9125-060-011-NA
Issue 1
July 1992

SX–2000® INTEGRATED COMMUNICATIONS™ SYSTEM

Control Sheet

NOTICE

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VT100™ is a trademark of Digital Equipment Corp.

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 Canandian Department of Communications.

Federal Communications Commision (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.

TABLE OF CONTENTS

1. INTRODUCTION

This Control Sheet lists the individual Practices which comprise the set of documents for the *SX–2000*® systems, at release MS2006–00. Practices are numbered according to the following scheme:

91WW–XXY–ZZZ–NA

The 91WW number is a system designator, defined as follows:

- 9120 – the document applies to *SX–2000* SG systems only
- 9121 – the document applies to *SX–2000* S systems only
- 9123 – the document applies to *SX–2000* VS systems only
- 9124 – the document applies to *SX–2000* FD systems only
- 9125 – the document applies to all *SX–2000* systems.

The –XXY– number is a release designator, and is used to indicate the Mitel Software Release (MSnnnn–nn). The last two digits of the Mitel Software Release preceeding the hyphen form the first two digits of the release designator. The third digit is reserved to indicate the software revision level. The numbers are mapped as follows: MS20XX–0Y. For example, Mitel Software Release MS2006–00 is designated in the –XXY– component of the document number as "–060–".

The –ZZZ– number is the Practice number. The tables in the subsequent parts of this document list the complete set of Practices by volume, document number, title, and issue level.

Intended Audience

1.1 This set of Practices is intended to provide system management, installation or maintenance personnel with the information required to install and maintain *SX–2000* systems. Training on *SX–2000* system installation and maintenance procedures is assumed.

This set of Practices is not intended for non–technical telephone users, nor is it intended for untrained or otherwise unqualified service personnel.

2. STRUCTURE

General

2.1 Volumes are structured in the following way:

- Volume 1 provides general information concerning the features and services of the system, its architecture, and engineering aspects of it.
- Volume 2 provides installation information and is applicable to one machine variant of the *SX–2000* system family.
- Volume 3 provides safety instructions, commissioning and customer data entry information.
- Volume 4 provides troubleshooting information.
- Volume 5 provides maintenance information.
- Volume 6 and Volume 7 provide software application and feature package information.

Section Number	Title	Issue
VOLUME 1		
9125–060–011–NA	Control Sheet	1
9125–060–100–NA	General Description	1
9125–060–105–NA	Features and Services	1
9125–060–126–NA	Peripheral Devices	1
9125–060–180–NA	Engineering Information	1
VOLUME 2–SG		
9125–060–011–NA	Control Sheet	1
9120–060–200–NA	Installation	1
9120–060–201–NA	System Fail Transfer	1
9120–060–202–NA	Power System	1
VOLUME 2–S		
9125–060–011–NA	Control Sheet	1
9121–060–200–NA	Installation	1
9121–060–201–NA	System Fail Transfer	1
9121–060–202–NA	Power System	1
VOLUME 2–VS		
9125–060–011–NA	Control Sheet	1
9123–060–200–NA	Installation	1
9123–060–201–NA	System Fail Transfer	1
9123–060–202–NA	Power System	1
VOLUME 2–FD		
9125–060–011–NA	Control Sheet	1
9124–060–200–NA	Installation	1
9124–060–201–NA	System Fail Transfer	1
9124–060–202–NA	Power System	1
VOLUME 3		
9125–060–011–NA	Control Sheet	1
9125–060–203–NA	Safety Instructions	1
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Section Number	Title	Issue
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9125–060–011–NA	Control Sheet	1
9125–060–350–NA	Troubleshooting	1
VOLUME 5		
9125–060–011–NA	Control Sheet	1
9125–060–351–NA	Maintenance Commands	1
9125–060–352–NA	Maintenance Messages	1
9125–060–353–NA	General Maintenance Information	1
9125–060–355–NA	Field–Replaceable Units	1
VOLUME 6		
9125–060–011–NA	Control Sheet	1
9125–060–220–NA	Automatic Route Selection	1
9125–060–221–NA	Station Message Detail Recording	1
9125–060–222–NA	Data Applications	1
9125–060–600–NA	Message Centre Feature Package	1
9125–060–601–NA	T1/D4 Feature Package	1
9125–060–602–NA	Hotel/Motel Feature Package	1
9125–060–603–NA	Traffic Reporting Feature Package	1
9125–060–604–NA	Trunk Group Busy Status Feature Package	1
9125–060–605–NA	Attendant Language Selection Feature Package	1
9125–060–606–NA	Advanced Analog Networking Feature Package	1
9125–060–607–NA	Main Control Redundancy Feature Package	1
9125–060–608–NA	Peripheral Control Redundancy Feature Package	1
9125–060–609–NA	Digital Sets Feature Package	1
9125–060–610–NA	MSDN/DPNSS Voice I Feature Package	1
9125–060–611–NA	MSDN/DPNSS Voice II Feature Package	1
9125–060–612–NA	MSDN/DPNSS Voice III Feature Package	1
9125–060–613–NA	MSDN/DPNSS Data Feature Package	1
9125–060–614–NA	MSDN/DPNSS Public Network Access Feature Package	1
9125–060–615–NA	Advanced Data Feature Package	1

Section Number	Title	Issue
VOLUME 7		
9125–060–011–NA	Control Sheet	1
9125–060–616–NA	Mitel Call Distribution Feature Package	1
9125–060–617–NA	Automated Attendant Feature Package	1
9125–060–618–NA	MSDN/DPNSS Voice IV Feature Package	1
9125–060–619–NA	MSDN/DPNSS Redirection Feature Package	1
9125–060–620–NA	Automatic Call Distribution Feature Package	1
9125–060–622–NA	*HCI*™ – Basic Telephony Feature Package	1
9125–060–623–NA	*HCI*™ – Advanced Telephony Feature Package	1
9125–060–624–NA	MSDN Release Link Trunks Feature Package	1
9125–060–625–NA	MSAN/APNSS Feature Package	1
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9125–060–627–NA	Autovon Feature Package	1
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Issue 1
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***SX-2000® INTEGRATED COMMUNICATIONS* SYSTEM**

Safety Instructions

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1. IMPORTANT SAFETY INSTRUCTIONS

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1. IMPORTANT SAFETY INSTRUCTIONS

These instructions are intended as a general guide to provide basic installation information which is necessary for the proper and safe functioning of this equipment.

WARNING **Failure to follow all instructions may result in improper equipment operation and/or risk of electrical shock.**

General

- Read and understand all instructions. Keep these instructions with the equipment.
- Do not attempt to install or service this equipment unless you are skilled in the installation and maintenance of electronic telecommunications equipment and have successfully completed specific training for this equipment.
- This product must be installed and serviced in accordance with this document and the information contained in this set of Technical Practices. Practice 9125–060–011–NA, Control Sheet, is the Practice Index document.
- Follow all procedures outlined in the practices in the sequence that is given.
- Install all assemblies using the procedures described in Practice 912X–060–200–NA, Installation.

Note: Practice numbers vary according to the particular product variant, i.e.,
9120–060–200–NA – Installation practice number for the *SX–2000*® SG system
9121–060–200–NA – Installation practice number for the *SX–2000* S system
9123–060–200–NA – Installation practice number for the *SX–2000* VS system
9124–060–200–NA – Installation practice number for the *SX–2000* FD system

- Configure this product with only the assemblies specified and in the locations stated in this set of Technical Practices.
- Replace all guards or barriers. Close and lock doors at the completion of installation or before returning the equipment to service.
- Grounding circuit continuity is vital for safe operation of telecommunications equipment. Never operate telecommunications equipment with the grounding conductor disconnected.
- Ensure grounding conductor is installed before connecting telecommunications cabling to any system.

Use of Notices

1.1 The following information provides an explanation of the notices which appear on the product and in the practices for this product:

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.

Use of Symbols

1.2 The following information provides an explanation of the symbols which appear on the product:

DANGEROUS VOLTAGE

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a significant risk of electric shock to persons.

INSTRUCTIONS

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

PROTECTIVE GROUNDING TERMINAL

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

General Installation Summary

Power Source	This product is intended to operate from an electrical source rated as indicated below. Each cabinet shall be powered from a separate branch circuit wired in accordance with the National Electrical Code or the Canadian Electrical Code, as applicable.			
	SX–2000 SG	–48 Vdc	60A	
	SX–2000 S	–48 Vdc	25A	
		120 Vac	15A	60 Hz
	SX–2000 VS	–48 Vdc	15A	
		120 Vac	15A	60 Hz
	SX–2000 FD	120 Vac	15A	60 Hz
Equipment Location	This product shall only be situated in a clean and dry environment in accordance with the environmental and other installation requirements specified in Practice 912X–060–200–NA, Installation.			
Cabinet Installation	The *SX–2000* VS cabinet is equipped with castors and leveling feet. Once the cabinet has been positioned, lock the front castors and lower leveling feet as required to stabilize cabinet.			
AC Power Cord	Use only the 3 – wire ac power cord supplied with this product.			
Power Distribution Cables	Refer to 912X–060–200–NA, Installation, for details on installation of power distribution cables.			

Fuse and Component Replacement

WARNING

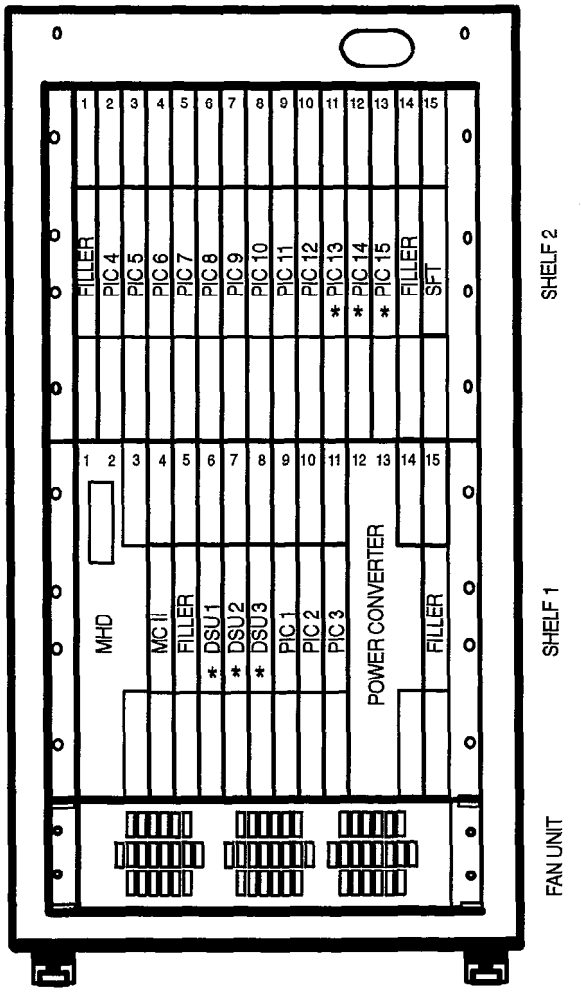
Unauthorized repair of this product may result in a fire or shock hazard, and/or defective operation and/or equipment damage. Do not repair or replace components on circuit card assemblies or other parts of this equipment unless there is a specific description of the procedure provided in this set of technical practices. Return all inoperative assemblies to an authorized mitel agent for repair.

1.3 Fuses identified with an electrical rating (voltage, current, type) shall be replaced with only the same type and rating. Never replace fuses with devices having different electrical ratings. Only those fuses installed in fuse–clips or fuse–holders shall be replaced in the field as directed by instructions in this set of Technical Practices. Do not replace or attempt to bypass soldered–in fuses on circuit card assemblies.

Refer to the appropriate documents in this document set for information on the proper method of troubleshooting and servicing of this product. Practice 9125–060–011–NA, Control Sheet, is the Practice Index document.

Identification and Location of Circuit Cards for Installation

1.4 The mechanical design consists of a metal enclosure, a card cage, and an interconnecting backplane which define the arrangement and position of circuit card assemblies. Installation of a circuit card assembly is performed by sliding it along the card cage guides in the appropriate slot until the card is firmly seated into the mating connector on the backplane. Refer to Figure 1–1 through Figure 1–5 for the specific locations of circuit cards.



* NOTES:
1) If 15 PICs are used, then only DSU 1 may be installed.
2) If DSU 1 and DSU 2 are required, then PIC 15 must not be installed.
3) If DSU 1, DSU 2 and DSU 3 are required, then PIC 13, PIC 14 and PIC 15 must not be installed.
4) Refer to Table 1–11, DSUs and Table 1–12, PICs for lists of approved cards.

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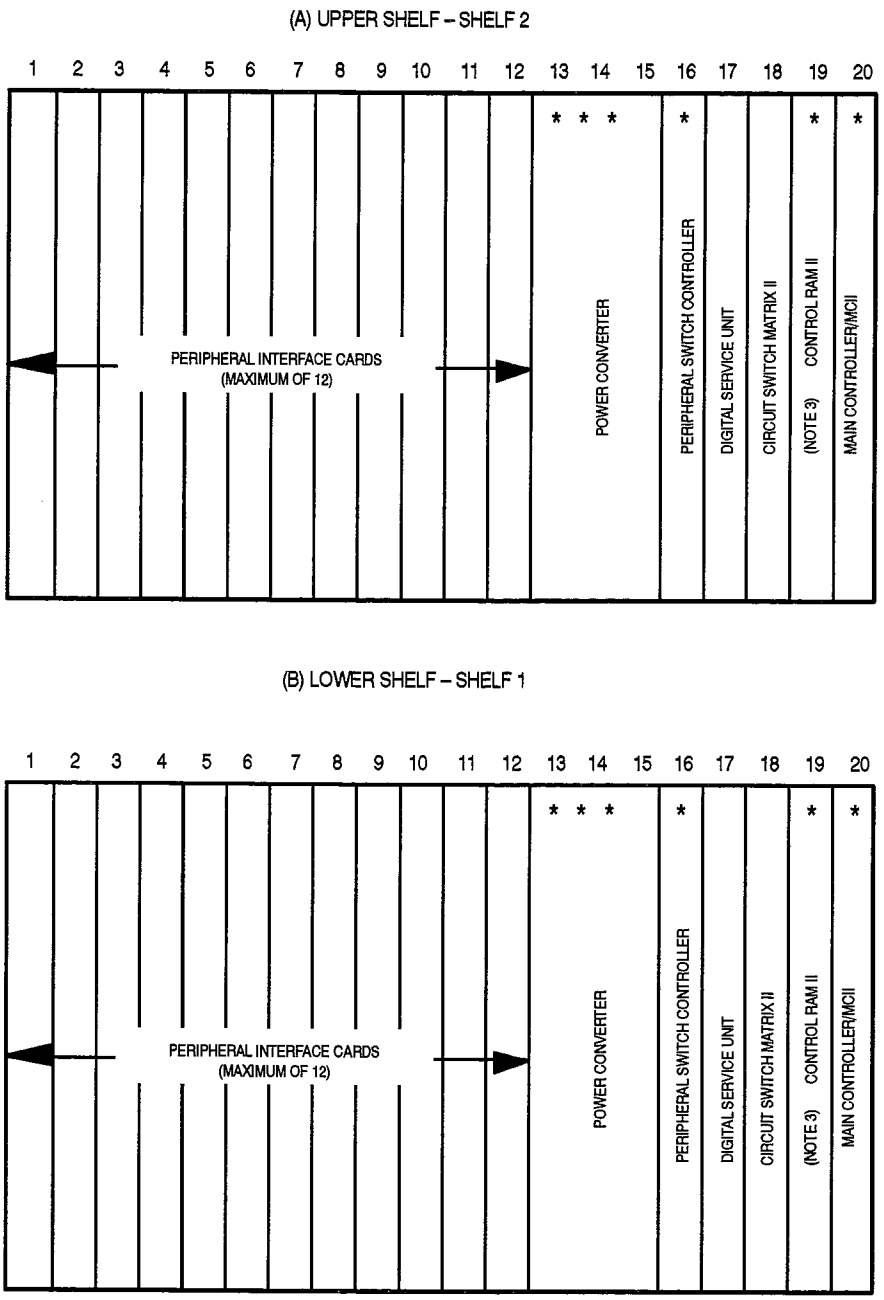
Figure 1–1 *SX–2000* VS System Circuit Card Locations



NOTES:
1. The minimum system must have the cards indicated by * installed in slots as shown.
2. Refer to Table 1–11, DSUs and Table 1–12, PICs, for lists of approved cards.
3. Control RAM II card not required with Main Controller II card.

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Figure 1–2 *SX–2000* S System Circuit Card Locations

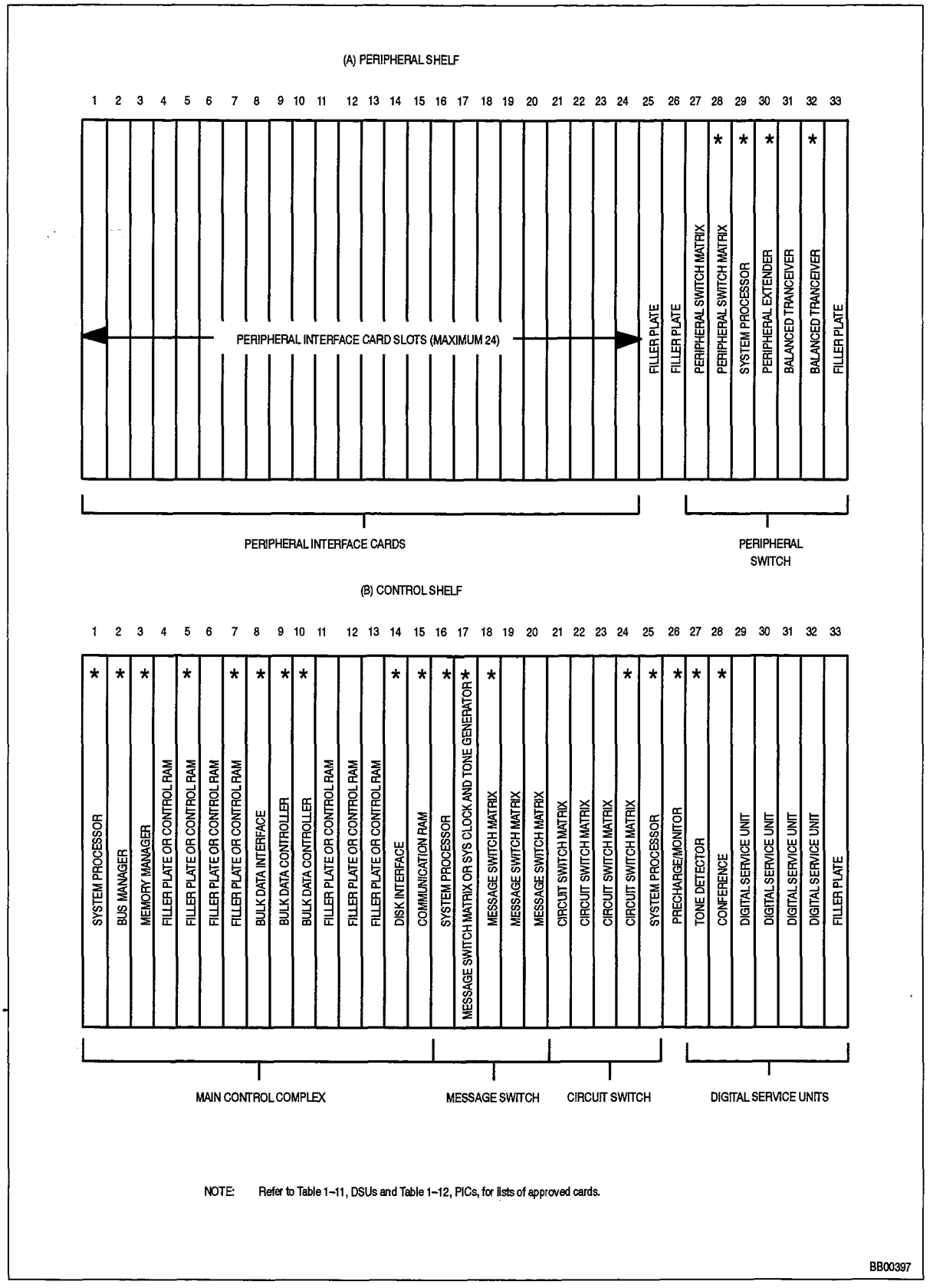


Figure 1–3 *SX–2000* SG System Circuit Card Locations

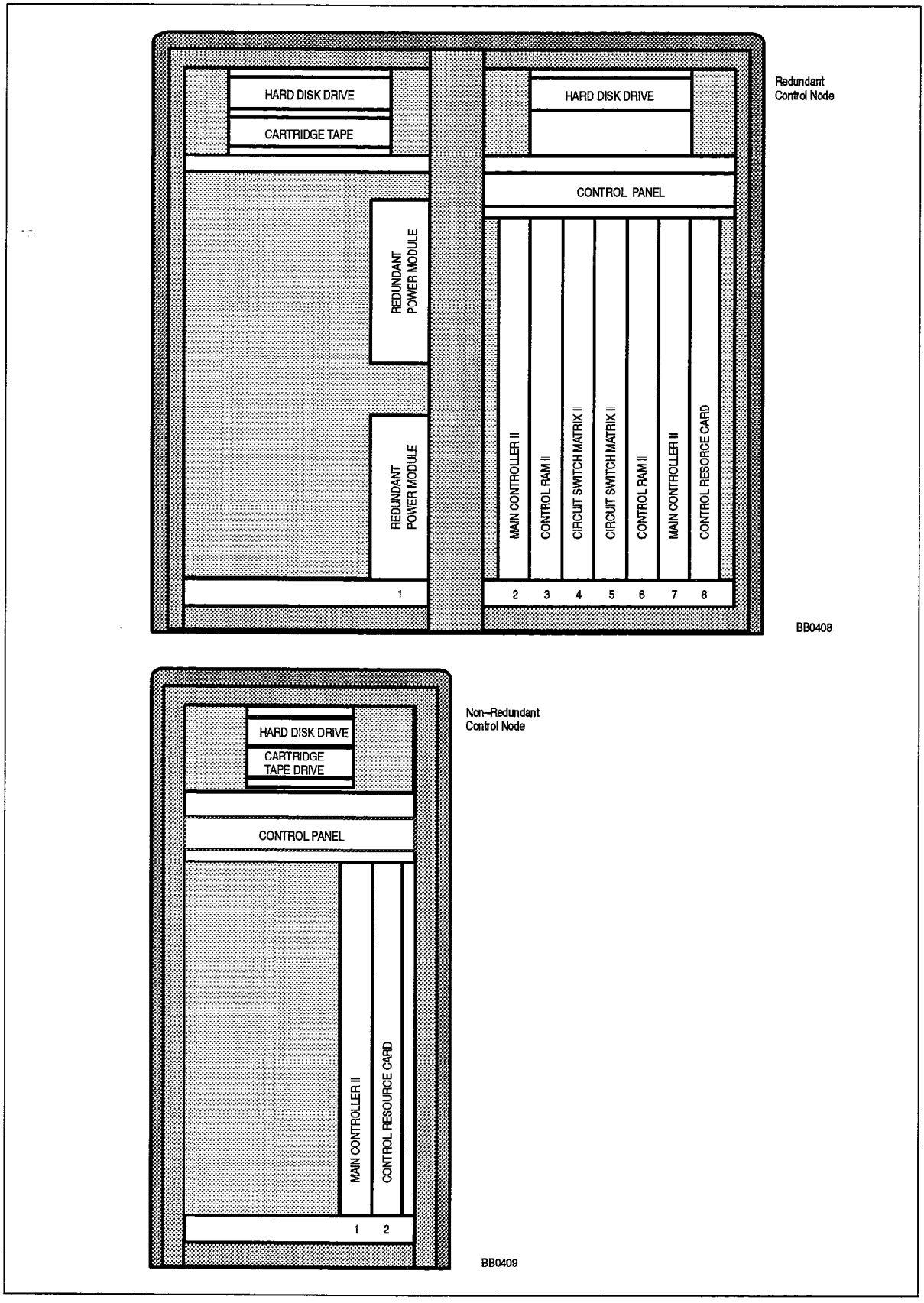
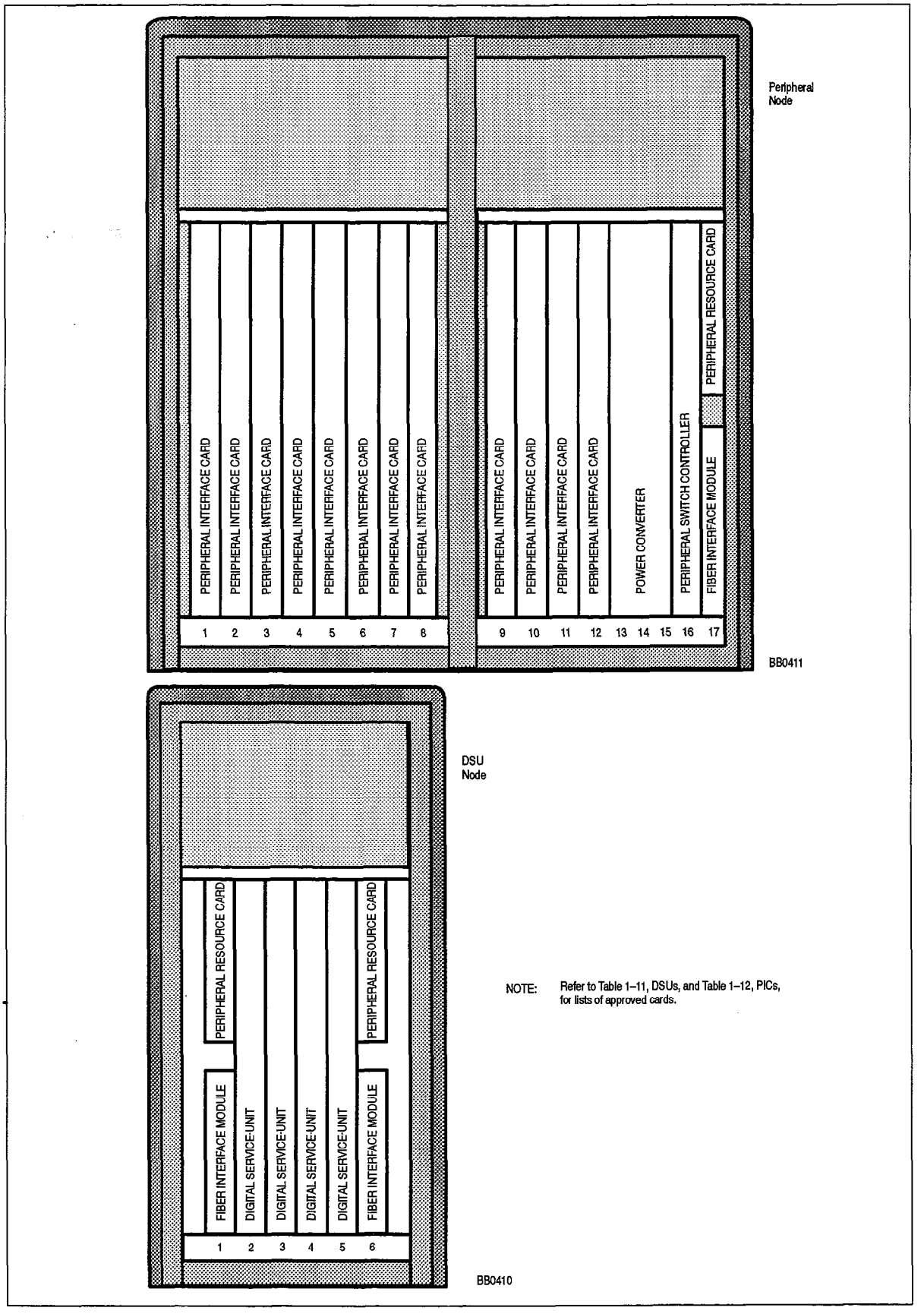


Figure 1–4 *SX–2000* FD System Circuit Card Locations in the Control Node



NOTE: Refer to Table 1–11, DSUs, and Table 1–12, PICs, for lists of approved cards.

Figure 1–5 *SX–2000* FD System Circuit Card Locations in the Peripheral and DSU Nodes

Equipment Grounding

General Description

1.5 Redundant and independent equipment grounding conductors (see Note 1) are to be installed between the product and the wiring system ground.

One of the equipment's grounding conductors shall be an insulated grounding conductor (see Note 2) that is not smaller in size and is equivalent in insulation material and thickness to the grounded and ungrounded branch circuit supply conductor, except that it is green with or without one or more yellow stripes. The grounding conductor is to be installed as part of the circuit that supplies that product or system and is to be connected to ground at the service equipment.

The other conductor (see Note 3) shall comply with the general rules for grounding contained in Article 250 of the National Electrical Code, NFPA 70, or Section 10 of the Canadian Electrical Code, CSA C22.1, but shall not depend on the cord and plug of the product.

Notes: 1. There are two grounding conductors required to be installed with this equipment. One ground conductor is provided as part of the three wire 15 A branch circuit from which the product derives ac power. The other ground conductor is the supplementary or telecommunications ground.

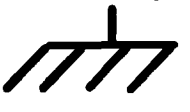
The *SX–2000* FD Control and DSU cabinets do not require separate and independent equipment grounding conductors. The supplementary ground is only required if the cabinet contains telecommunications interfaces that connect to exposed or outside plant leads. These generally include LS/GS and DID trunk cards and OPS line cards. Please refer to Figure 1–14.

The power cord for this product should only be replaced with one having the same number of conductors, gauge, insulation and usage ratings.

The telecommunications ground conductor shall be installed before installing other telecommunications wiring to the system. Multicabinet system installations may share a common ground conductor. Refer to Practice 912X–060–200–NA, Installation, for specific instructions for correct system grounding.

2. This grounding conductor is provided as part of the ac power cord–set provided with the equipment. The size of this conductor is allowed as stated in the National Electrical Code (NEC) in the United States NFPA/ANSI 70 Section 250–95, Exception No. 1 which provides for compliance through Section 240–4, Exception No. 1. The following symbol identifies the connection point for the safety grounding conductor:

3. This grounding conductor is referred to as the telecommunications ground or supplementary ground as permitted in Section 250–91 (c) of the NEC. This shall be an insulated #6 AWG, green or green and yellow striped wire which is to be connected to the grounding stud within the cabinet. The following symbol is located adjacent to the stud to identify the connection point for the system grounding conductor:



SX–2000 SG Grounding

Table 1–1 and Table 1–2 detail the grounding cables for control and peripheral cabinets. Refer to Figure 1–6, Figure 1–7, and Figure 1–8 when using the tables.

Safety ground cables are connected to the chassis of the cabinet and units within the cabinet via ground studs which are located at relevant points on the equipment.

Cables which terminate on shelf converters have sufficient length to prevent unnecessary cable strain when the door is opened. Care should be exercised to ensure that the available cable slack is not tied back into the cable form.

Table 1–1 Control Cabinet Grounding Cables (*SX–2000* SG System)

STEP	GAUGE	FUNCTION	FROM	TO	REMARKS	DONE
1.	10 AWG See Note 1.	Safety ground source	The nearest electrical utility ground, external to the cabinet.	The Safety Ground stud at the rear of the cabinet at the top.	Cable is supplied by the customer.	
2.	10 AWG	Safety Ground (Power Distribution Unit)	Chassis side–member adjacent to PDU	Power distribution Unit	See Figure 1–6.	
3.	4 AWG	System ground	Control Cabinet System ground bar.	Control Cabinet overhead ground bar.		
4.	10 AWG	Safety ground (Converter)	Chassis side–member adjacent to converter No. 1.	Ground lug on converter No. 1.	See Figure 1–6 for chassis connection detail.	
5.	10 AWG*	Safety ground (Converter)	Chassis side–member adjacent to converter No. 2.	Ground lug on converter No. 2.	See Figure 1–6 for chassis connection detail.	
6.	10 AWG	Safety ground (Converter)	Chassis side–member adjacent to converter No. 3.	Ground lug on converter No. 3.	See Figure 1–6 for chassis connection detail.	
7.	10 AWG*	Safety ground (Converter)	Chassis side–member adjacent to converter No. 4.	Ground lug on converter No. 4.	See Figure 1–6 for chassis connection detail.	
8.	10 AWG	Safety Ground (Converter Fan Unit)	Chassis side–member adjacent to Converter Fan Unit.	Ground lug on Converter Fan Unit.	See Figure 1–6.	
9.	10 AWG	Safety ground (Cabinet Door)	Left–hand chassis side–member at the top.	Chassis of the rear door.	See Figure 1–6 for connection detail.	
10.	4 AWG See Note 2.	System ground	Site building ground	Control cabinet overhead ground bar.	Cable positions on the system ground bar are counted from the top.	
11.	4 AWG	Safety Ground Strap	System Ground Bar position 1.	Right–hand chassis member.	See Figure 1–6.	
12.	10 AWG	Reference ground (4–connector loop cable)	System ground bar position 8.	Maintenance unit ground lug, located on the unit's backplane. Shelf 4 ground lug, located on the shelf backplane.*	See Figure 1–6. See Figure 1–6 and Figure 1–8.	

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Table 1–1 Control Cabinet Grounding Cables (*SX–2000* SG System) (continued)

STEP	GAUGE	FUNCTION	FROM	TO	REMARKS	DONE
				Shelf 3 ground lug, located on the shelf backplane.	See Figure 1–6 and Figure 1–8.	
				Shelf 2 +5 VR rail, located on the shelf backplane.*	See Figure 1–6 and Figure 1–7.	
				Shelf 1 +5 VR rail, located on the shelf backplane.	See Figure 1–6 and Figure 1–7.	
13.	4 AWG	Power ground	System ground bar position 7.	Cabinet power distribution unit.	See Figure 1–6.	
14.	10 AWG*	Energy Dumping Ground (Shelf 4)	Energy dumping ground bar position 1.	Upper energy dumping ground lug, located on the backplane of Shelf 4.	See Figure 1–6 and Figure 1–8.	
15.	10 AWG*	Energy Dumping Ground (Shelf 4)	Energy dumping ground bar position 3.	Lower energy dumping ground lug, located on the backplane of Shelf 4.	See Figure 1–6 and Figure 1–8.	
16.	10 AWG	Energy Dumping Ground (Shelf 3)	Energy Dumping ground bar position 5.	Upper energy dumping ground lug, located on the backplane of Shelf 3.	See Figure 1–6 and Figure 1–8.	
17.	10 AWG	Energy Dumping Ground (Shelf 3)	Energy dumping ground bar position 7.	Lower energy dumping ground lug, located on the backplane of Shelf 3.	See Figure 1–6 and Figure 1–8.	
18.	4 AWG	Energy Dumping Ground Strap	Energy dumping ground bar position 2.	Right–hand chassis member.	See Figure 1–6.	
19.	4 AWG	Energy Dumping Ground Strap	Energy dumping ground bar position 6.	Right–hand chassis member.	See Figure 1–6.	
20.	4 AWG	Energy Dumping Ground Strap	Energy dumping ground bar position 9.	Right–hand chassis member.	See Figure 1–6.	
21.	4 AWG	Energy Dumping Ground Strap	Energy dumping ground bar position 12.	Right–hand chassis member.	See Figure 1–6.	
22.	4 AWG	Energy Dumping Ground Strap	Energy dumping ground bar position 4.	System ground bar position 9.	See Figure 1–6.	

* The requirement for this cable is dependent on which configuration options are employed.

Notes: 1. Cable length must not exceed 50 feet.

2. This cable should be a continuous conductor which has a total resistance of less than 0.5 ohms when measured between its point of origin; (i.e., ground source), and the safety ground of the control cabinet.

Table 1–2 Peripheral Cabinet Grounding Cables (*SX–2000* SG System)

STEP	GAUGE	FUNCTION	FROM	TO	REMARKS	DONE
1.	Repeat Steps 2 through 11 and 14 through 22 in Table 1–1.					
2.	4 AWG	System ground	Peripheral cabinet system ground bar.	Peripheral cabinet overhead ground bar.		
3.	4 AWG	System ground	Control cabinet overhead ground bar.	Peripheral cabinet overhead ground bar.		
4.	4 AWG	Safety ground	Control cabinet safety ground stud.	Peripheral cabinet safety ground stud.		
5.	10 AWG	Reference ground (4–connector loop cable)	Energy dumping ground bar position 7.	Maintenance unit ground lug, located on the unit's backplane.	See Figure 1–6.	
				Shelf 4 ground lug, located on the shelf backplane.*	See Figure 1–6 and Figure 1–8.	
				Shelf 3 ground lug, located on the shelf backplane.	See Figure 1–6 and Figure 1–8.	
				Shelf 2 ground lug, located on the shelf backplane.*	See Figure 1–8.	
				Shelf 1 ground lug, located on the shelf backplane.	See Figure 1–8.	
6.	10 AWG*	Energy Dumping Ground (Shelf 2)	Energy dumping ground bar position 8.	Upper energy dumping ground lug, located on the backplane of Shelf 2.	See Figure 1–6 and Figure 1–8.	
7.	10 AWG*	Energy Dumping Ground (Shelf 2)	Energy dumping ground bar position 10.	Lower energy dumping ground lug, located on the backplane of Shelf 2.	See Figure 1–6 and Figure 1–8.	
8.	10 AWG	Energy Dumping Ground (Shelf 1)	Energy dumping ground bar position 11.	Upper energy dumping ground lug, located on the backplane of Shelf 1.	See Figure 1–6 and Figure 1–8.	
9.	10 AWG	Energy Dumping Ground (Shelf 1)	Energy dumping ground bar position 13.	Lower energy dumping ground lug, located on the backplane of Shelf 1.	See Figure 1–6 and Figure 1–8.	

* The requirement for this cable is dependent on which configuration options are employed.

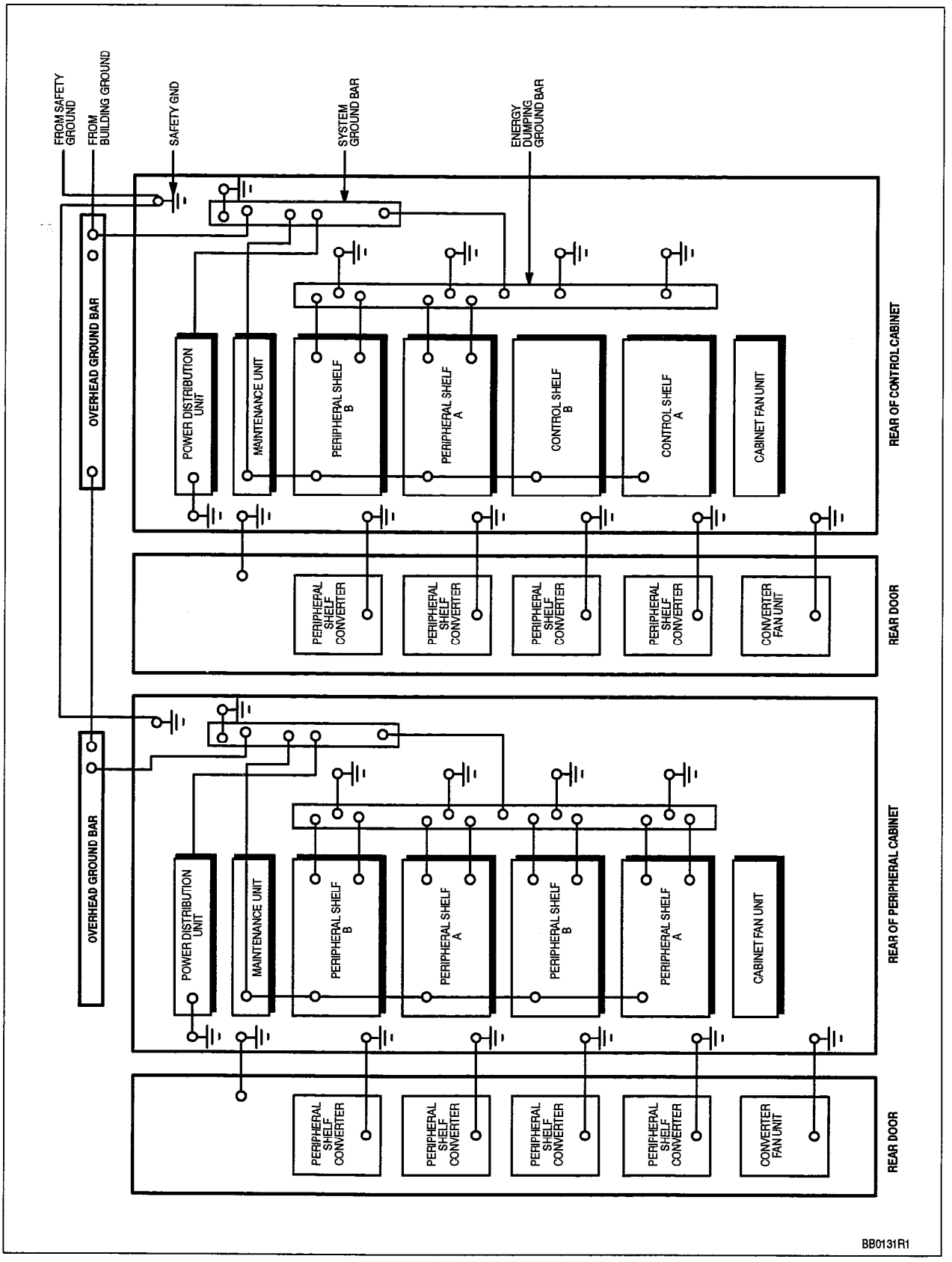

Figure 1–6 *SX–2000* SG System Ground Connections

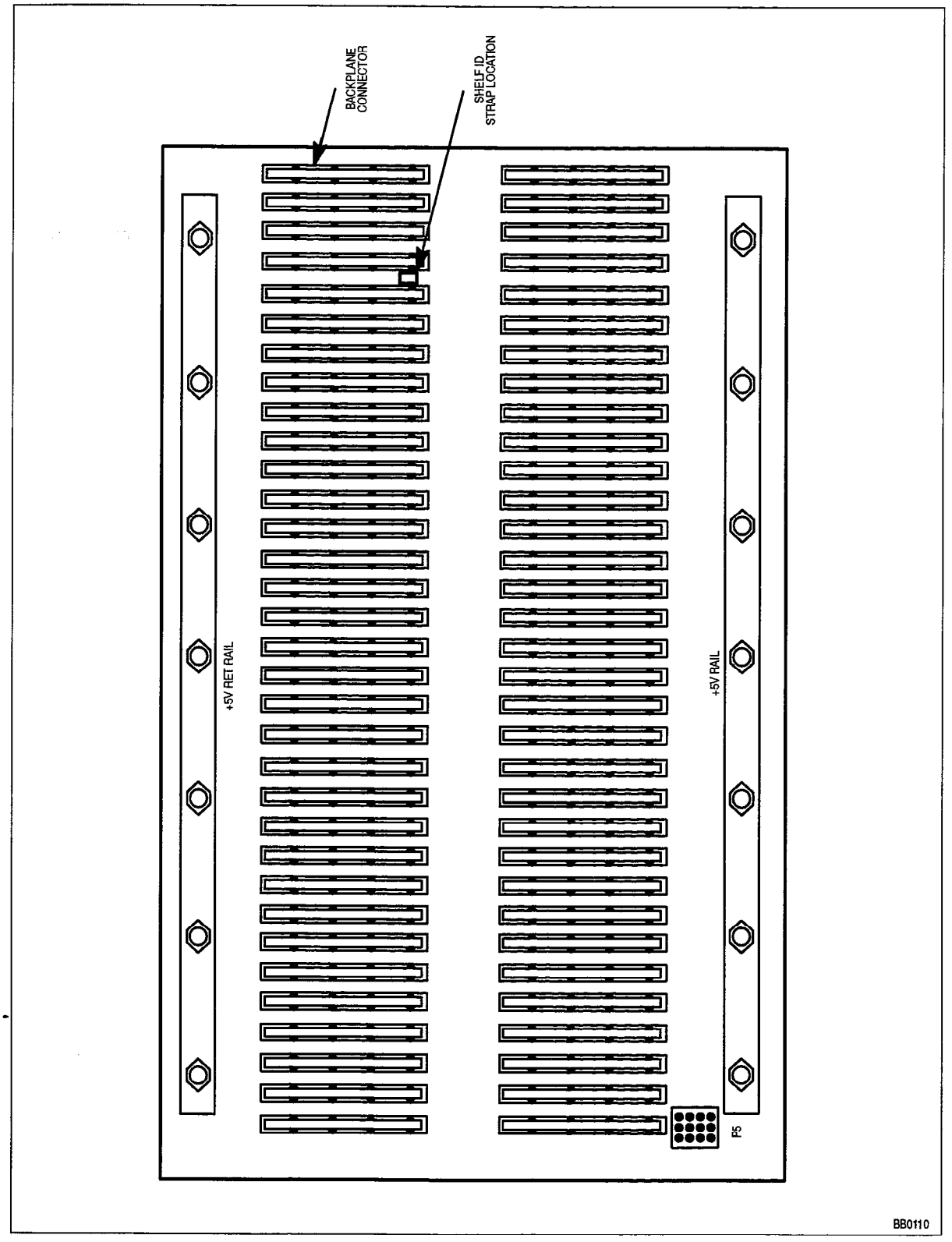

Figure 1–7 *SX–2000* SG Control Backplane

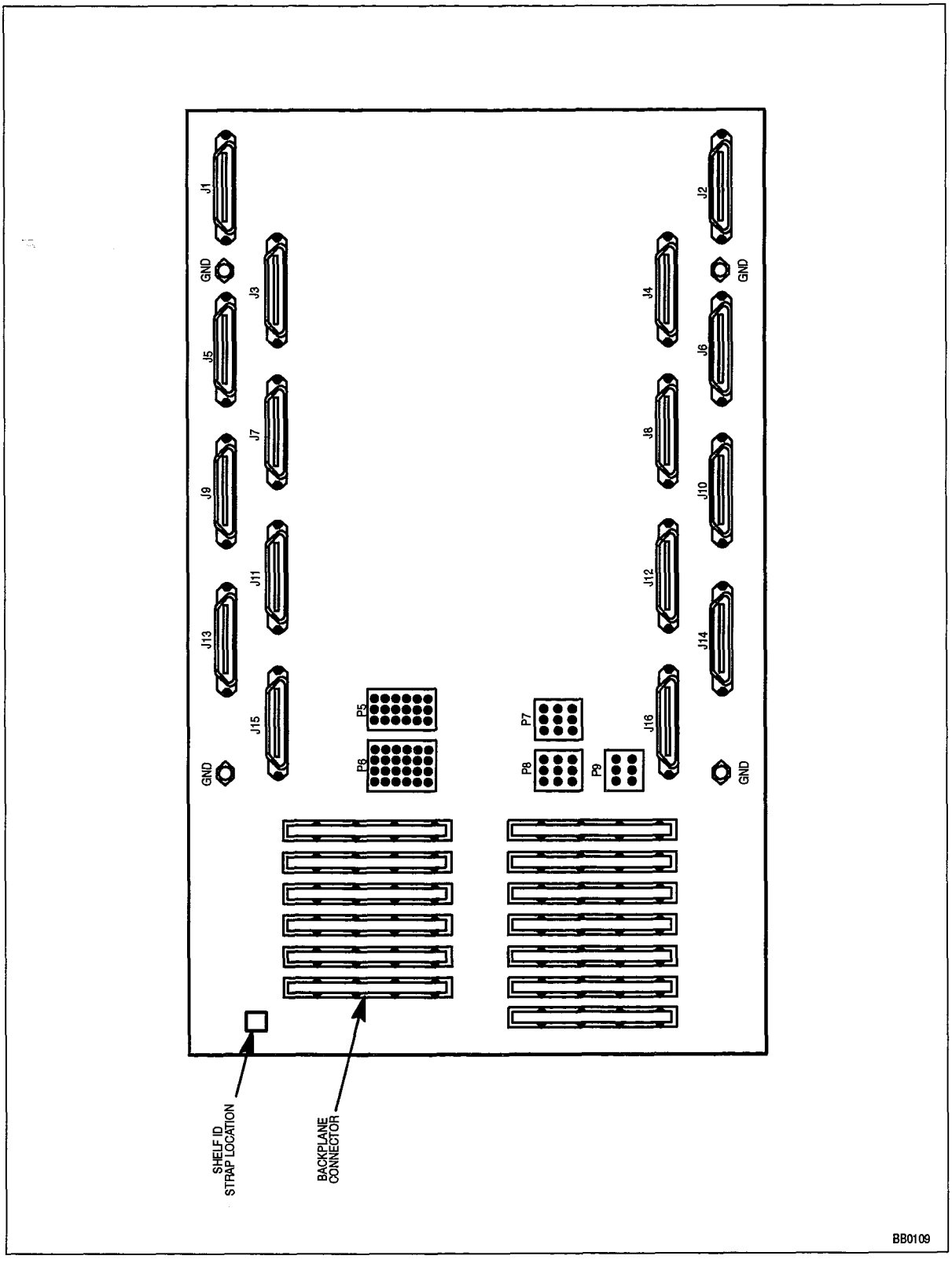

Figure 1–8 *SX–2000* SG Peripheral Backplane

SX–2000 S Grounding

Two separate grounding paths must be provided to the *SX–2000* S system.

- Building (approved) ground
- Electrical (safety) ground

Figure 1–9 shows the grounding arrangements for the *SX–2000* S system.

The building (approved) ground path is completed by a customer–supplied conductor which terminates on the Power Distribution Unit system ground terminal, located on the rear of the cabinet. The system ground is distributed within the cabinet to provide a –48 Vdc power ground to the power distribution unit and an analog/digital ground to the circuits mounted in the shelves of the cabinet.

Energy Dumping Grounds connect to the chassis of the cabinet and to the EDG studs on each shelf in the cabinet and provide a path to ground for high voltages which may appear on lines external to the cabinet.

Table 1–3 and Table 1–4 provide the steps required to safely ground *SX–2000* S ac and dc systems. Refer to Figure 1–9 when using the tables.

WARNING **Grounding instructions must be followed explicitly to ensure the safety of personnel.**

Table 1–3 AC Systems Grounding Cables (External)

Item	Gauge	Function	From	To	Remarks
1.	10 AWG. See Note 1.	Safety ground source.	The nearest electrical utility ground external to the cabinet.	The Safety Ground stud on the floor of the control cabinet.	Cable supplied by the installation company.
2.	10 AWG	Safety ground.	The Safety Ground stud in one cabinet.	The Safety Ground stud in adjacent cabinet.	Cable is supplied in peripheral cabinet. See Note 4.
3.	14 AWG	Safety ground jumper.	The Safety Ground stud on the cabinet floor.	The Protective Earth stud (GND2) on the back of the PDU.	See Figure 1–11.
4.	6–10 AWG. See Note 2.	System ground source.	Site building ground.	System Ground Terminal on rear panel of each cabinet Power Distribution Unit. See Note 3.	See Figure 1–9, Figure 1–10 and Figure 1–11.

Notes: 1.

a) See Figure 1–11.

b) Cable length must not exceed 50 feet.

2. This cable is supplied by the installation company. The cable must be a continuous conductor which has a total resistance of less than 0.5 ohms when measured between its point of origin; (i.e., ground source), and the system ground of each cabinet.
3. On systems operating in the U.K., the system ground cable is terminated on the Functional Earth terminal of the TB3 terminal block (see Figure 1–11).
4. The sequence for connection of the external grounding cables in multicabinet systems is:

   Cabinet #2 to Cabinet #1,
   Cabinet #3 to Cabinet #2 and
   Cabinet #4 to Cabinet #3.

Table 1–4 DC System Grounding Cables (External)

Item	Gauge	Function	From	To	Remarks
1.	10AWG. See Note 1.	Safety ground source.	The nearest electrical utility ground external to the cabinet.	The Safety Ground Terminal on the rear of Control Cabinet Power Distribution Unit.	Cable supplied by the installation company.
2.	14 AWG	Safety ground jumper.	The Safety Ground stud on the cabinet floor.	The Protective Earth stud (GND2) on the back of the Power Distribution Unit.	See Figure 1–12.
3.	10 AWG	Safety ground.	The Safety Ground stud in one cabinet.	The Safety Ground stud in adjacent cabinet.	Cable is supplied in peripheral cabinet. See Note 4.
4.	6 AWG. See Note 2.	System ground source.	Site building ground.	System Ground Terminal on rear panel of each cabinet Power Distribution Unit. See Note 3.	See Figure 1–9, Figure 1–10 and Figure 1–12.

Notes: 1.

a) See Figure 1–10.

b) Cable length must not exceed 50 feet.

2. This cable is supplied by the installation company. The cable must be a continuous conductor which has a total resistance of less than 0.5 ohms when measured between its point of origin; (i.e., ground source), and the system ground of each cabinet.
3. On systems operating in the U.K., the system ground cable is terminated on the Functional Earth terminal of the TB3 terminal block (see Figure 1–12).
4. The sequence for connection of the external grounding cables in multicabinet systems is:

   Cabinet #2 to Cabinet #1,
   Cabinet #3 to Cabinet #2 and
   Cabinet #4 to Cabinet #3.

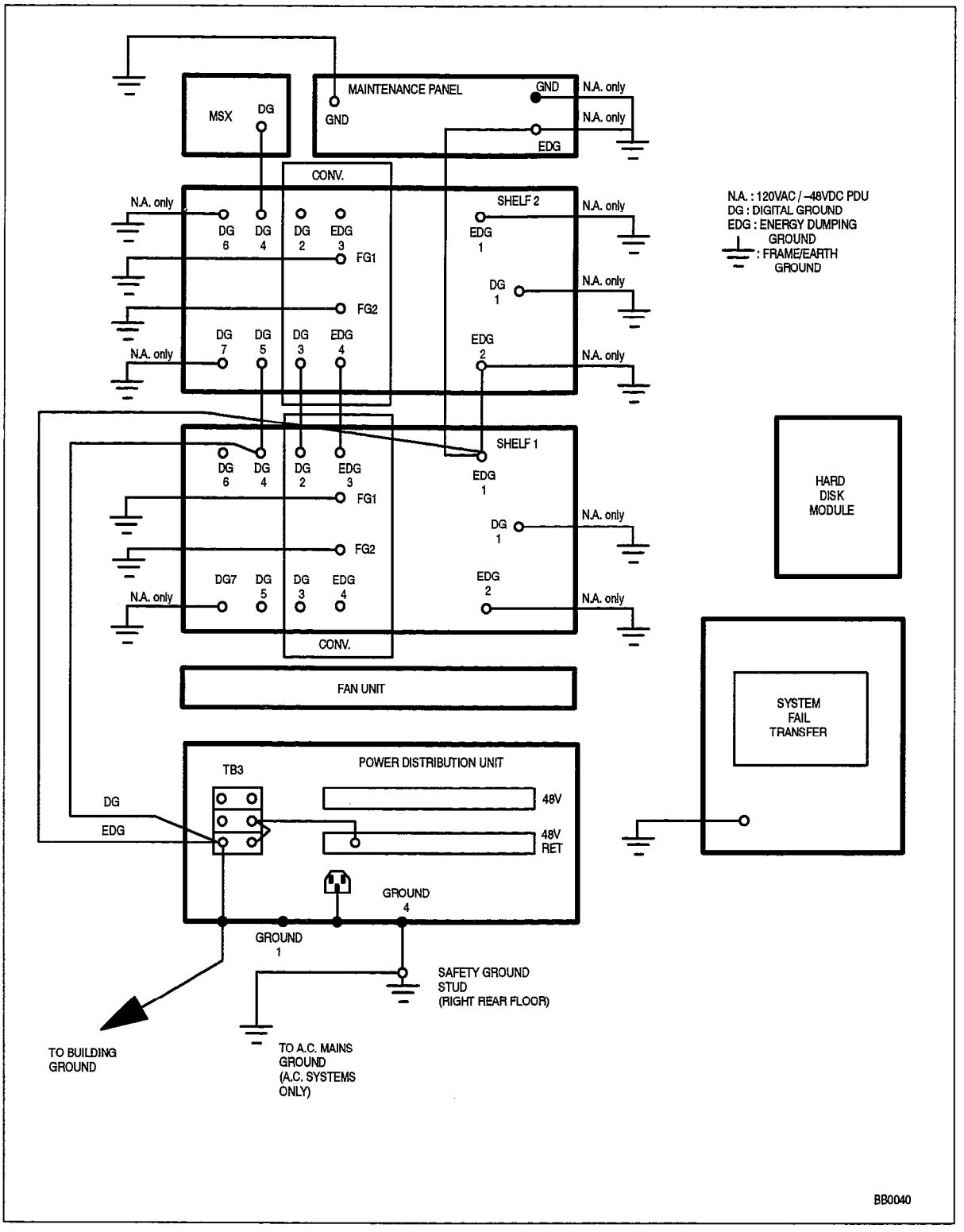

Figure 1–9 *SX–2000* S System Ground Connections

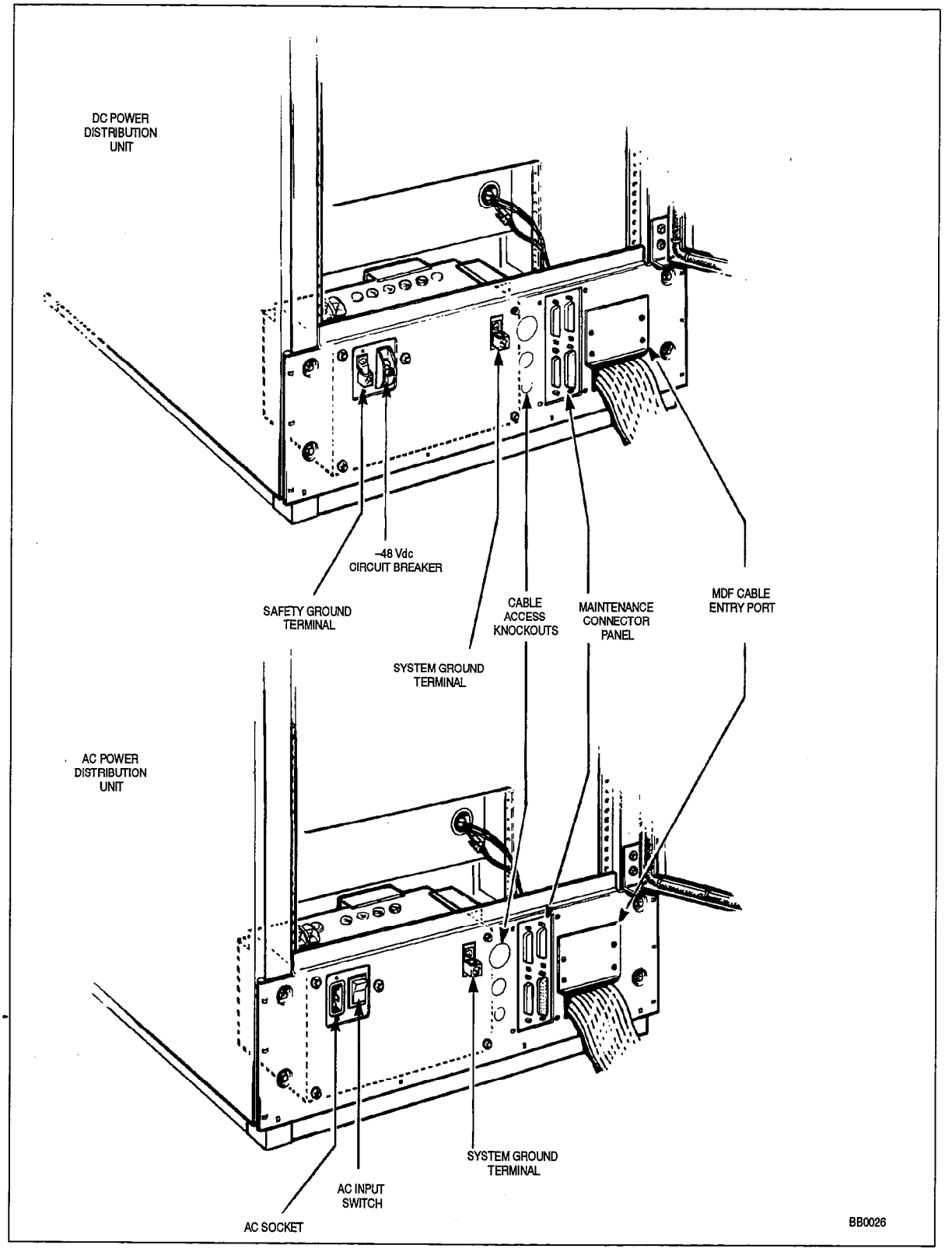

Figure 1–10 *SX–2000* S System AC and DC Power Distribution Units (Rear Panel)

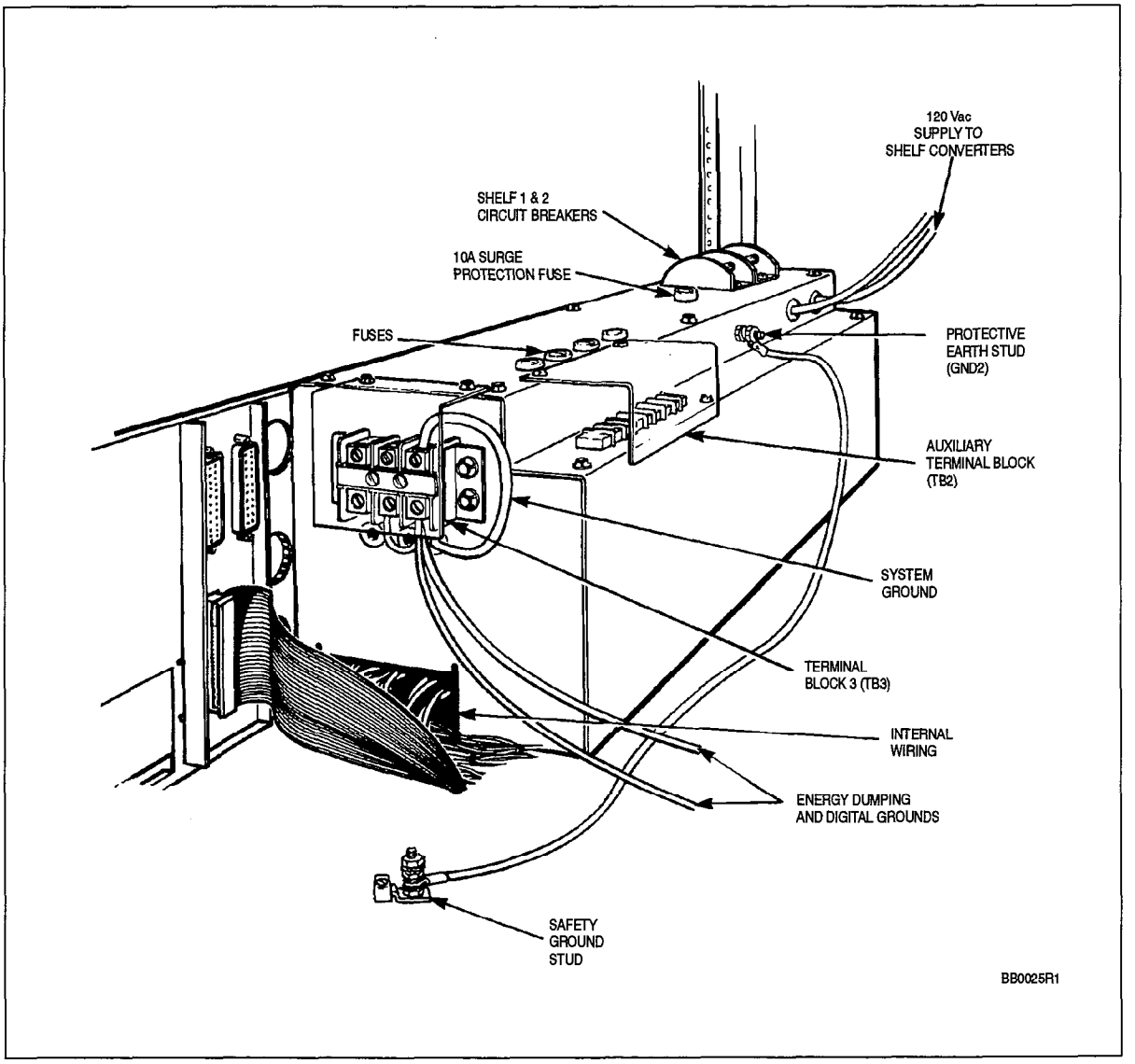

Figure 1–11 *SX–2000* S System AC Power Distribution Unit Terminal Blocks

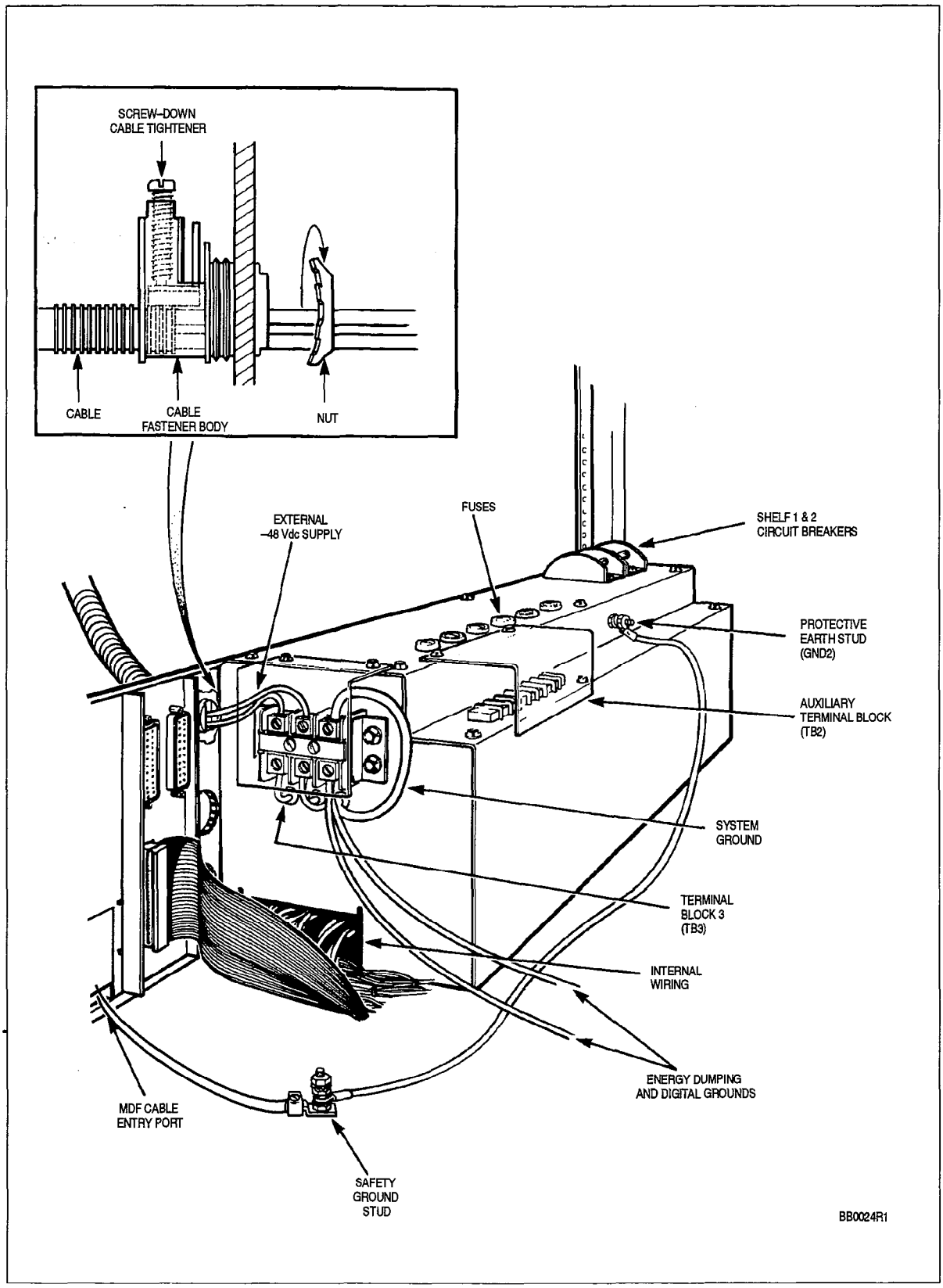

Figure 1–12 *SX–2000* S System DC Power Distribution Unit Terminal Blocks

SX–2000 VS Grounding

The *SX–2000* VS systems operating in North America require only one external ground, the safety ground. A ground clip, attached to the EMI shield, links the safety ground to the system ground on the System Filter Assembly Card.

The System Filter Assembly card, plugged into the backplane, provides a common point for all grounds in the system (DG1).

Refer to Figure 1–13 for ground references on the *SX–2000* VS system.

Grounding cables are to be installed in accordance with the information that is listed in Table 1–5.

Table 1–5 *SX–2000* VS System Cabinet Grounding Cables (External)

Item	Gauge	Function	From	To	Remarks
1.	2–8 AWG (See Note)	Safety Ground	The nearest electrical utility ground that is external to the system cabinet.	The Safety Ground terminal on the back of the System cabinet, beside the PDU.	The cable is supplied by the installation company.

Note: The cable length must not exceed 50 feet.

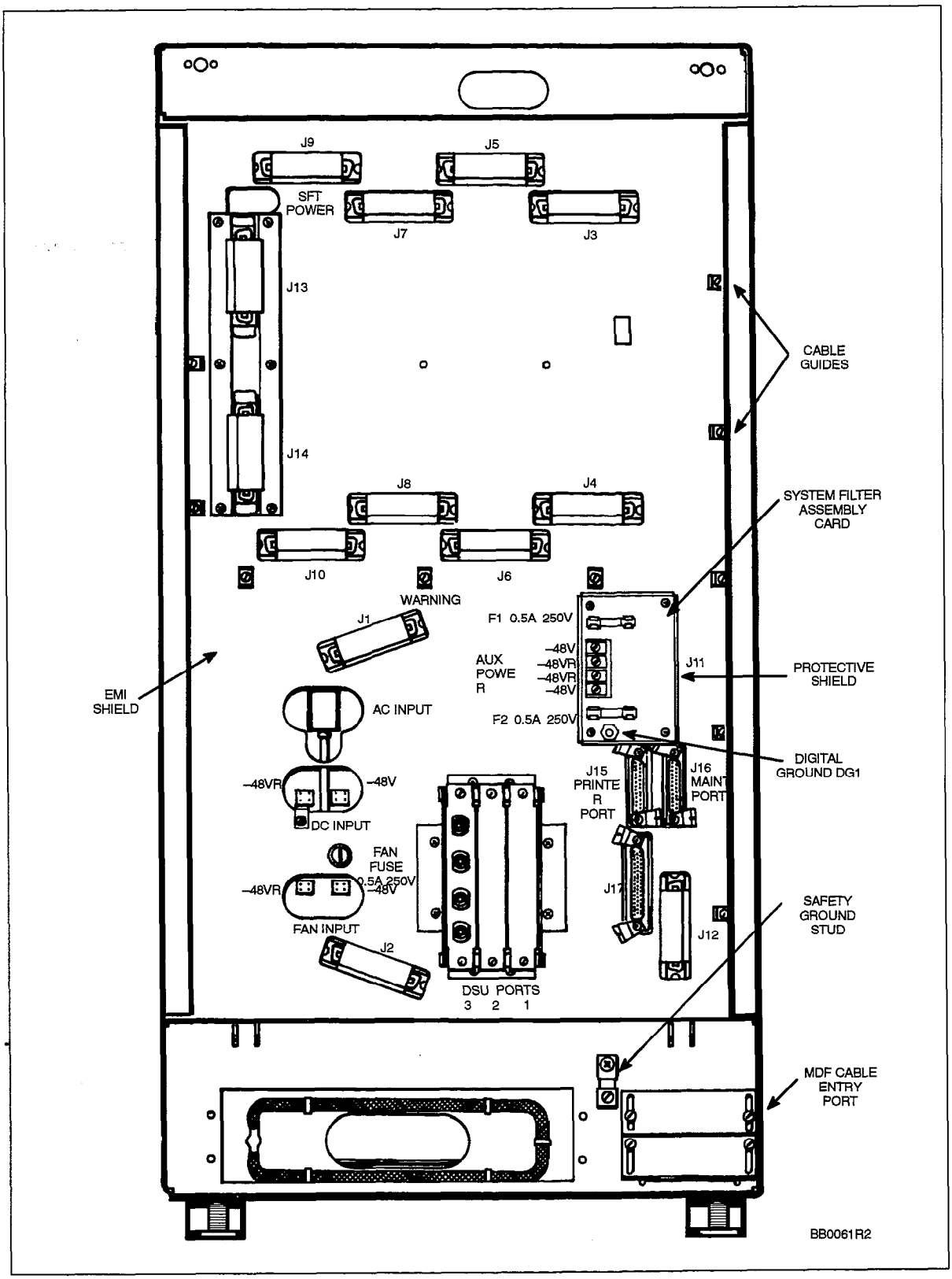

Figure 1–13 *SX–2000* VS System Grounds

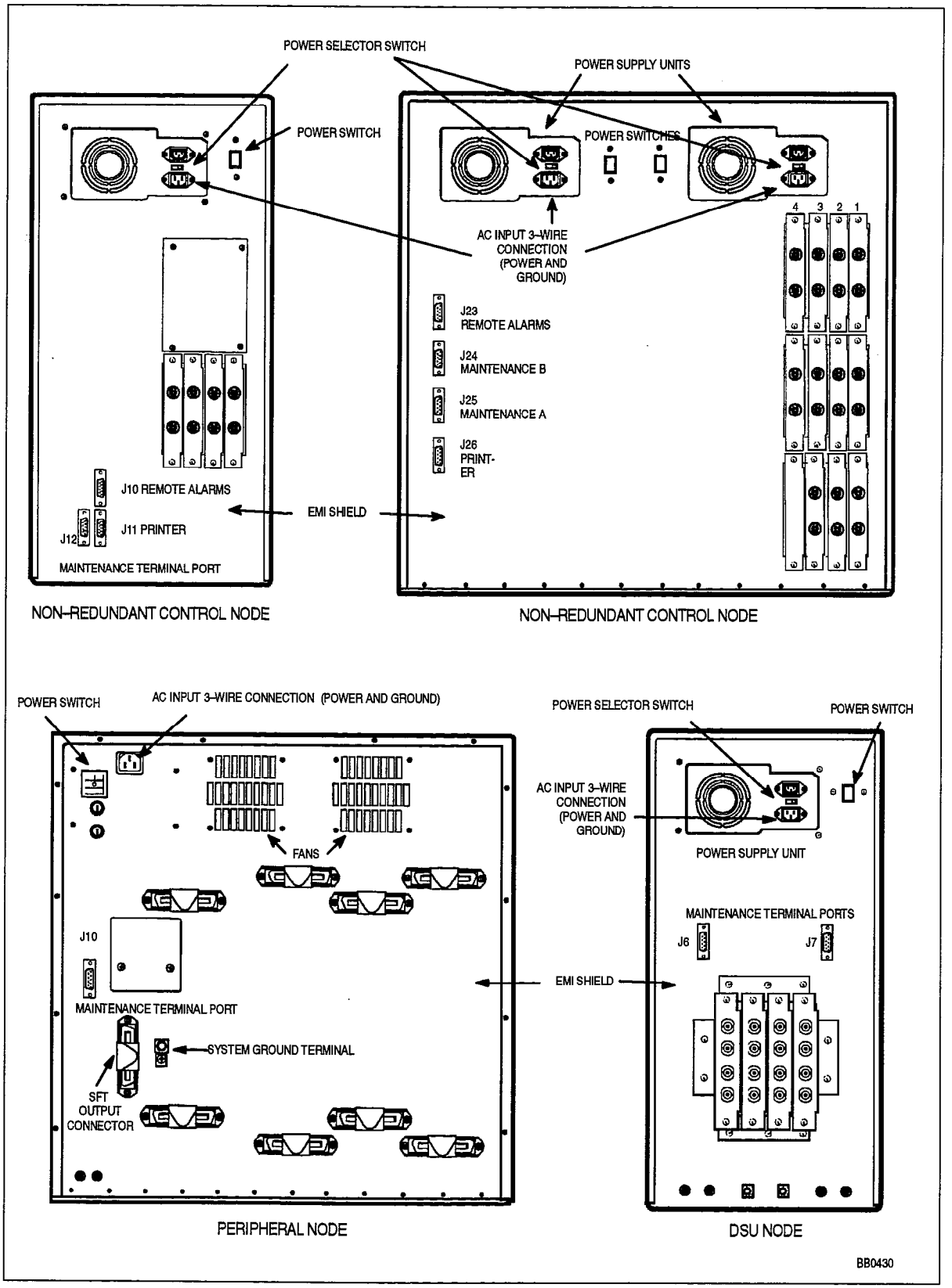

Figure 1–14 *SX–2000* FD System Grounds

SX–2000 FD Grounding

The *SX–2000* FD systems operating in North America require only one external ground, the system ground.

Refer to Figure 1–14 for ground references on the *SX–2000* FD system. A 14 AWG gauge system ground cable is installed between the system ground terminal on the backplate of each Peripheral Node and the site building ground.

Grounding cables are to be installed in accordance with the information listed in table Table 1–6.

Table 1–6 *SX–2000* FD System Peripheral Cabinet Grounding Cables (External)

Item	Gauge	Function	From	To	Remarks
1.	14 AWG	System Ground	The nearest electrical utility ground that is external to the system cabinet.	The System Ground terminal on the back of each Peripheral cabinet.	The cable is supplied by the installation company.

Note: Grounding information applies only to the *SX–2000* FD Peripheral Cabinet(s). It is not required for the *SX–2000* FD Control Cabinet or DSU Cabinet(s).

Approved Configurations of Product (United States of America)

1.6 These products have been evaluated and listed with Underwriters' Laboratories Incorporated to their Standard for Safety 1459, "Telephone Equipment", Second Edition. The following assemblies have been investigated and determined suitable for use in this product:

Table 1–7 *SX–2000* SG System Sub–assemblies

Marketing Number	Description / Common Name	Engineering Number	Minimum Revision
MA018CA	TRANSFER SWITCH ASSEMBLY KIT	1070186CA	A
MA030CA	CONTROL CABINET PDU	1070306CA	A
MA031CA	PERIPHERAL CABINET PDU	1070316CA	A
MA078BA	CONTROL MAINTENANCE UNIT	1070786BA	A
MA079BA	PERIPHERAL MAINTENANCE UNIT	1070796BA	A

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Table 1–7 *SX–2000* SG System Sub–assemblies (continued)

Marketing Number	Description / Common Name	Engineering Number	Minimum Revision
MA115AA	BULKHEAD CONNECTOR	1071156AA	A
MA315AA	SYSTEM ID MODULE	1364043AA	A
MA214AA	DS–1 INTERFACE	1220993AA	A
MA215AA	CEPT INTERFACE	1220983AA	A
MC200AD	SYSTEM PROCESSOR	1072003AD	H
MC201CB	BUS MANAGER	1072013CB	B
MC202CA	MEMORY MANAGER	1072023CA	A
MC204BA	COMMUNICATION RAM	1072043BA	B
MC205AB	BULK DATA CONTROLLER	1072053AB	C
MC206BA	BULK DATA INTERFACE	1072063BA	B
MC207BB	DISK INTERFACE	1072073BB	B
MC211AA	MAIN CONTROLLER II (MC2)	1072113AA	1
MC213AA	CONTROL RAM II (CR2)	1072133AA	3
MC222AA	MESSAGE SWITCH MATRIX	1072223AA	A
MC223BA	SYSTEM CLOCK & TONE GENERATOR	1072233BA	A
MC242AA	CIRCUIT SWITCH MATRIX	1072423AA	A
MC280BA	PRECHARGE CARD	1072803BA	A
MC301AA	BALANCED TRANSCEIVER	1073013AA	C
MC302BA	PERIPHERAL SWITCH MATRIX	1073023BA	A
MC304BA	PERIPHERAL EXTENDER	1073043BA	A
MK100AA	SINGLE PERIPHERAL INTERCONNECT	115782601	A
MM041AA	DS–1 INTERFACE ASSEMBLY	1202623AA	A
MM050AA	CEPT INTERFACE ASSEMBLY	116458601	A
MM060DA	CABINET	1070606DA	A
MM069AA	CONVERTER FILLER	107069501	A
MM069BA	CONVERTER FILLER	1070696BA	A
MM070BA	CONTROL SHELF	1070706BA	A
MM071BA	MAIN FAN UNIT ASSEMBLY	1070716BA	A
MM072BA	PERIPHERAL SHELF	1070726BA	A
MM075AA	CONVERTER FAN UNIT	1070756AA	A

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Table 1–7 *SX–2000* SG System Sub–assemblies (continued)

Marketing Number	Description / Common Name	Engineering Number	Minimum Revision
MM080BA	FILTER HOUSING	1070806BA	A
MM082AA	CABLE TROUGH KIT 1	1070826AA	A
MM089AB	FILLER CARD	132887501	B
MM136AA	CABLE DUCT	1071366AA	A
MP910FA	CONTROL CONVERTER II	1079106FA	A
MP911CA	PERIPHERAL CONVERTER	1079116CA	A
MP912BA	DC CONVERTER	1255493BA	A
MK149AA	ROOF SCREEN ASSEMBLY	134336601	A

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Note: DSUs listed in Table 1–11 and PICs listed in Table 1–12 are also suitable for use in the *SX–2000* SG system.

Table 1–8 *SX–2000* S System Sub–assemblies

Marketing Number	Description / Common Name	Engineering Number	Minimum Revision
MA090AA	MAINTENANCE PANEL	120385601	A
MA150BA	AC PDU	132867601	A
MA152AA	DC PDU	132868601	A
MA212BA	HARD DISK MODULE (HDM)	133465601	A
MA308AA	CEPT INTERFACE ASSEMBLY	1210563AA	A
MA309AA	DS–1 INTERFACE ASSEMBLY	1202623AA	A
MA310AA	SYSTEM ID MODULE	121060601	B
MA320AA	CONTROL CABINET	133182601	A
MA321AA	PERIPHERAL CABINET	133186601	A
MC210AA	MAIN CONTROLLER	1072103AA	A
MC211AA	MAIN CONTROLLER II (MC2)	1072113AA	1
MC213AA	CONTROL RAM II (CR2)	1072133AA	3
MC243AA	CIRCUIT SWITCH MATRIX (CSM2)	1072433AA	2
MC312AA	PERIPHERAL SWITCH CONTROLLER (PSC)	1073123AA	A
MC361BA	SYSTEM FAIL TRANSFER (SFT)	1073613BA	B
MC606AA	MASS STORAGE EXPANDER (MSX)	1076063AA	A
MC620AA	CONTROL BALANCED TRANSCEIVER (CBT)	1076203AA	A
MC621AA	PERIPHERAL BALANCED TRANSCEIVER (PBT)	1076213AA	A
MK151AA	MSX (REDUNDANCY) KIT		
MK152AA	2nd CABINET CONTROL COMMUNICATION KIT		
MK165AA	3rd CABINET CONTROL COMMUNICATION KIT		
MK166AA	4th CABINET CONTROL COMMUNICATION KIT		
MM089AB	FILLER CARD	132887501	B
MP912BA	DC CONVERTER	1255493BA	A
MP914AA	AC CONVERTER	1258033AA	3

Note: DSUs listed in Table 1–11 and PICs listed in Table 1–12 are also suitable for use in the *SX–2000* S system.

Table 1–9 *SX–2000* VS System Sub–assemblies

Marketing Number	Description / Common Name	Engineering Number	Minimum Revision
MA033AA	DC PDU	125746601	A
MA034AA	AC PDU	125745601	B
MA217AA	CEPT INTERFACE ASSEMBLY	1243733AA	2
MA218AA	DS–1 INTERFACE ASSEMBLY	1332023AA	2
MA220AA	VS CABINET	132981601	A
MA310AA	SYSTEM ID MODULE	121060601	B
MA609AA	MAINTENANCE/ HARD DISK ASSEMBLY (MHD)	125757601	B
MA610AA	HARD DISK ASSEMBLY	132080601	B
MC211AA	MAIN CONTROLLER II (MC2)	1072113AA	1
MC213AA	CONTROL RAM II (CR2)	1072133AA	3
MC361BA	SYSTEM FAIL TRANSFER (SFT)	1073613BA	B
MM089AB	FILLER CARD	132887501	B
MP912BA	DC CONVERTER	1255493BA	A
MP914AA	AC CONVERTER	1258033AA	3

Note: DSUs listed in Table 1–11 and PICs listed in Table 1–12 are also suitable for use in the *SX–2000* VS system.

Table 1–10 *SX–2000* FD System Sub–assemblies

Marketing Number	Description / Common Name	Engineering Number	Minimum Revision
9400–200–100–NA	REDUNDANT CONTROL NODE CABINET	136066601	2
9400–200–101–NA	NON–REDUNDANT CONTROL NODE CABINET	136075601	2
9400–200–110–NA	PERIPHERAL NODE CABINET	136076601	2
9400–200–120–NA	DSU NODE CABINET	136077601	2
9400–200–200–NA	REDUNDANT POWER MODULE	136026301	1
9400–200–300–NA	SYSTEM ID MODULE	113458318	A
9400–200–301–NA	PERIPHERAL RESOURCE CARD (PRC)	1353633AA	2
9400–300–300–NA	CONTROL RESOURCE CARD (CRC)	135876301	2
9400–300–200–NA	POWER SUPPLY UNIT (PSU)	700054016	
9400–300–301–NA	FIBER INTERFACE MODULE (FIM)	135881301	1
9400–300–302–NA	QUAD FIM CARRIER	136064601	2
9400–300–303–NA	HARD DISK DRIVE	700530080	
9400–300–304–NA	CARTRIDGE TAPE DRIVE	700560000	
MA217AA	CEPT INTERFACE ASSEMBLY	1243733AA	2
MA218AA	DS–1 INTERFACE ASSEMBLY	1332023AA	2
MC211AA	MAIN CONTROLLER II (MC2) CARD	1072113AA	1
MC213AA	CONTROL RAM II (CR2) CARD	1072133AA	3
MC243BA	CIRCUIT SWITCH MATRIX (CSM2) CARD	1072433AA	2
MC312AA	PERIPHERAL SWITCH CONTROLLER (PSC)	1073123AA	A
MC361BA	SYSTEM FAIL TRANSFER (SFT) CARD	1073613BA	B
MC606AB	MASS STORAGE EXPANDER	1076063AB	A
MM089AB	FILLER CARD	132887501	B

Note: DSUs listed in Table 1–11 and PICs listed in Table 1–12 are also suitable for use in the *SX–2000* FD system.

Table 1–11 Digital Service Unit (DSU) Cards

Marketing Number	Description / Common Name	Engineering Number	Minimum Revision
MC260AA	CONFERENCE	1072603AA	A
MC262AA	ADVANCE TONE DETECTOR	1072623AA	B
MC263AA	DS–1 FORMATTER	1072633AA	B
MC264AA	CEPT FORMATTER	1072643AA	B
MC265AA	DATA TRANSCEIVER (SEE NOTE)	1072653AA	A
MC266AA	COMMUNICATION PROCESSOR	1072663AA	4

Note: Not used in the *SX–2000* FD system.

Table 1–12 Peripheral Interface Circuit (PIC) Cards

Marketing Number	Description / Common Name	Engineering Number	Minimum Revision
MC320BE	ONS LINE	1073203BE	A
MC321AC	OPS LINE	1073213AC	D
MC322BB	HIGH SPEED DIGITAL LINE (SEE NOTE)	1073223BB	3
MC323BA	COV LINE	1073233BA	A
MC324AA	DATASET LINE	1073243AA	B
MC330AA	DNI LINE	1073303AA	2
MC340BA	LS/GS TRUNK	1073403BA	C
MC341CA	DID/LOOP TIE TRUNK	1073413CA	C
MC342BB	E&M TRUNK	1073423BB	D
MC380AA	DTMF RECEIVER	1073803AA	B

Note: Only used in the *SX–2000* SG system.

Installation of Telecommunications Wiring

1.7 Telecommunications wiring to this product shall conform to all applicable safety and electrical wiring regulations. Installation of telecommunications wiring shall be performed following precautions in accordance with standard industry practice. The precautions to be followed include:

1. Never install telephone wiring during a lightning storm.
2. Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
3. Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
4. Use caution when installing or modifying telephone lines.
5. To ensure isolation between cabinets, metal sheathing should not be used on fiber cables connecting the *SX–2000* FD Control, Peripheral, and DSU cabinets. Conduit may be used to encase fiber cabling, provided the conduit does not contact the cabinets.
6. The SFT (System Fail Transfer) output connector on an *SX–2000* FD system Peripheral Node (see Figure 1–14) shall not be connected to an off–premise application.

