41 00:00:08 T001 002 P2123 0101 1101

CO Trunk 1 comes in on path 2123 and rings Agent Group 1. Call is answered by Agent 1101 of Agent Group 1.

07/01 08:44 00:00:14 T002 009 P0456 05 06 05 1515

CO Trunk 2 comes in on path 456 and rings Agent Group 5 and overflows to Agent Group 6. Call is answered by Agent 1515 of Agent Group 5.

07/01 08:50 00:00:22 T003 012 P2324 01 02 02 1205

CO Trunk 3 comes in on path 2324 and rings Agent Group 1 and overflows to Agent Group 2. Call is answered by Agent 1205 of Agent Group 2.

07/01 08:52 00:00:05 T001 006 P2123 01 07 1703

CO Trunk 1 comes in on path 2123 and rings Agent Group 1. Call is answered by Agent 1703 of Agent Group 7 (via call pickup).

07/01 09:53 00:00:18 T003 005 P2324 01 02 02 1202X 1861

CO Trunk 3 comes in on path 2324 and rings Agent Group 1 and overflows to Agent Group 2. Call is answered by Agent 1202 of Agent Group 2. Call is transferred (unsupervised) by 1202 to 1861 (non-Agent).

07/01 09:53 00:00:12 T001 006 P2123 0101 1103T 1515

CO Trunk 1 comes in on path 2123 and rings Agent Group 1. Call is answered by Agent 1103 of Agent Group 1. 1103 transferred (supervised) call to Agent 1515.

07/01 09:54 00:00:10 T001 006 P2123 01 01 1101T 1512

CO Trunk 1 comes in on path 2123 and rings Agent Group 1. Call is answered by Agent 1101 of Agent Group 1. 1101 transferred (supervised) call to path 456. Agent 1512 answered call.

ACD CALLS ANSWERED BY NON-AGENTS

07/01 09:01 00:00:03 T001 004 P2123 01 00 2101

CO Trunk 1 comes in on path 2123 and rings Agent Group 1. Call is answered by extension 2101 (via call pickup).

07/01 09:02 00:00:08 T003 004 P2324 01 02 00 2678

CO Trunk 3 comes in on path 2324 and rings Agent Group 1. Call overflowed to Agent Group 2. Call is answered by extension 2678.

ACD Calls Abandoned

07/01 09:11 00:00:10 T002 *** P0456 02

CO Trunk 2 comes in on path 456 and rings Agent Group 2. Call is abandoned.

07/01 09:14 00:00:14 T002 *** P0456 02 03

CO Trunk 2 comes in on path 456 and rings Agent Group 2. Call overflowed to Agent Group 3. Call is abandoned.

07/01 09:15 00:00:07 T002 *** P0456

CO Trunk 2 comes in on path 456 and the caller hung up in delay for ringback before the call is presented to the primary Agent Group.

ACD CALLS INTERFLOWED

07/01 09:04 00:00:14 T002 *** P0456 05 06 07 08 I

CO Trunk 2 comes in on path 456 and rings Agent Group 5. Call overflows to Agent Groups 6, 7, 8 and is interflowed. Call is dropped.

07/01 09:05 00:00:16 T001 *** P2324 01 02 04 10 I 2301
07/01 09:05 00:00:02 T001 *009 2311

CO Trunk 1 comes in on path 2324 and rings Agent Group 1. Call overflows to Agent Groups 2, 4, 10 and is interflowed to the attendant 2311.

CO Trunk 1 rings 2311. Call is answered by 2311.

07/01 09:07 00:00:26 T002 *** P0456 05 06 07 08 I2324
07/01 09:07 00:00:07 T002 008 P2324 01 01 1102

CO Trunk 2 comes in on path 456 and rings Agent Group 5. Call overflows to Agent Groups 6, 7, 8 and is interflowed to path 2324.

CO Trunk 2 comes in on path 2324 and rings Agent Group 1. Call is answered by Agent 1102 of Agent Group 1.

Station Message Detail Recording

UNSUPERVISED TRANSFER OF CALLS TO THE ACD SYSTEM

Note: Each call generates two records.

07/01	09:20	00:00:22	T003	000	P2324	01 02 02	1201X	456
07/01	09:20	00:00:10	T003	004	P2324	05 05	1501	

CO Trunk 3 comes in on path 2324 and rings Agent Group 1. Call overflowed to Agent Group 2 and is answered by Agent 1201 of Agent Group 2. Agent 1201 then transferred the call to ACD path 456.

Trunk 3 comes in on path 456 and rings Agent Group 5. Call is answered by Agent 1501 of Agent Group 5.

07/01	09:22	00:00:04	T003	015	P2324	01 01	1101X	456
07/01	09:22	00:00:02	T003	***	P0456	05		

CO Trunk 3 comes in on path 2324 and rings Agent Group 1. Call is answered by Agent 1101 of Agent Group 1. Agent 1101 then transferred the call to ACD path 456.

Trunk 3 comes in on path 456 and rings Agent Group 5. Call is abandoned.

07/01	09:24	00:00:04	T007	*005			2324	
07/01	09:24	00:00:05	T007	009	P2324	01 01	1104	

CO Trunk 7 rings the attendant, the attendant answered the call and transferred it to ACD path 2324.

Trunk 7 comes in on path 2324 and rings Agent Group 1. Call is answered by Agent 1104 of Agent Group 1.

07/01	09:27	00:00:07	T008	005			5220X	2324
07/01	09:27	00:00:05	T008	009	P2324	01 01	1102	

CO Trunk 8 rings extension 5220. Call is answered by 5220 and is transferred to path 2324.

Trunk 8 comes in on path 2324 and rings Agent Group 1. Call is answered by Agent 1102 of Agent Group 1.

SUPERVISED TRANSFER OF CALLS TO THE ACD SYSTEM

07/01	09:51	00:00:10	T013	015			3201T	1201
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CO Trunk 13 rings extension 3201. Call is answered by 3201 (non-Agent). 3201 dialed path 456. Agent 1201 answered call. 3201 transferred CO Trunk 13 to 1201.

07/01	09:54	00:00:14	T008	*009			1104	
-------	-------	----------	------	------	--	--	------	--

CO Trunk 8 rings an attendant. Call is answered by the attendant. The attendant dialed path 456. Call is answered by Agent 1104. Attendant transferred CO Trunk 8 to 1104.

07/01	09:57	00:00:15	T003	010	P2324	01 01	1107T	1502
-------	-------	----------	------	-----	-------	-------	-------	------

CO Trunk 3 comes in on path 2324 and rings Agent Group 1. Call is answered by Agent 1107 of Agent Group 1. 1107 dialed path 456. Agent 1502 answered call. 1107 transferred CO Trunk 3 to 1502.

07/01 09:58 00:00:12 T001 012 P2324 01 01 1101T 1606

CO Trunk 1 comes in on path 2324 and rings Agent Group 1. Call is answered by Agent 1101 of Agent Group 1. 1101 dialed Agent 1606. Agent 1606 answered call and 1101 transferred CO Trunk 1 to 1606.

ACD CALLS INCLUDING ANI/DNIS INFORMATION

Note: Assume an 80-column printer is used to record the SMDR. If a larger printer is used, the ANI/DNIS information will appear on the extreme right-hand side of the page.

07/01 08:41 00:00:08 T001 002 P2123 01 01 1101
0123456789 9876543210

CO Trunk 1 comes in on path 2123 and rings Agent Group 1. Call is answered by Agent 1101 of Agent Group 1. ANI and DNIS digits received from CO Trunk 1 are respectively 0123456789 and 9876543210.

07/01 08:42 00:00:15 T001 002 P2123 01 01 1102
2782212

CO Trunk 1 comes in on path 2123 and rings Agent Group 1. Call is answered by Agent 1102 of Agent Group 1. ANI digits received from CO Trunk 1 are 2782212. No DNIS digits were received.

07/01 08:43 00:00:10 T001 003 P2123 01 01 1103
5922124

CO Trunk 1 comes in on path 2123 and rings Agent Group 1. Call is answered by Agent 1103 of Agent Group 1. DNIS digits received from CO Trunk 1 are 5922124. No ANI digits were received.

Station Message Detail Recording

5.

EXTERNAL DEVICES

General

- 5.1 The data formatting of SMDR records is an integral part of the system which does not require additional hardware or hardware modification. Installation is simply a matter of connecting a compatible printer or terminal to the output port of the system.

SMDR records are output from the *SX-200* DIGITAL PABX in the standard RS-232 format. Any RS-232 compatible device can be connected directly to the output port for the storage of records.

Printer

- 5.2 A summary of the parameters which must be available from an SMDR printer is as follows:

- 132 character line length
- 300 baud to 9600 baud
- standard ASCII character set

The baud rate of the *SX-200* DIGITAL printer port or data port is selectable from the Maintenance Terminal (refer to Practice 9109-096-351-NA, RS-232 Maintenance Terminal). Ensure the baud rate of the printer matches that selected at the Maintenance Terminal.

Tape Machine

- 5.3 A tape machine which is capable of operating over an RS-232 interface can be connected to the SMDR output port of the *SX-200* DIGITAL PABX.

Cabling

- 5.4 The printer, terminal or storage device should be located within 15.2 m (50 ft) of the RS-232 port. Failure to observe this precaution may cause the SMDR record to be corrupted.

Station Message Detail Recording

6.

SMDR PROGRAMMING AND CONTROL

General

- 6.1 The operation of the SMDR feature is determined during initial installation of the system. Programming the SMDR feature is part of the System and Class of Service Options programming known collectively as Customer Data Entry (CDE). The operation can be modified at any time by the maintenance person from the CDE terminal. Table 6-1 shows the Trunk SMDR options involved and Table 6-2 shows the Data SMDR options involved. A brief description of these options is given below. A complete description of the CDE forms is given in Practice 9109-096-210-NA, Customer Data Entry. For a record of an outgoing call to be generated, SMDR must be enabled in CDE Form 16, Trunk Groups. A device accessing a Trunk Group with SMDR enabled will generate an SMDR record unless COS Option 700, SMDR - Does Not Apply, is enabled in that device's Class of Service.

TRUNK SMDR and acd smdr Programming Options

- 6.2 The Trunk SMDR and ACD SMDR programming options are as follows:

- **Record Incoming Calls:** This COS option enables SMDR for incoming trunk calls.

Note: For modem pooling, if the Record Incoming Calls option is enabled, and the SMDR buffers become full, new incoming CO calls will receive busy tone and new incoming TIE, DID, or DISA trunks will receive reorder tone. These calls will not be accepted by the PABX. Modem Pooling is not available in Generics 1001, 1002 and 1005 FPKG 1 and LIT96.

- **Record Meter Pulses:** This COS option causes meter pulses generated by the Central Office to be counted and then reported in the SMDR record.
- **Drop Calls Less Than n Digits:** When this COS option is enabled, outgoing calls of less than n digits are not reported (where "n" is programmed to be between 0 and 11 and 0 disables the option).
- **Drop Incomplete Outgoing Calls:** When this COS option is enabled, incomplete outgoing calls are not recorded.

Notes: 1. If the call duration is less than the programmed value of the system timer "Pseudo Answer Supervision Timer", the call is considered an incomplete call.

2. If Trunk Circuit Descriptor Option "Far End Gives Answer Supervision" is set to YES, and ANSWER SUPERVISION is not received, an SMDR record is not generated.

- **Extended Record:** When this COS option is enabled, the length of the SMDR record is extended from 80 to 88 columns. This allows the last four columns of 12-digit account codes and the System ID to be reported.

Note: If Cos Option 814, Record ANI/DNIS, is enabled and there are ANI/DNIS digits to be printed, the extended record will be printed even if Cos Option 246, SMDR – Extended Record, is disabled.

- **Overwrite Buffer:** When this COS option is DISABLED and all SMDR buffers are in use, outgoing calls requiring SMDR will not be allowed. When ENABLED, the OLDEST SMDR buffer waiting to be printed will be overwritten with the new outgoing call SMDR information.

Note: If the Overwrite Buffer option is disabled and the SMDR buffers become full (for example, printer out of paper), outgoing calls are prohibited until the buffers are emptied.

- **Does Not Apply:** When this COS option is enabled, no calls will be recorded for the Class of Service in which it is enabled.
- **Indicate Long Calls:** When this System Option is enabled, calls of 5 minutes or longer are flagged in the SMDR record.
- **24-Hour Clock:** When this System Option is enabled, the start time within the SMDR record will be recorded in 24-hour format. When disabled, the start time is recorded in 12-hour format (p = pm).
- **ACD Reports:** This System Option, when enabled, provides ACD information to be output to the reporting system as part of the SMDR reports.
- **Analog Networking SMDR:** When this System Option is enabled, the calling party field contains the caller's extension number as provided by Analog Networking, instead of the incoming trunk number. When disabled, the calling party field is not overwritten with the Analog Networking information.
- **Five Digit SMDR:** When this System Option is enabled, five digit numbers will be recorded for Calling party, Called party and Third party.
- **Record ANI/DNIS:** To record the ANI and/or DNIS digits received from an incoming trunk, COS Option 806 (SMDR – Record Incoming Calls) and COS Option 814 (SMDR – Record ANI/DNIS) must be enabled.

Table 6-1 CDE-Selected SMDR COS and System Options

Option	Type	Generics 1002, 1003, 1004, 1005, 1005 FPKG 1 1005 LIT96	Generic 1001
SMDR – Extended Record	COS	246	805
SMDR – Record Meter Pulses	COS	247	808
SMDR – Does Not Apply	COS	700	700
SMDR – Overwrite Buffer	COS	702	702
SMDR – Drop Calls < n Digits (n = 0...11, disable = 0)	COS	803	803
SMDR – Drop Incomplete Outgoing Calls	COS	804	804
SMDR – Record Incoming Calls	COS	806	807
SMDR – Record ANI/DNIS (see Note)	COS	814	N/A
24-Hour Clock	System	01	01
Analog Networking SMDR (see Note)	System	06	N/A
Five Digit SMDR (see Note)	System	08	N/A
SMDR – Indicate Long Calls	System	28	28
ACD Reports (see Note)	System	44	N/A
Pseudo Answer Supervision Timer	System	49	38

Note: SMDR – Record ANI/DNIS is only available with Generic 1005. Five-digit SMDR is not available with Generics 1002 and 1003. ACD Reports are not available with Generic 1002, 1003 Basic and 1005 FPKG 1 and LIT96.

Data SMDR Programming Options

6.3 Three Class of Service (COS) options and one System Option, as listed in Table 6-2, are available with Data SMDR (Data SMDR is not available with Generic 1001 and Generic 1005 FPKG 1 and LIT96):

- **Data SMDR – Does Not Apply:** This option, when enabled, prevents Data SMDR records from being printed.
- **Data SMDR – Extended Record:** This option, when enabled, adds the system identifier to the Data SMDR record.
- **Data SMDR – Overwrite Buffer:** This option, when enabled, will prevent a data call from being blocked due to a lack of Data SMDR buffers. However, with buffers being overwritten, there is no guarantee of recording all data calls. If disabled, data calls will be blocked if there are no available Data SMDR buffers.
- **Data SMDR – Indicate Long Calls:** This timer, when enabled, provides an identifying character in column 1 to indicate the approximate length of the call.

Note: If the Overwrite Buffer option is disabled and the Data SMDR buffers become full, data calls are prohibited until the buffers are emptied.

Table 6-2 CDE-Selected Data SMDR COS and System Options		
Option	Type	Number
DATA SMDR – Does Not Apply	COS	906
DATA SMDR – Extended Record	COS	907
DATA SMDR – Overwrite Buffer	COS	908
DATA SMDR – Indicate Long Calls	System	39

7.

OPERATIONAL PARAMETERS

General

- 7.1 The SMDR feature is transparent to the end user. There are no operational procedures to be employed by the Attendant or station user. The following provides a summary of the operational parameters which are described earlier in this document:

Non-Recording Conditions

- 7.2 SMDR is not initiated under the following conditions:

- Busy tone is obtained by the Attendant or a station when a trunk is dialed (because all trunks in the group are busy),
- The calling or called party has a class of service which disables SMDR,
- Reorder tone is obtained by the caller,
- The Attendant intercepts a station attempting to access a trunk group,
- During a power failure condition, no SMDR records are made.

Attendant-Handled Calls

- 7.3 The following conditions are reported as shown when the Attendant handles a call:

- When the Attendant dials a trunk with no station or trunk involved, the calling party is the Attendant.
- Direct Trunk Access by the Attendant is reported. The Leading Digits field is left blank.
- When the Attendant answers a trunk call and does not transfer it to a station, the called party is the Attendant.
- When the Attendant dials a trunk while it has a station as its source, the calling party is reported as the station and an (*) appears in the "Attendant was Involved" field.
- When the Attendant connects a previously held station to a trunk, the calling party is the station and an (*) appears in the "Attendant was Involved" field.
- When the Attendant has a trunk as Source, and then connects a station to the trunk, the calling party is the trunk, the called party is the station, and an (*) appears in the "Attendant was Involved" field.

Incoming Calls

7.4 When SMDR is enabled for incoming calls, the following conditions are reported:

- Digits dialed on incoming DID, DISA or dial-in TIE trunks are reported in the "Digits Dialed on the Trunk" field. When the dial-in trunk dials an illegal or vacant number or hangs up before completing the number, the call is reported. The called party is the station dialed. The DISA Security Code is not reported.
- The called party is always the Attendant, except when the Attendant forwards the call to a station. The station then becomes the called party and an (*) is reported in the "Attendant was Involved" field.
- Direct-in trunks show the station number as the called party (i.e., dial-in trunks). However, the "Digits Dialed" field is blank. When the trunk is directed to a Hunt Group, the station that answered the call is reported.
- On incoming calls, an "E" is reported when the trunk hangs up while listening to reorder tone, or a "B" is reported when the trunk hangs up while listening to busy tone. A "T" is reported when the incoming call is answered with TAFAS.

Data SMDR

7.5 All internal and external data calls are recorded if this option is enabled. External data calls generate a trunk SMDR record as well as a DATA SMDR record.

Appendix A.

ACCOUNT CODES

General

A.1 This Appendix provides a general description of account codes and their operation.

Description

A.2 Account codes uniquely identify SMDR call records for billing purposes. Two types of account code length options (fixed length and variable length) can be programmed in the System Options form during Customer Data Entry. A fixed length account code is preprogrammed to be of a length between 4 and 12 digits. A variable length account code can be of any length between 1 to 12 digits. Variable length account codes must be terminated by a terminator digit as described in the following paragraph. When no account code length is specified during CDE programming, the default length is six digits.

The Verifiable Account Code feature is an option of SMDR which provides unique codes with assigned COS and/or COR options. Dialing a verifiable account code (which has been assigned a COS or a COR) will override the COS and/or COR currently assigned to a telephone. A new SMDR record is generated each time a new verified account code is entered.

Account Code Terminator

A.3 The variable length account code terminator is the # digit. It is dialed at the end of a variable-length account code to indicate to the system that the account code is complete. A variable length account code cannot be dialed from rotary telephones since it is impossible to dial the terminator digit. If variable length is enabled, rotary telephone sets default to 6-digit account codes. The terminator is not required should a variable length account code of the full 12 digits be dialed.

Forced Account Codes

A.4 COS Option 200, Account Code, Forced Entry – External Calls, may be assigned to stations in order to bar trunk access from those stations, unless the access attempt is preceded by a valid account code. COS Option 201, Account Code, Forced Entry – Long Distance Calls, may be assigned to stations in order to bar certain long distance calls (identified in the ARS Digit Strings CDE form), unless the access attempt is preceded by a valid account code.

Forced account codes can also be assigned to DISA trunks via the COS of the special DISA trunk in order to force a validation check on incoming DISA calls. System dial tone is not returned to the caller until a valid independent account code is received.

Operation

Account Code entry at the start of an outgoing call:

- Lift handset – dial tone is returned.
- Dial the feature access code followed by the account code and terminator (#); the terminator is not required with fixed length account codes.
- Dial trunk access code (usually 9).
- Dial the outgoing number.

Account code entry during a call on a *SUPERSET 4*[®] telephone:

- Press SELECT FEATURES key.
- Dial feature “5” (Account Codes).
- Enter Account Code number.
- Press SAVE softkey.

Account code entry during a call on a *SUPERSET 420*[™] telephone:

- Press SUPERKEY.
- Press NO softkey until ACCOUNT CODE? appears.
- Press YES softkey.
- Enter Account Code number.
- Press SAVE softkey.

Account code entry during a call on a *SUPERSET 4*[™]DN/*SUPERSET 430*[™] telephone:

- Press ACCOUNT CODE softkey.
- Enter Account Code number.
- Press SAVE softkey.

Note: The *SUPERSET 430* is not available with Generic 1005 FPKG 1 and LIT96.

Appendix B.

DATA ACCOUNT CODES

General

- B.1 This appendix provides an overview of the Data Account Code feature. It includes examples of ADL, DTRX, and incoming and internal modem pooling call applications. For a detailed description of account codes, refer to Practice 9109-096-105-NA, Features Description.

Note: Data Account Codes are not available with Generics 1001, 1002 and Generic 1005 FPKG 1 and LIT96.

Description

- B.2 With the Data Account code feature, data users can have the option or be forced to enter verified or non-verified account codes. These codes must be entered during the call setup phase of a data call and can be applied to internal, external and long distance calls. For the DTRX user, an account code access is represented by a character string, "ACCOUNT", while an account code access code digit string is entered for ADL or incoming or internal modem pooling calls. Account code entries are accepted by the following circuit types: station, set, console, TIE or DISA trunk.

Incoming, Outgoing, and Internal Data Calls

- B.3 Verified or non-verified account codes applied to data calls must be entered during the call setup phase. The following restrictions apply on incoming or outgoing data calls:

Incoming Data Calls

- A TIE trunk caller can dial an account code access code and an account code number only after the TIE trunk has been seized.
- An incoming special DISA caller can only enter an account code after dial tone has been returned.
- An incoming regular DISA caller dials the DISA access code and waits for returned dial tone before entering the account code access code and an account code number.
- An incoming DIL data call to the attendant requires the attendant to dial the account code for the calling party.
- The same account code will be stored in both the DATA SMDR and Trunk SMDR records.

Outgoing and Internal Data Calls

For a DTRX application, the account code access code "ACCOUNT" and the account code number are entered after the destination number in the dialed digit string. The following are examples of an account code entered by a DTRX caller:

- CALL 1234-9-5925678-ACCOUNT-2222
OR
- CALL 1234 9 5925678 ACCOUNT 2222
OR
- CALL 1862-ACCOUNT-2222 (internal DTRX call with account code)
OR
- CALL 1862 ACCOUNT 2222
(prompt)
CALL
1234 - modem pool access code
9 - ARS access code
5925678 - directory number of the destination data device
ACCOUNT- account code access code character string
2222 - 4-digit account code number
1862 - internal destination data station

For an ADL application, the account code access code and the account code number are entered after the ADL access code. The following are examples of an ADL call:

- 87-75-2222-1234-9-5925678 (external ADL modem pooling call with account code)
- 87-75-2222-1862 (internal ADL call with account code)
- 87 - ADL access code
- 75 - account code access code
- 2222 - 4-digit account code number
- 1234 - modem pool access code
- 9 - ARS access code
- 5925678 - directory number of the destination data device
- 1862 - internal destination data station

Note that dial tone is not returned after the account code is entered.

For an internal call via the modem pool or for an incoming TIE or DISA trunk call, once the trunk has been seized, the account code access code and the account code number are entered prior to the destination digit string.

75-2222-1234-1862 (internal modem pooling call with account code)

75 – account code access code

2222 – 4-digit account code number

1234 – modem pool access code

1862 – destination data station

Incoming Call over Special DISA Trunk

In order that the special DISA caller has access to the PABX, an Account code without an Account Code Access code must be dialed as a security code.

Other Calls Applying Account Codes:

- An Account Code access code must be dialed prior to the account code number.
- Dial account code digits.

If the account code is a variable length, the digit string must be followed by a #. If the digit string has reached the maximum of 12 digits, the caller has the option of either entering the # delimiter or leaving it out.

A non-variable length account code must be programmed with the account code length between 4 – 12 digits.

- For a non-DTRX or non-ADL call, the PABX supplies dial tone after a correct account code has been dialed.

System Abbreviated Dial Numbers

B.4 The system abbreviated dial number for an ADL caller may include an account code.

EXAMPLE:

System Abbreviated Access Code + System Abbreviated Number =

ADL Access Code + Account Code Access Code + Account Code Number + Destination Number

or

Account Code Access Code + Account Code Number + Destination Number

For DTRX callers, the Account Code cannot be included in system abbreviated numbers.

For a Speed Call number, the Account Code Access Number and the Account Code Number may be included in the digit string.

An incoming TIE, DISA, or internal modem pooling caller may dial a speed dial number which includes an account code with the destination number. The destination number may be a modem pool hunt group number plus a data station or data hunt group number, or it may be a data station or data hunt group number (if the default modem pool hunt group is programmed).

EXAMPLE:

System Abbreviated Access Code + System Abbreviated Number =

Account Code Access Code + Account Code Number + modem pool hunt group number + data station/hunt group number

OR

Account Code Access Code + Account Code Number + data station/hunt group number (if default modem pool hunt group is programmed)

Forced Account Codes

B.5 The COS of the caller is checked to determine if any of the following options apply. If so, an account code must be entered:

Account Code, Forced Entry – Data External Calls (COS Option 327)

Account Code, Forced Entry – Data Long Distance Calls (COS Option 328)

Account Code, Forced Entry – Data Internal Calls (COS Option 326)

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SX-200® DIGITAL PABX

Tenanting

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Table of Contents

1. INTRODUCTION

Reason for Issue	230 1-1
------------------------	---------

2. GENERAL DESCRIPTION

Overview	230 2-1
Multiple Tenant Application	230 2-1
Multiple Customer Application	230 2-1
Data Users Application	230 2-2
Independent Consoles, Subattendants, Trunks, and Stations	230 2-2
Tenant Interconnection	230 2-2
Identifying Tenants on Consoles and <i>SUPERSET</i> [™] Telephones	230 2-4
Local Night Switching	230 2-6
Night Bells and Night Answer	230 2-7
Dial 0 Routing	230 2-7
Call Rerouting Features and Answer Point	230 2-8
Direct Inward Dial Rerouting	230 2-9
Direct-In Line Rerouting	230 2-9
Subattendants/Enhanced Subattendants and Message Centers	230 2-9
Numbering Plan	230 2-9
Automatic Route Selection with Multiple Tenants	230 2-9

3. PROGRAMMING AND CDE

Tenant Assignments	230 3-1
Interconnections Between Tenants	230 3-1
Call Rerouting	230 3-2
Night Switching	230 3-4

List of Figures

Figure 2-1 Tenant Connections to PABX	230 2-3
Figure 2-2 Tenant Interconnection with Shared Console	230 2-4
Figure 2-3 <i>SUPERSET 4</i> [®] Telephone Serving Several Tenants	230 2-5
Figure 2-4 Night Switching Options	230 2-6
Figure 2-5 Dial 0 Call Routing	230 2-8
Figure 3-1 Stations / <i>SUPERSET</i> Telephone Programming Form	230 3-1
Figure 3-2 Tenant Interconnection Table	230 3-2
Figure 3-3 Call Rerouting Table	230 3-3
Figure 3-4 Tenant Night Switching Control	230 3-4

1.

INTRODUCTION

Tenancing is a feature which allows up to 25 tenants to share features and capabilities of the *SX-200*® DIGITAL PABX. Some PABX features are enabled for each tenant individually through Customer Data Entry (CDE) while other features are shared by all tenants.

Reason for Issue

- 1.1 This Section is issued to describe tenancing and to explain how to use and program tenancing in an *SX-200* DIGITAL PABX.

2.

GENERAL DESCRIPTION

Overview

- 2.1 Tenanting is a very powerful and flexible feature available with the *SX-200* DIGITAL PABX. The PABX may be operated as a single tenant or in a multiple customer or multiple tenant mode, by sharing services such as attendants or trunks. A typical installation may have several tenants, each with its own trunks, stations and attendant. Members of different tenants may be programmed to access each other (but not necessarily each other's features) without going through the local Central Office, or may be totally independent of each other. The customer (or customers) can share the economies of a larger PABX, such as specialized trunks, leased services, and other features. Station Message Detail Recording (SMDR), described in Practice 9109-096-221-NA, allows equitable assessment of costs among all users.

Up to 25 tenants (or customers) may be defined within the PABX with a maximum of 11 consoles. For Generic 1004 and 1005, a maximum of 25 enhanced subattendant positions may be defined. Please refer to Practice 9109-096-210-NA, Customer Data Entry, and reference Form 09, Station/*SUPERSET*™ Telephones, for information on the subattendant position.

Multiple Tenant Application

- 2.2 A typical multiple tenant application is a company which occupies a large building and has attendants and/or subattendants and/or enhanced subattendants in different areas, such as each floor or department. Some features, such as attendant recall, access the local attendant instead of the main attendant position, but other features such as WATS, ARS, Tie lines, or abbreviated dialing are available to all users.

Multiple Customer Application

- 2.3 A typical multiple customer application is a building served by one PABX, with telephone service for each customer (tenant) going through the PABX independently. When one customer calls another, the calling party must access one of its CO trunks and dial the other customer's listed directory number. The call will go through the CO and then appear as an incoming CO call at the called customer.

Data Users Application

- 2.4 The *SX-200* DIGITAL PABX tenanting features are also available for data users. A typical application is to restrict access to certain computers, printers, and other data devices to data users in one or more specific internal departments, by placing all members into the same tenant and denying all other tenants access. Any computer resources which must be available to all users can be put into a tenant group to which everyone has access.

Independent Consoles, Subattendants, Trunks, and Stations

- 2.5 The PABX is divided into distinct tenants; all stations, *SUPERSET* telephones, trunks, subattendant/enhanced subattendant telephones, and attendant consoles are assigned to a tenant as they are programmed into the PABX. Trunks and Dial 0 calls are programmed to ring to only their associated attendant/subattendant/enhanced subattendant position. Outgoing calls seize only trunks within their same tenant as shown in Figure 2-1.

Tenant Interconnection

- 2.6 The PABX may be programmed to allow certain tenants to connect to each other internally within the system or to allow for sharing of services such as an attendant console or trunks.

Each tenant may be allowed or not allowed to connect directly to any other tenant. For example, an attendant console to be shared by Tenants 1, 2, and 3 can be assigned to Tenant 25 and programmed to connect internally to Tenants 1, 2, and 3. Tenants 1, 2, and 3 may still be programmed to NOT connect to each other as shown in Figure 2-2.

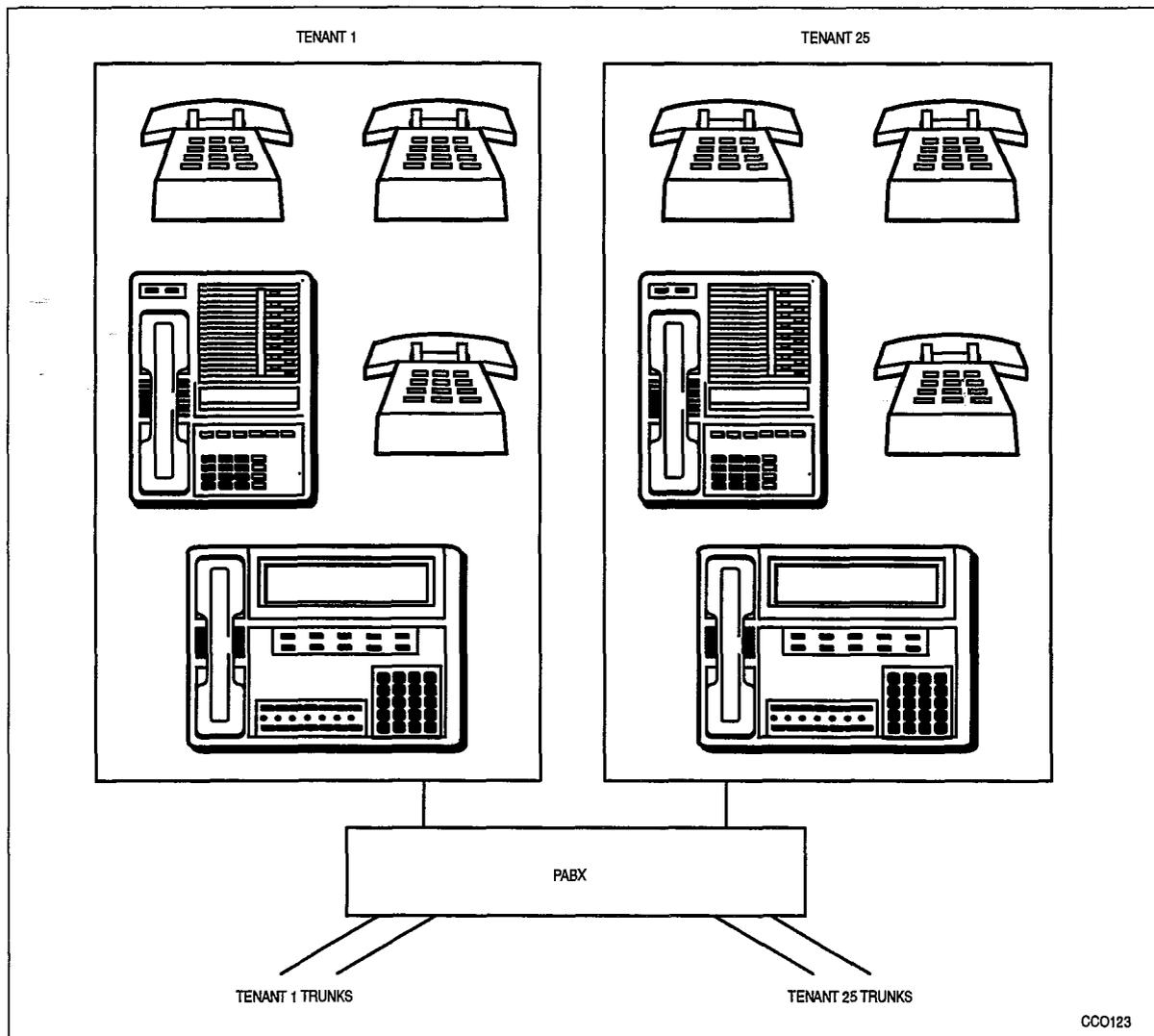


Figure 2-1 Tenant Connections to PABX

Note the special case when Tenant 1 can call Tenant 2 but Tenant 2 cannot call Tenant 1. If *SUPERSET 4*® telephone A in Tenant 1 calls *SUPERSET 4* telephone B in Tenant 2, and upon receiving no answer, sends the message to call Set A, Set B can return the call to Set A (by pressing its MSG, READ MSG, and CALL softkeys) even though Tenant 2 is normally restricted from calling Tenant 1.

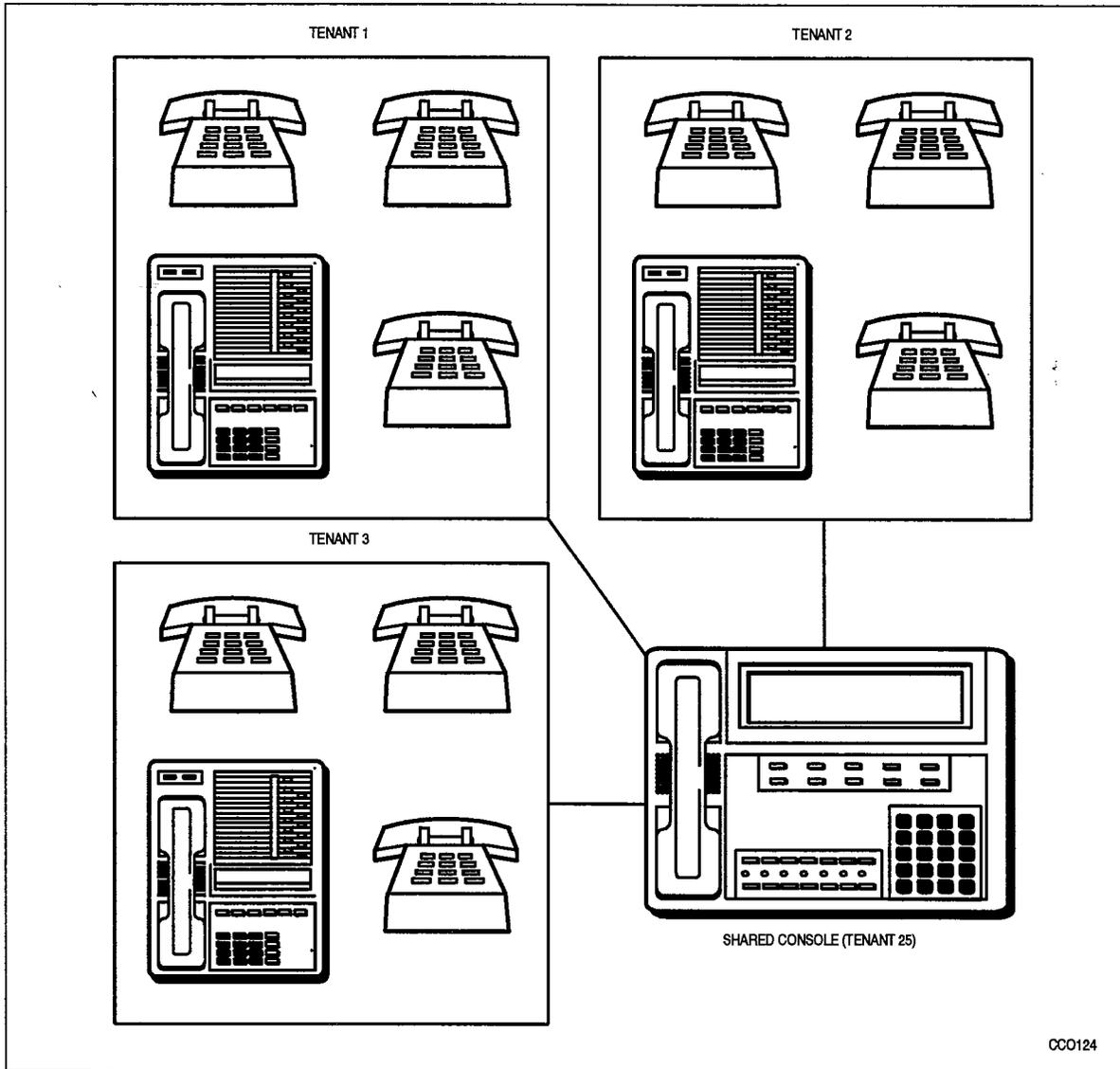


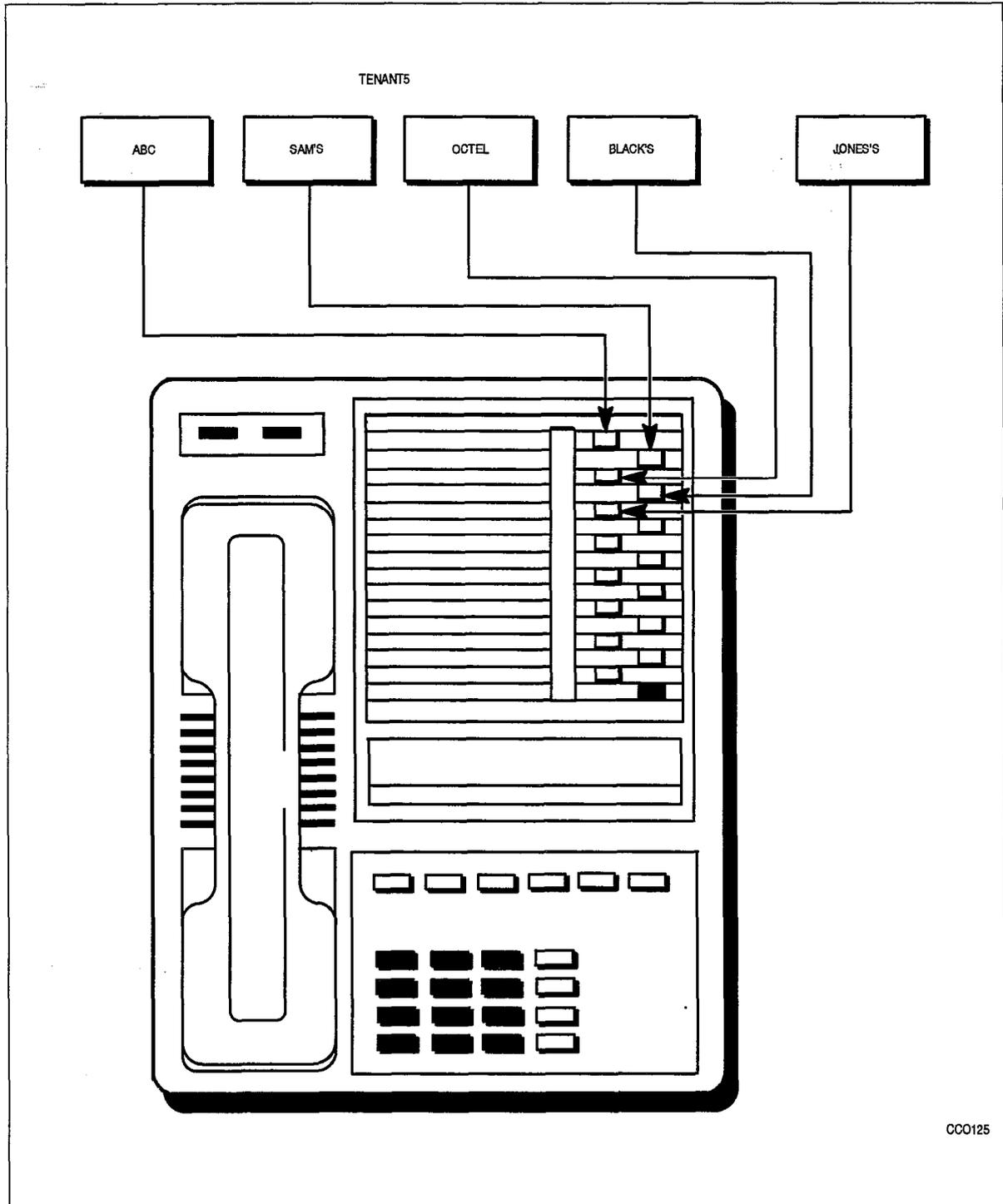
Figure 2-2 Tenant Interconnection with Shared Console

-Identifying Tenants on Consoles and SUPERSET Telephones

2.7 Attendant consoles or *SUPERSET* telephones may be programmed to provide a common answering point for incoming calls to all tenants, as well as calls that are unanswered by any tenant. Each tenant may not call the other tenants or access each other's trunks, but all of their calls will be directed to the common answering point. The incoming calls may be DID, DIL, or regular CO trunks.

When recalls are answered at a common answering point, the name of the tenant that did not answer is displayed as a NO ANSWER so that the recall may be answered with an appropriate response. If the called party has a *SUPERSET 4*, *SUPERSET 4™DN*, *SUPERSET 420™* or *SUPERSET 430™* telephone, that party's name is displayed. The calling party's trunk group may be programmed to display the company name. If the trunk has not been programmed with a name, the trunk group name is displayed. If the trunk group has not been programmed with a name, the trunk number is displayed.

The call rerouting point for all tenants may be to *SUPERSET 3™*, *SUPERSET 3™ DN*, *SUPERSET 4*, *SUPERSET 4 DN*, *SUPERSET 410*, *SUPERSET 420* or *SUPERSET 430* telephones with each tenant having its own key for reroutes, as shown in Figure 2-3. A reroute to a busy line will camp on to that line, allowing queuing for each tenant's calls.



CC0125

Figure 2-3 *SUPERSET 4* Telephone Serving Several Tenants

Local Night Switching

- 2.8 Tenants sharing the system may each require different system operation with respect to Day/Night mode. The PABX allows each tenant to switch into Night service independently and to operate independently when it has switched to Night service. Figure 2-4 shows two typical examples.

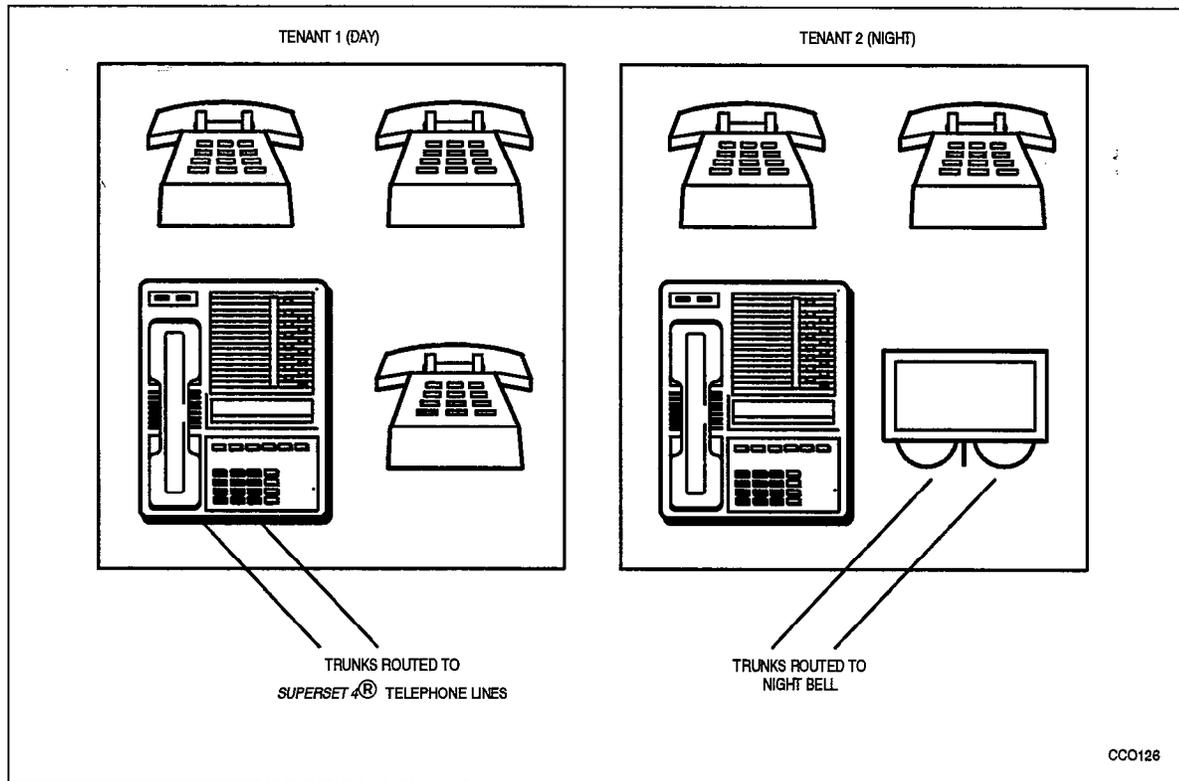


Figure 2-4 Night Switching Options

An attendant with a console may switch to Night 1 or Night 2 by pressing the FUNCTION key followed by the appropriate softkey.

A tenant with a *SUPERSET 4* telephone programmed as having night switching ability may press the SELECT FEATURES key and the NIGHT ANS softkey to switch between NIGHT 1, NIGHT 2, or DAY service. With a *SUPERSET 4* telephone, the user is allowed to switch to one of the two inactive modes. The NO softkey allows the user to toggle between the inactive modes. When the YES softkey is pressed, the service is changed to the selected mode.

A tenant with a *SUPERSET 420* presses the SuperKey and the NO softkey until NIGHT SERVICE? appears in the display area of the telephone. Pressing the YES softkey will display the current service mode to the user and pressing the CHANGE softkey will allow the user to switch to another mode.

To switch into night service using a *SUPERSET 4DN* or a *SUPERSET 430* telephone, the user presses the SuperKey and the MORE softkey until the NIGHT ANSWER softkey appears. Pressing this softkey will select the new mode of operation. To retain the current mode of service, press the BACKUP softkey or the SuperKey. The *SUPERSET 4DN* display shows the current service in the upper left hand corner where

the redial digits would otherwise be displayed. In DAY service, the redial digits are not overwritten.

The display area for each *SUPERSET* mentioned displays the current mode of operation, either NIGHT 1, NIGHT 2 or DAY service. In the case of DAY service, the display reverts to showing the time and date after a short period of time. Please refer to Practice 9109-096-105-NA, Features Description, for complete programming information.

Since call rerouting destinations and incoming CO trunks are programmed for Day, Night 1, and Night 2, switching to Night service will automatically reroute all calls for that tenant, provided that the tenant is properly programmed in CDE Form 06, Tenant Night Switching Control.

It may be desirable to have a console or a *SUPERSET 4* telephone (such as a night security desk) able to switch all tenants into Night 1 or Night 2 service. The security desk console may be programmed as a tenant that controls the Night status of tenants. When the security guard sets "Night 2", all associated tenants switch into Night 2. If a tenant forgot to switch to Night service, and calls were not being rerouted, the status is corrected when the night security guard comes on duty and sets Night 2 to reroute calls to the security desk.

Night Bells and Night Answer

- 2.9 The system allows incoming calls to be redirected to a Night bell. A non-display *SUPERSET* telephone in that tenant may dial the TAFAS – LOCAL TENANT feature access code to answer the first call in that tenant's queue. A *SUPERSET 3DN*, *SUPERSET 410*, and *SUPERSET 420* user will press a NIGHT ANSWER feature key, a *SUPERSET 4* user will press the NIGHT ANS softkey, a *SUPERSET 4DN* and *SUPERSET 430* user will press the NIGHT ANSWER softkey and the attendant console will press the NIGHT BELL softkey. Any extension may dial the TAFAS – Any feature access code to pick up a call in any tenant to which it is allowed to connect. Please refer to Practice 9109-096-105-NA, Features Description, for complete programming information.

Dial 0 Routing

- 2.10 Any tenant group may operate with a central attendant, subattendant or enhanced subattendant position handling incoming calls and Dial 0 calls or may program its own Day/Night directory numbers to route Dial 0 calls. Figure 2-5 shows two examples.

The feature access code for attendant access (usually 0) is programmed systemwide for all stations. Each tenant may then specify the Day, Night 1, and Night 2 answer points to route callers who dial this access code.

Call Rerouting Features and Answer Point

- 2.11 Each tenant may determine its method of rerouting Dial 0 calls, intercepts for illegal access, calls that are not answered or that reach busy parties. The answer point may be an Attendant console, Subattendant LDN, Enhanced Subattendant LDN, *SUPERSET* telephone line, station, hunt group, or Night bell. The caller is automatically camped on to a busy station or *SUPERSET* telephone. Calls may also be routed to a staffed Night answering desk for the PABX, or to an outside answering service, by routing to a system Abbreviated Dial key programmed to an external number.

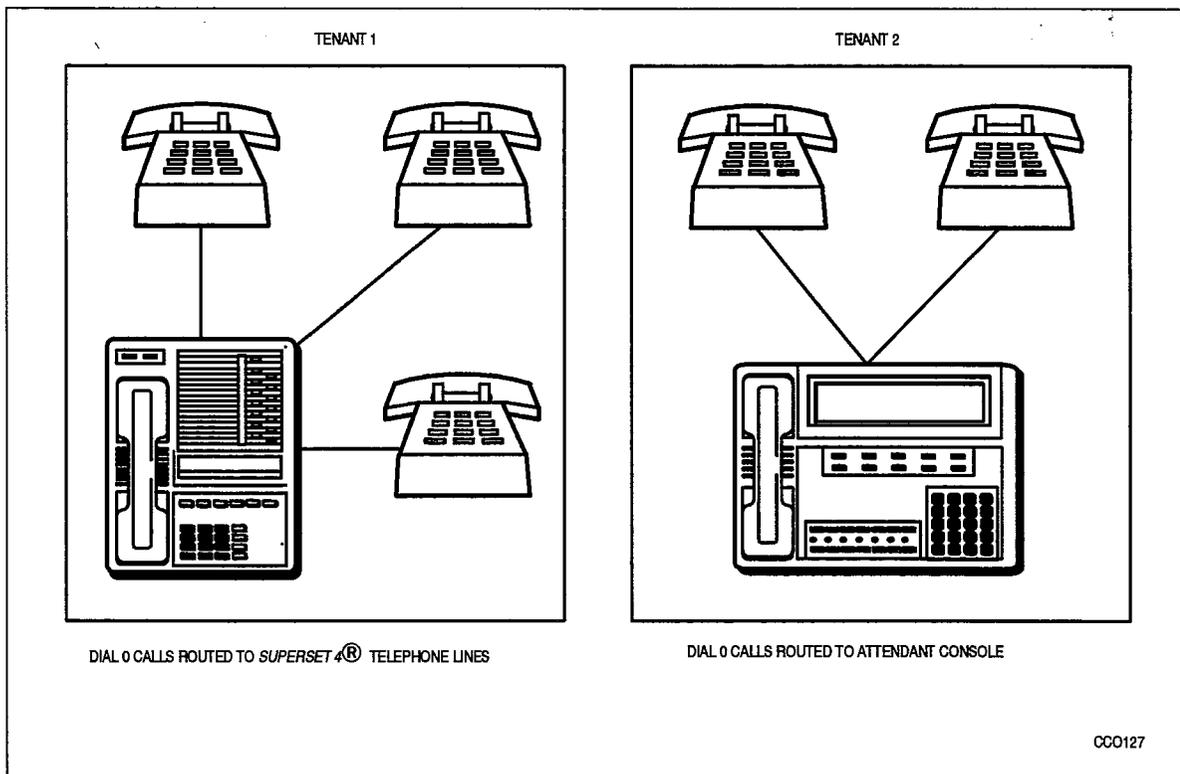


Figure 2-5 Dial 0 Call Routing

Rerouted calls arrive at a console as NO ANSWER or BUSY recalls. From the display, the attendant can identify which tenant originated the recall. Calls rerouted to a *SUPERSET* telephone may ring into a different key for each tenant, thereby identifying the company that originated the recall. If the line is busy, a recall will automatically camp on to the *SUPERSET* telephone.

Several examples of Call Rerouting follow and a complete list is given in Practice 9109-096-210-NA, Customer Data Entry. Call Rerouting is described in detail in Practice 9109-096-105-NA, Features Description.

Direct Inward Dial Rerouting

- 2.12 In some cases DID trunks may be shared among tenants. The block of numbers obtained is used by all the tenants, each with its own phone numbers listed in the telephone directory. The DID trunks are placed into one tenant which is programmed to be able to connect to the other tenants that share the DID trunks. If no one answers an incoming call, or if the number is busy, it may be rerouted to a specified answer point as a No Answer/Busy recall.

Direct-In Line Rerouting

- 2.13 Incoming DIL trunks are directed to ring destinations in any tenant that they can connect to. An unanswered incoming call may be rerouted to a specified answer point (Day, Night 1, or Night 2) as a No Answer recall, from the tenant into which the trunk rang.

Subattendants/Enhanced Subattendants and Message Centers

- 2.14 A company may set up its system with a main attendant console for receiving incoming calls and routing them to stations in the system. Usually the attendant who handled an incoming trunk call receives the No Answer recall. Any department wanting to handle its own recalls (for example, to take messages) may program alternate recall points for its calls. The department is programmed as a tenant and then uses call rerouting for its calls.

The person can take a message and set message waiting on the absent party's set. Members of a department may call their own "message center" by dialing 0. Since each tenant programs its own dial 0 answering point, people do not have to remember how to call their message desk. They can call another department's message desk by dialing its extension number.

Numbering Plan

- 2.15 Since tenants are allowed to connect to each other, extension numbers must be unique across the entire system. For example, there may be one and ONLY ONE extension 201 in the PABX. Similarly, feature access codes must be the same throughout the system. SMDR records may be sorted for each tenant by their unique extension numbers.

Automatic Route Selection with Multiple Tenants

- 2.16 Automatic Route Selection (ARS) enables the system to access, in a specific sequence, possible routes to a given destination. Routes are listed within the system in the order in which they are to be tried.

Route definition is based on trunk groups. Routes may be organized into lists of up to six route choices to arrive at a destination (refer to CDE Form 24, ARS: Route Lists). Since some tenants may be allowed to access only specific trunks, the ARS package checks the tenant interconnection table to verify if a caller may access a particular trunk. If the first choice trunks are not available to a particular tenant, the system skips them and takes the next choice trunks instead. The system automatically searches available trunks from first choice to last choice as it attempts to find a free trunk.

If tenant interconnection is allowed, shared trunks should be accessible from all participating tenants. ARS will optimize all calls made from these tenants. The administrator must collect and sort the SMDR reports for billing to each tenant.

3.

PROGRAMMING AND CDE

This section describes how the Customer Data Entry (CDE) package is programmed to set up the various functions already described in this document. The forms are more fully explained in Practice 9109-096-210-NA, Customer Data Entry.

Tenant Assignments

- 3.1 Stations, sets, data sets, consoles, subattendants, enhanced subattendants, and trunks are assigned to a tenant when they are programmed into the system during CDE. The field labelled TEN is the tenant assignment field. Enter the tenant number (1-25) to which the station or *SUPERSET* telephone belongs. For example, the Station/*SUPERSET* telephones programming form (Figure 3-1) shows that extension 1101 and 1702 have both been assigned to Tenant 1.

3:58 30-NOV-89		alarm status = MAJOR										
BAY	SLT	CCT	TEN	EXTN	COS	COR	TYP	ANNOUNCE	NAME	ASSOC	COMMENTS	
1	01	01	1	1101	1	1	Stn		VAILLANT		Manager	
1	01	02	1	1102	1	1	Stn		ALLING.		Manager	
1	01	03	1	1103	1	1	Stn		O'DELL		Accounts	
1	01	04	1	1104	1	1	Stn		GORBY		Accounts	
1	01	05	1	1105	1	1	Stn		AUYEUNG		Accounts	
1	01	06	1	1106	1	1	Stn		SCOTT D.		Secretary	
1	01	09					Stn					
1	01	10					Stn					
1	01	11	1	1111	1	1	Stn		FERGUSON		Pub Relatns	
1	01	12					Stn					
1	07	01	1	1701	1	1	Cov		CARDINAL		SW Supp.	
1	07	02	1	1702	1	1	Cov		ABBC A		Test	
1	01	06	1	1106	1	1	Stn		SCOTT D.		Secretary	
1-MOVE				2-FIND EXT			3-			4-		5-RANGE
6-QUIT				7-BAY/SLT/CCT			8-DELETE			9-REVIEW		0-

Figure 3-1 Stations / *SUPERSET* Telephone Programming Form

Interconnections Between Tenants

- 3.2 Each tenant may be allowed or not allowed to call any other tenant, as specified in the Tenant Interconnection Table. On each horizontal line, an (*) indicates tenants that may be connected, and a (.) indicates tenants that may not be connected from one tenant to another. The tenant being examined (horizontal row) can connect with each tenant that has an (*) in its column.

6:08 30-NOV-89		alarm status = MAJOR		
[TENANT : 1]	TYPE OF CALL	DAY	N1	N2
>	Station Dial 0 Routing Priority Dial 0 Routing DID Recall Points On Busy DID Recall Points On No Answer DID Routing For Calls Into This Tenant DID Illegal # Intercept For This Tenant DID Vacant Number Routing For This Tenant DID Attendant Access Night Points Non-Dial-In Trunks Alternate Recall Points Dial-In Tie Recall Points On Busy Dial-In Tie Recall Points On No Answer Dial-In Tie Routing For Calls Into This Tenant	1511	1511	<
	Station Dial 0 Routing	1511	1511	
1-	2-TENANT NAME	3-	4-TOP	5-BOTTOM
6-QUIT	7-TENANT	8-DELETE	9-	0-

Figure 3-3 Call Rerouting Table

Note: For programming CDE Form 19, Call Rerouting Table, DID and Dial-In Tie Trunk Attendant Night Access Points only work when the tie trunks are sent to the Attendant's extension number and not to an LDN key on the console.

The following table defines which tenant controls the recall point for incoming calls that are not answered by the destination station:

TYPE OF CALL

CONTROLLING TENANT GROUP

DID Recall Points on Busy
 DID Recall Points on No Answer
 DID Routing for Calls into this Tenant
 DID Illegal # Intercept this Tenant
 DID Vacant Number Routing for this Tenant
 DID Attendant Night Access Points

Destination Station
 Destination Station
 Destination Station
 Calling Trunk
 Calling Trunk
 Calling Trunk

Note: Will not recall on no answer if the ringing destination is the trunk's Night 1 answering point.

Non-Dial-In Trunks Alternate Recall Points
 Dial-In Tie Recall Points on Busy
 Dial-In Tie Recall Points on No Answer
 Dial-In Tie Routing for Calls into this Tenant
 Dial-In Tie Illegal # Intercept this Tenant
 Dial-In Tie Vacant Number Routing for this Tenant
 Dial-In Tie Attendant Access Night Points
 DND Intercept Routing for this Tenant

Destination Station
 Destination Station
 Destination Station
 Destination Station

UCD/Attendant Recording for this Tenant
 UCD on Hold Timeout for this Tenant
 DISA Day Service Routing for this Tenant
 CO Line Routing Points on No Answer

Night Switching

3.4 A Tenant Night Switching Control matrix allows one or more tenants (such as a night security desk console, subattendant, enhanced subattendant or *SUPERSET* telephone) to switch all tenants into Night service. This matrix is similar to the Tenant Interconnection Table.

The tenant being examined (horizontal row) will Night-switch each tenant programmed with an (*) in its column. This matrix is unidirectional. Tenant 1 may be programmed to Night-switch Tenant 2 but Tenant 2 may not be programmed to Night-switch Tenant 1. Figure 3-4 shows an example where Tenant 1 will Night-switch all tenants into Night service but all other tenants will only Night-switch themselves. Tenant 1, therefore, is the "master tenant" for Night switching control.

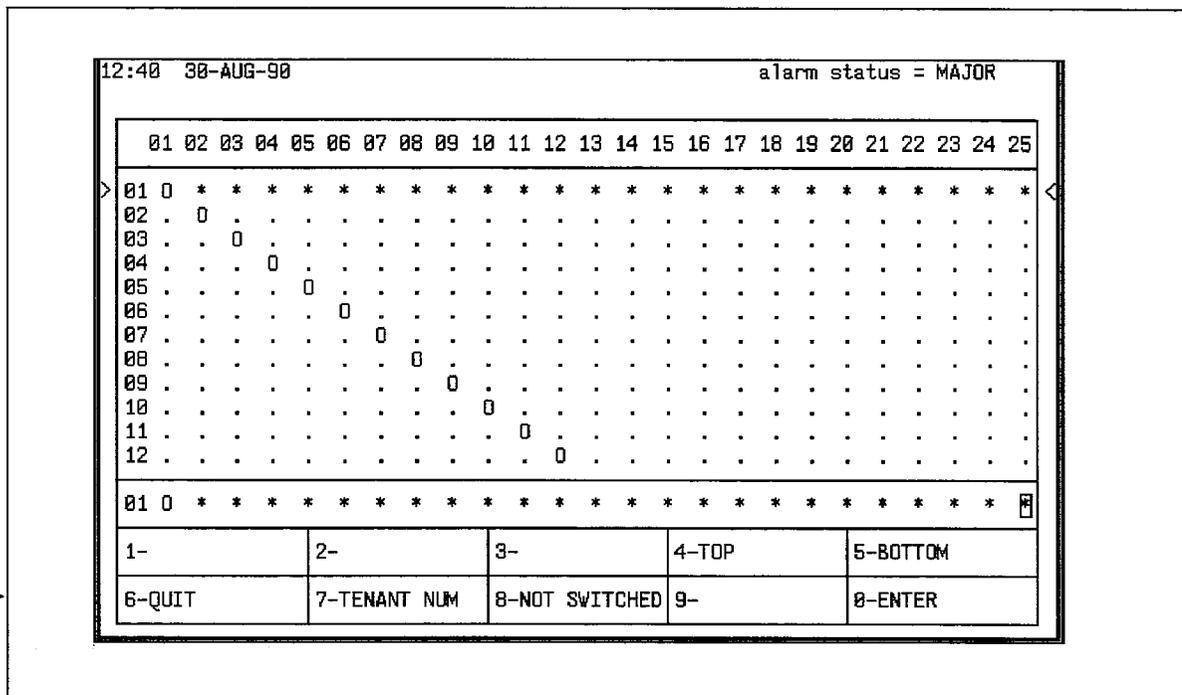


Figure 3-4 Tenant Night Switching Control

9109-896-450-NA

Issue 1

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SX-200[®] DIGITAL PABX

Traffic Measurement

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Table of Contents

1. GENERAL

Introduction	450 1-1
Reason for Reissue	450 1-1
Traffic Analysis	450 1-1

2. TRAFFIC MEASUREMENT METHODS

General	450 2-1
Types of Traffic Counts Accumulated	450 2-1
Register Count Examples	450 2-6
Power Failure	450 2-7

3. TRAFFIC MEASUREMENT COMMANDS

Maintenance Terminal and Console	450 3-1
Traffic Commands	450 3-1

4. INSTALLATION

General	450 4-1
Connection Requirements, Local Printer	450 4-1

5. REPORTS

General	450 5-1
Report Heading Description	450 5-1
Typical Report	450 5-1
336- port example	450 5-2
456- port example	450 5-2
480- port example	450 5-2
672- port example	450 5-2
Condensed Traffic Report	450 5-3
Analyzing Traffic Reports	450 5-4

1.

GENERAL

Introduction

- 1.1 This Practice describes principles of telephone traffic measurement for an SX-200® DIGITAL PABX, including programming and operating procedures for obtaining Traffic Measurement data.

Reason for Reissue

- 1.2 This Practice is reissued to provide information about Traffic Measurement for the SX-200 DIGITAL PABX. This is the first issue to include Generic 1005. Note that 672-port reports, ACD reports, and Automated Attendant reports are not available with Generic 1001 and Generic 1002. ACD reports are also not available with Generic 1003 Basic. Automated Attendant reports and ACD reports are not available with Generic 1005 FPKG 1 and LIT96.

Traffic Analysis

- 1.3 Traffic Analysis consists of two activities: to collect data about the system (measurement) and to interpret this data (analysis) to optimize system performance. Once traffic measurement has been started in the PABX, it continues automatically until changed or stopped. Traffic measurement produces a single report for the system. The report includes all tenants, if tenant service is provided.

Traffic measurement accumulates data in the form of peg counts and usage over a specified period of time. A peg count is the total number of times a facility (device, service, or feature) is accessed, irrespective of the length of each access. Usage is the length of time or duration for which each facility is used. In certain applications, the peak value of facility usage during the period is also recorded. Call holding time is the average length of each call.

$$\text{usage (Erlangs)} = \frac{\text{peg counts (per hour)} \times \text{call holding time (in seconds)}}{3600 \text{ (seconds per hour)}}$$

$$\text{usage (CCS)} = \frac{\text{peg counts (per hour)} \times \text{call holding time (in seconds)}}{100 \text{ (seconds per CCS period)}} \quad (\text{CCS} = \text{centi-call second})$$

$$\text{usage (Erlangs)} = \frac{\text{usage (CCS)}}{36} \quad \text{or, } 1 \text{ Erlang} = 36 \text{ CCS}$$

Examine traffic measurement results to determine the adequacy of equipment provisioning, and the effectiveness of programmed options and features. Analyze the results to identify changes which can be implemented by reprogramming and/or reprovisioning to improve system performance.

Traffic Measurement

2.

TRAFFIC MEASUREMENT METHODS

General

- 2.1 Traffic measurement data is accumulated in periods of from 1 to 60 minutes in length. The start time, which is specified to the nearest minute, and the duration (required number of periods) identify the daily time when measurements are collected. These three parameters are entered from the console or maintenance terminal. Once set, traffic measurement will begin at the same time each day and continue for the same duration, until changed or stopped. The system clock times the length of each period; however, a guard timer also monitors each period and can terminate the period if it times out before the system clock does. This would occur only if the system clock has been changed during a measurement period. The period length is not guaranteed if the clock is changed or the system is reset during a measurement period.

Data is accumulated into active registers during each measurement period. At the end of each period, data is transferred to storage registers and the active registers are set to zero in preparation for receiving data from the next period. The data is held in these storage registers from which it may be printed or written to magnetic tape or a similar storage device. At the end of each period, the data in the storage registers is replaced by the data accumulated in the active registers during the period. If the data was not retrieved from the storage registers during a period, new data received at the end of that period overwrites the data, and it is lost. This sequence then repeats for the specified duration.

Types of Traffic Counts Accumulated

- 2.2 Two basic types of data are accumulated in the registers: peg counts and usage counts. Usage counts may be further divided into normal usage and maximum value counts.

Peg Count. Each time a facility (device, service, or feature) is used, the call processing software increments its register by one count. A peg count is not concerned with the length of time of usage.

Usage Count. The amount of time for which a facility is used may be calculated from the usage count. At 10-second intervals, the call processing software scans each facility and increments the register if it is in use. The usage count is directly proportional to the time that a circuit is in use. Each accumulated usage count is converted into CCS or Erlangs for the traffic measurement report. The maximum usage is 6554 CCS or 182 Erlangs which will occur if 182 devices in a facility are all busy for 1 hour. The consoles are scanned every second to increase accuracy in the average waiting time for an answered call.

Maximum Value Count. This type of count is obtained similar to usage count, except that the value obtained at each scan does not increment the register; instead, it is compared with the registers value and updates the register only if its value exceeds that in the register. This value reflects the scanned maximum count of the usage of a resource. Since this is a scanned value, it is possible that a busy peg may exist without the maximum count reaching the number available.

Dynamic Records for Hunt Groups, Trunk Groups, and Trunks. The number of system, feature, receiver and channel pegs or records is fixed for each system. The number of console, hunt group, trunk group, and trunk records can vary. At the beginning of each period, records are allocated for consoles, trunk groups, and trunks. Each console, hunt group, and trunk group that is programmed in CDE is allocated one record. The programmed trunks are allocated the remaining records, in ascending trunk number order. A total of 112 records is allocated.

Example: For Generic 1003, the following traffic would be recorded:

- 4 consoles
 - 8 hunt groups
 - 15 trunk groups
 - 70 trunks, numbered 1 to 70
- 97 records (total) 15 records still available (98 – 112)

The following data is accumulated during traffic measurement:

System Activity – Indicates the extent of activity on the basic system (maximum peg count = 65535). Counts include:

1 s Dial Tone: Incremented every time an extension or dial-in trunk has to wait 1 or more seconds for dial tone. This peg is not incremented by the Automated Attendant feature.

2 s Dial Tone: This is incremented each time an extension or dial-in trunk has to wait 2 or more seconds for dial tone. This peg is not incremented by the Automated Attendant feature.

3 s Dial Tone: Incremented every time an extension or dial-in trunk has to wait 3 or more seconds for dial tone. This peg is not incremented by the Automated Attendant feature.

Console Calls: A count of all calls directed to any console, including calls that hang up before they are answered.

Console Orig.: A count of all console originations.

Dataset Orig: This count is incremented each time a data call is originated either by ADL or DTRX.

Dial 0 Calls: A count of all dial 0 calls that are answered at any console. It includes priority dial 0 calls and all calls directed to Console directory numbers that are not answered.

Ext Origin.: Each time an idle extension goes off-hook, it causes this register to increment by one count. It does not increment when a ringing extension goes off-hook.

Intercepted: A count of all intercepted calls that are answered at all consoles.

Recall: A count of all console-answered recalls.

Activity: Each time a device has activity, this count is incremented.

Illegal Calls: This count is incremented whenever an extension, console or dial-in trunk dials a vacant or illegal number.

Features – Indicates the activity of those features which have been programmed for the installation (maximum peg count = 65535). Counts include:

ADL Access: Successful ADL feature accesses.

Callback: Callbacks that have been set up.

Call forward: All call forwarding set-ups (programming) at any extension or console.

Call hold: Number of hard holds by an extension.

Call park: Number of call parks.

Call pickup: Legally dialed call pick-ups, including local pick-ups or directed pick-ups from extensions.

Camp-on: Camp-ons to any device (including trunk groups and hunt groups) by another device for extension-to-trunk, extension-to-extension, and trunk-to-extension.

Console conf.: The number of times consoles use the conference softkey.

Console hold: The number of all call-holds made at the console.

DND: Do not disturb set-ups.

DTRX Session: Successful DTRX session accesses.

Ext. conf.: Extension conferences.

Flash Hold: Transfers or flash and holds from an extension or console.

Guest Room: Guest Room softkey depressions.

Hold pickup: Successful hold pick-ups (calls held at the console in a hold slot and picked up using the dialed console and hold slot number).

Maid in Room: Number of accesses to Feature Access Code 35, Maid in Room.

Msg Waiting: Applied message waiting, from any source in any manner.

Override: Completed busy overrides.

Paging: Successful pager accesses.

Serial Call: Console serial calls set up by all consoles.

TAFAS: TAFAS (night answer) answered from dialed feature access code or *SUPERSET* softkey.

Wake-Up: Call wake-up set-ups.

UCD Logout: UCD agent logins and logouts.

DTMF Receivers – Records activity on receivers within system (maximum peg count = 65535). The following counts are recorded:

Peg: The total number of times that the DTMF receivers were accessed during the measurement period.

Usage: Represents the total usage (Erlangs or CCS) for the DTMF receivers during the measurement period. Does not include busied-out receivers (maximum = 6553.5 ccs).

Busy Peg: The number of times a call could not immediately be allocated a DTMF receiver due to busy conditions.

Maximum in use/Available: The scanned maximum count of the number of receivers in use during the period and the number that are available for use. Does not include busied-out receivers.

Channel Usage And Local Switching – Records activity between bays and within each peripheral bay. The following counts are recorded:

Bay Number: Identifies the bay for which data is being accumulated.

Channel Usage: Usage of channels available to the bay. Does not include channels allocated for music or tones (maximum = 6553.5 ccs).

Max Channel/Available: The scanned maximum number of channels in use and the number available for use. Does not include channels allocated for music or tones.

Local Switching Usage: Usage of analog peripheral bay local switching (maximum = 6553.5 ccs).

Max Local Switching: The scanned maximum number of local switches found in an analog peripheral bay.

Console – Records activity of each console on the system. Console activity includes the following information:

Console Number: Directory number of the console. The console directory number is determined at the time of CDE Entry in Form 07, Console Assignments. If this console had been deleted, it will display '????' indicating that the directory number could not be determined.

Usage: Non-idle use of the console. The console is non-idle when it is using a channel. The console is idle when it is ringing, using the application key, or using the select features key (maximum = 36 CCS).

Call Waiting Usage: Usage of the Console queue for all calls presented to this console, either answered or unanswered (maximum = 655.35 CCS).

Calls Answered: Calls answered using the console. Includes softkey and ANSWER key answers (maximum peg count = 65535).

Avg Waiting Time: Average waiting time for a call directed to the console to be answered by the console.

Hunt Groups – Records activity of each hunt group. Hunt group activity includes the following information:

Hunt Group Number: Programmed hunt group number.

Peg: Number of accesses to a hunt group, including busy attempts (maximum = 65535).

Skip Peg: Number of failures to get a receiver, which resulted in skipping the recording and routing to the default destination (for Automated Attendant Hunt Groups only).

Usage: Usage of all devices in the hunt group (maximum = 6553.5 CCS).

Busy Peg: Number of times the hunt group was found busy by a caller.

Max in use/Available: Scanned maximum number of devices in the hunt group that were busy (busied-out devices are not included) and the number of devices available for use in the group.

Trunk Groups – Records activity of each trunk group. Trunk group activity includes the following information:

Trunk Group Number: Programmed trunk group number.

Peg: Number of accesses to a trunk group, including busy attempts (maximum = 65535).

Usage: Usage of all trunks in the trunk group making outgoing calls, measured in CCS or Erlangs (maximum = 6553.5 CCS).

Busy Peg: Number of times the trunk group was busy (maximum = 255).

Max in use/Available: Scanned maximum number of trunks in the trunk group that were busy (busied-out trunks are not included). The number of available trunks in a trunk group is determined at the time of the traffic measurement report and is not in the storage registers.

Trunks – Records activity of each trunk. Trunk activity includes the following information:

Trunk Number: List of all trunk numbers that were accessed.

Peg in: Total number of times the trunk was seized for incoming calls (maximum = 255).

Usage In: Represents the usage (in Erlangs or CCS) for incoming calls on the trunk (maximum = 36 ccs).

Peg Out: Total number of times the trunk was seized for an outgoing call on the trunk (maximum = 255).

Usage Out: Represents the usage (in Erlangs or CCS) for outgoing calls on the trunk (maximum = 36 ccs).

Register Count Examples

2.3 A call which lasts for 100 seconds has a value of 1 CCS (one hundred call-seconds). One Erlang equals 36 CCS or 3600 call seconds. Usage is measured in 10-second units; for example, a usage count of 128 (128 x 10 s) represents 1280 seconds of usage, equivalent to 12.8 CCS or 0.3556 Erlang (36 CCS equals 1 Erlang). The following example illustrates these "count" methods.

Extension Originations Peg Count – Each time an idle extension goes off-hook, it causes the register to increment by one count. Since it is a measure of the number of calls originated by the extensions, it does not increment when a ringing extension goes off-hook to answer a call. For example, if this register has a value of 858, the number of call originations (or off-hook originations) during the period totalled 858.

Trunk Group Usage – Each time the system scans the members of this trunk group, at 10 second intervals, it counts the number of members that are busy. A register value of 273 indicates that members were busy for 273 X 10 = 2730 seconds (27.3 CCS) during the measurement period.

Usage Measurement – Device usage is measured every ten seconds; therefore, each usage measurement is accurate to +/- 10 seconds (0.1 CCS or 0.0028 Erlang). Console usage measurement is accurate to +/- 1 second (0.01 CCS or 0.00028 Erlang) because they are scanned every second.

Power Failure

- 2.4 If power fails to the system, the current traffic measurement will be lost, and the latest traffic report will also be lost if it had not been output. When power is restored, traffic measurements will restart and continue until the end of the scheduled period. The new start time will begin at system power-up.

3.

TRAFFIC MEASUREMENT COMMANDS

Maintenance Terminal and Console

- 3.1 The maintenance terminal or console is used to enter the data required to start traffic measurements, print measurements, monitor status, or change traffic measurement parameters. Refer to Practice 9109-096-351-NA, RS-232 Maintenance Terminal, for instructions on using the terminal. At the maintenance terminal or console, select the MAINTENANCE application. From the MAINTENANCE main menu, select TRAFFIC MEAS (softkey 5).

Traffic Commands

1- SET	2- SHOW	3- PRINT	4- READ	5-
6- QUIT	7-	8-	9- STOP	0-

SET Set traffic report information
 SHOW Status of current traffic report that contains information defined by the SET command
 PRINT Print the latest traffic report
 READ Read the latest traffic report
 STOP Stop current traffic measurements or stop printing report

SET Command

1- UNITS	2- PERIOD	3- DURATION	4- AUTOPRINT	5- CANCEL
6-	7- START_TIME	8- CONDENSED	9-	0-

UNITS CCS or Erlangs
 PERIOD 1 to 60 minutes (default = 60)
 DURATION Number of periods default = 8)
 CONDENSED Condensed report (toggles ON or OFF)
 CANCEL Quit SET commands
 START TIME Presented in hours:minutes format (hh:mm)
 AUTOPRINT Print report automatically after each period (toggles ON or OFF)

Select the SET command to enter or change any traffic measurement parameters. Use the prompts to change required data and to exit from the TRAFFIC MEAS function. Setting START_TIME to a specific time prepares the traffic data collection facility. Data collection is only started when that time is reached. Until then, the PERIOD, DURATION, and START_TIME parameters can be changed. Once traffic measurements are started, a STOP command must be issued first, followed by other commands. The AUTOPRINT and CONDENSED parameters can be changed during

a traffic measurement period. At the beginning of each period of current traffic measurement, the pegs and dynamic records are initialized. If a new trunk group was set up by CDE, it would not be included in the traffic report until the next period.

STOP Command – This command causes two softkeys to become active. By pressing either softkey, you select what is to be stopped.

TRAFFRPT – Stops the traffic measurement which is currently active. No report will be made of the incomplete collected data.

PRINT – Stops a printout from being sent to the PRINTER port.

Note: The STOP command will not stop an AUTOPRINT in progress. The AUTOPRINT command must be set to OFF between printouts to stop printouts.

SHOW STATUS Command – Contains a summary report on the current traffic measurement parameters.

STATUS:	Activated/OFF
START TIME:	hh:mm (hours:minutes)
DATA COLLECTION:	Running/OFF
PERIOD:	mm (minutes)
DURATION:	nn (periods)
AUTOPRINT:	ON/OFF
UNITS:	Erlangs/CCS
CONDENSED REPORT:	ON/OFF

START TIME and DATA COLLECTION are not displayed if STATUS is set to OFF.

SET STATUS OFF

press STOP
press TRAFFRPT
press ENTER

STATUS is set to OFF.

DATA COLLECTION: This indicates that data is currently being collected if traffic is being measured. When it is set to OFF, either the daily start time has not been reached, or, it has finished the required number of periods since the start time. In either case, no data is currently being collected.

PRINT: This softkey command causes the latest traffic report held in the system to be printed immediately.

READ: This softkey command causes the latest traffic report in the system to be displayed on the maintenance terminal where it may be read by the user. READ is only available at the Maintenance Terminal. If the Console softkey is pressed, the following message appears on the LCD display:

This function is not available for this device

QUIT: This softkey command allows the user to exit from Traffic Measurement mode at the console or maintenance terminal.

4.

INSTALLATION**General**

- 4.1 Installation to meet the Traffic Measurement requirements consists of the following steps:
1. Determine the required traffic parameters.
 2. Determine the required output device.
 3. Install the output device.
 4. Program the traffic parameters and output device for this installation.

Connection Requirements, Local Printer

- 4.2 Practice 9109-096-200-NA, Installation Information, details the installation of SX-200 DIGITAL PABX systems. Refer to Practice 9109-096-353-NA, General Maintenance Information, and reference System Set Commands. This section explains how to assign printers during installation and to perform initial maintenance programming. The Traffic Measurement data may be output to a printer, magnetic recording device, or the maintenance terminal. If required, a Data Demultiplexer may be used and the Traffic Measurement data directed to one output of it.

When a backplane printer port is used, it should be located as near as possible to the PABX and connected to the PABX data port with a 25-conductor connectorized cable, not longer than 4.5 m (15 ft) in length.

A Printer may be specified in CDE Form 34, Directed IO, which will allow all Traffic Measurement printouts to be sent to this printer which is connected to a port equipped with an asynchronous data set. Refer to Practice 9109-096-210-NA, Customer Data Entry, for further details.

Note: Ensure that the length of time the printer requires to print one report is less than the length of time specified for a traffic measurement period; otherwise, reports will be generated faster than the printer can print them.

Traffic Measurement

5.

REPORTS

General

- 5.1 The standard traffic measurement report provides a printed record of the data in the storage registers (usually the measurements taken during the preceding period). The report includes headings which make the data easy to read.

Report Heading Description

- 5.2 Port size and system number are unique to each system and are programmed when the system is initially configured. In the following typical report, the Generic is 100Y, where Y is the last digit of the software Generic installed in the PABX. ZZZZZZ is an optional field which defines software loads that include special features; for example, an ACD load displays ACD PC. The port size is represented by XXXP. The system identifier is represented by nnn (if one has not been programmed, 0 appears). The CHANNELS data for a maximum system configuration is printed. Local Usage and Max Local apply only to analog bays.

Typical Report

- 5.3 In this report, four different CHANNELS examples are given. In an actual system printout, only one CHANNELS report (for that systems port configuration) is printed.

SX-200 DIGITAL Generic 100Y ZZZZZZ XXXP TRAFFIC REPORT

SYSTEM nnn
27-NOV-87
9:00 to 10:00

SYSTEM ACTIVITY:

1s dial tone	0	2s dial tone	0	3s dial tone	0
Console calls	0	Console orig.	0	Dataset orig.	7
Dial 0 calls	0	Ext. origin.	66	Intercepted	0
Recall	0	Activity	1775	Illegal calls	1

FEATURES:

ADL access	0	CallBack	0	Call hold	4
Call Forward	2	Call Park	0	Call Pickup	0
Campon	1	Console conf.	0	Console hold	0
DND	0	DTRX session	6	Ext. conf.	0
Flash hold	2	Guest Room	0	Hold pickup	0
Maid in Room	0	Msg Waiting	1	Override	0
Paging	0	Serial call	0	TAFAS	0
Wakeup	0	UCD Loginout	0		

Traffic Measurement

DTMF RECEIVERS:

Peg	Usage	Busy Peg	Max/Avl
118	4.20 ccs	0	2 / 8

336– port example

CHANNELS:

Bay	Usage	MaxAvl	Local Usage	Max local
1	17.60 ccs	2 / 123		
2	85.90 ccs	6 / 61		
3	344.60 ccs	13 / 94		
4	50.60 ccs	5 / 94		

456– port example

CHANNELS:

Bay	Usage	MaxAvl	Local Usage	Max local
1	2.20 ccs	2 / 124		
2	9.60 ccs	4 / 62		
3	33.00 ccs	6 / 94		
4	1.20 ccs	3 / 31	0.00 ccs	0
5	18.10 ccs	6 / 31	1.80 ccs	2

480– port example

CHANNELS:

Bay	Usage	MaxAvl	Local Usage	Max local
1	2.20 ccs	2 / 124		
2	9.60 ccs	4 / 62		
3	3.00 ccs	1 / 31	0.00 ccs	0
4	1.20 ccs	3 / 31	0.00 ccs	0
5	18.10 ccs	6 / 31	1.80 ccs	2

672– port example

CHANNELS:

Bay	Usage	MaxAvl	Local Usage	Max local
1	17.60 ccs	2 / 123		
2	85.90 ccs	6 / 61		
3	344.60 ccs	13 / 94		
4	50.60 ccs	5 / 94		
5	456.40 ccs	18 / 94		
6	43.60 ccs	4 / 94		
7	421.30 ccs	17 / 94		

CONSOLE:

Directory Number	Usage	Calls Answered	Calls Waiting Usage	Avg. Waiting Time (sec)
4900	0.00 ccs	0	0.00 ccs	0.00
4888	0.00 ccs	0	0.00 ccs	0.00

HUNT GROUPS:

Number	Peg	Usage	Busy Peg	Max/Avl
1	3	6.60 ccs	0	3 / 3
2	5	139.90 ccs	0	5 / 5
3	0	35.40 ccs	0	1 / 3

Number	Peg Skip	Peg	Usage	Busy Peg	Max/Avl
4	6	1	123.00 ccs	1	2 / 3

TRUNK GROUPS:

Number	Peg	Usage	Busy Peg	Max/Avl
1	6	22.00 ccs	0	2 / 3
2	26	23.40 ccs	0	3 / 7
4	0	0.00 ccs	0	0 / 1
5	0	0.00 ccs	0	0 / 1

TRUNKS:

Number	Peg In	Usage In	Peg Out	Usage Out
1	0	0.00 ccs	2	1.40 ccs
2	0	0.00 ccs	2	0.60 ccs
3	0	0.00 ccs	2	19.90 ccs
4	0	0.00 ccs	0	0.00 ccs
5	0	0.00 ccs	0	0.00 ccs
20	5	5.10 ccs	3	2.40 ccs
22	6	6.20 ccs	4	0.80 ccs
24	6	1.20 ccs	4	2.50 ccs
26	5	2.10 ccs	4	7.70 ccs
28	5	4.40 ccs	4	3.40 ccs
30	4	4.90 ccs	4	4.90 ccs
32	4	0.90 ccs	3	1.80 ccs
40	0	0.00 ccs	0	0.00 ccs
42	0	0.00 ccs	0	0.00 ccs

Condensed Traffic Report

- 5.4 The condensed report contains the data only, in decimal form. Register numbers and assignments are known for each particular software Generic. The dynamic section of the report requires a header for each group of data and the device number beside the device data. A program which analyses the data knows the format in which the condensed report is structured, and can interpret the data accordingly.

Analyzing Traffic Reports

5.5 From reading the Traffic Report, the following total traffic values can be determined:

Total Traffic = Sum of channel usage – Receiver usage

Number of Calls = Extension Originations + Console Originations
+ sum of incoming trunk pegs

The following table lists typical business traffic:

Traffic Type	Number of Ports	Traffic / Port (CCS)	Total CCS
Light	250	1.4	350
	300	1.4	420
	350	1.4	490
	400	1.4	560
	480	1.4	672
Medium	250	3.0	750
	300	2.9	870
	350	2.9	1015
	400	2.9	1160
	480	2.9	1392
Heavy	250	5.5	1375
	300	5.4	1620
	350	5.4	1890
	400	5.4	2160
	480	5.4	2592

SX-200[®] DIGITAL PABX

Hotel/Motel Feature Package Description

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Table of Contents

1. INTRODUCTION

General	602 1-1
Intended Audience	602 1-1
Document Structure and Contents	602 1-1
Referenced Documents	602 1-2

2. SYSTEM DESCRIPTION

Introduction	602 2-1
Hotel/Motel Feature Package	602 2-1
Feature Access	602 2-2
List of Features	602 2-2
Accessing Hotel/Motel Features	602 2-5
Attendant Console Access	602 2-5
Front Desk Terminal Access	602 2-10
Keyboard Data Entry	602 2-16
SUPERSET™ Display Telephone Access	602 2-18
Industry-Standard Telephone Access	602 2-20
SX-200® DIGITAL PABX Access	602 2-21
System Configuration	602 2-22
Hardware	602 2-22
Feature Description	602 2-24
Attendant Message Waiting Setup and Cancel	602 2-24
Guest Room Message Retrieval	602 2-24
Audits	602 2-25
Attendant Message Register Audit	602 2-25
Room Status Audit(s)	602 2-26
Room Type Audit	602 2-30
Wakeup Audit	602 2-31
Wakeup/Room Condition Audit	602 2-31
Automatic Wakeup	602 2-32
Attendant Wakeup	602 2-32
Guest Room Wakeup	602 2-35
Call Blocking	602 2-36
Call Restriction	602 2-37
Check Out	602 2-38
Do Not Disturb	602 2-38
Guest Names	602 2-40
Guest Room SUPERSET Key Programming	602 2-41
Maid in Room	602 2-42
Maid in Room Status Display – SUPERSET 4®, SUPERSET 4™DN, SUPERSET 420™ and SUPERSET 430™ Telephones	602 2-45
Message Lamp Test	602 2-46

Hotel/Motel Feature Package Description

Message Register	602 2-47
Multi-User	602 2-48
PMS Interface	602 2-49
Room Condition	602 2-49
Room Occupancy	602 2-52
Room Status Display	602 2-54
Attendant Console and Front Desk Terminal	602 2-54
Room Types and Room Codes	602 2-55
Searches	602 2-55
Guest Search	602 2-55
Room Number Search	602 2-56
Room Type Search	602 2-57
Maid in Room Search	602 2-57
Room Status Search	602 2-58
Single Line Reports	602 2-60
<i>SUPERSET 4/SUPERSET 420</i> Room Status Display	602 2-62
Property Management System	602 2-63
PMS-Specific Features	602 2-63
Feature Interactions	602 2-64
Feature Availability	602 2-65

3. HARDWARE INSTALLATION

General	602 3-1
---------------	---------

4. PROGRAMMING HOTEL/MOTEL

General	602 4-1
Programming Procedures	602 4-1
Attendant Message Waiting	602 4-14
Audits	602 4-15
Automatic Wakeup	602 4-17
Call Blocking	602 4-21
Call Restriction	602 4-22
Do Not Disturb	602 4-23
Guest Room <i>SUPERSET</i> Key Programming	602 4-24
Maid in Room	602 4-25
Maid in Room Status Display – <i>SUPERSET 4, SUPERSET 420, SUPERSET 4DN</i> and <i>SUPERSET 430</i> Telephones	602 4-26
Message Lamp Test	602 4-26
Message Register	602 4-27
Room Status	602 4-28
Room Types and Room Codes	602 4-29
Single-Line Reports	602 4-30
<i>SUPERSET</i> Telephone Room Status Display	602 4-31

5. USING THE HOTEL/MOTEL FEATURE PACKAGE

Accessing Hotel/Motel from the Attendant Console	602 5-1
--	---------

Attendant Message Waiting Setup and Cancel	602 5-2
Audits	602 5-3
Automatic Wakeup	602 5-4
Call Blocking	602 5-5
Call Restriction	602 5-5
Do Not Disturb	602 5-6
Message Register	602 5-7
Room Status Display	602 5-8
Searches	602 5-10
Accessing Hotel/Motel with a Front Desk Terminal	602 5-11
Attendant Message Waiting Setup and Cancel	602 5-14
Audits	602 5-15
Automatic Wakeup	602 5-17
Call Restriction (known as Call Privilege on Front Desk Terminal)	602 5-19
Check Out	602 5-20
Do Not Disturb	602 5-21
Guest Names	602 5-22
Maid in Room Display	602 5-23
Message Register	602 5-23
Room Condition	602 5-24
Room Occupancy	602 5-25
Searches	602 5-26
Accessing Hotel/Motel with a Telephone	602 5-29
Attendant Message Waiting – Guest Room Message Retrieval	602 5-30
Maid in Room	602 5-31
Maid in Room Status Display – <i>SUPERSET 4/SUPERSET 420/SUPERSET 4DN/ SUPERSET 430</i> Telephones	602 5-32
<i>SUPERSET</i> Telephone Room Status Display	602 5-33

List of Figures

Figure 2-1	Hotel/Motel Features Available on the Console	602 2-5
Figure 2-2	Access Mechanism for Hotel/Motel Features on the Attendant Console	602 2-6
Figure 2-3	Guest Room Display During a Call from the Guest Room	602 2-6
Figure 2-4	Guest Room Display with Idle Console	602 2-6
Figure 2-5	Console Display after Pressing GUEST ROOM Softkey	602 2-7
Figure 2-6	Console Display after Pressing VAC/DIRTY RM Softkey	602 2-7
Figure 2-7	Console Display if no VAC/DIRTY Rooms	602 2-7
Figure 2-8	Hotel/Motel Features Available on the Front Desk Terminal	602 2-10
Figure 2-9	House Statistics Screen	602 2-11
Figure 2-10	Room Search Mechanism	602 2-12
Figure 2-11	Vacant Room Template	602 2-13
Figure 2-12	Hotel/Motel Features Available on a SUPERSET Display Telephone	602 2-18
Figure 2-13	Occupancy/Condition Display on SUPERSET 4/SUPERSET 420 Telephone ..	602 2-19
Figure 2-14	Hotel/Motel Features Available on Industry-Standard, SUPERSET 3™/ SUPERSET 3™ DN//SUPERSET 401™/SUPERSET 410™ Telephones	602 2-20
Figure 2-15	Hotel/Motel Features Available Only from the SX-200 DIGITAL PABX	602 2-21
Figure 2-16	Hotel/Motel System Configuration – Generic 1004/1005	602 2-23
Figure 2-17	Message Register Audit	602 2-26
Figure 2-18	The Four Sections of the Room Status Audit (Attendant Console)	602 2-28
Figure 2-19	Room Status Audit for All Rooms of a Particular Type (Front Desk Terminal) (Room Status Audit for all Rooms that have an Occupancy Status of Vacant) ..	602 2-29
Figure 2-20	Room Type Audit (Front Desk Terminal)	602 2-30
Figure 2-21	Automatic Wakeup Audit	602 2-31
Figure 5-1	House Statistics Screen after Log On	602 5-12
Figure 5-2	Wakeup Time Prompt	602 5-17

List of Tables

Table 1-1	Intended Audience	602 1-1
Table 1-2	Contents of this Practice	602 1-1
Table 2-1	Hotel/Motel Features	602 2-2
Table 2-2	Attendant Console Key Functions	602 2-8
Table 2-3	Front Desk Terminal Softkey Functions	602 2-14
Table 2-4	Front Desk Terminal Hard Key Functions	602 2-16
Table 2-5	SUPERSET 4/SUPERSET 4DN/SUPERSET 420/SUPERSET 430 Access Functions	602 2-19
Table 2-6	Industry-Standard Telephone Access Functions	602 2-21
Table 2-7	SX-200 DIGITAL PABX Access Functions	602 2-22
Table 2-8	Hotel/Motel Hardware	602 2-22
Table 2-9	Audits by Terminal Type	602 2-25
Table 2-10	Room Status Audits	602 2-27

Table 2-11	Automatic Wakeup	602 2-33
Table 2-12	Do Not Disturb	602 2-39
Table 2-13	Guest Names	602 2-40
Table 2-14	Maid in Room	602 2-42
Table 2-15	Maid in Room	602 2-43
Table 2-16	Maid in Room Status Display	602 2-45
Table 2-17	Room Condition	602 2-49
Table 2-18	Room Occupancy	602 2-52
Table 2-19	Room Status Display	602 2-54
Table 2-20	Room Types (Examples)	602 2-55
Table 2-21	Room Number Search	602 2-56
Table 2-22	Maid in Room Search	602 2-57
Table 2-23	Room Status Search	602 2-59
Table 2-24	Single Line Reports	602 2-61
Table 2-25	<i>SUPERSET</i> Telephone Room Status Display	602 2-62
Table 2-26	Feature Availability by Generic	602 2-65
Table 5-1	Hotel/Motel Features Accessed from the Attendant Console	602 5-1
Table 5-2	Room Status	602 5-9
Table 5-3	Hotel/Motel Features Accessed from the Front Desk Terminal	602 5-11
Table 5-4	Hotel/Motel Features Accessed from Telephones	602 5-29

List of Charts

Chart 3-1	Installing Hardware	602 3-1
Chart 4-1	Programming the Hotel/Motel Application	602 4-2
Chart 4-2	Programming for PMS	602 4-11
Chart 4-3	Programming Attendant Message Waiting Setup and Cancel	602 4-14
Chart 4-4	Programming Attendant Message Register Audit	602 4-15
Chart 4-5	Setting Up Room Status Audit	602 4-16
Chart 4-6	Programming Wakeup Audit	602 4-16
Chart 4-7	Producing an Automatic Audit of Wakeups/ Changing Room Status at a Predetermined Time	602 4-17
Chart 4-8	Setting System Time	602 4-17
Chart 4-9	Programming Guest Room Automatic Wakeup	602 4-18
Chart 4-10	Programming Attendant Automatic Wakeup	602 4-19
Chart 4-11	Programming Call Blocking	602 4-21
Chart 4-12	Programming Call Restriction	602 4-22
Chart 4-13	Programming Do Not Disturb	602 4-23
Chart 4-14	Guest Room <i>SUPERSET</i> Key Programming	602 4-24
Chart 4-15	Programming Maid in Room Status	602 4-25
Chart 4-16	Programming Maid in Room Status Display – <i>SUPERSET 4</i> , <i>SUPERSET 420</i> , <i>SUPERSET 4DN</i> and <i>SUPERSET 430</i> Telephones	602 4-26
Chart 4-17	Programming Message Lamp Test	602 4-26

Hotel/Motel Feature Package Description

Chart 4-18	Programming Message Register	602 4-27
Chart 4-19	Setting up Room Status	602 4-28
Chart 4-20	Programming Room Types and Room Codes	602 4-29
Chart 4-21	Enabling Single-Line Reports	602 4-30
Chart 4-22	Programming Room Status Display – <i>SUPERSET 4/SUPERSET 420/ SUPERSET 4DN/SUPERSET 430</i> Telephones	602 4-31
Chart 5-1	Setting Up Message Waiting – Attendant	602 5-2
Chart 5-2	Cancelling Message Waiting – Attendant	602 5-2
Chart 5-3	Requesting Audits	602 5-3
Chart 5-4	Setting Automatic Wakeup	602 5-4
Chart 5-5	Cancelling Automatic Wakeup	602 5-4
Chart 5-6	Setting Up/Removing Call Blocking	602 5-5
Chart 5-7	Setting Up Do Not Disturb – Attendant	602 5-6
Chart 5-8	Cancelling Do Not Disturb – Attendant	602 5-6
Chart 5-9	Displaying the Message Register for an Extension	602 5-7
Chart 5-10	Clearing the Message Register	602 5-7
Chart 5-11	Checking/Changing Status of a Room (Call Restriction, Room Occupancy, Room Condition, Maid)	602 5-8
Chart 5-12	Searching for a Particular Room by Number	602 5-10
Chart 5-13	Searching for Rooms by Status (Room Status, Room Condition, Maid)	602 5-10
Chart 5-14	Accessing the Hotel/Motel Feature Package from a Front Desk Terminal	602 5-12
Chart 5-15	Refreshing the House Statistics Screen	602 5-13
Chart 5-16	Logging Off	602 5-13
Chart 5-17	Setting Up/Cancelling Attendant Message Waiting	602 5-14
Chart 5-18	Printing a Message Register or Wakeup Audit	602 5-15
Chart 5-19	Printing a Room Type Audit	602 5-15
Chart 5-20	Printing Room Status Audits	602 5-16
Chart 5-21	Setting an Automatic Wakeup	602 5-17
Chart 5-22	Cancelling a Wakeup Call	602 5-18
Chart 5-23	Changing Call Privilege	602 5-19
Chart 5-24	Check Out (Single Key)	602 5-20
Chart 5-25	Setting/Clearing Do Not Disturb	602 5-21
Chart 5-26	Entering Guest Names	602 5-22
Chart 5-27	Removing Guest Names	602 5-23
Chart 5-28	Checking the Maid in Room Status	602 5-23
Chart 5-29	Clearing the Message Register	602 5-23
Chart 5-30	Changing the Condition Field	602 5-24
Chart 5-31	Changing the Occupancy Field	602 5-25
Chart 5-32	Guest Search	602 5-26
Chart 5-33	Searching for Particular Rooms	602 5-27
Chart 5-34	Searching for a Guest Room by Number	602 5-27
Chart 5-35	Searching for a Particular Room Type	602 5-28
Chart 5-36	Retrieving a Message	602 5-30
Chart 5-37	Changing Maid in Room Status from the Room Telephone	602 5-31
Chart 5-38	Monitoring Maid in Room Status from a <i>SUPERSET</i> Display Telephone	602 5-32
Chart 5-39	Monitoring Room Status From <i>SUPERSET</i> Display Telephone	602 5-33

1.

INTRODUCTION

General

- 1.1 This practice describes the Hotel/Motel features offered on the SX-200® DIGITAL PABX.

Hotel/Motel Feature Packages. The SX-200 DIGITAL PABX Hotel/Motel feature package integrates standard PABX features with custom Hotel/Motel features. The SX-200 DIGITAL PABX can also interface with a property management system (PMS).

Intended Audience

The intended audience for this practice is described in Table 1-1.

Table 1-1 Intended Audience	
Audience	Section
Those who need a general description of the Hotel/Motel application and the different Hotel/Motel features.	2. System Description
Installers	3. Installation
System programmers	4. Programming
Installers, programmers, users	5. User Information

Document Structure and Contents

The contents of this practice is described in Table 1-2.

Table 1-2 Contents of this Practice	
Section	Contents
1. Introduction	An introduction to the practice, including intended audience, introduction to Hotel/Motel applications, and the list of documents that have been referenced in this practice.
2. System Description	A description of the Hotel/Motel application including the features accessible from different types of terminals. A description of each Hotel/Motel feature.
3. Installation	Installing the hardware.
Page 1 of 2	

Table 1-2 Contents of this Practice (continued)	
Section	Contents
4. Programming Hotel/Motel	Programming the <i>SX-200</i> DIGITAL PABX to run the Hotel/Motel feature package.
5. Using the Hotel/Motel Feature Package	How to use the Hotel/Motel features from different peripherals.

Page 2 of 2

Referenced Documents

The documents referenced in this practice are:

- Practice 9109-096-126-NA, Peripheral Devices
- Practice 9109-096-200-NA, Installation Information
- Practice 9109-096-210-NA, Customer Data Entry
- Practice 9109-096-221-NA, Station Message Detail Recording
- Practice 9109-096-350-NA, Troubleshooting

2.

SYSTEM DESCRIPTION

Introduction

- 2.1 The Hotel/Motel feature package is provided by MITEL® and is supported by the SX-200 DIGITAL PABX.

Hotel/Motel Feature Package

The Hotel/Motel feature package is designed specifically for use in the hotel environment. The features facilitate guest-related activities such as checking guests in and out, providing automatic wakeups and taking messages. The Hotel/Motel feature package can be used to configure the telephone activities guests are allowed (such as blocking calls between rooms) and to record what use is made of room telephones. It also assists with administering such hotel activities as keeping an accurate record of room occupancy and tracking housekeeping activity and status.

Attendant Activities. Using the Hotel/Motel feature package, the attendant can:

- check the current room status
- modify room status (assign guest rooms)
- set automatic wakeups for guests
- request reports of all current wakeups, message register counts, and status of rooms
- inhibit room to room calling
- assign outgoing call privileges on a room to room basis
- request a message register audit

Staff/Management Activities. Hotel/Motel staff or management can:

- record the number of calls made from each guest room (automatic message register for guest rooms)
- receive automatic room status conversion
- access maid in room updates from guest room
- access maid status display from *SUPERSET™* telephone
- access room status display from *SUPERSET* telephone
- interface to a property management system (PMS)
- generate single-line printouts for events such as unanswered wakeup calls, set up or cancelled wakeups, and message register overflow

Guest Activities. A Hotel/Motel guest can:

- set their own wakeup calls (either on the guest room telephone or by request to the attendant)
- refuse telephone calls (by setting Do Not Disturb on the guest room telephone or by request to the attendant)

- access special features and speed dial capabilities through guest room *SUPERSET* key programming

Feature Access

The feature package can be accessed by an attendant console, a front desk terminal, a *SUPERSET* display telephone, an industry-standard, *SUPERSET 401™*, *SUPERSET 3™*, *SUPERSET 3™DN* or *SUPERSET 410* telephone. Each of these terminal types can access a subset of the Hotel/Motel features.

List of Features

A list of the features available on the *SX-200* DIGITAL PABX and an indication of the features available through each terminal are shown in Table 2-1.

Table 2-1 Hotel/Motel Features				
Feature Name	Feature is available on...			
	Attendant Console	Front Desk Terminal ¹	<i>SUPERSET 4® / SUPERSET4™ DN SUPERSET 420™ SUPERSET430™⁹</i>	Other Tele-phones ⁷
Attendant Do Not Disturb	Yes	Yes	No	No
Attendant Message Waiting Setup and Cancel	Yes	Yes	No	No
Guest Message Waiting Cancel	No	No	Yes ²	Yes ²
Audits				
Attendant Message Register Audit	Yes	Yes	No	No
Room Status Audit	Yes	See All Room Status Audit	No	No
Vacant Room Audit	No	Yes	No	No
Occupied Room Audit	No	Yes	No	No
Reserved Room Audit	No	Yes	No	No
Guaranteed Room Audit	No	Yes	No	No
To be Inspected Room Audit	No	Yes	No	No
Dirty Room Audit	No	Yes	No	No
All Room Status Audit	See Room Status Audit	Yes	No	No
Room Type Audit	No	Yes	No	No
Wakeup Up Audit	Yes	Yes	No	No
Auto Room Status Conversion/Auto Wakeup Print ³	No	No	No	No

**Table 2-1 Hotel/Motel Features
(continued)**

Feature Available on the SX-200 DIGITAL PABX	Feature is available on...			
	Attendant Console	Front Desk Terminal ¹	SUPERSET 4/ SUPERSET 4DN SUPERSET 420 SUPERSET 430⁹	Other Tele- phones ⁷
Automatic Wakeup	Yes	Yes	No	No
Guest Room Wake Up	No	No	Yes ⁸	Yes
Call Blocking	Yes	No ⁴	No	No
Call Restriction	Yes	Yes	No	No
Check Out (single key)	No	Yes	No	No
Guest Names	Yes ⁵	Yes	Yes	No
Guest Room SUPERSET Key Programming (Not available in Generic 1001)	N/A	N/A	Yes	Yes ⁶
Maid In Room	No	No	Yes	Yes
Maid in Room Display (Not available in Ge- neric 1001)	Yes	Yes	Yes	No
Message Lamp Test	No	No	No	Yes
Message Register Display and Clear	Yes	Yes	No	No
Multi-user	Yes	Yes	Yes	Yes
Passwords	No	Yes	No	No
PMS Interface	No	No	No	No
Room Condition Display (Not available in Generic 1001)				
Clean	Yes	Yes	Yes	No
Dirty	Yes	Yes	Yes	No
Out of Service	Yes	Yes	Yes	No
To be Inspected	Yes	Yes	Yes	No
Room Occupancy Display				
Vacant	Yes	Yes	Yes	No
Occupied	Yes	Yes	Yes	No
Reserved (Not available in Generic 1001)	Yes	Yes	Yes	No
Guaranteed (Available in Generic 1004/1005)	Yes	Yes	Yes	No
Room Status Display	Yes	Yes	No/See below	No
SUPERSET 4 Room Status Display	No	No	Yes	No
Room Types and Room Codes	No	Yes	No	No
Searches				

**Table 2-1 Hotel/Motel Features
(continued)**

Feature Available on the SX-200 DIGITAL PABX	Feature is available on...			
	Attendant Console	Front Desk Terminal ¹	SUPERSET 4/ SUPERSET 4DN SUPERSET 420 SUPERSET 430	Other Tele- phones ⁷
Guest Search	No	Yes	No	No
Room Number	Yes	Yes	No	No
Room Type	No	Yes	No	No
Maid in Room Search	Yes	Yes	Yes	No
Room Status Search				
- Vacant/clean	Yes	Yes	No	No
- Vacant	No	Yes	No	No
- Out of service	Yes	Yes	No	No
- Dirty	No	Yes	No	No
- Reserved	No	Yes	No	No
- Guaranteed	No	Yes	No	No
- Reserved and clean	Yes	No	No	No
Single Line Reports	No	No	No	No

¹ Front Desk Terminal is available in Generic 1004 and Generic 1005 only (not available in Generic 1005 FPKG 1 and LIT96).

² Telephones can be programmed with this feature.

³ The SX-200 DIGITAL PABX can be programmed to produce this audit and change room status at a particular time each day.

⁴ Front desk terminal displays indication that call blocking has been set, but cannot set call blocking.

⁵ Consoles can display guest names, but cannot enter them.

⁶ SUPERSET 3, SUPERSET 3DN and SUPERSET 410 only.

⁷ SUPERSET 3, SUPERSET 3DN, SUPERSET 410, SUPERSET 401 and industry-standard telephones.

⁸ This is actually in the form of a Timed Reminder. See Practice 9109-096-105-NA, Features Description.

Accessing Hotel/Motel Features

2.2 Hotel/Motel features can be accessed from:

- Attendant console
- Front desk terminal
- *SUPERSET* display telephones
- Industry-standard telephones, *SUPERSET 3*, *SUPERSET 3DN*, *SUPERSET 401*, and *SUPERSET 410* telephones

In addition, there are several features that can only be accessed directly from the *SX-200* DIGITAL PABX.

Attendant Console Access

Feature Access. Attendant console access to the Hotel/Motel feature package integrates telephony with guest room functions. The attendant can be in conversation with a guest room while performing Hotel/Motel feature activities. An *SX-200* DIGITAL PABX can support several (a maximum of 11) consoles. However, each console operates independently to change guest room information.

The capabilities of the Hotel/Motel package as accessed by the attendant console are shown in Figure 2-1.

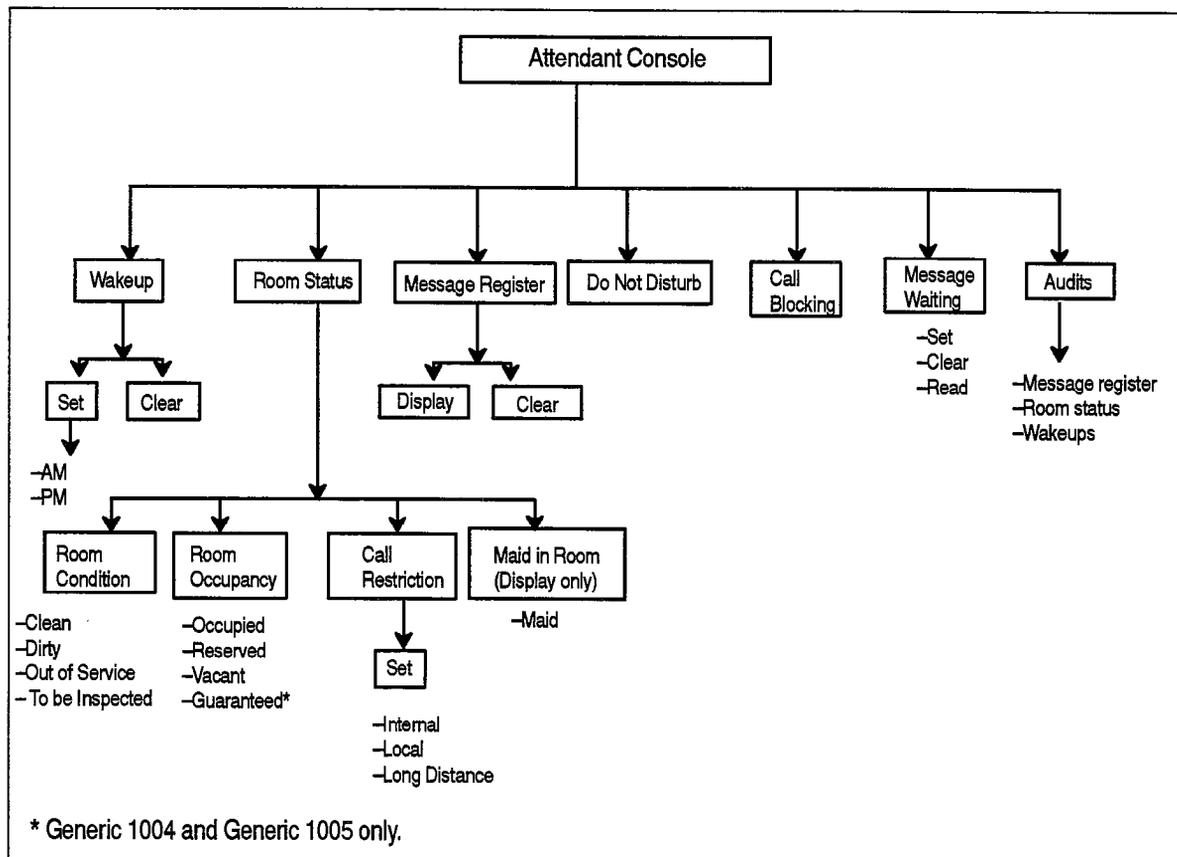


Figure 2-1 Hotel/Motel Features Available on the Console

Access Mechanism. Access to the Hotel/Motel package is through the FUNCTION hardkey and the GUEST ROOM softkey on the attendant console. The Hotel/Motel features are then available on softkeys. One feature, Call Block (blocking calls between rooms, see page 602 2-36) is accessed through the BLOCK hardkey.

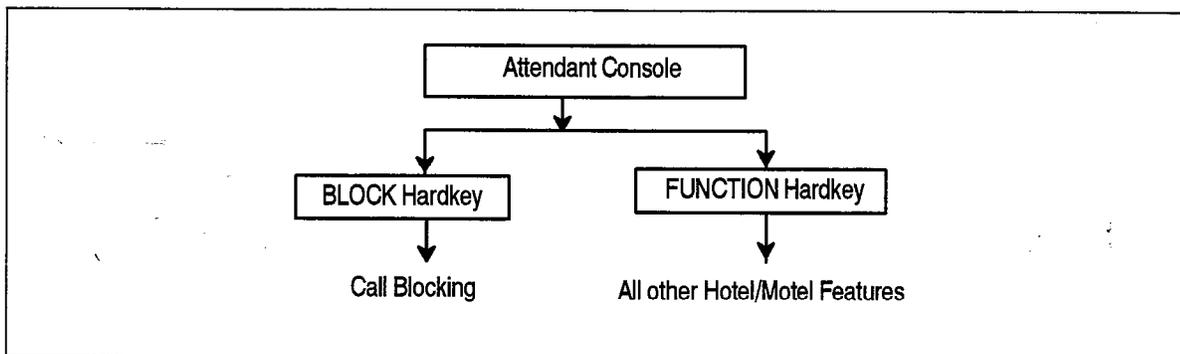


Figure 2-2 Access Mechanism for Hotel/Motel Features on the Attendant Console

The Hotel/Motel features can be accessed whether the attendant console is idle or in the process of handling a call. When handling a call from a guest room, after the FUNCTION hardkey and GUEST ROOM softkey are pressed, the attendant console display shows information about the source on the top line of the display, room information on the second line, and the softkeys on the remaining two lines. Note that information about the source is presented without pressing the FUNCTION and GUEST ROOM keys in Generic 1002, Generic 1003, Generic 1004 and Generic 1005. See Figure 2-3.

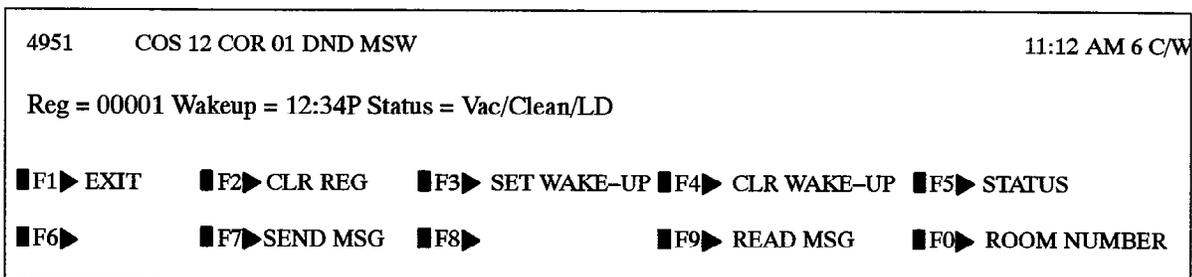


Figure 2-3 Guest Room Display During a Call from the Guest Room

Pressing the GUEST ROOM softkey while the attendant console is not engaged in a call produces the display shown in Figure 2-4.

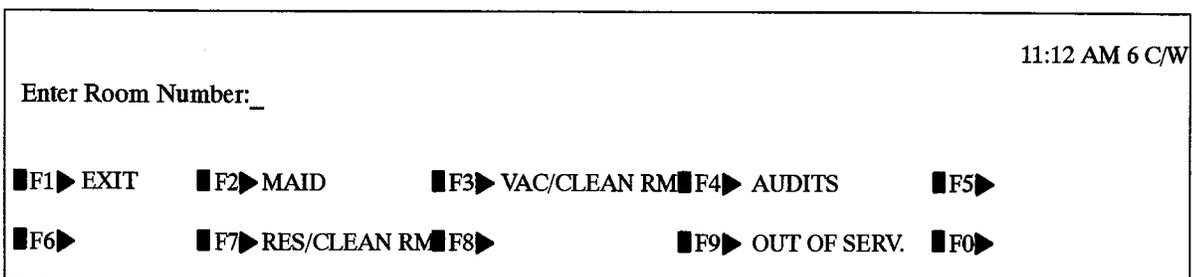


Figure 2-4 Guest Room Display with Idle Console

Once a room number (extension number) has been entered, the display changes to the format shown in Figure 2-3 with a ROOM NUMBER softkey displayed in the F0 position. Pressing EXIT at any time returns the attendant console to its prior state (idle or busy call processing).

In all releases (except Generic 1001 and Generic 1002), the following softkeys appear on the attendant console display after pressing the GUEST ROOM softkey:

```

Enter Room Number:_

■F1▶ EXIT      ■F2▶ MAID      ■F3▶ VAC/CLEAN RM ■F4▶ AUDITS      ■F5▶ OCC/DIRTY
■F6▶ OCC/CLEAN RM ■F7▶ RES/CLEAN RM ■F8▶ VAC/DIRTY RM ■F9▶ OUT OF SERV. ■F0▶
  
```

Figure 2-5 Console Display after Pressing GUEST ROOM Softkey

When one of the choices has been selected, the display is changed to the following:

```

TOTAL = 9          4800      4850      4900
                  4951      5005      5015

■F1▶ EXIT      ■F2▶ ROOM NUMBER ■F3▶          ■F4▶          ■F5▶
■F6▶          ■F7▶          ■F8▶          ■F9▶          ■F0▶ MORE...
  
```

Figure 2-6 Console Display after Pressing VAC/DIRTY RM Softkey

The total number of rooms of the specified status, e.g. VAC/DIRTY, appears in the top left corner of the display if there is at least one room which fits that description. A maximum of 6 room numbers will be shown on the same display. Pressing the MORE softkey will display the remainder of the room numbers.

If there were no VAC/DIRTY rooms, the following display will appear:

```

No Vacant and Dirty Rooms

■F1▶ EXIT      ■F2▶          ■F3▶          ■F4▶          ■F5▶
■F6▶          ■F7▶          ■F8▶          ■F9▶          ■F0▶
  
```

Figure 2-7 Console Display if no VAC/DIRTY Rooms

The console display could also show no occupied and clean rooms, no vacant and clean rooms, no occupied and dirty rooms or no reserved and clean rooms.

The functions of the Hotel/Motel keys on the attendant console are shown in Table 2–2.

Table 2–2 Attendant Console Key Functions

Console Hardkeys	Console Softkeys	Function
BLOCK		Blocks calls between rooms.
FUNCTION		Accesses GUEST ROOM softkey.
	GUEST ROOM Softkey	Accesses all Hotel/Motel features other than call blocking.
	MAID	Produces display of all rooms with maids in them.
	RES/CLEAN RM	Produces display of all reserved and clean rooms.
	VAC/CLEAN RM	Produces display of all vacant and clean rooms.
	OUT OF SERV.	Produces display of all out of service rooms.**
	AUDITS ROOM STATUS WAKEUP MSG REGISTER	Accesses audit softkeys. Generates printouts of: – Room Status – Wakeup calls – Message Register counts.
	NO DISTB *	Alternately sets up and cancels Do Not Disturb on an extension.
	SEND MSG * CLEAR MSG * READ MSG *	Sets up Message Waiting for a room. Cancels Message Waiting for a room. Reads the message for a room.
	SET WAKE-UP* CLR WAKE-UP*	Sets up an Automatic Wakeup Call. Cancels an Automatic Wakeup Call.
	MSG REG * CLR REG *	Displays message register. Clears message register.
	ROOM NUMBER*	Allows input of a new room number.

Table 2-2 Attendant Console Key Functions (continued)		
Console Hardkeys	Console Softkeys	Function
	STATUS *	Accesses occupancy, condition, and call restriction softkeys.
	INTERNAL	Sets internal call privilege.
	LOCAL	Sets local call privilege.
	LONG DIST	Sets long distance call privilege.
	OCCUPIED	Sets room occupancy to occupied.
	RESERVED	Sets room occupancy to reserved.
	VACANT	Sets room occupancy to vacant.
	GUARANTEED	Sets room occupancy to guaranteed.
	CLEAN	Sets room condition to clean.
	DIRTY	Sets room condition to dirty.
	OUT OF SERV.	Sets room condition to out of service.
	TO INSPECT	Sets room condition to to be inspected.

Page 2 of 2

* Must enter Room Number first.

** The OUT OF SERV. softkey appears in two different contexts:

A. When the GUEST ROOM softkey is pressed, the OUT OF SERV. softkey appears. It is used to search for out of service rooms.

B. When the STATUS softkey is pressed, the OUT OF SERV. softkey appears. It is used to set the room status to out of service.

Front Desk Terminal Access

Feature Access. The capabilities of the Hotel/Motel feature package as accessed by the front desk terminal are shown in Figure 2-8. Generic 1005 FPKG 1 and LIT96 cannot be used with a front desk terminal.

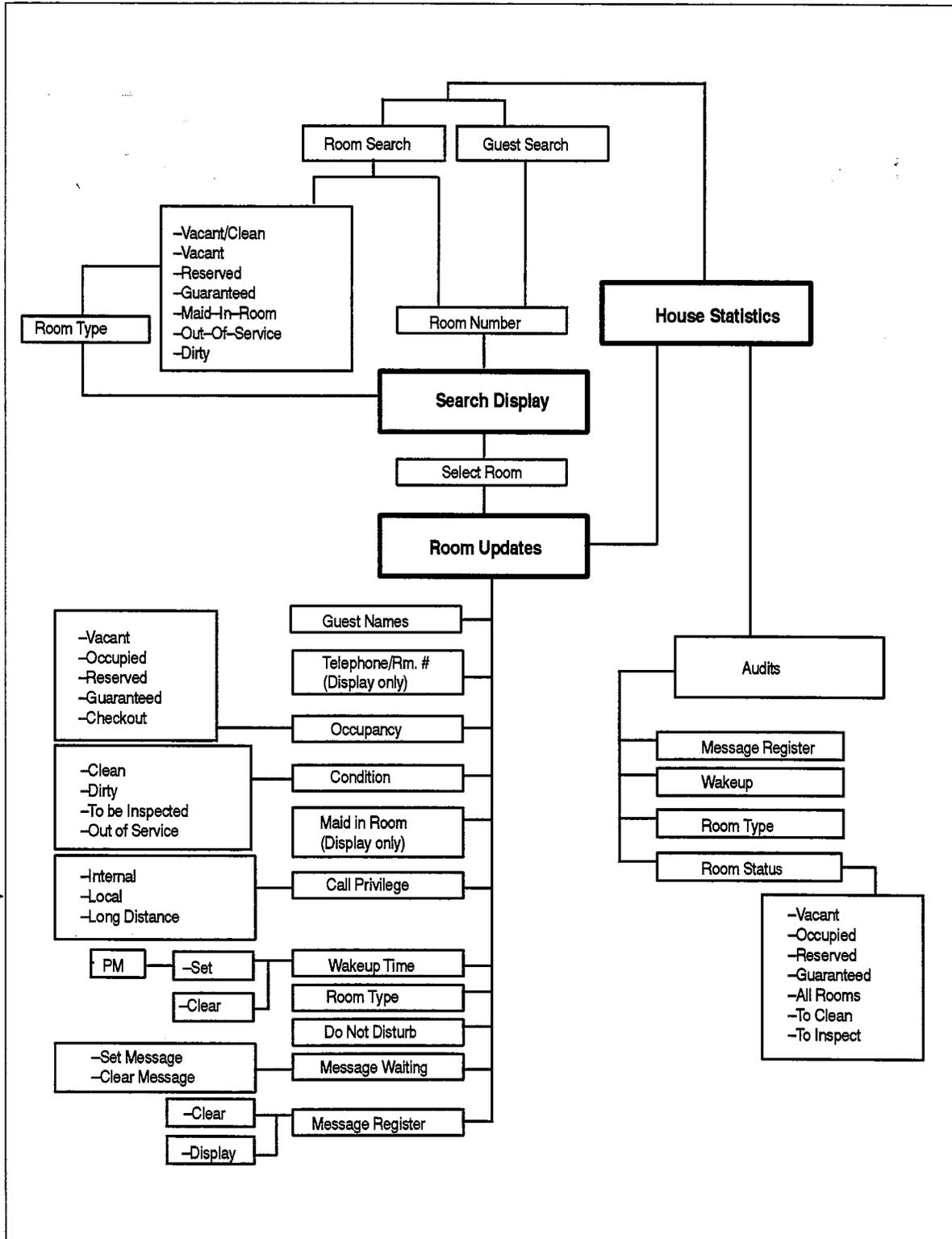


Figure 2-8 Hotel/Motel Features Available on the Front Desk Terminal

Up to four VT100™ terminals can access the Hotel/Motel feature package simultaneously. The VT100 terminal can access more Hotel/Motel features than the attendant console. For instance, using a VT100-compatible terminal to input guest information gives the ability to enter alphanumeric characters (such as a guest name) and allows more information to be displayed at once. A terminal interface provides a low-cost alternative to a property management system (PMS) by providing faster access to information but no room billing. The terminal provides no telephony function. Telephone activities must be performed through the attendant console or some other telephony device.

Access Mechanism. When the Hotel/Motel feature package is running on a front desk terminal, there are four modes of operation: house statistics, search by room or name, room updates, and audits.

House statistics. After successful login using a password, a house statistics screen appears. It contains a snapshot of the current status of the guest rooms or gives the time that the last statistics have been calculated (or when the REFRESH softkey is pressed). The information is only updated when the screen is entered. The house statistics screen is the only entry point when logging on to the application. It is also the only point the application can be exited from. Five softkeys give access to the other modes of operation. A sixth softkey is used to recalculate totals. See Figure 2-9.

14:15	25-May-90	HOUSE STATISTICS	MITEL Front Desk	
House Statistics as of 14:10 25-May-90				
<u>Guest Room Occupancy Summary</u>				
Vacant: 36		Occupied: 15		Reserved: 0
				Guaranteed: 12
<u>Room Condition Summary</u>			<u>Features Usage Summary</u>	
Clean	: 28	Do Not Disturb ON	: 0	
To be cleaned	: 17	Wake Up Set	: 36	
To be inspected	: 17	Message Waiting ON	: 21	
Not in Service	: 1	Non Zero Msg Regs	: 14	
Maid in Room	: 3	Call Blocking	: Off	
1 Room Update	2	3 Room Search	4	5 Guest Search
6 Quit	7	8 Audits	9	0 Refresh

Figure 2-9 House Statistics Screen

Search by room or name. Using a terminal allows guest first and last names to be entered as part of the check-in procedure. A search facility allows searching by last name by pressing the GUEST SEARCH softkey on the house statistics screen. A partial or complete text string can be entered and all names matching the input string are displayed.

There are nine other types of room searches. These are based on room type, room number, and room status. They are accessed by pressing the ROOM SEARCH softkey on the House Statistics screen (see Figure 2-9).

Any search other than room type or room number requires that a room code be entered to specify the type of room, such as all single rooms, that should be searched. The digit 0 can be used to search all room types meeting the search criteria. See Figure 2-10.

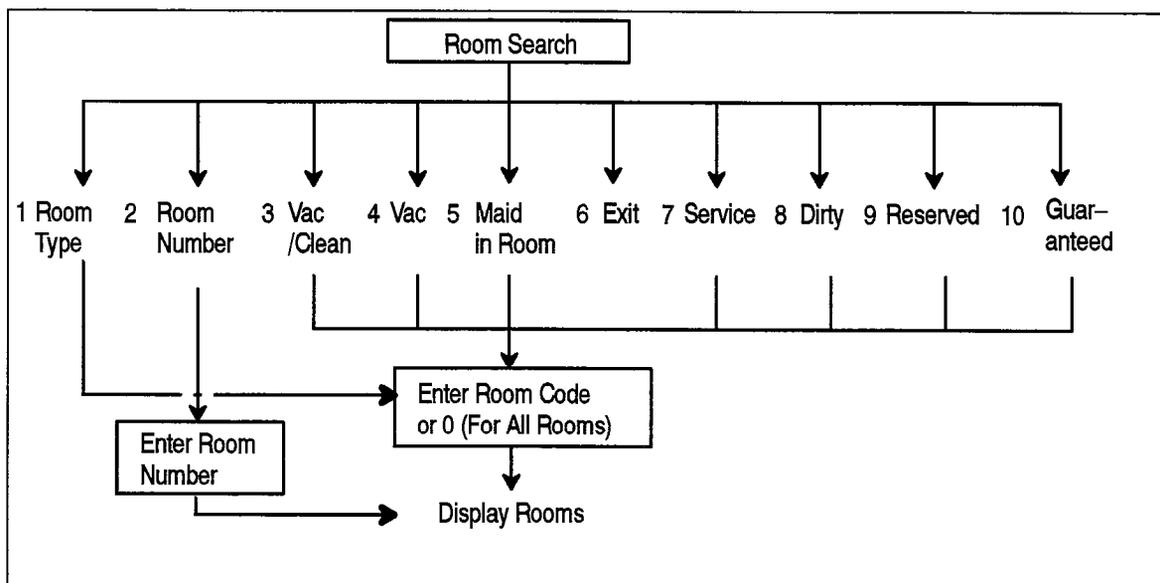


Figure 2-10 Room Search Mechanism

Room updates. Changes to the guest room can only occur in this mode. It can be entered from the house statistics screen, or the room search or guest search mode by pressing the ROOM UPDATE softkey. Guest name, room occupancy status, room condition, and call privilege can be changed; wakeup time, message waiting, and Do Not Disturb can be set or cleared; and the message register can be cleared from this screen. The softkeys and prompts change according to the highlighted field. See Figure 2-11.

12:05	29-May-90	GUEST ROOM UPDATE			MITEL Front Desk
Guest Name : ,		Room Number : 1101		Room Type : Single	
Occupancy : Vacant		Message Waiting :			
Condition : Clean		Do Not Disturb :			
Call Privilege : Internal		Message Register :			
Wake Up Time :					
Enter Last Name			Then press Return		
1	2	3	4	5	
6	7	8	9	0	

Figure 2-11 Vacant Room Template

Audits. Various kinds of audits (hard copy reports) can be generated on demand. Audit mode is entered from the house statistics screen by pressing the AUDITS softkey. Each kind of audit appears as a corresponding softkey. The system option to allow the audit must be enabled to allow the softkey to appear. The types of audits available are: message register, wakeup, room type, and room status. The functions of the Hotel/Motel softkeys on the front desk terminal are shown in Table 2-3.