WARNING **Any connection of the assemblies listed below to an outside plant lead, an off–premise application or any other exposed plant application may result in a fire or shock hazard, and/or defective operation and/or equipment damage.**

Table 1–13 Restricted Peripheral Interface Circuit Cards

Marketing Number	Description / Common Name
MC320BE	ONS LINE CARD
MC330AA	DNI LINE CARD
MC324AA	DATASET LINE CARD
MC323BA	COV LINE CARD
MC263AA	DS–1 FORMATTER CARD
MC264AA	CEPT FORMATTER CARD
MC322BB	HIGH SPEED DIGITAL LINE CARD

Examples of installations which shall not be permitted for connection to these interfaces are those which:

(a) Require protectors in accordance with the National Electrical Code for the United States, NEC, NFPA / ANSI 70, Article 800–30, or,

(b) Are "Exposed Plant" as defined in the Canadian Electrical Code – CSA C22.1, paragraph 60–100 which states; "Exposed plant means where any portion of the circuit is subject to accidental contact with electric lighting or power conductors operating at a voltage exceeding 300V between conductors or is subject to lightning strikes."

Note: The DS–1 Formatter and the CEPT Formatter cards may be connected to an outside plant lead, an off–premise application or any other exposed plant lead only through a device that has been suitably investigated and approved for those network conditions.

9125-060-204-NA
Issue 1
July 1992

***SX-2000® INTEGRATED COMMUNICATIONS* SYSTEM**

Commissioning

MITEL®

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APPENDIX A. HUMAN/MACHINE INTERFACE (HMI)

List of Figures

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List of Charts

1. INTRODUCTION

General

1.1 This Section outlines the steps involved in commissioning all variants of the *SX–2000® Integrated Communications™* System. The procedures in this Section consist of configuring and testing the major components of the system using a specially designed commissioning software package.

Reason for Issue

1.2 This document is issued to provide commissioning procedures for the *SX–2000 Integrated Communications* System. Documentation contained within this section reflects the contents of release of MS2006.

Error Reporting

1.3 Two methods are provided for reporting errors in the system: the Maintenance Terminal, and the numeric displays located on each subsystem processor card. Normally, the Maintenance Terminal is the output used for error messages while the numeric displays show error codes in the event of a processor–related fault.

When power is applied to a subsystem, or when a processor is reset, a resident processor self–test is executed. Errors detected during this self–test are only displayed on the subsystem processor numeric display and are not passed on to any other output device.

Should an error occur during the commissioning procedure, error messages are delivered to the Maintenance Terminal. The same information is also stored in a Commissioning Error Log, which can be read at the Maintenance Terminal at any time for subsequent analysis. If a printer is connected, a hard copy of the logs can be generated.

Extent of Fault Isolation

1.4 Faults are isolated down to the field–replaceable unit (FRU) level by using the built–in test facilities. However, a component on the FRU (e.g., an integrated circuit chip on a memory card) will not be identified. To correct such a fault, the entire FRU is replaced.

Differences in Product Terminology

1.5 This document uses terminology which is common to the *SX–2000* S system. However, where differences in terminology exist, a cross–reference to Table 1–1, which lists the terms in this document which differ between product variants, will be given.

Table 1–1 Terminology Differences

SX–2000 FD ICS	*SX–2000* VS ICS	*SX–2000* S ICS	*SX–2000* SG ICS
See Note 1.	See Note 1.	**Floppy Disk Unit II (FDU II)**[2]	Floppy Disk Unit (FDU)
Cartridge Tape Drive	Cartridge Tape Unit (CTU)	**CTU**	
Hard Disk Drive	Hard Disk	**Hard Disk Module (HDM)**[2]	Hard Disk Unit (HDU)
Control Panel	Maintenance & Hard Disk Unit (MHD)	**Maintenance Panel**	Maintenance Unit
Main Controller II (MC II)	MC II	**Main Controller** or **MC II**	System Processor or MC II
Peripheral Switch Controller (PSC)	See Note 3.	**PSC**	Peripheral Switch Processor
PANEL ENABLE	PANEL ENABLE	**PANEL ENABLE**	PANEL SWITCH ENABLE
RESET A	LOAD	**PLANE A LOAD**	PLANE A LOAD SOURCE[5]
RESET B	See Note 4.	**PLANE B LOAD**	PLANE B LOAD SOURCE[5]
ACTIVITY SWITCH	See Note 4.	**ACTIVITY SWITCH**	ACTIVITY TRANSFER

Notes: 1. The *SX–2000* VS and *SX–2000* FD systems load from a cartridge tape, not a floppy diskette. There is no floppy disk drive for either system.

2. The *SX–2000* S system loads from the Hard Disk when the FDU II is not connected.

3. No Peripheral Switch Controller is required on the *SX–2000* VS system.

4. The *SX–2000* VS system is non–redundant. There is no Plane B, and an activity switch is not possible.

5. On the *SX–2000* SG system, PLANE 'x' LOAD SOURCE 1 refers to the hard disk unit, and PLANE 'x' LOAD SOURCE 2 refers to the floppy disk drive.

2. COMMISSIONING TESTS

General

2.1 In order to simplify fault isolation and correction, the system is powered up in stages. Control cards are powered up first. Once these cards are operational, a special off–line commissioning test program is downloaded from cartridge tape or floppy diskette.

The commissioning test program is provided for the *SX–2000* SG system on a floppy diskette. The program is downloaded to the system from a Floppy Disk Unit (FDU).

The commissioning test program is provided for the *SX–2000* S system on either a floppy diskette or a cartridge tape. The commissioning software is downloaded to the system from diskette in the Floppy Disk Unit II (FDU II), or from cartridge tape in the Cartridge Tape Unit (CTU). A CTU may only be used if a Main Controller II card is installed in the system.

The commissioning test program is provided for the *SX–2000* VS and FD systems on a cartridge tape. The program is downloaded to the *SX–2000* VS system from a CTU, and from an internal cartridge tape drive for the *SX–2000* FD system.

Standalone tests are performed on control cards and the off–line commissioning test program begins to run as soon as the download is completed.

Test Preparation

2.2 The standalone hardware tests should be performed with no peripheral interface cabling (Tip and Ring cables) connected, to verify the correct operation of the system hardware.

Refer to Mitel Practices 912x–060–200–NA, Installation, and perform the verification and preparation procedures before proceeding to the following charts.

CAUTION **To avoid possible damage to the system electronics due to static discharge, the installer must wear an antistatic wrist strap.**

3. *SX–2000* VS ICS COMMISSIONING

Install Circuit Cards and Load Commissioning Software

3.1 Ensure that the Main and Peripheral Control cards, and Peripheral Interface and DSU cards are installed in the correct card slots before loading the commissioning software. The following chart describes the card installation procedure, and details the steps required to load commissioning software on the *SX–2000* VS system. The *SX–2000* VS system has only one plane (Plane A).

Chart 3–1 Install Circuit Cards and Load Commissioning Software

Step	Action	Comments
1.	Fully insert the Maintenance and Hard Disk (MHD) card in Shelf 1, slots 1–3. Insert the Main Controller II (MC II) card in Shelf 1, Slot 4.	Refer to Figure 3–1.
2.	Insert all Peripheral Interface Cards (PICs) into their appropriate slots: Shelf 1: slots 9 through 11 Shelf 2: slots 2 through 13.	Refer to Figure 3–1.
3.	Insert all Digital Service Units (DSUs) into their appropriate slots: Slots 6 through 8 on Shelf 1.	Refer to Figure 3–1.
4.	Apply power to cabinet by setting the Power Converter power switch to ON.	
5.	Check that the MC II card begins power–up self test.	If the MC II card does not begin self–test, or if errors are indicated on the numeric display, reinsert the card. Reset the card by pressing PANEL ENABLE and LOAD on the faceplate of the MHD card. If the card fails self–test a second time, replace it. Power–up self tests are only performed when power is first applied to the installed card.
6.	Ensure that the RECORD tab on the Commissioning cartridge tape is in the RECORD position.	The tape and the hard drives are protected from corruption, since by default when tests are run on these devices, only designated test pages are accessed by them.

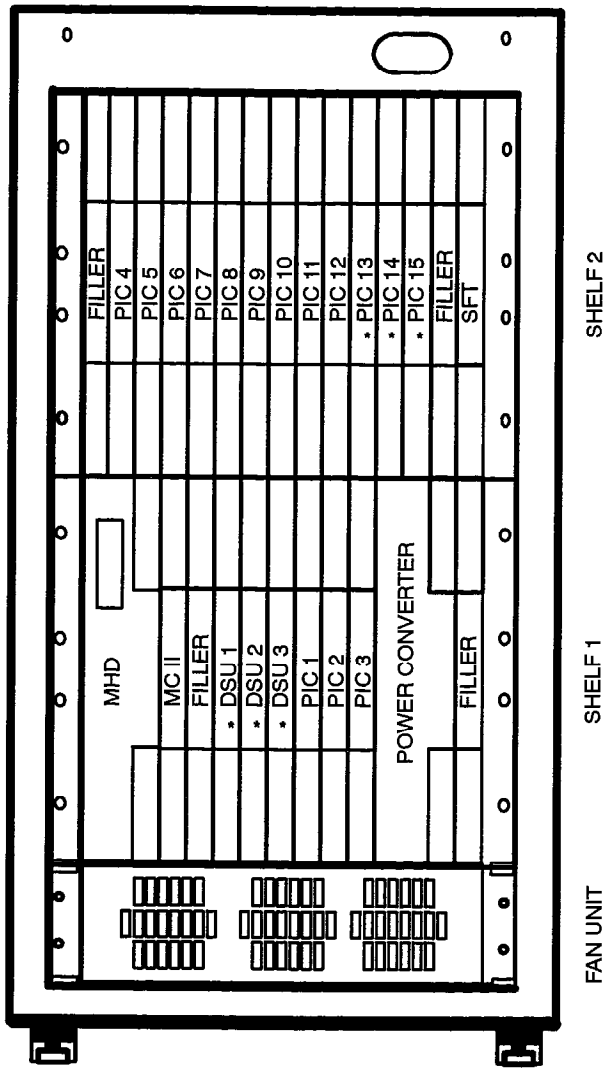
Page 1 of 3

Chart 3–1 Install Circuit Cards and Load Commissioning Software (continued)

Step	Action	Comments
7.	Insert the commissioning tape in the Cartridge Tape Unit (CTU).	
8.	Press and hold the PANEL ENABLE button on the MHD card, and press the LOAD button. **Note:** DO NOT remove the tape from the CTU. The MC II card is trying to access the CTU.	The MC II card executes a series of preloading tests. Refer to Practice 9125–060–353–NA, General Maintenance Information, for a description of the processor card diagnostic tests. If errors occur, loading halts and an error code is returned on the MC II card numeric display. If an error should occur, repeat step 8. If the second loading attempt fails, refer to Practice 9125–060–350–NA, Troubleshooting Procedures.
9.	Check that the Maintenance Terminal returns the following message: SX–2000 (VS) COMMISSIONING IN PROGRESS (Date and name of load is output) TIME: 00:00:00 CONFIGURATION REPORT NOW BEING GENERATED	
10.	Check that after a delay, the system outputs a configuration report. Refer to Appendix A., Table A2–1, for an example of a configuration report.	The length of the delay is proportional to the number of cabinets in the system. No output appears at the terminal until all cards are configured.
11.	Check the configuration report against the cards actually installed in the system.	Should the configuration report not match the cards installed, remove and reinsert the incorrectly configured card. Enter the CONFIG command to generate a new report. If the card still does not appear correctly, backplane or connector problems are indicated.

Chart 3–1 Install Circuit Cards and Load Commissioning Software (continued)

Step	Action	Comments
12.	The system returns the following prompt: TIME 00:nn:nn (where 'n' is a digit, 0–9) <MAIN> indicating that the active Main Control is ready for testing. Any commands entered at the Maintenance Terminal after this point require the Maintenance Terminal RETURN key be pressed. Any command entered hereafter is assumed to be terminated this way.	While the system is waiting for input, it is also reading from sequential RAM locations in order to check the RAM refresh circuitry. If a RAM location loses its refresh, a bus error is likely to occur. The system returns a bus error message on the Maintenance Terminal, including the address at which the fault occurred. Note the address and refer to Practice 9125–060–352–NA, Maintenance Messages, to determine which RAM card is faulty. Replace the appropriate card and restart this procedure before continuing.
13.	Check that the MC II card numeric display shows "11" (flashing) and then indicates an incrementing series of numbers. When tests are completed, check that the display returns to a flashing "11" indication.	
14.	Enter the following command: EPRINTL	Enables the printing of error tables for each test executed, in long form (detailed tables).
15.	Go to Chart 3–2 for commissioning tests.	



* NOTES: If 15 PICs are used, then only DSU 1 may be installed

If DSU 1 and DSU 2 are required, then Pic 15 must not be installed.

If DSU 1, DSU 2 and DSU 3 are required, then PIC 13, PIC 14 and PIC 15 must not be installed.

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Figure 3–1 *SX–2000* VS Circuit Card Locations

Control and Peripheral Card Tests

3.2 Control and Peripheral Interface card tests are performed on the *SX–2000* VS system as described in the following chart.

Chart 3–2 *SX–2000* VS ICS Control and Peripheral Interface Card Tests

Step	Action	Comments
1.	Enter the following commands to enable testing of the mass storage devices: EXTERNAL ON HDM ON By default, testing of mass storage devices is disabled.	 Enable external device testing; Enable hard disk testing. The EXTERNAL ON command is not possible if the RECORD tab is not in the RECORD position on the cartridge. Any of these commands can be individually entered to enable testing of a specific mass storage device. Testing of mass storage devices is disabled by issuing one of the following commands, as appropriate: EXTERNAL OFF HDM OFF
2.	Enable testing of the Main Control Subsystems by entering: STEST ETEST 3–4	This enables testing of slots 3 and 4 on the control shelf. The mass storage subsystem tests are run when the slot 3 tests are run.
3.	Set the number of test passes to 1 by entering the following command: PASS 1	Optional: the default number of passes is 1.
4.	Start the test by entering: TEST If a slot passes the tests, the system responds with: 00:00:00 000 TEST COMPLETE – NO ERRORS ON SLOT NUMBER xx (shelf number) (cabinet number) (test number) (pass number) and proceeds to test the next slot.	If errors are detected, error messages are returned. Reinsert the card and test again. Replace any cards which fail the second test. Refer to the Appendices for the messages which may be encountered. This test may take up to approximately 10 minutes to complete.

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Chart 3–2 *SX–2000* VS ICS Control and Peripheral Interface Card Tests (continued)

Step	Action	Comments
5.	Test PICs on Shelf 1 by entering: STEST ETEST 9–11 TEST The system responds as in step 4, and then proceeds to the next slot.	 Suppress all previous testing. Enable testing of slots 9 – 11. Test cards in slots 9 – 11. If errors are detected, error messages are returned. Reinsert the card and test again. Replace any cards which fail the second test.
6.	Test PICs on Shelf 2 by entering: SHELF 1,2 STEST ETEST 2–13 TEST The system responds as in step 4, and then proceeds to the next slot.	 Move to Cabinet 1, Shelf 2. Suppress all previous testing. Enable testing of slots 2 – 13. Test cards in slots 2 – 13. If errors are detected, error messages are returned. Reinsert the card and test again. Replace any cards which fail the second test.
7.	Control and Peripheral Interface Card tests are complete, go to Chart 3–3.	

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Maintenance and Hard Disk (MHD) Card Commissioning

3.3 Commissioning of the MHD card is performed on the *SX–2000* VS system as described in the following chart.

Chart 3–3 *SX–2000* VS Maintenance and Hard Disk (MHD) Card Commissioning

Step	Action	Comments
1.	Ensure that a *VT100*™ compatible Maintenance Terminal is connected to connector J16 on the backplane.	
2.	Enter the following commands: STEST PANEL ON TEST 3 The system delivers the following message: SYS ID MODULE PRESENT Visual led test: Minor, Major, Critical, All ON, OFF Perform the following visual checks: • Minor ALARM LED comes on and goes off. • Major ALARM LED comes on and goes off. • Critical ALARM LED comes on and goes off. • All ALARMS come on and go off.	If there is an Option Module installed, the message will read: OPTION MODULE PRESENT
3.	When tests are completed, the system delivers the following message: 00:00:00 000 TEST COMPLETE – NO ERRORS ON SLOT NUMBER 3 (shelf number) (cabinet number) (test number) (pass number)	If an error is detected, make note of the error and refer to Practice 9125–060–350–NA, Troubleshooting.
4.	Enter the following command: SHOW PANEL Check that the Maintenance Terminal displays the status of the MHD.	Refer to Appendix A., Table A2–5, for an example of the SHOW PANEL display.
5.	Remove the commissioning tape from the CTU.	
6.	Hardware commissioning is now complete. Refer to Practice 9123–060–200, Installation, for software installation.	

4. *SX–2000* S ICS COMMISSIONING

Install Circuit Cards

Non–Redundant System

4.1 Ensure that the Main and Peripheral Control cards, and the Peripheral Interface and DSU cards are installed in the correct card slots before loading the commissioning software. Chart 4–1 describes the card installation procedure for a non–redundant *SX–2000* S system.

Chart 4–1 Install Circuit Cards on a Non–Redundant *SX–2000* S ICS

Step	Action	Comments
1.	Ensure the following cards are installed in Cabinet 1: • Main Controller: Shelf 1, Slot 20 • Peripheral Switch Controller: Shelf 1, Slot 16	Refer to Figure 4–1.
2.	Insert all Peripheral Interface Cards (PICs) into their appropriate slots.	Slots 1 through 12 on each shelf in each cabinet. Refer to Figure 4–1.
3.	Insert all Digital Service Units (DSUs) into their appropriate slots.	Slot 17 on each shelf, except in Cabinet 4, if installed. Refer to Figure 4–1.
4.	Apply power to Cabinet 1, Shelf 1 by setting the power switch to ON for the Cabinet 1 Shelf 1 Power Converter.	
5.	Check that the Main Controller and Peripheral Switch Controller cards begin power–up self tests.	If the Main Controller or Peripheral Switch Controller does not begin self–test, or if errors are indicated on the numeric display, reinsert the card. Reset the card by pressing PANEL ENABLE and PLANE A LOAD on the Maintenance Panel. If the card fails self–test a second time, replace it. Power–up self tests are only performed when power is first applied to the installed card.

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Chart 4–1 Install Circuit Cards on a Non–Redundant *SX–2000* S ICS (continued)		
Step	**Action**	**Comments**
6.	In a multi–cabinet system, ensure that the Peripheral Switch Controller is installed in Shelf 1 Slot 16 of each additional cabinet.	
7.	Apply power to Shelf 1 of the next cabinet by setting the power switch to ON for the Shelf 1 Power Converter of that cabinet.	
8.	Check that the Peripheral Switch Controller card begins power–up self–tests, as in Step 5 above.	Each shelf in each cabinet must be tested separately.
9.	Repeat Steps 6 through 8 for each cabinet.	
		Page 2 of 2

Redundant System

Ensure that the Main and Peripheral Control cards, and the Peripheral Interface and DSU cards are installed in the correct card slots before loading the commissioning software. Chart 4–2 describes the card installation procedure for a redundant *SX–2000* S system.

Chart 4–2 Install Circuit Cards on a Redundant *SX–2000* S ICS		
Step	**Action**	**Comments**
1.	Ensure the following cards are installed in Shelf 1 of Cabinet 1: • Main Controller: Shelf 1, Slot 20 • Control RAM II Card (optional): Shelf 1, Slot 19 • Peripheral Switch Controller: Shelf 1, Slot 16	Refer to Figure 4–1.
2.	Insert all Peripheral Interface Cards (PICs) into their appropriate slots.	Slots 1 through 12 on each shelf in each cabinet. Refer to Figure 4–1.
3.	Insert all Digital Service Units (DSUs) into their appropriate slots.	Slot 17 on each shelf, except in Cabinet 4, if installed. Refer to Figure 4–1.
4.	Apply power to Cabinet 1 Shelf 1, by setting the power switch to ON for the Shelf 1 Power Converter in Cabinet 1.	
		Page 1 of 3

Chart 4–2 Install Circuit Cards on a Redundant *SX–2000* S ICS (continued)

Step	Action	Comments
5.	Check that the Main Controller and Peripheral Switch Controller cards begin power–up self tests when they are installed.	If the Main Controller or Peripheral Switch Controller does not begin self–test, or if errors are indicated on the numeric display, reinsert the card. Reset the card by pressing PANEL ENABLE and LOAD (for the affected Plane) on the Maintenance Panel. If the card fails self–test a second time, replace it. Power–up self tests are only performed when power is first applied to installed cards.
6.	Ensure the following cards are installed in Shelf 2 of Cabinet 1: • Main Controller: Shelf 2, Slot 20 • Control RAM II Card (optional): Shelf 2, Slot 19 • Peripheral Switch Controller (fully redundant system): Shelf 2, Slot 16	Refer to Figure 4–1.
7.	Insert all Peripheral Interface Cards (PICs) into their appropriate slots.	Slots 1 through 12 on each shelf in each cabinet. Refer to Figure 4–1.
8.	Insert all Digital Service Units (DSUs) into their appropriate slots.	Slot 17 on each shelf, except in Cabinet 4, if installed. Refer to Figure 4–1.
9.	Apply power to Cabinet 1 Shelf 2, by setting the power switch to ON for the Shelf 2 Power Converter in Cabinet 1.	
10.	Check that the Main Controller and Peripheral Switch Controller cards begin power–up self tests when they are installed, as in Step 5 above.	
11.	If one or more peripheral cabinets is also provided, insert the following cards in Cabinet 1: • Circuit Switch Matrix II Card: Shelf 1, Slot 18 • Circuit Switch Matrix II Card: Shelf 2, Slot 18 In each additional peripheral cabinet, insert the following cards: • Peripheral Switch Controller: Shelf 1, Slot 16. • Peripheral Switch Controller (fully redundant system): Shelf 2, Slot 16.	Refer to Figure 4–1.

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Chart 4–2 Install Circuit Cards on a Redundant *SX–2000* S ICS (continued)

Step	Action	Comments
12.	Insert all Peripheral Interface Cards (PICs) into their appropriate slots, in each peripheral cabinet.	Slots 1 through 12 on each shelf in each cabinet. Refer to Figure 4–1.
13.	Insert all Digital Service Units (DSUs) into their appropriate slots, in each peripheral cabinet.	Slot 17 on each shelf, except in Cabinet 4, if installed. Refer to Figure 4–1.
14.	Apply power to Shelf 1 in the next cabinet by setting the power switch to ON for the Shelf 1 Power Converter in that cabinet.	
15.	Check that the Peripheral Switch Controller in Shelf 1 of that peripheral cabinet begins power–up self test.	If the Peripheral Switch Controller does not begin self–test, or if errors are indicated on the numeric display, reinsert the card. If the card fails self–test a second time, replace it. Power–up self tests are only performed when power is first applied to installed cards.
16.	Repeat Steps 14 and 15 for Shelf 2 of the same cabinet.	
17.	Repeat Steps 14 through 16 for each additional peripheral cabinet.	Each shelf must be tested separately before moving on to the next shelf or cabinet.
18.	Go to Chart 4–3 for the procedure to load commissioning software.	

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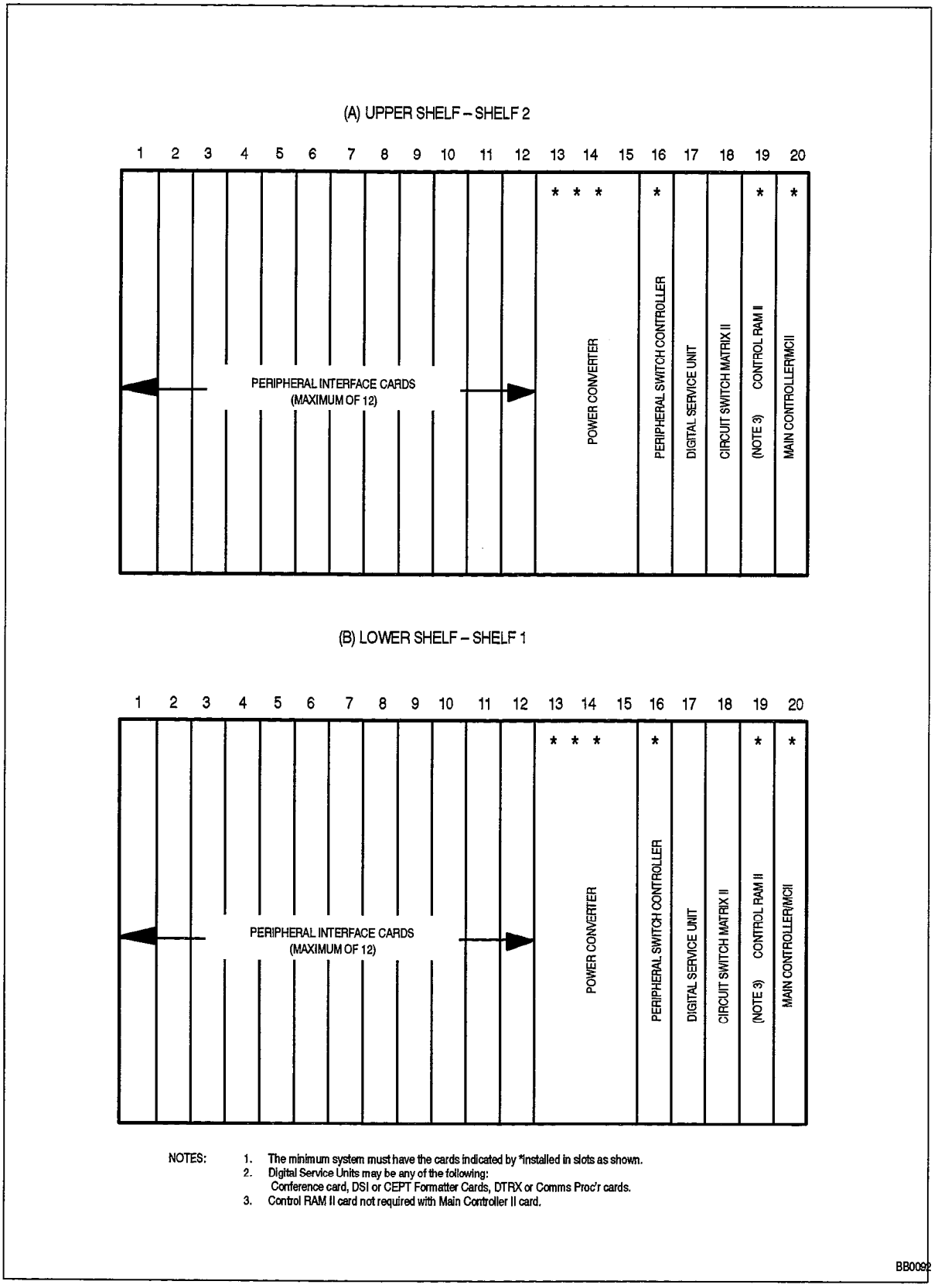

Figure 4–1 *SX–2000* S Circuit Card Locations

Load Commissioning Software

4.2 The following chart details the steps required to install commissioning software on the *SX–2000* S system.

Chart 4–3 Load Commissioning Software On Plane A

Step	Action	Comments
1.	Remove the "Write Protect" tab on the Commissioning floppy diskette. If the commissioning software is stored on a cartridge tape, then ensure that the RECORD tab is in the RECORD position.	The diskette/tape and the HDMs are protected from corruption since by default when tests are run on these devices only designated test pages are accessed by them.
2.	Insert the commissioning floppy/tape in the external storage device.	If the external storage device is an FDU II, turn the latch to lock the diskette in place.
3.	Press and hold the PANEL ENABLE button on the Maintenance Panel, and press the PLANE A LOAD button. **Note:** DO NOT remove the diskette/tape from the external storage device. Both Main Controller cards (on the redundant *SX–2000* S system) are trying to access the external storage device.	The Main Controller executes a series of preloading tests. Refer to Practice 9125–060–353–NA, General Maintenance Information, for a description of the processor card diagnostic tests. If errors occur, loading halts and an error code is returned on the Main Controller numeric display. If an error should occur, repeat step 3. If the second loading attempt fails, refer to Practice 9125–060–350–NA, Troubleshooting Procedures.
4.	Check that the Maintenance Terminal returns the following message: *SX–2000* (small) COMMISSIONING IN PROGRESS (Date and name of load is output) TIME: 00:00:00 CONFIGURATION REPORT NOW BEING GENERATED	
5.	Check that after a delay, the system generates a configuration report for all installed cards.	The length of the delay is proportional to the number of cabinets in the system. No output appears at the terminal until all cards are configured. Refer to Appendix A., Table A2–1, for an example of a configuration report.

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Chart 4–3 Load Commissioning Software On Plane A (continued)

Step	Action	Comments
6.	Check the configuration report against the cards actually installed in the system.	Should the configuration report not match the cards installed, remove and reinsert the incorrectly configured card. Enter the CONFIG command to generate a new report. If the card still does not appear correctly, backplane or connector problems are indicated.
7.	The system prompts: PIC HARDWARE CONFIGURATION REPORT ** ENTER <SPACE> TO CONTINUE ** Press the space bar on the terminal.	
8.	After the PIC hardware configuration report, the system returns the following message: TIME 00:nn:nn (where 'n' is a digit, 0–9) <MAIN> indicating that the active Main Control is ready for testing. Any commands entered at the Maintenance Terminal after this point require the Maintenance Terminal RETURN key be pressed. Any command entered hereafter is assumed to be terminated this way.	While the system is waiting for input, it is also reading from sequential RAM locations in order to check the RAM refresh circuitry. If a RAM location loses its refresh, a bus error is likely to occur. The system returns a bus error message on the Maintenance Terminal, including the address at which the fault occurred. Note the address and refer to Practice 9125–060–352–NA, Maintenance Messages, to determine which RAM card is faulty. Replace the appropriate card and restart this procedure from step 3 before continuing.
9.	Check that the Main Controller card numeric display shows "11" (flashing) and then indicates an incrementing series of numbers. When tests are completed, check that the display returns to a flashing "11" indication.	
10.	Enter the following command: EPRINTL	Enables the printing of error tables for each test executed, in long form (detailed tables). See Appendix A., Table A2–8, for an example.
11.	Go to Chart 4–4 for commissioning tests.	

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Control and Peripheral Card Tests

4.3 The following chart details the steps required to perform Control and Peripheral Interface card tests on Plane A of an *SX–2000* S system.

Chart 4–4 *SX–2000* S ICS Plane A Control and Peripheral Interface Card Tests

Step	Action	Comments
1.	Enter the following commands to enable testing of the mass storage devices: EXTERNAL ON HDM ON MHDM ON By default, testing of mass storage devices is disabled.	Enable external device testing; Enable HDM testing; Enable mate HDM testing. EXTERNAL ON test is not possible if the write protect tab is in place on the diskette or if the RECORD tab is not in the RECORD position on the cartridge tape. Any of these commands can be individually entered to enable testing of a specific mass storage device. Testing of mass storage devices is disabled by issuing one of the following commands, as appropriate: EXTERNAL OFF HDM OFF MHDM OFF
2.	Enable testing of the Main and Peripheral Control Subsystems by entering: STEST ETEST 1–20	This enables testing of all cards in slots 1 through 20 on the current shelf, both Control cards and PICs. The mass storage subsystem tests are run when the slot 20 tests are run.
3.	Set the number of test passes to 1 by entering the following command: PASS 1	Optional: the default number of passes is 1.
4.	Start the test by entering: TEST If a slot passes the tests, the system responds with: 00:00:00 000 TEST COMPLETE – NO ERRORS ON SLOT NUMBER xx (shelf number) (cabinet number) (test number) (pass number) and proceeds to test the next slot.	If the external device is a CTU the test will take approximately 30 minutes to complete. Tests are executed from the lowest to the highest slot. If errors are detected, error messages are returned. Refer to the Appendices for the messages which may be encountered.

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Chart 4–4 *SX–2000* S ICS Plane A Control and Peripheral Interface Card Tests (continued)

Step	Action	Comments
4. (cont)	**Note:** If there is no card installed in slot17, a message is returned for this slot: 152 CARD NOT DETECTED – NO TEST RUN 17 (shelf number) (cabinet number) (test number) (pass number) If a DSU is installed in slot 17, the following message is returned: 153 NO TEST AVAILABLE FOR THIS SLOT These messages may be disregarded, since there is no testing available for any DSUs using Commissioning software.	Errors on an MSX Card, HDM or external device appear against the Main Controller test. If a CR–II or CSM–II card or a PIC fails a test, reinsert the failed card, and rerun the test on that slot by issuing the following command: TEST (slot number) If the card in question fails again, replace it. If the Main Controller must be replaced, the system must be restarted as described in Chart 4–3.
5.	To enable testing of cards installed in Shelf 2 of the Control Cabinet, enter the following command: SHELF 1,2 The system returns the following prompt, indicating that Plane B is ready for testing: <P1,2>	
6.	If a Peripheral Switch Controller card is installed in Shelf 2 of the Control Cabinet, enter the following command to test it: TEST 16 If the card passes the test, the system returns the following message: 00:00:00 000 TEST COMPLETE – NO ERRORS ON SLOT NUMBER 16 01 02 (test number) (pass number) and then returns the peripheral prompt.	The Plane B Peripheral Switch Controller Card is only installed on fully redundant systems. If full redundancy is not provided on the system being commissioned, go to step 7. Accessing Shelf 2 as a peripheral shelf does not allow testing of the other control cards (slots 17–20).
7.	Begin testing of PICs on Shelf 2 by entering: STEST ETEST 1–12 TEST The system responds as in step 4, and then proceeds to the next slot.	Suppress all previous testing. Enable testing of slots 1 – 12. Test cards in slots 1 – 12. If errors are detected, error messages are returned. Reinsert the card and test again. Replace any cards which fail the second test.

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Chart 4–4 *SX–2000* S ICS Plane A Control and Peripheral Interface Card Tests (continued)		
Step	**Action**	**Comments**
8.	If one or more Peripheral Cabinets is provided then repeat steps 6 and 7 for each shelf in each peripheral cabinet.	To enable testing in another cabinet, enter the command: SHELF (cabinet number), (shelf number)
9.	Type "SHELF" to return to the <MAIN> prompt. Test all of the circuit switch links from the main control to all of the peripheral shelves by entering the following command: TEST CIR LINKS	
10.	If Main Control redundancy is provided, go to Chart 4–5. If the system is a non–redundant configuration, go to Chart 4–6.	
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Load And Test Plane B And Mate Links

4.4 Loading and testing of Plane B and its associated mate links on the *SX–2000* S system is performed as described in the following chart. This procedure does not apply to the non–redundant *SX–2000* S system since it only has one plane (Plane A).

Chart 4–5 *SX–2000* S ICS Load and Test Plane B and Control Mate Links		
Step	**Action**	**Comments**
1.	On completion of the self–test, disconnect the Maintenance Terminal from the TERMINAL A port on the Maintenance Connector's panel and connect it to the TERMINAL B port.	
2.	Press and hold the PANEL ENABLE button on the Maintenance Panel. Press the ACTIVITY SWITCH button.	Plane B is now active, and Plane A is inactive.
3.	Hold down the PANEL ENABLE button and press the PLANE B LOAD button.	Commissioning software is loaded onto the Plane B Main Controller from the external device.
		Page 1 of 3

Chart 4–5 *SX–2000* S ICS Load and Test Plane B and Control Mate Links (continued)

Step	Action	Comments
4.	Check that the Maintenance Terminal returns the following message: *SX–2000* (small) COMMISSIONING IN PROGRESS (Date and name of load is output) TIME: 00:00:00 CONFIGURATION REPORT NOW BEING GENERATED	
5.	When the load is complete, check that the system generates a configuration report, and that the reported configuration coincides with the cards installed.	Refer to Appendix A., Table A2–1, for an example of a configuration report.
6.	Enable long–form printing of messages by issuing the EPRINTL command at the Maintenance Terminal when the <MAIN> prompt appears.	See Appendix A., Table A2–8, for an example of the EPRINTL command output.
7.	Test Plane B Control Cards by issuing the following commands: STEST ETEST 1–20 TEST	 Suppress all previous testing. Enable testing of slots 1 – 20. Test cards in enabled slots.
8.	If errors occur during testing of any slot, remove and reinsert the card and retest. Replace any cards which fail the second test.	
9.	Test the main control mate links by issuing the following commands on both planes simultaneously: MATE LINK ON TEST 20 To disable the test, issue the command: MATE LINK OFF	To run the main control mate link test, Commissioning must be running and a maintenance terminal must be connected to both planes at once.
10.	Test the Peripheral Mate Links in the first cabinet by issuing the following commands: PERMATE LINK ON TEST 16	It is not necessary to have both main control planes since both peripheral processors are controlled by the active main processor.
11.	Enter the following command to enable testing of Shelf 2 of the Control Cabinet: SHELF 1,2 The system responds with: <P1,2>	

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Chart 4–5 *SX–2000* S ICS Load and Test Plane B and Control Mate Links (continued)

Step	Action	Comments
12.	Test the Plane B Peripheral Switch Controller card by entering the following command: TEST 16 If the card passes the test, the system returns the following message: 00:00:00 000 TEST COMPLETE – NO ERRORS ON SLOT NUMBER 16 01 02 (test number) (pass number) and then returns the peripheral prompt.	
13.	Begin testing of PICs on Shelf 2 by entering: STEST ETEST 1–12 TEST If the card passes the test, the system returns the following message: 00:00:00 000 TEST COMPLETE – NO ERRORS ON SLOT NUMBER xx (cabinet number) (shelf number) (test number) (pass number) and the system proceeds to the next slot.	Suppress all previous testing. Enable testing of slots 1 – 12. Test cards in slots 1 – 12. If errors are detected, error messages are returned. Reinsert the card and test again. Replace any cards which fail the second test.
14.	If one or more peripheral cabinets is provided, then repeat steps 11 to 13 for each shelf in each peripheral cabinet.	
15.	After all peripheral cabinets are tested, disable the peripheral mate link tests, by issuing the command: PERMATE LINK OFF	
16.	Go to Chart 4–6.	

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Maintenance Panel Commissioning

4.5 The following chart provides details on commissioning a maintenance panel on an *SX–2000* S system.

Chart 4–6 *SX–2000* S Maintenance Panel Commissioning

Step	Action	Comments
1.	Ensure that a *VT100* compatible Maintenance Terminal is connected to the TERMINAL connector for the ACTIVE plane on the Maintenance Connector Panel.	
2.	Enter the following commands: STEST PANEL ON TEST 20 The system delivers the following message: SYS ID MODULE PRESENT Visual led test: Minor, Major, Critical, All ON, OFF Perform the following visual checks: • Minor ALARM LED comes on and goes off. • Major ALARM LED comes on and goes off. • Critical ALARM LED comes on and goes off. • All ALARMS come on and go off.	Maintenance Panel tests can only be conducted from the active Plane (A or B) in redundant systems, and from Plane A in non–redundant systems.
3.	When tests are completed, the system delivers the following message: 00:00:00 000 TEST COMPLETE – NO ERRORS ON SLOT NUMBER 20 (shelf number) (cabinet number) (test number) (pass number)	If an error is detected, make note of the error and refer to Practice 9125–060–350–NA, Troubleshooting.
4.	Enter the following command: SHOW PANEL Check that the Maintenance Terminal displays the status of the Maintenance Panel.	Refer to Appendix A., Table A2–5, for an example of the SHOW PANEL display.
5.	If the system being commissioned is a redundant configuration, switch activity to the other plane, and connect the Maintenance Terminal to the other TERMINAL port on the Maintenance Connector panel on the bottom rear of the Control Cabinet. Repeat steps 2 through 4.	

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Chart 4–6 *SX–2000* S Maintenance Panel Commissioning (continued)

Step	Action	Comments
6.	Remove the commissioning diskette/tape from the external device.	
7.	Hardware commissioning is now complete. Refer to Practice 9121–060–200, Installation, for software installation.	

5. *SX–2000* SG ICS COMMISSIONING

Install Circuit Cards

5.1 Ensure that the Main and Peripheral Control cards, the Peripheral Interface cards (PICs), and the Digital Service Unit (DSU) cards are installed in the correct card slots before loading the commissioning software. The following chart describes the card installation procedure for the *SX–2000* SG (Chart 5–1) system.

Chart 5–1 Install Circuit Cards on the *SX–2000* SG ICS

Step	Action	Comments
1.	Fully insert all Plane A (Shelf 1) Control cards in the Control Cabinet.	Refer to Figure 5–1. Leave all other cards (except filler plates) uninstalled.
2.	Apply power to the system by setting the following circuit breakers to ON: – Fan Unit – Maintenance Unit – Shelf 1 Power Converter	
3.	Check that the Plane A System Processor card begins power–up self test.	If the Plane A System Processor card does not begin self–test, or if errors are indicated on the numeric display, reinsert the card. If the card fails self–test a second time, replace it. Power–up self tests are only performed when power is first applied to installed cards.
4.	Fully insert all Plane B (Shelf 2) Control cards in the Control Cabinet.	Refer to Figure 5–1. Leave all other cards (except filler plates) uninstalled.
5.	Apply power to shelf by setting the Shelf 2 Power Converter circuit breaker to ON.	
6.	Check that the System Processor card begins power–up self test, as in Step 3.	
7.	Insert all Peripheral Interface Cards (PICs) into their appropriate slots.	Refer to Figure 5–1. Slots 1 through 24 on each shelf in each cabinet.

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Chart 5–1 Install Circuit Cards on the *SX–2000* SG ICS (continued)

Step	Action	Comments
8.	Insert all Digital Service Units (DSUs) into their appropriate slots.	Refer to Figure 5–1. Slots 29 through 32 on the Control Shelf. Additional DSUs may be installed in a DSU Shelf, if present.
9.	Go to Chart 5–2 for the procedure to load commissioning software.	

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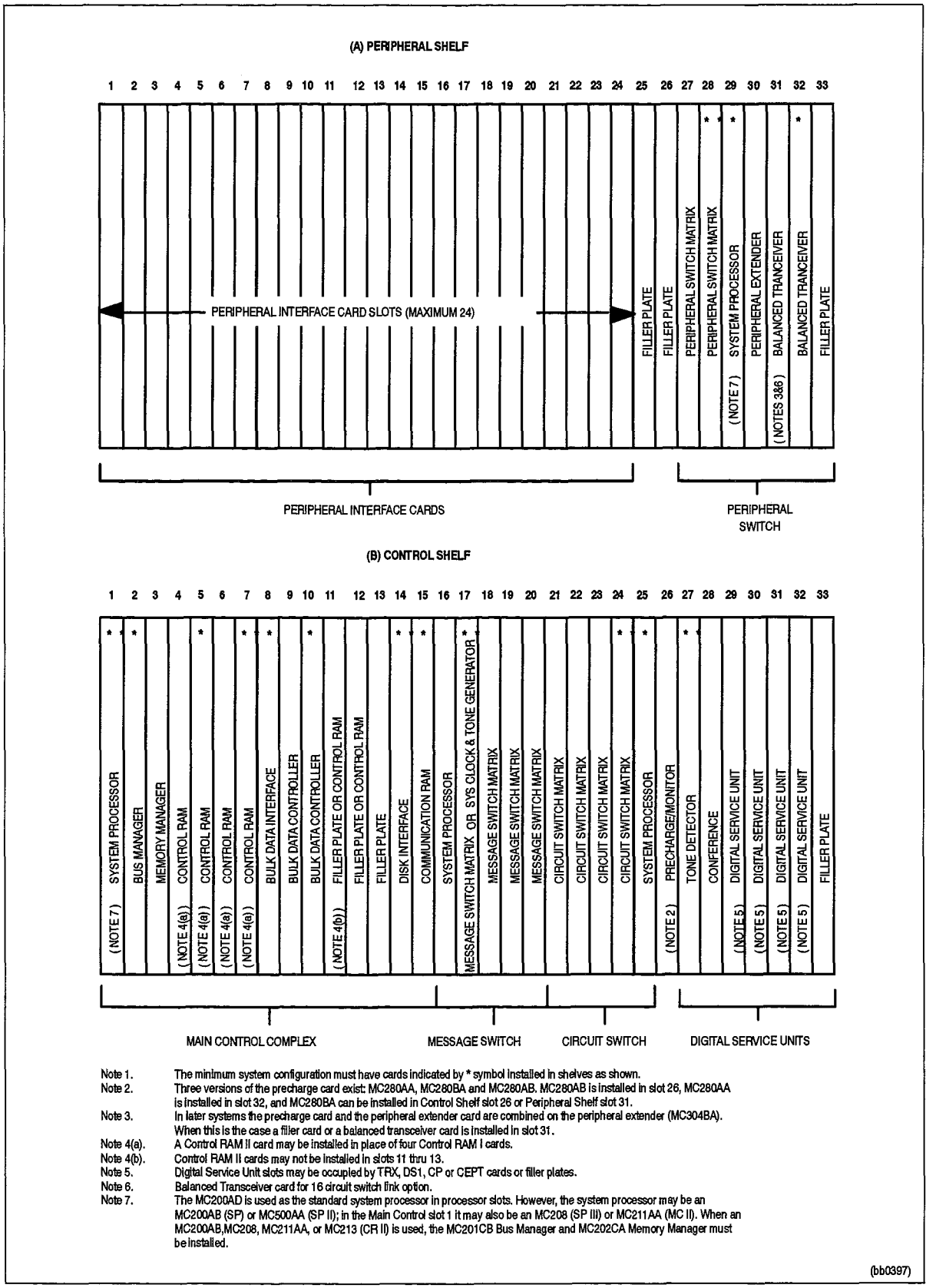

Note 1. The minimum system configuration must have cards indicated by * symbol installed in shelves as shown.
Note 2. Three versions of the precharge card exist: MC280AA, MC280BA and MC280AB. MC280AB is installed in slot 26, MC280AA is installed in slot 32, and MC280BA can be installed in Control Shelf slot 26 or Peripheral Shelf slot 31.
Note 3. In later systems the precharge card and the peripheral extender card are combined on the peripheral extender (MC304BA). When this is the case a filler card or a balanced transceiver card is installed in slot 31.
Note 4(a). A Control RAM II card may be installed in place of four Control RAM I cards.
Note 4(b). Control RAM II cards may not be installed in slots 11 thru 13.
Note 5. Digital Service Unit slots may be occupied by TRX, DS1, CP or CEPT cards or filler plates.
Note 6. Balanced Transceiver card for 16 circuit switch link option.
Note 7. The MC200AD is used as the standard system processor in processor slots. However, the system processor may be an MC200AB (SP) or MC500AA (SP II); in the Main Control slot 1 it may also be an MC208 (SP III) or MC211AA (MC II). When an MC200AB,MC208, MC211AA, or MC213 (CR II) is used, the MC201CB Bus Manager and MC202CA Memory Manager must be installed.

(bb0397)

Figure 5–1 *SX–2000* SG Card Configuration

Load Commissioning Software

5.2 The following chart details the steps required to install commissioning software on the *SX–2000* SG system.

Chart 5–2 Load Commissioning Software On Plane A

Step	Action	Comments
1.	Remove the "Write Protect" tab on the Commissioning floppy diskette.	The floppy diskette and the hard disks are protected from corruption since by default when tests are run on these devices only designated test pages are accessed by them.
2.	Insert the commissioning floppy diskette in the floppy disk drive.	Turn the latch on the floppy disk drive to lock the diskette in place.
3.	Press and hold the PANEL SWITCH ENABLE button on the Maintenance Panel, and press the PLANE A LOAD SOURCE button. **Note**: DO NOT remove the floppy diskette from the floppy disk drive. Both System Processor cards are trying to access the disk drive.	The System Processor executes a series of preloading tests. Refer to Practice 9125–060–353–NA, General Maintenance Information, for a description of the processor card diagnostic tests. If errors occur, loading halts and an error code is returned on the Main Controller numeric display. If an error should occur, repeat step 3. If the second loading attempt fails, refer to Practice 9125–060–350–NA, Troubleshooting Procedures.
4.	Check that the Maintenance Terminal returns the following message: *SX–2000* COMMISSIONING IN PROGRESS (Date and name of load is output) TIME: 00:00:00 CONFIGURATION REPORT NOW BEING GENERATED	
5.	Check that after a delay, the system outputs a configuration report for control cards.	Refer to Appendix A., Table A2–2, for an example of a control card configuration report.

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Chart 5–2 Load Commissioning Software On Plane A (continued)

Step	Action	Comments
6.	Check the configuration report against the control cards actually installed in the system.	Should the configuration report not match the cards installed, remove and reinsert the incorrectly configured card. Enter the CONFIG command to generate a new report. If the card still does not appear correctly, backplane or connector problems are indicated.
7.	The *SX–2000* SG system delivers the following prompt: ENTER SPACE TO CONFIG PERIPHERALS, <CR> TO RETURN TO COMMAND MODE>	
8.	Press the terminal space bar. The system responds with: PERIPHERAL SWITCH HARDWARE CONFIGURATION IN PROGRESS	After a delay, a peripheral and DSU configuration report is generated, similar to Appendix A., Table A2–3.
9.	The system returns the following message: <MAIN> indicating that the active Main Control is ready for testing. Any commands entered at the Maintenance Terminal after this point require the Maintenance Terminal RETURN key be pressed. Any command entered hereafter is assumed to be terminated this way.	While the system is waiting for input, it is also reading from sequential RAM locations in order to check the RAM refresh circuitry. If a RAM location loses its refresh, a bus error is likely to occur. The system returns a bus error message on the Maintenance Terminal, including the address at which the fault occurred. Note the address and refer to Practice 9125–060–352–NA, Maintenance Messages, to determine which RAM card is faulty. Replace the appropriate card and restart this procedure from step 3 before continuing.
10.	Check that the System Processor card numeric display shows "11" (flashing) and then indicates an incrementing series of numbers. When tests are completed, check that the display returns to a flashing "11" indication.	
11.	Enter the following command: EPRINTL	Enables the printing of error tables for each test executed, in long form (detailed tables). See Appendix A., Table A2–8, for an example of EPRINTL command output.
12.	Go to Chart 5–3 for commissioning tests.	

Main and Subsystem Control Tests

5.3 Main and Subsystem Control Tests are performed on the *SX–2000* SG system as described in the following chart.

Note: When the Main Control subsystem tests are run, the Mass Storage System is also tested.The "Write Protect" tab on the commissioning diskette should be removed prior to running these tests. The diskette is automatically protected from corruption, since the system knows where the load is located and will not overwrite it, even if the disk is UNPROTECTed. By default the system only tests designated test pages on the hard disks in the PROTECT mode, but writes randomly over the entire disk in the UNPROTECT mode. In the case of initial software installations, where system software is **not** installed on the hard disks prior to shipping, the UNPROTECT command should be issued from the Maintenance Terminal. This performs a DESTRUCTIVE TEST on the hard disk unit. Destructive testing of the floppy disk unit does **not** require removal of the commissioning diskette from the drive, since the test does not affect the commissioning software stored on the diskette.

Chart 5–3 *SX–2000* SG Main and Subsystem Control Tests

Step	Action	Comments
1.	Set the test program to test the Control Shelf cards by entering the following commands: STEST ETEST 1–25	 Suppress all testing. Enable testing of slots 1 – 25 on the active control shelf.
2.	Set the number of passes the test program will run to 1 by entering the following command: PASS 1	Optional: the default number of passes is 1.
3.	Start the test by entering the following command: TEST If the test on a slot is successful, the system responds with: 00:00:00 000 TEST COMPLETE – NO ERRORS ON SLOT NUMBER xx (cabinet number) (shelf number) (test number) (pass number) and the system proceeds to test the next slot.	Tests are executed from the lowest to the highest slot. Disk tests are executed during testing of slot 14.

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Chart 5–3 *SX–2000* SG Main and Subsystem Control Tests (continued)

Step	Action	Comments
3. (cont)	If errors are detected, an error message is returned. Refer to Appendix A. for a list of error messages.	If a card fails a test, remove and re–insert the failed card, and rerun the test on that slot by issuing the following command: TEST (slot number) If the card in question fails again, replace it. If the System Processor must be replaced, then the system must be restarted as described in Chart 5–2. Refer to 9125–060–350–NA, Troubleshootiong, for further information.
4.	Go to Chart 5–4.	

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Peripheral Subsystem Tests

5.4 The following chart details the steps required to perform peripheral subsystem tests on an *SX–2000* SG system.

Note: If peripheral redundancy is not provided, references to Plane B should be ignored, except for the Peripheral Switch Matrix (PSM) card in slot 27. This card connects the Peripheral Subsystem Controller to the Peripheral Interface cards in the second plane of a peripheral pair; i.e., the PSM in plane B is driven by the processor in plane A and the PSM in plane A is driven by the processor in plane B.

Chart 5–4 *SX–2000* SG Peripheral Subsystem Tests

Step	Action	Comments
1.	Fully insert the Peripheral Bus Extender Cards in slot 30 of Shelf 3 and Shelf 4.	
2.	Set the following circuit breakers on the Control Cabinet PDU to ON: – Shelf 3 Power Converter – Shelf 4 Power Converter – Shelf 3 Loop Feed – Shelf 4 Loop Feed	
3.	Fully insert the Plane A Peripheral Switch Control cards in the Control Cabinet as follows: – Peripheral Switch Matrix Cards: Shelf 3, Slot 28 Shelf 4, Slot 27 – Peripheral Subsystem Processor: Shelf 3, Slot 29 – Balanced Transceiver: Shelf 3, Slot 31 (if 16 Circuit Switch Link option is provided) – Balanced Transceiver: Shelf 3, Slot 32	Refer to Figure 5–1. Inserting the processor card initiates the power–up tests on Plane A Peripheral Switch 1. The numeric display shows each test as it is performed. If an error occurs, loading halts and an error code is returned on the display. If an error should occur, remove and reinsert the faulty card. If the second loading attempt fails, refer to Practice 9125–060–350–NA, Troubleshooting Procedures.
4.	Generate a configuration report for the peripheral shelves by entering the following command: PCONFIG The system responds with the following confirmation message: PERIPHERAL SWITCH HARDWARE CONFIGURATION IN PROGRESS	The system will generate the configuration report for the peripheral shelves as described in Appendix A., Table A2–3.

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Chart 5–4 *SX–2000* SG Peripheral Subsystem Tests (continued)

Step	Action	Comments
4. (cont)	**Note:** When the peripheral configuration is produced, a check is made to ensure the validity of the Cabinet Number DIP switch settings. If duplicate Cabinet IDs are detected, the following message will be output: **WARNING: DUPLICATE PERIPHERAL REPORTS RECEIVED FOR CABINET XX SHELF XX CHECK CAB. DIP SWITCH SETTINGS, ENTER <CR> TO PRINT PERIPHERAL CONFIGURATION** If this warning is received, check the DIP switch settings and correct. Depress the "RETURN" key to examine the peripheral configuration report	
5.	Set the test program to test Peripheral Shelf 3 of Cabinet 1 by entering the following command: SHELF 1,3 The system will return the prompt: <P1,3>	
6.	Begin testing the Peripheral Processor and Peripheral Switch Matrix cards by entering the following command: STEST ETEST 27–29	Disable all tests previously enabled Enable testing of slots 27 – 29
7.	Set the number of passes the test program will run to 1 by entering the following command: PASS 1	Optional: the default number of passes is 1.
8.	Start the test by entering the following command: TEST	Tests are executed for slots 28 and 29 of the specified shelf and slot 27 of the partner shelf of the pair. As each slot is tested, a test result message will be output.

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Chart 5–4 *SX–2000* SG Peripheral Subsystem Tests (continued)

Step	Action	Comments
9.	Test PICs on Peripheral Shelf 3 by entering: STEST ETEST 1–24 TEST If the test on a slot is successful, the system responds with: 00:00:00 000 TEST COMPLETE – NO ERRORS ON SLOT NUMBER xx (cabinet number) (shelf number) (test number) (pass number) and the system proceeds to test the next slot. If errors are detected, an error message is returned. Refer to Appendix A. for a list of error messages.	 Suppress all previous testing. Enable testing of slots 1 – 24. Test cards in slots 1 – 24. Reinsert the card and test again. Replace any cards which fail the second test.
10.	Begin testing of PICs on Shelf 4 by entering: SHELF 1,4 STEST ETEST 1–24 TEST The system responds as in step 9, and then proceeds to the next slot.	 Move to Shelf 4 in Cabinet 1. Suppress all previous testing. Enable testing of slots 1 – 24. Test cards in slots 1 – 24. If errors are detected, error messages are returned. Reinsert the card and test again. Replace any cards which fail the second test.
11.	If the system is equipped for Peripheral Control Redundancy, after setting the appropriate circuit breakers, repeat Steps 1 to 10 for Plane B of the Peripheral Shelf pair.	Set the test program to test another shelf by entering the command: SHELF (cabinet number), (shelf number)
12.	Repeat Steps 1 to 11 for any additional shelf pairs.	
13.	Type SHELF to return to <MAIN> prompt.	
14.	Go to Chart 5–5.	

Load and Test Plane B and Mate Links

5.5 Loading and testing of Plane B and its associated mate links on the *SX–2000* SG system is performed as described in the following chart.

Chart 5–5 Load and Test Plane B and Control Mate Links

Step	Action	Comments
1.	On completion of the self–test, disconnect the Maintenance Terminal from the TERMINAL A port on the Bulkhead Connector panel and connect it to the TERMINAL B port.	
2.	Press and hold the PANEL SWITCH ENABLE button on the Maintenance Panel. Press the ACTIVITY TRANSFER button.	Plane B is now active, and Plane A is inactive.
3.	Hold down the PANEL SWITCH ENABLE button and press the PLANE B LOAD SOURCE button.	Commissioning software is loaded onto the Plane B Main Controller from the external device. The *SX–2000* SG system has the following load sources: LOAD SOURCE 1 – hard disk LOAD SOURCE 2 – floppy
4.	Check that the Maintenance Terminal returns the following message: *SX–2000* COMMISSIONING IN PROGRESS (Date and name of load is output) TIME: 00:00:00 CONFIGURATION REPORT NOW BEING GENERATED	
5.	When the load is complete, check that the system generates a configuration report, and that the reported configuration coincides with the cards installed. The configuration report is followed by the prompt: ENTER SPACE TO CONFIG PERIPHERALS, <CR> TO RETURN TO COMMAND MODE> Press the terminal space bar. The system responds with: PERIPHERAL SWITCH HARDWARE CONFIGURATION IN PROGRESS	Refer to Appendix A., Table A2–3, for an example of a peripheral and DSU configuration report.

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Chart 5–5 Load and Test Plane B and Control Mate Links (continued)

Step	Action	Comments
6.	Enable long–form printing of messages by issuing the EPRINTL command at Maintenance Terminal when the <MAIN> prompt appears.	See Appendix A., Table A2–8, for an example of the EPRINTL command output.
7.	Test Plane B Control Cards by issuing the following commands: STEST ETEST 1–25 TEST	 Suppress all previous testing. Enable testing of slots 1 – 25. Test cards in enabled slots.
8.	If errors occur during testing of any slot, remove and reinsert the card and retest. Replace any cards which fail the second test.	
9.	Test the main control mate links by issuing the following commands on both planes simultaneously: MATE ON TEST 8 To disable the test, issue the command: MATE OFF	To run the main control mate link test, Commissioning must be running and a maintenance terminal must be connected to both planes at once.
10.	Test the Peripheral Mate Links in the first cabinet by issuing the following commands: SHELF 1,3 PERMATE ON TEST 29	It is not necessary to have both main control planes since both peripheral processors are controlled by the active main processor.
11.	If one or more peripheral cabinets is provided, then repeat step 10 for each shelf pair in each peripheral cabinet.	
12.	After all peripheral cabinets have been tested, disable the peripheral mate link test by issuing the command: PERMATE OFF	
13.	Type "SHELF" to obtain "<MAIN>" prompt.	
14.	Go to Chart 5–6.	

Maintenance Unit Commissioning

5.6 Commissioning of the maintenance unit is performed on the *SX–2000* SG system as described in the following chart.

Note: In the following procedure, the terms 'unit' and 'panel' are interchangeable.

Chart 5–6 *SX–2000* SG Maintenance Unit Commissioning

Step	Action	Comments
1.	Connect a Maintenance Printer to the Bulkhead Connector panel on the Control Cabinet. Ensure that the printer is on–line and ready to print.	The printer connects to this port via RS–232 connectors. The printer should be set for: – 8 data bits – 2 stop bits – no parity – 1200 baud.
2.	Enter the following commands from the Maintenance Terminal: STEST PANEL ON TEST Maintenance Unit commissioning software is loaded from the commissioning diskette. Once loaded, the tests are executed.	Maintenance Unit tests are conducted from the active plane, Plane B.
3.	Check that: – the printer prints 20 lines of data. – the MINOR ALARM LED turns ON, then OFF. – the MAJOR ALARM LED turns ON, then OFF. – the REMOTE ALARM LED turns ON, then OFF. – the following test message is scrolled across the Maintenance Unit display: "THE QUICK BROWN FOX...0123..9 the quick brown fox..." – the Power Fail Transfer relays are operated. – the fan speed is set to low, then high for each cabinet. – when the tests are complete, the following message appears on the Maintenance Terminal: TEST COMPLETE, NO ERRORS ON SLOT NUMBER (SLOT **), (SHELF **), (CAB 01), (TEST 00), (PASS 0001)	An audible click is heard as each relay operates. If an error is detected, make note of the error and refer to Practice 9125–060–350–NA, Troubleshooting.

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Chart 5–6 *SX–2000* SG Maintenance Unit Commissioning (continued)

Step	Action	Comments
4.	Enter the following command: SHOW PANEL Check that the Maintenance Terminal displays the status of the Maintenance Unit.	Refer to Appendix A., Table A2–6, for an example of the SHOW PANEL display.
5.	Enter the following command: SHOW PANEL N (Where N is the desired maintenance unit number) Check that the Maintenance Terminal displays the status of the Maintenance Unit specified.	
6.	Switch activity to Plane A, connect the Maintenance Terminal to the TERMINAL A port on the Maintenance Connector panel of the Control Cabinet, and repeat steps 2 through 5.	Refer to Appendix A., Table A2–6 for an example of the SHOW PANEL N display.
7.	Remove the commissioning diskette from the Floppy Disk Unit.	
8.	Hardware commissioning is now complete. Refer to Practice 9120–060–200, Installation, for software installation.	

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6. *SX–2000* FD ICS COMMISSIONING

Install Circuit Cards

Non–Redundant Control Node

6.1 Ensure that the Main Control cards and Fiber Interface Modules are installed in the correct card slots before loading the commissioning software. Chart 6–1 describes the card installation procedure for the Non–redundant Control Node of the *SX–2000* FD system. The procedure for a Redundant Control Node is shown in the next chart, Chart 6–2.

Chart 6–1 Install Circuit Cards in the *SX–2000* FD ICS Non–Redundant Control Node

Step	Action	Comments
1.	Ensure the following cards are installed in the Non–redundant Control Node: • Main Controller II Card: Shelf 1, Slot 1 • Control Resource Card: Shelf 1, Slot 2 • Fiber Interface Modules: Shelf 2, Slots 1–4, as required	Refer to Figure 6–1.
2.	Apply power to the Control Node by setting the PSU power switch to ON.	
3.	Check that the Main Controller II (MC II) and Control Resource cards begin power–up self tests.	If the MC II or Control Resource card does not begin self–test, or if errors are indicated on the numeric display, reinsert the card. Reset the MC II card by pressing PANEL ENABLE and RESET A on the Maintenance Panel. If the card fails self–test a second time, replace it. Power–up self tests are only performed when power is first applied to installed cards.
4.	Proceed to Chart 6–3 for installation of cards in the Peripheral Node(s).	

Redundant Control Node

Ensure that the Main Control cards and Fiber Interface Modules are installed in the correct card slots before loading the commissioning software. Chart 6–2 describes the card installation procedure for the Redundant Control Node.

Chart 6–2 Install Circuit Cards in the *SX–2000* FD ICS Redundant Control Node

Step	Action	Comments
1.	Ensure the following cards are installed in the Control Node: • Plane A Main Controller II Card: Shelf 1, Slot 2 • Plane A Control RAM II Card: Shelf 1, Slot 3 • Plane A Circuit Switch Matrix II Card: Shelf 1, Slot 4 • Plane B Circuit Switch Matrix II Card: Shelf 1, Slot 5 • Plane B Control RAM II Card: Shelf 1, Slot 6 • Plane B Main Controller II Card: Shelf 1, Slot 7 • Control Resource Card: Shelf 1, Slot 8 • Fiber Interface Modules: Shelf 3, Slots 1–11, as required	Refer to Figure 6–1.
2.	Apply power to the Control Node by setting the two PSU power switches on the node backplate to ON.	
3.	Check that the Main Controller II (MC II) cards and the Control Resource card begin power–up self tests.	If an MC II or Control Resource card does not begin self–test, or if errors are indicated on the numeric display, reinsert the card. Reset the MC II card by pressing PANEL ENABLE and RESET A (or RESET B for the Plane B MC II card) on the Maintenance Panel. If the card fails self–test a second time, replace it. Power–up self tests are only performed when power is first applied to installed cards.
4.	Proceed to Chart 6–3 for installation of cards in the Peripheral Node(s).	

Peripheral Nodes

Ensure that the Peripheral Control cards, Peripheral Interface cards, and one Fiber Interface Module are installed in the correct card slots in each Peripheral Node before loading the commissioning software. Chart 6–3 describes the card installation procedure for the Peripheral Node.

Chart 6–3 Install Circuit Cards in the *SX–2000* FD ICS Peripheral Nodes

Step	Action	Comments
1.	Ensure that the following cards are installed in the first Peripheral Node: • Fiber Interface Module: Shelf 1, Slot 17 • Peripheral Resource Card: Shelf 2, Slot 17 • Peripheral Switch Controller: Shelf 1, Slot 16	Refer to Figure 6–2.
2.	Apply power to the Peripheral Node by setting the power switches on the node backplate and on the AC Power Converter faceplate to ON.	
3.	Check that the Peripheral Switch Controller and Peripheral Resource cards begin power–up self tests.	If the Peripheral Switch Controller or Peripheral Resource card does not begin self–test, or if errors are indicated on the numeric display, reinsert the card. If the card fails self–test a second time, replace it. Power–up self tests are only performed when power is first applied to installed cards.
4.	Install Peripheral Interface cards (PICs) in slots 1 to 12 (Shelf 1) of the Peripheral Node.	
5.	Perform Steps 1 through 4 for each additional Peripheral Node.	
6.	Proceed to Chart 6–4 for installation of cards in the DSU Node(s).	

DSU Nodes

Ensure that the Peripheral Resource cards, Digital Service Unit (DSU) cards, and Fiber Interface Module(s) are installed in the correct card slots in each DSU Node before loading the commissioning software. Chart 6–4 describes the card installation procedure for the DSU Nodes.

Chart 6–4 Install Circuit Cards in the *SX–2000* FD ICS Peripheral Nodes

Step	Action	Comments
1.	Ensure that the following cards are installed in the first DSU Node: • Fiber Interface Module: Shelf 1, Slot 1 • Peripheral Resource Cards: Shelf 2, Slot 1 and 6 • Fiber Interface Module: Shelf 1, Slot 6 (optional)	Refer to Figure 6–2. Leave all other cards (except filler plates) uninstalled.
2.	Apply power to the DSU Node by setting the PSU power switch on the node backplate to ON.	
3.	Check that the Peripheral Resource cards in each node begin power–up self tests.	If the Peripheral Resource card does not begin self–test, or if errors are indicated on the numeric display, reinsert the card. If the card fails self–test a second time, replace it. Power–up self tests are only performed when power is first applied to installed cards.
4.	Install DSUs in slots 2 to 5 (Shelf 1) of the DSU Node.	
5.	Repeat Steps 1 to 4 for each additional DSU Node.	
6.	After circuit cards have been installed in all DSU Nodes, the card installation process is completed. Go to Chart 6–5 for instructions on loading commissioning software onto Plane A of the *SX–2000* FD system.	

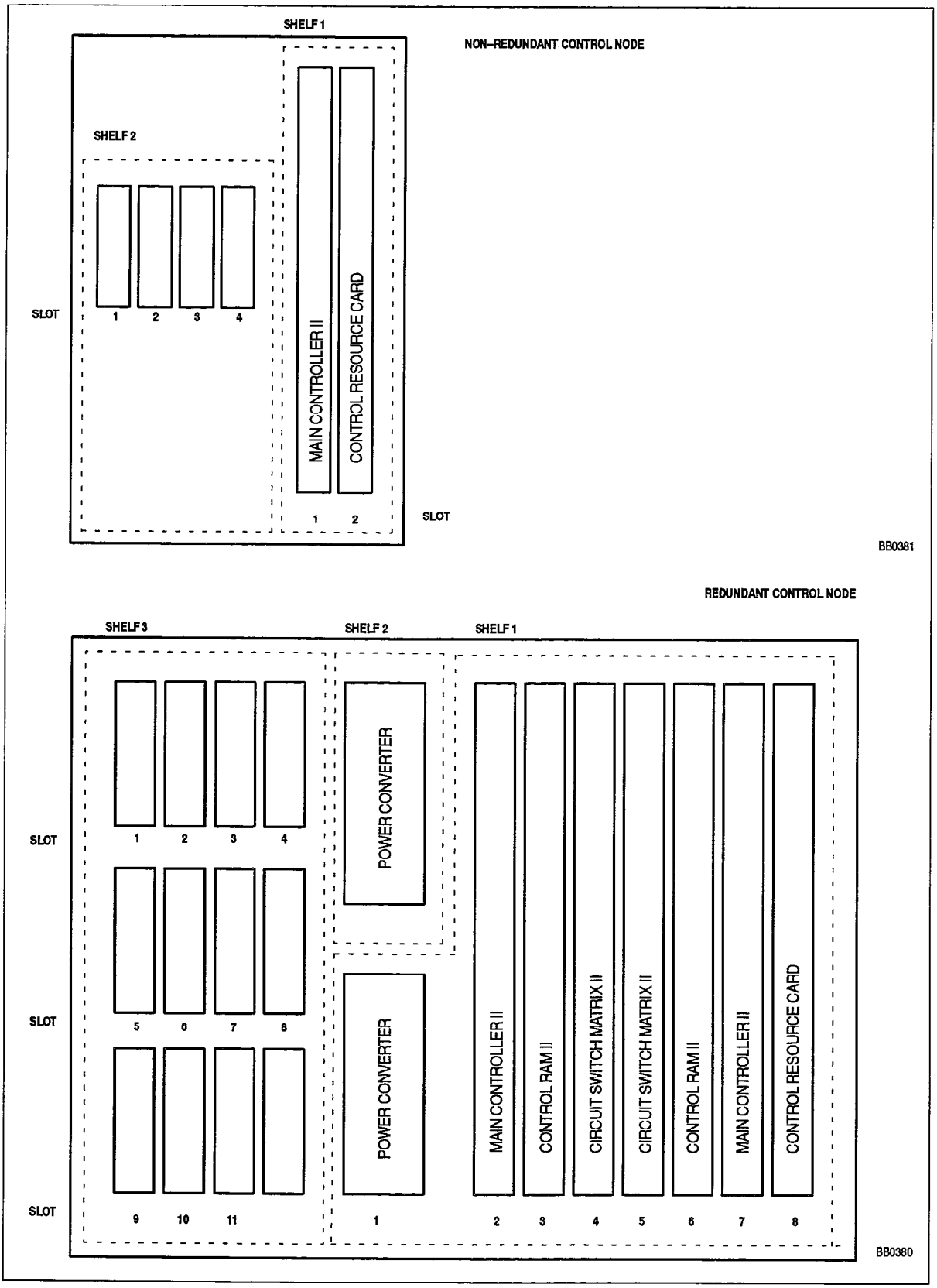

Figure 6–1 *SX–2000* FD Control Node Circuit Card Locations

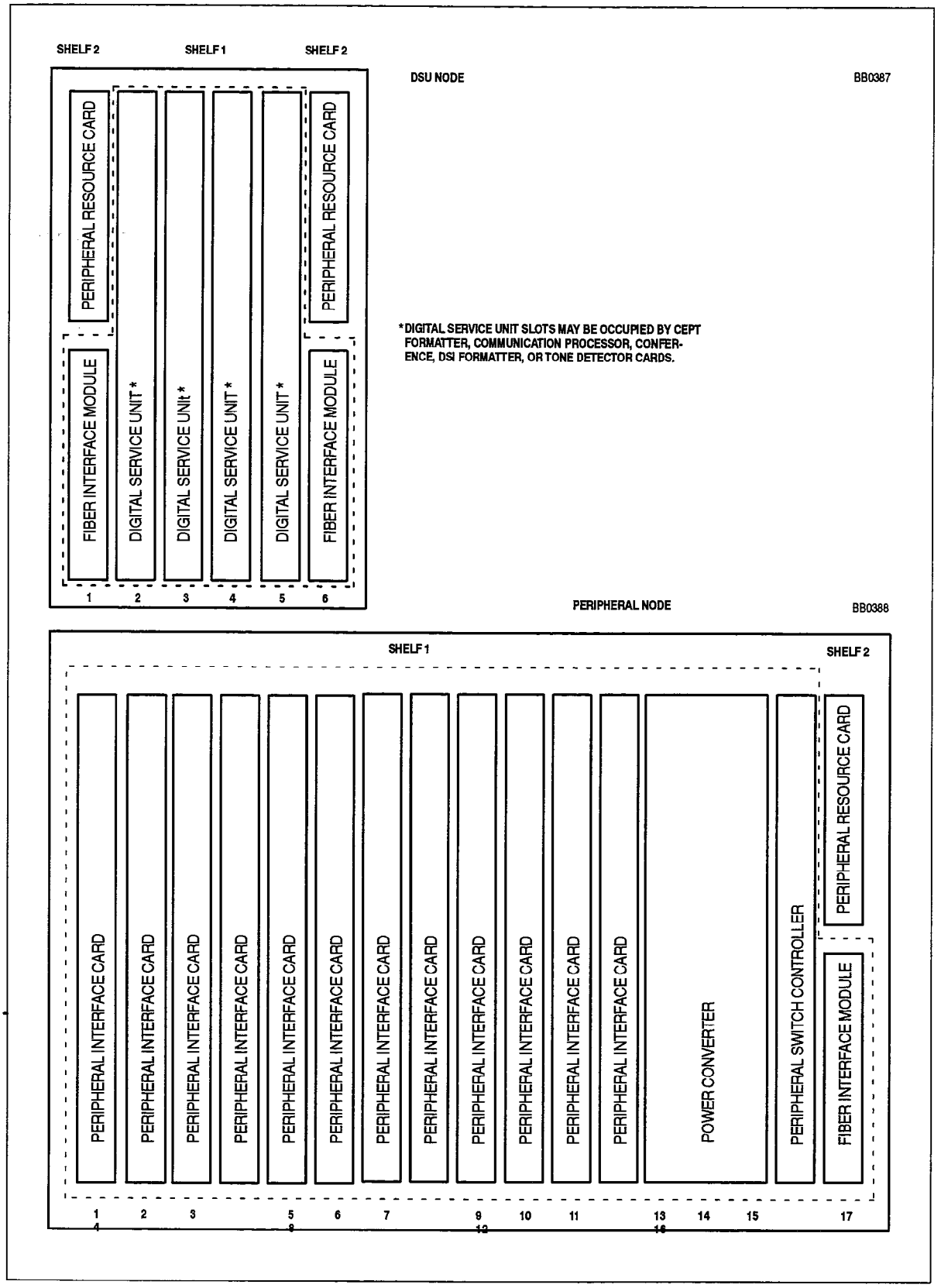

Figure 6–2 *SX–2000* FD Peripheral and DSU Node Circuit Card Locations

Load Commissioning Software

6.2 The following chart details the steps required to install commissioning software on the *SX–2000* FD system.

Chart 6–5 Load Commissioning Software On Plane A

Step	Action	Comments
1.	Ensure that the RECORD tab on the Commissioning cartridge tape is in the RECORD position.	The tape and the hard disk drives are protected from corruption since by default when tests are run on these devices only designated test pages are accessed by them.
2.	Insert the commissioning cartridge tape in the cartridge tape drive.	
3.	Press and hold the PANEL ENABLE button on the Control Panel, and press the RESET A button. **Note:** DO NOT remove the cartridge tape from the cartridge tape drive. Both MC II cards (on the redundant *SX–2000* FD system) are trying to access the tape drive.	The MC II executes a series of preloading tests. Refer to Practice 9125–060–353–NA, General Maintenance Information, for a description of the processor card diagnostic tests. If errors occur, loading halts and an error code is returned on the MC II card numeric display. If an error should occur, repeat step 3. If the second loading attempt fails, refer to Practice 9125–060–350–NA, Troubleshooting Procedures.
4.	Check that the Maintenance Terminal returns the following message: *SX–2000* (FD) COMMISSIONING IN PROGRESS (Date and name of load is output) TIME: 00:00:00	
5.	The *SX–2000* FD system delivers the following prompt: IS THIS AN FD2 SYSTEM ? – CONTINUE (Y/N) Enter 'Y' for a redundant control system, or 'N' for a non–redundant control system. The system continues with: DO YOU WISH TO CHANGE CURRENT LINK CONFIGURATION ? – CONTINUE (Y/N) When commissioning the system for the first time, enter 'Y'. If a default link configuration already exists, enter 'N'.	'FD2' refers to a Redundant Control *SX–2000* FD system. A programmable table is displayed, in which the installer makes the necessary changes. See Table 6–1 and Table 6–2.

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Chart 6–5 Load Commissioning Software On Plane A (continued)

Step	Action	Comments
5. (cont)	After programming the link configuration, the system prompts: DO YOU WISH TO SAVE LINK CONFIGURATION – CONTINUE (Y/N) Enter 'Y'.	 This will save the entire load.
6.	The system continues with: CONFIGURATION REPORT NOW BEING GENERATED	
7.	Check that after a delay, the system generates a configuration report. The *SX–2000* FD system configures all of the DSUs and peripherals automatically.	The length of the delay is proportional to the number of cabinets in the system. No output appears at the terminal until all cards are configured. Refer to Appendix A., Table A2–4, for an example of a configuration report.
8.	Check the configuration report against the cards actually installed in the system.	Should the configuration report not match the cards installed, remove and reinsert the incorrectly configured card. Enter the CONFIG command to generate a new report. If the card still does not appear correctly, backplane or connector problems are indicated.
9.	The system returns the following prompt: <MAIN> indicating that the active Main Control is ready for testing. Any commands entered at the Maintenance Terminal after this point require the Maintenance Terminal RETURN key be pressed. Any command entered hereafter is assumed to be terminated this way.	While the system is waiting for input, it is also reading from sequential RAM locations in order to check the RAM refresh circuitry. If a RAM location loses its refresh, a bus error is likely to occur. The system returns a bus error message on the Maintenance Terminal, including the address at which the fault occurred. Note the address and refer to Practice 9125–060–352–NA, Maintenance Messages, to determine which RAM card is faulty. Replace the appropriate card and restart this procedure before continuing.
10.	Check that the MC II card numeric display shows "11" (flashing) and then indicates an incrementing series of numbers. When tests are completed, check that the display returns to a flashing "11" indication.	

Chart 6–5 Load Commissioning Software On Plane A (continued)		
Step	**Action**	**Comments**
11.	Enter the following command: EPRINTL	Enables the printing of error tables for each test executed, in long form (detailed tables). Refer to Appendix A., Table A2–8, for an example of the EPRINTL command outputt.
12.	Go to Chart 6–6 for commissioning tests.	
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Link Configuration

If the installer has indicated that the *SX–2000* FD system link configuration is to be created or changed (step 5, Chart 6–5), one of the following tables will be displayed on the terminal. Entries in **bold** may not be changed. The arrow and tab keys are used to move around in the table, the delete and numeric keys to change entries. After the table has been completed, the system requests that the new configuration be saved to tape. When saved, it becomes the default configuration.

Table 6–1 shows the display for a Non–redundant Control *SX–2000* FD system. In this example, cabinet 1 is a Non–redundant Control Node and cabinets 2–5 are Peripheral Nodes.

Table 6–1 Link Configuration for a Non–Redundant *SX–2000* FD System

CABINET ASSIGNMENT						
Cabinet Type : (FDPER = 0 FDDSU = 1)						
Main FIM				**Peripheral/DSU FIM**		
CABINET (01)	**SHELF (02)**	**SLOT (1 – 12)**	**CAB TYPE (0 – 1)**	**CABINET (2 – 12)**	**SHELF (01)**	**SLOT (1, 6, or 17)**
01	**02**	01	00	02	**01**	17
01	**02**	02	00	03	**01**	17
01	**02**	03	00	04	**01**	17
01	**02**	04	00	05	**01**	17

In Table 6–2 an example of a link configuration for a Redundant Control *SX–2000* FD system. In this example, cabinet 1 is a Redundant Control Node, cabinet 9 is a DSU Node, and the rest are Peripheral Nodes.

Table 6–2 Link Configuration for a Redundant *SX–2000* FD System

CABINET ASSIGNMENT						
Cabinet Type : (FDPER = 0 FDDSU = 1)						
Main FIM				Peripheral/DSU FIM		
CABINET (01)	**SHELF (03)**	**SLOT (1 – 12)**	**CAB TYPE (0 – 1)**	**CABINET (2 – 12)**	**SHELF (01)**	**SLOT (1, 6, or 17)**
01	**03**	01	00	02	**01**	17
01	**03**	02	00	03	**01**	17
01	**03**	03	00	04	**01**	17
01	**03**	04	00	05	**01**	17
01	**03**	05	00	06	**01**	17
01	**03**	06	00	07	**01**	17
01	**03**	07	00	08	**01**	17
01	**03**	08	01	09	**01**	01
01	**03**	09	01	09	**01**	06
01	**03**	10	00	10	**01**	17
01	**03**	11	00	11	**01**	17

Control and Peripheral Node Tests

6.3 Tests of cards in the Control and Peripheral Nodes are performed on the *SX–2000* FD system as described in the following chart.

Chart 6–6 *SX–2000* FD ICS Control and Peripheral NodeTests

Step	Action	Comments
1.	Enter the following commands to enable testing of the mass storage devices (hard disk and cartridge tape drives): EXTERNAL ON HDM ON MHDM ON (Redundant Control only) By default, testing of mass storage devices is disabled.	 Enable cartridge tape drive testing; Enable hard disk testing; Enable mate hard disk testing. EXTERNAL ON test is not possible if the RECORD tab is not in the RECORD position on the cartridge tape. Any of these commands can be individually entered to enable testing of a specific mass storage device. Testing of mass storage devices is disabled by issuing one of the following commands, as appropriate: EXTERNAL OFF HDM OFF MHDM OFF These commands permit the system to perform write operations on the storage devices. The PROTECT command prevents the system from writing on the devices.
2.	In a Redundant Control Node, enable testing of control cards by entering: STEST ETEST 2–7	 Suppress all previous tests. Enable testing of slots 2 – 7.
3.	Set the number of test passes to 1 by entering the following command: PASS 1	Optional: the default number of passes is 1.

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Chart 6–6 *SX–2000* FD ICS Control and Peripheral NodeTests (continued)

Step	Action	Comments
4.	Start the test by entering: TEST (in a Redundant Control Node) or TEST 1 (in a Non–redundant Control Node) If a slot passes the tests, the system responds with: 00:00:00 000 TEST COMPLETE – NO ERRORS ON SLOT NUMBER xx (shelf number) (cabinet number) (test number) (pass number) and proceeds to test the next slot.	The test will take up to approximately 10 minutes to complete. Tests are executed from the lowest to highest slots. If errors are detected, error messages are returned. Refer to the Appendices for the messages which may be encountered. Errors on an MSX card, hard disk or cartridge tape drive appear against the Main Controller test. If a CR–II or CSM–II card fails a test, reinsert the failed card, and rerun the test on that slot by issuing the following command: TEST (slot number) If the card in question fails again, replace it. If the MC II card must be replaced, the system must be restarted as described in Chart 6–5.
5.	To enable testing of the Peripheral Switch Controller and all PICs in a Peripheral Node enter the following command: SHELF 2,1 The system returns the following prompt, indicating that Plane B's Peripheral Control is ready for testing: <P2,1>	In this example, '2' is the cabinet number, and '1' is the shelf number.

Chart 6–6 *SX–2000* FD ICS Control and Peripheral NodeTests (continued)

Step	Action	Comments
6.	Test the Peripheral Node cards by entering the following command: STEST ETEST 1–16 TEST As each card passes the test, the system returns the following message: 00:00:00 000 TEST COMPLETE – NO ERRORS ON SLOT NUMBER 16 02 01 (test number) (pass number) and then returns the peripheral prompt.	 Suppress all previous testing. Enable testing of slots 1 – 16. Test all cards in slots 1 – 16 If errors are detected, error messages are returned. Reinsert the card and test again. Replace any cards which fail the second test.
7.	Repeat steps 5 and 6 for each Peripheral Node in the system.	
8.	Type "SHELF" to return to the <MAIN> prompt. Test all of the circuit switch links from the main control to all of the peripheral shelves by entering the following command: TEST CIR LINKS	
9.	If this is a Redundant Control system, go to Chart 6–7. If the system is a non–redundant configuration, go to Chart 6–8.	

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Load And Test Plane B And Mate Links

6.4 Loading and testing of Plane B and its associated mate links on the Redundant Control *SX–2000* FD system is performed as described in the following chart. This procedure does not apply to the Non–redundant Control *SX–2000* FD system, since it only has one plane (Plane A).

Chart 6–7 Load and Test Plane B and Control Mate Links

Step	Action	Comments
1.	On completion of the self–test, disconnect the Maintenance Terminal from the TERMINAL A port on the Maintenance Connector's panel and connect it to the TERMINAL B port.	
2.	Press and hold the PANEL ENABLE button on the Maintenance Panel. Press the ACTIVITY SWITCH button.	Plane B is now active, and Plane A is inactive.
3.	Hold down the PANEL ENABLE button and press the RESET B button.	Commissioning software is loaded onto the Plane B Main Controller from the external device.
4.	Check that the Maintenance Terminal returns the following message: *SX–2000* (FD) COMMISSIONING IN PROGRESS (Date and name of load is output) TIME: 00:00:00	
5.	The *SX–2000* FD system delivers the following prompt: IS THIS AN FD2 SYSTEM ? – CONTINUE (Y/N) Enter 'Y'. The system continues with: DO YOU WISH TO CHANGE CURRENT LINK CONFIGURATION ? – CONTINUE (Y/N) Since a default link configuration has been programmed while loading commissioning software on Plane A (see Chart 6–5), enter 'N'. The system continues with: CONFIGURATION REPORT NOW BEING GENERATED	'FD2' refers to a Redundant Control *SX–2000* FD system.
6.	When the load is complete, check that the system generates a configuration report, and that the reported configuration coincides with the cards installed.	Refer to Appendix A., Table A2–4, for an example of a configuration report.

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Chart 6–7 Load and Test Plane B and Control Mate Links (continued)

Step	Action	Comments
7.	Enable long–form printing of messages by issuing the EPRINTL command at Maintenance Terminal when the <MAIN> prompt appears.	
8.	Test Plane B Control Cards by issuing the following commands: STEST ETEST 2–7 TEST	 Suppress all previous testing. Enable testing of slots 2 – 7. Test cards in enabled slots.
9.	If errors occur during testing of any slot, remove and reinsert the card and retest. Replace any cards which fail the second test.	
10.	Test the main control mate links by issuing the following commands on both planes simultaneously: MATE LINK ON TEST 7 To disable the test, issue the command: MATE LINK OFF	To run the main control mate link test, Commissioning must be running and a maintenance terminal must be connected to both planes at once.
11.	Enable testing of the Peripheral Switch Controller and all PICs in a Peripheral Node by entering the following command: SHELF (cabinet number),1 The system returns the following prompt, indicating that Plane B's Peripheral Control is ready for testing: <P2,1>	 Peripheral Nodes may be numbered from 2 to 12. In this example, the cabinet number is '2'.
12.	Test the Peripheral Node cards by entering the following command: STEST ETEST 1–16 TEST As each card passes the test, the system returns the following message: 00:00:00 000 TEST COMPLETE – NO ERRORS ON SLOT NUMBER 16 02 01 (test number) (pass number) and then returns the peripheral prompt.	 Suppress all previous testing. Enable testing of slots 1 – 16. Test all cards in slots 1 – 16. If errors are detected, error messages are returned. Reinsert the card and test again. Replace any cards which fail the second test.
13.	Repeat step 11 and 12 for each Peripheral Node in the system.	
14.	Go to Chart 6–8.	

Control Panel Commissioning

6.5 The following chart provides details on commissioning a control panel on an *SX–2000* FD system.

Chart 6–8 *SX–2000* FD Control Panel Commissioning

Step	Action	Comments
1.	Ensure that a *VT100* compatible Maintenance Terminal is connected to the TERMINAL connector for the ACTIVE plane on the Control Node backplate.	
2.	Enter the following commands: STEST PANEL ON TEST 1 (Non–redundant Control Node) or TEST 2 (Redundant Control Node Plane A) or TEST 7 (Redundant Control Node Plane B) The system delivers the following message: SYS ID MODULE PRESENT Visual led test: Minor, Major, Critical, All ON, OFF Perform the following visual checks: • Minor ALARM LED comes on and goes off. • Major ALARM LED comes on and goes off. • Critical ALARM LED comes on and goes off. • All ALARMS come on and go off.	Control Panel tests can only be conducted from the active Plane (A or B) in redundant systems, and from Plane A in non–redundant systems.
3.	When tests are completed, the system delivers the following message: 00:00:00 000 TEST COMPLETE – NO ERRORS ON SLOT NUMBER xx (shelf number) (cabinet number) (test number) (pass number)	If an error is detected, make note of the error and refer to Practice 9125–060–350–NA, Troubleshooting.
4.	Enter the following command: SHOW PANEL Check that the Maintenance Terminal displays the status of the Control Panel.	Refer to Appendix A., Table A2–5, for an example of the SHOW PANEL display.
5.	If the system being commissioned is a redundant configuration, switch activity to the other plane, and connect the Maintenance Terminal to the other TERMINAL port on the Control Node backplate. Repeat steps 2 through 4.	
6.	Remove the commissioning tape from the cartridge tape drive.	
7.	Hardware commissioning is now complete. Refer to Practice 9124–060–200, Installation, for software installation.	

Appendix A.

HUMAN/MACHINE INTERFACE (HMI)

A1. Commissioning Software HMI

General

A1.1 This Appendix describes the I/O functions of the Off–Line Commissioning Software.

The Commissioning command structure is designed to provide ease of use, while giving a maximum of functionality. The command names are mnemonic descriptions of their function. Two types of error reports are available to provide the required detail in error detection.

Command Description

Commands are entered at the Maintenance Terminal keyboard, and are terminated with the <RETURN> key. When an incorrect command is entered, the system responds by delivering question marks. When the program is ready to accept a command, one of two prompts is returned:

- <MAIN> – This prompt is displayed while Main Control tests are enabled for testing.
- <Pm,n> – This prompt is displayed while Peripheral Switch tests are enabled. The cabinet number is represented by m, and the shelf number is represented by n.

To change an incorrect command before <RETURN> is pressed, use the <DEL> (Delete) key to back up and erase characters.

Tests are enabled according to cabinet, shelf and slot numbers. Cabinet and shelf numbers are specified using the SHELF command. If no parameters are specified, the system tests all shelves from the active plane.

Table A1–1 lists the commands available, along with a description of the meaning and use of each.

Table A1–1 Commissioning Software Commands

Command	Description
BAUD	Format: BAUD xxxx Sets the baud rate of the Maintenance Terminal port on the system, but not on the terminal itself. Valid values are 300, 600, 1200, 2400, 3600, 4800 and 9600.
CLEAR LOG	Format: CLEAR LOG Clear Logs. Clears all test error logs and internal error report counters. Use cautiously, so as to not delete potentially useful error counts.
CONFIG	Format: CONFIG Generates the system hardware configuration map by reading the card I.D. PROMs of all installed control cards. The configuration is then printed on the Maintenance Terminal. When performed from the active plane, all available cards are configured. When performed from the inactive side of an *SX–2000* S system, only Main Control cards are configured (Main Controller, Control RAM II, Circuit Switch Matrix). When performed from the inactive side of an *SX–2000* SG system, only Control cards are configured. Configuration is automatically generated on system start–up. If a card is removed or installed, the system should be reconfigured using this command. See Table A2–1 or Table A2–2 for a sample configuration report.
EPRINTS	Format: EPRINTS Enables printing of short–form (summary) tables directed to the Maintenance Terminal during testing. Errors encountered during a test are reported only at the end of an individual test cycle (i.e., after all iterations of that test have been executed). See Table A2–9 for a sample of the output produced using the EPRINTS command.
EPRINTL	Format: EPRINTL Enables printing of long–format (detailed) error logs. The logs are output to the Maintenance Terminal. If an error is detected when a test is run, an error report line is immediately output indicating which test failed, the error code, the time the error occurred, and the slot number. See Table A2–8 for a sample of the output produced using the EPRINTL command.
ETEST	Format: ETEST o ETEST o–p ETEST Enables all tests for the specified slot (o) or range of slots (o–p). The default (no qualifiers) is: enable all tests on all slots on the shelf, if issued from the active plane, or only on control cards on that shelf, if issued from the inactive plane.

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Table A1–1 Commissioning Software Commands (continued)

Command	Description
EXTERNAL (*SX–2000* FD, S and VS ICS)	Format: EXTERNAL ON EXTERNAL OFF Enables testing of the external device (EXTERNAL ON), or disables testing (EXTERNAL OFF). By default, tests on the external device are disabled.
HDM (*SX–2000* FD, S and VS ICS)	Format: HDM ON HDM OFF Enables testing of the current plane's HDM (HDM ON), or disables testing (HDM OFF). By default, tests on the HDM are disabled.
HELP	Format: HELP Print a summary of the available commands. See Table A3–1 for a sample of the output produced from the HELP command.
HOLD	Format: HOLD Stops the screen from scrolling. By default, the screen holds after every 21 lines of text. The system then prompts the user to press the space bar. This can be disabled by typing NOHOLD.
LINKS CONFIG (*SX–2000* FD ICS)	Format: LINKS CONFIG Displays a table in which the FIMs originating in the Control Node can be configured for each Peripheral or DSU Node. The cabinet number and cabinet type are programmable, as well as the location of each Control Node FIM.
MATE LINK (*SX–2000* FD, S and SG ICS)	Format: MATE LINK ON MATE LINK OFF Enables/disables testing of the main control mate link while running TEST 20. By default, tests on mate link are disabled.
MHDM (*SX–2000* FD and S ICS)	Format: MHDM ON MHDM OFF Enables testing of the mate plane's HDM (MHDM ON), or disables testing (MHDM OFF). By default, tests on the mate plane's HDM are disabled.
PANEL	Format: PANEL ON PANEL OFF Enables testing of the Maintenance Panel/MHD/Maintenance Unit (PANEL ON), or suppresses testing of the panel (PANEL OFF). By default, tests on the panel are suppressed.

Table A1–1 Commissioning Software Commands (continued)

Command	Description
PASS	Format: PASS n PASS Allows specification of the number of passes to be run. A test is complete when all enabled tests have been run once. A test may consist of "n" iterations of that test. The program defaults to one pass enabled. Entering PASS without the "n" qualifier enables infinite (i.e., continuous) passes.
PCONFIG (*SX–2000* FD, S and SG ICS)	Format: PCONFIG Generates the system hardware configuration map for the Peripheral Switch Controller cards and PICs in the *SX–2000* S system. A system hardware configuration map is generated for the Peripheral processors and DSUs in the *SX–2000* SG system. This command can only be used from the active plane. If any Peripheral Control cards are removed or installed the system should be reconfigured using this command.
PERMATE LINK (*SX–2000* S and SG ICS)	Format: PERMATE LINK ON PERMATE LINK OFF Enables or disables testing of peripheral mate links.
PRINT CONFIG	Format: PRINT CONFIG Sends a system hardware configuration map report to the System Printer.
PRINT LOG	Format: PRINT LOG Sends a summary of error logs to the System Printer.
PRINT STATUS	Format: PRINT STATUS This produces a list of the current operator–controllable test parameters, and sends it to the System Printer.
PROTECT	Format (*SX–2000* FD, S, and VS ICS): PROTECT EXTERNAL PROTECT HDM PROTECT MATE HDM (*SX–2000* Redundant FD and S ICS) Format (*SX–2000* SG ICS): PROTECT Disables destructive testing of the mass storage devices. Any data stored on the devices is protected from corruption when the devices are tested. Tests on the devices affect data "test pages" only. For thorough, but destructive, testing, issue the UNPROTECT command. PROTECT is the system default.
SAVE	Format: SAVE Saves Commissioning software to the external device. The floppy/tape used to save the software must have previously been SCRATCHed. When SAVE is entered, a prompt is returned for confirmation of the save request.

Table A1–1 Commissioning Software Commands (continued)

Command	Description
SCRATCH	Format: SCRATCH 0 SCRATCH 1 Used to scratch the external device (0), or the hard disk (1). This command causes the destruction of all data on the specified device. Use only when the device is determined to be non–scratched. When SCRATCH is entered, a prompt is returned for confirmation of the request.
SHELF (*SX–2000* FD, S and SG ICS)	Format: SHELF m,n SHELF On the *SX–2000* SG system this command selects testing of cabinet (m) and shelf (n). When no qualifiers are specified testing applies to the Main Controller executing the program. Valid values for m and n are 1 through 4. On the *SX–2000* S system this command selects testing of slot 16 of cabinet (m) and shelf (n), with the prompt <Pm,n> displayed. When no qualifiers are specified or when (m,n) defines the Control Shelf currently executing the program, testing is enabled on the Control Shelf and the prompt returns to <MAIN>.
SHOW CONFIG	Format: SHOW CONFIG Displays the current hardware configuration map. The configuration sequence is not run.
SHOW LINKS (*SX–2000* FD ICS)	Format: SHOW LINKS Displays a FIM configuration table.
SHOW LOG	Format: SHOW LOG Display logs on the Maintenance Terminal. Causes the program to enter an interactive error report/summary generation facility. A menu is displayed indicating available reports and the user is prompted for report type. Tests must have been previously run that produced errors, otherwise the program returns to command mode with an error message. If the error log was cleared using CLEAR LOG, an error message is returned when SHOW LOG is issued. If error reporting mode is successfully entered, the following menu is displayed: THE POSSIBLE PRINTOUTS ARE: 0) RETURN TO COMMAND MODE 1) PRINT ERROR TOTALS SUMMARY 2) PRINT ERROR LOG SUMMARY 3) PRINT COMPLETE ERROR LOG AND TOTALS SUMMARY PLOG 4) PRINT ERRORS BY SLOT NUMBER ENTER PRINT NUMBER A digit from 0 to 4 must be entered. Entering an illegal digit results in an error message, and the redisplaying of the menu. If option 4 is selected, the system prompts for the slot number.

Table A1–1 Commissioning Software Commands (continued)

Command	Description
SHOW LOG (cont)	Slot numbers for the various systems are as follows: *SX–2000* VS ICS: 3 and 4 of the control shelf *SX–2000* S ICS: 16 through 20 of any shelf *SX–2000* SG ICS: 1 through 25 for the control shelf, and from 27 to 32 for the peripheral shelves *SX–2000* FD ICS: 1 and 2 for the Non–Redundant Control Node, and 2 through 8 for the Redundant Control Node. An incorrect entry causes the prompt to be redisplayed. Pressing <DEL> causes the menu to be redisplayed. Only tests that have produced errors are displayed.
SHOW PANEL	Format: SHOW PANEL Displays the status of the Maintenance Panel (refer to Table 1–1) settings and alarms. For sample outputs, see Table A2–5 for the *SX–2000* S, VS, and FD systems, and Table A2–6 for the *SX–2000* SG system.
SHOW PANEL N (*SX–2000* SG ICS)	Format: SHOW PANEL N Displays the status of the specified Maintenance Unit settings and alarms (Where N=0 for Control maintenance unit and N=1–12 for Peripheral maintenance units). A sample output is shown in Table A2–7.
SHOW STATUS	Format: SHOW STATUS Print software parameter status. This produces a list of the current operator–controllable test parameters. A sample output of an *SX–2000* S and *SX–2000* VS system is shown below: >MAIN< PSTAT # OF PASSES = 000000001 SHORT FORMAT PRINTOUT SUPPRESSED LONG FORMAT PRINTOUT ENABLED EXTERNAL DEVICE TESTS ENABLED HARD DISK TESTS ENABLED MATE HARD DISK TESTS (*SX–2000 S* ICS) ENABLED EXTERNAL DEVICE OVERWRITE ENABLED HARD DISK OVERWRITE ENABLED MATE HARD DISK OVERWRITE (*SX–2000 S* ICS) ENABLED MAINT PANEL TEST ENABLED SCREEN HOLD FUNCTION ENABLED SLOTS ENABLED FOR TESTING O3
SHOW VERSION	Format: SHOW VERSION Displays the software version information.
SPRINTS	Format: SPRINTS Suppress printing of short–format error logs during testing.

Table A1–1 Commissioning Software Commands (continued)

Command	Description
SPRINTL	Format: SPRINTL Suppress printing of long–format error logs during testing.
STEST	Format: STEST o STEST o–p STEST Suppress testing of all tests for a specified slot (o), for a specified range of slots (o–p), or for all slots on a shelf. Also see ETEST, above.
TEST	Format: TEST TEST m Enter test mode, and execute all enabled tests on a specified slot (m), or on all slots. Pressing <ESC> aborts the test and causes the program to return to command mode. When entered without a slot number, TEST results in all slots being tested which have been selected using STEST and ETEST. The number of passes is defined using the PASS command. The default is to test all slots for a single pass.
TEST ALL	Format: TEST ALL Enter test mode, and execute all enabled tests on all slots, starting with the lowest <PLID> and going to the highest <PLID>. The number of passes is defined using the PASS command. The default is to test all slots for a single pass.
TEST PERS (*SX–2000* FD and S ICS)	Format: TEST PERS Tests all of the PSC cards in the system.
TEST CIR LINKS (*SX–2000* FD and S ICS)	Format: TEST CIR LINKS Tests all circuit links between the Main Control and the Peripheral Switch Controllers. The command is issued from the active plane and the numeric display shows the link number being tested.
TEST PICS (*SX–2000* FD, S and VS ICS)	Format: TEST PICS Tests all the peripheral interface cards (PICs). To fully test the cards the test must be run from both PSCs in a redundant system. This command sets a digital loopback on the peripheral cards, it does not test the analog portions of the card.

Table A1–1 Commissioning Software Commands (continued)

Command	Description
UNPROTECT	Format (*SX–2000* FD, S, and VS ICS): UNPROTECT EXTERNAL UNPROTECT HDM UNPROTECT MATE HDM (*SX–2000* Redundant FD and S ICS) Format (*SX–2000* SG ICS): UNPROTECT Enables the destructive testing of mass storage devices. Any data stored on the devices is destroyed. To disable, issue the PROTECT command. **Note:** On the mate plane HDM (hard disk), only the test block is overwritten, regardless of the protection setting.
VERSION	Format: VERSION Displays the edition of the Commissioning load currently running (see SHOW VERSION).
<DEL>	Deletes a previously entered character, and in the case of SHOW LOG cancels input requests and returns to the SHOW LOG menu.
<ESC>	Stops any tests currently in progress. **Note:** This key is not enabled during RAM tests in order to avoid leaving the memory in an indeterminate state which could cause the program to fail or halt. It should be used with care at all times, since it can leave any card or device under test at the time of entry in an indeterminate state. The Mate Hard Disk Module in redundant systems of an *SX–2000* S ICS is especially susceptible to lock–up by aborting the test on it.

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A2. Sample Reports

A2.1 Several commands generate status and configuration reports for system hardware. The following tables show samples of report outputs from CONFIG, SHOW PANEL, EPRINTS, and EPRINTL commands.

Configuration Reports

The following tables show samples of configuration report outputs from the *SX–2000* S, VS, SG, and FD systems. Table A2–1 is an example of output on the *SX–2000* S ICS.

Table A2–1 *SX–2000* S ICS Sample Configuration Report

```
HARDWARE CONFIGURATION
SLOT   IDENT   REV        NAME
-------------------------------------------------------------
---

18      243AA  2          CIRCUIT SWITCH MATRIX II
 19     213AA  2          CONTROL RAM II
 20     210AA  2          MAIN CONTROLLER
      DEV – HDM           STAT IN SERVICE
      DEV – MHDM          STAT IN SERVICE


PERIPHERAL HARDWARE CONFIGURATION
CAB.   SHELF SLOT  IDENT          REV    NAME
-------------------------------------------------------------
---
 01      01     16     312AA          4      PERIPHERAL SWITCH CONTROLLER
 01      02     16     312AA          2      PERIPHERAL SWITCH CONTROLLER


DSU HARDWARE CONFIGURATION
CAB.   SHELF SLOT  IDENT                     NAME
-------------------------------------------------------------
---
01      01     17     262AA                 TONE DETECTOR
01      02     17     260AA                 CONFERENCE CARD


PIC HARDWARE CONFIGURATION
CAB    SHELF SLOT  IDENT          REV    NAME
-------------------------------------------------------------
---
 01      01     01     320AA          A      ONS LINE CARD
 01      01     02     320AA          A      ONS LINE CARD
 01      01     08     320BA          B      ONS LINE CARD
```

Note: The configuration report for an *SX–2000* VS system follows a similar format, however, hardware configurations may differ.

Table A2–2 provides an example of a configuration report for control cards on an *SX–2000* SG system.

Table A2–2 *SX–2000* SG ICS Sample Configuration Report

HARDWARE CONFIGURATION:

```
SLOT   IDENT REV    NAME
-------------------------------------------------------------
---
 01     200AB C     SYSTEM PROCESSOR
 02     201AA B     BUS MANAGER
 03     202CA F     MEMORY MANAGER
 04     203AA A     CONTROL RAM
 05     203AA A     CONTROL RAM
 06     203AA A     CONTROL RAM
 07     203AA A     CONTROL RAM
 08     206BA A     BULK DATA INTERFACE
 09     205AA A     BULK DATA CONTROLLER
10      205AA A     BULK DATA CONTROLLER
10      205AA A     BULK DATA CONTROLLER
11      203AA A     CONTROL RAM
12      203AA A     CONTROL RAM
14      207BA A     DISK INTERFACE CARD
VOL 04 DEV 00 STAT IN SERVICE PROT READ/WRITE BLOCKS 000009A0
VOL 04 DEV 01 STAT IN SERVICE PROT READ/WRITE BLOCKS 00007EF0
VOL 04 DEV 08 STAT IN SERVICE PROT READ/WRITE BLOCKS 00007EF0
15      204BA B     COMMUNICATION RAM
16      200AB  C    SYSTEM PROCESSOR
17      223AA  A    SYSTEM CLOCK/TONE GENERATOR
18      222BA  A    MESSAGE SWITCH MATRIX
19       22BA  A    MESSAGE SWITCH MATRIX
23      242AA  A    CIRCUIT SWITCH MATRIX
24      242AA  A    CIRCUIT SWITCH MATRIX
25      200AB  C    SYSTEM PROCESSOR
```

Table A2–3 provides an example of a configuration report for peripheral and DSU cards on an *SX–2000* SG system.

Table A2–3 *SX–2000* SG ICS Sample Peripheral And DSU Configuration Report

PERIPHERAL HARDWARE CONFIGURATION:

CAB.	SHELF	SLOT	IDENT	REV	NAME
01	04	27	302AA	A	PERIPHERAL SWITCH MATRIX
01	03	28	302AA	A	PERIPHERAL SWITCH MATRIX
01	03	29	200AB	A	SYSTEM PROCESSOR
01	03	30	304AA	A	PERIPHERAL BUS EXTENDER
01	03	32	301AA	A	BALANCED TRANSCEIVER
01	03	27	302AA	A	PERIPHERAL SWITCH MATRIX
01	04	28	302AA	A	PERIPHERAL SWITCH MATRIX
01	04	29	200AB	A	SYSTEM PROCESSOR
01	04	32	301AA	A	BALANCED TRANSCEIVER

DSU HARDWARE CONFIGURATION:

CAB.	SHELF	SLOT	IDENT	NAME
01	01	29	265AA	DATA TRANSCEIVER
01	01	28	260AA	CONFERENCE CARD
01	01	27	262AA	TONE DETECTOR

Table A2–4 provides an example of a configuration report for an *SX–2000* FD system.

Table A2–4 *SX–2000* FD ICS Sample Configuration Report

HARDWARE CONFIGURATION

SLOT	IDENT	REV	NAME
18	243AA	2	CIRCUIT SWITCH MATRIX II
19	213AA	2	CONTROL RAM II
20	210AA	2	MAIN CONTROLLER
	DEV – HDM		STAT IN SERVICE
	DEV – MHDM		STAT IN SERVICE

FIM HARDWARE CONFIGURATION

CAB.	SHELF	SLOT	IDENT	REV	NAME
01	03	01			FIBER INTERFACE MODULE
01	03	02			FIBER INTERFACE MODULE

PERIPHERAL HARDWARE CONFIGURATION

CAB.	SHELF	SLOT	IDENT	REV	NAME
02	01	16	312AA	4	PERIPHERAL SWITCH CONTROLLER
03	02	16	312AA	2	PERIPHERAL SWITCH CONTROLLER

DSU HARDWARE CONFIGURATION

CAB.	SHELF	SLOT	IDENT	NAME
04	01	1	262AA	TONE DETECTOR
04	02	6	260AA	CONFERENCE CARD

PIC HARDWARE CONFIGURATION

CAB	SHELF	SLOT	IDENT	REV	NAME
02	01	01	320AA	A	ONS LINE CARD
02	01	02	320AA	A	ONS LINE CARD
02	01	08	320BA	B	ONS LINE CARD

SHOW PANEL Command Output

The following table shows a sample of the output from the SHOW PANEL command, on the *SX–2000* FD, VS, and S systems.

Table A2–5 *SX–2000* FD, S and VS ICS Sample SHOW PANEL Output

CARD ID – 090AA		
TIME 00/00/00 00:00:00		
REMOTE ALARMS– OK		AUDIO SOURCE – OFF
INTAKE TEMP– OK		
EXHAUST TEMPS–	CAB 1 – OK	CAB 2 – OK
	CAB 3 – OK	CAB 4 – OK
CONVERTER ALARMS–	CAB 1 PL A – OK	CAB 1 PL B – OK
	CAB 2 PL A – OK	CAB 2 PL B – OK
	CAB 3 PL A – OK	CAB 3 PL B – OK
	CAB 4 PL A – OK	CAB 4 PL B – OK
NOTE: The status shown applies only to Cabinets and Shelves present		

Note: The *SX–2000* VS system display is a similar format, however, only one cabinet exists.

Table A2–6 shows a sample of the SHOW PANEL command, and Table A2–7 shows a sample of the SHOW PANEL 'N' command, on the *SX–2000* SG system.

Table A2–6 *SX–2000* SG ICS Sample SHOW PANEL Output

TIME 00:00:21 01–JAN PLANE B RIC BATTERY – OK			
MAJOR ALARM – OFF	MINOR ALARM – OFF		DX LINK ERRORS – 0000
BAUD RATES 1 – 200	2 – 1200		
PFT AUTO – ON	PFT STATE – ON		PFT FORCE – OFF
REMOTE ALARMS – OFF	ACT. FREEZE – OFF		
PFT ZONES 1 – OFF	2 – OFF	3 – OFF	4 – OFF
5 – OFF	6 – OFF	8 – OFF	

Table A2–7 *SX–2000* SG ICS Sample SHOW PANEL N Output

```
CABINET 01
SHELF INFO        01–CONTROL   02–CONTROL   03–PERIPH    04–PERIPH
AUX OUTPUT FUSE   OK           OK           OK           OK
LOOP FEED BREAKER OK           OK           OK           OK
CONVERTER ALARM   OFF          *ON*         OFF          *ON*

–48V BATTERY      *FAILURE*    DC FILTER
–DC BREAKER       *TRIPPED*    CONVERTER SYNC PULSES     *FAILURE*
–BATTERY CAB ALARMS *MAJ**MIN* LAMP TEST OFF

RECTIFIER INFO
CAPACITOR FUSE    *BLOW*       BATTERY VOLTAGE  *LOW*
FAILURE ALARM     *ON*
TEMP SENSORS      FB–35C OFF   FB–50C OFF       MP–50C OFF   MP–65C OFF
FAN FAILURE       FAN 1 OFF    FAN 2 OFF        FAN 3 OFF    FAN 4 OFF
                  FAN 5 OFF    FAN 6 OFF        FAN 7 OFF    FAN 8 OFF
                  FAN 9 OFF    FAN 10 OFF
```

EPRINTS and EPRINTL Command Output

The following tables show samples of EPRINTL and EPRINTS output on the *SX–2000* S ICS.

Table A2–8 *SX–2000* S ICS Sample EPRINTL Output

TIME	CODE	MESSAGE	SLOT	SHLF	CAB	TEST	PASS
00:01:12	002	MC PRIM CHECKSUM TEST FAILED	20	01	01	0001	0001
00:04:01	011	MC PROGRAMMABLE TIMER TEST FAILED	20	01	01	0006	0001

Notes: 1. The EPRINTL outputs for the *SX–2000* FD, VS and SG systems are a similar format.

2. TIME = Time at which error occurred
   CODE = Error number
   MESSAGE = Brief description of the error
   SLOT = The card slot under test
   SHLF = The shelf number being tested
   CAB = The number of the cabinet being tested
   TEST = Internal test number
   PASS = The pass in progress when the error occurred

Table A2–9 *SX–2000* S ICS Sample EPRINTS Report

SLOT	ERRORS	SLOT	ERRORS
1	00000000	16	00000000
2	00000000	17	00000000
3	00000000	18	00000000
4	00000000	19	00000000
5	00000000	20	00000000
7	00000000		
8	00000000		
9	00000000		
10	00000000		
11	00000000		
12	00000000		

Note: The EPRINTS reports for the *SX–2000* FD, VS and SG systems are a similar format.

A3. HELP Command Output

A3.1 The HELP command displays a brief description of the specified commissioning command, or a command summary when no command is specified. The following tables list all of the commands available on each *SX–2000* system, with their descriptions as displayed by the HELP command.

SX–2000 VS System

Table A3–1 shows the HELP command output for all of the Commissioning commands available on the *SX–2000* VS system.

Table A3–1 HELP Command Output for the *SX–2000* VS System

COMMAND	DESCRIPTION
BAUD N	Set baud rate for maint term
CLEAR LOG	Clear error log and summary table
CONFIG	Re–generate and print h/w configuration
EPRINTS	Enable summary (short format) printing during test mode
EPRINTL	Enable error log (long format) printing during test mode
ETEST	Enable testing of all slots
ETEST N	Enable testing of slot N
ETEST N–M	Enable testing of slot N–M
EXTERNAL ON	Enable external device tests
EXTERNAL OFF	Disable external device tests
HDM ON	Enable hard disk tests
HDM OFF	Disable hard disk tests
HELP	Print command summary
HOLD ON	Enable screen full hold
HOLD OFF	Disable hold
PANEL ON	Enable maint. panel tests
PANEL OFF	Suppress maint. panel tests
PASS	Set continuous test mode (infinite # of passes)
PASS N	Set pass count = N passes
PRINT CONFIG	Print h/w configuration (on printer)
PRINT LOG	Print error log/summary (on printer)
PRINT STATUS	Print test parameter status (on printer)
PROTECT EXTERNAL	Test external device non–destructively
PROTECT HDM	Test hard disk non–destructively
SAVE	Save commissioning load on external device
SCRATCH N	H/W format device N (0 = external device, 1 = hard disk)
SHOW CONFIG	Display hardware configuration (on maintenance terminal)
SHOW LOG	Display error log/summary (on maintenance terminal)
SHOW PANEL	Show status of system panel (on maintenance terminal)
SHOW STATUS	Display test parameter status(on maintenance terminal)
SHOW VERSION	Show software version info
SPRINTS	Suppress error log (short format) print during test mode
SPRINTL	Suppress error log (long format) print during test mode

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Table A3–1 HELP Command Output for the *SX–2000* VS System (continued)

COMMAND	DESCRIPTION
STEST	Suppress testing of all slots
STEST N	Suppress testing of slot N
STEST N–M	Suppress testing of slot N–M
TEST	Start testing enabled slots on current shelf
TEST ALL	Test from lowest to highest <PLID>
TEST N	Test slot N only
TEST PICS	Run PIC loopback test
UNPROTECT EXTERNAL	Test external device destructively
UNPROTECT HDM	Test hard disk destructively
VERSION	Show software version info
<DEL>	Delete previously entered character
<ESC>	Stop tests currently in progress

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SX–2000 S System

Table A3–2 shows the HELP command output for all of the Commissioning commands available on the *SX–2000* S system.

Table A3–2 HELP Command Output for the *SX–2000* S System

COMMAND	DESCRIPTION
BAUD N	Set baud rate for maint term
CLEAR LOG	Clear error log and summary table
CONFIG	Re–generate and print h/w configuration
EPRINTS	Enable summary (short format) printing during test mode
EPRINTL	Enable error log (long format) printing during test mode
ETEST	Enable testing of all slots
ETEST N	Enable testing of slot N
ETEST N–M	Enable testing of slot N–M
EXTERNAL ON	Enable external device tests
EXTERNAL OFF	Disable external device tests
HDM ON	Enable hard disk tests
HDM OFF	Disable hard disk tests
HELP	Print command summary
HOLD ON	Enable screen full hold
HOLD OFF	Disable hold

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Table A3–2 HELP Command Output for the *SX–2000* S System (continued)

COMMAND	DESCRIPTION
PANEL ON	Enable maint. panel tests
PANEL OFF	Suppress maint. panel tests
PASS	Set continuous test mode (infinite # of passes)
PASS N	Set pass count = N passes
PCONFIG	Re–generate Per configuration
PRINT CONFIG	Print h/w configuration (on printer)
PRINT LOG	Print error log/summary (on printer)
PRINT STATUS	Print test parameter status (on printer)
MATE LINK ON	Enable MC/Mate DX link tests
MATE LINK OFF	Disable MC/Mate DX link tests
MHDM ON	Enable mate plane hard disk tests
MHDM OFF	Disable mate plane hard disk tests
PERMATE LINK ON	Enable PSC mate link tests
PERMATE LINK OFF	Disable PSC mate link tests
PROTECT EXTERNAL	Test external device non–destructively
PROTECT HDM	Test hard disk non–destructively
PROTECT MATE HDM	Test mate hard disk non–destructively
SAVE	Save commissioning load on external device
SCRATCH N	H/W format device N (0 = external device, 1 = hard disk)
SHELF N,M	Set shelf to cabinet N, shelf M
SHOW CONFIG	Display hardware configuration (on maintenance terminal)
SHOW LOG	Display error log/summary (on maintenance terminal)
SHOW PANEL	Show status of system panel (on maintenance terminal)
SHOW STATUS	Display test parameter status(on maintenance terminal)
SHOW VERSION	Show software version info
SPRINTS	Suppress error log (short format) print during test mode
SPRINTL	Suppress error log (long format) print during test mode
STEST	Suppress testing of all slots
STEST N	Suppress testing of slot N
STEST N–M	Suppress testing of slot N–M
TEST	Start testing enabled slots on current shelf
TEST ALL	Test from lowest to highest <PLID>
TEST N	Test slot N only
TEST PERS	Test all pers in the system
TEST CIR LINKS	Test cir switch links between pers
TEST PICS	Run PIC loopback test
UNPROTECT EXTERNAL	Test external device destructively
UNPROTECT HDM	Test hard disk destructively
VERSION	Show software version info
<DEL>	Delete previously entered character
<ESC>	Stop tests currently in progress

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SX–2000 SG System

Table A3–3 shows the HELP command output for all of the Commissioning commands available on the *SX–2000* SG system.

Table A3–3 HELP Command Output for the *SX–2000* SG System

COMMAND	DESCRIPTION
BAUD N	Set baud rate for maint term
CLEAR LOG	Clear error log and summary table
CONFIG	Re–generate and print h/w configuration
EPRINTS	Enable summary (short format) printing during test mode
EPRINTL	Enable error log (long format) printing during test mode
ETEST	Enable testing of all slots
ETEST N	Enable testing of slot N
ETEST N–M	Enable testing of slot N–M
HELP	Print command summary
HOLD ON	Enable screen full hold
HOLD OFF	Disable hold
PANEL ON	Enable maint. panel tests
PANEL OFF	Suppress maint. panel tests
PASS	Set continuous test mode (infinite # of passes)
PASS N	Set pass count = N passes
PRINT CONFIG	Print h/w configuration (on printer)
PRINT LOG	Print error log/summary (on printer)
PRINT STATUS	Print test parameter status (on printer)
MATE LINK ON	Enable MC/Mate DX link tests
MATE LINK OFF	Disable MC/Mate DX link tests
PERMATE LINK ON	Enable PSC mate link tests
PERMATE LINK OFF	Disable PSC mate link tests
PROTECT	Test Mass Storage Devices non–destructively
SAVE	Save commissioning load on external device
SCRATCH N	H/W format device N (0 = external device, 1 = hard disk)
SHELF N,M	Set shelf to cabinet N, shelf M
SHOW CONFIG	Display hardware configuration (on maintenance terminal)
SHOW LOG	Display error log/summary (on maintenance terminal)
SHOW PANEL	Show status of system panel (on maintenance terminal)
SHOW STATUS	Display test parameter status(on maintenance terminal)
SHOW VERSION	Show software version info
SPRINTS	Suppress error log (short format) print during test mode
SPRINTL	Suppress error log (long format) print during test mode
STEST	Suppress testing of all slots
STEST N	Suppress testing of slot N
STEST N–M	Suppress testing of slot N–M
TEST	Start testing enabled slots on current shelf
TEST N	Test slot N only
UNPROTECT	Test Mass Storage Devices destructively
VERSION	Show software version info
<DEL>	Delete previously entered character
<ESC>	Stop tests currently in progress

SX–2000 FD System

Table A3–4 shows the HELP command output for all of the Commissioning commands available on the *SX–2000* FD system.

Table A3–4 HELP Command Output for the *SX–2000* FD System

COMMAND	DESCRIPTION
BAUD N	Set baud rate for maint term
CLEAR LOG	Clear error log and summary table
CONFIG	Re–generate and print h/w configuration
EPRINTS	Enable summary (short format) printing during test mode
EPRINTL	Enable error log (long format) printing during test mode
ETEST	Enable testing of all slots
ETEST N	Enable testing of slot N
ETEST N–M	Enable testing of slot N–M
EXTERNAL ON	Enable external device tests
EXTERNAL OFF	Disable external device tests
HDM ON	Enable hard disk tests
HDM OFF	Disable hard disk tests
HELP	Print command summary
HOLD ON	Enable screen full hold
HOLD OFF	Disable hold
LINKS CONFIG	To change the MSG AND CIR programming
PANEL ON	Enable maint. panel tests
PANEL OFF	Suppress maint. panel tests
PASS	Set continuous test mode (infinite # of passes)
PASS N	Set pass count = N passes
PCONFIG	Re–generate Per configuration
PRINT CONFIG	Print h/w configuration (on printer)
PRINT LOG	Print error log/summary (on printer)
PRINT STATUS	Print test parameter status (on printer)
MATE LINK ON	Enable MC/Mate DX link tests
MATE LINK OFF	Disable MC/Mate DX link tests
PERMATE LINK ON	Enable PSC mate link tests
PERMATE LINK OFF	Disable PSC mate link tests
PROTECT EXTERNAL	Test external device non–destructively
PROTECT HDM	Test hard disk non–destructively
SAVE	Save commissioning load on external device
SCRATCH N	H/W format device N (0 = external device, 1 = hard disk)
SHELF N,M	Set shelf to cabinet N, shelf M
SHOW CONFIG	Display hardware configuration (on maintenance terminal)
SHOW LINKS	To display MSG & CIR programming
SHOW LOG	Display error log/summary (on maintenance terminal)
SHOW PANEL	Show status of system panel (on maintenance terminal)
SHOW STATUS	Display test parameter status(on maintenance terminal)
SHOW VERSION	Show software version info
SPRINTS	Suppress error log (short format) print during test mode
SPRINTL	Suppress error log (long format) print during test mode

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Table A3–4 HELP Command Output for the *SX–2000* FD System (continued)

COMMAND	DESCRIPTION
STEST	Suppress testing of all slots
STEST N	Suppress testing of slot N
STEST N–M	Suppress testing of slot N–M
TEST	Start testing enabled slots on current shelf
TEST ALL	Test from lowest to highest <PLID>
TEST N	Test slot N only
TEST PERS	Test all pers in the system
TEST CIR LINKS	Test cir switch links between pers
TEST PICS	Run PIC loopback test
UNPROTECT EXTERNAL	Test external device destructively
UNPROTECT HDM	Test hard disk destructively
VERSION	Show software version info
<DEL>	Delete previously entered character
<ESC>	Stop tests currently in progress

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A4. Commissioning Tests Performed on Control Cards

SX–2000 FD, VS, and S ICS Card Tests

A4.1 The following tables list the tests performed on each slot or control card.

Table A4–1 List Of Commissioning Tests Performed On Each Control Card (*SX–2000* FD, VS, and S ICS)

Control Card	Test Number	Test Performed
Main Controller	1	68020 CPU Maze Test
	2	PROM Checksum Test
	3	CPU Comprehensive RAM Test
	5	ACE Test
	6	DX Address Register Test
	7	DX Connection Memory Test
	9	Programmable Timer Test
	10	Read and/or Write Main Controller Registers
	11	HDLC Loopback Test
	12	SCSI Test
	13	Digital Signal Processor Tests
	14	Maintenance Panel Test
	15	MC Mate Link Loopback Tests
Control RAM II	1	CR–II Walking Bit Test
	2	CR–II Marching Bit Test
	EDC–1	EDC Write/Read Test
	EDC–2	EDC Read/Write Test
	NDT	Non–destructive Checksum Test
Circuit Switch Matrix II	1	CSM–II Card Present/ID Test
	2	LED Test
	3	DX Address Register Read/Write Test
	4	DX Connection Memory (HI and LO bytes) Test
	5	DX Data Loopback Test (DX only)
	6	DX Data Loopback Test (DX and ULA)
Peripheral Switch Controller	1	CPU Maze Test
	2	PROM Checksum Test
	3	CPU RAM Test
	4	HDLC Test
	5	ACE Test
	6	DX Address Register Test
	7	DX Connection Memory Test
	8	DX Data Loopback Test
	9	Internal Register and Counter Test
	10	Miscellaneous Register Read/Write Test
	11	Mate Link Test
	14	HDLC Controller Test
	15	TMS 320 Digital Signal Processor Test

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Table A4–1 List Of Commissioning Tests Performed On Each Control Card (*SX–2000* FD, VS, and S ICS) (continued)

Control Card	Test Number	Test Performed
Maint. Panel (*SX–2000* S only)	1	Maintenance Panel Reset
	2	Cabinet Status Request
	3	Maintenance Panel Printer Port Test
	4	LED Test
	5	Control Cabinet Alarms Test
	6	Peripheral Cabinet Alarms Test
	8	Set and Read SFT Relays
	10	Set, Count and Read Real Time Clock
	11	System ID Module Test
Control Resource Card (*SX–2000* FD only)	1	Maintenance Panel Reset
	2	Cabinet Status Request
	4	LED Test
	10	Set, Count and Read Real Time Clock

SX–2000 SG ICS Card Tests

The following tables list the tests performed on each slot or control card. Table A4–2 lists the commissioning tests performed on each control shelf card slot.

Table A4–2 List Of Commissioning Tests Performed On Each Slot (*SX–2000* SG ICS)

Slot	Test Number	Test Performed
01	1	68000 CPU Maze Test
	2	PROM Checksum Test (even bytes)
		PROM Checksum Test (odd bytes)
	3	RAM Test (walking bit)
	4	RAM Test (adrs)
	5	ACE Master Reset Test ACE Data Loopback Test
	6	DX Adrs Reg Test
	7	DX Connection Memory (lo byte) Test DX Connection Memory (hi byte)
	8	Test
	9	DX Data Loopback Test
		PTM Interrupt Bit Test
		PTM Interrupt Test
	10	PTM Interrupt Interval Test
	11	Misc. Register Test
	12	Bus Monitor Chip Test
		SP3 EDC Tests
02	1	Card I.D., Card Presence Test
	2	I/O Card Select Test
	3	Card Select RAM Test
	4	Card I.D. Select Test
	5	DMA Mask Register Test
	6	Bus Performance Counter Test
	7	Sanity Timer Test
	8	Real Time Clock Test
	9	PROM Test
	10	Activity Bit Test
	11	Card LED Bus Error Test
03	1	Card I.D., Card Presence Test
	2	Segment Offset RAM Test
	3	Segment Attribute RAM Test
	4	Stack Offset Register Test
	5	Physical Adrs Reg Test
	6	Stack Offset Function Test
	7	Memory Manager Attribute Function Test
	8	EDC Test
	9	Control Register Bit Test
04–07	1	RAM Card Select Test
	2	RAM Data Line Addressing Test
08	1	DLC Data Loopback Test
	2	Mate Link Tests

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Table A4–2 List Of Commissioning Tests Performed On Each Slot (*SX–2000* SG ICS) (continued)

Slot	Test Number	Test Performed
09	1 2	BDC Status Test BDC Communication RAM Test
10	1 2	BDC Status Test BDC Communication RAM Test
14	1 2	Floppy Diskette Test Hard Disk Test
15	1 2	Message Switch Communication RAM Test Circuit Switch Communication RAM Test
16	1 2 3 4 5 6 7 8 9 10 11	68000 CPU Maze Test PROM Checksum Test (even bytes) PROM Checksum Test (odd bytes) RAM Test (walking bit) RAM Test (adrs) ACE Master Reset Test ACE Data Loopback Test DX Adrs Reg Test DX Connection Memory (lo byte) Test DX Connection Memory (hi byte) Test DX Data Loopback Test PTM Interrupt Bit Test PTM Interrupt Test PTM Interrupt Interval Test Misc. Register Test Bus Monitor Chip Test
17	1 2 3 4 5 6 7 8 9 10 11	Verify CTG Card ID PROM Verify CTG Control Registers Check 100 ms Clock/Phase Comparator CTG RAM Test Parity Error Circuit Test DX Address Register Test DX Connection Memory Test Data Memory Loopback Links Test Initialize DX For CTG Channel Test Constant Tone Test
18–20	1 2 3 4 5 6	Card Presence, ID Test LED Test DX Chip – Address Register Test DX Chip – Connection Memory Test Loopback – Link Integrity Test Driver/Receiver Test
21–24	1 2 3 4 5 6	Card Presence, ID Test LED Test DX Chip – Address Register Test DX Chip – Connection Memory Test Loopback – Link Integrity Test Driver/Receiver Test

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Table A4–2 List Of Commissioning Tests Performed On Each Slot (*SX–2000* SG ICS) (continued)

Slot	Test Number	Test Performed
25	1	68000 CPU Maze Test
	2	PROM Checksum Test (even bytes) PROM Checksum Test (odd bytes)
	3	RAM Test (walking bit) '
	4	RAM Test (adrs)
	5	ACE Master Reset Test ACE Data Loopback Test
	6	DX Adrs Reg Test
	7	DX Connection Memory (lo byte) Test DX Connection Memory (hi byte)
	8	Test
	9	DX Data Loopback Test
		PTM Interrupt Test
		PTM Interrupt Interval Test
	10	Misc. Register Test
	11	Bus Monitor Chip Test
27	1	PROM Power–up Test
	2	Card ID Presence Test
28	1	PROM Power–up Test
	2	Card ID Presence Test
29	1	PROM Power–up Test
	2	Card ID Presence Test

Table A4–3 lists the commissioning tests performed on peripheral shelf card slots.

Table A4–3 List Of Commissioning Tests Performed On *SX–2000* SG Peripheral Shelf Cards

Slot	Test Number	Test Performed
29	1	68000 CPU Maze Test
	2	PROM Checksum Test (even bytes) PROM Checksum Test (odd bytes)
	3	RAM Test (walking bit)
	4	RAM Test (adrs)
	5	ACE Master Reset Test ACE Data Loopback Test
	9	PTM Interrupt Bit Test
		PTM Interrupt Test
		PTM Interrupt Interval Test
	10	Misc. Register Test
	11	Bus Monitor Chip Test
27–28	1	Card Presence ID Test
	2	DX Chip Address–Register Test
	3	DX Chip Connection Memory Test
	4	Data Memory Loopback Test
	5	Double Loopback Test
	6	Message Array Data Memory Loopback Test
	7	Message Array Switching Link – Channel Test

Table A4–4 lists the commissioning tests performed on the *SX–2000* SG system maintenance units.

Table A4–4 List Of Commissioning Tests Performed On *SX–2000* SG Maintenance Units

Test Number	Test Performed
1	Reset Maintenance Unit
2	Request Status of all Cabinets
3	Exercise Maintenance Unit Printer(s)
4	Turn Cabinet Fault LED On, then Off for Each Peripheral Unit
5	Control Unit Alarms Test
6	Control Unit Remote Alarms Test
7	Alphanumeric Display Test
8	Power Fail Transfer Zone Test
9	Fan Speed Test
10	Unit Clock Test

A5. Error Code Displays

A5.1 The following tables are summaries of possible error codes that may be displayed during control card testing.

SX–2000 FD, S, and VS ICS

Table A5–1 provides a summary of error codes for control cards on the *SX–2000* FD, S, and VS systems.

Table A5–1 Error Code Summary on the *SX–2000* FD, S and VS ICS

Subsystem	Error Messages
Main Controller II	001 PROCESSOR MAZE TEST FAILED 002 EPROM CHECKSUM TEST FAILED 003 REGISTER AND I/O DECODE TESTS FAILED 004 EDC TEST/RAM LOGIC TEST FAILED 006 ON–BOARD RAM TEST FAILED 007 HDLC AND HDLC LINK TEST FAILED 008 ATTRIBUTE RAM/FUNCTIONALITY TEST FAILED 009 SANITY TIMER TEST FAILED 010 PROGRAMMABLE TIMER TEST FAILED 011 REAL TIME CLOCK TEST FAILED 012 SCSI ON–BOARD LOGIC TEST FAILED 013 DSP MODULE TEST FAILED 014 NETSYNC LOGIC TEST FAILED 015 UART TEST FAILED 016 ACTIVITY TIMER TEST FAILED 017 CPU BUS MONITOR TEST FAILED 018 UNEXPECTED BERR DURING TEST 019 UNEXPECTED INTERRUPT DURING TEST
Main Controller (*SX–2000* S ICS only)	001 68020 CPU TEST FAILED 002 MC PROM CHECKSUM TEST FAILED 003 MC RAM WALKING BIT TEST FAILED 004 MC RAM DATA/ADDRESS TEST FAILED 005 UNEXPECTED LEVEL 6 INTERRUPT 007 MC DX ADRS REG R/W TEST FAILED 008 MC DX ADRS REG BUS ERROR 009 MC DX CONNECTION MEM. TEST FAILED 010 MC DX DATA LOOPBACK TEST FAILED 011 MC PROGRAMMABLE TIMER TEST FAILED 012 MC CARD REGISTER TEST FAILED 014 MC HDLC LOOPBACK TEST FAILED 015 MC DSP MODULE 1 TEST FAILED 016 MC DSP MODULE 2 TEST FAILED 017 MC DSP MODULE 3 TEST FAILED 018 MC MATE NOT RDY OR MATE DX TEST FAILED 019 MC MATE DX LOOPBACK TEST FAILED 020 MISCELLANEOUS REGISTER TEST FAILED

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Table A5–1 Error Code Summary on the *SX–2000* FD, S and VS ICS (continued)

Subsystem	Error Messages
Control RAM II (CR–II) (*SX–2000* S and FD only)	060 WALKING BIT TEST FAILED 061 MARCHING BIT TEST FAILED 062 EXTENDED MARCHING BIT TEST FAILED 063 MULTI BIT RAM ERROR 064 SINGLE BIT RAM ERROR 065 EDC SINGLE BIT RAM ERROR 066 EDC CHECK BIT ERROR 068 ILLEGAL CARD FOR A REV2 SYS. 069 RAM ERROR(S) XXXX SFT, YYYY HRD ERRS
Mass Storage System	120 FDU DRIVE NOT READY 121 HDM DRIVE NOT READY 122 MATE HDM DRIVE NOT READY 123 FDU DRIVE ID REQUEST FAILED 124 HDM DRIVE ID REQUEST FAILED 125 MATE HDM DRIVE ID REQUEST FAILED 126 FDU DRIVE CAPACITY REQUEST FAILED 127 HDM DRIVE CAPACITY REQUEST FAILED 128 MATE HDM DRIVE CAPACITY REQUEST FAILED 129 FDU DRIVE REZERO FAILED 130 HDM DRIVE REZERO FAILED 131 MATE HDM DRIVE REZERO FAILED 132 FDU SEEK ERROR 133 HDM SEEK ERROR 134 MATE HDM SEEK ERROR 135 FDU FORCE SCSI ERROR FAILED 136 HDM FORCE SCSI ERROR FAILED 137 MATE HDM FORCE SCSI ERROR FAILED 138 FDU RANDOM BLK R/W ERROR 139 HDM RANDOM BLK R/W ERROR 140 MATE HDM RANDOM BLK R/W ERROR 141 FDU WRITE BLOCK ERROR 142 HDM WRITE BLOCK ERROR 143 MATE HDM WRITE BLOCK ERROR 144 FDU DESELECT ERROR 145 HDM DESELECT ERROR 146 MATE HDM DESELECT ERROR 147 FDU DATA COMPARE ERROR 148 HDM DATA COMPARE ERROR 149 MATE HDM DATA COMPARE ERROR 160 FDU READ BLOCK ERROR 161 HDM READ BLOCK ERROR 162 MATE HDM READ BLOCK ERROR
Miscellaneous	150 BUS ERROR AT ADDRESS 151 ADRS ERROR AT ADDRESS 152 CARD NOT DETECTED – NO TEST RUN 153 NO TEST AVAILABLE FOR THIS SLOT 154 NO DEVICES FOUND IN THIS SLOT

Table A5–1 Error Code Summary on the *SX–2000* FD, S and VS ICS (continued)

Subsystem	Error Messages
Circuit Switch Matrix II (CSM–II) (*SX–2000* S and FD only)	320 CSM DX CHIP BUS ERROR 321 CSM DX ADRS REGISTER TEST FAILED 322 CSM DX CONNECTION MEM (LO) FAILED 323 CSM DX CONNECTION MEM (HI) FAILED 324 CSM DATA LOOPBACK TEST FAILED 325 CIRCUIT LINK TEST FAILED 326 CIRCUITTEST FAILED CRC COUNT (*SX–2000* FD only)
Peripheral Switch Controller (*SX–2000* S and FD only)	401 68000 CPU TEST FAILED 402 PSC PROM CHECKSUM TEST FAILED 403 PSC RAM WALKING BIT TEST FAILED 404 PSC RAM DATA/ADDRESS TEST FAILED 405 UNEXPECTED LEVEL 6 INTERRUPT 407 PSC DX ADRS REG R/W TEST FAILED 408 PSC DX ADRS REG BUS ERROR 409 PSC DX CONNECTION MEM. TEST FAILED 410 PSC DX DATA LOOPBACK TEST FAILED 411 PSC PROGRAMMABLE TIMER TEST FAILED 412 PSC CARD REGISTER TEST FAILED 424 DX DATA MEMORY LOOPBACK TEST FAILED 425 DX DOUBLE LOOPBACK TEST FAILED 426 PSC MATE NOT READY OR MATE TEST FAILED 427 PSC MATE TEST FAILED 450 P.S. BUS ERROR AT ADDRESS 451 TIME OUT ON PERIPHERAL SWITCH 452 PSC RECEIVE OF CIRCUIT LINK DATA FAILED 453 PSC TIMED OUT DURING CIR LINK TEST
Maintenance Panel	520 M.P. REAL TIME CLOCK TEST FAILED 521 ID MODULE FAILED OR NOT PRESENT 522 M.C. <—> MAINT. PANEL LINK DOWN

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SX–2000 SG ICS

Table A5–2 provides a summary of error codes for control cards on the *SX–2000* SG system.

Table A5–2 Error Code Summary on the *SX–2000* SG ICS

Subsystem	Error Messages
Peripheral Interface Cards (PICs)	600 PIC LOOPBACK TEST FAILED 601 PSC FAILED CONFIG PICS ATTEMPT 602 COULD NOT INIT COV FOR PIC TEST
Main Processor	001 68000 CPU TEST FAILED 002 CPU PROM CHECKSUM TEST FAILED 003 CPU RAM WALKING BIT TEST FAILED 004 CPU RAM DATA/ADDRESS TEST FAILED 005 UNEXPECTED LEVEL 6 INTERRUPT 006 CPU A.C.E. TEST FAILED 007 CPU DX ADRS REG R/W TEST FAILED 008 CPU DX ADRS REG BUS ERROR 009 CPU DX CONNECTION MEM. TEST FAILED 010 CPU DX DATA LOOPBACK TEST FAILED 011 CPU PROGRAMMABLE TIMER TEST FAILED 012 CPU CARD REGISTER TEST FAILED 013 CPU BUS MONITOR TEST FAILED 014 CPU REFRESH TEST FAILED 015 CPU RAM PARITY ERROR 016 SPIII EDC CORRECTION ERROR 017 SPIII EDC REGISTER ERROR 018 SPIII EDC DETECTION ERROR
Bus Manager Card	020 BM CARD PRESENCE TEST FAILED 021 BM I/O CARD SELECT TEST FAILED 022 BM CARD SELECT RAM FAILURE 023 BM CARD I.D. SELECT FAILURE 024 BM DMA MASK REG. FAILURE 025 BM BUS PERFORMANCE COUNTER FAILURE 026 BM SANITY TIMER FAILURE 027 BM REAL TIME CLOCK FAILURE 028 BM PROM NON–EXISTENT 029 BM ACTIVITY BIT FAILURE 030 BM BUS ERROR ON CARD LEDS
Memory Manager Card	040 MM CARD PRESENCE FAILURE 041 MM SEGMENT OFFSET RAM FAILURE 042 MM SEGMENT ATTRIBUTE RAM FAILURE 043 MM STACK OFFSET REGISTER R/W FAILURE 044 MM PHYSICAL ADRS REGISTER FAILURE 045 MM STACK OFFSET FUNCTION FAILED 046 MM MEMORY ATTRIBUTE FUNCTION FAILED 047 MM ERROR DETECTION/CORRECTION FAILURE 048 MM CONTROL REGISTER BIT TEST FAILURE

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Table A5–2 Error Code Summary on the *SX–2000* SG ICS (continued)

Subsystem	Error Messages
Control RAM Card	060 CONTROL RAM FAILURE 061 TEST COMPLETE xxxx SFT ERRS, xxxx HRD ERRS 062 EXTENDED MARCHING BIT TEST FAILED 063 MULTI BIT RAM ERROR 064 SINGLE BIT RAM ERROR 065 EDC SINGLE BIT ERROR 066 EDC CHECK BIT ERROR 067 EDC CONT. REG ERROR 068 RAM ERROR(S) 0000 SFT, 0000 HRD ERRS 069 RAM CARD FAULT COUNTER FAILED
Bulk Data Controller Card	070 BDC TWO PORT BUFFER FULL 071 TIMEOUT WAITING FOR BDC RESPONSE 072 RX INVALID RESPONSE FROM BDC 073 MSG SENT FROM BDC HAD BAD CHECKSUM 074 VALID BDC COMMAND FAILED 075 INVALID SEQUENCE NUMBER IN BDC RESPONSE 076 MSS DATA COMPARE ERROR GOOD/BAD 078 BAD PARAMETERS GIVEN TO BDC
Disk Interface Card	079 MASS STORAGE DEVICE UNAVAILABLE 080 MASS STORAGE DEVICE NOT READY 082 MASS STORAGE DEVICE ERROR 083 NO PRIVILEGE FOR BDC OPERATION 084 BDC MESSAGE QUEUE OVERFLOW 085 BDC PARAMETERS OUT OF RANGE 086 MASS STORAGE CARD NOT AVAILABLE 087 BDC FAILURE NOT UNDERSTOOD 088 MSS BDC REPORTED A FAULT 089 MSS BDC TWO PORT TEST FAILED
Bulk Data Interface Card	090 BDT TWO PORT BUFFER FULL 091 TIMEOUT ON BDT RESPONSE 092 INVALID RESPONSE FROM BDT 093 MSG SENT FROM BDT HAD BAD CHECKSUM 094 BDT COMMAND FAILED 095 BDT REPORTED A FAULT 096 BDT LOOPBACK DATA COMPARE ERROR 097 BDT TWO PORT TEST FAILED 098 BDT DOWNLOAD FAILED 099 COULD NOT BOOT SLAVE LOADS FROM DISK
Communications RAM Card	100 COMM. RAM TEST FAILED 101 MESSAGE SWITCH TWO PORT TEST FAILED 102 CIRCUIT SWITCH TWO PORT TEST FAILED 103 MATE NOT RUNNING TEST OR MATE TEST FAILED 104 MATE LINK TEST FAILED

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Table A5–2 Error Code Summary on the *SX–2000* SG ICS (continued)

Subsystem	Error Messages
Miscellaneous Main Control Messages	150 BUS ERROR AT ADDRESS XXXXXXXX 151 ADDRESS ERROR AT ADDRESS XXXXXXXX 152 CARD NOT DETECTED – NO TEST RUN 153 NO TEST AVAILABLE FOR THIS SLOT 154 NO DEVICES FOUND IN THIS SLOT
Main Control Exception Reports	UNEXPECTED EXCEPTION # 04 ILLEGAL INSTRUCTION RELOAD COMMISSIONING SOFTWARE UNEXPECTED EXCEPTION # 05 ZERO DIVIDE RELOAD COMMISSIONING SOFTWARE UNEXPECTED EXCEPTION # 06 CHK INSTR. RELOAD COMMISSIONING SOFTWARE UNEXPECTED EXCEPTION # 07 TRAPV. INSTR. RELOAD COMMISSIONING SOFTWARE UNEXPECTED EXCEPTION # 08 PRIV VIOLATION RELOAD COMMISSIONING SOFTWARE UNEXPECTED EXCEPTION # 0A LINE 1010 EMUL RELOAD COMMISSIONING SOFTWARE UNEXPECTED EXCEPTION # 0B LINE 1111 EMUL RELOAD COMMISSIONING SOFTWARE UNEXPECTED EXCEPTION # 18 SPURIOUS INTERRUPT RELOAD COMMISSIONING SOFTWARE UNEXPECTED EXCEPTION # 1A HW INT LEVEL 2 RELOAD COMMISSIONING SOFTWARE UNEXPECTED EXCEPTION # 1B HW INT LEVEL 3 RELOAD COMMISSIONING SOFTWARE UNEXPECTED EXCEPTION # 1C HW INT LEVEL 4 RELOAD COMMISSIONING SOFTWARE UNEXPECTED EXCEPTION # 1D HW INT LEVEL 5 RELOAD COMMISSIONING SOFTWARE UNEXPECTED EXCEPTION # 1E HW INT LEVEL 6 – CAUSE IS PROCESSOR RAM PARITY ERROR RELOAD COMMISSIONING SOFTWARE UNEXPECTED EXCEPTION # 1E HW INT LEVEL 6 – CAUSE IS BUS MONITOR CHIP RELOAD COMMISSIONING SOFTWARE UNEXPECTED EXCEPTION # 1E HW INT LEVEL 6 – CAUSE IS UART RELOAD COMMISSIONING SOFTWARE UNEXPECTED EXCEPTION # 19 HW INT LEVEL 1 RELOAD COMMISSIONING SOFTWARE UNEXPECTED EXCEPTION # 1E HW INT LEVEL 6 – CAUSE IS UNKNOWN RELOAD COMMISSIONING SOFTWARE

Table A5–2 Error Code Summary on the *SX–2000* SG ICS (continued)

Subsystem	Error Messages
Message Switch Processor Card	201 68000 CPU TEST FAILED 202 CPU PROM CHECKSUM TEST FAILED 203 CPU RAM WALKING BIT TEST FAILED 204 CPU RAM DATA/ADDRESS TEST FAILED 205 UNEXPECTED LEVEL 6 INTERRUPT 206 CPU A.C.E. TEST FAILED 207 CPU DX ADRS REG R/W TEST FAILED 208 CPU DX ADRS REG BUS ERROR 209 CPU DX CONNECTION MEM. TEST FAILED 210 CPU DX DATA LOOPBACK TEST FAILED 211 CPU PROGRAMMABLE TIMER TEST FAILED 212 CPU CARD REGISTER TEST FAILED 213 CPU BUS MONITOR TEST FAILED 214 CPU REFRESH TEST FAILED 215 CPU RAM PARITY ERROR
Message Switch Matrix Card	220 MATRIX CARD IDENTIFICATION FAILURE 221 DX ADDRESS REGISTER TEST FAILED 222 CONNECTION MEMORY HIGH BYTE TEST FAILED 223 CONNECTION MEMORY LOW BYTE TEST FAILED 224 DX CHANNEL LOOPBACK TEST FAILED 225 DX LINK DRIVER RECEIVER TEST FAILED
System Clock & Tone Generator Card	230 CTG CARD ID FAILURE/NOT PRESENT 231 CTG CONTROL REGISTER TEST FAILED 232 100MS CLOCK TEST FAILED 233 PHASE COMPARATOR TEST FAILED 234 CTG RAM TEST FAILED 235 FAILED PARITY ERROR CIRCUIT TEST 236 CANNOT R/W TO DX ADDRESS REGISTER 237 CANNOT R/W TO DX CONNECTION MEMORY 238 CANNOT R/W ON DX MEMORY/LOOPBACK LINKS 239 CTG CHANNEL TEST FAILED 240 CTG CONSTANT TONE TEST FAILED
Miscellaneous Message Switch Messages	250 M.S. BUS ERROR AT ADDRESS xxxxxxxx 251 TIMEOUT ON MESSAGE SWITCH SPURIOUS INTERRUPT # xx xxxxxxxx OCCURRED IN MESSAGE SWITCH RECONFIGURATION REQUIRED – TEST COMMAND IS DISABLED

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Table A5–2 Error Code Summary on the *SX–2000* SG ICS (continued)

Subsystem	Error Messages
Circuit Switch Processor Card	301 68000 CPU TEST FAILED 302 CPU PROM CHECKSUM TEST FAILED 303 CPU RAM WALKING BIT TEST FAILED 304 CPU RAM DATA/ADDRESS TEST FAILED 305 UNEXPECTED LEVEL 6 INTERRUPT 306 CPU A.C.E. TEST FAILED 307 CPU DX ADRS REG R/W TEST FAILED 308 CPU DX ADRS REG BUS ERROR 309 CPU DX CONNECTION MEM. TEST FAILED 310 CPU DX DATA LOOPBACK TEST FAILED 311 CPU PROGRAMMABLE TIMER TEST FAILED 312 CPU CARD REGISTER TEST FAILED 313 CPU BUS MONITOR TEST FAILED 314 CPU REFRESH TEST FAILED 315 CPU RAM PARITY ERROR
Circuit Switch Matrix Card	320 CSM DX CHIP BUS ERROR 321 CSM DX ADRS REGISTER TEST FAILED 322 CSM DX CONNECTION MEM (LO) FAILED 323 CSM DX CONNECTION MEM (HI) FAILED 324 CSM DATA LOOPBACK TEST FAILED
Miscellaneous Circuit Switch Messages	350 CIRCUIT SWITCH PROCESSOR BUS ERROR xxxxxxxx 351 TIMEOUT ON CIRCUIT SWITCH SPURIOUS INTERRUPT # xx xxxxxxxx OCCURRED IN CIRCUIT SWITCH RECONFIGURATION REQUIRED – TEST COMMAND IS DISABLED
Peripheral Switch Processor Card	401 68000 CPU TEST FAILED 402 CPU PROM CHECKSUM TEST FAILED 403 CPU RAM WALKING TEST BIT FAILED 404 CPU RAM DATA/ADDRESS TEST FAILED 405 UNEXPECTED LEVEL 6 INTERRUPT 406 CPU A.C.E. TEST FAILED 411 CPU PROGRAMMABLE TIMER TEST FAILED 412 CPU CARD REGISTER TEST FAILED 413 CPU BUS MONITOR TEST FAILED 414 CPU REFRESH TEST FAILED 415 CPU RAM PARITY ERROR
Peripheral Switch Matrix Card	420 PS MATRIX CARD IDENTIFICATION FAILURE 421 DX ADDRESS REGISTER TEST FAILED 422 DX CONNECTION MEMORY LOW TEST FAILED 423 DX CONNECTION MEMORY HIGH TEST FAILED 424 DX DATA MEMORY LOOPBACK TEST FAILED 425 DX DOUBLE LOOPBACK TEST FAILED 426 MSG. ARRAY DATA MEM. LOOPBACK TEST FAILED 427 MSG. ARRAY SWITCHING LINK–CHAN. TEST FAIL

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Table A5–2 Error Code Summary on the *SX–2000* SG ICS (continued)

Subsystem	Error Messages
Miscellaneous Peripheral Switch Messages	450 P.S. BUS ERROR AT ADDRESS xxxxxxxx 451 TIME OUT ON PERIPHERAL SWITCH INTERRUPT # xx xxxxxxxx OCCURRED IN PERIPHERAL SWITCH RECONFIGURATION REQUIRED – TEST COMMAND IS DISABLED 452 MATE NOT RUNNING TEST OR MATE TEST FAILED 453 MATE TEST FAILED
Maintenance Unit	500 PANEL TEST NOT RUN, PLANE INACTIVE 501 TIMEOUT WAITING FOR M.P. RESET HANDSHAKE 502 UNKNOWN M.P. HW FAULT 503 RESET REQUEST FROM M.P. 504 SANITY TIMEOUT RESET REQUEST FROM M.P. 505 M.P. PROM FAILURE 506 M.P. RAM FAILURE 507 M.P. REAL TIME CLOCK FAILURE 508 M.P. DX FAILURE 509 M.P. RECD MSG WITH BAD CHECKSUM 510 M.P. RECD MSG WITH BAD PARITY 511 M.P. SENT MSG THAT TIMED OUT 512 TOO LONG BUILDING MULTI–LINE MSG 513 M.P. RECD SPURIOUS INTERRUPT 514 PARITY ERROR M.C.— M.P. 515 CHECKSUM ERROR M.C.— M.P. 516 MINOR ALARM DID NOT SET 517 MAJOR ALARM DID NOT SET 518 REMOTE ALARM DID NOT SET 519 PFT BIT FOR ZONE X DID NOT SET 520 M.P. REAL TIME CLOCK TEST FAILED 521 MIN, MAJ, OR REM ALARM STUCK ON

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Issue 1
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***SX-2000® INTEGRATED COMMUNICATIONS* SYSTEM**

Customer Data Entry

MITEL®

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1. INTRODUCTION

General

1.1 This Practice is a reference guide to the Customer Data Entry (CDE) tools on the system, and to the CDE forms used to program and maintain an *SX–2000*® *Integrated Communications*™ System (ICS). Through these forms the *SX–2000* ICS is tailored to meet specific customer requirements.

Reason For Issue

1.2 This is a Draft B document, describing the customer programming requirements for software release MS2006.

Document Structure

1.3 This document is divided into two main sections. The first describes the Customer Data Entry application on the system. In it, the following topics are covered:

- an overview of CDE and an explanation of the available tools
- a CDE scenario
- making changes to an established customer database

The second main part of the document is the reference manual for the CDE forms themselves. In it, the forms are grouped together according to how they are used:

- Account Code forms define various types of account codes which are used for capturing resource usage for billing purposes, for manipulating system resources, or which are outpulsed on trunks as a result of automatic route selection programming.
- Attendant Console forms define the prime directory number, interconnect rights and the softkeys of Attendant Consoles.
- Automatic Route Selection (ARS) forms define outgoing trunk routes which can be selected by the *SX–2000* ICS based on the cost of the service and time of day restrictions.
- Call Rerouting forms define rerouting on a per–directory number basis for calls that cannot be completed because the terminating device is busy, does not answer or has the Do Not Disturb feature enabled. A call rerouting alternative is also provided based on the *SX–2000* ICS mode of service (Day, Night1 or Night2).
- Data Call forms provide the means of identifying Data Terminal Equipment (DTE) interfaces to the Data Transceiver card, and modem resources or Data Communi-

cations Equipment (DCE) interfaces to the *SX–2000* ICS. They are also used in the programming of *Host Command Interface*™ (*HCI*™) applications.

- Dataset forms identify data circuit characteristics and the attached resources to the *SX–2000* ICS.
- Digital Link forms define the interfaces to the *SX–2000* ICS that provide digital private networking capabilities using T1 and CEPT facilities.
- Group forms are used to gather directory numbers of industry standard and MITEL® proprietary station sets together in order to form circular or terminal hunt groups and pickup groups, or to form circular hunt groups for datasets.
- Moves and Changes forms provide the system maintainer with a simple interface for making changes to the *SX–2000* ICS database for industry standard and MITEL proprietary station sets.
- Multiline Set forms define the set operating parameters for the MITEL proprietary *SUPERSET 4*™, *SUPERSET 410*™, *SUPERSET 430*™, *SUPERSET 4* DN, *SUPERSET 3*™ and S*UPERSET 3* DN telephones.
- Single Line Set forms define the characteristics of *SUPERSET 401*™ sets and industry standard station sets.
- Station Service forms define the operating parameters for each station in the system on a per–directory number basis.
- System forms define system–wide operating parameters. Feature package forms are also contained in this grouping.
- Telephone Directory forms are used to capture an information database on a per–directory number basis for the *SX–2000* ICS call processing functions.
- Trunk forms define the operating parameters for each type of trunk in an *SX–2000* ICS.

Additionally, the Appendices contain the following:

- error messages generated by CDE
- groupings of CDE programming forms required for specific features or classes of features
- a suggested sequence of programming forms.

Documentation Conventions

1.4 The following conventions are used in this document to distinguish between the types of keys used during CDE. These conventions are followed when any key sequence is described.

[ ]	All key designations appearing between square brackets represent *SUPERSET 7*™ or *SUPERCONSOLE 1000*™ Attendant Console softkeys.
< >	All key designations appearing between angle brackets represent fixed function– or hard–keys, such as the <CMND> key on the *SUPERSET 7* workstation and the <LINEFEED> or <RETURN> key on standard QWERTY keyboards. Functions that involve the use of an escape sequence are shown as: <ESC> q, where the character q represents any alphanumeric character.
abc	All characters not enclosed in brackets in a particular key sequence represent alphanumeric characters entered from a keyboard, usually in a command sequence.

2. CDE OVERVIEW

Definition

2.1 CDE is the database programming application of the *SX–2000* system. A series of interactive, online forms are used to capture the required data from the console or Maintenance Terminal.

Types of Forms

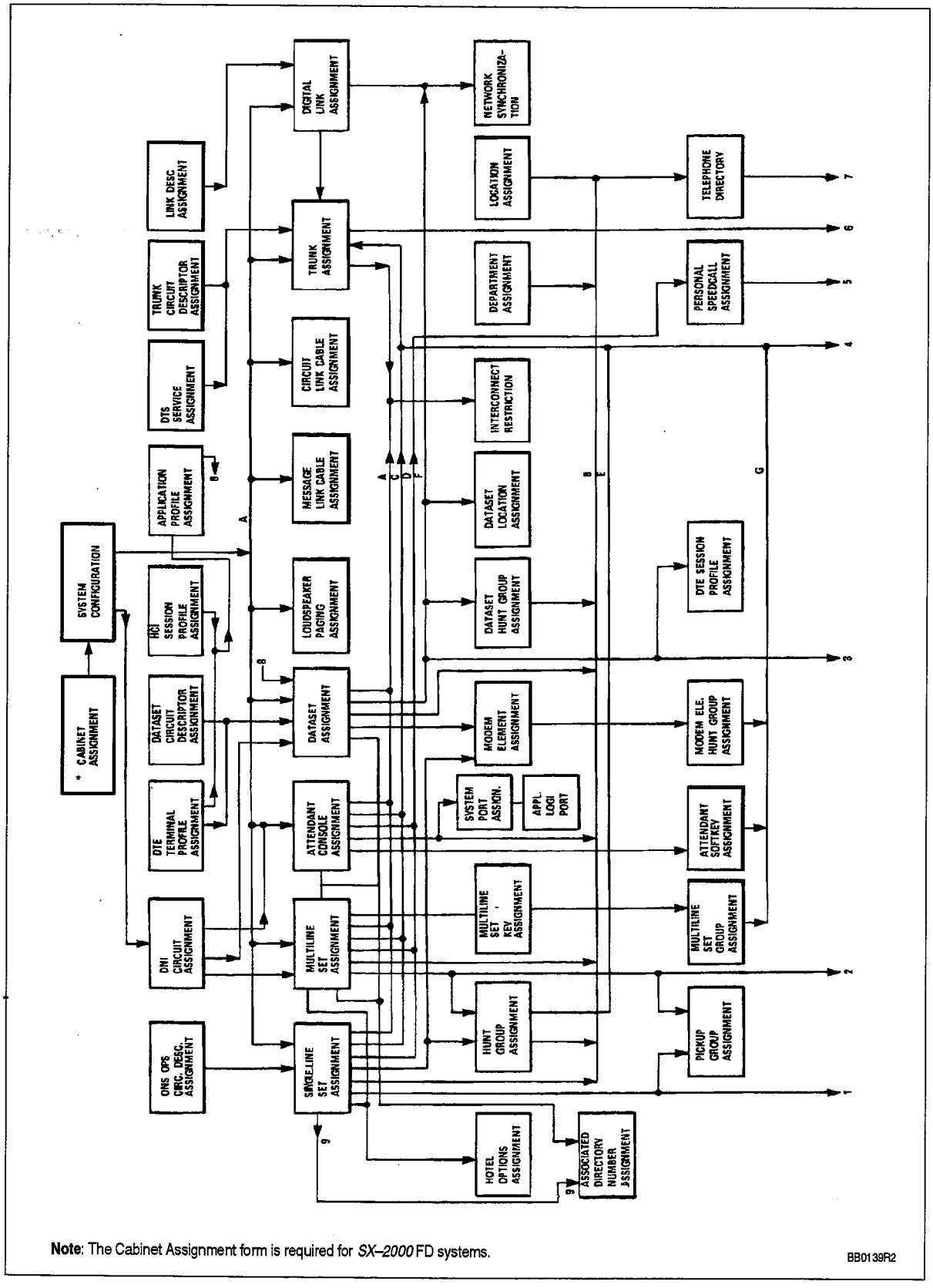
2.2 Two types of forms appear in CDE. Single–instance forms, such as the System Configuration form and the Station Service Assignment form, collect data that specify system–wide parameters. Multiple–instance forms, such as the Class of Service (COS) Assignment form and the various Circuit Descriptor Assignment forms, specify operating parameters for devices such as telephone sets, trunks and datasets. Slight variances are usually required in the operation of each device within the device groups. These variances are specified by completing a different instance of the programming form concerned. The instances of the form are indexed by a reference number such as a COS number or a Circuit Descriptor number.

Form Interdependencies

2.3 In addition to the form groupings, CDE imposes a hierarchical organization upon the forms. The organization reflects the relationship that exists between certain forms. This relationship is shown in Figure 2–1 and Figure 2–2. The figure is organized as a tree and indicates the relationships between the various programming forms. In general, the lower a form is in the graph the more information it derives from the forms above it. This tree also indicates the structure for the menu–driven interface to the forms.

Blank Database

2.4 The system database is resident on the Mass Storage Subsystem. It is preprogrammed at the factory with a set of default and blank values. The CDE forms are used to alter these defaults to suit individual customer requirements.



Note: The Cabinet Assignment form is required for *SX–2000* FD systems.

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Figure 2–1 Programming Form Interdependencies

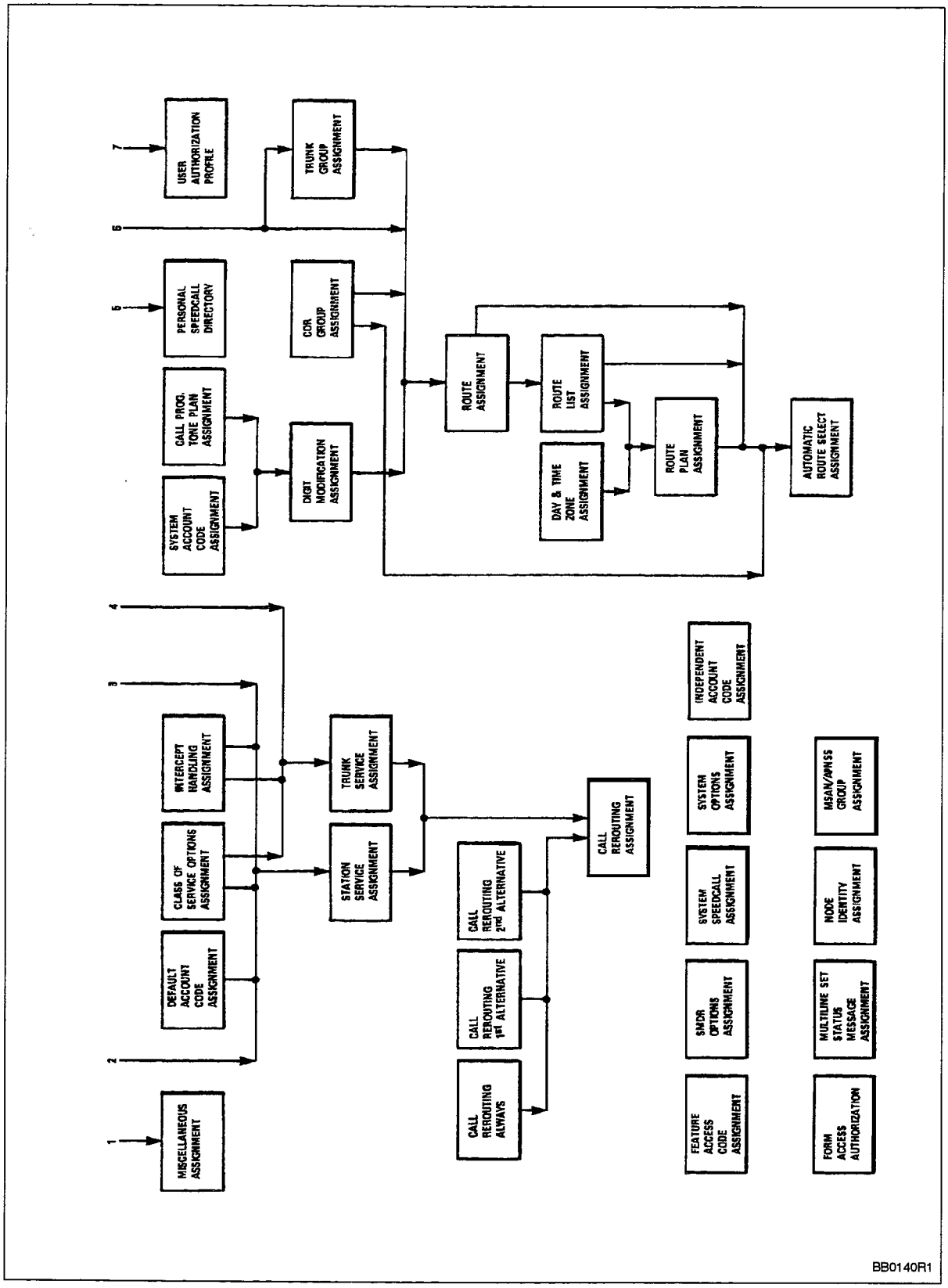

Figure 2–2 Programming Form Interdependencies

Software Tools

2.5 A versatile set of software tools is available to the system manager to tune the DPABX to meet the site requirements. Two types of interface to CDE are available. The menu–driven interface provides a hierarchical, step–by–step method of defining the database. This method is particularly useful when a new installation is being configured, or when the interdependencies of the various programming forms must be respected in making modifications to an existing database. The command–driven interface permits direct access to any programming form. Each of the interfaces provides advanced form–editing facilities.

Hardware Tools

2.6 Three types of hardware, a *SUPERSET 7* workstation, a *SUPERCONSOLE 1000* Attendant Console, or a *VT100*™ compatible terminal may be used to gain access to the CDE application. *SUPERSET 7* workstations use a series of softkeys and hardkeys to implement the keyboard interface to the forms editor. The functions available on the *SUPERSET 7* workstation have been mapped onto *VT100* compatible keyboards.

Two modes of operation for a *VT100* type keyboard are provided. The first mode implements the CDE functions as a series of escape sequences. The second mode maps the functions onto the numeric keypad. Both modes are simultaneously available. The video display unit (VDU) of the attached device presents the form templates, context–dependent editing functions in the softkey area, a system status area and a command/response area.

Note: When a *VT100* type terminal is used to run CDE, it must be connected to the *SX–2000* maintenance port.

The Display Layout

2.7 The display screen is largely independent of the type of terminal used. *VT100* type terminals and *SUPERSET 7* workstations have displays formatted as shown in Figure 2–3. The screen is divided into four working areas, each distinguished by different levels of highlighting. These areas are:

(a) Status Area occupies the upper two lines of the screen and displays the time and date, alarm indication, call waiting status and console feature summary. This field is visible only when using a *SUPERSET 7* or *SUPERSET 7* DN workstation.

(b) Applications Area occupies all but the top two and bottom five lines of the screen. The programming forms and related customer data are displayed in this area.

(c) Command and Response Area occupies three lines near the bottom of the screen, and is highlighted in halftone. It is used to enter commands and responses to system prompts, and to display prompts, error messages and warnings that may arise during a CDE session.

(d) Softkey Area changes dynamically with the functions performed. It identifies those functions currently available via the softkeys. The area occupies the two lower lines of the display.

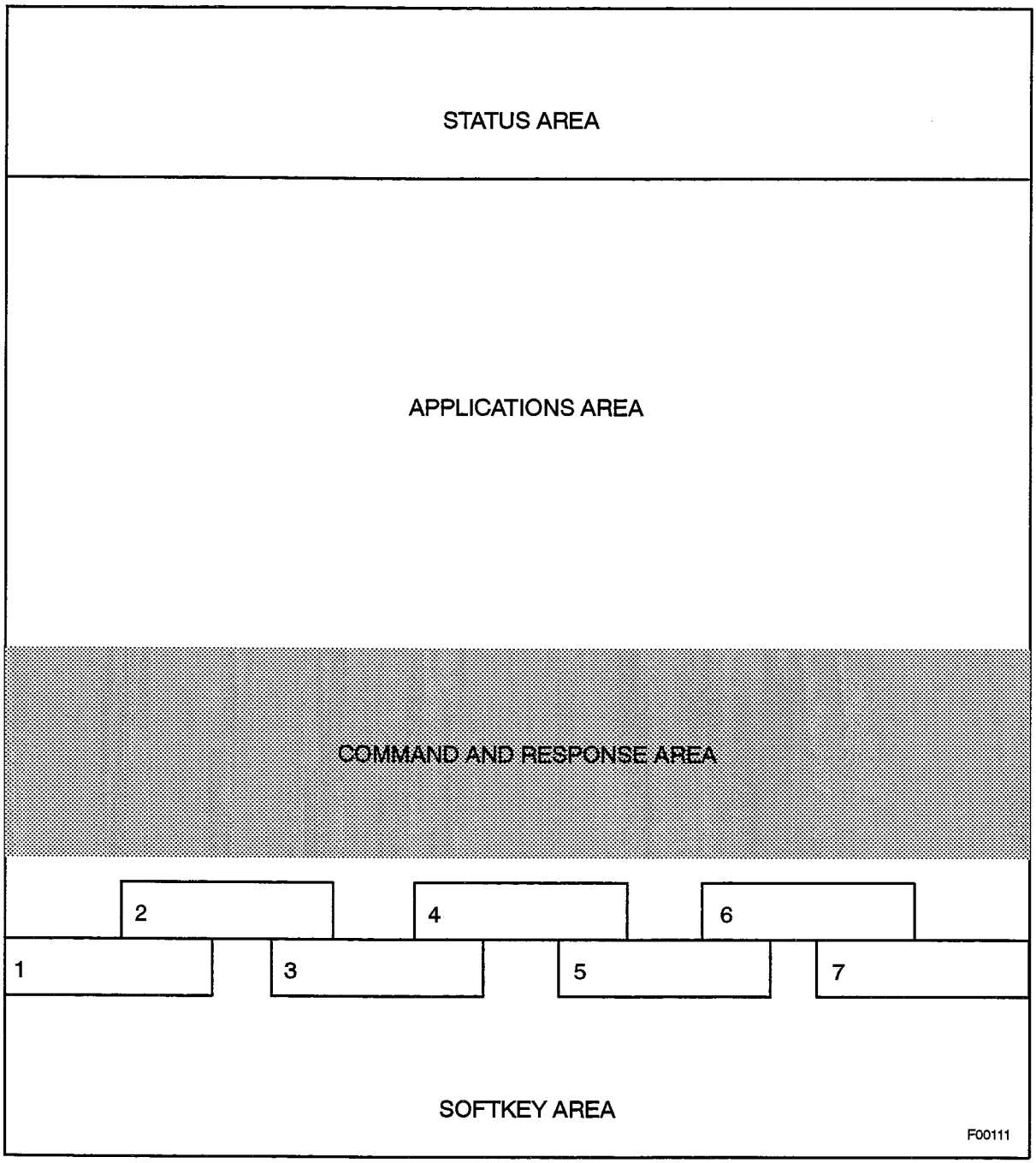

Figure 2–3 *SUPERSET 7* Workstation Display Screen Functional Blocks

The *SUPERCONSOLE 1000* Attendant Console display area consists of four lines of 80 characters each. Usually, the bottom two lines of the display are used to indicate the functions available on the console's softkeys at any time (see Figure 2–4). The top two lines are used to display the heading of the form currently accessed, and the line within the form on which the cursor is currently positioned. Should a CDE error occur, the third line of the display is used as the error message window.

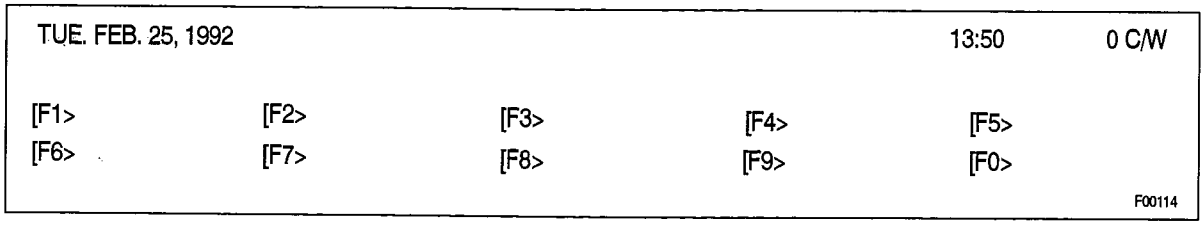

Figure 2–4 *SUPERCONSOLE 1000* Attendant Console Display

The Keyboard Component

2.8 The CDE functions available and the mapping of the functions to each of the devices are shown in the following table and figures:

- Table 2–1 shows the *SUPERSET 7* keyboard functions and their implementation by key sequence on the *VT100* keyboard.
- Figure 2–5 shows a map of the *SUPERSET 7* keyboard.
- Figure 2–6 shows a map of the *VT100* keyboard.
- Figure 2–7 shows *SUPERSET 7* keyboard functions as they appear on a *VT100* keyboard.
- Figure 2–8 shows a map of the *VT220*™ keyboard.