Table 2-3 Front Desk Terminal Softkey Functions

Mode	Softkey	Function
House Statistics	Audits	Enters the Audits mode of operation.
	Room Updates	Enters the Room Updates mode of operation.
	Guest Search	Enters the Guest Search mode of operation.
	Room Search	Enters the Room Search mode of operation.
	Refresh	Recalculates the totals on the screen.
Guest Search	N/A	
Room Search	Room Type	Searches for rooms of a specified room type. Displays nine rooms at a time.
	Room Number	Searches for a specified room and displays the next eight rooms as well.
	Vacant	Searches for all vacant rooms when a room code (room type) is specified or the wild card (0) is used.
	Vacant/Clean	Searches for all vacant/clean rooms when a room code (room type) is specified or the wild card (0) is used.
	Maid in Room	Searches for all rooms with a maid in them when a room code (room type) is specified or the wild card (0) is used.
	Out of Service	Searches for all rooms that are out of service when a room code (room type) is specified or the wild card (0) is used.
	Dirty	Searches for all dirty rooms when a room code (room type) is specified or the wild card (0) is used.
	Reserved	Searches for all reserved rooms when a room code (room type) is specified or the wild card (0) is used.
	Guaranteed	Searches for all guaranteed rooms when a room code (room type) is specified or the wild card (0) is used.
	Page Down	Presented in search mode on the first and subsequent screens if there are more than nine rooms meeting the search requirements. Is not displayed on the last screen. Displays subsequent (additional) rooms, nine at a time.
Page Up	Presented in each search mode on the second and subsequent screens if there are more than nine rooms meeting the search requirements. Is not displayed on the first screen. Displays previous rooms, nine at a time.	
Room Updates	Show Choices	When highlight bar is in the Occupancy field, presents the Occupancy softkeys. When highlight bar is in the Condition field, presents the Condition softkeys. When highlight bar is in the Call Privilege field, presents the Call Privilege softkeys.

**Table 2-3 Front Desk Terminal Softkey Functions
(continued)**

Mode	Softkey	Function
	Check Out	Only available if room occupancy is occupied. Sets room occupancy to vacant, room condition to dirty, call restriction to the default setting. Enter is required to confirm. Enter softkey blanks out guest name, disables Do Not Disturb (if set), clears message waiting, wakeup time and message register.
	Set Message	When pressed, notifies the guest room by bell or lamp that there is a message waiting for the guest.
	Clear Message	Appears when there is a message waiting. Clears the message waiting indication in the guest room and at the front desk terminal.
	Occupancy -Vacant -Occupied -Reserved -Guaranteed	Sets room occupancy to vacant and the call restriction to the vacant/reserved default* setting. Sets room occupancy to occupied and the call restriction to the occupied default setting. Sets room occupancy to reserved and the call restriction to the vacant/reserved default setting. Sets room occupancy to guaranteed and the call restriction to the vacant/reserved default setting.
	Condition -Clean -Dirty -To Inspect -Out of Serv	Sets the room condition to clean. Sets the room condition to dirty. Sets the room condition to to be inspected. Sets the room condition to out of service.
	Call Privilege -Internal -Local -Long Distance	Sets the call privilege to internal. Sets the call privilege to local. Sets the call privilege to long distance.
	Wakeup Time -Set -Clear -PM	Allows wakeup time to be entered. Clears wakeup time once it is set. Indicates time is PM in 12-hour format.
	Do Not Disturb	Toggle key that sets/clears Do Not Disturb.
	Clear Msg Reg	Appears when there is a message register count. Clears the count. Enter required to confirm.
Audits	Message Register	Generates printout of message register counts that are greater than zero.
	Wakeup	Generates printout of wakeup times.
	Room Type	Generates printout of all rooms of a specified type showing the occupancy of each room.

**Table 2-3 Front Desk Terminal Softkey Functions
(continued)**

Mode	Softkey	Function
	Room Status -Vacant -Occupied -Reserved -Guaranteed -All Rooms -To Clean -To Inspect	Generates printout of: vacant rooms by room type or all rooms. occupied rooms by room type or all rooms. reserved rooms by room type or all rooms. guaranteed rooms by room type or all rooms. status of all rooms. rooms to be cleaned by room type or all rooms. rooms to be inspected by room type or all rooms.
Page 3 of 3		

* Defaults are programmed in CDE in Form 04, System Options/System Timers, option numbers 57 and 58.

Keyboard Data Entry

The following rules apply when using the keyboard to enter non-softkey data such as a name, room number room code, password or terminal type. No softkeys are provided while this type of data is being entered. The RETURN hard key or the arrow keys are used to signal the end of data entry. See Table 2-4.

Table 2-4 Front Desk Terminal Hard Key Functions

Hard Key	Function
Typing keys	All alphanumeric characters that are allowed for <i>SUPERSET 4</i> and <i>SUPERSET 420</i> telephone displays are allowed in the Guest Name field.
Numeric keys	Wake up times and room numbers can be entered with numeric keys only.
RETURN	<p>Room Updates Mode: If no characters have been entered, moves the shade bar to the next field leaving the previous field unchanged.</p> <p>If characters have been entered, moves the shade bar to the next field and leaves the changed information in the field.</p> <p>Search Display Mode: Functions like a down arrow key.</p>
Down, Right Arrow keys	<p>Room Updates Mode: If no characters have been entered, moves the shade bar to the next field leaving the previous field unchanged.</p> <p>If characters have been entered, moves the shade bar to the next field leaving the previous field unchanged.</p>
Page 1 of 2	

**Table 2-4 Front Desk Terminal Hard Key Functions
(continued)**

Hard Key	Function
Up, Left Arrow keys	<p>Room Updates Mode: If no characters have been entered, moves the shade bar to the previous field leaving the last field unchanged.</p> <p>If characters have been entered, moves the shade bar to the previous field leaving the last field unchanged.</p>
Down or Up Arrow Keys	Search Display Mode: Moves the highlight bar up or down the list of entries.
Enter softkey	Enters the information in the field into the database. (User must exit the field first.) The Enter softkey is provided whenever a change has been made.
DELETE	If no characters have been entered, the previous softkey menu is displayed.
Control R or Control W	Causes the screen currently displayed to be redrawn. If data is currently being entered when Control R is used, the data for the field is lost and the original data for the field is redisplayed.
Control Y or Control C	Ends the session and drops the data call. Similar to pressing the Quit softkey on the House Statistics screen.
Control D (if D is defined as the PBX attention character for the dataset in CDE Form 11. See the Programming section.)	Ends the session. Using Control D is not recommended since it may leave the terminal in graphics mode.
Page 2 of 2	

SUPERSET Display Telephone Access

Feature Access. *SUPERSET* display telephones (the *SUPERSET 4*, *SUPERSET 4DN*, *SUPERSET 420* and *SUPERSET 430*) can be used as guest room telephones. They can also be used as supervisory telephones, for instance by housekeeping supervisors to monitor the progress of hotel cleaning staff. As guest room telephones or as supervisory sets, they provide access to a limited range of Hotel/Motel features.

The Hotel/Motel application uses the guest room telephone extension number as the room number. These extension numbers are assigned through CDE. See the Programming section of this document.

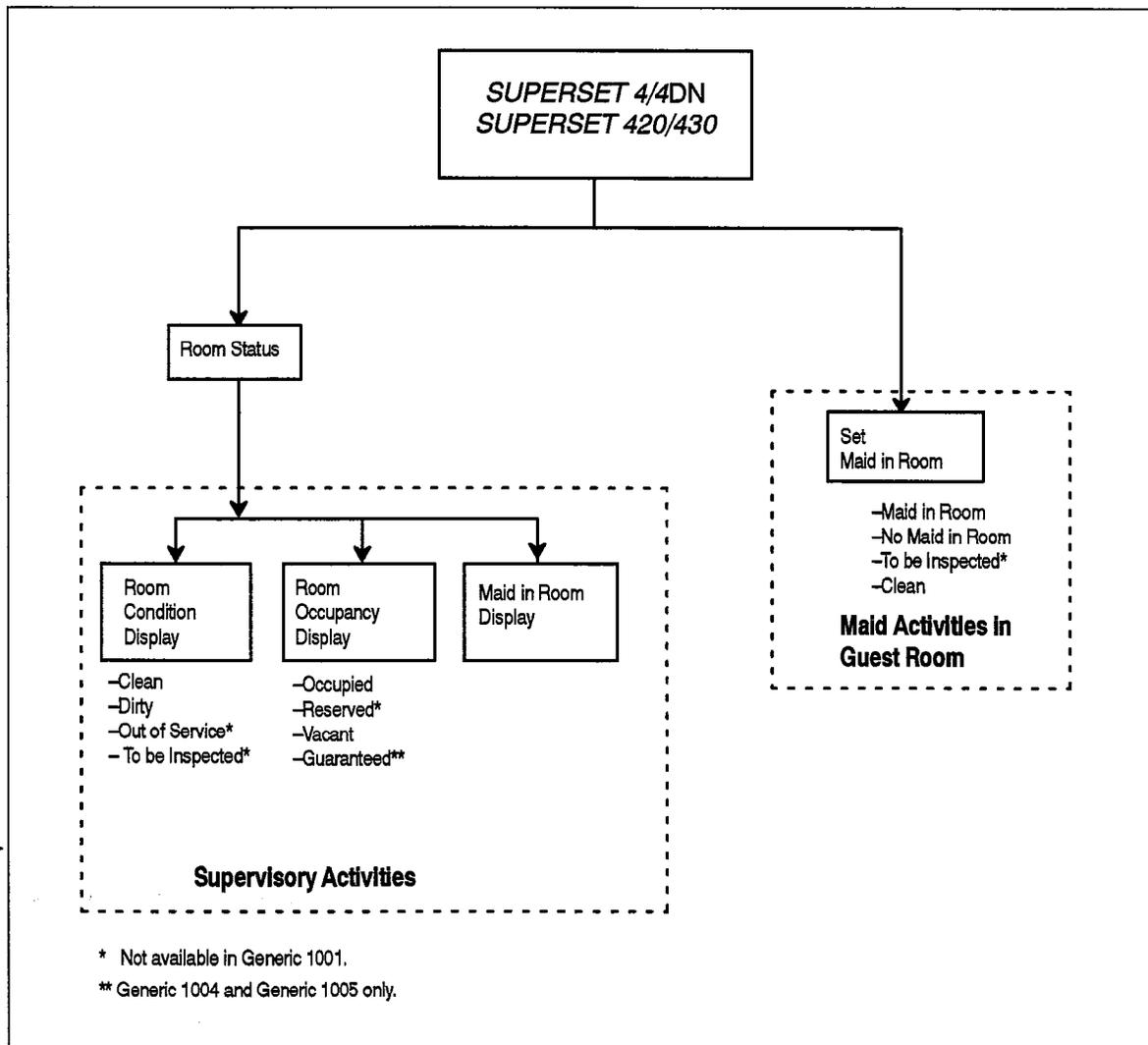


Figure 2-12 Hotel/Motel Features Available on a SUPERSET Display Telephone

Access Mechanism. Guests can use several access mechanisms themselves on the *SUPERSET* display telephones: softkeys, hardkeys and access codes.

Softkeys. Pressing a softkey associated with the feature name on the display activates the Message Waiting Clear feature.

Pressing the Select Features hardkey and the appropriate softkeys activates or deactivates Do Not Disturb on a *SUPERSET 4*. To duplicate this on a *SUPERSET 420* telephone, a guest would press the SuperKey to access the feature menu.

Hardkeys. Pressing the Do Not Disturb key on a *SUPERSET 4DN* and *SUPERSET 430* telephone activates or deactivates the Do Not Disturb feature. Telephony features (such as speed call numbers) could be assigned to this row of programmable hardkeys. (Blocks of hardkeys on these telephones can be programmed as speed dial and feature access keys. See Guest Room *SUPERSET* key programming, page 602 2-41.)

Access Codes and Feature Codes for Information Input. Dialing a code gives the user access to a feature to input information. For instance, a code (for example, 111) gives the maid access to the maid in room feature. A number from 1 to 4 inputs information such as whether a maid is working in the room. See page 602 2-42.

Access Codes for Information Display. Dialing a code gives the user access to information that is shown on the *SUPERSET* display, for example, room condition and occupancy status or maid in room status.

1476	OCC / CLEAN
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Figure 2-13 Occupancy/Condition Display on *SUPERSET 4/SUPERSET 420* Telephone

Table 2-5 shows the Hotel/Motel features available on the *SUPERSET* display telephones related to their feature access mechanisms.

Table 2-5 <i>SUPERSET 4/SUPERSET 4DN/SUPERSET 420/SUPERSET 430</i> Access Functions		
Feature	Access Mechanism	Function
Set Maid in Room Status	Dial Maid in Room access code followed by code for room activity.	Maid or supervisor can input guest room status (maid in room, no maid in room, clean, inspected) from the room telephone.
Display Room Occupancy and Condition	Dial room status access code followed by room number.	Room occupancy and condition status can be displayed.
	Arrow softkey	Occupancy and condition status of next rooms in numeric order can be displayed.
Display Maid in Room Status	Dial maid in room status access code.	Room numbers of all rooms with maids in them are displayed.
	Arrow softkey	Room numbers of next rooms in numeric order can be displayed.

Industry-Standard Telephone Access

Feature Access. Any other type of telephone (industry-standard telephone, *SUPERSET 3*, *SUPERSET 3DN*, *SUPERSET 401* or *SUPERSET 410*) can access an applicable subset of the Hotel/Motel features. See Figure 2-14.

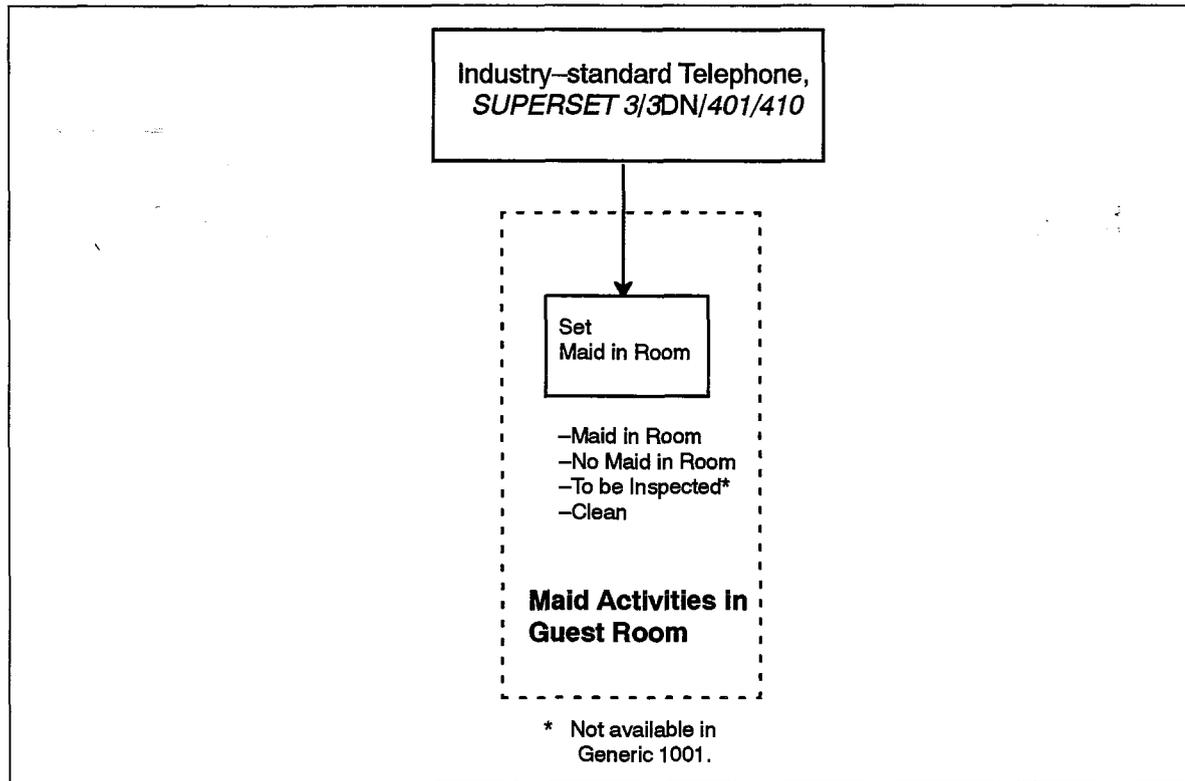


Figure 2-14 Hotel/Motel Features Available on Industry-Standard, *SUPERSET 3/SUPERSET 3DN/SUPERSET 401/SUPERSET 410* Telephones

Access Mechanism. Most Hotel/Motel features are accessed by dialing feature access codes. In addition, blocks of hardkeys on the *SUPERSET 3DN* and *SUPERSET 410* can be programmed as speed dial and feature access keys.

Table 2-6 shows the Hotel/Motel features available on industry-standard telephones related to their feature access codes.

Table 2-6 Industry-Standard Telephone Access Functions		
Feature	Access Mechanism	Function
Message Waiting Indication	Indicator on display or audible bell.	Lighted lamp or special ring indicates there is a message waiting for the guest.
Set Maid in Room Status	Dial Maid in Room access code followed by code for room activity.	Maid or supervisor can input guest room status (maid in room, no maid in room, clean, inspected) from the room telephone.

SX-200 DIGITAL PABX Access

The SX-200 DIGITAL PABX provides direct access to some Hotel/Motel features. These are system-level features that require no user interaction.

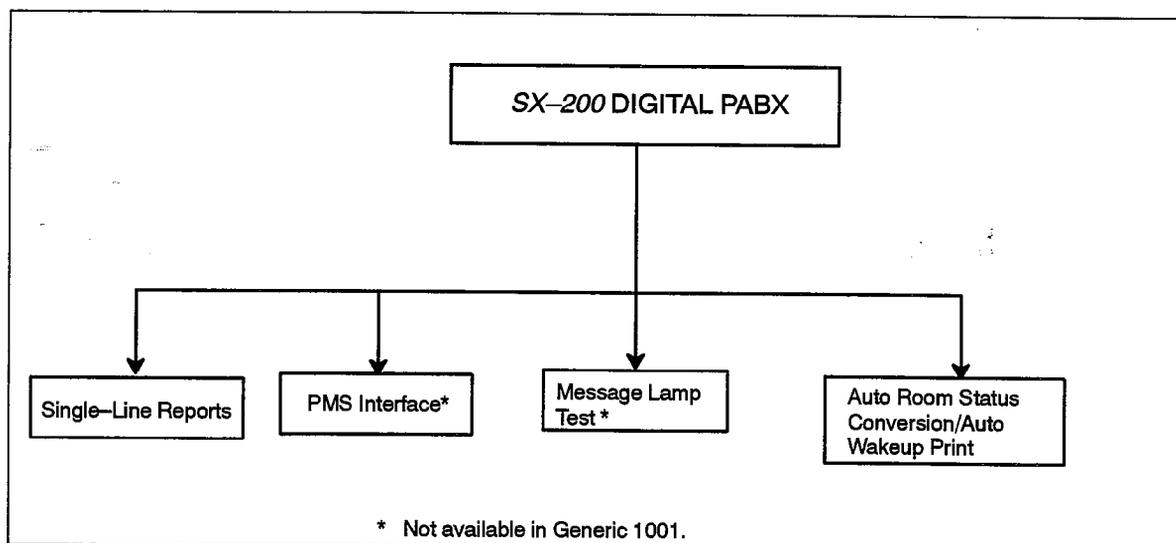


Figure 2-15 Hotel/Motel Features Available Only from the SX-200 DIGITAL PABX

Access Mechanism. These features are programmed through CDE.

Table 2-7 shows the Hotel/Motel features accessed directly through CDE programming on the SX-200 DIGITAL PABX and not through any terminal.

Table 2-7 SX-200 DIGITAL PABX Access Functions		
Feature	Access Mechanism	Function
Single-Line Reports	Automatic	Creates a single-line printout for certain events, such as an automatic wakeup call going unanswered.
PMS	Automatic	Interfaces the SX-200 DIGITAL PABX to a PMS package.
Auto Room Status Conversion/Auto Wakeup Print	Automatic	Prints a report of all rooms with a wakeup time set, and changes the room condition of occupied rooms from clean to dirty at a particular time each day.
Message Lamp Test	Automatic	Performs a test of message waiting lamps whenever the room status changes from occupied to vacant and there are no messages waiting.

System Configuration

Hardware

2.3 Basic hardware is described in Table 2–8 and shown in Figure 2–16.

Table 2–8 Hotel/Motel Hardware	
Hardware	Description
SX–200 DIGITAL PABX	This PABX can be any hardware configuration.
Attendant Console	Provides telephony as well as access to Hotel/Motel features. A system can support 11 attendant consoles, however, Hotel/Motel applications usually use one console only. If more than one console is available on the system, each operates independently. That is, two consoles could change the same information for a room at the same time. In that case, the console that left the room last would have its changes captured by the system. If an attendant console and a front desk terminal are configured on a system, the attendant console can access a room already accessed by a front desk terminal and change the same information at the same time. However, a front desk terminal cannot access a room already accessed by a console. If the console leaves the room last, its changes are captured. The attendant console can be used in place of a VT100 terminal for maintenance and/or CDE programming. Four lines of a CDE form can be displayed at a time: three lines of information and the active line.
Guest Room Telephones	Any type of industry–standard telephone can be configured on the system. Industry–standard guest room telephones allow guests access to certain Hotel/Motel features. The number is limited by the hardware configuration of the SX–200 DIGITAL PABX.
Front Desk Terminal	The system can support up to four VT100 terminals as front desk terminals. Each terminal must interface to the PABX through a MITEL1100–series dataset. If more than one terminal is available on the system, only one of them can make changes to the same guest room at a time. If a front desk terminal attempts to access a guest room already accessed by an attendant console, the terminal is blocked from access.
VT100 Terminal	Used for maintenance and/or CDE programming. It displays full–screen CDE forms facilitating data entry. The maintenance terminal can be associated with a system printer to print alarm logs.
System Printer	Delivers hard copies of alarm logs. It can also be used to print Hotel/Motel audits and single line reports. Separate printers can be used.
SUPERSET 4/4DN SUPERSET 420/430 Telephones	Since these telephones can display room status information, they can be used as supervisory sets by hotel staff. They can also be used as guest room telephones. Programming can allow guests single–key access to designate dfeatures.
SUPERSET 3/3DN SUPERSET 401/410 Telephones	Non–display telephones that can be programmed to allow guests single–key access to designated features.

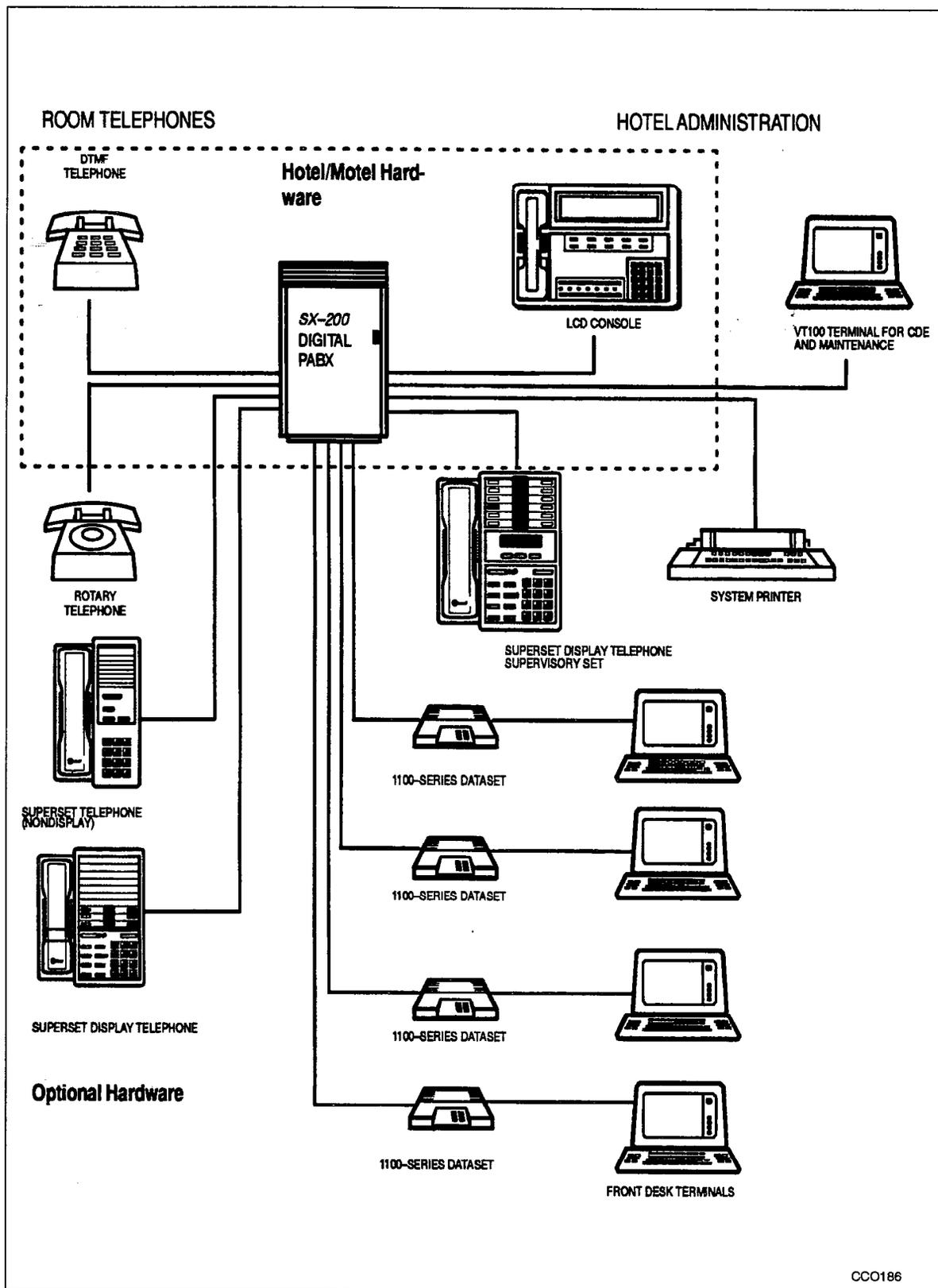


Figure 2-16 Hotel/Motel System Configuration – Generic 1004/1005

Feature Description

- 2.4 The following is a description of each of the Hotel/Motel features. Where possible, features have been associated into groups. For example, the various types of audits are described under the main heading Audits.

Attendant Message Waiting Setup and Cancel

A message waiting indication can be left for a guest room. The setting and clearing of a message waiting indication can be recorded on a system printer. A single-line report can be generated, giving the room number, date, time and status change, and who changed it. See Single-Line Reports.

<i>How to Program</i>		Chart 4-3
<i>How to Use</i>	Console:	Chart 5-1
	FDT:	Chart 5-17

A message waiting indication on a guest room telephone can be:

Guest Room Message Retrieval

- a message on the display of a *SUPERSET 4*, *SUPERSET 4DN*, *SUPERSET 420* or *SUPERSET 430* telephone.
- a continuously flashing lamp (if equipped) on the telephone. (The *SUPERSET 4DN*, *SUPERSET 3DN*, *SUPERSET 401*, *SUPERSET 410*, *SUPERSET 420* and *SUPERSET 430* have a message lamp.)
- a distinctive ringing pattern (three short bursts every 20 minutes). The telephone rings with this distinctive ringing pattern if the extension has been busy, or has Do Not Disturb set, or until message waiting is cancelled.

The Cancel softkey on a display *SUPERSET* telephone can cancel message waiting. Telephones with no softkeys must call the attendant to retrieve the message. It is then cancelled by the attendant. See also Message Lamp Test.

<i>How to Program</i>		Chart 4-3
<i>How to Use</i>	Any set	Chart 5-36

Audits

An audit is a printed report that gives a record of guest room activities or conditions. There are several types of audits. Most are requested by the attendant, but one (the Auto Room Status Conversion/Auto Wakeup Print) is programmed to be printed automatically each day. All audit requests are directed to the printer assigned to the Hotel/Motel Audit printout type in CDE Form 34. Note: In Generic 1001, the audit printouts are sent to the SMDR/maintenance printer port. Table 2-9 shows the audits that can be requested from each terminal.

Audit Types	Terminal	Operation
Attendant message register audit Room status audit Wakeup audit	Attendant Console	The audits mode of operation is entered through the AUDIT softkey. A console cannot request an audit if it is active in a call. A console can request any number of audits at one time, but only the first three are printed. The requests are processed in a first requested, first printed sequence.
Attendant message register audit Room status audits – Vacant room audit – Occupied room audit – Reserved room audit – Guaranteed room audit – Dirty (To clean) condition audit – To be inspected (To inspect) condition audit – All rooms audit Room type audit Wakeup audit	Front Desk Terminal	The Audit mode of operation is entered from the main menu by pressing the Audits softkey. The softkeys are updated to show the various audit types. System options must be enabled to allow the various types of audits, or the corresponding softkey is not provided.
Auto Room Status Conversion/Auto Wakeup Print	N/A	Programmed to be printed automatically each day.

Attendant Message Register Audit

The attendant can print the message register for all rooms that have a message register count greater than zero. These rooms are listed in the audit report in order of room number (lowest to highest). The message register audit is shown in Figure 2-17. See Message Register.

01/16 12:23P		Message Register Audit		
Room - Reg	Room - Reg	Room - Reg	Room - Reg	Room - Reg
12345 - 00001	12346 - 00005	12347 - 00012	123458 - 00003	12349 - 00011
12350 - 00004	12351 - 00011	12352 - 00001	12353 - 00002	12354 - 00002
22145 - 00012	22146 - 00008			
32145 - 00002	32146 - 00003			

Figure 2-17 Message Register Audit

<i>How to Program</i>		Chart 4-4
<i>How to Use</i>	Console:	Chart 5-3
	FDT:	Chart 5-18
<i>Feature Interactions</i>	If System Option 25 (Message Register Zero After Audit) is enabled, all message registers are set to zero when the audit is requested. This includes the instance where the maximum number of audits is exceeded or the printer is unavailable for any reason. See the Programming section.	

Room Status Audit(s)

The attendant can request a report of the current status of all guest rooms. The attendant console produces one audit containing information on all rooms. The front desk terminal can produce two types of room status audits: room occupancy audits (vacant, occupied, reserved and guaranteed audits) and room condition audits (to clean and to inspect audits). Each of these audits can be requested by room type (see Room Type) or for all rooms. In addition, an all rooms audit can be requested from the front desk terminal. This is the equivalent of the attendant console room status audit (see Table 2-10). Also see Room Occupancy and Room Condition.

Each audit (console or front desk terminal) shows the call restriction status of the room (see Call Restriction) and whether there is a maid in the room (see Maid in Room). The attendant console audit is shown in Figure 2-18 and a front desk terminal audit is shown in Figure 2-19.

Table 2-10 Room Status Audits			
Terminal	Name	Content	Categories
Attendant Console	Room Status Audit	All rooms by status and condition.	Four sections: vacant, occupied, reserved, or guaranteed rooms. Each section is divided by room condition: clean, dirty, out of service, or to be inspected.
Front Desk Terminal			
	Room Occupancy Audits (All Rooms or by Room Type)		
	Vacant Room Audit	All guest rooms with room occupancy status of vacant.	Listed by condition: clean, dirty, to be inspected, out of service.
	Occupied Room Audit	All guest rooms with room occupancy status of occupied.	Listed by condition: clean, dirty, to be inspected, out of service.
	Reserved Room Audit	All guest rooms with room occupancy status of reserved.	Listed by condition: clean, dirty, to be inspected, out of service.
	Guaranteed Room Audit	All guest rooms with room occupancy status of guaranteed.	Listed by condition: clean, dirty, to be inspected, out of service.
	Room Condition Audits (All Rooms or by Room Type)		
	To Clean Room Audit	All guest rooms with room condition of dirty.	Listed by occupancy: vacant, occupied, reserved, guaranteed.
	To Inspect Room Audit	All guest rooms with room condition of to be inspected.	Listed by occupancy: vacant, occupied, reserved, guaranteed.
	Room Occupancy and Condition		
	All Rooms Audit	All rooms by status and condition.	Listed by occupancy: clean, dirty, to be inspected, out of service categories for each of: vacant, occupied, reserved, and guaranteed rooms.

Hotel/Motel Feature Package Description

<p style="text-align: center;">01/16 12:23 ROOM AUDIT FOR ALL VACANT ROOMS</p> <p style="text-align: center;">Clean Rooms</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Room - Status</td> </tr> <tr> <td>12345 - LD/M</td> <td>12349 - INT</td> <td>12353 - LOC</td> <td>12357 - LD</td> <td>12361 - LD</td> </tr> <tr> <td>12365 - INT</td> <td>12369 - LOC</td> <td>12373 - INT</td> <td>12377 - LD</td> <td>12354 - LD</td> </tr> </table> <p style="text-align: center;">Dirty Rooms</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Room - Status</td> </tr> <tr> <td>22145 - INT</td> <td>22149 - INT</td> <td>22153 - LD/M</td> <td>22157 - INT</td> <td>22158 - INT</td> </tr> </table> <p style="text-align: center;">To be Inspected Rooms</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Room - Status</td> </tr> <tr> <td>22162 - INT</td> <td>22166 - LD</td> <td>22171 - INT</td> <td>22175 - LD/M</td> <td>22179 - LD/M</td> </tr> </table> <p style="text-align: center;">Out of Service Rooms</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Room - Status</td> </tr> <tr> <td>32171 - LOC</td> <td>32175 - LD/M</td> <td>32179 - INT</td> <td>32183 - LD/M</td> <td>32187 - LD</td> </tr> </table>	Room - Status	Room - Status	Room - Status	Room - Status	Room - Status	12345 - LD/M	12349 - INT	12353 - LOC	12357 - LD	12361 - LD	12365 - INT	12369 - LOC	12373 - INT	12377 - LD	12354 - LD	Room - Status	22145 - INT	22149 - INT	22153 - LD/M	22157 - INT	22158 - INT	Room - Status	22162 - INT	22166 - LD	22171 - INT	22175 - LD/M	22179 - LD/M	Room - Status	32171 - LOC	32175 - LD/M	32179 - INT	32183 - LD/M	32187 - LD	<p style="text-align: center;">01/16 12:23 ROOM AUDIT FOR ALL OCCUPIED ROOMS</p> <p style="text-align: center;">Clean Rooms</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Room - Status</td> </tr> <tr> <td>12346 - LD/M</td> <td>12350 - INT</td> <td>12354 - LOC</td> <td>12358 - LD</td> <td>12362 - LD</td> </tr> <tr> <td>12366 - INT</td> <td>12370 - LOC</td> <td>12374 - INT</td> <td>12378 - LD</td> <td>12354 - LD</td> </tr> </table> <p style="text-align: center;">Dirty Rooms</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Room - Status</td> </tr> <tr> <td>22146 - INT</td> <td>22150 - INT</td> <td>22154 - LD/M</td> <td>22158 - INT</td> <td>22159 - INT</td> </tr> </table> <p style="text-align: center;">To be Inspected Rooms</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Room - Status</td> </tr> <tr> <td>22163 - INT</td> <td>22168 - LD</td> <td>22172 - INT</td> <td>22176 - LD/M</td> <td>22180 - LD</td> </tr> </table> <p style="text-align: center;">Out of Service Rooms</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Room - Status</td> </tr> <tr> <td>32172 - INT</td> <td>32176 - LD/M</td> <td>32180 - LOC</td> <td>32184 - LD/M</td> <td>32187 - LD/M</td> </tr> </table>	Room - Status	12346 - LD/M	12350 - INT	12354 - LOC	12358 - LD	12362 - LD	12366 - INT	12370 - LOC	12374 - INT	12378 - LD	12354 - LD	Room - Status	22146 - INT	22150 - INT	22154 - LD/M	22158 - INT	22159 - INT	Room - Status	22163 - INT	22168 - LD	22172 - INT	22176 - LD/M	22180 - LD	Room - Status	32172 - INT	32176 - LD/M	32180 - LOC	32184 - LD/M	32187 - LD/M																												
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<p>Reserved Room Part of Room Status Audit- Attendant Console (not available in Generic 1001)</p>	<p>Guaranteed Room Part of Room Status Audit- Attendant Console (Generic 1004 and 1005 only)</p>																																																																																										

Figure 2-18 The Four Sections of the Room Status Audit (Attendant Console)

01/16 12:23 ROOM AUDIT FOR ALL VACANT ROOMS				
Clean Rooms				
Room – Status	Room – Status	Room – Status	Room – Status	Room – Status
12345 – LD/M	12346 – INT	12347 – LOC/M	12348 – LD	12349 – LD
12350 – INT	12351 – LOC/M	12352 – INT	12353 – LD	12354 – LD
Dirty Rooms				
Room – Status	Room – Status	Room – Status	Room – Status	Room – Status
22145 – INT	22146 – INT/M	22148 – INT/M	22149 – INT/M	22154 – INT/M
To Be Inspected Rooms*				
Room – Status	Room – Status	Room – Status	Room – Status	Room – Status
22156 – INT	22158 – INT/M	22161 – INT/M	22162 – INT/M	22163 – INT/M
Out of Service Rooms*				
Room – Status	Room – Status	Room – Status	Room – Status	Room – Status
32171 – INT	32172 – LD/M	32173 – INT	32174 – LD/M	321475 – LD/M

*Note: "To Be Inspected" and "Out Of Service" states are not available in Generic 1001.

**Figure 2–19 Room Status Audit for All Rooms of a Particular Type
(Front Desk Terminal)**
(Room Status Audit for all Rooms that have an Occupancy Status of Vacant)

<i>How to Program</i>	Chart 4–19
<i>How to Use</i>	Console: Chart 5–3
	FDT: Chart 5–20

Room Type Audit

(Front Desk Terminal only.) A report of all guest rooms of a particular type, giving their room number, occupancy, and whether there is a maid in the room. This report can only be requested from a front desk terminal. See Figure 2-20.

01/16 12:23P		ROOM AUDIT FOR SINGLE ROOMS				
Room - Status	Room - Status	Room - Status	Room - Status	Room - Status	Room - Status	
12345 -Gua	12346 - Occ	12347 - Gua	12348 - Res	12349 - Vac		
12350 -Vac	12351 - Occ/M	12352 - Res	12353 - Gua	12354 -Vac		
22145 - Vac	22146 - Occ/M	22148 - Occ	22149 - Gua	22154-Res		

Figure 2-20 Room Type Audit (Front Desk Terminal)

<i>How to Program</i>	N/A
<i>How to Use</i>	Console: N/A
	FDT: Chart 5-19

Wakeup Audit

A report of all guest rooms having a wakeup call enabled. The format of the printout is identical, whether requested by the attendant console or front desk terminal. See Figure 2-21.

01/16 12:23P Automatic Wakeup Audit				
Room - Time	Room - Time	Room - Time	Room - Time	Room - Time
12345 - 7:45P	12346 - 7:45	12347 - 8:00	123458 - 6:30	12349 - 6:45
12350 - 6:45	12351 - 5:30	12352 - 1:00P	12353 - 4:30	12354 - 5:45
22145 - 2:30	22146 - 8:30			
32145 - 4:50	32146 - 9:00			

Figure 2-21 Automatic Wakeup Audit

<i>How to Program</i>	Chart 4-6
<i>How to Use</i>	Console: Chart 5-3
	FDT: Chart 5-18

Wakeup/Room Condition Audit

A report of all guest rooms having a wakeup call enabled. At the same time, the occupancy and condition of all occupied/clean rooms are changed to occupied/dirty. The SX-200 DIGITAL PABX is programmed through CDE to print the audit and change the occupancy/condition automatically at a preset, user-selected time each day.

<i>How to Program</i>	Chart 4-7
<i>How to Use</i>	Console: N/A
	FDT: N/A

Automatic Wakeup

Either the attendant or a guest can set up a wakeup alarm call that rings the guest room at a prearranged time. An existing wakeup time can be changed or cancelled. See Table 2-11.

On answering a wakeup alarm call, the extension user receives either a special tone (100 ms ON, 400 ms OFF, repeated), music, or a recorded announcement. The recorded announcement can be changed for night service.

If the wakeup call is not answered within six rings, or if the extension is busy, an attempt is made to ring the extension two more times, at 5-minute intervals. Each wakeup attempt can generate a single-line report on a system printer. If the call is still unanswered, the wakeup is cancelled and the attendant can be notified that the wakeup was not honored.

Note: If the wakeup call is to a *SUPERSET 4*, *SUPERSET 4DN*, *SUPERSET 420* or *SUPERSET 430* telephone, it is treated as a timed reminder (it rings once and sets a reminder prompt). (See Timed Reminders in Practice 9109-096-105-NA, Features Description.) A wakeup attempt on a *SUPERSET* display telephone does not generate a single-line report.

Recorded announcements are provided through recording hunt groups. When an extension answers the wakeup, the recording device is rung. The extension hears silence until the recording device answers. If a recorded announcement is used, a wakeup is only honored when there is a free recording announcement device available. See Conditions.

Attendant Wakeup

The attendant can set, change, or cancel the wakeup time. Wakeups are taken as AM if not specifically set for PM. The attendant can print a list of all the current wakeups. See Wakeup Audit. A maintenance log is created if the Hotel/Motel Wakeup printer fails.

Table 2-11 Automatic Wakeup

Terminal	Description	Display
Attendant Console	<p>Set, wakeup and clear functions are available on softkeys. In each case, a printout automatically occurs at the associated printer if the system option to print these changes has been enabled. If system time is in 12-hour format, a PM softkey is available for afternoon wakeup times. If system time is in 24-hour format, the PM softkey does not appear. Time must always be entered as four digits (hh:mm). The system does not accept an invalid setting, but gives no error message.</p> <p>If a wakeup is set or changed by the console, and the system option to print these changes has been enabled, a SET BY CON or CHG BY CON message is printed to indicate how the change was made.</p>	<p>Wakeup time is displayed on the console's status line:</p> <p>Wakeup = 09:35 if the wakeup is AM, or</p> <p>Wakeup = 09:35P if the wakeup is PM.</p>
Front Desk Terminal	<p>If no wakeup time is set for a room, the Set Wake Up softkey is displayed. If a wakeup time is set for a room, a Set Wake Up and a Clear Wake Up softkey are displayed.</p> <p>When the Set Wake Up softkey is pressed, all softkeys are cleared and a prompt to enter the wakeup time is displayed. Only the number keys, up/down arrow keys, and the Delete and Return hardkey are valid when setting the time. Time must be entered as four digits (hh:mm).</p> <p>Each digit is validated as it is entered. Any digit is accepted that could be a valid time setting. A 24-hour setting is accepted as valid in the 12-hour mode: it is automatically converted to 12-hour format when displayed. Any time entered in a 12-hour format is taken to be AM and is displayed with AM appended.</p>	<p>Wakeup time is entered, changed, and displayed in the Wake Up Time Field on the Guest Room Update screen.</p> <p>If the 24-hour clock system option is enabled, the wakeup time is displayed in 24-hour format. If the 24-hour clock system option is not enabled, the wakeup time is displayed in 12-hour format with an AM/PM indication.</p> <p>The Search Display screen displays wakeup time for a guest room (if set).</p>

**Table 2-11 Automatic Wakeup
(continued)**

Terminal	Description	Display
	<p>If time is entered in the 12-hour format, a PM softkey is displayed. This allows time to be identified as morning or afternoon. Any time entered in the 12-hour format is assumed to be morning time unless the PM softkey is pressed. The key toggles the display from AM to PM. Cancel moves the shade bar to the next programmable field and leaves the wakeup time the same as it was when the form was displayed. The Enter softkey commits the wakeup time to the database.</p> <p>If a wake up is set or changed by the front desk terminal, and the system option to print these changes has been enabled, a SET BY DESK or CHG BY DESK message is printed to indicate how the change was made.</p>	

Guest Room Wakeup

A guest can be allowed to set and cancel a wakeup call from any room telephone by dialing an automatic wakeup access code. Wakeup time must be in 24-hour format and is entered by dialing from the telephone. Dial tone indicates a wakeup time has been set or cancelled successfully.

If a guest room sets or changes a wakeup, a single line report SET BY ROOM or CHG BY ROOM is printed.

<i>Feature Interactions</i>	<p>If a guest room telephone is programmed for Automatic Wakeup Routing, the Automatic Wakeup Music option has no effect.</p> <p>Do Not Disturb is ignored on extensions when the wakeup is honored.</p> <p>System options 12 (Automatic Wakeup Alarm) and 13 (Automatic Wakeup Print) have no effect on <i>SUPERSET 4</i>, <i>SUPERSET 4DN</i>, <i>SUPERSET 420</i> or <i>SUPERSET 430</i> telephone operation of the feature. See the Programming section.</p> <p>System Option 56 (Room Status Conversion/Auto Wakeup Print Timer) only applies if System Option 34 (Auto Room Status Conversion/Auto Wakeup Print) is enabled. See the Programming section.</p>				
<i>Conditions</i>	<p>In the event of a power failure, all expired wakeups are honored within 5 minutes of a system reset.</p> <p>If a recording hunt group is used for wakeups, there can only be one wakeup call per recording announcement device at any given time. This means that if multiple wakeups have been set for the same time, only one can proceed. All the others are shifted. The amount of this shift is variable depending on:</p> <ul style="list-style-type: none"> – the time it takes for each preceding extension to answer/acknowledge the wakeup – the 1-minute period between wakeups being scanned. 				
<i>How to program</i>	<table border="1"> <tr> <td>Guest Room</td> <td>Chart 4–9</td> </tr> <tr> <td>Attendant</td> <td>Chart 4–10</td> </tr> </table>	Guest Room	Chart 4–9	Attendant	Chart 4–10
Guest Room	Chart 4–9				
Attendant	Chart 4–10				
<i>How to Use</i>	<table border="1"> <tr> <td>Console:</td> <td>Chart 5–4, Chart 5–5</td> </tr> <tr> <td>FDT:</td> <td>Chart 5–21, Chart 5–22</td> </tr> </table>	Console:	Chart 5–4, Chart 5–5	FDT:	Chart 5–21, Chart 5–22
Console:	Chart 5–4, Chart 5–5				
FDT:	Chart 5–21, Chart 5–22				

Call Blocking

(Set from attendant console only.) The attendant can inhibit room-to-room calls by activating call blocking from the console. Calls to the attendant or to extensions without the call blocking COS option selected can be made normally. Attempted calls between restricted extensions are treated as illegal numbers and the calling party hears reorder tone. A Call Blocking indication is displayed on the House Statistics screen of the front desk terminal.

<i>Conditions</i>		The LED associated with the Block hardkey for all consoles with the feature enabled is updated each time call blocking is turned on or off. When the LED is on, call blocking is enabled. Consoles without the feature enabled do not have an operational key and LED.
<i>Feature Interactions</i>		Tenanting does not apply to the operation of this feature. All consoles with the feature enabled can enable or disable Call Blocking throughout the system. If Call Rerouting is used, blocked calls are treated as Station Illegal Number Routing.
<i>How to Program</i>		Chart 4-11
<i>How to Use</i>	Console:	Chart 5-6
	FDT:	N/A

Call Restriction

This feature is used to assign a level of calling privilege to each guest room. There are three levels:

- internal
- local
- long distance

The attendant can assign any of the levels to a particular room telephone. In addition, the system automatically sets the call restriction for a room (to a programmable value) when an occupancy change to either vacant reserved, guaranteed or occupied occurs. On the front desk terminal screen, this feature is called Call Privilege.

<i>Feature Interactions</i>	See Note, Chart 4-1, end of Step 4. System Features 32 (Outgoing Call Restriction) and 33 (Room Status) are mutually exclusive. System Feature 32 cannot be used in programming Hotel/Motel.
<i>Conditions</i>	By default, vacant rooms (and rooms that become vacant) have their call restriction set to Internal, the most restrictive option. This setting prevents unauthorized calls from vacant rooms. By default, occupied rooms have the call restriction set to Internal, the most restrictive option. Usually when a room becomes occupied, the guest is provided with a less restrictive setting.
<i>How to Program</i>	Chart 4-12
<i>How to Use</i>	Console: Chart 5-11 FDT: Chart 5-23

Check Out

(Front Desk Terminal only.) This softkey provides a simple checkout procedure. It is only provided if the occupancy setting of the guest room is Occupied. It has these functions:

- Sets the room occupancy field to vacant. Sets the room condition to dirty.
- Sets the call restriction to the setting specified in System Option 57 (Vacant/reserved default call restriction).
- Once the check out key is pressed, the softkeys are updated to present **Cancel** and **Enter** keys only. **Cancel** resets the room conditions as they were originally. When **Enter** is pressed, the guest name is erased, DND is turned off (if it was set), the message register is cleared, and wakeup is turned off (if it was set).

<i>How to Program</i>	N/A
<i>How to Use</i>	Console: N/A
	FDT: Chart 5-24

Do Not Disturb

Do Not Disturb blocks calls from ringing at a guest's telephone. Outgoing calls are not affected. See Table 2-12. Callers to a telephone with Do Not Disturb active hear reorder (error) tone. The message Do Not Disturb appears on display sets. The system can be programmed to reroute these calls to a predetermined answering point. The console, *SUPERSET 4DN* and *SUPERSET 430* telephones can override Do Not Disturb.

The attendant console can set and clear Do Not Disturb for a guest room telephone. This can be done whether or not the console is connected to the guest room phone. The front desk terminal can set Do Not Disturb in Room Update mode while the highlight bar is on the DND field.

A guest can set and clear Do Not Disturb from a guest room telephone.

Table 2-12 Do Not Disturb

Terminal	Description	Display/Confirmation
Attendant Console	Setting and clearing Do Not Disturb are controlled by the NO DIST softkey. When DND is set, the NO DIST softkey does not appear. When DND is not set, the softkey appears.	<i>DND On:</i> DND status flag appears on console status line. <i>DND Off:</i> There is no DND status flag on the status line of the attendant console.
Front Desk Terminal	Setting and clearing Do Not Disturb are controlled by a DND softkey. When DND is set, the softkey turns it off. When DND is not set, the softkey turns it on.	The DND field appears on the Guest Room Update screen. When DND is set, ON is displayed in the field. When DND is not set, the field is blank.
SUPERSET 4/ Telephones	Setting Do Not Disturb from a guest room telephone is done by pressing the Select Features key, dialing the digit 2, and pressing the ON softkey. Clearing Do Not Disturb is done by pressing the Select Features key, dialing the digit 2, and pressing the OFF softkey.	NO DISTB appears in the upper left corner of the display. NO DISTB disappears.
SUPERSET 3DN SUPERSET 410 SUPERSET 4DN SUPERSET 430 Telephones	Setting and clearing Do Not Disturb from a guest room telephone is done by pressing the Do Not Disturb feature key.	Dial tone indicates DND has been set or cancelled.
SUPERSET 420	To set or clear Do Not Disturb from a SUPERSET 420, toggle the Do Not Disturb feature key or use the Superkey menu.	
Industry-standard, SUPERSET 3, SUPERSET 401 Telephones	Setting and clearing Do Not Disturb from a guest room telephone is done by dialing a feature access code plus 1 (to set) and 2 (to cancel) DND.	Dial tone indicates DND has been set or cancelled.

Conditions: In order for DND to be set on a guest room phone, whether it is done from the attendant console, the front desk terminal, or the guest room phone, COS option 220 must be enabled for that particular guest room phone.

How to Program Chart 4-13

How to Use Console: Chart 5-7, Chart 5-8

FDT: Chart 5-25

Guest Names

(Front Desk Terminal and *SUPERSET* display telephones only.) Guest names can be entered and stored.

The front desk terminal has two data fields: last name and first name. The last name field accepts up to 15 alphanumeric characters. The first name field accepts up to six characters. Names are displayed in uppercase, even if they are entered in lowercase. The order is LAST NAME, FIRST NAME. The *SUPERSET* display telephone can enter and display one 10-character name, or can display up to 10 characters of a name entered from a front desk terminal.

Guest names can be displayed on an attendant console if entered from the front desk terminal or a *SUPERSET* display telephone, but they cannot be entered or searched for. See Table 2-13.

Table 2-13 Guest Names		
Terminal	Description	Display
Attendant Console	Guest names can be displayed on an attendant console with a front desk terminal configured on the system, but they cannot be entered or searched for.	First 10 characters of the last name field as entered from the front desk terminal. (If the name entered on the front desk terminal is longer than 10 characters, the name displayed on the console is truncated at 10.) Ten-character name as programmed from a <i>SUPERSET 4</i> , <i>SUPERSET 4DN</i> , <i>SUPERSET 420</i> or <i>SUPERSET 430</i> .
Front Desk Terminal	Guest names can be entered and stored, as well as displayed. There are two data fields: last name and first name.	The last name field accepts up to 15 alphanumeric characters. The first name field accepts up to six characters. They are displayed in uppercase, in the order LAST NAME, FIRST NAME.

<i>Conditions</i>	When room status is set to vacant, the name fields are cleared. Both the FDT and the console operate in this way.
	If the name field is not programmed, the data field is blank.
	If a copy database is in progress when a name update is requested from the front desk terminal (the Enter key is pressed), the name is not saved. A warning message is displayed. Any other information entered on the form is saved.
	Note: With the exception of name updates, a copy database is transparent to the user. All other front desk terminal functions can be carried out, since the information is saved until it can be executed.
<i>How to Program</i>	N/A
<i>How to Use</i>	Console: N/A
	FDT: Chart 5-26, Chart 5-27

Guest Room *SUPERSET* Key Programming

A block of guest room *SUPERSET* 3DN, *SUPERSET* 4DN, *SUPERSET* 410, *SUPERSET* 420 or *SUPERSET* 430 telephones can be programmed with Speed Dial and Feature Access keys. This can only be done from CDE. Up to three separate blocks (templates) can be programmed at one time. This feature is not available with Generic 1001 or 1002.

<i>Feature Interactions</i>	Keys programmed as Speed Dial keys or Feature Access keys in a Guest Room <i>SUPERSET</i> Keys Template cannot be programmed as Line Appearances in CDE Form 09 (Station/ <i>SUPERSET</i> Telephones).
<i>Conditions</i>	Guest Room set users cannot program speed dial keys when a guest room template is enabled for the extension.
<i>How to Program</i>	Chart 4-14
<i>How to Use</i>	Console: N/A
	FDT: N/A

Maid in Room

This feature allows the maid to enter a code from the guest room telephone to indicate that the room is currently being cleaned. Upon leaving the room, the maid can enter a second code indicating that the room is ready for inspection or that it is clean. See Table 2-14.

Table 2-14 Maid In Room		
Code	Maid in Room Status	Meaning
1	Maid is in room	Maid has entered the dirty room and has dialed the room access code and the maid in room code.
2	No maid in room	Maid has decided to leave the dirty room after dialing in the Maid in Room code. Room has not been cleaned. Maid has dialed the room access code and the no maid in room code.
3	Room clean, maid not in room	The room is clean. If there is a supervisor, supervisor dials this code to indicate room has been inspected and is ready to be rented out. If there is no supervisor, maid dials this code to indicate room is clean and is ready to be rented out. Maid or supervisor has dialed the room access code and the room clean code.
4	Room to be inspected, maid not in room	Maid has finished cleaning the room. The room is ready for inspection by a supervisor. Maid has dialed the room access code and the room to be inspected code.

The attendant console or the front desk terminal can display this information. A *SUPERSET* telephone with the proper COS option can also display this information. See Maid in Room Status Display on page 602 2-45. If the maid in room status changes for a room currently in room update mode, the new status is not posted until the current display (room update screen on the front desk terminal, or current display on the attendant console) is exited and reentered. See Table 2-15.

Table 2-15 Maid in Room

Status	Description of Display	Changing the Display from a(n)...		
		Attendant Console	Front Desk Terminal	Telephone
Attendant Console				
Maid in room	Maid in room status is displayed on the attendant console display room status line as "Maid".	Maid in Room status cannot be changed from the console.	Maid in Room status cannot be changed from the front desk terminal.	Maid dials the room access code and 1.
No maid in room	If there is no maid in the room, "Maid" is not displayed.	Maid in Room status cannot be changed from the console.	Maid in Room status cannot be changed from the front desk terminal.	Maid dials the room access code and 2.
Room to be inspected	To be inspected condition is displayed on the attendant console display room status line as "Insp".	Attendant presses the Insp softkey.	On the Room Update screen, Attendant presses the Show Choices softkey and then the Insp softkey.	Maid dials the room access code and 4.
Room clean	Clean condition is displayed on the attendant console display room status line as "Clean".	Attendant presses the Clean softkey.	On the Room Update screen, attendant presses the Show Choices softkey and then the Clean softkey.	Maid or supervisor dials the room access code and 3.
Front Desk Terminal				
Maid in room	The status " Maid in Room " in bold letters appears in the Maid in Room field on the room updates form.	Maid in Room status cannot be changed from the console.	Maid in room status cannot be changed from the front desk terminal.	Maid dials the room access code and 1.
No maid in room	If there is no maid in room, the field is blank.	Maid in Room status cannot be changed from the console.	Maid in Room status cannot be changed from the front desk terminal.	Maid dials the room access code and 2.

Table 2-15 Maid in Room (continued)				
Status	Description of Display	Changing the Display from a(n)...		
		Attendant Console	Front Desk Terminal	Telephone
Room to be inspected	The status "Insp" in bold letters appears in the Condition field on the room updates form.	Attendant presses the Insp softkey.	On the Room Update screen, Attendant presses the Show Choices softkey and then the Insp softkey.	Maid dials the room access code and 4.
Room clean	The status "Clean" in bold letters appears in the Condition field on the room updates form.	Attendant presses the Clean softkey.	On the Room Update screen, attendant presses the Show Choices softkey and then the Clean softkey.	Maid or supervisor dials the room access code and 3.

Page 2 of 2

Conditions

The Maid in Room status can only be changed from the guest room telephone.

Only the Room Condition status can be modified by the maid. This feature cannot change the Room Occupancy status of the guest room.

How to Program

Chart 4-15

How to Use

Console:	Chart 5-11
FDT:	Chart 5-28

Maid in Room Status Display – SUPERSET 4, SUPERSET 4DN, SUPERSET 420 and SUPERSET 430 Telephones

This feature allows an authorized *SUPERSET 4*, *SUPERSET 4DN*, *SUPERSET 420* and *SUPERSET 430* telephone to determine which guest rooms have maids in them. See Table 2–16.

Table 2–16 Maid in Room Status Display				
Status	Description of Display	Changing the Field from a(n)....		
		Attendant Console	Front Desk terminal	Room Telephone
<i>SUPERSET 4/SUPERSET 420 Telephone</i>				
Maid in room	Rooms with a maid in them are displayed two at a time in numeric order. If there are more rooms with maids in them, a left arrow softkey appears. Pressing this softkey displays the other rooms, two at a time. See Maid in Room Search. This feature is not available with Generic 1001 or Generic 1002.	Maid in Room status cannot be changed from the console.	Maid in Room status cannot be changed from the front desk terminal.	Maid or supervisor dials an access code and a status code from a guest room phone.
<i>SUPERSET 4DN/SUPERSET 430 Telephone</i>				
Maid in room	Rooms with a maid in them are displayed 12 at a time in numeric order. If there are more rooms with maids in them, a right arrow softkey appears. Pressing this key displays the other rooms, 12 at a time. See Maid in Room Search. This feature is not available with Generic 1001 or Generic 1002. Rooms with a maid in them are displayed 10 at a time in Generic 1004 and Generic 1005.	Maid in Room status cannot be changed from the console.	Maid in Room status cannot be changed from the front desk terminal.	Maid or supervisor dials an access code and a status code from a guest room phone.

How to Program

Chart 4–16

How to Use

*SUPERSET
Telephones*

Chart 5–38

Message Lamp Test

The message waiting lamp on a guest room telephone is tested automatically whenever the room status changes from occupied to vacant and there are no messages waiting. It runs whether the change was made from a front desk terminal or from an attendant console. However, there is no indication at the front desk terminal that it has run. If there is a failure, notification is through the alarm icon at the console. The test verifies lamp operation and confirms that the telephone is still connected in the room. The test does not verify bell operation.

<i>Feature Interactions</i>		COS Option 232 (Message Waiting Lamp) and System Option 02 (Message Lamp Test Enable) must be enabled. See the Programming section.
<i>How to Program</i>		Chart 4-17
<i>How to Use</i>	Console:	N/A
	FDT:	N/A

Message Register

The message register provides the ability to keep track of the number of completed external calls or call units for each extension. This feature applies to consoles, industry standard telephones, and *SUPERSET* telephones. The extension or console which answers an incoming trunk call or places an outgoing trunk call is charged with the count on the trunk while the trunk is active in the system, even if the extension is no longer involved in the call. This operation can be changed so that the count is applied to the current extension or console talking to the trunk. If the attendant handles the trunk call first (incoming or outgoing) and transfers the trunk call to an extension (supervised or unsupervised), the console's message register is transferred to the extension. Supervision on an outgoing trunk is counted as one message register count.

There are two modes of operation. The first counts the number of external calls made by each room. The second keeps track of meter pulses being sent from the far end to the associated trunk circuit. These pulses can in turn be charged against the guestroom making the call. The attendant console or the front desk terminal displays the current value of the message register for a room each time a room number is entered. The message register can be cleared by the attendant from the console or terminal, or automatically upon requesting an audit. (See Attendant Message Register Audit.) Clearing the message register can be recorded as a single line report on a system printout – the system printer prints the message register count before it was cleared. This feature is only used in cases where COS Option 703, Message Register Applies, has been enabled for some extensions.

The maximum message register count is 50,000. The counter resets to zero when this count is reached (an alarm can also be generated). The alarm icon on the console can be set to flash if the message register overflows.

Meter pulses are recorded in SMDR. See Station Message Detail Recording, Practice 9109-096-221-NA.

<i>Conditions</i>	<p>If an extension with Message Registration connects to an outgoing trunk which does not have Message Registration, Message Registration does not apply to the extension.</p> <p>When the trunk does not provide answer supervision (trunk circuit descriptor option "Far-end Gives Answer Supervision" is not enabled), a completed outgoing call is determined by the pseudo answer supervision timer. This timer is started when a trunk seizure is acknowledged and when the timer expires, a meter pulse is counted (a pseudo answer supervision) giving an indication of a completed external call.</p>				
<i>How to Program</i>	Chart 4-18				
<i>How to Use</i>	<table border="0"> <tr> <td style="padding-right: 10px;">Console:</td> <td>Chart 5-9</td> </tr> <tr> <td style="padding-right: 10px;">FDT:</td> <td>Chart 5-29</td> </tr> </table>	Console:	Chart 5-9	FDT:	Chart 5-29
Console:	Chart 5-9				
FDT:	Chart 5-29				

Multi-User

Four front desk terminals can run the Hotel/Motel application at the same time. However, two terminals cannot edit information for the same room at the same time.

The front desk terminal also checks that the room is not being accessed by an attendant console. The message "Room being accessed by another user. Try again later." appears on the screen if a console is currently displaying information for the room. If more than one front desk terminal is logged in with the supervisor-level password, each terminal checks that the room is not being accessed by another terminal or the console.

The front desk terminal and a *SUPERSET* display telephone, or several display telephones can enter, change or delete a guest name. The entry that is done last is the one that is stored.

Up to 11 consoles can be configured on one system. Two (or more) consoles can access a guest room at the same time. The user that leaves the guest room last updates the database last, and that information is the valid data for the room. If two users are changing different fields at the same time, all the information should be captured, since only fields that have been modified will be updated when the EXIT softkey is pressed.

<i>How to Program</i>	Console:	Chart 4-1, See COS option 320
	FDT:	No programming required
<i>How to Use</i>	Console:	N/A
	FDT:	N/A

Entering or changing guest room information from the front desk terminal can be controlled by passwords. When first installed, all passwords are the same, and different levels must be enabled. A CDE attendant-level password allows no editing capability. A CDE supervisor-level password allows editing. The user of an attendant password can read information about rooms, request audits, and conduct searches. The user of a supervisor password can, in addition, enter and change information about a guest room, since this password presents the Room Update softkey.

<i>How to Program</i>		Chart 4-1, Step 9.
<i>How to Use</i>	Console:	N/A
	FDT:	Chart 5-14

PMS Interface

The PABX can interface to IBM-compatible personal computers with the Lodgistix PMS software package (or a package that follows the same protocol). See Property Management System, Paragraph 2.5 .

<i>How to Program</i>	Chart 4-2
<i>How to Use</i>	Console: N/A
	FDT: N/A

Room Condition

An indication of the current housekeeping condition of a guest room. The room condition can be set from an attendant console, or a front desk terminal (Table 2-17). See Room Status. Some conditions can be set from a guest room telephone. See Maid in Room. Room condition can be displayed as part of the room status display on the *SUPERSET 4*, *SUPERSET 4DN*, *SUPERSET 420* and *SUPERSET 430* telephone. See Room Status Display on page 602 2-54.

Table 2-17 Room Condition					
Condi- tion	Meaning	Description of Display	Changing the Field from a(n)...		
			Attendant Console	Front Desk Terminal	Room Telephone
Attendant Console					
Clean	Room has been inspected and is ready for occupancy.	"Clean" is displayed on the attendant console display room status line.	Attendant presses the STATUS softkey, then the CLEAN softkey.	On the Room Update screen, Attendant presses the Show Choices softkey, then the Clean softkey.	Maid or supervisor dials Clean code from a guest room phone. (Maid in Room feature.)
Dirty	Room has not been cleaned by a maid.	"Dirty" is displayed on the attendant console display room status line.	Attendant presses the STATUS softkey, then the DIRTY softkey.	On the Room Update screen, Attendant presses the Show Choices softkey, then the Dirty softkey.	Cannot be changed.

**Table 2-17 Room Condition
(continued)**

Condi- tion	Meaning	Description of Display	Changing the Field from a(n)...		
			Attendant Console	Front Desk Terminal	Room Telephone
Attendant Console (Cont'd)					
Out of Service	Room is not in use.	" Serv. " is displayed on the attendant console display room status line.	Attendant presses the STATUS softkey, then the OUT OF SERV softkey.	On the Room Update screen, Attendant presses Show Choices and Serv softkeys.	Cannot be changed.
To be In- spected	Room has been cleaned by a maid but has not yet been inspected.	" Insp. " is displayed on the attendant console display room status line.	Attendant presses the STATUS softkey, then the TO INSPECT softkey.	On the Room Update screen, Attendant presses the Show Choices softkey, then the Insp softkey.	Maid or supervisor dials the To Be Inspected code from a guest room telephone.(Maid in Room feature.)
Front Desk Terminal					
Clean	Same as above.	" Clean " appears in the Condition field on the room updates form.	Attendant presses the Clean softkey.	On the Room Update screen, Attendant presses the Show Choices softkey, then the Clean softkey.	Maid or supervisor dials Clean code from a guest room phone.(Maid in Room feature.)
Dirty	Same as above.	" Dirty " appears in the Condition field on the room updates form.	Attendant presses the Dirty softkey.	On the Room Update screen, Attendant presses the Show Choices softkey, then the Dirty softkey.	Cannot be changed.

Table 2-17 Room Condition (continued)					
Condi- tion	Meaning	Description of Display	Changing the Field from a(n)...		
			Attendant Console	Front Desk Terminal	Room Telephone
Front Desk Terminal (Cont'd)					
Out of Service	Same as above.	" Serv " appears in the Condition field on the room updates form.	Attendant presses the Serv softkey.	On the Room Update screen, Attendant presses the Show Choices softkey, then the Out of Serv softkey.	Cannot be changed.
To be In- spected	Same as above.	" Insp " appears in the Condition field on the room updates form.	Attendant presses the Insp softkey.	On the Room Update screen, Attendant presses the Show Choices softkey, then the To Inspect softkey.	Maid or supervisor dials the To Be Inspected code from a guest room telephone.(Maid in Room feature.)

Page 3 of 3

Note: "Out Of Service" and "To Be Inspected" states are not available with Generic 1001.

<i>How to Program</i>		Chart 4-19
<i>How to Use</i>	Console:	Chart 5-11
	FDT:	Chart 5-30

Room Occupancy

An indication of the current occupancy of a guest room. The room occupancy can be set from a console or a front desk terminal (Table 2-18). See Room Status.

Table 2-18 Room Occupancy

Occu- pancy	Meaning	Description of Display	Changing the Field from a(n)...		
			Attendant Console	Front Desk Terminal	Room Phone
Attendant Console					
Vacant	Room is not occupied.	" Vac " is displayed on the attendant console display room status line.	Attendant presses the STATUS softkey, then the VACANT softkey.	On the Room Update screen, Attendant presses the Show Choices softkey, then the Vacant softkey.	Cannot be changed.
Occupied	Room is occupied by a guest.	" Occ " is displayed on the attendant console display room status line.	Attendant presses the STATUS softkey, then the OCCUPIED softkey.	On the Room Update screen, Attendant presses the Show Choices softkey, then the Occupied softkey.	Cannot be changed.
Reserved	The guest room is reserved for a guest, but not paid for. If the guest does not pay for the room by a particular time, it can be rented out to another guest.	" Res " is displayed on the attendant console display room status line.	Attendant presses the STATUS softkey, then the RESERVED softkey.	On the Room Update screen, Attendant presses the Show Choices softkey, then the Reserved softkey.	Cannot be changed.
Guaran- teed	The guest room is reserved for a guest and paid for, although the guest has not checked in yet.	" Gua " is displayed on the attendant console display room status line.	Attendant presses the STATUS softkey, then the GUARANTEED softkey.	On the Room Update screen, Attendant presses the Show Choices softkey, then the Guaranteed softkey.	Cannot be changed.

Table 2-18 Room Occupancy (continued)					
Occu- pancy	Meaning	Description of Display	Changing the Field from a(n)...		
			Attendant Console	Front Desk Terminal	Room Phone
Front Desk Terminal					
Vacant	Same as above.	" Vacant " appears in the Occupancy field on the room updates form.	Attendant presses the VA-CANT softkey.	On the Room Update screen, Attendant presses the Show Choices softkey, then the Vacant softkey.	Cannot be changed.
Occupied	Same as above.	" Occupied " appears in the Occupancy field on the room updates form.	Attendant presses the OCCUPIED softkey.	On the Room Update screen, Attendant presses the Show Choices softkey, then the Occupied softkey.	Cannot be changed.
Reserved	Same as above.	" Reserved " appears in the Occupancy field on the room updates form.	Attendant presses the RESERVED softkey.	On the Room Update screen, Attendant presses the Show Choices softkey, then the Reserved softkey.	Cannot be changed.
Guaranteed	Same as above.	" Guaranteed " appears in the Occupancy field on the room updates form.	Attendant presses the GUARANTEED softkey.	On the Room Update screen, Attendant presses the Show Choices softkey, then the Guaranteed softkey.	Cannot be changed.
Page 2 of 2					

Note: "Out Of Service" and "To Be Inspected" states are not available with Generic 1001.

<i>How to Program</i>	Chart 4-19
<i>How to Use</i>	Console: Chart 5-11
	FDT: Chart 5-31

Room Status Display

Attendant Console and Front Desk Terminal

The attendant can display and change the status of a room(s). Room status is made up of: room occupancy, room condition, telephone privileges (call restriction) and maid in room. Each (except maid in room) can be set independently of the other by the attendant. See Table 2-19.

The system can be programmed to change the status of all "occupied/clean" rooms to "occupied/dirty" at a predetermined time. At the same time, an audit of all auto wakeups is generated. See Wakeup/Room Condition Audit on page 602 2-31.

Table 2-19 Room Status Display	
Terminal Type	Description of Display
Attendant Console	When a room number is selected, the status from the above list is displayed on the second line of the attendant console LCD. For example: Status= Vac/Dirty/Int/Maid means the room is vacant, dirty, has only internal telephone privileges and has a maid in it. The last field is blank if the maid is not present.
	Room status for a number of rooms can be displayed by doing a room search on the basis of: – Maid in room – Vacant/clean – Reserved and clean – Out of service See Room Status Search.
Front Desk Terminal	A. Room status for a particular room is displayed on the room update screen. Occupancy, condition, call privilege, and maid are displayed as separate fields.
	B. Room status for a number of rooms can be displayed by doing a room search on the basis of: – Vacant/clean – Vacant – Maid in room – Out of service – Dirty – Reserved – Guaranteed See Room Status Search.

Feature Interactions

If System Option 2 (Message Lamp Test Enable) is enabled, when a room's status is changed from vacant to occupied or from occupied to vacant, the system performs a message lamp test on the telephone in that room. If the test finds the lamp defective (i.e. burnt-out or missing), it raises a minor alarm. See the Programming section.

How to Program

Chart 4-19

How to Use

Console:

Chart 5-11, Chart 5-13

FDT:

Chart 5-31, Chart 5-28, Chart 5-33, Chart 5-23

Room Types and Room Codes

Hotel guest rooms can be divided into 50 different types, such as single, double, queen, smoking, nonsmoking. This is done through customer data entry programming from the CDE terminal by putting each room type in a separate class of service. Since each class of service can have a different name associated with it, the type of room is identified by the class of service name. The name can be eight characters long. By default, it can be identified by the code (COS number) associated with the class of service name. Searches and audits can be requested by room type or code.

Table 2-20 Room Types (Examples)

Room Type	COS Name	Room Code (COS Number)
All single rooms	Single	1
All regular doubles	Double	2
All doubles facing pool	Doub_VIP	3
All suites no smoking	NoSmk_Su	4

How to Program

Chart 4-1, Step 2.

How to Use

Console: N/A

FDT: Chart 5-35

Searches

Several different types of searches can be conducted:

- Guest search
- Room number search
- Room type search
- Maid in room search
- Room status search

(Front Desk Terminal only.)

Guest Search

Guest Search searches all guest rooms for a text string that matches a guest's name. The string entered must match with the first letters of the last name field. For instance, if BLACK were entered, the name would match with BLACK or other names containing these letters such as BLACKBURN. All matches are displayed in alphabetical order using the standard front desk search display format. If last names are identical, first

names are used to determine the order. If both are identical, the guest who checked in last is displayed first.

<i>How to Program</i>	N/A
<i>How to Use</i>	Console: N/A
	FDT: Chart 5-32

Room Number Search

A search can be conducted for information about a particular room number. See Table 2-21.

Table 2-21 Room Number Search		
Terminal Type	Operation	Display
Attendant Console	Press the Guest Room softkey and enter a room number.	The room occupancy, condition, call restriction, whether a maid is in the room , and message register count is displayed. Attendant consoles associated with a front desk terminal application display the guest name and room type.
Front Desk Terminal	A. Beginning from the House Statistics screen, press the Room Update softkey and enter the room number.	Room Update Screen. The name of the guest, room occupancy, condition, call restriction, whether a maid is in the room, wakeup time, room type, whether there is a message waiting, whether Do Not Disturb is set, and the message register count is displayed on the Room Update screen.
	B. From the Room Search menu, press the Room Number softkey and enter the room number.	Search Display Screen. The name of the guest, room type, room occupancy, condition, call restriction, whether a maid is in the room, message waiting indication, and wakeup time is displayed for that particular room number, and the next eight rooms.

<i>How to Program</i>	N/A
<i>How to Use</i>	Console: Chart 5-12
	FDT: Chart 5-34

Room Type Search

(Front Desk Terminal only.) A search can be conducted on the basis of room type. The class of service number for the room type is used as the room code for search purposes. There is a wild card entry for searching all room types.

Searches can also be conducted on the basis of room status and room type. See Room Type.

<i>How to Program</i>	N/A
<i>How to Use</i>	Console: N/A
	FDT: Chart 5-35

Maid in Room Search

A search can be conducted from *SUPERSET 4*, *SUPERSET 420*, *SUPERSET 4DN*, or *SUPERSET 430* telephones, the attendant console or a front desk terminal on the basis of Maid in Room (Table 2-22). Rooms with a maid in them are displayed in sequence from lowest to highest room number. See Room Status Search.

Table 2-22 Maid in Room Search

Terminal Type	Operation	Display
Attendant Console	Search is initiated by pressing the MAID softkey.	The first 10 room numbers of rooms with a maid in them are displayed. If there are more rooms being cleaned, the MORE... softkey appears. This softkey displays the other guest room extension numbers, 10 at a time. When the last room number is displayed, the MORE... softkey disappears. Only room numbers are shown.
Front Desk Terminal	Search is initiated by pressing the Maid in Room softkey.	The first nine room numbers of rooms with a maid in them are displayed. Guest name, type of room, occupancy, condition, call restriction, message waiting indication, and wakeup time are also displayed. If there are more rooms being cleaned, the PAGE DOWN softkey appears. This softkey displays the other guest room extension numbers, nine at a time. When the last room number is displayed, the PAGE DOWN softkey disappears, and the PAGE UP softkey appears. The PAGE UP softkey allows paging backwards, nine rooms at a time. This softkey is not available on the first screen of nine rooms. If no rooms are found that meet the requirements, the user is informed and the main search menu softkeys are presented.

Page 1 of 2

Table 2-22 Maid in Room Search (continued)		
SUPERSET 4/ SUPERSET 420 Telephone	Search is initiated by dialing the SUPERSET 4/ SUPERSET 420 Maid in Room status display access code.	The first two room numbers of rooms with a maid in them are displayed. If there are more rooms being cleaned, the arrow softkey appears. This softkey displays the other room numbers, two at a time. When the last room number is displayed, the arrow softkey disappears.
SUPERSET 4DN/ SUPERSET 430 Telephone	Search is initiated by dialing the SUPERSET 4DN/ SUPERSET 430 Maid in Room status display access code.	Search is initiated by dialing the Maid in Room access code. The first 12 room numbers of rooms with a maid in them are displayed. If there are more rooms being cleaned, the arrow softkey appears. This softkey displays the other room numbers, 12 at a time. When the last room number is displayed, the arrow softkey disappears. In Generic 1004 and Generic 1005, the first 10 room numbers of rooms with a maid in them are displayed.
Page 2 of 2		

<i>How to Program</i>	Chart 4-15, Chart 4-16
<i>How to Use</i>	Console: Chart 5-11
	FDT: Chart 5-33
	SS4/SS420: Chart 5-38
	SS4DN/ SS430: Chart 5-38

Room Status Search

The attendant can search for guest rooms that have certain status combinations. Different types of searches can be conducted from the attendant console or from the front desk terminal. All room searches can be divided into two phases: searching and displaying. The search mode provides softkeys to select the type of search to be done. See Table 2-23.

Table 2-23 Room Status Search

Terminal Type	Types of Room Status Searches	Operation	Display
Attendant Console	<ul style="list-style-type: none"> - Maid in room - Vacant/clean - Reserved and clean - Out of service 	Search is initiated by pressing the appropriate softkey.	When displaying all rooms with a particular status, as selected by softkeys, the LCD displays the numbers of up to 10 rooms that have the selected status. If there are more rooms, the MORE... softkey appears. It displays the next group of up to 10 room numbers. Rooms are displayed in order from highest to lowest room number. Only room numbers are shown.
Front Desk Terminal	<ul style="list-style-type: none"> - Vacant/clean - Vacant - Maid in room - Out of service - Dirty - Reserved - Guaranteed 	Search is initiated by pressing the appropriate softkey. For each, room type (or the wild card entry 0 for all rooms) must be specified.	<p>If the search is successful, (i.e., a room meeting the search criteria exists) the first nine room numbers of rooms with that particular status are displayed. Room number, guest name, room type, occupancy, condition, whether there is a maid in the room, call restriction, message waiting indication, and wakeup time are displayed.</p> <p>If there are more rooms, the PAGE DOWN softkey appears. This softkey displays the other room numbers, nine at a time. When the last room number is displayed, the PAGE DOWN softkey disappears. The PAGE UP softkey allows paging backwards, nine rooms at a time. This softkey is not available on the first screen of nine rooms. If no rooms are found which meet the requirement, the user is informed and the main search menu softkeys are presented.</p>
SUPERSET 4 SUPERSET 420	Search is on a per room basis. See room status.	Search is initiated by dialing the room status display access code, followed by a room number.	<p>The LCD displays the status (occupancy and condition only) of the room: 1101 VAC/CLEAN</p> <p>The arrow softkey displays the status of the room with the next higher room number: 1102 RES/CLEAN</p> <p>When the last room number is displayed, the arrow softkey no longer appears.</p>
SUPERSET 4DN SUPERSET 430	Search is on a per room basis. See room status.	Search is initiated by dialing the room status display access code followed by a room number.	<p>The LCD displays the status (occupancy and condition only) of the room: 1101 VAC/CLEAN</p> <p>The arrow softkey displays the status of the room with the next higher room number: 1102 RES/CLEAN</p> <p>When the last room number is displayed, the arrow softkey no longer appears.</p>

<i>How to Program</i>		Chart 4-19
<i>How to Use</i>	Console:	Chart 5-11, Chart 5-13
	FDT:	Chart 5-33
<i>SS4/SS420:</i>		Chart 5-39
<i>SS4DN/ SS430:</i>		Chart 5-39

Single Line Reports

Single line reports are types of audits used to record changes in status for an individual room. See Table 2-24. These reports are generated automatically (under control of System Options 04, 13, and 24) and provide hard-copy evidence that a change occurred. The printouts produced by single line reports are limited to 40 characters in length. The report printouts begin with a standard prefix, containing extension number, date and time. This prefix occupies the first 19 characters of the print line, as follows:

xxxxx mm/dd hh:mmP

The xxxxx field refers to an extension number (five-digit maximum). The mm/dd field refers to a two-digit month and a two-digit day. The hh:mmP field refers to a two-digit hour, and two-digit minute, where P indicates PM when a 12-hour clock is used.

There are three categories of single line reports:

- **Automatic Wakeup.** Sixteen suffixes are available for automatic wakeup single line reports. Three apply to attendant console operations, three to front desk terminal operations, three to station operations (guest room telephones), and seven to wakeup attempts. Each contains the programmed wakeup time. The suffixes are summarized in Table 2-24. A sample automatic wakeup report is given below:

12345 01/23 11:20P WU 7:00 SET BY ROOM

- **Message Registration.** Message registration single line reports have only one printout suffix; it is generated whenever a room's message register is cleared from the attendant console. The register count field is five digits in length, and all leading zeros are displayed. The format of the suffix is:

REG. CLEARED AT nnnnn

nnnnn represents the register contents prior to being cleared. A sample message registration report is given below:

12345 01/23 11:40P REG. CLEARED AT 00012

- **Message Waiting.** Two suffixes are available for Message Waiting single line report printouts. One is generated when Message Waiting is turned on for an extension; the other is generated when it is turned off. The format of the suffixes is:

MESSAGE WAITING ON or MESSAGE WAITING OFF

A sample message waiting report is given below:

[208z12345 01/23 11:45P MESSAGE WAITING ON

Table 2-24 Single Line Reports		
Operation Type	Suffix	Definitions & Notes
Console Operations	WU hh:mmP SET BY CONS	WU = Wakeup hh:mmP = time and PM indicator SET BY CONS = Set by Attendant Console
	WU hh:mmP CHG BY CONS	CHG BY CONS = Changed by Attendant Console
	WU hh:mmP CAN BY CONS	CAN BY CONS = Cancelled by Attendant Console
Front Desk Terminal Operations	WU hh:mmP SET BY DESK	WU = Wakeup hh:mmP = time and PM indicator SET BY DESK = Set by Front Desk Terminal
	WU hh:mmP CHG BY DESK	CHG BY DESK = Changed by Front Desk Terminal
	WU hh:mmP CAN BY DESK	CAN BY DESK = Cancelled by Front Desk Terminal
Room Operations	WU hh:mmP SET BY ROOM	WU = Wakeup hh:mmP = time and PM indicator SET BY ROOM = Set by guest room telephone
	WU hh:mmP CHG BY ROOM	CHG BY ROOM = Changed by Guest Room Telephone
	WU hh:mmP CAN BY ROOM	CAN BY ROOM = Cancelled by Guest Room Telephone
Wakeup Attempts	WU hh:mmP aaaaaa	aaaaaa = either: ANSWERED NO ANS 1 NO ANS 2 NO ANS 3 ** BUSY 1, BUSY 2, BUSY 3 Note: Third-attempt failures for NO ANS and BUSY generate three CTRL G characters separated by seven nulls, along with the asterisks. A CTRL G character rings bell.

SUPERSET Telephone Room Status Display

The *SUPERSET* display of an authorized *SUPERSET* telephone can show a combination of occupancy and condition (one of Vacant/Occupied/Reserved/Guaranteed and one of Clean/Dirty/To be Inspected/Out of Service). (Guaranteed appears in Generic 1004 and Generic 1005 only.) See Table 2-25.

Maid in Room is displayed separately as part of the Maid in Room feature. Call Restriction is not displayed.

Table 2-25 SUPERSET Telephone Room Status Display			
Description of Display			
Occupancy		Condition	
Vacant	VAC appears as the first word in the telephone display area.	Clean	CLEAN appears as the second word in the telephone display area.
Occupied	OCC appears as the first word in the telephone display area.	Dirty	DIRTY appears as the second word in the telephone display area.
Reserved	RES appears as the first word in the telephone display area.	Out of Service	SERV appears as the second word in the telephone display area.
Guaranteed	GUA appears as the first word in the telephone display area.	To be Inspected	INSP appears as the second word in the telephone display area.

<i>How to Program</i>		Chart 4-22
<i>How to Use</i>	SS4/SS420:	Chart 5-37, Chart 5-38, Chart 5-39
	SS4DN/ SS430:	Chart 5-37, Chart 5-38, Chart 5-39

Property Management System

- 2.5 The PABX interfaces to IBM-compatible personal computers with the Lodgistix PMS software package (or a package that follows the same protocol). Hotel/Motel information is stored in the PABX and in the PMS. The information is split between the PMS and the PABX as follows:

PABX Database	PMS Database
	Room Status
Message Register	Message Register
Message Waiting	Message Waiting
Automatic Wakeup	Automatic Wakeup
Guest Names	Guest Names
Do Not Disturb	

Note that the PABX will not store room status information when PMS is enabled. PMS is not available in Generic 1001 and Generic 1005 FPKG 1 and LIT96. Refer to Chart 4-2 for programming information.

PMS-Specific Features

The PMS interface maintains the following information between the PABX and the PMS:

- maid status
- message registration of outgoing trunk calls
- check in/out
- name (guest name)

Check In/Check Out. When a guest checks in (PMS Check In), the room telephone is enabled to allow outgoing trunk calls. Upon check out (PMS Check Out), the phone is disabled from making calls and the PMS clears message register, message waiting, Do Not Disturb and automatic wakeup from the guest room database.

Message Registration of Outgoing Trunk Calls. This feature provides the PMS with the number of trunk calls made from a room (local and long distance). A call-accounting device connected to the PABX monitors SMDR reports for long distance calls. The charge for these calls is automatically added to the guest's bill at check out time. Call-costing equipment may be attached to the PMS to allow the PMS to handle call costing.

Maid in Room Status. This feature allows the maid to change the room status (clean/dirty) from the room telephone. The maid-in-room status is also indicated on the PMS terminal. This feature is functionally identical to that of the PABX's attendant room status, however, the displaying and monitoring of room status is completely controlled from the PMS terminal.

Name. This feature allows the guest room name in the PMS to be sent to the PABX when a guest checks in and be stored against the room extension.

Automatic Wakeup. This feature allows the front desk PMS terminal to set up and cancel wake-up requests from guest rooms. If programmed in the PABX, a printout will be produced upon setup of a valid time to verify that the request was committed. As well, a printout occurs when the wake-up is honored to verify the receipt of the call.

Message Waiting. This feature allows the message center PMS terminal to setup and cancel a message waiting indication on a guest room telephone. If programmed in the PABX, a printout will be produced to verify that the message was sent and the time of the message. When the message is cancelled from the PMS side, another printout is produced to verify the cancellation.

Feature Interactions

The following conditions apply to the *SX-200* DIGITAL PABX/PMS interface:

- All room status updates are applied against the PMS database, therefore, the following options must be disabled:
 - System Option 33 (Room Status)
 - System Option 27 (Room Status Audit)
 - System Option 34 (Auto Room Status Conversion and Wakeup Print)
 - COS option 244 (Room Status Applies)
 - COS option 608 (*SUPERSET*–Room Status Display)
- The PMS interface port is dedicated to PMS only. It cannot be used for any other applications such as CDE, ACD, or SMDR.
- Because PMS has exclusive use of the port assigned to it, it is recommended that a dataset be used as the port, allowing the system printer port to be used for other printouts.
- Maintenance logs record any errors found in the PMS interface. Refer to Practice 9109-096-350-NA, Troubleshooting, for details.

Feature Availability

- 2.6 The Hotel/Motel feature package is supported by any generic of software from Generic 1001 to Generic 1005. In general, *SUPERSET* telephones are not supported below Generic 1003 (except as industry-standard telephones), and front desk terminals are not supported under Generic 1004 or in Generic 1005 FPKG 1 and LIT96. See Table 2-26 for a list of features available on the different software generics.

Table 2-26 Feature Availability by Generic				
Feature	Generic 1001	Generic 1002	Generic 1003	Generic 1004/1005
Attendant Do Not Disturb	*	*	*	*
Guest Room Do Not Disturb	*	*	*	*
Attendant Message Waiting Setup and Cancel	*	*	*	*
Guest Message Waiting Cancel /Note 1	*	*	*	*
Audits				
Attendant Message Register Audit	*	*	*	*
Room Status Audit /Note 1	*	*	*	*
Vacant Room Audit				*/ Note 2
Occupied Room Audit				*/ Note 2
Reserved Room Audit				*/ Note 2
Guaranteed Room Audit				*/ Note 2
To be Inspected (To Inspect) Room Audit				*/ Note 2
Dirty (To Clean) Room Audit				*/ Note 2
All Room Status Audit				*/ Note 2
Room Type Audit				*/ Note 2
Wakeup Audit	*	*	*	*
Auto Room Status Conversion/Auto Wakeup Print	*	*	*	*
Automatic Wakeup	*	*	*	*
Guest Room Wake Up	*	*	*	*
Call Blocking	*	*	*	*/ Note 3
Call Restriction	*	*	*	*
Check Out (single key)				*
Guest Names				*/ Note 2
Guest Room <i>SUPERSET</i> Key Programming			*	*

**Table 2-26 Feature Availability by Generic
(continued)**

Feature	Generic 1001	Generic 1002	Generic 1003	Generic 1004/1005
Maid in Room	*	*	*	*
Maid in Room Display	*	*	*	*
Maid in Room Status Display – <i>SUPERSET 4, SUPERSET 420, SUPERSET 4DN and SUPERSET 430</i> Telephones			*	*
Message Lamp Test	*	*	*	*/ Note 3
Message Register Display and Clear	*	*	*	*
Multi-user				*/ Note 2
PMS Interface		*	*	*
Room Condition Display				
Clean	*	*	*	*
Dirty	*	*	*	*
Out of Service		*	*	*
To be Inspected		*	*	*
Room Occupancy Display				
Vacant	*	*	*	*
Occupied	*	*	*	*
Reserved		*	*	*
Guaranteed				*
Room Status Display	*	*	*	*
Room Types and Room Codes				*/ Note 2
Searches				
Guest Search				*/ Note 2
Room Number	*	*	*	*
Room Type				
Maid in Room Search	*	*	*	*
Room Status Searches				
– Vacant/clean	*	*	*	*
– Vacant	*	*	*	*
– Out of service		*	*	*
– Dirty (To Clean)		*	*	*

Table 2-26 Feature Availability by Generic (continued)				
Feature	Generic 1001	Generic 1002	Generic 1003	Generic 1004/ 1005
- Reserved		*	*	*
- Guaranteed				*
- Reserved and Clean		*	*	*
Single Line Reports	*	*	*	*
Page 3 of 3				

- Notes:**
1. Available if access code programmed in CDE in Form 02.
 2. Available in Generic 1004 and Generic 1005 front desk terminals only.
 3. Available on the attendant console only.

Hotel/Motel Feature Package Description

3.

HARDWARE INSTALLATION

General

3.1 **PABX.** The basic hotel/motel package is available with a MITEL SX-200 DIGITAL PABX .

Peripherals. Hardware installation for the hotel/motel system involves installing the following peripherals:

- the attendant console(s)
- the front desk terminal(s)
- dataset(s) (for front desk terminal and PMS interface)
- printer(s)
- *SUPERSET* telephones as staff supervisory sets
- *SUPERSET* or industry-standard telephones as room telephones

Chart 3-1 Installing Hardware

Step	Action	Comments
	Install the PABX	The PABX may already be installed at the site.
1.	Install the SX-200 DIGITAL PABX.	Practice 9109-096-200-NA, Installation Information.
	Install the Attendant Console(s)	If this is an existing installation, attendant console(s) may already be installed.
2.	Install the attendant console(s).	Practice 9109-096-200-NA, Installation Information.
	Install the Front Desk Terminal(s)	
3.	Install up to four front desk terminals.	Documentation provided with the terminal(s).
4.	Install a MITEL 1100-series dataset for each terminal installed in Step 3.	Practice 9109-096-126-NA Peripheral Devices.
	Install Printer(s)	
5.	Install printer(s).	Practice 9109-096-200-NA, Installation Information.
	Install Telephones	
6.	Install <i>SUPERSET</i> telephones.	Practice 9109-096-126-NA, Peripheral Devices.
7.	Install industry-standard telephones.	Documentation provided with the telephones.

Hotel/Motel Feature Package Description

4.

PROGRAMMING HOTEL/MOTEL

General

- 4.1 This section discusses the programming required for the Hotel/Motel feature package on the *SX-200* DIGITAL PABX.

It gives only the programming required for the Hotel/Motel feature package. For information on programming the base *SX-200* DIGITAL system, printers, consoles, front desk terminals, and datasets, refer to the appropriate issue of Practice 9109-096-210-NA, Customer Data Entry.

Programming Procedures

Hotel/Motel Application. For information on programming this feature package, see Chart 4-1.

Property Management System. For information on programming the interface to a property management system, see Chart 4-2.

Adding Features. For information on adding features to an already programmed system, see Chart 4-3 to Chart 4-21.

Chart 4-3 :Programming Attendant Message Waiting Setup and Cancel

Chart 4-4 :Programming Attendant Message Register Audit

Chart 4-5 : Setting up Room Status Audit

Chart 4-6 : Programming Wakeup Audit

Chart 4-7: Producing an Automatic Audit of Wakeups/
Changing Room Status at a Predetermined Time

Chart 4-8 : Setting System Time

Chart 4-9:Programming Guest Room Automatic Wakeup

Chart 4-10 : Programming Attendant Automatic Wakeup

Chart 4-11 : Programming Call Blocking

Chart 4-12 : Programming Call Restriction

Chart 4-13 : Programming Do Not Disturb

Chart 4-14: Guest Room *SUPERSET* Key Programming

Chart 4-15:Programming Maid in Room Status

Chart 4-16: ProgrammingMaid in Room Status Display – *SUPERSET 4*,
SUPERSET 420, *SUPERSET 4DN* and *SUPERSET 430* Telephones

Chart 4-17: Programming Message Lamp Test

Chart 4-18: Programming Message Register

Chart 4-19: Setting up Room Status

Chart 4-20: Programming Room Types and Room Codes

Chart 4-21: Enabling Single Line Reports

Chart 4-22: Programming Room Status Display – *SUPERSET 4*,
SUPERSET 420, *SUPERSET 4DN* and *SUPERSET 430* Telephones

Note: This information is in addition to the programming required for the SX-200 DIGITAL PABX.

Chart 4-1 Programming the Hotel/Motel Application

Step	Action	Comments
1.	<p>Form 02: Program System Access Codes</p> <p>Set Access Code for Do Not Disturb. Assign an access code for Do Not Disturb.</p> <p>Set Access Code for Automatic Wakeup for Room Phones. Assign a one- to five-digit code for Feature 32, Automatic Wakeup.</p> <p>Set Access Code for Maid in Room Feature. Assign a code for Feature 35, Maid in Room.</p> <p>Set Access Code for SUPERSET 4 telephone Room Status Display. Assign a code for Feature 36, SUPERSET 4 Room TelephoneStatus Display.</p> <p>Set Access Code for SUPERSET 4 Telephone Maid in Room Status Display. Assign a code for Feature 40, SUPERSET 4 Telephone Maid in Room Status.</p> <p>Set access code for retrieving a message from a telephone. Assign a code for Feature 42, Call Message Sender of Oldest Message.</p>	<p>Access codes can range from one to five digits.</p> <p>COS option 220 on Form 03 must also be set. The same access code sets and cancels Do Not Disturb at a guest room telephone.</p> <p>COS options 202 and 244 on Form 03 and System Option 11 on Form 04 must also be set.</p> <p>Maid in Room allows the maid to dial a telephone number when they enter a room for housekeeping and dial another number when they have finished the room.</p> <p>SUPERSET 4 Set Room Status Display allows an authorized SUPERSET 4, SUPERSET 420, SUPERSET 4DN and SUPERSET 430 telephone to display the status of guest rooms. The Room Status parameters are: Vacant or Occupied or Reserved; Clean or Dirty or Out of Service or To Be Inspected .</p> <p>SUPERSET 4 Telephone Maid in Room Status Display allows an authorized SUPERSET 4, SUPERSET 420, SUPERSET 4DN and SUPERSET 430 telephone to determine which guest rooms have maids in them. This feature is not available with Generic 1002.</p> <p>Allows a guest room telephone to call the attendant to retrieve a message.</p>

**Chart 4-1 Programming the Hotel/Motel Application
(continued)**

Step	Action	Comments
	<p>Form 03: To Program Room Types (Front Desk Terminal)</p> <p>2. Create a COS for each different room type you have. Assign a name to it by using the COS Name softkey.</p> <p>Define the Characteristics of each Room</p> <p>3. On each Form 03 you have, set the COS options for each type of room. Enable:</p> <p>101 Attendant (Console only) OG Restriction/Room Status Setup</p> <p>105 Attendant (Console only) Guest Room Key</p> <p>113 Attendant (Console only) Call Block Key</p> <p>202 Alarm Call</p>	<p>The hotel guest rooms can be divided into 50 groups. This is done by putting each room type into a separate COS. Each COS has a name associated with it. Therefore, the room type can be identified by the COS name.</p> <p>For instance, COS 1 SINGLE single rooms COS 2 DOUBLE double rooms COS 3 NONSMOKS nonsmoking single COS 4 NONSMOKD nonsmoking double</p> <p>The name must be: –unique –up to eight characters in length</p> <p>Allows console to access room status (occupancy, condition, call restriction). It provides the STATUS softkey to the console.</p> <p>Note: The front desk terminal always has access to room status. Only System Option 33 on Form 04 has to be set.</p> <p>Attendant Console. This COS option gives access to the Hotel/Motel features from an attendant console. This does not have to be set for the front desk terminal.</p> <p>Attendant Console. This COS option allows the attendant to inhibit room-to-room calls. COS option 204 and System Option 09 must also be set. This does not have to be set for the front desk terminal.</p> <p>Room Telephones. This COS option allows guests to set up a wakeup alarm call from their extension. It also allows the console or the front desk to set up wake up calls for guest rooms. See also COS option 244.</p>
Page 2 of 9		

**Chart 4-1 Programming the Hotel/Motel Application
(continued)**

Step	Action	Comments
	<p>204 Call Block Applies (Performed by Attendant Console only)</p> <p>220 Do Not Disturb</p> <p>230 Message Register Overflow Alarm</p> <p>231 Message Waiting Bell</p> <p>232 Message Waiting Lamp</p>	<p>Room Telephone. Room telephones are prevented from calling each other when call blocking is enabled. Error (reorder tone) is heard. This COS option must be set for each room telephone call block applies to. COS option 113 and System Option 09 must also be set.</p> <p>This must be enabled for each room the console blocks calls to and from.</p> <p>Room Telephone. Do Not Disturb must be enabled for any telephone that requires use of the feature. When Do Not Disturb is active, the telephone appears busy to incoming calls.</p> <p>Extension or Trunks. Optional. This COS option should be set for the extension(s) or trunk(s) for which there is to be a message register overflow alarm indication at the attendant console. The alarm icon flashes and a maintenance log is generated.</p> <p>See also COS option 703.</p> <p>See also the following system options: System Option 49 System Option 04 System Option 23 System Option 40</p> <p>Room Telephones. This COS option rings the bell on a room telephone when there is a message waiting. See also System Option 02 (Form 04). COS options 231 and 232 cannot be enabled at the same time. See Note.</p> <p>Room Telephones. This COS option lights the message lamp on a room telephone when there is a message waiting. See also System Option 02 (Form 04). COS options 231 and 232 cannot be enabled at the same time.</p> <p>Note: COS option 231 rings a message bell only. COS option 232 lights message lamps and also rings message bells.</p>

**Chart 4-1 Programming the Hotel/Motel Application
(continued)**

Step	Action	Comments
4.	703 Message Register Applies	<p>Attendant Console, Telephones, SUPERSET Telephones, Trunks. This COS option provides the PABX the ability to keep track of the number of completed calls, and identifies the trunks on which counts apply on a per phone basis.</p> <p>See COS option 230.</p> <p>See System Option 49 in Form 04 and optional message register features programming: System Option 04 System Option 23 System Option 40.</p>
	Setting System Options	
	On Form 04, set the characteristics of the system.	
	01 24-hour Clock	This sets the system time in 24-hour format. If this is not enabled, the system time is in 12-hour format.
	02 Message Lamp Test Enable	This allows the message waiting lamps on room telephones to be tested from the console. See also COS option 232 (Form 03).
04 Message Waiting and Message Register Clear Print	<p>Optional. Prints a single line report to the default printer each time the message register changes. This includes the case where the message register is cleared by the console. See also COS option 230 COS option 703.</p> <p>See also the following system options: System Option 49 System Option 23 System Option 40.</p> <p>See also System Option 13, Auto Wake Up Print, for enabling single line reports of automatic wakeups.</p>	
09 Attendant Call Block	This system option allows the attendant to inhibit room-to-room calls. COS option 113 must also be set.	

**Chart 4-1 Programming the Hotel/Motel Application
(continued)**

Step	Action	Comments
11	Automatic Wakeup	Allows the attendant or guest to set up a wakeup alarm call. COS option 202 and 244 must be enabled for all extensions that are to use automatic wakeup.
12	Automatic Wakeup Alarm	Optional. Allows the console alarm icon to be flashed in the event that a wakeup call is not answered within three attempts. Also generates a maintenance log. No effect on <i>SUPERSET 4</i> , <i>SUPERSET 420</i> , <i>SUPERSET 4DN</i> and <i>SUPERSET 430</i> .
13	Automatic Wakeup Print	Optional. Allows wakeup audits and one-line messages to be printed on the system printer whenever a wakeup call is set up, cancelled, answered, or an attempt is made to honor the wakeup. No effect on <i>SUPERSET 4</i> , <i>SUPERSET 420</i> , <i>SUPERSET 4DN</i> and <i>SUPERSET 430</i> .
14	Automatic Wakeup Music	Optional. Allows music to be heard by an extension that answers a wakeup call. Requires a music source.
23	Message Reg. Count Additional Supervisions	Counts meter pulses after supervision is received on an outgoing trunk.
24	Message Register Audit	Allows the attendant to request a message register audit (either from the attendant console or the front desk terminal). See System Option 25.
25	Message Register Zero After Audit	All message registers are set to zero when an audit is requested. This includes the instance where the maximum number of audits is exceeded, or the printer is unavailable. See System Option 24.
27	Room Status Audit	<p>Console. Produces a printout of the current status of all guest rooms. Only rooms with COS option 244 enabled are displayed by the audit. See COS option 244, Form 03.</p> <p>Terminal. Produces seven different types of audits (vacant, occupied, reserved, guaranteed, to clean, to inspect, all rooms).</p>

**Chart 4-1 Programming the Hotel/Motel Application
(continued)**

Step	Action	Comments
33	Room Status	<p>Allows the status of a room to be displayed and changed. Provides the three call privileges: internal, local and long distance.</p> <p>See also: COS option 244 (for all extensions for which room status is to apply), System Option 34.</p> <p>If System Option 02 is enabled, when a room's status is changed from vacant to occupied or occupied to vacant, the system performs a message lamp test on the telephone in that room. If the test finds out a lamp is defective, it raises a minor alarm.</p>
34	Auto Room Status Conversion/Auto Wakeup Print	<p>Optional. Produces an automatic audit of all wakeups in the system every day. This option also changes the room status. For instance, all occupied/clean rooms can be changed to occupied/dirty at a set time. The time of day for the printout must be set in System Option 56 . The default is 00:00 (midnight). See System Option 56.</p>
40	Message Register Follows Talker	<p>Charges the extension or console last talking to a trunk with the message register count.</p>
49	Pseudo Answer Supervision Timer	<p>This value is applied to trunks in the system that do not provide answer supervision.</p>
56	Auto Room Status Conversion/Auto Wakeup Print Timer	<p>Optional. Sets the time of day for the automatic daily audit of all wakeups in the system. The default is 00:00 (midnight). Only applies if System Option 34 is enabled. See System Option 34. The same time is also used to convert all occupied/clean rooms to occupied/dirty.</p>
57	Vacant Room Default Call Restriction	<p>By default, vacant rooms (and rooms that become vacant) have their call restriction set to Internal, the most restrictive option. This setting prevents unauthorized calls from vacant rooms.</p>
58	Occupied Room Default Call Restriction	<p>By default, occupied rooms have the call restriction set to Internal, the most restrictive option. Typically when a room becomes occupied, the guest is provided with a less restrictive setting.</p>

**Chart 4-1 Programming the Hotel/Motel Application
(continued)**

Step	Action	Comments
	<p>Note: 32 Do not enable System Option 32, Outgoing Call Restriction, for Hotel/Motel.</p>	<p>Prevents unauthorized trunk calls after a guest checks out. However, it cannot be enabled at the same time as System Option 33, Room Status. Since System Option 33 provides the three call restrictions, System Option 32 is not necessary in the Hotel/Motel context.</p> <p>If a PMS is used, System Option 32 must be enabled.</p>
5.	<p>To Set Up the Attendant Console Form 07: Console Assignments specifies the physical location of each attendant console.</p>	<p>Described in Practice 9109-096-210-NA, Customer Data Entry.</p>
6.	<p>Form 08: This form specifies the listed directory numbers for each attendant console.</p>	<p>Described in Practice 9109-096-210-NA, Customer Data Entry.</p>
7.	<p>To Set Up Telephones/SUPERSET Telephones Form 09 assigns stations and <i>SUPERSET</i> telephones to the system.</p> <p>See Note 2 for extension numbering instructions.</p>	<p>Described in Practice 9109-096-210-NA, Customer Data Entry.</p> <p>Note 1: If a front desk terminal is configured on the system, the names of guests in occupied rooms are displayed in the Name field on Form 09. Only the first 10 characters of the last name can be displayed.</p> <p>Note 2: The Hotel/Motel application uses the guest room extension number as the room number. A simple pattern for relating an extension number to a room number should be used. For example, if four-digit extension numbers are used they could be assigned using format xfr:</p> <p>where: x is always a 1 f is the floor number rr is the room number on the floor.</p> <p>Therefore: Room 1 on floor 1 is 1101 Room 2 on floor 1 is 1102 Room 1 on floor 2 is 1201.</p>

**Chart 4-1 Programming the Hotel/Motel Application
(continued)**

Step	Action	Comments
8.	<p>To Set Up the Front Desk Terminal</p> <p>Form 12 assigns DATASET 1100-series data sets to the system.</p> <p>Form 11: Data Circuit Descriptors.</p> <p>Form 11: Data Circuit Descriptor Options Subform.</p>	<p>Described in Practice 9109-096-210-NA, Customer Data Entry.</p> <p>Described in Practice 9109-096-210-NA, Customer Data Entry.</p> <p>Described in Practice 9109-096-210-NA, Customer Data Entry.</p> <p>Note: When programming the PBX attention character for a dataset to be used with the front desk terminal, Control R, Control Y and Control C should not be used. The Front Desk Terminal application has predefined functions for these key sequences. No checking is done to prevent the use of these characters.</p>
9.	<p>To Set Up Access Restriction</p> <p>Form 28: Access Restriction form.</p>	<p>Described in Practice 9109-096-210-NA, Customer Data Entry.</p> <p>The CDE supervisor-level password allows editing privileges.</p> <p>The CDE attendant-level password allows no editing privileges.</p>
10.	<p>To Set Up Printer(s)</p> <p>Form 34: Directed I/O.</p>	<p>Described in Practice 9109-096-210-NA, Customer Data Entry.</p> <p>The Hotel/Motel wakeup printer prints single line reports.</p> <p>The Hotel/Motel audit printer prints wakeup, message register, room type, room status, and wakeup/room condition audits.</p>
11.	<p>To Set Up SUPERSET DN Telephones Block Programming</p> <p>Form 37: Guest Room SUPERSET Keys Template</p>	<p>This form provides three preprogrammed sets (templates) of speed dial and feature access keys for Hotel/Motel guest room phones.</p> <p>COS option 244 and 610 must be programmed in the COS of all guest rooms using SUPERSET telephones with speed dial and feature access keys. COS option 610 does not apply to SUPERSET 401.</p>

Chart 4-2 Programming for PMS

- Notes:**
1. The *SX-200* DIGITAL PABX can be interfaced to a Property Management System. A PMS is not available in Generic 1005 FPKG 1 and LIT96.
 2. The PMS interface port is dedicated to PMS only. It cannot be used for any other applications such as CDE, SMDR or ACD.
 3. Because PMS has exclusive use of the port assigned to it, a dataset should be used as the port, allowing the system printer port to be used for other printouts.
 4. Maintenance logs record any errors in the PMS interface. Refer to Practice 9109-096-350-NA, Troubleshooting, for details.
 5. **PMS Terminal.** Dial 0 calls are routed to a console (Form 19) or a console LDN or sub-attendant LDN (Form 08). This makes sure there is a single place the guest must call to receive messages. If the dial 0 point for the room is not a console or a console LDN or subattendant LDN, the message softkey is not provided on the PMS terminal.
 6. Message Waiting Setup must be enabled in the COS for the guest room phone if it is an industry-standard telephone. This restriction does not apply to *SUPERSET 4*, *SUPERSET 420*, *SUPERSET 4DN* and *SUPERSET 430* telephones.

Step	Action	Comments
1.	<p>Setting COS Options</p> <p>On Form 03, Programming Feature Access Codes:</p> <p>Assign an access code to COS option 32 (Automatic Wakeup).</p> <p>Enable COS 35 (Maid in Room).</p> <p>Enable COS option 105 (Attendant Guest Room Key).</p> <p>Enable COS option 202 (Alarm Call).</p> <p>Enable COS option 220 (Do Not Disturb).</p>	<p>To allow room telephones to set automatic wakeup. See also COS option 202 (Alarm Call).</p> <p>To allow room status to be changed from room telephones.</p> <p>To allow the attendant to set automatic wakeups. (see also System Option 11, Form 04.)</p> <p>Also allows the attendant to set up or cancel Do Not Disturb.</p> <p>Also allows the attendant to set up or cancel message waiting for a room telephone. See also COS option 231 (Bell) or 232 (Lamp).</p> <p>This COS option allows guests to set up a wakeup alarm call from their extension. See also COS option 244.</p> <p>This COS allows guests to set up and cancel Do Not Disturb from their extension. See also System Option 10 (Do Not Disturb), Form 04.</p>

**Chart 4-2 Programming for PMS
(continued)**

Step	Action	Comments
2.	Enable COS option 231 (Bell).	Optional. Indicates a message waiting at a room telephone. See also COS option 105.
	Enable COS option 232 (Lamp).	Indicates a message waiting at a room telephone. See also COS option 105.
	Disable COS option 244 (Room Status Applies).	All room status updates are applied against the PMS database.
	Disable COS option 608 (<i>SUPERSET</i> Room Status Display).	All room status updates are applied against the PMS database.
	Enable COS 703 (Message Register Applies).	To charge guests for outgoing trunk calls.
	Setting System Options	
	Form 04, (System Options/System Timers):	
	Enable System Option 04 (Message Waiting and Message Register Clear Print).	The message register is cleared in the PABX on checkout. System Option 04 produces a record of it.
		Also produces a record of messages still waiting on the room telephone.
	Assign an access code to System Option 10 (Do Not Disturb).	Allows a room telephone to set up and cancel Do Not Disturb. See also COS option 220.
	Enable System Option 11 (Automatic Wakeup).	To allow the attendant to set automatic wakeups. See also COS option 105, Form 02.
	Enable System Option 13 (Automatic Wakeup Print).	For a record of wakeup cancellations at checkout time.
Disable System Option 27 (Room Status Audit).	All room status updates are applied against the PMS database.	
Enable System Option 32 (Outgoing Call Restriction).	To prevent unauthorized trunk calls after the guest has checked out.	
Disable System Option 33 (Room Status).	All room status updates are applied against the PMS database.	
Disable System Option 34 (Auto Room Status Conversion and Wakeup Print).	All room status updates are applied against the PMS database.	
Enable System Option 35 (Property Management System).		

Attendant Message Waiting

Feature Description: Refer to page 602 2–24.

User Information: Console: Chart 5–1; Front Desk Terminal: Chart 5–17; Telephones: Chart 5–36.

Chart 4–3 Programming Attendant Message Waiting Setup and Cancel

- Notes:**
- 1. Front Desk Terminal.** Dial 0 calls are routed to a console (Form 19) or a console LDN or subattendant LDN (Form 08). This makes sure there is a single place the guest must call to receive messages. If the dial 0 point for the room is not a console or a console or subattendant LDN, the message softkey is not provided on the front desk terminal.
 - 2. Message Waiting Setup** must be enabled in the COS for the guest room phone if it's an industry-standard telephone. This restriction does not apply to *SUPERSET 4*, *SUPERSET 420*, *SUPERSET 4DN* and *SUPERSET 430* telephones.

Step	Action	Comments
1.	<p>Form 03</p> <p>Enable COS option 105 (Attendant Guest Room Key) for the console to access message waiting from the Guest Room softkey.</p>	
2.	<p>Enable COS option 231 (Message Waiting Bell) for the guest room extension,</p> <p>or</p> <p>COS option 232 (Message Waiting Lamp).</p>	<p>Room Telephones. This COS option rings the bell on a room telephone when there is a message waiting. See also System Option 02 (Form 04). COS options 231 and 232 cannot be enabled at the same time.</p> <p>Room Telephones. This COS option lights the message lamp on a room telephone when there is a message waiting. See also System Option 02 (Form 04). COS options 231 and 232 cannot be enabled at the same time.</p> <p>Note: COS option 231 only rings message bells. COS option 232 lights message lamps and rings message bells.</p>
3.	<p>Form 04</p> <p>Select System Option 04 (Message Waiting and Message Register Clear Print).</p>	<p>This also enables printing of single-line reports for message register changes.</p>

**Chart 4-3 Programming Attendant Message Waiting Setup and Cancel
(continued)**

Step	Action	Comments
4.	Form 19 (Dial 0 calls) If Dial 0 calls are routed for a guest room, program Form 19. Enter Day, N1 and N2.	These can be the same number. Note: If Day, N1 and N2 numbers are not provided, it is impossible to set message waiting from the front desk terminal. However, it can be done from the attendant console.

Page 2 of 2

Audits

Feature Description: Reference pages 602 2-25 to 602 2-31.

User Information: Console: Chart 5-3; Front Desk Terminal: Chart 5-18 to Chart 5-20.
Telephones: None

Chart 4-4 Programming Attendant Message Register Audit

- Notes:**
1. This feature allows the attendant to print the message register for all rooms that have a message register count greater than zero. This feature is only used in cases where COS Option 703, Message Register Applies, has been enabled for some extensions.
 2. A printer must be assigned to the "Hotel/Motel Audit" printout type in Form 34 (Directed I/O).

Step	Action	Comments
1.	Form 04 Select System Option 24 (Message Register Audit). Select System Option 25 (Message Register Zero After Audit) to reset all message registers to 0 after an audit request.	

Chart 4-5 Setting Up Room Status Audit

- Notes:** 1. Only rooms with COS option 244, Room Status Applies, enabled are displayed by the audit.
 2. A printer must be assigned to the "Hotel/Motel Audit" printout type in CDE Form 34 (Directed IO).

Step	Action	Comments
1.	Form 03 Select COS Option 244 (Room Status Applies) for all extensions for which room status is to apply.	
2.	Form 04 Enable System Option 27 (Room Status Audit) to allow room status printouts.	

Chart 4-6 Programming Wakeup Audit

- Notes:** 1. A printer must be assigned to the "Hotel/Motel Audit" printout type in CDE Form 34 (Directed IO).

Step	Action	Comments
1.	Form 04 Select System Option 13 (Automatic Wakeup Print) to allow wakeup audit printouts and one- line messages to be printed on the system printer whenever a wakeup call is set up, cancelled, answered, or an attempt is made to honor the wakeup.	

**Chart 4-7 Producing an Automatic Audit of Wakeups/
Changing Room Status at a Predetermined Time**

Step	Action	Comments
1.	On Form 04, enable system options:	
	34 Auto Room Status Conversion/Auto Wakeup Print	Produces an automatic audit of all wakeups in the system every day. This option also changes the room status. All occupied/clean rooms can be changed to occupied/dirty at a set time. (This is the only status that can be changed.) The time of day for the printout and the condition change must be set in System Option 56 . The default is 00:00 (midnight). See System Option 56.
	56 Auto Room Status Conversion/Auto Wakeup Print Timer	Sets the time of day for the automatic daily audit of all wakeups in the system. The default is 00:00 (midnight). Only applies if System Option 34 is enabled. See System Option 34.

Automatic Wakeup

Feature Description: Reference pages 602 2-32 to 602 2-35.

User Information: Console: Chart 5-4; Front Desk Terminal: Chart 5-21 and Chart 5-22.

Chart 4-8 Setting System Time

Step	Action	Comments
1.	On Form 04, enable System Option 01, 24-hour Clock.	This sets the system time in 24-hour format. If this is not enabled, the system time is in 12-hour format.

Chart 4-9 Programming Guest Room Automatic Wakeup

- Notes:**
1. If a guest room telephone is programmed for Automatic Wakeup Routing, the Automatic Wakeup Music option has no effect.
 2. System Options 12 (Automatic Wakeup Alarm) and 13 (Automatic Wakeup Print) have no effect on *SUPERSET 4*, *SUPERSET 420*, *SUPERSET 4DN* and *SUPERSET 430* telephone operation of the feature.
 3. Recorded announcements are provided through recording hunt groups.

Step	Action	Comments
1.	<p>Form 02</p> <p>Assign an Access Code to Feature 32 (Automatic Wakeup).</p>	
2.	<p>Form 03</p> <p>Enable COS Option 202 (Alarm Call) and COS Option 244 (Room Status Applies) for the extension.</p>	
3.	<p>Industry-Standard, SUPERSET 401, SUPERSET 3, SUPERSET 3DN, SUPERSET 410 Telephones: Form 04</p> <p>Enable System Option 11 (Automatic Wakeup Enable) .</p> <p>Enable System Option 13 (Automatic Wakeup Print) to print CHG BY ROOM, SET BY ROOM, CAN BY ROOM single-line reports.</p>	

Chart 4-10 Programming Attendant Automatic Wakeup

- Notes:**
1. If a guest room telephone is programmed for Automatic Wakeup Routing, the Automatic Wakeup Music option has no effect.
 2. System Options 12 (Automatic Wakeup Alarm) and 13 (Automatic Wakeup Print) have no effect on *SUPERSET 4*, *SUPERSET 420*, *SUPERSET 4DN* and *SUPERSET 430* telephone operation of the feature.
 3. Recorded announcements are provided through recording hunt groups.
 4. System Option 13 to print changes to wakeup status can be enabled. This causes a SET BY CON or CHG BY CON message (attendant console) or a SET BY DESK or CHG BY DESK (front desk terminal) to be printed to indicate how the change was made.
 5. A printer must be assigned to the "Hotel/Motel Wakeup" printout type in CDE Form 34 (Directed IO) for the status messages for wakeup activity. Audits of wakeups from the console are directed to the Hotel/Motel Audit printer.

Step	Action	Comments
1.	<p>Form 03</p> <p>Enable COS option 101 (Attendant O/G Restriction/Room Status Setup) for the console.</p> <p>Enable COS option 202 (Alarm Call) and COS option 244 (Room Status Applies) for the extension.</p> <p>Form 04</p> <p>Enable System Option 11 (Automatic Wakeup Enable).</p> <p>Form 04: Optional.</p> <p>Select System Option 12 (Automatic Wakeup Alarm) to allow the console alarm icon to be flashed, in the event that a wakeup call is not answered within three attempts. This also generates a maintenance log.</p> <p>Enable System Option 13 (Automatic Wakeup Print) to print single-line reports.</p>	<p>Described in Note 4.</p>

**Chart 4-10 Programming Attendant Automatic Wakeup
(continued)**

Step	Action	Comments
	<p>Select System Option 13 (Automatic Wakeup Print) to allow wakeup audit printouts and one-line messages to be printed on the system printer whenever a wakeup call is set up, cancelled, answered, or an attempt is made to honor the wakeup. Refer to Practice 9109-096-315-NA, Attendant Console Description, for a detailed description of the format of the resulting printout.</p> <p>Select System Option 34 (Auto Room Status Conversion/Auto Wakeup Print) to have an automatic audit of all wakeups in the system every day. This option also changes the room status. Set the time of day for the printout in System Option 56 (Auto Room Status Conversion/Auto Wakeup Print Timer). The default is 00:00 (midnight).</p>	

Call Blocking

Feature Description: Reference page 602 2–36.

User Information: Console: Chart 5–6; Front Desk Terminal: None; Telephones: None.

Chart 4–11 Programming Call Blocking

- Notes:**
1. This feature allows the attendant to inhibit room-to-room calls by activating call blocking from the console. Calls to the attendant or to extensions without the call blocking COS option selected may be made as usual. The system treats attempted calls between restricted extensions as illegal numbers and gives the calling party reorder tone. Alternatively, call rerouting can be used to intercept blocked calls to an appropriate destination such as the attendant console.
 2. Tenanting does not apply to the operation of this feature. All consoles with the feature enabled can enable or disable Call Blocking throughout the system.
 3. For all consoles with the feature enabled, the LED associated with the Block hardkey is updated each time call blocking is turned on or off. When the LED is on, call blocking is enabled. The key and the LED are not operational if the feature is not enabled.
 4. If Call Rerouting is to be used, blocked calls are treated as Station Illegal Number Routing.

Step	Action	Comments
1.	<p>Form 03</p> <p>Enable COS option 113 (Attendant Call Block Key) for the attendant console which can apply call block.</p> <p>Enable COS option 204 (Call Block Applies) for the extensions to which call block will apply.</p> <p>Form 04</p>	
2.	<p>Enable System Option 09 (Attendant Call Block).</p>	

Call Restriction

Feature Description: Reference page 602 2–37.

User Information: Console: Chart 5–11; Front Desk Terminal: Chart 5–23; Telephones: None.

Chart 4–12 Programming Call Restriction		
Notes: 1. System Features 32 (Outgoing Call Restriction) and 33 (Room Status) are mutually exclusive.		
Step	Action	Comments
1.	<p>Form 03</p> <p>Select COS option 101 (Attendant O/G Restriction/Room Status Setup) for the attendant console.</p>	
2.	<p>Form 04</p> <p>Enable System Option 33 (Room Status) .</p> <p>Set a default Vacant Room Status Call Restriction type via System Option 57 (Vacant Room Default Call Restriction).</p> <p>Set a default Occupied Room Status Call Restriction type via System Option 58 (Occupied Room Default Call Restriction).</p>	<p>By default, vacant rooms (and rooms that become vacant) have their call restriction set to Internal, the most restrictive option. This setting prevents unauthorized calls from vacant rooms.</p> <p>By default, occupied rooms have the call restriction set to Internal, the most restrictive option. Typically, when a room becomes occupied, the guest is provided with a less restrictive setting.</p>

Do Not Disturb

Feature Description: Reference page 602 2-38.

User Information: Console: Chart 5-7 and Chart 5-8 ; Front Desk Terminal: Chart 5-25.

Chart 4-13 Programming Do Not Disturb		
Step	Action	Comments
1.	Form 01 Set Access Code for Do Not Disturb. Assign an access code for Do Not Disturb.	The same access code sets and cancels Do Not Disturb at a guest room telephone.
2.	Form 03: Enable COS option 220 for each extension Do Not Disturb will apply to.	

Guest Room *SUPERSET* Key Programming

Feature Description: Reference page 602 2-41.

User Information: None (customer-dependent).

Chart 4-14 Guest Room *SUPERSET* Key Programming

Notes: 1. A block of guest room *SUPERSET* 3DN, *SUPERSET* 4DN, *SUPERSET* 410, *SUPERSET* 420 and *SUPERSET* 430 telephones can be programmed with speed dial and feature access keys. This can only be done through CDE. It is possible to program up to three separate blocks of telephones with unique speed dial and feature access keys.

This feature is not available with Generic 1001 or 1002.

Step	Action	Comments
1.	<p>Form 03</p> <p>Enable COS option 244 (Room Status Applies) in the set's Class of Service.</p> <p>Enter the COS Template Number as well.</p>	
2.	<p>Form 37</p> <p>Enter the desired speed dial numbers and feature access keys in CDE Form 37 (Guest Room <i>SUPERSET</i> Keys Template) for the appropriate template.</p>	

Maid in Room

Feature Description: Reference pages 602 2-42 and 602 2-45.

User Information (Enter Maid in Room Status): Console: None; Front Desk Terminal: None; Telephones: Chart 5-37.

User Information (Maid in Room Status Display): Console: Chart 5-11; Front Desk Terminal: Chart 5-28; *SUPERSET* Telephones: See Chart 4-16.

Chart 4-15 Programming Maid In Room Status

<p>Notes: 1. This feature allows the maid to enter a code from the guest room telephone to indicate that the room is currently being cleaned. Before leaving the room, the maid can enter a second code indicating that the room is ready for inspection, or that it is clean. The attendant console, front desk terminal, or a <i>SUPERSET</i> telephone with the proper COS option can display this information.</p>

Step	Action	Comments
1.	<p>Form 02</p> <p>Assign an access code to Feature 35 (Maid In Room).</p>	
2.	<p>Form 03</p> <p>Enable COS option 244 (Room Status Applies) for the extension.</p>	

Maid in Room Status Display – SUPERSET 4, SUPERSET 420, SUPERSET 4DN and SUPERSET 430 Telephones

Feature Description: Reference page 602 2–45.

User Information: Console: None; Front Desk Terminal: None; *SUPERSET* Telephones: Chart 5–38.

Chart 4–16 Programming Maid in Room Status Display – SUPERSET 4, SUPERSET 420, SUPERSET 4DN and SUPERSET 430 Telephones

- Notes:** 1. This feature is not available with Generic 1001 or 1002.
 2. This feature is available at *SUPERSET 4, SUPERSET 420, SUPERSET 4DN* and *SUPERSET 430* telephones only.

Step	Action	Comments
1.	Form 02 Assign an access code to Feature 40 (<i>SUPERSET 4</i> Telephone Maid In Room Status Display).	
2.	Form 03 Enable COS option 608 (<i>SUPERSET – Room Status Display</i>) in the set's Class of Service.	

Message Lamp Test

Feature Description: Reference page 602 2–46.

User Information: None (automatic through PABX once programmed).

Chart 4–17 Programming Message Lamp Test

- Notes:**
 1. Lamp Test only applies to telephones connected to ONS cards in digital bays.

Step	Action	Comments
1.	Form 03 Enable COS option 232 (Message Waiting Lamp) for the telephones to be tested.	This COS option lights the message lamp on a room telephone when there is a message waiting. When this COS option is enabled, COS option 231 cannot be enabled. They are mutually exclusive.
2.	Form 04 Enable System Option 02 (Message Lamp Test Enable).	This allows the message waiting lamps on room telephones to be tested automatically.

Message Register

Feature Description: Reference page 602 2-47.

User Information: Console: Chart 5-9 and Chart 5-10; Front Desk Terminal: Chart 5-29; Telephones: None.

Chart 4-18 Programming Message Register

Notes: 1. A printer must be assigned to the "Hotel/Motel Audit" printout type in CDE Form 34 (Directed I/O). This defines where the single-line reports are printed.

Step	Action	Comments
1.	<p>Form 03</p> <p>Select COS option 703 (Message Register Applies) for the extensions for which counts are to be maintained and for the trunks on which counts apply.</p> <p>Form 03: Optional. Select COS option 230 (Message Register Overflow Alarm) for the extension(s) or trunk(s) for which there is to be a message register overflow alarm indication at the attendant console.</p>	<p>The alarm icon on the console flashes and a maintenance log is generated.</p>
2.	<p>Form 04</p> <p>Select a value for System Option 49 (Pseudo Answer Supervision Timer) to be applied to trunks in the system that do not provide answer supervision.</p> <p>Form 04: Optional. Select System Option 04 (Message Waiting and Message Register Clear Print) to print a single-line report to the default printer each time the message register changes. This includes the case when a message register is cleared by the console.</p> <p>Select System Option 23 (Message Reg. Count Additional Supervisions) to count meter pulses after supervision is received on an outgoing trunk.</p> <p>Select System Option 40 (Message Register Follows Talker) to charge the extension or console last talking to a trunk with the message register count.</p>	

Room Status

Feature Description: Reference page 602 2–54.

User Information: Console: Chart 5–11. Front Desk Terminal: Chart 5–30; Telephones: See Chart 4–20.

Chart 4–19 Setting up Room Status

- Notes:**
1. If System Option 02 (Message Lamp Test Enable) is enabled, when a room's status is changed from vacant to occupied or from occupied to vacant, the system performs a message lamp test on the telephone in that room. If the test finds the lamp defective (i.e. burnt-out or missing), it raises a minor alarm.
 2. System Option 56 (Room Status Conversion/Auto Wakeup Print Timer) only applies if System Option 34 (Auto Room Status Conversion/Auto Wakeup Print) is enabled.

Step	Action	Comments
1.	<p>Form 03</p> <p>Select COS option 244 (Room Status Applies) for all extensions for which room status is to apply.</p>	
2.	<p>Form 04</p> <p>Enable System Option 02 (Message Lamp Test Enable) to allow message lamp testing.</p> <p>Enable System Option 33 (Room Status).</p> <p>Select System Option 34 (Auto Room Status Conversion/Auto Wakeup Print). See Note 2.</p>	<p>This global option applies to the attendant console only.</p> <p>Optional.</p>

Room Types and Room Codes

Feature Description: Reference page 602 2-55.

User Information: Console: None; Front Desk Terminal: None (see Searches); Telephones: None.

Chart 4-20 Programming Room Types and Room Codes

Notes: 1. The hotel guest rooms can be divided into 50 groups. This is done by putting each room type into a separate COS. Each COS has a name associated with it. Therefore, the room type can be identified by the COS name.

Step	Action	Comments
1.	<p>Form 03</p> <p>Create a COS for each different room type you have. Assign a name to it by using the COS Name softkey.</p>	<p>For instance, COS 1 SINGLE single rooms COS 2 DOUBLE double rooms COS 3 NONSMOKS nonsmoking single COS 4 NONSMOKD nonsmoking double</p> <p>The name must be: – unique – up to eight characters in length.</p>

SUPERSET Telephone Room Status Display

Feature Description: Reference page 602 2-62.

User Information: Console: None; Front Desk Terminal: None; *SUPERSET* Telephones: Chart 5-39.

Chart 4-22 Programming Room Status Display – <i>SUPERSET 4/SUPERSET 420/SUPERSET 4DN/SUPERSET 430</i> Telephones		
Step	Action	Comments
1.	<p>Form 02</p> <p>Assign an access code to Feature 36 (<i>SUPERSET 4</i> Room Status Display).</p>	<p>This feature also applies to <i>SUPERSET 420</i>, <i>SUPERSET 4DN</i> and <i>SUPERSET 430</i>.</p> <p>The display will show one room at a time.</p>
2.	<p>Form 03</p> <p>Enable COS option 608 (<i>SUPERSET – Room Status Display</i>) in the set's Class of Service.</p>	

Hotel/Motel Feature Package Description

5.

USING THE HOTEL/MOTEL FEATURE PACKAGE

Hotel/Motel features can be accessed from the Attendant console, Front desk terminal, *SUPERSET* display telephones and Industry-standard telephones (including *SUPERSET 3*, *SUPERSET 3DN*, *SUPERSET 401* and *SUPERSET 410* telephones). In addition, there are several features that can be accessed directly from the *SX-200* DIGITAL PABX only.

Accessing Hotel/Motel from the Attendant Console

5.1 The features that can be accessed from the attendant console are shown in Table 5-1.

Table 5-1 Hotel/Motel Features Accessed from the Attendant Console	
Feature	Chart
Attendant Message Waiting Setup and Cancel	Chart 5-1, Setting Up Message Waiting – Attendant Chart 5-2, Cancelling Message Waiting – Attendant
Audits	Chart 5-3, Requesting Audits
Automatic Wakeup	Chart 5-4, Setting Automatic Wakeup
	Chart 5-5, Cancelling Automatic Wakeup
Call Blocking	Chart 5-6, Setting Up/Removing Call Blocking
Call Restriction	See Room Status Display
Check In	Chart 5-13, Searching for available room (VAC/CLEAN).
	Chart 5-11, Changing the Status of a Room (to OCCUPIED).
Check In	Chart 5-11, Changing the Status of a Room (to VACANT/DIRTY/TO INSPECT).
Do Not Disturb	Chart 5-7, Setting Up Do Not Disturb – Attendant
	Chart 5-8, Cancelling Do Not Disturb
Message Register	Chart 5-9, Displaying the Message Register
	Chart 5-10, Clearing the Message Register
Reserve Room	Chart 5-11, Changing the Status of a Room (to RESERVED/GUARANTEED).
Room Status Display (Room Occupancy, Room Condition, Call Restriction)	Chart 5-11, Checking/Changing the Status of a Room
Searches	Chart 5-12, Searching for a Particular Room by Number
	Chart 5-13, Searching for Rooms by Status

Attendant Message Waiting Setup and Cancel

Feature Description: Reference page 602 2-24.

Programming: Reference Chart 4-3.

Operation:

Chart 5-1 Setting Up Message Waiting – Attendant

To Set Up a Message Indication:

1. Press **FUNCTION**.
2. Press the **GUEST ROOM** softkey.
3. Enter the extension (room) number. The **SEND MSG** softkey appears.
4. Press the **SEND MSG** softkey. The **EXIT** softkey appears.
5. Press the **EXIT** softkey.

- Notes:**
1. The attendant can inform guests that there is a message waiting .
 2. The attendant can read messages for an extension sent by another guest room extension or from another console.

Chart 5-2 Cancelling Message Waiting – Attendant

To Cancel a Message Indication:

1. Press **FUNCTION**.
2. Press the **GUEST ROOM** softkey.
3. Enter the extension (room) number. The **CANCEL MSG** softkey appears.
4. Press the **CANCEL MSG** softkey. The **EXIT** softkey appears.
5. Press the **EXIT** softkey.

- Notes:**
1. The attendant can cancel the message waiting indication after a guest calls for their message.
 2. If you are connected to the guest's extension, begin at Step 4.

Audits

Feature Description: Reference pages 602 2–25 to 602 2–31.

Programming: Reference Chart 4–4.

Operation:

Chart 5–3 Requesting Audits

- | | | |
|----|---|-------------------------------------|
| 1. | Press FUNCTION . | You must not be involved in a call. |
| 2. | Press the GUEST ROOM softkey. | The AUDITS softkey appears. |
| 3. | Press the AUDITS softkey. | The AUDIT softkeys appear. |
| 4. | <i>For a Message Register Audit:</i> Press the MSG REGISTER softkey.

<i>For a Room Status Audit:</i> Press the ROOM STATUS softkey.

<i>For a Wakeup Audit:</i> Press the WAKEUP softkey. | |
| 5. | When you are finished, press the EXIT softkey. | |

- Notes:**
1. **Message Register Audit.** The message register audit is a printout showing all non-zero message registers. The room extensions are printed in numerical order and the current register count is given for each.
 2. **Room Status Audit.** A four-part audit report can be printed on the system printer showing all extensions with room status. One section lists vacant rooms, one lists occupied rooms, one lists reserved rooms, and one lists guaranteed rooms. Each contains a subsection for clean rooms, dirty rooms, inspected rooms, and out of service rooms, and shows the call restriction and maid in room status of each room.
 3. **Wakeup Audit.** The attendant can get a printout showing the wakeup times for all extensions with active wakeups set. The audit can also be printed automatically daily at a predetermined time. The audit report lists all room numbers and the wakeup time currently set for each.

Automatic Wakeup

Feature Description: Reference pages 602 2–32 to 602 2–35.

Programming: Reference Chart 4–8 to Chart 4–10.

Operation:

Chart 5–4 Setting Automatic Wakeup

1. Press **FUNCTION**.
2. Press the **GUEST ROOM** softkey.
3. Enter the extension (room) number. The **SET WAKEUP** softkey appears.
4. Press the **SET WAKEUP** softkey. The prompt to enter wakeup time appears.
5. Enter the wakeup time. When a valid wakeup time is dialed, the softkeys change.
6. If the wakeup time is in the morning, press the **SET** softkey.
7. If the wakeup time is in the afternoon, press the **PM** softkey .
8. When you are finished, press the **EXIT** softkey.

- Notes:**
1. To set wakeup time while you are talking to the guest, begin at Step 4.
 2. If a wakeup is set or changed by the attendant console, and the system option to print these changes has been enabled, a **SET BY CON** or **CHG BY CON** message is sent to the terminal (SMDR) or printer to indicate who made the change and when it was made.
 3. A valid wakeup time has the format **HH:MM** where **HH** is between 00 and 23 for 24-hour clocks and 00 and 11 for 12-hour clocks, and **MM** is 00 to 59.

Chart 5–5 Cancelling Automatic Wakeup

1. Press **FUNCTION**.
2. Press the **GUEST ROOM** softkey.
3. Enter the extension (room) number. The **CLR WAKEUP** softkey appears.
4. Press the **CLR WAKEUP** softkey.

Call Blocking

Feature Description: Reference page 602 2-36.

Programming: Reference Chart 4-11.

Operation:

Chart 5-6 Setting Up/Removing Call Blocking

To Block Calls:

1. Press the **BLOCK** hardkey.

The associated LED is lit.

All calls are blocked between all extensions with the call block option (204) enabled in their COS.

To Remove Call Blocking:

2. Press the **BLOCK** hardkey.

The associated LED is turned off.

Call Blocking is removed.

Call Restriction

Feature Description: Reference page 602 2-37.

Programming: Reference Chart 4-12.

See Chart 5-11, Checking/Changing Status of a Room.

Do Not Disturb

Feature Description: Reference page 602 2–38.

Programming: Reference Chart 4–13.

Operation:

Chart 5–7 Setting Up Do Not Disturb – Attendant

To Set Up Do Not Disturb:

1. Press **FUNCTION**.
2. Press the **GUEST ROOM** softkey.
3. Enter the extension (room) number. The NO DISTB softkey appears.
4. Press the **NO DISTB** softkey. DND appears in the top line of the display.
5. When you are finished, press the **EXIT** softkey.

Notes: 1. If you are connected with the extension, begin at Step 4.

Chart 5–8 Cancelling Do Not Disturb – Attendant

To Cancel Do Not Disturb:

1. Press **FUNCTION**.
2. Press the **GUEST ROOM** softkey.
3. Enter the extension (room) number. The NO DISTB softkey appears.
4. Press the **NO DISTB** softkey. DND disappears from the top line of the display.
5. When you are finished, press the **EXIT** softkey.

Notes: 1. If Do Not Disturb is set on an extension, DND appears on the top line of the display, for example, COS 12 COR 01 DND.

2. If you are connected with the extension, begin at Step 4.

Message Register

Feature Description: Reference page 602 2-47.

Programming: Reference Chart 4-18.

Operation:

Chart 5-9 Displaying the Message Register for an Extension

1. Press **FUNCTION**.
2. Press the **GUEST ROOM** softkey.
3. Enter the extension (room) number.

The message register count is shown in the first position on line 2 of the display.

Notes: 1. Message registration allows the system to accumulate the number of completed call units (local and long distance) made from an extension. An alarm can be generated at the attendant console when a message register overflows. Message registration can apply to extensions and trunks.

Chart 5-10 Clearing the Message Register

1. Press **FUNCTION**.
2. Press the **GUEST ROOM** softkey.
3. Enter the extension (room) number.
4. Press the **CLR REG** softkey.

If there is a message register count, the CLR REG softkey is displayed.

Note: Clearing the register may result in a single-line report being printed (if programmed).

Room Status Display

Feature Description: Reference Paragraph 602 2-54.

Programming: Reference Chart 4-19.

Operation:

Chart 5-11 Checking / Changing Status of a Room (Call Restriction, Room Occupancy, Room Condition, Maid)

1. Press **FUNCTION**.
2. Press the **GUEST ROOM** softkey.
3. Enter the extension (room) number.

The **STATUS** softkey is displayed. The second line of the display shows the room's status. For example, Status = Vac/Dirty/Int/Maid means the room is vacant, dirty, has internal telephone privileges, and has a maid in it.
4. Press the **STATUS** softkey.

The Room Status softkeys are displayed. These softkeys change depending on the status of the room. For instance, if the room is dirty, the **CLEAN** softkey appears. If the room is clean, the **DIRTY** softkey appears. The second line of the display shows the room's status.

To Change any Element of the Room Status:

5. Press the softkey for the desired status.

The **MORE...** softkey returns you to the previous display.

- Notes:**
1. The status of a room can be checked from an idle console (begin at Step 1.) or while the attendant is in conversation with the room to be checked (begin at Step 4.).
 2. The abbreviations and softkeys used in the display are shown in Table 5-2.

Table 5-2 Room Status

Status	Abbreviation shown on display line	Softkey Name	Meaning
Vacant	Vac	VACANT	Room is not rented to a guest.
Occupied	Occ	OCCUPIED	Room is rented to a guest.
Clean	Clean	CLEAN	Room has been cleaned by maid.
Dirty	Dirty	DIRTY	Room has not been cleaned by maid.
Internal	Int	INTERNAL	Room can only make internal telephone calls.
Local	Loc	LOCAL	Room can make internal and local calls.
Long Distance	LD	LONG DIST	Room can make internal, local, and long distance calls.
Maid in Room	Maid	No Softkey	There is presently a maid in the room.
Reserved	Res	RESERVED	Room is being held for a certain time. After that time, it can be rented out to someone other than the person who reserved it.
Guaranteed	Gua	GUARANTEED	Room is guaranteed to be paid for but not yet occupied (Generic 1004 and 1005 only).
Out of Service	Serv.	OUT OF SERVICE	Room is not in service.
To be Inspected	Insp.	TO INSPECT	Room has been cleaned by a maid but is to be inspected by the supervisor.

Searches

Feature Description: Reference Paragraphs 602 2–55 to 602 2–60.

Programming: None required for Search facility.

Operation:

Chart 5–12 Searching for a Particular Room by Number

1. Press the **GUEST ROOM** softkey.
2. Enter the room number you want to check.

The status information is provided on the second line of the LCD display in the status section.

Chart 5–13 Searching for Rooms by Status (Room Status, Room Condition, Maid)

1. Press **FUNCTION**.
2. Press the **GUEST ROOM** softkey.
3. *To list rooms with Maid in Room status*, press the **MAID** softkey.

Search selections are displayed.

The LCD displays the numbers of up to 10 rooms that have this status. If there are more rooms, the **MORE** softkey appears.

To list rooms by status, press the the **VAC/CLEAN** softkey, the **RES/CLEAN** softkey, or the **OUT OF SERV.** softkey.

The LCD shows the numbers of up to 10 rooms that have this status. If there are more rooms, the **MORE** softkey appears.

To list rooms by status beginning at a particular room number, press the the **ROOM NUMBER** softkey.

You are prompted to enter the room number. A valid room number results in the 10 rooms following the entered number being displayed.

4. Press the **MORE...** softkey to see the next group of room numbers.

Accessing Hotel/Motel with a Front Desk Terminal

5.2 The features that can be accessed from the front desk terminal are shown in Table 5-3. A front desk terminal can only be used with Generic 1004 and Generic 1005. It is not available with Generic 1005 FPKG 1 and LIT96.

Table 5-3 Hotel/Motel Features Accessed from the Front Desk Terminal	
Feature	Chart
Access	Chart 5-14, Accessing the Hotel/Motel Front Desk Application
Attendant Message Waiting Setup and Cancel	Chart 5-17, Setting Up/Cancelling Message Waiting--Attendant
Audits	Chart 5-20, Requesting Room Status Audits
	Chart 5-18, Printing a Message Register or Wakeup Audit
	Chart 5-19, Requesting a Room Type Audit
Automatic Wakeup	Chart 5-21, Setting Automatic Wakeup
	Chart 5-22, Cancelling A Wakeup Call
Check In	Chart 5-35, Searching for a Particular Room Type (VACANT)
	Chart 5-31, Changing the Occupancy Field (OCCUPIED)
Check Out	Chart 5-24, Checking Out
Guest Names	Chart 5-26, Entering Guest Names
	Chart 5-27, Removing Guest Names
Do Not Disturb	Chart 5-25, Setting /Clearing Do Not Disturb
Call Privilege	Chart 5-23, Changing the Call Privilege
Message Register	Chart 5-29, Clearing the Message Register
Reserve a Room	Chart 5-31, Changing the Occupancy Field (RESERVED or GUARANTEED)
Room Status Display	Chart 5-31, Changing the Occupancy Field
	Chart 5-30, Changing the Condition Field
	Chart 5-28, Checking the Maid in Room Status
Searches	Chart 5-33, Searching for Particular Rooms
	Chart 5-34, Searching for a Guest Room by Number
	Chart 5-32, Guest Search
	Chart 5-35, Searching for a Particular Room Type

Chart 5-14 Accessing the Hotel/Motel Feature Package from a Front Desk Terminal

- | | |
|---|---|
| <p>1. Enter: M[onitor] HM
(letters shown in [...] are optional.)</p> | <p>The screen displays:
Ringing
Connected
Once connected, the screen displays:
1 - VT 100 Compatible
2 - IBM PC
SELECT A TERMINAL TYPE</p> |
| <p>2. Enter a 1 or a 2 and press Enter.</p> | <p>The display shows:
ENTER A PASSWORD</p> |
| <p>3. <i>If you have made the wrong choice, use the Delete key, or drop the data call (using a special key if one is provided, or the dataset disconnect button, or waiting for the inactivity timeout to occur (approximately 10 seconds).</i></p> | |
| <p>4. Enter the password of the CDE supervisor (if you are going to enter or change guest information) or CDE attendant (if you are going to request audits look at information, or do a room search).</p> | <p>If a password is not entered accurately, an error message states Incorrect Password Entered.</p> <p>The House Statistics screen is displayed (Figure 5-1). If the attendant-level password was used, the Room Update softkey is not displayed.</p> |

10:50 25 - May-1990	HOUSE STATISTICS	MTEL Front Desk
House Statistics as of 10:43 25-MAY-1990		
<p>Guest Room Occupancy Summary</p> <hr style="width: 30%; margin: auto;"/>		
Vacant: 36	Occupied: 15	Reserved: 0
Guaranteed: 12		
<p>Room Condition Summary</p> <hr style="width: 50%; margin: auto;"/>		<p>Features Usage Summary</p> <hr style="width: 50%; margin: auto;"/>
Clean : 28	To be cleaned : 17	To be inspected : 17
Not in service : 1	Maid in room : 3	Do Not Disturb ON : 0
		Wake Up Set : 36
		Message Waiting ON : 21
		Non Zero Msg Regs : 14
		Call Blocking : Off
Enter the last name: Black		
1 Room Update	2	3 Room Search
4	5 Guest Search	
6 Quit	7	8 Audits
9	0 Refresh	

Figure 5-1 House Statistics Screen after Log On

Note: Once the SX-200 DIGITAL PABX is operational, access to the Hotel/Motel application from the front desk terminal is via the DTRX monitor command. (Some messages may vary depending on systems options programming.)

Chart 5-15 Refreshing the House Statistics Screen

1. On the House Statistics screen, press the **Refresh** softkey.

If there has been a change to the occupancy summary, room condition summary, or features usage summary, the totals are recalculated and displayed. The date and time are updated to show the current date and time.

Notes: 1. The House Statistics screen presents a summary of room occupancy, room condition, and features usage. This summary is recalculated every time the House Statistics screen is newly displayed. When the House Statistics screen has been displayed for a period of time, the Refresh softkey is used to recalculate the totals.

Chart 5-16 Logging Off

1. Return to the House Statistics screen.
2. Press the **Quit** softkey.

Attendant Message Waiting Setup and Cancel

Feature Description: Reference page 602 2–24.

Programming: Reference Chart 4–3.

Operation:

Chart 5–17 Setting Up/Cancelling Attendant Message Waiting

To Set A Message:

1. From the House Statistics screen or a search display screen, press the **Room Update** softkey.
2. Enter the room number. The Room Update screen appears.
3. On the Room Update screen, press the **Set Message** softkey. A Clear MSW softkey appears.

To Clear A Message:

1. On the Room Update screen, press the **Clear MSW** softkey. The Message Waiting field is blanked and the Set Message softkey appears.

- Notes:**
1. Setting or clearing messages is done from the Room Update screen. When setting or clearing a message, the data field pointers (> and <) can be on any field that provides softkeys. (The Name fields do not provide softkeys.)
 2. Setting and clearing messages is mutually exclusive. If there is no message waiting for a room, the Set Message softkey is displayed. If there is a message waiting for a room, the Clear MSW softkey is displayed.
 3. There could already be a message waiting for a room (the message would have been set from another device such as a console or another terminal). If so, when the Set Message softkey is pressed, the user is informed that the room has a message waiting and the present message cannot be set. A Clear MSW softkey appears. The waiting message must be cleared before the second message can be set.
 4. Set-to-set messages are transparent to the front desk terminal. (If a *SUPERSET* guest room telephone has left a message for another *SUPERSET* guest room telephone, this is not shown as a message indication on the front desk terminal).

Audits

Feature Description: Reference pages 602 2-25 to 602 2-31.

Programming: Reference Chart 4-4 to Chart 4-7.

Operation:

Chart 5-18 Printing a Message Register or Wakeup Audit

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. From the House Statistics screen, press the Audits softkey. | <p>The Audit softkeys are displayed (MSG REG and WAKEUP).</p> |
| <ol style="list-style-type: none"> 2. <i>For a Message Register audit:</i> Press the Msg. Reg. softkey. | <p>A report of all guest rooms with a message register greater than zero is printed.</p> <p>The format of the report is the same as the format when a console is used to request a report from the basic hotel/motel system.</p> |
| <p style="padding-left: 40px;"><i>For a Wakeup Audit:</i> Press the Wakeup softkey.</p> | <p>A report of all guest rooms with a wakeup call enabled is printed.</p> <p>The format of the report is the same as the format when a console is used to request a report from the basic hotel/motel system.</p> |
| <ol style="list-style-type: none"> 3. When you are finished, press the Quit softkey. | |

Notes: 1. **Message Register Audit.** The message register audit is a printout showing all non-zero message registers. The room extensions are printed in numerical order and the current register count is given for each.

Wakeup Audit. The wakeup audit is a printout showing the wakeup times for all extensions with active wakeups set. The audit can also be printed automatically daily at a predetermined time. The audit report lists all room numbers and the wakeup time currently set for each.

2. Pressing the associated softkey starts the audit print. There is no message confirming that the print has begun.

Chart 5-19 Printing a Room Type Audit

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. From the House Statistics screen, press the Audits softkey. | <p>The Audit softkeys are displayed.</p> |
| <ol style="list-style-type: none"> 2. <i>For a Room Type Audit:</i> Press the Room Type softkey. | <p>When a Room Type Audit is requested, you are prompted to enter a room code for the type of room you want information on.</p> |
| <ol style="list-style-type: none"> 3. Enter a valid room code. | <p>It is not possible to print an all room types audit by using 0.</p> |

4. Press the **Return** hardkey. An audit of all rooms of that type is printed.
5. When you are finished, press the **Quit** softkey.

- Notes:**
1. **Room Type Audit.** A room type audit is a printout showing all rooms of a particular type, for instance, all single rooms.
 2. Pressing the associated softkey starts the audit print. There is no message confirming that the print has begun.

Chart 5-20 Printing Room Status Audits

1. On the House Statistics screen, press the **Audits** softkey. The Room Status softkey is displayed.
2. Press the **Room Status** softkey. The room status softkeys are displayed.
3. **Printing a Vacant Room Audit:** Press the Vacant softkey. The vacant room audit is printed.
Printing an Occupied Room Audit: Press the Occupied Room softkey. The Occupied room audit is printed.
Printing a Reserved Room Audit: Press the Reserved Room softkey. The Reserved room audit is printed.
Printing a Guaranteed Room Audit: Press the Guaranteed Room softkey. The Guaranteed room audit is printed.
Printing a To Clean Audit: Press the To Clean softkey. The Rooms to be Cleaned audit is printed. The report lists all rooms that are currently dirty.
Printing a To Inspect Audit: Press the To Inspect softkey. The Rooms to be Inspected audit is printed. The report lists all rooms with status set to Inspect.
For each of these audits, you are prompted to enter the code for the room type, or 0 for all rooms.
4. Type the room code and press Return.
5. **Printing an All Rooms Audit:** Press the All Rooms softkey. The vacant, occupied, reserved, and guaranteed room audits are combined into a single printout. Each section has the same format.
6. To return to the main Audits menu, press the Quit softkey.

- Notes:**
1. This mode of operation allows various types of audits to be generated on demand. The audit mode of operation is entered from the House Statistics screen. Pressing the Audits key does not update the terminal screen. The softkeys are updated to show the various audit types.
 2. A maintenance log is generated if the Hotel/Motel printer fails.

Automatic Wakeup

Feature Description: Reference pages 602 2-32 to 602 2-35.

Programming: Reference Chart 4-8 to Chart 4-10.

Operation:

Chart 5-21 Setting an Automatic Wakeup

To set wakeup time:

1. From the House Statistics screen, press the **Room Update** softkey.
2. Enter the room number. The Room Update screen is displayed.
3. On the Room Update screen, move the shaded bar to the wakeup field and press the **Set Wakeup** softkey. The prompt Enter Wakeup Time (hh:mm) is displayed. The softkeys disappear (Figure 5-2).

29-05-90	12:05	GUEST ROOM UPDATE	Mitel Front Desk																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Guest Name</td> <td style="width: 30%;">: Smith, Mary</td> <td style="width: 20%;">Room Number</td> <td style="width: 20%;">: 1102</td> </tr> <tr> <td>Occupancy</td> <td>: OCC</td> <td>Room Type</td> <td>: Single</td> </tr> <tr> <td>Condition</td> <td>: CLEAN</td> <td>Message Waiting</td> <td>:</td> </tr> <tr> <td>Call Privilege</td> <td>: LOCAL</td> <td>Do Not Disturb</td> <td>:</td> </tr> <tr> <td>Wakeup Time</td> <td>: </td> <td>Message Register</td> <td>:</td> </tr> </table>				Guest Name	: Smith, Mary	Room Number	: 1102	Occupancy	: OCC	Room Type	: Single	Condition	: CLEAN	Message Waiting	:	Call Privilege	: LOCAL	Do Not Disturb	:	Wakeup Time	: 	Message Register	:
Guest Name	: Smith, Mary	Room Number	: 1102																				
Occupancy	: OCC	Room Type	: Single																				
Condition	: CLEAN	Message Waiting	:																				
Call Privilege	: LOCAL	Do Not Disturb	:																				
Wakeup Time	: 	Message Register	:																				
<div style="border: 1px dashed black; padding: 5px; display: inline-block;"> <table style="border: none;"> <tr> <td style="border: none;">Enter Wakeup Time (hh:mm)</td> <td style="border: none;">Then press Return</td> </tr> <tr> <td style="border: none; text-align: center;">1</td> <td style="border: none; text-align: center;">2</td> </tr> <tr> <td style="border: none; text-align: center;">6</td> <td style="border: none; text-align: center;">7</td> </tr> </table> </div>				Enter Wakeup Time (hh:mm)	Then press Return	1	2	6	7														
Enter Wakeup Time (hh:mm)	Then press Return																						
1	2																						
6	7																						
<table style="width: 100%; border: none;"> <tr> <td style="border: none; text-align: center;">3</td> <td style="border: none; text-align: center;">4</td> <td style="border: none; text-align: center;">5</td> </tr> <tr> <td style="border: none; text-align: center;">8</td> <td style="border: none; text-align: center;">9</td> <td style="border: none; text-align: center;">0</td> </tr> </table>				3	4	5	8	9	0														
3	4	5																					
8	9	0																					

Figure 5-2 Wakeup Time Prompt

4. Enter the time, and press **Return**. Only the number keys, up/down arrow keys, and the Delete and Return hardkey are valid when setting the time. Time must be entered as four digits. (The Delete hardkey deletes the last digit entered. It cannot be used after the Return hardkey is pressed.)

Once four digits are entered, Cancel, Enter, and AM/PM softkeys (if the 12-hour clock option is enabled) appear.

The prompt Press Enter to confirm Wakeup Time appears.

- 5. For 12-hour formats, press the **PM** softkey if you are setting an afternoon time.

Any time entered in the 12-hour format is assumed to be morning time unless the PM softkey is pressed.

A 24-hour setting is accepted as valid in the 12-hour format. It is automatically converted to 12-hour format

The AM/PM softkey toggles between AM and PM. AM is the default.

To Correct an Error:

- 6. Use the **Delete** hardkey to delete the last digit of the time (digit by digit).

To cancel a Change to the Wakeup Time:

- 7. If you are setting the wakeup time and decide not to, press the **Cancel** softkey.

You must have entered the complete time (the full four digits).

The shade bar moves to the next programmable field, and leaves the wakeup field unchanged.

- 8. To continue making changes, press the **Return** hardkey.

To end, press the **Enter** softkey.

- Notes:**
- 1. When the highlight bar is in the Wakeup field on the Room Update screen, the Set Wakeup softkey appears. If a wakeup time has already been set, a Set Wakeup and a Clear Wakeup softkey appear.
 - 2. If a wakeup is set or changed by the front desk terminal, and the system option to print these changes has been enabled, a SET BY DESK or CHG BY DESK message is printed to indicate how the change was made.

Chart 5-22 Cancelling a Wakeup Call

- 1. On the Room Update screen, move the shaded bar to the wakeup field and press the **Clear Wakeup** softkey.
- 2. To continue making changes, press the **RETURN** hardkey.

The wakeup is cleared. The shade bar moves to the next field that can be modified.

To end, press the **Enter** softkey.

Note: When a wakeup time is set, a Clear Wakeup softkey is displayed.

Call Restriction (known as Call Privilege on Front Desk Terminal)

Feature Description: Reference page 602 2–37.

Programming: Reference Chart 4–12.

Operation:

Chart 5–23 Changing Call Privilege

- | | |
|--|---|
| <p>1. On the Room Update screen, move the shaded bar to the call privilege field and press the Show Choices softkey.</p> | <p>The call privilege softkeys are displayed:
 Internal: Most restrictive setting. Can only make internal calls.
 Local: Can only make local calls.
 Long Distance: Least restrictive setting. Can make long distance, local and internal calls.</p> |
| <p>2. Press the softkey for the call privilege setting you want.</p> | <p>The shaded bar is automatically moved to the next field that can be changed.</p> |
| <p>3. Continue making changes</p> <p>or</p> <p><i>To end and save all changes, press the Enter softkey, then the Quit softkey.</i></p> <p><i>To end and not save the changes, press the Quit softkey and follow the instructions given.</i></p> <p><i>If no changes are necessary, press the Quit softkey.</i></p> | |

Notes: 1. The guest room phone can be restricted from making certain calls.

Check Out

Feature Description: Reference page 602 2-38.

Programming: None required.

Operation:

Chart 5-24 Check Out (Single Key)

- | | |
|--|---|
| <p>1. On the Room Update screen, move the shaded bar to the Occupancy field.</p> | <p>The Check Out softkey is displayed.</p> |
| <p>2. Press the Check Out softkey.</p> | <p>The room occupancy field is set to Vacant.
The room condition is set to Dirty.
The call restriction is set to the setting specified in System Option 57 (vacant/default call restriction).

The Cancel softkey and the Enter softkey appear.

A prompt appears: Press Enter to complete check out.</p> |
| <p>3. To cancel the checkout, press the Cancel softkey.</p> | <p>All original information is displayed.</p> |

To complete the check out, press the **Enter** softkey.

The guest name is blanked out.
Do Not Disturb is disabled (if set).
Message waiting is cleared.
Wakeup time is cleared.
Message register is cleared.

Notes: 1. The check out softkey is a simple method of checking out a guest. It is only provided when the occupancy setting of the guest room is Occupied.

Do Not Disturb

Feature Description: Reference page 602 2-38.

Programming: Reference Chart 4-13.

Operation:

Chart 5-25 Setting / Clearing Do Not Disturb**To Set Do Not Disturb:**

1. On the Room Update screen, move the shaded bar to the DND field and press the DND softkey. The field shows ON.

To Clear Do Not Disturb:

2. On the Room Update screen, move the shaded bar to the DND field and press the DND softkey. ON is displayed in the field.
The field goes blank.

Notes: 1. This feature prevents calls from reaching the guest room extension.
2. This field is displayed if DND is programmed in the extension's COS.

Guest Names

Feature Description: Reference page 602 2-40.

Programming: None required.

Operation:

Chart 5-26 Entering Guest Names

- | | |
|--|---|
| <p>1. Display the Room Update screen.</p> | <p>On the Room Update screen, the guest name field is highlighted if the occupancy status of the room is vacant. You are prompted to enter the last name.</p> |
| <p>2. Enter the last name (up to 15 alpha/numeric characters) in the Guest Name field.</p> | <p>While a name is being entered, no softkeys are provided.</p> <p>All names are stored and displayed as uppercase, even if they are entered in lowercase.</p> <p>Note: If you use an arrow key to move to the next field, the data you entered is lost.</p> |
| <p>3. Press the Return hardkey.</p> | <p>The new data is displayed.</p> <p>The shade bar moves to the beginning of the next field. You are prompted to enter the guest's first name, and then press Return.</p> |
| <p>4. Enter the first name (up to six characters) in the next field.</p> | |
| <p>5. Press the Return hardkey.</p> | <p>The shade bar moves to the beginning of the next field.</p> <p>The new data is displayed.</p> |
| <p>6. Press the Enter softkey.</p> | <p>The information is entered in the database.</p> <p>The Enter softkey is only displayed if the Occupancy field is not set to Vacant.</p> |

Notes: 1. If a copy database is in progress when a name update is requested (the Enter key is pressed), the name is not saved. A warning message is displayed. Any other information entered on the form is saved.

2. A guest name cannot be stored if the Occupancy field is set to Vacant.

Chart 5-27 Removing Guest Names

To blank out a name in either guest name field:

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Go to the Room Update screen. 2. Use the cursor keys to move the shaded bar to the name field to be blanked out. 3. Press the spacebar. 4. Press the Return hardkey. 5. Press the Enter softkey. | <p>The name is blanked out.</p> <p>The name is removed from the database.</p> |
|--|---|

Notes: 1. The name fields are automatically blanked out when the Check Out softkey is used.

Maid in Room Display

Feature Description: Reference page 602 2-42.

Programming: Chart 4-15.

Operation:

Chart 5-28 Checking the Maid in Room Status

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. On the Room Update form, check the field below the Guest name fields. (This field does not have a title.) | <p>If this field has Maid in Room displayed, the maid is currently in that room.</p> <p>If there is nothing displayed, the maid is not in the room.</p> |
|--|---|

Note: Also see Search for Maid in Room.

Message Register

Feature Description: Reference page 602 2-47.

Programming: Reference Chart 4-18.

Operation:

Chart 5-29 Clearing the Message Register

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. On the Room Update screen, move the shade bar to the message register field. 2. Press the Clr Msg Reg softkey. 3. To clear the register, press Yes. | <p>The shade bar only highlights this field if the count is greater than zero.</p> <p>Yes and Cancel softkeys appear.</p> <p>The message register is reset to zero.</p> |
|--|---|

If you decide you don't want to clear the register, press **Cancel**.

The message register is not cleared.

4. Press **Enter**.

The message register is cleared. The shade bar moves to the next field.

- Notes:**
1. When the Message Register field is highlighted, a Clear Msg Reg softkey appears. This softkey resets the message register to zero.
 2. This field is only displayed if Message Register Applies(COS 703) is enabled for a guest room.
 3. A single-line report can be automatically generated before clearing.

Room Condition

Feature Description: Reference page 602 2-49.

Programming: Reference Chart 4-19.

Operation:

Chart 5-30 Changing the Condition Field

1. From the House Statistics screen or a search screen, press the **Room Update** softkey. The Room Update screen is displayed.
2. On the Room Update screen, move the shaded bar to the Condition field.
3. Press the **Show Choices** softkey. The screen changes. The four states are presented as softkeys. They are:
Clean Room has been cleaned by a maid.
Dirty Room has not been cleaned.
Out of Serv Room is not in service.
To Inspect Room has been cleaned by a maid but must be inspected by a supervisor.
4. Select one of the choices by pressing the key associated with it. The field is updated and the shaded bar passes to the next field.

An Enter softkey appears.

Or, if you decide you don't want to make a change, press the **Cancel** softkey.
5. If you have other changes to make, continue to make changes in the data fields.

If you have no other changes to make, press the **Enter** softkey. The changes are saved in the database.

Room Occupancy

Feature Description: Reference page 602 2-52.

Programming: Reference Chart 4-19.

Operation:

Chart 5-31 Changing the Occupancy Field

- | | |
|--|--|
| <p>1. From the House Statistics screen or a search screen, press the Room Update softkey.</p> | <p>The Room Update screen is displayed.</p> |
| <p>2. On the Room Update screen, move the shaded bar to the Occupancy field.</p> | |
| <p>3. Press the Show Choices softkey.</p> | <p>The screen changes. The four states are presented as softkeys. They are :
 Vacant Room is not occupied.
 Occupied Room is occupied.
 Reserved Room is being held until a certain time. After that it can be rented out to someone other than the person who reserved it.
 Guaranteed Room has a guaranteed reservation.</p> |
| <p>4. Select one of the choices by pressing the key associated with it.</p> <p>Or, if you decide you don't want to make a change, press the Cancel softkey.</p> | <p>The field is updated and the shaded bar passes to the beginning of the next field. The Enter softkey appears.</p> |
| <p>5. If you have other changes to make, continue to make changes in the data fields.</p> <p>If you have no other changes to make, press the Enter softkey.</p> | <p>The changes are saved in the database.</p> |

Notes: 1. The Occupancy field is used to indicate room availability.

Searches

Feature Description: Reference pages 602 2-55 to 602 2-60.

Programming: None required for Search facility.

Operation:

Chart 5-32 Guest Search

- | | |
|--|--|
| <p>1. From the House Statistics screen, press the Guest Search softkey.</p> | <p>The display does not change.</p> <p>The softkeys are blanked.</p> <p>You are prompted to enter the last name being searched for.</p> |
| <p>2. Enter the name.</p> | <p>You can enter part of a name, for instance, BLA. All the names with BLA as the first letters would be displayed.</p> |
| <p>3. Press the Return hardkey.</p> | <p>If a match is found, the room that is matched, or the room that is the closest matched, is displayed first, followed by the next eight rooms in alphabetical order.</p> |
| <p>4. To display the next nine names meeting the search criteria, press the Page Down softkey.</p> | <p>This key appears if there are any more names in the system. They are displayed in alphabetical order.</p> |
| <p>To display the previous nine names meeting the search criteria, press the Page Up softkey.</p> | <p>This key only appears if there is at least one name that has scrolled off the top of the display.</p> |
| <p>5. To search for other names, use the Guest Search softkey.</p> | <p>This softkey can be used as a "Guest Phone Book" service.</p> |
| <p>6. To return to the House Statistics screen, press the Quit softkey.</p> <p>To go to the room update screen displaying information about the indicated room, press the Room Update softkey.</p> | |

Notes: 1. All guest rooms are searched for a matching name string. The string entered must match with the first letters of the last name field. The first name is used to determine the order if the last names are identical. If these are the same, the guest who checked in last is displayed first.

Chart 5-33 Searching for Particular Rooms

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. From the House Statistics screen, press the Room Search softkey. 2. Press the appropriate softkey. | <p>The softkeys show the various kinds of searches that can be selected.</p> <p>You are prompted to enter the code for the kind of room you want to search, for instance, all single rooms.</p> <p>The wild card (0) is used to search all room types.</p> |
| <ol style="list-style-type: none"> 3. Enter the room code, or 0. | <p>All rooms meeting the search requirements are displayed in a lowest to highest sequence by room number.</p> |
| <ol style="list-style-type: none"> 4. To display the next nine rooms meeting the search criteria, press the Page Down softkey. <p>To display the previous nine rooms meeting the search criteria, press the Page Up softkey.</p> | <p>This key only appears if there is at least one more room matching the search criteria.</p> <p>This key only appears if there is at least one room that has scrolled off the top of the display.</p> |
| <ol style="list-style-type: none"> 5. To return to the main room search menu, press the Quit softkey. <p>To go to the room update screen displaying information about the indicated room, press the Room Update softkey.</p> | |

Notes: 1. Rooms can be searched for on the basis of: vacant/clean, vacant, maid in room, out of service, dirty, reserved, or guaranteed.

Chart 5-34 Searching for a Guest Room by Number

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. On the House Statistics screen, press the Room Search softkey. 2. Press the Room Number softkey. 3. Type the room number. 4. Press the Return hardkey. | <p>The softkeys show the various kinds of searches that can be selected.</p> <p>You are prompted to Enter the Room Number. Then press Return.</p> <p>The specified room is listed first, followed by the eight following room numbers. If there are less than eight rooms, only that number is displayed.</p> <p><i>If the room number entered is not valid, the following prompt appears: Room not found. Press Enter to search for another.</i></p> |
| <ol style="list-style-type: none"> 5. To search for another room, or do a different type of search, press the Quit softkey. | |

Notes: 1. The Room Number softkey is used to search for a particular guest room.

Chart 5-35 Searching for a Particular Room Type

- | | |
|---|---|
| <p>1. From the House Statistics screen, press the Room Search softkey.</p> | <p>The softkeys show the various kinds of searches that can be selected.</p> |
| <p>2. Press the Room Type softkey.</p> | <p>You are prompted to enter the code for the kind of rooms you want to search, for instance, single rooms.</p> |
| <p>3. Enter the code for the room type, or enter 0 for all room types.</p> | <p>If 0 is entered, all guest rooms are displayed in order of room number.</p> |
| <p>4. Press the Return hardkey.</p> | <p>All rooms of the required type are displayed in numerical order.</p> |
| <p>5. To display the next nine rooms, press the Page Down softkey.</p> | <p>This key only appears if there is at least one more room matching the search criteria.</p> |
| <p>To display the previous nine rooms meeting the search criteria, press the Page Up softkey.</p> | <p>This key only appears if there is at least one room that has scrolled off the top of the display.</p> |
| <p>6. To return to the House Statistics screen, press the Quit softkey twice.</p> | |
| <p>To go to the room update screen displaying information about the indicated room, press the Room Update softkey.</p> | |

If the room code entered is not valid, the following prompt appears: No Rooms Found. Enter Choice.

If the room code entered is over 50, the terminal beeps and the code is not accepted.

To search for another room type, press the Enter softkey.

- Notes:**
1. The Room Type softkey is used to search for a particular room type, such as single rooms or double rooms.
 2. Each type of room has a distinct COS programmed in CDE. This COS number is the code for that type of room. There can be up to 50 COS.

Accessing Hotel/Motel with a Telephone

- 5.3 The features that can be accessed from *SUPERSET* display telephones, *SUPERSET 3*, *SUPERSET 3DN*, *SUPERSET 410*, *SUPERSET 401* telephones, or industry standard telephones are shown in Table 5-4.

Table 5-4 Hotel/Motel Features Accessed from Telephones	
Feature	Chart
Attendant Message Waiting – Guest Room Message Retrieval	Chart 5-36, Retrieving a Message
Maid in Room	Chart 5-37, Changing the Maid in Room Status from the Room Telephone
Maid in Room Status Display	Chart 5-38, Monitoring Maid in Room Status from a <i>SUPERSET</i> Display Telephone
<i>SUPERSET</i> Telephone Room Status Display	Chart 5-39, Monitoring Room Status from a <i>SUPERSET</i> Display Telephone

Attendant Message Waiting – Guest Room Message Retrieval

Feature Description: Reference page 602 2–24.

Programming: Reference Chart 4–3.

Operation:

Chart 5–36 Retrieving a Message

***Industry-standard Telephones,
SUPERSET 401, SUPERSET 3,
SUPERSET 3DN and SUPERSET 410
Telephones***

1. Call the attendant for the message.

There is a message waiting indication at your set.

The attendant reads the message and cancels the message waiting indication.

SUPERSET 4/SUPERSET 420 Telephones

1. Press the **MSG** softkey.
2. Press the **CANCEL** softkey.

The message waiting indication disappears.

SUPERSET 4DN/SUPERSET 430 Telephones

1. Press the **Read Msg** softkey.
2. Press the **Erase Msg** softkey.

The message waiting indication disappears.

- Notes:** 1. The message waiting indication may be:
- a. A message on the display of a *SUPERSET 4, SUPERSET 420, SUPERSET 4DN* or a *SUPERSET 430* telephone.
 - b. A continuously flashing lamp on the extension (if equipped) and/or item c (below).
 - c. A distinctive ringing pattern every 20 minutes. The set rings with this distinctive ringing pattern if the extension was busy, or had Do Not Disturb set or until Message Waiting is cancelled.

Maid in Room

Feature Description: Reference page 602 2-42.

Programming: Reference Chart 4-15.

Operation:

Chart 5-37 Changing Maid in Room Status from the Room Telephone

Maid

- | | | |
|----|--|---|
| 1. | On entering the room, pick up the handset and dial the Maid In Room access code and the code for Maid in Room, then hang up. | For example, 111 could be the Maid in Room access code.
1 means maid is in room. |
|----|--|---|

The number to be dialed is 1111.

- | | | |
|----|---|---|
| 2. | When you are finished in the room, pick up the handset and dial the Maid in Room access code and the code for Room to be Inspected, Maid not in Room. | 4 = room to be inspected, maid not in room. |
|----|---|---|

The number to be dialed is 1114.

If you leave the room without finishing your job, dial the code for No Maid in Room.

2 = no maid in room.

The number to be dialed is 1112.

Hang up after you dial.

Supervisor

- | | | |
|----|---|---|
| 3. | Enter the room and check it. If satisfactory, enter the Maid in Room access code and the code for Room Clean, Maid not in Room, then hang up. | 3 = room clean, maid not in room.
The number to be dialed is 1113. |
|----|---|---|

Notes: 1. At any time, the current room status can be displayed on the console, a front desk terminal, or on a *SUPERSET 4*, *SUPERSET 420*, *SUPERSET 4DN* or a *SUPERSET 430* telephone. See Maid in Room Status Display – *SUPERSET 4/SUPERSET 420/SUPERSET 4DN/SUPERSET 430* Telephones.

2. In the above example, the Maid in Room access code is 111.

**Maid in Room Status Display – SUPERSET 4/SUPERSET 420/SUPERSET 4DN/
SUPERSET 430 Telephones**

Feature Description: Reference page 602 2–45.

Programming: Reference Chart 4–16.

Operation:

Chart 5–38 Monitoring Maid in Room Status from a SUPERSET Display Telephone

1. Dial the access code for Maid In Room Status Display.

SUPERSET 4/SUPERSET 420: The LCD displays the extension numbers of the first two rooms that have maid in room codes entered. If there are more rooms, the arrow softkey appears.

SUPERSET 4DN/SUPERSET 430: The LCD displays the extension numbers of the first 12 rooms that have maid in room codes entered. If there are more rooms, the arrow softkey appears.

Rooms are displayed 10 at a time in Generic 1004 and Generic 1005.
2. Press the **arrow** softkey to display these other guest room extension numbers.

SUPERSET 4/SUPERSET 420: The rooms are displayed two at a time.

SUPERSET 4DN/SUPERSET 430: The rooms are displayed 12 at a time.

Rooms are displayed 10 at a time in Generic 1004 and Generic 1005.

When the last room number is displayed, the **arrow** softkey no longer appears.
3. When you are finished, press the **Hangup** softkey.

***SUPERSET* Telephone Room Status Display**

Feature Description: Reference page 602 2-62.

Programming: Reference Chart 4-22.

Operation:

Chart 5-39 Monitoring Room Status From *SUPERSET* Display Telephone

1. Dial the access code for *SUPERSET* 4 Room Status Display. This feature also applies to the *SUPERSET* 420, *SUPERSET* 4DN and the *SUPERSET* 430.
2. Dial the extension number of the required guest room's telephone. The LCD displays the room's status (e.g. VAC/CLEAN).
3. Press the **arrow** softkey for the status of the next room (in order of extension number). When the last room is displayed, the arrow softkey no longer appears.
4. When you are finished, press the **Hangup** softkey.

Hotel/Motel Feature Package Description

A

Access Mechanism
 Attendant Console, 2-6
 Front Desk Terminal, 2-11
 SUPERSET Display Telephones, 2-19
 SX-200 Digital PABX, 2-21
 ACD, 2-64
 Adding Features, 4-1
 Alarm Icon, 4-4, 4-27
 All Rooms (Audit) Softkey, 2-16
 All Rooms Audit, 2-25, 2-27
 AM, 2-32
 Arrow Keys, 2-16
 Attendant Console, 3-1
 Access Mechanism, 2-6
 Busy Console, 2-6
 Feature Access, 2-5
 Guest Name Display, 2-40
 Hardkeys, 2-8
 Hardware, 2-22
 Idle Console, 2-7
 Key Functions, 2-8
 Softkeys, 2-8
 To Cancel Automatic Wakeup, 5-4
 To Cancel Do Not Disturb, 5-6
 To Cancel Message Waiting, 5-2
 To Change Room Status, 5-8
 To Clear the Message Register, 5-7
 To Display the Message Register, 5-7
 To Request Audits, 5-3
 To Search for a Room by Status, 5-10
 To Search for a Room Number, 5-10
 To Set Up Do Not Disturb, 5-6
 To Set Up Message Waiting, 5-2
 To Set Up/Remove Call Blocking, 5-5
 To Set Wakeup Time, 5-4
 Attendant Do Not Disturb, 2-2, 2-38, 2-65
 Attendant Message Register Audit, 2-2, 2-25,
 2-47, 2-65, 4-1, 4-15
 Attendant Message Waiting Setup and Cancel –
 Guest Room, 2-2, 2-24, 2-65, 4-1, 4-14,
 5-2, 5-14, 5-30
 Attendant Password, 2-48, 4-10
 AUDIT Softkey, 2-8
 Audits, 2-25, 2-65, 5-3, 5-15
 Audits Softkey, 2-14

Auto Room Status Conversion/Auto Wakeup
 Print, 2-2, 2-25, 2-65
 Automatic Wakeup, 2-3, 2-32, 2-65, 4-1,
 4-17, 4-18, 4-19, 5-4, 5-17
 AM Time, 2-32
 Cancel, 5-2, 5-4
 Music, 2-32
 PM Time, 2-32
 Recorded Announcement, 2-32
 Set, 5-4
 System Reset, 2-35
 Tone, 2-32
 Automatic Wakeup Audit, 4-1, 4-17
 Automatic Wakeup Music, 2-35
 Automatic Wakeup Routing, 2-35

B

BLOCK Hardkey, 2-6, 2-8
 Blocking Calls, 2-3, 2-36, 2-65

C

Call Blocking, 2-3, 2-36, 2-65, 4-1, 4-21,
 5-5
 Set Up/Remove, 5-5
 Call Privilege, 4-8, 5-19
 See also Call Restriction
 Call Privilege Softkey, 2-15
 Call Rerouting, 2-36, 4-21
 Call Restriction, 2-3, 2-26, 2-37, 2-38, 2-62,
 2-65, 4-1, 4-8, 4-22, 5-5, 5-19
 Canceling a Wakeup Call, 5-18
 Canceling Automatic Wakeup, 5-4
 Canceling Do Not Disturb, 5-6
 Canceling Message Waiting, 5-2
 CDE, 2-64
 CDE Form
 02 (System Access Codes), 4-2
 03 (Class of Service Options), 4-3
 04 (System Options), 4-6
 08 (Console Assignments), 4-9
 09 (Station/*SUPERSET* Sets), 2-41, 4-9
 11 (Data Circuit Descriptors), 4-10
 12 (Datasets), 4-10
 28 (Access Restriction Form), 4-10
 34 (Directed I/O), 4-10, 4-15, 4-16, 4-19

- 37 (Guest Room *SUPERSET* Keys Template), 4-10, 4-24
 - Directed IO (34), 4-16
 - Station/*SUPERSET* Sets (09), 2-41
 - Changing Call Privilege, 5-19
 - Changing Maid in Room Status from a Telephone, 5-31
 - Changing Room Status, 5-8
 - Changing the Condition Field, 5-24
 - Changing the Occupancy Field, 5-25
 - Check Out, 2-3, 2-38, 2-65, 5-20
 - Check Out Softkey, 2-15
 - Checking Maid in Room Status, 5-23
 - Clean Condition, 2-3, 2-49, 2-50, 2-66
 - CLEAN Softkey, 2-9
 - Clean Softkey, 2-15
 - Clear Message Softkey, 2-15
 - Clear Msg Reg Softkey, 2-15
 - CLEAR MSG Softkey, 2-8
 - Clear Softkey, 2-15
 - Clearing the Message Register, 5-7, 5-23
 - CLR REG Softkey, 2-8
 - CLR WAKE-UP Softkey, 2-8
 - Condition Softkey, 2-15
 - Control C, 2-17, 4-10
 - Control D, 2-17
 - Control G, 2-61
 - Control R, 2-17, 4-10
 - Control W, 2-17
 - Control Y, 2-17, 4-10
 - Copy Database, 2-41
 - COS Option Name
 - Alarm Call (202), 4-18, 4-19
 - Attendant Call Block Key (113), 4-21
 - Attendant Guest Room Key (105), 4-14
 - Attendant O/G Restriction/Room Status Setup (101), 4-19, 4-22
 - Call Block Applies (204), 4-4, 4-21
 - Do Not Disturb (220), 4-4
 - Message Register Applies (703), 2-47, 4-15, 4-27
 - Message Register Overflow Alarm (230), 4-4, 4-27
 - Message Waiting Bell (231), 4-4
 - Message Waiting Bell (232), 4-4
 - Message Waiting Setup - Lamp (232), 2-46
 - Room Status Applies (244), 2-64, 4-16, 4-18, 4-19, 4-24, 4-28
 - SUPERSET* - Room Status Display (608), 2-64, 4-26, 4-31
 - COS Option Number
 - 101 (Attendant O/G Restriction/Room Status Setup), 4-3, 4-19, 4-22
 - 105 (Attendant Guest Room Key), 4-3, 4-14
 - 113 (Attendant Call Block Key), 4-3, 4-21
 - 202 (Alarm Call), 4-3, 4-18, 4-19
 - 204 (Call Block Applies), 4-4, 4-21
 - 220 (Do Not Disturb), 4-4
 - 230 (Message Register Overflow Alarm), 4-4, 4-27
 - 231 (Message Waiting Bell), 4-4
 - 232 (Message Waiting Lamp), 4-4
 - 232 (Message Waiting Setup - Lamp), 2-46
 - 244 (Room Status Applies), 2-64, 4-5, 4-16, 4-18, 4-19, 4-24, 4-28
 - 320 (Transparent Multiconsole Operation), 4-5
 - 608 (*SUPERSET* - Room Status Display), 2-64, 4-26, 4-31
 - 608 (*SUPERSET* Room Status Display), 4-5
 - 610 (*SUPERSET* 3DN/4DN Guest Room Template), 4-5
 - 703 (Message Register Applies), 2-47, 4-6, 4-15, 4-27
 - Customer Data Entry, 4-1
- ## D
- Dataset, 3-1
 - Dial 0 Calls, 4-11, 4-14
 - Dial Tone, 2-35
 - Dirty (To Clean) Search, 2-4, 2-59, 2-66
 - Dirty Condition, 2-3, 2-49, 2-50, 2-66
 - Dirty Condition Audit, 2-2, 2-25, 2-65
 - DIRTY Softkey, 2-9
 - Dirty Softkey, 2-14, 2-15
 - Displaying the Message Register, 5-7
 - DND, 2-38
 - Do Not Disturb, 2-24, 2-35, 2-38, 2-65, 4-1, 4-2, 4-4, 4-23, 5-6, 5-21
 - Cancel, 5-6
 - Set / Clear, 5-21
 - Set Up, 5-6
 - Do Not Disturb Softkey, 2-15

E

Editing Password, 2-48, 4-10
 Enter Key, 2-48
 Entering Guest Names, 5-22
 Error Tone, 2-36, 2-38
 Extension Numbering, 4-9
 External Call, 2-47

F

Far End Gives Answer Supervision, 2-47
 Feature Access, 2-2
 Attendant Console, 2-5
 Front Desk Terminal, 2-10
 Industry-Standard Telephones, 2-20
 SUPERSET Display Telephone, 2-18
 SX-200 Digital PABX, 2-21
 Feature Access Key, 2-41
 Feature Availability, 2-65
 Feature Name
 Automatic Wakeup (32), 4-18
 Maid In Room (35), 4-25
 SUPERSET 4 Room Status Display (36), 4-31
 SUPERSET 4 Set Maid In Room Status Display (40), 4-26
 Feature Number
 32 (Automatic Wakeup), 4-18
 35 (Maid In Room), 4-25
 36 (*SUPERSET 4* Room Status Display), 4-31
 40 (*SUPERSET 4* Set Maid In Room Status Display), 4-26
 First Name Field, 2-40
 Front Desk Terminal, 2-22, 3-1
 Access Mechanism, 2-11
 Audit Mode, 2-13
 Changing Call Privilege, 5-19
 Feature Access, 2-10
 House Statistics Mode, 2-11
 Keyboard Data Entry, 2-16
 Room Update Mode, 2-13
 Search Mode, 2-12
 Softkeys, 2-14
 To Cancel an Automatic Wakeup, 5-18
 To Change the Condition Field, 5-24
 To Change the Occupancy Field, 5-25
 To Check Maid in Room Status, 5-23
 To Check Out a Guest, 5-20

To Clear the Message Register, 5-23
 To Conduct a Guest Search, 5-26
 To Enter Guest Names, 5-22
 To Log Off, 5-13
 To Log On, 5-12
 To Print a Message Register Audit, 5-15
 To Print a Room Status Audit, 5-16
 To Print a Room Type Audit, 5-15
 To Print a Wakeup Audit, 5-15
 To Refresh the Screen, 5-13
 To Remove Guest Names, 5-23
 To Search for a Room Type, 5-28
 To Search for Guest Room, 5-27
 To Search for Particular Rooms, 5-27
 To Set / Clear Do Not Disturb, 5-21
 To Set Up / Cancel Message Waiting, 5-14
 To Set Wakeup Time, 5-17

FUNCTION Hardkey, 2-8

G

Generic 1001, 2-41, 2-45, 4-5, 4-24, 4-26
 Generic 1002, 2-41, 2-45, 4-2, 4-5, 4-24, 4-26
 Generic 1004, 2-5, 2-18, 2-62
 Guaranteed (Audit) Softkey, 2-16
 Guaranteed Occupancy, 2-3, 2-52, 2-53, 2-66
 Guaranteed Room Audit, 2-2, 2-25, 2-27, 2-65
 Guaranteed Room Search, 2-4, 2-59, 2-67
 GUARANTEED Softkey, 2-9
 Guaranteed Softkey, 2-14, 2-15
 Guest Message Waiting Cancel, 2-2, 2-65
 Guest Names, 2-3, 2-40, 2-65, 5-22
 Enter, 5-22
 Remove, 5-23
 Guest Room Do Not Disturb, 2-38, 2-65
 Guest Room Message Retrieval, 2-24
 GUEST ROOM Softkey, 2-8
 Guest Room Softkey, 2-48
 Guest Room *SUPERSET* Key Programming, 2-3, 2-41, 2-65, 4-1, 4-24
 Guest Room *SUPERSET* Keys Template, 2-41
 Guest Room Telephone, 2-1, 2-4, 2-18, 2-20, 2-22, 2-24, 2-35, 2-37, 2-38, 2-41, 2-42, 2-47, 3-1
 Guest Room Wakeup, 2-3, 2-35, 2-65

Guest Search, 2-4, 2-55, 2-56, 2-66, 5-26

Guest Search Softkey, 2-14

H

Hardware, 2-22, 3-1

Attendant Console, 2-22

Front Desk Terminal, 2-22

Guest Room Telephone, 2-22

Industry-Standard Telephone, 2-22

SUPERSET Display Telephone, 2-22

SUPERSET Telephone, 2-22

SX-200 Digital PABX, 2-22

System Printer, 2-22

VT100 Maintenance/CDE Terminal, 2-22

Hotel Motel Feature Package, Programming, 4-2

Hotel/Motel Feature Package

Hardware Installation, 3-1

List of Features, 2-2

List of Features by Generic, 2-65

Programming, 4-1

Hotel/Motel Softkeys

Attendant Console, 2-8

Front Desk Terminal, 2-14

House Statistics Screen, 2-11, 2-36

I

Illegal Number, 2-36

Industry-Standard Telephones, Feature Access,
2-20

Industry-standard Telephones, Installation, 3-1

Installation, 3-1

Attendant Console, 3-1

Dataset, 3-1

Front Desk Terminal, 3-1

Peripherals, 3-1

Telephone, 3-1

Intended Audience, 1-1

Internal Call Restriction, 2-37

INTERNAL Softkey, 2-9

Internal Softkey, 2-15

K

Keyboard Data Entry, 2-16

L

Last Name Field, 2-40

Listed Directory Number (LDN), 4-9

Local Call Restriction, 2-37

LOCAL Softkey, 2-9

Local Softkey, 2-15

Log Off, Front Desk Terminal, 5-13

LONG DIST Softkey, 2-9

Long Distance Call Restriction, 2-37

Long Distance Softkey, 2-15

M

Maid in Room, 2-3, 2-26, 2-49, 2-62, 2-66,
4-2, 5-31

Checking Status, 5-23

Codes, 2-42

Display, 2-3, 2-43

Monitor Status, 5-32

Search, 2-57

Status Display - *SUPERSET* Display Tele-
phones, 2-45

Maid in Room Display, 2-3, 2-66, 4-26, 5-32

Maid In Room Display - *SUPERSET* Telephones,
4-1, 4-26

Maid in Room Search, 2-4, 2-57, 2-59, 2-66

Maid in Room Softkey, 2-14

Maid In Room Status, 2-42, 4-1, 4-25

Maid in Room Status Display, 2-45

MAID Softkey, 2-8

Maintenance Log, 2-32, 4-4

Maintenance Logs, 2-64

Maud in Room Display, 5-23

Message Lamp Test, 2-3, 2-24, 2-46, 2-54,
2-66, 4-1, 4-26

Message Register, 2-25, 2-47, 2-66, 4-1,
4-27, 5-7, 5-23

Clear, 5-7, 5-23

Display, 5-7

Message Register (Audit) Softkey, 2-15

Message Register Audit, 5-3, 5-15

Message Register Display and Clear, 2-3

Message Waiting, 2-24

Set Up / Cancel, 5-14
 Message Waiting Bell, 4-4
 Meter Pulses, 2-47
 Minor Alarm, 2-54
 Monitoring Maid in Room Status, 5-32
 MSG REG Softkey, 2-8
 MSG REGISTER Softkey, 2-8
 Multi-user, 2-3, 2-48, 2-66
 Music, 2-32, 2-35, 4-7, 4-19

N

NO DISTB Softkey, 2-8
 Numeric Keys, 2-16

O

Occupancy Field, Change, 5-25
 Occupancy Softkey, 2-15
 Occupied (Audit) Softkey, 2-16
 Occupied Occupancy, 2-3, 2-52, 2-53, 2-66
 Occupied Room Audit, 2-2, 2-25, 2-27, 2-65
 OCCUPIED Softkey, 2-9
 Occupied Softkey, 2-15
 ONS Card, 4-26
 Out of Serv Softkey, 2-15
 OUT OF SERV. Softkey, 2-8, 2-9
 Out of Service Condition, 2-3, 2-50, 2-51, 2-66
 Out of Service Room Search, 2-4, 2-59, 2-66
 Out of Service Softkey, 2-14

P

Page Down Softkey, 2-14
 Page Up Softkey, 2-14
 Password, 2-48, 4-10
 Attendant, 5-12
 Editing, 5-12
 Supervisor, 5-12
 Passwords, 2-3

PBX Attention Character, 2-17
 Peripherals, 3-1
 Attendant Console, 3-1
 Dataset, 3-1
 Front Desk Terminal, 3-1
 Industry-standard Telephone, 3-1
 SUPERSET Telephone, 3-1
 PM, 2-32
 PM Softkey, 2-15
 PMS, 2-64
 PMS Interface, 2-3, 2-49, 2-66
 Power Failure, 2-35
 Printing a Message Register or Wakeup Audit, 5-15
 Printing a Room Status Audit, 5-16
 Printing a Room Type Audit, 5-15
 Program
 24-hour Clock, 4-1, 4-6, 4-17
 Access to Room Status, 4-3
 Adding Features, 4-1
 Attendant Automatic Wakeup, 4-1, 4-7, 4-19
 Attendant Console, 4-9
 Attendant Console Access to Features, 4-3
 Attendant Message Register Audit, 4-1, 4-15
 Automatic Room Status Conversion, 4-8
 Automatic Wakeup Access Code, 4-2
 Automatic Wakeup Audit, 4-8
 Automatic Wakeup To Music, 4-7
 Call Blocking, 4-1, 4-3, 4-4, 4-6, 4-21
 Call Message Sender, 4-2
 Call Restriction, 4-1, 4-22
 Charging the Message Register Count, 4-8
 Console Automatic Wakeup Alarm, 4-7
 Datasets for Front Desk Terminals, 4-10
 Do Not Disturb, 4-1, 4-4, 4-23
 Do Not Disturb Access Code, 4-2, 4-23
 Extension Numbering, 4-9
 Guest Room Automatic Wakeup, 4-1, 4-3, 4-5, 4-18
 Guest Room SUPERSET Key Programming, 4-1, 4-24
 Maid in Room Access Code, 4-2
 Maid in Room Status, 4-1, 4-25
 Maid in Room Status Display, 4-1, 4-26
 Message Lamp Test, 4-1, 4-6, 4-26
 Message Register, 4-1, 4-6, 4-27
 Message Register Audit, 4-7
 Message Register Clear Print, 4-6
 Message Register Overflow Alarm, 4-4
 Message Register Set to Zero After an Audit, 4-7

- Message Waiting, 4-1, 4-14
 - Message Waiting Bell, 4-14
 - Message Waiting Lamp, 4-4, 4-14
 - Meter Pulse Count, 4-7
 - Occupied Room Call Restriction, 4-8
 - PMS, 4-11
 - Printers, 4-10
 - Pseudo Answer Supervision Timer, 4-8
 - Room Status, 4-5, 4-8, 4-28
 - Room status, 4-1
 - Room Status Audit, 4-7, 4-16
 - Room status audit, 4-1
 - Room Status Display – *SUPERSET* Telephones, 4-31
 - Room status display–*SUPERSET* telephones, 4-1
 - Room Types, 4-3
 - Room Types and Room Codes, 4-1, 4-29
 - Single Line Report, 4-1, 4-6, 4-7, 4-30
 - SUPERSET 4* Room Status, 4-5
 - SUPERSET 4* Room Status Access Code, 4-2
 - SUPERSET 4* Set Maid in Room Status Access Code, 4-2
 - SUPERSET* Guest Room Telephones, 4-10
 - SUPERSET* Guest Room Template, 4-5
 - System Access Codes, 4-2
 - System Time, 4-1, 4-6, 4-17
 - Telephones, 4-9
 - Vacant Room Call Restriction, 4-8
 - Wakeup Audit, 4-1, 4-16
- Property Management System, 2-63
- Pseudo Answer Supervision, 2-47
- ## R
- READ MSG Softkey, 2-8
 - Recorded Announcement, 2-32
 - Recording Hunt Group, 2-35, 4-18, 4-19
 - Referenced Documents, 1-2
 - Refresh, 5-13
 - Refresh Softkey, 2-14
 - Removing Guest Names, 5-23
 - Reorder Tone, 2-36, 2-38
 - Requesting Audits, 5-3
 - RES/CLEAN RM Softkey, 2-8
 - Reserved (Audit) Softkey, 2-16
 - Reserved and Clean Room Search, 2-4, 2-59, 2-67
 - Reserved Occupancy, 2-3, 2-52, 2-53, 2-66
 - Reserved Room Audit, 2-2, 2-25, 2-27, 2-65
 - Reserved Room Search, 2-4, 2-59, 2-67
 - RESERVED Softkey, 2-9
 - Reserved Softkey, 2-14, 2-15
 - Retrieving a Message, 5-30
 - Return Hardkey, 2-16
 - Room Codes, 2-66, 4-1, 4-29
 - Room Condition, 2-26, 2-38, 2-49, 5-24
Change, 5-24
 - Room Condition Audits, 2-27
 - Room Condition Display, 2-3, 2-66
 - Room Number Search, 2-4, 2-56, 2-66
 - ROOM NUMBER Softkey, 2-8
 - Room Number Softkey, 2-14
 - Room Occupancy, 2-3, 2-26, 2-52, 2-66, 5-25
 - Room Occupancy Audits, 2-27
 - Room Search Softkey, 2-14
 - Room Status, 2-49, 2-52
Check/Change, 5-8
Search, 5-10
 - Room Status (Audit) Softkey, 2-16
 - Room Status – Attendant Console, 2-54, 4-1, 4-28, 5-8
 - Room Status Audit, 2-2, 2-25, 2-26, 2-27, 2-65, 4-1, 4-16, 5-3, 5-16
 - Room Status Display, 2-3, 2-62, 2-66, 5-33
 - Room Status Display – *SUPERSET* Telephones, 4-1, 4-2, 4-31
 - Room Status Search, 2-4, 2-58, 5-10
 - Room Status Searches – Front Desk Terminal, 2-66
 - ROOM STATUS Softkey, 2-8
 - Room Type Audit, 2-2, 2-25, 2-30, 2-65, 5-15
 - Room Type Audit Softkey, 2-15
 - Room Type Search, 2-4, 2-57, 2-66
 - Room Type Softkey, 2-14
 - Room Types, 2-55, 2-57, 2-66, 4-1, 4-29
 - Room Types and Room Codes, 2-3, 4-1, 4-29
 - Room Update Screen, 2-13

Room Updates Softkey, 2-14

S

Search for Guest Room, 5-27

Search for Particular Rooms, 5-27

Search for Room Type, 5-28

Searches, 2-3, 2-55, 2-66, 5-10, 5-26

Searching for a Room by Status, 5-10

Searching for a Room Number, 5-10

SEND MSG Softkey, 2-8

Set Message Softkey, 2-15

Set Softkey, 2-15

SET WAKE-UP Softkey, 2-8

Setting / Clearing Do Not Disturb, 5-21

Setting an Automatic Wakeup, 5-17

Setting Automatic Wakeup, 5-4

Setting Up / Canceling Message Waiting, 5-14

Setting Up Do Not Disturb, 5-6

Setting Up Message Waiting, 5-2

Setting Up/Removing Call Blocking, 5-5

Show Choices Softkey, 2-14

Single Line Report, 2-4, 2-24, 2-32, 2-60,
2-67, 4-1, 4-6, 4-7, 4-30

Automatic Wakeup, 2-60

Message Registration, 2-60

Message Waiting, 2-60

SMDR, 2-47, 2-64

Speed Dial Key, 2-41

Station Illegal Number Routing, 2-36, 4-21

Station Message Detail Recording, 2-47

STATUS Softkey, 2-9

SUPERSET 4 Room Status Display, 2-3

SUPERSET Display Telephone, 2-22

Access Mechanism, 2-18

SUPERSET Room Status Display, 4-2

SUPERSET Telephone, 2-22, 3-1

Supervisor Password, 2-48, 4-10

SX-200 Digital PABX

Access Mechanism, 2-21

Feature Access, 2-21

Hardware, 2-22

System Configuration, 2-22

System Option

24-hour Clock (01), 4-6

Attendant Call Block (09), 4-6, 4-21

Auto Room Status Conversion/Auto Wake-up
Print (34), 2-35, 2-64, 4-20, 4-27, 4-28

Auto Room Status Conversion/Auto Wake-up
Print Timer (56), 2-35, 4-20, 4-28

Auto Room Status Conversion/Auto Wakeup
Print (34), 4-8, 4-17

Auto Room Status Conversion/Auto Wakeup
Print Timer, 4-8

Auto Room Status Conversion/Auto Wakeup
Timer (56), 4-17

Automatic Wake-up Alarm (12), 2-35, 4-18,
4-19

Automatic Wake-up Print (13), 2-35, 4-19,
4-20

Automatic Wakeup Alarm (12), 4-7

Automatic Wakeup Enable (11), 4-7, 4-18,
4-19

Automatic Wakeup Music (14), 4-7

Automatic Wakeup Print (13), 4-7, 4-16,
4-18, 4-19

Message Lamp Test Enable (02), 2-46, 2-54,
4-6, 4-26, 4-28

Message Register Audit (24), 4-7, 4-15

Message Register Count Additional Supervi-
sions (23), 4-7, 4-27

Message Register Follows Talker (40), 4-8,
4-27

Message Register Zero After Audit (25), 2-26,
4-7

Message Waiting and Message Register Clear
Point (04), 4-14, 4-27

Message Waiting and Message Register Clear
Print (04), 4-6

Occupied Room Default Call Restriction (58),
4-8, 4-22

Outgoing Call Restriction (32), 2-37, 4-9,
4-22

Pseudo Answer Supervision Timer (49), 4-8,
4-27

Room Status (33), 2-37, 2-64, 4-8, 4-22,
4-28

Room Status Audit (27), 2-64, 4-7, 4-16

Vacant Room Default Call Restriction (57), 4-8,
4-22

System Option Number

02 (Message Lamp Test Enable), 2-46, 2-54,
4-26, 4-28

04 (Message Waiting and Message Register
Clear Point), 4-14, 4-27

09 (Attendant Call Block), 4-21

11 (Automatic Wakeup Enable), 4-18, 4-19
 12 (Automatic Wake-up Alarm), 2-35, 4-18, 4-19
 13 (Automatic Wake-up Print), 2-35, 4-18, 4-19, 4-20
 13 (Automatic Wakeup Print), 4-16, 4-18, 4-19
 23 (Message Register Count Additional Supervisions), 4-27
 24 (Message Register Audit), 4-15
 25 (Message Register Zero After Audit), 2-26
 27 (Room Status Audit), 2-64, 4-16
 32 (Outgoing Call Restriction), 2-37, 4-22
 33 (Room Status), 2-37, 2-64, 4-22, 4-28
 34 (Auto Room Status Conversion/Auto Wake-up Print), 2-35, 2-64, 4-20, 4-27, 4-28
 34 (Auto Room Status Conversion/Auto Wakeup Print), 4-17
 40 (Message Register Follows Talker), 4-27
 49 (Pseudo Answer Supervision Timer), 4-27
 56 (Auto Room Status Conversion/Auto Wake-up Print Timer), 2-35, 4-20, 4-28
 56 (Auto Room Status Conversion/Auto Wakeup Timer), 4-17
 57 (Vacant Room Default Call Restriction), 4-22
 58 (Occupied Room Default Call Restriction), 4-22

System Printer, 2-22
 System Reset, 2-35
 System Time, 4-1, 4-17

T

Telephone
 To Change Maid in Room Status, 5-31
 To Monitor Maid in Room Status, 5-32
 To Retrieve a Message, 5-30

Template, 4-5, 4-10
See also Guest Room *SUPERSET* Key Programming

Tenanting, 2-36

Timed Reminder, 2-32

Timers
 Auto Wakeup Print Timer, 2-35, 4-20, 4-28
 Pseudo Answer Supervision Timer, 2-47

To Be Inspected Condition, 2-3, 2-50, 2-51, 2-66

To Be Inspected Condition Audit, 2-2
 To be Inspected Condition Audit, 2-25
 To Clean (Audit), 2-16
 To Clean Room Audit, 2-27, 2-65
 To Inspect (Audit), 2-16
 To Inspect Room Audit, 2-27, 2-65
 TO INSPECT Softkey, 2-9
 To Inspect Softkey, 2-15
 Troubleshooting, 2-64
 Typing Keys, 2-16

V

VAC/CLEAN RM Softkey, 2-8
 Vacant (Audit) Softkey, 2-16
 Vacant Occupancy, 2-3, 2-52, 2-53
 Vacant Occupancy Display, 2-66
 Vacant Room Audit, 2-2, 2-25, 2-27, 2-65
 Vacant Room Search, 2-4, 2-59
 VACANT Softkey, 2-9
 Vacant Softkey, 2-14, 2-15
 Vacant Status Search, 2-66
 Vacant/Clean Room Search, 2-59
 Vacant/Clean Softkey, 2-14
 Vacant/Clean Status Search, 2-4, 2-66
 VT-100 Maintenance/CDE Terminal, 2-22

W

Wakeup (Audit) Softkey, 2-15
 Wakeup Audit, 2-2, 2-25, 2-31, 2-32, 2-65, 4-1, 4-16, 5-3, 5-15
 WAKEUP Softkey, 2-8
 Wakeup Time Softkey, 2-15
 Wakeup Tone, 2-32
 Wakeup/Room Condition Audit, 2-31
 Wild Card, 2-57

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SX-200® DIGITAL PABX

**ACD
TELEMARKETER®
APPLICATION
PACKAGE**

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Table of Contents

1. GENERAL

Reason for Reissue	620 1-1
Intended Audience	620 1-1
Manual Structure	620 1-1
Conventions	620 1-2
Key Names	620 1-2
Data Entry	620 1-2
Data Entry Instructions	620 1-2
Associated Documents	620 1-2

2. ACD Overview

Automatic Call Distribution	620 2-1
ACD Applications	620 2-1
Call Queueing	620 2-1
Staffing an ACD System	620 2-2
Reports	620 2-2
Monitors	620 2-2

3. ACD TELEMARKETER® FEATURE

<i>ACD TELEMARKETER</i> Overview	620 3-1
ACD Path	620 3-1
Displays	620 3-2
Printed Reports	620 3-2
Mobility	620 3-2
Sets	620 3-2
Summary	620 3-2
<i>ACD TELEMARKETER</i> Reporting System	620 3-3
ACD Call Flow	620 3-4
ACD Caller	620 3-6
Longest Idle Agent	620 3-7
ACD Positions	620 3-7
Agent Group	620 3-8
Agents	620 3-9
Supervisor	620 3-9
Senior Supervisor	620 3-9
ACD Path	620 3-10
Path Access Code	620 3-10
Path Priority	620 3-10
Path Access	620 3-11
Path Rerouting	620 3-11
Service Level	620 3-11
Overflow	620 3-11

Interflow	620 3-12
Music Between Recordings	620 3-12
Alternate Music Source	620 3-12
Recorded Announcements	620 3-13
RADs	620 3-13
Recording Groups	620 3-13
Recording Group Operation	620 3-13
RAD Failure	620 3-14
Removing DND from RAD	620 3-14

4. CONFIGURING AN ACD SYSTEM

Incoming Calls	620 4-1
Grouping the Agents	620 4-1
Recorded Announcement Planning	620 4-2
Planner Sheets	620 4-2
Agent Group Planner	620 4-2
Agent Group #	620 4-4
Name	620 4-4
Overflow Time	620 4-4
1st Threshold	620 4-4
2nd Threshold	620 4-4
After Work	620 4-4
Paths Using This Group	620 4-5
Path Planner	620 4-5
Purpose of This Path	620 4-5
Name	620 4-5
Path Access Code	620 4-5
Priority	620 4-7
Path Number	620 4-7
Delay to Answer	620 4-7
Recording 1	620 4-7
MOH or Ext #	620 4-7
Recording 2 through 4	620 4-8
Queued Calls	620 4-8
Primary Agent Group	620 4-8
Overflow Group Exists	620 4-8
Interflow	620 4-8
Interflow Point	620 4-8
Interflow Timeout	620 4-9
Allow Overflow to Interflow	620 4-9

5. ACD SET DESCRIPTION – GENERAL

<i>SUPERSET 4</i> ® Telephones	620 5-1
Position Login/Logout	620 5-2

Conditions	620 5-2
Login	620 5-2
Logout	620 5-3
Headset Operation	620 5-3
Line Select Keys	620 5-3
6. ACD AGENT SETS	
Functions	620 6-1
Login/Logout	620 6-1
Login	620 6-1
Logout	620 6-2
Make Busy Key	620 6-2
Purpose	620 6-2
LCD Indicator	620 6-2
Operation	620 6-2
Queue Status Key	620 6-4
Purpose	620 6-4
LCD Indicator	620 6-4
HELP Softkey	620 6-5
Monitoring	620 6-5
Operation	620 6-5
Auto Answer	620 6-6
7. ACD SUPERVISOR SET	
Functions	620 7-1
Login/Logout	620 7-1
Login	620 7-1
Logout	620 7-1
Call Monitoring	620 7-1
Restrictions	620 7-2
Enable Monitoring	620 7-2
Operation	620 7-2
Help Call Feature	620 7-2
Supervisor Set Keys	620 7-3
Supervisor Set With One Agent Group	620 7-3
Queue Status Key	620 7-3
Help Softkey	620 7-5
Agent Status Key	620 7-6
Shift Key	620 7-8
Supervisors With More than One Agent Group	620 7-9
Queue Status Key	620 7-9
Read Key	620 7-9
Shift Key	620 7-9
8. ACD SENIOR SUPERVISOR SET	
Functions	620 8-1

Login/Logout	620 8-1
Login	620 8-1
Logout	620 8-1
Queue Status Key	620 8-2
Operation	620 8-2
Shift Key	620 8-4
Call Monitoring	620 8-4

9. REPORTS

Agent Shift Summary Record	620 9-1
Agent Shift Records – Example 1	620 9-2
Agent Shift Records – Example 2	620 9-2
Path Reports	620 9-2
Report Headers	620 9-2
Path Summary Report Example	620 9-3
Group Summary Report	620 9-3
Report Headers	620 9-4
Group Summary Report Example	620 9-4
Printing Reports	620 9-4
Report Commands	620 9-5
SET Command	620 9-5
SHOW Command	620 9-6
QUIT Command	620 9-7

10. ACD MONITORS

Hierarchy of Monitor Displays	620 10-1
Accessing Monitors	620 10-2
Setting the Password	620 10-3
Monitoring the ACD System	620 10-3
System Activity	620 10-4
Monitoring Paths	620 10-6
Path Summary Display	620 10-7
Path Programmed Data Display	620 10-9
Path Statistics Display	620 10-11
Path Activity	620 10-13
Monitoring Groups	620 10-15
Group Summary Form	620 10-15
Group Programmed Data	620 10-17
Group Statistics	620 10-19
Group Activity	620 10-21
Monitoring Agents	620 10-22
Agent Summary	620 10-23
Agent Programmed Data	620 10-25
Agent Statistics	620 10-26
Agent Activity	620 10-28

11. PROGRAMMING

General	620 11-1
System Options Form	620 11-1
ACD Agent Groups Form	620 11-2
Agent Groups Subform	620 11-4
Afterwork Timer	620 11-5
Overflow Timer	620 11-5
Threshold Timers	620 11-5
ACD Keys Template Form	620 11-6
COS Define	620 11-7
ACD Supervisors	620 11-9
ACD Supervisor Subform	620 11-10
ACD Paths	620 11-11
ACD Path Programming	620 11-14
ACD Recording Hunt Groups	620 11-14
APPENDIX A. ACD MESSAGES	620 A-1
APPENDIX B. PLANNER SHEETS	620 B-1

List of Figures

Figure 3-1 ACD Call Progress – All Agents Busy	620 3-4
Figure 3-2 Overflow/Interflow	620 3-6
Figure 3-3 Hierarchy of ACD Positions	620 3-8
Figure 4-1 Agent Group Planner	620 4-3
Figure 4-2 Path Planner	620 4-6
Figure 5-1 <i>SUPERSET 4</i> Telephone	620 5-2
Figure 6-1 LCD Status Indicators on <i>SUPERSET 4</i> Telephone	620 6-3
Figure 7-1 LCD Queue Status Indicators on <i>SUPERSET 4</i> Telephone	620 7-4
Figure 7-2 LCD Agent Status Indicators	620 7-6
Figure 7-3 Agent Status Key Operation	620 7-8
Figure 7-4 Queue Status Key Operation	620 7-10
Figure 10-1 Monitor Hierarchy	620 10-1
Figure 10-2 System Activity Display	620 10-4
Figure 10-3 Path Summary Display	620 10-7
Figure 10-4 Path Programmed Data Display	620 10-9
Figure 10-5 Path Statistics Display	620 10-11
Figure 10-6 Path Activity Display	620 10-14
Figure 10-7 Group Summary Display	620 10-16
Figure 10-8 Group Programmed Data Display	620 10-18

Figure 10-9	Group Statistics Display	620	10-19
Figure 10-10	Group Activity Display	620	10-21
Figure 10-11	Agent Summary Form Display	620	10-23
Figure 10-12	Agent Programmed Data Display	620	10-25
Figure 10-13	Agent Statistics Display	620	10-27
Figure 10-14	Agent Activity Display	620	10-29
Figure 11-1	System Options Form (CDE Form 04)	620	11-1
Figure 11-2	ACD Agent Groups Form (CDE Form 39)	620	11-3
Figure 11-3	ACD Agent Groups Subform (CDE Subform 39)	620	11-4
Figure 11-4	Agent Keys Template (CDE Form 38)	620	11-6
Figure 11-5	COS Define Form (CDE Form 03)	620	11-8
Figure 11-6	ACD Supervisor Form (CDE Form 40)	620	11-9
Figure 11-7	ACD Supervisor Subform (CDE Subform 40)	620	11-10
Figure 11-8	ACD Path Form (CDE Form 41)	620	11-11
Figure 11-9	Hunt Groups Form (CDE Form 17)	620	11-15

List of Tables

Table 7-1	Supervisor Reports – Queue Status	620	7-5
Table 7-2	Supervisor Reports – Agent Status	620	7-7
Table 8-1	Senior Supervisor Reports – Queue Status	620	8-3
Table 9-1	Agent Shift Summary Record Fields	620	9-1
Table 9-2	Path Summary Report Fields	620	9-3
Table 9-3	Group Summary Report Fields	620	9-4
Table 10-1	System Activity Display Softkeys	620	10-4
Table 10-2	Terms Used In System Activity Display	620	10-5
Table 10-3	Path Summary Display Softkeys	620	10-8
Table 10-4	Terms Used In Path Summary Display	620	10-8
Table 10-5	Path Programmed Data Softkeys	620	10-10
Table 10-6	Terms Used In Path Programmed Data Display	620	10-10
Table 10-7	Path Statistics Display Softkeys	620	10-12
Table 10-8	Terms Used In Path Statistics Display	620	10-12
Table 10-9	Path Activity Display Softkeys	620	10-14
Table 10-10	Terms Used In The Path Activity Display	620	10-15
Table 10-11	Group Summary Form Softkey Labels	620	10-16
Table 10-12	Terms Used In Group Summary Display	620	10-17
Table 10-13	Group Programmed Data Softkey Labels	620	10-18
Table 10-14	Terms Used In Group Programmed Data Display	620	10-19
Table 10-15	Group Statistics Display Softkey Labels	620	10-20
Table 10-16	Terms Used In Group Statistics Display	620	10-20
Table 10-17	Group Activity Softkey Labels	620	10-21
Table 10-18	Terms Used In Group Activity Display	620	10-22

Table 10-19 Agent Summary Form Softkey Labels	620	10-24
Table 10-20 Terms Used In Agent Summary Display	620	10-24
Table 10-21 Agent Programmed Data Softkey Labels	620	10-26
Table 10-22 Terms Used In Agent Programmed Data Display	620	10-26
Table 10-23 Agent Statistics Form Softkey Labels	620	10-27
Table 10-24 Terms Used In Agent Statistics Display	620	10-28
Table 10-25 Agent Activity Form Softkey Labels	620	10-29
Table 10-26 Terms Used In Agent Activity Display	620	10-30
Table 11-1 System Option Form Fields	620	11-2
Table 11-2 ACD Agent Group Fields	620	11-3
Table 11-3 ACD Agent Groups Subform Fields	620	11-4
Table 11-4 ACD Keys Template Fields	620	11-7
Table 11-5 COS Options Fields	620	11-8
Table 11-6 ACD Supervisor Form Fields	620	11-10
Table 11-7 ACD Supervisor Subform Fields	620	11-11
Table 11-8 ACD Path Form Fields	620	11-12
Table 11-9 Hunt Groups Form Fields	620	11-15
Table A-1 Programming Error Messages	620	A-1

1.

GENERAL

- 1.1 This practice describes the features, operation, and programming of the *ACD TELEMARKETER*® Applications Package for the *SX-200*® DIGITAL Private Automatic Branch Exchange (PABX).

Reason for Reissue

- 1.2 This practice is reissued to include revisions and additions to the information contained in the previous issue. This is the first issue for Generic 1005.

Intended Audience

- 1.3 This practice is for those involved in the marketing, installation, programming, and operation of the *SX-200* DIGITAL *ACD TELEMARKETER* feature.

Manual Structure

- 1.4 This practice is divided into sections with each section covering a specific area of the *ACD TELEMARKETER* feature:
- **General** describes the structure and content of the practice.
 - **Overview** covers basic ACD concepts.
 - ***ACD TELEMARKETER* Feature** outlines the implementation of ACD in the ACD Telemarketer package, and introduces the terminology related to the feature.
 - **Configuring an ACD System** describes the steps to follow when planning a new ACD installation.
 - **Sets – General** introduces the *SUPERSET 4*® telephones used by ACD agents and supervisors.
 - **ACD Agent Sets** describes the features and operation of the *SUPERSET 4* telephones used by ACD agents.
 - **ACD Supervisor Sets** describes the features and operation of the *SUPERSET 4* telephones used by ACD supervisors.
 - **ACD Senior Supervisor Sets** describes the features and operation of the *SUPERSET 4* telephones used by ACD Senior Supervisors.
 - **Reports** covers the various reports available from the *ACD TELEMARKETER* Application package, and describes how to route the reports to the system printer.
 - **Monitors** describes the monitor displays, and the contents of each display.

- **Programming** covers tasks required to complete the programming forms for installing the *ACD TELEMARKETER* feature, and customizing its operation to meet the requirements of the user.

Conventions

- 1.5 To simplify the descriptions in this practice, the following conventions have been followed:

Key Names

Names of keys on a keyboard are shown in bold.

Example: **Return**

Data Entry

Data to be entered by the user is shown in bold uppercase.

Example: **EXIT**

Data Entry Instructions

The following conventions have been used throughout this manual when presenting data entry instructions to the user:

Type: Type the information (usually a single key) as shown without pressing the Return key.

Example: Type **A**

Enter: Type the information as shown and press the **RETURN** key.

Example: Enter **HOTEL**

Press: Press the indicated key(s) with no return.

Example: Press **<CTRL> <C>**

Associated Documents

- 1.6 Refer to the following practices for additional information:
- Features Description (9109-096-105-NA)
 - Customer Data Entry (9109-096-210-NA)

2.

ACD Overview

- 2.1 This section of the practice gives a general overview of Automatic Call Distribution (ACD) and describes the basic components found in ACD systems. If you are familiar with ACD concepts, turn to Section 3 of this practice for details on the implementation of the *ACD TELEMARKETER* feature for the *SX-200* DIGITAL PABX.

Automatic Call Distribution

- 2.2 Automatic Call Distribution (ACD) offers uniform distribution of incoming calls to station users (agents). Calls are routed to groups of agents according to the type of information or service required by the caller. The agents are trained and equipped to provide the particular information or service the caller is requesting. If calls cannot be handled immediately, the caller is usually entertained with recorded announcements and/or music until an agent is available.

Most ACD systems generate one or more reports listing call handling statistics and ACD traffic levels. The system administrator uses these reports when determining optimum staffing levels, acceptable caller delay times, and use of system resources.

ACD Applications

- 2.3 Typical ACD applications include airline reservation offices, telephone order desks for department stores, and customer service departments of telephone or cable TV companies. In all cases, the caller is attempting to reach an individual who can supply a service, answer a question, take a reservation, or accept a purchase order.

Call Queueing

- 2.4 To ensure optimum use of personnel and system resources, historical calling patterns are often used to determine staffing levels for the agents. Most ACD installations set staffing at levels that ensure the average number of callers equals or exceeds the number of agents. During peak periods when all agents are busy, callers are placed in a queue to wait for the first available agent.

While a caller is waiting in the queue, the ACD system can provide recorded announcements and music at predetermined intervals. The first recording typically advises the caller that all agents are busy, and that an agent will answer as soon as possible. If an agent is unavailable after a programmed interval, additional recordings can inform the caller about call progress, or advise the caller of information that will be required when the agent answers.

If calls arrive when some of the agents are free, the system may be programmed to equalize the workload by directing the next incoming call to the agent who has been idle the longest.

Staffing an ACD System

- 2.5 In most ACD applications, the individual handling ACD calls is referred to as an agent. Agents are often specially trained to deal with the caller's problems or requests.

A supervisor normally oversees the ACD operation by monitoring the activity of the agents, reassigning agents to handle overload conditions, and dealing with unusual situations that may arise.

Reports

- 2.6 ACD systems normally provide a reporting mechanism that allows tracking of key items such as the number of calls handled during a specific time period, the length of the calls, and the number of calls abandoned (caller hangs up before an agent answers). From these reports, the supervisor can determine optimum staffing levels and track the performance of individual agents.

Monitors

- 2.7 While reports give a hard copy record of events over a period of time (such as a shift), a monitor gives a snapshot of conditions in the system at any instant. By monitoring the ACD system, the supervisor is aware of the current situation and can quickly reassign agents to handle overload conditions.

3.

ACD TELEMARKETER FEATURE

3.1 This section of the practice introduces the *ACD TELEMARKETER* feature for the *SX-200 DIGITAL PABX*, and describes the following components of the *ACD TELEMARKETER* system:

- ACD Call Flow
- ACD Positions
- ACD Path
- Recorded Announcements
- Real-time Displays
- Summary Reports
- *ACD TELEMARKETER* Reporting System

ACD TELEMARKETER Overview

3.2 The *ACD TELEMARKETER* Application Package is an advanced Automatic Call Distribution (ACD) system that is fully integrated with the *MITEL SX-200 DIGITAL PABX*, and designed with the power and performance needed to ensure satisfaction in the the most demanding telemarketing environments. For maximum efficiency, all ACD personnel use *SUPERSET 4* telephones programmed with special displays and softkeys. The displays provide call status and progress messages; the softkeys give single button selection of ACD features.

ACD Path

The heart of the *ACD TELEMARKETER* feature is the ACD Path, an innovative call routing design that guides incoming calls through the system. The path defines all information required for each type of call including how the system is to handle callers placed in a queue to wait for an agent.

With 99 ACD Paths in the system, customized routing is available to every conceivable type of incoming call. This centralization of routing parameters gives users unmatched flexibility when programming and adding new features.

Priority designations of 1 to 99 may be assigned to each Path, allowing calls arriving on high priority paths to move directly to the front of the call queues. Higher priority paths are also given special treatment when placed in overflow queues. Lower priority calls in the same overflow queue maintain their position in relation to each other, but the system places them behind priority calls.

A key element of the *ACD TELEMARKETER* feature is the Predictive Overflow used by the system to keep call queueing time to a minimum. The system performs a load calculation when each new call arrives at an agent group, or when the status of an agent

changes. If the system predicts that a call will not be answered before the normal overflow time, it forces an immediate overflow.

Displays

The *ACD TELEMARKETER* feature includes real-time displays via standard async datasets and ASCII terminals. Thirteen displays encompass every area of the ACD operation. Path, group, and agent information is displayed in three categories: statistical analysis, current activity, and programming information. A system activity display provides a general overview of the status of the ACD system, including the number of agents logged in, the number of calls in the system, and general statistics on agent performance. Multiple users may simultaneously access the password protected information. Softkeys are provided for easy access to specific displays or for requesting printouts.

Printed Reports

Printers are also implemented for summary reports of paths, groups, and agents. Printed reports record times to the second for all categories, thus highlighting call handling efficiency and agent performance problems.

An Agent Shift record, if desired, is automatically printed whenever an agent logout occurs. This report summarizes the agent's performance for the shift duration. A Path report provides total counts for traffic entering the path during any specified period, including totals for the number of calls answered, interflowed and abandoned. Similarly, group reports tally calls offered and answered, and supply a record of non-ACD calls placed and received by agents.

Mobility

The ACD Agents and Supervisors are completely mobile with the Mitel *ACD TELEMARKETER* feature. All ACD positions are linked to software rather than hardware. This means that the system recognizes a login from any *SUPERSET 4* telephone within the PBX, and immediately transforms the set to the users' preprogrammed specifications.

Sets

The *SUPERSET 4* telephones used by ACD positions provide interactive displays and information regarding Agent groups and individual agents. A Supervisor's set provides 10 reports covering the Agents and the Queues that the Supervisor is responsible for. The Agent's set displays the queue load of that agent's group.

Summary

3.3 The *ACD TELEMARKETER* Application Package offers:

- Equal workload – calls are presented to the longest idle agent
- A programmable wrap up timer for individual groups
- Four recordings for each Path

- Different sources of music (alternate and System)
- Three overflow groups and an interflow point per path
- System messages to simplify programming and eliminate errors

In addition, callers never experience ring no answer; after three rings (or as programmed in the Call Forward – Don't Answer timer) the system places a set in Make Busy mode and delivers the call to the next available agent.

The *SUPERSET 4* telephone offers:

- Single key feature activation
- Supervisor monitoring of agent calls with or without agent notification
- Agent help requests during a conversation – transparent to ACD callers
- Handset/handsfree/headset operation
- LCDs load status indication
- Auto answer
- Time and date display
- Path name display when calls are presented to the agent
- Make Busy keys to temporarily block ACD calls from agents sets
- A programmable name for every ACD entity: paths, RADs, Groups, Agents and Supervisors
- A programmed set of Speedcall keys (via CDE programming)

ACD TELEMARKETER Reporting System

- 3.4 To complement the built-in monitoring capabilities of the *ACD TELEMARKETER* feature package, MITEL has introduced the *ACD TELEMARKETER* Reporting System, a PC-based software package for collecting ACD data generated by the *SX-200* DIGITAL PABX which produces a series of daily, weekly and monthly historical reports.

The *ACD TELEMARKETER* Reporting System runs on an IBM AT or compatible connected to the *SX-200* DIGITAL PABX through an RS-232C interface. The system is easy to learn, using menu driven displays with full-color graphics. On-line help is available for all commands and applications.

During initial installation, the user creates a Reporting System database containing all agent, path, and trunk information. Once operational, the PC collects data from the SMDR information generated by the PABX, analyses the information using the Reporting System database, and generates a series of detailed reports covering agents, groups, paths and trunks.

The daily reports can be printed automatically at predetermined times and can include daily, weekly and monthly summaries.

Daily reports generated from this database include:

- ACD Agent Daily Activity Report listing hourly totals by agent ID
- Agent Group Daily Activity Report with hourly totals handled by each agent group
- Trunk Daily Activity Report with hourly totals of calls handled by individual trunks
- Path Activity Report with detailed statistics for all ACD calls

Weekly and Monthly Summary Reports include:

- Agent Activity Summary Report with daily totals by ID and agent name
- Agent Group Summary Report listing daily totals by agent group
- Trunk Summary Report with daily totals of calls carried by a particular trunk
- Path Activity Report listing daily totals by path

ACD Call Flow

3.5 The following paragraphs describe the handling of a typical ACD call arriving at the system on an incoming trunk. Included is a description of what the caller hears at each stage of the call. Figure 3–1 shows the system action in determining what the caller hears while in the queue.

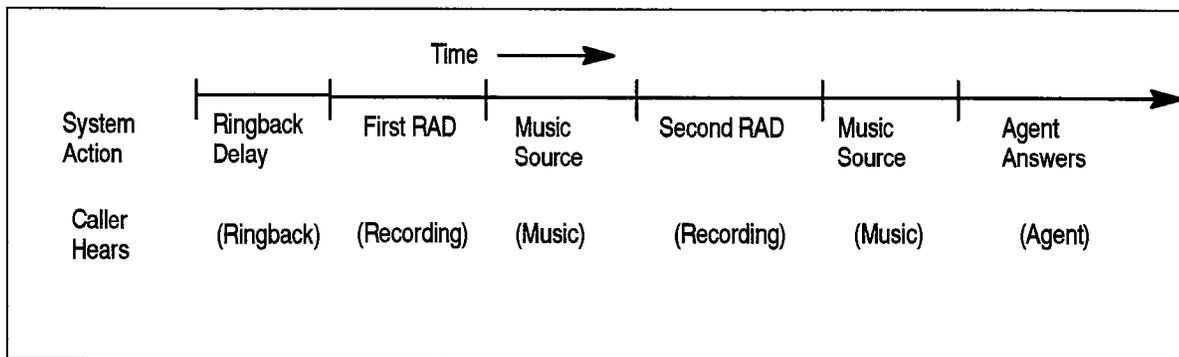


Figure 3–1 ACD Call Progress – All Agents Busy

1. ACD Call arrives at the path specified as the answer point for the trunk.
 - As shown in Figure 3–1 the caller hears ringback until the Ringback Delay timer expires. This timer ensures the caller hears at least one ringback before an agent answers.
2. The incoming call queues on the primary agent group for the path.
 - If agent is available, call rings agent, (See Note).
 - If multiple agents are available, the call rings the longest idle agent; if not, Caller waits for first recorded announcement.

Note: Once the agent set begins ringing, the call must be answered. If the called agent fails to answer within the period programmed for the Forward Timer in the agent's COS, the system forces the agent's set into Make Busy and routes the call to another agent in the group. This operation is transparent to the caller.

3. System connects caller to the first available RAD in the first recording group defined for the path.
 - Caller listens to first recording. Call remains queued on first agent group.
4. When RAD message ends, system connects call to music-on-hold (MOH) source or to first alternate source as defined for the path.
 - Caller hears music or alternate source.
5. After time interval programmed in the path for Recording 2 starts, system connects call to first available RAD in second recording group defined for the path.
 - Caller listens to second recording. Call remains queued on first agent group.
6. System connects call to MOH source or to second alternate source as defined for the path.
 - Caller hears music or alternate source.
 - Caller continues listening to music and recorded announcements until an agent is available. Timing is set in CDE .
 - Up to four recordings can be programmed for each path.
7. If the call remains queued against the first agent group for a period exceeding the overflow time programmed for the group, the system adds the first overflow group defined for the path.
 - Caller is now queued on two groups.
 - Caller continues listening to music and recorded announcements until an agent is available.
 - Caller retains position in queue for primary agent group
 - Path priority determines position of call in overflow group.

The system can add up to three overflow groups if a call remains unanswered. Overflow times are programmed individually for each agent group. Figure 3-2 shows how overflow groups are added as the caller waits in the queue.

8. The system performs a load calculation when each new call arrives at an agent group, or when the status of an agent changes. If the system predicts that a call will not be answered before the overflow timer expires, the system forces an immediate overflow. This predictive overflow is always enabled.

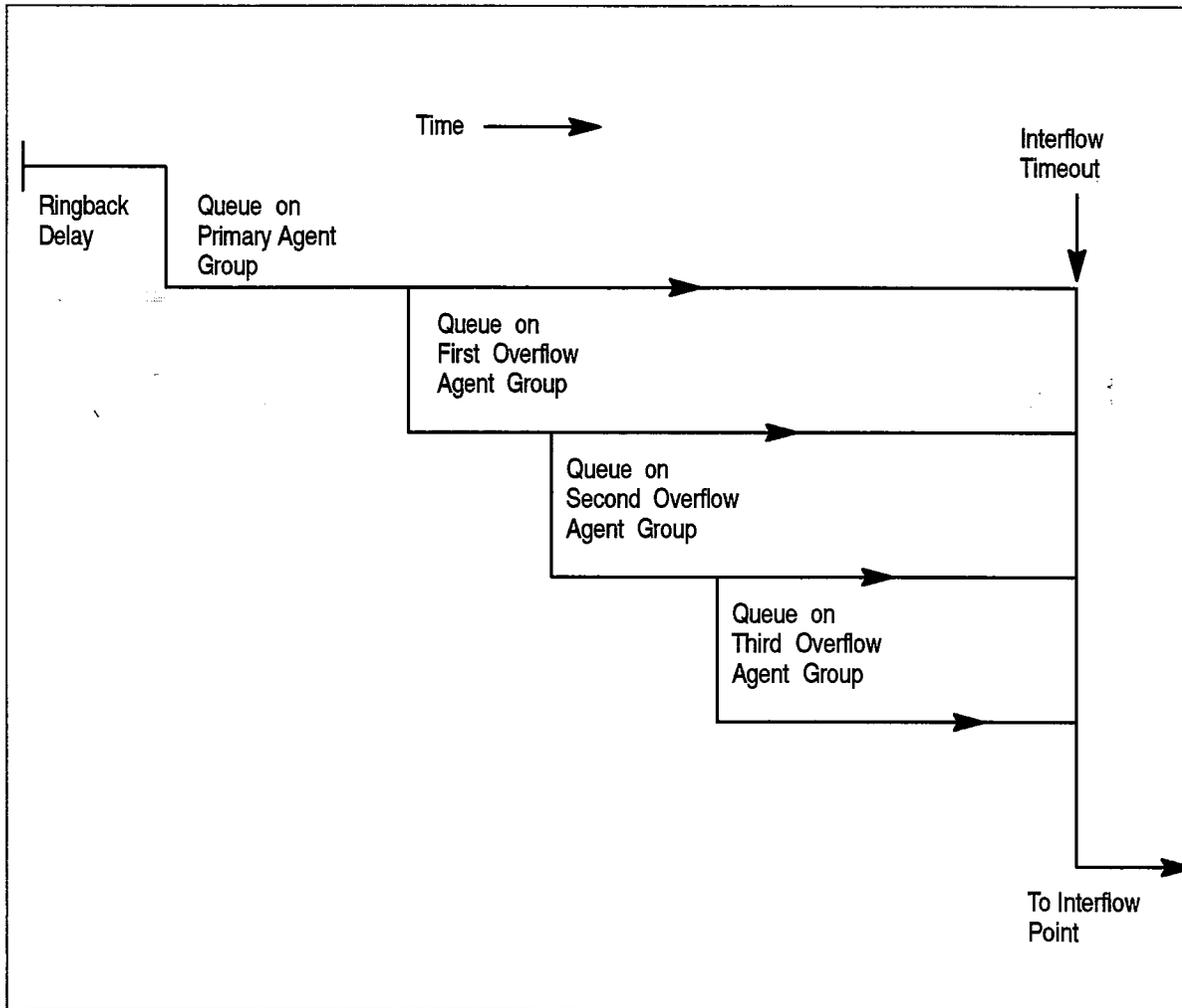


Figure 3-2 Overflow/Interflow

9. As shown in Figure 3-2 if the call remains unanswered for a period exceeding the Interflow Timeout programmed for the path, the system routes the call to the interflow point which can be an internal or external destination. The call is handled as a call reroute.

ACD Caller

- 3.6 The system considers an ACD caller anyone who is on, or has been answered by an ACD path. Once answered, the ACD caller status remains while the caller is talking to an agent, on hold by an agent, or in the process of being transferred by an agent.

After an ACD caller has been answered by an agent, the PABX reverts to normal call handling but provides additional tracking for ACD session timing, ACD hard-hold timing, and the caller's identification as an ACD caller. When an ACD caller reaches the console through either a supervised or unsupervised transfer, the ACD caller status ends. If, during a supervised transfer, the person performing the transfer remains on the line after the console answers, the ACD session is terminated.

Longest Idle Agent

- 3.7 If multiple agents are free when an ACD call is presented to a group, the system sends the call to the longest idle agent. To select the longest idle agent, the system gives a number to the first agent to finish an ACD call. The next agent to finish an ACD call is given the next higher number, and so on. When a call arrives at the group, the system sends the call to the agent with the lowest number.

This ordering does not depend upon the agent being idle. Only ACD calls affect an agent's number. The number does not change if the agent makes a non-ACD call. During the non-ACD call the system does not present ACD calls to the agent. The agent, however, may be next in line for an ACD call when the non-ACD call terminates.

ACD Positions

- 3.8 The *ACD TELEMARKETER* feature package structures the personnel handling ACD calls into a hierarchy of ACD positions. The ACD package supports three types of positions: Senior Supervisors, Supervisors, and Agents. Figure 3-3 shows an example of the ACD hierarchy.

ACD calls entering the system normally terminate on an agent position. Agents handling similar types of calls are arranged in Agent Groups. Supervisors and Senior Supervisors monitor agent and system performance, but do not handle ACD calls.

As shown in Figure 3-3 every Supervisor, Senior Supervisor, and Agent has an ID number. This is a 1- to 5-digit number assigned during customer data entry. Before they can receive ACD calls, the agent or supervisor must log in to the system by dialing an access code followed by the appropriate ID number. Agent Groups and the three ACD positions are described below.

The PABX treats the ID number assigned to each position as an access code. This number can be directly dialed by other devices in the system as normal extension numbers.

Note: An ACD Agent is considered not available for an ACD call if the agent is on its prime key or any other line key appearing at the telephone.

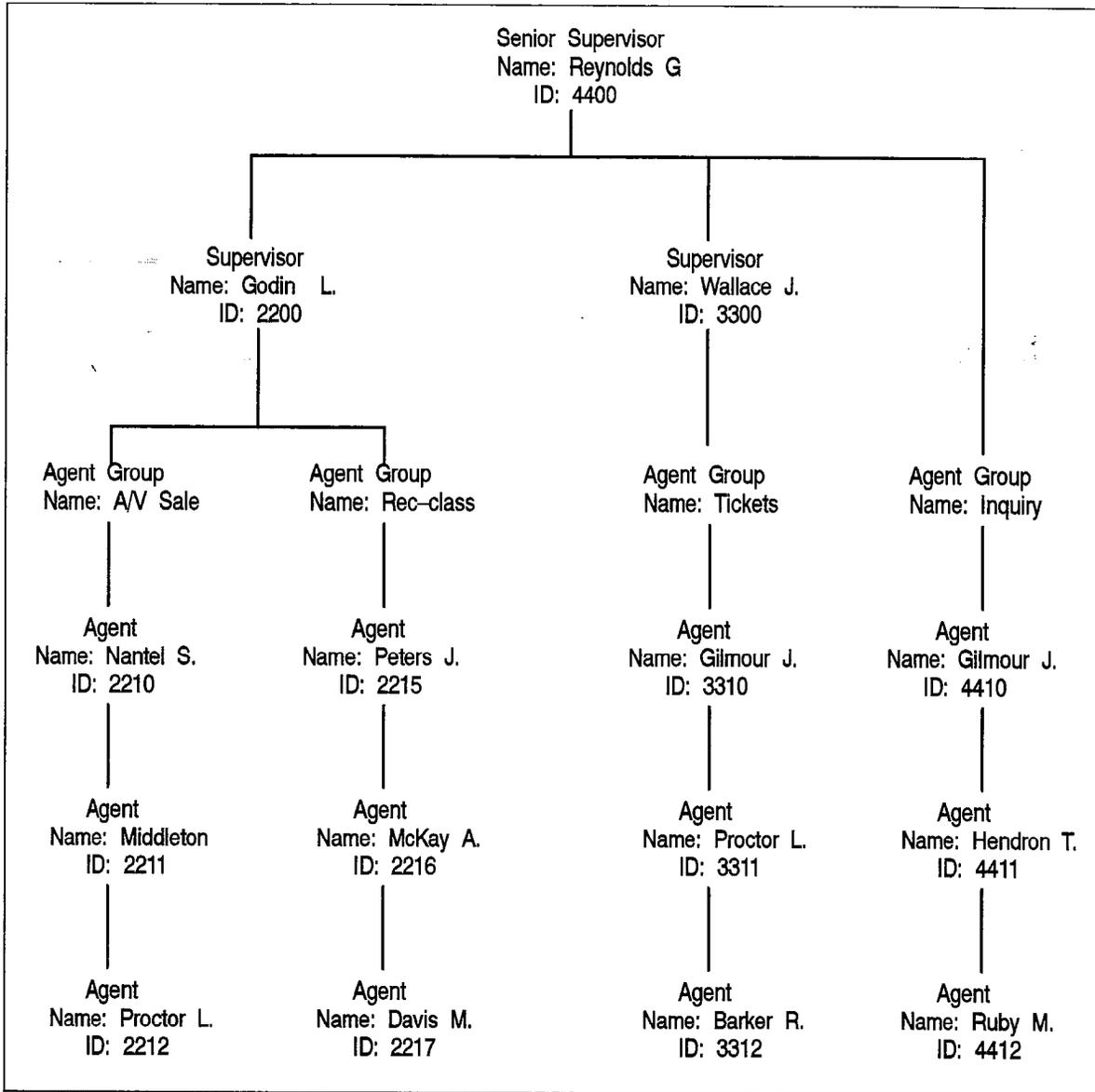


Figure 3-3 Hierarchy of ACD Positions

Agent Group

An Agent Group consists of one or more persons, called agents, that handle incoming ACD traffic. Each Agent Group must contain at least one member; the maximum number of agents in a group is 100. The ACD system accepts up to 50 Agent Groups.

As shown in Figure 3-3 each agent group must be set up to report to either a Supervisor or a Senior Supervisor (never both). Supervision requirements are determined by the customer and are usually dictated by the size of the group.

Agent groups are created through Customer Data Entry (CDE) by entering in the ACD Agent Groups form (Form 39) an agent group number in the range 1 through 50. An optional name can also be given to the group to assist in identifying the group's function.

Members are added to the group though CDE by entering a 1- to 5-digit ID number and an optional name for each agent.

Each agent group has timers that govern events such as:

- the time granted to an agent for completing paperwork after an ACD call,
- the length of time a call will remain unanswered in the group before overflowing, and
- turning on and off visual indicators that show calls have been unanswered for a time exceeding a programmed threshold level.

Refer to the Programming section of this practice for details about creating Agent Groups and the fields on the Agent Groups form.

Agents

The *ACD TELEMARKETER* feature terminates ACD calls at agent positions. In most ACD installations, all callers routed to an agent are requesting similar information or seeking a similar service. Agents can then be trained and equipped to provide the information or service requested by the caller.

The *SUPERSET 4* telephone used by the Agent is equipped with special feature keys to display the current status of the Agent's group, and to temporarily block ACD calls from ringing the set. Refer to Section 5, Sets Description – General, and Section 6, Agent Sets for details of the Agent's *SUPERSET 4* telephone. The system routes calls to an agent only after the agent logs in to the ACD system. Once the agent has logged in, the system recognizes the agent as being a member of a specific Agent Group.

In many cases, an agent must be given the flexibility of moving between Agent Groups. If, for example, the ACD Agent Group handling long distance trunks is suddenly overloaded and calls are overflowing to an alternate group, significant financial gain could result by reassigning Agents to the busy groups until the traffic subsides.

As the ACD system uses the ID number to determine the members of an Agent Group, giving the agents more than one ID number allows the agents to be members of more than one group. To move between groups, the agent logs in using the ID appropriate to the group. Only the ID number must be unique; an agent name can appear in any number of Groups.

Supervisor

The Supervisor ACD position is for individuals who 'supervise' the Agent Groups. Each Supervisor is responsible for at least one Agent Group and reports to a Senior Supervisor. Supervisors do not answer ACD calls. The *SUPERSET 4* telephone used by the Supervisor is equipped with special feature keys that allow the Supervisor to view Agent activities individually or as a group. These reports are an effective instrument in performance measurement. Refer to Section 5, Sets Description – General, and Section 7, Supervisor Sets for details of the Supervisor's *SUPERSET 4* telephone.

Senior Supervisor

The Senior Supervisor oversees the Supervisors and is, therefore, the highest level in the hierarchy of ACD positions. In smaller installations, however, where a Supervisor

is not required between the Agent Group and the Senior Supervisor, Agent Groups may report directly to the Senior Supervisor. The Senior Supervisor does not answer ACD calls. The *SUPERSET 4* telephone used by the Senior Supervisor is equipped with special feature keys, similar to the Supervisor set, with emphasis on queue activity. Refer to Section 5, Sets Description – General, and Section 8, Senior Supervisor Sets for details of the Senior Supervisor's *SUPERSET 4* telephone.

ACD Path

3.9 The *ACD TELEMARKETER* feature is built around the "ACD Path" that contains all information for handling an ACD call including:

- when the call will be answered
- who will answer the call
- how the system will handle queued callers

By using Paths to centralize routing parameters, the *ACD TELEMARKETER* feature gives users unmatched flexibility during initial programming and when adding new features. The paths specify the resources to be used, the order in which they are encountered and the timing of the steps through the path. Upon entering the ACD system, a call is allocated a path, and assigned the parameters of that path. These parameters remain with the call for its duration.

The *ACD TELEMARKETER* feature supplies 99 ACD Paths to allow customized routing for a wide variety of incoming calls. Each Path is given a unique access code. A path may also be given a descriptive name and assigned a priority.

Path Access Code

Incoming trunks carrying ACD calls are routed to a Path Access Code. This code points the trunk to the ACD agent groups and recorded announcements appropriate for the type of call.

Path Priority

Each Path is assigned a priority level in the range 1 to 99, with 1 being highest priority. Calls arriving on high priority paths move directly to the front of the call queues for servicing before calls that entered on a lower priority path.

Higher priority paths are also given special treatment when placed in overflow queues. Priority calls entering the queue are placed ahead of non-priority calls in the same queue. The non-priority calls maintain their position in relation to each other, but follow the priority calls.

Path priority can be an effective tool for reducing communications costs. For example, call queue time can be reduced by directing expensive incoming trunks, such as long distance collect or INWATS, to a high priority path.

Path priority can also be used to increase customer satisfaction. A marketing department, for example, could assign a high priority to paths receiving orders from customers, thus ensuring prompt servicing of the call.

Path Access

All devices have unrestricted access to ACD Paths except loop start CO and loop start DISA trunks. The COS Option "Loop start trunk to ACD path connect" (COS Option 812) controls ACD access for loop start trunks. By default this option is disabled, blocking loop start trunks from entering ACD.

Path Rerouting

The ACD Path Access Code can be placed in the call rerouting table to link existing routing schemes (such as DID trunk routing points) to the ACD system. Rerouting to ACD paths is set up as follows:

- For dial-in trunks, the system uses the current routing for incoming calls, as defined in CDE Form 19, to send calls to an ACD path.
- For non-dial-in trunks, one or all of the Day/Night1/Night2 answering points is programmed as an ACD path.

Calls entering the system on different trunk types can be routed to the same ACD path.

The rerouting scheme means a trunk does not have to be dedicated to ACD. The day answering point may be an ACD path but the Night1 and Night2 answering points may be an attendant console or any other valid routing point.

Service Level

The Service Level for a path defines a standard time to answer that becomes the criteria for measuring path performance. Service Level is programmable within the range 0 seconds to 54 minutes.

When an ACD call is answered by any group in a path, software compares the actual time to answer with the programmed Service Level. The system creates a record indicating if the time to answer was:

- less than or equal to the Service Level time, or
- greater than the Service Level time.

This information is stored for statistical analysis and can be viewed from the ACD Path Monitors and Group/Path Summary Reports.

Overflow

Each path is assigned one primary agent group and up to three overflow groups. Timers programmed in CDE for each Agent Group determine how long a call waits on a group before overflowing. Each overflow adds another group. The call, however, remains queued on the previous groups and retains its position in each queue relative to other calls with the same priority.

The system performs a load calculation when each new call arrives at an agent group, or when the status of an agent changes. If the system predicts that a call will not be answered before the timer expires, the system forces an immediate overflow without waiting for the timer to expire.

Interflow

Each path has a programmable Interflow Timeout field that specifies the maximum period that an unanswered call can wait in a path before the system routes the call to an interflow point. The interflow point can be:

- a listed directory number for a station, console, nightbell, ACD path, station/set hunt Automated Attendant group, or UCD agent group,
- a logical line,
- a system Abbreviated Dial number.

To limit the time that a caller remains on the line waiting for an agent, the system can also be programmed to drop interflowed calls.

In addition, the customer can program the system to overflow to the interflow point as soon as the system determines that the call is unlikely to be answered at the last agent group in the path.

Calls interflowed to a system Abbreviated Dial are treated by the system as an external call forward. This means that the interflow requires a receiver. If a receiver is unavailable when the interflow occurs, the call is dropped. The only indication of the dropped call is a receiver unavailable peg in the traffic report. The call appears in the ACD reports as an interflowed call.

If Automatic Route Selection (ARS) is busy when a call interflows to a system Abbreviated Dial, the system attempts a campon to ARS.

Unlike overflowed calls, interflowed calls are removed from ACD. The path from which the caller interflows is set up as the original forwarding destination for the caller. When the interflow point is an internal device, such as a *SUPERSET 4* telephone, the display indicates the call is being forwarded from a path.

Music Between Recordings

Between each recording on an ACD path, the incoming caller, by default, listens to the system music source (if programmed). An alternate music source may be specified between each recording and after the last recording.

Alternate Music Source

The alternate music source is an off hook ONS port that connects to callers in a listen-only conference. The user decides what is supplied on the ONS port – silence, music, or endless loop recordings. If there is no system music and no alternate music source, the caller hears silence between RAD messages.

The device can be a telephone, a recording device, or a transfer device (8/600 ohms) that simulates an off hook and allows connection of an audio source such as a radio.

The system connects callers only if the device is off hook. There are no restrictions on how paths share alternate music sources.

Note: Depending upon country of installation, the alternate music source must be either an FCC Part 68 or DOC approved voice coupler, or voice connecting arrangement to an ONS circuit.

Recorded Announcements

- 3.10 The *ACD TELEMARKETER* feature uses recorded announcements to tell callers about the progress of their call while waiting in the queue for the first available agent. Recorded announcement devices (RADs) and recording groups are described below.

RADs

A recorded announcement device (RAD) is a digital or endless-loop tape unit that can store one or more prerecorded messages. The required RADs are designed for connection to ONS circuits, and appear as a standard telephone to the PABX. The RAD's message is played when the unit is triggered by ringing current. In the *ACD TELEMARKETER* feature, the recorded messages are given while callers are waiting in the queue for a free agent.

The *SX-200* DIGITAL system supports both intelligent and dumb RADs. An intelligent device hangs up when the message is finished. A dumb device provides a fixed-length recording (such as a tape) and the system must hang up on the device to prevent callers from listening to a long period of silence at the end of the message.

Recording Groups

The recorded announcement feature is implemented using one or more RADs programmed into a specialized hunt group called a recording group. Each RAD in the group contains the same announcement.

Recording groups are formed using hunt groups of regular ONS ports and are defined during CDE in Form 17, Hunt Groups. Refer to the Programming section of this Practice for details.

Recording Group Operation

When a call rings a recording group, the first available idle RAD answers the call and connects its recording. If all RADs in a recording group are busy, the caller camps onto the group to wait for a free recording. When a recording becomes available, the system connects all waiting callers to a listen-only conference with the recording. (The listen-only conference does not use any PABX conference resources.) When the recording finishes, the callers are removed from the conference and are connected to music or silence as defined in the ACD Path programming form (Form 41).

Notes: 1. The system does not use a special CODEC gain setting for listening to a recording. The gain is the same as for ringback, or set to no gain.

2. A RAD is always rung with the standard ringing cadence.
3. Callers are never connected after the RAD starts its message.

RAD Failure

The ACD system handles four types of RAD failures:

- failure to answer
- failure to hang-up
- false origination
- card failure

In any situation where the RAD goes into lockout, the normal lockout alarm feature applies. The four types of RAD failures are described below:

Failure to Answer: The system considers the RAD to have failed if it does not answer within the fixed interval of 30 seconds. The system clears ringing, puts the RAD into Do Not Disturb (DND), turns on the console alarm icon, and creates a maintenance log entry as shown in the following example:

```
1989-FEB-15 12:47:04 Recording dev test failed at 01 01 01 00
Failure to answer Alarm code = 123
```

Failure to Hang Up: The system detects failure to hang up when the system ends the recording. The hangup time is set by COS option 404 – Recording Failure to Hangup Timer, which has a range of 1 through 255 seconds. The timer starts after the PABX hangs-up on the RAD. The RAD must clear down within the programmed interval. Otherwise, the PABX puts the RAD into DND, turns on the console alarm icon, and creates an entry in the maintenance log as shown in the following example:

```
1989-FEB-15 12:47:04 Recording dev test failed at 01 01 01 00
Fail to hang-up. Alarm code = 123
```

False Origination: If a RAD generates a false origination, the system puts the RAD into a suspended state. After the suspended timer expires, the RAD is placed into a lockout state. If the RAD goes on hook while in either suspended state or lockout state, the RAD is returned to idle and is immediately available to the system.

Card Failure: If the system detects a card failure, such as the card being unplugged or the Bay going down, the RAD is placed into a busy-out state. Any callers listening to the RAD are handled as though the RAD had gone on hook. The RAD is not placed in DND unless it was ringing at the time (which is treated as a ring-no-answer). When returned to service, the RAD is in idle state.

Removing DND from RAD

The system places a RAD into DND whenever the RAD fails to answer or fails to hang up. DND can be removed from a RAD by accessing the Attendant Console Stations feature, dialing the RAD, and pressing the DND softkey. DND can also be cleared from the Maintenance Terminal by using the Clear Features key.

Removing DND from a RAD generates the following maintenance log entry:

1989-FEB-15 12:47:04 Ons Card passed at 01 01 01 00 ext 1101
Recording device test Alarm code 123

4.

CONFIGURING AN ACD SYSTEM

- 4.1 The communications manager planning the installation of an *ACD TELEMARKETER* system may find that the information in this section of the practice can help in determining the final system configuration. Since thorough planning can ensure maximum performance from the ACD system, the following guidelines have been developed to help define the customer requirements.

Incoming Calls

- 4.2 As the most critical element of an ACD system is the timely handling of incoming calls, the communications manager must first consider the level of traffic that the system will be receiving and determine the types of calls and any trunking details that could influence the importance of the call. For example, long distance charges can be kept to a minimum by assigning these calls to high priority paths. The following questions serve as examples of those areas to be addressed when categorizing the ACD callers:

- Are service departments involved?
- What traffic is anticipated for each department?
- What priority is given to service calls?
- Do any service departments require a customer complaint area?
- Is there local service only or service to out-of-town clients?
- Will there be revenue generating calls? Unless the company holds a monopoly on service, these callers should be highlighted for priority paths. Are there general information calls?
- Will agents receive long distance calls....collect?
- Does the company offer INWATS, foreign exchange, or any specialized trunking?

Grouping the Agents

- 4.3 Using the caller information collected above, begin grouping the agents. Use the following questions and comments as a guide:
- Are any agents capable of handling various types of calls? For example, will any agents be common to more than one service department?
 - Which type of calls will this group specialize in? List the types of calls this group could handle as an overflow point.
 - Which groups will require a wrap up time?

Recorded Announcement Planning

4.4 Used properly, recorded announcements are a valuable tool in the *ACD TELEMARKETER* system. The following suggestions can help you gain the most from the recordings:

- Supply a company introduction to the caller. "Thank you for calling", followed by reassurance that the first available agent will answer the call.
- Consider the advertising potential while the caller is waiting for service. Use the recorded announcements to promote new products, specials, or services.
- Refer to the list of callers as a guide when defining the RADs. As out of town callers would be frustrated by local promotions, tailor your recorded message to the caller's needs.
- Is there any information the agent will require from the caller? Recordings can be used to eliminate time wasted with an agent if callers have prior notice of any information they should have ready, such as account numbers, credit cards, or postal codes.

In addition, the Automated Attendant feature can be used to pre-screen ACD calls into the system. Refer to Practice 9109-096-625-NA, Automated Attendant Application Package.

Planner Sheets

4.5 The Agent Group Planner and the Path Planner sheets illustrated on the following pages can aid the ACD system designer in laying out the agent groups and the routing for incoming ACD calls. The Planner sheets identify all major elements that must be addressed while setting up the system.

The Agent Group Planner is completed first, and identifies the various agent groups that are required for the system. After setting up the agent groups, one Path Planner is completed for each path to show the ACD call handling including the primary agent group, recorded announcements, overflow groups and interflow conditions.

Agent Group Planner

4.6 The Agent Group Planner shown in Figure 4-1 serves as an aid in planning the distribution of work load between agent groups. After doing the initial sizing to determine the number of agent groups required to handle the calls, use this planner to assign the parameters to each group. This information will be used later during the CDE programming of the system.

The Agent Planner form contains space for eight agent groups. The fields shown in the box for each group are described below.

AGENT GROUP PLANNER

ACD TELEMARKETER®

INSTRUCTIONS

Use this planner as an aid in distributing the work-load of the agent groups. Complete this form before the Path Planner. Once completed, transfer the Agent Group Number to the appropriate group (Primary, 1st, 2nd, or 3rd) on Line 3 of the Path Planner.

1. Overflow timer default is 9 minutes (maximum 54 minutes). This is the maximum time a call can be queued on the group before overflowing. Prediction may allow the overflow before the timer expires. 1st threshold default is 3 minutes (maximum 54 minutes), 2nd threshold default is 6 minutes (maximum 54 minutes). These are indications for the agents (queue status) of how long the calls have been waiting to be answered. Afterwork timer default is 0 minutes (maximum 15 minutes). This is the amount of time an agent has after completing a call before receiving the next call.
2. Use this box to indicate how many paths the Agent Group is involved in. (P=primary, 1=1st. overflow group, 2=2nd overflow group, 3=3rd overflow group). Transfer the Agent Group Number to the Path Planner (one for each Path indicated in the box).

①	Agent Group #: _____ Name: _____ <hr/> Overflow Time ____ : ____ 1st Threshold ____ : ____ 2nd Threshold ____ : ____ After Work ____ : ____	Agent Group #: _____ Name: _____ <hr/> Overflow Time ____ : ____ 1st Threshold ____ : ____ 2nd Threshold ____ : ____ After Work ____ : ____	Agent Group #: _____ Name: _____ <hr/> Overflow Time ____ : ____ 1st Threshold ____ : ____ 2nd Threshold ____ : ____ After Work ____ : ____	Agent Group #: _____ Name: _____ <hr/> Overflow Time ____ : ____ 1st Threshold ____ : ____ 2nd Threshold ____ : ____ After Work ____ : ____																																
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Figure 4-1 Agent Group Planner

Agent Group #

The top field in each box, labeled Agent Group #, specifies the number of the agent group. This information will be used later when assigning primary and overflow agent groups to the ACD paths.

Name

The Name field specifies the name of the agent group. During CDE, transfer this information from the Agent Group Planner sheet to the Name field on the ACD Agent Groups form (Form 39).

Overflow Time

The Overflow Time specifies the maximum length of time a waiting ACD call remains at this group before overflowing. The timer range is 0 seconds to 54 minutes. The use of this field is optional.

The system performs a load calculation when each new call arrives at an agent group, or when the status of an agent changes. If the system predicts that a call will not be answered before the timer expires, the system forces an immediate overflow.

During CDE, transfer this information from the Agent Group Planner sheet to the Overflow Timer field on the ACD Agent Groups Subform (Subform 39).

1st Threshold

The 1st Threshold field specifies the time period in which calls can be waiting in the queue for a free agent. If calls remain unanswered when the timer expires, the LCD symbol indicating Calls Waiting Beyond 1st Threshold starts blinking on the agent's and supervisor's *SUPERSET 4* telephones. During CDE, transfer this information from the Agent Group Planner sheet to the First Status Threshold field on the ACD Agent Groups Subform (Subform 39).

2nd Threshold

The 2nd Threshold field specifies the time period during which calls can be waiting in the queue for a free agent. If calls remain unanswered when the timer expires, the LCD symbol indicating Calls Waiting Beyond 2nd Threshold starts blinking on the agent's and supervisor's *SUPERSET 4* telephones. During CDE, transfer this information from the Agent Group Planner sheet to the Second Status Threshold field on the ACD Agent Groups Subform (Subform 39).

After Work

- 4.7 The After Work field specifies the time allocated to an agent for completing paperwork following an ACD call. During this time, the agent will not receive ACD calls. The timer range is 0 seconds to 15 minutes. This time is included as part of each call in reports and statistics.

During CDE, transfer this information from the Path Planner sheet to the Afterwork Timer field on the ACD Agent Groups Subform (Subform 39).

Paths Using This Group

This box allows the system planner to note the paths using this group. Use this as a reference when transferring Agent Group information to the Path Planner sheets.

Path Planner

- 4.8 The Path Planner sheet illustrated in Figure 4–2 is used in conjunction with the Agent Group Planner when laying out the routing for incoming ACD calls. The Planner identifies all major elements that must be addressed while setting up the system.

Once the Path Planner has been completed to the ACD system designer's satisfaction, the information is transferred to the CDE forms for system programming.

The CDE forms pertaining to the *ACD TELEMARKETER* feature are described in Section 11 of this practice. For a description of all system CDE forms, refer to Customer Data Entry, Practice 9109–096–210–NA. Appendix B of this practice contains additional blank copies of the Path Planner. Figure 4–2 shows a blank Path Planner sheet. The following subsections describe the fields on this sheet. Examples later in this section illustrate the use of a Path Planner and trace calls through completed Path Planners. Unless mentioned otherwise, all fields on the Path Planner have corresponding fields on one of the CDE forms used in programming the system.

Purpose of This Path

The Purpose of this Path field allows the designer to summarize in a few words the intention of this path. The information in this field is for information only and is not programmed on any form during CDE.

Name

The Name field contains a descriptive name identifying the function of the path. This name appears in the ACD Path monitor displays and on the Agent's *SUPERSET 4* telephone when the set is presented with a call. This allows agents handling calls for more than one path to answer the caller with an appropriate greeting.

During CDE, transfer this information from the Path Planner sheet to the ACD Path field on the ACD Path form (Form 41).

Path Access Code

The Path Access Code field identifies the path to the rest of the system. The Path Access Code can be used as a destination in the Non–Dial–In Trunks form and in the Call Rerouting Table. The access code can also be entered in another path planner as an overflow or interflow point, and can be programmed as a forwarding destination for a *SUPERSET 4* station.

During CDE, transfer the information in this field of the Path Planner sheet to the "Access Code for This ACD Path" field on the ACD Path form (Form 41).

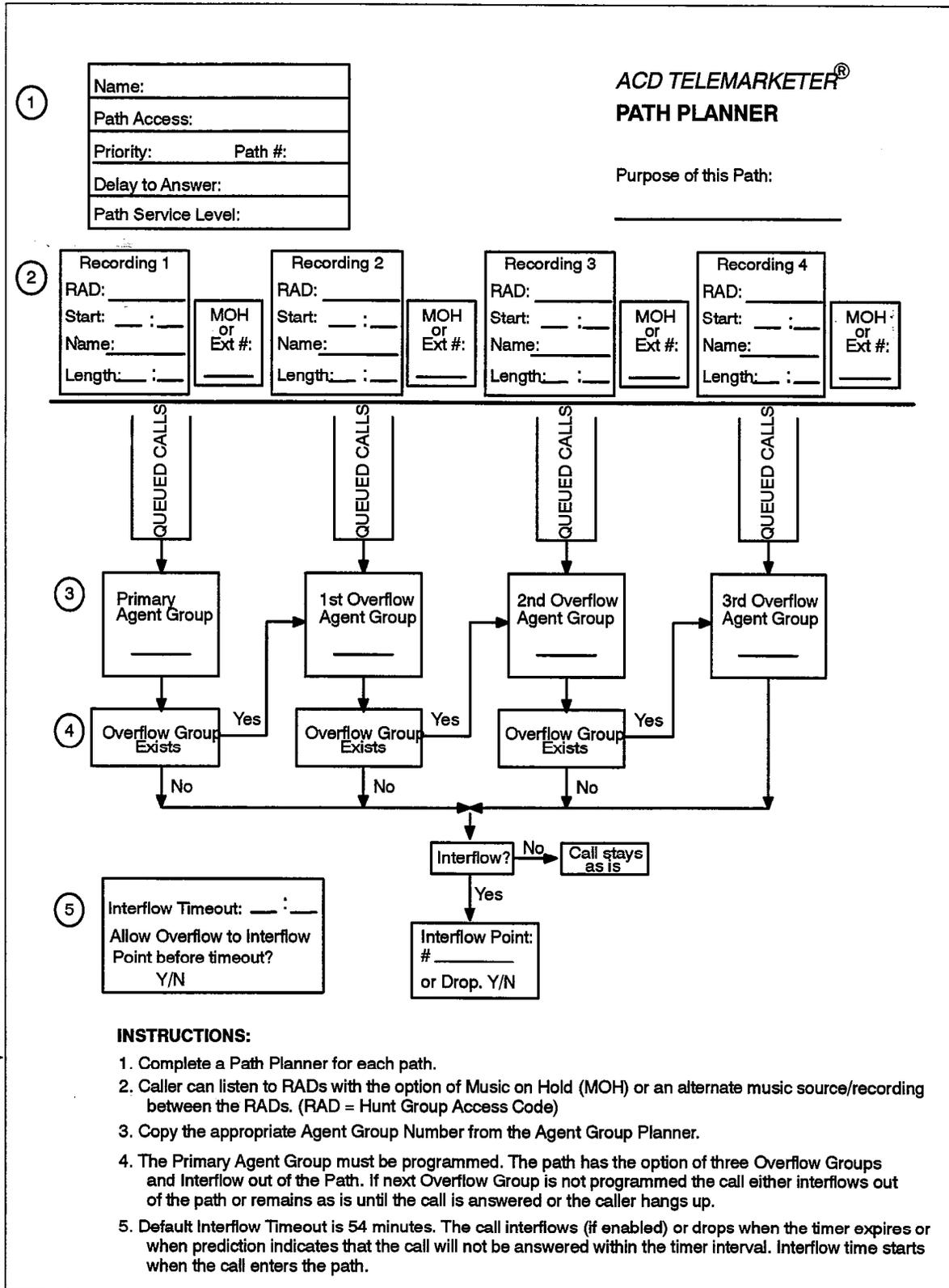


Figure 4-2 Path Planner

Priority

The Priority field sets the relative priority for all calls arriving on this path. The priority remains with the call for its duration, regardless of the overflow handling programmed for the path. Priorities range from 1 through 99, with 1 being highest.