Table 2–1 Key Equivalences for *SUPERSET 7* Workstations and *VT100* Terminals

***SUPERSET 7* Function**	***VT100* QWERTY Keyboard**	***VT100* NumericKeypad**
Softkey Functions		
[SOFTKEY 1] [SOFTKEY 2] [SOFTKEY 3] [SOFTKEY 4] [SOFTKEY 5] [SOFTKEY 6] [SOFTKEY 7]	<ESC>1 <ESC>2 <ESC>3 <ESC>4 <ESC>5 <ESC>6 <ESC>7	<1> <2> <3> <4> <5> <6> <7>
Command Keys		
<QUIT> <SHIFT–QUIT> <ENTER> <COMMAND> <SHIFT–COMMAND>	<ESC> q or <ESC> Q <RETURN> <LINE FEED> <ESC> <LINE FEED>	<PF4> <PF1> <PF4> <ENTER> <LINE FEED> <PF1> <LINE FEED>
Editing Keys		
<INSERT> <DELETE> <SEARCH> <CLEAR>	"insert" "delete" "search" <ESC> <DEL>	<8> <9> <.> <–>
Cursor Positioning Keys		
← ↑ → ↓ <HOME> <WORD> <LINE>	← ↑ → ↓	← ↑ → ↓ <PF1> ↑ <PF1> →
Special Function Keys		
<HELP> <DESKTOP> <EDIT> <REVERSE> <UNDELETE>	"help" "desktop" "reverse"	 <PF1> <PF3> <,>
Field Cycling Keys		
<SHIFT–↑ > <SHIFT–↓ >		<PF2> <PF3>
Standard Keyboard Keys		
<TAB> <SHIFT–TAB> <OVERSTRIKE>	<TAB> <ESC> <TAB>	<TAB> <PF1> <TAB> <BACKSPACE>

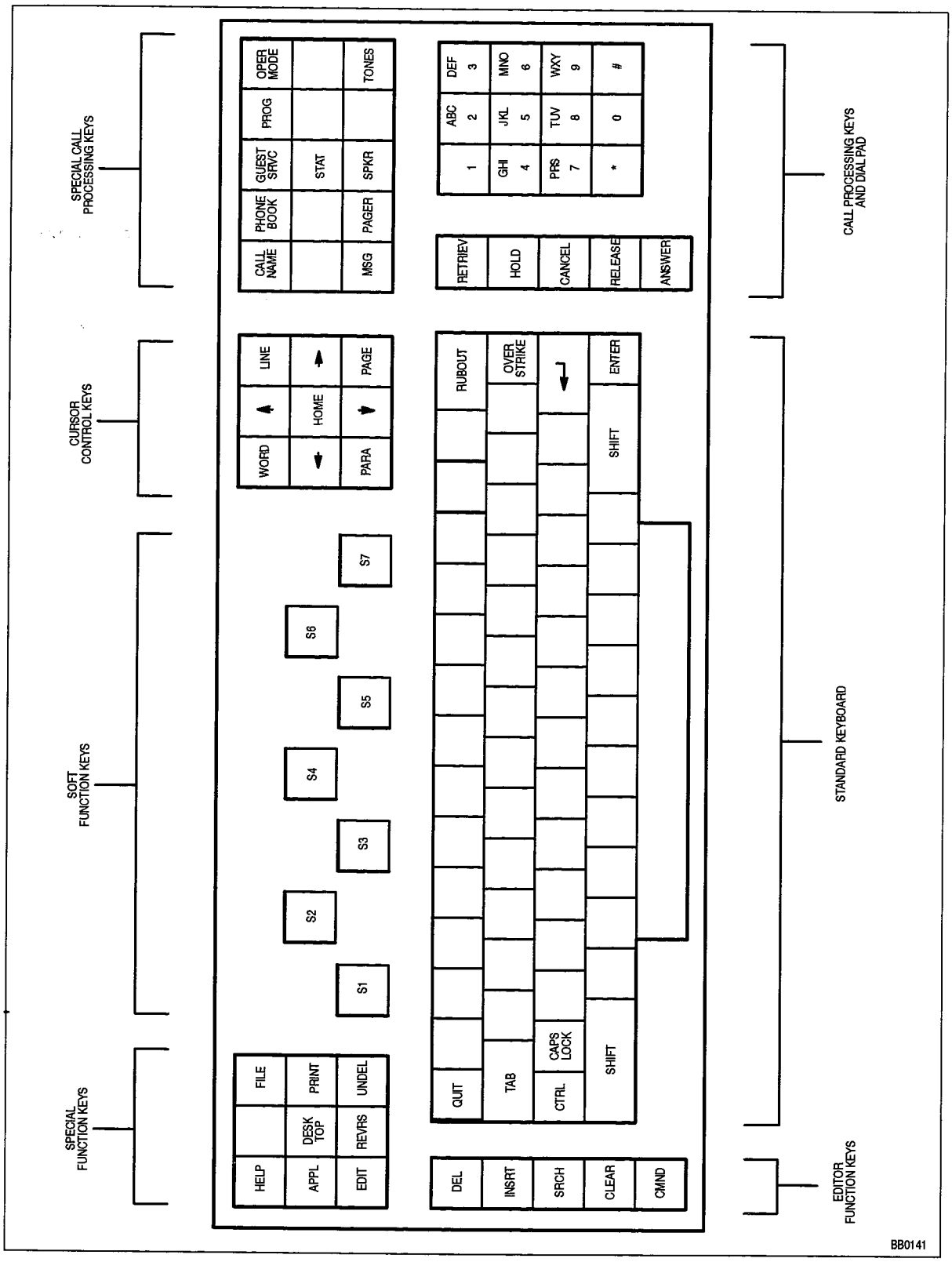

Figure 2–5 *SUPERSET 7* Workstation Keyboard Layout

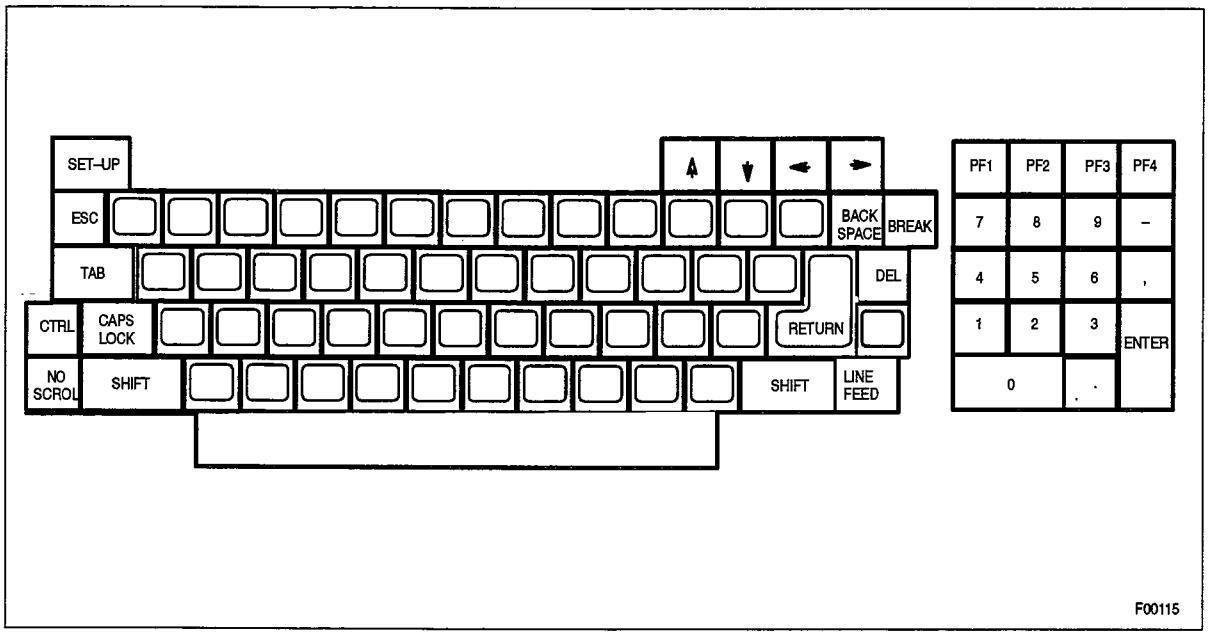

Figure 2–6 *VT100* Terminal Keyboard Map

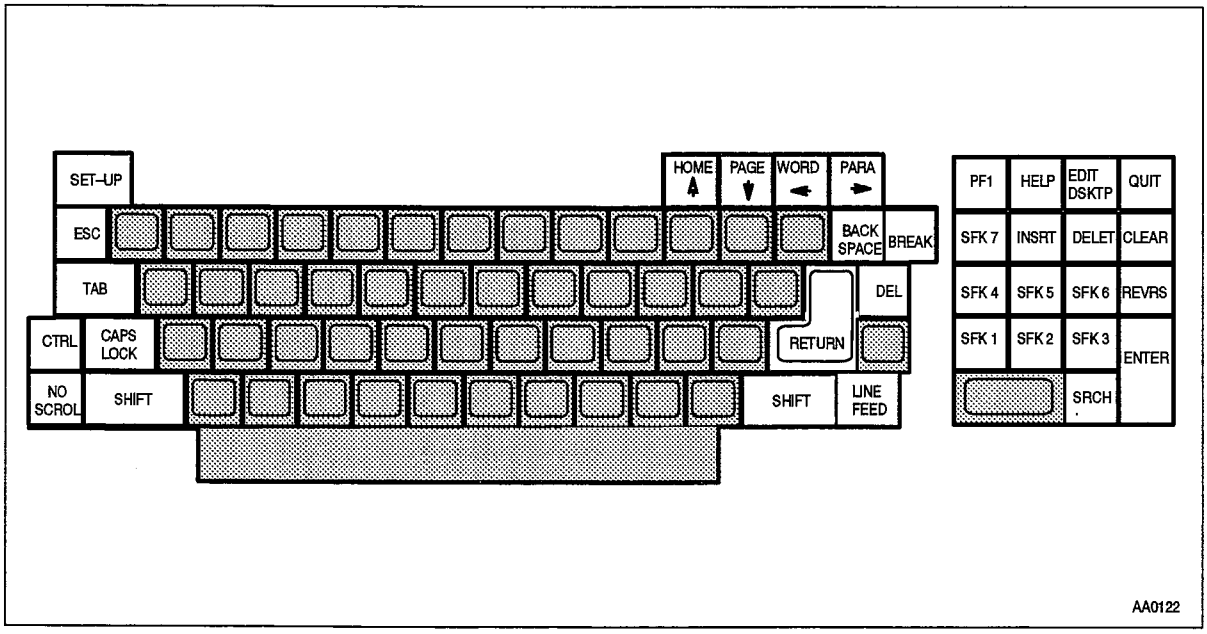

Figure 2–7 CDE Functions on *VT100* Terminal Keyboards

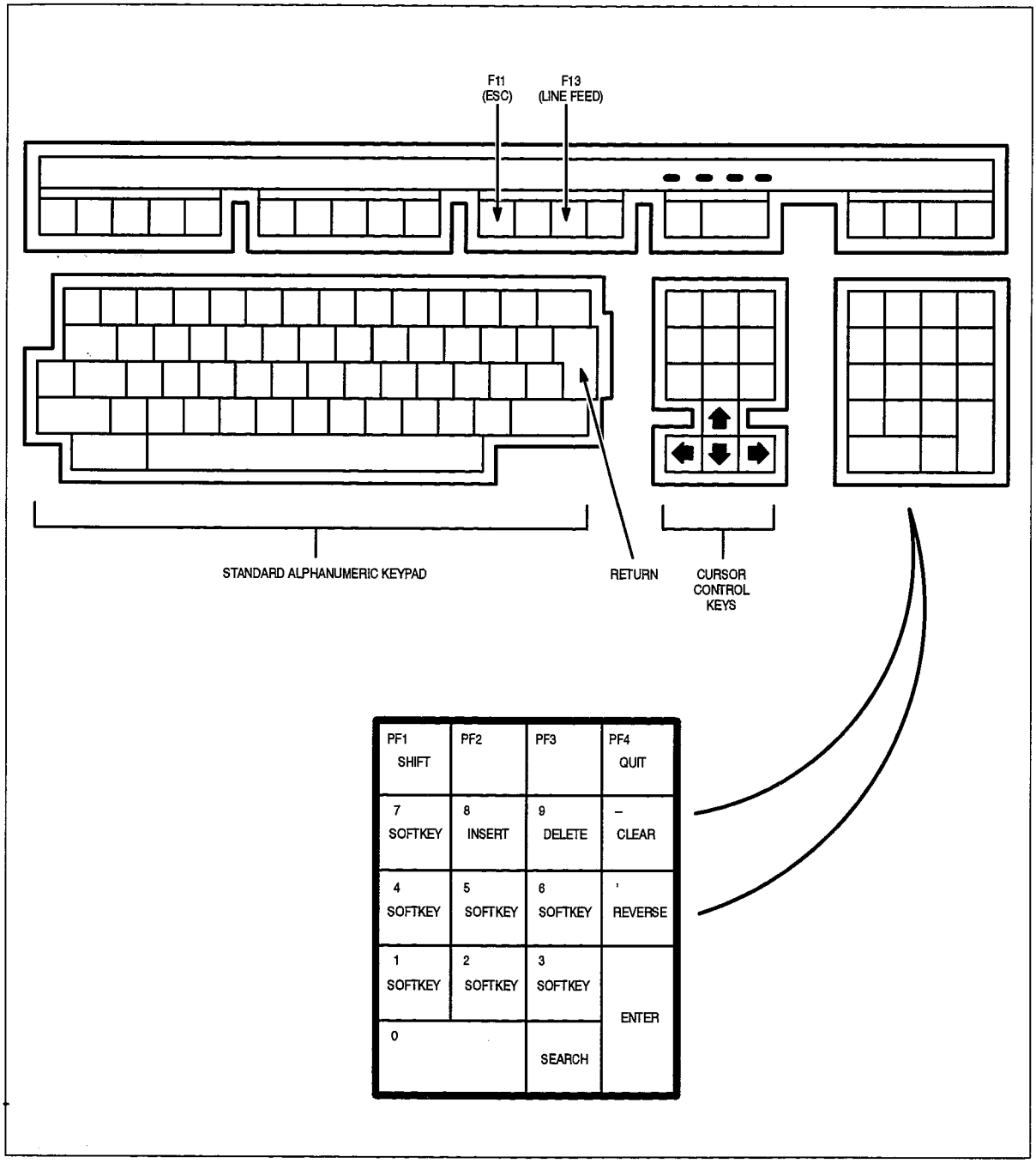

Figure 2–8 *VT220* Terminal Keyboard Map

Command-Related Key Definitions

2.9 Table 2–2 provides a description of the command functions available from *SUPERSET 7* workstations and Maintenance Terminals. The nomenclature used in the table refers to the *SUPERSET 7* workstation keyboard layout as shown in Figure 2–5. That figure also shows the keyboard groupings used in the table below. Refer to Table 2–4 for a description of the softkey command functions available from the *SUPERCONSOLE 1000* Attendant Console.

Table 2–2 *SUPERSET 7* Workstation/Maintenance Terminal Command Keys – Functional Description

Task	Hardkey Function	Functional Description
Standard Keyboard Group		
Abort current function	<QUIT>	Exits the current application function and returns control to the next–highest layer in the application hierarchy. In the data entry mode of a CDE session the user must confirm the <QUIT> operation. Any uncommitted form changes are lost.
Double Abort	<SHIFT–QUIT>	Similar in function to two <QUIT> operations.
Initiate command	<ENTER>	Initiates the processing of the command appearing on the command line. This function is also performed by the <RETURN> key.
Next Field	<TAB>	Moves the cursor to the beginning of the next field in the form.
Previous field	<SHIFT–TAB>	Moves the cursor to the beginning of the previous field in the form.
Special Function Key Group		
Invoke Help	<HELP>	Invokes the online help facility. This facility is described later in this Part.
Start CDE	<DESKTOP>	Used to begin the login sequence for a CDE session when the terminal is in Attendant or Phonebook mode.
Insert/Overstrike mode toggle key	<EDIT>	This key toggles between the overstrike mode (default) and insert mode. In overstrike mode, new characters overwrite previously entered characters. In insert mode previously entered characters are shifted to the right in front of the cursor.
Change cursor direction	<REVERSE>	Changes the direction of motion of the cursor. Affects the <LINE>, <WORD> and <SEARCH> commands.
Undelete	<UNDELETE>	Reinstates whatever was deleted by the previous <DEL> command.
Set up Command entry mode	<COMMAND>	Places the terminal in command mode. The cursor moves to the first character position in the command/response area.
Recall last command	<SHIFT–COMMAND>	Recalls the previously entered command. Up to three commands may be recalled by successive use of this sequence.
Clear Command	<CLEAR>	Clears the existing command from the command line.

Workstation/Terminal Softkey Definitions

2.10 The seven softkeys on the *SUPERSET 7* workstation are mapped to keys on the Maintenance Terminal. These keys dynamically change their functions depending on the mode of operation of the CDE application. The functional description of these keys is given in Table 2–3.

Table 2–3 *SUPERSET 7* Workstation/Maintenance Terminal Softkeys – Functional Description

Task	Softkey Function	Functional Description
CDE Login	[1 START SESSION]	Used to login for a CDE software session. The six other softkeys are blank, and do nothing when pressed.
CDE Logout	[1 LOGOUT]	Terminates a CDE software session and returns the display to Desktop mode.
Go to main menu	[6 Maintenance] [7 Customer Data]	Selects the CDE menu of form groups.
Select Form Group	[1 form menu]	Displays the form menu for the currently highlighted form group.
	[2 edit form]	Used when changes are required to a form. The user is prompted for the form to edit.
	[6 read form]	Read form data only – no changes permitted. The user is prompted for the name of the form to read.
Edit a form	[1 dependents]	Display menu of the forms to be completed after the currently highlighted form.
	[2 edit]	Used when changes are required to a form. The currently highlighted form will be edited.
	[3 prerequisites]	Display menu of all forms that should be completed before the currently displayed form.
	[6 read form]	Used to read form data when no changes are required. The currently highlighted form will be read.
	[7 main menu]	Displays the CDE menu of form groups.
Retrieving Data for Multiple– Instance Forms	[1 recall]	Used to recall a specific instance of a multiple–instance form. The system prompts for the form instance to be recalled.
	[7 delete instance]	Used to delete a specific instance of a multiple–instance form. The system prompts for the instance to delete.
Edit form data and committing the changes to the database	[1 top]	Moves the cursor to the first field in the form template and sets the cursor direction to forward.

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Table 2–3 *SUPERSET 7* Workstation/Maintenance Terminal Softkeys – Functional Description (continued)

Task	Softkey Function	Functional Description
	[2 range programming]	Opens a range programming window permitting programming of several fields within a record, which can then be applied to all records in the form. Range programming functions are described in this table (single–instance forms only).
	[3 bottom]	Moves the cursor to the last field in the form template and sets the cursor direction to backward.
	[4 commit]	Used to initiate the two–stage committal of form data to the database. Stage two is a softkey–based confirmation process, described below in this table.
	[5 specify instance]	Moves the cursor to the Version Number field of multiple–instance forms.
	[6 delete line]	Erases all editable fields contained on the line where the cursor is positioned.
	[7 delete instance]	Deletes the instance of the multiple–instance form that is currently displayed.
Confirming a [4 commit] operation	[1 confirm] [3 cancel]	Confirms the [4 commit] operation. Cancels the [4 commit] operation.
[2 Range programming]	[2 number of lines]	Used to specify how many lines in the form (records) are to be programmed with the values contained in the range programming window.
	[4 execute]	Program the number of lines specified with the values contained in the range programming window.
	[6 delete line]	Clear all fields currently displayed in the range programming window.
Search function is initiated from the <SEARCH> hardkey		The depression of the <SEARCH> hardkey opens a 2–line window containing a blank for template. After specifying the search criteria, the following functions are available. An example is contained in Part 3 of this document.
	[2 cancel search]	Cancel and exit the search window.
	[4 execute search]	Initiates the search after the criteria are specified.
	[6 clear search]	Erases the contents of the search template.

Table 2–4 *SUPERCONSOLE 1000* Attendant Console Softkey Functions

Task	Softkey Function	Functional Description
CDE Login	Note: To begin the CDE login procedure, press the <FUNCTION>hardkey, followed by the [APPLICATION] softkey. Refer to Chart 3–2.	
	[Installer] [Maint1] [Maint2] [Other]	These keys are used to select the authorization level for access to CDE. If [Other] is pressed, the console's dial pad is placed into alpha–mode, and alphabetic characters can be typed in. Softkey F6 is reserved for the [Quit] function. Pressing any one of authorization level softkeys results in the display of a prompt for a password, along with an [Alpha] softkey. Alphabetic characters are entered from the console's dial pad when this key is pressed. When you enter the first character of the password (e.g., SX2000), the softkey [Enter PSW] is displayed. As the password is entered, the characters are displayed on the console. You can move to the next character position by using the console's ← and → arrow hardkeys, near the dial pad. Two applications are displayed against softkeys: [Maintenance] and [CDE]. Press [CDE].
Reading error messages	[QUIT]	When an error message is displayed, press the [QUIT] softkey to acknowledge the message and clear it from the console's display.
Accessing Forms	[READ FORM] [EDIT FORM] [NEXT FORM] [PREV FORM]	The form selection softkeys appear after the CDE application has been selected. The keys appear against softkeys F7 through F0. Softkey F6 is reserved for the [QUIT] softkey. Pressing [READ FORM] allows you to access the selected form in read–only mode. Pressing [EDIT FORM] allows you to access the selected form in edit (read–write) mode. The [NEXT FORM] and [PREVIOUS FORM] softkeys are used to move through the list of forms in the menu.

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Table 2–4 *SUPERCONSOLE 1000* Attendant Console Softkey Functions (continued)

Task	Softkey Function	Functional Description
Moving through forms	[SAVE REC] [INSERT REC] [FIRST REC] [LAST REC] [SEARCH REC] [DELETE REC] [NEXT REC] [PREV REC] [MORE]	These softkeys appear after a specific form has been accessed. They permit you to move through the records contained in the form. When the type of form allows it, the [DELETE REC] and [INSERT REC] softkeys permit entries to be inserted into or deleted from the form. When [INSERT REC] is pressed, the current record is copied into the form, and the edit–mode softkeys are displayed. This reduces the amount of information you need to key in. [DELETE REC] causes the current record to be deleted from the form. You will hear a beep if you press [DELETE REC] or [INSERT REC] when not permitted. The softkeys are not displayed if the form is empty. [SAVE REC] is not displayed if you are only reading the form. The [SEARCH REC] softkey places you in search mode. (See "Searching", below). Pressing the [MORE] softkey displays the softkeys described below ("Moving Through Fields").
Moving through fields	[FIRST FIELD] [LAST FIELD] [DEL FIELD] [NEXT FIELD] [PREV FIELD] [MORE]	These softkeys allow you to move through each field of the record. Pressing the [MORE] softkey returns the softkey display to those described above ("Moving through forms").
	[CYCLE FW] [CYCLE BW]	These softkeys are displayed for those forms which have fields which contain specific values, such as YES and NO. They allow you to cycle through the valid values for the field.
	[ALPHA]	This softkey is displayed in conjunction with those just listed, for fields which require you to enter alphabetic or numeric data (for example, a name in the telephone directory). The data is entered using the console's dial pad.
Searching	[SEARCH REC]	This softkey is displayed at the "Moving through forms" level. Pressing this softkey displays the following field–level softkeys: [FIRST FIELD] [LAST FIELD] [SEARCH BW] [DEL FIELD] [NEXT FIELD] [PREV FIELD] [SEARCH FW]

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Table 2–4 *SUPERCONSOLE 1000* Attendant Console Softkey Functions (continued)

Task	Softkey Function	Functional Description
		The cursor is displayed, and you must enter the value to be searched for. The [SEARCH BW] and [SEARCH FW] softkeys are used to inform the system of which direction you want the search to go: backward searches towards the top of the form; forward searches towards the bottom of the form. A successful search causes the new record to be displayed. A failed search re–displays the record on which the cursor was positioned before the search was executed.
Exiting a CDE form	[QUIT] [CANCEL] [CONFIRM]	The result of pressing the [QUIT] key depends upon where you are in the form: If the [QUIT] key is pressed when the main menu is displayed, the display exits from CDE. If the [QUIT] key is pressed when a sub–menu is displayed, the display returns to the main menu. If the [QUIT] key is pressed when a form is displayed (and no changes have been made to the form), the display returns to the menu used to enter the form. If the [QUIT] key is pressed after a form has been modified, the [CANCEL] and [CONFIRM] keys are displayed. If you press [CONFIRM], the display returns to the menu used to enter the form. If you press [CANCEL], the cursor goes to the last modified character position in the form.

SUPERCONSOLE 1000 Attendant Console Firmkey Programming

2.11 The keys on the *SUPERCONSOLE 1000* Attendant Console between the <FUNCTION> and <CANCEL> hardkeys are programmable. These four keys are known as firmkeys, since they maintain the function with which they are programmed, until they are reprogrammed. The keys are referred to in numeric sequence, numbered from leftmost to rightmost. Firmkey 1 is the key to the right of the <FUNCTION> key. Firmkey 4 is the key to the left of the <CANCEL> key.

On system startup, Firmkey 1 is programmed as the SELECT OPTION firmkey. This firmkey allows access to other system applications, as described in paragraph 2.14. Firmkeys are programmable with one of the following values:

- Phonebook
- SMDR
- Hotel/Motel

- Trunk Status
- Alarm
- Select Option
- Blank

Note: These values can be programmed against any of the firmkeys, regardless of which of the software options have been purchased. Programming a firmkey as Hotel/Motel, for example, does not guarantee that access to Hotel/Motel can be obtained.

Programming steps

2.12 Press the following keys to gain access to firmkey programming:

- <FUNCTION> (hardkey)
- [Att Function] (softkey)
- [Firmkeys] (softkey)

The console display shows the currently programmed values for the firmkeys, in the softkey fields labelled F2 through F5. Pressing any one of the firmkeys causes the [SAVE] softkey (F0) to be displayed, and causes the displayed value to change to the next available.

Press the firmkey to be programmed until the desired value is displayed.

Press the [SAVE] softkey. Once [SAVE] is pressed, the value of the keys is stored in the system database, against the console's circuit, and will survive a system restart.

When the save operation is complete, the console continues to display the Firmkey definitions, but the [SAVE] softkey is no longer displayed. Pressing any firmkey will re–initiate the programming steps.

Exiting from Firmkey Programming

2.13 You can exit firmkey programming at any time by pressing the [EXIT] softkey (softkey F1).

Select Option Function

2.14 When <SELECT OPTION> is pressed, the console's display changes to one similar to that shown below:

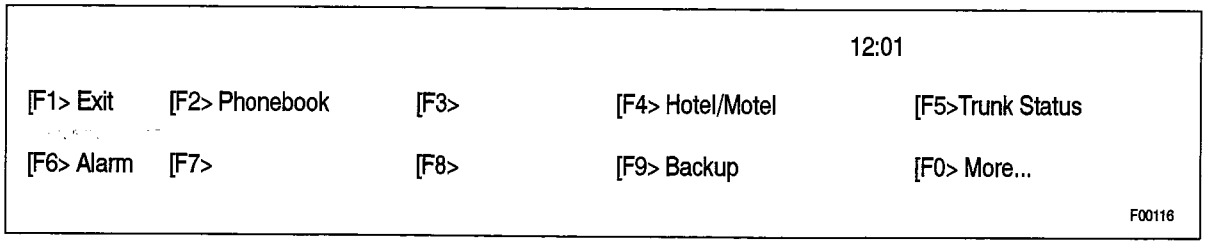


Figure 2–9 *SUPERCONSOLE 1000* Attendant Console Select Option Display

The <SELECT OPTION> function permits the console operator to use the other options available at the console. For example, access to the Phonebook application is gained by pressing <SELECT OPTION> followed by the [Phonebook] softkey.

Cursor Control and Editing Hardkeys

2.15 Table 2–5 describes the cursor control and editing functions available during a CDE session on the *SUPERSET 7* workstation and Maintenance Terminals. Most of these functions are available as softkeys on the *SUPERCONSOLE 1000* Attendant Console, and so are described in Table 2–4.

Table 2–5 *SUPERSET 7* Workstation/Maintenance Terminal Cursor Control and Editing Hardkeys – Functional Description

Task	Hardkey Function	Functional Description
Editing Keys		
Delete field	<DELETE>	Deletes the field the cursor is currently in.
Insert line	<INSERT>	Inserts a blank line from the form template at the line the cursor is presently on.
Invoke a form–specific search	<SEARCH>	Opens a search window in the currently displayed form. The user must supply the search criteria.
Cursor Positioning Keys		
Next field	<WORD>	Moves the cursor to the beginning of the next field, or previous field depending on the direction set by the <REVRS> hardkey.
Next line	<LINE>	Moves the cursor to the beginning of the next line in the form.

SUPERSET 7 Console/Maintenance Terminal Help Facility

2.16 An extensive online Help facility is available at all times to give context–dependent information on the currently active CDE function. The utility is activated by pressing the <HELP> hardkey. Figure 2–10 shows the resulting help window superimposed on the existing CDE session. The help window contains explanatory text regarding the current CDE function or displayed form. Help information may also be obtained on any topic by entering from the command line the key word "help" followed by the subject. For example, "help forms". Table 2–6 contains a list of the subjects for which generalized help commands are available. As well, each form also has its own help message

Table 2–6 *SUPERSET 7* Workstation/Maintenance Terminal Generalized Help Commands for CDE

HELP ACCOUNT CODE FORMS	HELP ARS FORMS
HELP ATTENDANT FORMS	HELP CALL REROUTING FORMS
HELP DATA	HELP DATA CALL FORMS
HELP DATA RESTORE	HELP DATA SAVE
HELP DATASET FORMS	HELP DIGITAL LINK FORMS
HELP FORMPRINT	HELP FORMS
HELP GROUP FORMS	HELP MOVES AND CHANGES FORMS
HELP MULTILINE SET FORMS	HELP ONS/OPS STATION FORMS
HELP STATION SERVICE FORMS	HELP SYSTEM FORMS
HELP TELEPHONE DIRECTORY FORMS	HELP TRUNK FORMS

Form Printing Facility

2.17 The form printing facility is used to obtain printed copies of forms and the data they contain.

Printer Connection

2.18 On the *SX–2000* SG system, a printer may be connected to:

- the Bulkhead Connector Assembly,
- a Maintenance Terminal or
- a *SUPERSET 7* workstation.

On the *SX–2000* S system, a printer may be connected to:

- the Maintenance Connector Panel,
- a Maintenance Terminal,
- a *SUPERSET 7* DN workstation or
- a *SUPERCONSOLE 1000* console.

On the *SX–2000* VS and *SX–2000* FD systems, a printer may be connected to:

- the Printer Port on the rear of the cabinet,
- a Maintenance Terminal or
- a *SUPERCONSOLE 1000* console.

A printer may also be connected to a *SUPERSET 7* DN workstation on the *SX–2000* VS system.

For all *SX–2000* systems, a printer may be connected to DATASET 1100 AND DATASET 2100 series printer ports.

Refer to Practice 9125–060–126–NA, Peripheral Devices, for the procedures required to connect a printer to a *SUPERSET 7* workstation, or *SUPERCONSOLE 1000* Attendant Console. Refer to Practice 9125–060–353–NA, General Maintenance Information, for the procedures required to connect a printer to the Maintenance Terminal.

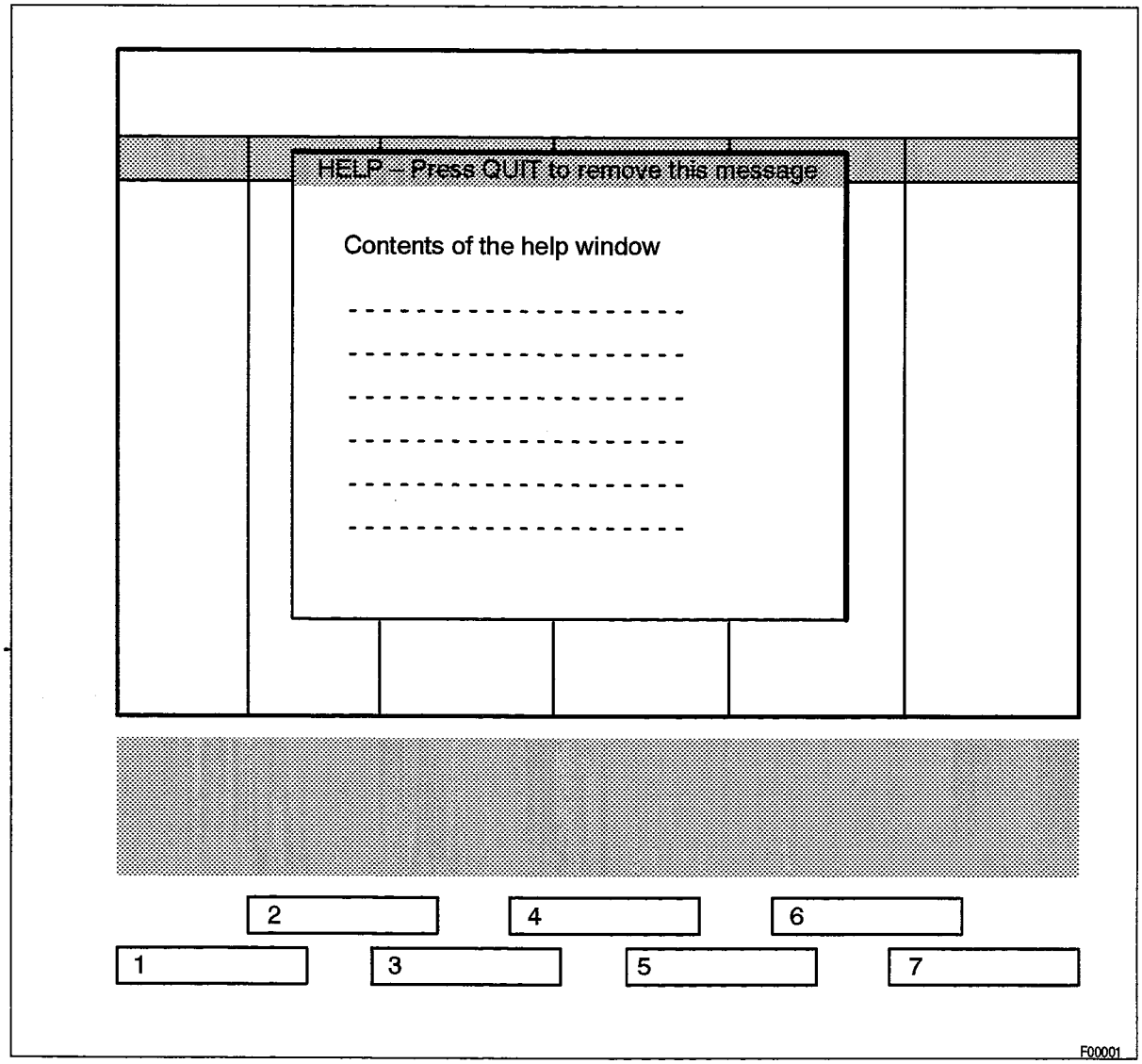


Figure 2–10 *SUPERSET 7* Workstation CDE Help Display

Programming the Printer System

2.19 Several forms are used to assign printers to the available output ports on the system. An overview of the programming of a DNIC printer port is provided below. Refer to the appropriate form descriptions in this document for the conditions governing the use of these forms.

To program a DNIC printer port, the user must:

- Assign an asynchronous dataset to a DNI circuit in the DNI Circuit Assignment form.
- Program a dataset circuit descriptor and assign it to the dataset (Dataset Circuit Descriptor Assignment form).
- Set the Port field to "Yes" in the Dataset Assignment form.
- Assign names to the input and output ports in the System Port form.
- Assign an application in the Application Logical Assignment form (if applicable).

Check the forms for any conditions which may apply. The user may change the baud and parity of the DNIC port prior to an application opening the DNIC port for use.

Note: Programming the printer port on the *SUPERCONSOLE 1000* Attendant Console also requires programming of the port on the DNI Circuit Assignment form. This port can only be used on *SX–2000*® S, *SX–2000* FD, and *SX–2000* VS systems. Additionally, the Dataset Assignment and Dataset Circuit Assignment forms must be programmed.

Form Print Commands

2.20 The FORMPRINT command is used to initiate the printing of CDE forms. Note that while the *SUPERCONSOLE 1000* Attendant Console's port can be designated as a "Form Printouts" port on the Application Logical Port Assignment form, a FORMPRINT cannot be executed from this console.

The following conditions apply to the form printing facility:

- The user must be logged into the system for the formprint command to work.
- If the form print request is initiated during a CDE session in which a form or one of its dependents is being edited the output indicates that the form is currently locked by another user. The request must be resubmitted when the editing session for the form is completed.

The syntax of the FORMPRINT command is:

<CMND> FORMPRINT form–name command–qualifiers <ENTER>

Command Qualifiers:

/COPIES nnn –	Prints nnn copies of the form.
/PORT port–name –	Directs the output to the device attached to port–name.
/INSTANCE nnn –	Prints the n–th instance of a multiple instance form.

/ALL – Prints all versions of a multiple instance form, or if the form name is omitted, prints all forms in the system.

/KILL – Terminates all pending formprint requests not already queued to the output device. The form–name and command–qualifiers are not required.

Printer System Commands

Note: The following printer system information applies only to *SUPERSET 7* workstations and *VT100* compatible Maintenance Terminals.

2.21 The printer system commands listed in Table 2–7 are described in Practice 9125–060–351–NA, Maintenance Commands. In order to function, each command listed in the table must be preceded by the <CMND> key and terminated by the <ENTER> key.

Table 2–7 *SUPERSET 7* Workstation/Maintenance Terminal Printer System Commands

Print Command	Mnemonic	Function
Enable Print	ENA P	Switches the Maintenance terminal from screen mode to print mode.
Enable Print/Nonqueued	ENA P/NON	Allows continuous output to the Maintenance terminal's auxiliary printer port.
Logsys Print	LOGS PRI	Used to print all entries of the specified log.
Myprinter	MY	Assigns a new default printer to a Maintenance terminal or *SUPERSET 7* DN console.
Print	PRI	Used to print a session log file onto a system printer.
Showprint	SH P	Allows Maintenance personnel to examine the print queue after requesting a print job.

3. CDE SCENARIO

Entering CDE

3.1 CDE software may be invoked from Desktop mode at either a *VT100* compatible terminal or *SUPERSET 7* workstation, or via the FUNCTION hardkey on the *SUPERCONSOLE 1000* Attendant Console.

SUPERSET 7 Workstation/Maintenance Terminal Login Sequence

3.2 To ensure the current mode of operation is Desktop press the <DESKTOP> hardkey. A display similar to Figure 3–1 appears on the display screen.

The login sequence is shown in Chart 3–1, below. Refer to Table 3–1 for the list of valid usernames and associated default passwords.

Chart 3–1 *SUPERSET 7* Workstation Login Sequence

Press Softkey	Prompt	Key In
[1 start session] [7 Customer Data]	Enter Username Password	username password

Notes: 1. The password is not displayed on the screen.

2. A successful login is acknowledged in the command/response area with the message "USER Logged in".

SUPERCONSOLE 1000 Attendant Console Login Sequence

3.3 The CDE login sequence for the *SUPERCONSOLE 1000* Attendant Console is shown in Chart 3–2, below.

Chart 3–2 *SUPERCONSOLE 1000* Attendant Console Login Sequence

Press Key	Prompt	Key In
<FUNCTION> [F6> Application]		
[F1> Installer] [F2> Maint1] [F3> Maint2] [F4> Other] (Choose one)	enter password:	password If the password contains alphabetic characters, press the [Alpha] softkey first. For further details, see note 2.
[Enter PSW] [CDE]	select application:	

Notes: 1. When the user OTHER is selected, a username must be keyed in.

2. Using the dial pad on the console, numeric and alphabetic characters can be keyed in. The ALPHA softkey must be pressed to use the dial pad to enter alphabetic characters. Each key on the dial pad is labeled with alphabetic characters. For example, key 2 has the letters "ABC" above it. When in alpha– mode, pressing the 2 key once causes an "A" to be entered. Pressing it twice causes a "B" to be entered. Pressing it three times causes a "C" to be entered. Pressing it four times causes the number "2" to be entered.
The password is displayed as it is keyed in. Use the key on the console to move the cursor to the next character position.

Table 3–1 Default Usernames and Passwords

Login Level	User Name	Default Password
Installation Technician	INSTALLER	See Note 1
Second line maintenance	MAINT2	SX2000
First line maintenance	MAINT1	SX2000
Supervisor	See Note 2	See Note 3
Attendant	See Note 2	See Note 3

Notes: 1. This level is reserved for use by the installation technician.

2. Refer to the User Authorization Profile Assignment form in MITEL for information regarding the definition of usernames for attendants and supervisors.

3. The default password is the first eight characters of the username as defined by the User Authorization Profile Assignment form.

Authorized Access to Forms

3.4 For database security reasons three levels of access may be defined for each form in the system. These are:

(a) **None:** Users assigned this level are not permitted to access the form.

(b) **Read only:** Users assigned this level are permitted to display the form for information purposes. This level should be granted on a need–to–know basis.

(c) **Read–write:** Users assigned this level are permitted to display and modify the contents of the form.

The Form Access Authorization form is used to define these levels of access for each form.

Concurrent CDE Users

3.5 For systems equipped with more than one workstation, concurrent CDE sessions can take place according to the following rules:

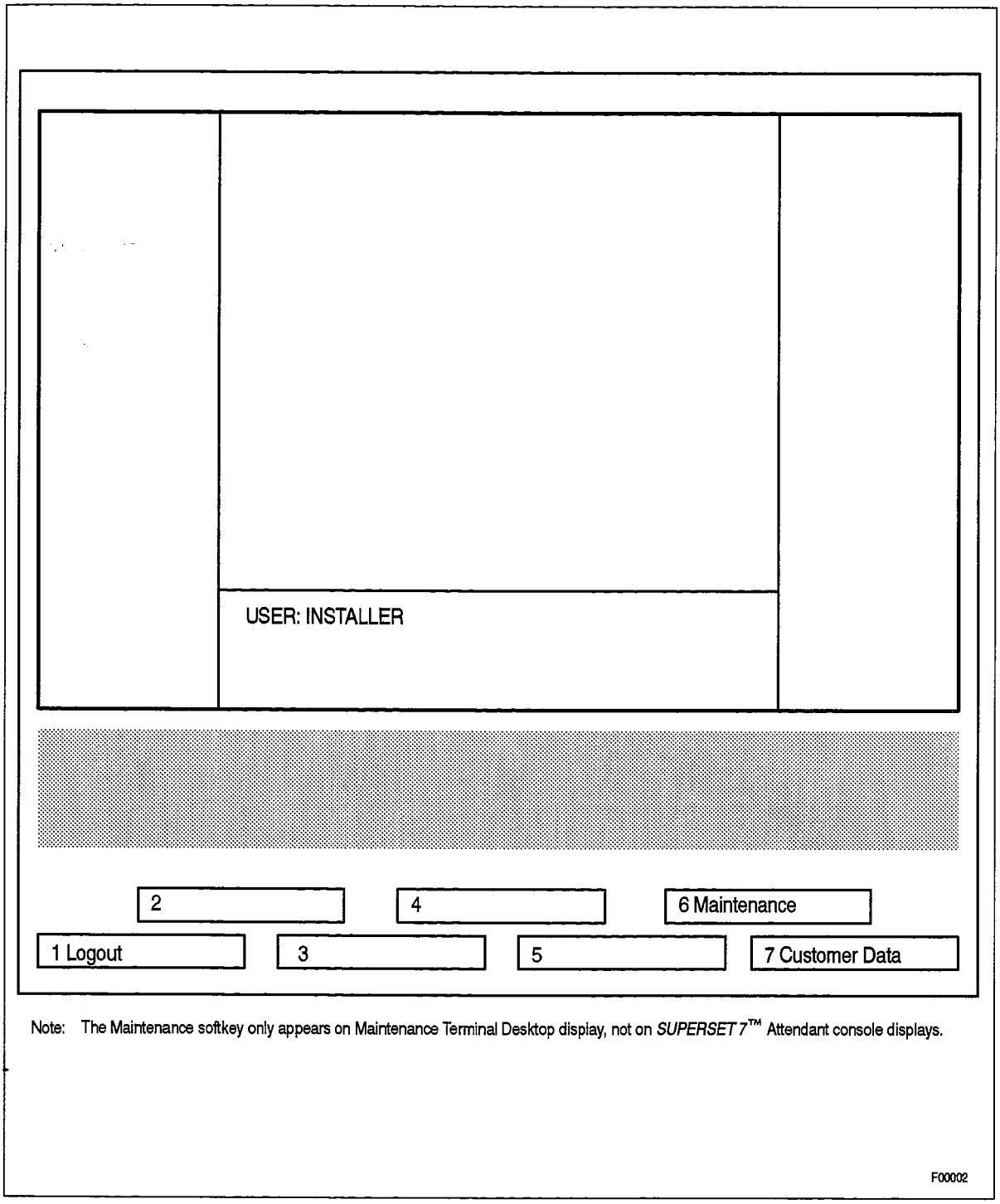
(a) Only one user is permitted to modify a given form at a time. A form can not be read while it is being modified by another user.

(b) Multiple read CDE sessions are allowed.

(c) Multiple write CDE sessions are allowed as long as the set of tables controlled by each form does not intersect.

(d) If a form is being printed or in the process of being displayed it can not be modified.

To avoid conflicts no two users should attempt to manipulate forms that have dependencies tied to the same higher level root or base point in the forms hierarchy. Refer to Figure 2–1 and Figure 2–2 for a representation of the programming forms hierarchy.



Note: The Maintenance softkey only appears on Maintenance Terminal Desktop display, not on *SUPERSET 7*™ Attendant console displays.

Figure 3–1 *SUPERSET 7* Workstation/Maintenance Terminal Desktop Display After Login

Forms

3.6 The forms are composed of two parts. A system–generated, protected region, indicated by half–tone highlighting, contains the field descriptors and system–generated parameters. The input region has a dark background; default database information is displayed here and the site–specific data is entered here as well. Data entered into this region appears in high intensity until the form data is committed to the system database. The screen is refreshed after the data has been successfully committed to the database and the site–specific data is displayed in normal intensity.

Requesting a Form – Maintenance Terminal/*SUPERSET 7* Workstation

3.7 Once logged in, you have two alternatives available for accessing the programming forms.

By pressing the [7 Customer Data] softkey the user is presented with the Form Groups menu. A display similar to Figure 3–2 appears.

At this point the user can:

(a) Edit or Read any form by typing the form name in the command line after pressing either the [2 edit form] or [6 read form] softkey.

(b) Position the cursor bar over one of the form groups and press the [1 form menu] softkey.

Note: The cursor bar is moved by the up arrow (↑) and down arrow (↓) hardkeys.

If you choose [1 Form menu], the screen displays the list of forms that were requested. For example, if the cursor bar was positioned over the System Forms line, a display similar to Figure 3–3 appears.

You can now:

(a) Edit or Read a form by positioning the cursor bar over the desired form and pressing the [2 edit form] or [6 read form] softkey.

(b) Go back to the main menu, by pressing the [7 main menu] softkey.

(c) Find all the forms that depend on the form highlighted by the cursor bar by pressing the [1 dependents] softkey.

(d) Find all the forms that are prerequisite to the form highlighted by the cursor bar by pressing the [3 prerequisites] softkey.

A dependent form is one that should be filled in AFTER the form in question. Similarly, a prerequisite form is one that should be filled in BEFORE the form in question.

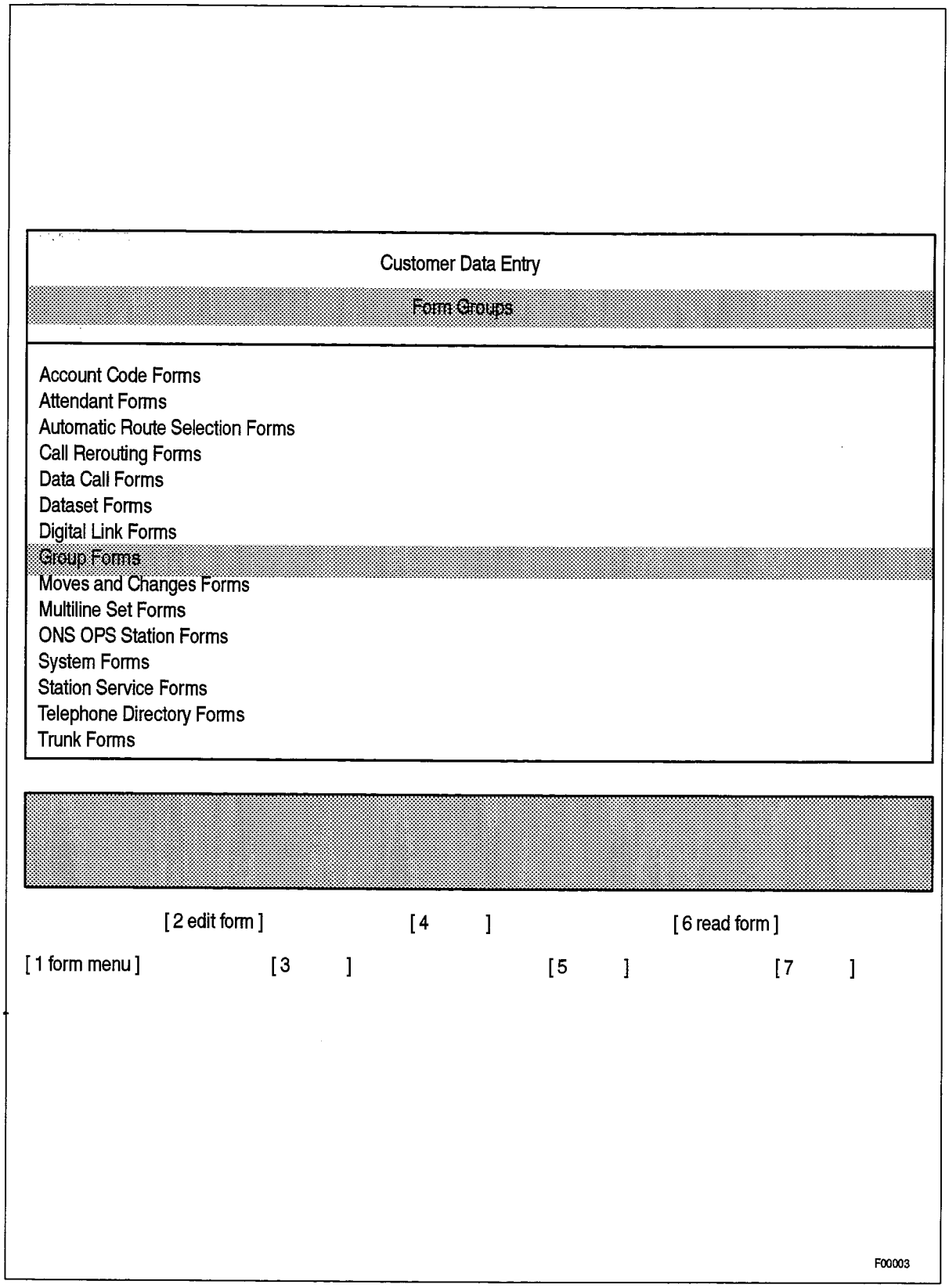


Figure 3–2 Form Groups Menu

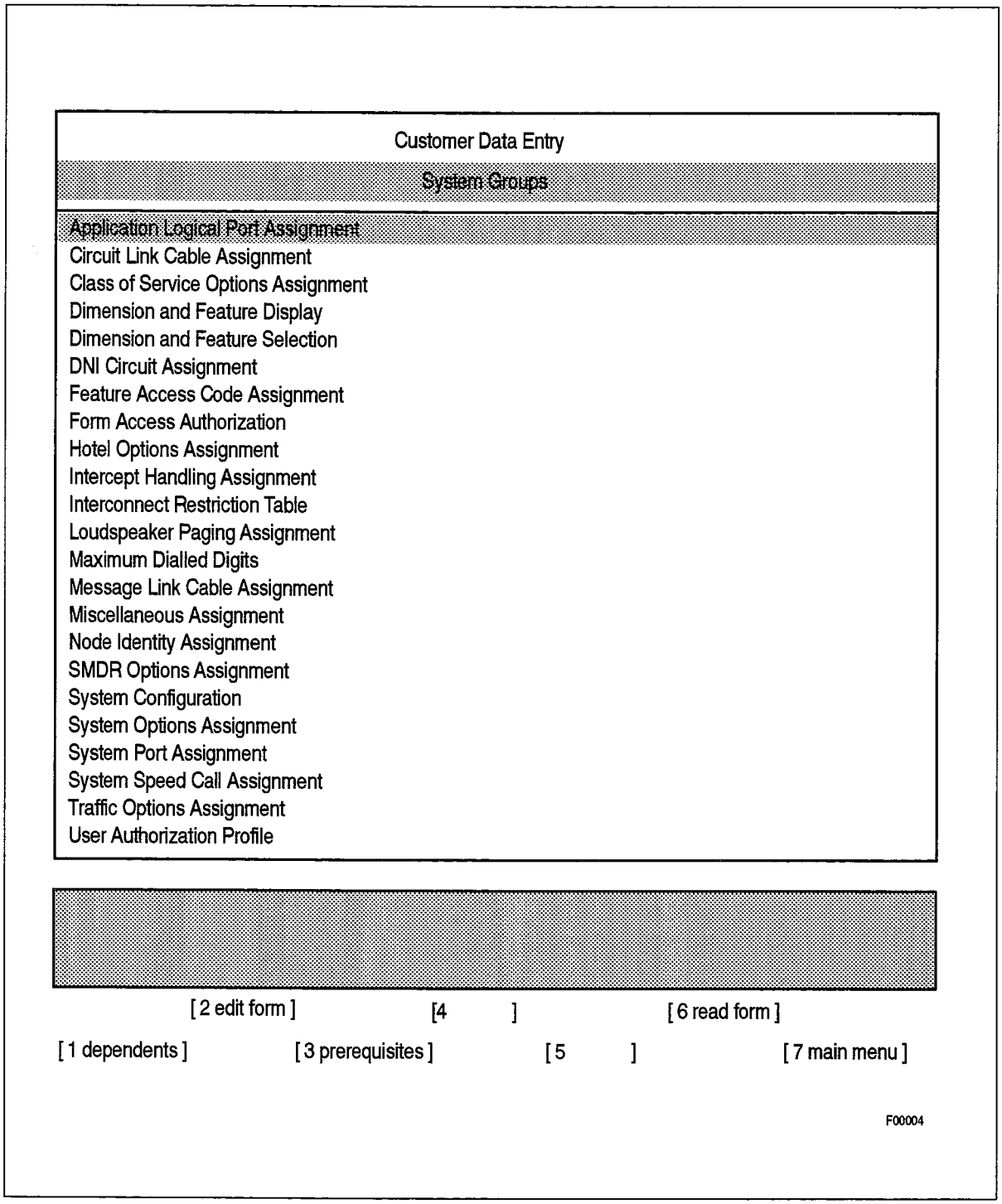


Figure 3–3 System Forms Menu

<QUIT> Hardkey Functionality in Menu–Driven Mode

If a form was in the process of being modified when the <QUIT> hardkey is pressed, the user is presented with a choice of softkeys to either [1 confirm] or [3 cancel] the <QUIT> operation. If the operation is confirmed, the screen displays the menu used to gain access to the form. If the operation is canceled, the cursor returns to the last modified character position in the form. If the <QUIT> hardkey is pressed when a form is displayed, the screen displays the menu that is used to enter the form. If the <QUIT> hardkey is pressed when a menu is displayed, the display returns to the main menu. If the <QUIT> hardkey is pressed when the main menu is displayed, the display exits from CDE.

Requesting a Form – *SUPERCONSOLE 1000* Attendant Consoles

3.8 Because the *SUPERCONSOLE 1000* Attendant Console is intended to be used for maintaining the database, rather than during initial system installation, access is restricted to only 15 of the available forms on the system. The forms you can access are shown in Table 3–2, below.

If you call up a form not in this list, a "PROTECTED" message is displayed on the console, and none of the fields in the form actually appear on the console's display.

Table 3–2 Forms Accessible via the *SUPERCONSOLE 1000* Console

Automatic Route Selection Assignment
Call Rerouting Always Alternative Assignment
Call Rerouting Assignment
Call Rerouting First Alternative Assignment
Call Rerouting Second Alternative Assignment
Change Attribute Assignment
Class of Service Options Assignment
Department Assignment
Hunt Group Assignment
Location Assignment
Multiline Set Group Assignment
Multiline Set Key Assignment
Pickup Group Assignment
System Speed Call Assignment
Telephone Directory

All form requests are made using softkeys, after logging in to the CDE application.

Use the NEXT FORM and PREV FORM softkeys to scroll through the form menu. Each form name is displayed along with a two–digit number. When you are ready to access a form, key in the number on the console's dial pad, then press either of the following softkeys:

- [READ FORM]: to gain read access to the form
- [EDIT FORM]: to gain read/write access.

Press the QUIT softkey to return to the application selection display.

Form–Driven Data Input

3.9 Each form template in the system has an associated set of rules. These rules define the characteristics of each field in the form, the relationships between various fields within a form, and form interdependencies and relationships. The rules are applied at different phases of the data entry process.

Range Programming

3.10 The Range Programming function simplifies the entry of repetitive or incremental values. For example, a block of ONS lines may be assigned sequential directory numbers, or duplicate Department or Location names in the Telephone Directory may be assigned to a group of users through only a few keystrokes. Range programming is available in a form only after the [2 edit form] key is pressed, and is not available on the *SUPERCONSOLE 1000* console.

When the RANGE PROGRAMMING softkey is pressed, a range programming window appears, containing each of the data fields in the form. The following softkeys appear:

- **[2 number of lines]:** Press this key to specify how many lines are to be programmed with the values entered in the range programming window.
- **[4 execute range]:** Press this key to program the specified number of lines in the form with the values contained in the range programming window.
- **[6 delete line]:** Press this key to clear the range programming window of all values.

Range programming is performed as shown in Chart 3–3.

Chart 3–3 Range Programming

Step	Action	Comments
1.	Access the form to be range–programmed, in the EDIT mode.	
2.	Set the cursor on the desired starting line of the range of values to be programmed.	
3.	Make the desired entries on this line. Leave the cursor on this line.	This entry will be the reference line, that is, the first extension of a group. Any or all of the fields in the form can be programmed simultaneously. Existing data can be modified, deleted or left unchanged. It is not necessary to commit/confirm the changes.
4.	Press the [range programming] softkey.	The range programming window is opened. This window contains a data line identical in format to those which appear in the form.
5.	Move through the fields of the range programming window, programming each as required. When complete, press <ENTER>.	The desired incremental values are entered in the appropriate fields of the range programming window. (See Figure 3–4). Entering "1" will cause sequential numbers to increase by "1". Entering "0" will cause a sequential number not to increment. Leaving the field blank means existing data will remain unchanged. These values will be applied to the reference line if the cursor is aligned with it.
6.	Press the [number of lines] softkey, and key in the number of lines in the form which are to be programmed with the values indicated, then press <ENTER>.	The value is added to the reference line for the total.
7.	Press the [execute range] softkey to initiate the programming of the form. Press<QUIT> to abort range programming.	The system returns the message "Range Programming Completed" after the execute function is completed.
8.	If [execute range] was pressed, the form may then be committed to the database if no further changes are necessary and all required fields have been completed.	All fields programmed in the range programming window are written into the form. Blank fields in the range programming window do not overwrite previously programmed fields. The changes must be committed to the database using the [commit] and [confirm] softkeys.

Single Line Set Assignment

Cab	Shlf	Slot	Circ	Card Type	Directory Number	Circuit Descriptor Number	Inter–connect Number	Non–busy Ext.
1	3	2	9	On Premises Line	2509	1	1	
1	3	2	10	On Premises Line	2510	1	1	
1	3	2	11	On Premises Line	2551	1	1	
RANGE PROGRAMMING Parameters					1	0	0	
1	3	2	15	On Premises Line	3001	1	1	
1	3	2	16	On Premises Line	3002	1	1	
1	3	15	1	On Premises Line	2601	1	1	
1	3	15	2	On Premises Line				
1	3	15	3	On Premises Line				
1	3	15	4	On Premises Line				

2 number of lines | 4 executive range | 6 delete range

1 | 3 | 5 | 7

Figure 3–4 Maintenance Terminal Range Programming Display

A block of entries may be deleted using the range programming function. A blank field at the reference line and the same blank field in the range programming window will cause the data in the field to be deleted. (See Figure 3–5). The number of lines to be deleted is set by the [number of lines] softkey.
In the example below, all fields for 8 extensions will be deleted when the [execute range] softkey is pressed. The changes must be Committed and Confirmed. Any dependent form assignments may have to be deleted before the Commit and Confirm operations are permitted.

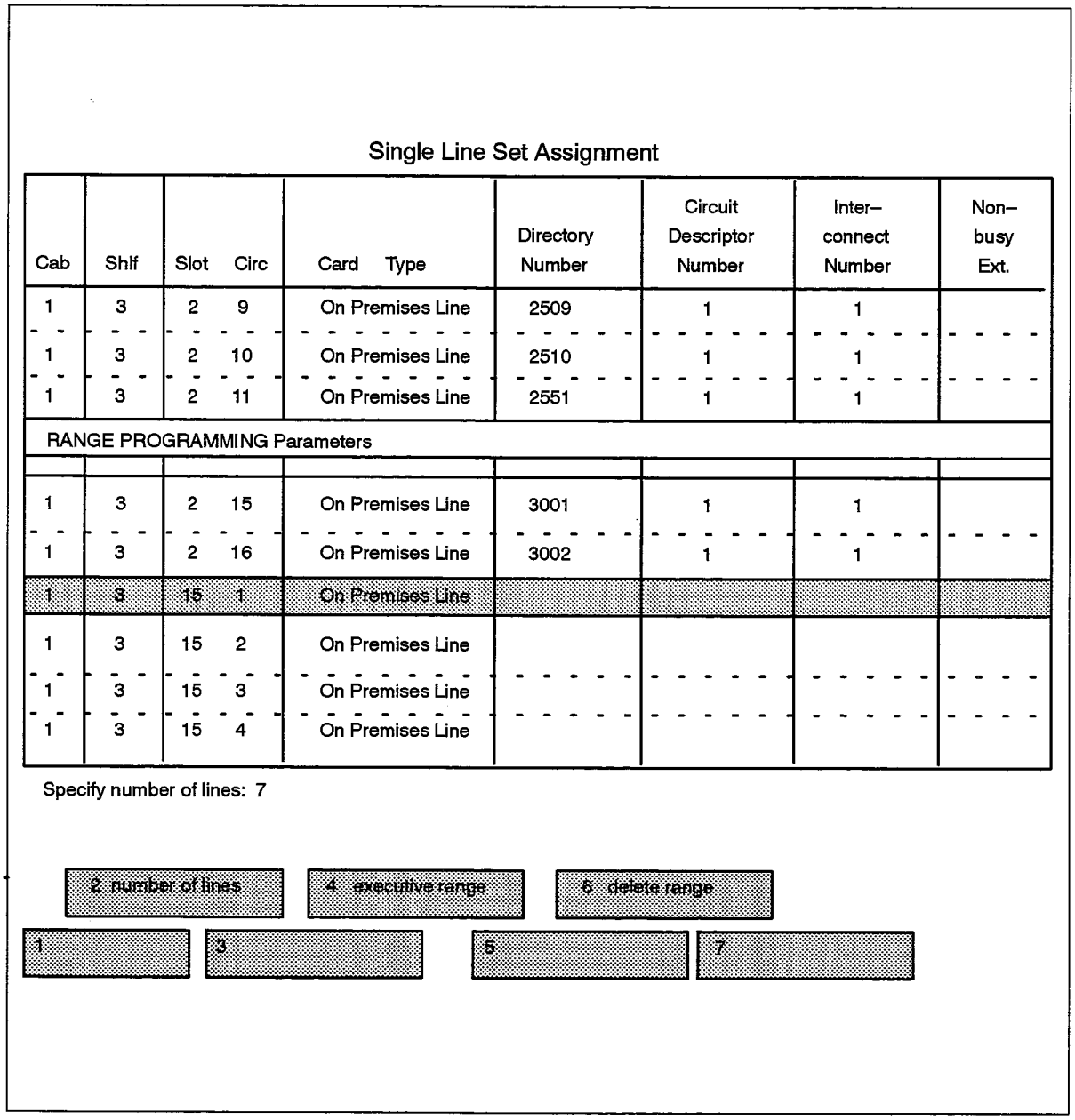


Figure 3–5 Deleting Entries with the Range Programming Function

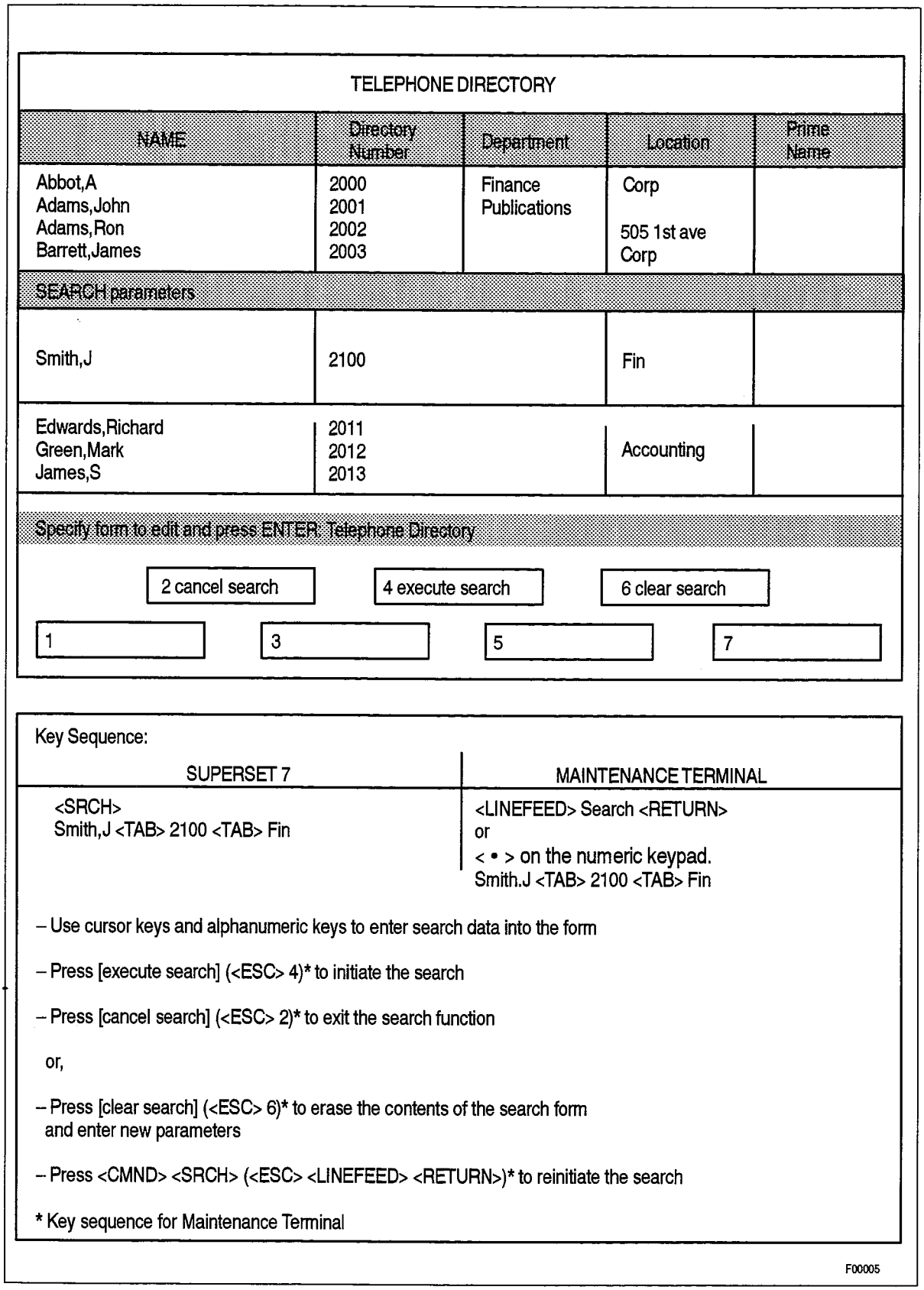
SEARCH Function

3.11 While editing or reading a form, it may be necessary to locate an entry which may or may not be displayed on the screen. In order to save time, a search function is available.

SUPERSET 7 workstations can use the <SRCH> hardkey.
There is no <SRCH> hardkey on a Maintenance Terminal. Instead, a search may be initiated by entering:
<Linefeed> SEARCH <Return>
or by entering
< • > on the numeric keypad.

The system will open a search window that partially overlaps the currently displayed programming form. The search window has the same column headings as the programming form. The search display is shown in Figure 3–6, below. Three softkeys are defined in the search mode:

- **[2 cancel search]:** Returns the user to form editing or reading mode without performing the search.
- **[4 execute search]:** Initiates the search once the search parameters are specified.
- **[6 clear search]:** Erases the contents of the search window.



TELEPHONE DIRECTORY

NAME	Directory Number	Department	Location	Prime Name
Abbot,A	2000	Finance	Corp	
Adams,John	2001	Publications		
Adams,Ron	2002		505 1st ave	
Barrett,James	2003		Corp	
SEARCH parameters				
Smith,J	2100		Fin	
Edwards,Richard	2011			
Green,Mark	2012		Accounting	
James,S	2013			

Specify form to edit and press ENTER: Telephone Directory

2 cancel search | 4 execute search | 6 clear search

1 | 3 | 5 | 7

Key Sequence:

SUPERSET 7	MAINTENANCE TERMINAL
<SRCH> Smith,J <TAB> 2100 <TAB> Fin	<LINEFEED> Search <RETURN> or < • > on the numeric keypad. Smith.J <TAB> 2100 <TAB> Fin

– Use cursor keys and alphanumeric keys to enter search data into the form

– Press [execute search] (<ESC> 4)* to initiate the search

– Press [cancel search] (<ESC> 2)* to exit the search function

or,

– Press [clear search] (<ESC> 6)* to erase the contents of the search form and enter new parameters

– Press <CMND> <SRCH> (<ESC> <LINEFEED> <RETURN>)* to reinitiate the search

* Key sequence for Maintenance Terminal

F00005

Figure 3–6 *SUPERSET 7* Workstation/Maintenance Terminal Search Display

The *SUPERCONSOLE 1000* Attendant Console implements the search functionality through the use of softkeys. Once a form has been selected, a set of record–level softkeys is displayed, one of which is labeled [SEARCH REC]. Pressing this key causes the data display line to be cleared, and a set of search–level softkeys to be displayed (see Figure 3–7, below).

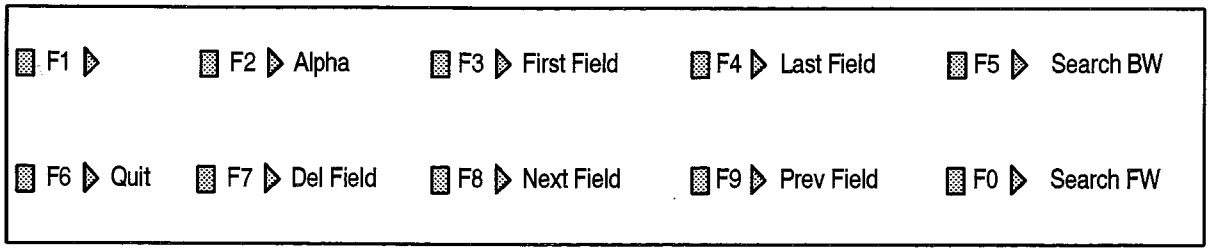


Figure 3–7 *SUPERCONSOLE 1000* Search–Level Softkeys

In order to initiate a search, a unique character string is required, and the type of search (backward or forward) must be specified. Validation is performed on all entries made in the search window according to the syntax and field definitions for the displayed programming form.
The key sequence used to perform a search is shown in Chart 3–4, below.

Chart 3–4 *SUPERCONSOLE 1000* Attendant Console Search Operation

Press Key	Prompt	Action
[SEARCH REC]	Data display record clears. Search–level softkeys displayed (see Figure 3–7); cursor is positioned in first character position.	
[ALPHA]		Use [ALPHA] key to toggle dial pad to character mode while keying in the search string.
[EXIT ALPHA]		Use [EXIT ALPHA] key to return to the search–level softkeys.
[FIRST FIELD] [LAST FIELD] [NEXT FIELD] [PREV FIELD]	Cursor is positioned in first field.	Use these softkeys to move through the fields in the record. Key in data field–by–field.
[SEARCH BW]	SEARCHING...	Search executes in a backward direction.
[SEARCH FW]	SEARCHING...	Search executes in a forward direction.
		Successful search causes the new data record to be displayed. Failed search causes the data record originally displayed to be re–displayed.

SUPERSET 7 Workstation SEARCH Examples

The following key sequence would be used to search for directory number 2100 in the Telephone Directory form:

<SRCH><TAB>2100 [4 execute search].

If the search is successful, the cursor is moved to the requested entry. If the search is unsuccessful, an error message is displayed in the Command/Response area.

A search for John Smith at extension 2100 in the Finance department (in the Telephone Directory form) would be done using the following key sequence:

<SRCH> Smith,J <TAB>2100<TAB> Fin [4 execute search].

As before, if the search is successful, the cursor is moved to the requested entry. If the search is unsuccessful, an error message is displayed in the Command/Response area. Note that the search string, "Finance" has been abbreviated to "Fin".

If the <REVRS> hardkey is pressed (before the [EXECUTE SEARCH] softkey has been pressed), the direction of searching is reversed.

GO TO Function

3.12 The Go To Function is similar to the Search Function in that it facilitates cursor movement. In editing or reading a form, the need may arise to displace the cursor a set number of lines or to a specific line number. This function is activated using the <CMND> hardkey. It is only available on *SUPERSET 7* workstations and on Maintenance Terminals.

If a specific line number is desired then the following key sequence would be used:

<CMND>go to <line number>

The cursor is then positioned on the requested line as determined by the line count which begins at the top of the form. A prompt for the <line number> will be given if the "go to" command is executed without stating which line is desired.

The cursor may also be displaced by any desired number of lines. For example, to go up 10 lines the following key sequence would be used:

<CMND> go up 10 <ENTER>

To go down ten lines the following key sequence would be used:

<CMND> go down 10 <ENTER>

A prompt for the number of lines is given if the "go up" or "go down" command is executed without stating how many lines are desired.

Data Entry

3.13 When the workstation's, console's or Maintenance Terminal's cursor is positioned over a field, data is changed either by typing the new information into the field, or by cycling through the values in the field. The method you use depends on the type of field you are trying to change.

Types of Fields in CDE

Some fields on the CDE forms have set values, such as YES and NO, or specific, pre–determined increments. These types of fields are known as enumerated, since there are only a specific number of valid values which can be programmed into them.

Other fields have no set values, such as names in the Telephone Directory or Department Assignment forms, or telephone directory numbers. These types of fields are known as non–enumerated, since there are no specific values which can be programmed into them.

Field Cycling

You can cycle through the valid values for enumerated fields using the SHIFT ↑ or SHIFT ↓ key combinations on the *SUPERSET 7* workstation or the PF2 and PF3 keys on the Maintenance Terminal. You can also do this on the *SUPERCONSOLE 1000* Attendant Console, using the [CYCLE FW] or [CYCLE BW] softkeys.

The keys have no effect when the cursor is positioned on a field which is a non–enumerated type. On the *SUPERCONSOLE 1000* Attendant Console, the [CYCLE FW] and [CYCLE BW] keys are only displayed when it is valid to use them.

Keying In Data

For any type of field, the *SUPERSET 7* workstation and the Maintenance Terminal allow you to type in the data (whether enumerated or not), from the keyboard. For example, if a field's enumerated values are YES or NO, you can type in YES or NO from the keyboard. When you press <ENTER>, the data is validated if the field is enumerated, then appears on the form.

The *SUPERCONSOLE 1000* Attendant Console does not have a keyboard, so data can only be keyed in when the field is non–enumerated. Field cycling is always used for enumerated fields. The [ALPHA] and [EXIT ALPHA] softkeys are used to set the mode of the console's dial pad (numbers or alphanumeric characters). This is described in the notes to Chart 3–2, above.

Moving to Different Fields

The *SUPERSET 7* workstation or the Maintenance Terminal allow you to move from field to field by pressing one of the keys listed in Table 3–3, below. The key you use is sometimes dependent on the field the cursor is positioned in.

The *SUPERCONSOLE 1000* Attendant Console lets you move from field to field by using the [NEXT FIELD], [PREV FIELD], [FIRST FIELD] and [LAST FIELD] softkeys.

Table 3–3 *SUPERSET 7* Workstation/Maintenance Terminal Keys used to Move from Field to Field

SUPERSET 7 Workstation	Maintenance Terminal
<LINE>	
<TAB>	<TAB>
<ENTER>	<RETURN> or keypad <ENTER>
[4 commit]	<ESC> 4 or keypad 4

Note: The COMMIT key is normally only used after all the changes to the form have been made, and not on a field–by–field basis.

The COMMIT Operation

SUPERSET 7 Workstation/ Maintenance Terminal

3.14 When the data has been entered into the form correctly it must be committed to the database. This two stage process begins by

- pressing the [4 commit] softkey
- pressing the [1 confirm] softkey.

When the commit softkey is pressed, the system checks that the contents of the fields in the form are valid (e.g., a string of alphabetic characters cannot be programmed in a field which requires numbers).

If errors are discovered, a prompt is displayed in the Command/Response area describing the problem. The form data is redisplayed with the cursor positioned over the field in error. When the error has been corrected, the [4 commit] softkey is pressed again. If no further errors are detected the [1 confirm] and [3 cancel] softkeys are displayed.

Pressing the [1 confirm] softkey results in the system checking that no syntax rules governing the form interdependencies have been violated. Then, the system database is updated with the revised form data. The system displays a message in the Command/Response area when the database update is complete, or if errors are found in the process.

If it is decided that current form information being edited or inserted should not be saved, the [3 cancel] softkey can be used to cancel uncommitted work. After pressing the [3 cancel] softkey the cursor returns to the last modified character position in the form. The system displays a message in the Command/Response area indicating that the database changes have been canceled.

SUPERCONSOLE 1000 Attendant Console

The commit operation is initiated from the record–level of softkeys on the console. If the [SAVE REC] softkey is not displayed, press [MORE] to return to this level.

Press [SAVE REC] to initiate the commit. The [CONFIRM] and [CANCEL] softkeys are displayed. Press [CONFIRM] to complete the commit operation. Press [CANCEL] to cancel the commit operation.

Error Recovery Procedures

3.15 If an error message is obtained during the course of recalling or committing a form, several recovery procedures are available. Two types of error messages generally arise during the recall and commit phases of CDE. The following items discuss how to recover from these errors.

(a) Appendix A contains listing, by function performed, of the messages generated by CDE software. Consult the tables in the appendix for the message generated and check the meaning and action column.

(b) If the error indicates that the entry in the form is incorrect because of incorrect data, or an illogical relationship to another parameter, the error is corrected simply by replacing the incorrect entry with an entry conforming to the rules as specified in the description of the form.

(c) If an error indicates that the entry in the form is incorrect due to an illogical or incorrect relationship to an entry in another form, use the <QUIT> function to terminate the current form. The database will NOT be altered at this point. Request the form(s) indicated in the error message(s) and make the required changes. Commit these forms and request the initial form. Locate the changes which caused the initial error condition(s) and re–enter all the required values. Commit the form.

(d) If an error arises which requires consultation with service personnel, the changes to the form may be canceled by using the <QUIT> function to terminate CDE without committing changes. All changes made to the form following the erroneous entry will be lost. Ensure that accurate records are kept so that the data for the given form may be re–entered at a later date.

Database Backup

3.16 Once the customer database has been generated, it should be saved on floppy diskette as a safeguard in the event of corruption of the database on the system's hard disks. The database can be restored from the floppy or tape by following the steps outlined in Practice 9125–040–204–NA, Software Commissioning. This Practice details the procedures required to create a backup of the database.

As well as backing up the database on floppy diskette or tape, MITEL also recommends that the FORMPRINT facility be used to generate paper copies of all the forms. One copy of this paper representation of the forms should be kept at the site with the rest of the system documentation to aid in troubleshooting.

4. CUSTOMER DATABASE MAINTENANCE

General

4.1 Once a customer database is defined and the system is operational, it is often necessary to modify the database as customer requirements change. The methods and tools available for making these changes are described in this Part.

Authorized Access for Database Changes

4.2 Two conditions must be met to enable a craftsperson to make changes and reassignments to a system database. These are:

(a) The craftsperson must have a suitable username/password combination in order to log in to a CDE session.

(b) The craftsperson must have authorized access to all the programming forms which require modification. This is done by granting Write Access to all forms concerned through the Form Access Authorization form.

Line and Trunk Changes

4.3 Occasionally it is necessary to make changes to assignments for line and trunk circuits. Already established calls are not affected when changes are made to the database. However modifying the assignment forms for line or trunk circuits may cause errors to arise if circuit–related data is changed while the circuit is in use to set up a call. In order to avoid such errors, the following steps should be followed:

(a) Notify the users concerned if the changes are to be made to line circuits.

(b) Use the BUSY command to man–busy the line or trunk circuits concerned. Refer to Practice 9125–060–351–NA, Maintenance Commands, for details on the command.

(c) Make the changes required to the forms concerned and commit the changes to the database.

(d) Return the lines and trunks to service using the RTS (RETURN TO SERVICE) command. Refer to Practice 9125–060–351–NA, Maintenance Commands, for details on the command.

(e) If required, notify the users that the lines are back in service.

(f) Using the Formprint facility, obtain a printout of the modified assignment forms and replace the old forms in the site log.

ARS Changes

4.4 In making changes to Automatic Route Selection data, incorrect call routing may result if changes are made while the routes are in use. Though specific error conditions do not arise in this situation, it is recommended that the trunk circuits affected by the changes be man–busied using the above procedures before changes and reassignments are carried out.

Station Set Changes

4.5 The most volatile aspect of an installation is the reassignment of station sets and the parameters associated with them.

Two types of changes to the data related to stations take place:

- moves (such as moving users from one station to another)
- attributes (such as changing the Class of Service of a user).

Moves are performed using the MOVE command, available to Maintenance Terminals, *SUPERSET 7* workstations and *SUPERCONSOLE 1000* consoles. Attribute changes are performed by gaining access to the Change Attribute Assignment form in CDE.

MOVE Operation

The MOVE command is used to relocate station users, or change the user associated with a directory number. The command is available from the Maintenance Terminal (either through the Maintenance or CDE applications), from the *SUPERCONSOLE 1000* console (via softkeys accessed through the SYSTEM level of softkeys), and from *SUPERSET 7* consoles.

The command can be invoked from either type of console at any time. Access to CDE is not required. Table 4–1 summarizes the functionality of the MOVE command.

MOVE USER Command

The Move User command is used to move a user from one telephone to another. The attributes of the first telephone do not change except for the name, department and location, which are deleted. The following attributes are transferred from the first telephone to the second telephone:

- Name, department and location
- Class of Service information
- Class of Restriction information
- Personal speedcall information
- Interconnect number
- Default account code

MOVE USER Restrictions

The Move User command is invalid for:

- ONS/OPS devices used for call announce
- ONS/OPS devices in a RAD group
- ACD Agent *SUPERSET 4, SUPERSET 430* and *SUPERSET 4* DN telephones
- DATASET 1100, 2100, 2200 series devices
- Hotel devices.

MOVE SWAP Command

The Move Swap command is used to swap the attributes of two users' telephones. The following attributes are swapped:

- Name, department and location
- Directory number
- Interconnect number
- Default account code
- Class of Service information
- Class of Restriction information
- Personal speedcall information
- Hunt group pilot number
- Call announce number
- Button speedcalls
- Call forward settings
- Do not disturb
- Message waiting
- Auto answer

MOVE SWAP Restrictions

The Move Swap command is invalid for:

- *SUPERSET 4* telephones with a Call Announce port assigned
- *SUPERSET 3* DN and *SUPERSET 4* DN telephones with DATASET 1101 cartridge
- *SUPERSET 410* and *SUPERSET 430* telephones with *MiLink*™ Data Module (1101M) cartridge
- ONS/OPS devices used as night bells
- DATASET 1100, 2100, and 2200 series devices
- ACD Agent *SUPERSET 4, SUPERSET 430* and *SUPERSET 4* DN telephones
- Hotel devices.
- RADs

Table 4–1 MOVE Operation Command Examples

Task	Command Syntax
Move a user from directory number 1234 to directory number 5678.	MOVE USER 1234 TO 5678
Swap extension 1234 with extension 5678	MOVE SWAP 1234 WITH 5678
Add a user to directory number 1234	MOVE ADD "BARKER, J" TO 1234
Remove a user from directory number 1234	MOVE DELETE "BARKER, J" FROM1234
Change the directory number of a station	MOVE RENUMBER 1234 TO 4321

Change Attribute Assignment Form

This form provides a convenient means of making changes to the database for data associated with station sets and the data sets. The form consists of data drawn from most of the forms involved in the programming for a station.

The station attributes to be changed are retrieved from the database by specifying the Directory Number of the station and pressing the [1 recall] softkey when the Change Attribute Assignment form is displayed. When any of the softkeys associated with the form are pressed, the softkey display is modified to show only the [4 commit] softkey. Pressing the [4 commit] softkey commits the modified form data to the database.

Some attributes cannot be changed by access to this form:

- the physical location (PLID) of the device in the system
- the card type to which the station is connected
- the device type
- hunt group pilot numbers
- number of personal speedcalls used
- the call announce number
- the name associated with the station.

Modifying the fields and committing the changes is equivalent to modifying those same fields in the forms in which they appear.

Directory number changes can only be done using the MOVE command described above, or by reprogramming the directory number on the applicable station assignment form.

5. PROGRAMMING FORMS

This Part of the document deals with the programming forms themselves. The following information is provided for each form:

(a) **Description.** Provides information on the function of the form, its relationship to other forms, and instructions on how to complete the form.

(b) **Conditions.** Provides a list of restrictions or special considerations which must be taken into account during the completion of the form.

(c) **Headings.** Provides a description of the different fields in the form. The description states what information is required in the field, the rules to follow in entering the data, and which other forms require this data.

(d) **Form.** Accompanying the description is the form itself. In some cases a complete form may be presented on more than one sheet of paper. In this case, all the various sheets are presented with the description of the form.

(e) **Shading.** Shading is typically used in the forms to represent system–generated fields.

(f) **Field Size.** Thin lines are used to define character positions for each customer–programmable field in a form. The number of character positions represented indicate the maximum size for these fields. For instances in which the character positions are not used, the written description accompanying the form states the maximum field size.

(g) **Default Values.** Where the system generates a default value for a given field on a programming form, the default value appears on the form illustration. Default values are those values that appear in certain form fields after an initial software installation is complete.

Some of the forms documented in this Practice show slight variances with the corresponding programming form that is displayed during CDE. In some instances (e.g., Trunk Group Assignment) the paper representation of the form contains multiple versions of the programming form. In other instances (e.g., Class of Service Assignment or E and M Trunk Circuit Descriptor) the paper form has been modified to permit the entry of multiple service numbers or circuit descriptor numbers on one paper form.

Shelf Programming

5.1 For information on programming shelves, refer to the System Configuration form. The *SX–2000* SG system has optional DSU shelves which are also programmed using the System Configuration form. When programming a fiber distributed system (*SX–2000* FD system), the Cabinet Assignment form must be programmed first. The Cabinet Assignment form is exclusive to the fiber distributed system and is used to define the remote peripheral and DSU cabinets.

Non–Conflicting Digits

5.2 Many of the forms are used to assign Directory Numbers and access codes which are dialed from stations in the *SX–2000* ICS. When such numbers are entered in the forms, the following conditions apply:

(a) No two numbers should be identical.

(b) Any two or more numbers may begin with the same leading digits, but are made unique by the conflict timer feature of the *SX–2000* ICS. For example, it is possible to assign two directory numbers, 331 and 3311, without any resulting conflict.

(c) Feature access codes should be both unique and non–conflicting. A sample listing of feature access codes is shown in Table 18–3.

Though errors in numbering are detected by the *SX–2000* ICS during Customer Data Entry, care should be taken to avoid such conflicts when the forms are prepared.

Lexicographical Numbering

5.3 Some forms require the sorting of Directory Numbers in lexicographical order, as opposed to numerical order. Lexicographical sorting involves the ordering of numbers into groups based on their first digits, in the same manner that words are grouped in a dictionary based on their first letter. Once groups are established for the first digits of the Directory Numbers, the same sorting is carried out within each group, based on the second digits. The process is repeated until all the available numbers are sorted. The following example illustrates the concept:

The number sequence (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 20, 30, 100, 110, 120, 200, 300, 1000, 1100) would be sorted as follows:

Lexicographical Ordering	.... compared to	Alphabetical Ordering
1		a
10		ab
100		abacus
1000		abandon
110		accent
1100		accurate
120		addition
2		b
20		baby
200		background
3		c
30		cancel
300		care
4		d
5		e
6		f
7		g
8		h
9		i

Note: In the special case where all directory numbers to be sorted are of the same length, the lexicographical ordering is identical to numerical ordering. For example, the numbers 2000, 2020, 2035, 2100 and 2101 are in numerical and lexicographical order.

Physical Location Identifier (PLID)

5.4 The Physical Location Identifier (PLID) is used by the system to define the location of various circuits. The PLID gives the actual device address in terms of the cabinet/shelf/slot/circuit for the circuit concerned.

System Resource Considerations

5.5 Each *SX–2000* ICS is configured, before it is shipped, to a specific resource dimension and traffic capacity level according to the requirements of the customer. Combined, they determine the various resource limits available. Table 5–1, MITEL Traffic Capacity Levels (MTCLs), details the maximums for the traffic–related parameters. Table 5–2, MITEL Feature Resource Dimensions (MFRDs), details the maximums for each software–related parameter for each of the dimensions offered with the *SX–2000* ICS. These resource limitations apply to the programming of a system and must be respected when completing the forms.