During CDE, transfer this information from the Path Planner sheet to the Priority field on the ACD Path form (Form 41).

Path Number

The Path Number field identifies the path number in the range 1 through 99. This number is used to sort the paths on the Path Summary display.

During CDE, transfer this information from the Path Planner sheet to the ACD Path field on the ACD Path form (Form 41).

Delay to Answer

The Delay to Answer field contains the value of the Delay for Ringback timer. This value should be set high enough to ensure the caller hears ringback from the CO or PABX before the agent answers. In some situations, caller confusion may arise if the agent answers the call before the caller hears ringback. This field can be set to any value from 1 second through 54 minutes. The system default is 3 seconds.

During CDE, transfer this information from the Path Planner sheet to the Delay For Ringback field on the ACD Path form (Form 41).

Recording 1

The Recording 1 box contains the following three fields to capture the parameters for the first recording group:

RAD: The RAD field contains the access code of the RAD group containing Recording 1. During CDE, transfer this information from the Path Planner sheet to the "Recording 1: Access Code" field on the ACD Path form (Form 41).

Start: The Start field specifies the time between the end of the Delay for Ringback timer and the start of the first recording. During CDE, transfer this information from the Path Planner sheet to the "Recording 1: Start Time" field on the ACD Path form (Form 41).

Name: The Name field specifies the name of the RAD Group for Recording 1. During CDE, transfer this information from the Path Planner sheet to the Name field on the Hunt Group form.

MOH or Ext #

The MOH or Ext # field allows the designer to specify what callers hear after Recording 1 is finished. The designer can give callers music on hold (MOH) from the system music source, or an alternate music source from an ONS port. Circle MOH to indicate music from the system music source, or enter the ONS port directory number supplying the alternate music. If no music is connected, the caller hears silence.

During CDE, if an alternate music source has been selected, transfer this information from the Path Planner sheet to the "Recording 1: Music Source Following" field on the ACD Path form (Form 41). If MOH has been selected, no CDE action is required as the system connects to the default music source.

Recording 2 through 4

Use the boxes labeled Recording 2 through 4 to specify the parameters for the additional recordings supplied to the caller while waiting for an agent. The MOH or Alternate fields can also be used to specify different music sources following each recording.

During CDE, transfer the information from these fields as described under Recording 1.

Queued Calls

The Queued Calls above each agent group block represent the calls queued against the agent group. No information is required in this block and there are no corresponding entries on CDE forms.

Primary Agent Group

Transfer the number from the Agent Group Planner of the Agent Group designated as Primary for this path.

Overflow Group Exists

For the box labeled Overflow Group Exists, circle Yes if the first overflow group is to be assigned to this path, or No if no overflow group is assigned. If Yes was selected, repeat the planning steps above for each of the overflow groups.

Interflow

Beside the box labeled Interflow, circle Yes if an interflow point is to be assigned to this path. Circle No if no interflow is to be assigned.

Interflow Point

The Interflow Point # field specifies the access code for the interflow device. This can be a listed directory number for a station, console, nightbell, ACD path, station/set hunt group, UCD agent group, or system speedcall number.

If "Select Drop" is left blank, the system drops the call rather than allow the call to interflow. If interflow is allowed for this path, enter the directory number of the interflow point.

During CDE, transfer this information from the Path Planner sheet to the Interflow Point Access Code field on the ACD Path form.

Interflow Timeout

The Interflow Timeout field specifies the waiting time for an ACD call before the system routes the call to an interflow point outside the ACD system. The timer range is 1 second to 54 minutes.

During CDE, transfer this information from the Path Planner sheet to the Interflow Timeout field on the ACD Path form (Form 41).

Allow Overflow to Interflow

The Allow Overflow to Interflow Point Before Timeout field specifies whether the system can force calls to the interflow point as soon as the system determines that the call is unlikely to be answered, without waiting for the Interflow Timeout timer to expire.

During CDE, transfer this information from the Path Planner sheet to the Allow Overflow to Interflow Point Before Timeout field on the ACD Path form (Form 41).

5.

ACD SET DESCRIPTION – GENERAL

- 5.1 This section of the practice describes the *ACD TELEMARKETER* features on *SUPERSET 4* telephones used by all ACD positions and includes descriptions of position login, headset operation, and line select keys.

Refer to the following sections for specific information about the sets used by each ACD position:

- Section 6: ACD Agent Sets
- Section 7: ACD Supervisor Sets
- Section 8: ACD Senior Supervisor Sets

***SUPERSET 4* Telephones**

- 5.2 All *ACD TELEMARKETER* positions use *SUPERSET 4* telephones. The three ACD positions of Agent, Supervisor, and Senior Supervisor perform specific duties during ACD operation and, to assist them, each set is assigned special feature keys during Customer Data Entry (CDE).

- Figure 5–1 shows the *SUPERSET 4* telephone. The function of any or all of the following *SUPERSET 4* keys and displays may change after an ACD position logs in to the system:
- Line select/speed call buttons
- Line status displays
- Softkeys and softkey prompts

Automatic Number Identification (ANI) and Dialed Number Identification Service (DNIS) are services provided by the public network to a PBX. Access to this functionality is available with Generic 1005 through COS options programmed during Customer Data Entry (CDE). ANI identifies the telephone number of the calling party and DNIS identifies the telephone number dialed by the calling party.

During an incoming call, the ACD agent's *SUPERSET 4* display set will currently show trunk information such as an ACD path name, if programmed, or an ACD path access code, if no path name has been programmed.

If ANI and/or DNIS has been provided by the public network, the applicable COS option(s) have been enabled for that set, and the ACD path is unnamed, the incoming ANI and/or DNIS digits will be displayed to the ACD agent at their set during the "ringing" state.

Some ACD positions also provide reports in the main display.

For details on these feature keys and displays, turn to the section of this practice that covers the specific ACD position.

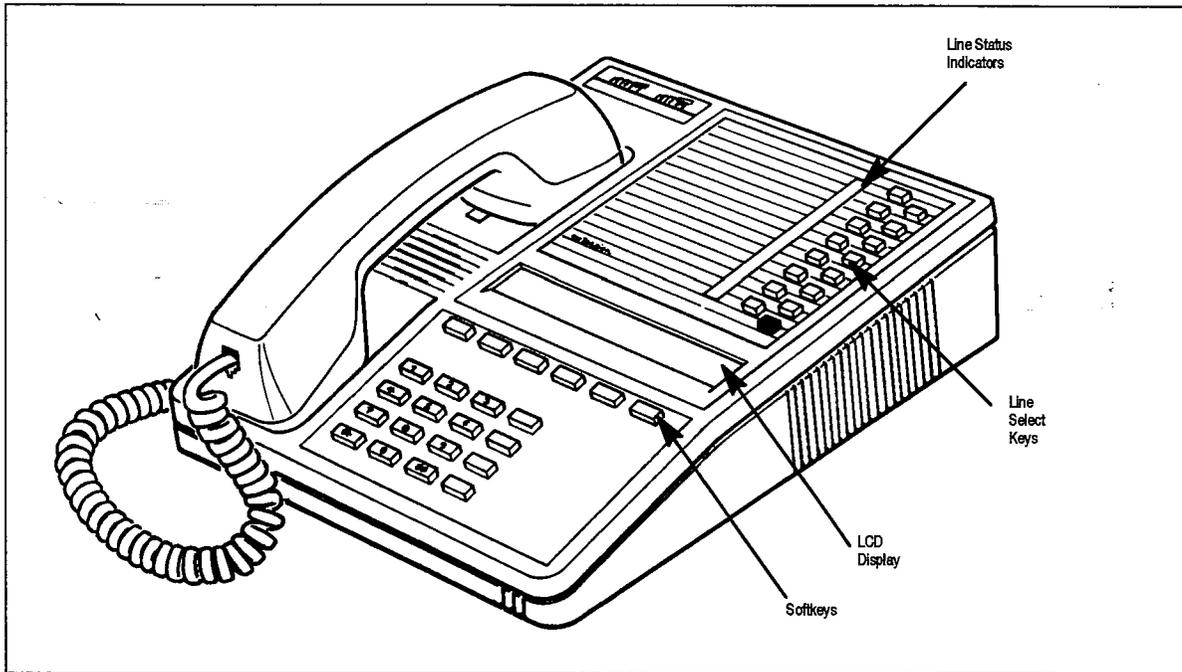


Figure 5-1 *SUPERSET 4* Telephone

Position Login/Logout

5.3 The ACD Agents and Supervisors are completely mobile with the Mitel *ACD TELEMARKETER* package. All ACD positions are linked to software, not hardware, so the system recognizes a login from any *SUPERSET 4* telephone within the PABX, and immediately transforms the set to the users' preprogrammed specifications. The following topics discuss the login conditions, the changes that occur to the set on login, and the logout procedure:

Conditions

The following conditions must be met before an ACD position can login:

- The position must not be logged in already.
- The position must be logging in to a *SUPERSET 4* telephone.
- The position must have an ACD template enabled in its Class of Service (COS).
- The *SUPERSET 4* telephone must have no appearances of its prime line anywhere in the system.
- The *SUPERSET 4* telephone cannot have a *SUPERSET™ DSS* module associated with it.

Login

To login, the position dials an access code followed by the ID number assigned through CDE. The system interprets the login ID to determine the level of the position (Senior Supervisor, Supervisor, or Agent), the COS assigned to the individual, the login name, and the group. When a position logs in, the following changes take place at the set:

- The set's name is replaced by the name assigned to the position in CDE.
- The set's COS is replaced by the position's COS.
- The speedcall and feature keys on the set are replaced by the speedcall and feature keys of the position template.
- The set has two access codes attached to it: the set access code and the position ID code.

The following are unaffected by the position login:

- forwarding,
- DND,
- messages (left or received by the set),
- redial,
- reminders, and
- callbacks.

Once a position has logged in, the name and speedcall keys cannot be programmed at the set.

Logout

To logout, the agent dials the login/logout access code. To login to another group, the agent dials the access code again followed by the ID number for the second group. Except for agents on an ACD call, a position may logout at any time, even with a non-ACD call on soft hold. If an agent on an ACD call, or with an ACD call on soft hold, attempts to logout, the agent receives reorder tone.

Headset Operation

- 5.4 All *SUPERSET 4* telephones are headset compatible. COS Option number 612 must be enabled in the user's COS prior to operation. The telephone handset should remain offhook when headsets are in use.

Line Select Keys

- 5.5 Figure 5-1 shows the line select keys that may be programmed to provide the required features. When assigning ACD features to line select keys on *SUPERSET 4* telephones, assign each feature to the same key on all sets. All Agent sets, for example, can be programmed with the Make Busy key on key 15. This ensures that feature key and set line key locations do not conflict. When a position logs in, any line keys programmed for the set override conflicting speedcall and feature keys in the position's template. For each key, the LCD status shows the line status. Pressing the key button always operates the line key.

6.

ACD AGENT SETS

6.1 This section of the practice describes the *ACD TELEMARKETER* features on *SUPERSET 4* telephones used by ACD agents and includes descriptions of:

- special feature keys
- set displays
- reports
- set operation

The information in this section is aimed at those planning an ACD installation, setting up an ACD system, and operating the sets in an existing system.

The ACD path is the major element of the ACD structure. Each path contains all the information necessary to carry an incoming call through the ACD system. The following example shows the *SUPERSET 4* telephone display of an incoming ACD call to an agent showing the path name:

SALES CALLING				
EXIT	NAME		HELP	➔

Functions

6.2 Each logged in agent uses a *SUPERSET 4* telephone that is normally programmed with one line select key assigned as a MAKE BUSY key, and a second as a QUEUE STATUS key. The agent set is also equipped with a HELP softkey. The following subsections describe the functions of these keys and their operation.

Login/Logout

6.3 The system routes calls to an agent only after the agent logs in to the ACD system. Once the agent has logged in, the system recognizes the agent as being a member of a specific Agent Group. Refer to topics Login and Logout in Section 5 for details and conditions.

Login

To login, the agent dials an access code followed by the ID number assigned through the Agent Group Form in CDE. ACD LOGIN appears briefly in the display and the agent hears dial tone; press HANGUP softkey.

Logout

To logout, the agent dials the access code again. ACD LOGOUT appears briefly in the display and the agent hears dial tone; press HANGUP softkey.

Make Busy Key

Purpose

- 6.4 Every Agent set should be preprogrammed with one line select key allocated as a MAKE BUSY feature key. Turning on the Make Busy feature prevents ACD calls from ringing the set. Normal operation of the set is not affected and calls in progress are not disrupted when Make Busy is activated. An Agent handling an ACD call can turn on Make Busy and end the call. The set remains in the Make Busy state until canceled by the Agent.

LCD Indicator

The LCD indicator beside the Make Busy key remains lit when the set is in the Make Busy state. Figure 6-1 shows examples of all the LCD indicators associated with the ACD feature.

Operation

To turn on Make Busy, press the Make Busy key. To cancel Make Busy, press the Make Busy key again. The LCD beside the Make Busy key remains lit while the set is in a Make Busy state. When calls ringing the set are not answered within the period specified by the Call Forward No Answer Timer in the agent's COS, the system places the set in Make Busy, and lights the LCD beside the Make Busy key to advise the Agent of the Make Busy state. The agent must press the Make Busy key to cancel the Make Busy state.

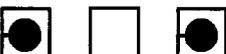
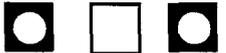
Key	Status	LCD Symbol
Prime Line	Idle	
	Busy	
Queue Status	No Calls in Queue	
	Calls Waiting Before First Threshold Period	
	Calls Waiting Between First and Second Threshold Periods	
	Calls Waiting Longer Than Second Threshold Period	
Queue Status	Calls Have Overflowed	 Alternating
Agent Status	Agent Logged Out	
	Agent Logged In – No Calls Waiting	
	Agent Set In Make Busy Status	 Flashing
	Agent on ACD Call	
	Agent on Non-ACD Call	
	ACD Call on Hold	 Flashing
	After-Call Work Timer	 Flashing
Shift Key	Shift Not Activated	
	Shift Activated	
Make Busy	In Make Busy	
	Not in Make Busy	

Figure 6-1 LCD Status Indicators on SUPERSET 4 Telephone

Queue Status Key

Purpose

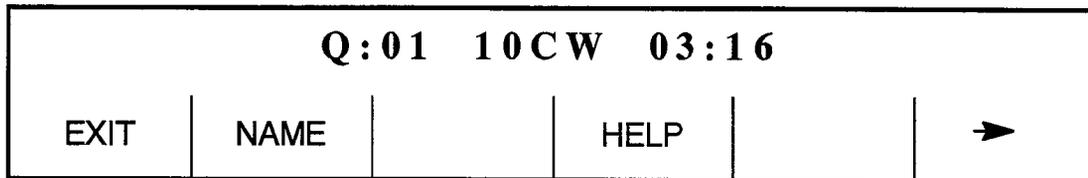
- 6.5 The QUEUE STATUS key, and the LCD beside the key, serve two functions in showing the agent the current status of the call waiting queue and the load condition of the queue.

The LCD beside the QUEUE STATUS key continuously shows the load condition of the agent queue. The LCD is off if there are no calls waiting for an idle agent. When ACD calls are waiting to be answered, the LCD lights to indicate the queue status based on predefined threshold levels defined for the agent's group.

LCD Indicator

The LCD is updated periodically to indicate when a call remains waiting in the queue beyond an assigned threshold time. Two status threshold times are programmed in CDE for each Agent Group. As the timers expire, the LCD is updated to inform the agent of the workload. Figure 6-1 shows each of the LCD symbols.

To display queue information, press the QUEUE STATUS key. The main display on the set shows the queue number, the number of ACD calls waiting in the queue, and the longest call waiting time. The example below shows group number 1, with 10 calls in the queue waiting to be answered. The oldest call has been waiting for 3 minutes and 16 seconds.



EXIT softkey: Pressing the EXIT softkey terminates the QUEUE STATUS display.

Name softkey: The NAME softkey appears if the group was assigned a name during CDE. Pressing the NAME softkey displays the group name.

HELP Softkey

- 6.6 During an ACD call all Agent sets display the HELP prompt. Help allows the Agent, while involved in an ACD call, to request that a supervisor monitor the call. The Agent may also tape the call by pressing the HELP softkey and dialing the directory number of a recording device. This recording device must be a member of the same hunt group.

Monitoring

While monitoring, the supervisor cannot be heard by either the ACD caller or by the Agent. If the Silent Monitor Beeps option is enabled, a message is displayed on the Agent's set and the Agent hears a short beep when the supervisor has answered the help request. If Silent Monitor Beeps is disabled, the agent does not hear the beeps and no message appears on the agent's set. In either case, the monitoring is transparent to external ACD callers.

Operation

To request help while involved in an ACD call, the Agent presses the HELP softkey. The display changes to CALL SUPERVISOR. If the Agent is reporting directly to a Senior Supervisor, the display shows CALL SENIOR S. Softkey prompts are provided for confirmation.

The Agent responds by pressing one of the softkeys: YES, NO, or EXIT.

- Press the YES softkey to complete the help request call to the Supervisor,
- Press the NO softkey to select another Help destination, or
- Press the EXIT softkey to terminate the request for help.

When the Agent presses the NO softkey, the set display prompts ENTER NUMBER. The Agent must dial a valid destination number or press a programmed speedcall key. The only valid destinations are IDs for supervisors or senior supervisors, and access codes for recording hunt groups. Entering any other number results in a set display of INVALID. Once a valid number has been entered the set displays the CALL prompt, and the agent presses the CALL softkey to complete the call.

When an unprogrammed speed call key is used to place a help call, the set responds with INVALID.

When the destination begins ringing, the Agent set displays HELP REQUESTED. When the help request is answered, the agent set display changes to 'XXXXX MONITORING', where 'XXXXX' is the helper's extension number.

The person or recording device responding to the help call is automatically placed in a "listen only" state. A supervisor or senior supervisor may break into the conversation by pressing the CONF (conference) softkey.

If the destination is unavailable, the Agent set displays DESTINATION BUSY. The ENTER NUMBER prompt is shown again to enable the Agent to redirect the request.

Auto Answer

6.7 The agent's set can be programmed with a COS option to auto-answer when a call arrives at the set. This can be forced to be turned on when the agent logs in. The auto-answer process is described below:

1. Call arrives at free agent.
2. The agent's *SUPERSET 4* station gives a burst of ringing.
3. The agent's *SUPERSET 4* telephone answers the call and the two parties are connected.
4. At the completion of the call, the external party hangs up.
5. Agent's *SUPERSET 4* gives a hang up tone (Miscellaneous Tone). (See Note below.)
6. The After Work Timer starts .
7. When After Work Timer expires, a new call is waiting.
8. Agent's *SUPERSET 4* telephone gives a burst of ringing.
9. Agent's *SUPERSET 4* telephone answers the new call and the two parties are connected.

This sequence repeats for all new calls.

Note: Agents occasionally mistake the hang-up tone, which indicates the end of a call, for a burst of ringing indicating a new call. This can lead to confusion as the agent is actually on the After Work Timer rather than answering a new call.

7.

ACD SUPERVISOR SET

7.1 This section of the practice describes the *ACD TELEMARKETER* features on *SUPERSET 4* telephones used by ACD Supervisors and includes descriptions of:

- special feature keys
- set displays
- reports
- set operation

The information in this section is aimed at those planning an ACD installation, setting up an ACD system, and operating the sets in an existing system. Refer to Section 5, *ACD Set Description – General*, for descriptions of *ACD TELEMARKETER* features common to all positions.

Functions

7.2 Once logged in to the ACD system, the supervisor set may establish a call monitor on an agent, respond to a help request from an agent, and display status reports for both agent queues and individual agents. The following subsections describe login/logout sequences, as well as supervisor set functions and operation.

Login/Logout

7.3 The system recognizes a supervisor only after the supervisor logs in to the ACD system. Once logged in, the set takes on the properties assigned to the supervisor through CDE. Refer to Login/Logout in Section 5 for details and conditions.

Login

To login, the supervisor dials an access code followed by the ID number assigned through the ACD Supervisor Form in CDE. ACD LOGIN appears briefly in the display and the supervisor hears dial tone. Press HANGUP or dial.

Logout

To log out, dial the access code again. ACD LOGOUT appears briefly in the display and the supervisor hears dial tone. Press HANGUP or dial.

Call Monitoring

7.4 The Call Monitoring feature allows the Supervisor to listen-in on an agent's conversation. During a call monitor, the system gives the supervisory set a one-way audio path, thus preventing the agent and the caller from hearing the Supervisor.

Restrictions

The monitoring can be performed on any line and on any agent conversation that can be overridden. Monitoring is not permitted, for example, on 5-party calls, held calls and conferences. Keyline privacy is ignored for the Call Monitor.

Enable Monitoring

To enable monitoring:

- assign an ACD Silent Monitoring access code in the Feature Access Code CDE form
- enable System Option 42, ACD Silent Monitoring

If agents are to be notified when a monitor is in progress, enable System Option 43, ACD Silent Monitoring Beeps. When the monitoring starts, the agent hears beeps and the set displays the extension number of the monitoring set followed by "MONITORING".

Operation

The Supervisor initiates a call monitor by dialing the ACD Monitor access code, followed by the agent's ID code.

- If the agent set is idle, the supervisor's set indicates this.
- If the agent is in a call, and call monitor begins, the supervisor's set displays the extension number of the agent's set.
- An agent may be monitored by only one supervisor at a time. A supervisor attempting to monitor an agent who is already being monitored receives busy tone and the the normal busy display.
- An illegal user attempting to set up a monitor results in a set displaying that access is denied.
- An attempt to monitor an agent who is not logged in results in a set displaying that the number is invalid.
- Attempting to monitor an agent who has Do Not Disturb activated and is idle results in the supervisor's set displaying that the set has Do Not Disturb activated.

At any time while monitoring, the supervisor may enter the conversation by pressing the CONF softkey. The monitoring session is ended by pressing the HANG UP softkey. If the agent interrupts the conversation by placing the caller on hold, or terminating or transferring the call, or if the agent uses the SPLIT key, the supervisor's set displays "DISCONNECTED" and the system gives re-order tone.

Help Call Feature

- 7.5 The Help Call feature is similar to the Call Monitor, except that it is initiated by the agent. Supervisors receiving a Help request get an audible and visual indication on their *SUPERSET 4* telephone.

Operation: When an agent initiates a Help request, the Supervisor's set rings and the display changes to 'HELP' followed by the agent's name and ID number. When the Supervisor lifts the handset, a monitor begins. To form a conference with the Agent and ACD caller, the Supervisor must press CONF.

If a Help request is sent to a busy supervisor set, the set rings and displays 'HELP' with the agent's name and ID. The supervisor, however, can only handle the request after terminating the current call.

If Auto answer is enabled at a Supervisor telephone, it will be ignored. The telephone will ring until the handset is lifted.

Supervisor Set Keys

- 7.6 The requirements for the keys on a Supervisor's set are determined by the number of Agent Groups being supervised, and the number of Agents in each group. The feature keys for the Supervisor position are QUEUE STATUS, AGENT STATUS, and SHIFT.

The function of the feature keys depends on the number of Agent Groups reporting to the Supervisor. The following descriptions are divided into two scenarios: Supervisors with only one Agent Group, and Supervisors with more than one group.

Supervisor Set With One Agent Group

- 7.7 If the Supervisor is responsible for only one agent group, the set requires one QUEUE STATUS key. The remaining keys on the *SUPERSET 4* telephone can be assigned as AGENT STATUS keys, one for each agent in the group.

If a Supervisor has more agents than available keys, the system provides a SHIFT key. This may also be the case should a Supervisor prefer to use the keys for speedcall. The SHIFT key, described below, works in conjunction with the AGENT STATUS key.

Queue Status Key

The QUEUE STATUS key, and the LCD beside the key, serve two functions in showing the supervisor the current status of the call waiting queue, and the load condition of the queue.

LCD Indicator: The LCD beside the QUEUE STATUS key continuously shows the load condition of the agent group reporting to the supervisor. The LCD is off if there are no calls waiting for an idle agent. When ACD calls are waiting to be answered, the LCD lights to indicate the queue status based on predefined threshold levels defined for the group.

The LCD is updated periodically to show when a call remains waiting in the queue beyond an assigned threshold time. Two status threshold times are programmed in CDE for each Agent Group. As the timers expire, the LCD is updated to inform the agent of the workload. Figure 7-1 shows each of the LCD symbols for Queue Status.

Key	Status	LCD Symbol
Queue Status	No Calls in Queue	
	Calls Waiting Before First Threshold	
	Calls Waiting Between First and Second Thresholds	
	Calls Waiting Beyond Second Threshold	
	Calls Have Overflowed to Next Group	   Alternating

Figure 7-1 LCD Queue Status Indicators on SUPERSET 4 Telephone

Operation: The QUEUE STATUS key displays the current status of the Agent Group reporting to the Supervisor.

Press the key to display a summary of queue activity.

The set displays the queue number, the number of ACD calls in the queue waiting to be answered, and the length of time the oldest call has been waiting.

The following example shows Queue number 1, with 10 calls in the queue waiting to be answered, and the longest waiting call has been in the queue for 3 minutes and 16 seconds:

Q:01 10CW 03:16				
EXIT	NAME		HELP	➔

At this point, the following softkeys are available:

- EXIT: terminates the QUEUE STATUS display.
- NAME: displays the name of the Agent Group, if a name was assigned during CDE.
- HELP: Displays information to remind the supervisor which dial pad key generates each supervisor report. Refer to Help softkey below.
- ➔ : Move forward to next report

Press the forward arrow softkey to scroll through the remaining queue reports, or dial a number to select specific data. Table 7-1 shows the dial pad keys with examples and explanations of the reports available. The three softkeys described at the bottom of the table remain on the set during the QUEUE STATUS application.

Help Softkey

The HELP softkey displays a prompt PRESS KEY 0–9. As each dial pad key is pressed, a help message is displayed on the set to remind the user which report is associated with that dial pad key. For example, by dialing the digit 1, the set displays 1 = WAIT TIME. Table 7–1 lists the supervisor queue status reports and the key that displays each report.

The CANCEL softkey is also available. Pressing CANCEL returns the supervisor set to the Queue Status mode.

Table 7–1 Supervisor Reports – Queue Status		
Key Number	Sample Set Display	Meaning
0	2 1 2 1 0 2 8	Condensed queue status report: –ACD calls answered –Number of abandoned ACD calls –Number of logged in agents –Number of times agents made busy –Number of non-ACD calls handled by the group.
1	WAIT TIME 10:23	The average waiting time, in minutes and seconds, of logged in Agents in an Agent Group.
2	# ACD CALLS 21	Number of ACD calls the group has answered.
3	ACD CALL 02:23	Average duration of ACD calls.
4	# NON ACD 8	Number of non-ACD calls made/answered by the group .
5	NON ACD 01:23	Average duration of non-ACD calls.
6	# MADE BUSY 2	Number of times agents made busy.
7	AVG BUSY 01:03	Average duration of make busy.
8	# ON HOLD 2	Number of ACD calls put on hard hold.
9	AVG HOLD 00:55	Average duration of ACD calls on hard hold.
EXIT		Exit the Queue Status display.
REMINDER		Displays agent group number and name you are presently looking at.
➔		Move forward to the next report.
➔		Move back to the previous report.

Agent Status Key

The AGENT STATUS key and the LCD beside the key, serve two functions in showing the supervisor the current status of an individual agent, and reporting on the performance of the agent. Supervisors responsible for only one agent group may have a SUPERSET 4 telephone programmed with an AGENT STATUS key for each agent in the group.

When the Supervisor has more agents than available keys, or wishes to use the keys for other functions, the system provides a SHIFT key. This enables the set to accommodate more than one agent on a single AGENT STATUS key. The SHIFT key is described on page 620 7-8.

LCD Indicator: The LCD beside the AGENT STATUS key continuously shows the call-status of the agent assigned to the key. The LCD is off if the agent is logged out. The display changes to show the various conditions including logged in, calls waiting, and After Call Work Timer. Figure 7-2 shows the Agent Status LCD symbols on a SUPERSET 4 telephone.

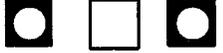
Key	Status	LCD Symbol
Agent Status	Agent Logged Out	
	Agent Logged In – No Calls Waiting	
	Agent In Make Busy Status	 Flashing
	Agent on ACD Call	
	Agent on Non-ACD Call or DND	
	ACD Call on Hold	 Flashing
	After-Call Work Timer	 Flashing

Figure 7-2 LCD Agent Status Indicators

Operation: Pressing the AGENT STATUS key starts the report displays, beginning with the name and ID number of the agent. Ten reports are available, accessed via the keys on the dial pad or through the forward arrow softkey.

Pressing the AGENT STATUS key displays the ID number and the name of the agent, as shown in the example below. Available softkeys are EXIT, CALL, HELP, and the forward arrow (➔).

1 2 1 2 0 S M I T H D				
EXIT	CALL		HELP	➔

- EXIT softkey exits the agent status display.
- HELP softkey prompts the user to 'PRESS KEY 0-9'. Pressing a dial pad key displays a help message to remind the user which report is associated with the dial pad key. For example, dialing the digit 1 displays 1 = WAIT TIME on the set. The CANCEL softkey is also available and pressing CANCEL returns the supervisor set to the Queue Status mode.

See Table 7-2 for a list of dial pad keys and examples and explanations of the reports available. The six softkeys described at the bottom of Table 7-2 remain on the set during the AGENT STATUS application.

When the supervisor is viewing the status of a logged-in agent, the supervisor's set displays the CALL softkey. Pressing the CALL softkey allows the supervisor to call the agent without dialing the Agent ID number or the extension number of the agent's set. When a call is made with the CALL softkey, the supervisor set display exits the Agent Status display and changes to the normal call processing display.

Table 7-2 Supervisor Reports – Agent Status

Key Number	Sample Set Display	Meaning
0	LOG OUT	Agent state; one of the following: LOG OUT WAITING ACD CALL ACD WORK NON ACD or DND ACD HOLD MAKE BUSY
1	WAIT TIME 01:55	Average waiting time for the agent.
2	# ACD CALL 25	Number of ACD calls answered by the agent.
3	ACD CALL 02:25	Average duration of ACD calls.
4	# NON ACD 2	Number of non-ACD calls made/answered by the agent .
5	NON ACD 01:46	Average duration of non-ACD calls.
6	# MADE BUSY 2	Number of times the agent made busy.
7	AVG BUSY 02:58	Average duration of make busy state.
8	# ON HOLD 2	Number of ACD calls put on hard hold.

Table 7-2 Supervisor Reports – Agent Status (continued)		
Key Number	Sample Set Display	Meaning
9	AVG HOLD 00:47	Average duration of ACD calls on hard hold.
EXIT		Exit the Queue Status display.
REMINDER		Displays agent group number and name you are presently looking at.
➔		Move forward to the next report.
➔		Move back to the previous report.
Page 2 of 2		

Shift Key

The SHIFT key is required when the number of Agents a Supervisor controls is greater than the number of AGENT STATUS keys available on the Supervisor's set. This key allows one AGENT STATUS key to address several Agents. The key has no effect if the number of AGENT STATUS keys on the set is greater than the number of agents.

Operation: If there are three agents in a group, and two AGENT STATUS keys, information for agents one and two is displayed by AGENT STATUS keys one and two respectively. Reports for the third agent are viewed on the first AGENT STATUS key and are accessed by pressing the SHIFT key followed by the AGENT STATUS key. At this point, the name and ID of Agent 03 is displayed and the LCD indicator shows the status of the third agent.

Figure 7-3 shows an example of a configuration with three AGENT STATUS keys and seven Agents. Pressing AGENT STATUS key 1 displays the status of Agent 1. Pressing the SHIFT key at this point displays Agent 4. Agents 2 and 3 reside with AGENT STATUS keys 2 and 3 respectively.

KEY NAME	AGENT STATUS Key #1 display	AGENT STATUS Key #2 display	AGENT STATUS Key #3 display
AGENT STATUS	Agent 1	Agent 2	Agent 3
SHIFT	Agent 4	Agent 5	Agent 6
SHIFT	Agent 7	none	none
SHIFT	Agent 1	Agent 2	Agent 3

Figure 7-3 Agent Status Key Operation

Supervisors With More than One Agent Group

- 7.8 Supervisors controlling more than one agent group have a *SUPERSET 4* telephone preprogrammed with a QUEUE STATUS key for each agent group. When the Supervisor has more Agent Groups than available QUEUE STATUS keys, the system provides a SHIFT key that allows the set to accommodate more than one agent group on a single QUEUE STATUS key.

The Supervisors of multiple groups have no AGENT STATUS keys appearing on their sets, but may access the Agent Status reports by using the READ softkey.

Queue Status Key

The QUEUE STATUS key displays the current status reports for the Supervisor's Agent Group. This feature key has been described with two methods of operation: visual status indication shown by the LCD beside the QUEUE STATUS key, and Queue Status Reports which are accessed through the feature key. An example of the Queue Status Reports is shown in Figure 7-4.

When the Supervisor is involved in the QUEUE STATUS application, the READ softkey is presented. This softkey provides access to the Agent Status reports.

Read Key

Supervisors with multiple agent groups do not have AGENT STATUS keys on their sets. To provide entry to the Agent Status reports, the Supervisor's *SUPERSET 4* telephone is equipped with a READ softkey. The softkey appears on the *SUPERSET 4* telephone when the QUEUE STATUS key is pressed.

Operation: Press the QUEUE STATUS key of the desired Agent Group. The READ softkey is displayed at this point. After pressing the READ softkey, the Agent Status reports are displayed, beginning with the name and ID of the first agent in the group.

Press the FWD or BACK softkey after pressing the READ softkey to view the next or previous Agent in the group.

Selecting individual reports and the softkeys EXIT, CALL HELP, and \blacktriangleright , operate as described under Operation, Agent Status Key.

Shift Key

The SHIFT feature key is assigned during Customer Data Entry. It is required when the number of agent groups a Supervisor controls is greater than the number of QUEUE STATUS keys on the Supervisor's set.

The SHIFT key allows one QUEUE STATUS key to address more than one Agent Group. This key has no effect if the number of QUEUE STATUS keys programmed is greater than the number of agent groups.

Operation: If there are three agent groups, and two QUEUE STATUS keys, information for agent groups one and two is displayed by QUEUE STATUS keys one and two respectively. Reports for the third agent group are viewed on the first QUEUE STATUS

key and accessed by pressing the SHIFT key and then the QUEUE STATUS key. At this point the name and ID of Agent Group 3 is displayed and the LCD indicator reflects the status of the third agent group.

Example: The example in Figure 7–4 below shows a configuration with three QUEUE STATUS keys and seven agent groups. The first press of the QUEUE STATUS key displays the status of Agent Group 1. Exit, press SHIFT, then press QUEUE STATUS 1 to display Agent Group 4. Agent Groups 2 and 3 are assigned to QUEUE STATUS keys 2 and 3 respectively.

KEY NAME	QUEUE STATUS Key #1 display	QUEUE STATUS Key #2 display	QUEUE STATUS Key #3 display
QUEUE STATUS	Agent Group 1	Agent Group 2	Agent Group 3
SHIFT	Agent Group 4	Agent Group 5	Agent Group 6
SHIFT	Agent Group 7	none	none
SHIFT	Agent Group 1	Agent Group 2	Agent Group 3

Figure 7–4 Queue Status Key Operation

8.**ACD SENIOR SUPERVISOR SET**

8.1 This section of the practice describes the *ACD TELEMARKETER* features on *SUPERSET 4* telephones used by ACD Supervisors and includes descriptions of:

- special feature keys
- set displays
- reports
- set operation

The information in this section is aimed at those planning an ACD installation, setting up an ACD system, and operating the sets in an existing system. Refer to Section 5, *ACD Set Description – General*, for descriptions of *ACD TELEMARKETER* features common to all positions.

Functions

8.2 Once logged in to the ACD system, the *SUPERSET 4* telephone used by the Senior Supervisor is provided with *QUEUE STATUS* keys and a *SHIFT* key. The following subsections describe login/logout sequences, as well as senior supervisor set functions and operation.

Login/Logout

8.3 The system recognizes a senior supervisor only after the senior supervisor logs in to the ACD system. Once logged in, the set takes on the properties assigned to the senior supervisor through CDE. Refer to *Login/Logout* in Section 5 for details and conditions.

Login

To login, the senior supervisor dials an access code followed by the ID number assigned through the ACD Supervisor Form in CDE. *ACD LOGIN* appears briefly in the display and the senior supervisor hears dial tone. Hangup or dial.

Logout

To log out, dial the access code again. *ACD LOGOUT* appears briefly in the display and the supervisor hears dial tone. Hangup or dial.

Queue Status Key

- 8.4 The QUEUE STATUS key serves two functions that give the Senior Supervisor information about agent queue activity. The first requires no operation of the key. The LCD beside this key indicates the load condition of the agent queue on an ongoing basis. Further details of the LCD indications are provided on page 620 7–3.

The QUEUE STATUS key also provides current status reports for the agent groups who report to the Senior Supervisor. When the key is first pressed, the set displays a summary of the queue activity. It presents the queue number, the number of ACD calls in the queue waiting to be answered, and the length of time the oldest call has been waiting. The Senior Supervisor can then scroll through the rest of the queue reports with the forward arrow key, or select specific reports using the dial pad keys.

Operation

After pressing the QUEUE STATUS key, the display is similar to the example shown below. This sample of the Queue Status display reflects the activity in queue 01. There are 10 calls in the queue waiting to be answered and the oldest call has been waiting for three minutes and sixteen seconds.

Q:01 10 CW 03:16					
EXIT	NAME		HELP	READ	➔

The softkeys are EXIT, NAME, HELP, READ, and ➔. The EXIT softkey terminates the QUEUE STATUS display. The NAME softkey presents the name of the agent group, if a name was assigned during CDE. If the group was not assigned a name during CDE, this softkey does not appear. The READ key, used to access Agent Status reports, operates as described on page 620 7–9. After pressing the READ softkey, press the FWD or BACK softkey to view the report of the next or previous agent in the group.

The HELP softkey reminds the Senior Supervisor of which dial pad key produces which report. When HELP is first selected, the display prompts the user to 'PRESS KEY 0–9'. As each dial pad key is pressed, a help message is displayed on the set to remind the user which report is associated with that dial pad key. For example, dialing the digit 1 results in a set display of 1 = WAIT TIME. The CANCEL softkey is also available; pressing CANCEL returns the supervisor set to the Queue Status mode.

See Table 8–1 for a list of the dial pad keys and softkeys with examples and explanations of the reports available. The softkeys described at the bottom of the table remain on the set during the QUEUE STATUS application. Press CANCEL to return to Queue Status mode.

Table 8-1 Senior Supervisor Reports – Queue Status

Key Number	Sample Set Display	Meaning
0	# AGT LOGIN 6	Number of agents logged in.
1	WAIT TIME 01:55	Average waiting time for the agents in group.
2	# ACD CALLS 25	Number of ACD calls answered by the group.
3	ACD CALL 02:25	Average duration of ACD calls.
4	# NON ACD 2	Number of non-ACD calls made/answered by the group.
5	NON ACD 01:46	Average duration of non-ACD calls.
6	# MADE BUSY 2	Number of times the agents entered make busy.
7	AVG BUSY 02:58	Average duration of make busy.
8	# ON HOLD 2	Number of ACD calls put on hard hold.
9	AVG HOLD 00:47	Average duration of ACD calls on hard hold.
EXIT		Exit the Queue Status display.
REMINDER		Displays agent group number and name you are presently looking at.
➔		Move forward to the next report.
➔		Move back to the previous report.
FWD		Move forward to the next Agent.
BACK		Move back to the previous Agent.
CANCEL		Returns the user to Queue Status mode.

Shift Key

- 8.5 The SHIFT key is used to display the next set of agent groups when the number of QUEUE STATUS keys on the Senior Supervisor's set is not sufficient for all the agent groups. This key has no effect if the number of QUEUE STATUS keys programmed is greater than the number of agent groups.

SHIFT key operation on the Senior Supervisor's set is similar to its operation on a Supervisor's set. Refer to page 620 7-8 for a description of the operation of the Shift Key in conjunction with the Queue Status.

Call Monitoring

- 8.6 Call Monitoring feature operation is identical on both the Senior Supervisor set and the Supervisor set. Refer to paragraph 7.4 for details.

9.

REPORTS

- 9.1 The *ACD TELEMARKETER* package generates a series of printer directed reports listing call and performance information for agents, paths, and groups. The Agent Shift Summary Record covers the agent's logon period and is automatically printed when an agent logs off. The path and group reports present information collected over a pre-defined period.

The reporting parameters may be selected through the maintenance terminal or the console. Refer to Report Commands for descriptions of the parameters and how they are selected.

Agent Shift Summary Record

- 9.2 An Agent Shift Summary Record prints automatically whenever an agent logs out. Once enabled, this report requires no predefined time parameters. Refer to page 620 9-4, SET Command, for instructions on enabling the Agent Shift Summary Record.

Headers on the Agent Shift Summary Record identify the fields. Table 9-1 defines these headers.

Softkey Label	Function
DATE	Month/day/year (mm/dd/yy).
GROUP	Agent group (4 digits).
AGENT	Agent ID (5 digits).
EXTN	Extension number (5 digits).
LOGIN	Login time (hh:mm:ss).
SHIFT	Agents' shift length (hh:mm:ss).
CALLS	Number of ACD calls answered by the agent (4 digits).
TIME	Total time spent by the agent on ACD calls (hh:mm:ss).
EXT-OUT	Number of non-ACD external outgoing calls made (4 digits).
TIME	Total time the agent spent on non-ACD external outgoing calls (hh:mm:ss).

Two examples of the agent records are provided below, with an explanation of the printed data.

Agent Shift Records – Example 1

The following example shows an Agent Shift record. The fields in the record are described below the example.

DATE GROUP AGENT EXTN LOGIN SHIFT CALLS TIME EXT-OUT TIME
 01/27/88 0018 00349 01432 13:28:16 06:35:04 0485 03:34:51 0016 01:25:26

On January 27, 1988 , Agent 349 of Agent Group 18 at extension 1432 logged on at 13:28:16 for a period of 6 hours, 35 minutes, and 4 seconds. The agent answered 485 ACD calls which lasted a total of 3 hours, 34 minutes and 51 seconds. Sixteen non-ACD external outgoing calls lasting a total of 1 hour, 25 minutes and 26 seconds were made by this agent during the shift.

Agent Shift Records – Example 2

The following shows another example Agent Shift record. The fields in the record are described below:

DATE GROUP AGENT EXTN LOGIN SHIFT CALLS TIME EXT-OUT TIME
 11/12/88 0001 24157 05211 08:26:54 07:45:12 0036 07:01:23 0008 00:31:52

On November 12, 1988, Agent 24157 of Agent Group 1 at extension 5211 logged on at 08:26:54 for a period of 07:45:12. The agent answered 36 ACD calls which lasted a total of 7 hours, 1 minute and 23 seconds. Eight non-ACD external outgoing calls with a total duration of 31 minutes and 52 seconds were placed by the agent during the shift.

Path Reports

9.3 A summary record for the Path lists:

- total counts for traffic entering the path during the specified time period
- the number of those calls that were answered, abandoned, and interflowed.

The summary report is printed only for programmed entities.

Report Headers

Headers on the Path Summary Report identify the date and time of the report and identify each field on the report. Table 9-2 defines these fields.

Table 9-2 Path Summary Report Fields	
Softkey Label	Function
PATH	Path number.
ENTERED	Total number of calls entering this path.

Table 9-2 Path Summary Report Fields (continued)	
Softkey Label	Function
ANSWERED	Total number of calls entering this path which were answered and the average time to answer.
ABANDONED	Number of calls which entered this path that were abandoned and average time the caller waited before abandoning.
INTERFLOWED	Number of calls which interflowed out of this path and the average time before interflowing.
SERVICE	Number of callers that were answered within the path service level in this time frame .

Path Summary Report Example

The following example shows a typical Path Summary report:

Period: 7-JAN-88 8:30 to 4:30

PATH ENTERED ANSWERED ABANDONED INTERFLOWED SERVICE

23 1732 1578 000:15 0020 003:08 0134 003:27 0

Path number 23 received 1732 calls and of these, 1578 were answered within an average of 15 seconds. Twenty callers abandoned after waiting an average of three minutes and eight seconds. The 134 calls that interflowed out of the path did so after an average time of three minutes and 27 seconds. No calls were answered within the Path Service Level time.

Group Summary Report

9.4 A summary record for the Group Reports is printed for programmed entities only. The information in the Group Summary report is categorized as:

- offered,
- answered,
- non-ACD external calls,
- non-ACD other calls, and
- the average number of agents logged in during the period.

Report Headers

Headers on the Group Summary Report identify the date and time of the report and identify each field on the report. Table 9-3 defines these fields.

Table 9-3 Group Summary Report Fields	
Softkey Label	Function
GROUP	Group number being summarized.
OFFERED	Total number of calls offered to the group during the reporting period from all paths.
ANSWERED	Total number of ACD calls that were answered by this group and the average length of time agents spent talking to the caller.
NON-ACD EXTERNAL	Total number of external calls made by this group and the average time of these calls.
NON-ACD OTHER	Total number of calls, other than non-ACD external calls and ACD calls, made and received by the group and the average time of these calls.
AVERAGE LOGGED IN	Average number of agents logged in during the period. The number logged in is calculated every time that the queue status keys are updated, and these counts are then averaged.

Group Summary Report Example

The following shows an example Group Summary Report. The fields in the report are described below:

GROUP	OFFERED	ANSWERED	NON-ACD EXTERNAL	NON-ACD OTHER	AVERAGE LOGGED IN
12	0174	0131 2:21	0015 4:09	0021 1:57	7

This example shows that Agent Group number 12 was offered 174 calls, 131 of which the group handled. Each agent spent an average of two minutes and 21 seconds speaking to the caller. The 15 non-ACD external calls placed by the group had an average duration of four minutes and nine seconds. Other non-ACD calls, a total of 21, lasted an average of one minute and 57 seconds. An average of seven agents were logged in for this report period.

Printing Reports

9.5 Before the reports can be printed, the printer assignment must be completed as follows:

CDE Form 34, Directed IO

- assign the ACD AGT SUM and ACD GRP SUM printouts.

Refer to Customer Data Entry, Practice 9109-096-210-NA, for programming details.

Report Commands

Either the maintenance terminal or console can be used to enter the commands and parameters needed to start the ACD Reports. Refer to RS-232 Maintenance Terminal, Practice 9109-096-351-NA, for instructions on using the terminal. The following subsection describes the report commands:

To access the reports, login to Maintenance at the console or maintenance terminal using the correct USERNAME and PASSWORD. After login, the softkey labels change to:

1-SYSTEM	2-	3-DIAGNOSTICS	4-	5-TRAFFIC_MEAS
6-QUIT	7-LOGS	8-ACD_REPORTS	9-REPORTS	0-

To access the ACD Reports subform, press the ACD_REPORTS softkey. The softkey labels change to:

1-SET	2-SHOW	3-	4-	5-
6-QUIT	7-	8-	9-	0-

The softkey functions are as follows:

Softkey Label	Function
SET	Sets up various parameters for the summary reports.
SHOW	Shows the current setup of the ACD printouts.
QUIT	Exits the user from the ACD Report mode.

The following subsections describe the reporting parameters available for each of these softkeys:

SET Command

Use the SET command to enter or change any ACD Report parameters. After pressing the SET softkey, the prompts change as shown below:

1-AGENT_SHIFT	2-PERIOD	3-DURATION	4-AUTOPRINT	5-CANCEL
6-	7-START_TIME	8-GRP_SUMMARY	9-	0-

Use the softkeys to enter the required data and to exit from the ACD REPORT function. The softkey functions are as follows:

Softkey Label	Function
AGENT_SHIFT	Enables/disables printing of the agent shift summary reports. Enabled by default.
PERIOD	Sets the length of each reporting period from 10 minutes to 1 hour in 10 minute intervals. The default is 10 minutes.
DURATION	Sets the number of reporting periods. The duration must be a minimum of one period. The product of the duration multiplied by the period must be less than or equal to 24 hours. The default duration is 6 periods.
AUTOPRINT	Enables/disables printing of an intermediate report at the end of each reporting period. Enabled by default.
CANCEL	Terminates the SET command.
START_TIME	Sets the time of day, at 10 minute intervals, when the shift data collection starts. The start time must be defined before the group summary reports can be enabled. The default start time is 08:00.
GRP_SUMMARY	Enables/disables printing of the group summary reports. Disabled by default. A start time must be defined before the report is enabled.

The DURATION, PERIOD, GRP_SUMMARY, and the START_TIME cannot be changed once the report is running. Stop the report before attempting to change these parameters.

Note: The start time is used to clear the shift buffers, even if no printouts are enabled. See ACD MONITORS section.

SHOW Command

Use the SHOW command to display the status of the ACD reports. After pressing the SHOW softkey, the labels change as shown below:

1-	2-	3-STATUS	4-	5-CANCEL
6-	7-	8-	9-	0-

Softkey Label	Function
STATUS	The STATUS softkey displays the following information in the screen window: GROUP SUMMARY : ON/OFF STATUS : Active/Inactive AUTO PRINT : ON/OFF START TIME : hh:mm PERIOD : nn minutes DURATION : nn periods AGENT SHIFT : ON/OFF
CANCEL	Cancels the show command.

QUIT Command

This softkey command allows the user to exit from the ACD REPORT mode at the console or terminal.

10. **ACD MONITORS**

10.1 The ACD Monitors act as a "window" to the ACD system by giving ACD Supervisors an event-display that is updated after the completion of each ACD activity. This section describes the purpose and content of each monitor and defines the monitor fields and the keys available in each display.

Hierarchy of Monitor Displays

10.2 The Monitors allow access to four areas of the *ACD TELEMARKETER* system. The user may view the current activity for:

- the overall system
- paths
- agents
- agent groups

The Monitor data is presented in a series of displays on a standard VT100 compatible terminal. Most displays show a summary of performance over the last hour of operation, or from the beginning of an agent's shift. The monitors are arranged in a hierarchy as shown in Figure 10-1.

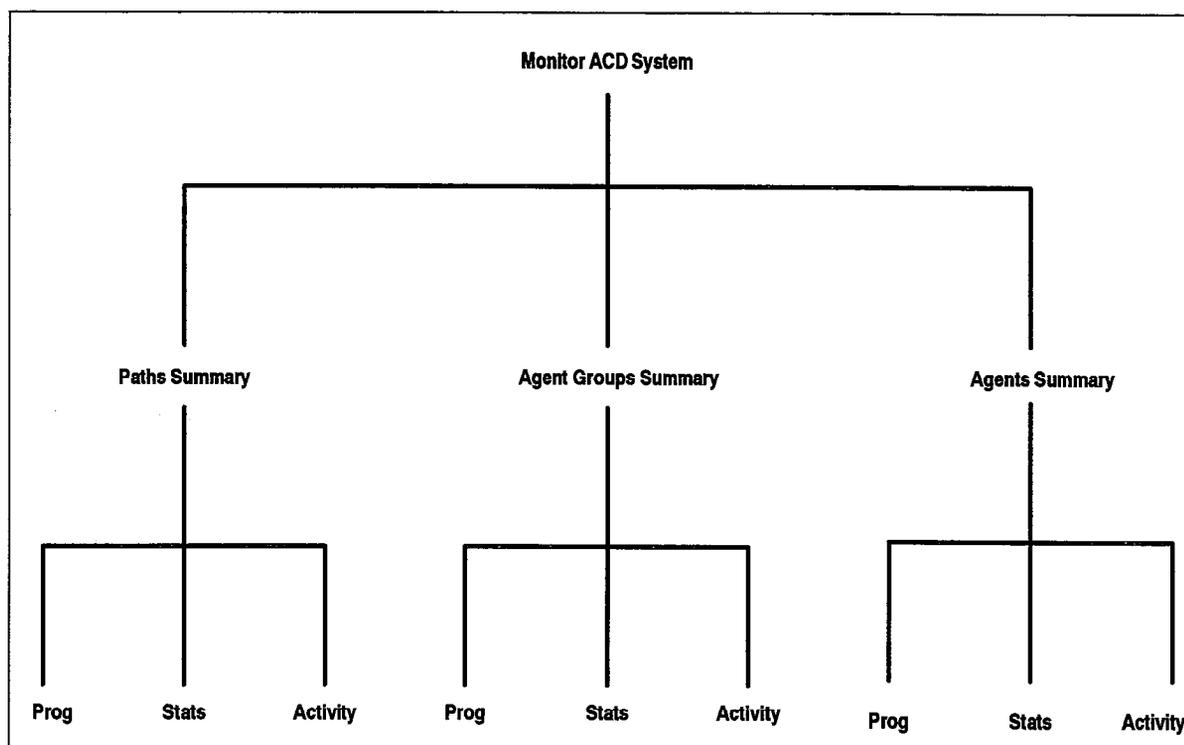


Figure 10-1 Monitor Hierarchy

The following subsections provide an overview of the upper levels of monitor hierarchy:

The System Activity monitor displays the current status of the ACD system. The display shows the number of agents logged in, the number of calls in the system, and general statistics on agent performance.

The Path Summary monitors are a series of displays for individual paths. Displays include the CDE programmed parameters of the path, the current activity on the path, and a brief statistical analysis for the path.

The Agent Groups Summary monitors are a series of displays for individual agent groups. Displays include the CDE programmed data for each agent group, the current activity of the group, and a brief current and historical analysis of statistical data for the group.

The Agent Information monitors are a series of displays for individual ACD agents. Displays include CDE programmed data for each agent in the system, the current activity of the agents, and a brief current and historical analysis of statistical data for the agents.

Accessing Monitors

- 10.3 The Monitors are accessed through a VT100-type terminal connected to a dataset. The dataset connects each Data Terminal (DTE) to a DNIC circuit on the PABX. The DTE connected to the dataset must be an ASCII data device using an RS-232C interface. As many as four users can access the Monitors simultaneously. Most displays are updated every 5 to 10 seconds. This update rate will vary depending on the number of users currently requesting monitor displays. The following subsections describe how to access the ACD monitors.

Perform the following steps to gain access to the monitors through a VT100-type terminal:

```
Press <Return> key
System Response: (See Note)

Welcome to Mitel SX-200 DIGITAL Data Switching
*
```

Note: The system response is a programmable herald that is selected during the programming of the Data Transceiver's Class Of Service. Refer to Practice 9109-096-210-NA, Customer Data Entry, for details.

To request the monitors, enter:

```
MONITOR ACD
or
M ACD
```

The display shows call progress as follows:

```
1 - VT100 compatible
2 - IBM PC
select terminal type: 1
enter password: 1000
```

The default password is 1000.

This completes the entry procedure. If the limitation of four simultaneous monitors has been exceeded, the system response following the MONITOR ACD request changes to:

```
          Ringing
          System Busy, Try Again Later
```

Once logged in to the system, the user is presented with the SYSTEM ACTIVITY screen, described later in this section. Refer to the applicable subsection of this document for detailed descriptions of the functions and softkeys available at each monitor level.

Setting the Password

The password is programmable. Contact your Communications Manager if the password needs to be changed. New passwords are assigned by accessing CDE Form 28 from a Maintenance Terminal or Console. The level of access for monitors is softkey number 2, SUPERVISOR.

Monitoring the ACD System

After selecting MONITOR ACD the user is presented with the SYSTEM ACTIVITY monitor. This display contains a summary of the entire ACD system showing all current call activity and agent activity and a synopsis of system performance over the past hour.

The System Activity monitor is accompanied by softkeys used to enter the second level of monitors shown in Figure 10-1. The user may select Paths, Agent Groups, or Agents. At this point the system prompts for a path ID, group number, or agent ID, thus allowing the user to directly access the desired path, agent group, or agent.

For each path, agent group, or agent, the Summary display gives an overview of current activity as well as a synopsis of statistics collected over the past hour. From this level the user may access additional, lower-level displays showing programming, statistics, and activity information.

The Programming display contains all the information assigned to the Path, Agent Group, or Agent, during Customer Data Entry.

The Statistics display shows a statistical overview of the performance of the related Path, Agent Group, or Agent as follows:

- Path Statistics shows path performance for the current instant and a summary of activity over the past hour.
- Group statistics provide a group summary for the last hour and the shift total.

- Agent Statistics cover the last hour's performance.

The Activity displays present a continuously updated picture of the path, agent group, or agent. The Path Activity shows callers queued for the path, and any idle agents waiting for calls from the path. Agent Activity provides status information about the agent state and the current call in progress. The Group Activity is continuously updating caller and agent activity within the selected group.

System Activity

10.4 Figure 10-2 shows an example of the System Activity monitor. The softkeys presented with this display provide access to detailed displays of performance of specific Paths, Agent Groups or Agents. Table 10-1 explains the various softkeys and their purpose. Table 10-2 describes each field within the display.

13:23 23-APR-89		SYSTEM ACTIVITY		MITEL ACD TELEMARKETER	
CALLER ACTIVITY		AGENT ACTIVITY		SUMMARY - LAST HOUR	
CALLERS :	14	ON ACD :	11	ENTERED :	257
CALLS WTG :	3	READY :	1	TIMEtoANS :	00:54
LONGEST WTG:	00:56			SVC LEVEL< :	200 78%
				SVC LEVEL > :	54 22%
UNDER 1ST :	28 %	MAKE BUSY :	2	ANS by AGT :	254 03:02
BETWEEN :	56 %	DND :	-	ANS by AGT :	99 %
AFTER 2ND :	16 %				
		ON non ACD :	-	ON non ACD :	4 01:23
ON RECRDING :	2	LOGGED ON :	14	ABANDONED :	3 01:35
HELD CALLS :	-	LOGGED OFF:	63		
1- PATHS	2- AGENT GROUPS	3- AGENTS	4- LANGUAGE	5-	
6- QUIT	7- PRINT	8-	9-	0-	

Figure 10-2 System Activity Display

Table 10-1 System Activity Display Softkeys	
Softkey Label	Function
PATHS	Prompts the user to specify a path ID. Displays the Path Monitors for the selected Path. Refer to paragraph 10.5 for details.
AGENT GROUPS	Prompts user to specify an Agent group number. Displays the Agent Group monitors for the selected group. Refer to paragraph 10.6 for details.

**Table 10–1 System Activity Display Softkeys
(continued)**

Softkey Label	Function
AGENTS	AGENTS prompts for an Agent Id number. Displays the Agent Monitors showing current agent activity and last hour statistics. Refer to paragraph 10.7 for details.
LANGUAGE	LANGUAGE provides a FRANCAIS softkey; when pressed, it converts softkey prompts and the command line to French. When prompts are in French, the softkeys toggle to LANGUE and ENGLISH, to allow selection of English prompts.
QUIT	Logs the user out of the Monitor ACD application and terminates the session.
PRINT	Prints the System Activity form on the printer used for the ACD Monitor Print.

Page 2 of 2

Table 10–2 Terms Used In System Activity Display

Term	Meaning
Caller Activity	
Callers	The number of callers within the ACD system. This includes callers talking to agents and callers waiting for agents, but does not include callers in the delay for ringback.
Calls Wtg	The number of callers queued up waiting for an agent to become available. Includes listening to silence, music, alternate music, or a recorded announcement.
Longst Wtg	The duration, in minutes and seconds, of the call that has been waiting longest in the queues.
Under 1st	The percentage of callers in the system that have been waiting less than the first threshold time programmed for the primary group of the path.
Between	The percentage of callers in the system that have been waiting longer than the first threshold time but less than the second threshold time programmed for the primary group of the path.
After 2nd	The percentage of callers in the system that have been waiting longer than the second threshold time programmed for the primary group of the path.
On Recrdng	The number of calls waiting in the queues that are listening to a recorded announcement.
Held Calls	Indicates the number of ACD callers that have been placed on hold.

Page 1 of 2

**Table 10-2 Terms Used In System Activity Display
(continued)**

Term	Meaning
Agent Activity	
On Acd	The number of agents currently on ACD calls.
Ready	The number of agents currently ready. Those agents are not on any type of call and are available to receive ACD calls.
Make Busy	The number of logged in agents that are in MAKE BUSY. These agents receive no ACD calls.
DND	The number of logged in agents that have DO NOT DISTURB activated. These agents receive no ACD or non-ACD calls.
On Non Acd	The number of agents currently involved in incoming non-ACD calls or agent originated calls.
Logged On	The number of agents currently logged into ACD.
Logged Off	The number of agents currently NOT logged in to the ACD system.
Summary – Last Hour	
Entered	The total number of ACD calls that have entered a path in the ACD system over the past hour.
Time To Ans	The average time before a call is answered by an agent.
SVC Level	The summary, from all paths in the system, of the path service level statistics. The first field shows the number of calls answered within the paths' service time; the second is the percentage of calls answered outside of the service time.
Ans By Agt	The number of calls received over the past hour that have been answered by an agent and the average duration of the calls.
Ans By Agt	The percentage of all ACD calls that entered over the past hour that were answered by an agent.
On Non Acd	The number of calls over the past hour that were either incoming non-ACD calls answered by an agent or agent originated calls, and the average duration of these calls.
Abandoned	The number of callers who abandoned before being answered by an agent and the average time a caller waited before abandoning.

Page 2 of 2

Monitoring Paths

10.5 The system displays path information on four forms. Entry into Path monitor sub-level begins with the Path Summary display showing activity on the requested path. From this point, the user may access detailed information in three categories: CDE programmed data, statistics gathered on the path over the past hour, and current path activity.

Path Summary Display

The first Path Monitor display is the Path Summary shown in Figure 10-3. This displays an overview of current activity and a synopsis of statistical data collected over the past hour.

To access the Path Summary display, the user presses the PATHS softkey at the system level. The system responds by asking for a path access code. After the user enters a valid path access code, the screen changes to the Path Summary display shown in Figure 10-3. The chosen path is the top entry on the display. If the user presses the RETURN key without first entering a path number, the lowest number path is displayed.

Entering an illegal number, such as an unprogrammed or out-of-range path, results in an error message on the work-line, and the system offers the CANCEL softkey. The RETURN hard-key also cancels the error message.

13:23 23-APR-89		PATH SUMMARY			MITEL ACD TELEMARKETER							
PATH NUM	PATH NAME	ACCESS CODE	NUM CALLS WTG	CONN TO AGTS	SUMMARY - LAST HOUR							
					ENTERED	ANSWERED	ABANDONED	INTERFLOWED				
1	TV SALES	666	4	7	122	101	00:54	19	15%	01:49	9	01:58
2	REC SALES	667	-	2	34	34	00:14	-	-	:	-	:
3	NEWS MAG	668	23	11	439	202	01:34	31	7%	02:13	4	02:12
4	SERVICE	669	1	2	13	13	00:40	-	-	:	-	:
5	SUBSCRIPT	662	-	-	5	-	-	5	100%	1:01	-	:
1- PROGRAMMING		2- STATISTICS		3- ACTIVITY		4-		5- CANCEL				
6-		7- PRINT		8- PAGE UP		9- PAGE_DOWN		0-				

Figure 10-3 Path Summary Display

The softkeys for the Path Summary monitor are described in Table 10-3 below. Table 10-4 defines each field on the Path Summary monitor.

Table 10-3 Path Summary Display Softkeys

Softkey Label	Function
PROGRAMMING	Displays the Path Programmed Data form that shows information programmed in CDE for the path currently bracketed by the work-line arrows. The Path Programmed Data form is described on page 620 10-9.
STATISTICS	Accesses the Path Statistics form that contains a statistical overview of activity on the path at the present moment, as well as a summary of statistics collected over the past hour. The Path Statistics form is described on page 620 10-11 .
ACTIVITY	Accesses the Path Activity display that contains a frequently updated view of current traffic on the selected path including callers waiting and idle agents. The Path Activity form is described on page 620 10-13.
CANCEL	Returns the user to the System level display. Paragraph 10.4 describes the System level form.
PRINT	Prints the Path Summary form on the printer used for the ACD Monitor Print directed printout.
PAGE UP	If there are more path summary lines than can fit on the screen, this key accesses paths with lower Path numbers than the first path on the screen. This key only appears when an upward scroll can occur.
PAGE DOWN	If there are more path summary lines than can fit on the screen, this key accesses paths with higher Path numbers than the first path on the screen. This key only appears when a downward scroll can occur.

Table 10-4 Terms Used In Path Summary Display

Term	Meaning
Current Information	
Path Num	The path number. Paths are displayed in ascending order by path numbers (range = 1 - 50).
Path Name	The name of the path as programmed in CDE.
Access Code	The access code of the path (1 - 5 digits).
Num Calls Wtg	The number of ACD calls which originated on this path that are currently queued against any of the groups programmed in the path.
Conn To Agts	The number of callers from this path currently talking to agents of any of the groups programmed in this path.

**Table 10-4 Terms Used In Path Summary Display
(continued)**

Term	Meaning
Summary – Last Hour	
Entered	The number of calls that entered this path. See Note below.
Answered	The first entry is the number of calls answered by all groups in the path. The second entry is the average time to answer for those calls.
Abandoned	The first entry is the number of callers who abandoned while waiting for a group in this path. The second entry is the percentage of the calls offered that this represents, and the third is the average time a caller waited before abandoning.
Interflowed	The first entry is the number of callers who interflowed out of this path. The second entry is the average time to interflow for those calls.
Page 2 of 2	

Note: The Entered field on the Path Summary shows the number of times a call entered the path. In cases where a path interflows to itself or to another path, each call that interflows increments the entered count. Therefore, one call into the system may have 'entered' many times.

Path Programmed Data Display

Figure 10-4 shows the Path Programmed Data form that displays the data entered during CDE for the selected path.

14:26 23-APR-89	PATH PROGRAMMED DATA	MITEL ACD TELEMARKETER		
PRIMARY : 1 TV SALES OVERFLOW 1 : 13 COOKBOOK OVERFLOW 2 : 4 RECORDS OVERFLOW 3 : 7 BULLET 1 INTERFLOW : 8834 I/F ENABLD : yes O/F to I/F : yes I/F TIME : 03:30 SVC TIME : 00:13 ANS DELAY : 00:12 PRIORITY : 20	RAD 1 ID : 1123 ALL AGTS BSY MUSIC : system START : 00:12 RAD 2 ID : 1124 STILL BSY MUSIC : 1170 START : 00:45 RAD 3 ID : 1126 PLS HOLD ON MUSIC : 1170 START : 01:30 RAD 4 ID : 1124 STILL BUSY MUSIC : 1170 START : 02:15			
PATH 1 666 TV SALES				
1-	2-	3-	4-	5- CANCEL
6-	7-	8- PREVIOUS	9- NEXT	0- RETURN

Figure 10-4 Path Programmed Data Display

Table 10-5 describes the softkeys presented with the Path Programmed Data display. Table 10-6 describes the fields in the display.

Table 10-5 Path Programmed Data Softkeys	
Softkey Label	Function
CANCEL	Returns the user to the System level display. See paragraph 10.4 for details of the System level.
PREVIOUS	This softkey is present if paths exist that have lower access codes than the path being displayed. Pressing this key displays the programmed data for the next lower ACD Path.
NEXT	This softkey is present if paths exist that have higher access codes than the path being displayed. Pressing this key displays the programmed data for the next higher ACD Path.
RETURN	The RETURN key (either hard-key or softkey) returns the user to the PATH SUMMARY form. See paragraph 10.5 for details of the Path Summary form.

Table 10-6 Terms Used In Path Programmed Data Display	
Term	Meaning
Primary	Number and name of the primary agent group for the path.
Overflow 1	Number and name of the first overflow group for the path.
Overflow 2	Number and name of the second overflow group for the path.
Overflow 3	Number and name of the third overflow group for the path.
Interflow	Access code of the interflow point.
I/F EnablD	Yes in this field indicates interflow is activated.
O/F to I/F	Yes in this field indicates the call can flow from the last programmed overflow to the Interflow point before the Interflow Timeout occurs. This applies only if the flag I/F ENABLD is 'YES'.
I/F Time	The time, in minutes and seconds, before the call interflows out of the ACD system. Applies only if the flag I/F ENABLD is 'YES'.
SVC Time	The time, in minutes and seconds, that defines the service level for this path. The time to answer of all calls answered on this path is compared to this time and the results are shown as the service level data in the monitors.
Ans Delay	The time, in minutes and seconds, that the caller is allowed to hear ringback before the ACD system attempts to answer the call.
Priority	The priority of the ACD call. The highest priority is 1 and the lowest is 99.

Table 10-6 Terms Used In Path Programmed Data Display (continued)	
Term	Meaning
RADs 1 through 4	
ID	The access code and name of the Recorded Announcement Device (RAD) hunt group.
Music	The access code of the music source to be used after the recording has been heard. If no access code has been programmed then 'system' music is displayed. When no system music is available, this field is blank.
Start	The time, in minutes and seconds, that a caller is connected to the specified recording after entering this path.

Page 2 of 2

Path Statistics Display

The Path Statistics display in Figure 10-5 displays a statistical overview of the path's performance for the current instant, as well as a summary of activity over the past hour.

14:26 23-APR-89		PATH STATISTICS			MITEL ACD TELEMARKETER		
		NUM AGT /REC	NUM CALLS WTG	CONN AGT /REC	SUMMARY - LAST HOUR		
GRP NUM	GROUP NAME				OFFERED	ANSWERED	OVERFLOWED
PRIMARY :	1 A/V SALE	7	4	7	122 98 %	97 78 %	53 43 %
OVERFLOW 1:	13 COOKBOOK	3	6	2	53 43 %	17 14 %	26 21 %
OVERFLOW 2:	4 RECORDS	8	2	5	26 21 %	6 5 %	9 7 %
OVERFLOW 3:	7 BULLET 1	6	-	-	9 7 %	1 1 %	na
RECORDING 1:	2 TV REC 1				SVC LEVEL<: 90 79 %		
RECORDING 2:	17 GENERAL	3	2	7	SVC LEVEL>: 31 20 %		
RECORDING 3:	9 TV REC 3	3	-	2			
RECORDING 4:	9 TV REC 3	2	-	1			
		2	-	1			
PATH 1 666 TV SALES							
1-	2-	3-		4-		5- CANCEL	
6-	7- PRINT		8- PREVIOUS		9- NEXT		0- RETURN

Figure 10-5 Path Statistics Display

Table 10-7 describes the softkeys that are presented with the Path Statistics Display. Table 10-8 describes the fields on the form.

Table 10-7 Path Statistics Display Softkeys

Softkey Label	Function
CANCEL	Returns the user to the System level. Details of the System level are in paragraph 10.4 .
PRINT	Prints the Path Statistics at the printer used for the ACD Summary Reports directed printout.
PREVIOUS	This softkey is present if paths exist that have lower access codes than the path being displayed. Pressing this key displays the statistics for the next lower ACD Path.
NEXT	This softkey is present if paths exist that have higher access codes than the path being displayed. Pressing this key displays the statistics for the next higher ACD Path.
RETURN	The Return key (either hardkey or softkey) returns the user to the Path Summary form. See page 620 10-7for a description of the Path Summary form.

Table 10-8 Terms Used In Path Statistics Display

Term	Meaning
Programmed Information And Current Summary	
Group Num	The agent group number or recording group number, as assigned during CDE.
Group Name	The name of the agent group or recording group, as assigned during CDE.
Num Agt/Rec	The number of logged in agents in the group. If a recording group, the number of RAD ports assigned to the group.
Num Calls Wtg	The number of calls from this path waiting for the agent group or recording group.
Conn Agt/Rec	The number of callers from this path currently talking to agents in the group, or listening to RADs.
Summary – Last Hour	
Offered	The number of ACD calls offered to the group from this path, and the percentage of the total calls offered on the path that this represents.
Answered	The number of ACD calls answered by agents in the group from this path only, and the percentage of the total calls answered on the path that this represents.

**Table 10-8 Terms Used In Path Statistics Display
(continued)**

Term	Meaning
Overflowed	The number of calls that overflowed from the group to the next overflow point on this path, and the percentage of calls offered to the group which overflowed. Calls which overflowed to interflow are not counted.
SVC Level<	The number of ACD calls answered on the path within the path's service time, and the percentage of calls answered that this represents.
SVC Level>	The number of ACD calls answered on the path outside the path's service time and the percentage of calls answered that this represents.

Page 2 of 2

Path Activity

The Path Activity display shown in Figure 10-6 gives a continuously updated picture of the traffic on a given path. Information relates to the callers queued for the path as well as any ready agents waiting for calls from the path.

All queued callers that originated on the specified path are identified by trunk number or extension access code. The longest waiting caller for each group is at the bottom of the list, immediately above the horizontal line.

As the number of waiting calls increases or decreases the information is updated in that group's column, and the horizontal bar below the first call in the queue shifts up and down the screen accordingly. The screen displays up to twelve waiting calls.

When there are no calls waiting in a queue, the sub-title under the group name changes to AGENT name and READY time. As many as 12 idle agents can be listed below the horizontal bar, beginning with the longest idle agent.

Overflow groups that were programmed, but have no callers waiting and no agents logged in to a group, are identified by the group name in the column title. If an overflow group was not assigned during the Customer Data Entry, the column is blank.

14:26 23-APR-89

PATH ACTIVITY

MITEL ACD TELEMARKETER

PRIMARY Caller	A/V SALE No.	Wtg	0/F1 Caller	COOKBOOK No.	Wtg	0/F2	RECORDS	0/F3 Agent	BULLET 1 Ready
T 101	6	00:03	2614	6	01:05				
T 21	4	00:24							
T 82	3	00:49							
2614	1	01:08							
PATH 1 666 TV SALES									
1-	2-	3-	4-	5- CANCEL					
6-	7-	8- PREVIOUS	9- NEXT	0- RETURN					

Figure 10-6 Path Activity Display

Table 10-9 describes the softkeys presented with the Path Activity Display. The fields on the display are defined in Table 10-10.

Softkey Label	Function
CANCEL	Returns the user to the System level. Details of the System level are in paragraph 10.4 .
PREVIOUS	This softkey is present if paths exist that have lower access codes than the path being displayed. Pressing this key displays the activity for the next lower ACD Path.
NEXT	This softkey is present if paths exist that have higher access codes than the path being displayed. Pressing this key displays the activity for the next higher ACD Path.
RETURN	The Return key (either hardkey or softkey) returns the user to the Path Summary form. See page 620 10-7for a description of the Path Summary form.

Table 10-10 Terms Used In The Path Activity Display

Term	Meaning
Caller	The trunk number or extension access code of the caller waiting for the agent group.
No.	The queue position of the caller waiting for this group. The numbers are ordered but may not be sequential if there are callers waiting for this group who originated on another path. These other callers hold a queue position for this group but are shown on the activity display for their path.
Wtg	The time, in minutes and seconds, that the caller has been waiting in this path.
Agent	The name of a ready agent in the displayed agent group. If the agent does not have a name assigned in CDE, the agent's ID appears.
Ready	The time, in minutes and seconds, that the agent has been available and ready to accept an ACD call.

Monitoring Groups

10.6 Four forms provide information about the agent groups programmed in the ACD system and are described as follows:

- Group Summary form displays important information about each agent group.
- Group Programmed Data form displays the data programmed in CDE for each agent group.
- Group Statistics form provides statistics gathered on the agent group over the past hour and since the beginning of the shift.
- Group Activity form shows current caller and agent activity for the group.

The purpose and contents of each form is described in the following subsections:

Group Summary Form

The primary form available within the agent group sub-level is the Group Summary form. This form gives a brief overview of current activity as well as a synopsis of statistical data collected over the past hour. The user is presented with a set of softkeys, which when accessed display more detailed information related to the group and the group's performance.

While at the System level, pressing the AGENT GROUPS softkey prompts the user to enter an agent group number. After entering a valid agent group number, the user is presented with the screen shown in Figure 10-7. The chosen group is at the top of the screen.

Pressing the RETURN key without first entering a group number also produces the display shown in Figure 10-7. In this case, however, groups are listed in ascending order by group number.

Entering an unprogrammed or out-of-range group number results in an error message on the work-line. The CANCEL key allows deletion of the entry. Alternately, the user may press the RETURN hardkey and re-enter a group number.

10:04 23-APR-89		GROUP SUMMARY			MITEL ACD TELEMARKETER		
GRP NU	GROUP NAME	AGENTS LOGGED ON	NUM CALLS WTG	ON ACD CALLS	SUMMARY - LAST HOUR		
					OFFERED	ANSWERED	OVERFLOWED
M1	A/V SALE	7	4	7	122	97	23
4	RECORDS	8	2	5	142	138	4
7	BULLET 1	6	-	-	37	37	-
11	POP	2	1	1	13	12	-
12	JAZZ	1	-	-	3	2	-
18	COOKBOOK	3	2	3	73	43	22
35	TRINKETS	-	-	-	-	-	-
38	JOKELINE	37	101	33	835	561	274
PATH 1 666 TV SALES							
1- PROGRAMMING		2- STATISTICS		3- ACTIVITY		4-	5- CANCEL
6-		7- PRINT		8- PAGE UP		9- PAGE DOWN	0-

Figure 10-7 Group Summary Display

Table 10-11 describes the softkeys presented with the Group Summary Display. The fields on the display are defined in Table 10-12.

Table 10-11 Group Summary Form Softkey Labels	
Softkey Label	Function
PROGRAMMING	Displays the Group Programmed Data form that shows the programmed CDE entries for the agent group currently bracketed by the work line arrows. See Group Programmed Data, page 620 10-17.
STATISTICS	Accesses the Group Statistics form that provides a statistical overview of the group's activity at the present moment, and a summary of statistics collected over the past hour. See page 620 10-19 for details.
ACTIVITY	Accesses the Group Activity display that shows a frequently updated view of current status of the agent group. See page 620 10-21.
CANCEL	Returns the user to the System level. Details of the System level are in paragraph 10.4 .
PRINT	Starts a dump of this form to the printer used for the ACD Monitor Print.

Table 10–11 Group Summary Form Softkey Labels (continued)	
Softkey Label	Function
PAGE UP	Accesses groups with lower numbers if there are more agent group summary lines than fit on one screen. The key only appears when an upward scroll can occur.
PAGE DOWN	Accesses groups with higher numbers if there are more agent group summary lines than fit on one screen. The key only appears when a downward scroll can occur.

Page 2 of 2

Table 10–12 Terms Used In Group Summary Display	
Term	Meaning
Grp Num	The agent group's number.
Group Name	The agent group's name as programmed in CDE.
Current State	
AGENTS LOGGED ON	The number of agents in this group currently logged on.
NUM CALLS WTG	The number of ACD calls queued up, from all paths, for agents in this group.
ON ACD CALLS	The number of agents in this group currently active on ACD calls.
Summary – Last Hour	
OFFERED	The number of incoming ACD calls offered to the group from all paths.
ANSWERED	The number of incoming ACD calls answered by this group and the average duration of those calls.
OVERFLOWED	The number of calls that overflowed in any path while queued for this group as the primary group.

Group Programmed Data

The Group Programmed Data form shown in Figure 10–8 displays the data programmed during CDE for the agent group.

10:04 23-APR-89

GROUP PROGRAMMED DATA

MITEL ACD TELEMARKETER

SUPER NAME: ADAMSON T. SUPER ID : 102		THRESHOLD 1 : 00:45 THRESHOLD 2 : 01:20		
SEN'R NAME : ELKS HARRY SEN'R ID : 100		O/F TIMER : 02:00 AFTER WORK : 00:20		
PROG AGTS : 12				
GROUP 1 A/V SALE				
1-	2-	3-	4-	5- CANCEL
6-	7-	8-	9- NEXT	0- RETURN

Figure 10-8 Group Programmed Data Display

Table 10-13 describes the softkeys presented with the Group Programmed Data Display. The fields on the display are defined in Table 10-14.

Table 10-13 Group Programmed Data Softkey Labels

Softkey Label	Function
CANCEL	Returns the user to the System level. Details of the System level are in paragraph 10.4 .
PREVIOUS	This softkey is present if groups exist that have lower access codes than the group being displayed. Pressing this key displays the activity for the next lower ACD Group.
NEXT	This softkey is present if groups exist that have higher access codes than the group being displayed. Pressing this key displays the activity for the next higher ACD Group.
RETURN	The RETURN key (either hardkey or softkey) returns the user to the Group Summary form. Refer to paragraph 10.6 for details.

Table 10-14 Terms Used In Group Programmed Data Display

Term	Meaning
Super Name	The name of the group's supervisor, as programmed in CDE.
Super ID	The ID number of the group's supervisor, as programmed in CDE.
Sen'r Name	The name of the group's senior supervisor, as programmed in CDE.
Sen'r ID	The ID number of the group's senior supervisor, as programmed in CDE.
Prog Agts	The number of agents programmed as members of this group.
Threshld 1	The first threshold time for a call waiting for the group. This time is used to indicate the overall caller load on the group. The flashing icons on agent and supervisory sets are updated to reflect the status using this time.
Threshld 2	The second threshold time for a call waiting for the group. This time is used to indicate the caller load on the group. The flashing icons on agent and supervisory sets are updated to reflect the status using this time.
O/F Timer	The setting of the 'overflow' timer for the group.
After Work	The setting of the after work timer for the group.

Group Statistics

The Group Statistics form in Figure 10-9 shows a summary of statistics collected over the past hour and shift totals for the group.

14:26 23-APR-89		GROUP STATISTICS		MITEL ACD TELEMARKETER	
LAST HOUR			SHIFT TOTAL from 08:00		
ANS by GRP	: 43	03:11	ANS by GRP	: 397	02:58
OFFERED	: 63		OFFERED	: 487	
OVERFLOWED	: 17		OVER-	: 83	
LOGINS	: -		FLOWED	: 13	
AVG AGENTS	: 3.4		LOGINS	: 6.8	
MAKE BUSY	: 12	00:49	AVG AGENTS	: 62	01:46
OUTGOING	: -	:	MAKE BUSY	: 3	02:01
NON ACD	: 1	01:43	OUTGOING	: 2	02:12
			NON ACD		
GROUP 1 A/V SALE					
1-	2-	3-	4-	5- CANCEL	
6-	7- PRINT	8- PREVIOUS	9- NEXT	0- RETURN	

Figure 10-9 Group Statistics Display

Table 10-15 describes the softkeys presented with the Group Statistics display. Table 10-16 defines the fields on the display.

The field definitions in Table 10-16 apply to the LAST HOUR field and the SHIFT TOTAL field. The shift start time is programmed from the System Maintenance facility via the ACD_REPORTS softkey. The group shift buffers are cleared at that time.

Table 10-15 Group Statistics Display Softkey Labels

Softkey Label	Function
CANCEL	Returns the user to the System level. Details of the System level are in paragraph 10.4 .
PRINT	Starts a dump of this form to the printer used for the ACD Monitor Print.
PREVIOUS	This softkey is present if groups exist that have lower access codes than the group being displayed. Pressing this key displays the statistics for the next lower ACD Group.
NEXT	This softkey is present if groups exist that have higher access codes than the group being displayed. Pressing this key displays the statistics for the next higher ACD Group.
RETURN	The RETURN key (either hardkey or softkey) returns the user to the Group Summary form. Refer to page 620 10-15 for details

Table 10-16 Terms Used In Group Statistics Display

Term	Meaning
Ans By Grp	The number of ACD calls answered by the group both over the time interval and the average duration of those calls.
Offered	The number of ACD calls offered to the group over the time interval from all paths.
Overflowed	The number of calls that have overflowed from this group over the time interval when this group is the primary group of a path.
Logins	The number of logins which occurred in this group over the time interval.
Avg Agents	The average number of agents logged in over the time interval. The calculation is an average of counts taken every time the queue status indicators are updated.
Make Busy	The number of times members of this group went into Make Busy during the interval, and the average duration of the Make Busy states.
Outgoing	The number, and average duration, of external outgoing calls made by the agents in this group over the time interval.
Non ACD	The number, and average duration, of internal calls made and non-ACD calls received by group members over the time interval.

Group Activity

The Group Activity form shown in Figure 10-10 provides a continuously updated display of the activity of callers and agents within the group.

CALLER ACTIVITY		AGENT ACTIVITY		
CALLS WTG :	12	LOGGED ON :	10	
LONGST WTG :	01:38	READY :	-	
UNDER 1ST :	7	AFTER WORK :	1	
BETWEEN :	3	ON ACD :	7	
AFTER 2ND :	2	MAKE BUSY :	1	
OVER- :	6	DND :	-	
FLOWED		ON non ACD :	1	
	: 1			
HELD CALLS				
GROUP 1 A/V SALE				
1-	2-	3-	4-	5- CANCEL
6-	7-	8- PREVIOUS	9- NEXT	0- RETURN

Figure 10-10 Group Activity Display

Table 10-17 describes the softkeys presented with the Group Activity display. Table 10-18 defines the fields on the display.

Table 10-17 Group Activity Softkey Labels	
Softkey Label	Function
CANCEL	Returns the user to the System level. Details of the System level are in paragraph 10.4 .
PREVIOUS	This softkey is present if groups exist that have lower access codes than the group being displayed. Pressing this key displays the activity for the next lower ACD Group.
NEXT	This softkey is present if groups exist that have higher access codes than the group being displayed. Pressing this key displays the activity for the next higher ACD Group.
RETURN	The RETURN key (either hardkey or softkey) returns the user to the Group Summary form. Refer to page 620 10-15for details.

Table 10–18 Terms Used In Group Activity Display

Term	Meaning
Caller Activity	
Calls Wtg	The number of callers queued for this group from all paths.
Longst Wtg	The waiting time of the longest waiting caller queued for this group.
Under 1st	The number of callers queued for this group who have been waiting for less than the first threshold timer.
Between	The number of callers queued for this group who have been waiting for longer than the first threshold timer but less than the second threshold timer.
After 2nd	The number of callers queued for this group who have been waiting for longer than the second threshold timer.
Overflowed	The number of callers queued for this group who have overflowed to the next group in the path, if programmed to do so.
Held Calls	The number of callers on hard hold by agents in this group.
Agent Activity	
Logged On	The number of agents currently logged on in this group.
Ready	The number of agents in this group ready to take an ACD call.
After Work	The number of agents who have just completed an ACD call, and their After Work Timer is active.
On ACD	The number of agents currently on incoming ACD calls.
Make Busy	The number of agents currently in Make Busy.
DND	The number of agents with Do Not Disturb activated.
On Non ACD	The number of agents currently on non-ACD incoming calls or outgoing calls.

Monitoring Agents

10.7 The following forms provide information about the agents programmed in the ACD system who are currently logged in. The primary form within the agent sub-level is the Agent Summary that provides an overview of current activity as well as a synopsis of statistical data collected over the past hour. The user is presented with a set of softkeys to access additional forms supplying detailed information about the agent and the agent's performance.

The additional forms are:

- Agent Programmed Data display showing all information entered during Customer Data Entry that affects this agent.
- Agent Statistics display with details of the agent's performance over the last hour, and a comparison between the performance of this agent and the entire group.
- Agent Activity display showing the current status of any specified agent.

These forms are described in detail below.

Agent Summary

The Agent Summary form provides a snapshot view of an agent's current state and a summary of one or more agents' performance over the last hour.

After pressing the AGENTS softkey at the System level, the user is prompted to enter an agent ID number. After entering a valid agent ID, the user is presented with the screen shown in Figure 10–11. Information about the chosen agent appears at the top.

Pressing the RETURN key without first entering an agent ID number also displays the screen shown in Figure 10–11, but in this case the agents are listed by group number and ID number from lowest to highest ID number as programmed during Customer Data Entry.

Entering an unprogrammed or out-of-range agent number results in an error message on the work-line. The CANCEL key allows deletion of the entry. Alternately, the user may press the RETURN hardkey and re-enter an agent number.

15:23 23-APR-89				AGENT SUMMARY				MITEL ACD TELEMARKETER						
GRP NUM	AGENT NAME	AGENT ID	ACD STATE	SUMMARY - LAST HOUR										
				ANSWERED	CMP to	GRP	AV	NONACD	MAKE	BUSY				
2	JACOBSON K	2390	ready	27	02:28	97	96	1	-	:	3	01:28		
2	OLIVETTI S	2750	acd	23	03:01	86	05	10	1	02:27	-	:		
2	ANDERS BOB	3215	nonacd	13	03:45	102	3		-	:	5	01:13		
										:				
2	KING SUSAN	3310	makeb	4	01:58	80	93		-	:	-	:		
5	BRUCE ALAN	1540	acd	12	02:35	10	98		2	00:47	4	00:29		
33	LIKOUJIS J	3250	acd	13	02:21	100	100		0	:	2	00:47		
										:				
42	ISKOVITCH	4100	ready	-	-	-	-		-	:	-	:		
42	CUOMO MARY	73550	makeb	11	04:27	67	132		-	:	1	60:00		
49	LAM JSOEPH	2210	acd	19	02:39	100	102		-	:	-	:		
1- PROGRAMMING			2- STATISTICS			3- ACTIVITY			4-			5- CANCEL		
6-			7- PRINT			8- PAGE UP			9- PAGE DOWN			0- RETURN		

Figure 10–11 Agent Summary Form Display

Table 10–19 describes the softkeys presented with the Agent Summary display. Table 10–20 defines the fields on the display.

Table 10-19 Agent Summary Form Softkey Labels

Softkey Label	Function
PROGRAMMING	Displays the Agent Programmed Data form showing the CDE information for the agent currently bracketed by the work-line arrows. Refer to page 620 10-25 for a description of the Agent Programmed Data form.
STATISTICS	Accesses the Agent Statistics form that shows a statistical overview of the agent's activity at the present moment, and a summary of statistics collected over the past hour. Page 620 10-26 describes the Statistical Overview.
ACTIVITY	Accesses the Agent Activity display containing a frequently updated view of current status of the agent and the agent's set. See page 620 10-28 for a description of this form.
CANCEL	Returns the user to the System level. Refer to paragraph 10.4 for details.
PRINT	Prints the Agent Summary form at the printer used for the ACD Monitor Print.
PAGE UP	Accesses agents with lower group numbers if there are more agent summary lines than fit on one screen. The key only appears when an upward scroll can occur.
PAGE DOWN	Accesses agents with higher group numbers if there are more agent summary lines than fit on one screen. The key only appears when a downward scroll can occur.

Table 10-20 Terms Used In Agent Summary Display

Term	Meaning
Agent Name And Current State	
Grp Num	The agent group's number.
Agent Name	The agent's name as programmed in CDE.
Agent ID	The agent's ID or access code.
ACD State	The current state of the agent as one of the following: acd on an ACD call dnd the agent's set has Do Not Disturb active hold agent has an ACD caller on hold makeb agent has entered the make busy state nonacd agent is on a non-ACD or outgoing call ready agent is ready to accept an ACD call afterw agent is in afterwork timer state

Table 10-20 Terms Used In Agent Summary Display (continued)	
Term	Meaning
Summary – Last Hour	
Answered	The number and average duration of incoming ACD calls answered by this agent.
Cmp To Grp Av	The first percentage is the ratio of the number of incoming ACD calls answered by this agent compared to the average number answered by the rest of the agents in the group over the same period. Agents logging on and off during the period affect the numbers. The second percentage is the ratio of the average call duration of incoming ACD calls answered by this agent compared to the average duration answered by the rest of the agents in the group over the same period.
Non ACD	The number and average duration of non-ACD calls received and placed by the agent.
Make Busy	The number and average duration of times the agent was in a Make Busy state.
Page 2 of 2	

Agent Programmed Data

The Agent Programmed Data form displays the data programmed for the agent by the installer during Customer Data Entry. Figure 10-12 shows the form. The softkeys and fields on the form are described in Table 10-21 and Table 10-22.

15:53 23-APR-89

AGENT PROGRAMMED DATA

MITEL ACD TELEMARKETER

GROUP NAME NEWSROOM GROUP NUM : 33	SUPER NAME : SOBRAN JOE SUPER ID : 3800 SEN'R NAME : MORRISS F SEN'R ID : 3900	AGENT COS : 12		
AGENT 3250 LIKOUDIS J				
1-	2-	3-	4-	5- CANCEL
6-	7-	8- PREVIOUS	9- NEXT	0- RETURN

Figure 10-12 Agent Programmed Data Display

Table 10–21 describes the softkeys presented with the Agent Programmed Data display. Table 10–22 defines the fields on the display.

Table 10–21 Agent Programmed Data Softkey Labels	
Softkey Label	Function
CANCEL	Returns the user to the System level. Refer to paragraph 10.4 for details.
PREVIOUS	Displays the previous agent, sorted by group number and agent ID. The softkey only appears when there is a preceding agent.
NEXT	Displays the next agent, sorted by group number and agent ID. The softkey only appears when there is an additional agent.
RETURN	The RETURN key (either hardkey or softkey) returns the user to the Agent Summary form described on page 620 10–23.

Table 10–22 Terms Used In Agent Programmed Data Display	
Term	Meaning
Group Name	The group's name as programmed in CDE.
Group Num	The group's number as programmed in CDE.
Super Name	The name of the agent's supervisor.
Super ID	The ID of the agent's supervisor.
Sen'r Name	The name of the agent's senior supervisor.
Sen'r ID	The ID of the agent's senior supervisor.
Agent COS	The Class of Service assigned to the agent. When this agent logs in, this COS is transferred to the set, overwriting the set's existing COS.

Agent Statistics

The Agent Statistics display shown in Figure 10–13 provides a summary of agent performance statistics collected over the past hour.

15:53 23-APR-89

AGENT STATISTICS

MITEL ACD TELEMARKETER

AGENT DATA		LAST HOUR		SHIFT TOTAL	
GROUP NAME : NEWSROOM GROUP NUM : 33 LOGIN TIME : 08:27 LOGIN DATE : 23-APR-89 SHIFT DUR : 07:36		ANS by AGT : 13 02:21 READY : 15 00:56 MAKE BUSY : 2 00:47 OUTGOING : - : ON non ACD : - :		ANS by AGT : 49 1:46	
AGENT 3250 LIKLOUDIS J					
1-	2-	3-	4-	5- CANCEL	
6-	7- PRINT	8- PREVIOUS	9- NEXT	0- RETURN	

Figure 10-13 Agent Statistics Display

Table 10-23 describes the softkeys presented with the Agent Statistics display. Table 10-24 defines the fields on the display.

Table 10-23 Agent Statistics Form Softkey Labels	
Softkey Label	Function
CANCEL	Returns the user to the System level. Refer to paragraph 10.4 for details.
PRINT	Prints this form to the printer used for the ACD Monitor print.
PREVIOUS	Displays the statistics for the previous agent, sorted by group number and agent ID. The softkey only appears when there is a preceding agent.
NEXT	Displays the statistics for the next agent, sorted by group number and agent ID. The softkey only appears when there is an additional agent.
RETURN	The RETURN key (either hardkey or softkey) returns the user to the Agent Summary form described on page 620 10-23 .

Table 10–24 Terms Used In Agent Statistics Display

Term	Meaning
Agent Data	
Group Name	The group's name as programmed in CDE.
Group Num	The group's number as programmed in CDE.
Login Time	The time the agent logged into ACD.
Login Date	The date the agent logged into ACD.
Shift Dur	The duration of the agent's shift since login.
Last Hour	
Ans By Agt	The number and average duration of incoming ACD calls answered by the agent.
Ready	The number of times the agent became ready to receive an ACD call and the average duration of each ready interval.
Make Busy	The number of times the agent was in Make Busy and the average time spent in the Make Busy state over the past hour.
Outgoing	The number of external outgoing calls placed by the agent and the average duration of these calls.
On Non ACD	The number of non-ACD calls handled by the agent. Includes both incoming and outgoing external calls, and all internal calls.
Shift Total	
Ans By Agt	The number and average duration of incoming ACD calls answered by the agent since login.

Agent Activity

The Agent Activity form shown in Figure 10–14 provides a continuously updated display of ACD information for the agent, plus status for the agent's set and the current call.

15:53 23-APR-89

AGENT ACTIVITY

MITEL ACD TELEMARKETER

GROUP NAME : NEWSROOM GROUP NUM : 33 SET EXT : 1250 SET LOC'N : 1 2 5 0		SET STATE : idle CALL TYPE : 2 party DND : yes AUTO ANSWR : no ENGLISH : yes		ACD STATE : acd MAKE BUSY : yes 00:20 ON ACD : yes TIMEonACD : 03:03 ACD ONHOLD : yes CALLER : T 32 ORIG PATH : 5400 PRIME GRP : yes	
AGENT 3250 LIKOUDIS J					
1-	2-	3-	4-	5- CANCEL	
6-	7-	8- PREVIOUS	9- NEXT	0- RETURN	

Figure 10-14 Agent Activity Display

Table 10-25 describes the softkeys presented with the Agent Activity display. Table 10-26 defines the fields on the display.

Table 10-25 Agent Activity Form Softkey Labels	
Softkey Label	Function
CANCEL	Returns the user to the System level. Refer to paragraph 10.4 for details.
PREVIOUS	Displays the statistics for the previous agent, sorted by group number and agent ID. The softkey only appears when there is a preceding agent.
NEXT	Displays the statistics for the next agent, sorted by group number and agent ID. The softkey only appears when there is an additional agent.
RETURN	The RETURN key (either hardkey or softkey) returns the user to the Agent Summary form described on page 620 10-23 .

Table 10-26 Terms Used In Agent Activity Display

Term	Meaning
Group Name	The group's eight character name as programmed in CDE.
Group Num	The group's number as programmed in CDE.
Set Ext	The extension number of the <i>SUPERSET</i> telephone where the agent is logged in.
Set Loç'n	The physical location (bay, slot, circuit, and sub circuit) of the <i>SUPERSET</i> telephone where the agent is logged in.
Set State	The software state of the set where the agent is logged in. The state will be one of the following: busy busyout campon dialing dnd held idle intoACD locked talking paging reorder ringbak ringing select suspend
Call Type	The type of call the agent is on, either two-party or conference.
DND	Indicates that the agent's set is in Do Not Disturb mode.
Auto Answr	Indicates that the set will automatically answer ACD calls to the set without agent intervention.
English	Indicates the language of the set; English or French.
ACD State	Indicates the type of activity the agent is involved in from the following list: suspd – agent is ending a call loked – agent's set has been left off-hook acd – on an ACD call dnd – the agent's set has Do Not Disturb active hold – agent has an ACD caller on hold makeb – agent has entered the make busy state nonACD – agent is on a non-ACD call ready – agent is ready to accept an ACD call afterw – agent is in afterwork time
Make Busy	Indicates that the agent is in a Make Busy state.
On ACD	The agent is on an ACD call.
Time On ACD	The duration of the current call.
ACD On Hold	The agent has an ACD caller on hard hold.
Caller	The trunk number or extension access code of the caller waiting for the agent group. Note that callers waiting for a group may not have originated on this path.
Orig Path	Indicates the path access code where this call originated.
Prime Grp	Indicates whether this agent's group is the prime group of the caller's path.

11. **PROGRAMMING**

General

11.1 Customer Data Entry for the *ACD TELEMARKETER* applications package involves specifying the routing of incoming ACD calls by entering data into a network of programming forms. Information in the forms is linked through a series of indexes and pointers. The forms which make up the ACD network are:

- System Options (CDE Form 04)
- Feature Access Codes (CDE Form 02)
- ACD Agent Groups (CDE Form 39)
- Agent Group Subform (CDE Subform 39)
- ACD Keys Template (CDE Form 38)
- COS Define (CDE Form 03)
- ACD Supervisors (CDE Form 40)
- ACD Paths (CDE Form 41)
- Hunt Groups (CDE Form 17)

System Options Form

11.2 Figure 11–1 shows a portion of the System Options form containing the options related to the *ACD TELEMARKETER* feature package. Options are changed by editing the Status field.

SYSTEM OPTIONS FORM

System Options (Displaying ENABLED Fields)	STATUS	OPTION NUM
Automatic Call Distribution	Enabled	41
ACD Silent Monitoring	Enabled	42
ACD Silent Monitoring Beeps	Enabled	43
ACD Reports	Enabled	44

Figure 11–1 System Options Form (CDE Form 04)

Four fields on the System Options form control operation of the *ACD TELEMARKETER* feature. Table 11–1 defines the function of each field.

Table 11–1 System Option Form Fields	
Option	Function
AUTOMATIC CALL DISTRIBUTION (Option 41)	Setting this option to ENABLED allows access to the programming forms related to ACD.
ACD SILENT MONITORING (Option 42)	Setting this option to ENABLED allows a supervisor to monitor ACD calls by dialing a programmed feature access code.
ACD SILENT MONITORING BEEPS (Option 43)	Set this option to ENABLED if agents are to be notified when monitoring is in progress.
ACD REPORTS (Option 44)	Setting this option to ENABLED changes the format of the SMDR records to that required by the <i>ACD TELEMARKETER</i> Reporting Package. For additional information refer to Practice 9109–096–221–NA, Station Message Detail Recording.

System Option 41 (Automatic Call Distribution) must be set to ENABLED before programming the remaining CDE forms related to ACD.

ACD Agent Groups Form

11.3 Figure 11–2 shows a blank ACD Agent Groups Form (CDE Form 39). All Agents must be a member of an ACD Agent Group. The system accommodates a maximum of 50 ACD Agent Groups. Each group must contain a minimum of one Agent. The maximum number of agents per group is 99. The ACD system supports 100 agents logged in at the same time.

The ACD system allows CDE programming of 999 ACD positions in any combination of Agents, Supervisors, and Senior Supervisors.

The agent information entered on this form is the agent name, agent ID, and COS. The agent ID is a 1– to 5–digit access code that allows the agent to log onto the ACD system. Entries in the Agent Group form are sorted by this ID number. The ID is associated with an agent, not a particular extension, so any *SUPERSET 4* telephone the agent uses reflects that agent’s name and ID.

The ordering of agents on the form has no effect upon the agent selection algorithm. For a description of this selection, see Longest Idle Agent in Section 3.

The fields on the ACD Agent Group form contain customer–defined data. Table 11–2 defines the contents of each field .

2:37 PM 11-JUN-90 alarm status = MAJOR

[ACD GRP: 1]		AGENT ID	AGENT NAME	COS
		111	MARY RUBY	10
		112	CATHY BREN	10
		113	SUE BALDIN	10
		114	MARY ATT.	20
		□ 114	MARY ATT.	20
1-ACD GRP NAME	2-FIND ID	3-ADD	4-TOP	5-BOTTOM
6-QUIT	7-AGENT GROUP	8-DELETE	9-OPTIONS	0-

Figure 11-2 ACD Agent Groups Form (CDE Form 39)

Table 11-2 ACD Agent Group Fields	
Field	Meaning
ACD GRP	A field containing the group number and the group name.
ACD GROUP NUMBER	A programmable field containing a 1- or 2-digit number in the range 1 through 50 that identifies an ACD group.
ACD GROUP NAME	An optional field that allows the customer to assign a name to the agent group. A maximum of eight characters may be entered. The agent group must contain at least one member before the ACD GRP NAME softkey is presented.
AGENT ID	A programmable field of up to five digits for assigning an identification number to an ACD agent. This access code must not conflict with any other access code in the database. An ID number can exist in only one Agent Group. Agents requiring access to more than one group must be given a different ID for each group. Entries on the ACD Agent Groups form are sorted numerically by Agent ID.
AGENT NAME	An optional field that assigns a name to an agent ID. The agent name is carried to the set where the agent logs on. The name may be up to 10 characters but can not begin with * . The same conditions apply to position names as well as to set names.
COS	A 2-digit field specifying the Class Of Service number of this agent. Range is 1 to 50.

Agent Groups Subform

11.4 The Agent Groups subform (CDE Subform 39) shown in Figure 11-3 is accessed through the OPTIONS key. This form can only be accessed if there is at least one agent in the agent group. Entries are changed by editing the status column. Four fields on the ACD Agent Group subform contain customer-defined data. The contents of each field is defined in Table 11-3.

2:37 PM 11-JUN-98		alarm status = MAJOR		
[ACD GRP: 1]		OPTIONS		STATUS
Afterwork Timer (MM:SS)		0:00		
Overflow Timer (MM:SS)		9:00		
First Status Threshold (MM:SS)		3:00		
Second Status Threshold (MM:SS)		6:00		
Afterwork Timer (MM:SS)		<input type="checkbox"/> 0:00		
1-	2-	3-	4-	5-
6-QUIT	7-	8-	9-	0-

Figure 11-3 ACD Agent Groups Subform (CDE Subform 39)

Table 11-3 ACD Agent Groups Subform Fields	
Field	Meaning
AFTERWORK TIMER	An optional field to give the agent a wrap-up time following ACD calls. Timer range is 0 seconds to 15 minutes. Default is 0 (no delay time before the next call is presented at the set). Campons and callbacks do not take precedence over a waiting ACD call. Refer to page 620 11-6 for additional information.
OVERFLOW TIMER	An optional field used to specify the maximum time a waiting ACD call remains in this group before overflowing. The overflow destination is defined in the ACD Path Form (CDE Form 41). The value entered can range from 0 seconds to 54 minutes. Default value is 9 minutes. Refer to page 620 11-6 for additional information.

Page 1 of 2

**Table 11-3 ACD Agent Groups Subform Fields
(continued)**

Field	Meaning
FIRST STATUS THRESHOLD	The range of this timer is 0 seconds to 54 minutes (MM:SS). The field defaults to 3 minutes. The time entered in this field must be less than the time specified in the Second Status Threshold. Refer to page 620 11-6 for additional information.
SECOND STATUS THRESHOLD	This timer range is 0 seconds to 54 minutes (MM:SS). The time specified must be greater than the time specified in the First Status Threshold field. The field defaults to 6 minutes. Refer to page 620 11-6 for additional information.

Page 2 of 2

Afterwork Timer

In many ACD situations, the Agent may require some time following an ACD call to complete paperwork before accepting the next call. This subform allows programming of a wrap-up time (Afterwork Timer). The Afterwork Timer prevents an ACD call from being presented to this set until the time specified has expired.

Overflow Timer

The Overflow Timer is programmed for each agent group in the ACD system. It specifies how long an ACD call will wait in the queue for this group before being overflowed. Overflowed calls remain in this group's queue, but are added to a queue for another agent group. This increases the chances of the call being delivered to an agent. The time selected in this form specifies the maximum time a call can wait to be answered before the call overflows. The default time is 9 minutes.

If the system predicts that a call will remain unanswered before the time out period, the system ignores the specified timer and forces an immediate overflow. The two conditions described below can cause this forced overflow:

- If the agent group form specifies an overflow time of three minutes and no agents are logged on in this group, the system ignores the timer and forces an immediate overflow to avoid an unnecessary delay to the caller.
- The second case of overflowing before the specified time out arises during an overloaded state. The system performs an algorithm for an overloaded condition each time a new caller arrives for an agent group or when the status of an agent changes. Either event causes an overflow if excess callers are waiting for the agent group.

Threshold Timers

When an ACD call is initially routed to the agent group and there are no idle agents available, any appearance of the Queue Status indicator for this group reflects a call waiting in queue. This Queue Status indicator is driven by the Threshold timers assigned to this form.

The First and Second Status Threshold timers provide a visual indication on all Queue Status keys of the current work load condition for this agent group.

ACD Keys Template Form

11.5 The ACD Keys Template Form (CDE Form 38) allows global programming for all *SUPERSET 4* telephones that require common ACD feature keys. Only ACD feature keys and speed dial numbers can be programmed in this form. Line appearances that have been assigned to *SUPERSET 4* keys take precedence over ACD feature keys when a position logs in.

Nine *SUPERSET 4* telephone key templates are provided: three templates each for the Agents, the Supervisors and the Senior Supervisors. The key templates are defined using COS options that must be defined in the user's COS.

The template assigned to an Agent is portable to any *SUPERSET 4* telephone the agent logs in at. When the agent logs out, the previous template is restored on the set.

When selected during CDE, the ACD Keys Template form defaults to display the first Agent Keys template. The title line contains the type of template and the template number.

2:33 PM 11-JUN-98		alarm status = MAJOR		
AGENT [1]	KEY	TYPE	SPEED DIAL NUMBER	PRIVATE
	02	Speed Dial	95552212	
	03	Speed Dial	8888	
	04	Speed Dial	95554411	
	05	Speed Dial		
	06	Speed Dial		
	07	Speed Dial		
	08	Speed Dial		
	09	Speed Dial		
	10	Speed Dial		
	11	Make Busy		
	12	Queue Status		
	13	Speed Dial		
	04	<input type="checkbox"/> Speed Dial	95554411	
1-AGENT	2-SUPERVISOR	3-SENIOR	4-	5-
6-QUIT	7-KEY	8-DELETE	9-	0-

Figure 11-4 Agent Keys Template (CDE Form 38)

Three fields on the Keys Template form contain customer-defined data. Table 11-4 defines the contents of each field.

Table 11-4 ACD Keys Template Fields	
Field	Meaning
POSITION	Selectable field defining one of the following positions: Agent, Supervisor, or Senior Supervisor.
TEMPLATE NUMBER	Selectable field containing one digit in the range of 1 through 3 indicating the number of the template being programmed.
KEY	A system generated field listing set key numbers in the range of 02 to 15.
TYPE	A programmable field defining the function of the set keys. Options vary depending on the template form as follows: Agent – Speed Dial, Make Busy and Queue Status. Supervisor – Speed Dial, Queue Status, Agent Status and Shift. Senior Supervisor – Speed Dial, Queue Status and Shift.
SPEED DIAL NUMBER	A programmable field used to save frequently dialed numbers. This field can also be used to program feature access codes. A maximum of 25 digits may be entered in this field. This field can only be accessed if the 'Type' field for that line is 'Speed Dial'.
PRIVATE	A programmable field used to control the display of speed dial numbers on the set. When privacy is enabled the set does not display the speed call entry. If privacy is not requested, the speed dial entry appears on the set during dialing, or when a display key is requested.

COS Define

- 11.6 The COS options shown in on the COS Define form in Figure 11-5 apply to the ACD feature. These ACD options are explained below. The COS options for ACD are described below in Table 11-5.

COS DEFINE FORM

[COS: 1]	OPTION (DISPLAYING ENABLED)	STATUS	OPTION NUM
	Recording Failure to Hangup Timer 1-255 seconds	30	404
	SUPERSET - Auto Answer	ENABLED	600
	SUPERSET - Headset Operation	ENABLED	612
	ACD - Agent Template (0-3, 0=disable)	0	650
	ACD - Supervisor Template (0-3, 0=disable)	0	651
	ACD - Senior Supervisor Template (0-3, 0=disable)	0	652
	ACD - Agent Always Auto-Answer	ENABLED	653
	Loop Start Trunk to ACD Path Connect	ENABLED	812

Figure 11-5 COS Define Form (CDE Form 03)

Table 11-5 COS Options Fields	
Field	Meaning
Recording Failure To Hangup Timer (COS Number 404)	The values 1 - 255 are valid. Default is 30 seconds. Set this timer to a value greater than the clear-down time of the recording groups whose members have this COS. Assigning this COS timer to a recording group ensures that, in the case of the system hanging up on a RAD, that the RAD eventually goes on-hook in the specified time. If it does not, the RAD is taken out of service.
SUPERSET- Auto Answer (COS Number 600)	Set to ENABLED if the agent set is to be placed in Auto Answer mode immediately upon login. Set to DISABLED if agent is not using Auto Answer or if the agent is to manually place set in Auto Answer mode after login. Default is DISABLED.
SUPERSET - Headset Operation (COS Number 612)	Set to ENABLED if the agent's SUPERSET telephone is to be used with a headset rather than a handset. Set to DISABLED if the telephone is to be used only with a handset. Default is DISABLED.
ACD - Template (Agent, Supervisor, and Senior Supervisor) (COS Numbers 650 through 652)	Enter the template number of the appropriate ACD Keys Template Form. Three template configurations are available for each ACD position. By default they are disabled, but appear in the enabled list. All three COS options are mutually exclusive. For example, if an Agent is selected, the Supervisor or Senior Supervisor templates cannot be selected from the same COS.

Table 11-5 COS Options Fields (continued)	
Field	Meaning
ACD – Agent Always Auto-Answer (COS Number 653)	When enabled in the agent COS, this option causes Auto-Answer to be activated as soon as the agent logs on. Default is DISABLED.
Loop Start Trunk to ACD Path Connect (COS Number 812)	When enabled, this option allows a loop start trunk to connect to an ACD path.
Page 2 of 2	

ACD Supervisors

- 11.7 The ACD Supervisors form shown in Figure 11-6 records the ID number, name, and COS of each ACD Supervisor. System option 41, "Automatic Call Distribution" must be enabled before this, or any ACD related CDE form, can be accessed.

The Senior Supervisor's name is carried to the set when the supervisor logs on. The ID codes assigned in this form are used in the log on procedure and may also be used as an access code to call the user.

2:48 PM 11-JUN-98		alarm status = MAJOR		
ACD SENIOR SUPERVISOR ID CODES		NAME		COS
301		J. NANTILL		21
302		E. LEGAULT		21
303		D. FELSBG		21
<input type="checkbox"/> 303		D. FELSBG		21
1-FIND GROUP	2-FIND SUPER	3-ADD	4-TOP	5-BOTTOM
6-QUIT	7-	8-DELETE	9-EXPAND	0-

Figure 11-6 ACD Supervisor Form (CDE Form 40)

The ACD Supervisor form contains three programmable fields which must be defined by the customer. Table 11-6 defines each field.

Table 11-6 ACD Supervisor Form Fields	
Field	Meaning
ID Code	A programmable field used to record Senior Supervisor identification numbers. Their IDs are used when logging on and as an access code to call the user. The IDs are 1-5 digit entries, and must not conflict with other access codes already assigned in the system. The form is sorted numerically by ID.
Name	An optional programmable field used to record the Supervisor's name. This name appears on any <i>SUPERSET 4</i> telephone the user logs onto. The same conditions apply to supervisor names as to set names.
COS	A 2-digit field specifying the Class Of Service number of this Senior Supervisor. The range is 1 to 50.

Pressing the EXPAND softkey displays the subform shown in Figure 11-7. This form lists all groups reporting to the supervisor.

ACD Supervisor Subform

11.8 This subform is sorted by SUPER ID. If the entry has no Supervisor assigned, the field is sorted by Group number. When there is more than one group assigned to the same supervisor, the entries reporting to the supervisor are sorted by group number.

3:01 PM 11-JUN-90		alarm status = MAJOR		
GRPS OF E. LEGAULT 302		SUPER ID	SUPER NAME	COS
12		107	H. FERGSON	21
10		108	C. BRAZEAU	20
2		109	C.J.CHAT	20
1		NO SUPER		
12		107	H. FERGSON	21
1-FIND GROUP	2-FIND SUPER	3-ADD	4-TOP	5-BOTTOM
6-QUIT	7-	8-DELETE	9-NO SUPER	0-

Figure 11-7 ACD Supervisor Subform (CDE Subform 40)

Table 11-7 defines the fields of the ACD Supervisor Subform.

Table 11-7 ACD Supervisor Subform Fields	
Field	Meaning
Heading	A system generated field listing the senior supervisor's name and ID. The name defaults to 'SENIOR' if no name was programmed in the ACD Supervisor Form.
GRPS OF	A programmable field used to define groups reporting to the senior supervisor. If the selected group reports directly to the Senior Supervisor, pressing the ENTER key causes the display NO SUPER to appear in the SUPER ID field. The remaining two fields are blank.
SUPER ID	A programmable field used to assign a supervisor to the agent group .
SUPER NAME	An optional field of up to 10 characters. The entry cannot begin with * . The same conditions apply to supervisor names as to set names.
COS	A 2-digit field that specifies the Class Of Service number of this Supervisor. The range is 1 to 50.

ACD Paths

- 11.9 The ACD path is the major element of the ACD structure. Each path contains all the information necessary to carry an incoming call through the ACD system. Paths specify the resources used, the order in which the resources are encountered, and the timing of the steps through the path. Up to 99 paths may be assigned in the system. Figure 11-8 contains the ACD Path form. Table 11-8 describes the fields on the ACD Path form.

3:02 PM 11-JUN-90		alarm status = MAJOR		
[ACD PATH: 1]		OPTIONS		STATUS
Access Code For This ACD Path Primary ACD Agent Group Delay For Ringback (MM:SS) Recording 1 : Start Time (MM:SS) Access Code Music Source Following Recording 2 : Start Time (MM:SS) Access Code Music Source Following Recording 3 : Start Time (MM:SS) Access Code Music Source Following				
Access Code For This ACD Path		□		
1-	2-	3-	4-	5-
6-QUIT	7-ACD PATH	8-	9-	0-

Figure 11-8 ACD Path Form (CDE Form 41)

Table 11–8 ACD Path Form Fields

Field	Meaning
ACD Path	Header field identifying the ACD path by name and number.
ACD Path Number	Programmable field containing a one or two digit number in the range of 1 to 99.
ACD Path Name	Programmable field identifying the path by name. This field can not be accessed until the path has been assigned an access code and a primary agent group. The path name can be up to 8 characters and cannot begin with *.
Access Code for this ACD Path	Programmable field containing the access code for the path. This code can be used as a destination in the Non–Dial–In Trunks form (CDE Form 14) and the Call Rerouting Table (CDE Form 19), as an Automated Attendant defined destination in the Hunt Groups form (CDE Form 17), as an interflow point in another path definition, and as a call forwarding point for a <i>SUPERSET</i> telephone or station. This allows the ACD system to tie in to existing routing schemes such as the DID trunk routing points. The connection checking between a device and ACD paths only prevents access to ACD paths. No device or tenant interconnection checking is performed between the caller and any recording, music or agent devices after the caller has entered a path.
Primary ACD Agent Group	A programmable field containing a one or two digit number in the range of 1 to 50. This entry indicates which group first receives the ACD calls on this path. The agent group must be assigned in the ACD Agent Groups Form before it can be entered in this field.
Delay For Ringback	A programmable field specifying a timer value in the range of 00:01 to 54:00. The default value is 3 seconds (00:03). All other timers connected with the ACD functions start after the Delay for Ringback timer has expired.
Recording 1: Start Time	<p>A programmable field specifying when Recording 1 begins relative to when the caller enters the ACD system. This timer is initiated after the Delay For Ringback timer has expired. The range of the Recording 1 Start Time is 00:00 to 54:00.</p> <p>A 3–second minimum delay exists between recordings. During this time the caller listens to the system or alternate music source.</p>
Recording 1: Access Code	This programmable field is mandatory if a Recording Start Time has been specified. The access code entered in this field is defined in the Hunt Groups CDE form. The default value is no recordings.
Recording 1: Music Source Following	<p>A programmable field that directs the call to the ONS port supplying music following the recording. The default music source is the system music, if provided, or silence. The entry in this field cannot have keyline or multi–call line appearances.</p> <p>The music source is a permanently off–hook ONS port that connects the caller in a listen–only conference. An alternate music source must be either an FCC Part 68 and DOC approved Recorded Announcement Device which is connected to an ONS circuit, or to another source that is connected through an FCC Part 68 and DOC approved “voice coupler” or “voice connecting arrangement” to an ONS circuit.</p>

**Table 11-8 ACD Path Form Fields
(continued)**

Field	Meaning
Recording 2 through 4	The recording fields must be edited in sequence. For example, Recording 3 Start Time cannot be edited unless Recording 1 and Recording 2 are both assigned.
Overflow 1 Agent Group	A programmable field specifying the ID of the agent group that receives overflow calls. ACD calls that overflow to this group also retain their position for the Primary Agent Group. The default value for this field is no overflow.
Overflow 2 Agent Group	<p>A programmable field specifying the ID of the second agent group that receives overflow calls. Callers waiting for this group remain in the queue for the primary and first overflow groups.</p> <p>An Overflow 1 agent group must be assigned before the Overflow 2 field can be accessed. The default value is no overflow.</p>
Overflow 3 Agent Group	<p>A programmable field specifying the ID of the third agent group that receives overflow calls. Callers waiting for this group remain in the queue for the primary, first and second overflow groups. The default value is NO.</p> <p>Overflow 1 and 2 agent groups must be assigned before the Overflow 3 field can be accessed. The default value is no overflow.</p>
Interflow Enabled	Entering YES in this field allows the waiting ACD call to exit ACD and call a specified number. If this field is enabled the call interflows to the Interflow Point Access Code. Default for the Interflow Enabled field is NO.
Interflow Timeout	<p>Programmable field specifying when the waiting ACD call should leave the ACD system and be routed to the interflow point. The timer range is 00:01 to 54:00. The default value of this field is the maximum time of 54 minutes.</p> <p>Programming a value in this field ensures that unanswered calls do not remain in the system after the caller disconnects. This can occur with loop start trunks if the CO fails to send a disconnect to the PABX.</p> <p>This timer also ensures that all calls are handled within a maximum time interval. Call handling may involve routing the caller elsewhere or dropping the call.</p>
Interflow Point Access Code	Programmable field containing the directory number of the interflow device. Valid interflow points are LDNs, stations, sets, consoles, night bells, ACD paths, station/set hunt groups, UCD agent hunt groups, Automated Attendant hunt groups, system speed call numbers or DROP CALL. If an access code is programmed, the DROP CALL softkey is provided.
Allow Overflow to Interflow Point before Timeout	Entering YES in this field allows an overflow to the interflow point before the Interflow Timeout.

**Table 11-8 ACD Path Form Fields
(continued)**

Field	Meaning
Priority	<p>A programmable field used to set the priority of the ACD Path. Priority range is 1 to 99 (1 is highest priority). The field default is 99.</p> <p>Calls waiting for an Agent Group are serviced according to the path priority. Expensive trunks should be routed to a path with a high priority.</p>
Service Time	<p>A programmable field used to establish a standard time to answer that the supervisor can use to monitor the performance of agents answering calls on the path.</p> <p>The service time is programmable in the range 00:00 to 54:00.</p> <p>The path level of service is calculated by comparing the actual time to answer against the programmed service level.</p>

ACD Path Programming

For a path to function, the primary agent group and the path access code must be programmed. Few restrictions exist on path programming. An agent group, for example, could be the primary group of three paths and the first overflow group of two other paths. The same applies to recording groups and the alternate music sources. The result is that a path can be custom tailored to the call being handled.

Each path is given a priority ranging from 1 to 99 (1 being the highest priority). ACD calls entering a high priority path are serviced before calls that entered a path with a lower priority. This feature improves cost efficiency by routing to higher priority paths those trunks that incur additional expenses, such as long distance calls or WATS.

All devices have unrestricted access to ACD paths except Loop Start CO trunks and Loop Start DISA trunks (if located on a CO Trunk card). Loop start trunks can be prevented from entering ACD through the use of the "Loop Start Trunk to ACD Path Connect" option (COS Option 812). By default this option is disabled, so by default loop start trunks may not enter ACD.

ACD Recording Hunt Groups

11.10 Recorded announcements are given to ACD callers while waiting for an idle agent. ACD callers entering the PABX on a path hear ringback until the 'Delay for Ringback' timer specified in the Path form has expired. At this point, the system attempts to provide an agent. If all agents are busy and the caller must wait, the call is routed to a recording.

The recordings are provided by hunt groups of regular ONS ports. When a RAD answers, the system collects all callers waiting for the RAD and creates a listen-only conference. Callers select an idle RAD based on the hunting type of the group. When all of the recordings in a group are busy, the caller camps on to the recording group and

waits for a free recording. All calls which are waiting are brought into a listen-only conference with the first available recording.

At the end of the recorded message, the callers are routed to the music source defined in the Path form. If no alternate music source is defined, the caller is given system music or silence.

The ONS ports cannot have keyline or multi-call line appearances. After changing the Hunt Groups form to a Recording Hunt Group, the Hunt Groups form changes to that shown in Figure 11-9. Fields described below but not shown in Figure 11-9 are accessed through the OPTIONS softkey. Table 11-9 describes the fields on the Hunt Groups form.

[GRP 1:_____][TERM][STN/SET]		EXT NUM	BAY	SLT	CCT	COMMENTS
		1101	01	01	01	Manager
		1104	01	01	04	Accounts
		1105	01	01	05	Accounts
		1106	01	01	06	Secretary
		<input type="checkbox"/> 1106	01	01	06	Secretary
1-GROUP TYPE	2-CIRCULAR	3-INSERT		4-OPTIONS		5-HUNT GROUP
6-QUIT	7-ACCESS CODE	8-DELETE		9-EXT NUM		0-

Figure 11-9 Hunt Groups Form (CDE Form 17)

Table 11-9 Hunt Groups Form Fields	
Field	Meaning
HUNT GROUP NUMBER	A programmable two digit field in the range of 1 to 99. ACD only has 99 hunt groups.
ACCESS CODE	A programmable field containing the access code for the hunt group. This code must be a unique number that does not conflict with the system numbering plan. The entry in this field must be copied to the ACD Path form as an access code to the recordings

**Table 11-9 Hunt Groups Form Fields
(continued)**

Field	Meaning
TYPE OF SEARCH	<p>Enter one of the following to specify the desired hunting method:</p> <p>CIRCULAR: Hunting begins at the extension following the extension to which the previous call was completed, and hunts through all extensions in the hunt group in the programmed sequence.</p> <p>TERMINAL: Hunting always starts at the first extension programmed in the hunt group and terminates at the first idle extension.</p> <p>Figure 11-9 shows an entry of TERM in this field.</p>
GROUP TYPE	<p>Softkey that allows the user to specify a RECORDING group type. Figure 11-9 shows the entry RECORD in this field on the form.</p>
EXTENSION NUMBER	<p>Extension number of the ONS port(s) connected to a recording. The maximum number of entries in this field is fifty.</p>
BAY/SLOT/CIRCUIT	<p>System generated field that is displayed after entering the extension number of the ONS port.</p>
MESSAGE LENGTH	<p>Programmable field defining the length of the recorded announcement. The range is 1 second to 4 minutes. Default entry is 10 seconds.</p> <p>This timer value determines whether the PABX or the RAD ends the recording. If the RAD is to hang up, set the Message Length at least 3 seconds longer than the actual recording length. This allows for timing and message delays. In addition, the flash hook time programmed into the PABX affects how soon the PABX sees the RAD going on hook after the RAD hangs up.</p>
NAME	<p>Programmable field that identifies the hunt group by name. This field cannot be accessed before the Hunt Group Access code has been assigned.</p>

Appendix A.

ACD MESSAGES

The error messages that may appear during programming of the ACD forms are listed, and explained, in the following Table:

Table A-1 Programming Error Messages	
Error Message	Meaning
ACD agent group XX already assigned to a supervisor	The ACD agent group which has been edited or inserted into the sub-form is already programmed under some other supervisor.
Agent group XX has already been assigned elsewhere in this path	The selected overflow agent group or primary ACD agent group is a duplicate of an agent group already specified in this path.
ACD agent group XX not assigned to a supervisor	ACD group XX, requested by the FIND GROUP key, cannot be displayed because it has not been assigned to a supervisor yet.
ACD groups under XXXXX must first be deleted	This senior supervisor cannot be deleted from the first-level form by the DELETE key because there are ACD groups defined under this senior supervisor.
ACD keys template for this COS is invalid or disabled	An attempt was made to change the COS of a logged in ACD position. The new COS has ACD keys template disabled or assigned to another ACD position.
ACD Monitor Print in progress	System found at least one printer – job has been started.
ACD position active – Cannot make template change	An attempt was made to disable or change a template COS option while the ACD position is logged in.
AGENT STATUS not allowed when multiple QUEUE STATUS keys are programmed	The user is attempting to program an agent status key when there is more than one queue status key programmed for the template. Only one is allowed if an agent status key is present.
Agent XXXXX does not exist	The ID entered for the FIND ID key does not exist in the database.
Agent XXXXX is on line and cannot be deleted	The DELETE key cannot be used on an agent who is on line.
Alternate music sources cannot have keyline or multi-call line appearances.	Music sources cannot be line appearances.
An ACD position is currently logged in at the SUPERSET™	The user is attempting to delete a SUPERSET where there is an ACD position logged in. The ACD position must log out first.

**Table A-1 Programming Error Messages
(continued)**

Error Message	Meaning
An agent's set's prime line cannot have any appearances on other sets	There is an ACD agent logged in at the given <i>SUPERSET</i> , therefore, line appearances of that <i>SUPERSET</i> cannot be programmed into the data base.
Attempting to remove an Agent Group that has calls waiting	This message is displayed if the Primary Agent group or the Overflow agent groups have calls waiting from the path, and the user is attempting to change or delete the agent group or the path.
Attempting to remove a Music Source that is currently in use	Someone is listening to the Music source so it cannot be removed. This message can occur when attempting to change or delete a music source, deleting the recording that the music source is in, or deleting the path.
Attempting to remove a Recording that is currently in use	Someone is using the Recording hunt group so it cannot be removed. This message can occur when attempting to change or delete the recording or when deleting the path.
Beep (audible sound from terminal)	The speed dial number entered is too long (maximum 25 digits).
Beeping (repeating audible sounds from terminal)	Too many digits or characters have been entered in the selected field.
Cannot change agent information at time of reassignment	The user attempted to reassign an agent to the current ACD Group AND change agent name or COS at the same time. These two steps (reassign and changing) must be done separately.
Cannot change COS of an ACD position whose set is currently in use	The ACD position being updated is logged in and using the set. To change the COS, the ACD position must be logged off or else logged in to an idle set.
Cannot delete last agent while callers are waiting on ACD group XX	The user attempted to delete the last agent from ACD group XX, thereby deleting group XX itself. There are ACD calls waiting for group XX, so the deletion cannot be permitted at this time.
Cannot disable option when ACD programming is present	The user is attempting to disable System Option 41 (Automatic Call Distribution) when there is ACD programming present in one or all of CDE Forms 38, 39, 40 and 41.
Checking status of printer(s)	The system is checking status of printer(s) – during this time the CANCEL softkey may be pressed to return the user to the previous level.
Delete ACD Group XX from ACD SUPERVISORS form before deleting last agent	The user attempted to delete the last agent from group XX, which would have the effect of deleting group XX itself. Group XX is referenced in the ACD SUPERVISORS form, so it must be deleted from that form first. Then the user is allowed to delete the last agent, which deletes the group.

Table A-1 Programming Error Messages (continued)	
Error Message	Meaning
Delete ACD Group XX from ACD PATH YY before deleting last agent	The user attempted to delete the last agent from group XX, which would have the effect of deleting group XX itself. Group XX is referenced in the ACD PATH form, for path number YY, so it must be deleted from that form first. Then the user is allowed to delete the last agent, which deletes the group.
Extension XXXXX can't have a key template and BLF module at the same time	A key template cannot be enabled in the COS because the extension has an associated <i>SUPERSET DSS</i> Module. The two features are mutually exclusive.
First Status Threshold must be start time of previous recording	Adjust the interflow timeout as indicated.
Form access disallowed, enable Automatic Call Distribution System Option	The user is attempting to program an ACD CDE form when ACD is not enabled in the system. System Option 41 (Automatic Call Distribution) must be enabled.
Invalid Interflow Point	The access code entered for the Interflow point is non-existent or illegal. Legal points are: LDNs, stations, sets, consoles, ACD paths, station/set hunt groups, UCD agent hunt groups, nightbells, and system speedcall numbers.
Key number XX has MAKE BUSY programmed	Each agent template can only have one MAKE BUSY key programmed.
Key number XX has QUEUE STATUS programmed	An Agent keys template can only have one QUEUE STATUS key programmed; or a supervisor keys template can only have one QUEUE STATUS key programmed if there is already one AGENT STATUS key programmed.
Key number XX has SHIFT programmed	Each template can only have one SHIFT key programmed.
Maximum Afterwork Timer is 15:00	The user entered a timer out of range.
Maximum Time is 54:00	The user entered a timer out of range for Start Time or one of the Thresholds.
Multiple QUEUE STATUS keys not allowed with AGENT STATUS keys	The user is attempting to program more than one queue status key for a template that has an agent status key programmed. Only one is allowed if an agent status key is present.
Must delete all appearances of XX from CALL REROUTING TABLE	This ACD path cannot be deleted because its access code is defined in the CALL REROUTING table (Form 19).
Must delete all appearances of XX from answer points in NON-DIAL-IN trunks	This ACD path cannot be deleted because its access code is defined in the NON-DIAL-IN TRUNKS form (Form 14).
No printer(s) defined for ACD	No printers for ACD have been programmed in CDE Form 34.

**Table A-1 Programming Error Messages
(continued)**

Error Message	Meaning
ONS Port access code XXXXX does not exist	The access code entered for the Alternate Music Source Between Recordings, or Music Source Following a Recording is non-existent or illegal.
Option XXX conflicts with this option	Only one of the ACD COS options (ACD agent, ACD supervisor, ACD senior supervisor) can be enabled in the same COS.
Option 41 must be enabled	Option 41 (Automatic Call Distribution) must be enabled before this option can be enabled.
Option 44 must be disabled	The user is attempting to disable Option 41 (Automatic Call Distribution).
Printer(s) busy, try later	Printers are programmed, but the system cannot find at least one that is idle.
Recording access code XXXXX does not exist	The access code entered for a recording is non-existent or illegal. The code must be for a recording hunt group.
Start time of a recording must be < Interflow Timeout	Adjust the start time as indicated.
Start time of a recording must be < start time of the next recording	Adjust the recording start times as indicated.
Start time of recording must be > start time of the previous recording	Adjust the recording start times as indicated.
Supervisor XXXX does not exist	A Supervisor with ID XXXX cannot be displayed, as requested via the FIND SUPER key, because this access code has not been assigned to a supervisor.
Template number must be in range (1-3)	The template number is out of range.
The access code XXXX is already assigned	<p>In the Paths form the error is: The access code entered for this ACD Path is already assigned elsewhere in the database.</p> <p>In the Supervisor form the error is: The ID code which has been inserted into the main form or the subform already exists in the database. (It could exist as another supervisor, senior supervisor, agent, or any other device.)</p> <p>In the subform this error occurs if the user specified a different name or COS than was previously entered for this supervisor.</p>
The agent group XX does not exist	The specified agent group does not exist in the data base.
The maximum ACD positions allowed are already assigned	The maximum number of ACD positions is 999, which includes all position types.
The SUPERSET has a BLF module and cannot have a COS with a key template	The COS being assigned to the set, which has a SUPERSET DSS Module associated with it, has a key template enabled.

**Table A-1 Programming Error Messages
(continued)**

Error Message	Meaning
The value XX is outside valid range for ACD agent group (1-50)	The given value is outside the valid range.
XXXXX is an ACD agent ID	The specified supervisor ID from FIND SUPER is an ACD agent.
XXXXX is an ACD supervisor	The user has entered a supervisor ID for FIND AGENT.

Page 5 of 5

Appendix B.

PLANNER SHEETS

This appendix contains additional blank copies of the Agent Group Planner and the Path Planner sheets. Each sheet contains instructions on its use. Turn to Section 4 of this practice for additional information on configuring an ACD system.

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AGENT GROUP PLANNER ACD TELEMARKETER®

INSTRUCTIONS

Use this planner as an aid in distributing the work-load of the agent groups. Complete this form before the Path Planner. Once completed, transfer the Agent Group Number to the appropriate group (Primary, 1st, 2nd, or 3rd) on Line 3 of the Path Planner.

1. Overflow timer default is 9 minutes (maximum 54 minutes). This is the maximum time a call can be queued on the group before overflowing. Prediction may allow the overflow before the timer expires. 1st threshold default is 3 minutes (maximum 54 minutes), 2nd threshold default is 6 minutes (maximum 54 minutes). These are indications for the agents (queue status) of how long the calls have been waiting to be answered. Afterwork timer default is 0 minutes (maximum 15 minutes). This is the amount of time an agent has after completing a call before receiving the next call.
2. Use this box to indicate how many paths the Agent Group is involved in. (P=primary, 1=1st. overflow group, 2=2nd overflow group, 3=3rd overflow group). Transfer the Agent Group Number to the Path Planner (one for each Path indicated in the box).

①	Agent Group #: _____ Name: _____	Agent Group #: _____ Name: _____	Agent Group #: _____ Name: _____	Agent Group #: _____ Name: _____																																
	Overflow Time ____ : ____ 1st Threshold ____ : ____ 2nd Threshold ____ : ____ After Work ____ : ____	Overflow Time ____ : ____ 1st Threshold ____ : ____ 2nd Threshold ____ : ____ After Work ____ : ____	Overflow Time ____ : ____ 1st Threshold ____ : ____ 2nd Threshold ____ : ____ After Work ____ : ____	Overflow Time ____ : ____ 1st Threshold ____ : ____ 2nd Threshold ____ : ____ After Work ____ : ____																																
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AGENT GROUP PLANNER

ACD TELEMARKETER®

INSTRUCTIONS

Use this planner as an aid in distributing the work-load of the agent groups. Complete this form before the Path Planner. Once completed, transfer the Agent Group Number to the appropriate group (Primary, 1st, 2nd, or 3rd) on Line 3 of the Path Planner.

1. Overflow timer default is 9 minutes (maximum 54 minutes). This is the maximum time a call can be queued on the group before overflowing. Prediction may allow the overflow before the timer expires. 1st threshold default is 3 minutes (maximum 54 minutes), 2nd threshold default is 6 minutes (maximum 54 minutes). These are indications for the agents (queue status) of how long the calls have been waiting to be answered. Afterwork timer default is 0 minutes (maximum 15 minutes). This is the amount of time an agent has after completing a call before receiving the next call.
2. Use this box to indicate how many paths the Agent Group is involved in. (P=primary, 1=1st. overflow group, 2=2nd overflow group, 3=3rd overflow group). Transfer the Agent Group Number to the Path Planner (one for each Path indicated in the box).

①	Agent Group #: _____ Name: _____	Agent Group #: _____ Name: _____	Agent Group #: _____ Name: _____	Agent Group #: _____ Name: _____																																
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①

Name:
Path Access:
Priority: _____ Path #:
Delay to Answer:
Path Service Level:

ACD TELEMARKETER®
PATH PLANNER

Purpose of this Path: _____

②

Recording 1 RAD: _____ Start: ____ : ____ : ____ Name: _____ Length: ____ : ____	Recording 2 RAD: _____ Start: ____ : ____ : ____ Name: _____ Length: ____ : ____	Recording 3 RAD: _____ Start: ____ : ____ : ____ Name: _____ Length: ____ : ____	Recording 4 RAD: _____ Start: ____ : ____ : ____ Name: _____ Length: ____ : ____
MOH or Ext #: _____	MOH or Ext #: _____	MOH or Ext #: _____	MOH or Ext #: _____

③

```

graph TD
    Q1[QUEUED CALLS] --> AG1[Primary Agent Group]
    Q2[QUEUED CALLS] --> AG2[1st Overflow Agent Group]
    Q3[QUEUED CALLS] --> AG3[2nd Overflow Agent Group]
    Q4[QUEUED CALLS] --> AG4[3rd Overflow Agent Group]
    
    AG1 --> OE1[Overflow Group Exists]
    AG2 --> OE2[Overflow Group Exists]
    AG3 --> OE3[Overflow Group Exists]
    AG4 --> OE4[Overflow Group Exists]
    
    OE1 -- Yes --> AG2
    OE2 -- Yes --> AG3
    OE3 -- Yes --> AG4
    
    OE1 -- No --> I[Interflow?]
    OE2 -- No --> I
    OE3 -- No --> I
    OE4 -- No --> I
    
    I -- No --> CAS[Call stays as is]
    I -- Yes --> IP[Interflow Point: # _____ or Drop. Y/N]
    
```


④

Overflow Group Exists

Yes

No

⑤

Interflow Timeout: ____ : ____
Allow Overflow to Interflow Point before timeout? Y/N

INSTRUCTIONS:

1. Complete a Path Planner for each path.
2. Caller can listen to RADs with the option of Music on Hold (MOH) or an alternate music source/recording between the RADs. (RAD = Hunt Group Access Code)
3. Copy the appropriate Agent Group Number from the Agent Group Planner.
4. The Primary Agent Group must be programmed. The path has the option of three Overflow Groups and Interflow out of the Path. If next Overflow Group is not programmed the call either interflows out of the path or remains as is until the call is answered or the caller hangs up.
5. Default interflow Timeout is 54 minutes. The call interflows (if enabled) or drops when the timer expires or when prediction indicates that the call will not be answered within the timer interval. Interflow time starts when the call enters the path.

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**ACD TELEMARKETER[®]
PATH PLANNER**

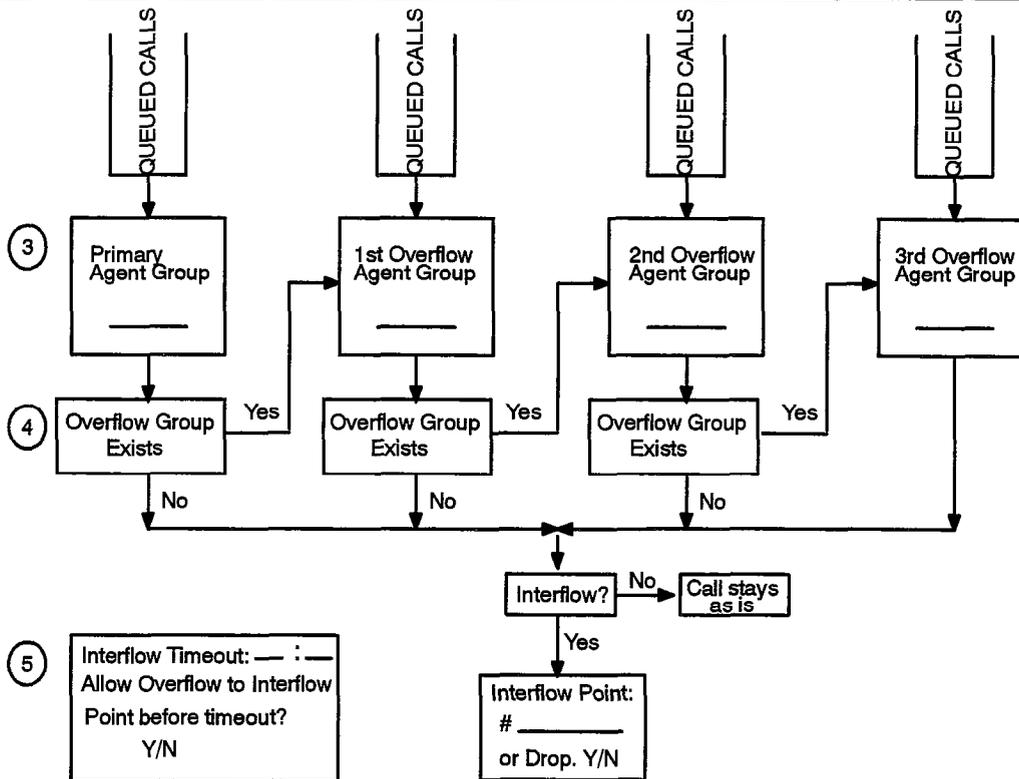
①

Name:
Path Access:
Priority: Path #:
Delay to Answer:
Path Service Level:

Purpose of this Path: _____

②

Recording 1 RAD: _____ Start: ____ : ____ Name: _____ Length: ____ : ____	MOH or Ext #: _____	Recording 2 RAD: _____ Start: ____ : ____ Name: _____ Length: ____ : ____	MOH or Ext #: _____	Recording 3 RAD: _____ Start: ____ : ____ Name: _____ Length: ____ : ____	MOH or Ext #: _____	Recording 4 RAD: _____ Start: ____ : ____ Name: _____ Length: ____ : ____	MOH or Ext #: _____
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①

Name:	
Path Access:	
Priority:	Path #:
Delay to Answer:	
Path Service Level:	

ACD TELEMARKETER[®]
PATH PLANNER

Purpose of this Path: _____

②

Recording 1	
RAD: _____	
Start: ____ : ____	MOH or Ext #: _____
Name: _____	
Length: ____ : ____	

Recording 2	
RAD: _____	
Start: ____ : ____	MOH or Ext #: _____
Name: _____	
Length: ____ : ____	

Recording 3	
RAD: _____	
Start: ____ : ____	MOH or Ext #: _____
Name: _____	
Length: ____ : ____	

Recording 4	
RAD: _____	
Start: ____ : ____	MOH or Ext #: _____
Name: _____	
Length: ____ : ____	

③

```

graph TD
    Q1[QUEUED CALLS] --> AG1[Primary Agent Group]
    Q2[QUEUED CALLS] --> AG2[1st Overflow Agent Group]
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    Q4[QUEUED CALLS] --> AG4[3rd Overflow Agent Group]
    
    AG1 --> OE1[Overflow Group Exists]
    AG2 --> OE2[Overflow Group Exists]
    AG3 --> OE3[Overflow Group Exists]
    AG4 --> OE4[Overflow Group Exists]
    
    OE1 -- Yes --> AG2
    OE2 -- Yes --> AG3
    OE3 -- Yes --> AG4
    OE4 -- Yes --> Int[Interflow?]
    
    OE1 -- No --> Int
    OE2 -- No --> Int
    OE3 -- No --> Int
    OE4 -- No --> Int
    
    Int -- No --> CAS[Call stays as is]
    Int -- Yes --> IP[Interflow Point: # _____ or Drop. Y/N]
    
```


④

Interflow Timeout: ____ : ____
Allow Overflow to Interflow Point before timeout?
Y/N

⑤

Interflow Point: # _____
or Drop. Y/N

INSTRUCTIONS:

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①

Name:
Path Access:
Priority: _____ Path #: _____
Delay to Answer:
Path Service Level:

ACD TELEMARKETER®
PATH PLANNER

Purpose of this Path: _____

②

Recording 1 RAD: _____ Start: ____ : ____ : ____ Name: _____ Length: ____ : ____	Recording 2 RAD: _____ Start: ____ : ____ : ____ Name: _____ Length: ____ : ____	Recording 3 RAD: _____ Start: ____ : ____ : ____ Name: _____ Length: ____ : ____	Recording 4 RAD: _____ Start: ____ : ____ : ____ Name: _____ Length: ____ : ____
MOH or Ext #:	MOH or Ext #:	MOH or Ext #:	MOH or Ext #:

③

QUEUED CALLS

↓

Primary Agent Group

QUEUED CALLS

↓

1st Overflow Agent Group

QUEUED CALLS

↓

2nd Overflow Agent Group

QUEUED CALLS

↓

3rd Overflow Agent Group

④

Overflow Group Exists

Yes → 1st Overflow Agent Group

No → Interflow?

Overflow Group Exists

Yes → 2nd Overflow Agent Group

No → Interflow?

Overflow Group Exists

Yes → 3rd Overflow Agent Group

No → Interflow?

Interflow?

No → Call stays as is

Yes → Interflow Point

Interflow Point:

or Drop. Y/N

⑤

Interflow Timeout: ____ : ____

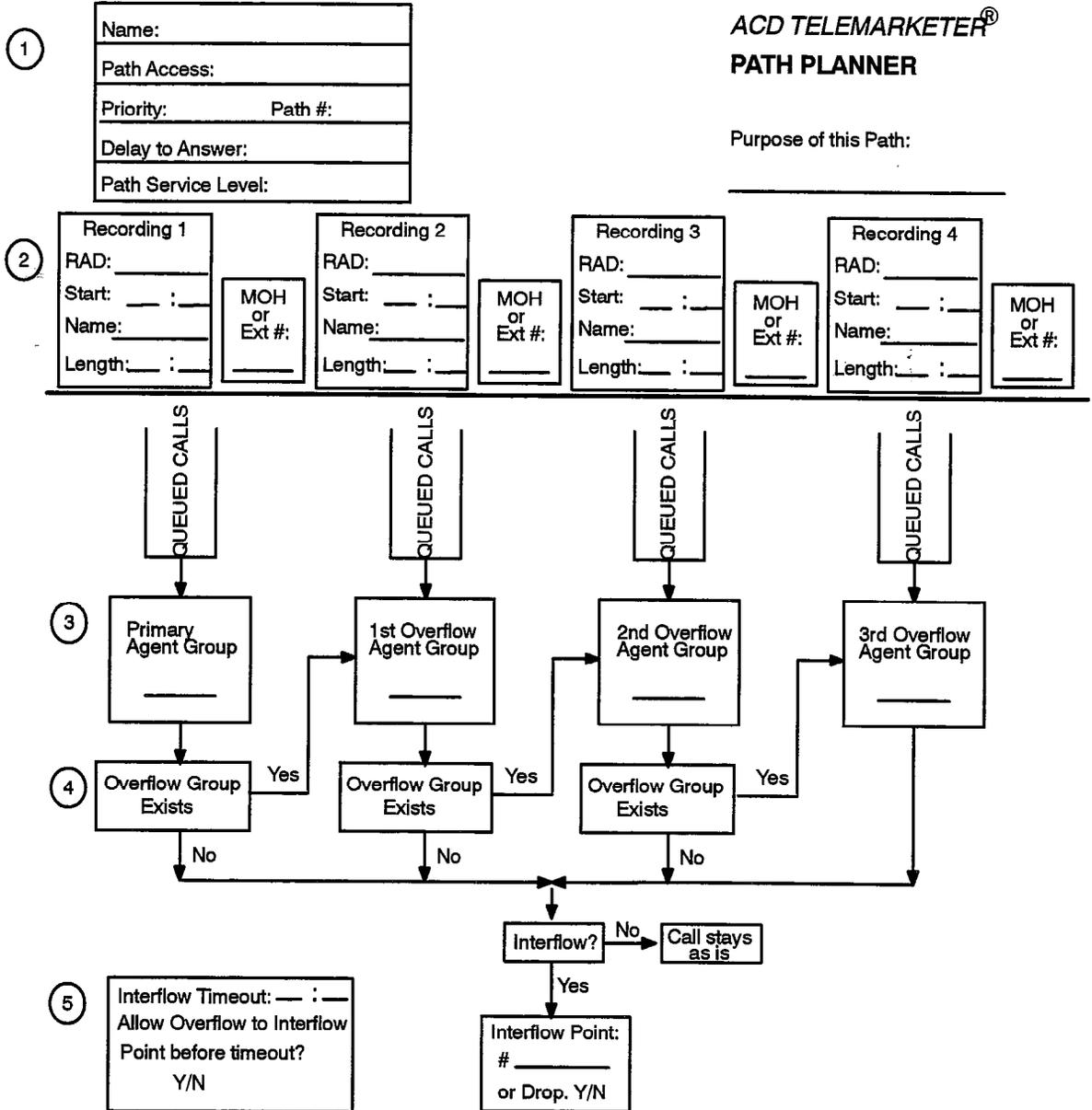
Allow Overflow to Interflow Point before timeout?

Y/N

INSTRUCTIONS:

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①

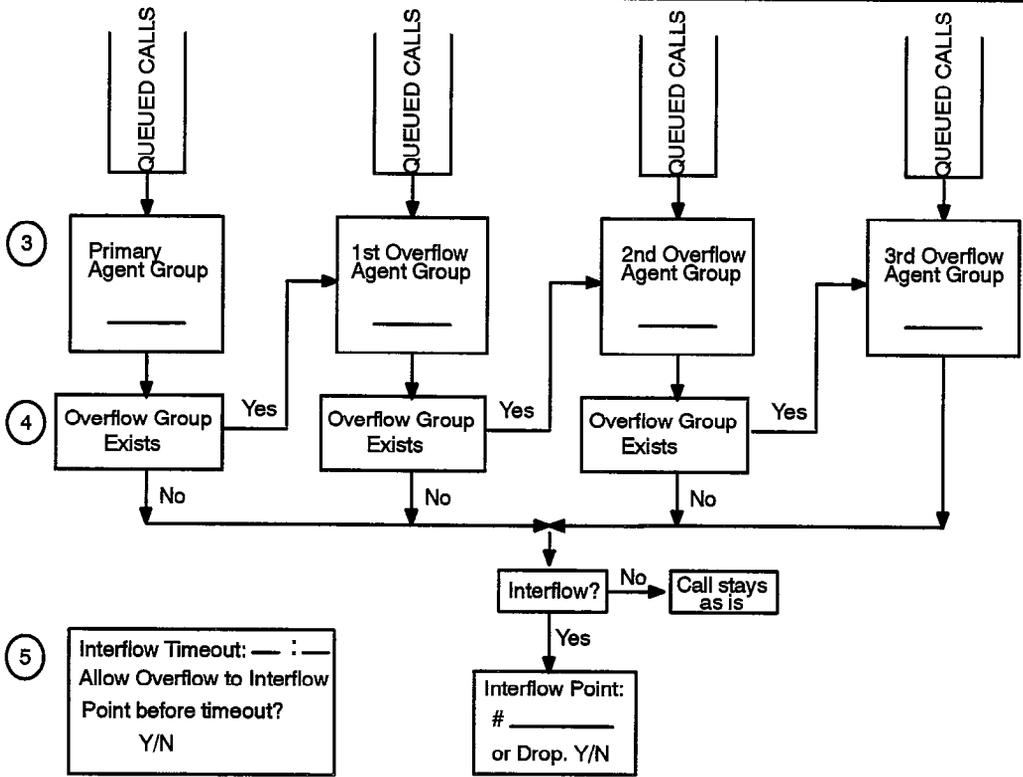
Name:	
Path Access:	
Priority:	Path #:
Delay to Answer:	
Path Service Level:	

**ACD TELEMARKETER®
PATH PLANNER**

Purpose of this Path: _____

②

Recording 1 RAD: _____ Start: ____ : ____ : ____ Name: _____ Length: ____ : ____	MOH or Ext #: _____	Recording 2 RAD: _____ Start: ____ : ____ : ____ Name: _____ Length: ____ : ____	MOH or Ext #: _____	Recording 3 RAD: _____ Start: ____ : ____ : ____ Name: _____ Length: ____ : ____	MOH or Ext #: _____	Recording 4 RAD: _____ Start: ____ : ____ : ____ Name: _____ Length: ____ : ____	MOH or Ext #: _____
--	------------------------------	--	------------------------------	--	------------------------------	--	------------------------------



INSTRUCTIONS:

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A**Access Codes**

- ACD Path, 11-12
- Agent ID, 11-2, 11-3
- Feature, 11-2, 11-7
- Hunt Group, 11-15, 11-16
- Recording, 11-15
- Supervisor ID, 11-10

ACD Agent Set

- Auto Answer, 6-6
- Help Softkey, 6-5
- LCD Indicator, 6-2
- Login, 6-1
- Logout, 6-2
- Make Busy, 6-2
- Queue Status Key, 6-4

ACD Call Flow, 3-4**ACD Overview, Automatic Call Distribution, 2-1****ACD Path, 3-1, 3-4, 3-10**

- Interflow, 3-12
- Overflow, 3-11
- Path Access, 3-11
- Path Access Code, 3-10
- Path Priority, 3-10
- Rerouting, 3-11
- Service Level, 3-11

ACD Path Programming, 11-14**ACD Positions, 3-7**

- Agent, 3-7
- Login/Logout, 5-2
- Senior Supervisor, 3-7
- Supervisor, 3-7

ACD Senior Supervisor Set, 8-1

- Call Monitoring, 8-4
- Login, 8-1
- Logout, 8-1
- Queue Status Key, 8-2
 - Operation, 8-2
- Shift Key, 8-4

ACD Supervisor Set, 7-1

- Agent Status Key, 7-6
 - LCD Indicator, 7-6
 - Operation, 7-6
- Call Monitoring, 7-1
- Help Call, 7-2
- Help Softkey, 7-5
- Login, 7-1
- Logout, 7-1
- Logout, 7-1

Queue Status Key, 7-3, 7-9

- LCD Indicator, 7-4
- Operation, 7-4

Read Softkey, 7-9**Shift Key, 7-8, 7-9****ACD Supervisors, 11-9****ACD TELEMARKETER Reporting System, 3-3****Agent, 3-7, 3-9****Agent Group, 3-5, 3-8****Agent Group Planner, Fields**

- 1st Threshold, 4-4
- 2nd Threshold, 4-4
- After Work, 4-4
- Agent Group #, 4-4
- Name, 4-4
- Overflow Time, 4-4
- Paths Using This Group, 4-5

Agent Shift Record, 3-2**Agent Shift Summary Record, 9-1****Agent Status Key, 7-6****Alternate Music Source, 3-12****Auto Answer, 6-6, 11-9****Automatic Route Selection (ARS), 3-12****C****Call Handling, 3-4**

- ACD Caller, 3-6
- Longest Idle Agent, 3-7
- Music on Hold (MOH), 3-5
- Overflow, 3-5
- Path, 3-4
- RADS, 3-4

Call Monitoring, 7-1

- Operation, 7-2

Call Queueing, 2-1**CDE Form**

- ACD Agent Groups Form (39), 3-8, 4-4, 11-2, 11-3
- ACD Agent Groups Subform (39), 11-4, 11-4
- ACD Keys Template (38), 11-6, 11-6
- ACD Path (41), 3-13, 4-5, 4-7, 4-8, 4-9
- ACD Supervisor Form (40), 11-9, 11-9
- ACD Supervisor Subform (40), 11-10, 11-10
- COS Define (03), 11-7, 11-8
- Directed IO (34), 9-5
- Hunt Groups (17), 3-13, 4-7, 11-15
- System Options (04), 11-1

- CDE Form Number
03 (COS Define), 11-7, 11-8
04 (System Options Form), 11-1
17 (Hunt Groups), 3-13, 4-7, 11-15
34 (Directed IO), 9-5
38 (ACD Keys Template), 11-6, 11-6
39 (ACD Agent Groups Form), 3-8, 4-4,
11-2, 11-3
39 (ACD Agent Groups Subform), 11-4, 11-4
40 (ACD Supervisor Form), 11-9, 11-9
40 (ACD Supervisor Subform), 11-10, 11-10
41 (ACD Path), 3-13, 4-5, 4-7, 4-8, 4-9,
11-11
- COS Option
Loop Start Trunk to ACD Path Connect (812),
3-11, 11-14
SUPERSET – Headset Operation (612), 5-3
- COS Option Number
612 (SUPERSET – Headset Operation), 5-3
812 (Loop Start Trunk to ACD Path Connect),
11-14
See also COS Options
- COS Options
Forward Timer, 3-5
Recording Failure to Hangup Timer, 3-14
- Customer Data Entry. *See* Programming

D

- Dial-In Trunks, 3-11

F

- Feature Access Code, ACD Silent Monitoring,
7-2

G

- Group Summary Report, 9-3

H

- Help Call, 7-2
Help Softkey, 6-5, 7-5

I

- Interflow, 3-12
Interflow Enabled, 11-13
Interflow Point, 3-12
Interflow Point Access Code, 11-13
Interflow Timeout, 3-6, 11-13

L

- Load Calculation, 3-1, 3-12
Login, 5-2, 6-1
Logout, 5-3, 6-2
Longest Idle Agent, 3-7

M

- Make Busy, 6-2
- Monitors
Accessing, 10-2
Agent Activity, 10-28, 10-29
Softkeys, 10-29
Terms, 10-30
Agent Programmed Data, 10-25, 10-25
Softkeys, 10-26
Terms, 10-26
Agent Statistics, 10-26, 10-27
Softkeys, 10-27
Terms, 10-28
Agent Summary, 10-23, 10-23
Out of Range, 10-23
Softkeys, 10-24
Terms, 10-24
Group Activity, 10-21, 10-21
Softkeys, 10-21
Terms, 10-22
Group Programmed Data, 10-17, 10-18
Softkeys, 10-18
Terms, 10-19
Group Statistics, 10-19, 10-19
Softkeys, 10-20
Terms, 10-20
Group Summary, 10-15, 10-16
Softkeys, 10-16
Terms, 10-17
Hierarchy, 10-1
Password. *See* Monitors
Path Activity, 10-13, 10-14
Softkeys, 10-14
Terms, 10-15
Path Programmed Data, 10-9, 10-9
Softkeys, 10-10

- Terms, 10-10
- Path Statistics, 10-11, 10-11
 - Softkeys, 10-12
 - Terms, 10-12
- Path Summary Display, 10-7, 10-7
 - Softkeys, 10-8
 - Terms, 10-8
- System Activity Monitor, 10-3
 - Display, 10-4
 - Softkeys, 10-4
 - Terms, 10-5
- Music on Hold (MOH), 3-5
- Music Source, 3-12

N

- Non-Dial-In Trunks, 3-11, 11-12

O

- Overflow, 3-5
 - Overflow Groups, 3-11

P

- Path, 3-10
- Path Access, 3-11
- Path Access Code, 3-10
- Path Planner, Fields
 - Allow Interflow to Interflow, 4-9
 - Delay to Answer, 4-7
 - Interflow, 4-8
 - Interflow Point, 4-8
 - Interflow Timeout, 4-9
 - MOH or Ext #, 4-7
 - Name, 4-5
 - Overflow Group Exists, 4-8
 - Path Access Code, 4-5
 - Path Number, 4-7
 - Primary Agent Group, 4-8
 - Priority, 4-7
 - Purpose of This Path, 4-5
 - Queued Calls, 4-8
 - Recording 1, 4-7
 - Recordings 2 - 4, 4-8
- Path Priority, 3-10, 11-14
- Path Reports, 9-2

Planning

- Agent Group Planner, 4-2, 4-3
- Grouping Agents, 4-1
- Incoming Calls, 4-1
- Path Planner, 4-5, 4-6
- RAD Planning, 4-2
- Predictive Overflow, 3-1
 - See also Overflow
- Programming, 11-1
 - ACD Agent Groups, 11-2
 - ACD Keys Template, 11-6
 - ACD Path, 11-11
 - ACD Path (Form 41), 11-11
 - ACD Recording Hunt Groups, 11-14
 - ACD Silent Monitoring Enable, 7-2
 - ACD Supervisor Form, 7-1
 - ACD Supervisors, 11-9
 - Call Rerouting Table (Form 19), 11-12
 - COS Define, 11-7
 - Non-Dial-In Trunks (Form 14), 11-12
 - Printer Assignment, 9-4
 - System Options, 11-1

Q

- Queue Status Key, 6-4, 7-3, 7-9, 8-2

R

- RADs, 3-13
 - DND, 3-14
 - Failures, 3-14
 - Card Failure, 3-14
 - Failure to Answer, 3-14
 - Failure to Hang Up, 3-14
 - False Origination, 3-14
 - Recording Groups, 3-13
 - Removing DND, 3-14
- Read Softkey, 7-9
- Realtime Displays, 3-2
- Recorded Announcement Devices (RADs), 3-4
- Recording Groups, 3-13
 - Operation, 3-13
- Reports, 9-1
 - Agent Shift Record, 3-2
 - Agent Shift Summary Record, 9-1
 - Example, 9-2
 - Group Summary Report, 9-3
 - Example, 9-4
 - Fields, 9-4

- Headers, 9-4
- Path Reports, 9-2
 - Example, 9-3
 - Fields, 9-3
 - Headers, 9-2
- Printing, 9-4
 - Commands
 - Quit, 9-7
 - Set, 9-5
 - Show, 9-6
 - Report Commands, 9-5
- Ringback Delay Timer, 3-4

S

- Senior Supervisor, 3-7, 3-9
- Senior Supervisor Reports, Queue Status, 8-3
- Service Level, 3-11, 10-13, 11-14
- Service Time, 10-13, 11-14
- Shift Key, 7-8, 7-9, 8-4
- Silent Monitoring. *See* Call Monitoring
- Summary Reports, 3-2
- SUPERSET 4 Telephone, 5-2
 - See also* ACD Agent Set; ACD Senior Supervisor Set; ACD Supervisor Set
 - LCD Line Status Indicators, 6-3
- SUPERSET 4 Telephones, 5-1
 - Headset Operation, 5-3
 - Line Select Keys, 5-3

- Supervisor, 3-7, 3-9
- Supervisor Reports
 - Agent Status, 7-7
 - Queue Status, 7-5
- System Option
 - ACD Reports (44), 11-2
 - ACD Silent Monitoring (42), 11-2
 - ACD Silent Monitoring Beeps (43), 11-2
 - Automatic Call Distribution (41), 11-2

- System Option Number
 - 41 (Automatic Call Distribution), 11-2
 - 42 (ACD Silent Monitoring), 11-2
 - 43 (ACD Silent Monitoring Beeps), 11-2
 - 44 (ACD Reports), 11-2

- System Options, Automatic Call Distribution (41), 11-2

T

- Timers
 - Afterwork, 11-5
 - Call Forward No Answer, 6-2
 - Delay for Ringback, 11-14
 - Overflow, 11-5
 - Ringback Delay Timer, 3-4
 - Threshold, 6-4, 11-5
- Trunk Access
 - DID Trunk Routing Points, 11-12
 - Loop Start CO Trunks, 11-14
 - Loop Start DISA Trunks, 11-14

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SX-200® DIGITAL PABX

Automated Attendant Application Package

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Table of Contents

1. INTRODUCTION

Reason for issue	625 1-1
Intended Audience	625 1-1
Practice Structure	625 1-1
Associated Documents	625 1-1

2. FUNCTIONAL DESCRIPTION

Overview	625 2-1
Auto-Attendant Groups	625 2-1
Basic Operation	625 2-2
Digit Handling	625 2-2
Conflict Dialing	625 2-2
Valid Destinations	625 2-3
CO Trunk Dialing	625 2-3
Prefix Digits	625 2-3
Typical Applications	625 2-4
Prefix Processing	625 2-4
Illegal Number Handling	625 2-4
Vacant Number Routing	625 2-5
Front End Recording	625 2-5
Default Destination	625 2-5
Default Answering Points	625 2-5
Routing to Default Destination	625 2-6
RAD Operation	625 2-6
Resource Allocation	625 2-6
DTMF Receiver Requirements	625 2-6
Receiver Allocation Control	625 2-7
Busy Recordings	625 2-7
Busy Receivers	625 2-8
Busy RAD or Receiver Timeout	625 2-8

3. OPERATION

Caller Displays	625 3-1
Called Party Displays	625 3-1
Transfers	625 3-1
Interaction with Other Features	625 3-1
Account codes	625 3-2
ARS	625 3-2
Callbacks	625 3-2
Call Duration Display	625 3-2
Call Forwarding	625 3-3
Campon	625 3-3

DID/Dial-in Trunk Busy Rerouting	625 3-3
Direct to ARS	625 3-3
Recall on Default or Dialed Destination	625 3-3
System Abbreviated Dial	625 3-3
Tenanting	625 3-4
SMDR	625 3-4
Sample SMDR Record	625 3-4
Analog Networking	625 3-5
Traffic Measurement	625 3-5

4. PROGRAMMING

System Option Form	625 4-1
COS Option Form	625 4-1
Call Rerouting Form	625 4-1
Hunt Group form	625 4-1
Sample Programming	625 4-3
Basic Automated Attendant Feature	625 4-3
ACD Front-end Message	625 4-3
Aided External Dialing	625 4-3

5. MAINTENANCE

RAD Failure Handling	625 5-1
RADs in DND	625 5-1
Failure to Answer	625 5-1
Troubleshooting Guidelines	625 5-1
Failure to Answer	625 5-1
Call Dropped	625 5-1
RAD Fails to Drop	625 5-1
Wrong Message	625 5-2

6. INSTALLATION

Receivers	625 6-1
Universal Cards	625 6-1

List of Figures

Figure 2-1 Automated Attendant Call Handling	625 2-1
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List of Tables

Table 3-1 SMDR Fields	625 3-4
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1.

INTRODUCTION

This document describes the features, operation and programming of the Automated Attendant option for the SX-200® DIGITAL PABX.

Reason for issue

- 1.1 This Practice is reissued to include Generic 1005.

Intended Audience

- 1.2 The intended audience are those involved in the marketing, installation, programming and operation of the SX-200 DIGITAL Automated Attendant Feature.

Practice Structure

- 1.3 The Practice contains six sections covering the following topics:

Introduction – Introduces the practice and lists related documents.

Functional Description – Describes the Automated Attendant feature and the hardware and software components that make up the package.

Operation – Describes the interactions between the Automated Attendant feature and other PABX features.

Customer Data Entry – Covers the CDE requirements for the feature.

Maintenance – Discusses maintenance for the Automated Attendant feature.

Installation – Briefly describes the hardware and software requirements for installing the feature, including provisioning of DTMF receivers.

Associated Documents

- 1.4 Refer to the following Practices for additional information:

- 9109-096-105-NA, Features Description
- 9109-096-620-NA, *ACD TELEMARKETER* Application Package

2.

FUNCTIONAL DESCRIPTION

This section describes the basic operation of the Automated Attendant feature and the hardware and software components that make up the feature package. Included are overviews of the feature and descriptions of Auto-Attendant groups, handling of illegal calls, default destinations, DTMF receiver requirements and resource allocation.

Overview

- 2.1 As shown in Figure 2-1, the SX-200 DIGITAL PABX Automated Attendant feature directs incoming calls to a recorded announcement device (RAD). The RAD message instructs callers that by dialing over the message, they can access a directory number on the system. Callers choosing not to dial during the message are routed to a default answering point, such as an attendant, when the message is finished. The Automated Attendant feature is not available with Generic 1001, Generic 1002 and Generic 1005 FPKG 1 and LIT96.

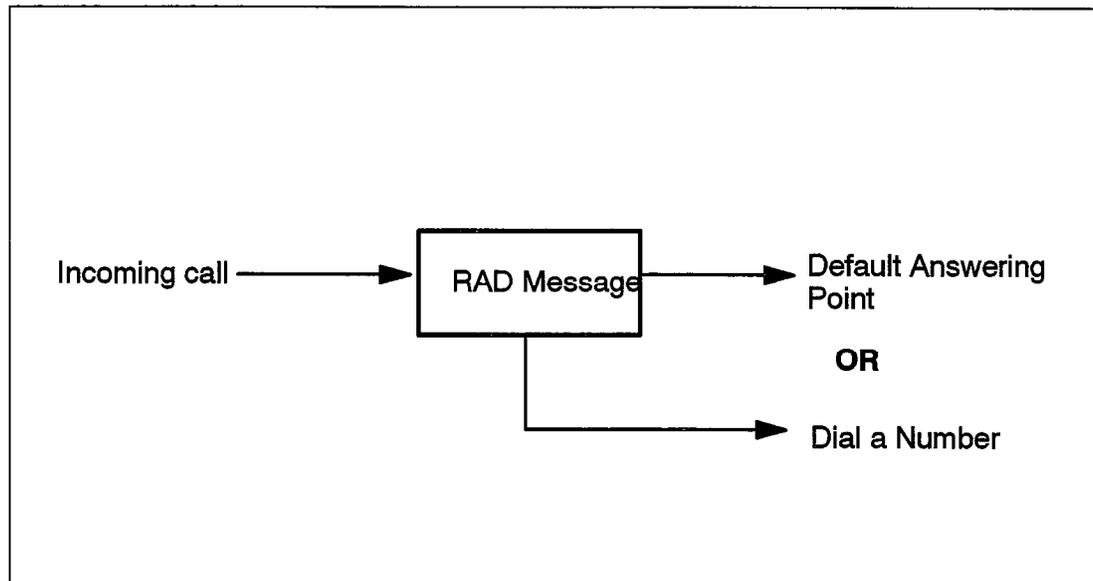


Figure 2-1 Automated Attendant Call Handling

Auto-Attendant Groups

- 2.2 The Automated Attendant feature introduces an additional hunt group type called an Auto-Attendant group. This group is similar to the recording groups used in the *ACD TELEMARKETER* feature. The Automated Attendant feature is accessed by either rerouting or dialing into an Auto-Attendant group. The Auto-Attendant group can only contain single-line ports (i.e., ONS) and has the main features of any hunt group such as:

- hunt group number

- access code
- circular or terminal hunting

Auto-Attendant Groups also have several options programmable through customer data entry (CDE) including:

- name
- message length
- default destination
- prefix digits
- dialing enabled
- wait for resources time

The Auto-Attendant group access code can be dialed by any device. This access code can be programmed as a destination in the following CDE forms:

- Form 19, Call Rerouting
- Form 14, Non Dial-In Trunks
- Form 17, Hunt Groups (hunt group overflow)
- Form 41, ACD Path (path interflow)

The Auto-Attendant group access code can also be used as a call forwarding point. The group cannot be used as a normal recording group for UCD, ACD and/or Automatic Wakeup.

Basic Operation

- 2.3 When an internal or external caller reaches an Auto-Attendant group, the system hunts for an available RAD, connects the caller to the RAD and connects a DTMF receiver to retrieve digits dialed by the caller. If the caller dials a number, the caller is routed to that number. If the caller does not dial a number, the caller is routed to a default answering point assigned during CDE. The following subsections describe basic call handling for calls to the Automated Attendant:

Digit Handling

The system assigns one DTMF receiver to each caller while the caller is listening to the recording. The recording is terminated as soon as the first digit is received from the caller. After dialing a valid number, the caller is routed to that number.

Conflict Dialing

When the caller dials, conflict dialing is in effect and the normal 15-second inter-digit timeout applies. The recording is terminated when the conflict timer starts. The user listens to silence while the conflict timer is running. For additional information on conflict dialing and inter-digit timeout, refer to Conflict Dialing in Practice 9109-096-105-NA, Features Description.

Valid Destinations

The valid destinations available to a caller depend upon what the originating device (trunk or telephone) is allowed to dial during normal operation. All the usual PBX dialing features apply, such as:

- DID/TIE rerouting on no answer
- DID and DND interactions
- Device/tenant interconnection restrictions
- Class of Service (COS) options for Abbreviated Dial

Dialing capability ends as soon as the recording ends. Once a destination is attempted, the automated feature ends and regular call features such as campon are available.

CO Trunk Dialing

The Automated Attendant feature allows CO trunks to access several features that are normally inaccessible. A CO trunk can dial:

- account codes
- abbreviated dial numbers
- stations
- sets
- hunt groups (including data hunt groups)
- consoles
- LDNs
- night bells
- modem pools
- ACD paths
- ACD positions

Automated Attendant also affects ARS toll control in that a CO trunk can only access ARS through a system Abbreviated Dial number.

Prefix Digits

- 2.4 Each Auto-Attendant group can be programmed in CDE with a string of prefix digits. The prefix can contain up to 4 digits and is inserted in front of the digits dialed by the caller. This allows the caller to dial a single digit and be routed to devices that have normal multi-digit extension numbers. The prefix is only inserted if the caller dials at least one digit.

Typical Applications

The prefix can be used to:

- provide single digit menus
- reduce digit dialing
- restrict dialing to numbers that start with the prefix
- provide entry into other features that require digits (such as ARS and feature access codes)

Prefix Processing

Processing of prefix digits starts only after the first digit is dialed. If the prefix itself is a valid access code, the caller will be considered to have dialed the access code and the system ignores the first digit dialed by the caller.

If the prefix contains a feature access code, control of the call is given to the feature after the digits are processed. If the feature returns dial tone to the caller and there are still digits to be processed, the remaining digits are ignored because the feature clears the digits from the receiver.

If, for example, the system is programmed with * as the account code access code and 123 as a valid account code, setting the prefix to *123 causes the system to process the prefix as a complete account code and ignore the first digit dialed by the caller. In this case, the system returns dial tone after the processing is complete.

This situation can be avoided by ensuring the prefix does not include enough digits to run a feature to completion. Again, assuming * is the account code access code, using a prefix of * prevents dropping of any digits. The first digit dialed by the caller is the start of the account code.

Illegal Number Handling

- 2.5 If the dialed number is illegal, the system checks for Illegal Number Routing using the tenant group of the first member programmed in the Automated Attendant group. If the routing point has Illegal Number Routing programmed, the system redirects the caller to the routing point. The routing point can be another Automated Attendant group. If there is no Illegal Number Routing programmed, the caller is given reorder tone and eventually disconnected.

Examples of illegal number conditions include:

- device interconnection
- tenant interconnection
- not valid for caller type
- feature restricted

Each Auto-Attendant group can be assigned different rerouting points by assigning a different tenant group number to the first member of each Auto-Attendant group.

Vacant Number Routing

- 2.6 Handling of callers dialing a vacant number, such as an unassigned access code, is similar to the Illegal Number Handling described above. In the case of a vacant number, Vacant Number Routing is checked rather than Illegal Number Routing.

Front End Recording

- 2.7 Front end recordings present a message to the caller as soon as the call enters the system. Auto-Attendant groups can provide this feature by having dialing disabled during the recording. This provides a simple front-end recording without assigning a DTMF receiver. Digits dialed by the caller are ignored and the prefix digits have no affect. Calls are routed to the default destination as normal.

Default Destination

- 2.8 When a recording ends, callers who have not dialed at least one digit during the recording are routed to the default destination for the group. Failing to program a default destination means that when the recording ends, the caller is given reorder tone and eventually disconnected.

Default Answering Points

The following are valid default points for the Automated Attendant feature:

- console
- LDN
- night bell
- station
- *SUPERSET™* telephone
- logical line
- ACD path
- hunt group
- ACD positions (agent, supervisor and senior supervisor)
- system Abbreviated Dial
- Auto-Attendant hunt group

Routing to Default Destination

When the caller is routed to the default destination, the system handles the call as a call reroute. Device and tenant interconnection are bypassed, DND is ignored and the caller automatically camps on to the destination if it is busy. Refer to Call Rerouting in Practice 9109-096-105-NA, Features Description.

RAD Operation

- 2.9 RAD operation is similar to the RADs in the *ACD Telemarketer* applications package. The Automated Attendant feature uses the Auto-Attendant group as an enhanced recording group so the basic recording group features apply. Refer to Recording Support, in Practice 9109-096-105-NA, Features Description, for information about RADs and recording groups.

The length of the recorded message, either programmed in CDE or in the RAD itself, should be greater than the actual message. This creates a silent period at the end of the recording, resulting in a delay between the end of the message and the rerouting to the default destination. This gives the caller time to think about the message and start dialing. Complex instructions in the message may require a longer delay at the end of the message.

Resource Allocation

- 2.10 Each call entering the Automated Attendant feature uses two primary resources: a RAD and a DTMF receiver. Usage differs between the two resources as explained below.

In the case of RADs, every time a RAD becomes free, an unlimited amount of that resource becomes available because of the unlimited number of listen-only conferees that can be serviced by that one RAD.

When a receiver becomes free, however, only one piece of that resource becomes available because only one caller can use the receiver at a time. Receiver availability, therefore, becomes the primary resource limitation for the Automated Attendant feature.

DTMF Receiver Requirements

In addition to the number of receivers needed for normal PBX operation, the number of extra receivers needed for the Automated Attendant feature is approximately:

$$\frac{\text{Average number of calls per hour}}{\text{Maximum \# of messages given per hour}}$$

where:

maximum # of messages given per hour = 3600/message length (including setup and clear down time) in seconds (for groups with one RAD).

A limited number of messages can be played in one hour. Therefore, to service all callers, each message must play to a number of callers. This is an estimate for a single group, alone in the system. Additional groups require additional receivers.

As an example for a single group, assume 100 callers per hour are accessing the group and the message length is 20 seconds. This means 180 messages can be played per

hour and 100/180 or at least one receiver is needed to service all of the callers in that hour. Round the result of this calculation up to the next whole number.

Note: The minimum quantity of receivers must be equal to the number of RADs assigned to the Automated Attendant feature so that RADs can operate concurrently.

Receiver Allocation Control

The user can place limits on the number of receivers available to the Automated Attendant feature (across all Auto-Attendant groups). Without this limit, the Automated Attendant feature can potentially use up all receivers in the system and block dialing for extended periods.

The limit is specified by programming System Option 59, Receivers Reserved for Non-Auto-Attendant Use. The Automated Attendant feature uses as many receivers as possible but will always leave at least this number of receivers available for the rest of the system.

Receivers going out of service (for diagnostics, etc.) have no effect on this number. Reducing the number of available receivers impacts the Automated Attendant feature first.

When the limit is specified, the system does not check to ensure that the number of receivers present in the system is greater than the number of receivers programmed as a limit. If the system contains fewer receivers than the limit, the Automated Attendant feature is unable to access any receivers. The system handles this as a "no receivers available" condition.

Setting the number of receivers to more than the number in the system results in all calls that are directed at Auto-Attendant groups ending up at the default destination.

Busy Recordings

If a call arrives at the Automated Attendant when all recordings are busy or unavailable, the caller is camped on to the group to wait for a recording. The wait time is programmable for each group through CDE. Unless all of the RADs fail, the caller wait time should be no longer than the RAD cycle time. Normal camp-on audio is returned to callers.

When a recording becomes free, the system rings the RAD. When the RAD answers, the system sets up a listen only conference for all callers camped on to the Auto-Attendant group. The callers are retrieved using the normal camp-on priority scheme. Callers will be retrieved until either there are no more waiting callers or all available DTMF receivers in the system have been allocated. (DTMF receiver allocation is subject to the receiver usage limits for the Automated Attendant feature in the system.) Once all receivers are used up, the remaining callers continue to wait for resources to become free.

Busy Receivers

If no receivers are available when a RAD becomes free, the system camps the caller on to the Auto-Attendant group to wait until a receiver becomes available. The wait time is programmable through CDE.

Note: Internal callers dialing the group (including dial-in trunks and CO trunks coming from other groups) do not keep their receivers after dialing an Auto-Attendant group. These callers are allocated another receiver based upon the receiver allocation system option.

Busy RAD or Receiver Timeout

The wait for resources timer on the group controls how long a caller is allowed to wait for a RAD or receiver to become available. When the wait timeout occurs, the caller immediately calls the default destination without listening to a recording. If the caller is ringing a RAD when the timer expires, the timeout is ignored. Skipping a recording due to a waiting timeout is pegged in Traffic Measurement for this group. If no default destination is specified, the caller is given reorder tone and eventually put into suspended state.

3.

OPERATION

The Automated Attendant feature requires no special operating instructions as calls are routed to the Automated Attendant by the system. This section describes the displays appearing on the sets of internal callers after dialing the Automated Attendant, and when receiving a call directed from the Automated Attendant. This section also describes the interaction between the Automated Attendant feature and other PABX features.

Caller Displays

- 3.1 The *SUPERSET 4®*, *SUPERSET 420™*, *SUPERSET 4™DN*, *SUPERSET 430™* and the attendant console show the normal ringback, busy and talking state displays as when calling a hunt group.

Called Party Displays

- 3.2 The display of a party called from an Auto-Attendant group is the normal call processing display for the given caller and called party. No special indication is given that the call came from a group, however, either the name or the access code of the group would be displayed.

Transfers

- 3.3 Callers are unable to transfer another party to a group while ringing or listening. If a transfer is done at those times, the caller will terminate the feature and be recalled by the held party. Extensions can transfer a party to a busy group, however, the console cannot transfer to a busy Auto-Attendant group.

Calls can be indirectly transferred to groups by calling an extension that has Call Forward No Answer programmed to a group and releasing the held caller to the forwarded extension before the call forward no answer timeout has expired.

Interaction with Other Features

- 3.4 The Automated Attendant feature can affect the operation of certain features in the system. The following subsections outline the interaction. Features are arranged in alphabetical order.

The Automated Attendant feature has no special call handling features built in for compatibility with ACD. A caller using the Automated Attendant feature to access ACD hears the Automated Attendant recording, dials an ACD path and hears ringback tone before the ACD recordings are started.

The Automated Attendant feature, however, does close off and print the current SMDR buffer before entering ACD. This preserves the Automated Attendant feature information in the SMDR record and prevents a conflict between ACD and Automated Attendant information in the dialed digits field.

ACD callers using the Automated Attendant feature after an agent answers are handled as normal. In addition, the Automated Attendant feature does not add any digits into the dialed digit buffer to preserve the ACD information.

Account codes

Previous software releases for the *SX-200* DIGITAL prevented CO trunks from accessing account codes. Beginning with Generic 1004, CO trunks can dial the account code access code. No checks are made to see if the access is from the Automated Attendant feature.

DID trunks, however, are blocked from accessing the account code feature, even through Automated Attendant.

Verified account codes can provide ARS access security. With Auto-Attendant groups, this feature can be used by assigning prefix digits that are the account code access code. The user then dials the verified account code to change dialing privileges. Since CO trunks can access account codes, the Direct to ARS feature is available to CO trunks after the CO trunk user dials an account code.

The prefix for a group can be programmed as the account code access code and may contain the leading account code digits. The user then dials the remaining account code digits.

ARS

A CO trunk normally cannot dial ARS directly and must use one of three ways to access ARS: forwarding, transfer or ACD Interflow. Since a CO trunk has no Class of Restriction (COR) number, forwarding and transfer use the COR number of the forwarder or transferrer.

For the Automated Attendant feature, as with ACD interflow, no COR number is provided for the CO trunk during dialing. This means there is no toll control. CO trunks, however, are unable to dial an ARS digit string directly. From the Automated Attendant feature, a CO trunk can only access ARS through a system Abbreviated Dial number.

Callbacks

Callbacks to a group are not allowed to Auto-Attendant groups.

Call Duration Display

When a *SUPERSET 4*, *SUPERSET 420*, *SUPERSET 4 DN* and *SUPERSET 430* telephone answers a trunk routed from an Auto-Attendant group, the call duration display shows the time starting when a non-recording answers the trunk. This is consistent with the display for trunks from other recording applications (even though for Automated Attendant, the time to answer in SMDR is the time to answer by the recording, not the set).

Call Forwarding

When a caller reaches an Auto-Attendant group, the caller's current call forwarding history is cleared. The caller can be forwarded again for the maximum number of forwarding steps. This prevents problems with forwarding hop limits when a group is a forwarding destination.

Campon

When all RADs are unavailable, the system camps the caller on to the Auto-Attendant group. All device types except the console can be camped on to the group. Since the console is not permitted to camp on to anything, it is given busy tone and must try dialing the group again.

DID/Dial-in Trunk Busy Rerouting

The DID/Dial-in Trunk busy rerouting point is not operational when calling an Auto-Attendant group (the trunk always camps on if the group is busy). The feature is operational when the caller dials from the group.

Direct to ARS

The Direct to ARS feature applies to calls after an account code is successfully dialed from a group (Direct to ARS applies to all devices). An added application is that Analog Networking passes the account code into the network. If a caller dials an account code from a group and then with Direct to ARS goes to an Analog Network trunk, the digits that the caller dials from the group will be passed into the network.

Recall on Default or Dialed Destination

No recall point is set up by the Automated Attendant feature. Recall on busy and no answer operate as if the feature had not been accessed, acting as if the default or dialed destination had been reached directly. The answer supervision given to the trunk during the ringing has no effect on recall.

System Abbreviated Dial

Normal system operation prevents CO trunks from accessing system abbreviated dialing except through external call forwarding. With the Automated Attendant feature, CO trunks can dial the system abbreviated dial access code. The CO trunk must have the abbreviated dial access COS option enabled as is the case with other devices.

The system allows callers to access any numbers in the system. If access is given to Automated Attendant callers, the only control available is through toll control for ARS numbers.

If necessary, the prefix feature can be used to restrict access from the Automated Attendant to specific numbers. This limits the caller to dialing only a limited set of numbers, such as those beginning with the digits 12.

Tenanting

Tenanting can be used to restrict the dialing ability of callers using the Automated Attendant feature. With the tenant interconnection table, callers can be put in a special tenant group and be allowed to dial only designated extensions in the system.

SMDR

3.5 Incoming SMDR records indicate that the Automated Attendant feature has been used. Table 3-1 below defines the significant fields.

Table 3-1 SMDR Fields	
SMDR Field	Purpose
Called Party	Contains the extension number of the party that answered the caller.
Call Completion Status	Indicates call completion with regards to the group called rather than the destination dialed or routed to from the Automated Attendant feature.
Dialed Digits	Shows the group access code and the destinations dialed by the caller (even if the digits dialed are invalid) or the default destination (if taken). Dialed digits overwrite any information already in this field as a result of analog networking. The access code and digits are written to the field with a single blank between them.
Time to Answer	Indicates the time until answer by the RAD. This shows waiting times for receiver and RAD resources, since the trunk will only be answered when the recording is ready to be played. For UCD, ACD and AAO, the time to answer is the time to answer by a device other than the recording.
Call Duration Time	Shows the elapsed time from the time when the RAD answers the call, not when a party in the PBX answers the call (unlike ACD, UCD and AAO).

Sample SMDR Record

Below is a sample record. Trunk 001 has called in to group 123 and after 20 seconds is answered by a RAD in the group at 12:32. The trunk then dials 555 and is answered at extension 555. The trunk talks to extension 555 and then hangs up. The total duration of the trunk call was 20 minutes, 12 seconds.

06/28 12:32 00:20:12 T001 020 123 555 555

If the caller arrives at a group again or after SMDR has already recorded an answer, no special entries are made in the record. The Auto-Attendant group appears as the called destination, third party, etc., as would any hunt group.

Analog Networking

- 3.6 Analog networking information in the SMDR records is overwritten when a trunk using analog networking accesses the Automated Attendant feature and dials a number. The Automated Attendant feature information replaces the digits already stored. The SMDR record is not altered if no recording is heard; instead, normal SMDR is done.

Traffic Measurement

- 3.7 The normal Traffic measurement statistics for hunt groups are also available for Auto-Attendant groups. As with other recording groups that have listen-only conference, the busy pegs are not very useful since an unlimited number of callers are connected each time a RAD becomes free.

The usage pegs and usage CCS indicate calls handled and RAD usage. An additional peg is present for Auto-Attendant groups to help diagnose receiver shortage problems. The skip peg shows how many times failure to get a receiver resulted in skipping the recording and routing to the default destination. A non-zero value in this field indicates receiver shortage problems.

EXAMPLE:

HUNT GROUPS:

Number	Peg	Skip	Usage	Busy Peg	Max/Avl
1	6	1	123.00 ccs	1	2/3

Traffic measurement also records receiver usage from the Automated Attendant feature. The 1, 2 and 3 second receiver wait pegs are not updated, however, the receiver usage peg, receiver CCS and max/avail fields are updated.

4.

PROGRAMMING

The Automated Attendant feature is enabled and controlled through entries in Customer Data Entry (CDE). This section lists the forms related to this feature and describes the entries required on each form.

System Option Form

- 4.1 The following fields on the System Options Form (Form 04) affect the Automated Attendant feature:

System Option 16 – Automated Attendant: Controls the availability of the feature. This option allows programming of Auto-Attendant groups. The option cannot be disabled until all groups are deleted. The option is disabled by default.

System Option 59 – Receivers Reserved For Non-Auto-Attendant Use: A numeric field defining the number of receivers reserved for normal call processing. Acceptable entries are 1 to 99 or ALL. The value in this field is not restricted by the number of receivers currently in the system.

By default the value is set to UNKNOWN when the user starts programming the system. The system prevents the user from programming any Auto-Attendant groups until this value is changed to a number from 1 to 99 or ALL. 'UNKNOWN' is an initial value only and can never be programmed by the user.

COS Option Form

- 4.2 The COS (Form 03) options that apply are those for members of recording hunt groups. Refer to the Programming section of practice 9109-096-105-NA, Features Description, for details in setting the recording group COS options.

Call Rerouting Form

- 4.3 The UCD Recording routing and Automatic Wakeup routing entries in the Call Rerouting Table (Form 19) cannot include an Auto-Attendant group.

Hunt Group form

- 4.4 The programming of the Auto-Attendant group type in Form 17, Hunt Groups, follows the programming for all other hunt group types. The distinction is in the group type and options. The group type is selected by pressing the GROUP TYPE and then the AUTO ATT softkeys.

If the user has not filled in a value for System Option 59, Receivers Reserved For Non-Auto-Attendant Feature Use, they are not permitted to create an Auto-Attendant group. When the ENTER key is pressed to change the group type, the following error message appears:

System Option 59 must be programmed before creating an Auto-Attendant group.

The user must return to the System Options form and program a value for Option 59.

The group type cannot be changed from AUTO ATT to some other group type unless all of the RADs in the group are either DND, busied-out or idle. Once the group type is set, the OPTION softkey is used to set up options on the group. The options for Automated Attendant groups only appear if the group type is AUTO ATT.

The fields on the Auto-Attendant group form are described below. Default values are also shown. To change information in the fields, scroll to the desired field and, depending upon the field, either enter the desired value or press the appropriate softkey:

Name: Enter the name string (the same rules apply as for recording groups).
Default: No name.

Message Length: Enter the message length time in minutes and seconds (the same rules apply as for recording groups). Default: message length = 10 seconds.

Default Destination: Enter an access code. The access code must be already assigned to a valid destination. Default: No default destination.

Dialing Over Recording: Select the DISABLE or ENABLE softkey that is to appear when the Dialing over Recording field is in the scroll window.
Default: Dialing over recording enabled.

Prefix Digits: Enter the digit string, containing 0 to 4 digits. Valid digits are 0-9, * and #. Default: No prefix digits.

Wait For Resources: Enter the time to wait in minutes and seconds (00:00 to 54:00).
Default: Wait for resources = 1 minute.

If the group type is changed, all of the above information is deleted if the information no longer applies to the new group type. "Name" is never lost and "Message Length" is not lost if the new group type is RECORDING.

Sample Programming

Basic Automated Attendant Feature

- 4.5 Callers are routed to a group with a typical message:

"Thank you for calling the ABC company Automated Attendant number. If you know the extension number of the person you are trying to reach, and if you have a touch-dial telephone, you may dial the number before the end of this message. If not, someone will be with you shortly."

In this example, an LDN is programmed as the default destination for the Automated Attendant group. The LDN is assigned the name 'ABC' which shows the attendant the name of the company that caller was attempting to reach.

An additional group could be supplied as the illegal number routing point for the tenant group of the first RAD in the first group. The second group could have a message saying:

"You have dialed an incorrect number. Please try again or stay on the line and someone will be with you shortly."

The default destination for the second group would be an LDN indicating a caller that had already misdialed a number. The illegal number routing point for the tenant group of the first RAD in the second group would be the same group itself, so that the caller would keep looping back to the same group when an illegal number was dialed.

ACD Front-end Message

Using an ACD Front-End message, ACD callers are routed to a group with a message such as:

"Thank you for calling the ACME Supply House. If you have a touch-dial telephone, please dial 1 for housewares, 2 for seed catalogs and 9 to repeat this message. Otherwise, please stay on the line and an agent will be with you shortly."

The default destination for this recording group is an ACD path that handles unscreened calls. The recording group also has a prefix of '123' programmed. The ACD path for housewares has the access code '1231', the ACD path for seed catalogs has the access code '1232', and the recording group itself has the access code '1239'.

Aided External Dialing

Using aided external dialing, callers are routed to a group with a message such as:

"Thank you for calling. Please dial 1 for the Toronto office, 2 for Vancouver and 3 for Montreal. Otherwise, please stay on the line and the attendant will be with you shortly."

The recording group is programmed with the attendant console as the default destination with a prefix of 80.

Assuming the access code for system speed dial is 80, the caller is selecting system speed abbreviated dial numbers. Index 1 is Toronto, 2 is Vancouver and 3 is Montreal.

5.

MAINTENANCE

RAD Failure Handling

- 5.1 The RAD failure handling for the Automated Attendant feature is as described in practice 9109-096-620-NA, *ACD TELEMARKETER* Application Package.

RADs in DND

If a caller accesses an Auto-Attendant group that has all RADs in DND or Busy-out, the caller is immediately routed to the default destination. If the last RAD in a group goes out of service, the waiting callers are processed as if they had just accessed a group in which all of the RADs are out of service.

Failure to Answer

If a RAD fails to answer, the caller ringing the RAD is routed to the default destination. The RAD is placed in DND.

Troubleshooting Guidelines

Failure to Answer

Problem: Call is never answered by RAD. The call always routes to the default.

Action:

- Check that RAD is functioning (not all DND or busy-out).
- Check that the RAD message length is not too short.
- Check traffic measurement for skip pegs for the group (indicates a problem with too few RADs or receivers required for Automated Attendant).
- Check wait for resources time for group.

Call Dropped

Problem: Call is dropped after no number is dialed.

Action:

- Check that default destination is programmed.
- Check that connection is allowed from possible callers to the default destination.

RAD Fails to Drop

Problem: Recording does not end even though digits are dialed.

Action: Insure that the option Dialing Over Recording is enabled for that group.

Wrong Message

Problem: Caller receives the wrong message.

Action:

- Check that message was recorded correctly.
- Check that RAD is programmed correctly.
- Check that RAD is connected at correct line circuit.

6.**INSTALLATION**

The Automated Attendant feature may require additional receivers to prevent complaints from users about a delay to dial tone. The following subsections describe the installation requirements for the Automated Attendant feature:

Receivers

- 6.1 Ensure system is provisioned with sufficient DTMF receivers. Traffic measurement can be used to monitor receiver usage and identify failures to get a receiver.

Universal Cards

- 6.2 Each Universal Card can contain up to 16 receivers and Universal Cards can only be installed in high-powered slots. This may present a problem for a 480-port machine that is limited to six high-powered slots.

INDEX

Italicized numbers refer to pages with figures.

A

- ACD Front End Message, 4-3
- Analog Networking, 3-5
- Auto-Attendant Group Form, Fields
 - Default Destination, 4-2
 - Dialing Over Recording, 4-2
 - Message Length, 4-2
 - Name, 4-2
 - Prefix Digits, 4-2
 - Wait for Resources, 4-2
- Auto-Attendant Group, 2-1
 - Access code, 2-2
 - Accessing, 2-1
 - Programmable options, 2-2
- Automated Attendant
 - ACD Front End Message, 4-3
 - Aided External Dialing, 4-3
 - Sample Message, 4-3
- Automated Attendant Group, 4-1

C

- Call Handling, 2-1, 2-1
 - Default Answering point, 2-1
- Call Transfer, 3-1
- CO Trunks, 2-3, 3-2
 - ARS, 2-3
- Conflict Dialing, 2-2
 - Conflict Timer, 2-2
 - Inter-digit timeout, 2-2
- Customer Data Entry (CDE). *See* Programming

D

- Default Destination, 2-5
 - Routing To, 2-6
 - Valid Answering Points, 2-5
- Delay to Dial Tone, 6-1
- Dialing Over Recording Option, 5-1
- DID Trunks, 3-2, 3-3

- Digit Handling, 2-2
- DTMF Receivers, 6-1

F

- Front End Recording, 2-5

H

- Hunt Group, 2-1

I

- Illegal Number Routing, 2-4
 - Examples, 2-4
- Interaction
 - Account Codes, 3-2
 - ACD, 3-1
 - ARS, 3-2
 - Call Duration Display, 3-2
 - Call Forwarding, 3-3
 - Callbacks, 3-2
 - Campon, 3-3
 - Direct to ARS, 3-3
 - Recall, 3-3
 - System Abbreviated Dialing, 3-3
 - Tenanting, 3-4

O

- Operation
 - Called Party Displays, 3-1
 - Caller Displays, 3-1

P

- Prefix, 3-3
- Prefix Digits, 2-3, 3-2
 - Function of, 2-4
 - Length, 2-3
 - Processing, 2-4
- Programming, 4-1
 - Auto-Attendant Group Form, 4-2
 - Call Rerouting Form, 4-1
 - COS Options Form, 4-1
 - Hunt Group Form, 4-1
 - System Options Form, 4-1

R

- RAD, 5-1
 - Message Length, 2-6
 - Operation, 2-6
- RAD Message, 2-1
- RADs, 4-2
- Recorded Announcement Device. *See* RAD
- Recording Group, 2-1
- Resource Allocation
 - DTMF Receivers, 2-6
 - Allocation Control, 2-7
 - Busy Receivers, 2-8
 - Receiver Requirements, 2-6
 - RADs, 2-6
 - Busy Recordings, 2-7
 - Timeout, 2-8

S

- Sample Message, 4-3
- SMDR, 3-4

T

- Traffic Measurement, 3-5
 - Receiver Usage, 3-5
 - Usage CCS, 3-5
 - Usage Pegs, 3-5
- Troubleshooting, 5-1
 - Call Dropped, 5-1
 - RAD Failure to Answer, 5-1
 - RADs in DND, 5-1
 - Wrong Message, 5-2

U

- Uniform Call Distribution (UCD), 4-1
- Universal Cards, 6-1

V

- Vacant Number Routing, 2-5
- Verified Account Codes, 3-2

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SX-200[®] DIGITAL PABX

Circuit Card Descriptions

NOTICE

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Table of Contents

1. INTRODUCTION

General	125 1-1
Reason for Issue	125 1-1

2. MAIN CONTROL CARD

Description	125 2-1
Facilities	125 2-1
Operation	125 2-2
DECRYPTION MODULE	125 2-2
Brief Description	125 2-2
Operation	125 2-2
RAM MODULE	125 2-2
Brief Description	125 2-2
DX MODULE	125 2-3
Brief Description	125 2-3
Facilities	125 2-3
Electrical Description	125 2-3
SWITCH MATRIX MODULE	125 2-3
Brief Description	125 2-3
Facilities	125 2-3
Electrical Description	125 2-4
Physical Description	125 2-4
T1 CLOCK MODULE	125 2-4
Brief Description	125 2-4
Electrical Description	125 2-5
Physical Description	125 2-5

3. BAY CONTROL CARD

General	125 3-1
Functions	125 3-1
Indicators	125 3-1
Electrical Description	125 3-1
SX-200® DIGITAL Operation	125 3-1
672-Port SX-200 FD Operation	125 3-1

4. CONTROL RESOURCE CARD

General	125 4-1
Functions	125 4-1
Electrical Description	125 4-1
Switch Settings	125 4-2

5. PERIPHERAL CONTROL CARD

Brief Description	125 5-1
-------------------------	---------

Major Components	125 5-1
Facilities	125 5-1

6. DIGITAL INTERFACE CARD

Brief Description	125 6-1
Facilities	125 6-1
Connections	125 6-1

7. UNIVERSAL CARD

Brief Description	125 7-1
Facilities	125 7-1
Physical Description	125 7-1
Electrical Description	125 7-1
CONSOLE MODULE	125 7-3
Brief Description	125 7-3
Electrical Description	125 7-3
DTMF RECEIVER/RELAY MODULE	125 7-4
Brief Description	125 7-4
Main Components	125 7-4
Facilities	125 7-4
Circuit Description	125 7-4
Relays	125 7-5
E&M TRUNK MODULE	125 7-6
Brief Description	125 7-6
Facilities	125 7-6
Operation	125 7-6
Trunk Types	125 7-6
MUSIC ON HOLD/PAGING MODULE	125 7-7
Brief Description	125 7-7
Major Components	125 7-7
Electrical Description	125 7-7

8. DID TRUNK CARD

Brief Description	125 8-1
Major Components	125 8-1
Facilities	125 8-1
Operation	125 8-2
Electrical Description	125 8-2

9. LS/GS TRUNK CARD

Brief Description	125 9-1
Facilities	125 9-1
Electrical Description	125 9-1
Operation – Loop Start	125 9-1

Operation – Ground Start	125 9–2
10. ONS LINE CARD	
General Description	125 10–1
Facilities	125 10–1
Electrical Description	125 10–1
Operation	125 10–2
11. OPS LINE CARD	
Brief Description	125 11–1
Major Components	125 11–1
Facilities	125 11–1
Operation	125 11–1
Electrical Description	125 11–2
12. COV LINE CARD	
General	125 12–1
Major Components	125 12–1
Facilities	125 12–1
Electrical Description	125 12–2
13. DIGITAL LINE CARD	
General Description	125 13–1
Facilities	125 13–1
Electrical Description	125 13–2
DNIC Description	125 13–2
Operation	125 13–2
Loop Length Specifications for Connections to a Digital Line Card	125 13–3
14. POWER FAIL TRANSFER CARD (6 CIRCUIT)	
Brief Description	125 14–1
Connections	125 14–1
Electrical Description	125 14–1
Operation	125 14–2
15. SWITCH MATRIX CARD	
Facilities	125 15–1
DX Array	125 15–1
Ringing Reference Generator	125 15–1
Non-volatile Static RAM	125 15–2
16. T1 TRUNK CARD	
Brief Description	125 16–1
Facilities	125 16–1

General Description	125 16-1
Electrical Description	125 16-2
Indicators	125 16-2
Physical Description	125 16-3

17. FIBER INTERFACE MODULE

General	125 17-1
Functions	125 17-1
Electrical Description	125 17-1
Cabling	125 17-1
Indicators	125 17-2

18. PERIPHERAL FIM CARRIER

General	125 18-1
Functions	125 18-1
Electrical Description	125 18-1

List of Figures

Figure 1-1 Digital Circuit Card Face Plates	125 1-2
Figure 2-1 Main Control Card and Decryption Module	125 2-6
Figure 2-2 Main Control Card and the Switch Matrix Module	125 2-7
Figure 3-1 Bay Control Card	125 3-2
Figure 4-1 Control Resource Card	125 4-3
Figure 5-1 Main Control Card, Bay Control Card, and Interface Cards for Analog Shelf ...	125 5-2
Figure 6-1 Digital Interface Card	125 6-2
Figure 7-1 Universal Card and Modules	125 7-3
Figure 9-1 Loop Start/Ground Start Card and Jumper Location	125 9-2
Figure 14-1 Power Fail Transfer Card	125 14-4
Figure 17-1 Fiber Interface Module	125 17-2
Figure 18-1 Bay Control Card, Peripheral FIM Carrier, and FIM	125 18-2

List of Tables

Table 4-1 Control Resource Card Switch Settings	125 4-2
Table 7-1 DTMF Codes	125 7-5
Table 14-1 Power Fail Transfer Plug and Jack Connections	125 14-2

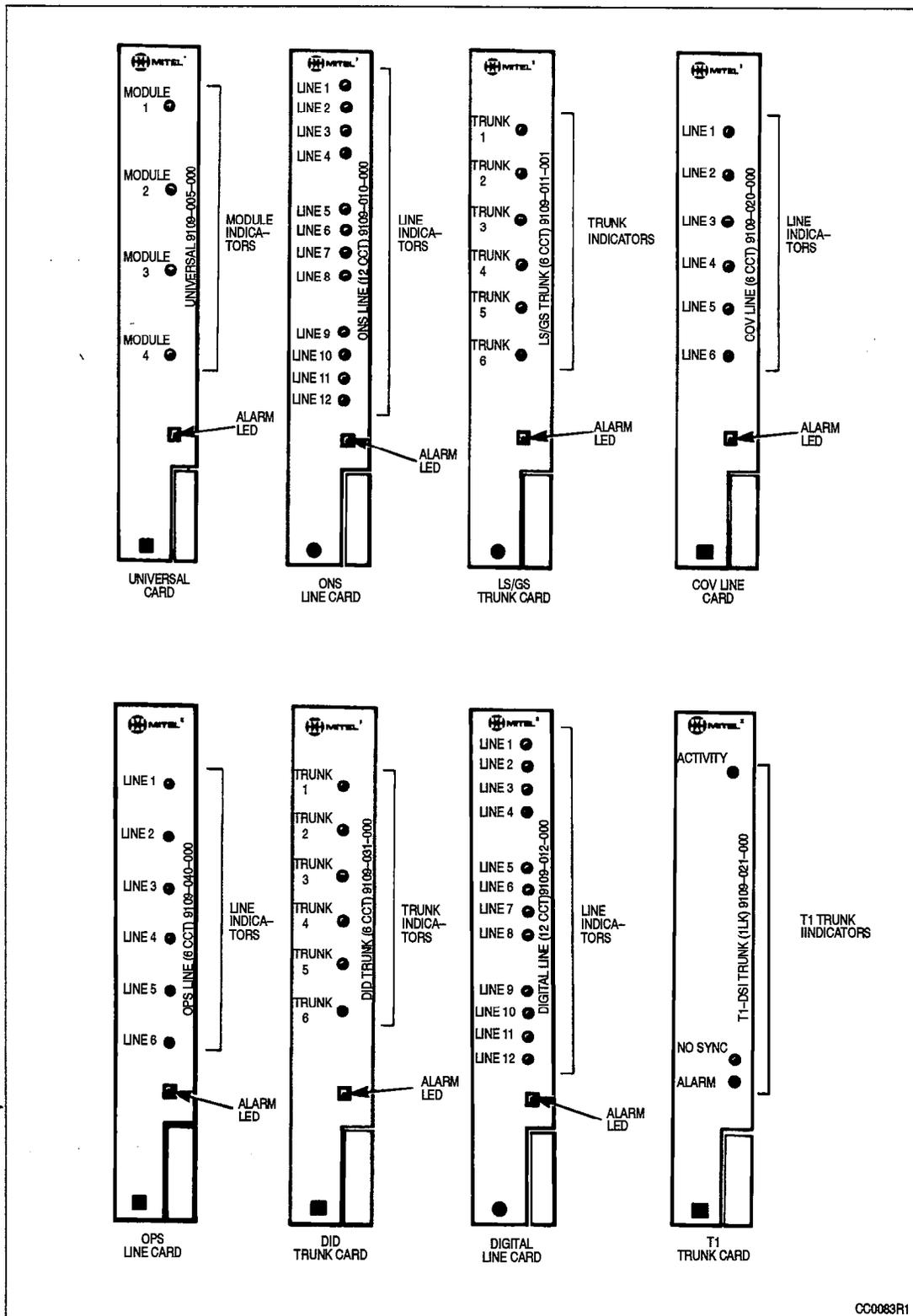
1.

INTRODUCTION**General**

- 1.1 This Section describes the digital cards in the *SX-200*[®] DIGITAL PABX. Figure 1-1 shows the front faces of some of these digital cards. The last 3 digits (usually 000) which are identified as XXX in part numbers may vary according to the revision level and the country of installation.

Reason for Issue

- 1.2 This Section is issued to provide a general description of the digital circuit cards in the *SX-200* DIGITAL PABX including the *SX-200* FD.



CC0083R1

Figure 1-1 Digital Circuit Card Face Plates

2.

MAIN CONTROL CARD**Description**

- 2.1 This section describes the Main Control Card (MCC) and the modules that plug into the MCC.

The Main Control Card performs all call processing for the entire system, and peripheral control operations for Bays 1 and 2 of the 336-port and 456-port *SX-200* DIGITAL. It maintains overall control through communication with the Bay Control Card or Peripheral Control Card in each bay (456-port configuration only). The Main Control Card and the Switch Matrix Card perform call processing for the 672-port *SX-200* DIGITAL. The Main Control card and the Switch Matrix Module perform the call processing for the 672-port *SX-200* FD.

CAUTION

Do not insert or remove the Main Control Card (MCC) with the power on. Damage to onboard circuits may result.

Facilities

- 2.2 Facilities on the Main Control Card are:

- HDLC link for high speed message communication and bulk data transfers to peripheral processors or Bay Control cards
- Two RS-232 communication ports (one printer port, one maintenance port)
- Floppy Disk Control including data separation and write precompensation
- DMA controller for dynamic RAM refresh, data transfer to floppy disk and HDLC communication system
- Real Time Clock for time of day and interrupt generation, with 3-day non-volatile backup
- System PCM Clock Generation
- Memory: Dynamic RAM (on RAM Module) with parity detection, 3-day non-volatile CMOS RAM, EPROM
- Digital signal processor to generate and detect progress and ringing tones and to provide conferencing
- RAM Module for program storage and process work areas
- DX Module (digital time/space crosspoint switch) for circuit and message switching (used for the 336-port and 456-port *SX-200* DIGITAL)
- Switch Matrix Module (digital time/space crosspoint switch) for circuit and message switching (used on the *SX-200* FD)

- Decryption Module to enable use of protected software
- Fault detection hardware to monitor PCM clock and processor sanity (watchdog)
- System Reset switch (front panel).

Operation

- 2.3 The correct Decryption Module must be installed, or the disk software will not run.

At power-up the Main Control Card is held in reset for about 1 second after the power supply voltages reach their normal levels. After reset, the processor first runs the software contained in its EPROM. This consists of tests for the RAM memory, the CPU and the DMA controller. A routine to load the system software into RAM from disk is run only after all preliminary tests have been passed.

The Main Control Card may also be reset via the push button switch behind the front panel of the card near the top. Reset invokes Power Fail Transfer, which remains in effect until the system software has been loaded from disk.

DECRYPTION MODULE

Brief Description

- 2.4 The Decryption Module plugs into the lower front corner of the Main Control Card. The Decryption Module must be present during power-up and system operation. Figure 2-1 shows the location of the Decryption Module on the Main Control Card.

Operation

The Decryption Module is written to and read from constantly by the system software. If there is a mismatch between the module and the software, the software will not run.

RAM MODULE

Brief Description

- 2.5 The RAM Module carries the dynamic memory required for program storage and call processing work areas. It plugs into a 96-pin DIN connector on the lower part of the Main Control Card. Mechanical support is provided by standoffs. The board measures 25.9 mm x 14.5 mm high (10.6 in. x 5.7 in.).

Parity is checked on all read and refresh cycles by circuitry on the Main Control Card. If the parity logic detects an error, it logs it in CMOS RAM and invokes a system reset via software.

DX MODULE

Brief Description

- 2.6 The DX Module plugs into the upper back corner of the Main Control Card, using the two 96-pin DIN connectors. It is used on the 336-port and 456-port *SX-200 DIGITAL*. It is not used on the *SX-200 FD*.

Facilities

Facilities on the DX Module include:

- Main DX Matrix
- Peripheral DX Matrix
- Dial Tone filter
- Bay 1 and 2 access logic.

Electrical Description

The Main DX Matrix consists of four Mitel DX chips arranged in a non-blocking 16 x 16 links. The matrix is capable of connecting any one of the 32 channels on any one of the 16 incoming 2.048 MHz links to any one of the 32 channels on any of the 16 outgoing links.

The Peripheral DX Array consists of three Mitel DX chips. It forms 8 x 24 concentrating/expanding links between the Main DX matrix and the 14 peripheral cards. Eighteen links go to and from the COMBO backplane.

The Ringing Generator receives PCM data for the ringing signal from the Digital Signal Processor on the Main Control Card. It is converted to an analog signal by a Mitel Codec. This signal is filtered to remove fast rise time transients and passed through the backplane connector to the ringing power amplifier in the power supply.

The Dial Tone Filter consists of a codec and an analog filter circuit. The PCM dial tone is converted to an analog signal, filtered, and reconverted to PCM.

SWITCH MATRIX MODULE

Brief Description

- 2.7 The Switch Matrix Module (SMM) plugs into the upper back corner of the Main Control Card, using the two 96-pin DIN connectors (the same connectors that the DX Module plugs into). The SMM is used only on the *SX-200 FD* and cannot be used with Generic 1001, Generic 1002, Generic 1003, and Generic 1004.

Facilities

Facilities on the Switch Matrix Module include:

- 24 X 24 Circuit Switch Link DX Array

- 32K X 8 Static Ram with Memory Power Backup
- Dial Tone Filter
- PCM Links and Clock Buffers.

Electrical Description

The DX Array is a non-blocking array that contains nine Mitel DX chips arranged in a square matrix. The array provides 24 bi-directional links with balanced drivers and receivers.

The Static RAM provides 32 Kbytes of RAM. To the MPU the RAM appears on the odd (least significant) byte of the data bus. The RAM uses the write protect key in use on the MCC. The Static RAM is used to store customer programmed data. Any time a telephone user enables a function such as Call Forwarding the data (extension number and type of forwarding) must be saved in a non-volatile memory so that it is not lost on power down. The Static RAM acts as a buffer for this type of data. When the buffer is full, the data is transferred to the 3.5 inch Disk Drive Unit. A holdover time of 72 hours (minimum) is provided by a large 1F capacitor. As well the RAM is protected from data corruption during power up and down.

The Dial Tone Filter consists of a codec and an analog filter circuit. The PCM dial tone is converted to an analog signal, filtered, and reconverted to PCM.

The PCM links use single-ended buffers to interface to the Fiber Interface Modules. A total of 21 links, grouped in threes, are sent out to the FIMs to address up to seven Peripheral Bays for a maximum 672-port capacity.

Seven pairs of buffered PCM clocks are provided; one pair per Fiber Interface Module. Series resistors for EMC waveshaping are added on all clock lines, going out to the FIMs and the DX Array, to reduce undershoot/overshoot and transmission line effects.

Physical Description

The card measures approximately 127 mm x 247 mm (5.0 in x 9.75 in). It uses surface mount technology and connects to the Main Control Card component side down via two 96-pin DIN connectors (see Figure 2-2).

T1 CLOCK MODULE

Brief Description

- 2.8 The T1 Clock Module is a digitally controlled oscillator which synchronizes the system clock to an incoming T1 frame rate clock signal. The T1 Clock Module plugs into the Main Control Card. The T1 Clock Module is not available with Generic 1001 or Generic 1002.

Electrical Description

Every 100 ms the T1 Trunk Card sends a counter value representing the phase difference between the incoming T1 clock and the SX-200 DIGITAL PABX system clock. On the T1 Clock Module a Digital to Analog converter generates a corresponding voltage to control the clock oscillator. This forms a phase-locked loop which keeps the clocks in phase.

Physical Description

The card measures approximately 80 mm x 110 mm (3.2 in x 4.3 in). It connects to the Main Control Card via a 30-pin connector.

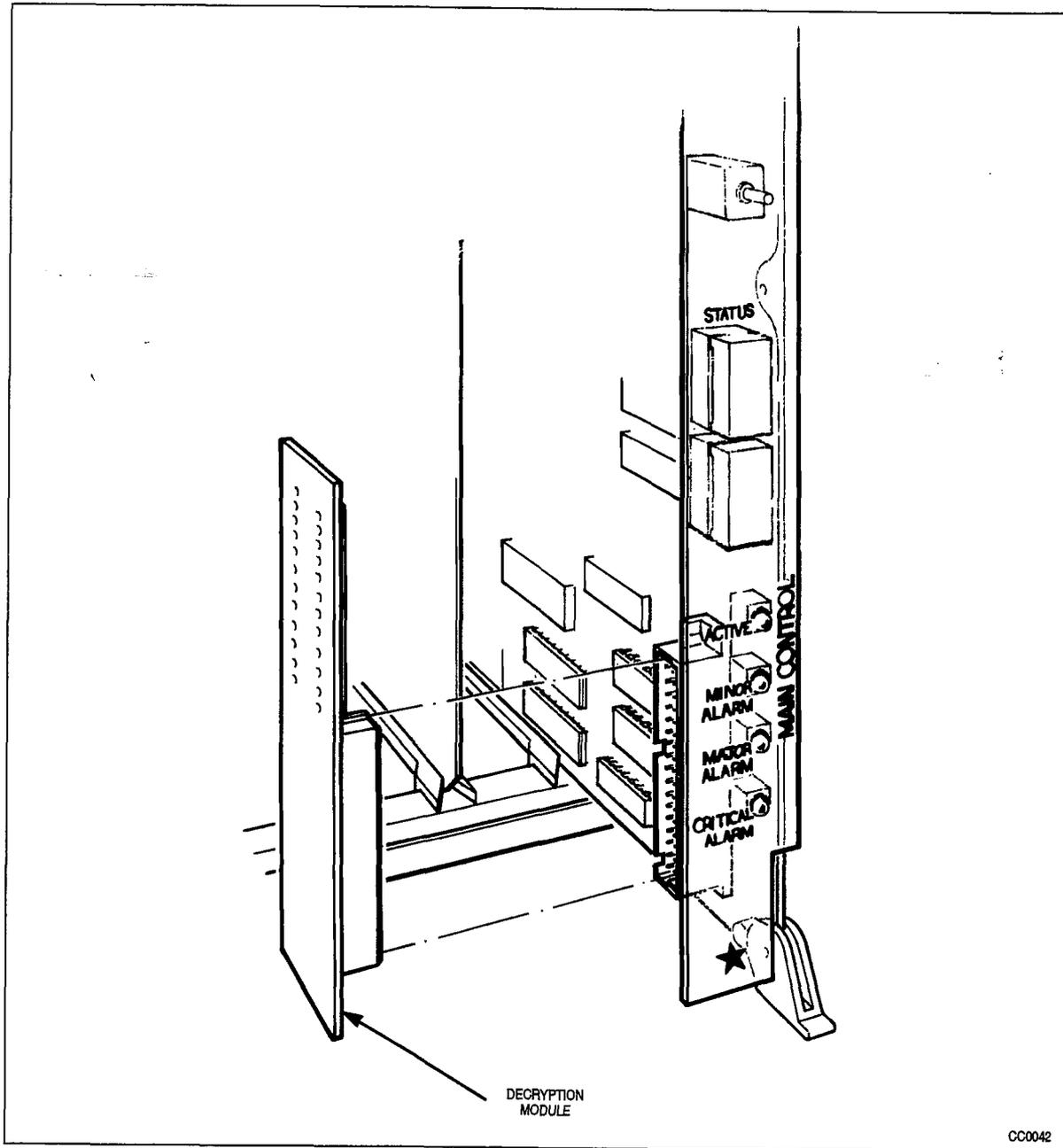


Figure 2-1 Main Control Card and Decryption Module

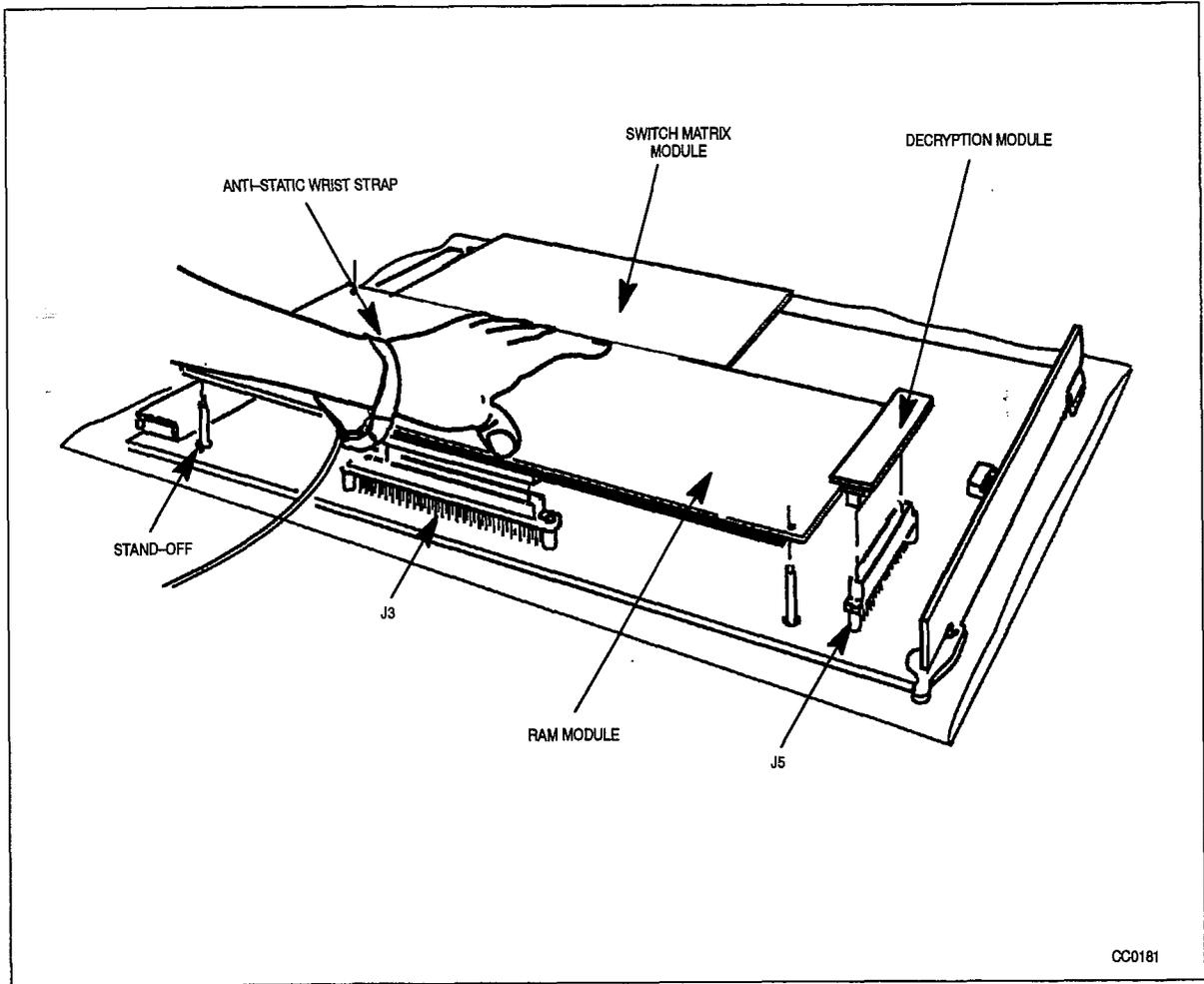


Figure 2-2 Main Control Card and the Switch Matrix Module

3.

BAY CONTROL CARD

General

- 3.1 The Bay Control Card (BCC) is required in the lower rightmost slot of all digital bays, except Bays 1 and 2 of a COMBO backplane. On 672-port systems, a Bay Control Card is required in every Peripheral Bay. In *SX-200* FD systems, a BCC is required in each Peripheral Cabinet. The circuit card measures 158 mm x 368 mm (6.2 in. x 14.5 in.).

CAUTION

This card must not be inserted or removed with the power on.

Functions

- 3.2 The Bay Control card provides:
- Control of operations within the Bay
 - Monitoring of lines, trunks and other circuits within the bay; reports are sent to the Main Control Card via HDLC message links
 - Ringing signal conversion. (The wave form comes from the Main Control Card as a PCM signal).
 - Connectors for the Peripheral FIM Carrier which is required for the *SX-200* FD.

Indicators

- 3.3 The Bay Control Card has Alarm LED Tx (transmit) and Rx (receive) indicators for the HDLC message link.

Electrical Description

***SX-200* DIGITAL Operation**

- 3.4 Electrical connection between the Bay Control and the circuit cards is through the peripheral backplane. Connection to the Main Control Card is via PCM cables. The PCM cable connector is on the rear of the backplane, behind the Bay Control location. There is room for two more cables for future applications.

672-Port *SX-200* FD Operation

Electrical connection between the Bay Control Card and the Peripheral line and trunk cards in a Peripheral Cabinet is through the Peripheral Backplane. Connection to the Main Control Card (in the Control Cabinet) is via a bi-directional fiber optic link. The

fiber optic link electrical-to-light interface is implemented on a Fiber Interface Module (FIM). The transmit and receive links of the fiber optic cable connects to the Tx and Rx fiber optic connectors on the FIM faceplate. The FIM plugs onto the Peripheral FIM Carrier Card (PFC) and the PFC plugs onto the BAY Control Card via two 96 DIN connectors.

There are two pairs of switches on the card; see Figure 3-1. All four switches must be set to closed for normal operation.

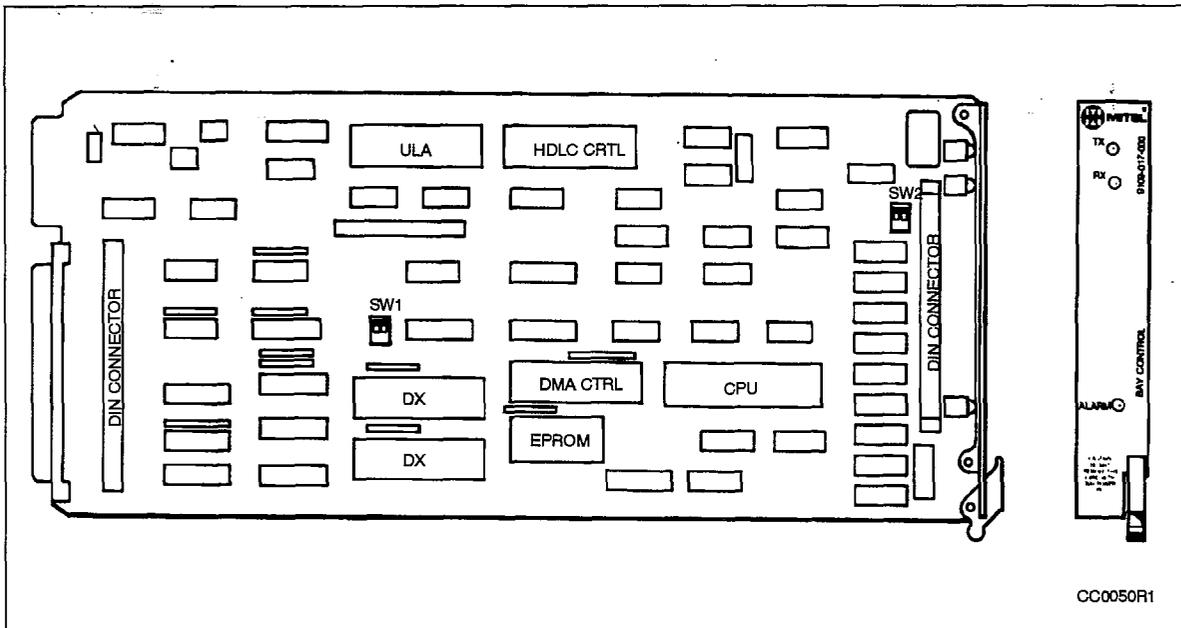


Figure 3-1 Bay Control Card

4.

CONTROL RESOURCE CARD**General**

- 4.1 The Control Resource Card (CRC) provides the miscellaneous circuitry required by the Control Cabinet to support the distributed architecture of the *SX-200* FD. The CRC functionally resides between the Main Control Card (MCC) and the Fiber Interface Modules (FIMs). Removal of the CRC will cause System Fail Transfer (SFT) to be activated. It will also cause the loss of the Fiber Maintenance Links, the loss of Terminal and Printer Ports, and the loss of the Floppy Disk Drive Units.

The CRC is located in the rightmost slot of the Control Cabinet next to the Main Control Card. The card measures 279 mm x 368 mm (11.0 in. x 14.5 in.).

Note: The Control Resource Card is required for the *SX-200* FD. It is not available prior to Generic 1005.

CAUTION

The Control Resource Card must not be unplugged under power.

Functions

- 4.2 The Control Resource Card provides:
- Maintenance Port arbitration for local (Control) or remote (Peripheral) maintenance sessions
 - Fiber Maintenance Link multiplexer
 - System Fail Transfer signal
 - Peripheral RS232 terminal connection
 - Controlling circuitry for the 3.5 in. Disk Drive units
 - Surge Protection for the Maintenance and Printer Ports

Electrical Description

- 4.3 A Maintenance Terminal can be connected to the Control Cabinet or to one of the Peripheral Bays. The Maintenance Port arbitration circuitry monitors the RS-232 Maintenance Terminal Transmit Data lines of the Control Cabinet and the Peripheral Bays. When the arbitration circuit senses activity (installer or maintenance person pressing any key) at a peripheral, it switches the terminal connection from the Control Cabinet to the Peripheral Bay (or vice-versa).

Data from one of the seven Fiber Maintenance Links are switched by the Fiber Maintenance Link multiplexer onto Channels 2 to 10 of the Control Maintenance Link. The Fiber Maintenance Links selection bits (ID) are multiplexed onto channel 11.

One common System Fail Transfer (SFT) signal driven by the SANITY signal from the Main control Card is provided.

Surge protection for the Maintenance and Printer Ports is provided by transorb diodes.

For troubleshooting purposes, four dip switches are provided on the CRC faceplate to allow a maintenance person to force connectivity to either the Control or Peripheral Cabinet. See Table 4-1 for the required switch settings.

Switch Settings

Table 4-1 Control Resource Card Switch Settings				
	Switch Settings			
	S1	S2	S3	S4
Normal Operation	Closed	Closed	Not Used	Not Used
Forced Maintenance to Control	Open or Closed	Open	Not Used	Not Used
Forced Maintenance to Peripheral	Open	Closed	Not Used	Not Used

CAUTION

Only one maintenance session, at either the Control Cabinet or at one of the Peripheral Bays, is allowed to be in progress at one time.

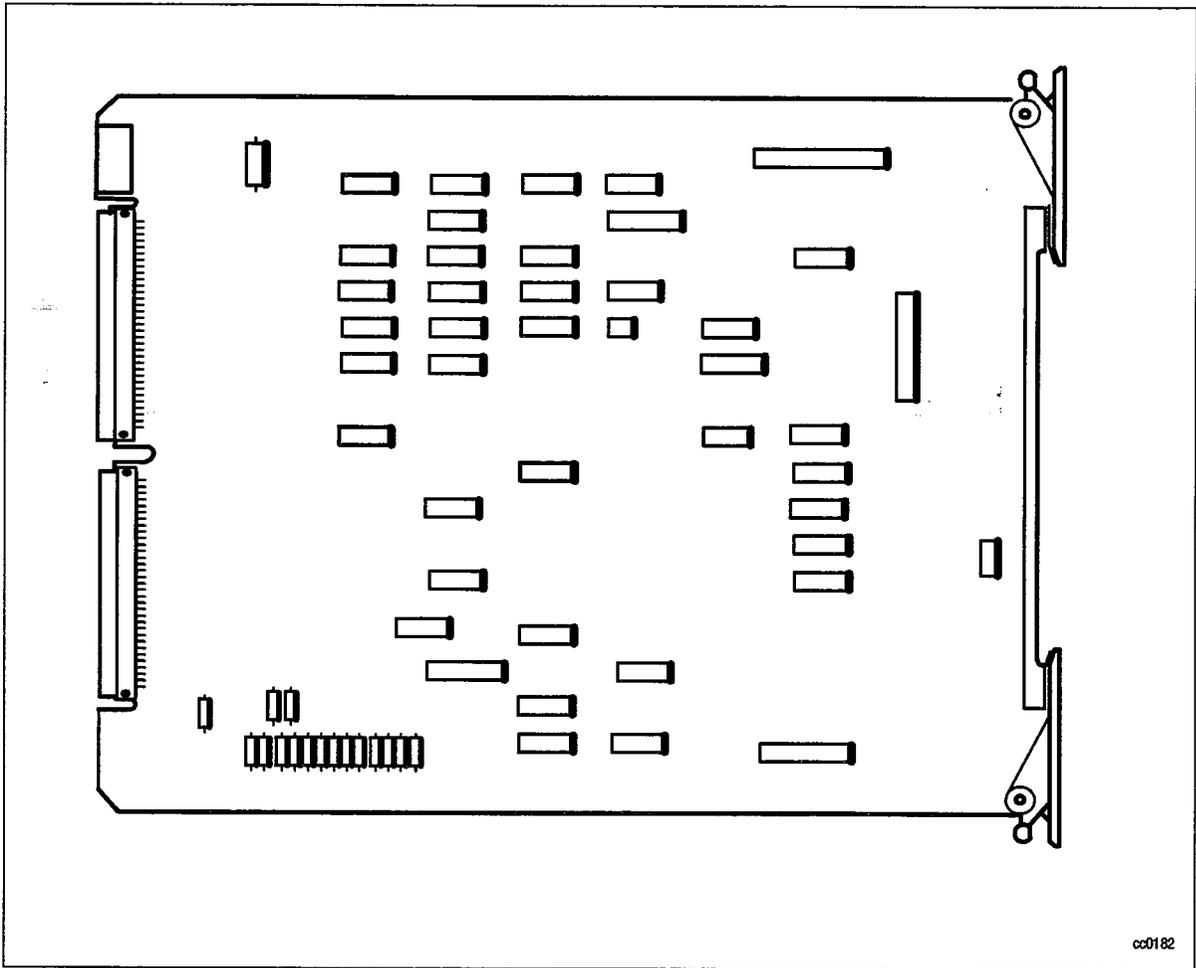


Figure 4-1 Control Resource Card

5.

PERIPHERAL CONTROL CARD

Brief Description

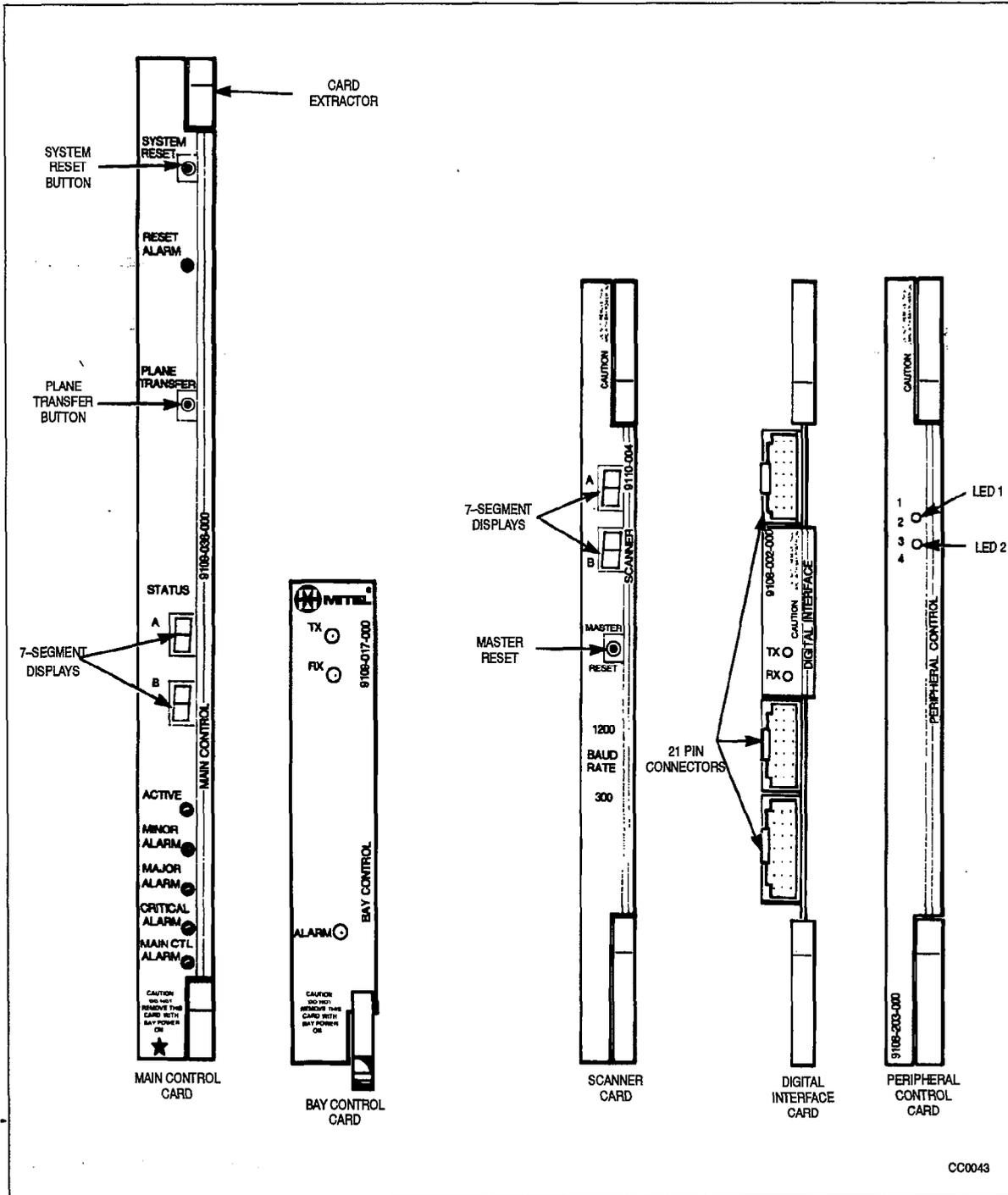
- 5.1 The Peripheral Control Card is located in slot 20 of an analog peripheral shelf. Through the Scanner Card it controls the analog cards on instructions from the Main Control Card. Figure 5-1 shows the front faces of the Peripheral Control Card, the Scanner and Digital Interface Cards and the Main Control Card. The Peripheral Control Card is only used in the 456-port configuration of the *SX-200* DIGITAL.

Major Components

- 5.2 Major components provided by the Peripheral Control Card include:
- 6809 microprocessor running at 1.33 MHz
 - Memory: 8K EPROM, 32K RAM
 - Peripheral Clock Oscillator.

Facilities

- 5.3 Facilities for the Peripheral Control Card include:
- Peripheral I/O Timing Generator for the bays it controls
 - Peripheral Address Decoder
 - FIRQ Interrupt Timer/Generator
 - Power Fail Monitor: a local bay reset is generated if any power rail drops below 95% of its nominal level.
 - Status Flag Buffer.



CC0043

Figure 5-1 Main Control Card, Bay Control Card, and Interface Cards for Analog Shelf

6.

DIGITAL INTERFACE CARD

Brief Description

- 6.1 The Digital Interface card is installed in slot 18 of an analog peripheral shelf. It interfaces the analog shelf to the Main Control Card. The card is illustrated in Figure 6-1.

Facilities

- 6.2 Facilities for the Digital Interface card include:
- analog/digital and digital/analog conversions between the analog junctors and the Master Control card via the PCM cable
 - enables dial pulse detection by the Peripheral Control card. Dial pulses cannot be encoded in PCM
 - provides a message channel between the Main Control card and the Peripheral Control card via the PCM cable.

Connections

- 6.3 The Digital Interface card is installed in slot 18 of an analog peripheral shelf. It must not be inserted or removed from the system with the power on. The card front panel contains three 21-pin male DIN connectors and two LEDs. A PCM cable from the Main Control is plugged into J2.

A 2-shelf peripheral cabinet may have a Digital Interface card installed in both the top and bottom shelves. In this case, the cable from the Main Control card plugs into J2 of the lower DIC. An intershelf jumper cable connects J1 of the lower DIC to J3 of the upper shelf DIC. The upper shelf card performs only the analog/digital interface and dial pulse detection functions. When connected this way, the cards automatically identify their location to the main processor.

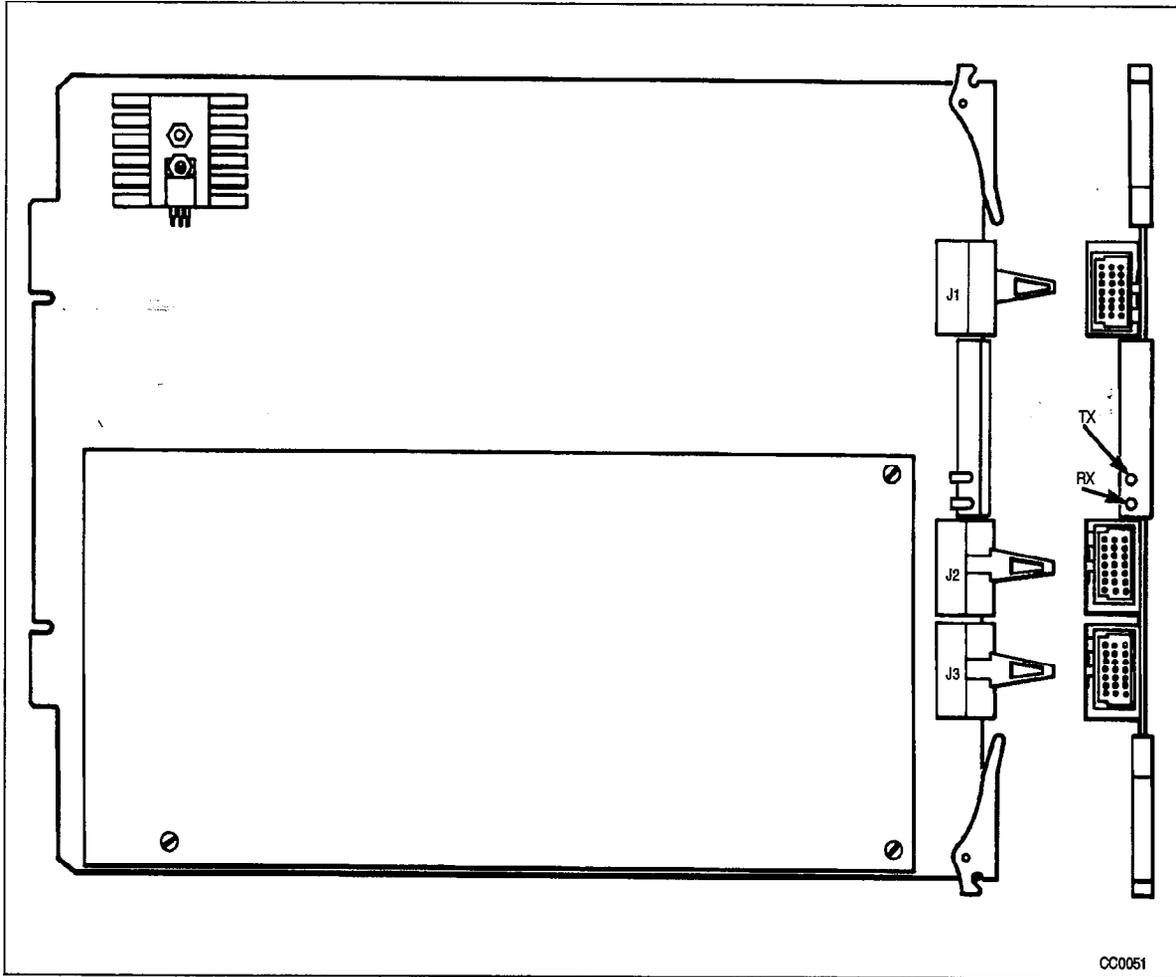


Figure 6-1 Digital Interface Card

7.

UNIVERSAL CARD

Brief Description

- 7.1 The Universal Card interfaces up to four modules to the backplane in any of the digital peripheral bays. The card and four available modules are illustrated in Figure 7-1, and described following.

Facilities

- 7.2 Facilities provided by the Universal Card include:
- module mounting positions (four)
 - module activity LEDs (four)
 - software-controlled failure alarm LED.

Physical Description

- 7.3 Each module has two vertical 32-pin female DIN connectors which mate to male connectors on the Universal card. Mechanical connection to the Universal Card is assisted by a standoff.

Up to four modules may be mounted on a Universal Card, subject to electrical power limitations. See the Electrical Description paragraph.

Module size is 145 mm x 83 mm (5.7 in. x 3.25 in.).

Electrical Description

- 7.4 The combination of modules on a Universal Card is limited by the power available from the card. Each module has a power rating number. The total of these numbers must not exceed 10. The Universal Card can be mounted only in a high power (upper) card slot of a digital bay.

The Module power ratings are as follows:

Module Type	Power Rating
Empty module position	0
Music on Hold/Paging	1
DTMF Receiver/Relay	2
E&M Trunk	3
Console Interface Module	5

Each of the four module positions are assigned Universal Card tip and ring connections as shown below.

Module Position	Module Tip/Ring		
1	T1/R1	T2/R2	T3/R3
2	T4/R4	T5/R5	T6/R6
3	T7/R7	T8/R8	T9/R9
4	T10/R10	T11/R11	T12/R12

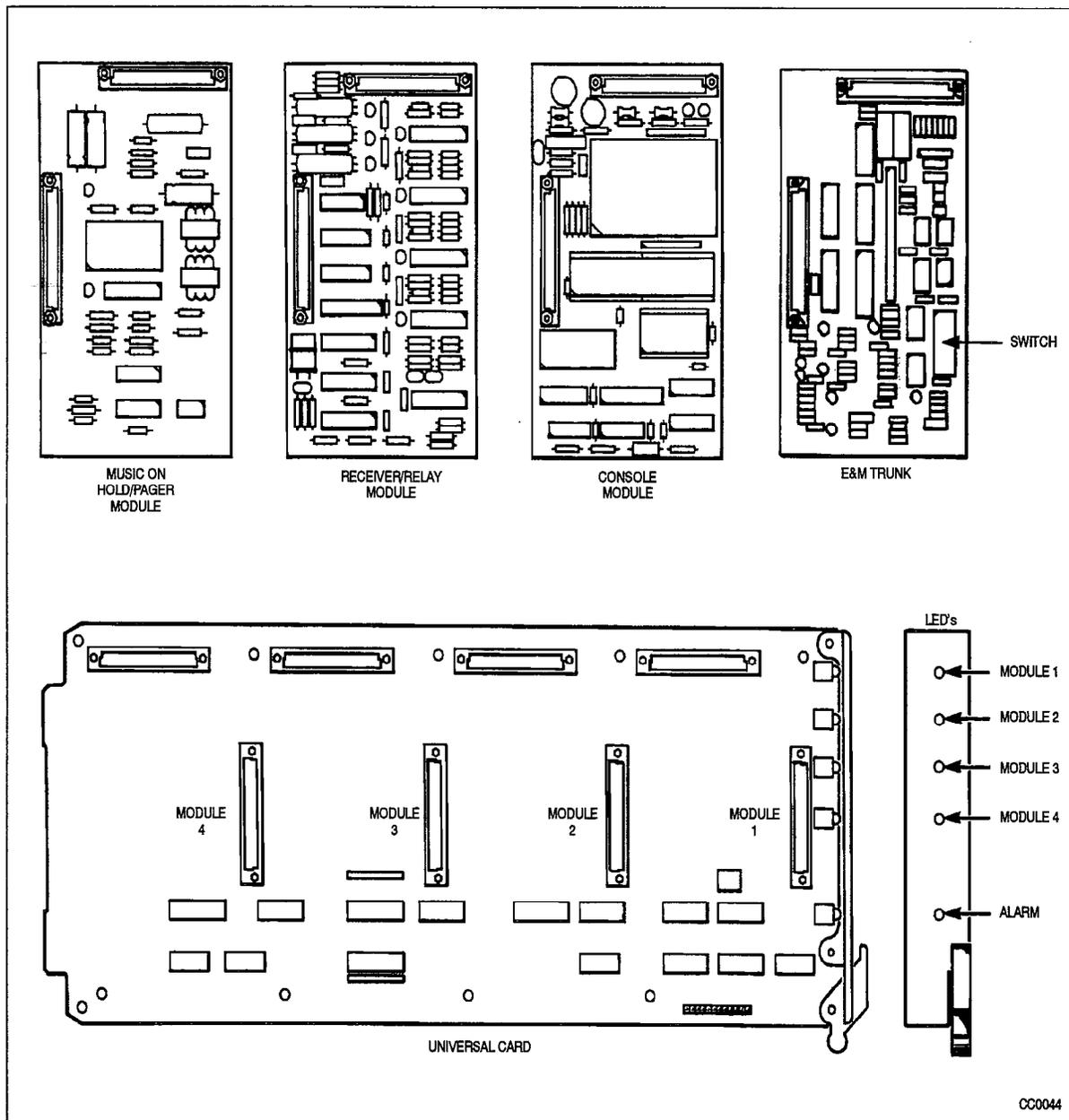


Figure 7-1 Universal Card and Modules

Console Module

Brief Description

- 7.5 The Console Module plugs into the Universal Card and provides the interface between the LCD console and the main and bay processors.

Electrical Description

There are four channels of data to the console, multiplexed into a 256 kb/s PCM line. One channel is for voice data and one is for communication of operations information

between the console, processor and the bay processor via the console module processor. The remaining two channels are reserved for future use.

The Console Interface Module feeds -48 Vdc to the console. Current is limited to about 120 mA.

The Console Interface Module has a power rating of 5.

DTMF Receiver/Relay Module

Brief Description

7.6 The DTMF Receiver/Relay Module facilitates the reception and decoding of DTMF dialing.

Main Components

Major components of the DTMF Receiver/Relay Module are:

- Mitel filter/codec (four)
- Mitel 8870 DTMF receiver (four)
- Parallel bus interface
- Guard time circuit (four)
- General Purpose relays (two).

Facilities

Facilities provided by the DTMF Receiver/Relay Module include:

- Early line split
- Guard time circuit
- Presents digits on parallel bus with Data Valid signal
- Two general purpose relays.

Circuit Description

There are four receivers on the DTMF module. Each receiver takes its input from the incoming serial PCM audio stream and repeats this data to the outgoing serial PCM stream approximately 125 msec later. A filter/codec converts the data to analog audio which is monitored by a DTMF Receiver chip. When DTMF tones are detected, the loopback of the data to the PCM output stream is disabled. (Early Line Split). The DTMF Receiver/Relay Module has a power rating of 2. See Table 7-1.

Two relays are on the module; each is software controlled to provide a contact closure across one tip-ring pair.

Table 7-1 DTMF Codes

DTMF Digit	Data Output			
	D3	D2	D1	D0
1	1	1	1	0
2	1	1	0	1
3	1	1	0	0
4	1	0	1	1
5	1	0	1	0
6	1	0	0	1
7	1	0	0	0
8	0	1	1	1
9	0	1	1	0
0	0	1	0	1
*	0	1	0	0
#	0	0	1	1

Relays

There are two general purpose relays. When each relay closes, it connects a tip and ring pair together, as follows:

Relay	Connection
RLY1	T2 to R2
RLY2	T3 to R3

The relay contacts are rated as follows:

- maximum switching voltage: 90 V
- maximum carrying current: 0.5 A

Note: This relay contact may be connected only to a secondary circuit that has no direct connection to a primary circuit, and receives its power from a transformer, converter, or equivalent isolation device situated within the equipment.

E&M Trunk Module

Brief Description

7.7 The E&M Trunk Module plugs into the Universal Card. It provides interface to Type 1 E&M trunks.

The module has a power rating of 3. Because of this, a maximum of three of these modules can be used per Universal Card.

Facilities

Facilities provided by the E&M Trunk Module include:

- Type 1 signaling
- selectable gain/loss plan for normal or satellite working trunks
- selectable 600 ohm or AT&T Complex Balance Network (350 ohms + 1000 ohms in parallel with 0.21 mF)
- selectable 2- or 4-wire transmission
- on board filter/codec for analog/digital and digital/analog conversions (mlaw).

Operation

The E&M Trunk Module is set for the type of trunk in use by a set of eight DIL switches. The settings are as follows:

Function		Switches							
		1	2	3	4	5	6	7	8
PABX to Line Gain	3 dB	0	x	x	x	x	x	x	x
	-13 dB	1	x	x	x	x	x	x	x
Line to PABX Gain	- 4 dB	x	0	x	x	x	x	x	x
	-11 dB	x	1	x	x	x	x	x	x
Balance	600 ohm	x	x	1	0	x	x	x	x
	Complex	x	x	0	1	x	x	x	x
Transmission	2-wire	x	x	x	x	1	x	x	x
	4-wire	x	x	x	x	0	x	x	x
Signaling	Type 1	x	x	x	x	1	x	x	
	Type 5	x	x	x	x	0	x	x	

0= open, 1= closed, x= not applicable
 Default setting for North America is 00101100

Trunk Types

The E&M Trunk Module applies signals to the M lead and monitors the E lead. In the on-hook condition, the Type 1 interface grounds the M lead; an open presented to the E lead indicates idle, a grounded E lead indicates an incoming call. In the off-hook condition, the Type 1 interface applies -48 volts to the M lead; a ground sent to the E lead indicates an incoming seizure.

Music On Hold/Paging Module

Brief Description

- 7.8 The Music on Hold/Paging module provides an input for music on hold, a paging output and a relay to switch an external paging amplifier. The module plugs into the Universal card. The Music on Hold/Paging module has a power rating of 1.

Major Components

Major components of the Music on Hold/Paging Module include:

- audio filter/amplitude limiter
- Mitel 8961 filter/codec
- paging driver amplifier
- paging control relay.

Electrical Description

The music input is isolated by a transformer and has an impedance of 600 ohms. The signal should be between 50 and 500 mVrms. High frequencies are attenuated and amplitude limiting is applied as required by FCC rules part 68. Amplitude limiting is applied when the signal exceeds approximately 390 mV rms.

The paging output is isolated by a transformer and has an impedance of less than 200 ohms. The output level into a 600 ohm load is typically -6 dBm (388 mV rms).

The control relay contacts are rated as follows:

maximum switching voltage	90 Vrms
maximum carrying current	0.4 Arms

Note: This relay contact may be connected only to a secondary circuit that has no direct connection to a primary circuit, and receives its power from a transformer, converter, or equivalent isolation device situated within the equipment.

8.

DID TRUNK CARD

Brief Description

- 8.1 The DID Trunk Card (pn 9109-031-XXX) contains six 1-way Direct Inward Dial circuits. It plugs into the digital peripheral bay. One-Way Direct Inward Dialing (DID) provides for direct access to PABX subscriber lines from the public telephone network.

DID Trunk Cards can be used in any digital peripheral bay high power (upper) slot. The maximum number of these cards is four per bay. This provides a maximum of 24 ports per peripheral bay.

The card measures 157.5 mm x 366.4 mm (6.2 in. x 14.4 in.).

Major Components

- 8.2 Major components in the DID Trunk Card are:
- Mitel 8962 Filter/Codec (one per trunk circuit)
 - Feed Reversal relay (one per trunk circuit)
 - Alarm LED.

Facilities

- 8.3 The facilities provided by each trunk circuit are:
- Trunk activity LED
 - Line protection
 - 2-wire / 4-wire conversion (external to internal)
 - Analog-to-Digital / Digital-to-Analog conversion (μ -law)
 - Immediate, Delay Dial or Wink Start supervision
 - Direct Inward Dialing access to PABX subscriber lines
 - Conformity with the EIA loss level plan for μ -law compatible PABXs in North America.

Operation

- 8.4 A trunk is idle if the resistance across Tip and Ring is 4000 ohms or more. In idle condition the PABX provides forward battery feed to the line. The Tip is grounded and the Ring is at -48 Volts.

The CO initiates a call to the PABX by terminating Tip and Ring. The supervision circuitry detects the flow of loop current and alerts the system software. The PABX signals it is ready to receive dialing by briefly applying a battery reversal to the line. Ring is grounded and Tip is at -48 Volts. There are two types of controlled address signaling: Delay Dial and Wink Start.

A Delay Dial signal must start no later than 150 ms after trunk seizure. It is held until the PABX is ready to receive dialing. Minimum hold time is 140 ms.

A Wink Start signal must start at least 100 ms after trunk seizure. It is sent when the PABX is ready to receive dialing and can be held a maximum of 290 ms.

Where the CO does not provide controlled address signaling, the PABX must be prepared to receive dialing 65 ms after trunk seizure.

When the called station or PABX attendant answers, the PABX places battery reversal on the line for the duration of the call. The trunk then returns to the idle state.

A trunk may be busied out by the system software. This presents an open circuit to the Tip and Ring of both the trunk and trunk card circuit. The trunks default to the busy-out state if system power fails.

Each circuit has a LED on the front panel which lights to indicate the trunk is in use. A seventh LED at the bottom of the panel lights to indicate a failure on the card.

Electrical Description

- 8.5 Line protection comprises high voltage varistors to energy dump ground from Tip and Ring and fusible links incorporated in the battery feed resistors. EMI is controlled by inductors in series with Tip and Ring.

The maximum loop resistance is 1800 ohms. The maximum loop length is 5850 m (19,200 ft) when using 26 AWG wire, 15,240 m (50,000 ft) when using 22 AWG wire.

The card circuitry performs 2-wire to 4-wire conversion, splitting the signal on the trunk into outgoing and incoming speech paths. The analog signal coming from the trunk is converted to Pulse Code Modulation (PCM); the signal to be sent to the trunk is converted from PCM to analog audio. These conversions are performed by a Mitel Codec chip.

Battery Feed Reversal and Busy-out for each trunk are controlled by relays, as shown below.

Condition	Relay 1	Relay 2
Forward Feed (Idle)	ON	OFF
Reverse Feed (Talk)	ON	ON

Circuit Card Descriptions

9.

LS/GS TRUNK CARD

Brief Description

- 9.1 The Loop Start/Ground Start Trunk Card, part number 9109-011-XXX, mounts in any digital bay and interfaces six trunk circuits to the system. The card is 158 mm high x 368 mm long (6.2 in. x 14.5 in.). Figure 9-1 illustrates the card and the LS/GS jumper.

Facilities

- 9.2 Facilities provided by the LS/GS Trunk Card include:
- Loop Start or Ground Start selectable by jumper
 - M and MM signaling leads available
 - Trunk activity indicated by LED (one per trunk)
 - Transient suppression on Tip, Ring, and signaling leads
 - Alarm LED.

Electrical Description

- 9.3 The Loop Start/Ground Start Trunk Card mounts in any digital bay and interfaces six trunk circuits to the system. Each trunk circuit is programmed as loop start or ground start by a jumper clip prior to installation.

Each trunk has Tip and Ring leads and M and MM leads for additional signaling, if required. All leads are protected by varistors against transients between line and ground. There are also varistors between Tip and Ring and between M and MM. Each lead is in series with an inductor near the edge connector to reduce electromagnetic interference (EMI).

Each trunk has an LED on the front faceplate of the card that lights to indicate the circuit is busy. An LED at the bottom of the faceplate lights to indicate a failure on the card.

Operation – Loop Start

- 9.4 To place an outgoing call, the trunk card places a termination across tip and ring. The CO detects the current flow and responds with dial tone. Now the user may begin to dial.

The Trunk Card recognizes an incoming call when it receives ringing voltage or battery reversal from the CO. The Trunk Card will respond by placing a termination across Tip and Ring. The trunk is released when the loop current is broken. This happens when the near party goes on-hook or the line is physically broken.

Operation – Ground Start

9.5 To place an outgoing call, the Trunk Card grounds the Ring lead. The CO responds by grounding the Tip lead. The Trunk then places a termination across Tip and Ring and ungrounds the Ring lead. The CO then sends dial tone, indicating that it is ready to receive dialing.

The Trunk Card recognizes an incoming call when the CO grounds the Tip lead. The CO may also send ringing voltage. The Trunk Card will respond by placing a termination across Tip and Ring. The trunk is released when the loop current is broken. This happens when either party goes on-hook or the line is physically broken.

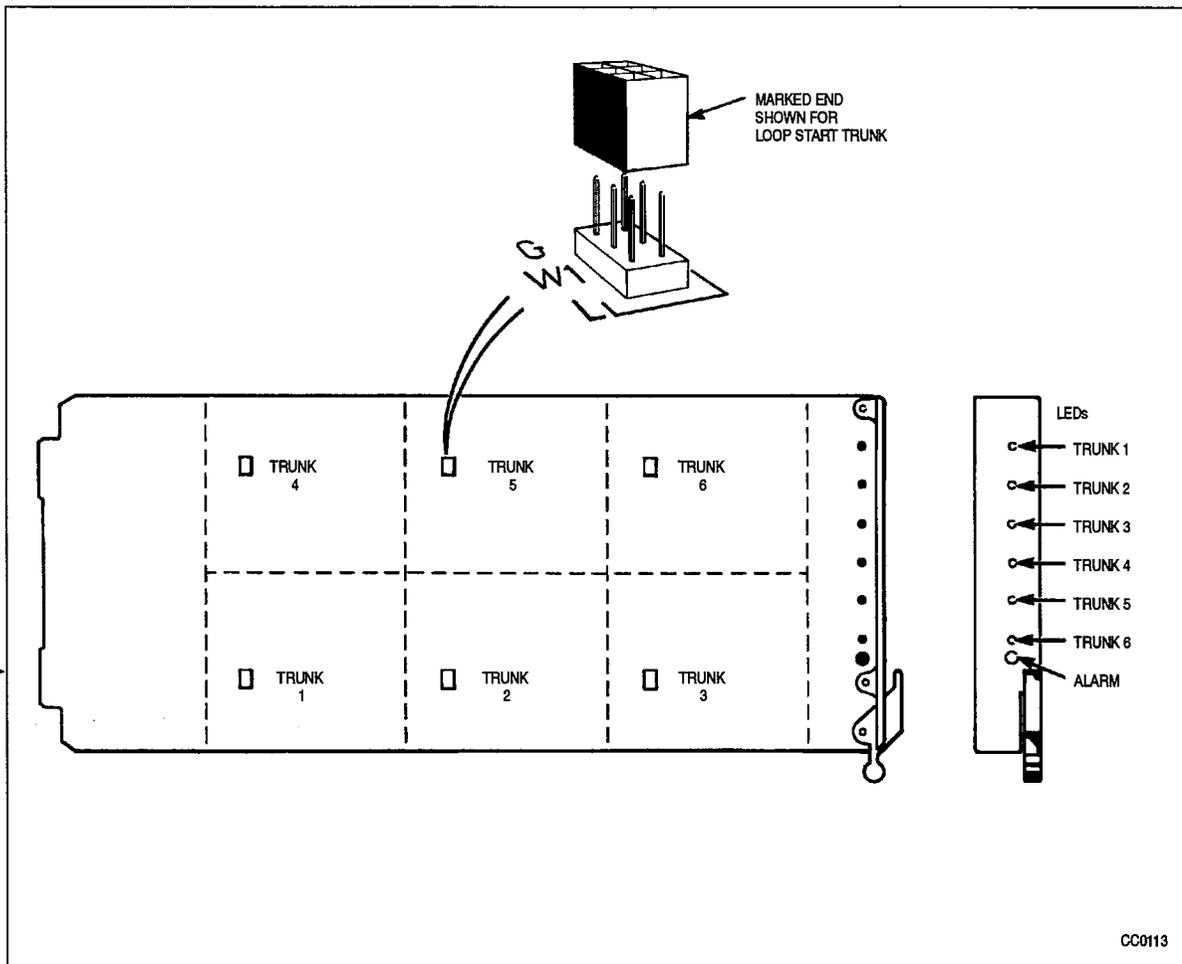


Figure 9-1 Loop Start/Ground Start Card and Jumper Location

10. **ONS LINE CARD**

WARNING

Any connection of this card to an off premise application, an out of plant application, or to any other exposed plant application may result in a safety hazard, and/or defective operation, and/or equipment damage.

General Description

- 10.1 The On-Premises (ONS) Line Card, part number 9109-010-XXX, interfaces standard subscriber telephone sets to a PABX in the same building. It contains 12 line circuits and plugs into any digital bay.

The card is 158 mm high x 368 mm long (6.2 in. x 14.5 in.).