Table 5–1 MITEL Traffic Capacity Levels

Resource	MTCL 1	MTCL 5	MTCL 10	MTCL 15	MTCL 20	MTCL 30	MTCL 31	MTCL 32
Call Processes (Note 1.)	120	200	360	460	1280	1520	1280	1720
Callbacks per System	30	40	100	128	313	350	260	240
Camp–ons to a Group per System	5	8	20	30	84	140	140	50
Camp–ons to a Device per System	16	24	48	64	172	250	144	130
Hard Holds per System	30	40	100	128	313	350	260	240
Maximum Simultaneous Two Party Calls	60	100	180	230	640	760	640	860
SUPERSET 4 Telephone Mode Processes (Note 2.)	6	6	12	14	44	25	50	37
Wake–up Calls in 1 Minute	20	33	60	76	213	253	213	286
Wake–up Calls in 5 Minutes	80	133	240	304	852	1012	852	1144

Notes: 1. A call process is equivalent to one party in a call; e.g., in a call where two parties are talking and a third is on hold (consultation call), there are three call processes involved. An eight–party conference call consists of eight call processes.

2. The following telephone keys are considered Mode Processes:

(a) *SUPERSET 4*: Program soft key
Name soft key
Account Code soft key
Display hard key
Select Features hard key
Threshold Alert line appearance key, when pressed

(b) *SUPERSET 4* DN and *SUPERSET 430*:
Superkey hard key
Messaging soft key
Phonebook soft key
Account Code soft key

Table 5–2 MITEL Feature Resource Dimensions (MFRD)

Feature Name	MFRD 1	MFRD 2	MFRD 3	MFRD 7	MFRD 12	MFRD 20	MFRD 21	MFRD 22	MFRD 23	MFRD 24
Attendant Console Groups	8	12	12	24	48	36	36	36	60	60
Attendant Consoles Per Attendant Console Group	15	15	15	15	15	15	15	15	15	15
Broadcast Groups	180	360	600	750	1875	1126	3200	1875	1250	750
Sets per Broadcast Group	16	16	16	16	16	16	16	16	16	16
Call Progress Tone Plans	100	100	100	100	100	100	100	100	100	100
Call Rerouting Always Alternates	16	20	36	64	176	210	120	150	150	176
Call Rerouting 2nd Alternates	16	16	16	16	32	38	32	32	32	42
Call Rerouting 1st Alternates	26	60	110	256	336	400	336	336	336	336
Classes Of Restriction (COR)	64	64	64	64	96	96	96	96	96	96
COR Groups	64	64	64	64	64	64	64	64	64	64
Classes Of Service (COS)	64	64	64	64	96	96	96	96	96	96
Conferees per Conference	8	8	8	8	8	8	8	8	8	8
Conferees per System: With MC card, MTCL 1 and 5 (see Note 1.): With MC card, MTCL 10 or greater: With MC II card, any MTCL: With Conference card and any MTCL:	15 12 24 63	15 12 24 63	15 12 24 63	15 12 24 63	15 12 24 63	15 12 24 63	15 12 24 63	15 12 24 63	15 12 24 63	15 12 24 63
Conferences per System: With MC card, MTCL 1 and 5 (see Note 1.): With MC card, MTCL 10 or greater: With MC II card, any MTCL: With Conference card and any MTCL:	5 4 8 21	5 4 8 21	5 4 8 21	5 4 8 21	5 4 8 21	5 4 8 21	5 4 8 21	5 4 8 21	5 4 8 21	5 4 8 21
Dataset Circuit Descriptors	32	32	32	32	32	32	32	32	32	32
Dataset Groups	10	10	10	10	45	45	35	160	45	45
Datasets per Dataset Group	50	50	50	50	50	50	50	50	50	50
Day Zones per Week	3	3	3	3	3	3	3	3	3	3
Day–Time Zones	4	4	4	4	4	4	4	4	4	4
Default Account Codes	20	50	70	100	200	200	200	190	400	225
Departments	50	50	50	50	700	700	700	700	700	1500
Digit Modification Tables	256	256	256	256	256	256	256	256	256	256
Digit Tree Blocks	600	600	600	600	2000	2000	2000	2000	2400	2000
DTE Terminal Profiles	16	16	16	16	16	16	16	16	16	16
DTS Service Numbers	8	10	16	32	64	64	200	64	64	64
Hunt Groups	14	20	36	64	176	200	120	150	150	176
Sets per Hunt Group (see Note 3.)	64	64	64	64	64	64	64	64	64	64
Independent Account Codes	400	400	400	512	1000	1000	1000	1000	11000	1000
Intercept Numbers	32	32	32	32	32	32	32	32	32	32
Interconnect Numbers	64	64	64	64	64	64	64	64	64	64
Locations	20	30	35	50	70	70	70	70	70	150
Modem Groups	4	4	6	10	15	15	10	20	15	10

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Table 5–2 MITEL Feature Resource Dimensions (MFRD) (continued)

Feature Name	MFRD 1	MFRD 2	MFRD 3	MFRD 7	MFRD 12	MFRD 20	MFRD 21	MFRD 22	MFRD 23	MFRD 24
Modems per Modem Group	6	8	12	20	40	40	40	40	40	40
Multiline Set Status Message Languages	3	3	3	3	3	3	3	3	3	3
Multiline Set Status Messages per Language	20	20	20	20	20	20	20	20	20	20
Node Identifiers	5	5	5	5	5	5	5	5	5	5
Paging Zones (see Note 2.)	2	2	2	16	16	16	16	16	16	16
Personal Speed Call (PSC) Users	36	100	200	500	500	700	100	500	500	300
PSC Numbers (avg. 12 digits)	180	500	1000	2500	2500	3500	500	2500	2500	1500
Pickup Groups	16	50	70	100	200	150	130	170	170	200
Sets per Pickup Group	32	32	32	32	32	32	32	32	32	32
Routes	200	200	200	200	200	200	200	200	200	200
Route Lists	128	128	128	128	128	128	128	128	128	128
Routes per Route List	6	6	6	6	6	6	6	6	6	6
Route Plans	32	32	32	32	32	32	32	32	32	32
Station Circuit Descriptors	16	16	16	16	16	16	16	16	16	16
System Account Codes	16	16	16	16	24	24	24	24	30	24
System Speed Call	100	150	250	500	600	500	400	600	600	600
SUPERSET 4 Callback Messages Capacity	20	20	100	200	500	200	500	500	500	200
Telephone Directory	300	500	900	1360	3600	4500	3000	3070	3070	9300
Time Zones per Day	4	4	4	4	4	4	4	4	4	4
Trunk Groups	14	20	34	64	112	112	71	112	212	112
Trunks per Trunk Group	50	60	70	96	175	175	175	175	175	175
Trunk Service Numbers	18	40	50	64	150	150	150	150	312	150

Page 2 of 2

Notes: 1. MTCL = MITEL Traffic Capacity Level

2. The *SX–2000* S and VS systems support a maximum of two paging zones. Up to 16 zones can be supported on the *SX–2000* SG and *SX–2000* FD systems.

3. With ACD Hunt Mode up to 128 sets may be programmed in one hunt group, at MFRD 12 or higher.

Table 5–3 System Hardware Dimensions

Parameter Name / MFRD Level (Note 1.)	MFRD 1	MFRD 2	MFRD 3	MFRD 7	MFRD 12	MFRD 20	MFRD 21	MFRD 22	MFRD 23	MFRD 24
Data Transceiver Circuits	24	24	24	24	48	48	48	48	48	48
System Devices (Note 2.):										
– Datasets	48	64	96	112	400	400	362	1000	208	208
– DTMF Receivers	64	64	88	128	128	160	48	96	128	64
– ONS/OPS Lines	192	352	752	1360	2504	3500	456	1504	1504	1360
– Trunks (including CEPT and DS1 Trunks)	112	144	204	312	628	628	400	628	1300	625
– Multiline Telephones	72	144	240	300	756	450	1600	756	504	300
Modems	6	8	12	20	40	40	30	100	40	40
Tone Detector Circuits (Note 3.)	32	32	32	32	32	32	32	32	32	32
SUPERSET 7 DN Consoles (Note 5.):										
– With MC card, MTCL 1 or 5 (Note 6.)	4	5	5	5	5	5	5	5	5	5
– With MC card, MTCL 10 or greater	4	8	8	8	8	8	8	8	8	8
– With MC II card, any MTCL	4	8	8	8	8	8	8	8	8	8
SUPERSET 7 Consoles (*SX–2000* SG system)	4	8	8	16	24	24	24	24	32	32
Total Attendant Consoles (Note 7.)	4	8	8	16	24	24	24	24	48	48

Notes: 1. MFRD = MITEL Feature Resource Dimension.

2. Although the system dimensions permit support for these figures, the following restrictions apply:

   (a) The *SX–2000* VS system has a physical maximum of 240 ports (CEPT and DS1 trunks excluded).

   (b) The *SX–2000* S system has a physical maximum of 384 ports per cabinet, for a total of 1536 ports in the maximum configuration of four cabinets (CEPT and DS1 trunks excluded).

   (c) The *SX–2000* SG system has a physical maximum of 5376 ports in the maximum configuration of four cabinets (CEPT and DS1 trunks excluded).

   (d) The *SX–2000* FD system has a physical maximum of 2112 ports in the maximum configuration of twelve cabinets (CEPT and DS1 trunks excluded).

3. A Tone Detector Card must be used to achieve the maximum 32 circuits. The Tone Detector Card's 32 circuits replace the tone detection resources on the *SX–2000* S system Main Controller (10 circuits).

4. *SUPERSET 7* DN consoles are only available on *SX–2000* S, *SX–2000* FD, and *SX–2000* VS systems, and *SUPERSET 7* consoles are only available on the *SX–2000* SG system.

5. For the purposes of hardware dimensions a *SUPERCONSOLE 1000* attendant console with its printer port enabled is counted as a *SUPERSET 7* DN console.

6. MTCL = MITEL Traffic Capacity Level.

7. The difference between the maximum number of *SUPERSET 7* DN Attendant Consoles allowed and the total number of Attendant Consoles allowed may be made up with *SUPERCONSOLE 1000* Attendant Consoles without the printer port enabled.

6. ACCOUNT CODE FORMS

General

6.1 Account Code forms define various types of account codes which are used for capturing resource usage for billing purposes, and for manipulating system resources. They may also be outpulsed on trunks as a result of Automatic Route Selection (ARS) programming. The forms described in this Part are:

(a) **Default Account Code Definition.** Defines device–specific account codes under which SMDR data is to be collected every time the devices sharing a given account code are used to place or receive calls.

(b) **Independent Account Code Definition.** Defines user account codes which are entered when dialing from a given device to permit access to ARS and to assign an Account code–dependent COS and COR to the device for the duration of the call.

(c) **System Account Code Definition.** Defines account codes which are outpulsed on trunk routes during ARS. These account codes are referenced in the Digit Modification Assignment form where they appear as 3–digit account code markers.

Default Account Code Definition

Description

6.2 This form is used to assign account codes to all devices in the *SX–2000* ICS. The form is referenced through the Default Account Code Index entry in the Station Service Assignment form. Default Account codes may be included in SMDR records by setting the "Report Account Codes" parameter in the SMDR Options Assignment form to "yes".

Conditions

The Account Code Number entries must be more than or equal to two digits in length, and less than or equal to 12 digits in length.

Form Headings:

- **Account Code Index:** Preprinted list of Account Code Index numbers which are used as Account Code markers in the Digit Modification Assignment form.
- **Account Code Number:** Enter the required account code.

DEFAULT ACCOUNT CODE DEFINITION

Account Code Index	Account Code Number
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16 (etc.)	

F00006

Independent Account Code Definition

Description

6.3 This form is used to define independent account codes and to assign a Class of Service (COS) and a Class of Restriction (COR) to them. These account codes may then be used by individuals to change the default COS and COR assigned to a particular station set in order to invoke some COS–controlled features not permitted at the set, or to enable connection to COR–controlled ARS routes when that connection is not permitted by the COR assigned to the set being used for the call. When the independent account code is used, it is written into the SMDR record (overriding the default account code) if the "Report Account Codes" parameter in the SMDR Options Assignment form is set to "yes". Independent account codes are verified by the system at the time they are entered.

Conditions

1. The Account Code Number entries must be more than or equal to two digits in length, and less than or equal to 12 digits in length.

2. The maximum number of Independent Account codes is given by that entry in Table 5–2.

Form Headings:

- **Account Code:** Enter, on the paper form, a number from 1 up to the allowable limit, as given by the "Default Account Code" parameter of Table 5–2, for the site being configured.
- **Class of Service:** Enter the Class of Service associated with the account code.
- **Class of Restriction:** Enter the Class of Restriction Number associated with the account code.

INDEPENDENT ACCOUNT CODE DEFINITION

Account Code	Class of Service	Class of Restriction

F00007

System Account Code Definition

Description

6.4 This form is used to assign account codes which may be outpulsed on trunk routes during ARS. The form entries are referenced through Account Code markers entered in the Digit Modification Assignment form.

Conditions

1. The Account Code Number entries must be more than or equal to two digits in length, and less than or equal to 12 digits in length.
2. Consult the "System Account Code" parameter in Table 5–2 for the maximum index permitted in this form.

Form Headings:

- **Account Code Index:** Preprinted list of Account Code Index numbers which are used as Account Code markers in the Digit Modification Assignment form.
- **Account Code Number:** Enter the required account code.

SYSTEM ACCOUNT CODE DEFINITION

Account Code Index	Account Code Number
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	

Account Code Index	Account Code Number
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	

F00008

7. ATTENDANT CONSOLE FORMS

General

7.1 Attendant Console forms define the prime directory number, interconnect rights and the softkeys of Attendant Consoles, and relate these to the PLIDs of each workstation. The forms in this group are:

(a) **Attendant Assignment:** Assigns directory numbers and interconnect rights to *SUPERSET 7* workstations and *SUPERCONSOLE 1000* and *SUPERSET 7000*™ Attendant Consoles.

(b) **Attendant Softkey Assignment:** Assigns Directory Numbers, defined in the Telephone Directory form, to the softkeys of an Attendant Console. The associated softkey labels are also defined in the Telephone Directory form.

Attendant Assignment

Description

7.2 This form is used to assign Directory Numbers and Interconnect Numbers to all Attendant Console line circuits in the system. All line circuits are listed in ascending order, beginning with the lowest cabinet/shelf/slot/circuit numbers. Assign the required Directory Number, Softkey Appearance, and Interconnect Number to each circuit.

Conditions

1. The *SUPERCONSOLE 1000* and the *SUPERSET 7000* Attendant Consoles each have 10 softkeys. Of these, only six can be programmed as line appearances, corresponding to keys F2 to F7. Each softkey assignment can specify an Attendant Directory Number to which trunk and internal calls may be routed.

2. The directory numbers used for answering trunk calls are assigned in the Trunk Service Assignment Form as Non–dial–in trunk answer points. If the same number is assigned to different consoles, including *SUPERSET 7* workstations as well as *SUPERCONSOLE 1000* and *SUPERSET 7000* consoles, this implicitly defines a Broadcast group.

Form Headings:

- **Cabinet, Shelf, Slot, Circuit:** System–generated, protected fields indicating the card position and circuit used for the associated console.
- **Card Type:** A system–generated, protected field indicating the card type.
- **Device Type:** A system–generated, protected field indicating the type of console attached to the card. The field displays the *SUPERCONSOLE 1000* console (SC1000), the *SUPERSET 7000* console (SS7000) or the *SUPERSET 7* (Superset 7) workstation.
- **Directory Number:** A number up to seven digits in length assigned to the line circuit. This number represents the set's directory number. This number will be assigned to the set's corresponding softkey for the Call Answer feature.
- **Softkey Appearance:** Enter a number between 2 and 7, indicating on which softkey call indications to the set are to appear. The softkeys are numbered 1 through 7 from left to right. The first softkey is reserved for Recall appearances and cannot be programmed.
- **Interconnect Number:** Enter a number, between 1 and 64, that references an entry in the Interconnect Restriction Table where the interconnect rights for the workstation are defined.
- **Language:** System–generated, protected field indicating the language in use on an Attendant Console.

ATTENDANT ASSIGNMENT

Cabinet	Shelf	Slot	Circuit	Card Type	Device Type	Directory Number	Softkey Appearance	Interconnect Number	Language

F00009

Attendant Softkey Assignment

7.3 This form is used to define the Directory Numbers to be associated with the line–appearance programmable softkeys of a *SUPERSET 7, SUPERCONSOLE 1000,* or *SUPERSET 7000* Attendant Console. Each softkey assignment specifies an attendant Directory Number to which trunk and internal calls may be routed (for example, Dial 0 calls). The Directory Numbers used for this function are assigned in the Trunk Service Assignment form as Non–Dial–In Trunk Answer Points. Although these numbers were specifically assigned to incoming trunks, they may also be dialed from any station in the system to access a specific attendant, or attendant group. If the same Directory Number is assigned to different consoles, this implicitly defines a Broadcast Group consisting of all consoles sharing the same Directory Number on any of their softkeys. The form also shows the label of each softkey, as it appears on the console's display. These labels are assigned in the Telephone Directory.

Conditions

1. The first softkey on the console workstation is reserved for recalls to the attendant; the Directory Number of the key is not programmable.

2. If the same Directory Number appears at more than one console, all sets involved will form part of a broadcast group.

3. A *SUPERSET 7* DN console cannot be added to an attendant group assigned as an Autovon Reroute Point.

4. The last line appearance of an Autovon Reroute Point attendant group may not be deleted.

Form Headings:

- **Directory Number:** Enter the directory number of the console, as defined in the Attendant Assignment form.
- **Softkey Appearance:** A system–generated, protected field indicating the softkey number on which calls to the set's directory number will appear, as defined in the Attendant Assignment form.
- **Cab,Shlf,Slot,Cir:** A system–generated, protected field indicating the card coordinates of the line circuit associated with the console, as defined in the Attendant Assignment form.
- **Softkey Number:** Prenumbered entries from 2 to 7, which designate the six softkeys which are programmable. The softkeys are numbered from left to right.
- **Directory Number:** Enter the appropriate Directory Number which is to appear at the softkey. This Directory Number corresponds to an Answer Point defined in the Trunk Service Assignment form.
- **Softkey Label:** A system–generated, protected field indicating the softkey designation which is to be displayed on the console's display. This label is defined in the Telephone Directory form.

ATTENDANT SOFTKEY ASSIGNMENT

Directory Number:

Softkey Appearance:

Device Type:

Cab, Shlf. Slot, Circ:

Softkey Number	Directory Number	Softkey Label

F00010

8. AUTOMATIC ROUTE SELECTION FORMS

General

8.1 The Automatic Route Selection (ARS) forms are an extension of the trunk forms. These forms carry the assignment and grouping of outgoing trunks one step further in allowing the formation of trunk routes for which Least–Cost Routing, Toll Control, and Digit Modification plans may be defined. The trunk routes are accessed as a function of the digits dialed by a station user. Refer to Practice 9125–060–220–NA, Automatic Route Selection, for a complete description of this feature. The ARS forms are:

(a) **Automatic Route Selection Assignment.** This form initiates the routing of trunk calls based on the digits dialed.

(b) **Call Progress Tone Detection Plan Assignment.** This form specifies tones to be detected and actions to be taken for each of 100 tone plans. Each tone plan can be referenced in the Digit Modification Assignment form through a tone marker. Practice 9125–060–180–NA, Engineering Information, should be consulted to obtain frequency and cadencing information pertinent to the various tone types supported in North America.

(c) **Class of Restriction Group Assignment.** This form gathers Class of Restriction (COR) Numbers into Class of Restriction groups for the Route Assignment and Automatic Route Selection Assignment forms.

(d) **Day and Time Zone Assignment.** This form defines which days of the week and which hours of the day constitute the Day and Time Zones used in the Route Plan Assignment form.

(e) **Digit Modification Assignment.** Allows the definition of a digit deletion/insertion plan. The form allows the entry of information elements in the outpulsing sequence. This permits the definition of complex dialing patterns where the system must wait for dial tone at different stages of outpulsing and outpulse account codes and other information elements at given stages in the call.

(f) **Route Assignment.** Associates a trunk group to a Route Number. The route number is referenced in the Route List and Route Plan forms. The form consists of a list of Route Numbers specified as Termination type in the ARS Assignment form. The form is also linked to a line in the Digit Modification Assignment form through the Digit Modification Number entry.

(g) **Route List Assignment.** Provides a list of trunk routes to be selected according to cost and status. A type of terminal hunting is performed through this form by the ARS software in that the list of routes is scanned beginning with the first route specified, progressing to the more expensive routes only if the less costly alternatives are busy.

(h) **Route Plan Assignment.** Provides a method of presenting different routes to calls as a function of day and time. This form allows the definition of route plans in which 12 possible routes are presented to a call in three groups of four routes. Each group of routes is in effect on certain days of the week; each of the four routes in a group is in effect for a certain number of hours during the day. The exact grouping of days and hours is defined in the Day and Time Zone Assignment form.

Automatic Route Selection Assignment

Description

8.2 This form is used to initiate routing of calls when certain digits are dialed from a station. The ARS Assignment form, through the Termination entry, will route trunk calls to the Route Plan Assignment, the Route List Assignment or the Route Assignment form, where the actual routing of the call will be performed. In addition, the form is used to perform a Class of Restriction screening by restricting a set of COR numbers defined in the COR Group Assignment form from having access to the specified routes.

Conditions

1. The Digits Dialed entries for a given Leading Digits entry must be unique.

2. The number resulting from the Leading Digits and Dialed Number entries must form a unique number in the digit tree.

3. The ARS Leading Digits should not conflict with any feature access codes.

Form Headings:

- **Leading Digits:** These are the digits which must be dialed in order to access the routing information defined in the form.
- **Second Dial Tone**: Enter "yes" to enable second dial tone after the "Leading Digits" have been dialed, "no" to disable.
- **COR Group Number:** Enter a COR Group Number. This number corresponds to a line in the COR Group Assignment form where the Classes of Restriction NOT having access to the routes in this form are listed.
- **Digits Dialed:** Enter the partial or complete external numbers dialed to access subsequent routing information. The Digits Dialed entry may be up to 25 digits in length. Wildcard digits are permitted in this field. A wildcard digit (identified as an "X") will allow any digit to be dialed. A field entry of 10XXX3, for example, would permit the user to dial 10, followed by any three digits, followed by a 3.
- **Number of Digits to Follow:** Enter the quantity of digits (from 0 to 24) expected to follow the partial number specified under Digits Dialed. If the quantity of digits expected is variable, enter "unknown".

- **Termination:**

  Type: Enter "Route" if the calls to the specified digits are to go directly to a route, "List" if the calls are to go to a route list or "Plan" if the calls are to go to a route plan.

  Number: Enter a Route Number, Route List Number, or Route Plan Number which will link the entry to an entry in the Route Assignment, Route List or Route Plan Assignment form where routing information will be defined.

AUTOMATIC ROUTE SELECTION ASSIGNMENT

Leading Digits:

Second Dial Tone (yes/no): COR Group Number:

Digits Dialed	Number of Digits to Follow	Termination	
		Type	Number

F00011

Call Progress Tone Detection Plan Assignment

8.3 This form is used to define a single tone and actions to be performed for up to 100 tone plans. These Tone Plans are referenced, through Tone Markers, in the Digit Modification Assignment form. Practice 9125–060–180–NA, Engineering Information, should be consulted to obtain frequency and cadencing information pertinent to the various tones supported in North America (see North American Tone Plan and Levels).

Conditions

1. Dial tone is detected by an algorithm that monitors frequency and energy characteristics of the incoming signal. The algorithm relies on the assumption that no other tone is expected at that time.

2. Dial tone is detected when any large signal is present for sufficient time. This technique can detect dial tones that are not listed in the table of detectable tones below, noise based dial tones, and tones which have corrupted frequency characteristics.

3. Frequency detection of dial tone is much quicker than the energy detection technique.

4. For accurate results, only one tone should be entered for each Tone Plan Number.

Form Headings:

- **Tone Plan Number:** Enter a number between 0 and 99 to identify the tone plan.
- **Maximum Wait for a Tone:** Enter a value between 0 and 99 to indicate the duration (in seconds) for which the system will wait for any tone before taking the action indicated in the "Action on time–out" entry.
- **Action on Time–out:** Enter one of the possible actions defined below when the time period for a tone expires.
- **Tone to Detect:** Enter the tone, as defined below, that is to be detected.

Detectable Tones	
Blank	Speech
NA dial tone mod 120	NA dial tone mod 133
NA specialized carrier dial tone	NA reorder tone
NA priority ringback	UK dial tone
UK congestion tone	UK NU tone
NZ number unobtainable	NZ dial tone
NA/UK precise audible ringback	NA/UK precise dial tone
NA/UK/NZ busy tone	NA/UK/NZ audible ringback tone
IT dial tone	MA dial tone
GE dial tone	

- **Action to Take:** Enter the action which is required, as indicated below, if the given tone is detected.

Permitted Actions	
Blank	Outpulse default
Outpulse DTMF	Busy tone and release
Reorder tone and release	Give answer
Try Next Route	

CALL PROGRESS TONE DETECTION PLAN ASSIGNMENT

Maximum Wait for a Tone (0–99 secs): ____

Tone Plan Number: _____ Action on Time–out: _____

Tone to Detect	Action to Take

F00012

Class of Restriction Group Assignment

Description

8.4 The COR Group Assignment form is used to gather COR numbers into groups for the Toll Restriction feature of the Automatic Route Selection package. The COR Groups define which Classes of Restriction cannot access a given outgoing trunk route. The form is a list of COR Group Numbers against which a series of COR numbers are entered to define the groups. Two methods are available to list COR group members. The first consists of enumerating the members and separating each number by a comma. The second method consists of ranging over a group of numbers by specifying the lower and upper value in the range, and separating the two by a dash. The COR Numbers themselves are numerical labels assigned through the Station Service Assignment and Trunk Service Assignment forms.

Conditions

1. COR numbers must be entered in ascending order within each group.

Form Headings:

- **COR Group Number:** Enter a number representing the COR Groups which can be defined. The maximum COR Number for each feature package is given by the "Classes of Restriction" parameter in Table 5–2 of this document.
- **Classes of Restriction For Group:** Enter the COR numbers as specified above. For example, COR numbers 1 through 9 would be listed as "1–9". COR numbers 1 through 5 and 7 and 9 would be listed as "1–5, 7,9".

CLASS OF RESTRICTION GROUP ASSIGNMENT

COR Group Number	Classes of Restriction For Group
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16 (etc.)	

F00013

Day and Time Zone Assignment

Description

8.5 Defines what days and hours constitute the three day and four time zones which make up a Day and Time Zone Plan. The Day and Time Zone Plans defined in this form are referenced in the Route Plan Assignment form. Up to four separate day and time zone plans may be defined. These plans are referred to in the Route Plan Assignment form.

Conditions

1. All the days of the week must be covered by the Day Zone Assignment.
2. All the hours of the day must be covered by the Time Zone Assignment.

Form Headings:

- **Day and Time Zone Number:** Enter a number from 1 to 4. This number will be referenced in the Route Plan Assignment form.
- **Day Zone:** Preprinted entries from Day Zone 1 through 3. Represents the three possible Day Zones in a Day and Time Zone Plan. Entries for the Day Zone are based on the days of the week. Enter the required days as "Monday", "Tuesday", "Wednesday", "Thursday", "Friday", "Saturday", and "Sunday".
- **Time Zone:** Preprinted entries from Time Zone 1 through 4. Represents the four possible Time Zones in a Day and Time Zone Plan. Time Zone entries are based on a 24–hour format, (i.e., numbers between "0" and "23"). A time range can be specified. For example, 9 – 12 is a valid entry.

DAY AND TIME ZONE ASSIGNMENT

Day and Time Zone Number:

Day Zone 1:
Day Zone 2:
Day Zone 3:

Time Zone 1:
Time Zone 2:
Time Zone 3:
Time Zone 4:

F00014

Digit Modification Assignment

Description

8.6 The Digit Modification Assignment form defines a digit modification plan for each Digit Modification Number. The plan specifies the number of digits to absorb from the dialed number and the digits to insert during outpulsing. To complete the form, first enter the quantity of leading digits to be deleted, then the digits to be inserted, including any tone markers, or system account code markers.

Conditions

1. The "Digits To Be Inserted" entries may be left blank, meaning that no digits are to be inserted.

2. The "Number of Digits to Absorb" value cannot be greater than the total number of digits dialed prior to digit modification.

3. More than one marker may appear side by side, indicating that the system is to detect multiple tones in sequence before resuming outpulsing.

Form Headings:

- **Digit Modification Number:** Numbered entries which are used to link the entry in this form to corresponding entries in the Route Assignment form. The first 16 entries are prenumbered. The maximum dimensions given by the "Digit Modification Table" parameter in Table 5–2 of this document must not be exceeded.
- **Number of Digits to Absorb:** Enter the quantity of dialed digits which are to be deleted from the dialed number. Up to 26 digits may be deleted. Default: 0.
- **Digits to be Inserted:** This entry may be up to 36 digits in length. Enter the digits which are to be outpulsed. If tone markers are used, the following conventions apply:

  – <Tnn> – where T indicates a tone marker and nn is a number from 0 to 99, representing the tone plan number. Each tone marker occupies three digits and must be counted in the 36–digit limit.

  – <Ann> – where A indicates a system account code marker and nn is a number, representing the System Account Code Index. Each account code marker occupies three digits and must be counted in the 36–digit limit. Refer to the "System Account Codes" in Table 5–2 for the maximum System Account Code Index permitted for the site being configured.

  In addition, systems that have the Autovon feature package installed can insert a character to indicate outgoing call precedence:

  – X – where X is one of "A", "B", "C" or "D", to indicate the call priority. "A" represents the highest priority, Flash Override; "B" indicates Flash priority; "C" is for Immediate priority; "D" is for Priority; and no digit represents a Routine call.

DIGIT MODIFICATION ASSIGNMENT

Digit Modification Number	Number of Digits to Absorb	Digits to be Inserted	Final Tone Plan/ Information Marker
1	0		
2	0		
3	0		
4	0		
5	0		
6	0		
7	0		
8	0		
9	0		
10	0		
11	0		
12	0		
13	0		
14	0		
15	0		
16 (etc.)	0		

F00015

Systems that have the Advanced Analog Network feature package installed can insert the following information elements into the outpulsed digit string:

- <E> – where E specifies the caller's extension number. When this number is inserted in the outpulsing string, the user's extension number is inserted as per the internal dialing plan. The extension number can be up to seven digits long. When networking with another *SX–2000* system at the other end of the line, the "#" digit is required to terminate the extension number. In such cases the proper entry sequence is <E># where # is the terminating character.

- <d> – where d is the caller's dialed or default account code. The number of account code digits in this field must be identical to the number of account code digits present in the user's account code. If no dialed account code exists and no default account code is programmed against the caller's station it is not necessary to outpulse any digits. When networking with another *SX–2000* system at the other end of the line, the "#" digit is required to terminate the account code number. In such cases the proper entry sequence is <d># where # is the terminating character.

– <N> – where N is the PBX Node ID. When this marker is encountered, the primary programmed node ID of the PBX is outpulsed to the called extension's PBX. If no node ID is programmed, nothing is outpulsed. A node ID can be up to seven digits long.

The Advanced Analog Network feature package is documented in Practice 9125–060–606–NA, Advanced Analog Networking, and the Autovon feature package is documented in Practice 9125–060–626–NA, Autovon.

- **Final Tone Plan/Information Marker:** Enter either a tone marker or an account code marker, as specified above. This final marker will be appended to the digits outpulsed.

Route Assignment

Description

8.7 The Route Assignment form assigns Trunk Group, COR Group, and Digit Modification Numbers to Route Numbers. The form also specifies at which point in the output stream overlap outpulsing is to begin.

Conditions

There are no Conditions other than those listed under Form Headings.

Form Headings:

- **Route Number:** System–generated numbers ranging from 1 to the maximum specified by the "Routes" parameter in Table 5–2 of this document. These numbers are referred to in the Termination entry of the Automatic Route Selection Assignment and the Route Plan Assignment forms.
- **Trunk Group Number:** Enter a Trunk Group Number which was defined in the Trunk Group Assignment form.
- **COR Group Number:** Enter a COR Group Number. This number corresponds to a line in the COR Group Assignment form where the Classes of Restriction NOT having access to this route are listed. Default value is 1.
- **Digit Modification Number:** Enter Digit Modification Number. This number will link the corresponding route to a line in the Digit Modification Assignment form. Default value is 1.
- **Digits Before Outpulsing:** Enter a value in the range of "1" to "25" digits, in increments of 1. This value indicates at which point in the processing of external numbers overlap outpulsing is to begin. This is an optional field. It may be left blank if no overlap outpulsing is required.

ROUTE ASSIGNMENT

Route Number	Trunk Group Number	COR Group Number	Digit Modification Number	Digits Before Outpulsing
1		1	1	
2		1	1	
3		1	1	
4		1	1	
5		1	1	
6		1	1	
7		1	1	
8		1	1	
9		1	1	
10		1	1	
11		1	1	
12		1	1	
13		1	1	
14		1	1	
15		1	1	
16 (etc.)		1	1	

F00016

Route List Assignment

Description

8.8 The Route List Assignment form provides a list of routes to a call, sorted according to customer requirements and cost. During call processing the list will be used to select from up to three available routes (listed by increasing cost). Each line in the Route List Assignment form allows the definition of three routes, and warning tone (wt) options for the last two routes. To complete this form, enter the required route numbers next to the route list number. For the expensive routes, enter a "yes" in the "wt" column to activate the expensive warning tone feature.

Conditions

1. Not all three choices need be specified for any list number.

2. Routes can not be repeated in the Route List, but can appear in different route lists.

3. If an MSDN/DPNSS or MSAN/APNSS link is available, it should be the first choice in a route list, as it will provide more features than a non–network link.

Form Headings:

- **List Number:** A system–generated number from 1 to the maximum specified by the "Route List" parameter in Table 5–2 of this document. These are the route list numbers entered in the termination column of the ARS Assignment and Route Plan Assignment forms.
- **1st Choice Route:** Enter the first choice (i.e., least expensive) route. This route is identified by a 1–, 2–, or 3–digit number.
- **2nd and 3rd Choice Route:** Enter the required route number.
- **wt (warning tone):** Enter "Y" if warning tone is to be provided when the route is accessed. Entering "N" or leaving the column blank disables warning tone for the route. The default value allocated by the system for this field is "N" (No).

ROUTE LIST ASSIGNMENT

NOTE: wt = warning tone required (Yes/No)

LIST NUMBER	1st Choice Route	2nd Choice Route	wt	3rd Choice Route	wt
1			N		N
2			N		N
3			N		N
4			N		N
5			N		N
6			N		N
7			N		N
8			N		N
9			N		N
10			N		N
11			N		N
12			N		N
13			N		N
14			N		N
15			N		N
16 (etc.)			N		N

F00017

Route Plan Assignment

Description

8.9 This form is used to define time–of–day–dependent routes and route lists. Each plan accepts up to 12 different routes or route lists, arranged in groups of four. Each group represents a selection of routes for a given day zone, and each of the four routes within a group represent the routes available during a given time zone. The day and time zones referred to in this form are defined in the Day and Time Zone Assignment form. The Route Plans defined in this form are referenced in the Automatic Route Selection Assignment form.

Conditions

1. If a given Zone does not have an associated route or route list, calls to the Dialed Number referencing the given route plan will not be allowed in the given Day and Time Zone.

Form Headings:

- **Route Plan Number:** Enter the number that identifies the Route Plan. Entries may be from 1 to the maximum specified by the "Route Plans" parameter in Table 5–2 of this document.
- **Day and Time Zone Number:** Enter the number of the Day and Time Zone plan which will be used to identify the day and time zones referred to in the form. Time Zones (Zone 1, Zone 2, Zone 3, Zone 4) and Day Zones (Zone 1, Zone 2, Zone 3): These 12 zones form a grid in which time–dependent routes may be entered. Each day and time zone is assigned to given days of the week and hours of the day according to the Day and Time Zone Assignment form.
- **Day Zone:** This is a system–generated field which lists the Day Zone numbers from 1 to 3.
- **Zone 1, 2, 3 and 4:** Enter the termination type and number. The type is either a Route (enter "Route") or Route List (enter "List"). The number is either a one, two or three digit number which identifies the Route or Route List.

ROUTE PLAN ASSIGNMENT

Route Plan Number: _____ Day and Time Zone Number: _____

Day Zone	Zone 1 Termination		Zone 2 Termination		Zone 3 Termination		Zone 4 Termination	
	Type	Number	Type	Number	Type	Number	Type	Number

F00018

9. CALL REROUTING FORMS

General

9.1 The Call Rerouting forms define rerouting on a per–directory number basis for calls that cannot be completed in the normal fashion. Up to three rerouting alternatives may be programmed. The call rerouting forms are:

(a) **Call Rerouting Always Alternative Assignment.** A form which is used to assign an alternate or centralized answer point based upon time of day as defined by the system service states "Day", "Night 1" or "Night 2".

(b) **Call Rerouting Assignment.** This form defines rerouting functions on a per–directory number basis for intercepts due to conditions at the called party's number which do not permit call completion. This form defines three alternative methods of rerouting the call. Rerouting is a function of both the condition causing the need for rerouting, and the calling device. Two alternatives are provided in the event that one or the other routings cannot be completed. A third alternative is provided in the event that the other two alternatives are not appropriate.

(c) **Call Rerouting First Alternative.** This form is used to specify the routing information for the first alternative rerouting. The routing information is defined based on the condition at the called party which caused rerouting, and the device from which the call originated.

(d) **Call Rerouting Second Alternative.** This form is used to specify the routing information for the second alternative rerouting.

Default Processing

9.2 System defaults are provided in the call rerouting forms. These defaults result in internal calls being rerouted to a busy or reorder tone, and incoming trunk calls being rerouted, after the COS–controlled "No Answer – Recall Timer" expires, to the device that originally handled the call. This usually is an Attendant.

Programming Considerations

9.3 In the event that the system defaults are insufficient and rerouting is required, the following points should be considered.

(a) The COS "Call Forward – No Answer Timer" determines the length of time a call will ring a station before it is forwarded to the next programmed destination. The timer is reset each time the call is forwarded.

(b) The System Option "Call Rerouting Timer" determines the length of time from initial call setup until the unanswered call is rerouted to the destination programmed in the Call Rerouting Second Alternative Assignment form. The timer remains active through all COS–controlled Call Forward programming that may be activated at the destination station(s).

(c) For ACD applications, the Class of Service option *"ANSWER PLUS* – System Reroute Timer" controls second level rerouting. When the timer expires, the call is rerouted from the First Alternative to the Second Alternative.

(d) The COS "No Answer – Recall Timer" determines the length of time that the station programmed as the last alternate answer point will ring before the call is rerouted back to an attendant or station if it is a transferred call.

(e) Call rerouting does not apply to datasets.

(f) The reroute Always destination of a Phantom Group must be an MCD or an ACD voice group or another Phantom group.

Call Rerouting Always Alternative Assignment

Description

9.4 This form is used to specify routing information for calls routed to the always alternative numbers. The rerouting information is defined based on the originating device (DID trunk, TIE trunk, CO trunk or internal call). To complete the form, specify, under each of the originating devices, the desired routing: "reroute" to reroute calls to the directory number specified in the last column of the form or "no reroute" to permit the call to be completed in the normal fashion. Initially all subfields of this form are set by default to "no reroute".

Conditions

1. The Directory Number rerouted must be one of the following:
   - the Directory Number of a station;
   - the Directory Number of a Multiline Set single line;
   - the Directory Number of a Key System, Multicall, or mixed multi–line appearance group;
   - a hunt group Directory Number;
   - Attendant Console Group Directory Number;
   - a system speed call number.
2. The Directory Number field must be blank if all of the originating device fields (DID trunk, TIE trunk, CO trunk or internal call) are set to "no reroute".
3. See the introductory remarks of this Part for information on programming considerations and default processing.

Form Headings:

- **Always Alternative Number:** A system–generated, protected field containing the list of Always Alternative numbers. The maximum Always Alternative number for each system dimension is given by the "Call Rerouting Always Alternatives" parameter in Table 5–2.
- **DID, TIE, CO, INTERNAL:** For each device type, enter: "reroute" to reroute the call to the Directory Number specified in the last column of the form; leave the entry blank, or enter "no reroute" to permit the call to be completed in the normal fashion.
- **Directory Number Routed To:** Enter the Directory Number to which the call is to be routed.

CALL REROUTING ALWAYS ALTERNATIVE ASSIGNMENT

Always Alternative Number	ALWAYS Originating Device				Directory Number Routed To
	DID	TIE	CO	INTERNAL	
1	No Reroute	No Reroute	No Reroute	No Reroute	
2	No Reroute	No Reroute	No Reroute	No Reroute	
3	No Reroute	No Reroute	No Reroute	No Reroute	
4	No Reroute	No Reroute	No Reroute	No Reroute	
5	No Reroute	No Reroute	No Reroute	No Reroute	
6	No Reroute	No Reroute	No Reroute	No Reroute	
7	No Reroute	No Reroute	No Reroute	No Reroute	
8	No Reroute	No Reroute	No Reroute	No Reroute	
9	No Reroute	No Reroute	No Reroute	No Reroute	
10	No Reroute	No Reroute	No Reroute	No Reroute	
11	No Reroute	No Reroute	No Reroute	No Reroute	
12	No Reroute	No Reroute	No Reroute	No Reroute	
13	No Reroute	No Reroute	No Reroute	No Reroute	
14	No Reroute	No Reroute	No Reroute	No Reroute	
15	No Reroute	No Reroute	No Reroute	No Reroute	
16 (etc.)	No Reroute	No Reroute	No Reroute	No Reroute	

F00019

Call Rerouting Assignment

Description

9.5 This form defines rerouting functions on a per–Directory Number basis for calls which cannot be completed. This form is also used to qualify the type of Do Not Disturb feature available at each station as either DND for internal calls only, DND for internal and external calls, or DND for all calls except recalls. In order to initiate call rerouting, three alternatives are specified. The Alternative Number entries refer to lines in the First, Second and Always Alternative Call Rerouting forms where the actual rerouting is specified. Three alternatives are provided in the event that one or the other alternatives cannot be completed, or are not appropriate.

Conditions

See the introductory remarks of this Part for information on programming considerations and default processing.

Form Headings:

- **Directory Number:** A system–generated, protected field listing, in lexicographical order, Directory Numbers for all:

  1) standard telephones;
  2) Multiline Set single lines;
  3) Key System and Multi–Call groups;
  4) hunt groups;
  5) Attendant Consoles;
  6) Attendant Console groups.

- **Always Alternative Number:** Enter for each of the modes of service (Day, Night1, and Night2) an Always Alternative Number that points to an entry in the Call Rerouting Always Alternative Assignment form where the rerouting is defined for each type of originating device. The number entered must be within the limit specified for this parameter in Table 5–2.
- **Do Not Disturb Type:** Enter either "Internal" for DND applicable to internal calls only, "Int–Ext" for DND applicable to internal and external calls, or "All" for DND applicable to all calls, including attendant calls.
- **First Alternative Number:** Enter a First Alternative Number that points to an entry in the Call Rerouting First Alternative form where the first alternate answer point is defined for each originating device and intercept type. The number entered must be within the limit specified for this parameter in Table 5–2.
- **Second Alternative Number:** Enter a Second Alternative Number that points to an entry in the Call Rerouting Second Alternative form where the last alternate answer point is defined for each originating device. The number entered must be within the limit specified for this parameter in Table 5–2.

CALL REROUTING ASSIGNMENT

Directory Number	Always Alternative Number			Do Not Disturb Type	First Alternative Number	Second Alternative Number
	Day	Night 1	Night 2			

F00020

Call Rerouting First Alternative Assignment

Description

9.6 This form is used to specify the routing information for calls routed to the first alternate answer point. The routing information is defined based on the condition at the called number which caused rerouting (Busy/Do Not Disturb, or No Answer), and the device from which the call originated (DID trunk, Tie trunk, CO trunk, or internal call). In order to complete this form, enter one of three designations: "this" if routing is to go to the directory number specified in the last column of the form; "normal" if routing is to be determined by the system (normal is the system generated default and usually implies routing the caller to a busy or reorder tone); or "last" if routing is to bypass the directory number specified in the last column and go directly to the second alternative route.

Conditions

See the introductory remarks of this Part for information on programming considerations and default processing.

Form Headings:

- **First Alternative Number:** A system–generated, protected field containing the list of First Alternative numbers. The maximum First Alternative number for each system dimension is given in Table 5–2.
- **Busy/DND:** The actions described under this heading apply when the called number is busy or has Do Not Disturb set. For each type of Originating Device (i.e., DID, TIE, CO, Int), enter: "this" to route the call to the Directory Number entered in the last column; "normal" to allow the system to route the call to busy or reorder tone or "last" if the call is to be routed to the corresponding entry in the Call Rerouting – Second Alternative form.
- **No Answer:** The actions defined under this heading apply when the called number does not answer. The entries for each type of Originating Device are described above (see Busy/Do Not Disturb).
- **Directory Number Routed To:** Enter the Directory Number to which the call is to be routed. The Directory Number may be any station, speed call, hunt group pilot number, or Attendant Console answer point.

CALL REROUTING FIRST ALTERNATIVE ASSIGNMENT

First Alternative Number	Intercept Type								Directory Number Routed To
	Busy/DND Originating Device				No Answer Originating Device				
	DID	TIE	CO	Int	DID	TIE	CO	Int	
1	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
2	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
3	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
4	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
5	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
6	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
7	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
8	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
9	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
10	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
11	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
12	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
13	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
14	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
15	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
16 (etc.)	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	

F00021

Call Rerouting Second Alternative Assignment

Description

9.7 This form is used to specify the routing information for calls routed to the second alternate answer point. The routing information is defined for Busy, Do Not Disturb, and No Answer conditions at the called number, and the device from which the call originated (DID trunk, Tie trunk, CO trunk, or internal call). In order to complete this form, enter one of three designations: "last" or "this" if routing is to go to the directory number specified in the last column of the form, or "normal" if routing is to be determined by the system (normal is the system generated default and usually implies routing the caller to reorder tone).

Conditions

See the introductory remarks of this Part for information on programming considerations and default processing.

Form Headings:

- **Second Alternative Number:** A system–generated, protected field containing the list of Second Alternative numbers. The maximum Second Alternative number for each system dimension is given in Table 5–2.
- **Busy/DND/Answer:** The actions defined under this heading apply when the called number is busy, does not answer, or has Do Not Disturb set. For each type of Originating Device (i.e., DID, TIE, CO, Internal) enter: "this" or "last" to route the call to the Directory Number entered in the last column; or "normal" to allow the system to route the call to reorder tone.
- **Directory Number Routed To:** Enter the Directory Number to which the call is to be routed. The Directory Number may be any station, speed call, hunt group pilot number, or Attendant Console answer point.

CALL REROUTING SECOND ALTERNATIVE ASSIGNMENT

Second Alternative Number	Busy/DND/No Answer Originating Device				Directory Number Routed To
	DID	TIE	CO	Internal	
1	Normal	Normal	Normal	Normal	
2	Normal	Normal	Normal	Normal	
3	Normal	Normal	Normal	Normal	
4	Normal	Normal	Normal	Normal	
5	Normal	Normal	Normal	Normal	
6	Normal	Normal	Normal	Normal	
7	Normal	Normal	Normal	Normal	
8	Normal	Normal	Normal	Normal	
9	Normal	Normal	Normal	Normal	
10	Normal	Normal	Normal	Normal	
11	Normal	Normal	Normal	Normal	
12	Normal	Normal	Normal	Normal	
13	Normal	Normal	Normal	Normal	
14	Normal	Normal	Normal	Normal	
15	Normal	Normal	Normal	Normal	
16 (etc.)	Normal	Normal	Normal	Normal	

F00022

10. DATA CALL FORMS

General

10.1 The Data Call forms provide the means of identifying Data Terminal Equipment (DTE) to the Data Transceiver (DTRX) card, modem resources or Data Communications Equipment (DCE) to the *SX–2000* ICS, and *Host Command Interface* (*HCI*) link requirements. The forms used to specify the DTE interfaces to the DTRX card are part of an option available with the Advanced Data feature package. The Data Call forms are:

(a) **Application Profile Assignment:** This form is used to define the application access characteristics for a variety of system applications. The Application Profile Number defined on this form is referenced in the Dataset Assignment Form, which in turn references profiles for the application.

(b) **DTE Session Profile Assignment:** Available with the Advanced Data or Digital Set software feature packages. The form is used to define the baud rate and parity for terminals that are hotlined to a destination, and which use the DTRX to monitor call progress indications. It is also used to define the baud rate for DATASET 2200 series units. A hotline connection is established when the originating device goes off–hook.

(c) **DTE Terminal Profile Assignment:** Also a part of the Advanced Data feature package. The form is used to define the DTE interface to the DTRX card. This permits keyboard dialing and the monitoring of call progress tones by the DTRX card.

(d) ***HCI* Session Profile Assignment:** Available with the *HCI* – Basic Telephony feature package. This form is used to define characteristics of the *HCI* link.

(e) **Modem Element Assignment:** Used to associate a Dataset Line card circuit to an ONS/OPS line circuit for the purpose of forming a modem element.

(f) **Modem Element Hunt Group Assignment:** Used to gather similarly configured modem elements together into circular hunt groups.

Further information regarding the programming of data devices may be found in Practice 9125–060–222–NA, Data Applications. Also see Practice 9125–060–615–NA, Advanced Data for information on the DTRX card and associated features. Refer to Practice 9125–060–622–NA, *HCI* – Basic Telephony, and Practice 9125–060–623–NA, *HCI* – Advanced Telephony, for information on *HCI* applications available on the system.

Application Profile Assignment

Description

10.2 This form is used to define the application access characteristics for a variety of system applications. The Application Profile Number defined on this form is referenced in the Dataset Assignment Form. This form in turn references profiles for each application. Each Application Profile can have either a DTE Terminal Profile or an *HCI* Session Profile referenced, but not both.

Conditions

1. The application options (DTE Terminal Profile Number and *HCI* Session Profile number) are mutually exclusive.

Form Headings

- **Application Profile Number:** The number representing the instance of the form.
- **Application Characteristic:** A preprinted list of applications options. Each of these is described below.
  - **DTE Terminal Profile Number:** A number which references the instance of the DTE Terminal Profile Assignment Form to be used by the application (applies only to D–Law datasets).
  - ***HCI* Session Profile Number:** A number which references the instance of the *HCI* Session Profile Assignment Form to be used by the application (does not apply to D–Law datasets).

APPLICATION PROFILE ASSIGNMENT

Application Profile Number:

Application Characteristic	Value
DTE Terminal Profile Number	
HCI Session Profile Number	

F00023

DTE Session Profile Assignment

Description

10.3 This form is part of the Advanced Data feature package. It defines to the DTRX card the parity and baud rate for a DTE that is hotlined to a destination, or for a DATASET 2200 series device. One DTE Session Profile Assignment form is completed for each DTE configured as a hotline.

Conditions

1. The Advanced Data or DNI software feature package must be purchased in order to access this form.

2. DATASET 2200 series devices only operate at the 48000, 56000 or 64000 baud rates. Baud rates for these devices cannot be programmed lower than 48000.

3. The PARITY field does not apply to DATASET 2200 series devices, and must be left blank.

Form Headings:

- **Directory Number:** Enter the number of the dataset for which a Session Profile is being defined.
- **Options:** A preprinted list of Session Profile options. The meaning of the terms in this column can be found in Table 10–1, DTE Session Profile Parameters.
- **Value:** Enter the required value for each option.

Table 10–1 DTE Session Profile Parameters

Parameter	Description
Current Baud:	Enter one of the following values: 110,150, 200, 300, 600, 1200, 2400, 4800, 9600, 19200, 48000, 56000 or 64000.
Current Parity:	Enter either "space" for null space parity,"mark" for null mark parity, "odd" for odd parity, "even" for even parity, or transparent for no parity change.

DTE SESSION PROFILE ASSIGNMENT

Directory Number: ____________

Options	Value
Current Baud (110, 150, 200, 300, 600, 1200, 2400, 4800, 9600, 19200, 48000, 56000, 64000)	
Current Parity (Space, Mark, Odd, Even, Transparent)	

Directory Number: ____________

Options	Value
Current Baud (110, 150, 200, 300, 600, 1200, 2400, 4800, 9600, 19200, 48000, 56000, 64000)	
Current Parity (Space, Mark, Odd, Even, Transparent)	

Directory Number: ____________

Options	Value
Current Baud (110, 150, 200, 300, 600, 1200, 2400, 4800, 9600, 19200, 48000, 56000, 64000)	
Current Parity (Space, Mark, Odd, Even, Transparent)	

Directory Number: ____________

Options	Value
Current Baud (110, 150, 200, 300, 600, 1200, 2400, 4800, 9600, 19200, 48000, 56000, 64000)	
Current Parity (Space, Mark, Odd, Even, Transparent)	

F00024

DTE Terminal Profile Assignment

Description

10.4 This form is part of the Advanced Data feature package. It defines the DTE interface to the DTRX card which supports the use of keyboard dialing for placing data calls from the DTE, and the monitoring by the DTRX of the call progress tones.

Conditions

1. The Advanced Data feature package must be purchased in order to access this form.

2. The maximum Terminal Profile Number is 16.

Form Headings:

- **DTE Terminal Profile Number:** Preprinted entries from 1 through 16 which identify the version of the DTE Profile Assignment form. For each Profile Number used, enter the required values of each of the listed options.
- **DTE Characteristics:** A preprinted list of DTE Terminal Profile options. The meaning of these options is defined in Table 10–2, DTE Terminal Profile Parameters.

DTE TERMINAL PROFILE ASSIGNMENT

DTE Terminal Profile Number:

DTE Characteristics	Value
Terminal Type (V=Video Terminal, T=Teleprinter)	V
XON/XOFF From Device (YES/NO)	No
XON/XOFF To Device (YES/NO)	No
Number of Pads After <CR> (0–7)	0
Number of Pads After <LF> (0–7)	0
<LF> Inject After <CR> (0, 1, 4 or 5)	0
Editing (YES/NO)	No
Editing Delete Character Code (ASCII code 0 to 127)	127
Editing Delete Line Code (ASCII code 0 to 127)	24
Editing Display Line Code (ASCII code 0 to 127)	18
Number of Stop Bits (1 or 2)	2
Echoplex (YES/NO)	No
Inhibit DTRX Herald	No

F00025

Table 10–2 DTE Terminal Profile Parameters

Parameter	Description	Default Value
Terminal Type:	This field is used to determine how the character delete, and line delete editing characters are echoed back to the terminal user. Enter "V" for video display terminals, and "T" for teleprinters.	V
XON/XOFF From Device:	Determines whether the Data Transceiver should expect XON/XOFF characters FROM the terminal to control flow of data from the DTRX.	No
XON/XOFF To Device:	Determines whether the Data Transceiver should send XON/XOFF characters TO the terminal to control flow of data from the terminal.	No
#Pads After <CR>:	This field is used for terminals that require delays after carriage return before receiving printable characters. The values entered range from 0 to 7.	0
#Pads After <LF>:	This field is used for terminals that require delays after line feed before receiving printable characters. The values entered range from 0 to 7.	0
<LF> After <CR>:	This field is used to accommodate terminal variations in the handling of carriage returns. Some terminals automatically insert line feeds after a carriage return. While connected to the Data Transceiver, the following options are available: 0 = no linefeed insertion 1 = insert linefeed after <CR> from DTRX 4 = insert linefeed after <CR> from DTE 5 = combination of 1 and 4 above.	0
Editing:	This entry determines whether the editing functions character delete, line delete and line display are supported while the user dialogues with the data transceiver.	No
Delete Character:	This entry is used to define which ASCII character is to be used for character delete. The values entered range from 0 to 127.	127
Delete Line:	This entry is used to define which ASCII character is to be used for line delete. The values entered range from 0 to 127.	24
Display Line:	This entry is used to define which ASCII character is to be used to display the current user input line. The values range from 0 to 127.	18
Stop Bits:	Indicates the number of stop bits to be used in each character transmitted by or received from the data terminal.	2
Echoplex:	This entry determines whether the DTRX will echo received characters back to the originating terminal.	No
Inhibit DTRX Herald:	This option is used to enable or disable the DTRX herald message which was defined in the System Options Assignment form for all DTE assigned this DTE Terminal Profile Number.	No

HCI Session Profile Assignment

Description

10.5 This form is used to define the parameters which establish *HCI* session characteristics. It is part of the *HCI* – Basic Telephony Feature Package. The parameters are used in the set–up of an *HCI* link between a host computer and the *SX–2000* system via the Communications Processor Card and DATASET 2100 series modems.

Conditions

1. The *HCI* – Basic Telephony Feature Package must be enabled.

Form Headings

- **LAPB Link Layer Parameters:** A preprinted list of *HCI* Session Profile options which are used to characterize the link layer operation for the duration of the session. The meaning of these parameters is provided below.
- **Timer T1 (Retransmission Timer):** A timer which establishes the delay from the time a frame is transmitted from an application to the host computer, to when an acknowledgement is received, before a retransmission of the frame is attempted. Valid values range from 2 to 20 and represent the timer values in 100 ms increments (200 ms to 2000 ms).
- **Parameter T2 (Frame Ack Timer):** A timer which determines the delay between receipt of a request by the host, and the transmission of an acknowledgement. Valid values range from 2 to 20 and represent the timer values in 20 ms increments (40 ms to 400 ms). This timer must be less than T1.
- **Timer T3 (Link Inactivity Timer):** A timer which establishes how long a link will remain active without any frame transmissions across the link. Valid values range from 2 to 20 and represent the timer values in 1 s increments (2 sec to 20 sec). Timer T3 must be greater than T1+T2.
- **Maximum Number of Attempts to Complete Transmission:** A counter which sets the number of retries when a frame transmission goes unacknowledged. Valid values range from 0 to 127. If this number is exceeded, the sender will disconnect the communication channel and a new communication setup sequence will be initiated.
- **Maximum Number of Outstanding I Frames K:** Determines the maximum number of information frames that will be held in the transmit buffer, waiting for acknowledgement. The PABX will not send any further I frames once this value is reached. If the PABXs receive buffer is filled, it will enter a BUSY condition and employ flow control. The information fields of incoming I frames will be discarded while in a BUSY condition.

HCI SESSION PROFILE ASSIGNMENT

HCI Session Profile Number:

DESCRIPTOR	Value
LAPB Link Layer Parameters	
Timer T1 (Retransmission Timer, 100 ms)	4
Parameter T2 (Frame Ack Timer, T2 < T1, 20 ms)	3
Timer T3 (Link Inactivity Timer, T3 > (T1 + T2), 1 sec)	10
Maximum Number of Attempts to Complete Transmission N2	10
Maximum Number of Outstanding I Frames K (Window Size)	7
DCE or DTE	DCE
Try Module 128 First (Yes/No)	Yes

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- **DCE or DTE:** Determines whether the PABX end of the link will use DTE or DCE addressing in the frame address field. If one end of the link between the PABX and the host computer is "DTE", then the other end must be "DCE". DCE is the default.
- **Try Module 128 First:** Determines whether to attempt the communication setup sequence using Module128 before reverting to Module 8. These are numbering schemes used in the I frame, in accordance with CCITT X.25 standards. Valid values for this field are Yes and No. The default value is "Yes".

Modem Element Assignment

Description

10.6 This form performs the association of ONS/OPS Line circuits to Dataset Line circuits or DNI Dataset circuits in order to define modem elements. In addition, circuit descriptors are assigned to both ONS/OPS and Dataset Line circuits. A Directory Number is also assigned to the modem element. The Directory Number is used to group similarly configured modem elements into hunt groups. The "Modem Operation" column defines whether the modem is capable of answering and/or originating calls.

Conditions

1. The dataset and ONS/OPS device addresses (cabinet/shlf/slot/circ) assigned in this form should not have a Directory Number that was previously assigned in other forms.

2. The ONS/OPS Circuit Descriptors assigned to these circuits must have the "Part of a modem" option selected in their Circuit Descriptor Assignment form.

3. The Dataset Circuit Descriptors assigned to these circuits must have the Usage set to "Modem Element" and should have the Maximum Baud Rate set to the speed of the modem.

4. The Directory Number for the modem element must be unique.

5. When the form is recalled the device addresses are filled in for circuits that have previously had the "Part of a Modem" option enabled in their Circuit Descriptor Assignment form.

6. A modem element may be deleted from the database by blanking out the Directory Number and recommitting the form.

7. A "Dataset PLID" channel number applies to DNI datasets.

Form Headings:

- **Dataset PLID:** The Dataset Line Card Physical Location Identification consists of five parts: Cabinet, Shelf, Slot, Circuit and Channel. The cabinet number, shelf number, slot number, circuit number and channel number (for DNI datasets) of the Dataset Line circuit is entered under its respective heading.
- **Data Circuit Desc:** Enter a valid Dataset Circuit Descriptor number.
- **Interconnect No. 1:** Enter a valid Interconnect Number for the Dataset Line Circuit.

MODEM ELEMENT ASSIGNMENT

Dataset PLID							ONS/OPS PLID							
Cab	Shlf	Slot	Circ	Chn	Data Circuit Desc	Inter Conn No. 1	Cab	Shlf	Slot	Circ	Chs Ctr	Inter Conn No. 2	Directory Number	MODEM OPERATION

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- **ONS/OPS PLID:** The cabinet number, shelf number, slot number and circuit number of the ONS/OPS Line Circuit is entered under its respective heading.
- **ONS Circuit Desc:** Enter a valid ONS/OPS Circuit Descriptor number.
- **Interconnect No. 2:** Enter a valid Interconnect Number for the ONS/OPS Line Circuit.
- **Directory Number:** Enter a number up to seven digits in length which identifies the modem element.
- **MODEM OPERATION:** Enter: "A" if the modem is used to answer data calls, "O" if the modem's mode is used to originate data calls, or "B" if the modem performs both these functions.

Modem Element Hunt Group Assignment

Description

10.7 This form is used to gather Modem Elements into circular hunt groups. The hunt group, similarly configured, can be accessed by dialing the Pilot Number of the group.

Conditions

1. The Pilot Number must be unique.
2. A Modem Element may appear in more than one hunt group.
3. Modem element hunt group members must be DNI datasets in asynchronous mode or D–Law datasets. All members of a hunt group must be of the same type.
4. The Directory Numbers entered as hunt group members must correspond to Directory Numbers assigned to the modem element in the Modem Element Assignment form.
5. The NAME field for the Pilot Number will appear blank on initial programming. The name can be assigned using the Telephone Directory form.

Form Headings:

- **Pilot Number:** Enter a number up to seven digits in length which identifies the hunt group.
- **Name:** This is a system–generated, protected field indicating the name assigned to the hunt group in the Telephone Directory.
- **Member:** This is a system–generated, protected field indicating the member's number in the hunt group.
- **Directory Number:** Enter the Directory Numbers of the modem elements.

MODEM ELEMENT HUNT GROUP ASSIGNMENT

Pilot Number:

Name:

Member	Directory Number

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11. DATASET FORMS

General

11.1 The dataset forms define the location and characteristics of datasets within the system. The dataset forms are:

(a) **Dataset Assignment.** This form is used to assign a data Directory Number and Dataset Circuit Descriptor Number to all dataset line circuits in the system.

(b) **Dataset Circuit Descriptor Assignment.** A form through which common data communications parameters are assigned to groups of dataset line circuits.

(c) **Dataset Location Assignment.** This form provides a means of capturing information regarding the location of a dataset given the Physical Location Identifier (PLID) of the Dataset Line card within the system.

Further information regarding the programming of data devices may be found in Practice 9125–060–222–NA, Data Applications.

Dataset Assignment

Description

11.2 This form is similar in function to the ONS/OPS Assignment form in that it is used to assign Directory Numbers and Dataset Circuit Descriptor Numbers to all dataset line circuits in the system. The Directory Numbers defined in this form will be used in the Telephone Directory, and Dataset Hunt Group Assignment forms.

Conditions

1. Directory Numbers must be unique, that is not assigned to any other device, hunt group, or feature access code. The Directory Numbers cannot be speed call numbers.

2. Circuits connected to modems must not be entered in this form. See the Modem Element Assignment form.

3. An Interconnect Number must always be defined.

4. Only asynchronous DNI datasets may be programmed as ports.

5. The "Port" field cannot be set to "Yes" if a directory number is programmed for the dataset.

6. When the "Port" field is set to "Yes", the Circuit Descriptor and Interconnect fields must have values programmed against them.

7. When a dataset is designated as a port, the "Incoming Call Action" field on the Dataset Circuit Descriptor Assignment form MUST NOT be set to "RI" (Ringing Indicator).

8. The PLIDs of the datasets designated as ports on this form appear on the System Port Assignment form.

9. The Device Class of the Dataset Circuit Descriptor referenced here must correspond to the Device Type field.

10. Once a dataset is assigned, its Circuit Descriptor may only be changed to another with the same Usage and Device Class.

Form Headings:

- **Cabinet, Shelf, Slot, Circuit:** System–generated, protected fields indicating the location of data circuits in the system. These fields are presented in ascending order of cabinet/shelf/slot/circuit.
- **Channel:** A system–generated, protected field indicating the channel number that the device is associated with. For Dataset Line card circuits the field is blank.
- **Card Type:** A system–generated, protected field indicating the type of card to which the data circuit is attached.

DATASET ASSIGNMENT

Cab	Shlf	Slot	Circ	Chn	Card Type	Device Type	Directory Number	Port	Circ. Desc. Number	Application Profile Number	Inter-connect Number

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- **Device Type:** A system–generated, protected field indicating the device type assigned to the circuit. The data in this field is taken from the DNI Circuit Assignment form for DNIC–based devices, or the System Configuration form for D–Law based devices (DATASET 1 and DATASET 2). For D–Law based devices the entry is DS1/2.
- **Directory Number:** Enter a number up to seven digits in length.
- **Port: Enter "Yes" or "No".** This field determines whether the device attached to the PLID is to be treated as a communications port (e.g., a printer port).
- **Circuit Descriptor Number:** Enter a Circuit Descriptor Number referring to the appropriate version of the Dataset Circuit Descriptor Assignment form. This field links the data circuit to a Dataset Circuit Descriptor.
- **Application Profile Number:** Enter a Profile Number referring to the appropriate version of the Application Profile Assignment form. Leaving this entry blank indicates that the data station uses the ADL feature exclusively for originating data calls, or that it is programmed for Hotline operation.
- **Interconnect Number:** Enter a number, in the range 1 to 64, that points to the appropriate entry in the Interconnect Restriction Table where the interconnect rights for this data device are defined.

Dataset Circuit Descriptor Assignment

Description

11.3 This form completes the definition of dataset circuits by specifying the parameters used with the various datasets supported by the *SX–2000* ICS. One circuit descriptor is assigned to each similarly configured group of dataset circuits. Default dataset descriptors for specified device classes and usage types may be used, or individual parameters may be programmed following the rules specified below. A total of 32 dataset circuit descriptors may be programmed. The circuit descriptor numbers are referenced in the Dataset Assignment form.

Conditions

General Conditions

1. The Device Class and Usage must be programmed. The default values are "D–Law Dataset" and "Basic".

2. If a circuit descriptor is referenced, then the Device Class and Usage values may not be changed.

3. The following combinations of Device Class and Usage are restricted:

   - Usage type "Network Sync" may only be used with Device Class "DS2200s".
   - Usage type "MSAN–APNSS" may only be used with Device Classes "DS2100s/Sync" and "DS2200s".
   - Usage type "Modem Element" may only be used with Device Class "D–Law Dataset".
   - Usage type "Nailed Call Orig" may not be used with Device Class "DS4120s".
   - Usage type "Nailed Call Term" may not be used with Device Class "DS4110s".

4. If Defaults is programmed to "Yes", then any changes to parameters other than Device Class or Usage will not be saved at COMMIT.

5. The DTE Minimum Baud Rate must not be greater than the DTE Maximum Baud Rate.

6. Data Buffering must be an even number.

7. If DTE Max Baud Rate is programmed to 64000, then the Rate Adaption Scheme must be "DMI".

8. The following parameter combinations are restricted:

   - If Incoming Call Action is programmed to "Refuse", then Interface Controlled Call Accepted Indicator cannot be set to "DTR" or "RTS".
   - If Incoming Call Action is programmed to "RI", "DCD" or "DSR", then Interface Controlled Call Accepted Indicator cannot be set to "None".
   - If Interface Controlled Active Indicator to CTS Delay Timer is programmed to "0", then Autobaud cannot be set to "Yes".

9. The following parameter combination is not allowed:
   - Interface Controlled Active Indicator not set to "Never",
   - Interface Controlled Active Indicator to CTS Delay Timer not set to "0", and
   - Interface Controlled Originate Indicator set to "Active On".
10. Fixed speed devices, defined by the DTE Session Profile Assignment Form, are not required to provide a baud rate indication prior to call setup.
11. If a dataset is assigned as a DNIC port and the dataset is not required to originate a data call, Flow Control must be set to "None".
12. When an application, for example MNMS, requires the dataset to originate a data call to the switch, the following options must be set:

Option	Value
Interface Type	RS–232
Interface Controlled Active Indicator	DTR on
Interface Controlled Originate Indicator	Active off>on
Interface Controlled Disconnect Indicator	Active on>off
Interface Controlled Disconnect Indicator OFF Timer	0
Incoming Call Action	Refuse
Interface Controlled Call Accepted Indicator	None

13. More information on programming data devices is provided in Practice 9125–060–222–NA, Data Applications.

Device Class Conditions

1. For **"D–Law Dataset"**:
   - The DTE Maximum Baud Rate cannot be greater than 19200.
   - Not supported on *SX–2000* FD systems.
2. For **"SC1000 Port"**:
   - Interface type must be either V.24 or RS232.
   - DTE Maximum Baud Rate cannot be greater than 19200.
   - The Second PBX Attention Character must be left blank.
3. For **"DS1100s"**:
   - Interface type must be either V.24 or RS232.
   - DTE Maximum Baud Rate cannot be greater than 19200.
   - The Second PBX Attention Character must be left blank.

4. For **"DS2100s/Sync"**:

- Interface type must be RS232.
- DTE Maximum Baud Rate cannot be greater than 19200.
- The Second PBX Attention Character must be left blank.
- The Rate Adaption Scheme must be "Milap–Sync" or "X.31".
- The following parameter combinations are restricted:

  (a) If the Rate Adaption Scheme is "Milap–Sync" and the Operating Mode is "DCE", then the Timing Mode must be one of "Int", "Tx Ext" or "Sys".

  (b) If the Rate Adaption Scheme is "Milap–Sync" and the Operating Mode is "DTE", then the Timing Mode must be either "Tx Ext" or "Tx Ext and Rx Ext".

  (c) If the Rate Adaption Scheme is "Milap–Sync", then the Operating Mode must not be left blank.

  (d) Table 11–1 details the valid operating modes for low speed synchronous datasets (DATASET 2100 series sets).

Table 11–1 Valid Operating Modes for Low Speed Synchronous Devices

Modes	Interface Type	DCE/DTE	Rate (Kb/s)	Timing	Rate Adaption
1	RS232	DCE	19.2	SYS	X.31 Milap–Sync
2	RS232	DCE	19.2	INT	X.31 Milap–Sync
3	RS232	DCE	19.2	TX EXT	X.31 Milap–Sync
4	RS232	DCE	19.2	TX and RX EXT	X.31
5	RS232	DTE	19.2	SYS	X.31
6	RS232	DTE	19.2	TX EXT	X.31 Milap–Sync
7	RS232	DTE	19.2	TX and RX EXT	X.31 Milap–Sync
8	RS232	DTE	19.2	INT	X.31

5. For **"DS2100s/Async"**:

- Interface type must be RS232.
- DTE Maximum Baud Rate cannot be greater than 19200.
- The Second PBX Attention Character must be left blank.
- The Rate Adaption Scheme must be "Async".

6. For **"DS2200s"**:

- The Interface Type must be "X.21" or "V.35".
- The Second PBX Attention Character must be left blank.
- The Rate Adaption Scheme may not be programmed to "Async" or "Milap–Sync", or left blank.
- The Timing Mode may not be programmed to "Tx and Rx Ext" or "Int", or left blank.
- Table 11–2 details the valid operating modes for high speed synchronous data-sets (DATASET 2200 series sets).

Table 11–2 Valid Operating Modes For High Speed Synchronous Devices

Modes	V.35/X.21	DCE/DTE	Rate (Kb/s)	Timing	Rate Adaption
1	V.35	DCE	48	SYS	V110, DMI, X.31
2	V.35	DCE	56	SYS	V110, DMI, X.31
3	V.35	DCE	64	SYS	DMI
4	V.35	DTE	48	TX EXT	V110, DMI, X.31
5	V.35	DTE	56	TX EXT	V110, DMI, X.31
6	V.35	DTE	64	TX EXT	DMI
7	X.21	DCE	48	SYS	V110, DMI, X.31
8	X.21	DCE	56	SYS	V110, DMI, X.31
9	X.21	DCE	64	SYS	DMI
10	X.21	DTE	48	TX EXT	V110, DMI, X.31
11	X.21	DTE	56	TX EXT	V110, DMI, X.31
12	X.21	DTE	64	TX EXT	DMI

Note: The default mode of operation is mode 9.

7. For **"DS4110s"**:

- Interface Controlled Active Indicator must be programmed to "DTR On".
- The Timing Mode may not be "Int" or "Tx and Rx Ext".
- Rate Adaption Scheme must be "X.31".

8. For **"DS4120s"**:

- The Second PBX Attention Character must be left blank.
- Rate Adaption Scheme must be "X.31".
- The Timing Mode may not be "Int" or "Tx and Rx Ext".

DATASET CIRCUIT DESCRIPTOR ASSIGNMENT (Sheet 1 of 2)

Circuit Descriptor Number:

Descriptor	Value
Device Class	Dlaw Dataset
Usage	Basic
Defaults (Yes, No)	Yes
(* Yes asserts MITEL default values, according to the above Device Class and Usage, for all the parameters below. *)	
Common Parameters for All Datasets	
Connection Timers	
Guerd Timer (0 to 99 secs)	0
Connect Confirmation Timer (0 to 99 minutes)	0
Session Inactivity Timer (0 to 240 minutes)	0
Interface Characteristics	
Interface type (RS-232, X.21, V.35, V.24)	
Interface Controlled Active Indicator (Never, DTR on, RTS on, Either on, Always)	DTR on
Interface Controlled Active Indicator to CTS Delay Timer (0 to 99 in 1/10 sec intervals)	1
Interface Controlled Originate Indicator (Active on, Active off>on, User Action)	User Action
Interface Controlled Disconnect Indicator (Never, Active on>off, DTR on>off)	Active on>off
Interface Controlled Disconnect Indicator OFF Timer (0 to 99 in 1/10 sec intervals)	0
Incoming Call Action (Refuse, RI, DCD, DSR, Accept)	Accept
Interface Controlled Call Accepted Indicator (DTR, RTS, None)	None
DTE Min Baud Rate (110, 150, 200, 300, 600, 1200, 2400, 4800, 9600, 19200, 48000, 56000, 64000)	110
DTE Max Baud Rate (110, 150, 200, 300, 600, 1200, 2400, 4800, 9600, 19200, 48000, 56000, 64000)	19200
DCD Fixed High (Yes, No)	No
Maintenance Parameters	
Data Set Auditing (Yes, No)	Yes
Attached Device Loopback (Yes, No)	No

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DATASET CIRCUIT DESCRIPTOR ASSIGNMENT (Sheet 2 of 2)

Circuit Descriptor Number:

Option	Value
Async DNIC Data Set Parameters	
First PBX Attention Character (Char. Code 1 to 255)	
Second PBX Attention Character (Char. Code 1 to 255)	
Attention Via Break Key DTE–to–(End, PBX)	End
Parity to Attached Device (Transparent, Odd, Even, Mark, Space)	Transparent
Flow Control (CTS, None, Xon–Xoff, Pin25Hi/CTS, Pin25Lo/CTS)	None
XON Flow Control Character (Char. Code 1 to 255)	
XOFF Flow Control Character (Char. Code 1 to 255)	
Autobaud (Yes, No)	No
First Autobaud Character to Host (Char. Code 1 to 255)	
Second Autobaud Character to Host (Char. Code 1 to 255)	
Third Autobaud Character to Host (Char. Code 1 to 255)	
Fourth Autobaud Character to Host (Char. Code 1 to 255)	
Delay Before First Autobaud Character (0 to 99 in 1/10 sec intervals)	5
Autobaud Inter–Character Delay (1 to 120 in 1/100 sec intervals)	20
Sync DNIC Data Set Parameters (DS210X and DS220X)	
Operating Mode (DCE, DTE)	
Timing Mode (Int, Sys, Tx Ext, Tx and Rx Ext)	
Rate Adaption Scheme (Async, Mllap–Sync, X.31, DMI, V.110)	
Data Buffering (4 to 256 in multiples of 2)	32
Idle Data Pattern (8–bit code 0 to 255)	0

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Usage Conditions

1. For **"Basic"**:
   - Incoming Call Action may not be programmed to "Refuse" or "Accept" when Interface Controlled Active Indicator is set to "Never".
   - Attached Device Loopback must be set to "No".
2. For **"Modem Element"**:
   - This Usage applies only to Device Class "D–Law Dataset".
   - Interface Controlled Active Indicator must be programmed to "Never".
   - Interface Controlled Active Indicator to CTS Delay Timer must be set to 0.
   - Interface Controlled Originate Indicator must be programmed to "Active On" or "Active Off>On".
   - The Flow Control may not be "Pin25Hi/CTS" or "Pin25Lo/CTS".
3. For **"Nailed Call Orig"**:
   - This Usage may not be used with Device Class "DS4120s".
   - Interface Controlled Active Indicator must be programmed as follows:
     (a) If the Device Class is "D–Law Dataset", then Interface Controlled Active Indicator must be "DTR On".
     (b) If the Device Class is "DS4110s", then Interface Controlled Active Indicator may be "DTR On" or "Either On".
     (c) Otherwise, Interface Controlled Active Indicator must be "Either On" or "Always".
   - Interface Controlled Originate Indicator must be set to "Active On".
   - Incoming Call Action must be set to "Refuse".
   - Interface Controlled Call Accepted Indicator must be programmed "None".
   - Attached Device Loopback must be set to "No".

4. For **"Nailed Call Term"**:

   - This Usage may not be used with Device Class "DS4110s".
   - Interface Controlled Active Indicator must be programmed as follows:
     (a) If the Device Class is "D–Law Dataset", then Interface Controlled Active Indicator must be "DTR On".
     (b) If the Device Class is "DS4120s", then Interface Controlled Active Indicator may be "DTR On" or "Either On".
     (c) Otherwise, Interface Controlled Active Indicator must be "Either On" or "Always".
   - Interface Controlled Originate Indicator must be set to "User Action".
   - Incoming Call Action must be set to "Accept".
   - Interface Controlled Call Accepted Indicator must be set to "None".
   - Attached Device Loopback must be set to "No".

5. For **"Network Sync"**:

   - This Usage may only be used with Device Class "DS2200s".
   - Incoming Call Action may not be set to "Refuse" or "Accept" when Interface Controlled Active Indicator is programmed to "Never".
   - Attached Device Loopback must be set to "No".
   - The Operating Mode must be programmed to "DTE".

6. For **"MSAN–APNSS"**:

- The MSAN/APNSS feature must be selected in the Dimension and Feature Selection form in order to program the Usage "MSAN–APNSS".
- This Usage may only be used with Device Classes "DS2100s/Sync" and "DS2200s".
- Guard Timer must be set to 60.
- Interface Controlled Active Indicator must be programmed as follows:
  (a) If the Device Class is "DS2100s/Sync", then Interface Controlled Active Indicator must be "DTR On".
  (b) If the Device Class is "DS2200s" and the Interface Type is "X.21", then Interface Controlled Active Indicator must be "DTR On".
  (c) If the Device Class is "DS2200s" and the Interface Type is "V.35", then Interface Controlled Active Indicator must be "RTS On".
- Interface Controlled Originate Indicator must be set to "Active On".
- Interface Controlled Disconnect Indicator must be set to "Active On>Off".
- Incoming Call Action must be programmed "Refuse".
- The DTE Minimum Baud Rate must equal the DTE Maximum Baud Rate.
- The baud rate must be one of: 1200, 2400, 4800, 9600, or 64000.
- Dataset Auditing must be programmed "No".
- Attached Device Loopback must be set to "No".
- Rate Adaption Scheme must be programmed as follows:
  (a) If the Device Class is "DS2100s/Sync", then the Rate Adaption Scheme must be "X.31".
  (b) If the Device Class is "DS2200s", then the Rate Adaption Scheme must be "DMI".

Form Headings:

- **Circuit Descriptor Number:** Enter the Circuit Descriptor Number that identifies the characteristics of the data circuit. Up to 32 circuit descriptors may be defined.
- **Descriptor:** A list of the options available. Enter the required values for each class of data circuit that is required. The options are described in Table 11–3, Dataset Circuit Descriptor Parameters, and the default values for each Device Class and Usage are shown in Table 11–5 to Table 11–9.

Table 11–3 Dataset Circuit Descriptor Parameters

Descriptor	Range	Description
Device Class	D–Law Dataset, DS1100s, DS2100s/Async, DS2100s/Sync, DS2200s, DS4110s, DS4120s, SC1000 Port	Determines the class of dataset that the circuit descriptor is to be used for. This field cannot be left blank, and ensures that the circuit descriptor is compatible to the type of dataset.
Usage	Nailed Call Orig, Nailed Call Term, MSAN–APNSS, Network Sync, Modem Element, Basic	Specifies what the circuit descriptor will be used for. This field cannot be left blank, and ensures that the circuit descriptor is compatible to the dataset application: **Nailed Call Orig:** The originating dataset in a permanent or Nailed Up Call. May also be used as a Network Synchronization source. **Nailed Call Term:** The terminating dataset in a permanent or Nailed Up Call. **MSAN–APNSS:** A dataset used on the signaling channel of an MSAN/APNSS network. May also be used as a Network Synchronization source. **Network Sync:** A DATASET 2200 series set used as a Network Synchronization source. **Modem Element:** A dataset in a Modem Pool. **Basic:** All uses other than those specified above.
Defaults	Yes, No	Specifies whether or not MITEL default values are to be placed in the current circuit descriptor at the time of COMMIT.
Common Parameters for all Datasets		
Connection Timers:		
Guard Timer	0 to 99 sec.	Provides a period of time after a data circuit has disconnected during which the circuit is not available for a seize. This timer is intended to provide host connections with sufficient time for cleanup after a user session is terminated.
Connect Confirmation Timer	0 to 99 min.	Specifies the length of time after the dataset circuit has been connected that the system waits for activity from the attached device before declaring the circuit inactive and deallocates the resources. The timer may be overridden by specifying a zero (0) value. When that is the case, the system does not monitor data activity and the device remains connected. It is recommended this field be filled in for DTEs that have an end user associated with them; i.e., terminals. Other dataset circuits with printers, hosts, and modems attached to them should have this parameter overridden; i.e., equated to zero.

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Table 11–3 Dataset Circuit Descriptor Parameters (continued)

Descriptor	Range	Description
Session Inactivity Timer	0 to 240 min.	Defines the length of time the system will tolerate an idle data line condition. The device connection is cleared down after the programmed period of inactivity has expired. An entry of zero is equivalent to an unlimited time period.
Interface Characteristics:		
Interface Type	X.21, V.35, V.24, RS–232.	Determines the interface characteristics of the port on the DATASET 1100, 2100, or 2200 series, or SC1000 port.
Interface Controlled Active Indicator (also called Active Indicator or AI)	Never, DTR on, RTS on, Either on, Always.	**Never:** The device is never ready to receive a call. It must receive one of RI, DCD, or DSR, and have the Incoming Call Action field set to something other than NEVER in order to receive a call. **DTR On:** The device can receive a call if it is idle. **RTS On:** The device can receive a call if it is idle. **Either On:** If either the DTR or RTS is high the device can receive a call if it is idle. **Always:** The device is always ready to receive a call if the device is idle, regardless of the state of the interface signals.
Interface Controlled Active Indicator to CTS Delay Timer	0 to 99 in 1/10 sec. intervals.	Defines the length of time the system waits before asserting CTS after the device has asserted Active Indicator as defined by the Active Indicator parameter. If the Active Indicator is ALWAYS, the timer starts the moment the device is plugged in. A value of zero indicates that CTS should not be asserted in response to an activity indication from the device.
Interface Controlled Originate Indicator	Active on, Active Off>On,User Action.	Determines what transitions of AI are required to originate a data call from the device when it is idle: **Active On:** Call origination occurs when the AI is high (DTR, RTS either or both on). **Active Off>On:** A change of state in the AI from low to high is required. **User Action:** A combination of AI high and user action, (i.e., keyboard activity, attention button or ADL activity), is required for call origination from the device.
Interface Controlled Disconnect Indicator	Never, Active On>Off, DTR On>Off.	Determines what transitions of AI are required for the system to disconnect the data call: **Never:** A call will not be disconnected as a result of change of state of the AI. **Active On>Off:** Disconnection occurs when the AI makes the transition from high to low. **DTR On>Off:** Disconnection occurs when the DTR signal makes the transition from high to low.

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Table 11–3 Dataset Circuit Descriptor Parameters (continued)

Descriptor	Range	Description
Interface Controlled Disconnect Indicator OFF Timer	0 to 99 in 1/10 sec. intervals.	Determines how long the line card waits before taking action after detecting a drop in the AI signal.
Incoming Call Action	Refuse, RI, DCD, DSR, Accept.	Describes system response to an incoming call indication: **Refuse:** No action is taken. An originate only device attached. **RI:** Ring Indicator (RI) is asserted. RI is toggled 1 second on, 3 seconds off. **DCD:** Data Carrier Detect (DCD) is asserted. **DSR:** Data Set Ready (DSR) is asserted. **Accept:** Any incoming call action is permitted when the lead(s) specified in the AI field are asserted.
Interface Controlled Call Accepted Indicator	DTR, RTS, None.	Describes the transitions required at the interface for an incoming call to be accepted: **DTR:** Call acceptance occurs when DTR moves from low to high. **RTS:** Call acceptance occurs when RTS moves from low to high. **None:** No auto answer is supported by the attached device.
DTE Minimum Baud Rate	110, 150, 200, 300, 600, 1200, 2400, 4800, 9600, 19200, 48000, 56000, 64000.	The lowest baud rate at which circuits assigned to this descriptor are expected to perform.
DTE Maximum Baud Rate	110, 150, 200, 300, 600, 1200, 2400, 4800, 9600, 19200, 48000, 56000, 64000.	The highest baud rate at which circuits assigned to this descriptor are expected to perform.
DCD Fixed High	Yes, No.	Determines if the system should force DCD to the attached device high regardless of the value that is provided by the far–end DTE. This prevents devices that monitor DCD from dropping a call when DCD transits to low. It should be used in situations where RTS is tied to DCD if RTS changes state during the call.
Maintenance Parameters:		
Dataset Auditing	Yes, No.	Determines if routine maintenance should be performed by the system on the data circuit. Datasets selected for this option should be left in a powered–on state continually.

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Table 11–3 Dataset Circuit Descriptor Parameters (continued)

Descriptor	Range	Description
Attached Device Loopback	Yes, No.	Indicates to directed and audit diagnostics if the attached device (usually a modem) enters into loopback mode in response to the assertion of EIA pin 25.
Async DNIC Dataset Parameters for DATASET 1100 and DATASET 2100 series		
First PBX Attention Character Second PBX Attention Character	1 to 255, Blank. 1 to 255, Blank.	The decimal value of the ASCII character used to gain the attention of the *SX–2000* ICS. The Attention character (or sequence of 2 characters) replaces the Attention button on the dataset. The use of an Attention sequence is intended for installations where the dataset is not physically located near the user. **Blank:** No Attention character exists.
Attention Via BREAK Key DTE–to–	END, PBX, Blank.	**END:** The Break key is passed to the far–end DTE. **PBX:** The Break key is trapped by the *SX–2000* ICS as the Attention character. **Blank**: No Attention character exists.
Parity to Attached Device	Transparent, Odd, Even, Mark, Space.	Indicates the parity transmitted to the attached device.
Flow Control	Pin 25 High/ CTS, Pin 25 Low/CTS, Xon–Xoff, CTS, None.	Determines the flow control protocol used between the local DTE and the dataset: **Pin25Hi/CTS**: Flow control is achieved by toggling Pin 25. The attached device controls the dataset by raising Pin 25 high; the dataset controls the attached device by dropping CTS. Operation of this option depends in part on the rev–level of the dataset used. Not all versions of the DATASET 1100 or 2100 devices will recognize this option. **Pin25Lo/CTS:** Flow control is achieved by toggling Pin 25. The attached device controls the dataset by dropping Pin 25; the dataset controls the device by dropping CTS. Operation of this option depends in part on the rev–level of the dataset used. Not all versions of the DATASET 1100 or 2100 devices will recognize this option. **Xon–Xoff:** Flow control is determined by the characters defined by the XON and XOFF parameters. **CTS:** Flow control is achieved by toggling CTS from the dataset. When CTS is asserted (high), information may be exchanged. When CTS is low, information exchange is inhibited. **None:** No flow control protocol is used.
XON Flow Control Character	1 to 255.	The decimal value of the ASCII character used to initiate data transmission from the far–end DTE to the local DTE.
XOFF Flow Control Character	1 to 255.	The decimal value of the ASCII character used to inhibit data transmission from the far–end DTE to the local DTE.