There are 13 LEDs on the front face of the card. The top 12 are each connected to a line circuit and light to show that the circuit is in use. The LED at the bottom of the panel lights to indicate an alarm (failure) condition.

Facilities

- 10.2 Each line circuit provides the following facilities:
- Line protection
 - Analog-to-Digital / Digital-to-Analog conversion (μ -law)
 - Line circuit status monitoring
 - Signaling (ringing, message waiting).

Electrical Description

- 10.3 The following description applies to each line circuit.

Tip and Ring are each protected against transients by a 200 volt varistor to ground. A bridge rectifier provides four protection diodes for the line circuit transistors. The -28 volt line is protected by a 35 volt transistor.

The line circuit performs 2-wire to 4-wire conversion, splitting the signal on the line into outgoing and incoming speech paths. The analog signal coming from the telephone is converted to Pulse Code Modulation (PCM); the signal to be sent to the telephone is converted from PCM to analog audio. These conversions are performed by a Mitel Codec chip.

When the telephone is off-hook, the line circuit status LED on the front panel lights. The line circuit maintains a constant 26 mA current to the telephone while the set is off-hook. Loop length is maximum 600 ohms including the telephone set.

The ONS Line Card supports the Message Waiting feature. A high voltage (-140 Vdc) is applied to the Ring terminal of the line, lighting a neon lamp on the subscriber's set.

Operation

- 10.4 When a telephone goes off-hook, the line circuit detects the flow of loop current and signals the Main Processor. The processor responds by connecting a DTMF receiver to the line and sending dial tone to the set. (If the telephone uses pulse dialing the processor detects the pulses by monitoring the loop current). The user can then dial the desired number.

When a call is directed to an extension, the system applies ringing voltage to the appropriate line and monitors the loop current for an off-hook condition. When the telephone is answered, the ringing voltage is removed.

When a call is ended by one of the sets going on-hook, the call is disconnected and the line returns to its idle state.

11. XXXXXXXXXX

OPS LINE CARD

Brief Description

- 11.1 The OPS Line Card, part number 9109-040-XXX, contains six Off-Premises line circuits. An Off-Premises (OPS) Line circuit is used where the line goes outside the building housing the PABX and may be exposed to extraneous high voltages or induced currents (e.g., lightning).

The OPS Line Card can be used in any digital peripheral bay high power (upper) slot. The maximum number of these cards is four per bay. This provides a maximum of 24 ports per peripheral bay.

The card is 157.5 mm high x 366.4 mm long (6.2 in. x 14.4 in.).

Major Components

- 11.2 Major components for the OPS Line Card are:

- Mitel 8962 Filter/Codec (six)
- 2-wire / 4-wire converter (six)
- Ringing relay (one per circuit)
- Alarm LED.

Facilities

- 11.3 Each line circuit provides the following facilities:

- Line activity LED
- Line protection
- Analog-to-Digital / Digital-to-Analog conversion (μ -law)
- Signaling (ringing).

Operation

- 11.4 Each circuit has a LED on the front panel which lights to indicate the line is in use. A seventh LED at the bottom of the panel lights to indicate a failure on the card.

The line circuit applies Forward Battery Feed to the line. The Tip is grounded and the Ring is at -48 volts. When the set goes off-hook to place a call, the PABX detects the

loop current and responds with dial tone. Dialing may be DTMF or pulses. Dial pulses are debounced by software to assure reliable performance.

When a call is directed to the set, a relay closes, sending ringing voltage to the set. The ringing relay drops out when loop current flow indicates that the telephone has been answered (off-hook condition).

Electrical Description

- 11.5 Line protection comprises high voltage varistors to energy dump ground from Tip and Ring and fusible links incorporated in the battery feed resistors. EMI is controlled by inductors in series with Tip and Ring.

The maximum loop resistance is 1800 ohms. The maximum loop length is 5850 m (19,200 ft) when using 26 AWG wire, 15,240 m (50,000 ft) when using 22 AWG wire.

The card circuitry performs 2-wire to 4-wire conversion, splitting the signal on the line into outgoing and incoming speech paths. The analog signal coming from the line is converted to Pulse Code Modulation (PCM); the signal to be sent to the line is converted from PCM to analog audio. These conversions are performed by a Mitel Codec chip.

The line circuit applies ringing voltage to the appropriate line through a relay and removes it when the telephone is answered. This is determined by monitoring the loop current.

Loop current is provided through a pair of 200 ohm resistors. Below 900 ohms loop resistance, active current limiting circuitry limits line power to less than 1.5 watts.

Ringing for each line is controlled by relay 2.

Condition	Relay 1	Relay 2
Idle or Talk	OFF	OFF
Ringing	OFF	ON

12. XXXXXXXXXX

COV LINE CARD

WARNING

Any connection of this card to an off premise application, an out of plant application, or to any other exposed plant application may result in a safety hazard, and/or defective operation, and/or equipment damage.

General

- 12.1 The COV Card, part number 9109-020-XXX, is installed in a digital peripheral bay to interface up to six *SUPERSET 3™* or *SUPERSET 4®* telephones to the bay processor. The card measures 158 mm x 368 mm (6.2 in. x 14.5 in.). It has a profiled edge connector that allows it to be safely inserted or removed from the system with the power on.

The COV Card can be mounted only in a high power (upper) card slot of a digital bay.

Major Components

- 12.2 The major components of the COV Line Card are:
- Subscriber line interface circuit (SLIC) – one per line
 - Backplane interface
 - PCM Timer
 - 6402 UART
 - 8840 Modem
 - Line protection circuits
 - Line status LEDs – one per line
 - Card status LED – one.

Facilities

- 12.3 Facilities provided by the COV Line Card include:
- Amplitude Shift Keyed communication with *SUPERSET 3* or *SUPERSET 4* telephones
 - Analog/Digital and Digital/Analog conversions (μ -law)
 - Battery Feed to power telephones.

Electrical Description

- 12.4 Control information from the backplane is converted to a 32 kHz amplitude shift-keyed (ASK) data stream. The audio information is taken from the 2 Mb/s data link, converted to analog audio and combined with the control information for transmission to the telephone. Conversely, the audio and ASK data signals from the telephone are separated and converted. The ASK data is demodulated and sent to the bay processor. The audio is digitized and transmitted on the data link.

There is only one UART and one modem on the card. The six lines are time-division-multiplexed to the communication circuit. Transmission and reception are simultaneous, but the card receives data from the telephone to which it last transmitted. For example, if the card is transmitting to telephone 2, it is receiving from telephone 1. In the next time slot, it will transmit to telephone 3 and receive from telephone 2.

The COV Card has seven indicators on the front panel. There is an activity LED for each subscriber line. The LED at the bottom of the panel is an alarm indicator for the entire card.

The maximum loop lengths for COV circuits are:

Wire Gauge (AWG)	Max. Loop length
26	1000 m (3300 ft)
24	1500 m (5000 ft)
22	2000 m (6600 ft)

13. XXXXXXXXXX

DIGITAL LINE CARD

WARNING

Any connection of this card to an off premise application, an out of plant application, or to any other exposed plant application may result in a safety hazard, and/or defective operation, and/or equipment damage.

General Description

- 13.1 The Digital Line Card (DLC), part number 9109-012-XXX, interfaces DATASETs, the *SUPERCONSOLE 1000*[™] Attendant Console, *SUPERSET DSS*[™] Module, *SUPERSET 3*[™]DN and *SUPERSET 4*[™]DN, *SUPERSET 401*[™], *SUPERSET 410*[™], *SUPERSET 420*[™], and *SUPERSET 430*[™] telephones to the *SX-200* DIGITAL PABX. It contains 12 asynchronous line circuits (MITEL[®] Digital Network Interface Circuit), and is a low power digital card which can plug into any slot within a digital bay.

Note: If a *SUPERCONSOLE 1000* Attendant Console is connected to the DLC, the DLC must be installed in an upper slot.

Note: The *SUPERSET 401*, *SUPERSET 410*, *SUPERSET 420*, and *SUPERSET 430* telephones can only be used with Generic 1005. The *SUPERSET 430* telephone is not available with Generic 1005 FPKG1.

The card is 158 mm high x 368 mm long (6.2 in. x 14.5 in.).

There are 13 LEDs on the face of the card. The top 12, one for each line circuit, light when the circuit is in use. The bottom LED on the panel lights to indicate an alarm condition within the card.

Facilities

- 13.2 Each Digital Network Interface Circuit (DNIC) provides the following facilities:
- line protection
 - full duplex simultaneous data and voice digital transmission over a single pair of wire
 - line circuit status monitoring
 - signaling and HDLC protocol to its associated DATASET.

Electrical Description

- 13.3 Each Digital Network Interface Circuit (DNIC) connects a DATASET, *SUPERCONSOLE 1000* Attendant Console, *SUPERSET DSS* Module, *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 401*, *SUPERSET 410*, *SUPERSET 420*, or a *SUPERSET 430* telephone to the common circuitry on the DLC card (and then to the PABX). The common circuitry will be described first, followed by a description of one DNIC.

The common circuitry contains a High-level Data Link Controller (HDLC) which controls the D channel communication between each DNIC and the Main Control Card (MCC) within the PABX. This data is passed over one-half of a link to the MCC. The B1 and B2 channels from the DNICs are multiplexed onto one link between the DLC and the MCC. The common circuitry includes phase-lock loop circuitry to keep the DNICs in synchronization with the system clock, as well as circuits which prevent the DLC from disrupting the backplane when a card is inserted or removed. The DLC line circuits are arranged in three groups of four; at power-up, each group can be separately sequenced. There are 12 Digital Network Interface Circuits (DNIC) on the DLC card, each connected to a separate tip-ring pair.

DNIC Description

- 13.4 Each DNIC connects via its tip-ring pair to a proprietary telephone, or a proprietary telephone with a data cartridge, or a DATASET which also contains a DNIC. The DNICs communicate with each other over the twisted pair at 160 Kbit/s (two 64 Kb/s B1 and B2 channels and a D channel). Since the DNIC is a proprietary integrated circuit, each device connected to a Digital Line Card DNIC tip-ring pair must also contain a DNIC. The two DNICs communicate data plus voice simultaneously in full duplex over the single twisted pair between them. The twisted pair also carries the power required by the *SUPERCONSOLE 1000*, *SUPERSET DSS* Module, *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 401*, *SUPERSET 410*, *SUPERSET 420*, or the *SUPERSET 430* telephone from the DNIC on the DLC. The DATASET is powered from a separate AC power supply.

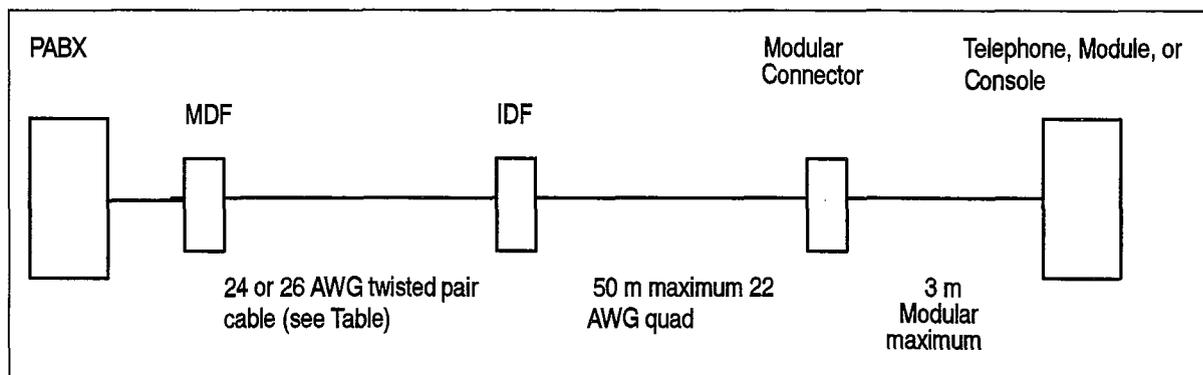
-Operation

- 13.5 The Digital Line Card communicates with a DNIC-equipped device using digital transmission techniques; a voice channel, a data channel, and a control channel. It allows simultaneous transmission of voice and data over a single twisted pair of wires. When the DLC is connected to *SUPERSET 3 DN* or *SUPERSET 4 DN*, telephones, each telephone may be ordered with a Data Cartridge which can be connected to a personal computer, or similar data device. When the DLC is connected to *SUPERSET 410*, *SUPERSET 420*, or *SUPERSET 430* telephones, each telephone may be connected to a *MiLink* Data Module which can be connected to a personal computer, or similar data device. The telephone's voice operation and the data device's data operation can both function concurrently.

Loop Length Specifications for Connections to a Digital Line Card

The following rules for loop lengths between the Digital Line Card within the PABX and the *SUPERSET 3 DN*, *SUPERSET 4 DN*, *SUPERSET 401*, *SUPERSET 410*, *SUPERSET 420*, and *SUPERSET 430* telephones, *SUPERSET DSS* module, or *SUPERCONSOLE 1000* Attendant Console must be followed for proper operation of the device:

Maximum loop length (twisted pair) 24 or 26 AWG	see Table
Maximum length of quad cable (22 AWG)	50 m (160 ft)
Modular Line Cord	3 m (10 ft)



Peripheral Device	Maximum Loop Length	
	Without Bridge Tap	With Bridge Tap
<i>SUPERSET 3 DN</i> Mk1 (9183-000-001)	1000 m	not permitted
<i>SUPERSET 3 DN</i> Mk2 (9183-000-200)	1000 m	1000 m
<i>SUPERSET 4 DN</i> Mk1 (9184-000-001)	1000 m	not permitted
<i>SUPERSET 4 DN</i> Mk2 (9184-000-200)	1000 m	1000 m
<i>SUPERSET 401</i>	1000 m	1000 m
<i>SUPERSET 410</i>	1000 m	1000 m
<i>SUPERSET 420</i>	1000 m	1000 m
<i>SUPERSET 430</i>	1000 m	1000 m
<i>SUPERSET DSS</i> Module	1000 m	1000 m
Dataset 1101	1000 m	1000 m
Dataset 1102	2000 m	1000 m
Dataset 1103	2000 m	1000 m
Dataset 2102	2000 m	1000 m
Dataset 2103	2000 m	1000 m
<i>SUPERCONSOLE 1000</i> console	1000 m	1000 m

Circuit Card Descriptions

14. **POWER FAIL TRANSFER CARD (6 CIRCUIT)**

Brief Description

- 14.1 The Power Fail Transfer Card allows six telephones, defined by the customer, to place and receive outside calls while the system is inoperative due to a power failure or other major fault. The telephones must be industry standard, rotary dial or DTMF, according to trunk type.

Power Fail Transfer Cards mount on the right wall of the cabinet, as seen from the rear door. Each card contains six circuits. There can be up to three cards per system, allowing a maximum of 18 PFT circuits. The card is 165 mm high x 267 mm long (6.5 in. x 10.5 in.). See Figure 14-1.

Note: The Power Fail Transfer Card is not used on the SX-200 FD.

Connections

- 14.2 The connections to the Power Fail Transfer Card are made through a 25-pair connector, two 9-pin DSUB connectors, a 14-pin strip connector and a four terminal barrier strip.

The 25-pair connector provides all the tip and ring connections from the cross-connect field. The two DSUB connectors provide control signals, power supply and ground connections. They are in parallel. One is connected by cable to the Common Control Shelf; the other cable goes to the next Power Fail Transfer Card. The strip connector is for the optional Loop-to-Ground Start Converter module. The terminal strip is for an external alarm connection.

Electrical Description

- 14.3 The Power Fail Transfer Card connects six extension lines to the PABX. Under System Fail condition it connects each of these extensions to a CO trunk, as defined by the customer. This allows these extensions to place and receive outside calls. When the system is restored, the extensions revert to their normal connection. If a call is in progress at this time, the affected extension's return to normal service is delayed until the call is completed.

If the CO Trunks to be used for PFT service are of the ground start type, a Loop-to-Ground Start Converter must be connected to the PFT card.

Extensions to be used for PFT service cannot be *SUPERSET* telephones. They can be pulse dialing or DTMF sets, depending on which types of dialing the CO trunks accept.

Operation

14.4 Power Fail Transfer occurs under any of the following conditions:

- failure of the commercial AC power supply
- operation of the force transfer switch
- failure of the -28 V power supply to the Main Control Card
- loss of sanity (malfunction) in the Main Control Card.

Normal operation is restored when the condition that caused it is rectified: power is restored, controller sanity is re-established, transfer switch is set to Normal.

Table 14-1 Power Fail Transfer Plug and Jack Connections

Circuit	Ring		Tip	
	Pin	Color	Pin	Color
Trunk 1	26	W-BL	1	BL-W
Trunk 2	27	W-O	2	O-W
Trunk 3	28	W-G	3	G-W
Trunk 4	29	W-BR	4	BR-W
Trunk 5	30	W-S	5	S-W
Trunk 6	31	R-BL	6	BL-R
Trunk Card 1	32	R-O	7	O-R
Trunk Card 2	33	R-G	8	G-R
Trunk Card 3	34	R-BR	9	BR-R
Trunk Card 4	35	R-S	10	S-R
Trunk Card 5	36	BK-BL	11	BL-BK
Trunk Card 6	37	BK-O	12	O-BK
Empty	38	BK-G	13	G-BK
Line Card 1	39	BK-BR	14	BR-BK
Line Card 2	40	BK-S	15	S-BK
Line Card 3	41	Y-BL	16	BL-Y
Line Card 4	42	Y-O	17	O-Y
Line Card 5	43	Y-G	18	G-Y
Line Card 6	44	Y-BR	19	BR-Y

**Table 14-1 Power Fail Transfer Plug and Jack Connections
(continued)**

	Pin	Color	Pin	Color
Phone 1	45	Y-S	20	S-Y
Phone 2	46	V-BL	21	BL-V
Phone 3	47	V-O	22	O-V
Phone 4	48	V-G	23	G-V
Phone 5	49	V-BR	24	BR-V
Phone 6	50	V-S	25	S-V

Page 2 of 2

If a call is in progress under system fail operation, the transfer to normal operation for that circuit is delayed until the call is completed (CO trunk on-hook for at least 1.8 seconds). This prevents the call from being dropped during return to normal operation.

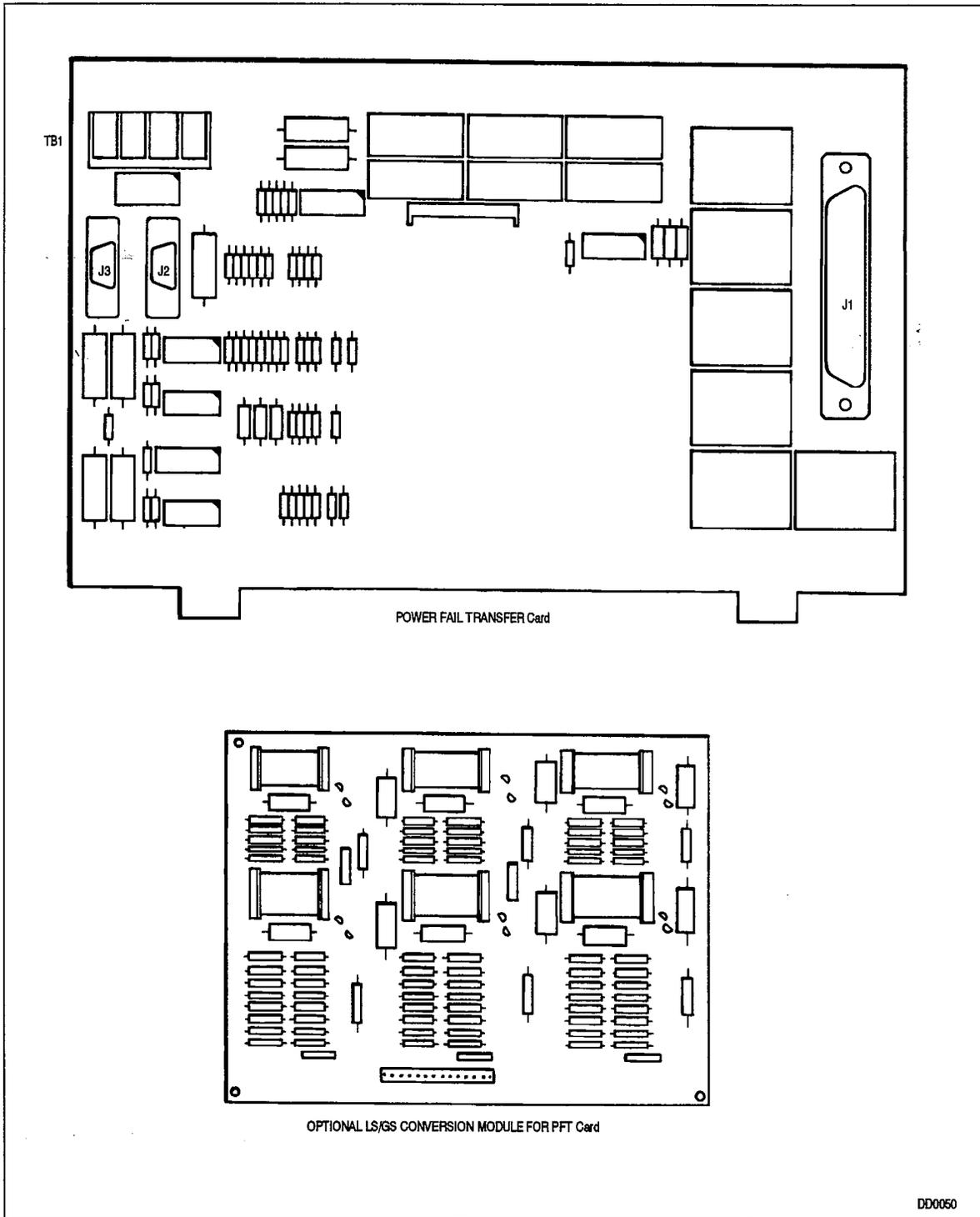


Figure 14-1 Power Fail Transfer Card

15. XXXXXXXXXX

SWITCH MATRIX CARD

- 15.1 The Switch Matrix Card resides in a dedicated card slot directly to the right of the MCC in the Control Bay of the 672-port *SX-200* DIGITAL PABX. It expands the DX switching matrix, the static non-volatile RAM, and the resources of the Digital Signal Processor. The card measures approximately 325 mm x 366 mm (12.8 in. x 14.4in.). The Switch Matrix Card is not used in the *SX-200* FD.

CAUTION

Do not insert or remove the switch matrix card with power on.
Damage to onboard circuits may result.

Facilities

- 15.2 The Switch Matrix Card provides:
- 24 x 24 link DX array
 - Digital Signal Processor
 - Dial Tone Filter
 - Ringing Reference Generator
 - 8 Kilobytes Non-volatile Static RAM.

DX Array

- 15.3 The DX Array on the Switch Matrix Card consists of a 24 x 24 link switching array provided by 9 Mitel DX chips with balanced drivers and receivers.

Ringing Reference Generator

- 15.4 The Digital Signal Processor generates PCM data corresponding to a 20Hz sine wave, which is passed through the DX array. A codec then converts the PCM to analog. This 20 hz signal is then filtered and distributed via the backplane to the Bay PSU, which contains a ringing amplifier.

Non-volatile Static RAM

- 15.5 Any time the user enables a function such as Call Forwarding the changed data (extension number, type of forwarding) must be saved in a non-volatile memory so that it is not lost on power down or system failure. The Static RAM acts as a buffer for this sort of data. As the data accumulates, finally filling up the buffer, it is then transferred to disk. This reduces disk running time, increasing the disk drive's life span. During power-off periods, the static RAM is powered from a large capacitor, providing 72-hour holdover time.

16. XXXXXXXXXX

T1 TRUNK CARD

Brief Description

- 16.1 The T1 Trunk Card interfaces a single T1 trunk circuit to the *SX-200* DIGITAL PABX and the *SX-200*FD. The T1 protocol is used primarily in North America. The T1 Trunk Card is not available with Generic 1001 or Generic 1002.

Facilities

- 16.2 The T1 Trunk Card provides the following facilities:
- T1 Clock – System Clock Phase Comparator
 - Bidirectional T1 to ST-BUS data rate and format conversion
 - Line Equalization.

General Description

- 16.3 The T1 interface will transmit and receive 24 8-bit voice/data channels on a 4-wire digital trunk operating at 1.544 Mb/s. The Bay Controller performs all control functions.

To provide signaling information on the T1 line, data bits are “stolen” from each channel to provide channel associated signaling.

The T1 Trunk Card includes a phase comparator which, through the T1 Clock Module on the Main Control Card, keeps the system clock in phase with the incoming frame rate clock. This prevents data losses due to clock rate differences. (Refer to Main Control Card / T1 Clock Module in this Section). Phase Error is the difference between the clock rate received on the link and the clock rate generated within the system (if the T1 clock module is being adjusted to the incoming clock rate). If the difference climbs by greater than 1 in a single reading then the next three readings are filtered out. If the fourth reading has climbed greater than 1 then the link is considered unstable. A maintenance log is generated and the link is no longer used as a network synchronization source.

The *SX-200* DIGITAL system supports a maximum of one T1 Trunk Card per digital bay. In 336 or 456-port systems Bay 2 supports only one T1 Trunk Card.

The *SX-200* FD system supports a maximum of one T1 Trunk Card per Peripheral Cabinet or bay. The T1 Trunk Card cannot be installed in the first Peripheral Cabinet.

One incoming T1 trunk is selected as the primary timing source; the system locks its PCM clock and all other T1 trunk cards in the system to this incoming data stream.

On-site T1 termination equipment, the Channel Service Unit (CSU) is required. Shielded twisted pair cables are run from the CSU to the *SX-200* DIGITAL backplane. The T1 Trunk Card includes switches to set appropriate line equalization for cable lengths up to 200 meters (655 feet) from the CSU.

The T1 Trunk Card can be installed in slot 6 (slot 4 in COMBO Bay 2) of a digital peripheral bay. The T1 Trunk Card can also be installed in slot 6 of the Peripheral Cabinet of the *SX-200* FD. An adaptor fitted to the backplane connector provides a 15-pin D-Sub connector for the T1 facility and a 25-pair connector to maintain access to the adjacent odd-numbered card slot. Only 1 T1 Trunk Card may be installed in each digital bay (or Peripheral Cabinet of the *SX-200* FD).

Electrical Description

- 16.4 In the transmit direction, the data from the system PCM link must be converted from the Mitel ST-BUS format of 32 channels at 2.048 MBit/sec to the T1 format of 24 channels at 1.544 MBit/sec. To match the number of data channels, the T1 card skips every fourth channel on the ST-BUS links. The T1 interface circuits retime the output data to 1.544 Mbits/sec and add the framing bits.

In the receive direction, the framing bits are removed, the data is retimed to 2.048 MBit/sec and the channels are mapped onto the system PCM link in the same manner as above, with every fourth channel left empty.

The system runs a loopback test during power-up or reset. A relay is operated to loop the card's transmit line back to its receive line, removing the transmit data from the output line. A 6db attenuation is automatically added to the signal during loopback, to simulate actual transmission. The card remains in loopback until the test is passed.

The relative phase of the T1 and system clocks is determined as follows: An 8 KHz clock output derived from the incoming frame rate is divided by two. This 4KHz signal gates a counter, which counts the number of cycles of the system 2.048 MHz clock occurring during one cycle of the 4 KHz signal. This phase count is sampled every 100 ms. The oscillator on the T1 Clock Module on the Main Control Card is adjusted to keep the phase count value constant over a longer term (16 seconds). The T1 circuit data buffer accommodates short-term phase variation (jitter).

Indicators

- 16.5 If any of the data channels on the T1 link are active, the upper front panel LED lights, giving visual indication of channel activity.

If the *SX-200* DIGITAL or the *SX-200* FD is receiving a yellow alarm condition, the yellow (NO SYNC) LED lights. If transmitting a yellow alarm condition, and not receiving a yellow alarm condition, then the LED is off.

The lower red LED is the Card Alarm. If the PABX generates or receives a yellow alarm condition on the T1 link, the ALARM LED flashes.

Physical Description

- 16.6 The card measures approximately 158 X 368 mm (6.2 in. X 14.5 in.). It connects to the backplane via an 88-pin edge connector.

The switches used (SW1) to set up proper equalization on the T1 Trunk card must be set as follows. Lengths are for Cable Length, not Loop Length.

Short Cable (under 150 feet)	S1 only	– Closed
Medium Length Cable (150 to 450 feet)	S2, S3, S4 only	– Closed
Long Length Cable (450 to 655 feet)	S5, S6, S7 only	– Closed

17. **FIBER INTERFACE MODULE**

General

- 17.1 The Fiber Interface Module (FIM) provides a fiber optic based communications link between the Control Cabinet and the Peripheral Cabinets or Bays of the *SX-200* FD system. One FIM connects to the Peripheral FIM Carrier located in each Peripheral Cabinet. Up to seven FIMs are connected to the two Quad FIM Carriers located in the Control Cabinet.

The FIM measures 114.3 mm x 105 mm (4.5 in. x 4.14 in.).

Functions

- 17.2 The FIM consists of three functional sections:
- a Transmit Section
 - a Receive Section
 - a Control Section.

Electrical Description

- 17.3 The Transmitter Section accepts data in serial format. Data is converted to byte interleaved format and a checksum byte and overhead information is added along with frame synchronization. Parallel data is converted to serial form and encoded. The optical interface converts the serial data to light and transmits it on the fiber.

The Receiver extracts the bit clock from the incoming serial data, converts the data to parallel, and extracts frame sync. After the data is decoded, the status information and the data are combined, frame aligned and reformatted for output.

The Control Section generates control signals, the transmit clock (bit clock), and regenerates the telephony clocks for the Peripheral Cabinet (Bays) and provides status information for the Control Cabinet.

Cabling

- 17.4 Two fiber optic cables are connected to each FIM. One cable is used for Tx (transmit) and the other for Rx (receive). The cables are 62.5/125 μm Glass Multi-mode and use ST Connector systems. The fiber optic links are operable up to one km.

Indicators

17.5 Two green LEDs provide a visual indication of the state of the link. One LED is associated with the local FIM and the other with the remote FIM. Usage is as follows:

OFF	Power off or held in reset
FLASHING	Out of sync
ON	In frame sync

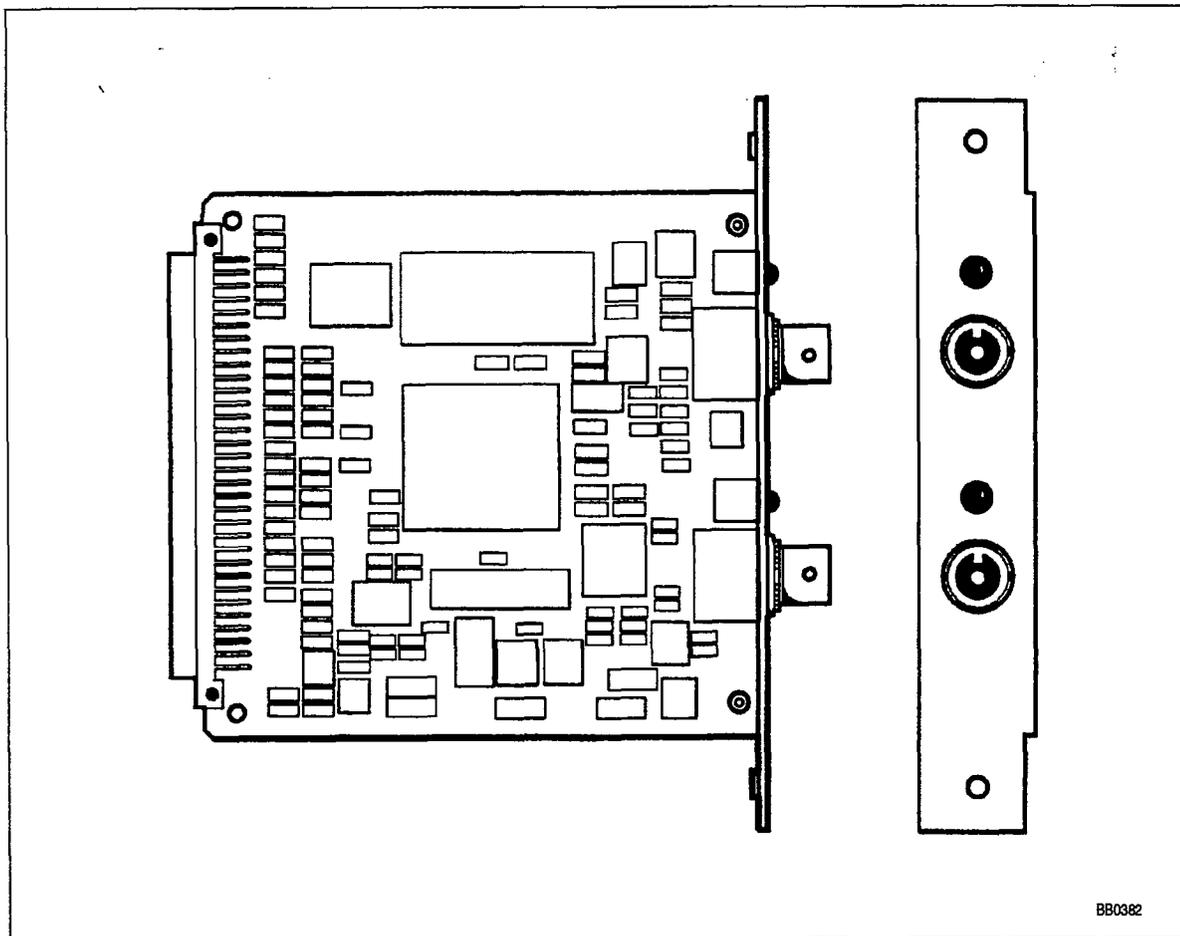


Figure 17-1 Fiber Interface Module

18. XXXXXXXXXX

PERIPHERAL FIM CARRIER

General

- 18.1 The Peripheral FIM Carrier (PFC) provides the interface between the Bay Control Card and the Fiber Interface Module. It connects to the module position on the Bay Control Card and acts as a carrier for the Fiber Interface Module.

The Peripheral FIM Carrier measures 158 mm x 368 mm (6.2 in. x 14.5 in.).

Functions

- 18.2 The Peripheral FIM Carrier provides the following functions:

- RS-232 port connection with surge and over voltage protection for the Remote Maintenance Terminal
- System Fail Transfer (SFT) contact closure and control circuitry
- Single ended to Balanced conversion (and vice-versa) of C244 and Frame Pulse.
- Acts as the FIM carrier.

Electrical Description

- 18.3 The PFC provides a standard terminal interface via a nine pin D-sub connector located at the top edge of the card (see Figure 18-1). Transorb diodes provides protection circuitry for each of the RS-232 signals.

The PFC provides a four pin line connector to control an external System Fail Transfer unit. Under normal conditions the SFT contact is open. When a failure occurs, the SFT contact closes and signals the external SFT equipment to initiate a transfer. There are two major reasons why a transfer may occur: Loss of SANITY signal and Peripheral Power failure.

The FIM provides Single ended signals which the PFC converts to the Balanced signals expected by the Bay Controller. The PFC also converts the three Balanced DX links from the Bay Controller to the Single ended signals expected by the FIMs.

The PFC connects to the Bay Control Card via two 96 (3X32) pin connectors, and the FIM connects to the PFC via a 64 (2X32) pin connector. (See Figure 18-1)

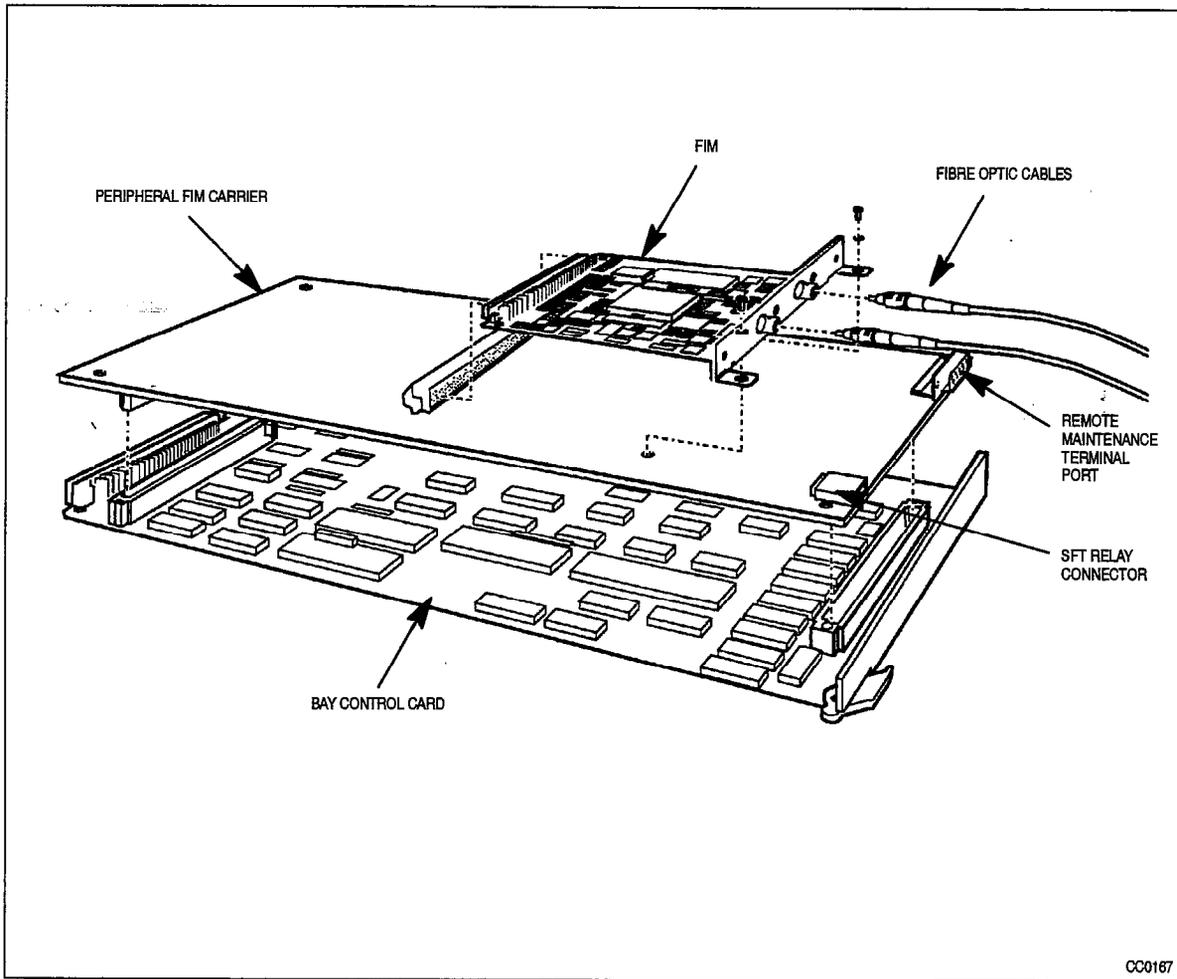


Figure 18-1 Bay Control Card, Peripheral FIM Carrier, and FIM

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Issue 1
Feb. 1992

SX-200[®] DIGITAL PABX

Peripheral Devices

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DEPARTMENT OF COMMUNICATIONS (DOC) NOTICE

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications.

FEDERAL COMMUNICATIONS COMMISSION (FCC) NOTICE

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for Class A Computing Device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

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Peripheral Devices

Table of Contents

1. INTRODUCTION

General	126 1-1
Reason for Issue	126 1-1

2. ATTENDANT CONSOLE

Physical Description	126 2-1
Console Assembly	126 2-1
Functional Description	126 2-2
Attendant Function Keys (Fixed Keys)	126 2-2
Display Associative Keys (Softkeys)	126 2-2
Installing The LCD Attendant Console	126 2-3
Installing a <i>SUPERCONSOLE 1000™</i> Attendant Console	126 2-7
RS-232C Connector	126 2-9

3. SUPERSET LINE TYPES AND APPEARANCE

Line Appearances	126 3-1
Line Status Display	126 3-1

4. *SUPERSET 3™* DESCRIPTION

General Description	126 4-1
Physical Description	126 4-1
Functional Description	126 4-2
Line Select Keys	126 4-2
Speed Dial Keys	126 4-2
Hold Key	126 4-2
Feature Keys	126 4-2
Speaker Volume	126 4-3
Ringer Volume and Ringer Pitch	126 4-3
<i>SUPERSET 3</i> Telephone Installation Instructions	126 4-6
Wall-Mounting the <i>SUPERSET 3</i> Telephone	126 4-7
Wall-Mounting Instructions	126 4-7
Test Procedures	126 4-7

5. *SUPERSET 4®* DESCRIPTION

General Description	126 5-1
Physical Description	126 5-1
Body	126 5-1
Base Assembly	126 5-1
Cover Assembly	126 5-2
Volume Control Assembly	126 5-2
Keypad Module	126 5-2
Line Selection/Repertory Dial Module	126 5-2

Functional Description	126 5-3
Line Select/Speed Call Keys	126 5-3
Hold Key	126 5-3
Softkeys	126 5-3
Supplementary Feature Keys	126 5-3
Features Display	126 5-4
Alphanumeric Display Area	126 5-5
Softkey Prompt Display Area	126 5-6
<i>SUPERSET 4</i> Telephone Installation Instructions	126 5-8
Wall-Mounting the <i>SUPERSET 4</i> Telephone	126 5-9
Wall-Mounting Instructions	126 5-9
Error Messages	126 5-9
Call Announce Port Installation on a <i>SUPERSET 4</i> Telephone	126 5-11
Test Procedures	126 5-11

6. *SUPERSET 3™* DN TELEPHONE

General Description	126 6-1
Physical Description	126 6-4
General	126 6-4
Handset, Speaker and Microphone	126 6-4
Line Appearance Keys	126 6-4
Fixed Function Keys	126 6-4
Telephone Keypad	126 6-4
Message Waiting Lamp	126 6-4
Functional Description	126 6-5
Fixed Function Keys	126 6-5
Feature Keys	126 6-6
Speed Dial	126 6-6
Telephone Operation	126 6-6
Originating Calls	126 6-6
Answering Calls	126 6-7
Terminating A Call	126 6-7
Ringer Pitch Adjustment	126 6-7
<i>SUPERSET 3</i> DN Telephone Installation Instructions	126 6-7
Data Cartridge Operation	126 6-9

7. *SUPERSET 4™* DN DESCRIPTION

General Description	126 7-1
Physical Description	126 7-2
Liquid Crystal Display	126 7-2
Handset	126 7-2
Telephone Keypad	126 7-2
Functional Description	126 7-5
Softkeys and SUPERKEY	126 7-5

HOLD Key	126 7-5
VOLUME UP and DOWN Keys	126 7-5
SPEAKER Key	126 7-5
MUTE Key	126 7-5
Message LED	126 7-6
Line Appearance Keys	126 7-6
Feature Keys	126 7-6
Telephone Operation	126 7-6
Originating Calls	126 7-6
Answering Calls	126 7-6
Terminating a Call	126 7-7
Ringer Pitch Adjustment	126 7-7
<i>SUPERSET 4 DN Telephone Installation Instructions</i>	126 7-8
Data Cartridge Operation	126 7-9
8. <i>SUPERSET DSS™</i> MODULE	
Description	126 8-1
<i>SUPERSET DSS</i> Module Installation Instructions	126 8-4
9. THE <i>SUPERSET 400</i> SERIES TELEPHONE SETS	
General	126 9-1
Line Status Display Symbols	126 9-1
Connection to the <i>MiLink™</i> Dataset	126 9-2
10. <i>SUPERSET 401™</i> TELEPHONE	
General Description	126 10-1
Physical Description	126 10-1
General	126 10-1
Handset and Speaker	126 10-1
Fixed Function Keys	126 10-2
Telephone Keypad	126 10-2
Functional Description	126 10-5
Feature Keys	126 10-5
Ringer Pitch Adjustment	126 10-5
<i>SUPERSET 401 Telephone Installation Instructions</i>	126 10-6
Wall-Mounting the <i>SUPERSET 401</i> Telephone	126 10-7
Wall-Mounting Instructions	126 10-7
Visual Indication Of System Communications Problems	126 10-7
11. <i>SUPERSET 410™</i> Telephone	
General Description	126 11-1
Physical Description	126 11-2
General	126 11-2
Handset, Speaker and Microphone	126 11-2

Line Appearance Keys	126 11-3
Telephone Keypad	126 11-3
Fixed Function Keys	126 11-3
Functional Description	126 11-6
Fixed Function Keys	126 11-6
Line Appearance Keys	126 11-7
Speed Call Keys	126 11-7
Ringer Pitch Adjustment	126 11-7
<i>SUPERSET 410</i> Telephone Installation Instructions	126 11-7
Wall-Mounting the <i>SUPERSET 410</i> Telephone	126 11-9
Wall-Mounting Instructions	126 11-9
Visual Indication of System Communications Problems	126 11-9
Connection to the <i>MiLink</i> Data Module	126 11-9

12. SUPERSET 420™ Telephone

General Description	126 12-1
Physical Description	126 12-2
General	126 12-2
Handset, Speaker and Microphone	126 12-3
Line Appearance Keys	126 12-3
Softkeys and LCD Display	126 12-3
Telephone Keypad	126 12-3
Fixed Function Keys	126 12-3
Functional Description	126 12-6
Fixed Function Keys	126 12-6
LCD Display	126 12-7
Softkeys and SUPERKEY	126 12-7
Line Appearance Keys	126 12-7
Speed Call Keys	126 12-7
Ringer Pitch Adjustment	126 12-7
<i>SUPERSET 420</i> Telephone Installation Instructions	126 12-8
Wall-Mounting the <i>SUPERSET 420</i> Telephone	126 12-9
Wall-Mounting Instructions	126 12-9
Visual Indication Of System Communications Problems	126 12-9
Connection to the <i>MiLink</i> Module	126 12-9

13. SUPERSET 430™ TELEPHONE

General Description	126 13-1
Physical Description	126 13-2
General	126 13-2
Handset, Speaker and Microphone	126 13-3
Line Appearance Keys	126 13-3
Softkeys and LCD Display	126 13-3
Telephone Keypad	126 13-3

Fixed Function Keys	126 13-3
Functional Description	126 13-6
Fixed Function Keys	126 13-6
LCD Display	126 13-6
Softkeys and SUPERKEY	126 13-7
Line Appearance Keys	126 13-7
Speed Call Keys	126 13-7
Ringer Pitch Adjustment	126 13-7
<i>SUPERSET 430</i> Telephone Installation Instructions	126 13-8
Visual Indication of System Communications Problems	126 13-9
Connection to the <i>MiLink</i> DATASET	126 13-9

14. DATASET 1100 SERIES DESCRIPTION

Baud Rates	126 14-1
Connector Pin Assignment Tables	126 14-1
DATASET 1101 Cartridge Description	126 14-2
Controls, Indicators, and Connectors	126 14-2
Installation	126 14-3
DATASET 1102 Dual Rack Mounted Card Description	126 14-5
Indicators and Connectors	126 14-5
Installation	126 14-6
Standalone DATASET 1103 Description	126 14-8
Controls, Indicators, and Connectors	126 14-8
Installation	126 14-9
Circuit Description	126 14-11
<i>MiLink</i> Data Module	126 14-12
General Description	126 14-12
Installation	126 14-13
Power Supplies	126 14-15

15. DATASET 2100 SERIES DESCRIPTION

Environmental Specifications	126 15-1
- Baud Rates	126 15-1
Connector Pin Assignment Tables	126 15-2
Synchronous Operation	126 15-2
Asynchronous Operation	126 15-3
Back-to-Back Operation	126 15-3
Timing Modes	126 15-4
Modem Adapter	126 15-4
DATASET 2100 Switch Settings	126 15-4
Rack Mounted DATASET 2102 Description	126 15-6
Indicators and Connectors	126 15-8
Installation	126 15-8
Install Modem Pooling: Rack Mounted DATASET 2102	126 15-9

Standalone DATASET 2103 Description	126 15-12
Controls, Indicators, and Connectors	126 15-12
Installation	126 15-13
Install Modem Pooling: Standalone DATASET 2103	126 15-15
Circuit Description	126 15-17
Power Supplies	126 15-18

16. DATASET HARDWARE FLOW CONTROL

Flow Control	126 16-1
Compatibility	126 16-1
Printer Connecting Cables	126 16-1
Connecting Printers That Use RS-232 Cable Pin 4 (RTS) For Flow Control	126 16-2
Connecting Printers That Use RS-232 Cable Pin 11 For Flow Control	126 16-2
Connecting Printers That Use RS-232 Cable Pin 20 (DTR) For Flow Control	126 16-2

17. DATACABINET 9000 DESCRIPTION

Configurations	126 17-4
DATACABINET 9000 Installation and Wiring	126 17-4

18. DATASHELF 9100 DESCRIPTION

Installation and Wiring	126 18-3
-------------------------------	----------

19. MODEM INTERCONNECT PANEL

General	126 19-1
Connections	126 19-1
Connections	126 19-1

APPENDIX A. LOOP LENGTH SPECIFICATIONS FOR CONNECTIONS TO A DIGITAL LINE CARD

.....	126 A-1
-------	---------

List of Figures

Figure 2-1	SX-200® DIGITAL PABX Attendant Console	126 2-2
Figure 2-2	Attendant Console Keyboard Layout	126 2-3
Figure 2-3	Console Installation	126 2-4
Figure 2-4	Attendant Console Packaging	126 2-6
Figure 2-5	SUPERCONSOLE 1000 Attendant Console Installation	126 2-7
Figure 3-1	SUPERSET Telephone Line Status Display Symbols	126 3-2
Figure 4-1	SUPERSET 3 Electronic Telephone	126 4-4
Figure 4-2	SUPERSET 3 Telephone Face Layout	126 4-5
Figure 5-1	SUPERSET 4 Telephone	126 5-2

Figure 5-2	<i>SUPERSET 4</i> Telephone Features Display Layout	126 5-6
Figure 5-3	<i>SUPERSET 4</i> Telephone Keys and Displays	126 5-7
Figure 5-4	<i>SUPERSET 4</i> Telephone Assembly (with Integral Rear Support)	126 5-10
Figure 5-5	Call Announce Port Connections	126 5-11
Figure 5-6	Feature Select Keys and Feature Display Test	126 5-14
Figure 6-1	<i>SUPERSET 3</i> DN Telephone	126 6-2
Figure 6-2	<i>SUPERSET 3</i> DN Faceplate Layout	126 6-3
Figure 7-1	<i>SUPERSET 4</i> DN Telephone	126 7-3
Figure 7-2	<i>SUPERSET 4</i> DN Telephone Faceplate	126 7-4
Figure 8-1	<i>SUPERSET DSS</i> Module	126 8-1
Figure 8-2	<i>SUPERSET DSS</i> with <i>SUPERSET 4</i> DN Telephone	126 8-2
Figure 8-3	<i>SUPERSET DSS</i> Module Configurations	126 8-3
Figure 8-4	<i>SUPERSET DSS</i> Module Installation	126 8-6
Figure 9-1	Line Status Display Symbols	126 9-1
Figure 9-2	<i>MiLink</i> Network Connections	126 9-2
Figure 10-1	<i>SUPERSET 401</i> Telephone Set	126 10-2
Figure 10-2	<i>SUPERSET 401</i> Telephone Face Layout	126 10-3
Figure 10-3	<i>SUPERSET 401</i> Telephone Set Dimensions	126 10-4
Figure 11-1	<i>SUPERSET 410</i> Telephone	126 11-2
Figure 11-2	<i>SUPERSET 410</i> Faceplate Layout	126 11-4
Figure 11-3	<i>SUPERSET 410</i> Telephone Dimensions	126 11-5
Figure 11-4	<i>SUPERSET 410</i> Installation Instructions	126 11-10
Figure 12-1	<i>SUPERSET 420</i> Telephone	126 12-2
Figure 12-2	<i>SUPERSET 420</i> Telephone Dimensions	126 12-4
Figure 12-3	<i>SUPERSET 420</i> Faceplate Layout	126 12-5
Figure 12-4	<i>SUPERSET 420</i> Installation Instructions	126 12-10
Figure 13-1	<i>SUPERSET 430</i> Telephone	126 13-2
Figure 13-2	<i>SUPERSET 430</i> Telephone Faceplate	126 13-4
Figure 13-3	<i>SUPERSET 430</i> Telephone Dimensions	126 13-5
Figure 14-1	DATASET 1101 Cartridge, Showing Connectors and Indicators	126 14-4
Figure 14-2	Typical DATASET 1101 Cartridge Application	126 14-5
Figure 14-3	DATASET 1102 Dual Rack Mounted Card	126 14-7
Figure 14-4	Typical Standalone DATASET 1103 Applications	126 14-10
Figure 14-5	Typical DATASET 1100 Series Block Diagram	126 14-11
Figure 14-6	<i>MiLink</i> Data Module, Connectors and Indicators	126 14-14
Figure 14-7	<i>MiLink</i> Data Module Installation	126 14-15
Figure 15-1	Rack Mounted DATASET 2102	126 15-7
Figure 15-2	Modem Pooling with Rack Mounted Dataset and Modem Interconnect Panel ..	126 15-11
Figure 15-3	Typical Standalone DATASET 2103 Applications	126 15-14
Figure 15-4	Standalone DATASET 2103, Showing Connectors and Indicators	126 15-15
Figure 15-5	Modem Pooling with a Standalone Dataset	126 15-17
Figure 15-6	Typical DATASET 2100 Series Block Diagram	126 15-19
Figure 17-1	DATA CABINET 9000, Front View	126 17-2

Figure 17-2	DATA CABINET 9000, Rear View	126 17-3
Figure 17-3	Installation of Cardfile Rail	126 17-6
Figure 17-4	Connection of Shelf Ground Wire	126 17-7
Figure 18-1	Front View of the DATASHELF 9100	126 18-2
Figure 18-2	Backplane and Connectors of the DATASHELF 9100	126 18-2
Figure 19-1	Modem Interconnect Panel Connectors	126 19-2

List of Tables

Table 2-1	RS-232C Port Pin Configuration – DCE	126 2-10
Table 4-1	<i>SUPERSET 3</i> Telephone Environmental Specifications	126 4-6
Table 4-2	<i>SUPERSET 3</i> Telephone Power-On Test	126 4-7
Table 5-1	<i>SUPERSET 4</i> Telephone Environmental Specifications	126 5-9
Table 5-2	Installer Loop Test Routines	126 5-12
Table 6-1	<i>SUPERSET 3</i> DN Telephone Installation Instructions	126 6-8
Table 6-2	<i>SUPERSET 3</i> DN Telephone Environmental Specifications	126 6-8
Table 7-1	<i>SUPERSET 4</i> DN Telephone Environmental Specifications	126 7-8
Table 8-1	<i>SUPERSET DSS</i> Module Specifications	126 8-4
Table 10-1	<i>SUPERSET 401</i> Telephone Environmental Specifications	126 10-6
Table 11-1	<i>SUPERSET 410</i> Telephone Environmental Specifications	126 11-8
Table 12-1	<i>SUPERSET 420</i> Telephone Environmental Specifications	126 12-9
Table 13-1	<i>SUPERSET 430</i> Telephone Environmental Specifications	126 13-9
Table 14-1	Controls, Indicators, and Connectors	126 14-12
Table 14-2	Connector Pin Assignment Table	126 14-12
Table 15-1	DATASET 2100 Dip Switch Settings	126 15-5
Table 15-2	Installation Of A Rack Mounted Dataset 2102	126 15-9
Table 15-3	Installation of a Standalone DATASET 2103	126 15-13
Table 17-1	DATA CABINET 9000 Configurations	126 17-4
Table 17-2	Install Shelves, Cables, And Other Assemblies Into A Datacabinet 9000	126 17-5
Table 18-1	DATASHELF 9100 Tip and Ring Pin Assignments	126 18-1
Table 18-2	Install DATASHELF 9100 Into a DATA CABINET 9000	126 18-3
Table 19-1	Modem Interconnect Panel Connections	126 19-1
Table A-1	Maximum Loop Lengths for Peripheral Devices	126 A-1
Table A-2	Loop Lengths for <i>SUPERSET</i> Telephones	126 A-2

List of Charts

Chart 2-1	Install LCD Attendant Console	126 2-5
Chart 2-2	Install <i>SUPERCONSOLE 1000</i> Attendant Console	126 2-8
Chart 4-1	<i>SUPERSET 3</i> Telephone Installation Instructions	126 4-6
Chart 5-1	<i>SUPERSET 4</i> Telephone Installation Instructions	126 5-8
Chart 7-1	<i>SUPERSET 4 DN</i> Telephone Installation Instructions	126 7-8
Chart 8-1	Install a <i>SUPERSET DSS</i> Module	126 8-4
Chart 10-1	<i>SUPERSET 401</i> Telephone Installation Instructions	126 10-6
Chart 11-1	<i>SUPERSET 410</i> Telephone Installation Instructions	126 11-8
Chart 12-1	<i>SUPERSET 420</i> Telephone Installation Instructions	126 12-8
Chart 13-1	<i>SUPERSET 430</i> Telephone Installation Instructions	126 13-8
Chart 14-1	<i>MiLink</i> Data Module Installation Instructions	126 14-13
Chart 15-1	Install Modem Pooling: Rack Mounted DATASET 2102	126 15-10
Chart 15-2	Install Modem Pooling: Standalone DATASET 2103	126 15-16
Chart 19-1	Install a Modem Interconnect Panel into a DATACABINET 9000	126 19-2

1.

INTRODUCTION**General**

- 1.1 This Practice consolidates the peripheral device descriptions into one document, replacing many small Practices. It includes the *SUPERSET™* telephones, the *SUPERSET DSS™* Module and the DATASETS.

Some peripheral devices described in this Practice are not available with all Generics of the *SX-200®* DIGITAL PABX.

Reason for Issue

- 1.2 This section is issued to provide a general description of the peripheral devices used with the *SX-200* DIGITAL PABX.

Peripheral Devices

2.

ATTENDANT CONSOLE**Physical Description**

- 2.1 Two types of Attendant consoles are available with the *SX-200* DIGITAL PABX. The LCD Console uses four wires and interfaces with the Console module on the Universal Card. The *SUPERCONSOLE 1000™* Attendant Console uses one pair of wires and interfaces to a Digital Line Card; it also has an RS-232 printer port and a tilt display. Both consoles are similar in appearance and functionally identical (except for the printer port); however, they are not interchangeable.

The Attendant Console is shown in Figure 2-1. It weighs 2.27 kg (5.0 lbs) and measures:

Width:	39.4 cm (15.5 inches)
Height:	10.2 cm (4.0 inches)
Depth:	22.9 cm (9.0 inches).

Console Assembly

The console assembly consists of the following parts:

Keyboard Printed Circuit Assembly: A printed circuit board assembly with 32 keys, a dial pad (12 keys) and a cable harness. The cable harness plugs into the Console Printed Circuit Assembly.

Housing Top: The plastic moulded top of the Attendant Console housing which encloses and protects the console circuitry.

Alphanumeric Liquid Crystal Display: A 4-line x 80-character LCD which facilitates Attendant Console operation. Each character consists of a 5 X 7 dot matrix display.

LCD Adjustment: The contrast is controlled by repeatedly pressing either CONTRAST key, until the desired level is achieved.

Keyboard Designation Cover: A transparent cover on top of a printed card with silk-screened key designations.

Keyboard Layout: The console keyboard consists of a standard 12 key keypad, 10 Display Associative Keys (softkeys), four cursor control keys, two volume control keys, two contrast control keys, and 14 fixed keys, seven of which have associated LED indicators.

Within the console assembly is a printed circuit board (PCB), which holds the main console circuits, power supply circuitry and processor. Slots are provided into which the keyboard assembly, speaker and handset jack leads are plugged.

The console assembly has the following external connections:

Handset/Headset: The removable handset/headset may be connected to either of two jacks on the left side of the Attendant Console.

Line Cord and Key Board: The line cord and the key board are connected to the two jacks located at the rear of the Attendant Console.

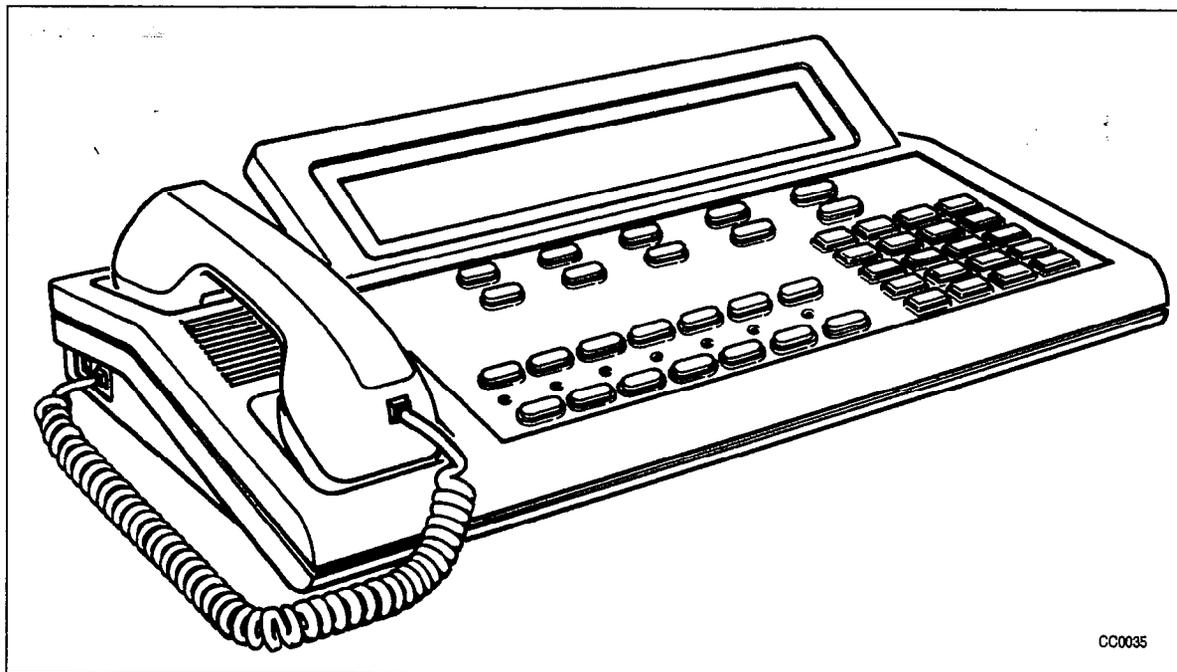


Figure 2-1 SX-200 DIGITAL PABX Attendant Console

Functional Description

- 2.2 The Attendant Console Keyboard layout (see Figure 2-2), provides standard Call Handling keys.

Attendant Function Keys (Fixed Keys)

The following fixed keys are available in Call Processing mode: FUNCTION, TRUNK GRP STATUS, CANCEL, RELEASE, PAGE, BLOCK, HOLD 1, HOLD 2, HOLD 3, HOLD 4, and ANSWER.

Display Associative Keys (Softkeys)

The 10 Display Associative Keys (F1 to F0) are located directly below the alphanumeric LCD. Each key is assigned 12 character positions on the third row (F1 to F5) and fourth row (F6 to F0) of the LCD. Softkey prompts indicate the function of these keys on the alphanumeric LCD. The function of these keys varies according to system status at a given time.

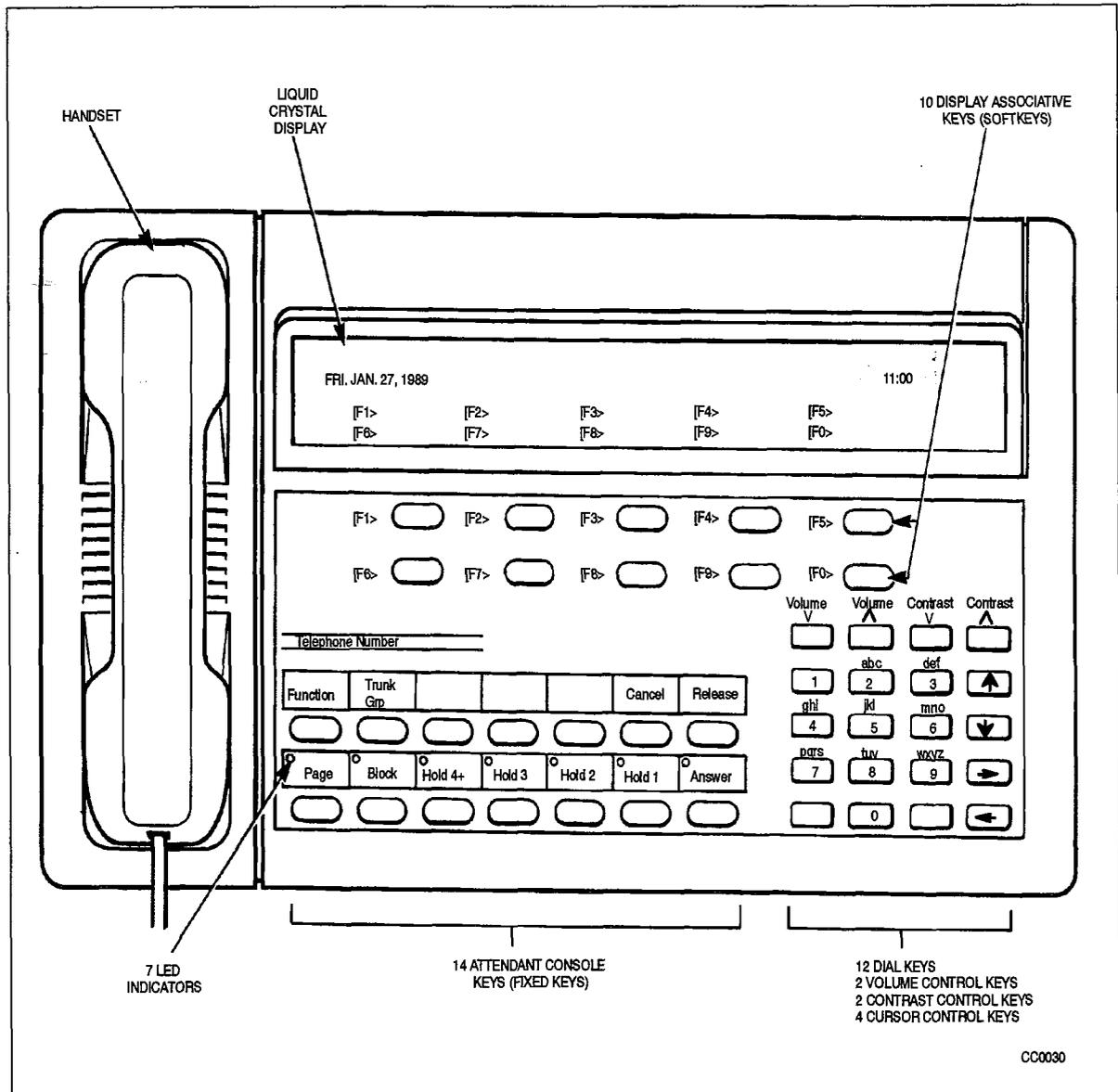


Figure 2-2 Attendant Console Keyboard Layout

Installing The LCD Attendant Console

WARNING

Any connection of this console to an off premise application, an out of plant application, or to any other exposed plant application may result in a safety hazard, and/or defective operation, and/or equipment damage.

- Notes:**
1. The LCD attendant console interfaces to the universal control card through a console module in any position. A universal card can support a maximum of two console modules.
 2. The system maximum is 11 consoles.
 3. A maintenance terminal is programmed by default in bay 2, slot 3, circuit 1 (336- and 456-port) or Bay 1, Slot 5, Circuit 1 (672-port). An LCD console may be

plugged into the console jack on the maintenance panel, provided a universal card and console module are installed in bay 2, slot 3, circuit 1 (336– and 456–port) or Bay 1, Slot 5, Circuit 1 (672–port).

- 4. The console operates in either English or French.

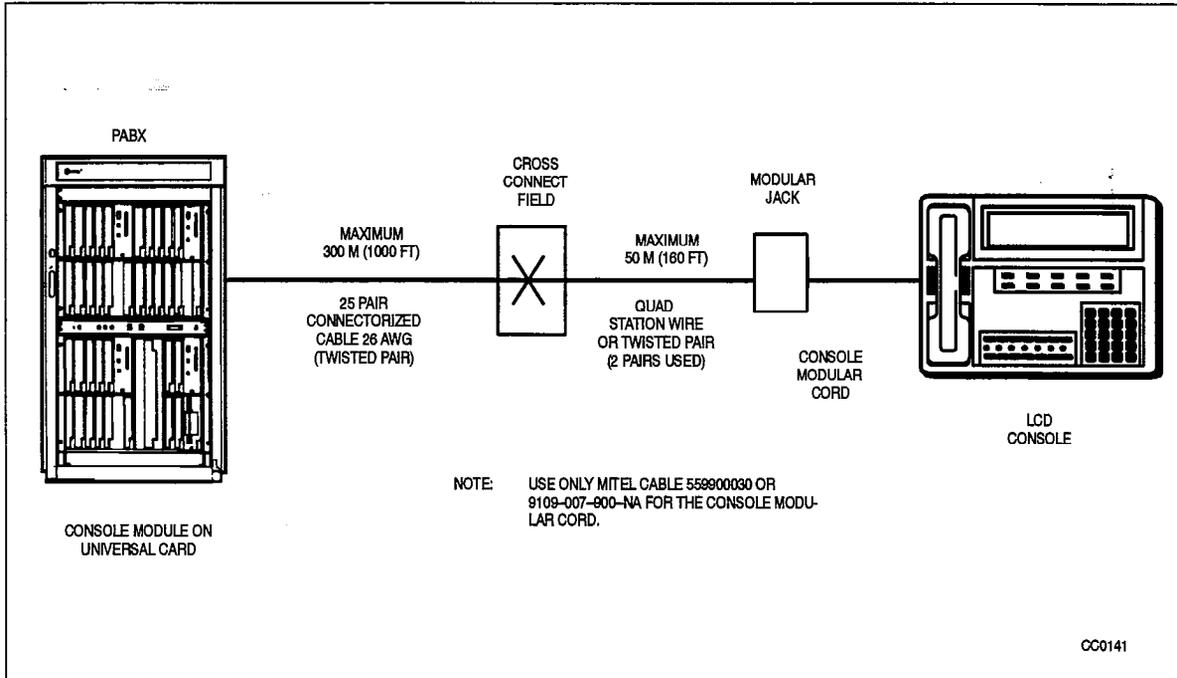


Figure 2–3 Console Installation

Chart 2-1 Install LCD Attendant Console

Step	Action	Comments
	Inventory, Unpack, Inspect	
1.	Check off received items against packing list and equipment list, above.	
2.	Unpack cartons.	Packaging shown in Figure 2-4.
3.	Tag defective items.	
4.	Fill in relevant portion of damage report.	
5.	Repack tagged items and return according to local procedures.	
	Assemble Console	
6.	Connect the headset (or handset) to its cord.	
7.	Plug the cord into the jack at the side of the console.	The two jacks are connected in parallel; either can be used.
	Position Console	
8.	Put the console in its assigned position.	Maximum loop length is 305m (1000 ft). CAUTION: No bridge taps are permitted. Figure 2-3 shows console positioning and maximum cable lengths.
9.	Plug one end of the console modular cord into the jack at the back of the console, and the other end into its assigned modular telephone jack.	The console jack is marked LINE PORT. Note: Only MITEL cable 559900030 or 9109-007-900-NA can be used for the modular cord.
	Connect Console	
10.	Connect the modular telephone jack to the cross-connect field.	The yellow and black leads (line out) connect through the cross-connect field to a console module Tip/Ring pair 1. The green/red leads (line in) connect through the cross-connect field to a console module Tip/Ring pair 2.
11.	Connect the console module on the universal card to the cross-connect field.	
12.	At the distribution frame, cross connect the cable from the modular jack to the console module on the universal card.	Section 5 gives cross-connect cabling information.

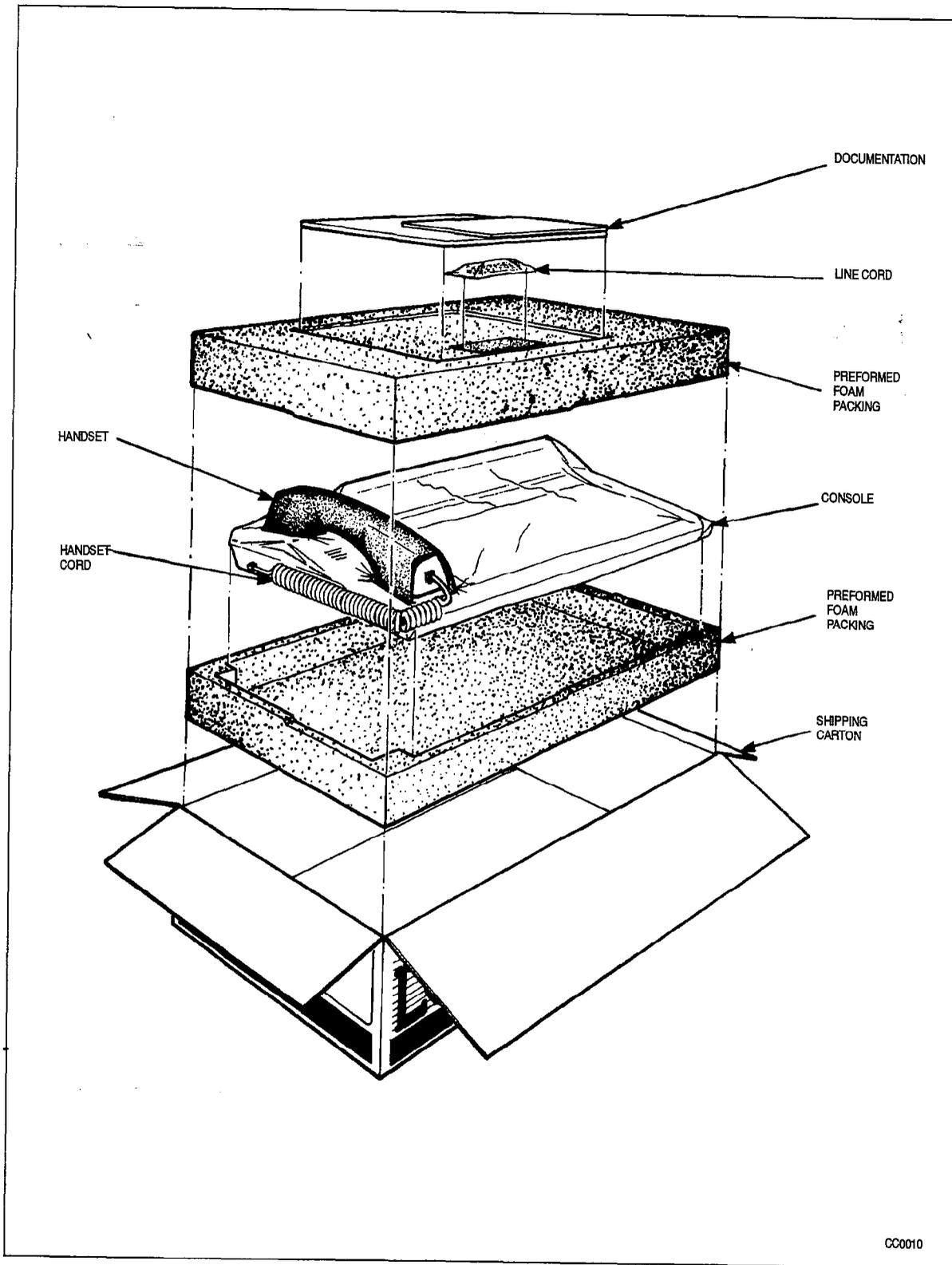


Figure 2-4 Attendant Console Packaging

Installing a SUPERCONSOLE 1000 Attendant Console

WARNING

Any connection of this console to an off premise application, an out of plant application, or to any other exposed plant application may result in a safety hazard, and/or defective operation, and/or equipment damage.

- Notes:**
1. The *SUPERCONSOLE 1000* Attendant Console uses a two-wire connection to connect to one circuit on a digital line card (Tip to Tip and Ring to Ring.) The digital line card must be in a high-powered slot. Four consoles are allowed per digital line card.
 2. The system maximum is 11 consoles.
 3. The *SUPERCONSOLE 1000* Attendant Console can be used in the maintenance terminal port. The system default programming must be changed to allow this. Refer to 9109-094-200-NA, Installation Information.
 4. The console operates in either English or French.
 5. The console has a programmable printer port.

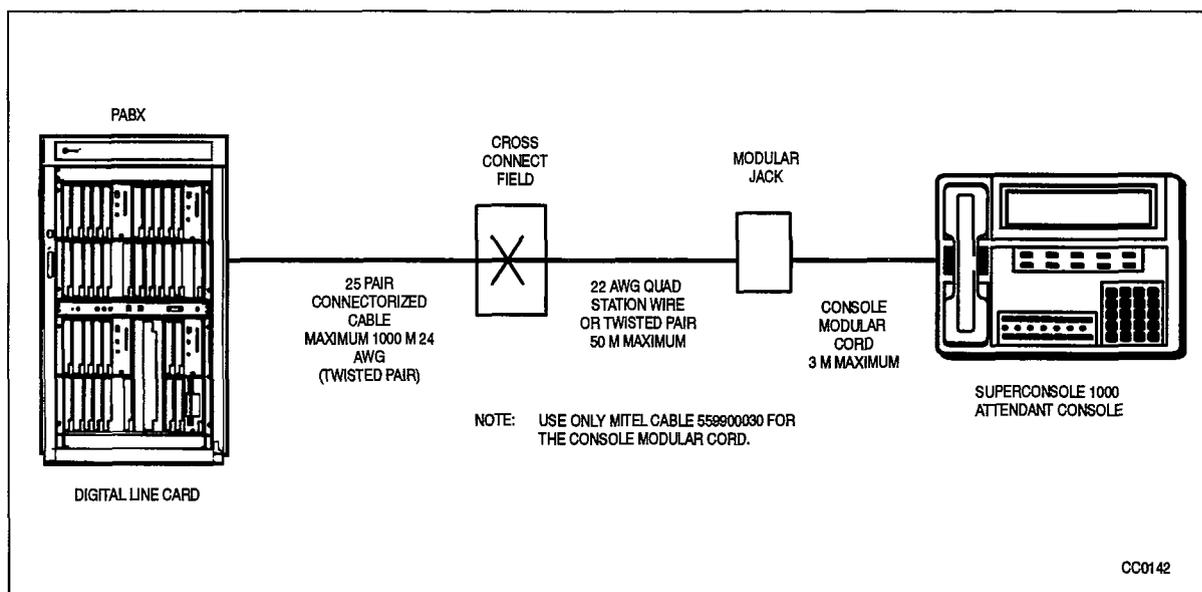


Figure 2-5 *SUPERCONSOLE 1000* Attendant Console Installation

Chart 2-2 Install *SUPERCONSOLE 1000* Attendant Console

Step	Action	Comments
Inventory, Unpack, Inspect		
1.	Check off received items against packing list and equipment list, above.	
2.	Unpack cartons.	Packaging is shown in Figure 2-4.
3.	Tag defective items.	
4.	Fill in relevant portion of damage report.	
5.	Repack tagged items and return according to local procedures.	
Assemble Console		
6.	Connect the headset (or handset) to its cord.	
7.	Plug the cord into the jack at the side of the console.	The two jacks are connected in parallel; either can be used.
Position Console		
8.	Put the console in its assigned position. Refer to 9109-094-200-NA, Installation Information.	Maximum loop length is 1000 m (3300 ft). Figure 2-5 shows console positioning and maximum cable lengths.
9.	Plug one end of the console modular cord into the jack at the back of the console, and the other end into its assigned modular telephone jack.	The console jack is marked LINE PORT.
Connect Console		
10.	Connect the modular telephone jack to the cross-connect field .	The green lead connects through the cross-connect field to a Tip circuit on the digital line card. The red lead connects through the cross-connect field to a Ring circuit on the digital line card.
11.	Connect the cross-connect field to a digital line port on a digital line card .	

**Chart 2-2 Install SUPERCONSOLE 1000 Attendant Console
(continued)**

Step	Action	Comments																				
12.	<p>Connect the Printer (Optional)</p> <p>Connect the printer to the RS-232 printer connector on the back of the console.</p>	<table border="0"> <tr> <td>Pin</td> <td>Signal</td> </tr> <tr> <td>1</td> <td>frame ground</td> </tr> <tr> <td>2</td> <td>transmit data</td> </tr> <tr> <td>3</td> <td>receive data</td> </tr> <tr> <td>4</td> <td>ready to send</td> </tr> <tr> <td>5</td> <td>clear to send</td> </tr> <tr> <td>6</td> <td>data set ready</td> </tr> <tr> <td>7</td> <td>signal ground</td> </tr> <tr> <td>8</td> <td>carrier detect</td> </tr> <tr> <td>20</td> <td>data terminal ready</td> </tr> </table> <p>Maximum 50 ft between the printer and the printer port on the SUPERCONSOLE 1000 Attendant Console.</p>	Pin	Signal	1	frame ground	2	transmit data	3	receive data	4	ready to send	5	clear to send	6	data set ready	7	signal ground	8	carrier detect	20	data terminal ready
Pin	Signal																					
1	frame ground																					
2	transmit data																					
3	receive data																					
4	ready to send																					
5	clear to send																					
6	data set ready																					
7	signal ground																					
8	carrier detect																					
20	data terminal ready																					
13.	Set the printer baud rate.	Maximum baud rate is 2400 baud.																				
14.	<p>Cross Connect</p> <p>At the distribution frame, cross connect the cable from the modular jack to the cable from the digital line port on the digital line card.</p>	Refer to 9109-094-200-NA, Installation Information, Section 5 gives cross-connect cabling information.																				

Page 2 of 2

RS-232C Connector

2.3 A printer can be attached to the SUPERCONSOLE 1000 Attendant Console via its RS-232C port connector, which allows direct connection to most printers. The RS-232C interface is programmable from 110 to 2400 baud, and acts like a DATASET 1101 cartridge, with the following exceptions:

- no autobaud
- device ID different from that of data cartridge
- no data loopback test.

The RS-232C connector (J3) is configured such that the console is the data communications equipment (DCE). This allows direct connection to most serial printers. The following table lists the RS-232C pins recognized by the console's printer port.

Table 2-1 RS-232C Port Pin Configuration – DCE

Pin	Designation	Status	Console Printer Port
1	Frame Ground	--	Connected
2	Tx Data	Input	Supported
3	Rx Data	Output	Supported
4	RTS (Request to Send)	Input	Supported
5	CTS (Clear to Send)	Output	Supported
6	DSR (Data Set Ready)	Output	*
7	Digital Ground	--	Connected
8	DCD (Data Carrier Detect)	Output	*
20	DTR (Data Terminal Ready)	Input	Supported

Note: * DSR and DCD signals are wired together, driven from a single RS-232C output.

The Attendant does not have an indication of printer status, and does not incorporate the following user interface features:

ATTN key DISC key READY LED DEVICE LED

3.**SUPERSET LINE TYPES AND APPEARANCES****Line Appearances**

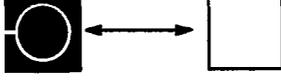
- 3.1 A line is said to "appear" at a *SUPERSET* telephone if the line has been assigned to one of the available positions on the line status display and can therefore be selected or accessed by the telephone user. A line can be programmed to appear at one telephone, at more than one telephone, or more than once at a particular telephone. Although a line can have up to sixteen appearances throughout the system, it is always identified by its unique directory number.

The appearances of a line – line type and its variants can differ; for example, a line can appear as a prime line at one set and as a key line (with delayed ring) at another set. Refer to Practice 9109-096-105-NA, Features Description, for a description of line appearances from the PABX.

Although *SUPERSET* telephones can access up to 15 lines, only one pair of wires is required to connect the telephone to its equipment number position. The *SUPERSET* telephone sends signals to the system which makes the appropriate line connection. On the *SUPERSET 4* a second pair is required if the Call Announce feature is to be used.

Line Status Display

- 3.2 This is a liquid crystal display mounted adjacent to the line select keys. The display contains an identical symbol group aligned with each line select/speed call key. The different states of a symbol group, and the meaning of each state, are shown in Figure 3-1.

SYMBOL	DESCRIPTION	MEANING
	NO SYMBOL IN DISPLAY	LINE IDLE
	DISPLAY ALTERNATES BETWEEN THESE TWO SYMBOLS	INCOMING CALL
	DISPLAY SOLID SQUARE	LINE BUSY AT THIS SET
	DISPLAY SOLID CIRCLE	LINE BUSY AT ANOTHER SET
	DISPLAY ALTERNATES BETWEEN SOLID AND CLEAR	CALL ON HOLD AT THIS SET
	DISPLAY CIRCLE FLASHES ON AND OFF	CALL ON HOLD AT ANOTHER SET

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Figure 3-1 SUPERSET Telephone Line Status Display Symbols

4.

SUPERSET 3™ DESCRIPTION**General Description**

4.1 The *SUPERSET 3* telephone is a microprocessor-controlled electronic telephone which provides the following features. Figure 4-1 shows a *SUPERSET 3* telephone set while Figure 4-2 shows the layout of the faceplate. Available features are described in Practice 9109-096-105-NA, Features Description.

- single key feature activation
- multi-line appearances (installer-programmed) of up to three lines including primary line (Set Directory Number). Multi-line appearances may be a mix of lines and trunks, and also multiple appearances of the same line
- Speed Dialing
- automatic selection of primary line (programmed option)
- key selection of non-primary line
- automatic selection of ringing line
- hold function for any call at the *SUPERSET 3* telephone
- user programming of Speed Dial entry
- handsfree and Auto-Answer operation with microphone mute control
- speaker volume control
- ringer volume and ringer pitch controls.

The *SUPERSET 3* telephone provides the following installation features:

- turn-key installation – set is connected to local area wiring by a modular jack
- no additional wiring – power, signal, and voice are carried over the single pair.

Physical Description

4.2 The *SUPERSET 3* telephone is comprised of the following: base and cover assembly, detachable handset cord, and handset. A modular cord attached to the rear of the telephone provides line connection to the *SUPERSET 3* telephone.

A microphone (for handsfree operation) is positioned to receive sound passing through an aperture located in front of the base assembly. The speaker is located between the handset recesses while its volume control is mounted on the left side of the cover assembly. Ringer pitch and volume controls are located under the identification card and are user adjustable. Refer to Figure 4-2. On some *SUPERSET 3* telephones (with only one control under the card) the control on the side adjusts both speaker volume and ringer volume.

Functional Description

- 4.3 Figure 4–1 shows the *SUPERSET 3* Electronic Telephone; the face layout is shown in Figure 4–2. A description of the function of each key and display follows. All keys are noninterlocking.

Line Select Keys

During CDE, the three Line Select keys are programmed to access lines and/or trunks. The leftmost key will access the set's Prime Line. The remaining two keys are available for use as Speed Dial keys, if they have not been assigned as line appearances.

Above each Line Select key there is an associated Line Status LED. The LED lights continuously to indicate the line is in use; it flashes to indicate a call is on hold at that line.

Speed Dial Keys

There are 12 Speed Dial keys located on the upper right portion of the telephone. The user can program these keys with frequently-dialed numbers.

Hold Key

The red Hold key, allows the user to place any call at the telephone on hold. The Line Status LED associated with the held line flashes to remind the user that a call is on hold. The call is retrieved by pressing the Line Select key of the held line.

Feature Keys

Seven Feature keys, each associated with a specific feature, are:

SWAP – The SWAP key allows the user to alternate between two established calls (a Broker's Call).

TRANS/CONF – This key allows the user to put a call on hold, dial a new number and conference the call or transfer the held call (with privacy) to the new number.

REDIAL – Pressing this key causes the last number dialed to be automatically redialed.

CANCEL – This key cancels any dialing which had been performed.

PROGRAM/SAVE – This key allows the user to program and save speed dial numbers on selected speed dial keys.

SPEAKER ON/OFF – The SPEAKER ON/OFF key controls Handsfree operation of the telephone. Pressing the SPEAKER ON/OFF key in handset mode puts the telephone into Handsfree mode. The current call is now conducted via the microphone and speaker. If the handset was on-hook the telephone goes off-hook Handsfree. Pressing the SPEAKER ON/OFF key in Handsfree mode returns the telephone to handset mode. If the handset is on-hook, the current call is terminated.

MIC/MUTE – The MIC/MUTE key disables the microphone during Handsfree operation, either to prevent transmission of local sound or to improve reception when

the set is installed in a noisy environment. The microphone is muted only while the key is pressed. Microphone operation returns to normal when the key is released.

Speaker Volume

A sliding lever is provided on the left side of the *SUPERSET 3* telephone to control speaker volume. Volume is greatest when the lever is in the up position, and lowest when it is in the down position. On some telephones the ringer volume is also controlled from this sliding lever.

Ringer Volume and Ringer Pitch

Ringer volume and pitch are adjusted by rotary controls located beneath the line identification card. These controls are labeled with international symbols and are user adjustable. Some telephones have only the ringer pitch control under the card.

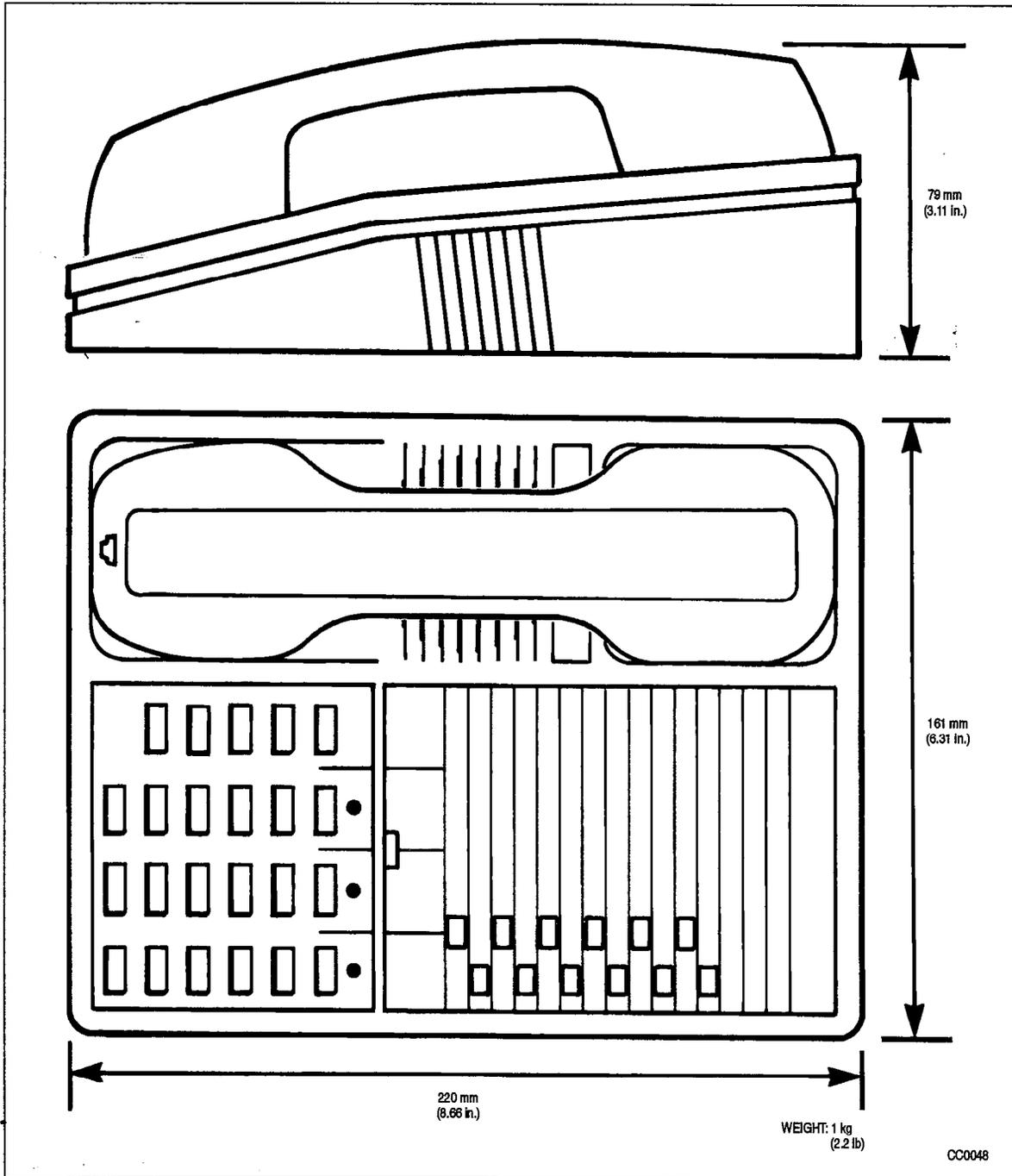


Figure 4-1 SUPERSET 3 Electronic Telephone

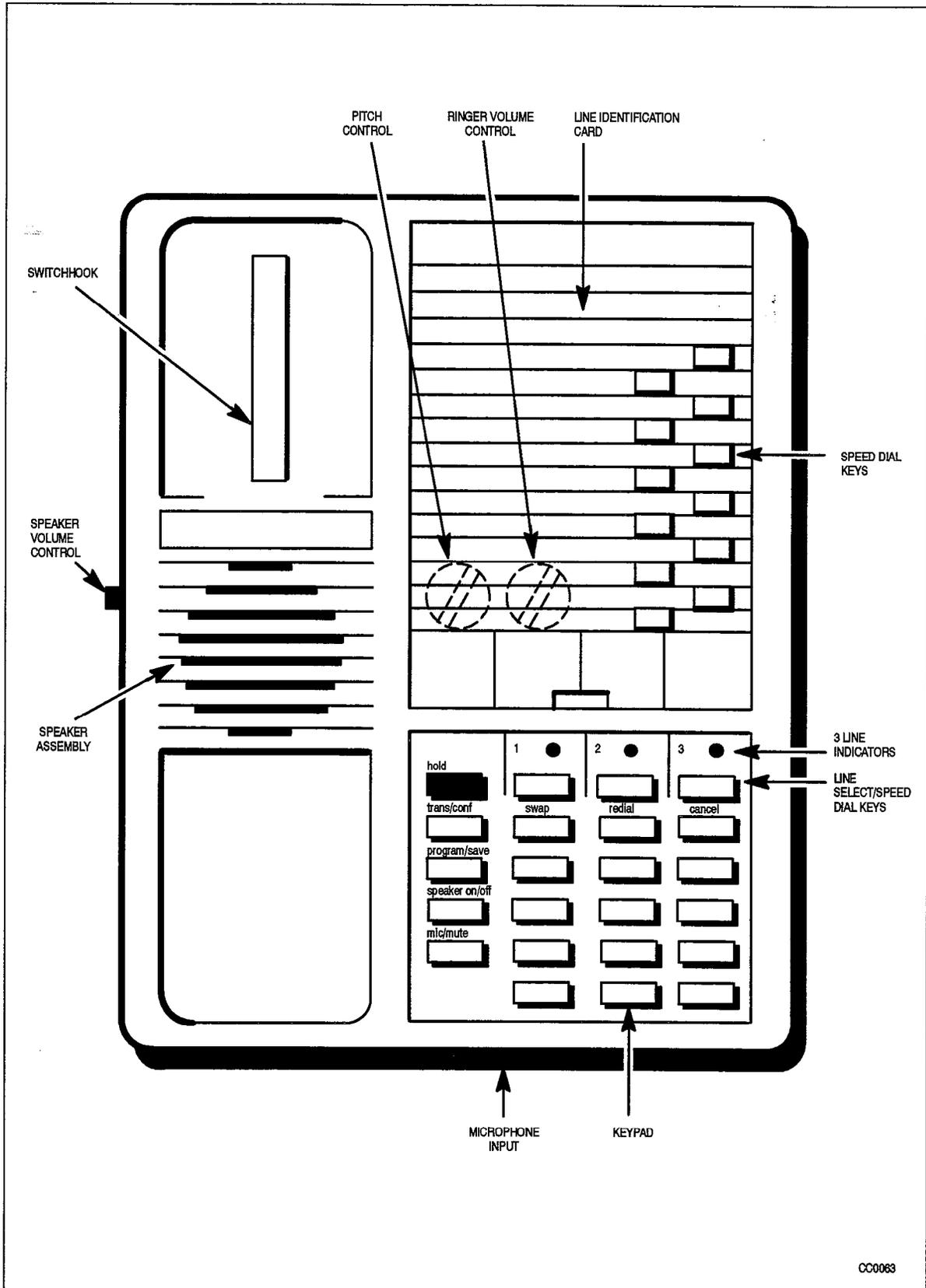


Figure 4-2 SUPERSET 3 Telephone Face Layout

SUPERSET 3 Telephone Installation Instructions

4.4 Installation includes unpacking the set, assembling the set and connecting the set to a wall jack. The connections to the system via the cross connect field are described in Practice 9109-096-200-NA, Installation Information.

WARNING Any connection of this set to an off premise application, an out of plant application, or to any other exposed plant application may result in a safety hazard, and/or defective operation, and/or equipment damage.

CAUTION Do not use a hand-telephone test set (butt set) to check a *SUPERSET 3* line. The interface card has no loop detector. Set on-hook / off-hook status is signaled by data transmission.

Do not connect *SUPERSET 3* telephones to standard lines, in parallel, or as power fail transfer extensions.

Before the set can be used, the system must be programmed and equipped with six-circuit COV Line cards, or eight-circuit *SUPERSET* Line cards to interface with a *SUPERSET 3* telephone. Refer to Practice 9109-096-210-NA, Customer Data Entry.

Chart 4-1 SUPERSET 3 Telephone Installation Instructions	
Step	Action
1.	Place the <i>SUPERSET 3</i> telephone in its assigned position.
2.	Connect the handset cord to the handset and main assembly.
3.	Write the user's telephone number on the Number Identification Card.
4.	Identify the set's extension number, other line appearances and features on the Line Identification Card.
5.	Install the Number Identification Card, the Line Identification Card, and their protective lenses onto the main assembly.
6.	Connect the line cord to the telephone and the telephone jack.

Table 4-1 SUPERSET 3 Telephone Environmental Specifications	
Operating Environment:	
Temperature:	0° to 50° C (32° to 122° F).
Humidity:	5% to 95% RH, non-condensing.
Storage/Shipping Environment:	
Temperature:	-40° to 66° C (-40° to 150° F).
Humidity:	5% to 95% RH, non-condensing.

Wall-Mounting the *SUPERSET 3* Telephone

Wall-Mounting Instructions

- 4.5 *SUPERSET 3* telephone may be attached to a wall-mount assembly and plugged into a modular wall jack. The wall-mount assembly can be ordered through normal distribution channels.

Test Procedures

- 4.6 Perform the test procedures listed in Table 4-2 as operational tests when installing a *SUPERSET 3* telephone after initial installation of a system.

Whenever a *SUPERSET 3* telephone is connected to an operating system, or the system has just been powered up, the test is run automatically and the following results appear. If any test fails, verify that the system is installed correctly and is powered up.

Table 4-2 *SUPERSET 3* Telephone Power-On Test

TEST	LED1	LED2	LED3	TIMING
1	on	on	on	1 second
2	flashing	off	off	10-15 seconds
3	off	off	off	steady, if set is on-hook
or	on	off	off	steady, if set is off-hook

Note: If all LEDs turn on steady for more than a few seconds there is an error; check wiring, then try a known good spare.

If the system is programmed to detect a missing *SUPERSET 3* telephone, verify operation of this feature as follows:

- Disconnect the *SUPERSET 3* modular plug.
- A minor alarm appears at the console.
- At the console, press the ALARM key; display indicates disconnected telephone.
- At the console, clear the alarm.
- Reconnect the modular cord to the *SUPERSET 3* telephone.

5.

SUPERSET 4® DESCRIPTION

General Description

- 5.1 The *SUPERSET 4* telephone is an advanced microprocessor-controlled telephone employing digitally-controlled integrated circuitry and liquid crystal displays (LCDs). Figure 5-1 shows a *SUPERSET 4* telephone set while Figure 5-3 shows the layout of the faceplate. A description of the available system features is included in Practice 9109-096-105-NA, *SX-200* Digital PABX Feature Description.

The *SUPERSET 4* provides the following features in addition to those offered by the system:

- multiline appearances (installer-programmed) up to 15 lines including a primary line can appear on a *SUPERSET 4* telephone. Multiline appearances can be a mix of lines and trunks, and also multiple appearances of the same line.
- line status indication.
- time and date display.
- caller identification.
- word prompts.
- single key feature activation.
- speed call.
- handsfree operation.
- user selection of pre-programmed status messages.

Physical Description

- 5.2 The *SUPERSET 4* telephone body and handset are of plastic construction. The body and handset are connected together with a modular detachable handset cord, plugged into the side of the body. Line connection to the set is by means of a modular detachable line cord, plugged into the rear of the telephone.

Body

The body of the *SUPERSET 4* telephone comprises two parts: a base assembly and a cover assembly (Figure 5-1).

Base Assembly

The base assembly contains a microphone (for handsfree operation), modular jacks for the handset and line cords, the main circuit card, and a speaker assembly (for handsfree operation and tone ringer output). The microphone is mounted in a position which permits it to receive sound passing through an aperture in the front of the base

assembly. The speaker is mounted between the handset recesses, and projects sound upwards through a grille beneath the handset.

A screwdriver slotted control for adjusting ringer pitch is user-accessible from the underside of the base assembly.

Cover Assembly

The cover assembly houses a volume control assembly, a key-pad module, and a line selection/repertory dial module. The speaker is located between the handset recesses, and projects sound upwards through a grill beneath the handset.

Volume Control Assembly

Two edge-mounted volume controls, one each for speaker and ringer, are mounted in the upper left-hand corner of the cover assembly.

Keypad Module

The keypad module contains a standard 12-key keypad, six softkeys, and four feature keys.

Line Selection/Repertory Dial Module

The line selection/repertory dial module contains 15 line select/speed dialing keys, a HOLD key, an LCD line status display, and an LCD feature display.

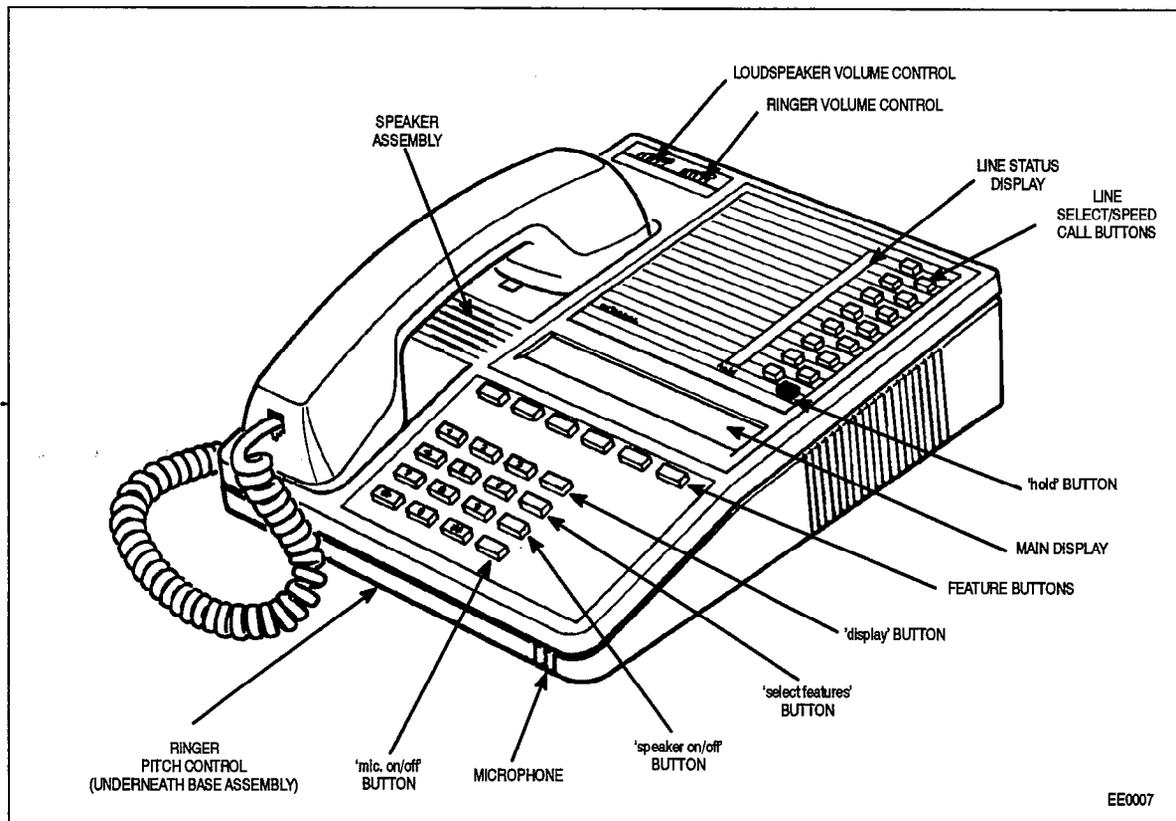


Figure 5-1 SUPERSET 4 Telephone

Associated with the keys and the line status display is a line identification card. This card identifies the primary line (extension) and HOLD keys, and provides space for function identification (i.e., line and speed dialing identities) of the remaining keys. The card is held in place with a transparent plastic lens that is clipped in position.

Functional Description

- 5.3 The *SUPERSET 4* telephone face layout is shown in Figure 5-3. The following describes the function of each key and display; all keys are noninterlocking.

Line Select/Speed Call Keys

There are a total of 15 line select/speed call keys. During Customer Data Entry, 14 of these can be programmed as line select keys, (one key is designated as the Prime line). Lines can be a combination of line types such as Key, DTS, Private, etc. Unassigned keys are available for use as speed call numbers.

Hold Key

This key allows the set user to hold any call at the set. The line on which the call is held is indicated by the adjacent line status display flashing on and off. When a call is held, the alphanumeric display prompts the user to select another line; only after another line is selected will dial tone be returned. Otherwise, the call is held and can be retrieved by pressing the associated line select key.

Softkeys

There are six softkeys. Each key is associated with a specific group of word prompts on the features display.

In operation, the set displays only the word prompts that are valid at that time. In any specific group of prompts, only one prompt can be displayed. The user selects the feature, or PABX action, by pressing the softkey immediately below the prompt that describes that action.

Supplementary Feature Keys

There are four supplementary feature keys located to the right of the telephone keypad.

DISPLAY: This key displays the following:

- user name, if programmed,
- identification of lines at the set,
- saved numbers for speed calling,
- number saved for redial,
- identification of source of incoming calls,
- timed-reminder setting,
- call forward destination.

The actual feature to be displayed is selected after the DISPLAY key is pressed, by either pressing a line select/speed call key (for line identification, caller identification, or speed call number) or pressing a softkey under the prompt associated with the feature. To clear the display, press the EXIT softkey.

SELECT FEATURES. Features which may be activated at any time, as opposed to those which may be selected only at fixed times, are displayed on the features display when the SELECT FEATURES key is pressed. The features which can be selected (e.g., Do Not Disturb) are displayed adjacent to the alphanumeric display. The alphanumeric display instructs the user to "DIAL FEATURE NO.", which is a reference to the number adjacent to the name of the feature in the features display. To select the feature, the user dials this number from the keypad.

SPEAKER ON/OFF. This key allows the set user to receive or originate calls without the use of the handset. Pressing the key once switches the speaker and microphone ON and selects the prime line. Each time this key is pressed, the speaker and microphone are switched alternately ON and OFF, and the set is switched between on-hook and off-hook conditions. While the microphone is ON, a visual reminder (MIC ON) is displayed on the features display.

MIC ON/OFF. This key is used to switch the microphone OFF during handsfree operation, in order to either prevent transmission of local sound, or improve reception when the set is installed in a noisy environment. While the microphone is ON, a visual reminder (MIC ON) is displayed on the features display.

Features Display

This is a liquid crystal display mounted adjacent to the feature keys. The features display is divided into three functional areas.

FEATURES DISPLAY AREA. The words displayed in this area indicate the features that may be selected at any time. Those features which are not in the Class of Service are not displayed. Display of the words is initiated by pressing the DISPLAY FEATURES key.

The meaning of each feature name is as follows:

1:FWD Call Forward.

This feature is automatically invoked after setting up type and destination. To cancel the feature, the user must press the SELECT FEATURES key, dial '1', and then press the OFF feature key. To reactivate the feature, the user must press the SELECT FEATURES key, dial '1', and then press the ON feature key. When active, the word FWD is displayed as a reminder.

2:NO DIST'B Do Not Disturb.

This feature prevents an incoming call from ringing the user's set. To activate, the user must press the SELECT FEATURES key, dial '2', and then press the ON feature key. To cancel this feature, the user must press the SELECT FEATURES key, dial '2', and then press the OFF feature key. When active, the words NO DIST'B are displayed as a reminder.

3:AUTO ANS Automatic Answer.

Automatic Answer allows a user to answer an incoming call without touching the set. The incoming call signals the user with a burst of tone, and communication follows by means of the speaker and microphone. At the end of the conversation, a burst of tone is heard by the user to indicate the calling party has hung up. The set returns to the auto-answer idle condition. To activate this feature, the user must press the SELECT FEATURES key, dial '3', and then press the ON feature key. To cancel this feature, the user must press the SELECT FEATURES key, dial '3', and then press the OFF feature key. When active, the words AUTO ANS are displayed as a reminder.

4:MSG Messaging.

This feature is used to read system messages during an established call. The word MSG flashing in the display notifies a user that there is a message waiting to be read. To read the message during an established call, the user must press the SELECT FEATURES key and dial '4'. The prompt READ MSG is now displayed, and pressing this feature key brings the message into view in the alphanumeric display. When the message has been read, the user has three choices: CANCEL, NEXT or EXIT. The CANCEL feature key cancels the current message and brings the next message into view. Both NEXT and EXIT leave the current message active. NEXT brings the next message into view. The EXIT feature key exits from the feature and clears the display.

5:ACC CODE Account Code.

It may be necessary for a user to enter an account code before being allowed access to a trunk; or a user may require an SMDR record of an account number against a call. In either case, the user must press the SELECT FEATURES key and dial '5'. The account number can now be dialed from the keypad, and the digits are displayed; no DTMF tones are heard as signaling of the code is a data transfer function. A correct account code is entered when the user presses the SAVE feature key. The system returns to the call processing display when the code is recorded on the SMDR, or responds with 'PLEASE TRY LATER' when the SMDR recording device is busy. More than one code can be associated with a single call.

MIC ON

The words MIC ON have an advisory function; when displayed, they remind the user that the microphone is on.

Alphanumeric Display Area

This is a 16-character display used for presenting time-of-day, date, digit echoing, speed calling number, call forward destination, last number dialed, timed-reminder setting, call elapsed time and messages from the system. Each character is formed from a 5X7 dot matrix.

Softkey Prompt Display Area

There are 35 word prompts organized into six groups. Each group relates to one of the six feature select keys. The prompts act as a guide to the set user, and indicate to the user what can be done, and when. To select a function or feature indicated, the user only has to press the softkey below the prompt.

The prompts are organized such that only one word above any feature key is displayed at any time (except for SWAP CAMP ON feature). Whenever a feature is not in the Class of Service of a particular set, or if the choices of actions are less than six, the area above some feature keys is left blank. Pressing these keys has no effect.

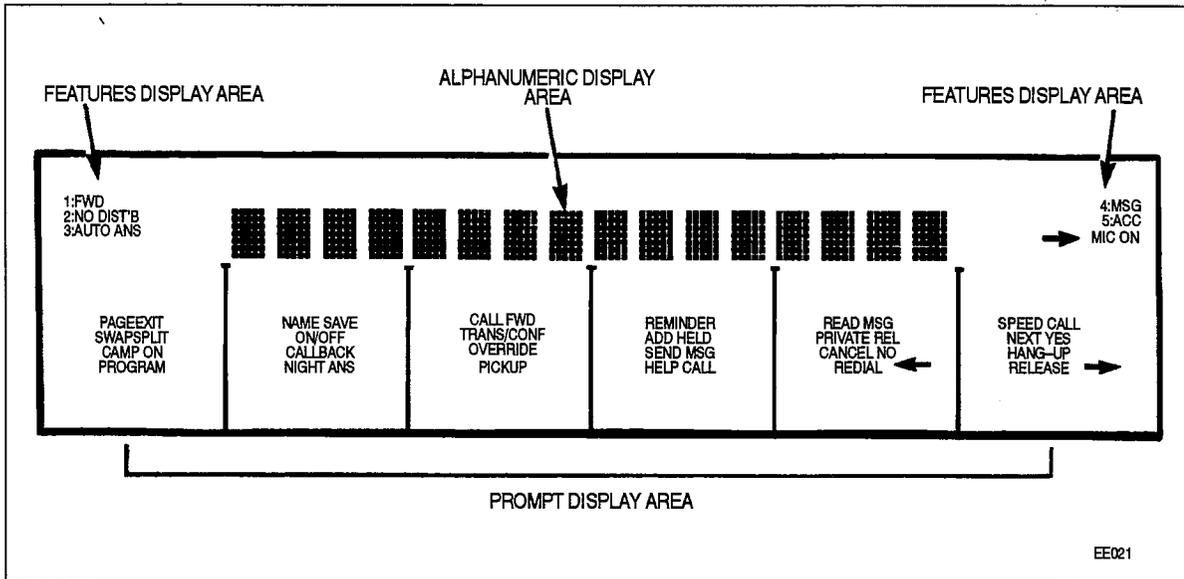
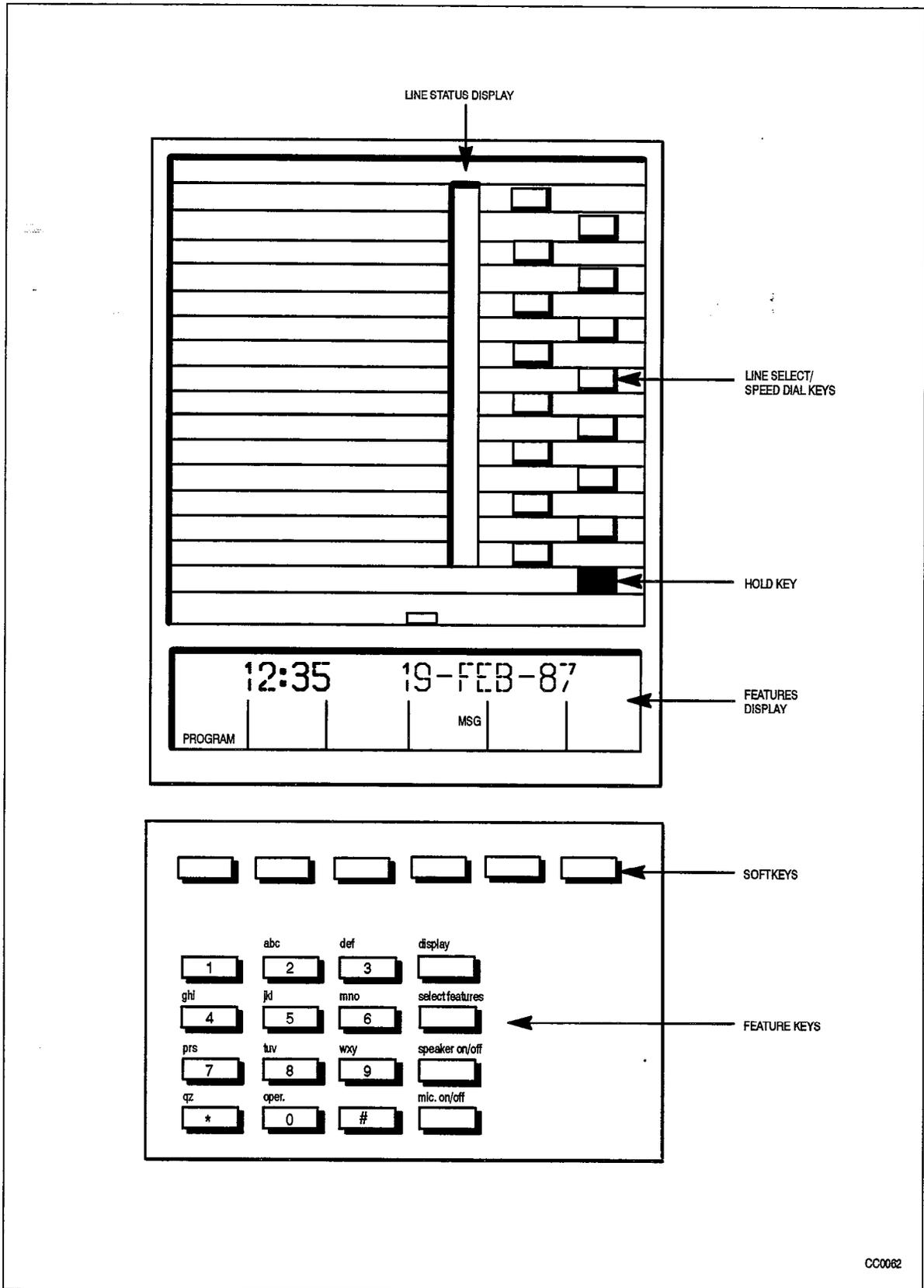


Figure 5-2 SUPERSET 4 Telephone Features Display Layout



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Figure 5-3 SUPERSET 4 Telephone Keys and Displays

SUPERSET 4 Telephone Installation Instructions

- 5.4 Installation includes unpacking the set, assembling the set and connecting the set to a wall jack. The connections to the system via the cross connect field are described in Practice 9109-096-200-NA, Installation Information.

WARNING

Any connection of this set to an off premise application, an out of plant application, or to any other exposed plant application may result in a safety hazard, and/or defective operation, and/or equipment damage.

CAUTION

Do not use a hand-telephone test set (butt set) to check a *SUPERSET 4* line. The interface card has no loop detector. Set on-hook / off-hook status is signaled by data transmission.

Do not connect *SUPERSET 4* telephones to standard lines, in parallel, or as power fail transfer extensions.

Before the set can be used, the system must be programmed and equipped with six-circuit COV Line cards, or eight-circuit *SUPERSET* Line cards to interface with a *SUPERSET 4* telephone. Refer to Practice 9109-096-210-NA, Customer Data Entry.

Chart 5-1 SUPERSET 4 Telephone Installation Instructions

Step	Action
1.	Place the <i>SUPERSET 4</i> telephone in its assigned position.
2.	If required, assemble the rear support to the set (refer to Figure 5-4) by inserting the lugs into the set's base-mounting holes, and pressing the two parts together.
3.	Connect the handset cord to the handset and main assembly.
4.	Write the user's telephone number on the Number Identification Card.
5.	Identify the set's extension number, other line appearances and features on the Line Identification Card.
6.	Install the Number Identification Card, the Line Identification Card, and their protective lenses onto the main assembly.
7.	Connect the line cord to the telephone and the telephone jack.
8.	After two to four seconds, set identification is displayed, followed by the time and date.

Table 5-1 SUPERSET 4 Telephone Environmental Specifications

Operating Environment:	
Temperature:	0° to 50° C (32° to 122° F).
Humidity:	5% to 95% RH, non-condensing.
Storage/Shipping Environment:	
Temperature:	-40° to 66° C (-40° to 150° F).
Humidity:	5% to 95% RH, non-condensing.

Wall-Mounting the SUPERSET 4 Telephone

Wall-Mounting Instructions

- 5.5 SUPERSET 4 telephone may be attached to a wall-mount assembly and plugged into a modular wall jack. The wall-mount assembly can be ordered through normal distribution channels.

Error Messages

- 5.6 The data transfer between a SUPERSET 4 telephone and the system is monitored continuously. Any problems cause an error message to be displayed by the alphanumeric display as follows:

Message: NO COMMUNICATION

Meaning: This is displayed when data transfer has not occurred for at least 1 second. The set is not operational in this condition, and any set displaying this message should be reported by the user. When the problem has been corrected (refer to appropriate PABX Maintenance Documentation), the error message is cleared, time and date are displayed, and the set becomes operational.

Message: CONSECUTIVE ERRS

Meaning: This is displayed when a series of data transfer errors has been detected by the host PABX. If the error occurs during a call, the audio may be lost, and the features become inoperative. If the error occurs while the set is idle, no calls can be made or received at the set. This error may be transient in nature and may disappear. When the error is cleared (refer to appropriate PABX Maintenance Documentation), time and date are redisplayed and the set becomes operational.

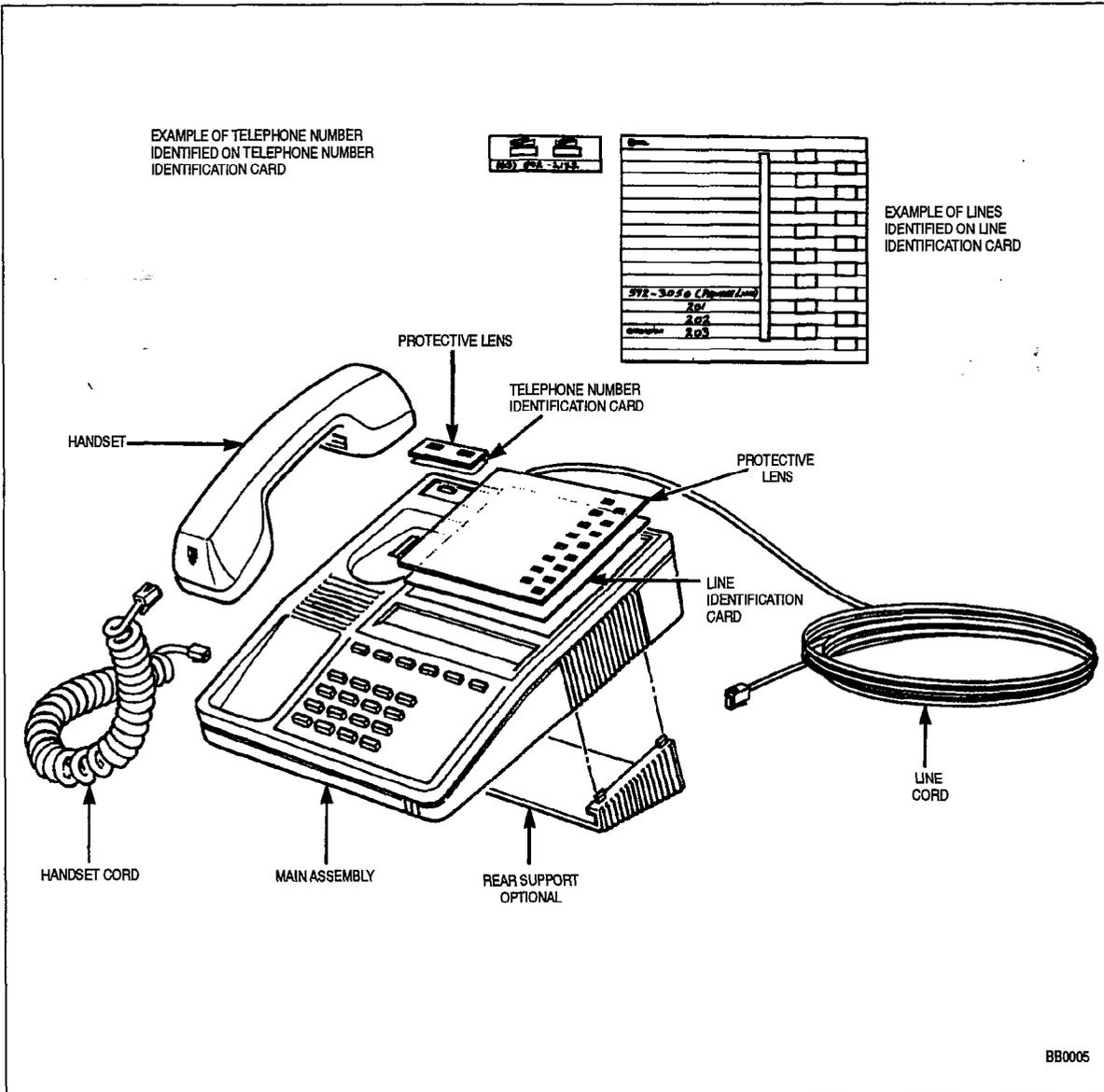


Figure 5-4 SUPERSET 4 Telephone Assembly (with Integral Rear Support)

Call Announce Port Installation on a SUPERSET 4 Telephone

Refer to Practice 9109-096-105-NA, Features Description, for programming information. Connect the Tip and Ring of the announce port circuit to the YELLOW (Tip) and BLACK (Ring) leads of the associated SUPERSET 4 telephone modular jack.

Note: The Call Announce Port of the SUPERSET 4 Telephone connects to either an OPS Card, a COV card, or an analog Line Card, but NOT to a SUPERSET Line Card or an ONS card. Refer to Figure 5-5.

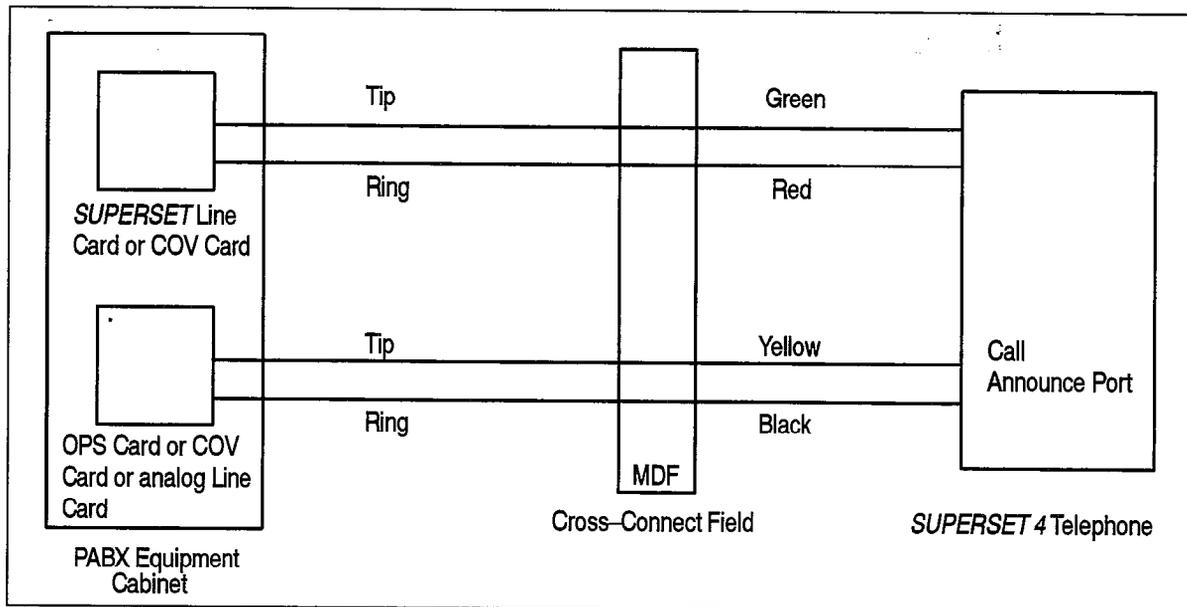


Figure 5-5 Call Announce Port Connections

Test Procedures

- 5.7 Perform these SUPERSET 4 test procedures as operational tests after initial installation of a system.

Whenever a SUPERSET 4 telephone is connected to an operating system, or the system has just been powered up, this test is run automatically. A message in the following format appears on the SUPERSET 4 telephone LCD: ":SS4 VXX.XX.XX:", for approximately 30 seconds. Time and date are then displayed. If the test fails, verify that the system is installed correctly and is powered up. Refer to the appropriate MITEL practices for system installation instructions.

Satisfactory completion of the test procedures listed in Table 5-2 confirms correct key operation, liquid crystal display activation, hookswitch functioning, and speaker output, and checks that the set has been installed correctly.

Perform the tests listed in Table 5-2 at each SUPERSET 4 telephone. If any test fails, verify that the system is installed correctly and is powered up.

Table 5-2 Installer Loop Test Routines

Step	Action	Verification	Notes																										
Accessing Test Routines																													
1.	Go off-hook (handset or handsfree).	Dial tone returned.																											
2.	Dial Loop Test Access Code.	Line status display indicates line busy at this set. "TEST! PRESS KEYS" displayed.	1. 2.																										
Keypad Test																													
3.	Press keys 1-9, *, 0, and # in turn.	DTMF tones are heard through handset or speaker. A 2-digit number is displayed as follows: <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Key Pressed</th> <th>Number Displayed</th> </tr> </thead> <tbody> <tr><td>1</td><td>01</td></tr> <tr><td>2</td><td>02</td></tr> <tr><td>3</td><td>03</td></tr> <tr><td>4</td><td>04</td></tr> <tr><td>5</td><td>05</td></tr> <tr><td>6</td><td>06</td></tr> <tr><td>7</td><td>07</td></tr> <tr><td>8</td><td>08</td></tr> <tr><td>9</td><td>09</td></tr> <tr><td>*</td><td>10</td></tr> <tr><td>0</td><td>00</td></tr> <tr><td>#</td><td>11</td></tr> </tbody> </table>	Key Pressed	Number Displayed	1	01	2	02	3	03	4	04	5	05	6	06	7	07	8	08	9	09	*	10	0	00	#	11	
Key Pressed	Number Displayed																												
1	01																												
2	02																												
3	03																												
4	04																												
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6	06																												
7	07																												
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9	09																												
*	10																												
0	00																												
#	11																												
Supplementary Feature Keys Test																													
4.	Press the "display", "select features", "speaker on/off", and "mic. on/off" keys in turn.	A 2-digit number is displayed as follows: <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Key Pressed</th> <th>Number Displayed</th> </tr> </thead> <tbody> <tr><td>display</td><td>12</td></tr> <tr><td>select features</td><td>13</td></tr> <tr><td>speaker on/off</td><td>14</td></tr> <tr><td>mic. on/off</td><td>15</td></tr> </tbody> </table>	Key Pressed	Number Displayed	display	12	select features	13	speaker on/off	14	mic. on/off	15	3. 4. 5.																
Key Pressed	Number Displayed																												
display	12																												
select features	13																												
speaker on/off	14																												
mic. on/off	15																												
Feature Select Keys and Features Display Test																													
5.	Press each of the feature select (unmarked) keys in turn.	The prompts above each key are activated, and a 2-digit number is displayed (see Figure 5-6).	6.																										
6.	Press the "select features" key.	Supplementary feature names are activated (see Figure 5-6).	7.																										

Table 5-2 Installer Loop Test Routines (continued)			
Step	Action	Verification	Notes
Line Select Keys, HOLD Key, Line Status Display, and Tone Ringer Test			
7.	Press the red HOLD key and each line select key in turn.	<p>The line status display next to each line select key (except HOLD) is activated to indicate an incoming call (alternating square/circle format).</p> <p>A 2-digit number is displayed, as follows:</p> <p>HOLD key = 30 to upper line select key = 45</p> <p>The tone ringer sounds when the upper line select key is pressed.</p>	
Hookswitch Test			
8.	(a) If the tests are run with the handset on-hook, lift the handset. (b) Press "speaker on/off" key, and replace the handset.	<p>"HANDSET UP" displayed.</p> <p>Number 14 displayed, then "HANDSET DOWN" displayed.</p>	
9.	(a) If the tests are run with the handset off-hook, press the "speaker on/off" key. Replace the handset. (b) Lift handset.	<p>"HANDSET DOWN" displayed.</p> <p>"HANDSET UP" displayed.</p>	
Terminating Test Routines			
10.	If tests are run with the handset on-hook, press the "speaker on/off" key; if tests are run with the handset off-hook, replace the handset.	Set becomes idle; time and date are displayed.	
Page 2 of 2			

Notes: 1. Access code is found in the CDE Form: Feature Access Codes.

2. All prompts and line status displays are cleared.
3. Supplementary feature names are also displayed.
4. Do not press this key if test is run in handsfree mode, as it will cause the test to be terminated.
5. If test is run in handsfree mode.
6. Prompts remain displayed after key is released to allow error patterns to be detected.
7. Supplementary feature names remain displayed until another key is pressed.

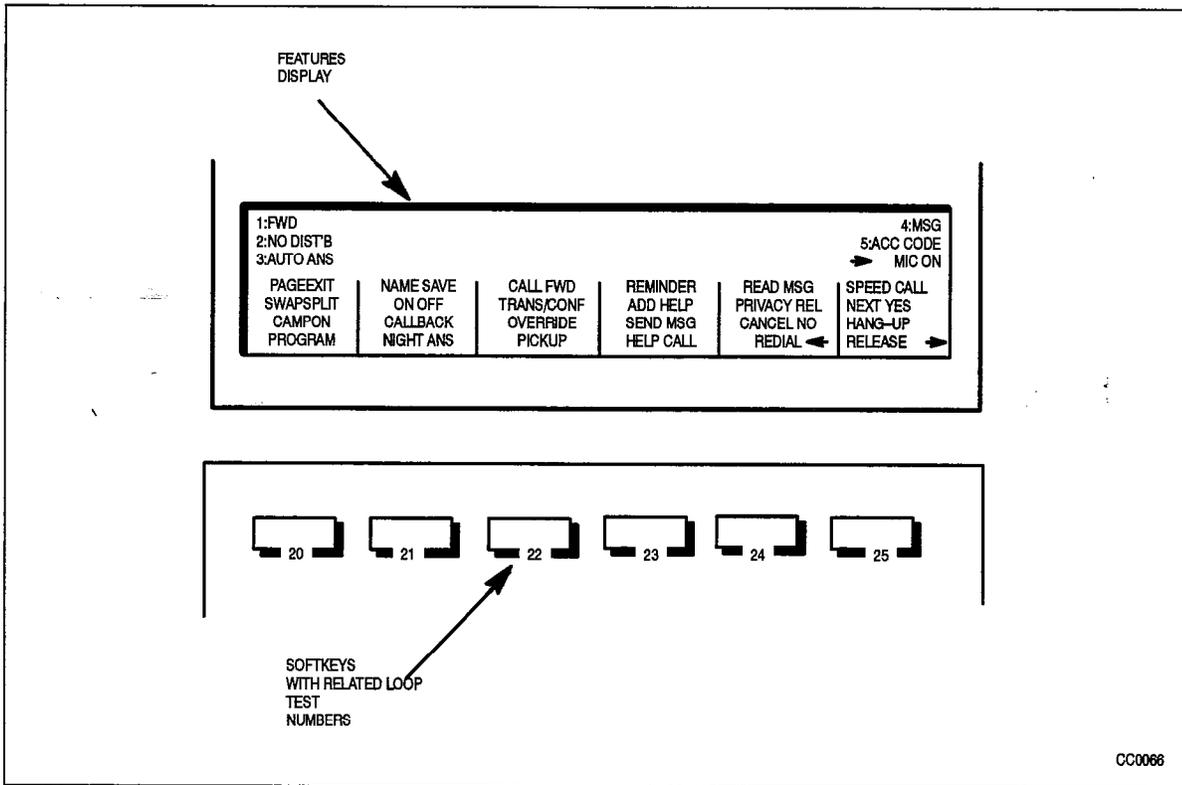


Figure 5-6 Feature Select Keys and Feature Display Test

6.

SUPERSET 3™ DN TELEPHONE**General Description**

- 6.1 The *SUPERSET 3* DN telephone is a desk-top electronic telephone with many features that enhance communications in a modern business environment. It sits on a desk or workstation, and may be used with its handset or in handsfree mode. Figure 6-1 shows a *SUPERSET 3* DN telephone while Figure 6-2 shows the layout of its faceplate. A description of available features is included in Practice 9109-096-105-NA, Features Description.

The *SUPERSET 3* DN telephone has the following features:

- single key feature activation
- up to 12 line appearances
- automatic selection of primary line (programmed option)
- key selection of non-primary line
- handsfree and auto-answer with microphone control
- speed dial
- automatic selection of ringing line
- hold function for any call at the set
- user programming of Speed Dial numbers
- speaker, handset and ringer volume control
- ringer pitch control
- digital communication with the host PABX
- a DATASET 1101 data cartridge may be integrated into a *SUPERSET 3* DN telephone to provide data communication and voice communication over one pair of wires to the PABX

The *SUPERSET 3* DN is designed for fast, simple installation; it connects to local area wiring by a modular jack, and to the PABX by a single twisted pair. Power, signaling, and voice are carried over this pair; additional wiring is not required. Refer to Appendix A.

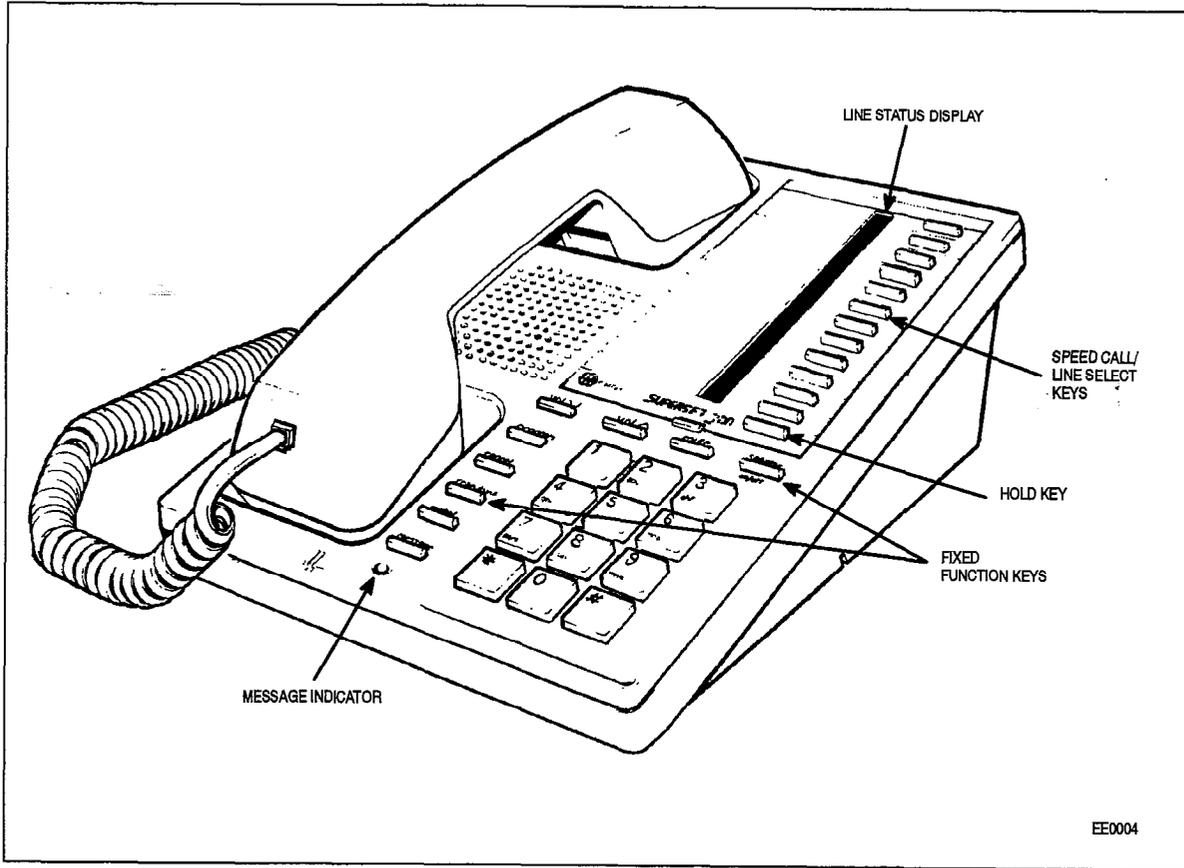


Figure 6-1 SUPERSET 3 DN Telephone

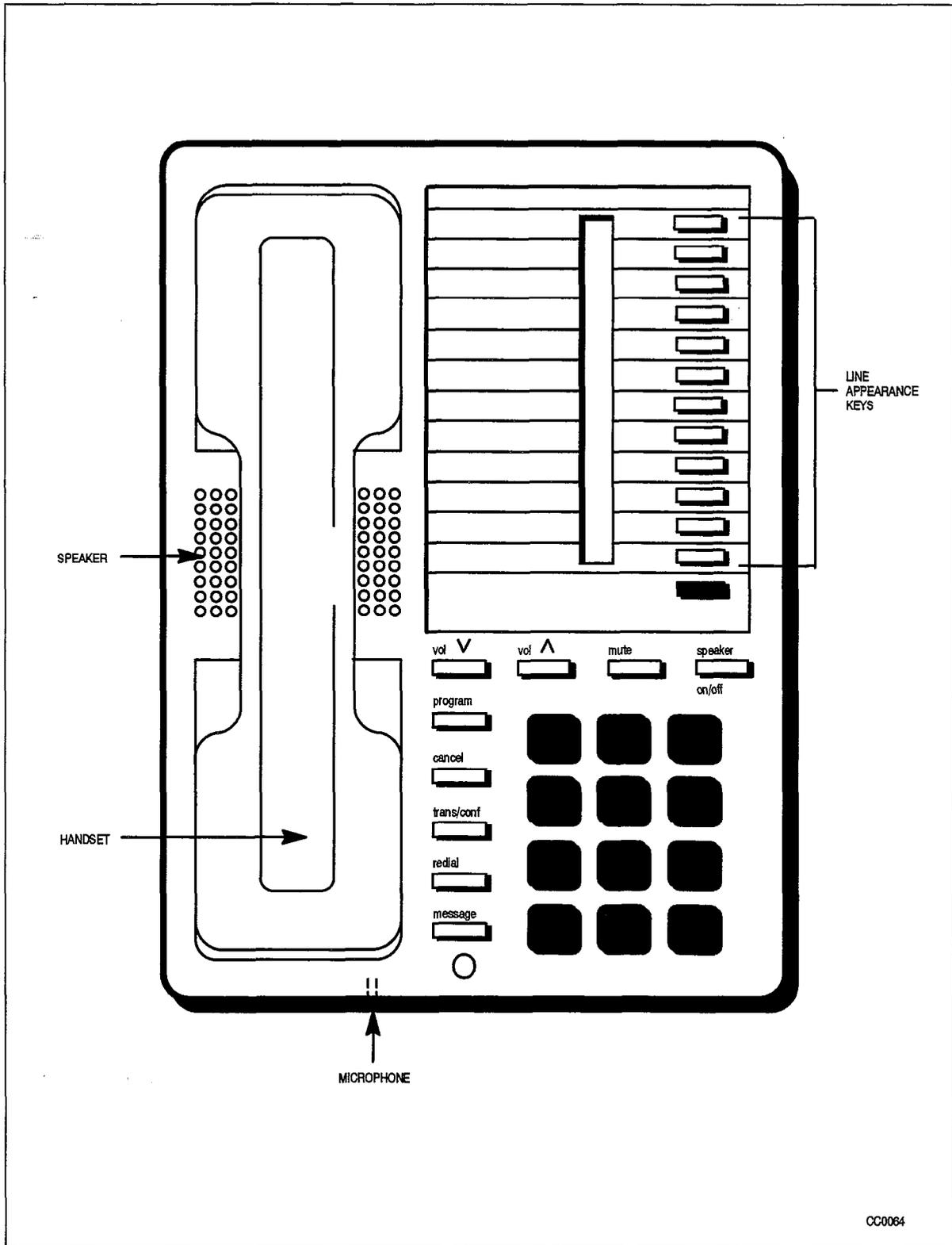


Figure 6-2 SUPERSET 3 DN Faceplate Layout

Physical Description

General

6.2 The *SUPERSET 3 DN* telephone dimensions are:

length	240 mm	(9.45 in.)
width	155 mm	(6.10 in.)
height	106 mm	(4.17 in.)

The faceplate of the telephone is divided into four functional areas:

- handset, speaker and microphone
- line appearance keys, each with a status indicator
- fixed function keys
- telephone keypad

Handset, Speaker and Microphone

The handset mounts in a cradle on the left side of the telephone; the speaker is located beneath a grille between the cradle depressions. The microphone is located in the bottom edge of the telephone, below the depression where the handset mouthpiece rests.

Line Appearance Keys

There is a column of 12 keys in the upper right part of the telephone's faceplate. These keys may be programmed as Speed Dial numbers, to access specific lines, or to access specific features. To the left of each line appearance key is a liquid crystal display (LCD) indicator, which defines the status of each line appearance.

Fixed Function Keys

The fixed function keys are arranged around the telephone keypad, except for the red Hold key which is at the bottom of the column of line appearance keys.

Telephone Keypad

The telephone keypad has 12 keys arranged in the standard pattern. The number keys have associated letters with a slight deviation from the standard: the letter "q" appears with "p", "r" and "s" on the 7 key; "z" appears with "w", "x" and "y" on the 9 key.

Message Waiting Lamp

The message waiting lamp is a LED immediately below the Message function key at the bottom of the faceplate.

Functional Description

Fixed Function Keys

6.3 Surrounding the dial pad are ten fixed function keys; their functions are as follows:

HOLD Key: Pressing the red HOLD key places the current call on hard hold. The call may be retrieved by pressing the appropriate line select key.

VOLUME UP and DOWN Keys: These keys are used to set levels for: ringing volume, ringing pitch, handsfree volume, and background music volume. Each key depression changes the volume level or pitch by one step. The level for each function is stored in the PABX; changing one function setting does not affect the others. On system or set resets, the levels are restored. Default levels are applied when the set is first programmed.

- When the set is ringing, these keys control the ringing volume level.
- When the set is in handsfree mode, these keys control the speaker volume level.
- When ringing from the tone demonstration package has been accessed, these keys control the ringer pitch.
- When background music is connected, these keys control the music volume level.

SPEAKER Key: The SPEAKER key controls handsfree operation of the set. Pressing this key once switches the speaker ON and selects the prime line. Calls can be originated and/or received handsfree. Successive operation of this key toggles the set between ON/OFF hook states.

MUTE Key: The MUTE key, to the right of the volume keys, is used to disable the microphone (when in Handsfree mode) so that conversation near the set is not picked up and heard by the distant party. The microphone is disabled only while the key is pressed. In Generic 1004 and above, this key toggles instead.

PROGRAM Key: The PROGRAM key is used to program speed dial numbers for line keys not used for line appearances or features. When programming is finished, this key is pressed to save the entered number.

CANCEL Key: This key is used to cancel a dialing sequence, to terminate a call in progress, to terminate (without saving) a programming function, or to return to a party held on soft hold.

TRANS/CONF Key: Pressing this key places the current call on hold and returns dial tone. The user dials another number. Hanging up at this point transfers the held party to the dialed number. Pressing the TRANS/CONF key again when the called party answers reconnects the held party, forming a conference.

REDIAL Key: This key allows single keystroke redialing of the last correct internal or external number entered from this set. This key can be used only if manual dialing has not been initiated.

MESSAGE Key and LED: The MESSAGE LED flashes whenever a message is waiting for this set. Pressing this key calls the set that left the message.

When the *SUPERSET 3* DN telephone reaches a busy or unanswered party capable of receiving a message, the MESSAGE LED lights. Pressing the MESSAGE Key sends a message to the called set. The LED goes out and the call is terminated.

Feature Keys

During CDE, some of the set's line appearance keys can be programmed as feature keys, eliminating the need for the user to dial feature access codes. For CDE purposes the keys are numbered 1 to 12 from bottom to top. These keys can also be programmed from the set; refer to 9109-096-105-NA, Features Description.

When a programmed feature is activated its LCD indicator shows a solid square; (if the feature provides status indication) otherwise, the LCD indicator is clear. This indicates the on/off status of the feature; some are prompt feature keys, which indicate the validity of using the feature.

The CDE-programmable feature keys which provide LCD indication include: Auto Answer, Call/Attn, Data Disc, Do Not Disturb, Privacy Release, Intrude (Override), Paging, I Will Wait (Campon), Music, Account Code, and Call Forward.

Speed Dial

Any key not assigned as a line appearance or feature key may be programmed as a Speed dial key from the set. Refer to Practice 9109-096-105-NA, Features Description.

Telephone Operation

- 6.4 This Part describes basic telephone call handling with the *SUPERSET 3* DN telephone.

Originating Calls

To originate a call:

Pick up the handset.

or

Press the SPEAKER key. The set selects the prime line. If the prime line is busy, the set selects the first available outgoing line, starting from the lowest line appearance key. Dial tone is heard; if no line is available, the set remains silent.

or

Proceed to the next step if Immediate Line Selection is enabled and a Handsfree call is desired.

If other than the set's prime line is desired, press the appropriate Line Appearance key. Dial tone is returned.

Dial the desired destination number, press Redial or press the appropriate Speed Dial key, if programmed.

Answering Calls

To answer a call:

Lift the handset or press the SPEAKER key. The set automatically selects the ringing line. If more than one line is ringing, the set selects the lowest ringing line appearance key.

or

Press the Line Appearance key to be answered. The call is answered Handsfree. If desired, lift and use the handset.

Terminating A Call

To terminate a call:

Hang up. If in Handsfree mode, press the SPEAKER key. If there is a call on consultation hold, the call will ring the set back.

or

Press the CANCEL key. If the set is in handsfree mode, it returns to the idle state; if the handset is in use, the set returns dial tone. If the set has a call on consultation hold, this call is reconnected.

When one party hangs up, the remaining party returns to the idle state if in handsfree mode; if off-hook, the party returns to silence or dial tone, depending on system options.

Ringer Pitch Adjustment

The SX-200 DIGITAL PABX must have an access code assigned to the Tone Demonstration Package. Dial the access code followed by 33. The set will ring. Press the Volume Up or Volume Down key to raise or lower the ringer pitch. Each depression of the key changes the pitch one step. When the ringer sounds as desired, go on-hook or press the SPEAKER key.

SUPERSET 3 DN Telephone Installation Instructions

- 6.5 Installation includes unpacking the set, assembling the set and connecting the set to a wall jack. The connections to the system via the cross connect field are described in Practice 9109-096-200-NA, Installation Information.

WARNING

Any connection of this set to an off premise application, an out of plant application, or to any other exposed plant application may result in a safety hazard, and/or defective operation, and/or equipment damage.

CAUTION

Do not use a hand-telephone test set (butt set) to check a *SUPERSET 3DN* line. The interface card has no loop detector. Set on-hook / off-hook status is signaled by data transmission.

Do not connect *SUPERSET 3DN* telephones to standard lines, in parallel, or as power fall transfer extensions.

Before the set can be used, the system must be programmed and equipped with DNI Line cards to interface with a *SUPERSET 3 DN* telephone. The *SUPERSET 3 DN* telephone is not available with Generic 1001. Refer to Practice 9109-096-210-NA, Customer Data Entry.

Table 6-1 *SUPERSET 3 DN* Telephone Installation Instructions

Step	Action
1.	Place the <i>SUPERSET 3 DN</i> telephone in its assigned position.
2.	Connect the handset cord to the handset and main assembly.
3.	Identify the set's telephone number, extension number, other line appearances and features on the Identification Card.
4.	Install the Identification Card and the protective cover onto the main assembly.
5.	Connect the line cord to the telephone and the telephone jack.

Table 6-2 *SUPERSET 3 DN* Telephone Environmental Specifications

Operating Environment:	
Temperature:	4° to 49° C (39.2° to 120° F).
Humidity:	10% to 90% RH, non-condensing.
Storage/Shipping Environment:	
Temperature:	-40° to 60° C (-40° to 150° F).
Humidity:	10% to 90% RH, non-condensing.

Data Cartridge Operation

- 6.6 This is only a brief description of data call operations possible with the *SUPERSET 3 DN* telephone data cartridge and feature keys. For more information on data calls, refer to Practice 9109-096-105-NA, Features Description, and to DATASET 1100 SERIES DESCRIPTION in this Practice.

To originate a data transceiver (DTRX) call from the *SUPERSET 3 DN* telephone:

Press the CALL/ATTN key.

Enter the number destination from the data terminal keyboard.

The LCD beside the CALL/ATTN key provides call status indication as follows:

blank – no connection

circle – DTR (device is ready but not connected)

circle and flashing square – connected to DTRX or queued at destination

solid – connected to called destination

To disconnect a DTRX call from the set:

Press the DATA DISC key.

7.

SUPERSET 4™ DN DESCRIPTION**General Description**

7.1 The *SUPERSET 4* DN telephone is an advanced microprocessor– controlled electronic telephone set, containing digital electronic circuitry and liquid crystal displays (LCD). The features available with a *SUPERSET 4* DN telephone are described in Practice 9109–096–105–NA, Features Description.

The *SUPERSET 4* DN telephone can be used only with MITEL PABXs equipped with proprietary Digital Line Cards.

The *SUPERSET 4* DN telephone provides the following features:

- single key feature activation
- up to 12 line appearances
- automatic selection of primary line (programmed option)
- key selection of non–primary line
- handsfree and auto–answer with microphone control
- speed dial
- automatic selection of ringing line
- hold function for any call at the set
- user programming of Call Forwarding destination and Speed Dial numbers
- speaker and ringer volume control
- ringer pitch control
- digital communication with the host PABX
- visual line or trunk status indication
- 4–line by 40–character alphanumeric display
- softkey prompts signifying all valid call–handling operations at any given time
- a DATASET 1101 data cartridge may be integrated into a *SUPERSET 4* DN telephone to provide data communication and voice communication over one pair of wires to the PABX

The *SUPERSET 4* DN is designed for fast, simple installation; it connects to local area wiring by a modular jack, and to the PABX by a single twisted pair. Power, signaling, and voice are carried over this pair; additional wiring is not required. Refer to Appendix A.

Physical Description

7.2 The *SUPERSET 4* DN telephone dimensions are:

length 240 mm (9.45 in.)

width 237 mm (9.35 in.)

height 106 mm (4.17 in.).

Figure 7-1 shows a *SUPERSET 4* DN telephone, while Figure 7-2 shows the *SUPERSET 4* DN telephone faceplate. At the left side of the set is the handset and its cradle, with the speaker grill in the faceplate between the handset depressions. At the center is a column of 13 keys; the top 12 are line appearance keys, and the red bottom key is the HOLD key. At the top is the Liquid Crystal Display (LCD); its contrast adjustment is to the right. Below the LCD are six softkeys and a SUPERKEY, associated with the LCD. The 12-key keypad is located at the lower right of the faceplate; above it are four feature keys, Volume up, Volume down, Mute, and Speaker on/off. A Message LED is at the left of the keypad.

Liquid Crystal Display

At the top of the set is a Liquid Crystal Display (LCD) containing 4 lines of 40 characters each. The top two lines contain system messages; the bottom two lines contain the current softkey definitions. At the right of the LCD is a contrast control for varying the intensity of the display.

Handset

The set handset is located in its cradle at the left side of the faceplate. It is connected by a modular line cord to the set.

Telephone Keypad

The telephone keypad has 12 keys arranged in the standard pattern. The number keys have associated letters with a slight deviation from the standard: the letter "q" appears with "p", "r" and "s" on the 7 key; "z" appears with "w", "x" and "y" on the 9 key. This allows entry of alphabetic information from the keypad.

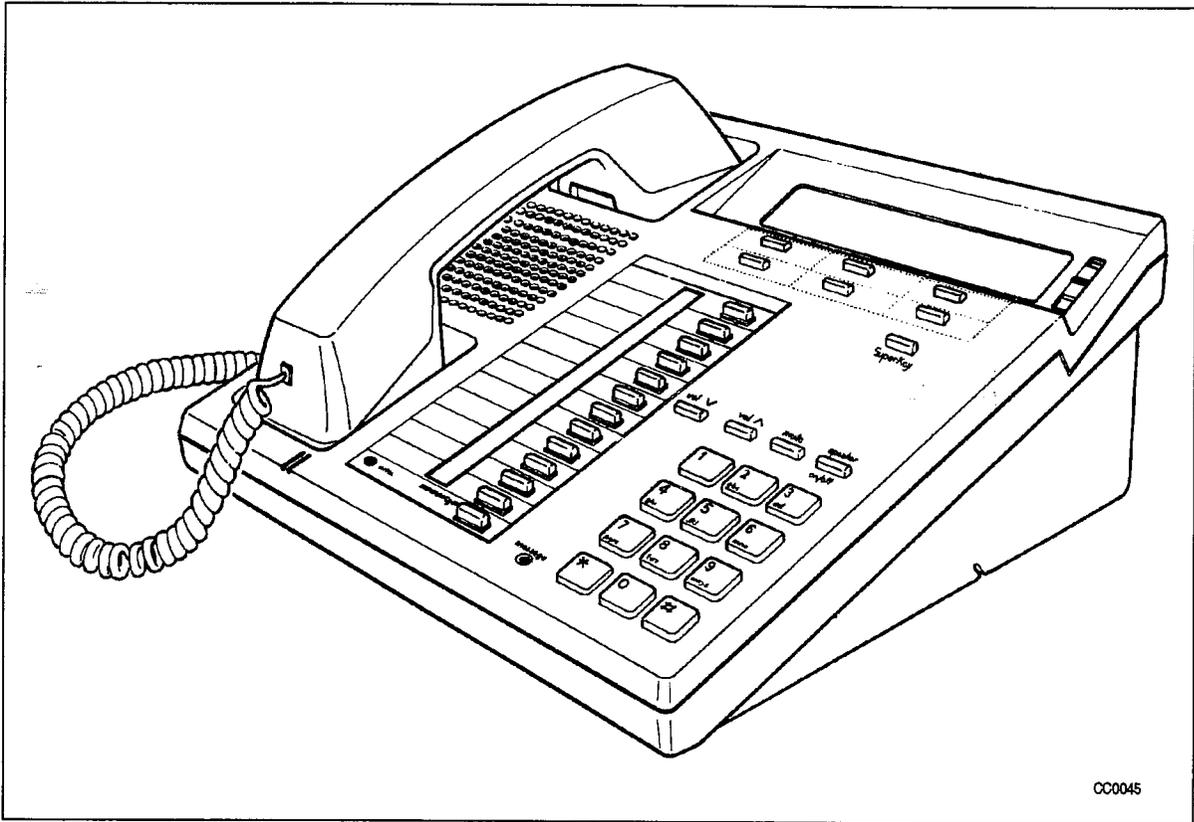


Figure 7-1 SUPERSET 4 DN Telephone

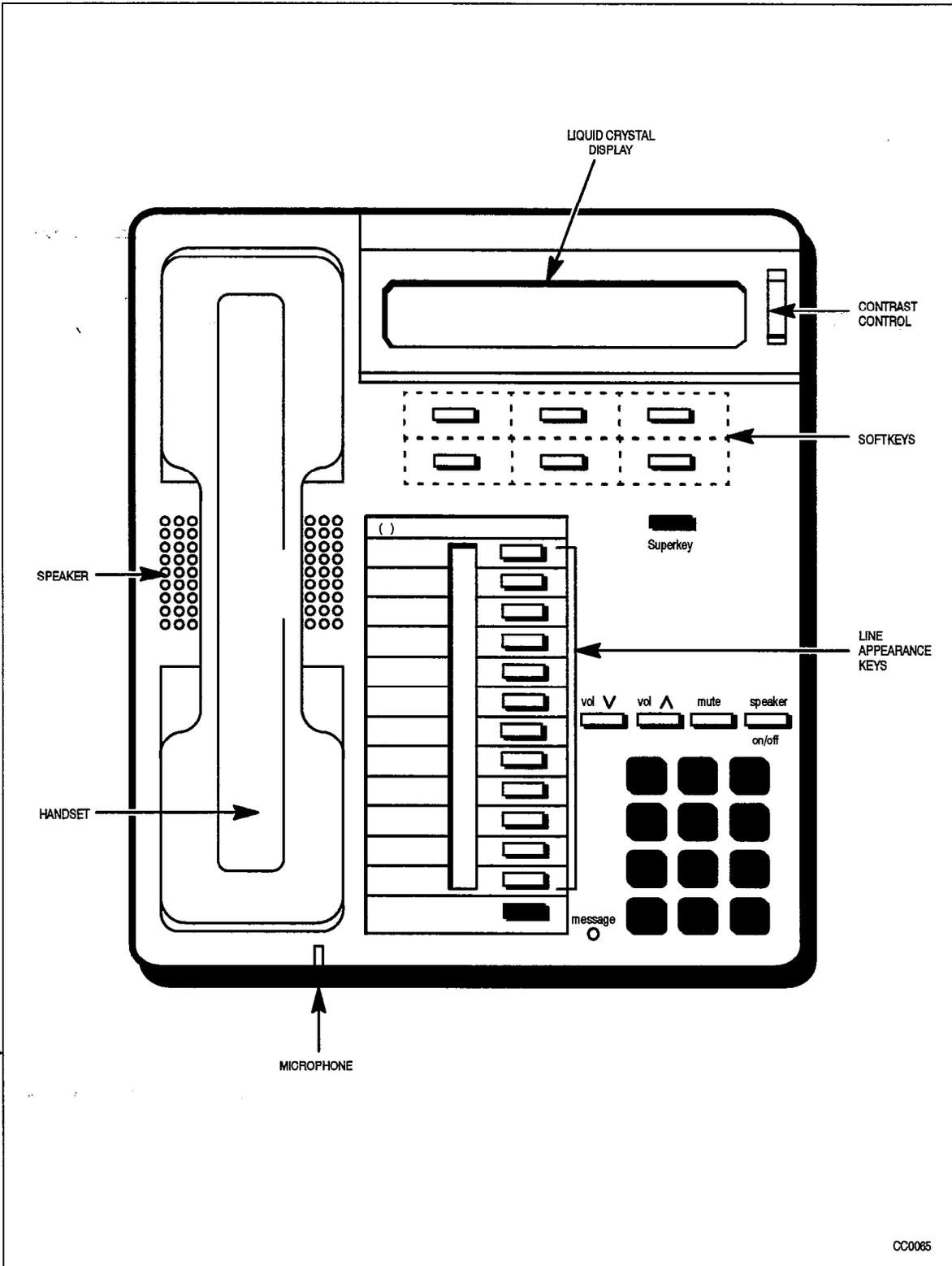


Figure 7-2 SUPERSET 4 DN Telephone Faceplate

Functional Description

- 7.3 The *SUPERSET 4* DN telephone face layout is shown in Figure 7–2. The following describes the function of each key and display; all keys are non interlocking.

Softkeys and SUPERKEY

Immediately below the LCD are six unlabeled keys (softkeys); their functions are defined by corresponding prompts displayed on the LCD. The softkeys are used during telephone operations to perform functions or to access features. The keys' functions vary with the activities of the set. The SUPERKEY is located just below the softkeys on the right. When the SUPERKEY is pressed, the softkeys take on new meanings associated with user programming functions.

HOLD Key

The red key on the lower left of the faceplate (at bottom of Line Appearance keys) is the Hold key which is used to place a call on hard hold.

VOLUME UP and DOWN Keys

These keys are used to set levels for: ringing volume, ringing pitch, handsfree volume, and background music volume. Each key depression changes the volume level or pitch by one step. The level for each function is stored in the PABX; changing one function setting does not affect the others. On system or set resets, the levels are restored. Default levels are applied when the set is first programmed.

When the set is ringing, these keys control the ringing volume level.

When the set is in handsfree mode, these keys control the speaker volume level.

When used with the SUPERKEY ringer pitch adjustment function, these keys control the ringer pitch.

When background music is connected, these keys control the music volume level.

SPEAKER Key

The SPEAKER key controls Handsfree operation of the set. Pressing the SPEAKER key in handset mode puts the set into Handsfree mode. The current call is now conducted via the microphone and speaker. If the handset was on-hook the set goes off-hook Handsfree. Pressing the SPEAKER key in Handsfree mode returns the set to handset mode. If the handset is on-hook the current call is terminated.

MUTE Key

The MUTE key, to the right of the volume keys, is used to disable the microphone (when in Handsfree mode) so that conversation near the set is not picked up and heard by the distant party. The microphone is disabled only while the key is pressed. In Generic 1004 and above, this key toggles.

Message LED

The Message LED flashes if the set has received a message waiting indication; the LCD shows the number of messages waiting.

Line Appearance Keys

On the left side of the set are twelve line appearance keys, each with an associated LCD indicator. These keys may be programmed as Speed Dial numbers, to access specific lines, or to access specific features. The LCD indicator beside each line appearance key defines the status of each line appearance.

Feature Keys

During CDE, the installer can program the set's line appearance keys as feature keys, eliminating the need for the user to dial feature access codes. For CDE purposes the keys are numbered 1 to 12 from bottom to top. These keys can be programmed from the set.

When a programmed feature which provides status indication is activated, its LCD indicator shows a solid square; otherwise, the LCD indicator is clear. This indicates the on/off status of the feature; some are prompt feature keys, which indicate the validity of using the feature.

The CDE-programmable feature keys which are valid for the *SUPERSET 4 DN* telephone include: Auto Answer, Call/Attn, Data Disc, and Do Not Disturb.

Telephone Operation

7.4 This Part describes basic telephone call handling with the *SUPERSET 4 DN* telephone.

Originating Calls

To originate a call:

- Pick up the handset, or press the SPEAKER key for Handsfree operation. The set selects the prime line. If the prime line is busy, the set selects the first available outgoing line, starting from the lowest line appearance key. If no line is available, the set remains silent.
- If other than the set's prime line is desired, press the appropriate Line Appearance key.
- Dial the number or press the appropriate Speed Dial key, if programmed.

Answering Calls

To answer a call:

- Lift the handset or press the SPEAKER key. The set automatically selects the ringing line. If more than one line is ringing, the set selects the lowest ringing line appearance.

or,

- Press the Line Appearance key to be answered. The call is answered Handsfree. If desired, lift and use the handset.

The first line of the display gives the extension number and user name of the calling party. If the call is being forwarded from the calling party, the extension number and user name of the forwarding party is given on the second line of the display.

Terminating a Call

To terminate a call:

- Hang up. If in Handsfree mode, press the SPEAKER key. If there is a call on consultation hold, the call will ring the set.

or,

- Press the New Call softkey. If the set is in handsfree mode, it returns to the idle state; if the handset is in use, the set returns dial tone. If the set has a call on consultation hold, this call is reconnected.

When one party hangs up, the remaining party returns to the idle state if in handsfree mode; if off-hook, the party returns to silence or dial tone, (according to system options).

Ringer Pitch Adjustment

Ringer Pitch Adjustment is one of the *SUPERSET 4 DN* telephone's built-in functions. Perform the adjustment as follows:

- Press the SUPERKEY.
- Press the More... softkey.
- Press the Ring Adjust softkey.
- Press the Ringer Pitch softkey.
- The set will start ringing.
- Adjust the ringer pitch. The Volume UP key increases the pitch; the Volume DOWN key decreases the pitch.
- Press the SUPERKEY. This saves the pitch setting, stops the ringer and returns the set to its normal state.

SUPERSET 4 DN Telephone Installation Instructions

7.5 Installation includes unpacking the set, assembling the set and connecting the set to a wall jack. The connections to the system via the cross connect field are described in Practice 9109-096-200-NA, Installation Information.

WARNING

Any connection of this set to an off premise application, an out of plant application, or to any other exposed plant application may result in a safety hazard, and/or defective operation, and/or equipment damage.

CAUTION

Do not use a hand-telephone test set (butt set) to check a SUPERSET 4 DN line. The interface card has no loop detector. Set on-hook / off-hook status is signaled by data transmission.

Do not connect SUPERSET 4 DN telephones to standard lines, in parallel, or as power fail transfer extensions.

Before the set can be used, the system must be programmed and equipped with DNI Line cards to interface with a SUPERSET 4 DN telephone. The SUPERSET 4 DN telephone is not available with Generic 1001. Refer to Practice 9109-096-210-NA, Customer Data Entry.

Chart 7-1 SUPERSET 4 DN Telephone Installation Instructions	
Step	Action
1.	Place the SUPERSET 4 DN telephone in its assigned position.
2.	Connect the handset cord to the handset and main assembly.
3.	Identify the set's telephone number, extension number, other line appearances and features on the Identification Card.
4.	Install the Identification Card and the protective cover onto the main assembly.
5.	Connect the line cord to the telephone and the telephone jack.

Table 7-1 SUPERSET 4 DN Telephone Environmental Specifications	
Operating Environment:	
Temperature:	4° to 49° C (39.2° to 120° F).
Humidity:	10% to 90% RH, non-condensing.
Storage/Shipping Environment:	
Temperature:	-40° to 60° C (-40° to 150° F).
Humidity:	10% to 90% RH, non-condensing.

Data Cartridge Operation

- 7.6 This is only a brief description of data call operations possible with the *SUPERSET 4 DN* telephone data cartridge and feature keys. For more information on data calls, refer to Practice 9109-096-105-NA, Features Description, and to DATASET 1100 SERIES DESCRIPTION in this Practice.

To originate a data transceiver (DTRX) call from the *SUPERSET 4 DN* telephone:

- Press the CALL/ATTN key.
- Enter the number of the destination from the data terminal keyboard.

The LCD beside the CALL/ATTN key provides call status indication as follows:

blank – no connection

circle – DTR (device is ready but not connected)

circle and flashing square – connected to DTRX or queued

solid – connected to called destination.

To disconnect a DTRX call from the set:

- Press the DATA DISC key.
- Press the SPEAKER ON/OFF key.

Peripheral Devices

8.

SUPERSET DSS™ MODULE**Description**

- 8.1 This section describes the *SUPERSET DSS* module for the *SX-200* DIGITAL PABX, including its basic operation, technical description, and specifications.

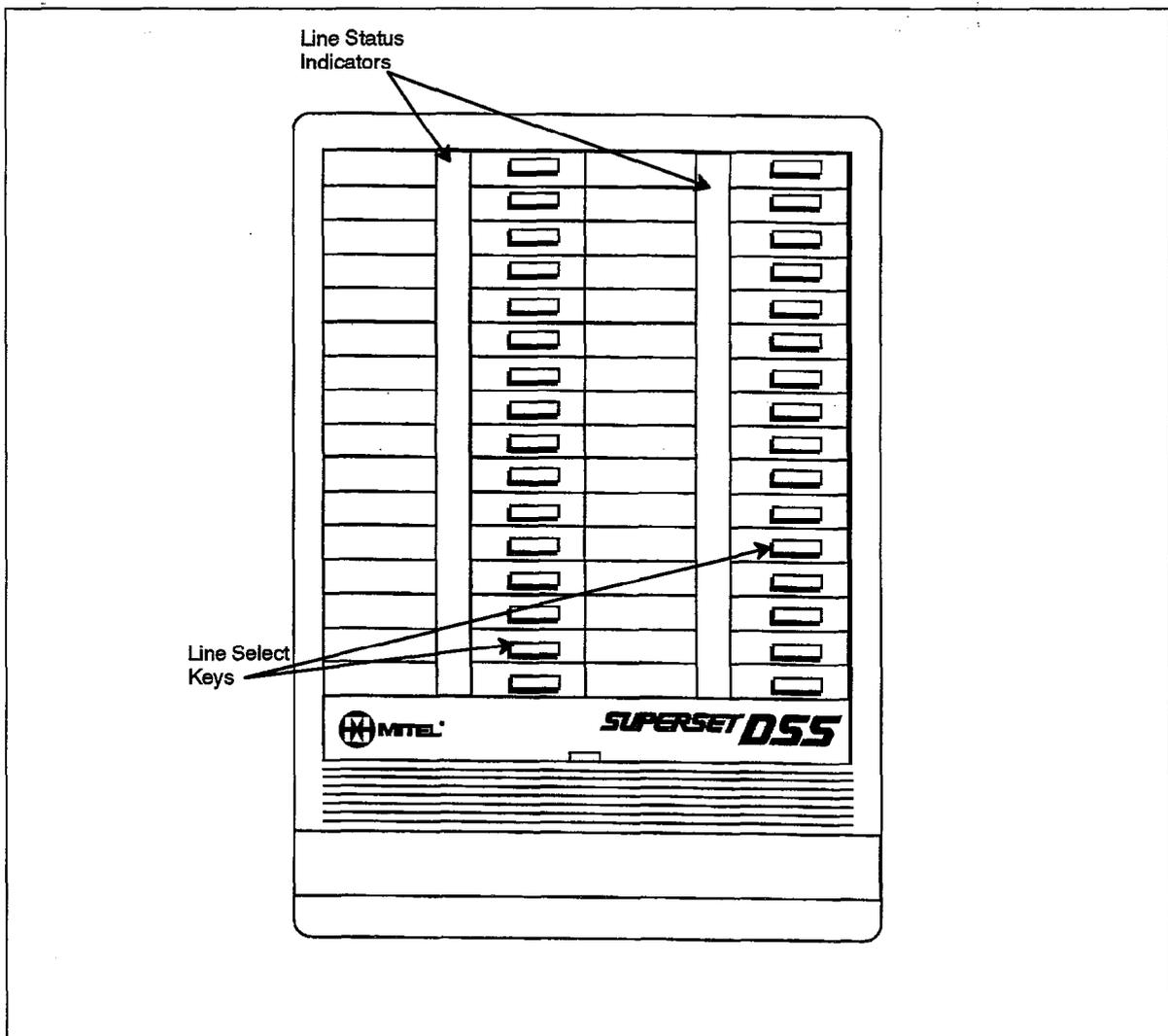


Figure 8-1 SUPERSET DSS Module

BLF (Busy Lamp Field) is a visual indicator showing the attendant or sub-attendant the current status of the monitored devices, regardless of device type, except data devices. DSS (Direct Station Select) extends this function to give single button speed call access to the device or devices being monitored on the BLF. See Figure 8-1. Both functions are available using either a MITEL *SUPERSET* telephone, or a *SUPERSET DSS* module.

The *SUPERSET DSS* module has 32 keys arranged in two vertical rows. An LCD beside each key shows the current status of the line represented by that key. The DSS module can be used as a stand alone device or, through CDE programming, up to two DSS modules can be associated with each of the following devices:

- *SUPERSET 4* telephone
- *SUPERSET 3* telephone
- *SUPERSET 4 DN* telephone
- *SUPERSET 3 DN* telephone
- *SUPERSET 410* telephone
- *SUPERSET 420* telephone
- *SUPERSET 430* telephone
- LCD attendant console
- *SUPERCONSOLE 1000* attendant console

Figure 8-2 shows a *SUPERSET DSS* module with a *SUPERSET 4 DN* telephone.

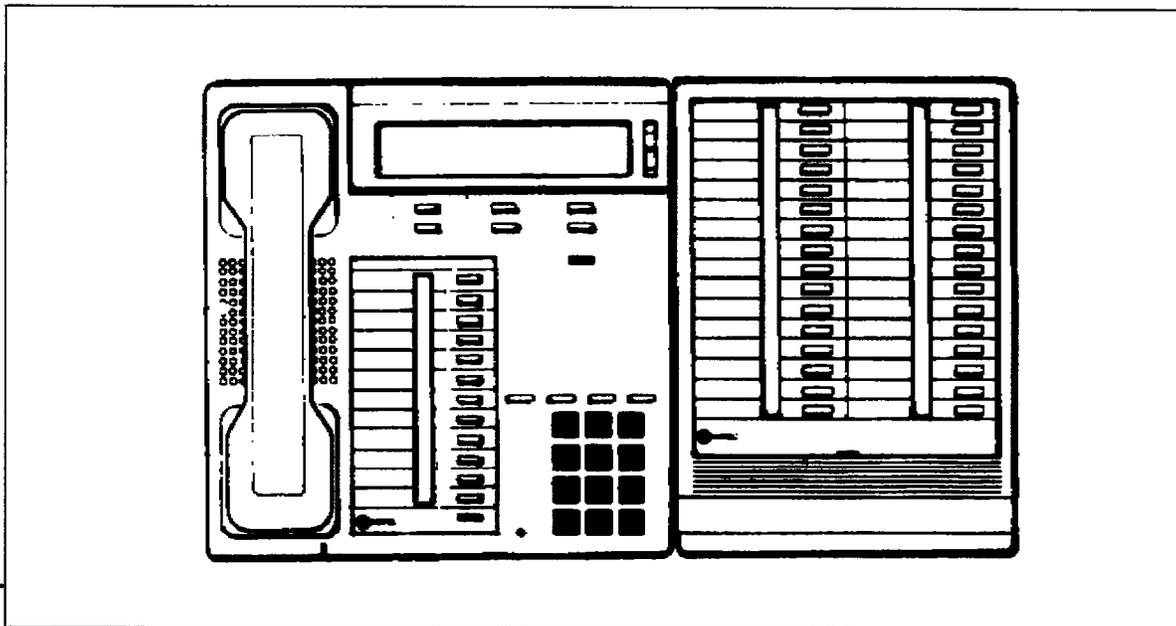


Figure 8-2 *SUPERSET DSS* with *SUPERSET 4 DN* Telephone

As a stand alone device, the *SUPERSET DSS* module can only be used as a busy lamp field, showing device status only.

If the module is associated with any of the devices listed above, it can be used as a BLF to indicate line status, and a DSS, allowing access to these devices with a single key press. The keys can also be used to access features in the same manner as line select keys on a *SUPERSET* telephone and to provide additional speed call keys.

The *SUPERSET DSS* module is a DNIC device and connects to one DNIC port on a DNI Line Card. Refer to Appendix A.

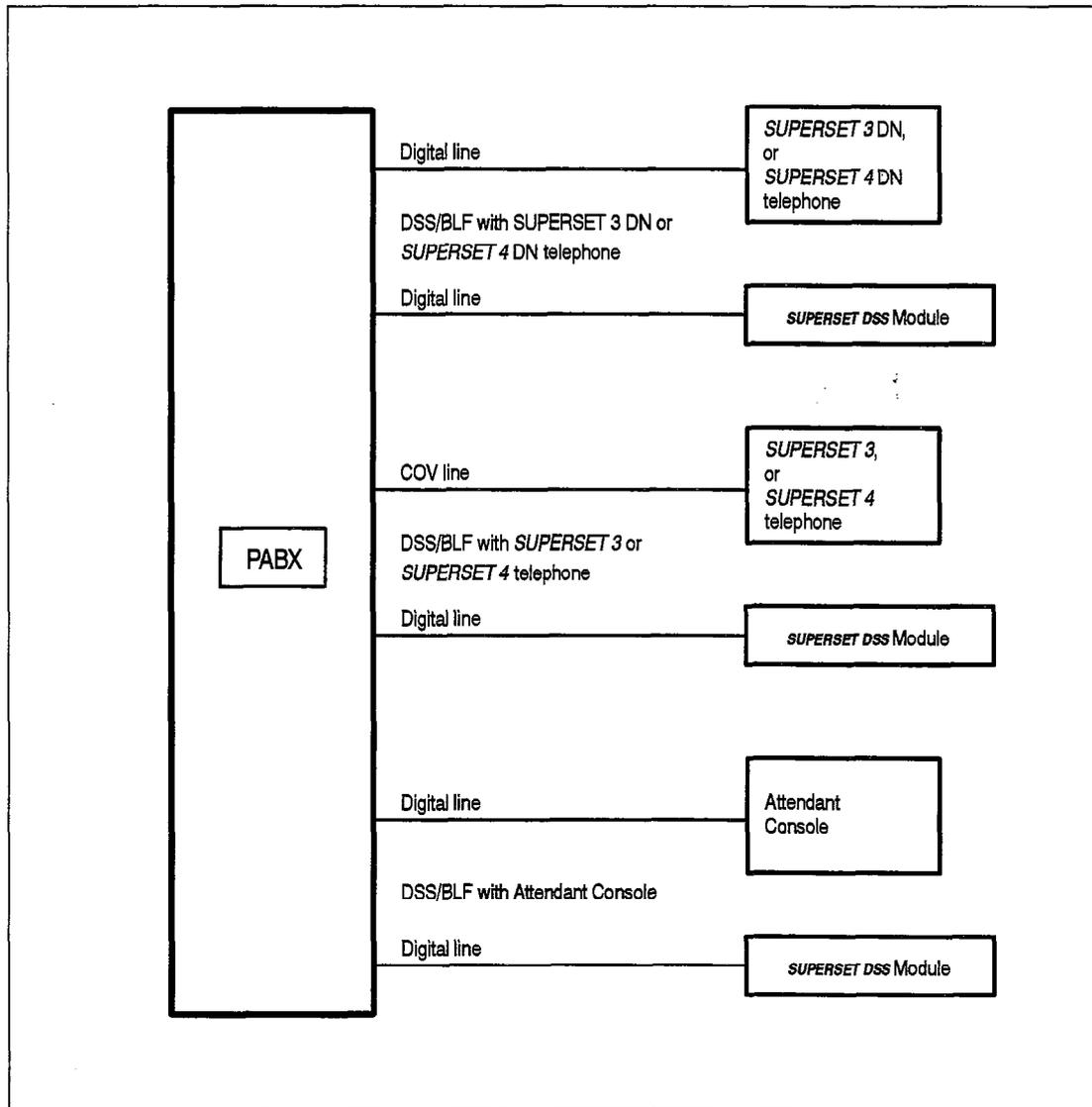


Figure 8-3 SUPERSET DSS Module Configurations

The *SUPERSET DSS* module is a member of the MITEL *SUPERSET* DN family of telephones, and uses the DNIC interface. As with all *SUPERSET* DN devices the module conforms to the evolving ISDN "U" interface format with two 64 kbs B channels for voice or circuit-switched information, plus a 16 kbs D channel for signalling information.

Power for the *SUPERSET DSS* module is supplied by the PABX. All signalling and power to the module is delivered over a single twisted pair from the DNI Line Card in the PABX.

The *SUPERSET DSS* module interface operates in full duplex at 160 kbs. The module only transmits its carrier after detecting carrier from the system. This prevents transmission of a carrier signal into the network if the module is accidentally plugged in to an analog circuit.

Table 8-1 lists the specifications for the *SUPERSET DSS* Module.

Table 8-1 *SUPERSET DSS* Module Specifications

Item	Specification
<u>Dimensions</u>	
Length	240 mm (9.45 inches)
Width	155 mm (6.10 inches)
Height	106 mm (4.17 inches)
<u>Interface</u>	
Loop length (maximum)	910 meters (3000 ft), 26 gauge single twisted pair for signal and power.
<u>Power</u>	Line powered from PABX DNI Line card.

SUPERSET DSS Module Installation Instructions

WARNING

Any connection of this device to an off premise application, an out of plant application, or to any other exposed plant application may result in a safety hazard, and/or defective operation, and/or equipment damage.

CAUTION

The rules for cable lengths between the PABX and the *SUPERSET DSS* Module must be followed for proper operation; refer to Appendix A.

Any connection of this *SUPERSET DSS* module to an off premise application, an out of plant application, or to any other exposed plant application may result in a safety hazard, and/or defective operation, and/or equipment damage.

Chart 8-1 Install a *SUPERSET DSS* Module

Step	Action	Comments
1.	Unpack the <i>SUPERSET DSS</i> Module and position it next to an Attendant Console or a <i>SUPERSET</i> telephone.	
2.	Plug the <i>SUPERSET DSS</i> Module modular cord into the jack on the base of the <i>SUPERSET DSS</i> Module and into its assigned modular telephone jack; it connects to one circuit on a Digital Line Card.	The <i>SUPERSET DSS</i> Module and its associated Console or <i>SUPERSET</i> telephone each has a line cord which connects it to the PABX.

Page 1 of 2

**Chart 8-1 Install a SUPERSET DSS Module
(continued)**

Step	Action	Comments
3.	To secure a Digital <i>SUPERSET</i> telephone to the <i>SUPERSET DSS</i> Module, place the Coupling DSS/BLF Unit beneath and between them, with two rubber feet of the telephone and two rubber feet of the set securely placed into the holes in the Coupling DSS/BLF unit.	The Coupling DSS/BLF unit is optional; it is not used with the Console.
4.	At the distribution frame, cross connect the cable from the modular jack of the <i>SUPERSET DSS</i> Module to the cable from the associated Digital Line Card. Refer to Figure 8-4.	Refer to the Installation Manual for wiring information for the <i>SUPERSET DSS</i> Module modular jack.
5.	Program the keys and lamps of the <i>SUPERSET DSS</i> Module in CDE.	Refer to the system programming manual.

Page 2 of 2

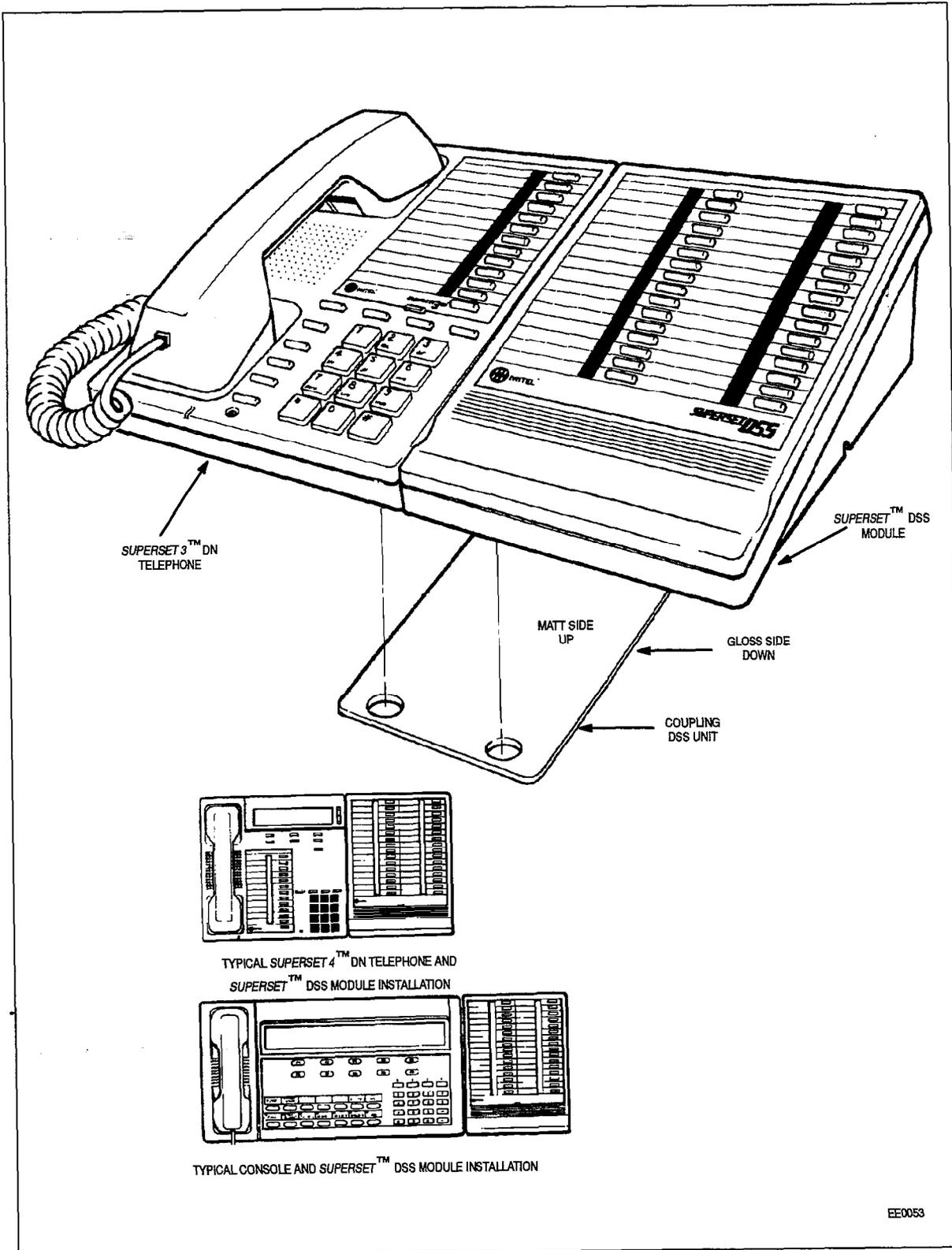


Figure 8-4 SUPERSET DSS Module Installation

9.

THE *SUPERSET 400* SERIES TELEPHONE SETS

General

9.1 The *SUPERSET 400* family of sets consists of four DNIC based digital sets designed for use on all MITEL DNIC based Digital Switches. The four telephone sets are:

- *SUPERSET 401*TM
- *SUPERSET 410*TM
- *SUPERSET 420*TM
- *SUPERSET 430*TM

The *SUPERSET 401* set is single line digital set.

The *SUPERSET 410*, *SUPERSET 420*, and *SUPERSET 430* sets are multi line digital sets with LCD displays. They are equipped with a *MiLink*TM network connection that allows peripherals to be connected to the set on the desktop while only using one telephone port.

Line Status Display Symbols

9.2 The *SUPERSET 410*, *SUPERSET 420*, and *SUPERSET 430* telephones are equipped with an LCD Line Status Display. The status of each Line Appearance key is displayed using a triangular symbol. The meaning of each state is shown in Figure 9-1.

SYMBOL	DESCRIPTION	MEANING
. . . .	CLEAR	LINE IDLE
◀ . . . ◀ . . .	DISPLAY SOLID TRIANGLE	THIS LINE IS BUSY AT THIS SET (OR AT ANOTHER SET)
◀ . . . ◀ . . .	DISPLAY ALTERNATES BETWEEN SOLID AND CLEAR	INCOMING CALL
◀ . . . ◀ . . .	DISPLAY ALTERNATES BETWEEN SOLID AND CLEAR	CALL ON HOLD AT THIS SET (OR AT ANOTHER SET)

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Figure 9-1 Line Status Display Symbols

Connection to the *MiLink* Dataset

9.3 To accommodate data call operations the *SUPERSET 410*, *SUPERSET 420*, and *SUPERSET 430* telephones are equipped with a *MiLink* network connection. This allows a *MiLink* device on the desktop, such as a *MiLink* Data Module, to be connected to the PABX. For *MiLink* Data Module installation instructions see Section 14, Dataset 1100 Series in this Practice.

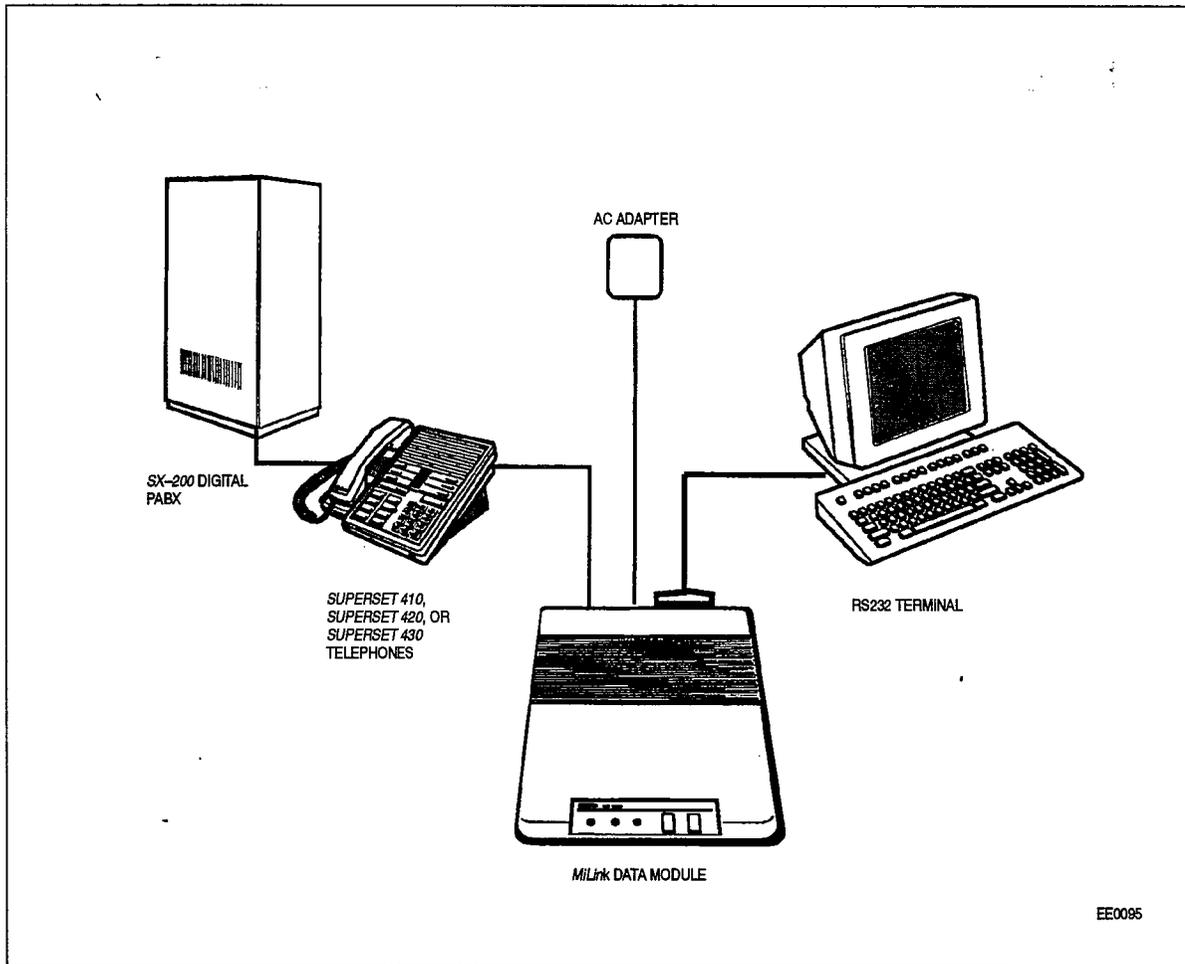


Figure 9-2 *MiLink* Network Connections

10. **██**

SUPERSET 401 TELEPHONE

General Description

10.1 The *SUPERSET 401* telephone is a single line DNIC-based digital telephone set that provides more features than the basic 2500 set. It also provides access to many of the sophisticated features available on the *SX-200* DIGITAL PABX. Figure 10-1 shows a *SUPERSET 401* telephone while Figure 10-2 shows the layout of the faceplate. A description of available features is included in Practice 9109-096-105-NA, *SX-200* DIGITAL PABX Features Description.

The *SUPERSET 401* telephone has the following features:

- Feature hardkey (FLASH) to provide switch-hook flash
- Callback Messaging via the Message Waiting key
- Message Waiting Lamp
- volume control for the handset receive level
- adjustable ringer volume and tone
- complete POTS (Plain Old Telephone Service) feature capability
- built-in hearing aid compatibility in the handset.

The *SUPERSET 401* telephone is designed for fast, simple installation; it connects to local area wiring by a modular jack, and to the PABX by a single twisted pair. Power, signaling, and voice are carried over this pair; additional wiring is not required.

Physical Description

General

10.2 The dimensions of the *SUPERSET 401* telephone are shown in Figure 10-3. The faceplate of the telephone is divided into 3 functional areas:

- handset and speaker
- fixed function keys
- telephone keypad

Handset and Speaker

The handset mounts in a cradle on the left side of the telephone; the speaker is located beneath a grille between the cradle depressions.

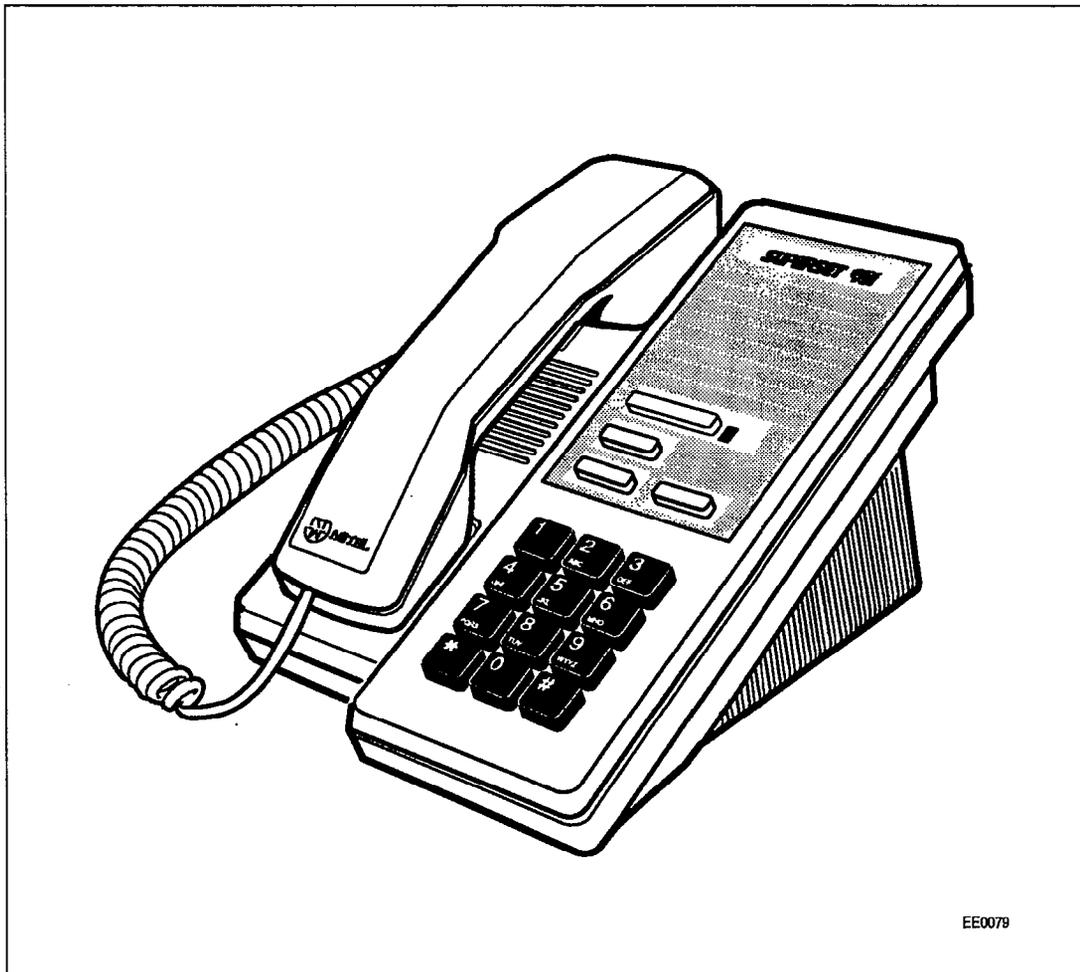
Fixed Function Keys

The 4 fixed function keys are arranged above the telephone keypad as shown in Figure 10-2. A Message Waiting Lamp is located to the right of the Message key.

Telephone Keypad

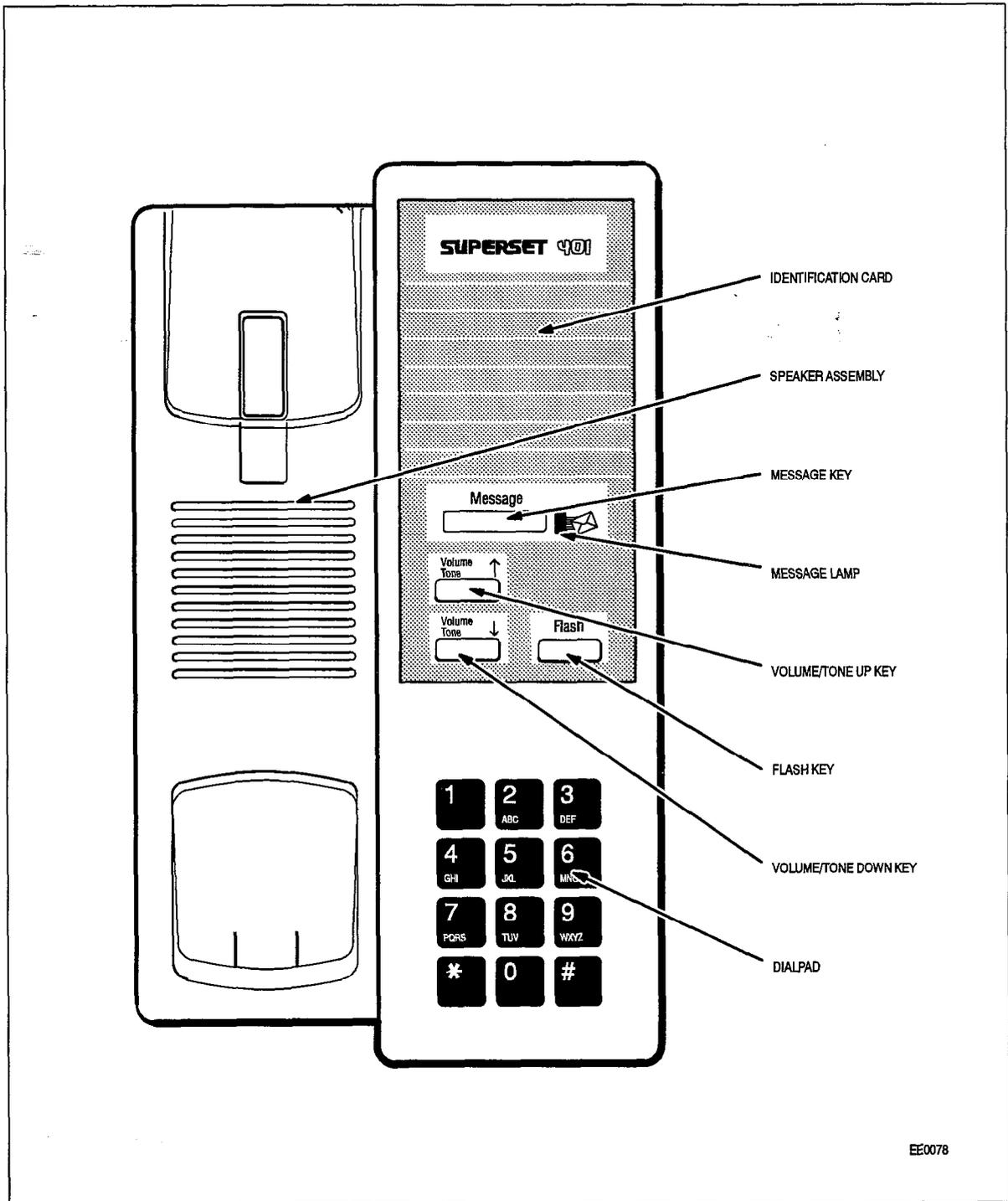
The telephone keypad has 12 keys arranged in the standard pattern. The number keys have associated letters with a slight deviation from the standard keypad: the letter "q" appears on the 7 key and "z" appears on the 9 key. The following list illustrates the key number designation and the corresponding letter designations:

1		7	pqrs
2	abc	8	tuv
3	def	9	wxyz
4	ghi	0	
5	jkl	*	
6	mno	#	



EE0079

Figure 10-1 *SUPERSET 401* Telephone Set



EE0078

Figure 10-2 SUPERSET 401 Telephone Face Layout

Peripheral Devices

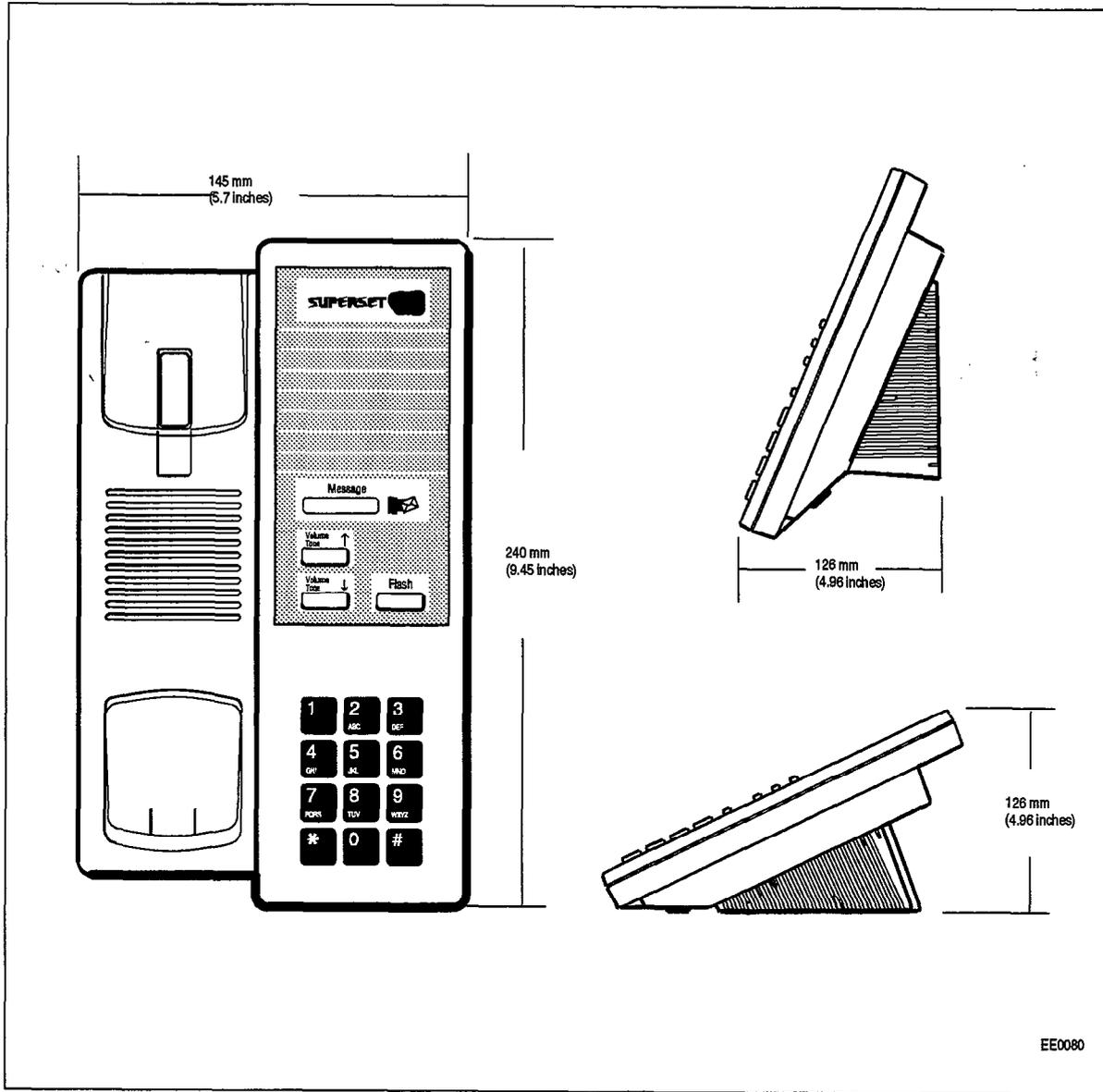


Figure 10-3 SUPERSET 401 Telephone Set Dimensions

Functional Description

Feature Keys

- 10.3 There are four feature keys and a LED, each associated with a specific feature. They are:

MESSAGE Key: The Message key is used to send a callback message to another telephone set capable of receiving the message when that set is busy, unanswered, or in Do Not Disturb mode. It is also used to initiate a return call to a telephone set that has left a message.

MESSAGE Lamp: The red Message lamp flashes when another telephone set has left a callback message. The lamp also lights (solid red) when the *SUPERSET 401* calls a busy or unanswered party capable of receiving a message. Pressing the message key sends a message to the called set. After sending the message the lamp goes out and the call is terminated.

VOLUME/TONE UP and VOLUME/TONE DOWN Keys: These two keys are used to adjust handset volume and ringing volume and tone. Each key depression changes the level up or down by one step.

The levels for ringing volume and pitch are stored in the PABX; changing one function setting does not affect the others. On system or set resets, the levels are restored. Default levels are applied when the set is first programmed. The handset receive volume level can be adjusted up or down during a call. However, the level is not reported to the PABX; therefore, on every new call the default level is applied.

FLASH Key – This key emulates the switch-hook flash function and is used for Call Transfer, Conferencing and PABX Feature Access. Pressing the key allows the user to put a call on hold, dial a new number and conference the call, or transfer the held call (with privacy) to the new number.

Ringer Pitch Adjustment

The ringer tone on the *SUPERSET 401* telephone is adjusted through Tone demonstration. To adjust the tone:

1. Dial the Tone Demonstration access code
2. Dial "33"
3. Press the volume/tone up or down keys ($\sqrt{\wedge}$) until the desired tone is heard. When tone demo is exited, the tone is remembered by the system.

SUPERSET 401 Telephone Installation Instructions

- 10.4 Installation includes unpacking the set, assembling the set and connecting the set to a wall jack. The connections to the system via the cross connect field are described in Practice 9109-096-200-NA, Installation Information.

WARNING

Any connection of this set to an off premise application, an out of plant application, or to any other exposed plant application may result in a safety hazard, and/or defective operation, and/or equipment damage.

CAUTION

Do NOT connect *SUPERSET 401* telephones in parallel, to standard lines, or as power fail transfer extensions. Do not use a hand test telephone (butt-in) to check a *SUPERSET 401* telephone line (its DNI Line Card does not have a loop detector). The set's on/off hook status is signaled by data transmission.

Before the set can be used, the system must be programmed and equipped with a DNI Line Card to interface with a *SUPERSET 401* telephone. Refer to Practice 9109-096-210-NA, Customer Data Entry.

Chart 10-1 SUPERSET 401 Telephone Installation Instructions

Step	Action
1.	Connect the handset cord to the handset and the <i>SUPERSET 401</i> telephone.
2.	Identify the set's number on the identification card.
3.	Install the identification card and protective cover onto the main assembly.
4.	Connect the line cord to the telephone jack and the <i>SUPERSET 401</i> telephone.
5.	The Message Lamp will blink rapidly for about 5 seconds and then go out. When the lamp goes out, it indicates that communication to the PABX has been established.

Table 10-1 SUPERSET 401 Telephone Environmental Specifications

Operating Environment:	
Temperature:	0° to 35° C (32° to 95° F).
Humidity:	0% to 90% RH, non-condensing.
Storage/Shipping Environment:	
Temperature:	-25° to 70° C (-13° to 158° F).
Humidity:	0% to 90% RH, non-condensing.

Wall-Mounting the *SUPERSET 401* Telephone

Wall-Mounting Instructions

- 10.5 To wall-mount the *SUPERSET 401* telephone, reverse the detachable base and plug the line cord into a modular jack. The "cord winder" in the base stores for extra cord. The complete wall-mounting instructions can be ordered through normal distribution channels.

Visual Indication Of System Communications Problems

- 10.6 If there is either a synchronization or communication error, the Message Lamp flashes at double the "Message Waiting" rate.

Peripheral Devices

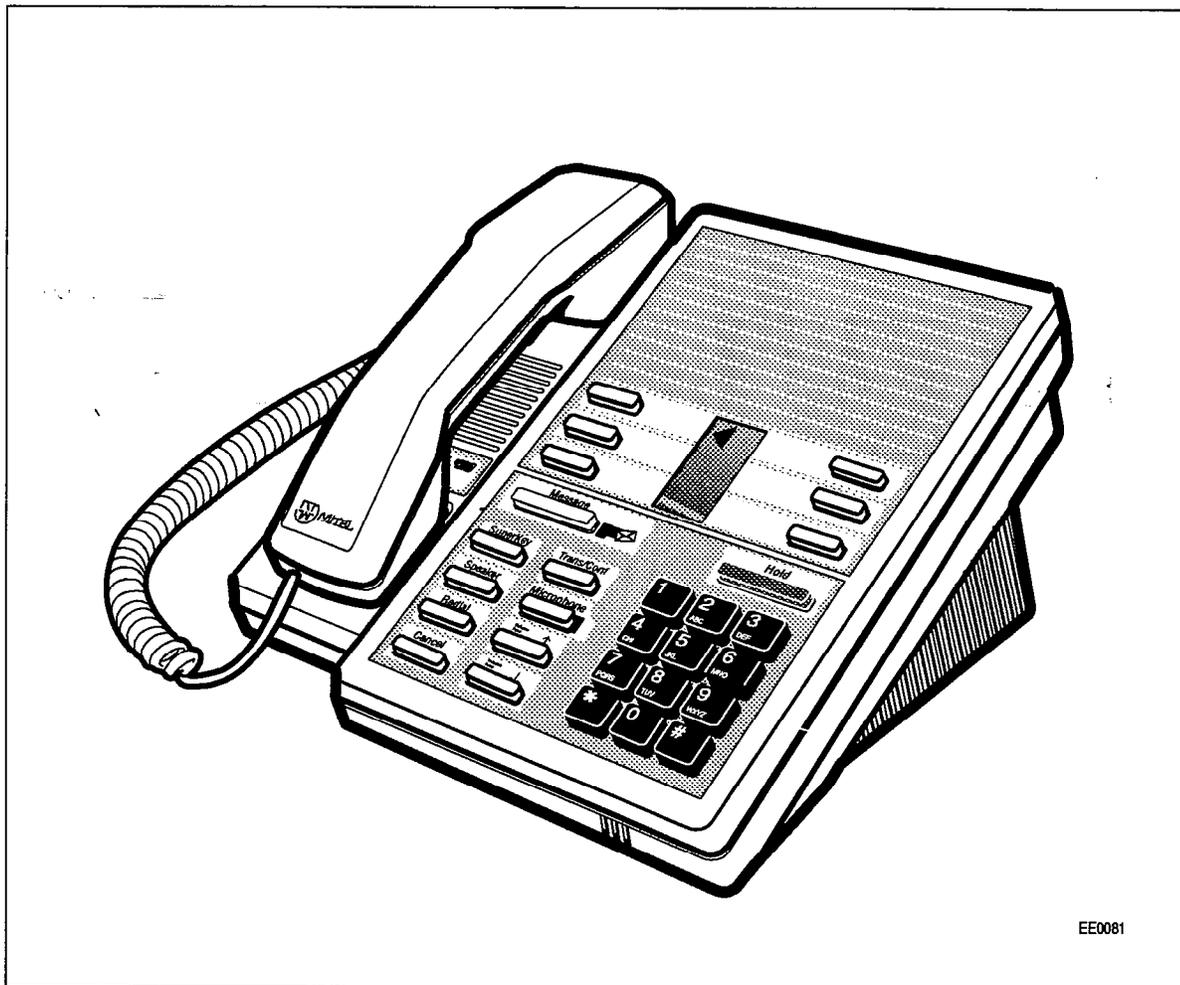


Figure 11-1 *SUPERSET 410* Telephone

Physical Description

General

- 11.2 The dimensions of the *SUPERSET 410* telephone are shown in Figure 11-3. The faceplate of the telephone is divided into four functional areas:
- handset, speaker, and microphone
 - line appearance keys with status indicators
 - telephone keypad
 - fixed function keys

Handset, Speaker and Microphone

The handset mounts in a cradle on the left side of the telephone; the speaker is located beneath a grille between the cradle depressions. The microphone is located in the bottom right edge of the telephone, below the "0" on the keypad.

Line Appearance Keys

There are six Line Appearance keys arranged in two columns in the center of the set. They are located in the top section of the telephone's faceplate. These keys may be programmed to access specific lines, specific features, or to activate Speed Call numbers. Between the two columns of Line Appearance keys is a liquid crystal display (LCD) indicator, that provides the status of each line appearance.

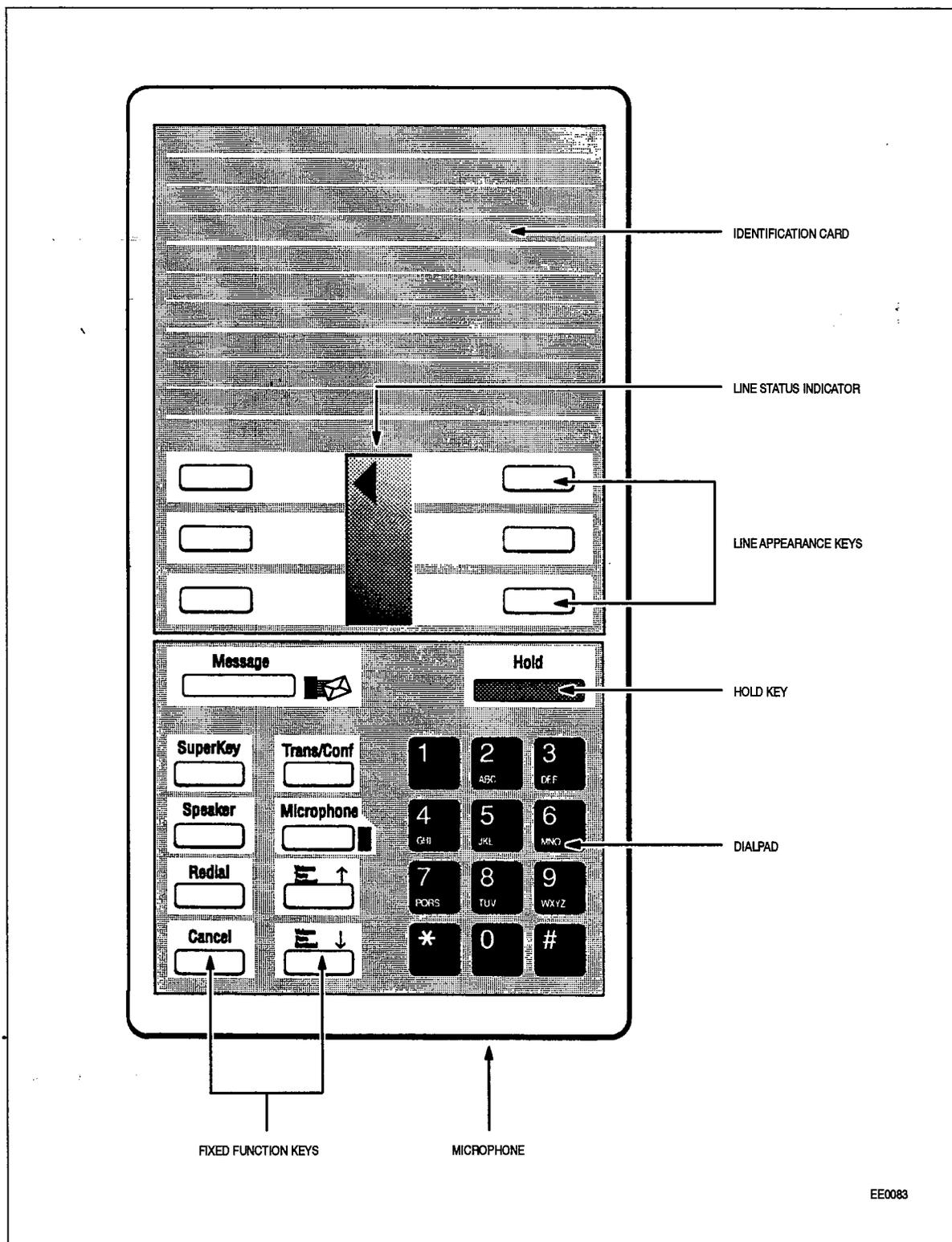
Telephone Keypad

The telephone keypad has 12 keys arranged in the standard pattern. It is in the bottom right hand section of the faceplate. The number keys have associated letters with a slight deviation from the standard: the letter "q" appears on the 7 key; "z" appears on the 9 key. The following list illustrates the key number designation and the corresponding letter designations:

1		7	pqrs
2	abc	8	tuv
3	def	9	wxyz
4	ghi	0	
5	jkl	*	
6	mno	#	

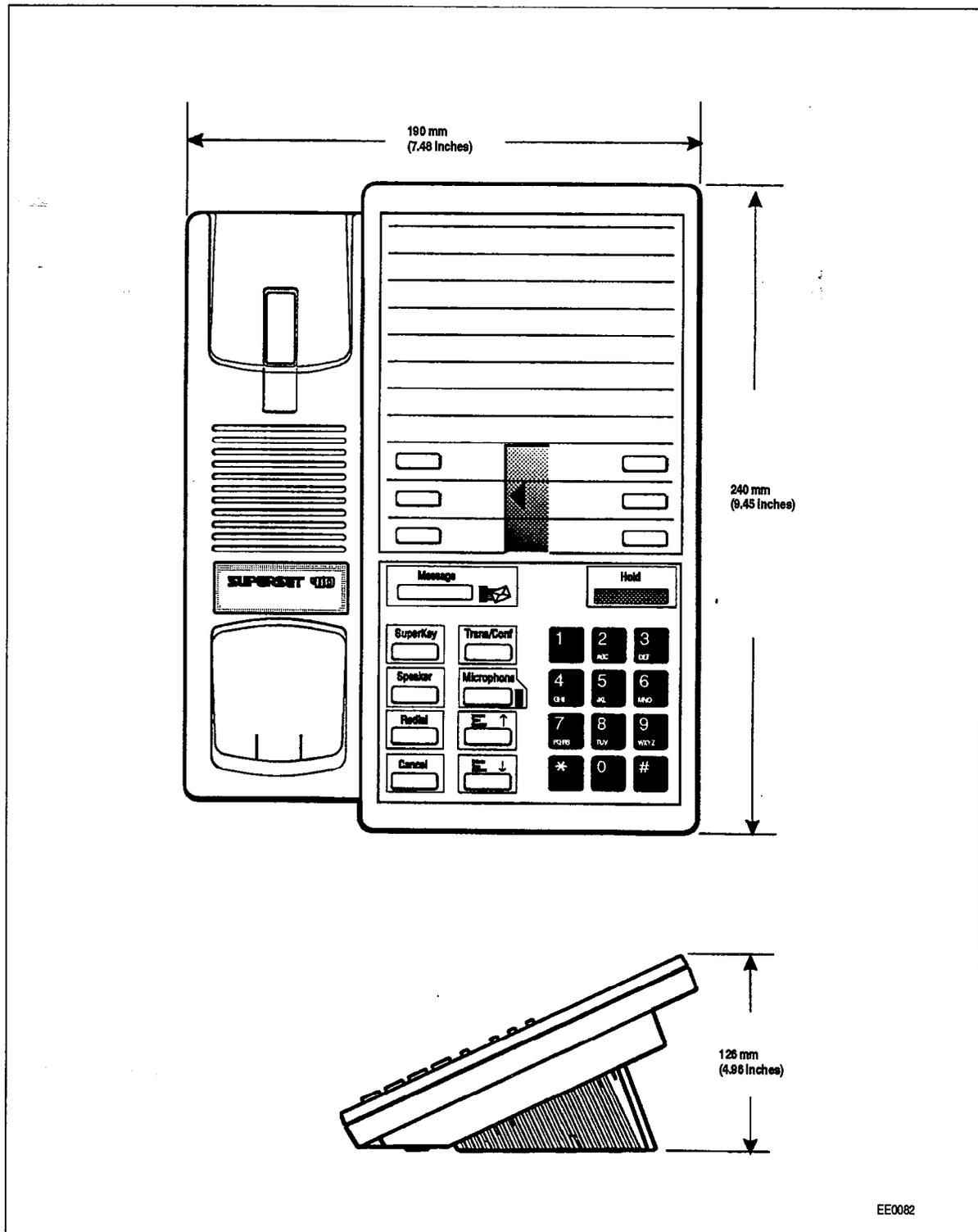
Fixed Function Keys

Nine of the 10 fixed function keys are arranged to the left of the telephone keypad. The red Hold key is located above the keypad. The Message Waiting Lamp and the Microphone Lamp have LED indicators.



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Figure 11-2 SUPERSET 410 Faceplate Layout



EE0082

Figure 11-3 SUPERSET 410 Telephone Dimensions

Functional Description

- 11.3 Ten fixed function keys surround the keypad. Two of these keys have LED visual indicators. The fixed function keys are:

Fixed Function Keys

HOLD Key: Pressing the red Hold key places the current call on hard hold. The call may be retrieved by pressing the line select key of the call on hold (next to the flashing line select status indicator).

MESSAGE Key: The Message key is used to send a callback message to another telephone set capable of receiving the message when that set is busy, unanswered, or in Do Not Disturb mode. It is also used to initiate a return call to a telephone set that has left a message.

MESSAGE Lamp: The red Message lamp flashes when another telephone set has left a callback message. The lamp lights (solid red) when the *SUPERSET 410* calls a busy or unanswered party capable of receiving a message. Pressing the message key sends a message to the called set. After sending the message the lamp goes out and the call is terminated.

SUPERKEY Key: The Superkey is used to initiate programming the Line Appearance keys as Feature keys or Speed Call keys.

SPEAKER Key: This is an On/Off toggle key. With the key in the On state during handsfree dialing, the caller can monitor call progress through the speaker. When the caller hears the called party answer, the caller must lift the handset to respond (handsfree conversation is not available on the *SUPERSET 410*).

REDIAL Key: The last manually dialed number is dialed when the redial key is pressed.

CANCEL Key: This key is used to cancel a dialing sequence, end a call, terminate without saving a programming function, or return to a party on soft hold.

VOLUME/TONE UP and VOLUME/TONE DOWN Keys: These two keys are used to adjust handset volume and ringing volume and tone. Each key depression changes the level up or down by one step.

The levels for ringing volume and pitch is stored in the PABX; changing one function setting does not affect the others. On system or set resets, the levels are restored. Default levels are applied when the set is first programmed. The handset receive volume level can be adjusted up or down during a call. However the level is not reported to the PABX; therefore, on every new call the default level is applied.

MICROPHONE Key and MICROPHONE Lamp: Handsfree conversation is not supported on the *SUPERSET 410* telephone set. On normal calls, pressing the microphone key will have no effect.

When the *SUPERSET 410* is programmed as a Key System set, the Handsfree Answer Back option is available. The Microphone is then activated by the system software when an internal page is made to the set, if the Microphone key is ON and the HFAB

COS Option is enabled. This allows the user to answer a page without having to pick up the handset. For the duration of the Handsfree Answer Back call the Microphone Lamp is lit to indicate the ON setting of the Microphone.

TRANS/CONF Key – This key is used for Call Transferring and Conferencing. Pressing the key allows the user to put a call on hold, dial a new number and conference the call, or transfer the held call (with privacy) to a new number.

Line Appearance Keys

There are 6 Line Appearance Keys arranged in two columns. For CDE purposes these keys are numbered from bottom to top, right to left, from 1 to 6 (as shown below). The first Line Appearance key is always programmed as the Prime Line. The liquid crystal display (LCD) indicator provides the status of each line appearance.

6	5
4	3
2	1

These keys may be programmed to access specific lines and specific PABX features. These keys can be designated during CDE or they can be programmed from the set; refer to 9109-096-105-NA, Features Description.

Speed Call Keys

Any unused Line Appearance key may also be programmed as a personal Speed Call key. This can be done by the user from the *SUPERSET 410*.

Ringer Pitch Adjustment

The ringer tone on the *SUPERSET 410* telephone is adjusted through Tone demonstration. To adjust the tone:

1. Dial the Tone Demonstration access code.
2. Dial "33".
3. Press the volume up or down keys (∇/\wedge) until the desired tone is heard. When tone demo is exited, the tone is remembered by the system.

SUPERSET 410 Telephone Installation Instructions

- 11.4 Installation includes unpacking the set, assembling the set and connecting the set to a wall jack. The connections to the system via the cross connect field are described in Practice 9109-096-200-NA, Installation Information.

WARNING

Any connection of this set to an off premise application, an out of plant application, or to any other exposed plant application may result in a safety hazard, and/or defective operation, and/or equipment damage.

CAUTION

Do NOT connect *SUPERSET 410* telephones in parallel, to standard lines, or as power fail transfer extensions. Do not use a hand test telephone (butt-in) to check a *SUPERSET 410* telephone line (it's DNI Line Card does not have a loop detector). The set's on/off hook status is signaled by data transmission.

Before the set can be used, the system must be programmed and equipped with DNI Line Cards to interface with a *SUPERSET 410* telephone. Refer to Practice 9109-096-210-NA, Customer Data Entry.

Chart 11-1 *SUPERSET 410* Telephone Installation Instructions

Step	Action
1.	Connect the handset cord to the handset and main assembly (See Figure 11-4).
2.	Write the set's telephone number on the Brand/Extension Card.
3.	Identify the set's extension number, other line appearances and features on the Designation Card.
4.	Install the Brand/extension Card, the Designation Card and the Feature Designation Card and their protective lenses onto the main assembly.
5.	Connect the line cord to the telephone and the telephone jack.
6.	Insert the line cord and the handset cord into the cord channels.
7.	The Message Lamp and the Microphone Lamp will go solid red and the triangular line appearance indicators will be on for about 5 seconds. When they go out, it indicates that communication to the PABX has been established.

Table 11-1 *SUPERSET 410* Telephone Environmental Specifications

Operating Environment:	
Temperature:	0° to 35° C (32° to 95° F).
Humidity:	0% to 90% RH, non-condensing.
Storage/Shipping Environment:	
Temperature:	-25° to 70° C (-13° to 158° F).
Humidity:	0% to 90% RH, non-condensing.

Wall-Mounting the *SUPERSET 410* Telephone

Wall-Mounting Instructions

- 11.5 To wall-mount the *SUPERSET 410* telephone reverse the detachable base and plug the line cord into a modular jack. The "cord winder" in the base stores extra cord (See Figure 11-4). The complete wall-mounting instructions can be ordered through normal distribution channels.

Visual Indication of System Communications Problems

- 11.6 If there is either a synchronization or communication error, the Message Lamp and the Microphone Lamp flashes at double the "Message Waiting" rate.

Connection to the MiLink Data Module

- 11.7 To accommodate data call operations the *SUPERSET 410* is equipped with a *MiLink* network connection. This allows the set to be connected to a *MiLink* Data Module on the desktop using only one telephone port. For *MiLink* Data Module installation instructions see Section 14, Dataset 1100 Series in this Practice.

12. **_____** *SUPERSET 420* TELEPHONE

General Description

12.1 The *SUPERSET 420* telephone is a DNIC-based digital telephone that provides many features to enhance communications in a modern business environment. It is a highly functional display set that includes an integral alphanumeric LCD display with controllable contrast. Figure 12-1 shows a *SUPERSET 420* telephone set while Figure 12-3 shows the layout of the faceplate. A description of the available features is included in Practice 9109-096-105-NA, Features Description.

The *SUPERSET 420* telephone has the following features:

- 12 Line Select/Speed Call/Feature keys with individual line status indicators
- 10 fixed function keys, two with associated LEDs
- softkey operation of most features (three softkeys; softkey prompts display the actions which are valid at any given time)
- 2 x 16 alphanumeric Liquid Crystal Display with controllable contrast
- automatic selection of prime line
- key selection of non-prime line
- handsfree operation
- single key feature activation
- automatic ringing line selection
- programmable Call Forwarding and Speed Call keys
- speaker, handset and ringer volume controls
- ringer tone control
- Hold key
- digital interface with the system via the DNI Line Card
- single key Call Transfer and Conferencing activation
- Message Waiting Lamp LED
- optional data access via the *MiLink* Data Module, for integrated voice and data communications over a single twisted pair
- built-in hearing aid compatibility in the handset.

The *SUPERSET 420* telephone is designed for fast, simple installation. It connects to local area wiring by a modular jack, and to the PABX by a single twisted pair. Power, signaling, voice and data are carried over this pair; additional wiring is not required.

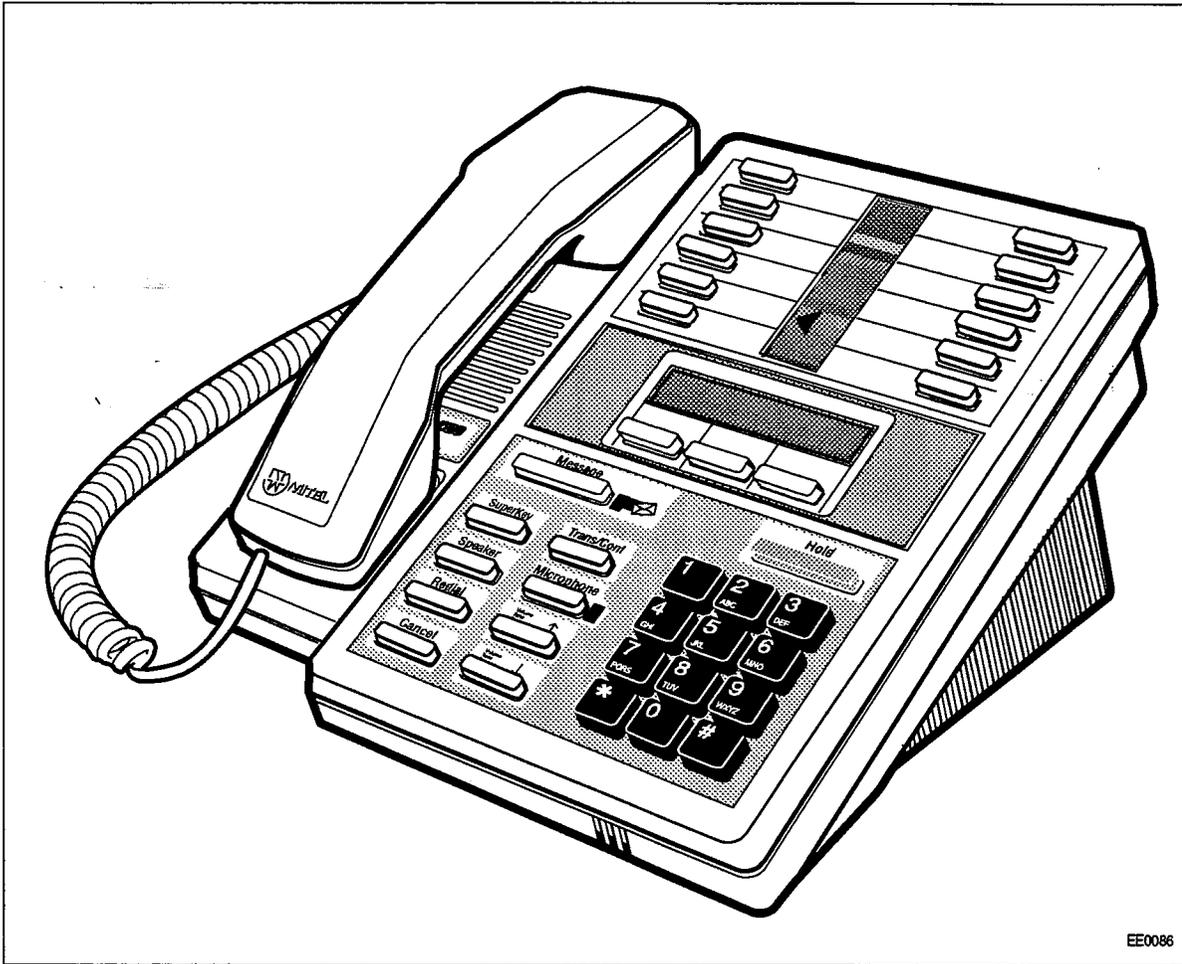


Figure 12-1 *SUPERSET 420* Telephone

Physical Description

General

12.2 The dimensions of the *SUPERSET 420* telephone are shown in Figure 11-3. The faceplate of the telephone is divided into five functional areas:

- handset, speaker, and microphone
- line appearance keys with status indicators
- softkeys and LCD display
- telephone keypad
- fixed function keys.

Handset, Speaker and Microphone

The handset mounts in a cradle on the left side of the telephone; the speaker is located beneath a grille between the cradle depressions. The microphone is located in the bottom right edge of the telephone, below the " 0 " on the keypad.

Line Appearance Keys

There are 12 Line Appearance keys arranged in two columns in the top section of the telephone's faceplate. These keys may be programmed to access specific lines, specific features, or to activate Speed Call numbers. Between the two columns of Line Appearance keys is a liquid crystal display (LCD) indicator, that provides the status of each line appearance.

Softkeys and LCD Display

In the center of the faceplate is a 2 x 16 Liquid Crystal Display (LCD). The top line contains system messages; the bottom line contains the current softkey definitions. The Volume Up and Volume Down fixed function keys at the bottom of the set provides contrast control for varying the intensity of the display. The three blue softkeys are located directly below the LCD display.

Telephone Keypad

The telephone keypad has 12 keys arranged in the standard pattern. It is in the bottom right hand section of the faceplate. The number keys have associated letters with a slight deviation from the standard: the letter "q" appears on the 7 key; "z" appears on the 9 key. The following list illustrates the key number designation and the corresponding letter designations:

1		7	pqrs
2	abc	8	tuv
3	def	9	wxyz
4	ghi	0	
5	jkl	*	
6	mno	#	

Fixed Function Keys

Nine of the 10 fixed function keys are arranged to the left of the telephone keypad. The red Hold key is located above the keypad. The Message Waiting Lamp and the Microphone Lamp have LED indicators.

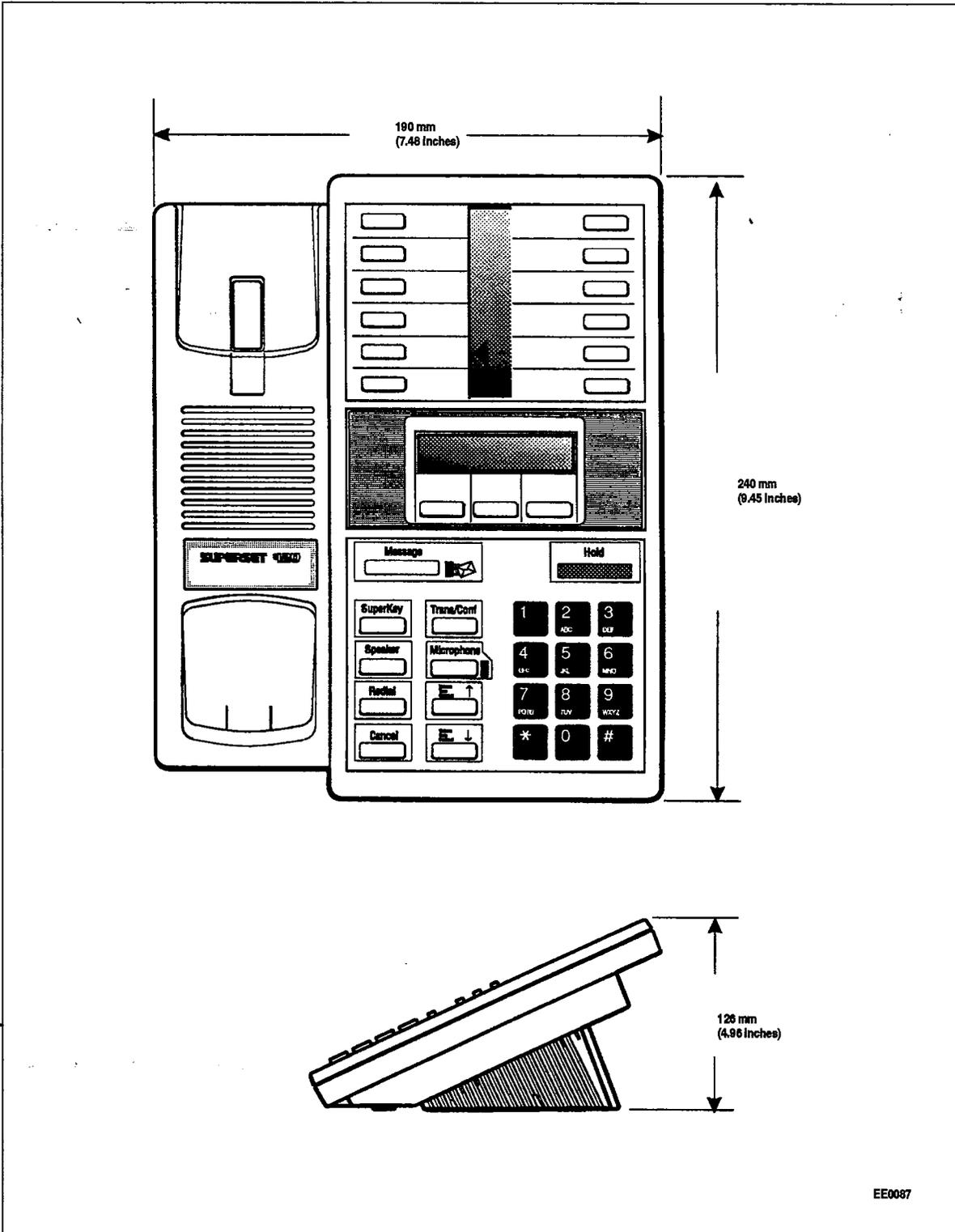


Figure 12-2 SUPERSET 420 Telephone Dimensions

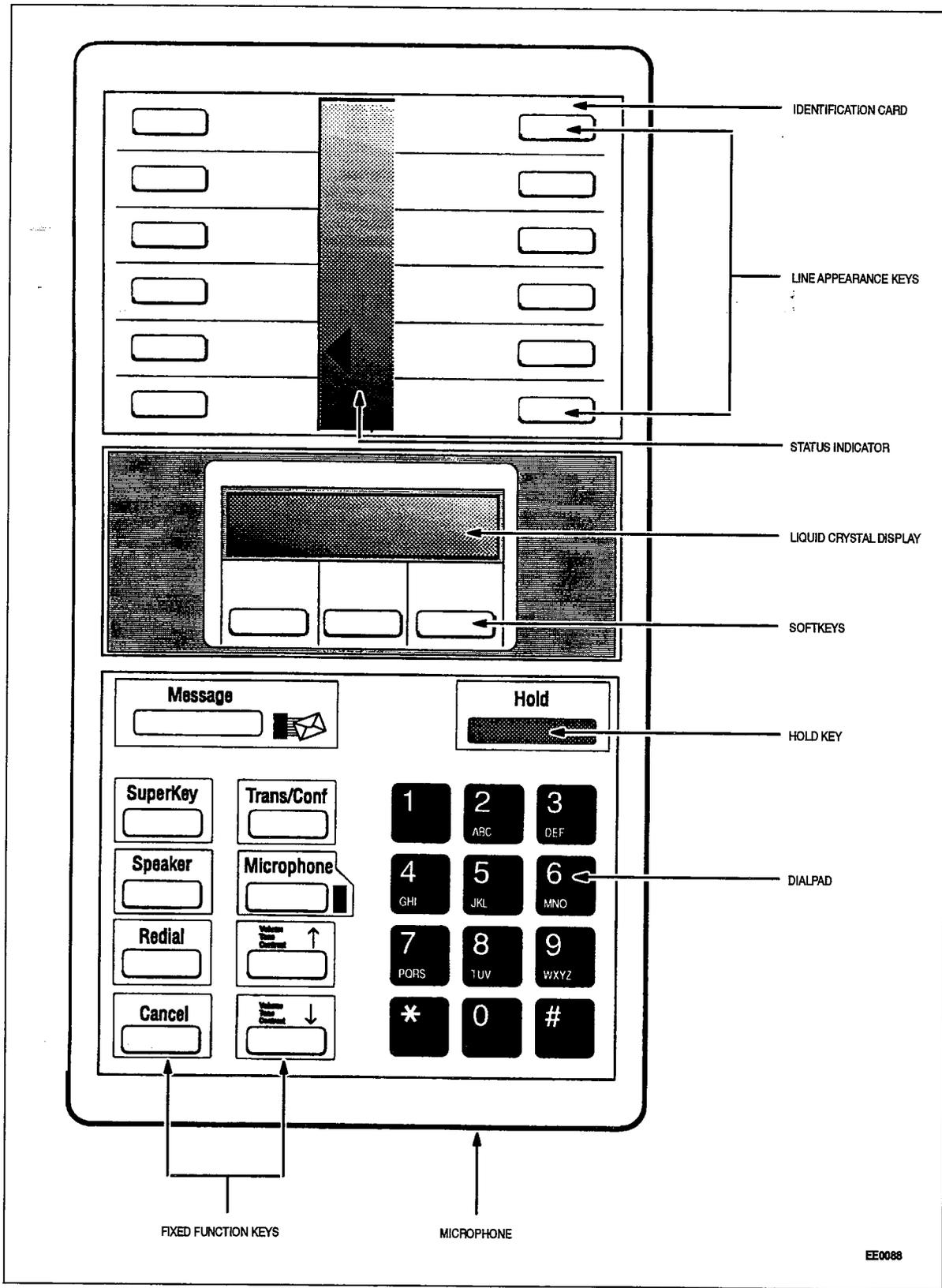


Figure 12-3 SUPERSET 420 Faceplate Layout

Functional Description

Fixed Function Keys

- 12.3 Ten fixed function keys surround the keypad. Two of these keys have LED visual indicators. The fixed function keys are:

HOLD Key: Pressing the red Hold key places the current call on hard hold. The call may be retrieved by pressing the line select key of the call on hold (next to the flashing line select status indicator).

MESSAGE Key: The Message key is used to send a callback message to another telephone set capable of receiving the message when that set is busy, unanswered, or in Do Not Disturb mode. It is also used to initiate a return call to a telephone set that has left a message.

MESSAGE Lamp: The red Message lamp flashes when another telephone set has left a callback message. The lamp lights (solid red) when the *SUPERSET 420* calls a busy or unanswered party capable of receiving a message. Pressing the message key sends a message to the called set. After sending the message the lamp goes out and the call is terminated.

SUPERKEY Key: The Superkey and the softkeys are used to program the Line Appearance keys as Feature keys or Speed Call keys.

SPEAKER Key: The SPEAKER key controls handsfree operation of the set. Pressing this key once switches the speaker ON and selects the prime line. Calls can be originated and/or received handsfree. Successive operation of this key toggles the set between ON/OFF hook states.

REDIAL Key: The last manually dialed number is dialed when the redial key is pressed.

CANCEL Key: This key is used to cancel a dialing sequence, end a call, terminate without saving a programming function, or return to a party on soft hold.

VOLUME/TONE UP and VOLUME/TONE DOWN Keys: These two keys are used to adjust handset volume and ringing volume and tone. Each key depression changes the level up or down by one step.

The levels for ringing volume and pitch is stored in the PABX; changing one function setting does not affect the others. On system or set resets, the levels are restored. Default levels are applied when the set is first programmed. The handset receive level is not reported to the PABX; therefore, on every new call the default level is applied.

MICROPHONE Key and MICROPHONE Lamp: The microphone is turned on by the system software when a handsfree call is activated. The Microphone key is used to switch the microphone off during handsfree mode so that the conversation near the set is not overheard by the caller. Successive operation of the Microphone key toggles the microphone between ON and OFF.

The Microphone lamp is lit (solid red) when the microphone is ON.

TRANS/CONF Key – This key is used for Call Transferring and Conferencing. Pressing the key allows the user to put a call on hold, dial a new number and conference the call, or transfer the held call (with privacy) to a new number.

LCD Display

The LCD Display gives you the following information:

- time and date when the set is idle
- softkey labels during programming and feature access
- call status during telephone calls
- message information
- telephone system error messages.

Softkeys and SUPERKEY

Immediately below the LCD are three unlabeled blue softkeys. Their functions are defined by corresponding prompts displayed on the LCD. The softkeys are used during telephone operations to perform functions or to access system features. The keys' functions vary with the activities of the set. The SUPERKEY is a fixed function key, which is located at the bottom left side of the set. When the SUPERKEY is pressed, the softkeys take on new meanings associated with user programming functions.

Line Appearance Keys

There are 12 Line Appearance keys arranged in two columns. For CDE purposes these keys are numbered from bottom to top, right to left, from 1 to 12. The first Line Appearance Key is always programmed as the Prime Line. The liquid crystal display (LCD) indicator provides the status of each Line Appearance.

These keys may be programmed to access specific lines and specific PABX features. These keys can be designated during CDE or they can be programmed from the set; refer to 9109-096-105-NA, Features Description.

Speed Call Keys

Any unused Line Appearance key may also be programmed as a personal Speed Call key. This can be done by the user from the *SUPERSET 420*.

Ringer Pitch Adjustment

Ringer pitch and cadence combination adjustment is one of the *SUPERSET 420* telephone's built-in functions. To adjust:

- Press SUPERKEY.
- Press the MORE... softkey.
- Press the RING ADJUST softkey.
- Press the RINGER PITCH softkey.
- The set will start ringing.

- Adjust the ringer pitch. The VOL UP key increases the pitch; the VOL DOWN key decreases the pitch.
- Press the SUPERKEY. This saves the pitch setting, stops the ringer and returns the set to its normal state.

SUPERSET 420 Telephone Installation Instructions

12.4 Installation includes unpacking the set, assembling the set and connecting the set to a wall jack. The connections to the system via the cross connect field are described in Practice 9109-096-200-NA, Installation Information.

WARNING

Any connection of this set to an off premise application, an out of plant application, or to any other exposed plant application may result in a safety hazard, and/or defective operation, and/or equipment damage.

CAUTION

Do NOT connect SUPERSET 420 telephones in parallel, to standard lines, or as power fail transfer extensions. Do not use a hand test telephone (butt-in) to check a SUPERSET 420 telephone line (its DNI line card does not have a loop detector). The set's on/off hook status is signaled by data transmission.

Before the set can be used, the system must be programmed and equipped with DNI Line cards to interface with a SUPERSET 420 telephone. Refer to Practice 9109-096-210-NA, Customer Data Entry.

Chart 12-1 SUPERSET 420 Telephone Installation Instructions

Step	Action
1.	Connect the handset cord to the handset and main assembly (see Figure 12-4).
2.	Write the set's telephone number on the Brand/Extension Card.
3.	Identify the set's extension number, other line appearances and features on the Designation card.
4.	Install the Brand/Extension Card, the Designation Card and the Feature Designation Card and their protective lenses onto the main assembly.
5.	Connect the line cord to the telephone and the telephone jack.
6.	Insert the line cord and the handset cord into the cord channels.
7.	The Message Lamp and the Microphone Lamp will go solid red and the triangular line appearance indicators will be on for about five seconds. When they go out and the LCD displays the time and date, communication to the PABX has been established.

Table 12-1 SUPERSET 420 Telephone Environmental Specifications

Operating Environment:	
Temperature:	0° to 35° C (32° to 95° F).
Humidity:	0% to 90% RH, non-condensing.
Storage/Shipping Environment:	
Temperature:	-25° to 70° C (-13° to 158° F).
Humidity:	0% to 90% RH, non-condensing.

Wall-Mounting the SUPERSET 420 Telephone

Wall-Mounting Instructions

- 12.5 To wall-mount the SUPERSET 420 telephone reverse the detachable base and plug the line cord into a modular jack. The "cord winder" in the base stores extra cord (see Figure 12-4). The wall-mount instructions can be ordered through normal distribution channels.

Visual Indication Of System Communications Problems

- 12.6 If there is a synchronization error, the LCD displays "NO SYNCHRONIZATION" in the uppermost row of the display. If there is a communication error, the display reads "NO COMMUNICATION". If the SUPERSET 420 is installed on a circuit that is not programmed in CDE as a SUPERSET 420 the message "INVALID SET TYPE" and "CHECK CDE" will appear on the display.

Connection to the MiLink Module

- 12.7 To accommodate data call operations the SUPERSET 420 is equipped with a MiLink network connection. This allows the set to be connected to a MiLink Data Module on the desktop using only one telephone port. For MiLink Data Module installation instructions see Section 14, Dataset 1100 Series in this Practice.

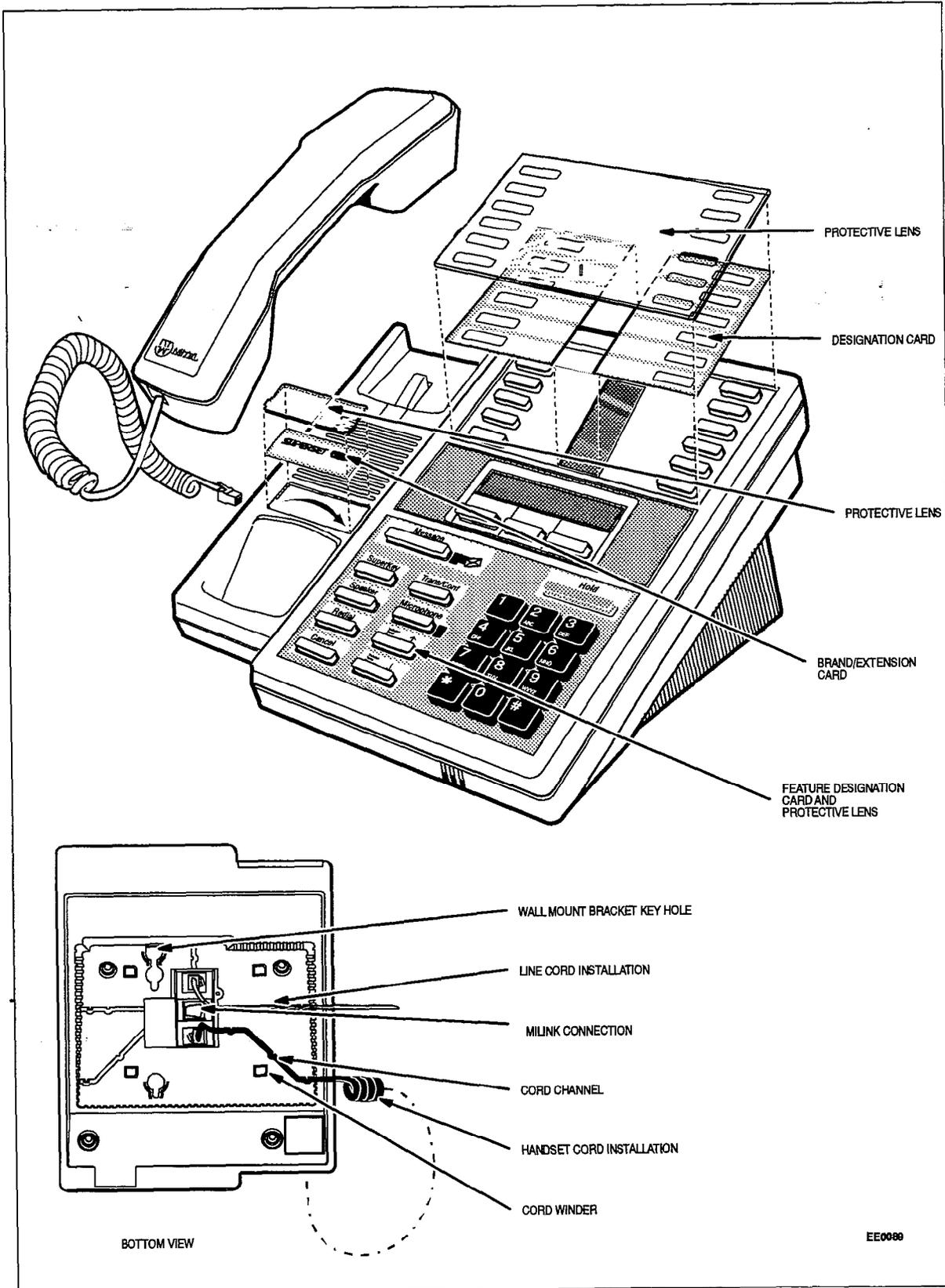
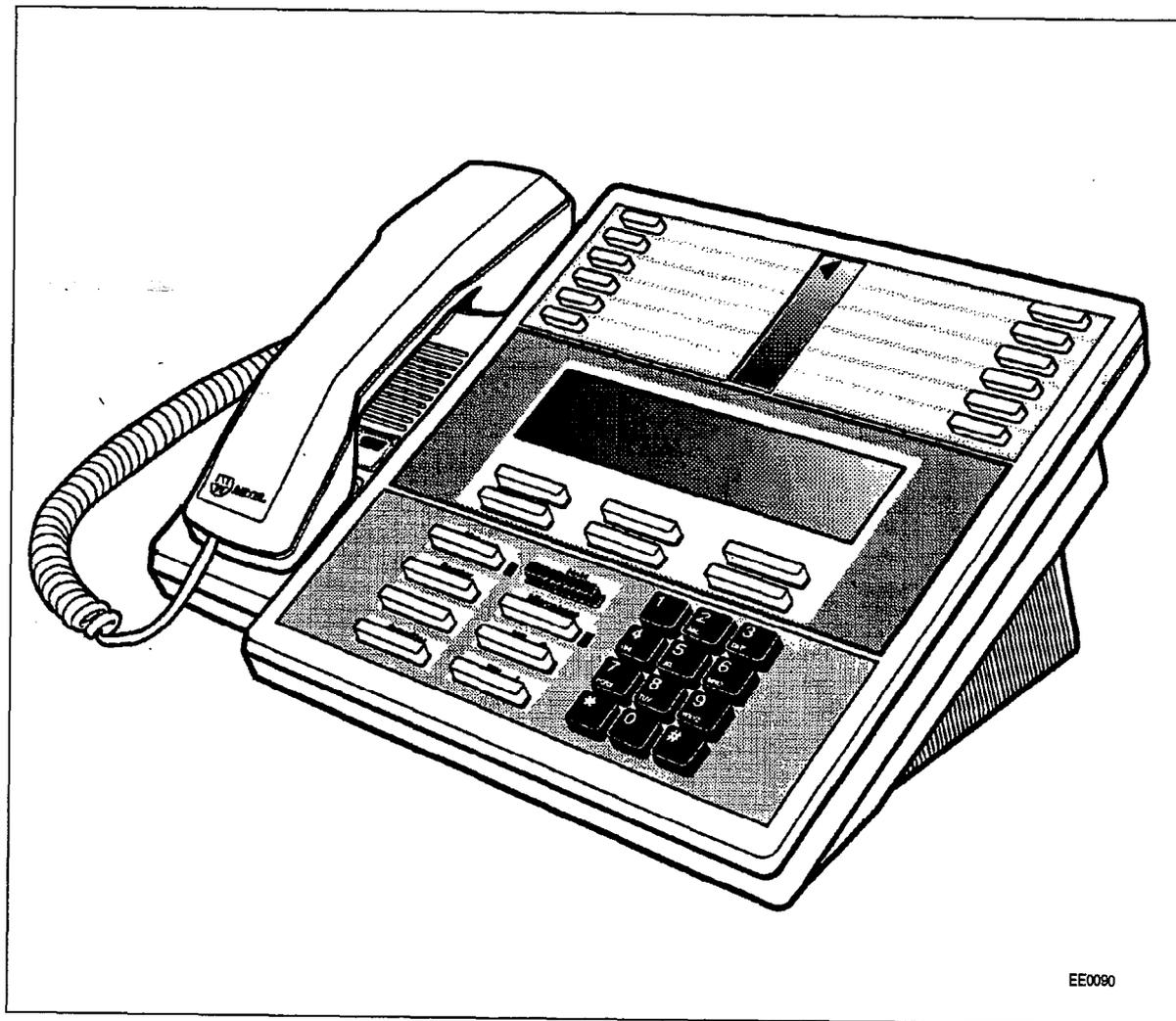


Figure 12-4 SUPERSET 420 Installation Instructions



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Figure 13-1 *SUPERSET 430* Telephone

Physical Description

General

13.2 The dimensions of the *SUPERSET 430* telephone are show in Figure 13-3. The faceplate of the telephone is divided into five functional areas:

- handset, speaker, and microphone
- line appearance keys with status indicators
- softkeys and LCD display
- telephone keypad
- fixed function keys.

Handset, Speaker and Microphone

The handset mounts in a cradle on the left side of the telephone; the speaker is located beneath a grille between the cradle depressions. The microphone is located in the bottom right edge of the telephone, below the "0" on the keypad.

Line Appearance Keys

There are 12 Line Appearance keys arranged in two columns. They are located in the top section of the telephone's faceplate. These keys may be programmed to access specific lines, specific features, or to activate Speed Call numbers. Between the two columns of Line Appearance keys is a liquid crystal display (LCD) indicator, that provides the status of each line appearance.

Softkeys and LCD Display

In the center of the faceplate is a Liquid Crystal Display (LCD) containing four lines of 40 characters each. The top two lines contain system messages; the bottom two lines contain the current softkey definitions. The Volume Up and Volume down fixed function keys at the bottom of the set provides contrast control for varying the intensity of the display. The six blue softkeys are located directly below the LCD display.

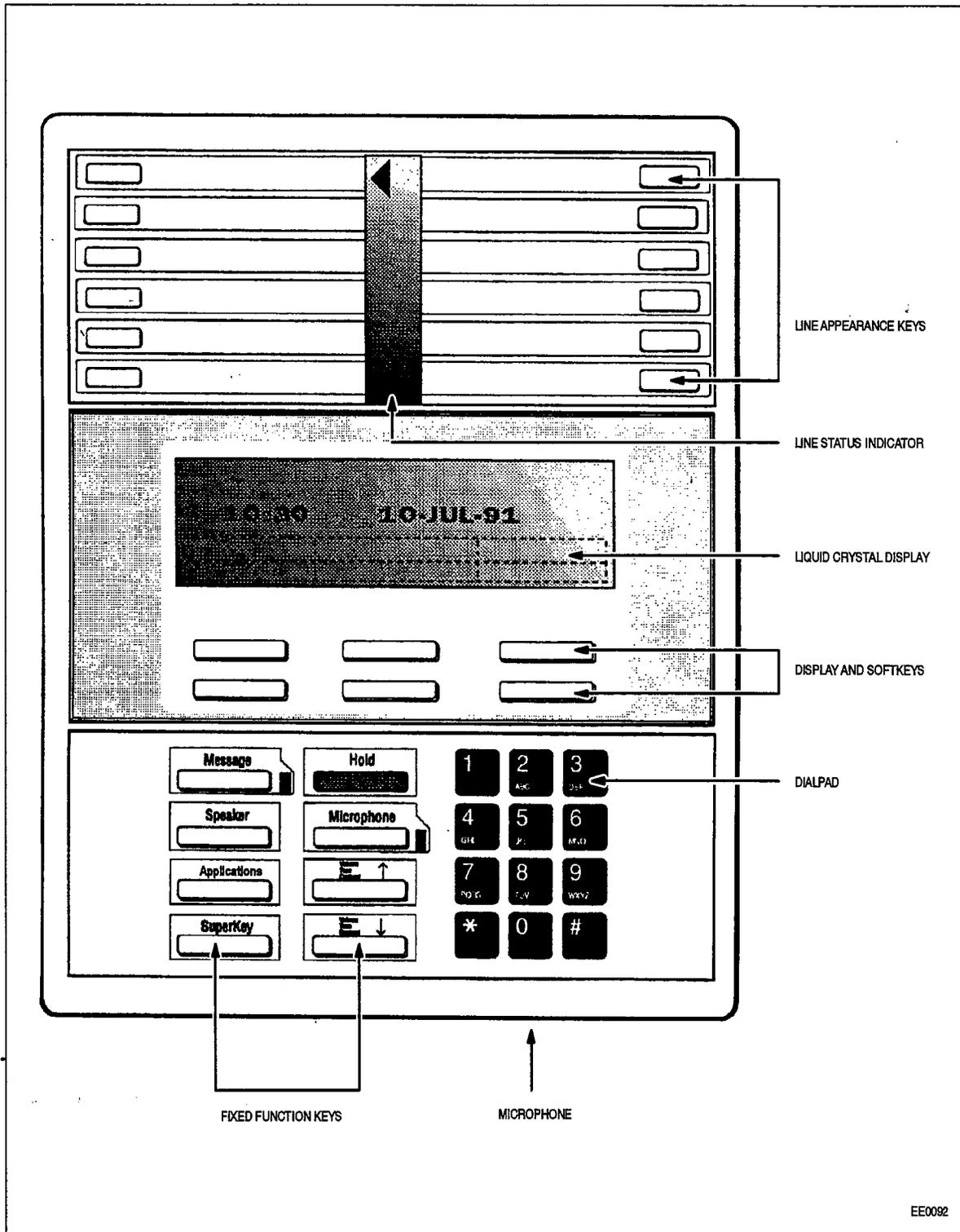
Telephone Keypad

The telephone keypad has 12 keys arranged in the standard pattern. It is in the bottom right hand section of the faceplate. The number keys have associated letters with a slight deviation from the standard: the letter "q" appears on the 7 key; the letter "z" appears on the 9 key. The following list illustrates the key number designation and the corresponding letter designations:

1		7	pqrs
2	abc	8	tuv
3	def	9	wxyz
4	ghi	0	
5	jkl	*	
6	mno	#	

Fixed Function Keys

The eight fixed function keys are arranged to the left of the telephone keypad. The Message Waiting Lamp and the Microphone Lamp have LED indicators. One of the fixed function keys is not labeled. It is reserved for future use.



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Figure 13-2 SUPERSET 430 Telephone Faceplate

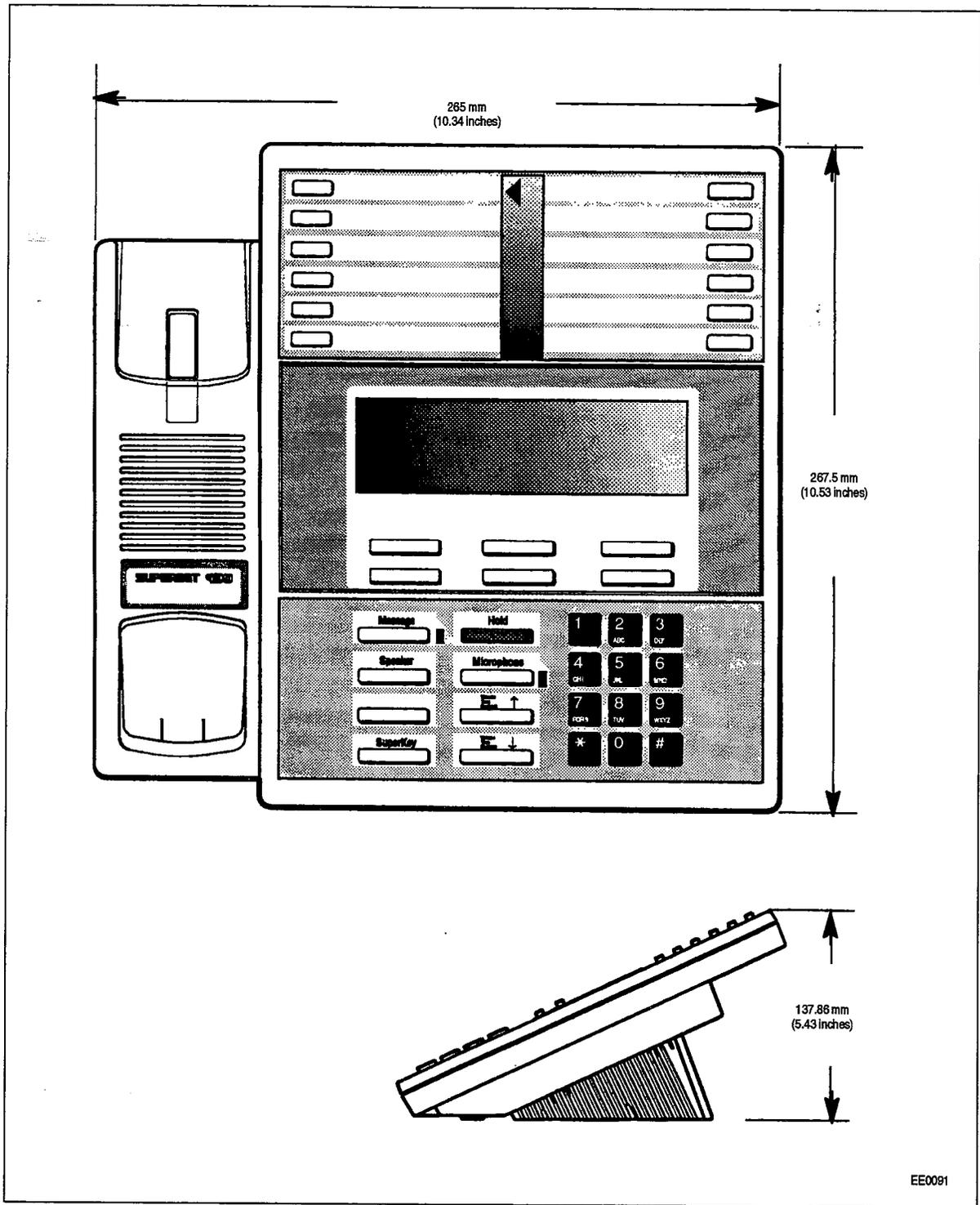


Figure 13-3 SUPERSET 430 Telephone Dimensions

Functional Description

Fixed Function Keys

13.3 The Fixed Function keys located to the left of the telephone keypad are:

HOLD Key: Pressing the red Hold key places the current call on hard hold. The call may be retrieved by pressing the line select key of the call on hold (next to the flashing line select status indicator).