Table 11–3 Dataset Circuit Descriptor Parameters (continued)

Descriptor	Range	Description
Autobaud	Yes, No.	YES permits the dataset to automatically adjust to the originator's baud rate.
First Autobaud Character to Host	1 to 255, Blank.	Up to four Autobaud characters may be defined. These characters are transmitted to the attached DTE in the same parity and baud rate used by the local DTE.They are transmitted when the *SX–2000* ICS detects DTR high from the attached DTE. BLANK indicates no Autobaud characters are used. The characters must be in the circuit descriptor of the host device in order for autobaud to work correctly.
Second Autobaud Character to Host	1 to 255, Blank.	
Third Autobaud Character to Host	1 to 255, Blank.	
Fourth Autobaud Character to Host	1 to 255, Blank.	
Delay Before First Autobaud Character	0 to 99 in 1/10 sec. intervals.	The length of time between the detection of DTR high from the called DTE until the *SX–2000* ICS transmits the Autobaud characters.
Autobaud Inter–Character Delay	1–120 in 1/100 sec. intervals.	The delay time between the transmission of each Autobaud character.
Sync. DNIC Dataset Parameters for DATASET 2100 and DATASET 2200 series.		
Operating Mode	DCE, DTE.	Determines the clock source for the dataset: **DCE:** The device attached to the dataset is a DTE, typically a terminal, computer or printer. The dataset is operated from the *SX–2000* ICS system clock. **DTE:** The device attached to the dataset is a DCE, typically a modem or DSU. The dataset is operated from an external network clock.
Timing Mode	INT, SYS, Tx EXT, Tx and Rx EXT.	**INT:** Instructs a DATASET 2200 series dataset to use its internally generated baud rates as the transmit data clock (SCT). **SYS:** Instructs DATASET 2100 and DATASET 2200 series sets to accept the clock from the DNIC line card to use as SCT. **Tx EXT:** Instructs DATASET 2100 and DATASET 2200 series sets to accept an external clock source from the attached device to use as SCT. **Tx and Rx EXT:** Instructs DATASET 2100 series sets to accept an external clock source for both transmit data clock (SCT) and receive data clock (SCR).

Table 11–3 Dataset Circuit Descriptor Parameters (continued)

Descriptor	Range	Description
Rate Adaption Scheme	Async, X.31, Milap–Sync, DMI, V.110.	**Async:** Instructs DATASET 2100 series sets to operate asynchronously. **Milap–Sync:** Instructs DATASET 2100 series sets to transport synchronization data from the attached DTE transparently through the *SX–2000* ICS. In this mode the data clock is also transported end–to–end. The clock can be asynchronous to the PBX timing. **X.31:** Instructs DATASET 2100 and DATASET 2200 series sets to use the CCITT X.31 rate adaption scheme. **DMI:** Instructs DATASET 2200 series sets to use the AT&T DMI rate adaption scheme. **V.110:** Instructs DATASET 2200 series sets to use the CCITT V.110 rate adaption scheme.
Data Buffering	4 to 256, in multiples of 2.	Sets the size of the data buffers used to perform phase lock loop operations in the datasets.
Idle Data Pattern	8–bit code, 0 to 255.	Defines the default character the dataset transmits to the attached device when the dataset is idle.

Table 11–4 Default Values Reference

USAGE ► / DEVICE CLASS ▼	Basic	Modem Element	Nailed Call Orig	Nailed Call Term	Network Sync	MSAN–APNSS
D–Law Dataset	Table 11–5	Table 11–5	Table 11–5	Table 11–5	*	*
SC1000 Port	Table 11–5	*	Table 11–5	Table 11–5	*	*
DS1100s	Table 11–6	*	Table 11–6	Table 11–6	*	*
DS2100s/ Async	Table 11–6	*	Table 11–6	Table 11–6	*	*
DS2100s/Sync	Table 11–7	*	Table 11–7	Table 11–7	*	Table 11–7
DS2200s	Table 11–8	*	Table 11–8	Table 11–8	Table 11–8	Table 11–8
DS4110s	Table 11–9	*	Table 11–9	*	*	*
DS4120s	Table 11–9	*	*	Table 11–9	*	*

* This Usage may not be programmed on this Device Class.

In the following tables, the default values for each Usage will be the same as the "Basic" values, unless otherwise indicated.

Table 11–5 Default Values For D–Law Datasets

Parameters	Basic	Nailed Call Orig	Nailed Call Term	Modem Element
CONNECTION TIMERS				
Guard Timer	0	3	5	
Connect Confirmation Timer	0			
Session Inactivity Timer	0			
INTERFACE CHARACTERISTICS				
Interface Type	(blank)			
Int. Cont. Active Indicator	DTR On	DTR On*	DTR On*	Never*
Int. Cont. Active Indicator to CTS Delay Timer	1	0		0*
Int. Cont. Originate Indicator	User Action	Active On*	User Action*	Active On
Int. Cont. Disconnect Indicator	Active On>Off	Never	Never	Never
Int. Cont. Disconnect Indicator OFF Timer	0			
Incoming Call Action	Accept	Refuse*	Accept*	
Int. Cont. Call Accepted Indicator	None	None*	None*	None*
DTE Min Baud Rate	110			
DTE Max Baud Rate	19200			
DCD Fixed High	No			
MAINTENANCE PARAMETERS				
Dataset Auditing	Yes			
Attached Device Loopback	No*			No
ASYNC DNIC DATASET PARAMETERS				
1st PBX Attention Char.	(blank)			
2nd PBX Attention Char.	(blank)			
Attention Via BREAK Key DTE–to–	End			
Parity to Attached Device	Transparent			
Flow Control	None			
XON Flow Control Char.	(blank)			
XOFF Flow Control Char.	(blank)			
Autobaud	No			
1st Autobaud Char. to Host	(blank)			
2nd Autobaud Char. to Host	(blank)			
3rd Autobaud Char. to Host	(blank)			
4th Autobaud Char. to Host	(blank)			
Delay Before 1st Autobaud Char.	5			
Autobaud Inter–Char. Delay	20			
SYNC DNIC DATASET PARAMETERS				
Operating Mode	(blank)			
Timing Mode	(blank)			
Rate Adaption Scheme	(blank)			
Data Buffering	32			
Idle Data Pattern	0			

* These values may not be changed.

Table 11–6 Default Values For DS1100s, DS2100s/Async And SC1000 Port

Parameters	Basic	Nailed Call Orig	Nailed Call Term
CONNECTION TIMERS			
Guard Timer	0	3	5
Connect Confirmation Timer	0		
Session Inactivity Timer	0		
INTERFACE CHARACTERISTICS			
Interface Type	(blank)		
Operating Mode	(blank)		
Int. Cont. Active Indicator	DTR On	Either On	Either On
Int. Cont. Active Indicator to CTS Delay Timer	1	0	
Int. Cont. Originate Indicator	User Action	Active On*	User Action*
Int. Cont. Disconnect Indicator	Active On>Off	Never	Never
Int. Cont. Disconnect Indicator OFF Timer	0		
Incoming Call Action	Accept	Refuse*	Accept*
Int. Cont. Call Accepted Indicator	None	None*	None*
DTE Min Baud Rate	110		
DTE Max Baud Rate	19200		
DCD Fixed High	No		
MAINTENANCE PARAMETERS			
Dataset Auditing	Yes		
Attached Device Loopback	No*		
ASYNC DNIC DATASET PARAMETERS			
1st PBX Attention Char.	(blank)		
2nd PBX Attention Char.	(blank)*		
Attention Via BREAK Key DTE–to–	End		
Parity to Attached Device	Transparent		
Flow Control	XON/XOFF	None	None
XON Flow Control Char.	17	(blank)	(blank)
XOFF Flow Control Char.	19	(blank)	(blank)
Autobaud	Yes	No	No
1st Autobaud Char. to Host	(blank)		
2nd Autobaud Char. to Host	(blank)		
3rd Autobaud Char. to Host	(blank)		
4th Autobaud Char. to Host	(blank)		
Delay Before 1st Autobaud Char.	5		
Autobaud Inter–Char. Delay	20		
SYNC DNIC DATASET PARAMETERS			
Timing Mode	(blank)		
Rate Adaption Scheme	(blank) ♦		
Data Buffering	32		
Idle Data Pattern	0		

* These values may not be changed.

♦ Rate Adaption Scheme must be "Async" for Device Class DS2100s/Async.

Table 11–7 Default Values For DS2100s/Sync

Parameters	Basic	Nailed Call Orig	Nailed Call Term	MSAN–APNSS
CONNECTION TIMERS				
Guard Timer	0	3	5	60*
Connect Confirmation Timer	0			
Session Inactivity Timer	0			
INTERFACE CHARACTERISTICS				
Interface Type	(blank)			
Operating Mode	DCE			(blank)
Int. Cont. Active Indicator	DTR On	Either On	Either On	DTR On*
Int. Cont. Active Indicator to CTS Delay Timer	1	0		0
Int. Cont. Originate Indicator	User Action	Active On*	User Action*	Active On*
Int. Cont. Disconnect Indicator	Active On>Off	Never	Never	Active On>Off*
Int. Cont. Disconnect Indicator OFF Timer	0			
Incoming Call Action	Accept	Refuse*	Accept*	Refuse*
Int. Cont. Call Accepted Indicator	None	None*	None*	
DTE Min Baud Rate	110			9600
DTE Max Baud Rate	19200			9600
DCD Fixed High	No			
MAINTENANCE PARAMETERS				
Dataset Auditing	Yes			No*
Attached Device Loopback	No*			
ASYNC DNIC DATASET PARAMETERS				
1st PBX Attention Char.	(blank)			
2nd PBX Attention Char.	(blank)*			
Attention Via BREAK Key DTE–to–	End			
Parity to Attached Device	Transparent			
Flow Control	None			
XON Flow Control Char.	(blank)			
XOFF Flow Control Char.	(blank)			
Autobaud	No			
1st Autobaud Char. to Host	(blank)			
2nd Autobaud Char. to Host	(blank)			
3rd Autobaud Char. to Host	(blank)			
4th Autobaud Char. to Host	(blank)			
Delay Before 1st Autobaud Char.	5			
Autobaud Inter–Char. Delay	20			
SYNC DNIC DATASET PARAMETERS				
Timing Mode	Sys			Tx and Ex Ext
Rate Adaption Scheme	Milap–Sync			X.31*
Data Buffering	32			
Idle Data Pattern	0			

* These values may not be changed.

Table 11–8 Default Values for DS2200s

Parameters	Basic & Network Sync	Nailed Call Orig	Nailed Call Term	MSAN–APNSS
CONNECTION TIMERS				
Guard Timer	0	3	5	60*
Connect Confirmation Timer	0			
Session Inactivity Timer	0			
INTERFACE CHARACTERISTICS				
Interface Type	X.21			V.35
Operating Mode	Basic: DCE			DTE
Int. Cont. Active Indicator	DTR On	Either On	Either On	RTS On
Int. Cont. Active Indicator to CTS Delay Timer	1	0		0
Int. Cont. Originate Indicator	User Action	Active On*	User Action*	Active On*
Int. Cont. Disconnect Indicator	Active On>Off	Never	Never	Active On>Off*
Int. Cont. Disconnect Indicator OFF Timer	0			
Incoming Call Action	Accept	Refuse*	Accept*	Refuse*
Int. Cont. Call Accepted Indicator	None	None*	None*	
DTE Min Baud Rate	48000			64000
DTE Max Baud Rate	64000			
DCD Fixed High	No			
MAINTENANCE PARAMETERS				
Dataset Auditing	Yes			No*
Attached Device Loopback	No*			
ASYNC DNIC DATASET PARAMETERS				
1st PBX Attention Char.	(blank)			
2nd PBX Attention Char.	(blank)*			
Attention Via BREAK Key DTE–to–	End			
Parity to Attached Device	Transparent			
Flow Control	None			
XON Flow Control Char.	(blank)			
XOFF Flow Control Char.	(blank)			
Autobaud	No			
1st Autobaud Char. to Host	(blank)			
2nd Autobaud Char. to Host	(blank)			
3rd Autobaud Char. to Host	(blank)			
4th Autobaud Char. to Host	(blank)			
Delay Before 1st Autobaud Char.	5			
Autobaud Inter–Char. Delay	20			
SYNC DNIC DATASET PARAMETERS				
Timing Mode	Sys			Tx Ext
Rate Adaption Scheme	DMI			DMI*
Data Buffering	32			
Idle Data Pattern	0			

* These values may not be changed.

Table 11–9 Default Values For DS4110s And DS4120s

Parameters	Basic	Nailed Call Orig (DS4110s only)	Nailed Call Term (DS4120s only)
CONNECTION TIMERS			
Guard Timer	DS4110s: 0 DS4120s: 5	3	5
Connect Confirmation Timer	0		
Session Inactivity Timer	0		
INTERFACE CHARACTERISTICS			
Interface Type	(blank)		
Operating Mode	(blank)		
Int. Cont. Active Indicator	DTR On ♦		
Int. Cont. Active Indicator to CTS Delay Timer	1	0	
Int. Cont. Originate Indicator	User Action	Active On*	User Action*
Int. Cont. Disconnect Indicator	Active On>Off	Never	Never
Int. Cont. Disconnect Indicator OFF Timer	0		
Incoming Call Action	Accept	Refuse*	Accept*
Int. Cont. Call Accepted Indicator	None	None*	None*
DTE Min Baud Rate	110		
DTE Max Baud Rate	9600		
DCD Fixed High	No		
MAINTENANCE PARAMETERS			
Dataset Auditing	Yes		
Attached Device Loopback	No*		
ASYNC DNIC DATASET PARAMETERS			
1st PBX Attention Char.	(blank)		
2nd PBX Attention Char.	(blank) ♣		(blank)*
Attention Via BREAK Key DTE–to–	End		
Parity to Attached Device	Transparent		
Flow Control	None		
XON Flow Control Char.	(blank)		
XOFF Flow Control Char.	(blank)		
Autobaud	No		
1st Autobaud Char. to Host	(blank)		
2nd Autobaud Char. to Host	(blank)		
3rd Autobaud Char. to Host	(blank)		
4th Autobaud Char. to Host	(blank)		
Delay Before 1st Autobaud Char.	5		
Autobaud Inter–Char. Delay	20		
SYNC DNIC DATASET PARAMETERS			
Timing Mode	(blank)		
Rate Adaption Scheme	(blank)		
Data Buffering	32		
Idle Data Pattern	0		

* These values may not be changed.

♦ Interface Controlled Active Indicator must be "DTR On" for DS4110s.

♣ 2nd PBX Attention Character must be blank for DS4120s.

Dataset Location Assignment

Description

11.4 The Dataset Location Assignment Form provides a means of specifying the location of a dataset given the physical location of the Dataset Line Card. The form may be used for both standalone and rack–mounted locations. A brief description of the location of each dataset may be entered for each dataset in the system.

Conditions

The identification comment entered on the Dataset Location form may be any character string chosen by the customer to describe the location of the dataset unit.

Form Headings:

- **Cabinet, Shelf, Slot, Circuit, Channel:** System–generated, protected fields indicating the location of the Dataset Line cards in system. These fields are presented in ascending order of cabinet/shelf/slot/circuit/channel.
- **Identification Comments:** A string of up to 40 characters describing the location of the dataset associated with the Dataset Line card circuit.

DATASET LOCATION ASSIGNMENT

Cabinet	Shelf	Slot	Circuit	Channel	Identification Comments

F00032

12. DIGITAL LINK FORMS

General

12.1 Digital Link forms define the interfaces to the *SX–2000* ICS that provide digital private networking capabilities using T1 and CEPT facilities. The Digital Link forms are:

(a) **Digital Link Assignment:** Assigns descriptor numbers to circuits that serve as digital links. Either the MSDN/DPNSS Voice I, DASS II Voice I, T1/D4, Italian CAS or MSAN/APNSS feature package must be purchased in order to gain access to this form.

(b) **Link Descriptor Assignment:** Defines the protocol characteristics of MSDN/DPNSS, DASS II, T1/D4, CEPT CAS and MSAN/APNSS links. The MSDN/DPNSS Voice I, DASS II Voice I, T1/D4, Italian CAS or MSAN/APNSS feature package must be purchased in order to gain access to this form.

(c) **Network Synchronization:** Defines the external clock source used for network synchronization. It also defines the slip rate tolerated by the synchronization source. Either the MSDN/DPNSS Voice I, DASS II Voice I, T1/D4, Italian CAS, MSAN/APNSS or the Digital Set Software feature package must be purchased in order to gain access to this form.

DNI Set Software is documented in Practice 9125–060–609–NA, Digital Sets. MSDN/DPNSS Voice I is documented in Practice 9125–060–610–NA. T1/D4 is documented in Practice 9125–060–601–NA. MSAN/APNSS is documented in Practice 9125–060–625–NA. Italian CAS is documented in Practice 9125–060–628–NA.

Note: DASS II is only available in the United Kingdom. Italian CAS is only available in Italy.

Digital Link Assignment

12.2 The Digital Link Assignment form assigns circuit descriptors, on a per–link basis, to digital trunk cards. The form also provides space for comments to be made on a per–link basis.

Conditions

1. This form is available only with the MSDN/DPNSS Voice I, DASS II Voice I, T1/D4, Italian CAS or MSAN/APNSS feature package. (Note: DASS II is only available in the United Kingdom.)

2. If the Card Type is programmed as CEPT or DS1, the Digital Link Descriptor Number must be assigned in a Link Descriptor Assignment form.

3. If both links on a DS1 formatter card are programmed, they must both use the same signaling scheme (CCS or CAS).

Form Headings:

- **Cab/Shlf/Slot/Link:** System–generated, protected fields containing the PLID for digital trunk. These fields are displayed in ascending PLID order.
- **Card Type:** A system–generated, protected field detailing the card type programmed in the System Configuration form.
- **Digital Link Descriptor Number:** Enter a descriptor number that references an entry in the Link Descriptor Assignment form where the characteristics of the digital link are defined. The maximum Descriptor Number is 16.
- **Text:** An optional comment field of up to 24 characters for recording information about the link.

DIGITAL LINK ASSIGNMENT

Cab	Shlf	Slot	Link	Card Type	Digital Link Descriptor Number	Text

F00033

Link Descriptor Assignment

Description

12.3 The Link Descriptor Assignment form specifies the operating parameters of MSDN/DPNSS, DASS II, T1/D4, CEPT CAS and MSAN/APNSS links. Both CEPT and DS1 trunk characteristics are defined by this form.

Conditions

1. This form is available only with the MSDN/DPNSS Voice I, the DASS II Voice I, the T1/D4, the Italian CAS or the MSAN/APNSS feature package.
2. The Integrated Digital Access field can only be programmed for a feature package that has been installed, i.e., DPNSS for MSDN/DPNSS Voice I, DASS II for DASS II Voice I, CEPT CAS for Italian CAS, T1–D4 for T1/D4, and MSAN–APNSS for MSAN/APNSS.
3. The maintenance slip rate must be less than the service slip rate.
4. The maintenance framing losses must be less than the service slip losses.
5. The maintenance BER must be greater than the service BER.

Note: DASS II is only available in the United Kingdom and Italian CAS is only available in Italy.

Form Headings:

- **Digital Link Descriptor Number:** A programmable field used to uniquely identify the Descriptor. Digits in the range 1 through 16 can be programmed.
- **Description:** A system–generated list of the parameters as follows:
  - **Address for Message Control** – Defines the direction of the command and response messages between two PBXs in an MSDN/DPNSS network. Through this field it is possible to assign "A" or "B" to the local end of the link. The other end must be assigned "B" or "A" respectively as part of network configuration. Default value is a blank field. This field only applies to MSDN/DPNSS.
  - **BER – Maintenance Limit** – Specifies the exponent of the allowable Bit Error Rate (BER) in any 24–hour period. When the maintenance limit is reached a log is generated. Default value is 4.
  - **BER – Service Limit** – Specifies the exponent of the allowable Bit Error Rate in any 24–hour period. When the service limit is reached the link is taken out of service. Default value is 3.
  - **Data Call Alternate Digit Inversion** – This field applies only to CEPT trunks running DPNSS. To disable ADI on data calls this field must be set to "No".
  - **Framing Losses in 24 hrs – Maintenance Limit** – Specifies the number of short (50 ms.) out–of–synchronization periods tolerated before a maintenance log is generated. Default value is 255.

LINK DESCRIPTOR ASSIGNMENT

Digital Link Descriptor Number:

Description	Value
Address for Message Control (A/B)	
BER – Maintenance Limit, 10**–n, n=(3,4,5,6)	4
BER – Service Limit, 10**–n, n=(3,4,5,6,)	3
Data Call Alternate Digit Inversion (Yes/No)	Yes
Framing Losses in 24 hrs – Maintenance Limit (0–9000)	255
Framing Losses in 24 hrs – Service Limit (0–9000)	9000
Integrated Digital Access	
Satellite Link Delay (Yes/No)	No
Slip Rate – Maintenance Limit (0–9000)	255
Slip Rate – Service Limit (0–9000)	7000
DS1 Parameters	
Alarm Debounce Timer – Service Limit (300–3200)	500
B8ZS Zero Code Suppression – (Yes/No)	Yes
Italian Parameters	
Digital Link Fault Delay Timer (0–360 sec)	240

F00034

- **Framing Losses in 24 hrs – Service Limit** – Specifies the number of short (50 ms.) out–of–synchronization periods tolerated before the link is taken out of service. The link is returned to service after 10 ms. in sync. Default value is 9000.
- **Integrated Digital Access** – Defines which signaling protocol will be used for the link. Options available are: DPNSS, DASS II, T1–D4, CEPT CAS, and MSAN–APNSS. The default is a blank field. DASS II links are only available in the United Kingdom; CEPT CAS links are only available in Italy.
- **Satellite Link Delay** – This field permits the link layer to tolerate longer delays between retransmissions over satellite. When the field is enabled ("Yes"), retransmission of frames will occur once every 500 ms until the 64 retransmission limit is reached.

- **Slip Rate – Maintenance Limit** – Specifies the maximum number of slips allowed in a 24–hour period. When the maintenance slip limit is reached a log is produced. Default value is 255.
- **Slip Rate – Service Limit** – Specifies the maximum number of slips allowed in a 24–hour period. When the service slip limit is reached the digital link is taken out of service. Default value is 7000.

DS1 Parameters:

- **Alarm Debounce Timer:** This is a DS1 parameter and specifies the minimum length of time an alarm has to be received from the far–end before the link is taken out of service. Default value is 500 ms.
- **B8ZS Zero Code Suppression:** This is a DS1 parameter and specifies if the hybrid is to use jammed bit or B8ZS zero code suppression on the DS1 link. Zero Code Suppression is a method of reducing timing errors by suppressing all–zero codes and replacing them with another bit pattern. Both ends of the link must specify the same type of zero code suppression. Default value is YES.

Italian Parameters:

- **Digital Link Fault Delay Timer:** This is an Italian CAS parameter and specifies the delay period before alarming digital link faults. The range of values is 0 to 360 seconds (0 to 6 minutes, although the acceptable range is 240 to 360 seconds (4–6 minutes).

• **Value:** A programmable field used to select the parameters listed under "Description".

Network Synchronization

Description

12.4 The Network Synchronization form is used to define external clock source for network synchronization. The external source can be derived from any of the digital links terminated on a DSU group, or a DATASET 2200 circuit. A maximum of eight sources can be defined. A slip rate is also defined for each clock source. When no external source is defined, the system's internal clock is used, and any connected digital links run in free–run mode.

Conditions

1. This form is available only with the following feature packages: Digital Sets, MSDN/DPNSS Voice I, DASS II Voice I, Italian CAS, MSAN/APNSS or T1/D4.

2. The order in which the clock sources are listed determines the order in which they are selected by the system. Not all eight sources need to be entered.

3. Use of this form is optional. When synchronization to an external source is not required the form need not be used. When no external source is defined, network synchronization is provided by the *SX–2000* system clock.

4. CEPT formatter cards, DS1 formatter cards and DATASET 2200 series sets may be used as external clock sources; however a digital link programmed for APNSS may not be used as an external clock source.

5. Only one link of a mated pair can be designated as a clock source.

6. If the Slip rate threshold is exceeded by the current synchronization source that source is replaced by the next synchronization source.

7. A DATASET 2200 series set used as a clock source must have a Circuit Descriptor with Usage of "Network Sync" or "MSAN–APNSS" and Device Class of "DS2200s".

Note: DASS II is only available in the United Kingdom; Italian CAS is only available in Italy.

Form Headings:

- **Description:** A system–generated field which indexes clock sources 1 through 8.
- **Cab/Shlf/Slot/Hybrid:** Programmable fields containing the PLID used for the external clock source.
- **Slip Rate:** A programmable field specifying the number of allowed slips in a 24–hour period. The range of values is 0 to 9000. Default value is 3.

NETWORK SYNCHRONIZATION

Description	Cabinet	Shelf	Slot	Hybrid	Slip Rate
First Clock Source					3
Second Clock Source					3
Third Clock Source					3
Fourth Clock Source					3
Fifth Clock Source					3
Sixth Clock Source					3
Seventh Clock Source					3
Eighth Clock Source					3

F00035

13. GROUP FORMS

General

13.1 Group forms are used to gather directory numbers of industry standard and MITEL proprietary station sets together in order to form circular or terminal hunt groups and pickup groups, or to form circular hunt groups for datasets. The group forms are:

(a) **Dataset Hunt Group Assignment:** gathers datasets into circular hunt groups.

(b) **Hunt Group Assignment:** gathers industry standard and MITEL proprietary station sets together to form circular or terminal hunt groups.

(c) **Pickup Group Assignment:** gathers industry standard and MITEL proprietary station sets together to form pickup groups.

Dataset Hunt Group Assignment

Description

13.2 The Dataset Hunt Group Assignment form is used to gather Dataset Directory Numbers into circular hunt groups. The form consists of a group Pilot Number, and a list of all Directory Numbers belonging to the group. In order to create hunt groups, it is only necessary to list the hunt group members (Directory Numbers) under the appropriate Pilot Number.

Conditions

1. Pilot Numbers must be unique.

2. Datasets may be in more than one hunt group.

3. The number of dataset groups must not exceed the value indicated by the "Dataset Groups" parameter in Table 5–2, MITEL Feature Resource Dimensions, for the site being configured.

4. The number of datasets per hunt group must not exceed the value indicated by the "Datasets per Dataset Group" parameter in Table 5–2, MITEL Feature Resource Dimensions, for the site being configured.

5. DATASET 1, DATASET 2 and DATASET IPC devices cannot be mixed with DNI datasets (1100, 2100, 2200, or 4100 series).

6. DATASET 2200 series devices cannot be placed in a hunt group with DATASET 4100 series, DATASET 1100 series or DATASET 2100 series devices; they can only be placed in groups consisting of other DATASET 2200 devices.

7. DATASET 1100 series devices can only be placed in hunt groups with other DATASET 1100 series devices, or with DATASET 2100 series devices programmed to operate in asynchronous mode.

8. Synchronous DATASET 2100 devices can only be in hunt groups with other DATASET 2100 devices, or DATASET 4100 devices.

9. A Dataset Hunt Group cannot have an MSAN/APNSS dataset as a member.

Form Headings:

- **Pilot Number:** Enter a unique number up to seven digits in length to identify the hunt group. The Pilot Number is the number dialed to access the hunt group.
- **Name:** A system–generated, protected field indicating the name under which the dataset hunt group is listed in the Telephone Directory.
- **Member:** A system–generated, protected field indicating the number of the member within the group.

- **Directory Number:** List the Dataset Directory Numbers belonging to the hunt group.
- **Name:** A system–generated, protected field indicating the name associated with the Directory Number in the Telephone Directory.

DATASET HUNT GROUP ASSIGNMENT

Pilot Number: Name:			Pilot Number: Name:		
Member	Directory Number	Name	Member	Directory Number	Name

F00037

Hunt Group Assignment

Description

13.3 The Hunt Group Assignment form is used to gather Directory Numbers into terminal, circular, or ACD hunt groups. The form consists of a group Pilot Number, Hunt Mode, Name and a list of all directory numbers belonging to the group. In order to create hunt groups, it is only necessary to list the group members (Directory Numbers) under the appropriate Pilot Number.

Conditions

1. Pilot Number must be unique and it must be greater than the RAD number.
2. Only existing Directory Numbers may be listed.
3. A station may appear in more than one group.
4. A mix of standard telephones and Multiline sets may appear in any hunt group.
5. Multiline set prime or non–prime single line numbers, Key System numbers and Multicall numbers are allowed in hunt groups.
6. Attendant Console Directory Numbers, Dataset Directory Numbers, Call Announce Numbers, and other Pilot Numbers are not allowed in hunt groups.
7. *SUPERSET* 401 telephones cannot be programmed in the RAD 1, RAD 2 or NIGHT RAD entries.
8. The MCD feature option must be enabled to allow for the programming of an explicit Phantom group.
9. To route calls directly from a Phantom group to a NIGHT RAD, any Busy/DND First Alternate rerouting must be omitted for the Phantom group. (See "Call Rerouting Forms").
10. The RAD 1, RAD 2, 1st Threshold, 2nd Threshold, Alert Device and Phase Timer fields cannot be programmed for a Phantom group.

Form Headings:

- **Pilot Number:** Enter a unique Directory number up to seven digits in length to identify the hunt group. The pilot number is the number dialed to access the hunt group.
- **Hunt Mode:** Select the mode of hunting by entering either:
  - "Terminal" for terminal hunting in which the stations that form the group are searched starting at the first station and ending with the last station in the group;
  - "Circular" for circular hunting in which the stations that form the group are searched in a circular manner beginning with the station following the last used station as listed in the group.

– "ACD" for longest idle agent hunting. All members of the hunt group must be an ACD agent. The stations that form the group are searched to determine the amount of time that has expired since each agent's last hunt group call. The call is routed to the agent with the longest idle time.

HUNT GROUP ASSIGNMENT

Pilot Number:	Name:
Hunt Mode:	Priority:
Group Type:	1st Threshold (%):
RAD 1:	2nd Threshold (%):
RAD 2:	Alert Device:
NIGHT RAD:	Phase Timer:

Member	Directory Number	Name

F00038

- **Group Type:** Group types are "VOICE", "RAD", or "PHANTOM ". VOICE is used for groups of people. RAD is used for groups of Recorded Announcement Devices. PHANTOM is used to serially chain Phantom groups in front of MCD voice groups and to allow Phantom groups to work with MCD call overflow.
- **RAD 1:** This field displays the directory number of the RAD containing the first message to be given to callers when members of the hunt group are busy, in Do Not Disturb or when they fail to answer the call. A timer, defined in the Class of Service form, determines how long the caller listens to ringback while waiting for the first message.
- **RAD 2:** This field displays the directory number of the RAD containing the second message to be given to callers. Timers, defined in the Class Of Service form, determine the interval between messages.
- **NIGHT RAD:** This field displays the directory number of the RAD containing the message given to callers if either the hunt group, or all members of the hunt group, are in Do Not Disturb mode.
- **Name:** A system–generated field indicating the name under which the hunt group is listed in the Telephone Directory. If no name exists in the Telephone Directory for the Pilot Number, this field is blank.
- **Priority:** Incoming calls are prioritized from 1 to 64, with 1 being the highest and 64 being the lowest. For calls with priority levels 1 through 63, the priority level of the first group reached by a caller determines the call's priority through all phases of call handling and rerouting. Calls with a priority level of 64 inherit the priority level of the next group into which they overflow.
  If an agent is in more than one ACD hunt group, the priority of the hunt group determines the order in which his calls are routed.
  A hunt group programmed with a blank priority field will be assigned a priority of 64 upon commit.
- **1st Threshold (%):** This threshold ranges from 0 to 999 percent and cannot be greater than or equal to the 2nd Threshold value. If this field is left blank then the Threshold Alert is turned off. A visual indication is given when the load on the hunt group exceeds the predetermined value.
- **2nd Threshold (%):** This threshold ranges from 0 to 999 percent and cannot be less than or equal to the 1st Threshold value. If the 1st Threshold is blank then the 2nd Threshold must also be blank. A visual indication, differing from the 1st Threshold's indication, is given when the load on the hunt group exceeds the predetermined value.
- **Alert Device:** This is the directory number of a *SUPERSET 4* telephone line appearance and/or ONS device which the system rings to indicate the status of the group's queue in relation to the first and second thresholds.
- **Phase Timer:** The maximum required delay for the successive seizures of recorded announcement devices for a group is programmed as the RAD Phase Timer. If no delay is required, then 0 is programmed.
- **Member:** A system–generated, protected field indicating the number of the member within the group.

- **Directory Number:** The Directory Numbers belonging to the hunt group are listed under this heading.
- **Name:** A system–generated, protected field indicating the name corresponding to the Directory Number, as entered in the Telephone Directory. If no name exists for the associated Directory Number the field is blank.

Pickup Group Assignment

Description

13.4 The Pickup Group Assignment form gathers Directory Numbers of telephones and multiline sets into pickup groups. Since the form consists of two columns of 16 lines, two pickup groups may be defined per form. If a pickup group contains more than 16 members, list the additional members in the adjacent column, repeating the group number as required.

Conditions

1. Stations can only appear in one pickup group.
2. A mix of multiline set prime lines and standard telephones is allowed in any of the pickup groups.
3. Attendant Console Directory Numbers, multiline set non–prime numbers and Data-set Directory Numbers are not allowed in pickup groups.

Form Headings:

- **Pickup Group Number:** Enter a number up to three digits in length to identify the pickup group. This number is a reference number only, and is not dialable.
- **Member:** A system–generated, protected field indicating the number of members in the group.
- **Directory Number:** List the Directory Numbers which are to form part of the pickup group.
- **Name:** A system–generated, protected field containing the name associated with this Directory Number in the Telephone Directory Form.

PICKUP GROUP ASSIGNMENT

Pickup Group Number:

Member	Directory Number	Name

F00039

14. MOVES AND CHANGES

Change Attribute Assignment

14.1 The Change Attribute Assignment form provides the system manager with a facility to make changes to the database of an operational *SX–2000* ICS for multiline sets, single line sets, industry standard sets and datasets. The form is described here. Also refer to the discussion of the MOVE operation, in part 4.

Conditions

1. Modifying the fields in this form and committing the changes is equivalent to modifying those same fields in the forms in which they appear; i.e., changing the Department or Location fields is equivalent to modifying Department or Location in the Telephone Directory form.

2. Data stations cannot be assigned an Associated Data Line Number in this form.

Form Headings:

- **Directory Number:** May be one of an industry standard set, a multiline set prime line, a single line set, or a dataset. This field is used to recall the form. Once the form has been recalled this field is considered protected.
- **Name:** When the form is recalled, this field contains the name associated with the Directory Number in the Telephone Directory. If no name is available then the field is blank.
- **Cab,Shelf,Slot,Circ,Chan:** A protected field which shows the location of the device associated with the recalled directory number.
- **Department:** Is the Department name for user displayed in the Name field. If no department is available the field is blank.
- **Card Type:** Is a protected field, showing the type of card to which the specified station is connected (ONS, OPS, COV, DNI, DATASET).
- **Location:** Is the Location name for the user displayed in the Name field. If no Location is available, then this field is blank.
- **Device Type:** Is a protected field indicating the device type of the recalled extension.
- **Default Account Code:** Account code index number as programmed on the Default Account Code Assignment form.
- **Circuit Descriptor:** The number of the version of the ONS/OPS Circuit Descriptor Assignment form or Dataset Circuit Descriptor Assignment form which specifies the characteristics of the circuit for the specified station.

- **Intercept Number:** The number of the version of the Intercept Handling Assignment form which specifies the intercept handling for the specified station.
- **Interconnect Number:** Is the Interconnect Number of the recalled station.
- **Class Of Service (Day, Night1, Night2):** Is the Class of Service for each of the operational modes (Day, Night1 and Night2) of the recalled station.
- **Class Of Restriction (Day, Night1, Night2):** Is the Class of Restriction for each of the operational modes (Day, Night1, Night2) of the recalled station.
- **1st, 2nd and Always Call Rerouting Numbers:** Indices into the various call rerouting forms, as programmed on the Call Rerouting Assignment form.
- **Personal Speedcalls Max:** Indicates the number of Personal Speed Call Entries allocated to the recalled station. The "Hotline Number" and "Personal Speedcalls Max" fields are mutually exclusive.
- **Personal Speedcalls Used:** A read only field which shows the actual number of Personal Speed Call Entries stored by the user. The "Hotline Number" and "Personal Speedcalls Used" fields are mutually exclusive.
- **Pickup Group Number:** Is the Pickup Group that the Directory Number of the recalled station is associated with. Changing the pickup group number is equivalent to removing the station from the "old" pickup group and adding it to the "new" pickup group. This is a programmable field.
- **Call Announce Number:** A read only field indicating the Call Announce line associated with the recalled station. Only a *SUPERSET 4* telephone with the appropriate options selected may have a Call Announce line. The Call Announce Number may only be programmed for the prime line *SUPERSET 4* telephone number. For industry standard sets and the other multiline sets this field is always blank.
- **Associated Data Line Number:** Is the Directory Number of an existing dataset associated with the recalled station, or an ONS station associated with a data station. If no associated dataset exists for the recalled station, this field is blank. The Associated Data Line Number and the Hotline Number fields are mutually exclusive. This is a programmable field.
- **Station Hotline Number:** Is the Hotline Number for the recalled station. This field will be blank if there is no Hotline Number for this station. The Associated Data Line Number and the Hotline Number fields are mutually exclusive. The "Hotline Number" and "Personal Speed Call Entries" fields are mutually exclusive. This is a programmable field, accepting up to 26 digits.
- **Hunt Group Pilot Numbers:** A read only field in which the first six Hunt Group Pilot Numbers may be listed, indicating the hunt groups to which the recalled station belongs. If the station belongs to more than six hunt groups, the others will not be displayed. This field will be blank if the recalled station is not a member of a hunt group.

CHANGE ATTRIBUTE ASSIGNMENT

Directory Number:

Name :	Cab, Shlf, Slot, Circ, Chan
Department :	Card Type :
Location :	Device Type :
Default Account Code :	Circuit Descriptor :
	Interconnect Number :
Intercept Number :	
Class of Service (Day) :	Class Of Restriction (Day) :
Class of Service (Night1) :	Class Of Restriction (Night1) :
	Class Of Restriction (Night2) :
Class of Service (Night2)	
Personal Speedcalls Max :	1st Call Rerouting Number :
Personal Speedcalls Used :	2nd Call Rerouting Number :
Pickup Group Number :	Always Rerouting (Day) :
Call Announce Number :	Always Rerouting (Night1) :
Associated Dataline Number :	Always Rerouting (Night2) :
Station Hotline Number :	

Hunt Group Pilot Numbers : 1) 2) 3)
4) 5) 6)

F00040

15. MULTILINE SET FORMS

General

15.1 The multiline set forms are used to specify the operating parameters for the MITEL proprietary *SUPERSET 3*, *SUPERSET 3* DN, *SUPERSET 4*, *SUPERSET 410, SUPERSET 430,* and *SUPERSET 4* DN voice sets. The forms in this group are:

(a) **Multiline Set Assignment:** Assigns Prime Directory Numbers and Interconnect Numbers to all COV, *SUPERSET 410, SUPERSET 430, SUPERSET 3* DN and *SUPERSET 4* DN telephone DNI line circuits. Call Announce Numbers are assigned to *SUPERSET 4* sets with this form.

(b) **Multiline Set Group Assignment:** Permits easy management of key system and multicall groups.

(c) **Multiline Set Key Assignment:** Assigns the Prime Ring Type and Prime Name to *SUPERSET*™ telephones, and associates Directory Numbers to each of the line select keys on the set. The line type and ring type for each line appearance is also specified.

(d) **Multiline Set Status Message Assignment:** Defines up to 20 status messages that may be displayed on the *SUPERSET 4, SUPERSET 430* and *SUPERSET 4* DN telephone LCD.

Multiline Set Assignment

Description

15.2 The Multiline Set Assignment form assigns Prime Directory Numbers and Interconnect Numbers to all *SUPERSET 3*, *SUPERSET 3* DN, *SUPERSET 410, SUPERSET 430, SUPERSET 4*, and *SUPERSET 4* DN telephones. It is also used to associate OPS Directory Numbers to *SUPERSET 4* telephones for the purpose of forming a Call Announce port at the handsfree interface of a *SUPERSET 4* telephone, and to program a line as an ACD agent.

Conditions

1. Directory numbers entered in this form must either be unique, or must be the directory number of key system or multicall group that has no prime appearance, or must be a private non–prime line.

2. When Directory numbers are entered in this form they must be unique.

3. Call Announce numbers must be associated with OPS lines that have a circuit descriptor with the "Call Announce Line" option enabled.

Form Headings:

- **Cabinet, Shelf, Slot, Circuit:** System–generated, protected fields indicating the card position and circuit used for the associated *SUPERSET* telephone.
- **Card Type:** A system–generated, protected field indicating that the card is a "COV Line" or "DNI Line" card.
- **Prime Directory Number:** Enter a unique internal Directory number up to seven digits in length assigned to the line circuit.
- **ACD Agent:** Enter "Yes" if the *SUPERSET 4*/SUPERSET 430/*SUPERSET 4* DN telephone is to be an ACD agent. This field cannot be changed from "Yes" to "No" if the *SUPERSET 4, SUPERSET 430,* or *SUPERSET 4* DN telephone is part of an ACD Hunt Group.
- **Call Announce Number:** Enter the Directory Number of an Off–Premises Line (OPS) circuit that has the associated circuit descriptor parameter, "Call Announce", set to "yes". This circuit is used to form the Call Announce port at the handsfree interface of the *SUPERSET 4* telephone.
- **Prime Line Type:** This is a system–generated, protected field containing "not assigned". Once the *SUPERSET* line is programmed, the field shows "single line". Once a group is created, the field shows either "key system" or "multicall" as appropriate.
- **Interconnect Number:** Enter a number, between 1 and 64, that references an entry in the Interconnect Restriction Table where the interconnect rights for the COV circuit are defined.
- **Language:** A system–generated field indicating the language the set is operating in (English, French, German or Italian).

MULTILINE SET ASSIGNMENT

Cab	Srd	Slt	Cir	Card Type	Prime Directory Number	ACD Agent	Call Announce Number	Prime Line Type	Inter-Connect Number	Language

F00041

Multiline Set Group Assignment

Description

15.3 This form gives the system manager a tool for changing group types from Key System to Multicall, or Multicall to Key System for multiline sets. It is also used to specify "Ring Type" for any line in a multiline set group.

Conditions

1. This form is recalled by entering the Group Directory Number and pressing the "Recall" function key.

2. The Group Directory Number must be one of:

   - a Key System group;
   - a Multicall group;
   - a station that is the prime member of a Key System or Multicall Group;
   - a trunk number that is also a Key System group or a single line;
   - an ACD threshold alert indicator.

Form Headings:

- **Group Directory Number:** Enter the number that is dialed to access the group. If an internal directory number is used to access the group, then enter that Directory Number. If a trunk number is used to access the group, specify the trunk number as "Tnnnn", where "nnnn" is the actual trunk number.
- **Group Type:** Enter the group type associated with this group. The type will be "multicall" or "key system".
- **Member:** A system–generated, protected field which shows the number of members in the group, and the order in which they appear.
- **Prime Directory Number:** A system–generated, protected field showing the Prime Number of each device belonging to the group.
- **Key Number:** A system–generated, protected field indicating the button on the Prime Directory Number's device which is an appearance of the Group Directory Number.
- **Ring Type:** Enter either "Ring" (to select ringing line appearance), "No Ring" (to select a no–ring line appearance) or "Delay Ring" (to select a delayed ringing line appearance).

MULTILINE SET GROUP ASSIGNMENT

GROUP DIRECTORY NUMBER:

GROUP TYPE:

MEMBER	PRIME DIRECTORY NUMBER	KEY NUMBER	RING TYPE

F00042

Multiline Set Key Assignment

Description

15.4 This form is used to list the Directory Numbers associated with the Line Select keys on a *SUPERSET 3*, *SUPERSET 3* DN, *SUPERSET 410, SUPERSET 4, SUPERSET 430,* or *SUPERSET 4* DN telephone. The Line Select key assignments for three sets can be handled by the paper form shown. Each key assignment will define the type of line (Single Line, Key System, Multicall) and specify whether a call to the key's Directory Number will ring the set, flash the Line Status indicator associated with the key or activate the Delay Ring feature associated with that line appearance. Speed call numbers can be programmed by the installer on this form, or can be defined by the set user. Keys may also be programmed by the installer as Feature Access Keys. Pressing the associated key on the set invokes the feature programmed against that line. The following features may be programmed against Line Select keys:

- Auto Answer*
- Callback
- Camp–on
- Call Forward Busy – External Source
- Call Forward Busy – Internal Source
- Call Forward No Answer – External Source
- Call Forward No Answer – Internal Source
- Call Forward Busy
- Call Forward No Answer
- Call Forward Always
- Do Not Disturb
- Headset Operation
- Make Busy
- Music
- Night Answer
- Override
- Paging
- Privacy Release
- Swap

Any Line Select key left undefined is available to the user as a programmable speed call number.

*The Auto Answer Feature Access Key is not available on the *SUPERSET* 410 telephone.

Conditions

1. All Prime Directory Numbers must be unique.
2. A Directory Number may appear on more than one key on any *SUPERSET* telephone.
3. The Line Types associated with any given directory number must match in all forms where the numbers appear.

MULTILINE SET KEY ASSIGNMENT

Prime Directory Number: Prime Line Type:

Prime Ring Type: Cab, Shlf, Slot, Cir

Prime Name:

Key Number	Directory Number	Line Type	Ring Type
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

F00043

4. If a Trunk Number is programmed in the Directory Number field, it can be assigned as either a "Key System" or "Single" line. A trunk assigned to a multiline set line cannot be in a trunk group.

5. Installer–programmed speed call keys are programmed by entering the number in the Directory Number field, and "cde speedcall" in the Line Type field. Once a key is programmed this way, the user will not be able to reprogram the key from the set. A maximum of 7 digits is allowed.

6. A user–programmed speed call number appears on the form as "user speedcall" in the Line Type field. The Directory Number field is blank.

Form Headings:

- **Prime Directory Number:** Enter the directory number of the multiline set, as defined in the Multiline Set Assignment form.
- **Prime Ring Type:** Enter either "Ring", "No Ring" or "Delay Ring".
- **Prime Name:** This is a system–generated, protected field that displays the name associated with the Prime Directory Number.
- **Prime Line Type:** A system–generated, protected field indicating one of the following:
  - "single line": the set's prime line is a single line
  - "key system": the set's prime line is a member of a key system group
  - "multicall": the set's prime line is a member of a multicall group

The information entered here matches the corresponding entry in the Multiline Set Assignment form.

- **Cab,Shlf,Slot,Cir:** A system–generated, protected field indicating the card coordinates of the line circuit associated with the multiline set, as defined in the Multiline Set Assignment form.
- **Key Number:** Prenumbered entries from 2 to 15, which designate the line select keys (2 indicates the lowermost programmable key while 15 indicates the uppermost). Key 1 is reserved for the set's Prime Directory Number.
- **Directory Number:** Enter either: the Directory Number which is associated with the Line Select Key of the multiline set, or the Trunk Number, in the form "Tnnnn" where "nnnn" is the Trunk Number which is associated with the Line Select Key of the set.
- **Line Type:** Enter one of the values shown in Table 15–1.
- **Ring Type:** To activate ringing for calls to the Directory Number associated with the key, enter "Ring". Entering "No ring" will activate the Line Select LCD on a call to the number, but will not ring the set. Entering "Delay Ring" will cause the set to be rung after a programmable length of time (defined in the set's Class of Service) if the call was not answered by another member of the group. Enter either R for "Ring", N for "No Ring" or D for "Delay Ring".

Table 15–1 Multiline Set Assignment Line Type Values

Value	Description
"single line"	The corresponding Directory Number is a *SUPERSET* single line.
"key system"	The corresponding Directory Number is part of a key system group.
"multicall"	The corresponding Directory Number is part of a multicall group.
"call announce"	The key is associated with a *SUPERSET 4* telephone call announce line.
"threshold alert"	The key is an ACD threshold alert indicator.
"cde speedcall"	The key is a speed call number programmed during CDE.
"user speedcall"	The key has been programmed by the user with a speed call number.
"not assigned"	The key is not programmed in CDE or by the user. The key is free.
"auto answer"	The key is programmed as an Auto Answer Feature Access Key.
"privacy release"	The key is programmed as a Privacy Release Feature Access Key.
"paging"	The line is programmed as a Paging Feature Access Key.
"music"	The key is programmed as a Music Feature Access Key.
"call pickup"	The key is programmed as a Call Pickup Feature Access Key.
"callback"	The key is programmed as a Callback Feature Access Key.
"headset"	The key is programmed as a Headset Feature Access Key.
"cfwd busy ext"	The key is programmed as a Call Forward Busy – External Source Feature Access Key.
"cfwd na ext"	The key is programmed as a Call Forward No Answer – External Source Feature Access Key.
"cfwd busy int"	The key is programmed as a Call Forward Busy – Internal Source Feature Access Key.
"cfwd na int"	The key is programmed as a Call Forward No Answer – Internal Source Feature Access Key.
"cfwd busy"	The key is programmed as a Call Forward Busy Feature Access Key.
"cfwd na"	The key is programmed as a Call Forward No Answer Feature Access Key.
"cfwd always"	The key is programmed as a Call Forward Always Feature Access Key.
"swap"	The key is programmed as a Call Swap Feature Access Key.
"night answer"	The key is programmed as a Telephone Answer From Any Station (TAFAS).
"make busy"	The key is programmed as a Make Busy Feature Access Key (ACD feature).
"campon"	The key is programmed as a Camp–on Feature Access Key.
"override"	The key is programmed as an Override Feature Access Key.
"do not disturb"	The key is programmed as a Do Not Disturb Feature Access Key.

Multiline Set Status Message Assignment

15.5 Allows the definition of twenty *SUPERSET 4*, *SUPERSET 430*, and *SUPERSET 4* DN status messages in three languages. The messages appear under specific conditions on the set's LCD. For details, refer to Practice 9125–060–105–NA, Features and Services.

Conditions

1. Only three versions (languages) of the form are kept in the system.

2. Messages in each language should parallel one another (i.e., Message Number 1 should mean the same in French, Italian or German as the English message).

Form Headings:

- **Language:** Enter one of the following languages: "English", "French", "German" or "Italian".
- **Languages Currently Loaded:** This entry is generated by the system during data entry and need not be completed.
- **Message Number:** Preprinted list of allowed message numbers, ranging from 1 to 20.
- **Message:** Enter the message which is to be displayed on the set's LCD. The message may be up to 13 characters in length.

MULTILINE SET STATUS MESSAGE ASSIGNMENT

Language: _____

Language Currently Loaded:

Message Number	Message
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

F00044

16. SINGLE LINE SET FORMS

General

16.1 The Single Line Set forms are used to program *SUPERSET 401* sets and industry standard station sets. The Single Line Set forms are:

(a) **ONS/OPS Circuit Descriptor Assignment:** Signaling and timing parameters are assigned to groups of ONS and OPS circuits.

(b) **Single Line Set Assignment:** Directory Numbers are assigned to ONS, DNI, and OPS circuits in the *SX–2000* system.

ONS/OPS Circuit Descriptor Assignment

Description

16.2 This form completes the basic hardware definition of ONS and OPS lines in the *SX–2000* ICS. With this form, line signaling and timing parameters are set for each common group of ONS or OPS lines. The circuit descriptor numbers in this form are required in the Single Line Set Assignment form. To complete this form, select the required values under each circuit descriptor number.

Conditions

1. For ONS circuits, the Transmission field must be programmed as "Short". For OPS circuits, the Transmission field must be programmed as "Long".

2. The "RAD Loop Disconnect Timer" field can only be programmed if the "Transmission" field is programmed as "Long". If the "Transmission" field is set to "Long", the RAD Loop Disconnect timer defaults to 350 msecs. If the "Transmission" field is set to "Short", the timer defaults to 0 and the "RAD Loop Disconnect Timer" field is blank.

3. The "OPS Balance Network Setting" field must be programmed if the "Transmission" field is set to "Long". If "Short" is selected, the "OPS Balance Network Setting" field must be blank.

4. The High Flash Timer value must be greater than or equal to the Low Flash Timer value.

5. Consult Table 5–2, MITEL Feature Resource Dimensions, for the maximum station circuit descriptor number permitted for the site being configured.

6. If the Calibrated Flash field is set to "yes" then a C – Series card must be used.

Form Headings:

- **Circuit Descriptor Number:** Enter the identification numbers for the various descriptor numbers. Enter the required values for all options under each descriptor number.
- **Descriptor:** A preprinted list of available options, and the possible values which may be assigned. Refer to Table 16–1 for a description of the options and their default values.
- **Value:** Enter the option or value to be assigned.

ONS/OPS CIRCUIT DESCRIPTOR ASSIGNMENT

Circuit Descriptor Number:

Descriptor	Value
Transmission (Short/Long)	Short
Flash Type (Normal/Calibrated)	Normal
Low Flash Timer (60–500 msec, 10 msec units)	200
High Flash Timer (60–1500 msec, 10 msec units)	700
RAD Loop Disconnect Timer (50–500 msec, 50 msec units)	
Ground Button (Yes/No)	No
Message Waiting Lamp (Yes/No)	No
Part of a Modem (Yes/No)	No
Call Announce Line	No
OPS Balance Network Setting (600/Complex)	
German Parameters	
Loss Option (Yes/No)	No

F00046

Table 16–1 ONS/OPS Circuit Descriptor Assignment Parameters

Parameter	Description	Default Value
Transmission:	Enter either "Short" or "Long", depending on the card type to which the circuit descriptor is associated. Select "Short" for ONS lines, "Long" for OPS lines.	Short
Flash Type:	Permits the assignment of Calibrated flash to the circuit. Calibrated Flash and Ground Button parameters are mutually exclusive. Specify "Calibrated" or "Normal".	Normal

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Table 16–1 ONS/OPS Circuit Descriptor Assignment Parameters (continued)

Parameter	Description	Default Value
Low Flash Timer:	Defines the minimum duration of a valid switchhook flash. Enter a number between "160" and "500" milliseconds. The numbers which may be entered occur in increments of 10 milliseconds (160, 170, 180,...490, 500 milliseconds). If Flash Type is set to Calibrated, then the Low Flash Timer must be set to Blank.	200 ms NA 160 ms UK.
High Flash Timer:	Defines the maximum duration of a valid switchhook flash. Enter a number between "160" and "1500" milliseconds. The numbers which may be entered occur in increments of 10 milliseconds (160, 170, 180,...1490, 1500 milliseconds).	700 ms NA 160 ms UK.
RAD Loop Disconnect Timer:	This field applies to OPS lines (the "transmission" field is "Long"). This timer defines the duration of time that loop current will be removed from the circuit, thus signaling a disconnect request to the RAD. The timer range is 50 to 500 milliseconds, in 50 ms increments. Refer to the User Manual provided by the RAD manufacturer to establish the minimum loop current check time required. The field must be blank if the circuit is an ONS line.	Blank
Ground Button:	Enter "yes" if the ONS/OPS lines associated to the circuit descriptor support the ground button function. Entering "no" or leaving the entry blank indicates that the line does not support the ground button. This parameter must be disabled if the Flash Type is set to Calibrated.	Disabled (no).
Message Waiting Lamp:	Enter "yes" if the telephones associated to the circuit descriptor are equipped with message waiting lamps.	Disabled (no).
Part of a Modem:	Enter "yes" if the ONS line is connected to a modem. Entering "no" indicates that the ONS line is connected to a standard telephone. This parameter and the Call Announce Line parameter are mutually exclusive.	Disabled (no).
Call Announce Line:	Enter "yes" if the associated Off–Premises Line (OPS) circuit is dedicated as the Call Announce port of a *SUPERSET 4* telephone. This parameter and the Part of a Modem parameter are mutually exclusive.	Disabled (no).
OPS Balance Network Setting:	Enter "600" if the balance network is a simple 600 ohm circuit. Enter "Complex" if the balance network is a complex circuit. This field must be blank if a Transmission type of "Short" has been selected.	Blank
German Parameters		
Loss Option:	This option is only available in Germany. Enter "yes" if the Loss Option is to be enabled.	Disabled (no).

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Note: In UK, default values for the switchhook–flash timers, combined with the Ground Button option being set to "yes" means that the switchhook–flash feature is disabled.

Single Line Set Assignment

Description

16.3 This form is used to assign Directory Numbers, Circuit Descriptor Numbers and Interconnect Numbers to ONS, DNI, and OPS circuits in the *SX–2000* system. To complete the form, enter the required Directory and Circuit Descriptor Numbers for each circuit.

Conditions

1. Directory Numbers must be unique (that is, not assigned to any other device, hunt group, or feature access code).

2. The Circuit Descriptor Number entered for a given ONS or OPS line must correspond to a Circuit Descriptor associated with the correct type of circuit.

3. A circuit descriptor number cannot be entered for a DNI line card type.

4. Lines which are connected to modems do not appear in this form. See Modem Element Assignment.

5. A Non–Busy Extension must be a *SUPERSET 401* or an industry–standard telephone (2500 or 500 set). A Non–Busy Extension (NBE) will never return a busy tone to the caller. Each caller will automatically intrude and form a conference with any other users. Up to eight users may be conferenced together. Any further calls to the NBE will be queued and allowed to enter the conference as current members drop out.

Form Headings:

- **Cabinet, Shelf, Slot, Circuit:** System–generated protected fields indicating the position of the station in the system configuration.
- **Card Type:** A system–generated, protected field indicating the card type installed in the named PLID.
- **Directory Number:** Enter a unique number up to seven digits in length to be assigned to the line circuit. This is the number dialed to ring the telephone.
- **Circuit Descriptor Number:** Enter the required Circuit Descriptor number under which the operational parameters of the line circuit are defined. This field must be left blank if the card type for this circuit is a DNI line. Refer to the Station Circuit Descriptor Parameter in Table 5–2, MITEL Feature Resource Dimensions, for the maximum circuit descriptor number allowed.
- **Interconnect Number:** Enter a number between 1 and the upper limit which will be used in the Interconnect Restriction Table to define which other devices the ONS, DNI, or OPS line may be connected to. Refer to Table 5–2, MITEL Feature Resource Dimensions, for the maximum Interconnect Restriction Table number that is supported at the site being configured.

- **Non–Busy Extension:** Enter "yes" to indicate that the associated extension is a Non–busy Extension; leave the entry blank, to indicate that the set is a regular extension. a Non–Busy Extension requires a COS that has the Conference option enabled.

SINGLE LINE SET ASSIGNMENT

Cabinet	Shelf	Slot	Circuit	Card Type	Directory Number	Circuit Descriptor Number	Inter–connect Number	Non busy Extension

F00045

17. STATION SERVICE FORMS

General

17.1 The Station Service forms define the services available to *SUPERSET 401* sets and to industry standard sets. The Station Service forms are:

(a) **Associated Directory Number Assignment:** Used to create an Associated Data Line (ADL) between a dataset and an industry standard set, a *SUPERSET 401* set, a *SUPERSET 3* or a *SUPERSET 4* telephone or a *SUPERSET 7* workstation. The form is also used to define "hotlined" and "nailed–up" connections for voice sets and data devices.

(b) **Personal Speed Call Assignment:** Used to allocate resources, on a per–directory number basis, to permit the definition and storage of personal speed calls.

(c) **Personal Speed Call Directory:** Provides the telecommunications manager with a tool to list the personal speed call numbers defined for each station in the system.

(d) **Station Service Assignment:** Defines the services available, such as COS, COR, intercept conditions and account codes, to stations on a per–directory number basis.

Associated Directory Number Assignment

Description

17.2 This form is used to define ADL connections, hotlines and nailed–up calls. An Associated Data Line (ADL) can be established between a dataset and an industry standard set, a multiline set, or Attendant Consoles. An ADL connection is established, tested and disconnected using the ADL feature access codes. The form is also used to define "hotlined" and "nailed–up" connections for voice sets and data devices. A hotline connection is established between the originating and terminating devices when a user takes the originating device off hook. Hotline connections may be made between voice sets, or between compatible data devices. A nailed–up connection is provided at node startup time. Nailed connections always remain established. To cover the possibility that a fault may occur in the nailed connection, a backup terminating device may be programmed. Nailed connections may be made between voice sets, or data devices. Further information on nailed data applications may be found in Practice 9125–060–222–NA, Data Applications. Also refer to Practice 9125–060–105–NA, Features and Services, for a description of the Nailed Up Call feature.

Conditions

1. For the ADL feature, Directory Numbers used must be one of an ONS or OPS line, a *SUPERSET* telephone or Attendant Console prime line, or a dataset.

2. For hotlines the Directory Numbers must be either ONS or OPS lines, or datasets.

3. The Usage type of the Circuit Descriptor of a referenced dataset (in the Directory Number field) must correspond to the Associated Type of the dataset:

   - Usage of "Basic" for ADL (Associated Data Line) or HOTLINE connections
   - Usage of "Nailed Call Orig" for the originating dataset in a NAILED ORIG connection, and "Nailed Call Term" for the terminating dataset (referenced in the Associated Number field).
   - Usage of "Nailed Call Term" for both datasets in a NAILED TERM connection (when the Associated Number is a dataset directory number).

4. The following conditions apply to the Associated Number field:

   (a) For hotline connections the Associated Number field:

   - May contain a System Speed Call number
   - May not contain any feature access codes.

Note: A feature access code is permitted when the hotline connection is to loudspeaker paging equipment.

ASSOCIATED DIRECTORY NUMBER ASSIGNMENT

Directory Number	Associated Type	Associated Number

F00047

(b) When the Associated Type is NAILED ORIG (nailed originating device), the Associated Number field provides the primary path taken in establishing a connection to the terminating device. The terminating device may be in the same node or part of a network. The Associated Number may be:

- An ONS or OPS directory number on a local or remote node
- A local dataset directory number or a Dataset Hunt Group number
- An ARS digit string
- A System Speed Call programmed as either an ARS digit string, a remote dataset directory number, or a remote Dataset Hunt Group number.

(c) When the Associated Type is NAILED TERM (nailed terminating device), the Associated Number field indicates a backup directory number and may be:

- An ONS or OPS directory number on a local or remote node

- A local dataset directory number or a Hunt Group number
- An ARS digit string
- A System Speed Call programmed as either an ARS digit string, a remote dataset directory number, or a remote Dataset Hunt Group number.
- Blank, indicates no backup device exists. The system camps on to the failed device in this case.
- The NAILED TERM device must be compatible with the device type programmed in the Directory Number field of this form.

(d) If the terminating device fails and the Associated Type is programmed as NAILED TERM and the Associated Number field is programmed (not blank), the system attempts to reestablish the call using the backup device specified in the Associated Number field. If a digital link is used, it remains connected.

(e) If the originating device fails, the system uses the next device specified in the originating node's Associated Directory Number Assignment to originate the call using a new link (if required), through the network.

(f) If the Associated Type is programmed as NAILED TERM and the Associated Number field is not programmed (i.e., a blank field indicating this is a backup number), the system camps on to the failing device until the problem has been rectified. The call is then established.

(g) Once the primary device on the terminating node is repaired, the link can then be manually switched back to the primary device by disconnecting the secondary device.

(h) If the terminating device fails, and the backup for a NAILED TERM device is a hunt group, the system attempts to seize the first available member of hunt group. If no members of the group are available the system camps on to the original terminating device.

(i) For a hunt group to be programmed as a Nailed Terminating device, all members of the hunt group must be programmed as Nailed Terminating devices. The pilot number must not appear in this form.

Form Headings:

- **Directory Number:** Enter the Directory Number for which the ADL, hotline or nailed–up call is to be defined.
- **Associated Type:** Enter the type of connection that is formed. Valid entries are ADL, Hot Line, Nailed Term, or Nailed Org.
- **Associated Number:** Enter the number of the device to be connected when the feature is invoked.

Personal Speed Call Assignment

Description

17.3 This form is used to allocate a quantity of personal speed call numbers to ONS, OPS lines, *SUPERSET* telephones and Attendant Console Prime Directory Numbers.

Conditions

1. Personal Speed Call numbers are assigned in multiples of 10 up to a limit of 100.
2. If the Entries Allocated entry is blank for a given Directory Number, the system assumes that no entries are to be allocated to the Directory Number.

Form Headings:

- **Directory Number:** A system–generated, protected field listing all ONS, OPS, *SUPERSET* telephone and Attendant Console Directory Numbers that are currently assigned in the system. The Directory Numbers are listed in lexicographical order.
- **Name:** A system–generated, protected field containing the name associated with the Directory Number in the Telephone Directory form.
- **Entries Allocated:** Enter the number of Speed Call numbers allocated, in multiples of 10.
- **Entries Used:** A system–generated, protected field showing how many speed call numbers are currently in use for the given Directory Number.

PERSONAL SPEED CALL ASSIGNMENT

Directory Number	NAME	Entries Allocated	Entries Used

F00048

Personal Speed Call Directory

Description

17.4 This form is a read only form. It provides the site manager with a facility to list the Personal Speed Call Numbers for each station on the system.

Form Headings:

- **Directory Number:** The Directory Number assigned to the station.
- **Name:** The associated Telephone Directory name for the Directory Number in the Directory Number field of this form. System generated.
- **Speed Call Index:** A number from zero to 99.
- **Name:** This field is blank and may be filled in with reference comments.
- **Telephone Number:** The digit string to be outpulsed when that speed call index is referenced.

PERSONAL SPEED CALL DIRECTORY

Directory Number: _____ Name: [redacted]

Speed Call Index	Name	Telephone Number

F00049

Station Service Assignment

Description

17.5 This form is used to assign Classes of Service and Classes of Restriction to each station in the system, as well as Intercept Numbers and Default Account Code numbers. This form draws its data from ONS/OPS Assignment, Multiline Set Assignment, Attendant Console Assignment, Class of Service Options, and Dataset Assignment forms. A COS number and a COR number are assigned to the stations for each mode of service: Day, Night 1 and Night 2. The COR numbers defined in this form are used in the Class of Restriction Group Assignment form, where a series of COR numbers are grouped together for use in the ARS forms. The form paper is separated into two halves, each containing the required columns to specify service information for 16 Directory Numbers. To complete this form, list all station Directory Numbers in lexicographical order, and assign the required values to each.

Conditions

1. The same COS and COR numbers may be assigned under any or all modes of service for a given station.

2. The "Default Account Code Index" field is optional.

3. The "Intercept Number" field must be blank for a dataset directory number.

Form Headings:

- **Directory Number:** On the paper form enter the Directory Numbers, taken from the Single Line Set, Multiline Set, Attendant, and Dataset Assignment forms. The Directory Numbers listed in this column should be in lexicographical order, since the numbers will be generated automatically by the system at data entry time.
- **Intercept Number:** Refer to the Intercept Handling Assignment entry in Table 5–2, MITEL Feature Resource Dimensions, for the maximum Intercept Number allowed for the system being configured. Enter a number from 1 to this upper limit. This number will link the station to a version of the Intercept Handling form where intercept conditions are defined.
- **Class of Service (Day, NIGHT1, NIGHT2):** Enter a COS number under each column. The Day column defines the Day Class of Service; NIGHT1 defines the Night Service 1 Class of Service, and NIGHT2 defines the Night Service 2 Class of Service to the station.
- **Class of Restriction (Day, NIGHT1, NIGHT2):** Enter a COR number under each column. The Day column defines the Day Class of Restriction; NIGHT1 defines the Night Service 1 Class of Restriction, and NIGHT2 defines the Night Service 2 Class of Restriction for the station.
- **Default Account Code Index:** Refer to the Default Account Code Assignment entry in Table 5–2, MITEL Feature Resource Dimensions, for the maximum number allowed for default account codes in the system being configured. Enter a number from 1 to this upper limit to link the entry in this form to a line in the Default Account Code Definition form where an Account Code for the station will be defined.

STATION SERVICE ASSIGNMENT

Directory Number	Intercept Number	Class of Service			Class of Restriction			Default Account Code Index
		DAY	NIGHT1	NIGHT2	DAY	NIGHT1	NIGHT2	

F00050

18. SYSTEM FORMS

General

18.1 The System forms define system wide parameters affecting the operation of the *SX–2000* ICS. The System forms are:

(a) **Application Logical Port Assignment.** Allows the system manager to assign port names to each of the physical ports which service the input and output requirements of applications, such as Message Center or Hotel/Motel, that are running on the *SX–2000* ICS. The port names are defined in the System Port Assignment form.

(b) **Cabinet Assignment.** Allows the definition of remote cabinets on an *SX–2000* FD systems. The form is accessible to *SX–2000* FD systems only.

(c) **Circuit Link Cable Assignment.** Indicates the beginning and end points for circuit switch link cables on the control shelf backplane.

(d) **Class of Service Options Assignment.** Allows the definition of Classes of Service (COS), and the selection of the options which constitute each COS.

(e) **Dimension and Feature Display.** This read–only form displays the currently active configuration parameters.

(f) **Dimension and Feature Selection.** This form is used to define configuration parameters and optional feature packages delivered with all *SX–2000* systems.

(g) **Dimension Selection:** This form displays the distribution of resources within the system.

(h) **DNI Circuit Assignment.** This form is used to assign DNI circuits to various digital devices. This form is available only with the DNI Set Software feature package.

(i) **Feature Access Code Assignment.** This form lists the recommended feature access codes for telephones, and provides a means of redefining these codes as well as the option of defining alternative codes for rotary dial telephones, for example.

(j) **Form Access Authorization.** This form defines access to the Customer Data Entry Forms on the basis of authorization levels. The form allocates Read/Write, Read–only, or no access privileges to the five authorization levels in the *SX–2000* PABX.

(k) **Hotel Options Assignment.** Used to assign various parameters in the Hotel/Motel feature package.

(l) **Intercept Handling Assignment.** This form allows the customer to program how the system is to treat various intercept conditions as they arise in call processing. This form defines the procedures to handle interception due to incorrect operations performed by the caller.

(m) **Interconnect Restriction Table.** This form defines which devices may be connected to other devices during call processing. Each common group of devices is represented by a specific Interconnect Number.

(n) **Loudspeaker Paging Assignment.** This form provides a means of defining loudspeaker paging zones.

(o) **Maximum Dialed Digits.** Permits call barring based on the number of digits dialed.

(p) **Message Link Cable Assignment.** Defines the message switch link cable connections between the Message System Matrix, DSU shelf groups and Balanced Transceiver cards.

(q) **Miscellaneous Assignment.** The form assigns values to various devices in the system which require no special programming beyond one required parameter.

(r) **Node Identity Assignment.** This form is used to assign a Directory Number to every PABX within a network of PABXs.

(s) **SMDR Options Assignment.** Defines the options affecting the collection and recording of station message data.

(t) **System Configuration.** This form lists the system's hardware configuration in numerical order, based on Cabinet, Shelf and Slot numbers.

(u) **System Options Assignment.** This form defines parameters used system wide during call processing and data switching.

(v) **System Port Assignment.** Permits the association of logical names to the PLID of each RS–232 port in the *SX–2000* ICS. The form also displays the baud rate and parity for each port.

(w) **System Speed Call Assignment.** This form allows the definition of abbreviated numbers which can be dialed in place of longer numbers.

(x) **Traffic Options Assignment.** Permits form–driven programming for the Traffic Report feature package.

(y) **User Authorization Profile.** Used to define a list of usernames and their authorization levels. These names are used to log on to the *SUPERSET 7* workstation and the Maintenance Terminal.

Application Logical Port Assignment

Description

18.2 The Application Logical Port Assignment form allows the system manager to assign port names to each of the physical ports which service the input and output requirements of applications, such as Message Center or Hotel/Motel, that are running on the *SX–2000* ICS. The port names are defined in the System Port Assignment form.

Form Headings:

- **Port Logical Names:** A system–generated, protected field containing the name of each application that requires printing facilities.
- **Port Use:** A system–generated, protected field indicating the nature of the connection between the application and the attached device.
  - Dedicated indicates that the application expects to have a dedicated resource.
  - Demand indicates that the application must request use of the port by entering a command.
  - Continuous indicates that applications use the port only when there is information to process. If two or more applications are assigned to the same port, the output may be interleaved.

  The values assigned to this field are guidelines for the system manager to follow when assigning ports to applications.
- **Port Physical Name:** Enter the name of the port, defined by the Port Physical Name field of the System Port Assignment form, that is to serve the application named in the Port Logical Name field. This links the application port to a particular PLID.

APPLICATION LOGICAL PORT ASSIGNMENT

Port Logical Name	Port Use	Port Physical Name
Maintenance Logs	Continuous	
Software Logs	Continuous	
SMDR Logs	Continuous	
Form Printouts	Demand	
Property Management System Input Port	Dedicated	
Property Management System Output Port	Dedicated	
Message Center	Continuous	
Hotel/Motel Logs Port	Continuous	
Hotel/Motel Report Port	Demand	
Traffic Report Port	Demand	
Trunk Group Status Port	Dedicated	
ACD Report Port	Dedicated	
SMDA Port	Demand	
MNMS Input Port	Dedicated	
MNMS Output Port	Dedicated	
Unsolicited Data Transfer Input Port	Dedicated	
Unsolicited Data Transfer Output Port	Dedicated	

F00051

Cabinet Assignment

Description

18.3 This form applies only to *SX–2000* FD (fiber distributed) systems. The Cabinet Assignment form is used to define the termination points for the Main Control Cabinet Fiber Interface Modules (FIMs). The fiber links interface to remote FIMs housed in a Peripheral Cabinet or a DSU Cabinet.

The number of Peripheral and DSU Cabinets which may be assigned is governed by the configuration of the *SX–2000* FD system. (Each Peripheral Cabinet can support one fiber interface; a DSU Cabinet can support up to two fiber interfaces). Configuration 1 contains a single non–redundant Main Control Cabinet which supports up to four fiber interfaces. Configuration 2 is a fully redundant Main Control complex which supports up to eleven fiber interfaces.

The configuration (1 or 2) of the *SX–2000* FD system is selected in the Dimension and Feature Selection Form.

The remote Peripheral/DSU interface, once programmed and committed in this form, will automatically appear on the System Configuration form in the Programmed Card Type field. A Peripheral switch appearing in the System Configuration form will have slots assigned for the Peripheral Controller, the Peripheral Resource card, the Fiber Interface Module (FIM), and the Power Converter. A DSU pair will appear in the System Configuration form with the following entries automatically generated by the system: Power Converter, FIM, and Peripheral Resource card. In both cases (Per and DSU assignments), all cards with the exception of the FIMs will also be shown in the Installed field of the System Configuration form.

Refer to Figure 18–1, *SX–2000* FD System Configurations 1 and 2, for an example of the Cabinet Assignment form showing both system arrangements.

Conditions

1. The Cabinet Assignment form is accessible only to *SX–2000* FD systems.
2. A remote cabinet must be a Peripheral or a DSU cabinet. The remote cabinet cannot be a combination of Peripheral and DSU.
3. Attempts to enter a value other than "1" in the Shelf field will not be allowed.
4. The fiber interface termination points at the remote location must be Slot 17 if the remote location is a Peripheral Cabinet, and Slots 1 and/or 6 if the remote location is a DSU Cabinet.

Form Headings:

- **Main Control Fiber Interface:** A system–generated, protected field listing the Fiber Interfaces. The number of entries is dependent on the system configuration. Configuration 1 will present the user with four available fiber interfaces. Configuration 2 provides eleven.

- **Cabinet, Shelf, Slot:** A system–generated, protected field indicating the location of all Main Control Fiber Interface connections.

- **Peripheral/DSU Fiber Interface:** A programmable field which defines the relationship between the Main Control Cabinet FIM and the remote FIM (located in a Peripheral or DSU Cabinet). The field contains five subfields:
  - **Type:** Enter "FD Per" (Fiber Distributed Peripheral) or "FD DSU" (Fiber Distributed DSU). The field defaults to Blank.
  - **Cabinet:** Systems with Configuration 1 may assign cabinets 2 through 5. Configuration 2 systems may assign cabinets 2 through 12.
  - **Shelf:** This field is assigned a default value of "1". The system will not allow the user to commit any value other than "1".
  - **Slot:** Enter a value of Slot "17" for the location of the FIM if the remote is a peripheral cabinet. If the remote location is a DSU cabinet the FIMs may be programmed in Slots "1" and "6" since the DSU cabinet will support two DSU pairs. One fiber interface from the Main Control cabinet is associated with slot 1 of the DSU cabinet; the second fiber interface is associated with slot 6.
  - **Comments:** This programmable field will accept up to 14 alphanumeric characters. This field is typically used to note the location of a peripheral or DSU cabinet.

CABINET ASSIGNMENT

Main Control Fiber Interface			Peripheral/DSU Fiber Interface				
Cabinet	Shelf	Slot	Type	Cabinet	Shelf	Slot	Comments

CONFIGURATION 1 – CABINET ASSIGNMENT

Main Control Fiber Interface			Peripheral/DSU Fiber Interface				
Cabinet	Shelf	Slot	Type	Cabinet	Shelf	Slot	Comments
1	2	1					
1	2	2					
1	2	3					
1	2	4					

FD Per or FD DSU

2 to 5

Slot 17 for an FD Per
Slot 1 or 6 for an FD DSU

CONFIGURATION 2 – CABINET ASSIGNMENT

Main Control Fiber Interface			Peripheral/DSU Fiber Interface				
Cabinet	Shelf	Slot	Type	Cabinet	Shelf	Slot	Comments
1	3	1					
1	3	2					
1	3	3					
1	3	4					
1	3	5					
1	3	6					
1	3	7					
1	3	8					
1	3	9					
1	3	10					
1	3	11					

FD Per or FD DSU

2 to 12

Slot 17 for an FD Per
Slot 1 or 6 for an FD DSU

Figure 18–1 *SX–2000* FD System Configurations 1 and 2

Circuit Link Cable Assignment

Description

18.4 This form is used in *SX–2000* SG configurations to define the termination points for circuit switch link and Bulk Data Interface cables. The termination points consist of the backplane coordinates defined for a given cabling configuration. The MITEL recommended cabling configurations for the *SX–2000* SG ICS are contained in Practice 9120–060–200–NA, Shipping, Receiving and Installation. The FROM section of the form lists the backplane coordinates from which the cable emanates and is generated by the system. The TO section contains the MITEL recommended destination coordinates of the cables.

Conditions

1. This form is used for *SX–2000* SG ICS configurations only.

2. When recalled this form contains extensive default information documenting the MITEL recommended cabling. If the cabling is changed from the configuration shown, the form must be reprogrammed.

3. The landing points for main control shelf DSUs are Slots 31 and 32.

4. For DSU shelves there may be a maximum of three circuit switch cable terminations per DSU group for a total of 24 circuit switch links. The first termination must be module one of the ninth slot in a DSU group. The second termination must be module three of the same slot. The third termination must be module five of the same slot.

5. The peripheral control cards must be deprogrammed from the System Configuration form before a shelf may be programmed as a DSU shelf.

6. If a shelf is a peripheral shelf then slot 33 module 7 is programmed in the "to" PLID field. If the shelf is a DSU shelf then the "to" field for Group 1 is programmed as slot 17 module 1, (and modules 3 and 5 if required). Group 2 is programmed as slot 25 module 7 (and slot 26 module 7 and slot 27 module 7 if required). The extra modules are required if more than 8 circuit switch links are distributed across the group.

7. If a peripheral shelf is specified then the shelf and its mate may not be programmed in the System Configuration form as a DSU shelf or a mixed peripheral/DSU shelf.

8. If a DSU shelf is specified then the shelf and its mate may not be programmed in the System Configuration form as a peripheral shelf or a mixed peripheral/DSU shelf.

9. A termination can not be programmed in this form if the shelf is programmed in the System Configuration form as a blank shelf.

CIRCUIT LINK CABLE ASSIGNMENT

FROM					TO			
Cabinet	Shelf	Slot	Module	Cable Type	Cabinet	Shelf	Slot	Module

F00052

Form Headings:

- **FROM:** This field contains five system–generated, protected subfields; Cabinet/Shelf/Slot/Module Number, which give the cable's point of origin, and Cable Type, which indicates the type of card the cable is connected to.
- **TO:** This field contains four subfields; Cabinet/Shelf/Slot/Module Number. The coordinates on which the cable terminates are entered under these headings.

Class of Service Options Assignment

Description

18.5 This form is used to select the features which will constitute the classes of service for either stations or trunks. The form has 2 columns: the first listing all available COS options and the other used to select the required options for the Class of Service. The Class–of–Service Number which identifies the individual COS is located at the top of the form. The classes of service defined by this form are referenced in the Station Service Assignment and Trunk Service Assignment forms. The telephony options listed in the form are selected by entering "yes" next to the required option, under the correct COS number. Entering "no" or leaving the entries blank will disallow the options. The timer values are specified by entering the required numerical value, as defined n Table 18–1, COS Parameter Descriptions.

Conditions

1. The Dial Conflict Timer value must be less than the Interdigit Timer value.
2. The Call Forward No Answer Timer value must be less than the Ringing Timer value.
3. When the Call Forwarding – Accept option is selected, forwarding to a hunt group cannot be inhibited.
4. Do not select the Broker's call option in a class of service intended for *SUPERSET 7* Attendant Consoles.
5. Entering "1440" for Attendant Busyout Timer disables the feature for that COS.
6. The Autovon Trunk and Autovon Autopreemption fields may only be enabled when the Autovon feature is purchased. See Practice 9125–060–626–NA, Autovon, for more information on that feature package.

Form Headings:

- **Class of Service Number:** Enter the identification numbers for the various COS. Refer to the Class of Service entry in Table 5–2, MITEL Feature Resource Dimensions, for the maximum number allowed.
- **Option:** This column contains a preprinted list of all possible COS options, and their range of values. The meaning of each option and the associated default is given in Table 18–1, COS Parameter Descriptions.
- **Select:** This is a programmable field which is used to indicate whether or not the corresponding COS option is selected.

CLASS OF SERVICE OPTIONS ASSIGNMENT (Sheet 1 of 3)

Class of Service Number:

Option	Select
Account Code Verified	No
ACD Silent Monitoring – Accept	No
ACD Silent Monitoring – Allowed	No
ACD Silent Monitoring – Notification	No
ANI/DNIS Trunk (Yes/No)	No
Auto Answer Allowed	Yes
Autovon Autopreemption	No
Autovon Trunk	No
Broker's Call	No
Busy Override Security	No
Call Announce Line	No
Call Forwarding – Accept	Yes
Call Forwarding (External Destination)	No
Call Forwarding (Internal Destination)	Yes
Call Forwarding – Override	No
Call Hold	Yes
Call Hold – Remote Retrieve	Yes
Call Pickup – Dialed Accept	Yes
Call Pickup – Directed Accept	Yes
Call Privacy	No
Call Waiting – Swap	No
Camp–on Tone Security	No
Clear All Features Remote	No
Conference Call	Yes
COV or ONS Voice Mail Port	No
DASSII OLI/TLI Provided	No
Dialed Night Service	Yes
Display ANI Information Only (Yes/No)	No
Display ANI/DNIS Information (Yes/No)	No
Do Not Disturb	Yes
Executive Busy Override	No

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CLASS OF SERVICE OPTIONS ASSIGNMENT (Sheet 2 of 3)

Class of Service Number:

Option	Select
Flexible Answer Point	No
Forced Account Code	No
HCI Call Control Allowed	No
HCI Monitor Allowed	No
Hotel Room Extension	No
Individual Trunk Access	Yes
Loudspeaker Pager Override	Yes
Loudspeaker Pager Override Security	No
Message Waiting	Yes
Message Waiting – Audible Tone Notification	No
Message Waiting – Deactivate On Off–Hook	Yes
Message Waiting – Inquire	Yes
Multiline Set Loop Test	No
Multiline Set Message Center Remote Read Allowed	No
Multiline Set Music	No
Multiline Set On Hook Dialing	Yes
Multiline Set Phonebook Allowed	Yes
Non–DID Extension	No
Non–Verified Account Code	Yes
Pager Access – All Zones	Yes
Pager Access – Individual Zones	No
Privacy Released	No
Public Network Access via DPNSS	No
Public Network Identity Provided	No
Public Network To Public Network Connection Allowed	No
Recorded Announcement Device	No
Redial Facilities	Yes
Ringing Line Select	No
SMDR – External	No
SMDR – Internal	No
Timed Reminder Allowed	Yes
Trunk Calling Party Identification	Yes

CLASS OF SERVICE OPTIONS ASSIGNMENT (Sheet 3 of 3)

Class of Service Number:

Timer Options/Account Code Length	Value
Account Code Length (2–12)	12
ANSWER PLUS™ – Delay To Message Timer (0–300 s)	20
ANSWER PLUS™ – Expected Offhook Timer (0–255 s)	30
ANSWER PLUS™ – Message Length Timer (0–120 s)	10
ANSWER PLUS™ – System Reroute Timer (0–720s)	0
Attendant Busy–out Timer (1–1440 mins)	10
Auto Camp–on Timer (0–30 s, Blank for Off)	10
Autovon Precedence (0–4)	4
Busy Tone Timer (10–120 s)	30
Call Forward No Answer Timer (0–125 s)	15
Call Hold Timer (10–600 s)	30
Camp–on Recall Timer (0–180 s)	10
Delay Ring Timer (5–60 s)	10
Dialing Conflict Timer (2–5 s)	3
First Digit Timer (5–60 s)	15
Interdigit Timer (3–60 s)	10
Lockout Timer (10–60 s)	45
Message Waiting Ringing Start Time (00:00 to 23:59)	__:__
Message Waiting Ringing Stop Time (00:00 to 23:59)	__:__
No Answer Recall Timer (0–45 s)	17
Ringing Timer (60–300 s)	180
Work Timer (0–600 secs)	0
DTMF Key Assignments	**Value**
Key A	
Key B	
Key C	
Key D	

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Table 18–1 COS Parameter Descriptions

Parameter	Description	Default Value
Account Code Verified:	This feature provides the option of either verifying or not verifying the account code. If set to "Yes", then the account code will be verified and the system will return a dial tone or reorder tone.	Disabled (no)
ACD Silent Monitoring – Allowed:	This feature provides the supervisor with the ability to listen in on agents' conversations, with or without the agent actually knowing it. If set to "Yes", then silent monitoring is allowed.	Disabled (no)
ACD Silent Monitoring – Accept:	This option must be set to "Yes" in order for the associated directory number to be monitored.	Disabled (no)
ACD Silent Monitoring – Notification:	If this option is set to "Yes", then the name or directory number (dn) of the monitoring supervisor is displayed on the *SUPERSET* telephone being monitored.	Disabled (no)
ANI/DNIS Trunk:	This field is applicable when the ANI/DNIS feature has been selected. The option applies to ANI/DNIS trunks. Enter "Yes" to allow the reception of ANI/DNIS digits. Default is "No".	No
Auto–Answer Allowed:	This feature allows an incoming call to a *SUPERSET* telephone prime number to be answered automatically and connected to the set's speaker and microphone. No action is necessary by the extension user. The caller receives one second of audible ringing tone and is then connected to the extension. The extension user hears a single ring as an indication of the incoming call. The station user can originate calls in the normal manner.	Enabled (yes)
Autovon Autopreemption:	If this option is set to "Yes", then the station with this Class of Service may preempt an existing preemptable call on another trunk when the Autovon trunk is busy.	No
Autovon Trunk:	This option is used to identify Autovon trunks.	No
Broker's Call:	This option prevents two parties from being connected when the station that has placed one of them on hold goes on–hook.	Disabled (no)
Busy Override Security:	This option prevents a station from being overridden by another station during a call.	Disabled (no)
Call Announce Line:	This option allows a secretary with any type of telephone to talk to a manager to announce an important incoming call when the manager's *SUPERSET 4* prime line is busy. The secretary activates this feature by pressing the "OVERRIDE" softkey or dialing a feature access code. The feature may also be activated by pressing a specially programmed line key which forms a connection to the speaker on the manager's set. The prime line in this case may be either idle or busy.	Disabled (no)
Call Forwarding – Accept:	This option allows a station to receive calls forwarded from another station.	Enabled (yes)
Call Forwarding (External Destination):	This option allows a station to forward calls to external numbers.	Disabled (no)

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Table 18–1 COS Parameter Descriptions (continued)

Parameter	Description	Default Value
Call Forwarding (Internal Destination):	This option allows a station to forward calls to internal numbers.	Enabled (yes)
Call Forwarding – Override:	This option allows a station to override any call forwarding on the destination set, when the relevant access code is dialed.	Disabled (no)
Call Hold:	This option allows a station to place calls on hold by flashing the switchhook and dialing the Call Hold code (see Feature Access Code Assignment form).	Enabled (yes)
Call Hold – Remote Retrieve:	This option allows a station to retrieve calls placed on hold at other stations by dialing the Remote Retrieve code followed by the station number where the call is on hold.	Enabled (yes)
Call Pickup – Dialed: Accept:	This option allows a station to retrieve calls ringing other stations in its pickup group. In order for this feature to be effective, the stations having this COS option must be placed in pickup groups through the Pickup Group Assignment form.	Enabled (yes)
Call Pickup – Directed: Accept:	This option allows a station to retrieve calls ringing other stations by dialing the Directed Call Pickup Access code followed by the number of the ringing station. This feature is applicable for any ringing station. The programming of pickup groups is not required for this feature to be effective.	Enabled (yes)
Call Privacy:	Inhibits the use of overriding features on the stations which have this option enabled, after the relevant access code is dialed.	Disabled (no)
Call Waiting – Swap:	This option allows a user, upon hearing camp–on tone, to place the current call on hold and connect to the camped–on caller, by flashing the switchhook. The user may then shuttle between the two callers by again flashing the switchhook. Applies to industry–standard sets only.	Disabled (no)
Camp–on Tone Security:	This option prevents the camp–on tone from being presented to a station. Although the camp–on feature is not disabled by selecting this option, any audible notification is not allowed, and a camp–on is applied without any intrusion on the called party's line.	Disabled (no)
Clear All Features – Remote:	This option allows a station user to dial a Clear All Access code to remove the following activated features on a remote station: all Call Forwards; Do Not Disturb; any displayed Advisory Message; Callbacks to other users; Timed Reminder; Auto–answer.	Disabled (no)
Conference Call:	This option allows a station to initiate conference calls by dialing, in turn, the station or external numbers of all conferees, flashing the switchhook and dialing the Conference Call code, or by pressing the Trans/Conf softkey, between each call completion.	Enabled (yes)
COV/ONS Voice Mail Port:	Permits the voice mail system to uniquely identify the party that is receiving a message. If this option is enabled, then the called party's display will include the forwarding type followed by the directory number.	Disabled (no)

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Table 18–1 COS Parameter Descriptions (continued)

Parameter	Description	Default Value
DASSII OLI/TLI Provided	This option allows the transmission and reception of device identity via DASSII trunks.	Disabled (no)
Dialed Night Service:	Permits a person other than an attendant to control the Day/ Night mode of operation of the *SX–2000* ICS.	Enabled (yes)
Display ANI Information Only:	This field is specific to *SUPERSET 4*, *SUPERSET 4* DN and *SUPERSET 430* telephones as well as *SUPERCONSOLE 1000* and *SUPERSET 7* consoles displaying ANI/DNIS information. Specify which information will be displayed. Enter "Yes" to display only the ANI information. When "No" is entered in this field, the telephone will display the DNIS digits when the set is called, and the ANI digits once the call is answered. Default is "No".	Disabled (no)
Display ANI/DNIS Information:	This field is applicable when the ANI/DNIS feature has been selected. It defines what information will be provided on the displays of *SUPERSET 4*, *SUPERSET 4* DN, and *SUPERSET 430* telephones, as well as *SUPERCONSOLE 1000* and *SUPERSET 7* consoles. Valid entries are "No" (no information is displayed), or "Yes" (ANI and DNIS information is displayed). Default for this field is "No". Note that the *SUPERSET* telephones cannot display both ANI and DNIS information concurrently.	Disabled (No)
Do Not Disturb:	This option allows a station to set Do Not Disturb. This feature prevents the station from ringing on incoming calls. The caller is presented The Do Not Disturb tone.	Enabled (yes)
Executive Busy Override:	This option allows a station to override busy stations which do not have the busy override security in their class of service. This feature is activated by dialing the Override Access code on reception of busy tone during a station–to–station call. A warning tone is presented to all concerned parties before the override takes place.	Disabled (no)
Flexible Answer Point:	This feature allows an alternate answer point to be chosen for all DID trunks, from a station or console for which the feature is enabled.	Disabled (no)
Forced Account Code:	Enabling this option forces the station user to input an Independent Account code before any call processing functions can be performed. Independent Account codes are verified by the system before resource access is granted.	Disabled (no)
HCI Call Control Allowed:	Permits the user's station to be controlled by the Host Computer. (*HCI* – Basic Telephony Feature Package required.)	Disabled (no)
HCI Monitor Allowed:	Permits the initiation of an *HCI* monitor against the user's station. (*HCI* – Advanced Telephony Feature Package required.)	Disabled (no)

Table 18–1 COS Parameter Descriptions (continued)

Parameter	Description	Default Value
Hotel Room Extension:	This option permits the system to distinguish between directory numbers that correspond to guest rooms and those that do not. This option must be enabled for each Class of Service to which changes in room status are to be permitted.	Disabled (no)
Individual Trunk Access:	Allows a person to directly seize a trunk from any station set programmed with this COS. All toll control, COR and ARS checking is bypassed.	Enabled (yes)
Loudspeaker Pager Override:	This option allows a station user to interrupt the current loudspeaker pager user, forcing the current user off the system. The main purpose of providing such a facility is to deal with emergency situations.	Enabled (yes)
Loudspeaker Pager Override Security:	This option prevents the current user of the loudspeaker pager from being overridden by another station user.	Disabled (no)
Message Waiting:	This option allows a station to enable and disable message waiting notification on another station.	Enabled (yes)
Message Waiting – Audible Tone Notification:	This option causes Message Waiting Notification to take the form of a tone every time the station goes off–hook while Message Notification is in effect.	Disabled (no)
Message Waiting – Deactivate on Off–Hook:	This option results in the cancelling of a Message Waiting Notification on the first on–hook (i.e., at the end of the off–hook call) at the station where message waiting is applied.	Enabled (yes)
Message Waiting – Inquire:	This option allows the Attendant Console (*SUPERSET 7* console) to find out the message waiting status of any station.	Enabled (yes)
Multiline Set Loop Test:	This option, in conjunction with an optional account code and an associated feature access code, permits a member of the site communications management team to invoke test procedures for a *SUPERSET* telephone.	Disabled (no)
Multiline Set Message Center Remote Read Allowed:	This option allows the user of a *SUPERSET 4, SUPERSET 4* DN, or *SUPERSET 430* telephone to read message center and Call–Me–Back messages for any *SUPERSET 4, SUPERSET 4* DN or *SUPERSET 430* user. A message center password may be assigned to a *SUPERSET 4, SUPERSET 4* DN or *SUPERSET 430* telephone if the user wishes his/her messages to remain private.	Disabled (no)
Multiline Set Music:	This option allows the user of a *SUPERSET 4, SUPERSET 430*, or *SUPERSET 4* DN telephone to listen to music on the set's speaker when the set is idle. Music on Hold must be provided for this feature to be activated.	Disabled (no)
Multiline Set On Hook Dialing:	This option allows the user of a *SUPERSET 3, SUPERSET 4 SUPERSET 410, SUPERSET 420, SUPERSET 430, SUPERSET 3* DN or *SUPERSET 4* DN telephone to dial numbers from the keypad without going off–hook.	Enabled (yes)
Multiline Set Phonebook Allowed:	This option permits the *SUPERSET 4, SUPERSET 430*, or *SUPERSET 4* DN user to access the Call By Name facility.	Enabled (yes)

Table 18–1 COS Parameter Descriptions (continued)

Parameter	Description	Default Value
Non–DID Extension:	If this option is set to "No", then the station with this Class of Service can receive a call directly from a DID trunk. "Yes" indicates that it cannot receive a call directly from a DID trunk.	Disabled (No)
Non–verified Account Code:	Enables the use of the Nonverified Account Code Feature Access code. This permits the entry of an account code from 2 to 12 digits that may be used for billing purposes. This account code is not verified by the system when it is entered.	Enabled (yes)
Pager Access – All Zones:	This option, when enabled, allows access to all 16 paging zones.	Enabled (yes)
Pager Access – Individual Zones:	This option permits the station user to access the loudspeaker pager on a zone by zone basis.	Disabled (no)
Privacy Released:	This option, when enabled for *SUPERSET 3, SUPERSET 3* DN, *SUPERSET 4, SUPERSET 4* DN, *SUPERSET 401,* or industry–standard sets, permits any other set in the same Key System Group to enter the conversation.	Disabled (no)
Public Network Access via DPNSS:	Enter YES to permit stations to originate calls via DPNSS or APNSS trunks to CO trunks. No disables the network access. The operation of this feature is described in the feature package MSDN/DPNSS Public Network Access, Practice 9125–060–614–NA.	Disabled (no)
Public Network Identity Provided:	Permits the identity of the called or calling party to be passed across digital public network links (DASS II only).	Disabled (no)
Public Network to Public Network Connection Allowed:	Enter YES to leave a Public Network trunk connected solely with other Public Network trunks.	Disabled (no)
Recorded Announcement Device:	If set to "Yes", then one–way, outgoing audio is allowed for recorded messages.	Disabled (no)
Redial Facilities:	This option permits the user to access the various redial features, such as Last Number Redial, and Repeat Last Number Saved	Enabled (yes)
Ringing Line Select:	Enter YES to permit a person using a *SUPERSET* telephone to answer a ringing, non–prime line appearance at their set by going off–hook.	Disabled (no)
SMDR – External	This option will activate trunking SMDR. External SMDR is given precedence over Internal SMDR when the feature is enabled for the trunk in the call.	Disabled (no)
SMDR – Internal	This option will activate station–to–station (internal) SMDR.	Disabled (no)
Timed Reminder Allowed:	This option allows the user of a *SUPERSET 4, SUPERSET 4* DN or a *SUPERSET 430* telephone to establish a Timed Reminder that rings the set once at a prearranged time and displays the prompt "Timed Reminder".	Enabled (yes)

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Table 18–1 COS Parameter Descriptions (continued)

Parameter	Description	Default Value
Trunk Calling Party Identification:	Trunks with this COS enabled are permitted to use Trunk Calling Party Identification feature access codes to permit the outpulsing call origination information on the trunk. When set to "Yes", a trunk will recognize Trunk Calling Party Identification on incoming calls. When set to "No", if a trunk receives Trunk Calling Party Identification, the *SX–2000* ICS will not complete the call. The operation of this feature is described in the feature package Advanced Analog Networking, Practice 9125–060–606–NA.	Enabled (yes)
Timer Options/ Account Code Length		
Account Code Length:	Enter a number between "2" and "12" which will define the fixed length of the account code. Once the specified number of digits has been dialed, the system will attempt to verify the code.	12 digits
ANSWER PLUS™ – Delay To Message Timer:	This timer applies to MCD RADs and is assigned a value in the range of "0" to "300" seconds in increments of one second. The timer has two functions; Time to First Message and Time Between Messages.	20 sec
ANSWER PLUS – Expected Offhook Timer:	This timer applies to MCD RADs and is assigned a value in the range of "0" to "255" seconds in increments of one second. If a RAD has failed to clear down, then it is placed into an internal Do Not Disturb state when the timer expires.	30 sec
ANSWER PLUS – Message Length Timer:	This timer applies to MCD RADs and is assigned a value in the range of "0" to "120" seconds in increments of one second. The timer is set to equal the actual time it takes to run the message. The call is automatically routed to the next point when the timer expires.	10 sec
ANSWER PLUS – System Reroute Timer:	This timer is assigned a value in the range of "0" to "720" seconds in increments of one second. It operates similar to the Call Forward No Answer Timer but controls second level rerouting. When the timer expires the call is rerouted from First Alternate to the Second Alternate.	0 sec
Attendant Busyout Timer:	This timer defines the length of time in minutes for which calls will be queued at a *SUPERSET 7* Attendant Console before switching the console to absent mode (busyout). Enter a value from 1 to 1440, where an entry of 1440 will turn off the Attendant Busyout Timer.	10 min
Auto Camp–on Timer:	Length of time while listening to busy tone before system performs an auto camp–on to the busy line. Values range from 0 to 30 seconds. Blanking the field turns the timer off.	10 sec
Autovon Precedence:	This option is used to indicate the precedence level of calls a station is permitted to make in an Autovon network. The range of values is 0 (highest level of precedence) to 4 (lowest level).	4

Table 18–1 COS Parameter Descriptions (continued)

Parameter	Description	Default Value
Busy Tone Timer:	This timer is assigned a value in the range of "10" to "120" seconds in increments of one second. This timer defines the length of time busy tone is presented to a station.	30 sec
Call Forward – No Answer Timer:	This timer is assigned a value in the range of "0" to "125" seconds in increments of one second. This timer defines the length of time a station rings before the call is forwarded. The timer is reset each time a call is forwarded.	15 sec
Call Hold Timer:	This timer is assigned a value in the range of "10" to "600" seconds in increments of one second. This timer defines the length of time a station is placed on hold before a recall to the holding station is attempted.	30 sec
Camp–on Recall Timer:	This timer is assigned a value in the range of "0" to "180" seconds in increments of one second. This timer defines the length of time a station is allowed to camp on before a recall to the transferring station is attempted.	10 sec
Delay Ring Timer:	This timer defines the length of the time delay, after an incoming call seizes a device, until ringing is applied to the set. The set must be a member of a Key System or Multicall Group. This timer is assigned a value in the range of "5" to "60" seconds in increments of five seconds.	10 sec
Dialing Conflict Timer:	This timer is assigned a value in the range of "2" to "5" seconds in increments of one second. This timer defines the length of time the system waits for a dialed digit when the digits dialed to that point do not form a unique number. If two numbers have the same leading digits, a conflict arises when a station dials the digits required to complete a call to the number with the least number of digits. Since the two numbers have the same leading digits, the system is unable to route the call to the first number because there is the chance that the caller may dial the remaining digits for the second number. If a pause in excess of the Dialing Conflict timer is detected, routing of the call to the first station will take place.	3 sec
First Digit Timer:	This timer is assigned a value in the range of "5" to "60" seconds in increments of one second. This timer defines the length of time the system waits for the first dialed digit on off–hook before presenting the station with reorder tone.	15 sec
Inter–digit Timer:	This timer is assigned a value in the range of "3" to "60" seconds in increments of one second. This timer defines the length of time the system waits between dialed digits before presenting the station with reorder tone. This timer is overridden by the Dialing Conflict timer if the digits dialed form a conflicting number.	10 sec
Lockout Timer:	This timer is assigned a value in the range of "10" to "60" seconds in increments of one second. This timer defines the length of time reorder tone is presented to a station before it is locked out by the system.	45 sec

Table 18–1 COS Parameter Descriptions (continued)

Parameter	Description	Default Value
Message Waiting Ringing Start Time:	This timer option is used to indicate when stations with the Message Waiting Ringing feature may be rung during the day. The range of values is from 00:00 to 23:59.	00:00
Message Waiting Ringing Stop Time:	This timer option is used to indicate when to stop ringing stations with Message Waiting Ringing feature. The range of values is from 00:00 to 23:59.	00:00
No Answer Recall Timer:	This timer is assigned a value in the range of "0" to "45" seconds in increments of one second. This timer defines the length of time a transferred call rings another station before a recall to the transferring station or Attendant Console is attempted.	17 sec
Ringing Timer:	This timer is assigned a value in the range of "60" to "300" seconds in increments of one second. This timer defines the length of time a station rings another station or external number.	180 sec
Work Timer:	This timer applies only to ACD extensions and is assigned a value in the range of "0" to "600" seconds in increments of one second. The timer is activated after an agent has completed a hunt group call. The agent is automatically placed in Make Busy for the time programmed. If an agent does not want to wait for the timer to expire, then he may press the "NEXT" softkey if he has a *SUPERSET 4* or *SUPERSET 430* telephone.	0 sec
Key A: Key B: Key C: Key D:	These options allow digit strings to be assigned to the additional row of 4 keys on certain ONS/OPS stations. Each key may be assigned up to 7 digits, and is initialized to blanks.	

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Dimension and Feature Display

Description

18.6 This read–only form displays the currently active *SX–2000* ICS configuration. For new systems not yet programmed via CDE, the form displays the default configuration. Through this form, a customer is able to determine how much of the system resources are being utilized.

Conditions

Access to this form is restricted to users with Maintenance authorization or higher.

DIMENSION AND FEATURE DISPLAY

Features Purchased

Advanced Analog Networking	_____ (Yes/No)	MSDN/DPNSS Data	_____ (Yes/No)
Advanced ARS	_____ (Yes/No)	MSDN/DPNSS Public Network Access	_____ (Yes/No)
Advanced Data	_____ (Yes/No)	MSDN/DPNSS Redirection	_____ (Yes/No)
ANI/DNIS	_____ (Yes/No)	MSDN/DPNSS Voice I	_____ (Yes/No)
ANSWER PLUS™–Automatic Attendant	_____ (Yes/No)	MSDN/DPNSS Voice II	_____ (Yes/No)
ANSWER PLUS™–Automatic Call Distribution	_____ (Yes/No)	MSDN/DPNSS Voice III	_____ (Yes/No)
ANSWER PLUS™–Mitel Call Distribution	_____ (Yes/No)	MSDN/DPNSS Voice IV	_____ (Yes/No)
Attendant Language Selection	_____ (Yes/No)	MSDN/DPNSS Voice V	_____ (Yes/No)
Autovon	_____ (Yes/No)	MSDN Release Link Trunks	_____ (Yes/No)
COV Set	_____ (Yes/No)	Peripheral Control Redundancy	_____ (Yes/No)
DASS II Mixed	_____ (Yes/No)	SMDR–External	_____ (Yes/No)
DASS II Voice I	_____ (Yes/No)	SMDR–Internal	_____ (Yes/No)
DNI	_____ (Yes/No)	T1/D4	_____ (Yes/No)
Flexible Dimensioning	_____ (Yes/No)	Traffic Reporting	_____ (Yes/No)
HCI Advanced Telephony Control	_____ (Yes/No)	Trunk Group Busy Status	_____ (Yes/No)
HCI Basic Telephony Control	_____ (Yes/No)	Visually Handicapped Operator Console	_____ (Yes/No)
Hotel/Motel	_____ (Yes/No)		
Main Control Redundancy	_____ (Yes/No)		
Message Center	_____ (Yes/No)		
MNMS: Configuration Management I	_____ (Yes/No)		
MNMS: Fault Management I	_____ (Yes/No)		
MSAN/APNSS	_____ (Yes/No)		

System Configuration:

ACD Agents	_____
Cabinets	_____
Country	_____
Feature Resources Dimensioning	_____
HCI Traffic Level	_____
Machine Configuration	_____
Traffic Level	_____

Parameter	Maximum	Used
Attendant Consoles		
Attendant Groups		
Broadcast Groups		
Corporate Directory		
Datasets		
Digit Blocks		
DTMF Receivers		
Hunt Groups		
Independent Account Codes		
Modems		
Multiline Sets		
Single Line Sets		
Personal Speed Call Blocks		
Pickup Groups		
Single Line Sets		
System Speed Call		
Trunks		
Trunk Groups		

F00056

Dimension and Feature Selection

Description

18.7 This form is used by the system installer to define the optional features and configuration parameters delivered for an *SX–2000* system being installed at a customer site. See Practice 912x–060–200–NA, Installation, for a detailed procedure on enabling optional software.

Conditions

1. This form is restricted to users with Installer authorization.
2. The shaded part of the form contains read–only fields which are completed only after the form has been committed to the system database and the information is redisplayed.
3. The traffic level determines the performance and line size capacity of the system. The processor card variant is directly affected by the traffic level.
4. The "Country" field enables the selection of country dependent parameters such as Tone Plan and Dial Plan.
5. For instances in which the selected configuration requirements exceed the resources available to the system, or the selected parameters conflict with each other, an error message is printed on the maintenance terminal. In these instances, the system is initialized with the default values shown below.

Form Headings:

- **Optional Features:** The subfields of this section define the optional feature packages delivered with the *SX–2000* system. Enter "Yes" for each of the feature packages purchased (MSA packages). **Default:** No
- **System Configuration:**
  - **ACD Agents** – Enter either 25, 50, 100, 150, 200 or 350 as the number of agents.
  - **Cabinets** – Enter the number of cabinets in the system. *SX–2000* SG/S systems will accept a value in the range of 1 to 4. *SX–2000* VS systems will accept a value of 1 only. *SX–2000* FD systems with an FD1 configuration will accept an entry of 2, 3, or 4. A system with an FD2 configuration will accept a value in the range of 2 to 12.
  - **Country** – Enter the country variant of the system. This parameter is used to determine the variations in regional loads such as the dialing plan.

DIMENSION AND FEATURE SELECTION

Optional Features:

Advanced Analog Networking	_____	(Yes/No)
Advanced ARS	_____	(Yes/No)
Advanced Data	_____	(Yes/No)
ANI/DNIS	_____	(Yes/No)
ANSWER PLUS™–Automatic Attendant	_____	(Yes/No)
ANSWER PLUS™–Automatic Call Distribution	_____	(Yes/No)
ANSWER PLUS™–Mitel Call Distribution	_____	(Yes/No)
Attendant Language Selection	_____	(Yes/No)
Autovon Application	_____	(Yes/No)
COV Set	_____	(Yes/No)
DASS II Mixed	_____	(Yes/No)
DASS II Voice I	_____	(Yes/No)
DNI	_____	(Yes/No)
Flexible Dimensioning	_____	(Yes/No)
HCI Advanced Telephony Control	_____	(Yes/No)
HCI Basic Telephony Control	_____	(Yes/No)
Hotel/Motel	_____	(Yes/No)
Main Control Redundancy	_____	(Yes/No)
Message Center	_____	
MNMS: Configuration Management I	_____	
MNMS: Fault Management I	_____	
MSAN/APNSS	_____	

MSDN/DPNSS Data	_____	(Yes/No)
MSDN/DPNSS Public Network Access	_____	(Yes/No)
MSDN/DPNSS Redirection	_____	(Yes/No)
MSDN/DPNSS Voice I	_____	(Yes/No)
MSDN/DPNSS Voice II	_____	(Yes/No)
MSDN/DPNSS Voice III	_____	(Yes/No)
MSDN/DPNSS Voice IV	_____	(Yes/No)
MSDN/DPNSS Voice V	_____	(Yes/No)
MSDN Release Link Trunks	_____	(Yes/No)
Peripheral Control Redundancy	_____	(Yes/No)
SMDR–External	_____	(Yes/No)
SMDR–Internal	_____	(Yes/No)
T1/D4	_____	(Yes/No)
Traffic Reporting	_____	(Yes/No)
Trunk Group Busy Status	_____	(Yes/No)
Visually Handicapped Operator Console	_____	(Yes/No)

System Configuration Selection:

ACD Agents (25, 50, 100, 150, 200, 350)	_____
Cabinets	_____
Country (NA, UK, NZ, HK, MA, IT, TA, GE)	_____
Feature Resources Dimensioning	_____
HCI Traffic Level	_____
Machine Configuration	_____
Traffic Level	_____

Hardware Requirements

Memory (Megabytes)	_____

SX–2000 Password Information

System Identity Code	_____
Mitel Options Code	_____
Mitel Options Password	_____

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- **Feature Resource Dimensioning** – Enter the Feature Dimension (MFRD) purchased with the system.
- ***HCI* Traffic Level** – Enter the MITEL Application Capacity Level number purchased with the system.

- **Machine Configuration** – Specify which SX–2000 configuration is selected. Valid entries are "SG", "FD1", and "FD2", "S" and "VS".
- **Traffic Level** – Enter the Traffic Level purchased for the system (MTCL package). The traffic level determines the performance and line size capacity of the switch.

- **Hardware Requirements:** This is a system–generated, protected field that displays the memory size required in order to support the selected options.
- ***SX–2000* Password Information:**
  - **System Identity Code** – This read–only field displays a unique identity code for each system.
  - **Mitel Options Code** – This read–only field displays the code (up to 24 digits) generated for a particular set of options. The field is blank until a generate is performed. For further information on the [GENERATE] softkey, see *Enabling Optional Software,* in Practice 912x–060–200, Installation.
  - **Mitel Options Password** – A password is entered in this field for the committing of the selected options and parameters. See *Enabling Optional Software,* Practice 912x–060–200, Installation, for more details.

Dimension Selection

Description

18.8 The Dimension Selection form is used to set or display dimension values. Dimension values indicate the distribution of all dimensionable resources within the *SX–2000* system.

Conditions

1. The Dimension Selection form cannot be accessed unless the Flexible Dimensioning option has been enabled.

2. Write access to the Dimension Selection form is granted only to users with form access authorization and a valid password.

3. Write access is restricted to two fields in the Dimension Selection form: the "Password" field and the "New" field. All other fields in the Dimension Selection form are Display/Read only. See "Form Headings", below.

4. For assistance in programming new dimension values, see Practice 9125–060–609–NA, Flexible Dimensioning Feature Package.

Form Headings:

(Read/Write Fields)

- **Password:** Enter a valid password to gain access to the "New" fields. The password is fixed by MITEL and cannot be modified by the user. All end users within a specific stream must use the same password.
- **New:** Enter the new dimension values. Values in this field are either the same as those in the "Current" field or else contain changes entered after the last system restart.
  Users cannot commit values above or below the indicated range. Attempting to commit a lower value than the given range will result in the error message: "Data in current field is not in proper format. Please correct." Attempting to commit a higher value than the given range will produce the error message: "<Dimensionable Resource>, New Dimension value exceeds the maximum allowed."

(Display/Read Only Fields)

- **Default Feature Resources Dimensioning:** Gives the number of the installed Dimension Package.
- **Dimension:** This field lists the dimensionable resources within the *SX–2000* system. Accompanying the name of each resource is its allowable range of values. This range remains fixed, regardless of the Feature Resources Dimensioning number. The values shown in the example are only samples; consult the actual form for the real values.
- **Unit Size (Bytes):** This field displays the memory required for one instance of the associated dimension parameter.

- **Default:** This field lists the dimension values assigned in a default dimension package.
- **Current:** The dimension values used at the last restart are shown in this field.
- **Free Memory(Bytes):** This field displays the amount of unused database memory associated with the dimension values in the "Default","Current" and "New" fields. The free memory value associated with the "Default" field is always blank.
- **Time Stamp:**
  - **Default–** This field shows the installation date of the default dimensions. This is the date of the most recent instance of a user–invoked Commit/Confirm operation in the Dimension and Feature Selection form. If, during a Commit/Confirm operation in that form, the system date cannot be read, the default date will be set to year 0, month 1, day 1.
  - **Current:** This field displays the date of the most recent invocation of a Dim Save operation.

DIMENSION SELECTION

Password [ ] Default Feature Resources Dimensioning 7

	Default	Current	New
Free Memory (Bytes)		[ ]	[ ]
Time Stamp (yy/mm/dd)	[ ]	[ ]	

Dimension	Unit Size (Bytes)	Default	Current	New
Attendant Consoles (2–48)				
Attendant Groups (2–100)				
Broadcast Groups (12–5000)				
Call Reroute Always (10–250)				
Call Reroute1st Alt (10–500)				
Call Reroute 2nd Alt (10–100)				
Class of Service (10–96)				
Dataset Groups (8–200)				
Datasets (16–2000)				
Default Account Codes (10–600)				
Departments (10–2000)				
Digital Links (8–60)				
Digit Blocks (max =2500)				
DNI Channels (36–6000)				
DTMF Receivers (16–200)				
DTRX Service (24–48)				
DTS Service (10–300)				
Hunt Groups (10–255)				
Independent Account Codes (10–15000)				
Locations (10–200)				
Modem Groups (2–25)				
Modems (2–200)				
Multiline Sets (12–2000)				
Multiline Sets Button Digit String (max = 32766)				
Personal Speed Call Users (10–1000)				
Pickup Groups (10–300)				
Route Lists (10–200)				
Route Plans (10–100)				
Routes (10–500)				
Single Line Sets (16–5000)				
Speedcall Digit String (max = 32766)				
System Acc Codes (10–100)				
System Digit Strings (max = 32766)				
System Speed Call (10–1000)				
Telephone Directory (55–10005)				
Transient Digit String (max =32766)				
Trunk Groups (8–250)				
Trunks (8–2000)				
Trunk Service (8–500)				

DNI (Digital Network Interface) Circuit Assignment

18.9 The DNI Circuit Assignment form is used to assign DNI circuits to various DNI–based devices.

Conditions

1. Unassigned channels must be left blank.
2. Declaring a channel as BLANK deallocates the channel.
3. All channels on a card must be deallocated in order to deprogram the DNI line card.
4. On *SX–2000* S systems, the Maintenance Panel supports two DNI circuits. These circuits are always displayed on this form with the following default values:
   - The PLIDs are 1/3/1/1 and 1/3/1/2 (the Maintenance Panel is viewed by the system as Shelf 3).
   - The Card Type field displays "Maint Panel" .
   - The default device field is blank.

Note: DNI circuits support the DATASET 1100 and DATASET 2100 series datasets as well as the *SUPERSET 3* DN, *SUPERSET 4* DN, *SUPERSET 401, SUPERSET 410* and *SUPERSET 430* telephones. In addition, the *SUPERSET 7* DN, the *SUPERSET 7000* and the *SUPERCONSOLE 1000* Attendant Consoles are also supported. DNI circuits do not support *SUPERSET 3* and *SUPERSET 4* telephones.

5. The *SUPERSET 7* DN console requires two consecutive channels. Assigning both channels as a *SUPERSET 7* console places the PLID in the Attendant Assignment form.
6. Assigning the first channel as a *SUPERCONSOLE 1000* or a *SUPERSET 7000* console places the PLID in the Attendant Assignment form. Both consoles must be assigned on Channel 1.
   For the *SUPERCONSOLE 1000*, Channel 2 is programmed as the console's port ("SC1000 port") or is left blank. Programming of Channel 2 for the *SUPERSET 7000* is not allowed.
7. The port (Channel 2) cannot be assigned on *SX–2000* SG systems.
8. Declaring both channels assigned to a console as BLANK removes that PLID from the Attendant Console Assignment form.
9. A *SUPERSET 3* DN and *SUPERSET 4* DN telephone programmed on Channel 1 can have a DATASET 1100 unit programmed on Channel 2.
10. A *SUPERSET 410* or *SUPERSET 430* telephone programmed on Channel 1 may have a *MiLink* Data Module (DS1101M) unit programmed on Channel 2; otherwise, Channel 2 is left blank.
11. A *SUPERSET* 401 telephone cannot be programmed on Channel 2.

12. DATASET 4113 are single channel devices. They must be assigned to Channel 2. Channel 1 is left unused and may not be assigned to another device. When a channel is assigned to a DATASET 4113, the PLID is placed in the Dataset Assignment form. Declaring the channel as BLANK removes the PLID from the Dataset Assignment form.

DNI CIRCUIT ASSIGNMENT

Cabinet	Shelf	Slot	Circuit	Card Type	Device Type	
					Channel #1	Channel #2

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13. DATASET 4122 units require four consecutive channels (two circuits). Channel 1 should be the first channel programmed. When channels are assigned to a DATASET 4122, the PLIDs are placed in the Dataset Assignment form. Declaring the channels as BLANK removes the PLIDs from the Dataset Assignment form.

14. DNI circuits assigned to DATASET 4100 series cannot be entered as modem elements in the Modem Element Assignment form.

Form Headings:

- **Cab,Shelf,Slot:** A system–generated, protected field indicating the card PLID.
- **Circuit:** A system–generated, protected field indicating the hybrid circuit on the card.
- **Card Type:** A system–generated, protected field indicating the type of card on which the circuit exists.
- **Device Type:** Composed of two programmable sub–fields indicating the device type attached to the PLID. Valid entries are:
  - *SUPERSET 7* console, indicating a *SUPERSET 7* DN console is attached.
  - One of DS1101, DS1101M (*MiLink* Data Module), DS1102, DS1103, DS2102, DS2103, DS2202, DS2203, DS4113, DS4122, indicating a DNI based dataset is attached.
  - *SUPERSET 3* DN, *SUPERSET 4* DN, *SUPERSET 410, SUPERSET 401,* or *SUPERSET 430* telephone.
  - SC1000, indicating a *SUPERCONSOLE 1000* Attendant Console is attached.
  - SC1000 port, indicating the output port on the *SUPERCONSOLE 1000* Attendant Console is enabled
  - Superset 7000, indicating a *SUPERSET 7000* Attendant Console is attached.
- **Channel #1**: Enter the attached device type using the rules described above.
- **Channel #2**: Enter the attached device type using the rules described above.

Feature Access Code Assignment

18.10 The Feature Access Code form lists the recommended station feature access codes. The form allows definition of these codes and of alternative codes for rotary sets (which cannot generate the special digits * and #). A sample list of feature access codes is given in Table 18–3.

Conditions

1. Primary and alternative codes must be unique and non–conflicting.
2. Leaving both Primary and Alternative codes blank disables the feature concerned.
3. The digits * and # should not be used alone to define feature access codes.
4. Feature access codes should be both unique and non–conflicting.

Form Headings:

- **Feature Name:** Preprinted list of all available station features.
- **Primary Code:** Enter the value of the Feature Access Code. This code can be up to four digits in length.
- **Alternative Code:** the alternative column is used mostly to define alternative codes which do not use the special DTMF digits (* and #). These codes can be up to four digits in length.

FEATURE ACCESS CODE ASSIGNMENT (Sheet 1 of 2)

Feature Name	Primary Code	Alternative Code
Account Code		
ACD Silent Monitor		
ACD Agent Login		
ACD Agent Logout		
Active Maintenance Port Access		
ADL – Call		
ADL – Disconnect		
ADL – Loopback		
Callback – Cancel		
Callback – Cancel Individual		
Callback – Setup (one digit only)		
Call Forwarding – Busy (External Source)		
Call Forwarding – Busy (Ext & Int Source)		
Call Forwarding – Busy (Internal Source)		
Call Forwarding – End Chaining		
Call Forwarding – Follow Me		
Call Forwarding – I am Here		
Call Forwarding – No Answer (External Source)		
Call Forwarding – No Answer (Ext & Int Source)		
Call Forwarding – No Answer (Internal Source)		
Call Forwarding – Override		
Call Hold		
Call Hold – Remote Retrieve		
Call Hold – Retrieve		
Call Park – Remote Retrieve		
Call Pickup – Dialed		
Call Pickup – Directed		
Call Privacy		
Camp on – Retrieve		
Camp on – Setup (one digit only)		
Cancel All Forwarding		
Cancel Call Forwarding – Busy (Ext & Int Source)		
Cancel Call Forwarding – End Chaining		
Cancel Call Forwarding Follow Me		
Cancel Call Forwarding Follow Me – Remote		
Cancel Call Forwarding – No Answer (Ext & Int Source)		
Clear All Features		
Conference Call		
Conference Call Split		
Dialed Day/Night Service – Activate		
Dialed Day/Night Service – Inquire		

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FEATURE ACCESS CODE ASSIGNMENT (Sheet 2 of 2)

Feature Name	Primary Code	Alternative Code
DID/3 Protocol Test		
Do Not Disturb		
Do Not Disturb – Cancel		
Do Not Disturb – Cancel Remote		
Do Not Disturb – Remote		
Flexible Answer Point		
Flexible Answer Point Cancel All		
Force Party Release		
HCI Application		
Hotel/Motel Room Status		
Inactive Maintenance Port Access		
Individual Trunk Access		
Italian CAS – Disturbing Call (Ignore Release from CO)		
Italian CAS – Enable CO Recall		
Last Number Redial		
Loudspeaker Paging		
Make Busy – Setup		
Make Busy – Cancel		
Message Center – Direct Read		
Message Center – Password Definition		
Message Center – Remote Read		
Message Waiting – Activate		
Message Waiting – Deactivate		
Message Waiting – Inquire		
MNMS: Event Indication		
Non-Verified Account Code		
Override (one digit only)		
Personal Speed Call – Invoke		
Personal Speed Call – Remove		
Personal Speed Call – Store		
Remote Clear All Features		
Repeat Last Number Saved		
Save Last Number		
Multiline Set Loop-test		
Multiline Set Headset – On		
Multiline Set Headset – Off		
Tone Demonstration		
Trunk Answer From Any Station (TAFAS)		
Trunk Calling Party Identification		

Table 18–2 Feature Access Code Parameters

Parameter	Description
Account Code:	This code is dialed prior to the entry of an independent account code.
ACD Silent Monitor:	This code allows a station to monitor calls to a desired directory number (dn) or hunt group. The COS options of the monitoring station must have Silent Monitoring – Allowed enabled and the COS options of the monitored dn or hunt group must have Silent Monitoring – Accept enabled.
ACD Agent Login:	This code informs the system that the agent is present.
ACD Agent Logout:	This code informs the system that the agent is absent.
Active Maintenance Port Access:	This access number allows the MNMS station to connect to the active maintenance port once connection to the *SX–2000* system has been established.
ADL–Call:	This code is dialed prior to establishing a data call from a station with an Associated Data Line (ADL).
ADL–Disconnect:	A User who has established a data call on the line associated to their voice device may terminate the call by entering the ADL Disconnect access code at the associated telephone set.
ADL–Loopback:	This code is dialed to loop signals from an Associated Data Line (ADL) through the system and back to the data circuit. This feature would be used for maintenance purposes only.
Callback – Cancel:	This code allows a station to cancel all callbacks it set on stations.
Callback – Cancel Individual:	This code allows a station to cancel a callback set against a specific station.
Callback – Setup:	This 1–digit code allows a station to apply a callback condition to a station which is busy or does not answer. Once the station concerned goes on–hook (if initially busy) or becomes active (initially no answer), the system will ring the calling party first, and then ring the called party.
Call Forwarding – Busy (External Source):	This code allows a station to forward external calls to other stations or external numbers if busy. The allowed destinations of this feature are determined by the settings of the Call Forwarding (External Destination and Internal Destination) COS options.
Call Forwarding – Busy (Ext & Int Source):	This code allows a station to forward both external and internal calls to other stations or external numbers if busy. The allowed destinations of this feature are determined by the settings of the Call Forwarding (External Destination and Internal Destination) COS options.
Call Forwarding – Busy (Internal Source):	This code allows a station to forward internal calls to other stations, or external numbers if busy. The allowed destinations of this feature are determined by the settings of the Call Forwarding (External Destination and Internal Destination) COS options.
Call Forwarding – End Chaining:	This code allows a user to ensure a call forwarded from his or her station remains at that destination, regardless of the call forwarding which may be set at the destination.
Call Forwarding – Follow Me:	This code allows a station to forward all calls to other stations, or external numbers. The allowed destinations of this feature are determined by the settings of the Call Forwarding (External Destination and Internal Destination) COS options.
Call Forwarding – I am Here:	This code allows a station to redirect its calls to another station, from that other station.

Table 18–2 Feature Access Code Parameters (continued)

Parameter	Description
Call Forwarding – No Answer (External Source):	This code allows a station to forward external calls to other stations, or external numbers if there is no answer within the amount of time specified by the Call Forwarding – No Answer timer in its COS. The allowed destinations of this feature are determined by the settings of the Call Forwarding (External Destination and Internal Destination) COS options.
Call Forwarding – No Answer (Ext & Int Source):	This code allows a station to forward calls to other stations, or external numbers if there is no answer within the amount of time specified by the Call Forwarding – No Answer timer in its COS, regardless of whether the call originated from an external or internal source. The allowed destinations of this feature are determined by the settings of the Call Forwarding (External Destination and Internal Destination) COS options.
Call Forwarding – No Answer (Internal Source):	This code allows a station to forward internal calls to other stations, or external numbers if there is no answer within the amount of time specified by the Call Forwarding – No Answer timer in its COS. The allowed destinations of this feature are determined by the settings of the Call Forwarding (External Destination and Internal Destination) COS options.
Call Forwarding – Override:	This feature allows a station to override any call forwarding that has been enabled on destinations stations. To override call forwarding an access code is dialed before dialing the destination extension number. This feature is only allowed if enabled in the COS options.
Call Hold:	Allows a station to place calls on hold by flashing the switchhook and dialing the access code.
Call Hold – Remote Retrieve:	Allows a station to retrieve calls placed on hold at other stations by dialing the Remote Retrieve code followed by the station number where the call is on hold.
Call Hold – Retrieve:	Allows a station to retrieve a call placed on hold by dialing the Retrieve code.
Call Park – Remote Retrieve:	This code is dialed followed by a hold position identifier, to retrieve a call previously placed on hold by an attendant.
Call Pickup – Dialed:	This code allows a station to retrieve calls ringing other stations in its pickup group. In order for this feature to be effective, the stations having this COS feature must be placed in pickup groups through the Pickup Group Assignment form.
Call Pickup – Directed:	Allows a station to retrieve calls ringing other stations by dialing the access code followed by the number of the ringing station. The programming of pickup groups is not required for this feature to be effective.
Call Privacy:	This code inhibits the use of overriding features for the duration of a call.
Campon – Retrieve:	This code allows a station to retrieve a camped–on caller during a call (without losing the original caller). This is done by flashing the switchhook (placing the other party on soft hold) and dialing the Retrieve code.
Campon Setup: (one digit only):	This single digit code allows a station to camp onto a station which is busy. Once the station concerned goes on–hook, the system will ring the station. The camped–on station may also retrieve the camp on by using the Campon Retrieve code (see below).
Cancel All Forwarding:	This code permits a station user to clear all call forwarding that had previously been applied to their station. This feature is not available with *SUPERSET 4, SUPERSET 430,* or *SUPERSET 4* DN telephones.

Table 18–2 Feature Access Code Parameters (continued)

Parameter	Description
Cancel Call Forwarding – Busy (Ext & Int Source):	This code permits station users to cancel Call Forwarding – Busy (Ext & Int Source) previously applied to their extensions. The feature is not available to *SUPERSET 4, SUPERSET 430,* or *SUPERSET 4* DN telephones
Cancel Call Forwarding – End Chaining:	This code permits station users to cancel the Call Forwarding – End Chaining feature previously applied to their extensions. The feature is not available to *SUPERSET 4, SUPERSET 430,* or *SUPERSET 4* DN telephones.
Cancel Call Forwarding – Follow Me:	This code permits station users to cancel any Call Forward – Follow Me previously applied against their extensions. This feature is not available to *SUPERSET 4, SUPERSET 430,* or *SUPERSET 4* DN telephones.
Cancel Call Forwarding Follow Me – Remote:	This code permits station users to cancel any Call Forward – Follow Me previously set against their extensions from stations not their own.
Cancel Call Forwarding – No Answer (Ext & Int Source):	This code permits station users to cancel any Call Forwarding – No Answer previously applied against their extensions. This feature is not available to *SUPERSET 4, SUPERSET 430,* and *SUPERSET 4* DN telephones.
Clear All Features:	This code is used to clear the following features from a user's station: all Call Forwards; Do Not Disturb; any displayed Advisory Message; Callbacks to other users; Timed reminder; Auto–answer.
Conference Call:	This code allows a station to initiate conference calls by dialing, in turn, the station or external numbers of all conferees, flashing the switchhook and dialing the Conference Call code between each call completion.
Conference Call Split:	This code allows a station to split an existing 3–way conference call, by flashing the switchhook and dialing the Conference Call Split code.
Dialed Day/Night Service – Activate:	Permits changing the mode of operation of an *SX–2000* ICS when activated from sets that have the "Dialed Night Service" COS enabled.
Dialed Day/Night Service – Inquire:	Permits one to query the mode of operation of the *SX–2000* ICS from a station.
DID/3 Protocol Test:	This code is used to perform a DID/3 Protocol test on a seized DID trunk. It would be performed from the Central Office. The code signals to the PBX that this is just a test.
Do Not Disturb:	This code allows a station to set Do Not Disturb. This feature will prevent the station from ringing on incoming calls, with the caller being presented reorder tone.
Do Not Disturb – Cancel:	This code allows a station with Do Not Disturb set to return to normal operation.
Do Not Disturb – Cancel Remote:	This code is used to cancel Do Not Disturb on another station by first dialing the code, followed by the number of the station concerned.
Do Not Disturb – Remote:	This code is used to apply Do Not Disturb to another station by first dialing the code, followed by the number of the station concerned.
Flexible Answer Point:	This code allows an alternate answer point to be chosen or cancelled for all DID trunks, from a station or console for which the feature is enabled.
Flexible Answer Point Cancel All:	This code cancels all previously set alternate answer point for all DID trunks.

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Table 18–2 Feature Access Code Parameters (continued)

Parameter	Description
Force Party Release:	This code is used by a station to free a line or trunk without going on–hook. This feature is used in the course of establishing conference calls.
HCI Application:	This code is used to set up an *HCI* session between the PABX and a Host Computer.
Hotel/Motel Room Status:	This code permits Attendants and stations to inquire about or change aspects of a room's status (clean, vacant, etc.).
Inactive Maintenance Port Access:	This access number allows the MNMS station to connect to the inactive maintenance port once connection to the *SX–2000* system has been established.
Individual Trunk Access:	Allows a station to access individual trunks directly by dialing the Individual Trunk Access code and the trunk number.
Italian CAS – Disturbing Call:	This code is used to prevent an incoming call from disconnecting, should the called party determine the caller to be disturbing.
Italian CAS – Enable CO Recall:	This code is used to send a recall signal to invoke features available on the CO.
Last Number Redial:	This code allows a station encountering busy tone or no answer on an internal or external call, to automatically redial the number a later time.
Loudspeaker Paging:	This code allows a station to make use of Loudspeaker Paging circuits. The station dialing this code must have the COS option "Pager Access" enabled in order to access pager circuits.
Make Busy – Setup:	This feature is similar to the Do Not Disturb feature but applies only to calls to ACD and MCD groups. If the Setup code is dialed, then the device is removed from all agent groups, but can still receive calls to its directory number.
Make Busy – Cancel:	This code is used to remove the make busy condition from the agent's station.
Message Center – Direct Read:	This code is dialed from the prime line of a set to establish a call with a Message Center Agent in order to receive messages left with the Message Center.
Message Center – Password Definition:	This code permits users of the Message Center to define a password for their Message Center accounts.
Message Center – Remote Read:	This code is used to establish a call with a Message Center Agent from a station set other than the user's own set.
Message Waiting – Activate:	This code allows a station to apply Message Waiting notification to stations.
Message Waiting – Deactivate:	This code allows a station to cancel Message Waiting Notification to stations.
Message Waiting – Inquire:	This feature allows all stations to find out the Message Waiting status of any station.
MNMS Event Indication:	This code is programmed ONLY on a system which is local to the MNMS station. Any system which is remote to the MNMS station will leave this field blank. The FAC assigned will direct the system to receive further digits after the code, and then pass those digits through a communication pipe to an MNMS station.

Table 18–2 Feature Access Code Parameters (continued)

Parameter	Description
Non–verified Account Code:	The Non–verified account code can be from 2 to 12 digits in length. It is terminated either by the End–of–Dial character (#) on DTMF type sets or when the COS–controlled Dialing Conflict Timer expires. When used, the Non–verified account code replaces the Default Account Code in SMDR records when the Report Account Codes option in the SMDR Options Assignment form is enabled. For rotary–type phones a system speed call number may be defined with the # character imbedded in it. The speed call number is then used in place of the Default Account Code. Refer also to the Disable End–of–Dial Character parameter on the System Options Assignment form.
Override:	This single digit code allows a station to override busy stations which do not have the busy override security in their Class of Service. This feature is activated by dialing the Override Access code on reception of busy tone during a station–to–station call. A warning tone will be presented to all concerned parties before the override takes place.
Personal Speed Call – Invoke:	This code is dialed to initiate a Personal Speed Call that was previously entered into system memory via the Personal Speed Call – Store feature.
Personal Speed Call – Remove:	This code is used to delete a personal speed call entry from the personal speed call table in system memory.
Personal Speed Call – Store:	This code is used to define a Personal Speed Call entry in the system memory.
Remote Clear All Features:	This code is used to clear the following features from a remote station: all Call Forwards; Do Not Disturb; any displayed Advisory Message; Call-backs to other users; Timed reminder; Auto–answer.
Repeat Last Number Saved:	This code is used to redial the last number stored using the "Save Last Number" feature.
Save Last Number:	This code is used to store the last number dialed from the station. Unlike the Redial facility, the number stored here remains in storage until another number is saved in this manner.
Multiline Set Loop Test:	This code is used in conjunction with an account code and an associated Class of Service to enable a member of the site communications management team to invoke test procedures for a *SUPERSET 3*, *SUPERSET 4*, *SUPERSET 410, SUPERSET 430, SUPERSET 3* DN or *SUPERSET 4* DN telephones.
Multiline Set Headset On:	This code disables the switchhook on a *SUPERSET 3*, *SUPERSET 3* DN, *SUPERSET 410, SUPERSET 430, SUPERSET 4* or *SUPERSET 4* DN telephone, to allow headset operation.
Multiline Set Headset Off:	This code enables the switchhook on a *SUPERSET 3, SUPERSET 3* DN, *SUPERSET 410, SUPERSET 430, SUPERSET 4* or *SUPERSET 4* DN telephone, to allow handset operation.
Tone Demonstration:	This code is dialed to initiate a Tone Demonstration. Details are available in the *SX–2000* Station User Guide.

Table 18–2 Feature Access Code Parameters (continued)

Parameter	Description
Trunk Answer From Any Station (TAFAS):	This code is dialed to retrieve trunk calls which ring a common alerting device (night bell).
Trunk Calling Party Identification:	Permits the outpulsing call origination information on the trunk. The operation of this feature is described in Practice 9125–060–606–NA, Advanced Analog Networking.

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Table 18–3 Sample Feature Access Codes

Feature Name	Primary Code	Secondary Code
Account Code	**3	1040
ACD Silent Monitor	*4*	1041
ACD Agent Login	*5*	1042
ACD Agent Logout	*5#	1043
Active Maintenance Port Access	1234	1098
ADL – Call	87	1001
ADL – Disconnect	86	1039
ADL – Loopback	85	1002
Callback – Cancel	#1	1003
Callback – Cancel Individual	*1#	1044
Callback – Setup (one digit only)	1	
Call Forwarding – Busy (External Source)	62	1004
Call Forwarding – Busy (Ext & Int Source)	**70	1045
Call Forwarding – Busy (Internal Source)	63	1005
Call Forwarding – End Chaining	64	1046
Call Forwarding – Follow Me	*8	1006
Call Forwarding – I Am Here	**8	1007
Call Forwarding – No Answer (External Source)	66	1008
Call Forwarding – No Answer (Ext & Int Source)	**71	1047
Call Forwarding – No Answer (Internal Source)	65	1009
Call Forwarding – Override	*1*	1048
Call Hold	*7	1010
Call Hold – Remote Retrieve.	**1	1011
Call Hold – Retrieve	*1	1012
Call Park – Remote Retrieve.	*23	1050
Call Pickup – Dialed	*6	1014
Call Pickup – Directed	**6	1015

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Table 18–3 Sample Feature Access Codes (continued)

Feature Name	Primary Code	Secondary Code
Call Privacy	#3	1016
Camp on – Retrieve	*3	1013
Camp on – Setup (one digit only)	3	
Cancel All Forwarding	##8	1017
Cancel Call Forwarding – Busy (Ext & Int Source)	**72	1049
Cancel Call Forwarding – End Chaining	**73	1051
Cancel Call Forwarding Follow Me	#8	1018
Cancel Call Forwarding Follow Me – Remote	**77	1052
Cancel Call Forwarding – No Answer (Ext & Int Source)	**74	1053
Clear All Features	*#*#	1019
Conference Call	*4	1020
Conference Call Split	*41	1120
Dialed Day/Night Service – Activate	305	1054
Dialed Day/Night Service – Inquire	306	1055
DID/3 Protocol Test	#3	1130
Do Not Disturb	*5	1021
Do Not Disturb – Cancel	#5	1022
Do Not Disturb – Cancel Remote	##5	1023
Do Not Disturb – Remote	**5	1024
Flexible Answer Point	57	1140
Flexible Answer Point Cancel	*57	1040
Force Party Release	#7	1025
HCI Application	**75	1056
Hotel/Motel Room Status	*#0	1057
Inactive Maintenance Port Access	1235	1099
Individual Trunk Access	**2	1058
Italian CAS – Disturbing Call	#22	1150
Italian CAS – Enable CO Recall	#44	1160
Last Number Re–dial	*0	1027
Loudspeaker Paging	**9	1028
Make Busy – Setup	*2*	1066
Make Busy – Cancel	**81	1067
Message Center – Direct Read	*20	1059
Message Center – Password Definition	*21	1060
Message Center – Remote Read	*22	1061
Message Waiting – Activate	*90	1029
Message Waiting – Deactivate	*91	1030
Message Waiting – Inquire	*92	1031
MNMS: Event Indication	73	1070

Table 18–3 Sample Feature Access Codes (continued)

Feature Name	Primary Code	Secondary Code
Non–Verified Account Code	**4	1032
Override (one digit only)	2	
Personal Speedcall – Invoke	58	1033
Personal Speedcall – Remove	**78	1062
Personal Speedcall – Store	67	1034
Remote Clear All Features	55	1035
Repeat Last Number Saved	*6*	1063
Save Last Number	**79	1064
Multiline Set Loop Test	48	1036
Multiline Set Headset – On	*3*	1065
Multiline Set Headset – Off	**80	1068
Tone Demonstration	83	1037
Trunk Answer From Any Station (TAFAS)	*9	1038
Trunk Calling Party Identification	#*8	1069

Form Access Authorization

Description

18.11 This form is used to define access privileges to each form in the customer database. The form consists of a list of form names next to which a "Write" or "Read" designation is entered under each appropriate level of access column. Entering "Write" in these columns allows Read/Write access to the form for the users associated with the given authorization level. Entering "Read" allows read–only access. Leaving the entry blank or entering "no" denies access to the form. The three entries may be abbreviated "W" for Write, "R" for Read and "N" for No. The form shows five levels of access: Installer, MAINT2 and MAINT1 for field personnel who service the PABX, and Supervisor and Attendant for authorized Attendant Console users.

Conditions

The proper authorization level is required to modify the contents of this form.

Form Headings:

- **FORM NAME:** A preprinted list of all database forms.
- **INSTALLER:** A preprinted entry indicating that "Write" access is allowed to the INSTALLER for all forms except Personal Speed Call Directory, to which only "READ" access is allowed, and the Dimension and Feature form to which no access is granted.
- **MAINT2:** Enter Write, Read, No or leave the entry blank.
- **MAINT1:** Enter Write, Read, No or leave the entry blank.
- **SUPERVISOR:** Enter Write, Read, No or leave the entry blank.
- **ATTENDANT:** Enter Write, Read, No or leave the entry blank.
- **AVAILABLE:** This is a non–programmable, system–generated field detailing which forms in the system are available to the user. A "yes" appears in this field if the form is available.

FORM ACCESS AUTHORIZATION (Sheet 1 of 4)

FORM NAME	INSTALLER	MAINT 2	MAINT 1	SUPERVISOR	ATTENDANT	AVAILABLE
AC13 Trunk Circuit Descriptor Assignment	write	No	No	No	No	Yes
AC15 Trunk Circuit Descriptor Assignment	write	No	No	No	No	Yes
Application Logical Port Assignment	write	No	No	No	No	Yes
Application Profile Assignment	write	No	No	No	No	Yes
Associated Directory Number Assignment	write	No	No	No	No	Yes
Attendant Assignment	write	No	No	No	No	Yes
Attendant Softkey Assignment	write	No	No	No	No	Yes
Automatic Route Selection Assignment	write	No	No	No	No	Yes
Cabinet Assignment	write	No	No	No	No	Yes
Call Progress Tone Detection Plan Assignment	write	No	No	No	No	Yes
Call Rerouting Always Alternative Assignment	write	No	No	No	No	Yes
Call Rerouting Assignment	write	No	No	No	No	Yes
Call Rerouting First Alternative Assignment	write	No	No	No	No	Yes
Call Rerouting Second Alternative Assignment	write	No	No	No	No	Yes
Change Attribute	write	No	No	No	No	Yes
Circuit Link Cable Assignment	write	No	No	No	No	Yes
Class of Restriction Group Assignment	write	No	No	No	No	Yes
Class of Service Options Assignment	write	No	No	No	No	Yes
CO Trunk Circuit Descriptor Assignment	write	No	No	No	No	Yes
Dataset Assignment	write	No	No	No	No	Yes
Dataset Circuit Descriptor Assignment	write	No	No	No	No	Yes
Dataset Hunt Group Assignment	write	No	No	No	No	Yes
Dataset Location Assignment	write	No	No	No	No	Yes
Day and Time Zone Assignment	write	No	No	No	No	Yes

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FORM ACCESS AUTHORIZATION (Sheet 2 of 4)

FORM NAME	INSTALLER	MAINT 2	MAINT 1	SUPERVISOR	ATTENDANT	AVAILABLE
Default Account Code Definition	write	No	No	No	No	Yes
Department Assignment	write	No	No	No	No	Yes
DID Trunk Circuit Descriptor Assignment	write	No	No	No	No	Yes
DID/3 Trunk Circuit Descriptor Assignment	write	No	No	No	No	Yes
Digit Modification Assignment	write	No	No	No	No	Yes
Digital CO Trunk Circuit Description	write	No	No	No	No	Yes
Digital DID Trunk Circuit Description	write	No	No	No	No	Yes
Digital E&M Trunk Circuit Description	write	No	No	No	No	Yes
Digital Link Assignment	write	No	No	No	No	Yes
Dimension and Feature Display	read	No	No	No	No	Yes
Dimension and Feature Selection	No	No	No	No	No	Yes
Dimension Selection	read	No	No	No	No	Yes
DNI Circuit Assignment	write	No	No	No	No	Yes
DTE Session Profile Assignment	write	No	No	No	No	Yes
DTE Terminal Profile Assignment	write	No	No	No	No	Yes
DTS Service Assignment	write	No	No	No	No	Yes
E&M Trunk Circuit Descriptor Assignment	write	No	No	No	No	Yes
Feature Access Code Assignment	write	No	No	No	No	Yes
Form Access Authorization	write	No	No	No	No	Yes
HCI Session Profile	write	No	No	No	No	Yes
Hotel Options Assignment	write	No	No	No	No	Yes
Hunt Group Assignment	write	No	No	No	No	Yes

F00062

FORM ACCESS AUTHORIZATION (Sheet 3 of 4)

FORM NAME	INSTALLER	MAINT 2	MAINT 1	SUPERVISOR	ATTENDANT	AVAILABLE
Independent Account Code Def.	write	No	No	No	No	Yes
Intercept Handling Assignment	write	No	No	No	No	Yes
Interconnect Restriction	write	No	No	No	No	Yes
Location Assignment	write	No	No	No	No	Yes
Loop/Tie Trunk Circuit Descriptor	write	No	No	No	No	Yes
Loudspeaker Paging Assignment	write	No	No	No	No	Yes
Maximum Dialed Digits	write	No	No	No	No	Yes
Message Link Cable Assignment	write	No	No	No	No	Yes
Miscellaneous Assignment	write	No	No	No	No	Yes
Modem Element Assignment	write	No	No	No	No	Yes
Modem Element Hunt Group Assignment	write	No	No	No	No	Yes
Multiline Set Assignment	write	No	No	No	No	Yes
Multiline Set Group Assignment	write	No	No	No	No	Yes
Multiline Set Key Assignment	write	No	No	No	No	Yes
Multiline Set Status Message	write	No	No	No	No	Yes
Link Descriptor Assignment	write	No	No	No	No	Yes
MSAN–APMS Group Assignment	write	No	No	No	No	Yes
MSDN-DPNSS – DASS II Trunk Circuit Descriptor	write	No	No	No	No	Yes
Network Synchronization	write	No	No	No	No	Yes
Node Identity Assignment	write	No	No	No	No	Yes

F00063

FORM ACCESS AUTHORIZATION (Sheet 4 of 4)

FORM NAME	INSTALLER	MAINT 2	MAINT 1	SUPERVISOR	ATTENDANT	AVAILABLE
DNS DPS Circuit Descriptor Assignment	write	No	No	No	No	Yes
Personal Speed Call Assignment	write	No	No	No	No	Yes
Personal Speed Call Directory	read	No	No	No	No	Yes
Pickup Group Assignment	write	No	No	No	No	Yes
Route Assignment	write	No	No	No	No	Yes
Route List Assignment	write	No	No	No	No	Yes
Route Plan Assignment	write	No	No	No	No	Yes
SCDC Trunk Circuit Descriptor	write	No	No	No	No	Yes
Single Line Set Assignment	write	No	No	No	No	Yes
SMDR Options Assignment	write	No	No	No	No	Yes
Station Service Assignment	write	No	No	No	No	Yes
System Account Code Definition	write	No	No	No	No	Yes
System Configuration	write	No	No	No	No	Yes
System Options Assignment	write	No	No	No	No	Yes
System Port Assignment	write	No	No	No	No	Yes
System Speed Call Assignment	write	No	No	No	No	Yes
Telephone Directory	write	No	No	No	No	Yes
Traffic Options Assignment	write	No	No	No	No	Yes
Trunk Assignment	write	No	No	No	No	Yes
Trunk Group Assignment	write	No	No	No	No	Yes
Trunk Service Assignment	write	No	No	No	No	Yes
User Authorization Profile	write	No	No	No	No	Yes

F00064

Hotel Options Assignment

18.12 The Hotel Options Assignment form is the system interface to the Hotel/Motel feature package. The feature package is documented in Practice 9125–060–602–NA, Hotel/Motel Feature Package.

Conditions

The Hotel/Motel feature package must be installed in order to access this form.

Form Headings:

(a) **Property Management System Installed:** Enter "Yes" if a PMS is to be connected to the *SX–2000* system. Default: No.

(b) **Automatic Functions:**

- **Update All Rooms with Status OCC/CLEAN to OCC/NOT CLEAN:** Enter the time, in 24–hour format, for the system to update the status of all occupied clean rooms to not clean. If no time is entered the option is disabled. Default: Blank.
- **Hotel Reports Generation:** Enter the time, in 24–hour format, for the system to generate Room Status, Wake–up Calls and Message Registration reports. If no time is entered the option is disabled. Default: Blank.

(c) **Call Block:** The Call Block parameters prevent extensions from making inter–room calls by changing the interconnect restrictions associated with the extensions. Calls may then be intercepted by an attendant by programming done in the Intercept Handling form. Call blocking can be enabled and disabled at check in and check out times, as programmed below.

- **Affected Interconnect Number:** Enter the Interconnect Restriction number that is used for the Call Block feature. Changing this value affects extensions only for newly registered guest rooms. Currently registered guests continue to operate with the old Interconnect Restriction number. Default: 1.
- **Unaffected Interconnect Number:** Enter the Interconnect Restriction number that is not affected by the Call Block feature. Default: 2.
- **Call Block Enabled:** Enter the time, in 24–hour format, the system will alter the Interconnect Restriction numbers for room extensions programmed with the Affected Interconnect number. At the time specified, extensions programmed as "call block affected" are restricted from calling each other. Blank indicates no call block actions are taken. Default: Blank.
- **Call Block Disabled:** Enter the time, in 24–hour format, the system alters the Interconnect Restriction numbers for room extensions programmed with the Affected Interconnect number. At the time specified, extensions programmed as "call block affected" are permitted to make inter–room calls. Default: Blank.

HOTEL OPTIONS ASSIGNMENT

Option	Value
Property Management System	
Installed (Yes/No)	No
Automatic Functions	
Update All Rooms with Status OCC/CLEAN to OCC/NOT CLEAN (hh:mm)	:
Hotel Reports Generation (hh:mm)	:
Call Block	
Affected Interconnect Number	1
Unaffected Interconnect Number	2
Call Block Enabled (hh:mm)	:
Call Block Disabled (hh:mm)	:
Call Restriction (Class of Restriction value)	
Internal	1
Local	1
Long Distance	1
Option 1	1
Option 2	1
Option 3	1
Check In Parameters	
Call Restriction (Internal/Local/Long Distance/Option n)	Internal
Call Block (Affected/Unaffected)	Unaffected
Check Out Parameters	
Call Restriction (Internal/Local/Long Distance/Option n)	Internal
Call Block (Affected/Unaffected)	Unaffected
Wake-up Call Attributes	
Ring Time (1–50 Seconds)	30
Attempts (1–4 Attempts)	3
Interval (2–7 Minutes)	5
Expiration Routing (Directory Number)	
Bell Tone on Wake-up Expiration (Yes/No)	No
Wake-up Directory Number	
Message Registration Parameters	
Surcharge (0–999 units)	0
Multiplier (0–200 units)	0

Note: Value field contains default values as shown.

F00066

(d) **Call Restriction:** Determines the type of call a particular extension is permitted to make. Internal, local and long distance can be programmed as the calling privilege by altering the COR values associated with the extensions. The alterations take place at check in and check out time, as programmed below.

- **Internal:** Enter the COR value that restricts the extension to internal calls only. Default: 1.
- **Local:** Enter the COR value that enables local and internal calls. Default: 1.
- **Long Distance:** Enter the COR value that enables long distance, local and internal calls. Default: 1.
- **Option 1, Option 2 and Option 3:** For each of these fields, enter a COR value that gives access to any special long distance facilities or ARS routes the hotel provides. Default: 1.

(e) **Check In Parameters:** Using these fields the hotel administration can define the Call Restriction and Call Block parameters to be applied to extensions when the registration process is carried out.

- **Call Restriction:** Enter the type of restriction to be applied to the room extension at check in time. Permitted entries are Internal, Local, Long Distance and Option 1, 2 or 3. Default: Internal.
- **Call Block:** Enter the type of Call Block to be applied to the room extension at check in time. Permitted entries are Affected and Unaffected. Default: Unaffected.

(f) **Check Out Parameters:** Using these fields the hotel administration can define the Call Restriction and Call Block parameters to be applied to extensions when the check out process is carried out.

- **Call Restriction:** Enter the type of restriction to be applied to the room extension after the check out is completed. Permitted entries are Internal, Local, Long Distance and Option 1, 2 or 3. Default: Internal.
- **Call Block:** Enter the type of Call Block to be applied to the room extension after the check out is completed. Permitted entries are Affected and Unaffected. Default: Unaffected.

(g) **Wake–up Call Attributes:** These fields determine the parameters used for the wake–up feature.

- **Ring Time:** Enter the length of time, in seconds, that the room extension is to ring for each wake–up attempt. The permitted range is 1 to 50 seconds. Default: 30 seconds.
- **Attempts:** Enter the number of times that each room extension is rung during the wake–up attempt. The permitted range of values is 1 to 4 attempts. Default: 3 attempts.
- **Interval:** Enter the interval between wake–up attempts. The permitted range of values is 2 to 7 minutes. Default: 5 minutes.

- **Expiration Routing:** Enter an internal directory number to which the unacknowledged wake–up call will be routed. This is typically a softkey appearance on an Attendant Console. Default: Blank.
- **Bell Tone on Wake–up Expiration:** Enter YES to enable the insertion of the ASCII BEL character, 07hex, in the data stream of a wake–up log. Logs are generated for each wake–up that is not successful. These logs are generally routed to a printer. Enter NO to disable the insertion of the character into the wake–up logs. Default: No.
- **Wake–up Directory Number:** Enter the speed call number for the Wake–up RAD that was programmed on the Speed Call Assignment form.

(h) **Message Registration Parameters:** Permits the hotel administration to apply a surcharge on a per–call basis for calls made from room extensions, and also to define the cost on a per–meter–pulse basis received from a central office for external calls.

- **Surcharge:** Enter the basic surcharge applied to each call made from a room extension. The permitted range of values is 0 to 999 units. Default: 0.
- **Multiplier:** Enter the multiplier to be applied against the meter pulses received from a central office for external calls. The permitted range of values is 0 to 200 units. Default: 0.

Intercept Handling Assignment

Description

18.13 This form allows the customer to program how the system is to treat various intercept conditions as they arise in call processing. There are two categories of intercepts in the system: intercepts due to incorrect operations performed by the caller which are dealt with through the intercept handling form and intercepts due to conditions at the called party's phone which do not permit call completion.

Conditions

1. The Intercept Handling form contains extensive default information which makes its programming optional. These default conditions are explained in Table 18–4.

2. The Intercept Handling form allows routing of an intercept to either a directory number, or a tone. Only one or the other may be specified for a given intercept reason.

Form Headings:

- **Intercept Number:** Enter the required intercept number. These numbers are referenced by in the Station Service and Trunk Service Assignment forms.
- **Intercept Reason:** A preprinted list of causes of intercepts. Table 18–4 defines the terms used in this column.
- **Where Routed To:** A choice of two possibilities is available in specifying how an intercept is to be processed; Directory Number or Tone.
- **Directory Number:** Enter the directory number station which is to handle the intercept. Entering a value in this field disallows an entry in the tone field.
- **Tone:** Enter either "reorder tone" or "dial tone", depending on the tone required. Entering a value in this field disallows an entry in the directory number field.

INTERCEPT HANDLING ASSIGNMENT		
Intercept Number: _____	Where Routed To	
Intercept Reason	Directory Number	Tone
Account Code Violation		Reorder Tone
Attendant in night service 1		Reorder Tone
Attendant in night service 2		Reorder Tone
COS Violation		Reorder Tone
Directory number out of service		Reorder Tone
Holding party locked out		Reorder Tone
Interconnect restriction		Reorder Tone
Toll denial – ARS digits		Reorder Tone
Toll denial – route digits		Reorder Tone
Trunk Re-ring		Reorder Tone
Unassigned directory number		Reorder Tone

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Table 18–4 Intercept Handling Parameters

Parameter	Description	Default
Account Code Violation:	A call was attempted with an invalid account code dialed.	Reorder Tone.
Attendant in Night Service 1:	A call was made to an Attendant Console which was in Night Service 1.	Reorder Tone.
Attendant in Night Service 2:	A call was made to an Attendant Console which was in Night Service 2.	Reorder Tone.
COS violation:	An operation was requested which is not allowed in the caller's Class of Service.	Reorder Tone.
Directory Number Out of Service:	The number dialed is not currently in use.	Reorder Tone.
Holding Party Locked Out:	The caller was on hold at a station which was subsequently locked out due to inactivity.	Reorder Tone.
Interconnect Restriction:	Access to the device requested by the caller is disallowed. See the Interconnect Restriction Table.	Reorder Tone.
Toll Denial – ARS Digits:	Access to the external number dialed is denied because of the caller's Class of Restriction. The COR conflict arose in the initial processing of dialed digits (see COR group number entry in the ARS Assignment form).	Reorder Tone.
Toll Denial – Route Digits:	Access to the external number dialed is denied because of the caller's Class of Restriction. The COR conflict arose in the final processing of the dialed digits (see COR group number entry in the Route Assignment form).	Reorder Tone.
Trunk Re–ring:	The CO has recalled the Attendant after a PABX–initiated disconnect (Italy only).	Reorder Tone.
Unassigned Directory Number:	The number dialed does not correspond to any device or station.	Reorder Tone.

Interconnect Restriction Table

Description

18.14 This form is used to specify the device categories (represented by Interconnect Numbers) which can and cannot be interconnected by the PABX during call processing. Since the number of devices which may be interconnected is greater than the number of devices which may not be, this form is used to disable interconnections. To restrict interconnections from a device to another device, locate the first device's Interconnect Number in the left–hand column. Move across this line until the column for the second device is reached. Place an "R" in the box ("R" stands for "Restrict"). The Interconnection Numbers were assigned to various devices in their respective Assignment forms. The Interconnect Numbers are, in many respects, similar to the Class–of–Restriction Numbers in that they are labels assigned to specific devices through which their access to other devices is restricted during call processing.

Conditions

1. Any one interconnect number may be restricted from connecting to any other number.

2. Voice circuits must be restricted from connecting to dataset circuits. This includes the ONS and dataset circuits used as pooled modem elements.

3. Refer to the Interconnect Restriction Table entry in Table 5–2, MITEL Feature Resource Dimensions, for the maximum Interconnect Restriction number supported at the site being configured.

Form Headings:

- **From Interconnect Number:** A preprinted list of interconnection numbers to which restrictions are to be applied.
- **To Interconnect Number:** A preprinted list of interconnection numbers from which numbers are to be restricted. Under each column, place an R next to the Interconnect Number for which a connection is not allowed.

INTERCONNECT RESTRICTION TABLE

From Interconnect Number	To Interconnect Number 000000000 111111111122222222223333333333444444444455555555556666 123456789012345678901234567890123456789012345678901234567890123456789012
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16 (etc.)	

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Loudspeaker Paging Assignment

Description

18.15 The Loudspeaker Paging Assignment form is used to assign Zone Numbers and Interconnect Numbers to loudspeaker paging circuits.

Conditions

1. In *SX–2000* SG and *SX–2000* FD configurations E&M trunk cards are used for loudspeaker paging. Up to four trunk cards may be assigned to this function. Each E&M trunk provides four loudspeaker paging circuits. E&M trunk cards must be assigned as "Loudspeaker Pager" in the Programmed Card Type field of the System Configuration form.

2. In *SX–2000* SG and *SX–2000* FD configurations the Zone Number must be unique. A zone cannot be assigned to more than one paging circuit.

3. When All Zone Paging is supported, it must be assigned to the first circuit available.

4. If All Zone Paging is not supported, the first circuit must be left blank.

5. *SX–2000* SG and *SX–2000* FD systems support 16 paging zones. *SX–2000* S and *SX–2000* VS systems support 2 zones.

6. In *SX–2000* S configurations loudspeaker paging circuits are provided via the Maintenance Panel. The Zone Number is supplied by the system and cannot be modified.

7. In *SX–2000* VS configurations loudspeaker paging circuits are provided via the Maintenance and Hard Disk Card. The Zone Number is supplied by the system and cannot be modified.

Form Headings:

- **Cabinet, Shelf, Slot, Circuit:** System–generated, protected fields indicating the PLID of the paging circuits.
- **Card Type:** System–generated, protected fields indicating the card type associated with the PLID.
- **Zone Number:** For *SX–2000* SG and *SX–2000* FD configurations enter the Zone Number to which the paging circuit is assigned. For *SX–2000* S and *SX–2000* VS configurations this is a system–generated, protected field.
- **Interconnect Number:** Enter a valid interconnect number that indexes into the Interconnect Restriction Table where the interconnect rights for the paging circuit are defined.

LOUDSPEAKER PAGING ASSIGNMENT

Cabinet	Shelf	Slot	Circ	Card Type	Zone Number	Inter–connect Number

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Maximum Dialed Digits

Description

18.16 The Maximum Dialed Digits form is used to define the maximum number of digits that may be dialed from stations or trunks having the associated COR. If the maximum is exceeded, the call follows intercept handling for that COR. This arrangement permits restrictions to be changed based on the mode of operation of the DPABX (Day and Night Service) using the programming capabilities provided in the Station Service Assignment form.

Conditions

1. The System Speed Call feature is not affected by the programming in this form.

2. A COR programmed as Unlimited is unrestricted in the number of digits that may be dialed.

3. When the digit count method of toll control is used, it is recommended that the Disable End–of–Dial Character field in the System Option Assignment form be set to YES.

4. For DTMF–type phones, the # and * digits are counted in the number of digits that can be dialed from the extension.

Form Headings:

- **Class of Restriction:** A system–generated, protected field containing the available CORs.
- **Number of Digits Allowed:** Enter the maximum number of digits that may be dialed from the station before the call is barred. The permitted range of values is 0 to 25, and Unlimited. Default: Unlimited.

MAXIMUM DIALED DIGITS

Class of Restriction	Number of Digits Allowed	Class of Restriction	Number of Digits Allowed	Class of Restriction	Number of Digits Allowed	Class of Restriction	Number of Digits Allowed

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Message Link Cable Assignment

Description

18.17 The Message Link Cable Assignment form is used in *SX–2000* SG configurations to establish message link cable connections running from Message Switch Matrix Cards to DSU shelf groups and Balanced Transceiver Cards.

Conditions

1. This form is used in *SX–2000* SG configurations only.

2. Plane A Message Switch Matrix cards are the only ones that are displayed on the form.

3. The peripheral control cards must be deprogrammed from the System Configuration form before a shelf may be programmed as a DSU shelf.

4. If a Balanced Transceiver card is specified as the landing point, then no other terminations may be programmed for that shelf. The shelf specified must be Plane A. Such landing points may only be specified if the shelf and its mate are not programmed in the System Configuration form as a DSU shelf or as a mixed peripheral/DSU shelf.

5. If a DSU shelf group PLID is specified, then only one termination may be specified per DSU group.

6. No termination can be programmed in this form if the shelf is programmed in the System Configuration form as a blank shelf.

7. When this form is committed a reset occurs to the Message System. This results in a loss of communication to all *SUPERSET 7* workstations.

Form Headings:

- **From:** These are system–generated, protected fields containing cable PLIDs derived by the system based on the programming of the Message Switch Matrix cards. There are four lines displayed for each Message Switch Matrix card programmed in the system. There may be a maximum of three Message Switch Matrix cards. Each line in the form corresponds to two modules on the card (eight in total on each card). Only the first module number of the pair is displayed (1,3,5,7). The first four modules for slot 18 are not displayed in this form because they are not available for DSU shelves. They are used for the DSU groups on the main control shelves.

- **To:** These are customer–programmable fields. The location specified for "To" PLIDs may be the location of a Balanced Transceiver card (peripheral shelf – slot 31 or 32) or a location which translates to a DSU shelf – slot 12 or 23.

MESSAGE LINK CABLE ASSIGNMENT

From				To		
Cabinet	Shelf	Slot	Module	Cabinet	Shelf	Slot

F00071

Miscellaneous Assignment

Description

18.18 This form is used to assign values to various devices.

Conditions

1. Night Bell must be ONS or OPS line.
2. Night Bell cannot be assigned to a station in a multiline set group.
3. The Directory Numbers for DISA are optional, but must be unique if entered. Note that the same number cannot be used as a DISA number in the Miscellaneous form and as a Telephone Number in the Telephone Directory form at the same time.
4. For the *SX–2000* SG and *SX2000* FD systems the Music Source Port must be assigned to an E&M trunk in the Programmed Card Type column of the System Configuration form.
5. In *SX–2000* S configurations, programming of the Music on Hold Port field is disabled. An error message is generated if this is attempted.
6. The Message Center Directory Number may be programmed anywhere a *SUPERSET 7* group or speed call number is allowed, but only when the Message Center Feature Package has been installed.
7. Plane A and Plane B Maintenance Port Directory Numbers are used by the MNMS station for system access. The Plane B field is only required on redundant systems. It is recommended that all *SX–2000* systems in the network use the same digit strings, thereby simplifying the access operation for the MNMS station.
8. MNMS: Event Indication Routing Number and MNMS: Event Indication Number are only applicable to systems which are remote to an MNMS station. The fields are not programmed on the *SX–2000* system which connects directly to the MNMS station.

Table 18–5 Miscellaneous Parameters

Parameter	Description
Night Bell Directory Number:	Enter the Directory Number of the ONS or OPS line to which the Night Bell is connected.
DISA Forced Account Code – Directory Number:	Enter the Directory Number by which the DISA trunk using the forced account code feature is to be identified in the Trunk Service Assignment form.
DISA Directory Number:	Enter the Directory Number by which the DISA trunk is to be identified in the Trunk Service Assignment form.
Music Source Port:	For *SX–2000* SG and *SX–2000* FD configurations enter the Cabinet, Shelf, Slot and Circuit numbers of the E&M trunk circuit to which the Music–on–Hold circuit is connected.

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Table 18–5 Miscellaneous Parameters (continued)

Parameter	Description
Message Center Directory Number:	Enter the directory number used to access the Message Center.
Milliwatt Test Directory Number:	Enter the directory number used to access the Milliwatt Test.
Balance Test Directory Number:	Enter the directory number used to access the Balance Test.
100 Test Directory Number:	Enter the directory number used to access the 100 Test.
Autovon Reroute Directory Number:	Enter the Directory Number to which Autovon calls will be rerouted if the original destination is busy or does not answer.
Plane A Maintenance Port Directory Number:	Enter the Directory Number of the data station which is attached to Plane A Maintenance port.
Plane B Maintenance Port Directory Number:	Enter the Directory Number of the data station which is attached to Plane B Maintenance port. This number cannot be the same as that given to Plane A and will only be assigned to redundant systems.
MNMS: Event Indication Routing Number:	This 20–character field applies to systems which are remote to an MNMS station. Enter the number which can be dialed by any station to reach the DISA facility of the node local to the MNMS station. This number must have an ARS plan.
MNMS: Event Indication Number:	This 20–character field applies to systems which are remote to an MNMS station. The entry in this field must be the same number that was assigned to the Feature Access Code "MNMS: Event Indication" of the node local to the MNMS station.

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MISCELLANEOUS ASSIGNMENT

Night Bell Directory Number: _____
DISA Forced Account Code – Directory Number: _____
DISA Directory Number: _____
Music Source Port – Cabinet: _____ Shelf: _____ Slot: _____ Circuit: _____
Message Center – Directory Number: _____
Milliwatt Test Directory Number: _____
Balance Test Directory Number: _____
100 Test Directory Number: _____
Autovon Reroute Directory Number: _____
MNMS: Event Indication Routing Number: _____
MNMS: Event Indication Number: _____
Plane A Maintenance Port Directory Number: _____
Plane B Maintenance Port Directory Number: _____

F00072

Node Identity Assignment

Description

18.19 The Node Identity Assignment form provides a means of assigning a directory number or identifier, and synonyms of that directory number, to *SX–2000* systems operating as tandem switches having line terminations. Incoming digit strings are analyzed for the node identifiers defined in the top part of this form. If the primary node identifier or one of the synonyms for the DPABX is found the call is routed to the appropriate local station. Otherwise the call is forwarded to the next node. The lower part of the form contains the mapping between leading digits supplied by the network, and the digits that must be dialed on this node to reach the other node. Entries in this part of the form are sorted lexicographically (see paragraph 5.3).

Conditions

1. Each Local Node Identifier is a number with 7 or fewer digits.

2. Each digit of the Local Node Identifier, Remote Node Leading Digit, or ARS Digits can be 0–9, * or #.

3. Up to five Local Node Identifiers and fifty Remote Leading Digit entries are permitted.

4. If there are alternative ARS Digits for the same node, another entry must be made.

Form Headings:

- **Local Node Identifier:** Enter the primary node identifier for this PBX, and any secondary node identifiers, for a total of up to five entries.
- **Remote Node Leading Digits:** Enter the leading digits supplied by the DPNSS network for each remote node/PBX in the network. Up to 50 entries may be made, and there may be more than one entry for each node.
- **ARS Digits:** Enter the actual digits that must be dialed in order to reach the specified remote node from this node. If there are alternative ARS Digits for the same node, another entry must be made.

NODE IDENTITY ASSIGNMENT

Local Node Identifiers:

_____
_____
_____
_____
_____

Remote Node Leading Digits	ARS Digits

F00073

SMDR Options Assignment

Description

18.20 This form is used to select SMDR parameters. The options listed in this form are defined in Table 18–6 below. To complete the form, enter the required value next to each parameter.

Conditions

If no entry is made for a given option, the value "no" will be assumed if the option requires a "yes/no" value, or blank if the option requires a numerical value.

Form Headings:

- **Option:** A preprinted list of available SMDR options. The system default values for all Options is "NO".
- **Value:** Enter the required value, as described in Table 18–6.

Table 18–6 SMDR Options Parameters

Parameter	Description
ANI/DNIS Reporting:	This field is applicable to the ANI/DNIS feature. Enter "Yes" if ANI/DNIS digits are to be part of the SMDR reports. Default is "No".
DASS II – Call Charge Information Provided:	Enter "Yes" if call charge information applying to the call is to appear on the SMDR record. Applies only to DASS II trunks, available in the United Kingdom only.
Extended Digit Length:	Enter "Yes" if the Called, Calling and Third Party fields are to allow space for 7–digit extension numbers, and the Duration of Call field is to allow space for up to 10,000 hours (9999 hours, 59 minutes, 59 seconds).
MCD – Report Transfers:	Enter "All" if all transfers including attendant transfers are to be reported. Enter "MCD" if all transfers except attendant transfers are to be reported. Enter "no" for normal SMDR operation.
Network Format:	Enter "Yes" to allow the recording of the originating line's identity in the Digits Dialed field, as a means for SMDA machines to trace APNSS/DPNSS calls through a network.
Report Account Codes:	Enter "Yes" if account codes are to be part of the SMDR reports.
Report Incoming Calls:	Enter "Yes" if incoming calls are to be part of the SMDR reports.
Report Internal Calls:	Enter "Yes" if Internal SMDR is a purchased option.
Report Meter Pulses:	Enter "Yes" if meter pulses are to be part of the SMDR reports.
Report Outgoing Calls:	Enter "Yes" if outgoing calls are to be part of the SMDR reports.
SMDR Meter Unit Per Station:	Enter "Yes" if SMDA Meter Reports are to be generated for account codes, stations and trunks.
SMDR Record Transfer:	Enter "Yes" if an SMDR record is to be generated after each outgoing call transfer, stating the duration and number of meter pulses for that user's portion of the call.

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Table 18–6 SMDR Options Parameters (continued)

Parameter	Description
System Identification:	Enter a number between 000 and 999 which will serve to identify the system in the SMDR reports.
Time Change Reporting:	Enter "Yes" if a time stamp is to appear when a TIME or DATE command is entered. Two records will appear on the SMDR report. The first will indicate the time prior to the TIME or DATE command; the second will indicate the time entered by the SET TIME command. Refer to Practice 9125–060–221–NA, Station Message Detail Recording (SMDR).
Twenty–four Hour Time Reporting:	Enter "Yes" if all time entries in the SMDR reports are to be in 24–hour notation. Enter "no" to obtain time reporting in 12–hour notation.

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SMDR OPTIONS ASSIGNMENT

Option	Value
ANI/DNIS Reporting (Yes/No)	No
DASS II – Call Charge Information Provided (Yes/No)	No
Extended Digit Length (Yes/No)	No
MCD – Report Transfers (All/MCD/No)	No
Network Format (Yes/No)	No
Report Account Codes (Yes/No)	No
Report Incoming Calls (Yes/No)	No
Report Internal Calls (Yes/No)	No
Report Meter Pulses (Yes/No)	No
Report Outgoing Calls (Yes/No)	No
SMDR Meter Unit Per Station (Yes/No)	No
SMDR Record Transfer (Yes/No)	No
System Identification (000 – 999 or blank)	
Time Change Reporting (Yes/No)	No
Twenty–Four Hour Time Reporting (Yes/No)	No

F00074

System Configuration

Description

18.21 The System Configuration form is a record of the position of every printed circuit card in the system. The System Configuration form is used by CDE software to generate PLID fields in various assignment forms. It is also used to establish the starting point of the Circuit Switch Link cables for the Circuit Link Cable Assignment form.

Note: An *SX–2000* FD system must be programmed in the Cabinet Assignment form before its cards will show as installed.

The System Configuration form consists of five columns. The first three columns list the location of the cards in the *SX–2000* system. The fourth column is the Programmed Card Type field. This field indicates to the system which card type it should have in each location. The last column is the Installed Card Type field. This field indicates which card type is actually installed in the specified location.
Refer to Table 18–7 for a list of acceptable card type entries.

The system generates the information in the first three columns and the last column. (As noted above, an *SX–2000* FD system must first be programmed in the Cabinet Assignment form). The system identifies the type of card present in each slot by reading an ID PROM located on the card. The system will not use an installed card that does not match the Programmed Card Type. For example, if the Programmed Card Type is a DNI line, The Installed Card Type must also be a DNI Line.
The E&M Trunk Card provides an exception to this rule. When this card serves as a Loudspeaker Pager, the Programmed Card Type will differ from the Installed Card Type.
"Loudspeaker Pager" will appear in the Programmed Card Type field; "E&M" will appear in the Installed Card Type field.

Conditions

1. Consult the following Practices for assistance in card provisioning:

   9120–060–200–NA, *SX–2000* SG Shipping, Receiving and Installation,
   9121–060–200–NA, *SX–2000* S Shipping, Receiving and Installation,
   9123–060–200–NA, *SX–2000* VS Shipping, Receiving and Installation, or
   9124–060–200–NA, *SX–2000* FD Shipping, Receiving and Installation.

2. Power Converters for a DSU shelf in an *SX–2000* SG system reside in slot ranges 18–20 and 30–32. Only one converter is located in each range.

3. Before deassigning a card, busy the circuits on the card by using the MANBUSY maintenance command.

4. When one card of a redundant MSAN/APNSS DSU pair is deassigned on this form, the shelf number of the link changes in the MSAN–APNSS Group Assignment form.