MESSAGE Key: The Message key is used to send a callback message to another telephone set capable of receiving the message when that set is busy, unanswered, or in Do Not Disturb mode. It is also used to initiate a return call to a telephone set that has left a message.

Note: A Message softkey is also provided. Pressing either the Message hard key or the Messaging soft key provides the same functionality.

MESSAGE Lamp: The Message lamp flashes whenever a message is waiting. The LCD shows the prompts necessary to return the call. The lamp is lit (solid red) when the *SUPERSET 430* calls a busy or unanswered party capable of receiving a message. Pressing the message key sends a message to the called set. After sending the message the lamp goes out and the call is terminated.

SPEAKER ON/OFF Key: Pressing this key once switches the speaker on and selects the prime line. Calls can be originated and/or received handsfree. Successive operation of this key toggles the set between on/off hook states.

MICROPHONE Key and MICROPHONE Lamp: The microphone is turned on by the system software when a handsfree call is activated. The Microphone key is used to switch the microphone off during handsfree mode so that the conversation near the set is not overheard by the caller. Successive operation of the Microphone key toggles the microphone between ON and OFF.

The Microphone lamp is lit (solid red) when the microphone is ON.

SUPERKEY Key: The Superkey and the softkeys are used to program any unused Line Appearance Keys as Feature keys or Speed Call keys.

VOLUME UP and DOWN Keys: These keys are used to set levels for: ringing volume, ringing pitch, handsfree volume, background music volume and LCD contrast. Each key depression changes the volume level or pitch by one step. The level for each function (except for handset volume) is stored in the system; changing one function setting does not affect the others. On system or set resets, the levels are restored. Default levels are applied when the set is first programmed. On each new call the handset volume is restored.

BLANK Key: This hard key has no function at the present time. It is reserved for future functionality.

LCD Display

The LCD Display gives you the following information:

- time and date when the set is idle
- softkey labels during programming and feature access
- call status during telephone calls
- message information
- telephone system error messages.

Softkeys and SUPERKEY

Immediately below the LCD are six unlabeled blue softkeys. Their functions are defined by corresponding prompts displayed on the LCD. The softkeys are used during telephone operations to perform functions or to access system features. The keys' functions vary with the activities of the set. The SUPERKEY is a fixed function key, which is located at the bottom left side of the set. When the SUPERKEY is pressed, the softkeys take on new meanings associated with user programming functions.

Line Appearance Keys

There are 12 Line Appearance keys arranged in two columns. For CDE purposes these keys are numbered from bottom to top, right to left, from 1 to 12. The first Line Appearance Key is always programmed as the Prime Line. The liquid crystal display (LCD) indicator provides the status of each line appearance.

These keys may be programmed as Line Appearance keys or Feature Access keys. These functions are designated during CDE and cannot be programmed from the set.

Some CDE-programmable feature keys are not valid on the *SUPERSET 430* telephone; these features are provided through the SUPERKEY. Attempting to program an invalid feature will show "INVALID FEATURE KEY FOR THIS TELEPHONE" when the DISPLAY KEYS function is activated.

Speed Call Keys

Any unused Line Appearance key may also be programmed as a personal Speed Call key. This can be done by the user from the *SUPERSET 430*.

Ringer Pitch Adjustment

Ringer pitch and cadence combination adjustment is one of the *SUPERSET 430* telephone's built-in functions. To adjust:

- Press SUPERKEY.
- Press the MORE... softkey.
- Press the RING ADJUST softkey.
- Press the RINGER PITCH softkey.
- The set will start ringing.
- Adjust the ringer pitch. The VOL UP key increases the pitch; the VOL DOWN key decreases the pitch.

- Press the SUPERKEY. This saves the pitch setting, stops the ringer and returns the set to its normal state.

SUPERSET 430 Telephone Installation Instructions

13.4 Installation includes unpacking the set, assembling the set and connecting the set to a wall jack. The connections to the system via the cross connect field are described in Practice 9109-096-200-NA, Installation Information.

WARNING

Any connection of this set to an off premise application, an out of plant application, or to any other exposed plant application may result in a safety hazard, and/or defective operation, and/or equipment damage.

Do NOT connect *SUPERSET 430* telephones in parallel, to standard lines, or as Power Fail Transfer extensions. Do not use a hand test telephone (butt in) to check *SUPERSET 430* telephone lines; the Digital Line Card does not have a loop detector. The set's on/off-hook status is signaled using data transmission.

Before the set can be used, the system must be programmed and equipped with DNI Line Cards to interface with a *SUPERSET 430* telephone. Refer to Practice 9109-096-210-NA, Customer Data Entry.

Chart 13-1 SUPERSET 430 Telephone Installation Instructions

Step	Action
1.	Connect the handset cord to the handset and the main assembly.
2.	Write the set's telephone number on the Brand/Extension Card.
3.	Identify the set's extension number, other line appearances and features on the Designation Card.
4.	Install the Brand/Extension Card, the Designation Card and the Feature Designation Card and their protective lenses onto the main assembly.
5.	Connect the line cord to the telephone and the telephone jack.
6.	Insert the line cord and the handset cord into the cord channels.
7.	The Message Lamp and the Microphone Lamp will go solid red and the triangular line appearance indicators will be on for about five seconds. When they go out and the LCD displays the time and date, communication to the PABX has been established.

Table 13-1 SUPERSET 430 Telephone Environmental Specifications

Operating Environment:	
Temperature:	0° to 35° C (32° to 95° F).
Humidity:	0% to 90% RH, non-condensing.
Storage/Shipping Environment:	
Temperature:	-25° to 70° C (-13° to 158° F).
Humidity:	0% to 90% RH, non-condensing.

Visual Indication of System Communications Problems

- 13.5 If there is a synchronization error, the LCD displays "NO SYNCHRONIZATION" in the uppermost row of the display. If there is a communication error, the display reads "NO COMMUNICATION". If the *SUPERSET 430* is installed on a circuit that is not programmed in CDE as a *SUPERSET 430* the message "INVALID SET TYPE" and "CHECK CDE" will appear on the first two lines of the display.

Connection to the *MiLink* DATASET

- 13.6 To accommodate data call operations the *SUPERSET 430* telephone is equipped with a *MiLink* network connection. This allows the set to be connected to a *MiLink* Data Module on the desktop using only one telephone port. For *MiLink* Data Module installation instructions see Section 14, Dataset 1100 Series in this Practice.

14. XXXXXXXXXX

DATASET 1100 SERIES DESCRIPTION

- 14.1 The DATASET 1100 series asynchronous datasets are composed of four variants; a DATASET 1101 Cartridge, a DATASET 1102 Dual Rack Mounted card, a Standalone DATASET 1103 unit, and a *MiLink* Data Module (DS1101M). The DATASET 1100 series support asynchronous data communications at rates up to 19.2 kilobits per second. The DATASET 1101, DATASET 1102, and DATASET 1103 interface with an *SX-200* DIGITAL PABX through a DNI Line Card within the PABX. The *MiLink* Data Module interfaces with an *SX-200* FD (Fiber Distributed) PABX via the *MiLink* Bus (only available with Generic 1005).

These datasets (except the *MiLink* Data Module) operate with the MITEL Digital Network Interface Circuit (DNIC) digital link technology which is composed of three channels: a 64 kbps voice or data (B) channel, a 64 kbps data (B) channel, and a 16 kbps (D) channel for control communications between the set and the PABX.

The DATASET 1101 Cartridges and Standalone DATASET 1103 interface peripheral devices to the PABX, while the DATASET 1102 Dual Rack Mounted cards usually interface a host computer to the PABX.

The *MiLink* Data Module is packaged in a flat case like the DATASET 1103 and is designed to fit under the *SUPERSET 410*, *SUPERSET 420*, and *SUPERSET 430* telephones. It interfaces peripheral devices to the PABX via the *SUPERSET 400* series telephone sets.

Data terminal equipment (DTE) or data communications equipment (DCE) mode is selected by the use of a Modem Adapter plugged into RS-232 (EAI232) interface of the DATASET 1102, DATASET 1103, and *MiLink* Data Module.

Baud Rates

- 14.2 The DATASET 1100 series operate at the following baud rates:

110 – 150 – 200 – 300 – 600 – 1200 – 2400 – 4800 – 9600 – 19200

Connector Pin Assignment Tables

- 14.3 The RS-232 connectors used on the DATASET 1100 series have the following pin assignments when operating in Data Communications Equipment (DCE) mode:

Signal	Designation	Pin	Direction
	frame ground	1	
TXD	transmit data	2	to dataset
RXD	receive data	3	from dataset
RTS	request to send	4	to dataset
CTS	clear to send	5	from dataset
DSR	dataset ready	6	from dataset
	signal ground	7	
DCD	data carrier detect	8	from dataset
DTR	data terminal ready	20	to dataset
RI	ring indicator	22	from dataset
	HW flow control/RI in	25	to dataset

DATASET 1101 Cartridge Description

14.4 A DATASET 1101 is mounted within a *SUPERSET 3DN* or a *SUPERSET 4DN* telephone. It is 13 x 13 cm (5 x 5 inch) and connects via an internal cable to the telephone set circuit board; it interfaces to the PABX DNI Line Card through the same pair of wires that the telephone set voice circuit uses. Although the DATASET 1101 Cartridge has LEDs near its connectors, its primary interface to the user is through two programmable line appearance keys and an associated LCD on the telephone set. Figure 14-1 shows a DATASET 1101 Cartridge mounted in a set; note that in this example two keys and an LCD immediately above the prime line key of the set are assigned to control operation of the DATASET 1101 Cartridge. These are programmed in Form 9 during Customer Data Entry.

The DATASET 1101 Cartridge usually interfaces a terminal, a personal computer, a printer, a file disk, or another peripheral device to the PABX, for connection to a host computer or to another peripheral device. Figure 14-2 shows a typical application of a *SUPERSET 3DN* set with a DATASET 1101 Cartridge connecting a personal computer and the telephone set to the PABX over a single pair of wires.

The DATASET 1101 Cartridge is not field replaceable; it is an integral part of the *SUPERSET 3DN* or *SUPERSET 4DN* telephone.

Controls, Indicators, and Connectors

Its controls and indicators are:

- TxD LED on back of set
- RxD LED on back of set
- DATA LCD line appearance LCD on set adjacent to ATTN key
 - solid circle indicates DTR connection
 - flashing square indicates connection to DTRX or queued to the called dataset
 - solid square indicates connection to other dataset
- DISC KEY line appearance key on set
- ATTN KEY line appearance key on set

The DATASET 1101 Cartridge has two connectors at the back of the set; an RS-232 connector and a power connector. It also has an internal ribbon cable connecting it to the telephone set; its connection to the PABX is through the set's twisted pair.

Installation

WARNING

Any connection of this device to an off premise application, an out of plant application, or to any other exposed plant application may result in a safety hazard, and/or defective operation, and/or equipment damage.

The DATASET 1101 Cartridge is internal to the telephone set; only two connections (power and RS-232) are required, in addition to the set's connection to the PABX.

1. Complete Customer Data Entry for the system to allow the DATASET 1101 Cartridge to operate with the PABX.
2. Connect an RS-232 cable between the RS-232 connector at the back of the set and the peripheral device.
3. Plug the power supply into an ac outlet and plug its cord into the power socket on the DATASET 1101 Cartridge. Both LEDs should be ON.
4. Plug the telephone set's cord into its jack, which connects to the Digital Line Card at the PABX; the telephone set should be operational now.

All LEDs should flash five times, indicating that the dataset has passed its self-test. If this does not happen, the telephone set is faulty and must be replaced.

After the self-test, the TxD LED should be on, unless the device is an auto-answer device, and defined as such in CDE (usually only destination devices such as host computers are auto-answer). If the device is not auto-answer, and the TxD LED does not come on, do the following:

1. Make sure the device is powered on
2. Use an RS-232 break-out box to verify that the device attached to the dataset provides DTR. If the device does not provide DTR, select CDE option "RS-232 Force High" for that device.

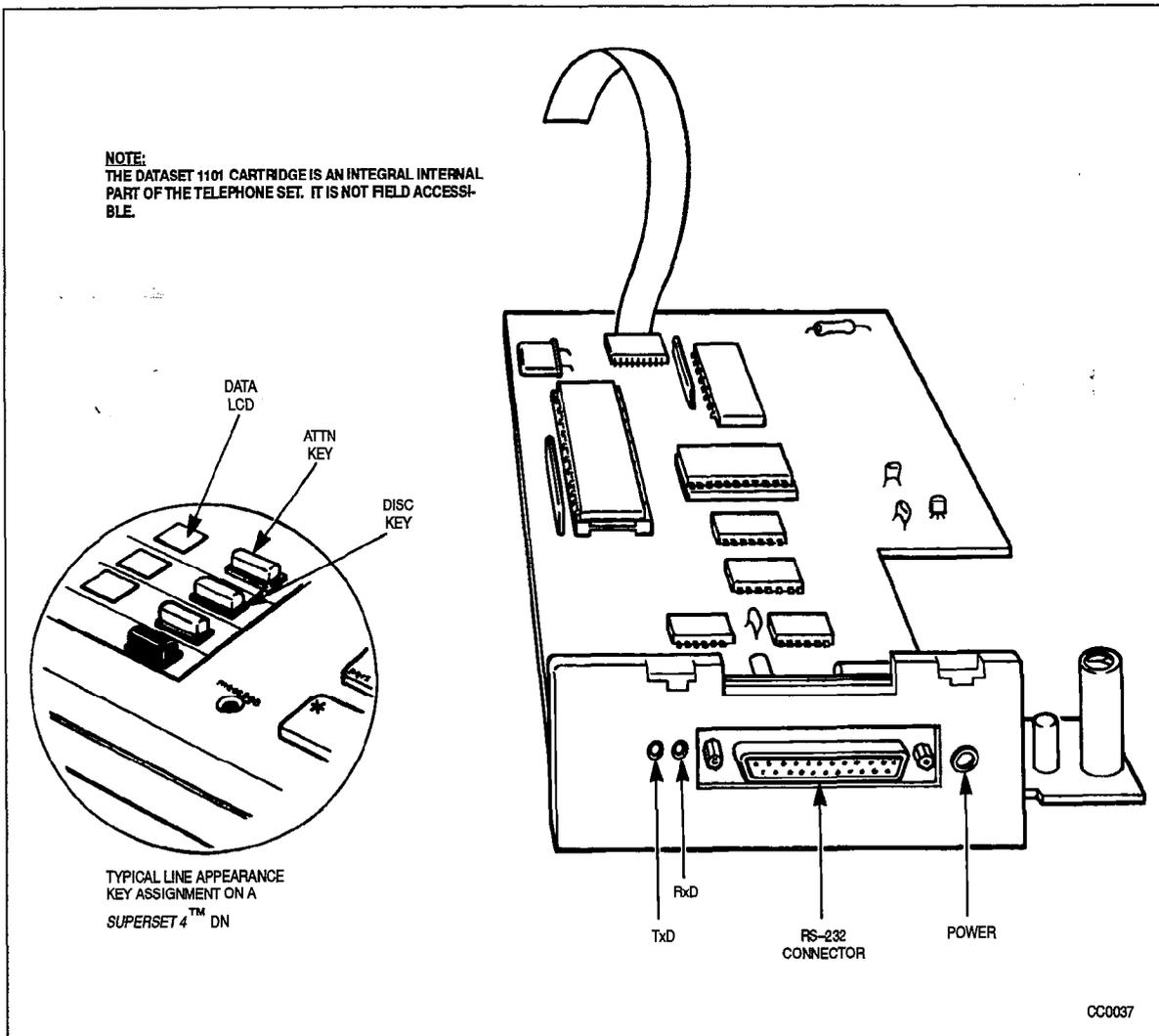


Figure 14-1 DATASET 1101 Cartridge, Showing Connectors and Indicators

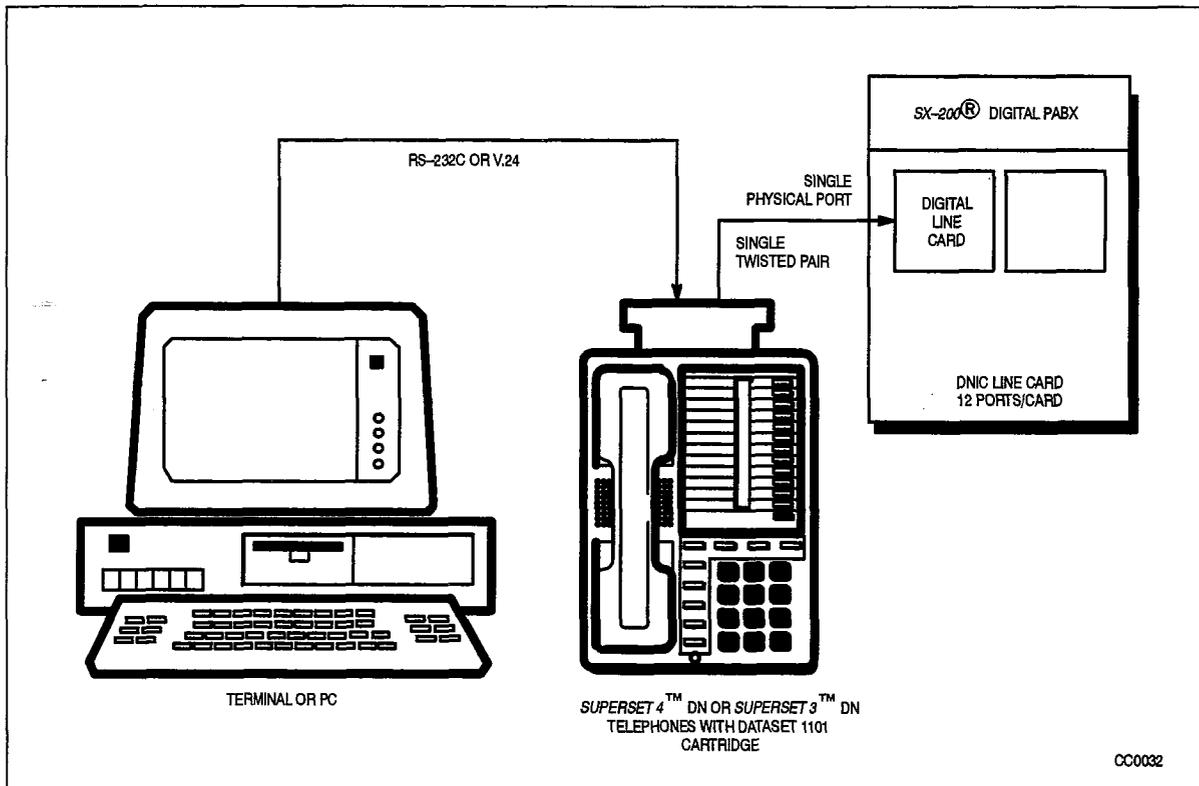


Figure 14-2 Typical DATASET 1101 Cartridge Application

DATASET 1102 Dual Rack Mounted Card Description

- 14.5 A DATASET 1102 Dual Rack Mounted card contains two DATASETs mounted on a common printed circuit board; it has LEDs on its front panel, but no switches or keys for manual operation. Each DATASET 1102 Dual Rack Mounted card, which is installed in a DATASHELF 9100 in a DATACABINET 9000, interfaces to a PABX Digital Line Card circuit through a single pair. The DATASHELF 9100 connects to the PABX through a 25-pair cable; each card slot is assigned one of these pairs. Figure 14-3 shows a DATASET 1102 Dual Rack Mounted card. The card measures 254 mm x 190 mm (10 in. x 7.45 in.).

Its primary function is to interface between a host computer and the PABX; DATASET 1101 Cartridges or Standalone DATASET 1103 sets distributed throughout the complex access the DATASET 1102 Dual Rack Mounted cards through the PABX. The DATACABINET 9000, in which the DATASHELF 9100 and the DATASET 1102 Dual Rack Mounted cards are mounted, is usually located within a computer room.

Indicators and Connectors

Six LEDs are on the front of the DATASET 1102 Dual Rack Mounted card:

- DEVICE 1 (DTR) - DC1 in CDE
- READY 1 - DC1 in CDE
- DEVICE 2 (DTR) - DC2 in CDE
- READY 2 - DC2 in CDE

- POWER 1 - (CARD FUSE O.K. INDICATION)
- 2 - DC2 (CARD SYNC WITH PABX INDICATION)

The connectors on the back of a DATASET 1102 Dual Rack Mounted card are:

- RS-232 connector (1)
- RS-232 connector (2)
- shelf backplane connector, J5 (power and Tip-Ring pairs)

The pinouts of the card edge connector, J5, are as follows:

Pin	Signal
1	data tip
2	no connection
3	frame ground
4	signal ground
5	T1 (ac input)
6	T2 (ac input)
7	T2 (ac input)
8	T1 (ac input)
9	signal ground
10	frame ground
11	no connection
12	data ring

Installation

WARNING

Any connection of this device to an off premise application, an out of plant application, or to any other exposed plant application may result in a safety hazard, and/or defective operation, and/or equipment damage.

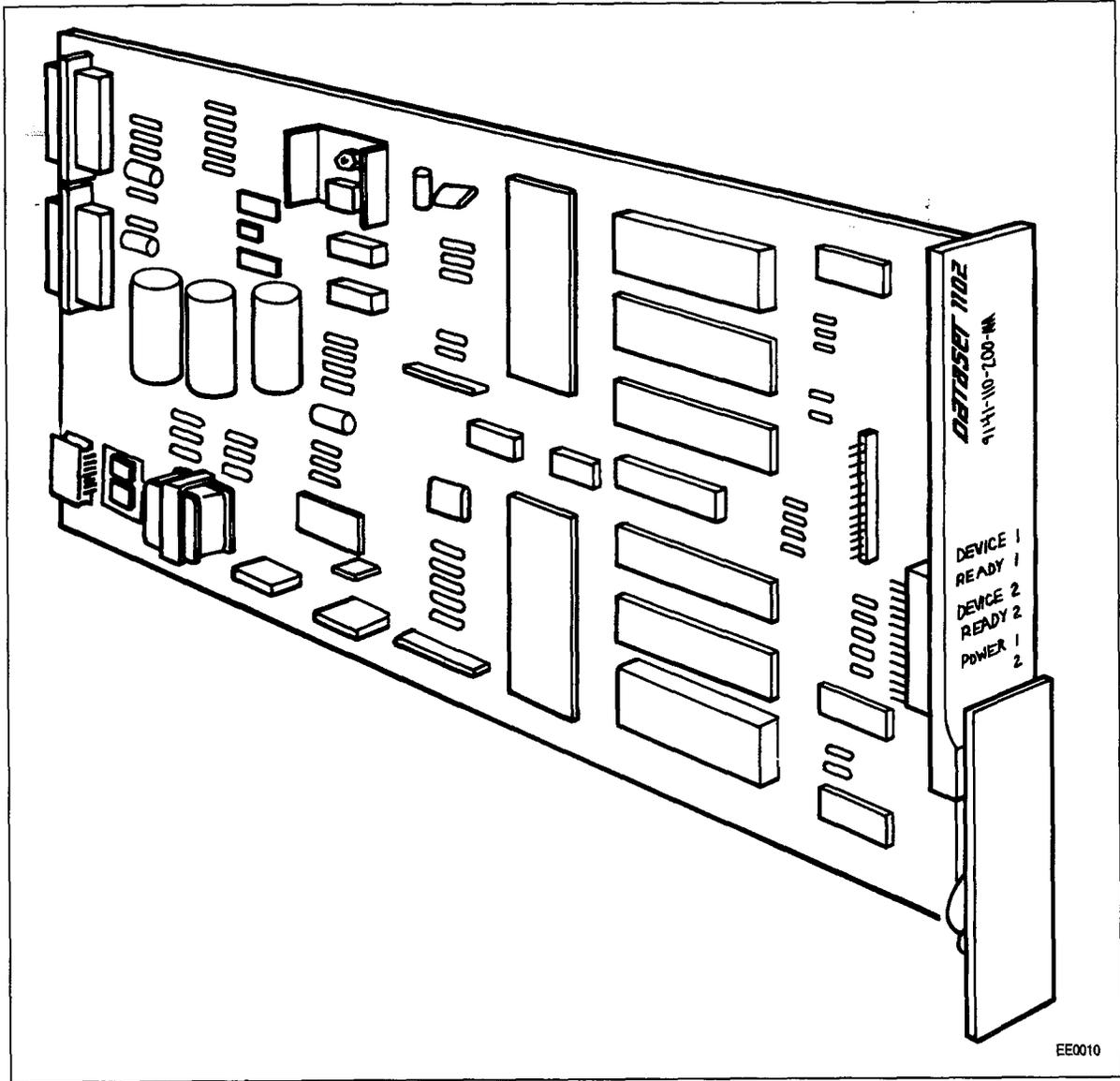
Complete system cabling and Customer Data Entry for the slot into which the dataset is being installed; cabling is defined in DATASHELF 9100 installation procedures.

Install a DATASET 1102 Dual Rack Mounted card by plugging it into its assigned slot in the DATASHELF 9100. All LEDs (except POWER 1) should flash five times, indicating that the dataset has passed its self-test. If this does not happen, the dataset is faulty and must be replaced.

The POWER 2 LED should be on continuously, indicating connection to the DNI Line Card. If the POWER 2 LED is flashing, check the wiring between the dataset and the PABX, and Customer Data Entry (CDE) for the device.

Plug the RS-232 interconnecting cables into the RS-232 connector at the back of the DATASET 1102 Rack Mounted cards and connect them to the host device. When the RS-232 connector is attached, the DEVICE LED should be on, unless the device is an auto-answer device, and defined as such in CDE (usually only destination devices such as host computers are auto-answer). If the device is not auto-answer, and the DEVICE LED does not come on, do the following:

1. Make sure the device is powered on
2. Use an RS-232 break-out box to verify that the device provides DTR. If the device does not provide DTR, select CDE option "RS-232 Force High" for that device.



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Figure 14-3 DATASET 1102 Dual Rack Mounted Card

Standalone DATASET 1103 Description

- 14.6 A Standalone DATASET 1103 is packaged in a flat case which can be placed under a standard desk telephone. It is functionally the same as the DATASET 1101 Cartridge or one-half of the DATASET 1102 Dual Rack Mounted card (it shares the same basic printed circuit board as the DATASET 1102 Dual Rack Mounted card). The Standalone DATASET 1103 can be connected to the PABX using a four-wire connection; two wires connect the dataset to the Digital Line Card, and two different wires connect the telephone set Tip-Ring pair to an ONS or COV line card; it may also be connected to a Digital Line Card within the PABX by a single twisted pair (the telephone set is then connected independently). Figure 14-4 shows typical applications of a Standalone DATASET 1103 connected to a telephone set and a personal computer or terminal. The DATASET 1103 case is 206 mm wide x 270 mm long x 35 mm high (8.1 in. x 10.6 in. x 1.4 in.).

Controls, Indicators, and Connectors

Its keys and LEDs are:

- ATTN key
- DISC key
- POWER LED (includes SYNC to PABX information)
- READY LED (includes RxD traffic information)
- DEVICE (DTR) LED (includes TxD traffic information)

Standalone DATASET 1103 RJ-11 modular connector pins are:

Line		
Pin	Signal	Typical modular jack wire colors
1	no connection	
2	data Tip	black
3	voice Tip	red
4	voice Ring	green
5	data Ring	yellow
6	no connection	

Telephone		
Pin	Signal	Typical modular jack wire colors
1	no connection	
2	no connection	
3	voice Ring	green
4	voice Tip	red
5	no connection	
6	no connection	

Installation

WARNING

Any connection of this device to an off premise application, an out of plant application, or to any other exposed plant application may result in a safety hazard, and/or defective operation, and/or equipment damage.

Install a Standalone DATASET 1103 by placing it near its associated telephone set and data peripheral (its case is designed to lie flat on the desk under a standard telephone).

Complete Customer Data Entry for the system to allow the Standalone DATASET 1103 cartridge to operate with the PABX.

Connect the telephone set cord to the jack marked PHONE; connect the modular telephone line cord to the jack marked LINE and to the wall or floor jack which connects to the PABX main distributing frame (MDF). The connection to the MDF is a four-wire circuit; the voice Tip and Ring (red and green) connect to an ONS or COV line card (depending on the type of set being used), and the dataset Tip and Ring (yellow and black) connect to a DNI Line Card.

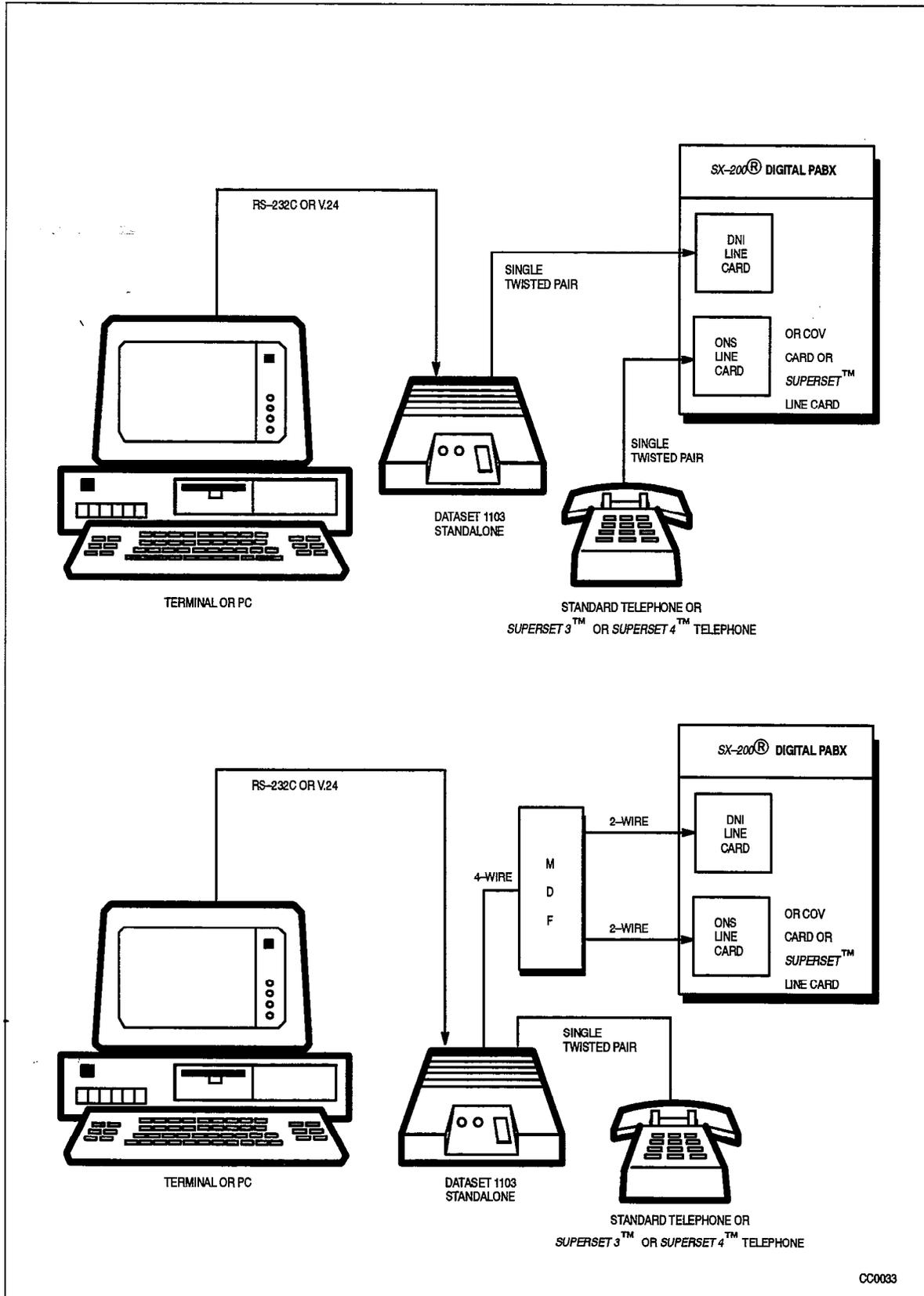
An alternative Tip and Ring wiring arrangement is: connect the telephone set through a two-wire connection to its ONS or COV line card; connect the modular telephone line cord (data Tip and Ring) to the jack of the Standalone DATASET 1103 marked LINE, through the MDF to its DNI Line Card in the PABX.

Plug the power supply into an ac outlet and its cord into the power socket on the Standalone DATASET 1103. All LEDs (except POWER) should flash 5 times, indicating that the dataset has passed its self-test. If this does not happen, the dataset is faulty and must be replaced.

The POWER LED should be on continuously, indicating connection to the Digital Line Card. If the POWER LED is flashing, check the wiring between the dataset and the PABX, and Customer Data Entry (CDE) for the device.

Plug the RS-232 interconnecting cable into the RS-232 connector at the back of the Standalone DATASET 1103 and connect its other end to the peripheral device. When the RS-232 connector is attached, the DEVICE LED should be on, unless the device is an auto-answer device, and defined as such in CDE (usually only destination devices such as host computers are auto-answer). If the device is not auto-answer, and the DEVICE LED does not come on, do the following:

1. Make sure the device is powered on.
2. Use an RS-232 break-out box to verify that the device provides DTR. If the device does not provide DTR, select CDE option "RS-232 Force High" for that device.



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Figure 14-4 Typical Standalone DATASET 1103 Applications

Circuit Description

- 14.7 The microprocessor controls the operations within the dataset. It adds High-level Data Link Control (HDLC) control bytes to incoming data received through its RS-232 port, before the data is passed to the HDLC Controller to be packetized and sent out via the DNIC to the PABX. Similarly data received through the PABX has its address and HDLC control bytes stripped off before it is sent out on the RS-232 port. Once a call is established by the use of D-channel signals to the PABX, data communication occurs on the B-channel, and passes straight through the PABX to its destination. Figure 14-5 is a block diagram of the DATASET 1100 series.

The LEDs and keys, which interface the DATASET 1100 series to the user, connect to the microprocessor.

The external random access memory (RAM) provides buffering for error correction and speed conversion, as well as improving flow control through the DATASET 1100 series. Error correction is by retransmitting frames in which errors had been detected.

The HDLC controller is a single channel interface between the microprocessor and the DNIC/*MiLink*; control signals are sent on the D-channel, while data is sent on the B2-channel. Each section of the DATASET 1102 Dual Rack Mounted card has its own B-channel, but shares the D-channel for control.

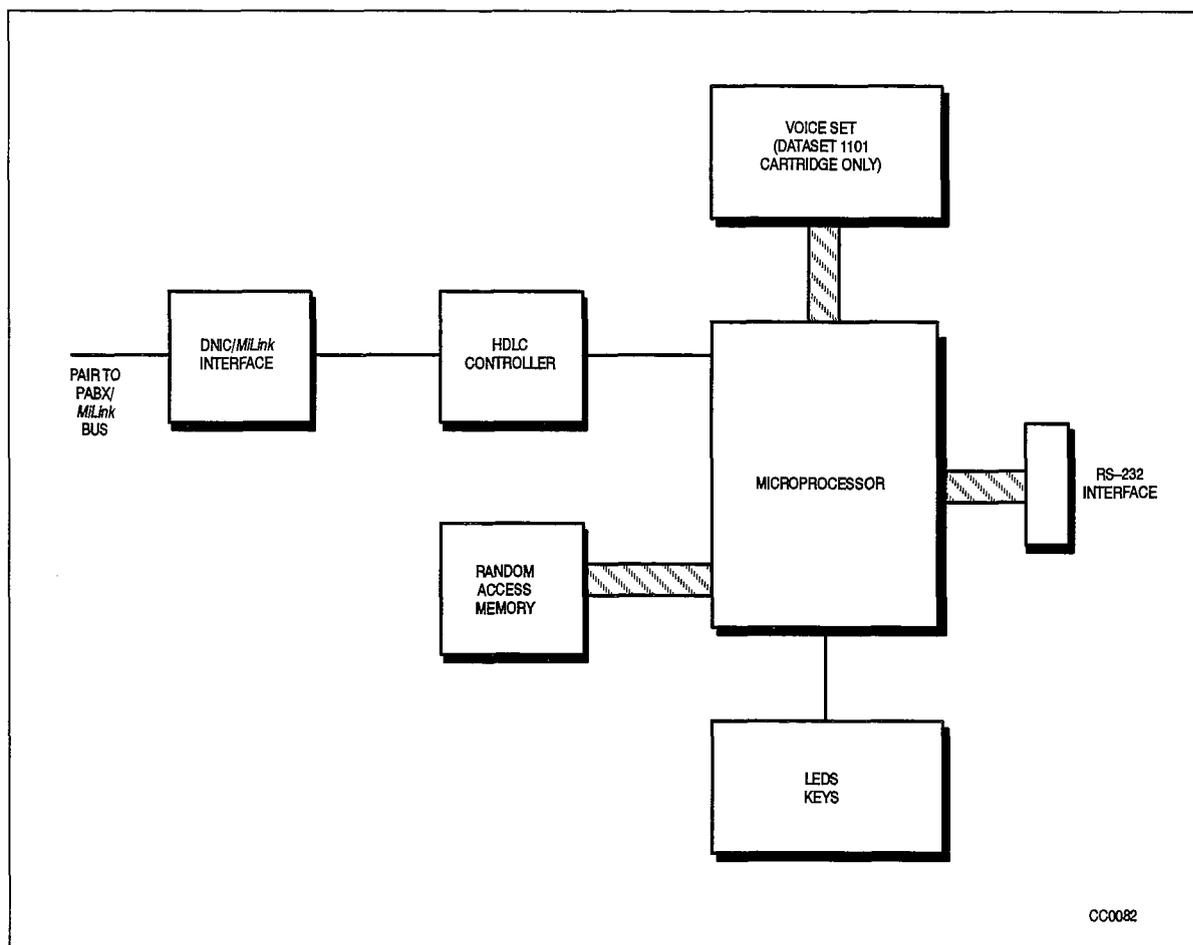


Figure 14-5 Typical DATASET 1100 Series Block Diagram

MiLink Data Module

General Description

14.8 The standalone *MiLink* Data Module (1101M) is packaged in a flat case and is designed to be placed under multiline *SUPERSET 410*, *SUPERSET 420*, and *SUPERSET 430* telephones. It is functionally identical to the DATASET 1101 cartridge, but has its own ATTENTION and DISCONNECT keys like the DATASET 1103.

Table 14–1 Controls, Indicators, and Connectors

KEYS AND LEDs
<ul style="list-style-type: none"> – ATTN key – DISC key – POWER LED (includes SYNC to system information) – READY LED (includes RxD traffic information) – DEVICE (DTR) LED (includes TxD information)

Table 14–2 Connector Pin Assignment Table

Signal	Designation	Pin	Direction
TXD	frame ground	2	to data set
RXD	transmit data	3	from data set
RTS	receive data	4	to data set
CTS	ready to send	5	from data set
DSR	clear to send	6	from data set
	dataset ready	7	from data set
	signal ground	8	from data set
DCD	data carrier detect	20	to data set
DTR	data terminal ready	22	from data set
RI	ring indicator	25	from data set
	reserved input/ test mode output		

Installation

WARNING

Any connection of this device to an off premise application, an out of plant application, or to any other exposed plant application may result in a safety hazard, and/or defective operation, and/or equipment damage.

14.9 The following chart lists the steps required to install a *MiLink* Data Module.

Chart 14-1 <i>MiLink</i> Data Module Installation Instructions		
Step	Action	Comment
1.	Verify that CDE for the <i>MiLink</i> Data Module (1101M) is complete.	
2.	Connect an AC adaptor between the AC outlet and <i>MiLink</i> Data Module.	All LEDs should flash five times, if not replace the <i>MiLink</i> Data Module.
3.	Connect a <i>SUPERSET 410</i> , <i>SUPERSET 420</i> , or <i>SUPERSET 430</i> telephone set to the <i>MiLink</i> Data Module at <i>MiLink A</i> or <i>MiLink B</i> (another <i>MiLink</i> device can be connected serially to the remaining <i>MiLink</i> connection).	POWER LED stops flashing
4.	Connect RS-232 cable between the <i>MiLink</i> Data Module and the peripheral device.	Device LED should be on, see note 1.

Notes: 1. When the RS-232 connector is attached, the DEVICE LED should be on, unless the device is an auto-answer device, and defined as such in CDE (usually only destination devices such as host computers are auto-answer). If the device is not auto-answer, and the DEVICE LED does not come on, do the following:

- Make sure the device is powered on.
 - Use an RS-232 break-out box to verify that the device provides DTR. If the device does not provide DTR, select CDE option DTR always for that device.
2. The POWER LED should be on continuously (except when first connected to AC power), indicating connection to the Digital Set. If the POWER LED is flashing, check the wiring between the *MiLink* Data Module and the set. If the POWER LED continues to flash, verify Customer Data Entry (CDE) for the device.

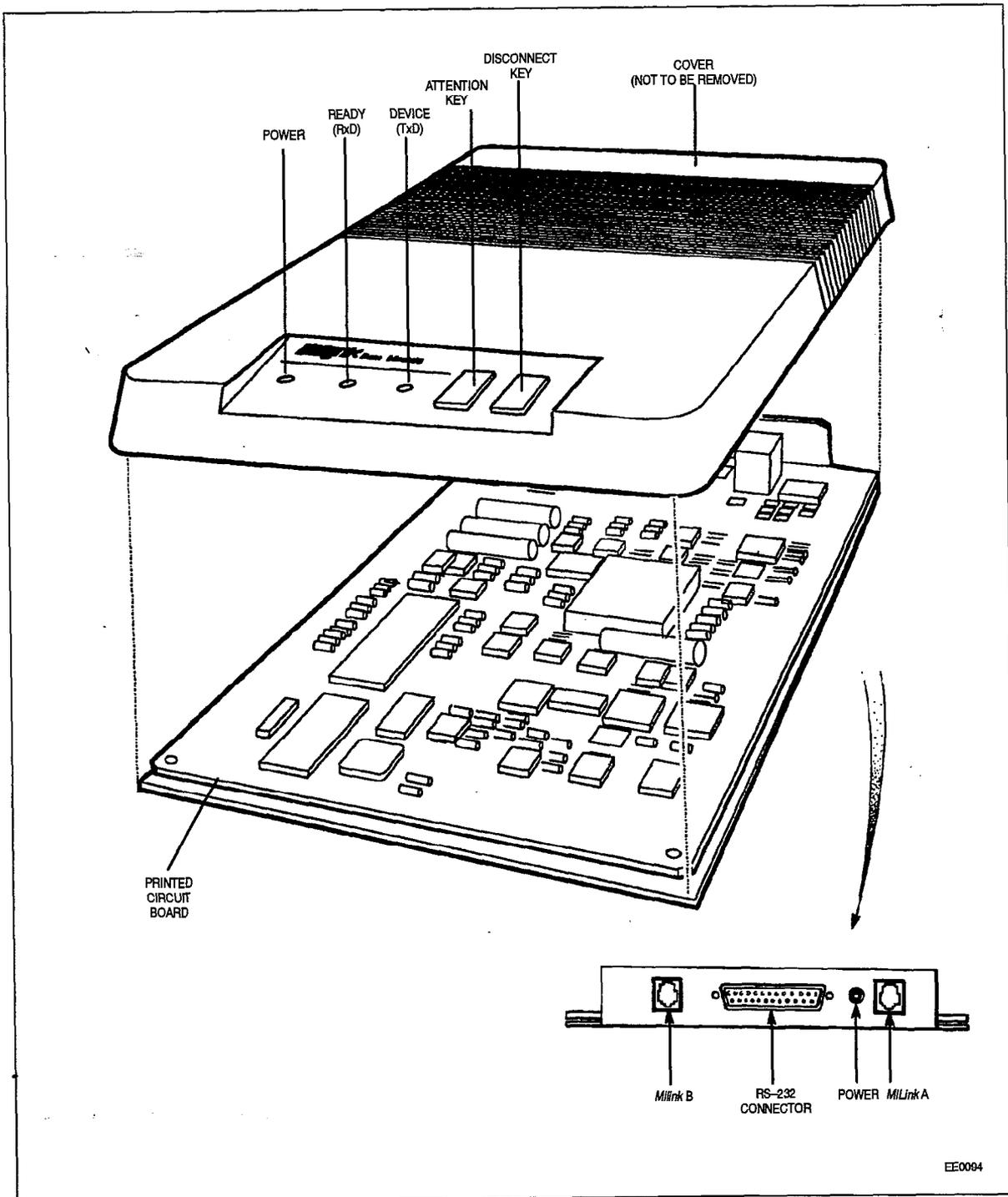


Figure 14-6 *MiLink* Data Module, Connectors and Indicators

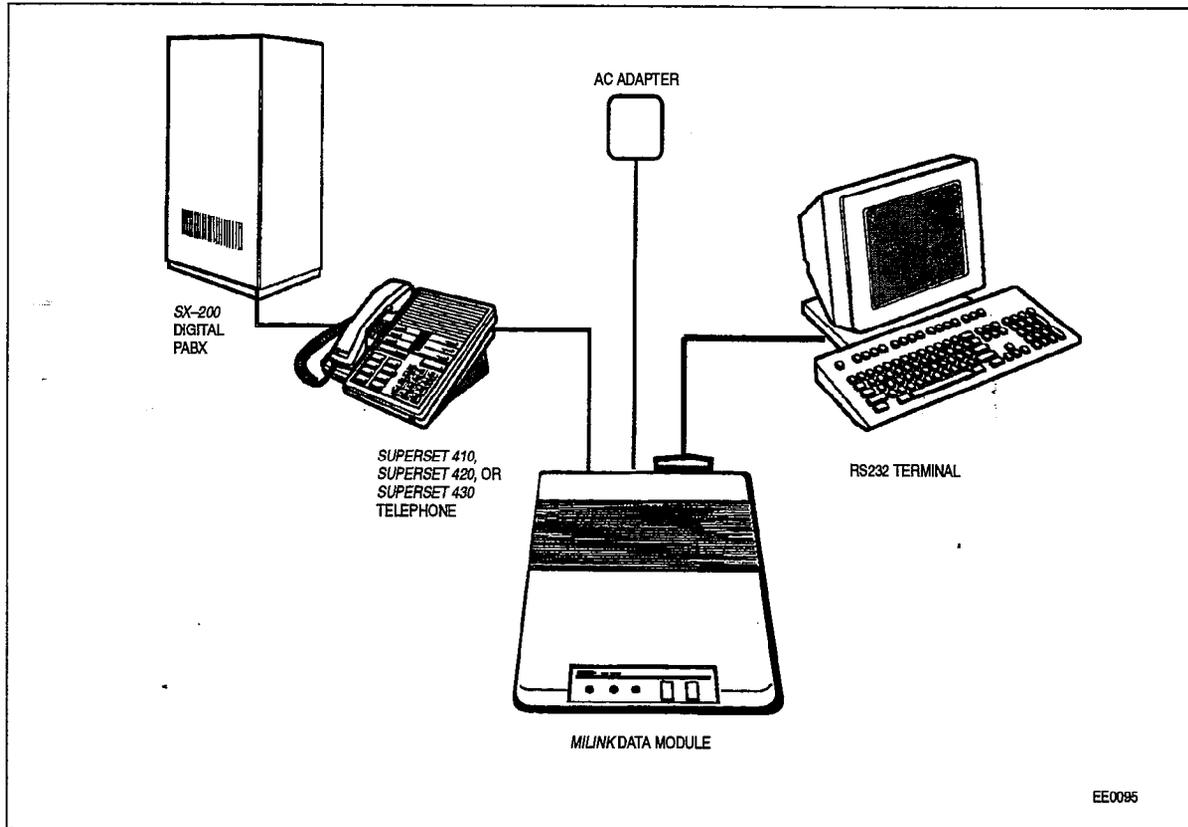


Figure 14-7 MiLink Data Module Installation

Power Supplies

14.10 The DATASET 1101 Cartridge, the Standalone DATASET 1103, and the *MiLink* Data Module all receive their power from a plug-in transformer which supplies 9 Vac to a power connector on the back of the set. Circuitry within the dataset converts this to the required dc voltages. The digital telephone set voice operation receives its power from the PABX, whether or not the DATASET 1101 Cartridge power supply is plugged in. However, if the power supply is not plugged in, DATASET 1101 Cartridge operation is not possible.

The DATASET 1102 Dual Rack Mounted card receives its power from a power supply which is an integral part of the DATASHELF 9100. Refer to DATACABINET 9000 and to DATASHELF 9100 in this Practice.

Connector Pin Assignment Tables

15.2 The RS-232 connector on the DATASET 2100 Series has the following pin assignments when operating in Data Communications Equipment (DCE) mode:

Pin	Signal	Designation	Direction
1		frame ground	
2	TXD	transmit data	to dataset
3	RXD	receive data	from dataset
4	RTS	request to send	to dataset
5	CTS	clear to send	from dataset
6	DSR	data set ready	from dataset
7		signal ground	
8	DCD	data carrier detect	from dataset
20	DTR	data terminal ready	to dataset
22	RI	ring indicator	from dataset
25		HW flow control	to dataset

The RS-232 connector on the DATASET 2100 Series has the following pin assignments when operating in Data Terminal Equipment (DTE) mode with an attached Modem Adapter:

Pin	Signal	Designation	Direction
1		frame ground	
2	TXD	transmit data	from dataset
3	RXD	receive data	to dataset
4	RTS	request to send	from dataset
5	CTS	clear to send	to dataset
6	DSR	data set ready	to dataset
7		signal ground	
8	DCD	data carrier detect	to dataset
15	DB	SCT	to dataset
17	DD	SCR	to dataset
19	n/a	remote digital loopback	from dataset
20	DTR	data terminal ready	from dataset
22	RI	ring indicator	to dataset
23	CH	data signal rate selector	from dataset
24	DA	XCLK	from dataset
25	CN	analog loopback	from dataset

Synchronous Operation

15.3 **Transparent** – The DATASET 2100 Series can operate in transparent synchronous mode. Because the connections are usually established for a long time (compared to asynchronous connections) and are important parts of a large data communications network, the D channel connection is held up while the connection is established. The network management process can obtain statistics on traffic and error rates while a call is in progress from this D channel. When one DATASET 2100 drops its

connection, it cannot signal to the other; the PABX must drop this connection with a Terminate B channel command, which it can do because the D channel is active while the B channel session is in progress.

Data is clocked to and from the shift registers at a constant rate by the synchronous clocks on the RS-232 interface. The data set firmware converts this data into packets which are passed through the PABX in UI frames. No error detection or correction is performed on this data; synchronous data usually includes its own error detection and correction protocol, and it is more important to maintain the synchronization between the two endpoints. The synchronization is done by a software Phase Locked Loop algorithm, which actually becomes a frequency locking loop.

X.31 – It is a protocol for adapting a data rate from a synchronous interface to a 64 kbps channel, such as is used by MITEL PABXs. This mode will allow Mitel equipment to be connected to another manufacturer's equipment without having protocol conversion in between. The synchronous data being received must be HDLC based, with a maximum frame size of 512 bytes.

The DATASET 2100 decodes the received HDLC frames and reformats them into new HDLC frames using the X.31 protocol on the B channel. The rate conversion is done by transmitting HDLC flags during B channel idle time. Received frames are depacketized and transmitted to the attached device in HDLC format at the RS-232 interface synchronous clock rate.

Asynchronous Operation

- 15.4 The DATASET 2100 Series can operate in asynchronous mode in simplex, half duplex, or full duplex modes. Once the communications are established between data sets in asynchronous mode, the D channel connection is dropped, and only the B channel connection remains. The B channel passes through the PABX, without supervision by the PABX, connected only to the two endpoints.

Back-to-Back Operation

- 15.5 Two DATASET 2100 Series may be connected back to back to communicate directly with each other (typically to bypass a failed PABX). At least one of the data sets must be in hunt mode; the data set then alternates between master and slave timing until synchronization is achieved. If both data sets are in hunt mode, it can take up to one minute to achieve synchronization.

A back to back connection may be established as above in either synchronous mode or in asynchronous mode between two DATASET 2100 series. If the DATASET 2100 Series is in master mode and asynchronous mode, the back to back connection can also be made with a DATASET 1100 series. The data set that is operating in master mode scans its DIP switches on power up, and sets its operating parameters according to the settings of the switches.

Timing Modes

- 15.6 There are four modes of timing available with a DATASET 2100 series that are used according to the current mode of operation.

Internal – The Internal clock is used when the DATASET 2100 Series is operating in Data Communication Equipment (DCE) mode. The transmit clock (SCT) to the Data Terminal Equipment (DTE) is generated within the dataset's baud rate generator and is not synchronized with PABX timing. The dataset's receive clock (SCR) to the DTE is extracted from the data received from the far end dataset by the Phase Locked Loop (PLL) circuit within the dataset.

System – The System clock is used when the DATASET 2100 Series is operating in Data Communication Equipment (DCE) mode. The dataset's transmit clock (SCT) and receive clock (SCR) to the DTE are extracted from the data received from the far end devices by the Phase Locked Loop (PLL) circuit within the dataset.

Transmit External – The DATASET 2100 Series uses the Transmit External clock in either DTE or DCE mode; it is received from an external clock signal from the attached device. From a DTE device, the clock is received on RS-232 pin 24; from a DCE device, the clock is derived from the DCE device's SCR. The dataset's receive clock (SCR) to the DTE is extracted from the data received from the far end device by the Phase Locked Loop (PLL) circuit within the dataset.

Transmit and Receive External – When the DATASET 2100 Series is operating in DTE mode, the Transmit and Receive External clocks are derived from the attached DCE device. The external transmit clock is received from the modem's SCR (pin 17) and transferred to pin 24 by the DCE adapter; the external receive clock is received from the modem's SCT (pin 15) and transferred to pin 18 by the DCE adapter.

Modem Adapter

- 15.7 DATASET 2100 Series are DCE devices, as are modems. To connect a DATASET 2100 Series to a modem requires that a Modem Adapter (pn 9141-100-100-NA) be connected to the RS-232 connector on the data set. The Modem Adapter makes the DATASET 2100 Series appear as a DTE device to the modem. This is used primarily in Modem Pooling applications.

DATASET 2100 Switch Settings

- 15.8 There is an 8-position DIP switch on the back of a Rack Mounted DATASET 2102 and a Standalone DATASET 2103. It is read once immediately after DNIC Sync is achieved and the operating parameters are set according to the settings, as defined in Table 15-1. When viewed from the rear the DIP switches are labelled as follows:

1 2 3 4 5 6 7 8
User accessible switches

Table 15-1 DATASET 2100 Dip Switch Settings

Table 15-1 DATASET 2100 Dip Switch Settings				
SWITCH 1				DATASET OPERATING MODE
DOWN				SET – PABX OPERATION
UP				HUNT – BACK TO BACK MODE
	SWITCH 2			ASYNCHRONOUS/SYNCHRONOUS MODE
	DOWN			ASYNCHRONOUS
	UP			SYNCHRONOUS
ASYNCHRONOUS MODE				
		SWITCH 3	SWITCH 4	ASYNC FLOW CONTROL
		DOWN	DOWN	FLOW CONTROL DISABLED
		UP	DOWN	XON/XOFF FLOW CONTROL ENABLED
		DOWN	UP	CTS FLOW CONTROL ENABLED
		UP	UP	FLOW CONTROL DISABLED
SWITCH 5	SWITCH 6	SWITCH 7	SWITCH 8	ASYNC SPEED
DOWN	DOWN	DOWN	DOWN	AUTOBAUD
UP	DOWN	DOWN	DOWN	110
DOWN	UP	DOWN	DOWN	150
UP	UP	DOWN	DOWN	200
DOWN	DOWN	UP	DOWN	300
UP	DOWN	UP	DOWN	600
DOWN	UP	UP	DOWN	1200
UP	UP	UP	DOWN	2400
DOWN	DOWN	DOWN	UP	4800
UP	DOWN	DOWN	UP	9600
DOWN	UP	DOWN	UP	19200
SYNCHRONOUS MODE				
		SWITCH 3	SWITCH 4	SYNC OPERATING MODE
		DOWN	DOWN	INTERNAL CLOCK
		DOWN	UP	SYSTEM CLOCK
		UP	DOWN	TX EXTERNAL CLOCK
		UP	UP	TX AND RX EXTERNAL CLOCK

**Table 15-1 DATASET 2100 Dip Switch Settings
(continued)**

SWITCH 5				SYNCHRONOUS MODE ONLY
DOWN				TRANSPARENT MODE
UP				X.31 MODE
	SWITCH 6	SWITCH 7	SWITCH 8	SYNC SPEED
	DOWN	DOWN	DOWN	1200
	UP	DOWN	DOWN	2400
	DOWN	UP	DOWN	4800
	UP	UP	DOWN	9600
	X	X	UP	19200 (X = don't care)

Page 2 of 2

- Notes:** 1. PARAMETER CHANGES MUST BE FOLLOWED BY A POWER RESET.
2. ALL SWITCH PARAMETERS, EXCEPT SWITCH 1 CAN BE OVERRIDDEN BY THE PABX CDE PARAMETERS.

Rack Mounted DATASET 2102 Description

15.9 The primary function of a Rack Mounted DATASET 2102 is to interface between a host computer and the PABX; Standalone DATASET 2103s distributed throughout the building access the Rack Mounted DATASET 2102s through the PABX. The Rack Mounted DATASET 2102 is installed in a DATASHELF 9100 within a DATACABINET 9000, which is usually located within a computer room.

A Rack Mounted DATASET 2102 has LEDs on its front panel, but no switches or keys for manual operation. Each Rack Mounted DATASET 2102 interfaces to a PABX Digital Line Card circuit through a single pair. The DATASHELF 9100 connects to the PABX through a 25-pair cable; each card slot is assigned one of these pairs. Figure 15-1 shows a Rack Mounted DATASET 2102. The card measure 254 mm x 190 mm (10 in. x 7.45 in.).

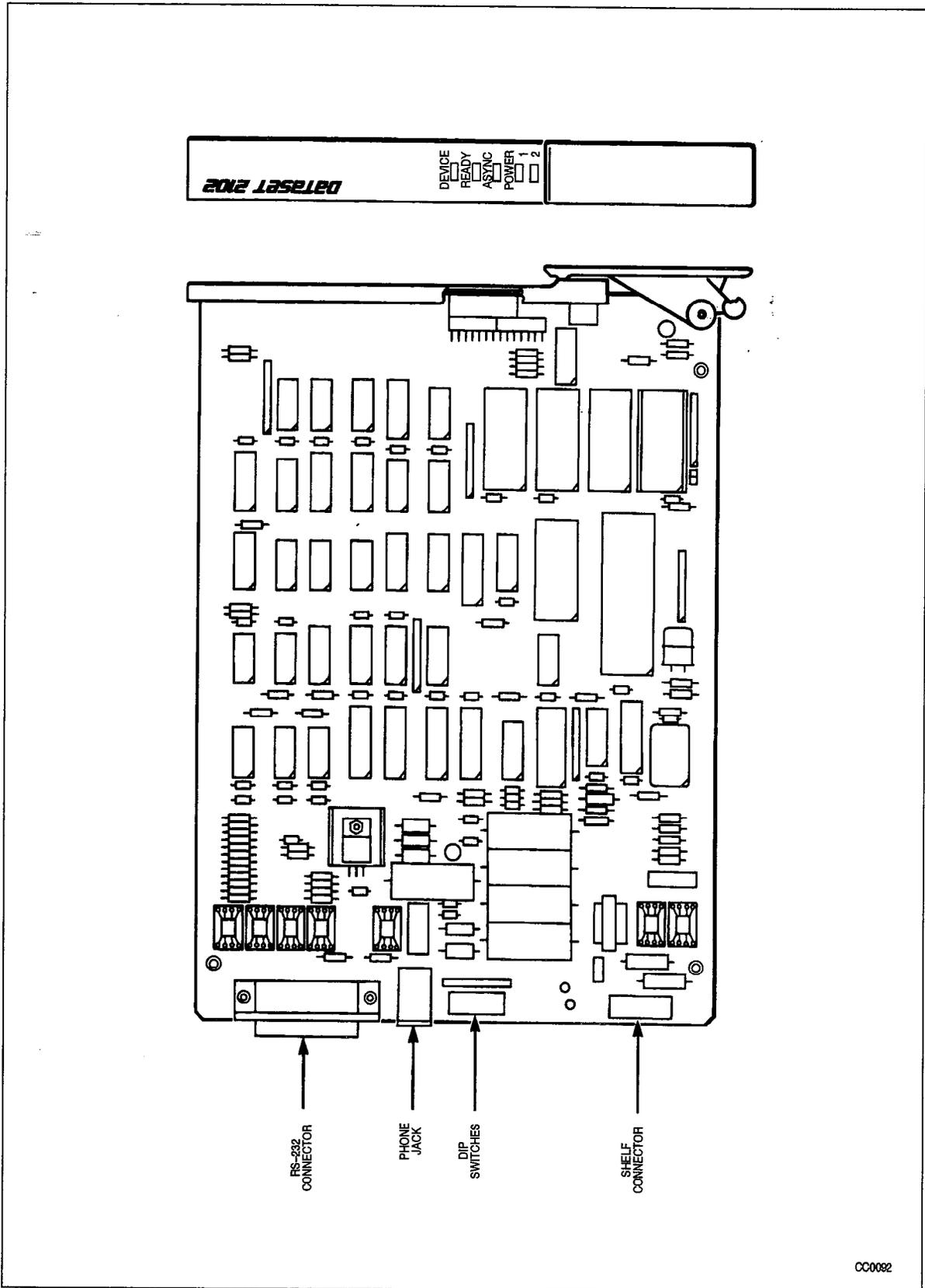


Figure 15-1 Rack Mounted DATASET 2102

Indicators and Connectors

There are five LEDs on the front of the Rack Mounted DATASET 2102:

- DEVICE TxD
- READY RxD
- ASYNC
- POWER
- CARD FUSE O.K. INDICATION

The connectors on the back of a Rack Mounted DATASET 2102 are:

- RS-232 connector (1)
- shelf backplane connector (power and Tip-Ring pair)
- MI/MIC connector

The backplane connector pinouts are as follows:

Pin	Signal
1	data Tip
2	no connection
3	frame ground
4	signal ground
5	T1 (ac input)
6	T2 (ac input)
7	T2 (ac input)
8	T1 (ac input)
9	signal ground
10	frame ground
11	no connection
12	data Ring

The MI/MIC RJ-11 modular connector pinouts are as follows:

Pin	Signal
1	no connection
2	modem MI
3	no connection
4	no connection
5	modem MIC
6	no connection

Installation

WARNING

Any connection of this set to an off premise application, an out of plant application, or to any other exposed plant application may result in a safety hazard, and/or defective operation, and/or equipment damage.

Table 15-2 Installation Of A Rack Mounted Dataset 2102

Step	Action
1.	Complete system cabling and Customer Data Entry for the slot into which the dataset is being installed; cabling is defined in DATASHELF 9100 installation procedures.
2.	Set the eight DIP switches as required for this installation. Refer to Table 15-1.
3.	Install a Rack Mounted DATASET 2102 by plugging it into its assigned slot in the DATA-SHELF 9100; these assignments are done when the system is configured. All LEDs should flash 5 times, indicating that the dataset has passed its self-test. If this does not happen, the dataset is faulty and must be replaced.
4.	Ensure the POWER 1 LED is on continuously, indicating no open fuse within the data set; if off, a fuse is open or there is a fault in the wiring connection.
5.	Plug the RS-232 interconnecting cable into the RS-232 connector at the back of the Rack Mounted DATASET 2102 and connect it to the host device. When the RS-232 connector is attached, the DEVICE LED should be on, unless the device is an auto-answer device, and defined as such in CDE (usually only destination devices such as host computers are auto-answer). If the device is not auto-answer, and the DEVICE LED does not come on, make sure the device is powered on, and then use an RS-232 break-out box to verify that the device provides DTR. If the device does not provide DTR, select CDE option "RS-232 Force High" for that device.

Install Modem Pooling: Rack Mounted DATASET 2102

- Notes:**
1. A modem pool allows a user with a terminal at their desk to access remote devices (such as a computer in another city). The terminal sends data information to datasets and a modem. The modem converts the data information from the terminal into voice information. This voice information goes to an ONS line port on the SX-200 DIGITAL PABX, and then to a trunk on the public switched network. The dataset (associated with a digital line card), the modem, and ONS port together make up a pooled modem. Each pooled modem supports one call. A group of pooled modems can support many calls, and is known as a modem pool.
 2. The DATASET 2102 is a circuit card for the DATACABINET 9000. The card is most often used to interface a host computer to a digital line port on the SX-200 DIGITAL PABX. It has a voice channel, a data channel, and a control channel.
 3. The card is mounted in the 19-in. DATASHELF 9100 rack. Up to three racks can be mounted in the DATACABINET 9000.

Chart 15-1 Install Modem Pooling: Rack Mounted DATASET 2102

Step	Action	Comments
	Install DATACABINET 9000	A free-standing metal cabinet that can hold up to three datashelves and a modem interconnect panel.
1.	Install the DATACABINET 9000.	Described in section 17.9 of this Practice .
	Install DATASHELF 9100	The left side of the shelf holds up to 16 datasets. The right side of the shelf holds an integral power supply. It connects to the PABX through a 25-pair cable.
2.	Install the datashelves in the data cabinet.	Described in section 18 of this Practice.
	Install Datasets	Each rack mounted dataset interfaces to a digital line card port through a single pair on the 25-pair cable.
3.	Install the rack mounted datasets on the 9100 DATASHELF as required.	Shown in Figure 15-2. See Table 15-2.
	Install Modem Interconnect Panel	The modem interconnect panel provides a method of connecting a voice Tip/Ring pair from the PABX to a modem, and to connect the MI/MIC leads from the dataset to the modem. It can connect up to 16 circuits.
4.	Install a modem interconnect panel.	Described in section 19 of this Practice.
	Install Modem	
5.	Connect a modem adapter (PN 9141-100-100-NA) to the RS-232 port on the DATASET 2102.	
6.	Connect the modem to the modem adapter with an RS-232 cable.	
	Make Connections	
7.	Connect the modem LINE plug to the FROM MODEM jack on the modem interconnect panel.	
8.	<i>If MI/MIC leads are used:</i> Using a line cord, connect the TO DATASET modular jack on the interconnect panel to the modular jack on the dataset.	The RJ-11 modular jacks are paired, one above the other. The jacks used for each dataset and modem must line up.

Chart 15-1 Install Modem Pooling: Rack Mounted DATASET 2102 (continued)

Step	Action	Comments
9.	Connect the 25-pair cables from the modem interconnect panel and the DATASHELF 9100 to the cross-connect block.	
10.	Cross-connect cables as required.	<p>The 25-pair cable from the DATASHELF 9100 (the datasets) connects to the assigned digital line ports.</p> <p>The 25-pair cable from the modem interconnect panel (the modems) connects to the assigned ONS line ports.</p>
Set DATASET 2102 DIP Switches		
11.	Set DIP switch 1 to DOWN (Set-PBX Operation). Do not set the other switches.	See Table 15-1.

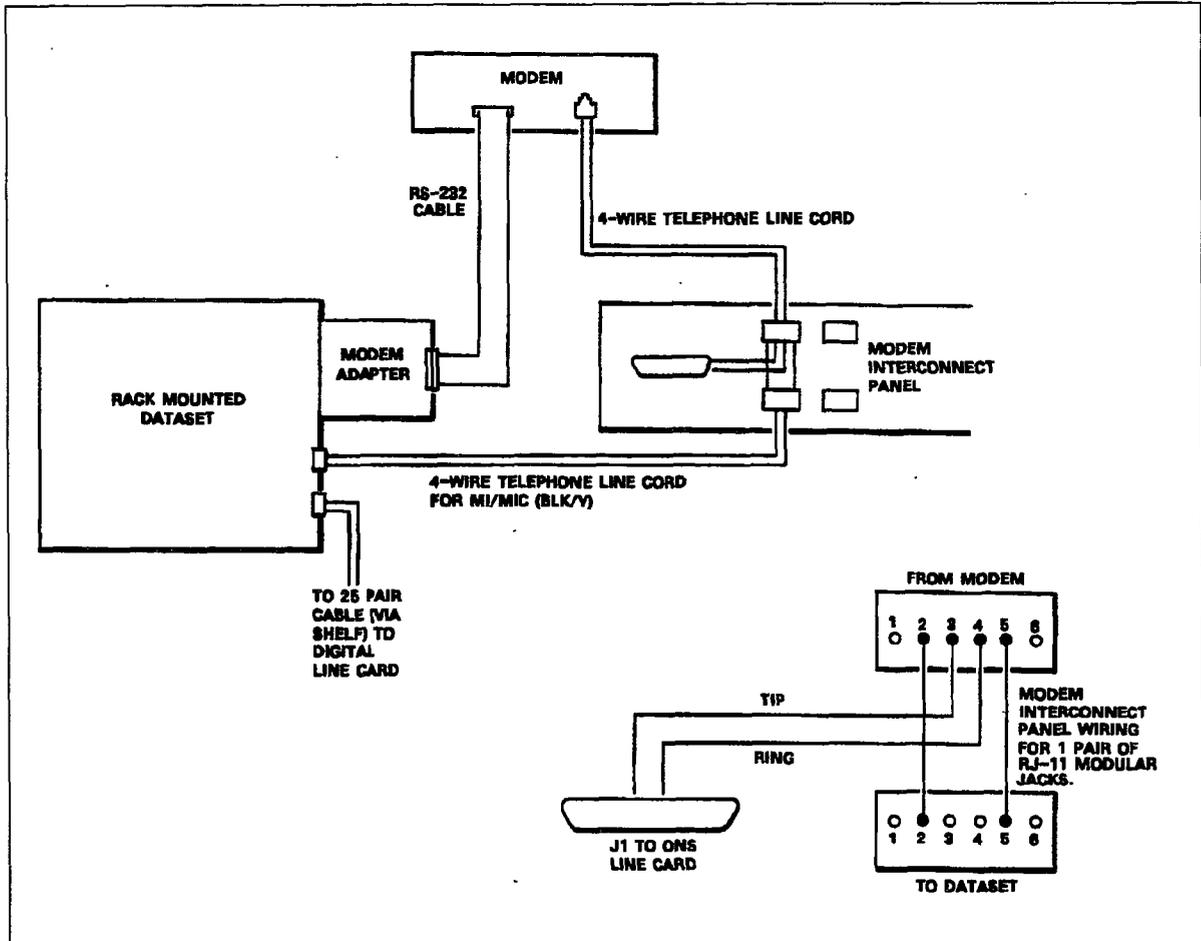


Figure 15-2 Modem Pooling with Rack Mounted Dataset and Modem Interconnect Panel

Standalone DATASET 2103 Description

15.10 A Standalone DATASET 2103 is packaged in a flat case which can be placed under a standard desk telephone set. It is functionally the same as the Rack Mounted DATASET 2102 (they share the same base printed circuit board). The Standalone DATASET 2103 can be connected to the PABX using a four-wire connection; two wires connect the dataset to the Digital Line Card, and two different wires connect the telephone set Tip-Ring pair to an ONS or COV line card; it may also be connected to a Digital Line Card within the PABX by a single twisted pair (the telephone set is connected independently). Figure 15-3 shows typical applications of a Standalone DATASET 2103 connected to a telephone set and a personal computer or terminal, while Figure 15-4 shows a Standalone DATASET 2103. The DATASET 2103 case is 206 mm wide x 270 mm long x 35 mm high (8.1 in. x 10.6 x 1.4 in.).

Controls, Indicators, and Connectors

The keys and LEDs of a Standalone DATASET 2103 are:

- ATTN key
- DISC key
- POWER LED
- READY RxD LED
- DEVICE TxD LED
- ASYNC

The Standalone DATASET 2103 RJ-11 modular connector pins are:

Line		Telephone	
Pin	Signal	Pin	Signal
1	no connection	1	no connection
2	data Tip	2	modem MI
3	voice Tip	3	voice Tip
4	voice Ring	4	voice Ring
5	data Ring	5	modem MIC
6	no connection	6	no connection

Installation

WARNING

Any connection of this set to an off premise application, an out of plant application, or to any other exposed plant application may result in a safety hazard, and/or defective operation, and/or equipment damage.

Table 15-3 Installation of a Standalone DATASET 2103	
Step	Action
1.	Install a Standalone DATASET 2103 by placing it near its associated telephone set and data peripheral (its case is designed to lie flat on the desk under a standard telephone).
2.	Complete Customer Data Entry for the system to allow the Standalone DATASET 2103 to operate with the PABX.
3.	Set the eight DIP switches as required for this installation. Refer to Table 15-1.
4.	Connect the telephone set cord to the jack marked PHONE; connect the modular telephone line cord to the jack marked LINE and to the wall or floor jack which connects to the PABX main distributing frame (MDF). The connection to the MDF is a four-wire circuit; the voice tip and ring (red and green) connect to an ONS or COV line card (depending on the type of set being used), and the Dataset Tip and Ring (yellow and black) connect to a Digital Line Card.
5.	An alternative Tip and Ring wiring arrangement is: connect the telephone set through a two-wire connection via the MDF to its ONS or COV line card; connect the modular line cord (data Tip and Ring) to the jack of the Standalone DATASET 2103 marked LINE, through the MDF to its Digital Line Card in the PABX.
6.	Plug the power supply into an ac outlet and its cord into the power socket on the Standalone DATASET 2103. All LEDs should flash 5 times, indicating that the dataset has passed its self-test. If this does not happen, the dataset is faulty and must be replaced. Then the POWER LED comes on, to indicate that the data set is communicating with the PABX. If the POWER LED flashes, check the wiring.
7.	Plug the RS-232 interconnecting cable into the RS-232 connector at the back of the Standalone DATASET 2103 and connect its other end to the peripheral device. When the RS-232 connector is attached, the DEVICE LED should be on, unless the device is an auto-answer device, and defined as such in CDE (usually only destination devices such as host computers are auto-answer). If the device is not auto-answer, and the DEVICE LED does not come on, make sure the device is powered on, and then use an RS-232 break-out box to verify that the device provides DTR. If the device does not provide DTR, select CDE option "RS-232 Force High" for that device.

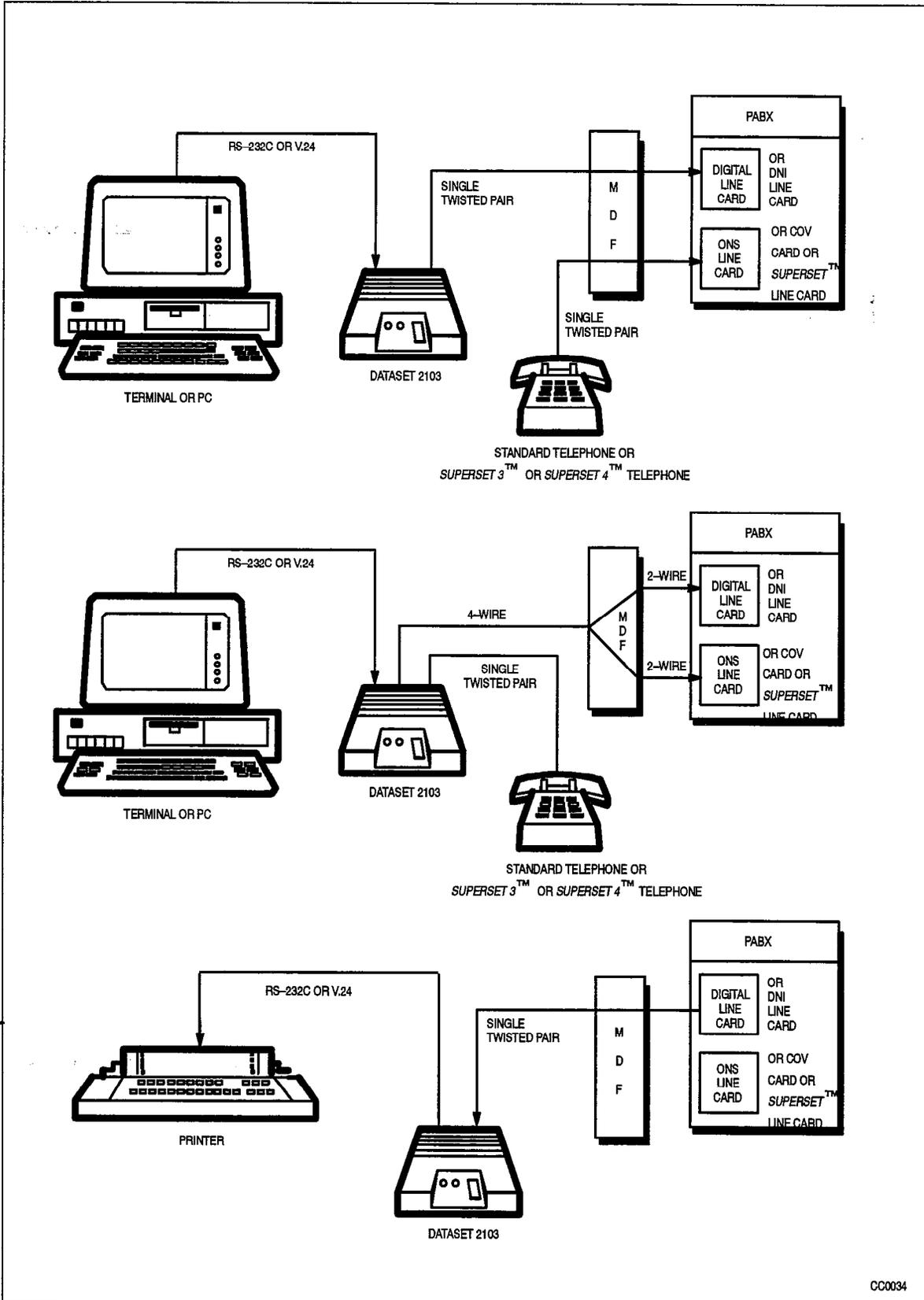


Figure 15-3 Typical Standalone DATASET 2103 Applications

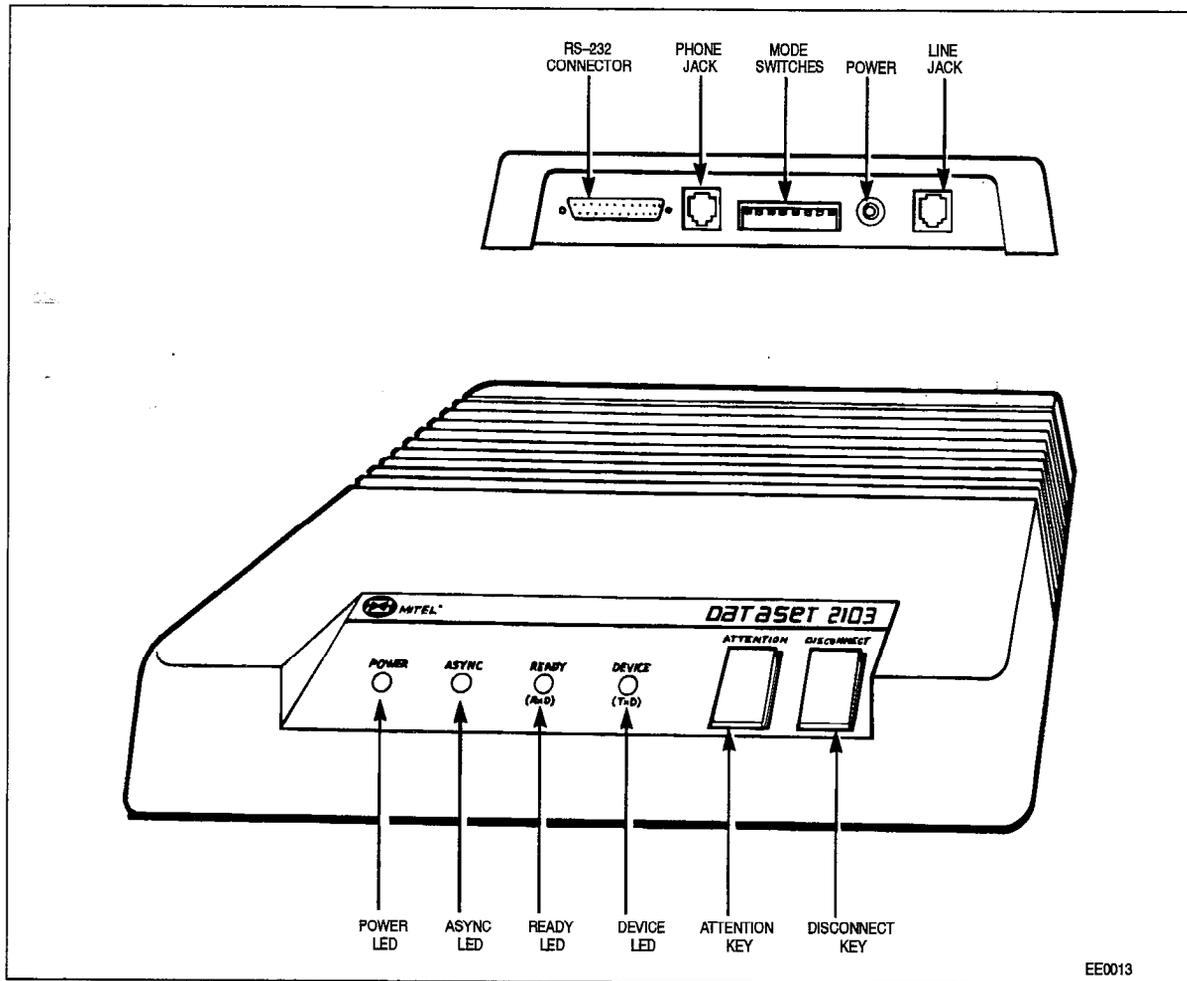


Figure 15-4 Standalone DATASET 2103, Showing Connectors and Indicators

Install Modem Pooling: Standalone DATASET 2103

- Notes:**
1. A modem pool allows a user with a terminal at their desk to access remote devices (such as a computer in another city). The terminal sends data information to datasets and a modem. The modem converts the data information from the terminal into voice information. This voice information goes to an ONS line port on the SX-200 DIGITAL PABX, and then to a trunk on the public switched network. The dataset (associated with a digital line card), the modem, and ONS port together make up a pooled modem.
 2. Each pooled modem supports one call. A group of pooled modems can support many calls, and is known as a modem pool.

Chart 15-2 Install Modem Pooling: Standalone DATASET 2103

Step	Action	Comments
	Install DATACABINET 9000, DATASHELF 9100, DATASETS and Modem Interconnect Panel.	See Chart 15-1.
	Install Modem	
1.	Put the DATASET 2103 in its required position.	The dataset fits under the telephone on the desktop. The dataset is shown in Figure 15-4.
2.	Connect a modem adapter to the DATASET 2103 RS-232 port.	Shown in Figure 15-5.
3.	Connect the modem to the modem adapter with an RS-232 cable.	
4.	Connect the modem line plug to the DATASET PHONE jack.	The modem Tip and Ring leads pass through the DATASET 2103 (red and green leads) directly to an ONS line card. The MI and MIC leads from the DATASET 2103 go to the modem on the second pair of the cable (black and yellow).
5.	Connect the DATASET LINE jack to the cross-connect block for connection to the PABX.	The data Tip and Ring leads (yellow/black) connect to a digital line card. The voice Tip and Ring leads (red/green) connect to an ONS line card.
	Power Up	
6.	Plug in the dataset and modem.	

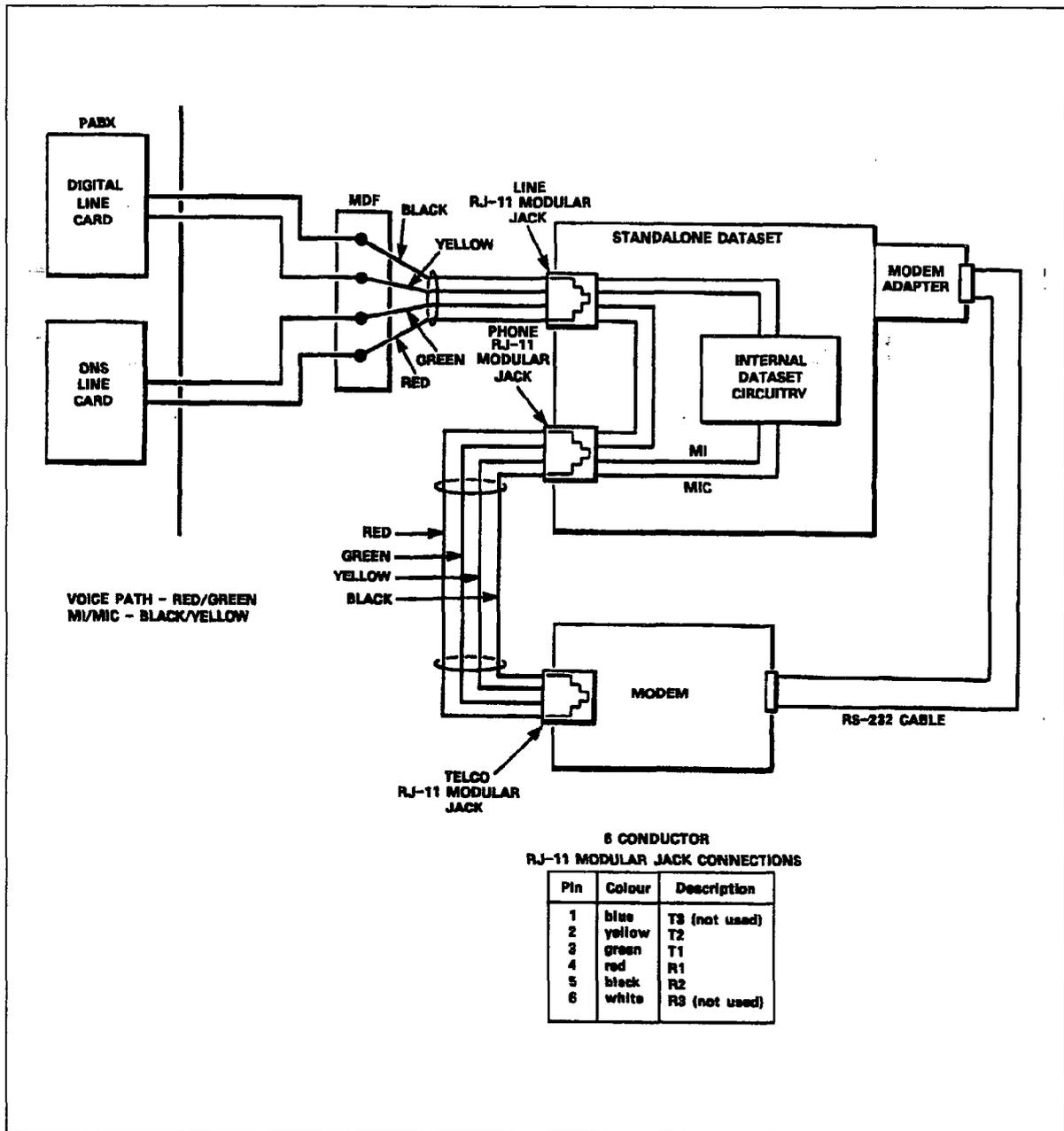


Figure 15-5 Modem Pooling with a Standalone Dataset

Circuit Description

15.11 The DATASET 2100 Series circuit contains six basic blocks, as shown in Figure 15-6. The microcontroller is the central processor for the dataset; it contains two timers, the BAUD rate generator, the Universal Asynchronous Receiver Transmitter (UART) and the system High-level Data Link Control (HDLC). The switches on the data set interface directly to the microcontroller; this way, the firmware can override the switch settings.

The serial/parallel converter converts serial data from the RS-232 port to parallel for the processor, and parallel data from the processor to serial for the RS-232 port. In asynchronous mode, the microprocessor does the conversion; in synchronous mode, shift registers and latches interface the TxD and RxD lines with the databus to the processor.

The Phase Lock Loop and Clock circuits synchronize the receive data rate of the data set to the rate of the received data from the other device.

The DNIC Interface Circuit provides the interface to the PABX; its clock signals operate the dataset in either set or system mode.

The RS-232 Interface contains the drivers and receivers that buffer the signal lines. It also contains a loopback circuit which can connect together transmit data from the microcontroller to receive data to the microcontroller (RxD to TxD) for self-testing functions.

The Power Supply receives unregulated ac voltage and rectifies it to become +12 vdc unregulated, -12 vdc unregulated, and +5 vdc regulated for logic circuits.

Power Supplies

- 15.12 The Standalone DATASET 2103 receives its power from a plug-in transformer which supplies 9 vac to a power connector on the back of the set. Circuitry within the data set converts this to the required dc voltages.

The Rack Mounted DATASET 2102 receives 9 vac from the power supply of the DATASHELF 9100. Circuitry on the card converts this to the required dc voltages. Refer to DATASHELF 9100 in this Practice, for further information.

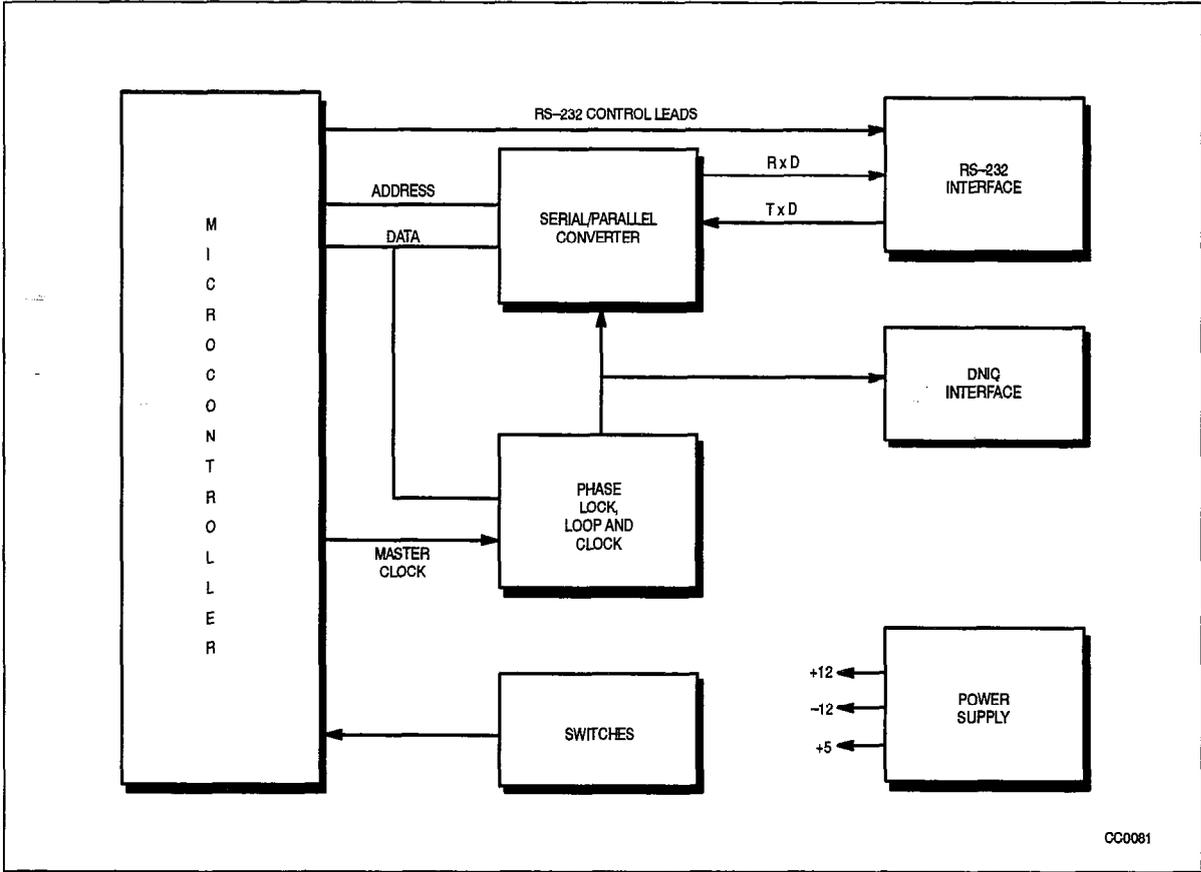


Figure 15-6 Typical DATASET 2100 Series Block Diagram

Peripheral Devices

Connecting Printers That Use RS-232 Cable Pin 4 (RTS) For Flow Control

TO PRINTER		TO DATASET	
Chassis Gnd	1	1	Chassis Gnd
TxD	2	2	TxD
RxD	3	3	RxD
RTS	4	25	HW Flow Control / RI In
CTS	5	5	CTS
DSR	6	6	DSR
Signal Gnd	7	7	Signal Gnd
DCD	8	8	DCD
DTR	20	20	DTR

Connecting Printers That Use RS-232 Cable Pin 11 For Flow Control

TO PRINTER		TO DATASET	
Chassis Gnd	1	1	Chassis Gnd
TxD	2	2	TxD
RxD	3	3	RxD
RTS	4	4	RTS
CTS	5	5	CTS
DSR	6	6	DSR
Signal Gnd	7	7	Signal Gnd
DCD	8	8	DCD
	11	25	HW Flow Control/RI In
DTR	20	20	DTR

Connecting Printers That Use RS-232 Cable Pin 20 (DTR) For Flow Control

TO PRINTER		TO DATASET	
Chassis Gnd	1	1	Chassis Gnd
TxD	2	2	TxD
RxD	3	3	RxD
RTS	4	4	RTS
CTS	5	5	CTS
DSR	6	6	DSR
Signal Gnd	7	7	Signal Gnd
DCD	8	8	DCD
DTR	20	25	HW Flow Control / RI In

17. XXXXXXXXXXXXXXXXXXXX

DATACABINET 9000 DESCRIPTION

CAUTION

Only Mitel designed and approved equipment may be installed within a DATACABINET 9000.

The DATACABINET 9000, part number 9141-900-100-NA, is a free-standing metal cabinet approximately 60 cm x 60 cm x 98 cm high (24 inches by 24 inches by 39 inches high). It has locking doors at the front and the rear, and contains rails inside for mounting data shelves and other equipment. Only MITEL designed and approved equipment is to be installed in the DATACABINET 9000.

Figure 17-1 shows the front view of the cabinet, with the door open, and a configuration of three DATASHELF 9100 assemblies and a Modern Interconnect Panel. Figure 17-2 shows a rear view of the cabinet interior with cables installed. Each shelf also has a 25-pair connectorized cable which connects to the PABX MDF, and one ac power cord.

The cabinet is mounted on four casters. The Power Distribution Unit (PDU) rear panel, shown in Figure 17-2, contains entrances for power and communication cables. Inside, on the left, is a power distribution panel for distributing power to equipment within the cabinet.

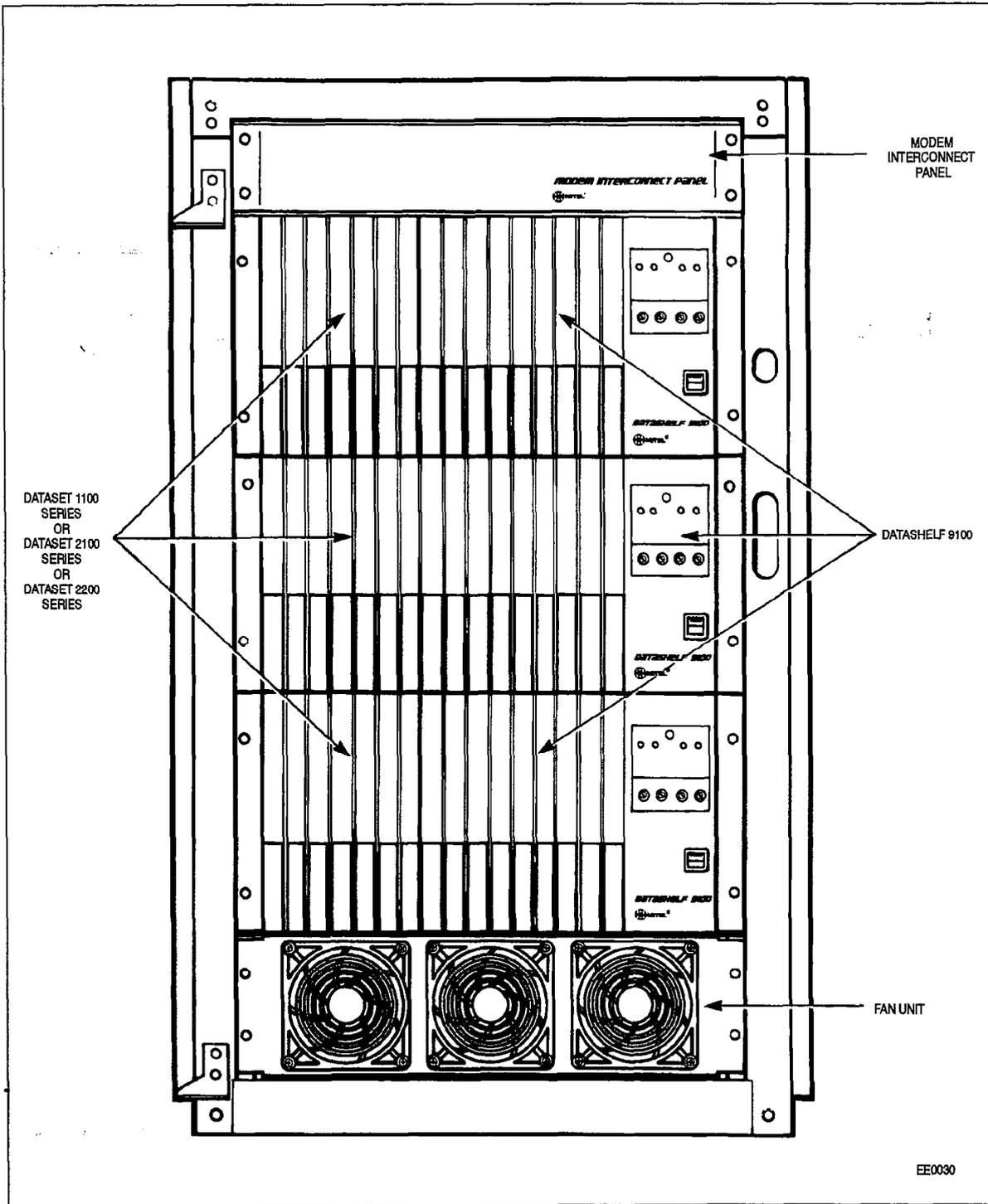


Figure 17-1 DATACABINET 9000, Front View

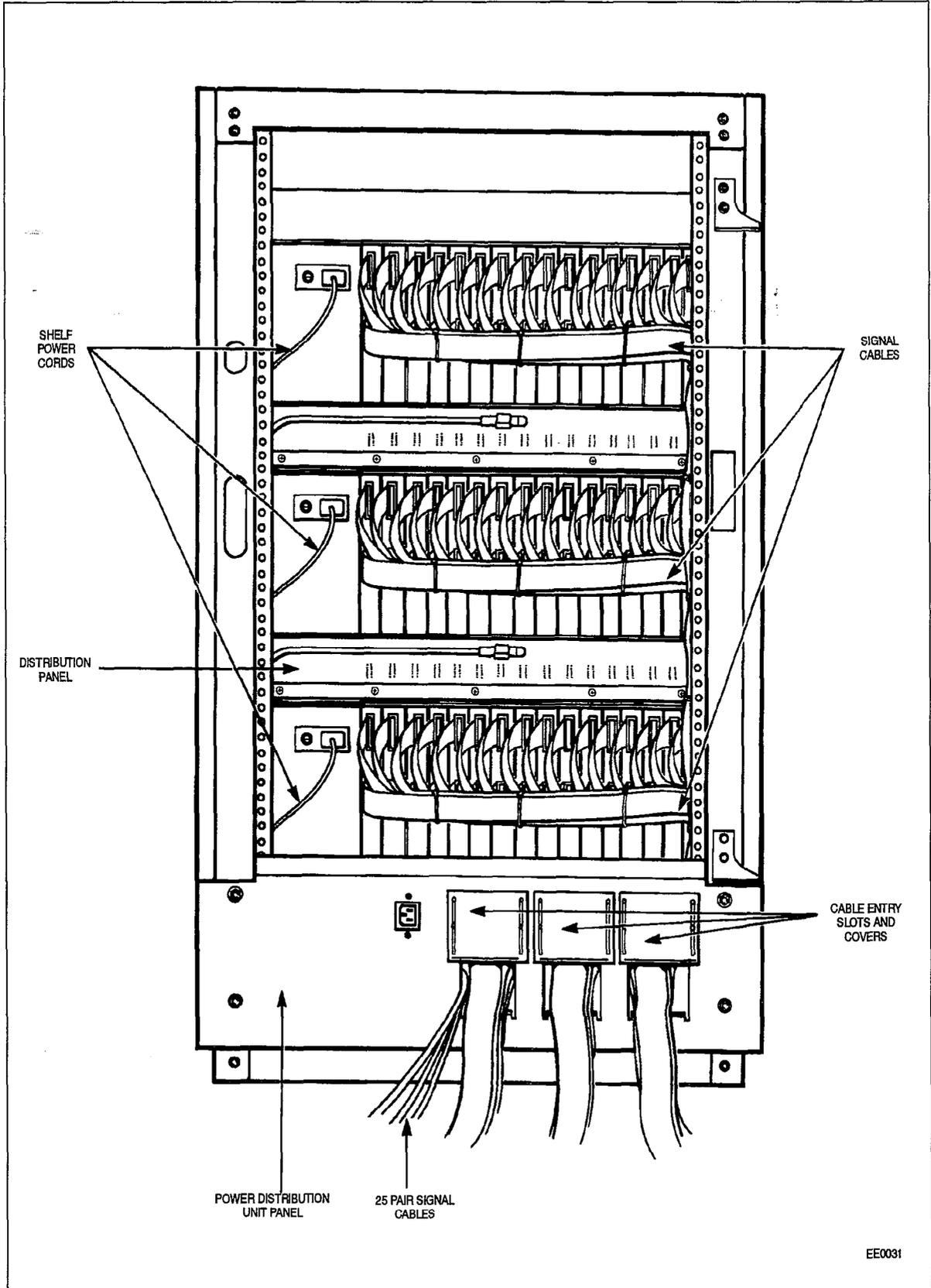


Figure 17-2 DATA CABINET 9000, Rear View

Configurations

- 17.1 A DATASHELF 9100 and a Modem Interconnect Panel are available for mounting within the DATACABINET 9000. This Part describes different configurations that can be set up within the cabinet. Configurations are restricted only by the 35 inch height limit of the 19 inch rack and the total heights of the equipment being installed on it. The DATASHELF 9100 is 8.75 inches high, and the Modem Interconnect Panel is 3.5 inches high. Instructions for installing each assembly into the DATACABINET 9000 are in Table 17-2.

The DATACABINET 9000, configured with three DATASHELF 9100 assemblies and one Modem Interconnect Panel, is shown in Figure 2-1.

Equipment within the DATACABINET 9000 is to be powered only from the internal ac distribution panel. No external ac line cords are to be brought into the cabinet.

The DATACABINET 9000 must always have the fan unit installed in the bottom of the cabinet.

Table 17-1 lists the possible configurations and equipment quantities which are available for a DATACABINET 9000.

Table 17-1 ATACABINET 9000 Configurations		
Equipment Configuration	DATASHELF 9100	Modem Interconnect Panel
1	1	—
2	1	1
3	2	—
4	2	1
5	2	2
6	3	—
7	3	1

DATACABINET 9000 Installation and Wiring

- 17.2 Unpack the DATACABINET 9000 and check it for damage or missing items. Position the cabinet where it is to be installed and equipped. Install the shelves and cables within the cabinet according to Table 17-2.

Table 17-2 Install Shelves, Cables, And Other Assemblies Into A Datababinet 9000

1	Unpack and inspect the shelf for damage or missing items.
2	Turn off the power switch and remove the line cord from its outlet. Open the doors of the cabinet.
3	Install the cardfile rails in the bottom of the cabinet, above the fan unit, as shown in Figure 17-3, for the first shelf being installed in the cabinet, or immediately above an existing shelf.
4	Place the shelf onto the cardfile rails and fasten to the front cabinet side rails with the screws provided.
5	Connect the frame ground wire from the shelf ground stud to the left side rail (as viewed from rear) within the cabinet, as shown in Figure 17-4. The Modem Interconnect Panel does not require a ground wire.
6	Install remaining shelves (or Modem Interconnect Panel) similarly; each requires that a pair of cardfile rails be installed first.
7	Connect ac cords from distribution panel to each shelf and attach to left side rail within cabinet.
8	At the front of cabinet, unpack and install the dataset cards and Filler plates into their assigned slots. See Note 1.
9	Install RS-232 signal cables to each card within each shelf; run the cable group for the bottom shelf through the right hand cable entry slot, run the cables for the middle shelf through the middle slot, and run the cables for the top shelf through the left slot.
10	Form each cable bundle neatly up the right side rail, as shown in Figure 17-2, and attach securely to the brackets on the side rails.
11	Install 25-pair cables in through one of the three cable entry slots on the rear PDU panel and route up the left side of the cabinet to the associated shelves; attach to side rail brackets separately from ac cords.
12	Close up the covers of the cable access slots, close and lock rear door.
13	Connect the 25-pair cables to their associated MDF, and crossconnect the MDF blocks as required.
14	Connect the RS-232 signal cables to their associated external equipment.
15	Customer Data Entry for the datasets must be completed at the PABX before the datasets will operate (refer to Practice 9109-095-210-NA, Customer Data Entry).
16	Connect the power cord from the DATACABINET 9000 to its ac outlet.
17	Turn on the power switch on the PDU panel at the rear of the cabinet.
18	Turn on shelf power supply, and close and lock door.

Notes: 1. Each card slot not equipped with a dataset must be equipped with a filler plate (pn MT163) to maintain correct flow of cooling air within the shelves; filler plates are not required in the top shelf of any installed configuration.

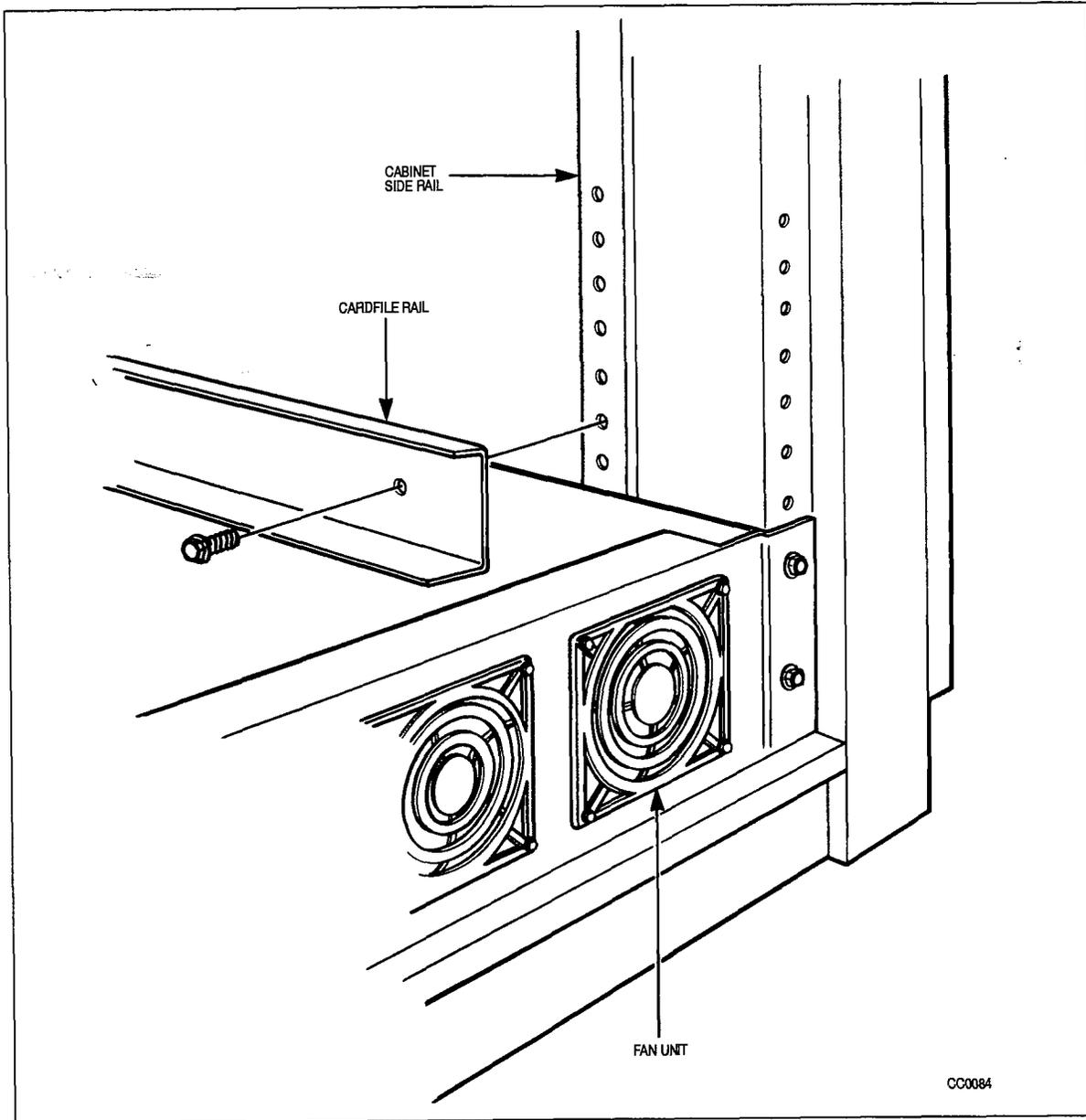
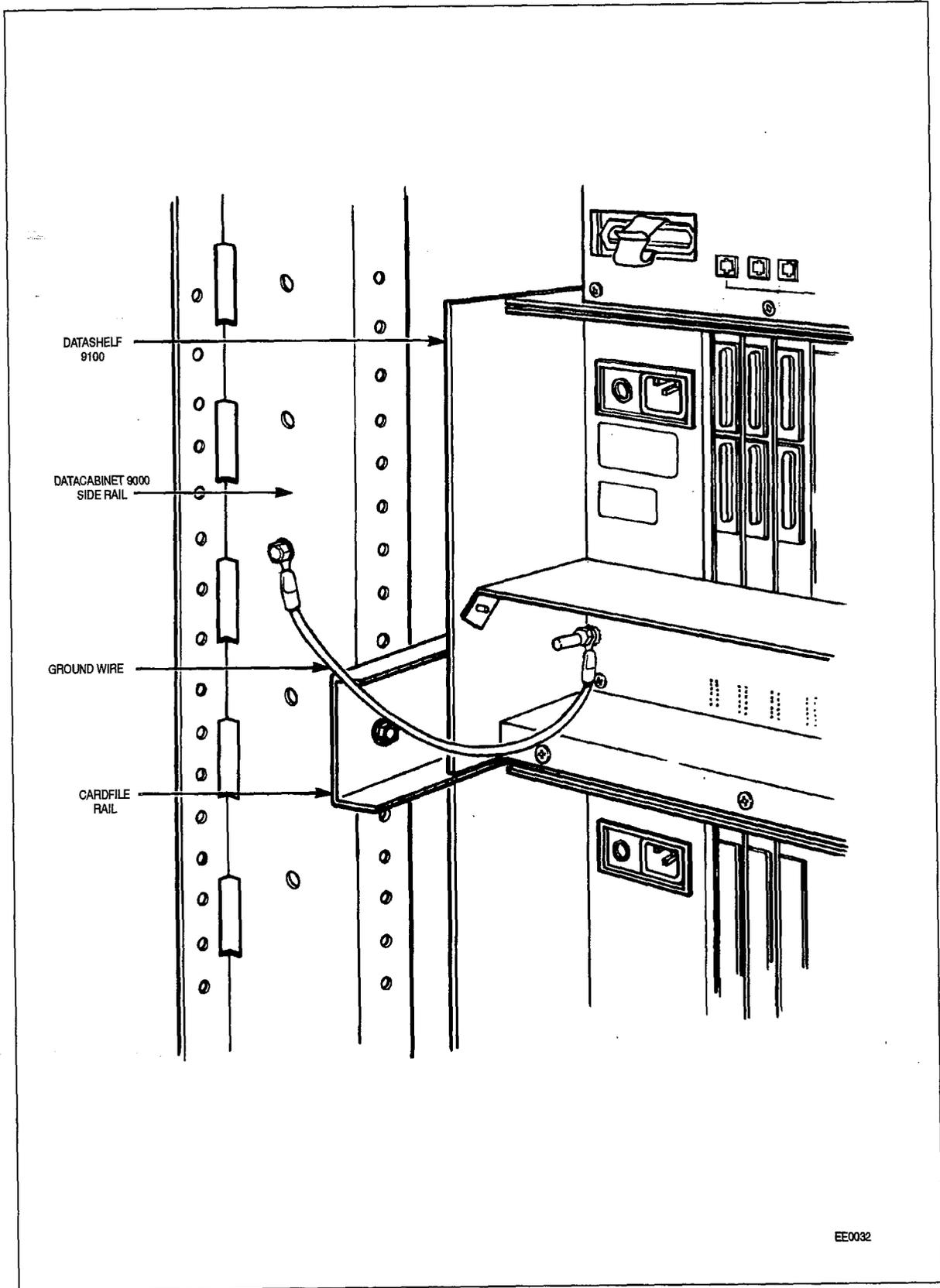


Figure 17-3 Installation of Cardfile Rail



EE0032

Figure 17-4 Connection of Shelf Ground Wire

18. DATASHELF 9100 DESCRIPTION

The DATASHELF 9100, part number 9141-901-100-NA, is 8.75 in. high. The left side of the shelf holds up to 16 dataset cards, while the right side contains an integral shelf power supply. All connections to the DATASHELF 9100 are made at the back of the shelf. Each card has connectors which are connected directly to the device with which the dataset is to communicate. Each dataset also has an edge connector which plugs into the shelf backplane; this connector provides power to the card, and connects Tip-Ring pairs through the backplane to the PABX. Figure 18-1 shows a front view of the DATASHELF 9100.

The shelf, the backplane, and the shelf power supply are one integral unit. The power supply provides 9 vac to each card connector. The power cord from the ac distribution panel plugs into the back of the shelf, directly behind the power supply. The dataset edge connectors which plug into the shelf connect the Tip and Ring to the 25-pair connector (J17) which is cabled to the PABX MDF. The pair assigned to each dataset is listed in Table 18-1. Figure 18-2 shows the backplane and connectors of the DATASHELF 9100.

Table 18-1 DATASHELF 9100 Tip and Ring Pin Assignments				
Slot	Dataset Tip	Dataset Ring	J17 Tip	J17 Ring
1	1	12	26	1
2	1	12	27	2
3	1	12	28	3
4	1	12	29	4
5	1	12	30	5
6	1	12	31	6
7	1	12	32	7
8	1	12	33	8
9	1	12	9	34
10	1	12	10	35
11	1	12	11	36
12	1	12	12	37
13	1	12	13	38
14	1	12	14	39
15	1	12	15	40
16	1	12	16	41

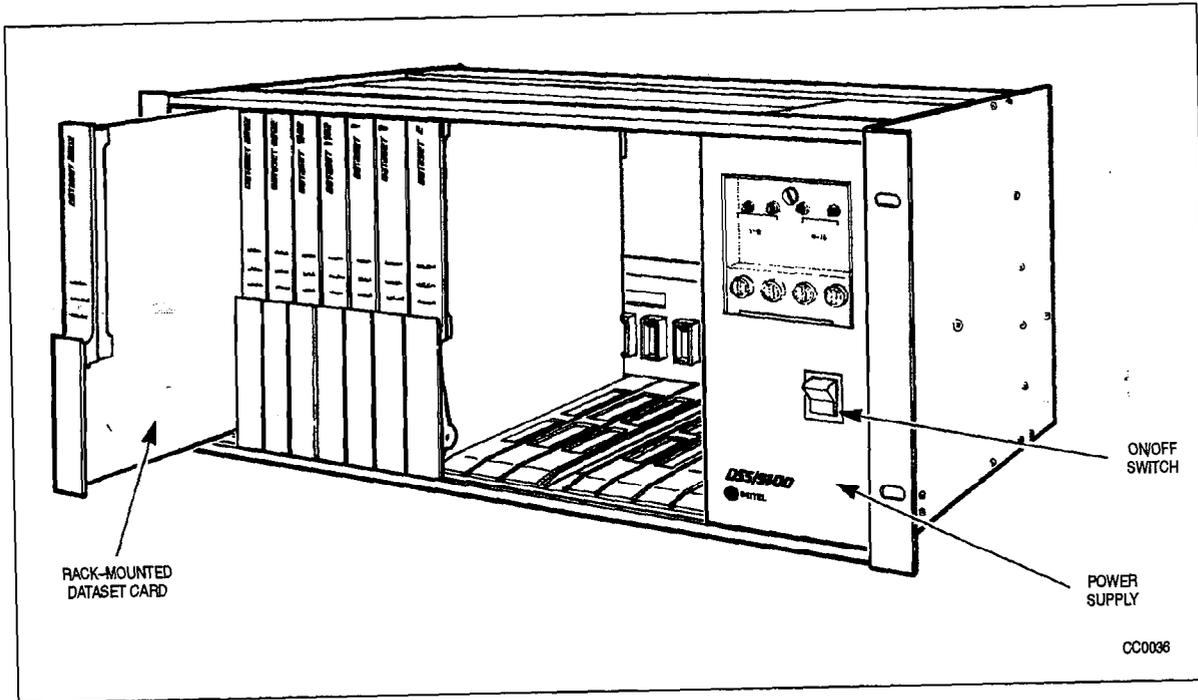


Figure 18-1 Front View of the DATASHELF 9100

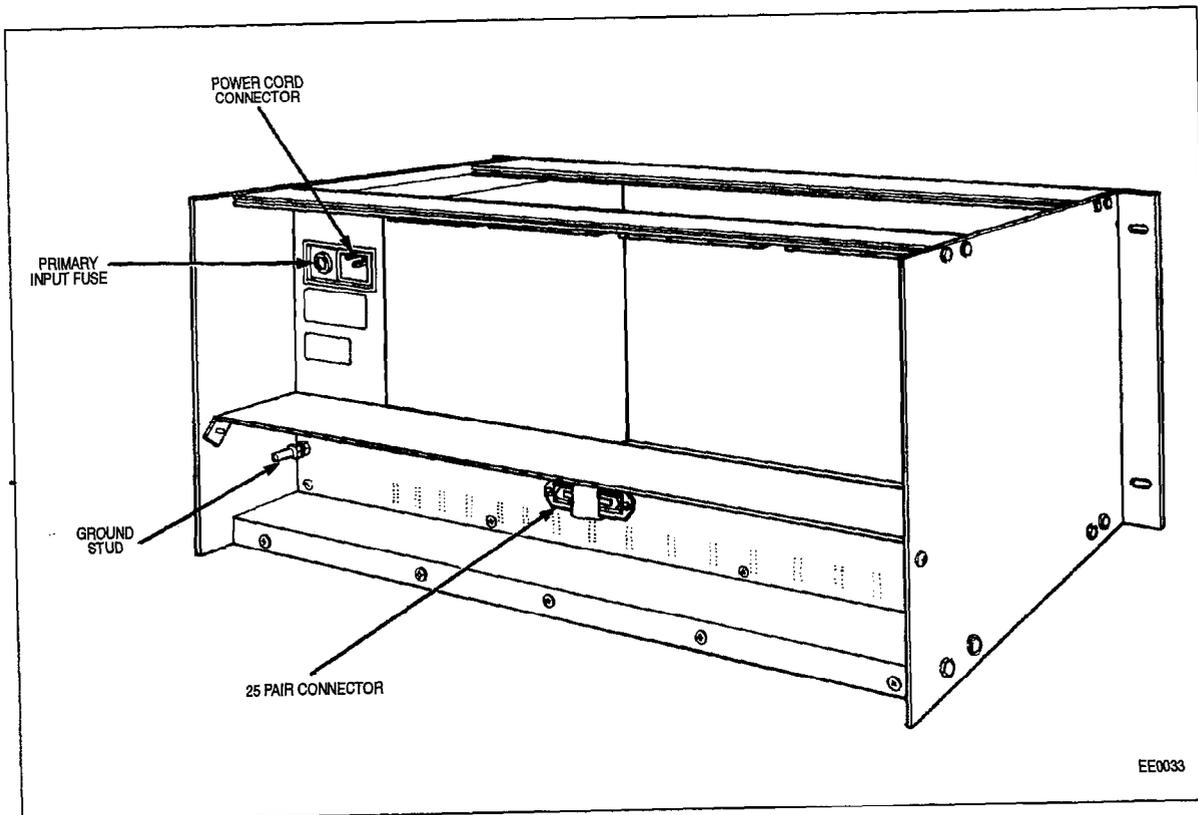


Figure 18-2 Backplane and Connectors of the DATASHELF 9100

Installation and Wiring

Table 18-2 Install DATASHELF 9100 Into a DATACABINET 9000

Step	Action
1	Unpack and inspect the shelf for damage or missing items.
2	Turn off the DATACABINET 9000 power switch and remove the line cord from its outlet. Open the doors of the cabinet.
3	Install the cardfile rails in the bottom of the cabinet, above the fan unit, as shown in Figure 17-3, for the first shelf being installed in the cabinet, or immediately above an existing shelf.
4	Place the shelf onto the cardfile rails and fasten to the front cabinet side rails with the screws provided.
5	Connect the frame ground wire from the shelf ground stud to the left side rail (as viewed from rear) within the cabinet, as shown in Figure 17-4.
6	Connect ac cords from distribution panel to the shelf and attach to left side rail within cabinet.
7	Unpack and install dataset cards and filler plates into their assigned slots; see Note 1.
8	Install signal cables to each shelf, and connect the signal cables to their associated equipment.
9	Form a cable bundle neatly up the right side rail, and attach securely to the brackets on the side rails.
10	Install 25-pair cable to the shelf; attach to side rail brackets separately from ac cords. Connect the 25-pair cable to its associated MDF, and cross connect the MDF blocks as required.
11	Close up the covers of the cable access slots, close and lock rear door.
12	Connect the power cord from the DATACABINET 9000 to its ac outlet.
13	Customer Data Entry for the datasets must be completed at the PABX before the datasets will operate (refer to Customer Data Entry Practice for PABX).
14	Turn on the power switch on the PDU panel at the rear of the cabinet.
15	Turn on shelf power supply, and close and lock door.

Notes: 1. Each card slot not equipped with a dataset must be equipped with a filler plate (pn MT163) to maintain correct flow of cooling air within the shelves; filler plates are not required in the top shelf of any installed configuration.

Peripheral Devices

19. **MODEM INTERCONNECT PANEL**

General

19.1 The Modem Interconnect Panel, part number 9141-940-100-NA, provides a method to connect a voice tip-ring pair from the PABX to a modem, and to connect the MI/MIC leads from the data set to the modem. Sixteen circuits are provided; each is the same, except for the tip-ring connection to the 25-pair cable. Figure 19-1 shows the connections to a Modem Interconnect Panel. The Modem Interconnect Panel is designed and approved only for installation in the Mitel DATACABINET 9000.

Connections

The RJ-11 modular jacks (FROM MODEM and TO DATASET) are connected together in pairs (pin 2 to pin 2 and pin 5 to pin 5). The FROM MODEM RJ-11 modular connector voice tip (pin 3) and voice ring (pin 4) are connected to the 25-pair cable connector pins as listed in Table 19-1. These cable pairs are then connected to ONS ports on the PABX.

Table 19-1 Modem Interconnect Panel Connections		
DATASET Jack / Modem Jack pair	25-pair connector	
	tip	ring
16	16	41
15	15	40
14	14	39
13	13	38
12	12	37
11	11	36
10	10	35
9	9	34
8	8	33
7	7	32
6	6	31
5	5	30
4	4	29

Table 19-1 Modem Interconnect Panel Connections (continued)		
DATASET Jack / Modem Jack pair	25-pair connector	
	tip	ring
3	3	28
2	2	27
1	1	26

Page 2 of 2

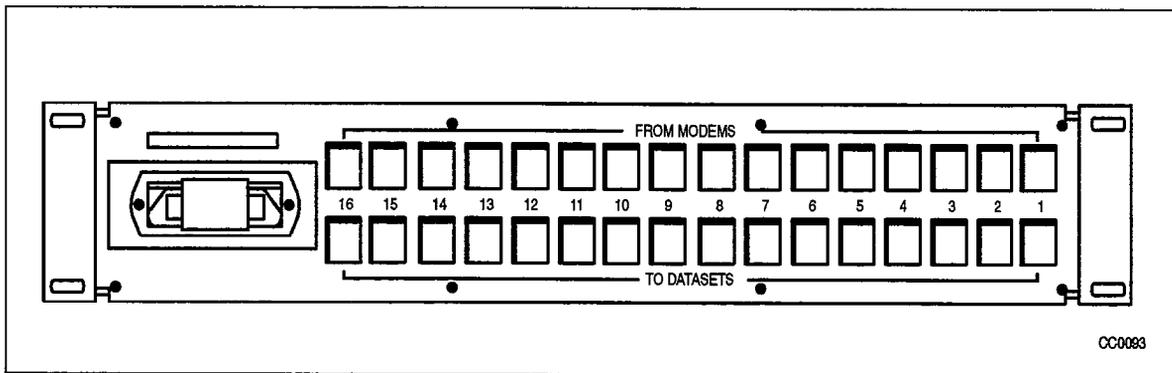


Figure 19-1 Modem Interconnect Panel Connectors

Chart 19-1 Install a Modem Interconnect Panel into a DATACABINET 9000	
Step	Action
1.	Unpack and inspect the Modem Interconnect Panel for damage or missing items.
2.	Turn off the DATACABINET 9000 power switch and remove the line cord from its outlet. Open the doors of the cabinet.
3.	Install the cardfile rails for the Modem Interconnect Panel immediately above an existing DATASHELF 9100 or Modem Interconnect Panel. Refer to Figure 17-3. The Modem Interconnect Panel(s) must always be installed immediately above the DATASHELF 9100 to maintain correct flow of cooling air.
4.	Place the Modem Interconnect Panel onto the cardfile rails and fasten to the front cabinet side rails with the screws provided.
5.	Run the cable groups through the cable entry slots. Form each cable bundle neatly up the right side rail, and attach securely to the brackets on the side rails; also attach to the strain reliefs at the back of the Modem Interconnect Panel.
6.	Install 25-pair cables in through one of the cable entry slots on the rear PDU panel and route up the left side of the cabinet and attach to side rail brackets separately from ac cords.

Page 1 of 2

**Chart 19-1 Install a Modem Interconnect Panel into a DATACABINET 9000
(continued)**

Step	Action
7.	Close up the covers of the cable access slots.
8.	Connect the 25-pair cables to their associated MDF, and cross-connect the MDF blocks as required.
9.	Attach one end of a 4-wire modular line cord to the jack usually labeled "TELCO" on the rear of the modem. Attach the other end of the line cord to the RJ-11 modular jack labeled "FROM MODEM" on the Modem Interconnect Panel.
10.	Attach one end of a 4-wire modular line cord to the "PHONE" jack of the Rack Mounted DATASET. Attach the other end of the line cord to the RJ-11 modular jack labeled "TO DATASET" on the Modem Interconnect Panel.
11.	Complete the PABX Customer Data Entry for the Modem Interconnect Panel.
12.	Close and lock Cabinet doors.
13.	Connect the power cord from the DATACABINET 9000 to its ac outlet.
Page 2 of 2	

Appendix A.

LOOP LENGTH SPECIFICATIONS FOR CONNECTIONS TO A DIGITAL LINE CARD

The following rules for loop lengths between the DNI Line Card within the PABX and the *SUPERSET 3DN* telephone, *SUPERSET 4DN* telephone, *SUPERSET DSS* module, or Superconsole 1000 Attendant Console must be followed for proper operation of the device:

- Maximum loop length (twisted pair) 24 or 26 AWG see Table
- Maximum length of quad cable (22 AWG) 50 m (160 ft)
- Modular Line Cord 3 m (10 ft)

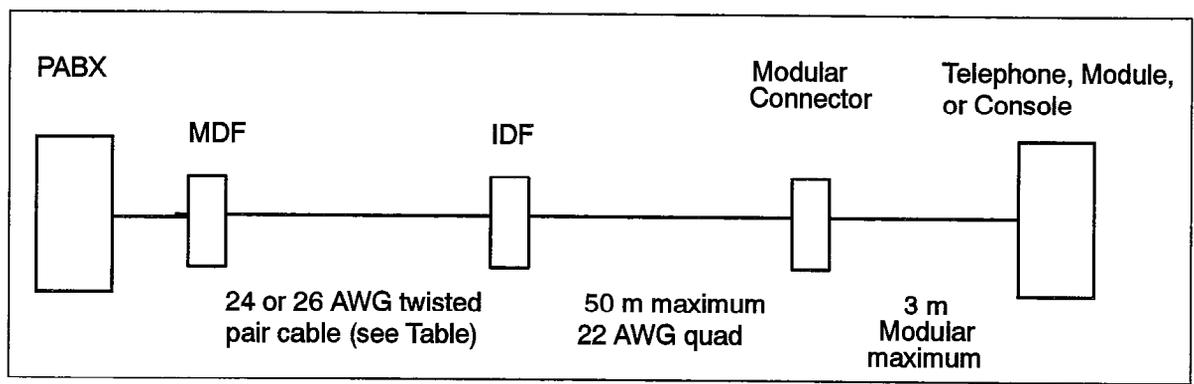


Table A-1 Maximum Loop Lengths for Peripheral Devices		
Peripheral Device	Maximum Loop Length	
	Without Bridge Tap	With Bridge Tap
<i>SUPERSET 3DN</i> Mk1 (9183-000-001)	1000 m	not permitted
<i>SUPERSET 3DN</i> Mk2 (9183-000-200)	1000 m	1000 m
<i>SUPERSET 4DN</i> Mk1 (9184-000-001)	1000 m	not permitted
<i>SUPERSET 4DN</i> Mk2 (9184-000-200)	1000 m	1000 m
<i>SUPERSET 401</i>	1000 m	1000 m
<i>SUPERSET 410</i>	1000 m	1000 m

Table A-1 Maximum Loop Lengths for Peripheral Devices (continued)		
Peripheral Device	Maximum Loop Length	
	Without Bridge Tap	With Bridge Tap
<i>SUPERSET 420</i>	1000 m	1000 m
<i>SUPERSET 430</i>	1000 m	1000 m
<i>SUPERSET DSS Module</i>	1000 m	1000 m
DATASET 1101	1000 m	1000 m
DATASET 1102	2000 m	1000 m
DATASET 1103	2000 m	1000 m
DATASET 2102	2000 m	1000 m
DATASET 2103	2000 m	1000 m
<i>SUPERCONSOLE 1000 console</i>	1000 m	1000 m

Page 2 of 2

Table A-2 Loop Lengths for <i>SUPERSET</i> Telephones		
Card Type	Wire Gauge (AWG)	Loop Length
COV line card	22	2010 m (6600 ft)
	24	1524 m (5000 ft)
	26	1006 m (3300 ft)
<i>SUPERSET</i> line card	22	840 m (2750 ft)
	24	610 m (2000 ft)
	26	470 m (1550 ft)
Digital Line Card	24	1006 m (3300 ft)
	26	1006 m (3300 ft)