Form Headings:

- **Cabinet, Shelf, Slot:** These are system–generated, protected fields indicating the card position in the system.
- **Programmed Card Type:** Enter the card type to be placed in the corresponding slot.
- **Installed Card Type:** A system–generated, protected field indicating the type of card installed in the specified location. (As noted above, an *SX–2000* FD system must first be programmed in the Cabinet Assignment form).

SYSTEM CONFIGURATION

Cabinet	Shelf	Slot	Programmed Card Type	Installed Card Type

F00075

Table 18–7 System Card Types

Card Type	*SX–2000* System
AC13 Trunk	All
AC15 Trunk	All
Balanced Transceiver	SG
Bulk Data Controller	SG
Bulk Data Interface	SG
Bus Manager	SG
CEPT Formatter	All
Circuit Switch Matrix	SG
Circuit Switch Matrix II	S & FD
Communication Ram	SG
Communications Processor	All
Conference	All
Control Ram II	S, SG & FD
Control Resource	FD
COV Line	All
Dataset Line	VS, S & SG
Data Transceiver	VS, S & SG
DID/Loop Tie Trunk	All
DID2 Trunk	All
DID3 Trunk	All
Disk Interface	SG
DNI Line	All
DS1 Formatter	All
DTMF Receiver	All
E&M Trunk	All
Fibre Interface	FD
High Speed Digital Line	SG
Loudspeaker Pager	SG & FD
LS/GS Trunk	All
Main Controller I	S
Main Controller II	All
Maint Panel	S
Maint & Hard Disk	VS
Mass Storage Expander	S, SG, FD
Memory Manager	SG

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Table 18–7 System Card Types (continued)

Card Type	*SX–2000* System
Message Switch Matrix	SG
No Card Present	All
Off Premises Line	All
On Premises Line	All
Peripheral Bus Extender	SG
Peripheral Cont I	S & FD
Peripheral Resource	FD
Peripheral Switch Controller	FD
Peripheral Switch Matrix	SG
Power Converter	VS, S, & FD
SCDC Trunk	All
System Clock & Tone Generator	SG
System Fail Transfer	VS
System Processor	SG
System Processor II	SG
System Processor III	SG
Tone Detector	All

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System Options Assignment

Description

18.22 This form is used to specify parameters which are used system wide during call processing and data switching.

Conditions

All options must be assigned a value, except for the DTRX Herald Message and System Name, which may be left blank.

Form Headings:

- **Options:** Preprinted list of System Options. The meaning of the options is given in Table 18–8, System Options Parameters.
- **Value:** Enter the required value for each option, as described in Table 18–8.

SYSTEM OPTIONS ASSIGNMENT

Option	Value
Callback Cancel Timer (1 – 24 hrs)	8
Callback Activation (Group/Prime)	Group
Call Rerouting Timer (5 – 60 s)	22
Ringing Cadence for Tie Line Calls (Internal/External)	External
DTRX Autobaud Time–out (0 – 240 s)	60
DTRX Inactivity Time–out (0 – 240 s)	60
DTRX DSA Response Format (Text/Code/Both)	Text
Date Line Error Threshold (0 – 1000, in 1/10th percent)	100
Loop Signalling Trunks – Invalid DN Handling	Immediate
Maximum CO Trunks in a Conference (0 – 8)	1
Maximum Parties in a Conference (3 – 8)	8
Maximum Trunks in Conference (0 – 8)	4
Music On Hold (Yes/No)	No
Multiline Set Callback Message Cancel Timer (1 – 255 hrs)	24
DTRX Herald Message (Enter Line Below 0 – 77 characters)	
SX–2000®	
AC System (Yes/No)	No
Battery Backup (Yes/No)	No
Battery Cabinet Alarm Information (Yes/No)	No
Maintenance Terminal Automatic Logout (Yes/No)	No
System Name (0 – 9 characters)	
Disable End of Dial Character (#) (Yes/No)	No
Interconnect Checking for Conference Calls (Yes/No)	Yes
Last Number Redial Source (All Trunks/CO Trunks/All Calls)	All Trunks
Route Optimization Establishment Timer (10s – 120s)	10
Route Optimization Attempts (0 – 3)	3
Route Optimization Network Id (max of 7 digits)	
Route Optimization Trailing Digits (2 – 26)	2
Dialed Number Editing For Trunks (Yes/No)	Yes
Number of Forward Hops (2–10)	2
Multiline Set Display 24 Hour Format (Yes/No)	No

Converter Installed (Yes/No)

	Shelf 1	Shelf 2	Shelf 3	Shelf 4
Cab 1	No	No	No	No
Cab 2	No	No	No	No
Cab 3	No	No	No	No
Cab 4	No	No	No	No
Cab 5	No	No	No	No
::	::	::	::	::
Cab 12	No	No	No	No

F00076

Table 18–8 System Options Parameters

Parameter	Description	Default Value
Callback Cancel Timer:	This timer is assigned a value in the range of "1" to "24" hours, in increments of 1 hour. This timer defines the length of time for which callbacks will remain in effect.	8 hours
Callback Activation:	This option enables callbacks that have been set on Key System or Multicall groups to be matured by only the prime number of the group (Prime), or by any number of the group (Group).	Group
Call Rerouting Timer:	This timer is assigned a value in the range of "5" to "60" seconds, in increments of 1 second. This timer defines the length of time which a call will ring a station before being rerouted to the second alternative number for the station.	22 seconds
Ringing Cadence for Tie Line Calls:	Enter "internal" to indicate that a single ringing cadence is to simulate an internal call. Enter "external" to indicate that a double ringing cadence is to simulate an external call.	External
DTRX Autobaud Time–out:	Defines the length of time for which the *SX–2000* system will wait for the user to enter the autobaud/autoparity character sequence. Enter a value in the range of "0" to "240" seconds.	60
DTRX Inactivity Time–out:	Enter a value in the range of "0" to "240" seconds, in increments of 1 second. This value defines the length of time for which the system will wait for activity on a data line before disconnecting the call.	60
DTRX DSA Response Format:	This field is used to select the desired format of response information in a Digital Service Application session (DNI DTRX). Valid entries are "Text", "Code", and "Both". The field will default to "Text".	Text
Data Line Error Threshold:	The error rate, defined in 1/10 of a percent increments, that the *SX–2000* ICS will tolerate before declaring a data circuit unusable. This is a bit error tolerance for the circuit.	100
Loop Signaling Trunks – Invalid DN Handling:	Enter "Immediate" to immediately divert to a system attendant, RAD or reorder tone, when a number dialed is not accepted by the system. Enter "delay" to force the system to wait for all digits in the invalid number to be dialed before diverting the call. The Intercept Handling Assignment form is used to determine whether invalid dialed numbers are diverted to the system attendant, a RAD or to reorder tone.	Immediate
Maximum CO Trunks in a Conference:	Enter a number in the range of "0" to "8" to indicate how many CO trunks will be allowed to participate in any given conference call.	1
Maximum Parties in a Conference:	Enter a number in the range of "3" to "8" to indicate how many parties will be allowed to participate in any given conference call.	8
Maximum Trunks in a Conference:	Enter a number in the range of "0" to "8" to indicate how many trunks of any type will be allowed to participate in any given conference call.	4

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Table 18–8 System Options Parameters (continued)

Parameter	Description	Default Value
Music on Hold:	Enter "Yes" if Music on Hold is provided.	No
Multiline Set Callback Message Cancel Timer:	Enter a number in the range of "1" to "255" hours, in increments of 1 hour. This value defines the length of time for which a callback message will be displayed on a *SUPERSET 4* telephone's LCD display.	24
DTRX Herald Message:	Enter a message from 1 to 77 characters in length which the DTRX is to display when a data call is initiated from a terminal. Leaving this entry blank will disable the DTRX Herald Message feature.	Blank
AC System:	Enter "Yes" if the system is powered by ac supply.	Yes
Battery Backup:	Enter "Yes" if the system has battery backup.	No
Battery Cabinet Alarm Information:	Indicates if an alarm is to be raised when battery power is expected but not available. If the alarm is not driven by an input signal from the System Support Module (available in the U.K. only), enter "no".	No
Maintenance Terminal Automatic Logout:	Entering "Yes" enables: 1. After three consecutive failed login attempts, the link to the remote terminal will be disconnected. A log stating that an unauthorized user was disconnected will also be generated. 2. If loss of data carrier (DCD) occurs on the link to the remote terminal, the system will automatically log the terminal out.	No
System Name:	Enter the character string that is to be used as the system identifier in the system logs. Any combination of up to nine keyboard characters is a valid entry. The name is also used in conjunction with the MNMS feature. The system name identifies the *SX–2000* system (as a Network Element) to an MNMS station.	Blank
Disable End of Dial Character (#):	Enter "Yes" to disable the end–of–dial character, "#". This option is used in conjunction with toll control based on digits dialed. When the option is enabled, the "#" key on *SUPERSET 401* and on industry standard DTMF–type sets no longer forces the end of dialing. The result is that the DTMF receiver remains connected until the complete digit string has been dialed. No extra digits may be dialed undetected.	No
Interconnect Checking for Conference Calls:	Enter "Yes" to force interconnect checking on conference calls.	No
Last Number Redial Source (All Trunks/CO Trunks/All Calls):	Determines which number will be viewed as the last number dialed (either the last trunk number dialed, the last CO trunk dialed, or the last number dialed, whether a trunk or not).	All Trunks

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Table 18–8 System Options Parameters (continued)

Parameter	Description	Default Value
Route Optimization Establishment Timer:	This timer is assigned a value in the range of "10" to "120" seconds, in increments of 1 second. This timer defines the length of time which is allowed to establish an optimum route call.	10 seconds
Route Optimization Attempts:	Enter a number in the range of "0" to "3" to indicate how many attempts are to be made at finding at optimum route for a particular call.	3
Route Optimization Network ID:	Enter the character string that is to be used as the PBX identifier for network routing purposes. The maximum number of digits is 7.	Blank
Route Optimization Trailing Digits:	Enter the number of digits (in the range of 2 to 26) that are to follow the Network ID in the dialing string.	Blank
Dialed Number Editing For Trunks:	When set to "Yes", *SUPERSET 4*, *SUPERSET* 430, *SUPERSET 4* DN and *SUPERCONSOLE 1000* users can edit the number to be dialed.	Yes
Number of Forward Hops:	Enter a number between "2" and "10" to indicate the number of times a call is to be forwarded or rerouted before it stops.	2
Multiline Set Display 24 Hour Format:	Enter "Yes" to activate the 24 hour format time display on *SUPERSET 4*, *SUPERSET* 430, and *SUPERSET 4* DN telephone sets. The default setting is a 12 hour am/pm format display.	No
Converter Installed:	Enter "Yes" if a converter has been installed, for each shelf of each cabinet.	None

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System Port Assignment

Description

18.23 The System Port Assignment form provides a centralized means of associating logical names to the PLID of each RS–232 port in the *SX–2000* ICS. The form also displays the baud rate and parity for each port.

Conditions

1. The first three entries in this form are main controller ports and cannot be modified.
2. When an Attendant Console is given a directory number in the Attendant Assignment form two entries are created in this form, one for input and one for output.
3. Maintenance panel and auxiliary ports are output only.
4. DNI DATASETs designated as ports on the DATASET Assignment form are listed on this form. "Port 1" designates the port as in "Input" port; "Port 2" designates the port as an "Output" port.
5. If DATASET 1102 devices are programmed as ports in the Dataset Assignment Form, two entries for each port are generated in the System Port Assignment Form.
6. DNI devices programmed as ports have a PLID which resolves to the Channel level; non–DNI devices programmed as ports have PLIDs with blank channel numbers.
7. The maximum programmable baud rate is 19200.
8. At any instance, there is a maximum number of asynchronous datasets that can be active as DNIC ports. In the *SX–2000* SG system, the maximum number is 10. For all other variants, the maximum number is 3.

Form Headings:

- **Port Address:** Contains five columns which are system–generated, protected fields. The Cab, Shlf, Slot, Circ, Channel, Port fields indicate the PLID of the RS–232 port.
- **Flow:** A system–generated, protected field indicating the direction of data flow for the device named in the Port Type field.
- **Port Type:** A system–generated, protected field indicating the device type to which the port is attached.
- **Port Name:** A programmable field used to assign a logical name to the physical port. The first three Port Names cannot be changed. LPR2 does not exist on *SX–2000* S, *SX–2000* VS or *SX–2000* FD systems.

- **Baud Rate:** A system–generated, protected field indicating the operating speed of the port.
- **Parity:** A system–generated, protected field indicating the character protocol the attached device is using. The Parity field is broken down as follows. The first character is the number of data bits, the second character is the parity, the third character is the number of stop bits.

SYSTEM PORT ASSIGNMENT

Port Address										
Cab	Shlf	Slot	Circ	Channel	Port	Flow	Port Type	Port Name	Baud Rate	Parity
1	1	1	1		1	Output	Maint Panel	LPR1	9600	
1	1	1	1		2	Output	Maint Panel	LPR2	9600	
1	1	1	1		3	Output	Auxiliary	LPR3	1200	

F00077

System Speed Call Assignment

Description

18.24 This form defines the System Speed Call numbers accessible from all phones and special sets in the system. It consists of three columns. In the first column, Speed Call Numbers are listed. In the second column, the actual numbers to be dialed in place of the Speed Call Numbers are entered. The third column is used to specify if the Speed Call Number will be able to override ARS COR restrictions.

Conditions

1. The same Actual Number entry may appear more than once in the form. The Speed Call Number, however, must be unique.

2. The Actual Number entry must not be another Speed Call Number.

3. All Feature Access codes are allowed in Actual Numbers.

4. A Speed Call Number, once entered in the system through CDE, cannot be modified. In order to change a Speed Call Number, it is necessary to first delete the old Speed Call Number and its corresponding Actual Number, and then enter the new Speed Call Number/Actual Number pair at the bottom of the form.

Form Headings:

- **Speed Call Number:** Enter the abbreviated numbers which are to be used as System Speed Call Numbers. The numbers entered may be up to seven digits in length.

- **Actual Number:** Enter the number which the Speed Call Code represents. The numbers entered may be up to 26 digits in length.
- **Overrides Toll Control:** Enter "yes" if the Speed Call Number will be allowed to override ARS toll control; enter "no", or leave the entry blank, if the feature is to be disabled. The default value for this field is "no".
- **Comments:** Enter any relevant description relating to the Speed Call entry. This column is for reference only and does not appear during CDE.

SYSTEM SPEED CALL ASSIGNMENT

Speed Call Number	Actual Number	Overrides Toll Control

F00078

Traffic Options Assignment

Description

18.25 The Traffic Options Assignment form gives the communications site manager a form–driven method of obtaining time–based traffic reports on the usage of the system. Reports may be generated, as required, covering attendant usage, channel utilization, system activity, data station usage, delay to dial tone, extension–to–extension calls, feature usage and trunk utilization. This form is part of the Traffic Report feature package which is documented in Practice 9125–060–603–NA, Traffic Reporting. Please refer to that document for a complete description of the package.

Conditions

1. The Traffic Reports feature package must be installed in order to access this form.
2. Up to six different time slots may be defined.
3. If the start time equals the stop time then the time period is 24 hours.
4. There can be no overlapping of ACTIVE time slots.
5. Both the start and stop time must be assigned for active time slots.
6. If the start and stop time are set to blank while the time slot is active, an error message is displayed when the commit operation is attempted. The values will not be changed.
7. The start and stop time may be set to blank if the time slot is set to inactive.
8. No two traffic slot stops should be less than 5 minutes apart. This time is required for the system time to generate the previous report.
9. Making changes to the data in this form and recommitting it does not affect any time slot that is running.

Form Headings:

- **Time Slot Active:** Enter YES to start a traffic session at the time specified in Start Time field and finish at the Stop Time field for each of up to six different slots. The report is resumed the next day at the same time. Enter NO to suspend the traffic report for the associated time slot. The traffic report will not run until YES is entered and the form recommitted. Default: No.
- **Start Time:** Enter, in 24–hour format, the time the traffic report is to start running. Default: Blank.
- **Stop Time:** Enter, in 24–hour format, the stop time for the report. If the session is to run for 24 hours, enter the same time as the Start Time. Default: Blank.
- **Period Length:** Enter the length of time, in minutes, that data is to be collected for the session before a traffic report is formatted and output. Default: 60 minutes.

- **Usage Units:** Enter the type of units the report is to use. Default: Erlangs.
- **Autoprint:** Enter YES to spool the traffic report to the printer assigned to this function in the Application Logical Port Assignment form. Default: No.
- **Maximum Number of Traffic Files:** Enter the maximum number of traffic reports to be stored in disk. Default: 10.
- **Sections to include in Traffic Report:** Enter YES to enable the collection of data for each resource group that is to be included in the traffic report.

  Default: No for all sections.

TRAFFIC OPTIONS ASSIGNMENT (Sheet 1 of 2)

Option	Value
Time Slot 1 Active (Yes/No) Start Time 1 (hh:mm or blank) Stop Time 1 (hh:mm or blank)	No : :
Time Slot 2 Active (Yes/No) Start Time 2 (hh:mm or blank) Stop Time 2 (hh:mm or blank)	No : :
Time Slot 3 Active (Yes/No) Start Time 3 (hh:mm or blank) Stop Time 3 (hh:mm or blank)	No : :
Time Slot 4 Active (Yes/No) Start Time 4 (hh:mm or blank) Stop Time 4 (hh:mm or blank)	No : :
Time Slot 5 Active (Yes/No) Start Time 5 (hh:mm or blank) Stop Time 5 (hh:mm or blank)	No : :
Time Slot 6 Active (Yes/No) Start Time 6 (hh:mm or blank) Stop Time 6 (hh:mm or blank)	No : :
Period Length (15, 30, or 60 minutes)	60
Usage Units (Erlangs or CCS)	Erlangs
Autoprint (Yes/No)	No
Maximum Number of Traffic Files (0 to 10)	10

F00079

TRAFFIC OPTIONS ASSIGNMENT (Sheet 2 of 2)	
Sections to include in Traffic Report	Value
Route Plans	No
Route Lists	No
Routes	No
Trunk Groups	No
Trunks	No
Links	No
Groups of Links	No
Channels	No
Extension to Extension	No
DTMF Receivers	No
Data Transceivers	No
Modem Groups	No
Data Station Groups	No
Attendant Groups	No
Attendant Consoles	No
Attendants	No

F00080

User Authorization Profile

Description

18.26 This form is used to list all *SUPERSET 7* users who are allowed to log in and have authorized access to various facilities of the *SX–2000* ICS. Users who only access the attendant functions of the workstation do not require authorized access. The entries in this form consist of a set of Names and Directory Numbers extracted from the Telephone Directory to which one of two possible authorization levels is assigned.

Conditions

1. The Name and Directory Number entry must exist in the Telephone Directory.

2. The INSTALLER, MAINT1 and MAINT2 authorization levels are not programmable and do not appear in this form.

3. This form lists users and their authorization levels. Default passwords initially assigned by the system are the first eight characters of the corresponding Username entry. In order to assign passwords to authorized users, the CHANGE PASSWORD command must be used.

4. Access to programming forms is restricted to certain Authorization Levels through the Form Access Authorization form.

5. At data entry time, additions to the form are made after the last current entry. Deletions are made by blanking out the Authorization Level entry or by entering "No Login" next to the Username concerned.

6. Username/Directory combinations, once committed to the database are considered protected entries; only the Authorization Level entry may be modified for these entries.

Form Headings:

- **Name:** Enter the required names, as found in the Telephone Directory.
- **Telephone Number:** Enter the Directory Number associated with the username.
- **Authorization Level:** Enter one of two possible Authorization Levels: Supervisor or Attendant.

USER AUTHORIZATION PROFILE

Name	Telephone Number	Authorization Level

F00081

19. TELEPHONE DIRECTORY FORMS

General

19.1 Telephone Directory forms are used to capture an information database on a per–directory number basis for the *SX–2000* ICS call processing functions. The forms in this group are:

(a) **Department Assignment:** Used to define all the departments that are used in the Telephone Directory form.

(b) **Location Assignment:** Used to define all the locations that are used in the Telephone Directory form.

(c) **Telephone Directory:** Assigns a name to each directory number used and associates previously defined Departments and Locations to them. The form is also used to specify the Prime Name for multicall or key system lines.

Department Assignment

Description

19.2 This form is used to list all department names to be used in the Telephone Directory. The Department Assignment form consists of one column in which all the required department names are entered.

Conditions

1. The same department name should not be entered twice.

2. Department names may be any displayable characters.

Form Heading:

- **Department Name:** Up to 10 characters. List the department names used in the Telephone Directory. The maximum number of Departments is specified in Table 5–2.

DEPARTMENT ASSIGNMENT

Department Name

F00082

Location Assignment

Description

19.3 This form is used to list all location names to be used in the Telephone Directory. The Location Assignment form consists of one column in which all the required location names are entered.

Conditions

1. The same location name should not be entered twice.

2. Location names may be any displayable characters.

Form Heading:

- **Location Name:** Up to 10 characters. List the location names used in the Telephone Directory. The maximum number of Locations is specified in Table 5–2.

LOCATION ASSIGNMENT

Location Name

F00083

Telephone Directory

Description

19.4 The Telephone Directory form is used as an information base for the *SX–2000* ICS call processing functions. The form is used to assign a Name, Department and Location to all Directory Numbers in the system.

Conditions

1. Names and Telephone Numbers need not be unique. They may be repeated any number of times in the form. Name/Telephone Number combinations, however, must be unique. A name can be entered without an associated telephone number.

Note: The same number cannot be used as a Telephone Number in the Telephone Directory form and as a DISA number in the Miscellaneous Assignment form at the same time.

2. Most dialable numbers may be listed. The term "dialable number" means any complete number which may be dialed from a station in the *SX–2000* ICS. These numbers include:
   - Standard telephone
   - *SUPERSET 401* telephones
   - *SUPERSET 3* telephones
   - *SUPERSET 3* DN telephones
   - *SUPERSET 410* telephones
   - *SUPERSET 430* telephones
   - *SUPERSET 4* telephones
   - *SUPERSET 4* DN telephones
   - *SUPERCONSOLE 1000* Attendant Console directory numbers
   - *SUPERSET 7000* Attendant Console directory numbers
   - *SUPERCONSOLE 1000* softkey and Broadcast Group numbers
   - *SUPERSET 7000* softkey and Broadcast Group numbers
   - *SUPERSET 7* workstation directory numbers
   - *SUPERSET 7* softkey and Broadcast Group numbers
   - *SUPERSET 7* DN Attendant Console directory numbers
   - Dataset Directory Numbers
   - Multicall group numbers
   - Key System group numbers

- External numbers up to 26 digits in length that have an ARS plan
- Hunt Group Pilot or Directory Numbers
- System Speed Call Numbers.

3. The Department and Location entries may be left blank if they are not required.

TELEPHONE DIRECTORY

Name	Telephone Number	Department	Location	Prime Name

F00084

4. The *SUPERSET 7* softkey labels are defined in this form by listing the label under the Name column, and entering the directory number associated with the softkey appearance as the Telephone Number.

5. Only one name may be prime for an extension. The Prime Name field is ignored if the Directory Number is blank. The first name entered in the Telephone Directory for any extension is the Prime Name, unless this form is used to specifically designate an alternate user of the Directory Number as the Prime Name.

Form Headings:

- **Name:** Enter a suitable label for the corresponding number. The label may be up to 20 alphanumeric characters in length. If the label is a username, the last name must precede the first name, and a comma must separate the two. In this last instance, up to 21 characters including the comma are allowed. Although up to 21 characters may be entered in the Name field, the Attendant Console displays only the first 15 characters entered.
- **Telephone Number:** Enter the required number. (As noted above, the same number cannot be used as a Telephone Number in the Telephone Directory form and as a DISA number in the Miscellaneous form at the same time).
- **Department:** Up to 10 characters. Enter the name of the department.
- **Location:** Up to 10 characters. Enter the name of a specific location which applies to the directory number.
- **Prime Name:** Enter "yes" to indicate that this name is the Prime Name; enter "no" or leave the entry blank to indicate that the name is not the Prime Name. The default for this field is "no".

20. TRUNK FORMS

General

20.1 The trunk forms are used to specify all characteristics of trunk circuits in the system. With these forms, the trunks are assigned identification numbers, Class of Service, Class of Restriction, Circuit Descriptors, Answer Points (Non–Dial–In Trunks), Digit Modification plans for Dial–In Trunks, and hunt group membership for outgoing trunks. The forms are:

(a) **AC13 Trunk Circuit Descriptor Assignment:** A form through which signaling and timing parameters are assigned to groups of AC13 trunk.

(b) **AC15 Trunk Circuit Descriptor Assignment:** A form through which signaling and timing parameters are assigned to groups of AC15 trunk circuits.

(c) **CO Trunk Circuit Descriptor Assignment:** A form through which signaling and timing parameters are assigned to groups of CO trunk circuits (loop start or ground start).

(d) **DID Trunk Circuit Descriptor Assignment:** A form through which signaling and timing parameters are assigned to groups of DID trunk circuits.

(e) **DID3 Trunk Circuit Descriptor Assignment:** A form through which signaling and timing parameters are assigned to groups of DID trunk circuits.

(f) **Digital CO Trunk Circuit Descriptor Assignment:** A form used to assign signaling and timing parameters to groups of DS1 CO trunk circuits.

(g) **Digital DID Trunk Circuit Descriptor Assignment:** A form used to assign signaling and timing parameters to groups of DS1 DID trunk circuits.

(h) **Digital E and M Trunk Circuit Descriptor Assignment:** A form used to assign signaling and timing parameters to groups of DS1 E&M trunk circuits.

(i) **DTS Service Assignment:** This form is used to assign an index, a Class of Service and an Intercept Number to a Direct Trunk Select (DTS) trunk.

(j) **E and M Trunk Circuit Descriptor Assignment:** A form through which signaling and timing parameters are assigned to groups of E&M trunk circuits.

(k) **Loop Tie Trunk Circuit Descriptor Assignment:** A form through which signaling and timing parameters are assigned to groups of Loop Tie trunk circuits.

(l) **MSAN–APNSS Group Assignment:** A form used to group E&M trunks used for MSAN/APNSS.

(m) **MSDN/DPNSS/DASSII Trunk Circuit Descriptor Assignment:** A form used to assign signaling and timing parameters to groups of DPNSS trunk circuits.

(n) **SCDC Trunk Circuit Descriptor Assignment:** A form through which signaling and timing parameters are assigned to groups of SCDC trunks.

(o) **Trunk Assignment:** This form assigns a Trunk Number, DTS or Trunk Service Number, and a Circuit Descriptor Number to all trunks in the system.

(p) **Trunk Group Assignment:** This form is used to gather outgoing trunks into groups for the Automatic Route Selection forms.

(q) **Trunk Service Assignment:** This form assigns Intercept Number, Baud Rate, COS and COR numbers, Answer Points to Non–Dial–In trunks and Digit Modification plans to Dial–In trunks. A Trunk Label may also be defined for each incoming trunk via this form.

Assigning Circuit Descriptor Numbers to Trunks

20.2 The operating characteristics for all trunks are defined by the respective trunk circuit descriptor form. There are 32 trunk circuit descriptor numbers available. These must be shared between all trunks in the system. As well, each circuit descriptor number assigned must be unique. MITEL recommends that the circuit descriptor numbers be allocated to each type of trunk in blocks. For example, CO trunks may be allocated circuit descriptor numbers 1 through 4, E&M trunks numbers 5 through 12, DS1 DID trunks numbers 13 through 21, and so on.

AC13 Trunk Circuit Descriptor Assignment

Description

20.3 This form completes the definition of AC13 trunk characteristics. With this form, trunk signaling and timing parameters are set for groups of AC13 trunks. The circuit descriptor numbers in this form are referenced in the Trunk Assignment form. To complete this form, select the required values under each descriptor number.

Conditions

The Card Type of the Trunk Assignment form entry referring to an AC13 Trunk Circuit Descriptor must be an AC13 Trunk card.

Form Headings:

- **Trunk Circuit Descriptor Number:** Enter the unique number that is used to reference the AC13 trunk characteristics in the Trunk Assignment form.
- **Descriptor:** Preprinted list of descriptor options. See Table 20–1 for the meaning of the terms.
- **Value:** For the accepted range of values for each descriptor, see Table 20–1.

AC13 TRUNK CIRCUIT DESCRIPTOR ASSIGNMENT

Trunk Circuit Descriptor Number:

Descriptor	Value
Incoming and Outgoing Parameters	
Max Clear Acknowledge Timer (1500–2500 msec)	2000
Max Clear Timer (2000–3000 msec)	2550
Min Short Busy Timer (400–600 msec)	500
Max Short Busy Timer (7500–8500 msec)	8000
Incoming Parameters	
Dial Tone on Incoming Seize (Yes/No)	No
Outgoing Parameters	
Outpulse Delay Timer (200–1600 msec)	200
Answer Max Timer (150–350 msec)	300
Supervision Parameters	
Fake Answer After Outpulsing (Yes/No)	No
Ignore Answer Supervision (Yes/No)	No
Audio Inhibit Until Answer Supervision (Yes/No)	Yes
Trunk Test Parameters	
Perform seize tests on out–of–service trunks (Yes/No)	Yes

F00085

Table 20–1 AC13 Trunk Circuit Descriptor Parameters

Parameter	Description	Default Value
Incoming and Outgoing Parameters		
Maximum Clear Acknowledge Timer:	Enter a value between "1500" and "2500" milliseconds in increments of "50" milliseconds. This timer defines the maximum duration of an incoming release guard.	2000 ms
Maximum Clear Timer:	Enter a value between "2000" and "3000" milliseconds in increments of "50" milliseconds. This timer defines the maximum duration of an incoming clear back or clear forward signal.	2550 ms
Minimum Short Busy Timer:	Enter a value between "400" and "600" milliseconds in increments of "10" milliseconds. This timer defines the minimum duration of an incoming short backward busy signal.	500 ms
Maximum Short Busy Timer:	Enter a value between "7500" and "8500" milliseconds in increments of "50" milliseconds. This timer defines the maximum duration of an incoming short backward busy signal.	8000 ms
Incoming Parameters		
Dial Tone on Incoming Seize:	Enter "yes" if dial tone is to be returned by the PABX when a trunk is seized by the far–end. Entering "no" indicates that dial tone will not be returned on a seize.	No
Outgoing Parameters		
Outpulse Delay Timer:	Enter a value between "200" and "1600" milliseconds, in increments of 50 milliseconds. This value defines the length of the delay before outpulsing commences, following a seizure. **Note:** Outpulsing could commence several hundred milliseconds after the programmed duration. Only the minimum duration is guaranteed.	200 ms
Answer Maximum Timer:	Enter a value from "150" to "350" milliseconds. This timer is used to determine if the incoming tone is a valid answer from the far–end. If the incoming tone stops before this timer expires, the signal is a valid answer. The timer is started between 100 ms and 150 ms after the start of the incoming signal.	300 ms
Supervision Parameters		
Fake Answer Supervision After Outpulsing:	This option is used to complete the audio connection after outpulsing if the trunk does not provide answer supervision. Enter "yes" if answer supervision is to be provided by the *SX–2000* system immediately after outpulsing. Entering "no" will cause the *SX–2000* system to wait for answer supervision from the far–end, if any is provided.	No

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Table 20–1 AC13 Trunk Circuit Descriptor Parameters (continued)

Parameter	Description	Default Value
Ignore Answer Supervision:	Enter "yes" if the *SX–2000* system is to ignore answer supervision from the far–end. Answer supervision is generated by using timer and/or tone detectors. Entering "no" indicates that answer supervision from the far–end is to be accepted.	No
Audio Inhibit Until Answer Supervision:	This option is used to prevent a DTMF receiver, in linesplit mode, from being connected between the originating party and the outgoing trunk during the digit outpulsing phase of the call processing cycle. This option is used for sites that are tied to very sensitive central offices or remote PABXs. When the option is chosen, the audio path will be fully connected and the two parties will be able to talk only after the answer supervision has taken place. Enter "yes" if a DTMF receiver, in linesplit mode, is NOT to be connected between the originating party and the outgoing trunk during digit outpulsing. Enter "no" if a DTMF receiver, in linesplit mode, is to be connected between the originating party and the outgoing trunk during digit outpulsing.	Yes
Trunk Test Parameters		
Perform seize tests on out–of–service trunks:	This option is used to ensure that a trunk is working correctly before being returned to service. When maintenance places a circuit into an out–of–service state it generates a log indicating a state change from idle to out–of–service. A background diagnostic process is then initiated to perform a series of tests on the trunk, which include a seize test. Once the trunk has passed the tests it is returned to service. If "yes" is entered the test will be done automatically. If "no" is entered the trunk will remain in an out–of–service state until the tests are run.	Yes

AC15 Trunk Circuit Descriptor Assignment

Description

20.4 This form completes the basic definition of AC15 trunk characteristics. With this form, trunk signaling and timing parameters are set for groups of AC15 trunk circuits. The circuit descriptor numbers in this form are referred to in the Trunk Assignment form. To complete this form, select the required values under each circuit descriptor number.

Conditions

The Card Type of the Trunk Assignment form entry referring to an AC15 Trunk Circuit Descriptor must be an AC15 trunk card.

Form Headings:

- **Trunk Circuit Descriptor Number:** Enter the unique number that is used to reference the AC15 trunk characteristics in the Trunk Service Assignment form.
- **Descriptor:** Preprinted list of hardware options. See Table 20–2 for meaning of the terms.
- **Value:** For the accepted range of values for each descriptor, see Table 20–2.

AC15 TRUNK CIRCUIT DESCRIPTOR ASSIGNMENT

Trunk Circuit Descriptor Number:

Descriptor	Value
Incoming and Outgoing Parameters	
AC15 Variant (AC15A/AC15B)	AC15A
Release Acknowledge Timer (40–2400 units) (unit = 50 ms)	80
Address Signalling (Loop/DTMF)	Loop
Incoming Parameters	
Incoming Delay Dial (Yes/No)	No
Dial Tone on Incoming Seize (Yes/No)	No
Outgoing Parameters	
Outpulse Delay Timer (100 – 1600 ms)	800
Outgoing Delay Dial (Yes/No)	No
Supervision Timer (100 – 4500 ms)	150
Guard Timer (100 – 500 ms)	350
Maximum Wait Timer (4000 – 5000 ms)	4500
Supervision Parameters	
Fake Answer Supervision After Outpulsing (Yes/No)	No
Ignore Answer Supervision (Yes/No)	No
Release Supervision Expected (Yes/No)	Yes
Audio Inhibit Until Answer Supervision (Yes/No)	Yes
Trunk Test Parameters	
Perform seize tests on out–of service trunks (Yes/No)	Yes

F00086

Table 20–2 AC15 Trunk Circuit Descriptor Parameters

Parameter	Description	Default Value
Incoming and Outgoing Parameters		
AC15 Variant:	Enter "AC15A" or "AC15B", as required.	AC15A
Release Acknowledge Timer:	Enter a value between "40" and "2400" units in increments of 1 unit (where 1 unit = 50 milliseconds) for the Release Acknowledge timer. The range in milliseconds is 2000 to 120000. This timer specifies the amount of time the *SX–2000* ICS waits for a release acknowledgement from the far–end.	80 units
Address Signaling:	Enter "loop" if loop signaling is to be provided by the trunk circuit. Enter "DTMF" if DTMF signaling is to be provided by the trunk circuit.	Loop
Incoming Parameters		
Incoming Delay Dial:	Enter "yes" if the trunk is to recognize delay dial signaling on incoming calls.	No
Dial Tone on Incoming Seize:	Enter "yes" if dial tone is to be returned by the PABX when the trunk is seized by the far–end. Entering "no" indicates that dial tone will not be returned on a seize.	No
Outgoing Parameters		
Outpulse Delay Timer:	Enter a value between "100" and "1600" milliseconds in increments of 50 milliseconds to define the duration of the delay before outpulsing commences after a seizure.	800 ms
Outgoing Delay Dial:	Enter "yes" if the trunk is to provide delay dial signaling on outgoing calls.	No
Supervision Timer:	Enter a value in the range of "100" to "4500" milliseconds in 50 millisecond increments. This timer specifies the expected duration of a supervision signal from the far–end.	150 ms
Guard Timer:	Enter a value between "100" and "500" milliseconds, in increments of 50 milliseconds to define the guard time. This timer specifies the amount of time for which a trunk will be unavailable for seizure following a release, to allow the trunk to clear before reseizing.	350 ms
Maximum Wait Timer:	Enter a value between "4000" and "5000" milliseconds in increments of 50 milliseconds.	4500 ms
Supervision Parameters		
Fake Answer Supervision Expected After Outpulsing:	This option is used to complete the audio connection after outpulsing if the trunk does not provide answer supervision. Enter "yes" if answer supervision is to be provided by the *SX–2000* ICS immediately after outpulsing. Entering "no" will cause the *SX–2000* ICS to wait for answer supervision from the far–end, if any is provided.	No

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Table 20–2 AC15 Trunk Circuit Descriptor Parameters (continued)

Parameter	Description	Default Value
Ignore Answer Supervision:	Enter "yes" if the *SX–2000* system is to ignore answer supervision from the far–end. Answer supervision is generated by using times and/or tone detectors. Entering "no" will indicate that Answer Supervision from the far–end is to be accepted.	No
Release Supervision Expected:	Enter "yes" if the trunk circuits are expecting release supervision from the far–end. Entering "no" will indicate that the trunk circuits do not provide release supervision. The *SX–2000* ICS will not allow two trunks designated as "No Release Supervision Expected" to be connected together.	Yes
Audio Inhibit Until Answer Supervision:	This option is used to prevent a DTMF receiver, in line split mode, from being connected between the originating party and the outgoing trunk during the digit outpulsing phase of the call processing cycle. This option is used for sites that are tied to very sensitive central offices or remote PABXs. When the option is chosen, the audio path will be fully connected and the two parties will be able to talk only after the answer supervision has taken place. Enter "yes" if a DTMF receiver, in linesplit mode, is NOT to be connected between the originating party and the outgoing trunk during digit outpulsing. Enter "no" if a DTMF receiver, in linesplit mode, IS to be connected between the originating party and the outgoing trunk during digit outpulsing.	Yes
Trunk Test Parameters		
Perform seize tests on out–of–service trunks:	This option is used to ensure that a trunk is working correctly before being returned to service. When maintenance places a circuit into an out–of–service state it generates a log indicating a state change from idle to out–of–service. A background diagnostic process is then initiated to perform a series of tests on the trunk, which include a seize test. Once the trunk has passed the tests it is returned to service. If "yes" is entered the test will be done automatically. If "no" is entered the trunk will remain in an out–of–service state until the tests are run.	Yes

CO Trunk Circuit Descriptor Assignment

Description

20.5 This form completes the basic definition of CO trunk characteristics. With this form, trunk signaling and timing parameters are set for groups of CO trunk circuits under each descriptor number.

Conditions

The Card Type of the Trunk Assignment form entry referring to a CO Trunk Circuit Descriptor must be an LS/GS trunk.

Form Headings:

- **Trunk Circuit Descriptor Number:** Enter the unique number that is used to reference the CO trunk characteristics in the Trunk Assignment form.
- **Descriptor:** Preprinted list of options, with the accepted values for each. See Table 20–3, CO Trunk Circuit Descriptor Parameters, for definitions of the terms.
- **Value:** See Table 20–3 for the accepted range of values for each descriptor.

CO TRUNK CIRCUIT DESCRIPTOR ASSIGNMENT (Sheet 1 of 2)

Trunk Circuit Descriptor Number:

Descriptor	Value
Incoming and Outgoing Parameters	
Line Start Type (Loop/Ground)	Ground
Post Call Metering (Yes/No)	No
Guard Timer (100–200/800–1600/3000–8000)	100
Calling Party Disconnect (Yes/No)	No
Dictation Trunk (Yes/No)	No
Ignore Far End Disconnect (Yes/No)	No
Disconnect Timer (100 – 4000 msec)	500
Ground Condition During Busy Out (Removed/Permanent)	Removed
Incoming Parameters	
Ignore Far End Reversal During Seizure (Yes/No)	Yes
Minimum Ring Detection Timer (200 – 500 msec)	200
Ringing Expected (Yes/No)	Yes
Outgoing Parameters	
Seize Timer (10 – 1800 sec)	10
Address Signalling (Loop/DTMF)	DTMF

F00087

CO TRUNK CIRCUIT DESCRIPTOR ASSIGNMENT (Sheet 2 of 2)

Trunk Circuit Descriptor Number:

Descriptor	Value
Supervision Parameters	
Fake Answer Supervision After Outpulsing (Yes/No)	Yes
First Meter Pulse Is Answer (Yes/No)	No
Ignore Answer Supervision (Yes/No)	Yes
Release Supervision Expected (Yes/No)	Yes
Audio Inhibit Until Answer Supervision (Yes/No)	Yes
Transmission Parameters	
Far End Connection (Local/Toll)	Local
High Loss Option (Yes/No)	No
Balance Network Setting (600/complex)	Complex
U.K. Parameters	
Trunk Category (Short/Long/Unknown)	Short
Trunk Test Parameters	
Perform seize test on out-of-service trunks (Yes/No)	Yes

F00088

Table 20–3 CO Trunk Circuit Descriptor Parameters

Parameter	Description	Default Value
Incoming and Outgoing Parameters		
Line Start Type:	Enter either "Loop", if the trunks assigned to the circuit descriptor are loop start, or "Ground" if the trunks are ground start.	Ground
Post Call Metering:	Enter "yes" if counting of meter pulses is to be applied both during and after a call. Entering "no" indicates that meter pulses are only counted during a call.	No
Guard Timer:	Enter a value which specifies the amount of time for which a trunk is unavailable for seizure following a release, in increments of "50" milliseconds. This time is required to allow the trunk to clear before reseizing. For Loop Start trunks with no Post Call Metering, enter a value from "800" to "1600". For Ground Start trunks with no Post Call Metering, enter a value from "100" to "200". For trunks employing Post Call Metering, enter a value from "3000" to "8000".	100 ms
Calling Party Disconnect:	Enter "yes" if the disconnect signal on incoming trunk calls is to be provided by the far–end connection. This is used when the CO is a "calling party hold" type. The trunk cannot be used until the far–end clears down. Entering "no" indicates that the trunk can be cleared down by the *SX–2000* ICS.	No
Dictation Trunk:	Enter "yes" if the trunks have access to remote dictation services. Entering "no" indicates that dictation services are not available.	No
Ignore Far–End Disconnect:	Enter "yes" if the trunk circuits are to ignore a disconnect signal from the far–end. Entering "no" causes the trunk circuit to respond to a disconnect signal from the far–end.	No
Disconnect Timer:	Enter the duration of the disconnect signal timer. Allowed values are from "100" to "4000" milliseconds, in 50 millisecond increments. This value defines the minimum acceptable duration of a disconnect signal from the far–end.	500 ms
Ground Condition During Busy Out:	Specified whether the trunk is grounded when busied–out (Permanent), or whether ground is removed from the circuit (Removed).	Removed
Incoming Parameters		
Ignore Far End Reversal During Seizure:	Enter "yes" if reversal signals are to be ignored. Entering "no" will cause a reversal from the far–end to be recognized as a seizure signal.	Yes
Minimum Ring Detection Timer:	Enter a value for the duration of ringing signal expected from the CO. The valid range for this field is 200 to 500 milliseconds, in steps of 50 milliseconds.	200 ms

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Table 20–3 CO Trunk Circuit Descriptor Parameters (continued)

Parameter	Description	Default Value
Ringing Expected:	Enter "yes" if ringing is necessary for an incoming seizure to be valid. When this option is set to "yes" and the Ignore Far–End Reversal option is set to "no", a reversal from the far–end will prevent the trunk from being seized for outgoing calls. However, ringing has to be present for a valid incoming call. Entering "no" indicates that Ringing or Tip group (GS trunk), or a reversal (if Ignore Far–End Reversal is "no") will all be acknowledged as incoming calls.	Enabled (yes) [U.K. – Disabled (no)]
Outgoing Parameters		
Seize Timer:	Enter the duration of the seize timer. Allowed values are from "10" to "1800" seconds. This timer defines how long the *SX–2000* ICS will wait for a "seize acknowledge" before reporting a maintenance alarm.	10 s
Address Signaling:	Enter "Loop" if the trunks use only loop signaling.Enter "DTMF" if the trunks use DTMF signaling.	DTMF
Supervision Parameters		
Fake Answer Supervision After Outpulsing:	This option is used to complete the audio connection after outpulsing if the trunk does not provide answer supervision. Enter "yes" if answer supervision is to be provided by the PABX immediately after outpulsing. Entering "no" will cause the *SX–2000* ICS to wait for answer supervision from the far–end, if any is provided.	Yes
First Meter Pulse Is Answer	Setting this option to "yes" indicates to call processing that the first meter pulse sent by the central office also signals that the far end has already answered a call. If this option is set to "Yes", then Ignore Answer Supervision must be set to "No".	No
Ignore Answer Supervision:	Enter "yes" if the *SX–2000* ICS is to ignore answer supervision from the far–end. Answer supervision is generated by using times and/or tone detectors. Entering "no" will indicate that Answer Supervision from the far–end is to be accepted.	Yes
Release Supervision Expected:	Enter "yes" if the trunk circuits are expecting release supervision from the far–end. Entering "no" will indicate that the trunk circuits do not provide release supervision. The *SX–2000* ICS will not allow two trunks designated as "No Release Supervision Expected" to be connected together.	Yes

Table 20–3 CO Trunk Circuit Descriptor Parameters (continued)

Parameter	Description	Default Value
Audio Inhibit Until Answer Supervision:	This option is used to prevent a DTMF receiver, in line split mode, from being connected between the originating party and the outgoing trunk during the digit outpulsing phase of the call processing cycle. This option is used for sites that are tied to very sensitive central offices or remote PABXs. When the option is chosen, the audio path will be fully connected and the two parties will be able to talk only after the answer supervision has taken place. Enter "yes" if a DTMF receiver, in linesplit mode, is NOT to be connected between the originating party and the outgoing trunk during digit outpulsing. Enter "no" if a DTMF receiver, in linesplit mode, IS to be connected between the originating party and the outgoing trunk during digit outpulsing.	Yes
Transmission Parameters		
Far–End Connection:	Enter either "Local" if the office at which the trunk terminates is a local central office, or enter "Toll" if the far–end is a toll center.	Local
High Loss Option:	Enter "yes" if the CO trunk has poor balance impedance resulting in excessive return loss to tie trunks. This will insert a 2 dB attenuation in both directions on an analog tie trunk to the CO trunk. Entering "No" disables the attenuation.	No
Balance Network Setting:	Enter "600" if the load presented to the trunk port is resistive, (loaded cable, broadband system). Enter "complex" if the load is capacitive (long unloaded cable). If necessary, the best option can be determined by optimizing the echo return loss as seen from an OPS or ONS connection.	Complex
U.K. Parameters		
Trunk Category:	Enter either "Long" or "Short", depending on the characteristics of the trunks assigned to the circuit descriptor. If trunk length is not known, or is not applicable (North American trunk length does not affect transmission), enter "unknown".	Unknown
Trunk Test Parameters		
Perform seize tests on out–of–service trunks:	This option is used to ensure that a trunk is working correctly before being returned to service. When maintenance places a circuit into an out–of–service state it generates a log indicating a state change from idle to out–of–service. A background diagnostic process is then initiated to perform a series of tests on the trunk, which include a seize test. Once the trunk has passed the tests it is returned to service. If "yes" is entered the test will be done automatically. If "no" is entered the trunk will remain in an out–of–service state until the tests are run.	Yes

DID Trunk Circuit Descriptor Assignment

Description

20.6 This form completes the basic definition of DID trunk characteristics. With this form, trunk signaling and timing parameters are set for groups of DID trunk circuits. The circuit descriptor numbers in this form are referred to in the Trunk Assignment form. To complete this form, select the required values under each circuit descriptor number.

Conditions

The Card Type of the Trunk Assignment form entry referring to a DID Trunk Circuit Descriptor must be a DID/Loop Tie trunk card.

Form Headings:

- **Trunk Circuit Descriptor Number:** Enter the unique number that is used to reference the DID trunk characteristics in the Trunk Assignment form.
- **Descriptor:** Preprinted list of hardware options. See Table 20–4 for definitions of the terms.
- **Value:** For the accepted range of values for each descriptor, see Table 20–4.

Table 20–4 DID Trunk Circuit Descriptor Parameters

Parameter	Description	Default Value
Incoming and Outgoing Parameters		
Release Acknowledge Timer:	Enter a value between "40" and "9000" in increments of "1" unit, where 1 unit = 50 milliseconds. The range is "2000" to "120,000" milliseconds. This timer specifies the amount of time the system will wait for a release acknowledgement from the far–end.	80 units (4000 ms)
Address Signaling (Loop/DTMF)	Specifies whether the trunks use loop signaling or DTMF signaling.	DTMF
Incoming Parameters		
Incoming Start Type:	Enter "Wink" if the trunk is wink start on incoming calls. Enter "Delay" if the trunk is delay dial start on incoming calls. Enter "Immediate" if the trunk is immediate start on incoming calls which means that digits are outpulsed immediately following seizure.	Wink
Transmission Parameters		

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Table 20–4 DID Trunk Circuit Descriptor Parameters (continued)

Parameter	Description	Default Value
High Loss Option:	Enter "yes" if High Loss operation is to be enabled. Leaving the value blank or entering "no" disables high loss operation.	No
Balance Network Setting:	Enter "600" if the load presented to the trunk port is resistive, (loaded cable, broadband system). Enter "complex" if the load is capacitive (long unloaded cable). If necessary, the best option can be determined by optimizing the echo return loss as seen from an OPS or ONS connection.	600 ms
U.K. Parameters		
Trunk Category:	Enter either "Long" or "Short", depending on the characteristics of the trunks assigned to the circuit descriptor. If trunk length is not known, or is not applicable (North American trunk length does not affect transmission), enter "unknown".	Unknown
DID/2 Parameters		
End of Dial and Clear Back Line Break:	Enter a value between "0" and "300" milliseconds. This value specifies the duration of the End of Dial signal as well as the Clear Back Line Break signal.	"0" ms

DID TRUNK CIRCUIT DESCRIPTOR ASSIGNMENT

Trunk Circuit Descriptor Number:

Descriptor	Value
Incoming and Outgoing Parameters	
Release Acknowledge Timer (40–9000 units) (unit = 50 ms)	80
Address Signaling (Loop/DTMF)	DTMF
Incoming Parameters	
Incoming Start Type (Immediate/Wink/Delay)	Wink
Outgoing Parameters	
High Loss Option (Yes/No)	No
Balance Network Setting (600/complex)	600
U.K. Parameters	
Trunk Category (Short/Long/Unknown)	Unknown
DID/2 Parameters	
End of Dial and Clear Back Line Break (0–300ms)	0

F00089

DID3 Trunk Circuit Descriptor Assignment

Description

20.7 This form completes the basic definition of DID/3 trunk characteristics. With this form, trunk signaling and timing parameters are set for groups of DID/3 trunk circuits. The circuit descriptor numbers in this form are referred to in the Trunk Assignment form. To complete this form, select the required values under each circuit descriptor number.

Conditions

The Card Type of the Trunk Assignment form entry referring to a DID3 Trunk Circuit Descriptor must be a DID/3 Trunk card.

Form Headings

- **Trunk Circuit Descriptor Number:** Enter the unique number that is used to reference the DID/3 trunk characteristics in the Trunk Assignment form.
- **Descriptor:** Preprinted list of hardware options. See Table 20–5 for definitions of terms.
- **Value:** For the accepted range of values and default values for each descriptor, see Table 20–5.

DID3 TRUNK CIRCUIT DESCRIPTOR ASSIGNMENT

Trunk Circuit Descriptor Number:

Descriptor	Value
Audio Inhibit Until Answer Supervision (Yes/No)	Yes
First Meter Pulse Is Answer (Yes/No)	Yes
Fake Answer Supervision After Outpulsing (Yes/No)	No
Ignore Answer Supervision (Yes/No)	No
Post Call Metering (Yes/No)	Yes
Release Supervision Expected (Yes/No)	Yes
Answer Timer (100 – 150 msec))	150
Busy Signal Timer (600 – 900 msec)	700
EOS Duration Timer (100 – 150 msec)	150
EOS Pause Timer (500 – 900 msec)	700
Idle Error Timer (10 – 2550 sec)	10
Post Call Meter Timer (1 – 5 sec)	3
Trunk Category (Short/Long/Unknown)	Unknown

F00117

Table 20–5 DID3 Trunk Circuit Descriptor Parameters

Parameter	Description	Default Value
Audio Inhibit Until Answer:	This option is used to prevent a DTMF receiver from being connected between the originating party and the outgoing trunk during the digit outpulsing phase of the call processing cycle. This option is used for sites that are tied to very sensitive central offices or remote PABXs. When the option is chosen, the audio path will be fully connected and the two parties will be able to talk only after the answer supervision has taken place. Enter "Yes" if a DTMF receiver is NOT to be connected between the originating party and the outgoing trunk during digit outpulsing. Enter "No" if a DTMF receiver IS to be connected between the originating party and the outgoing trunk during digit outpulsing.	Yes
First Meter Pulse Is Answer:	Setting this option to "Yes" indicates to call processing that the first meter pulse sent by the central office also signals that the far end has already answered a call. If this option is set to "Yes", then Ignore Answer Supervision must be set to "No".	Yes
Fake Answer Supervision After Outpulsing:	This option is used to complete the audio connection after outpulsing if the trunk does not provide answer supervision. Enter "Yes" if answer supervision is to be provided by the PABX immediately after outpulsing. Entering "No" will cause the *SX–2000* ICS to wait for answer supervision from the far–end, if any is provided.	No
Ignore Answer Supervision:	Enter "Yes" if the *SX–2000* ICS is to ignore answer supervision from the far–end. Answer supervision is generated by using times and/or tone detectors. Entering "No" will indicate that answer supervision from the far–end is to be accepted. This option must be set to "No" if First Meter Pulse Is Answer is set to "Yes".	No
Post Call Metering:	Enter "Yes" to count meter pulses both during and after a call, and "No" to count meter pulses only during a call.	Yes
Release Supervision Expected:	Enter "Yes" if the trunk circuits are expecting release supervision from the far–end. Entering "no" will indicate that the trunk circuits do not provide release supervision. The *SX–2000* ICS will not allow two trunks designated as "No Release Supervision Expected" to be connected together.	Yes
Answer Timer:	This option defines the duration of the answer signal. Valid values for this timer are in the range of 100 to 150 milliseconds in increments of 50 ms.	150 ms
Busy Signal Timer:	This option defines the duration of the busy signal. The timer values range from 500 to 900 milliseconds in increments of 50 ms.	700 ms
EOS Duration Timer:	This option defines the duration of the end–of–selection signal. Valid values for this timer are in the range of 100 to 150 milliseconds in increments of 50 ms.	150 ms
EOS Pause Timer:	This option defines the delay after the end–of–selection signal. Valid values for this timer are in the range of 500 to 900 milliseconds in increments of 50 ms.	700 ms

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Table 20–5 DID3 Trunk Circuit Descriptor Parameters (continued)

Parameter	Description	Default Value
Idle Error Timer:	Enter a value to define the maximum time that the system will wait for an idle condition to be detected from the central office before an error condition is reported on the trunk circuit. Values for this timer are in the range of 10 to 2550 seconds, in increments of 10 seconds.	10 sec
Post Call Meter Timer:	Enter a value to indicate the length of time for the system to wait for post meter pulse messages from the CO. The valid range of values is one to five seconds.	3 sec
Trunk Category:	Enter either "Long" or "Short", depending on the characteristics of the trunks assigned to the circuit descriptor. If trunk length is not known, or is not applicable (North American trunk length does not affect transmission), enter "unknown".	Unknown

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Digital CO Trunk Circuit Descriptor Assignment

Description

20.8 The Digital CO Trunk Circuit Descriptor Assignment form is used to define the characteristics of the digital trunk circuits used for Channel Associated Signaling (CAS) to a digital central office.

Form Headings:

- **Trunk Circuit Descriptor Number:** Enter the number used to reference the DS1 CO digital trunk characteristics in the Trunk Assignment form.
- **Descriptor:** A preprinted list of parameters for the digital CO trunk. Refer to Table 20–6 for a description of the terms.
- **Value:** For the accepted range of values for each descriptor, see Table 20–6.

DIGITAL CO TRUNK CIRCUIT DESCRIPTOR ASSIGNMENT

Trunk Circuit Descriptor Number:

Description	Value
Incoming and Outgoing Parameters	
Line Start Type (Loop/Ground/Loop In/Loop Out)	Ground
Guard Timer (100–200, 800–1600 ms)	100
Ignore Far End Disconnect (Yes/No) [GS only]	No
Disconnect Timer (100–4000 ms)	500
Incoming Parameters	
Ringing Expected (Yes/No) [DS1 only]	Yes
Outgoing Parameters	
Seize Timer (1–480 ms) (Unit = 50 msec)	200
Address Signalling (Loop/DTMF)	DTMF
Supervision Parameters	
Fake Answer Supervision After Outpulsing (Yes/No)	Yes
Release Supervision Expected (Yes/No)	Yes
Ignore Answer Supervision (Yes/No)	Yes
Audio Inhibit Until Answer Supervision (Yes/No)	Yes
Transmission Parameters	
Far End Connection (Local Office/Toll Office)	Local Office

F00090

Table 20–6 Digital CO Digital Trunk Parameters

Parameter	Description	Default Value
Incoming and Outgoing Parameters		
Line Start Type	Specifies whether the trunk is to be loop start or ground start. For Italian CAS, the trunk may be specified as loop start incoming ("Loop In") or loop start outgoing ("Loop Out").	Ground
Guard Timer	Specifies the amount of time for which a trunk is unavailable for seizure following a release, in increments of 50 ms. This time is required to allow the trunk to clear before re–seizing. For Loop Start trunks with no Post Call Metering, a value from 800 to 1600 should be chosen. For Ground Start trunks with no Post Call Metering a value from 100 to 200 should be used.	100
Ignore Far End Disconnect [GS only]	Specifies whether ground start trunks are to ignore or respond to a far–end disconnect signal.	No
Disconnect Timer	Defines the minimum length of a far–end disconnect signal. Allowed values are from 100 ms to 4000 ms in 50 ms increments.	500
Incoming Parameters		
Ringing Expected [DS1 only]	Specifies if ringing is necessary for an incoming seizure to be valid. Applies to DS1 CO trunks only.	Yes
Outgoing Parameters		
Seize Timer	Defines how long the *SX–2000* system will wait for a "seize acknowledge" before initiating a maintenance alarm. Allowed values are from 1 to 480 units (50 ms – 24 sec), each unit being equal to 50 ms.	100
Address Signaling	Specifies whether the trunks use loop signaling or DTMF signaling.	DTMF
Supervision Parameters		
Fake Answer Supervision After Outpulsing	Used to complete the audio connection after outpulsing if the trunk does not provide answer supervision. Entering "yes" will cause the *SX–2000* system to provide answer supervision immediately after outpulsing. Entering "no" will cause the *SX–2000* system to wait for answer supervision from the far–end.	Yes
Release Supervision Expected	Specifies whether release supervision is provided from the far–end.	Yes
Ignore Answer Supervision	Specifies whether the trunk circuits are to expect answer supervision from the far–end. Entering "yes" means that answer supervision is not expected. Entering "no" means that answer supervision is to be provided from the far–end.	Yes

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Table 20–6 Digital CO Digital Trunk Parameters (continued)

Parameter	Description	Default Value
Audio Inhibit Until Answer Supervision	Used to prevent a DTMF receiver, in line split mode, from being connected between the originating party and the outgoing trunk during the digit outpulsing phase of the call processing cycle. Entering "yes" means that the audio path will only be connected after answer supervision has taken place.	Yes
Transmission Parameters		
Far End Connection	Specifies if the office at which the trunk is terminated is a local office or a toll office.	Local Office

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Digital DID Trunk Circuit Descriptor Assignment

Description

20.9 The Digital DID Trunk Circuit Descriptor Assignment form is used to define the characteristics of the digital trunk circuits used for Channel Associated Signaling (CAS) over DID trunks.

Form Headings:

- **Trunk Circuit Descriptor Number:** Enter the number used to reference the Digital DID digital trunk characteristics in the Trunk Assignment form.
- **Descriptor:** A preprinted list of parameters for the Digital DID digital trunk. Refer to Table 20–7 for a description of the terms.
- **Value:** For the accepted range of values for each descriptor, see Table 20–7.

Table 20–7 Digital DID Trunk Circuit Descriptor Parameters

Parameter	Description	Default Value
Incoming and Outgoing Parameters		
Ignore Far End Disconnect	Specifies whether the trunks are to ignore or respond to a far–end disconnect signal.	No
Release Acknowledge Timer	Specifies the amount of time the *SX–2000* system will wait for a release acknowledgement from the far–end. Allowed values are 40 – 9000 units (200 ms – 450 sec), each unit being equal to 50 ms.	100
Address Signaling	Specifies whether the trunks use loop signaling or DTMF signaling.	DTMF
Incoming Parameters		
Incoming Start Type [DS1 only]	Defines whether the trunk is immediate or delay dial or wink start on incoming calls. Applies only to DS1 DID trunks.	Wink
Transmission Parameters		
Far End Connection	Specifies if the office at which the trunk is terminated is a local office or a toll office.	Local Office

DIGITAL DID TRUNK CIRCUIT DESCRIPTOR ASSIGNMENT

Trunk Circuit Descriptor Number:

Descriptor	Value
Incoming and Outgoing Parameters	
Ignore Far End Disconnect (Yes/No)	No
Release Acknowledge Timer (40 – 9000 units) (unit = 50 ms)	80
Address Signalling (Loop/DTMF)	DTMF
Incoming Parameters	
Incoming Start Type (Immediate/Wink/Delay) [DS1 only]	Wink
Transmission Parameters	
Far End Connection (Local Office/Toll Office)	Local Office

F00091

Digital E&M Trunk Circuit Descriptor Assignment

Description

20.10 The Digital E&M Trunk Circuit Descriptor Assignment form is used to define the characteristics of the DS1 trunk circuits used for Channel Associated Signaling (CAS) over E&M trunks.

Form Headings:

- **Trunk Circuit Descriptor Number:** Enter the number used to reference the Digital E&M digital trunk characteristics in the Trunk Assignment form.
- **Description:** A preprinted list of parameters for the Digital E&M digital trunk. Refer to Table 20–8 for a description of the terms.
- **Value:** For the accepted range of values for each descriptor, see Table 20–8.

DIGITAL E AND M TRUNK CIRCUIT DESCRIPTOR ASSIGNMENT

Trunk Circuit Descriptor Number:

Description	Value
Incoming and Outgoing Parameters	
Call Collision Handling (AT&T/Normal)	AT&T
AT&T Call Collision Handling (Backoff/Nobackoff)	Backoff
Ignore Far End Disconnect (Yes/No)	No
Release Acknowledge Timer (40 – 2400 units) (unit = 50 ms)	80
Address Signaling (Loop/DTMF)	Loop
Disconnect Timer (150 – 300 ms)	300
Incoming Parameters	
Incoming Start Type (Immediate/Wink/Delay)	Wink
Dial Tone on Incoming Seize (Yes/No)	No
Outgoing Parameters	
Outpulse Delay Timer (100 – 2000 ms)	800
Outgoing Start Type (Immediate/Wink/Delay/Delay Integ)	Wink
Supv Timer (200 – 12750 ms)	200
Maximum Wink Timer (300 – 4000 ms)	400
Minimum Wink Timer (50 – 150 ms)	100
Guard Timer (100 – 6000 ms)	500
Supervision Parameters	
Fake Answer Supervision After Outpulsing (Yes/No)	No
Ignore Answer Supervision (Yes/No)	No
Release Supervision Expected (Yes/No)	Yes
Audio Inhibit Until Answer Supervision (Yes/No)	Yes
Transmission Parameters	
Far End Connection (Main PBX/Satellite PBX/Local Office/Toll Office)	Main PBX
Facility Type (Digital/Combination)	Combination

F00092

Table 20–8 Digital E&M Trunk Circuit Descriptor Parameters

Parameter	Description	Default Value
Incoming and Outgoing Parameters		
Call Collision Handling	Specifies whether normal or AT&T method of glare handling is to be used.	AT&T
AT&T Call Collision Handling	If the AT&T method of glare handling is used, this parameter defines whether this end is to "back–off" or not.	Backoff
Ignore Far End Disconnect	Specifies whether the trunks are to ignore or respond to a far–end disconnect signal.	No
Release Acknowledge Timer	Specifies the amount of time the *SX–2000* system will wait for a release acknowledgement from the far–end.	80
Address Signaling	Specifies whether the trunks use loop signaling or DTMF signaling.	Loop
Disconnect Timer	Defines the minimum length of a far–end disconnect signal. Allowed values are from 150 ms to 300 ms in 50 ms increments.	300
Incoming Parameters		
Incoming Start Type	Defines whether the trunk is immediate or delay dial or wink start on incoming calls.	Wink
Dial Tone on Incoming Seize	Specifies if dial tone is to be returned when the trunk is seized by the far–end.	No
Outgoing Parameters		
Outpulse Delay Timer	Defines the duration of the delay before outpulsing commences after a seizure. Allowed values are from 100 ms to 2000 ms in 10 ms increments.	800
Outgoing Start Type	Specifies if the trunk is to provide wink start, immediate dial, delay dial or delay dial with integrity check on outgoing calls.	Wink
Supv Timer	Specifies the expected duration of a supervision signal from the far–end. Values range from 200 to 12750 ms. 200 ms to 1000 ms is used for immediate dial trunks, 200 ms to 12750 ms for wink start trunks, and 4500 ms to 12750 ms for delay dial and delay dial with integrity check trunks. Values change in 50 ms increments.	200
Maximum Wink Timer	Defines the maximum duration of the wink signal received from the far–end. Values range from 300 to 4000 ms, and change in 50 ms increments. 300 ms to 450 ms is used for wink start, immediate or delay dial trunks, and 300 ms to 4000 ms for delay dial trunks with integrity check.	400
Minimum Wink Timer	Defines the minimum duration of the wink signal received from the far–end. Allowed values are from 50 ms to 150 ms in 50 ms increments.	100

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Table 20–8 Digital E&M Trunk Circuit Descriptor Parameters (continued)

Parameter	Description	Default Value
Guard Timer	Specifies the amount of time for which a trunk will be unavailable for seizure following a release, to allow the trunk to clear before reseizing. Allowed values are from 100 ms to 6000 ms in 50 ms increments.	500
Supervision Parameters		
Fake Answer Supervision After Outpulsing	Used to complete the audio connection after outpulsing if the trunk does not provide answer supervision. Entering "yes" will cause the *SX–2000* system to provide answer supervision immediately after outpulsing. Entering "no" will cause the *SX–2000* system to wait for answer supervision from the far–end.	No
Ignore Answer Supervision	Specifies whether the trunk circuits are to expect answer supervision from the far–end. Entering "yes" means that answer supervision is not expected. Entering "no" means that answer supervision is to be provided from the far–end.	No
Release Supervision Expected	Specifies whether release supervision is provided from the far–end.	Yes
Audio Inhibit Until Answer Supervision	Used to prevent a DTMF receiver, in line split mode, from being connected between the originating party and the outgoing trunk during the digit outpulsing phase of the call processing cycle. Entering "yes" means that the audio path will only be connected after answer supervision has taken place.	Yes
Transmission Parameters		
Far End Connection (Main PBX/Satellite PBX/Local Office/Toll Office)	Specifies if the trunk is connected to a main PBX, a satellite PBX a local office or a toll center.	Main PBX
Facility Type	Specifies if the far end facility is digital or a combination of digital and analog.	Combination

DTS (Direct Trunk Select) Service Assignment

Description

20.11 This form is used to assign Class of Service and an Intercept Number to each DTS service number.

Conditions

Both the COS and Intercept Number fields must be completed.

Form Headings:

- **Index:** A preprinted list of Trunk Service Numbers. These numbers are referred to in the Trunk Assignment form.
- **COS:** Enter the COS Number which defines the required operations of the trunk.
- **Intercept Number:** Enter an intercept number which will link the DTS service number to a version of the Intercept Handling form.

DTS SERVICE ASSIGNMENT

INDEX	COS	Intercept Number
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		

INDEX	COS	Intercept Number
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		

Note: DTS = Direct Trunk Select

F00093

E&M Trunk Circuit Descriptor Assignment

Description

20.12 This form completes the basic definition of E&M trunk characteristics. With this form, trunk signaling and timing parameters are set for groups of E&M trunk circuits. The circuit descriptor numbers in this form are referred to in the Trunk Assignment form. To complete this form, select the required values under each circuit descriptor number.

Conditions

1. The Card Type of the Trunk Assignment form entry referring to an E&M Trunk Circuit Descriptor must be an E&M trunk card.

2. When an E&M Trunk Circuit is used as a Music On Hold input (*SX–2000* FD and *SX–2000* SG systems only), ensure the "Outgoing Start Type" field is programmed as "Immediate".

Form Headings:

- **Trunk Circuit Descriptor Number:** Enter the unique number that is used to reference the E&M trunk characteristics in the Trunk Assignment form.
- **Descriptor:** Preprinted list of hardware options. See Table 20–9 for meaning of the terms.
- **Value:** For the accepted range of values for each descriptor, see Table 20–9.

E and M TRUNK CIRCUIT DESCRIPTOR ASSIGNMENT (Sheet 1 of 2)

Trunk Circuit Descriptor Number:

Descriptor	Value
Incoming and Outgoing Parameters	
Release Acknowledge Timer (40–2400 units); (unit = 50 ms)	80
Address Signaling (Loop/DTMF)	Loop
Disconnect Timer (150–300 ms)	300
Incoming Parameters	
Incoming Start Type (Immediate/Wink/Delay)	Wink
Dial Tone on Incoming Seize (Yes/No)	No
Minimum Flash Timer (100–250 ms)	250
Maximum Flash Timer (200–250 ms)	200
Outgoing Parameters	
Outpulse Delay Timer (100–2000 ms)	800
Outgoing Start Type (Immediate/Wink/Delay/Delay/Integ)	Wink
Supervision Timer (200–12750 ms)	200
Maximum Wink Timer (300–4000 ms)	400
Minimum Wink Timer (50–150 ms)	100
Guard Timer (100–6000 ms)	500

F00094

E and M TRUNK CIRCUIT DESCRIPTOR ASSIGNMENT (Sheet 2 of 2)

Trunk Circuit Descriptor Number:

Descriptor	Value
Supervision Parameters	
Fake Answer Supervision After Outpulsing (Yes/No)	No
Ignore Answer Supervision (Yes/No)	No
Release Supervision Expected (Yes/No)	Yes
Audio Inhibit Until Answer Supervision (Yes/No)	Yes
MSAN–APNSS Parameters	
MSAN–APNSS Signaling (Yes/No)	No
MSAN–APNSS Dual Seize Priority (Incoming/Outgoing)	
Transmission Parameters	
Far End Connection (Main PBX/Satellite PBX) Toll Office)	Main PBX
High Loss Option – (Yes/No)	No
Transmission Facility (2 Wire/4 Wire)	2 Wire
4 Wire Carrier Condition (Normal/Offset)	Unassig
2 Wire Balance Network Setting (600/complex)	Complex
U.K. Parameters	
4 Wire Category (Amplified/Not Amplified)	
Trunk Test Parameters	
Perform seize test on out–of–service trunks (Yes/No)	Yes

F00095

Table 20–9 E&M Trunk Circuit Descriptor Parameters

Parameter	Description	Default Value
Incoming and Outgoing Parameters		
Release Acknowledge Timer	Enter a value between "40" and "2400" in increments of "1" unit, where 1 unit = 50 milliseconds. The range in milliseconds is "2000" to "120,000". This timer specifies the amount of time the *SX–2000* system will wait for a release acknowledgement from the far end.	80 units (4000 ms)
Address Signaling:	Enter "loop" if loop signaling is used by the trunk circuit. Enter "DTMF" if DTMF signaling is used.	Loop
Disconnect Timer:	Enter the duration of the disconnect signal timer. Allowed values are from "150" to "300" milliseconds, in 50 millisecond increments. This value defines the minimum acceptable duration of a disconnect signal from the far–end.	300 ms
Incoming Parameters		
Incoming Start Type:	Enter "Wink" if the trunk is wink start on incoming calls. Enter "Delay" if the trunk is delay dial start on incoming calls. Enter "Immediate" if the trunk is immediate start on incoming calls which means that digits are outpulsed immediately following seizure.	Wink
Dial Tone on Incoming Seize:	Enter "yes" if dial tone is to be returned by the PABX when the trunk is seized by the far–end. Entering "no" indicates that dial tone will not be returned on a seize.	No
Minimum Flash Timer:	Enter a value between "100" and "250" milliseconds, in increments of 10 seconds, to define the minimum flash time required in order for the peripheral software to detect a recall.	250 ms
Maximum Flash Timer:	Enter a value between "200" and "250" milliseconds, in increments of 10 seconds, to define the maximum flash time required in order for the peripheral software to detect a recall.	200 ms
Outgoing Parameters		
Outpulse Delay Timer:	Enter a value between "100" and "2000" milliseconds, in increments of 50 milliseconds, to define the duration of the delay before outpulsing commences after a seizure. **Note:** Outpulsing could commence several hundred milliseconds after the programmed duration. Only the minimum duration is guaranteed.	800 ms

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Table 20–9 E&M Trunk Circuit Descriptor Parameters (continued)

Parameter	Description	Default Value
Outgoing Start Type:	Enter "Wink" if the trunk is to provide wink start signaling on outgoing calls. Enter "Delay" if the trunk to provide delay dial (without integrity check) signaling on outgoing calls. Enter "Immediate" if the trunk is to provide immediate signaling on outgoing calls, or if the circuit is to be used as a Music On Hold input (*SX–2000* FD and *SX–2000* SG systems only). Enter "Delay Integ" for delay dial with integrity checking, which indicates that the *SX–2000* system must wait for a delay dial signal from the far–end before outpulsing.	Wink
Supv Timer:	Enter the duration of the Supervision timer. Values range from 200 to 12750 ms, and are calibrated in 50 ms increments. 200 to 1000 milliseconds applies to "Immediate" trunks. 200 to 12750 milliseconds applies to wink start trunks. 4500 to 12750 milliseconds applies to Delay Dial and Delay Dial with integrity check trunks. This timer specifies the expected duration of a supervision signal from the far–end.	200 ms
Maximum Wink Timer:	Enter the maximum duration of the wink timer. Values range from 300–4000 ms, and are calibrated in 50 ms increments. 300 to 450 milliseconds applies to immediate, wink start and delay dial trunks, and 300 to 4000 milliseconds applies to delay dial with integrity check.	400
Minimum Wink Timer:	Enter a value between "50" and "150" milliseconds, in increments of 50 milliseconds to define the minimum duration of the wink timer.	100 ms
Guard Timer:	Enter a value between "100" and "6000" milliseconds, in increments of 50 milliseconds to define the duration of the guard timer. This timer specifies the amount of time for which a trunk will be unavailable for seizure following a release, to allow the trunk to clear before reseizing.	500 ms
Supervision Parameters		
Fake Answer Supervision After Outpulsing:	This option is used to complete the audio connection after outpulsing if the trunk does not provide Answer Supervision. Enter "yes" if Answer Supervision is to be provided by the *SX–2000* ICS immediately after outpulsing. Entering "no" will cause the *SX–2000* ICS to wait for Answer Supervision from the far–end, if any is provided.	No
Ignore Answer Supervision:	Enter "yes" if the *SX–2000* ICS is to ignore answer supervision from the far–end. Answer Supervision is generated by using timer and/or tone detectors. Entering "no" will indicate that Answer Supervision from the far–end is to be accepted.	No

Table 20–9 E&M Trunk Circuit Descriptor Parameters (continued)

Parameter	Description	Default Value
Release Supervision Expected:	Enter "yes" if the trunk circuits are expecting Release Supervision from the far–end. Entering "no" will indicate that the trunk circuits do not provide Release Supervision. The *SX–2000* ICS will not allow two trunks designated as "No Release Supervision Expected" to be connected together.	Yes
Audio Inhibit Until Answer Supervision:	Used to prevent a DTMF receiver, in line split mode, from being connected between the originating party and the outgoing trunk during the digit outpulsing phase of the call processing cycle. Entering "yes" means that the audio path will only be connected after answer supervision has taken place.	Yes
MSAN–APNSS Parameters		
MSAN–APNSS Signaling:	Enter "Yes" if the E&M trunk is used as an MSAN voice path, and "No" if the trunk is not used in MSAN application.	No
MSAN–APNSS Dual Seizure Priority:	Specifies whether the incoming or outgoing trunk has priority in a glare situation. If MSAN–APNSS Signaling is "No", then this field must be left blank.	Blank
Transmission Parameters		
Far–End Connection:	If the trunk is connected to a remote PABX, enter "Main PABX" if the remote PABX routes all incoming calls through an attendant, or enter "Satellite PABX" if incoming calls are not routed through an attendant. Enter "Toll office" if the trunk is connected to a toll office.	Main PABX
High Loss Option:	Enter "yes" if High Loss operation is to be enabled. Leaving the value blank or entering "no" disables high loss operation. This field is not currently enabled for E&M Trunks in North America and may be ignored.	No
Transmission Facility:	Enter "2–wire" if the trunk is 2–wire, "4–wire" if the trunk is 4–wire.	2–wire
4–wire Carrier Condition:	The Normal setting provides 0dB insertion loss through the PABX and is used when the CO provides QVF equipment. When QVF equipment is provided, the associated trunk circuit meets terminal balance requirements. The Offset setting applies to a trunk that has no attached QVF equipment. This setting usually involves co–located PABXs. This option provides special gain with carrier systems requiring signal levels +7 dB on the Rx pair, and –16 dB on the Tx pair.	Unassig

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Table 20–9 E&M Trunk Circuit Descriptor Parameters (continued)

Parameter	Description	Default Value
2–Wire Balance Network Setting:	If 2–wire operation was selected, enter "600" if the load presented to the trunk port is resistive (loaded cable, broadband system). Enter "complex" if the load is capacitive (long unloaded cable). If necessary, the best option can be determined by optimizing the echo return loss as seen from an OPS or ONS connection.	Complex
U.K. Parameters		
4–Wire Category:	Enter either "Amplified" or "Not Amplified", as required.	Blank
Trunk Test Parameters		
Perform seize tests on out–of–service trunks:	This option is used to ensure that a trunk is working correctly before being returned to service. When maintenance places a circuit into an out–of–service state it generates a log indicating a state change from idle to out–of–service. A background diagnostic process is then initiated to perform a series of tests on the trunk, which include a seize test. Once the trunk has passed the tests it is returned to service. If "yes" is entered the test will be done automatically. If "no" is entered the trunk will remain in an out–of–service state until the tests are run.	Yes

Loop Tie Trunk Circuit Descriptor Assignment

Description

20.13 This form completes the basic definition of loop tie trunk characteristics. With this form, trunk signaling and timing parameters are set for groups of loop tie trunk circuits. The circuit descriptor numbers in this form are referred to in the Trunk Assignment form. To complete this form, enter the required descriptor numbers above each column and select the corresponding values.

Conditions

The Card Type of the Trunk Assignment form entry referring to a Loop Tie Trunk Circuit Descriptor must be a DID/Loop Tie card.

Form Headings:

- **Trunk Circuit Descriptor Number:** Enter the unique number that is used to reference the Loop Tie trunk characteristics in the Trunk Assignment form.
- **Descriptor:** Preprinted list of hardware options. See Table 20–10, Loop Tie Trunk Circuit Descriptor Parameters, for meaning of the terms.
- **Value:** See Table 20–10 for the accepted range of values for each descriptor.

LOOP TIE TRUNK CIRCUIT DESCRIPTOR ASSIGNMENT (Sheet 1 of 2)

Trunk Circuit Descriptor Number:

Descriptor	Value
Incoming and Outgoing Parameters	
Release Acknowledge Timer (40–2400 units); (unit = 50 ms)	80
Address Signaling (Battery/Loop/DTMF)	Loop
Disconnect Timer (150 – 300 ms)	300
Incoming Parameters	
Incoming Start Type (Immediate/Wink/Delay)	Wink
Incoming Dial/Outgoing Auto (Yes/No)	No
Dial Tone on Incoming Seize (Yes/No)	No
Outgoing Parameters	
Outpulse Delay Timer (100–2000 ms)	800
Outgoing Start Type (Immediate/Wink/Delay/Delay Integ)	Wink
Supervision Timer (200–12750 ms)	200
Maximum Wink Timer (300–4000 ms)	400
Minimum Wink Timer (50–150 ms)	100
Guard Timer (100–1000 ms)	500

F00096

LOOP TIE TRUNK CIRCUIT DESCRIPTOR ASSIGNMENT (Sheet 2 of 2)

Descriptor	Value
Supervision Parameters	
Fake Answer Supervision After Outpulsing (Yes/No)	No
Ignore Answer Supervision (Yes/No)	No
Release Supervision Expected (Yes/No)	Yes
Audio Inhibit Until Answer Supervision (Yes/No)	Yes
Transmission Parameters	
Far End Connection (Main PBX/Satellite PBX)	Main PBX
High Loss Option (Yes/No)	No
Balance Network Setting (600/Complex)	600

F00097

Table 20–10 Loop Tie Trunk Circuit Descriptor Parameters

Parameter	Description	Default Value
Incoming and Outgoing Parameters		
Release Acknowledge Timer:	Enter a value between "40" and "2400" in increments of 1 unit, where 1 unit = 50 milliseconds. The range in milliseconds is "2000" to "120,000". This timer specifies the amount of time the *SX–2000* ICS waits for a release acknowledgement from the far–end.	80 units (4000 ms)
Address Signaling (Battery/Loop/DTMF):	Enter "loop" if loop signaling is to be provided by the trunk circuit. Enter "DTMF" if DTMF signaling is to be provided by the trunk circuit. Enter "Battery" if Battery and Ground loop signaling is used.	Loop
Disconnect Timer:	Enter the duration of the disconnect signal timer. Allowed values are from "150" to "300" milliseconds, in 50 millisecond increments. This value defines the minimum acceptable duration of a disconnect signal from the far–end.	300 ms
Incoming Parameters		
Incoming Start Type:	Enter "Wink" if the trunk is wink start on incoming calls. Enter "Delay" if the trunk is delay dial start on incoming calls. Enter "Immediate" if the trunk is immediate start on incoming calls which means that digits are outpulsed immediately following seizure.	Wink
Incoming Dial/Outgoing Auto:	Enter "yes" if the trunk is dial–in for incoming operation, and attendant–handled for outgoing operation. Entering "no" causes the trunk to use 2–way loop signaling. This option is usually selected when the far–end is a manual PABX.	No
Dial Tone on Incoming Seize:	Enter "yes" if dial tone is to be returned by the PABX when the trunk is seized by the far–end. Entering "no" indicates that dial tone will not be returned on a seize.	No
Outgoing Parameters		
Outpulse Delay Timer:	Enter a value between "100" and "2000" milliseconds in increments of 50 milliseconds to define the duration of the delay before outpulsing commences after a seizure. **Note:** Outpulsing could commence several hundred milliseconds after the programmed duration. Only the minimum duration is guaranteed.	800 ms
Outgoing Start Type:	Enter "Wink" if the trunk is to provide wink start signaling on outgoing calls. Enter "Delay" if the trunk to provide delay dial (without integrity check) signaling on outgoing calls. Enter "Immediate" if the trunk is to provide immediate signaling on outgoing calls. Enter "Delay Integ" to provide delay dial with integrity checking, which indicates that the *SX–2000* ICS must wait for a delay dial signal from the far–end before outpulsing.	Wink

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Table 20–10 Loop Tie Trunk Circuit Descriptor Parameters (continued)

Parameter	Description	Default Value
Supv Timer:	Enter the duration of the supervision timer. Values can range from 200 to 12750 ms. 200 to 1000 milliseconds applies to "Immediate" trunks. 200 to 12750 milliseconds applies "Wink" to trunks. 4500 to 12750 milliseconds applies to "Delay" and "Delay Integ" trunks. Values increment by 50 ms. This timer specifies the expected duration of a supervision signal from the far–end.	200 ms
Maximum Wink Timer:	Enter the maximum duration of the wink signal. Values range from 300 to 4000 ms. 300 to 450 milliseconds is the range for immediate, wink start and delay dial trunks. 300 to 4000 ms can apply for delay dial with integrity check. Values increment by 50 ms.	400 ms
Minimum Wink Timer:	Enter a value between "50" and "150" milliseconds,in increments of 50 milliseconds to define the minimum duration of the wink signal.	100 ms
Guard Timer:	Enter a value between "100" and "1000" milliseconds,in increments of 50 milliseconds to define the guard time. This timer specifies the amount of time a trunk will be unavailable for seizure following a release, to allow the trunk to clear before reseizing.	500 ms
Supervision Parameters		
Fake Answer Supervision After Outpulsing:	This option is used to complete the audio connection after outpulsing if the trunk does not provide Answer Supervision. Enter "yes" if Answer Supervision is to be provided by the *SX–2000* system immediately after outpulsing. Entering "no" will cause the *SX–2000* system to wait for Answer Supervision from the far–end, if any is provided.	No
Ignore Answer Supervision:	Enter "yes" if the *SX–2000* system is to ignore answer supervision from the far–end. Answer Supervision is generated by using times and/or tone detectors. Entering "no" will indicate that Answer Supervision from the far–end is to be accepted.	No
Release Supervision Expected:	Enter "yes" if the trunk circuits are expecting Release Supervision from the far–end. Entering "no" will indicate that the trunk circuits do not provide Release Supervision. The *SX–2000* system will not allow two trunks designated as "No Release Supervision Expected" to be connected together.	Yes

Table 20–10 Loop Tie Trunk Circuit Descriptor Parameters (continued)

Parameter	Description	Default Value
Audio Inhibit Until Answer Supervision:	This option is used to prevent a DTMF receiver, in linesplit mode, from being connected between the originating party and the outgoing trunk during the digit outpulsing phase of the call processing cycle. This option is used for sites that are tied to very sensitive central offices or remote PABXs. When the option is chosen, the audio path will be fully connected and the two parties will be able to talk only after the answer supervision has taken place. Enter "yes" if a DTMF receiver, in linesplit mode, is NOT to be connected between the originating party and the outgoing trunk during digit outpulsing. Enter "no" if a DTMF receiver, in linesplit mode, IS to be connected between the originating party and the outgoing trunk during digit outpulsing.	Yes
Transmission Parameters		
Far–End Connection:	If the trunk is connected to a remote PBX enter, "Main PBX" if the remote PBX routes all incoming calls through an attendant, or enter "Satellite PBX" if incoming calls are not routed through an attendant.	Main PBX
High Loss Option:	Enter "yes" if 2 dB attenuation is to be enabled. Leaving the value blank or entering "no" disables attenuation. This field is not currently enabled for Loop Tie Trunks in North America and may be ignored.	No
Balance Network Setting:	Enter "600" if the load presented to the trunk port is resistive, (loaded cable, broadband system). Enter "complex" if the load is capacitive (long unloaded cable). If necessary, the best option can be determined by optimizing the echo return loss as seen from an OPS or ONS connection.	600

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MSAN–APNSS Group Assignment

Description

20.14 This form is used to gather analog trunks which will have APNSS signaling into groups, and to associate each group of trunks with one signaling channel, comprised of a dataset and a single link of a DS1 or CEPT Formatter card. A dataset directory number and the Formatter card location identify the signaling link. There can be up to 30 members in an APNSS Group if a CEPT link is used, and up to 23 members if a DS1 link is used.

Conditions

1. An MSAN/APNSS trunk may be a member of only one MSAN/APNSS Group. Trunks entered as members must be programmed as MSAN/APNSS trunks.

2. The MSAN/APNSS feature must be purchased in order to program this form. See Practice 9125–060–625–NA, MSAN/APNSS.

3. A CEPT or DS1 link or a dataset cannot be deassigned unless all trunks are deassigned. To remove an MSAN/APNSS Group, all members must be deleted or changed.

4. MSAN/APNSS trunks or datasets may only be deleted from an MSAN/APNSS Group when their circuits have been manbusied.

5. The Circuit Descriptor of an MSAN/APNSS dataset must have a Usage of "MSAN–APNSS".

6. An MSAN/APNSS dataset or digital link may only be deleted or changed when there are no trunks programmed in the MSAN–APNSS Group. MSAN/APNSS trunks must be deleted from an MSAN–APNSS Group before the dataset or digital link may be deleted or changed.

Form Headings:

- **MSAN–APNSS Group Number:** A reference number up to three digits in length. This number is used in the Route Assignment form. The maximum MSAN–APNSS Group number is 30.
- **Dataset Directory Number:** Enter the Directory Number of the MSAN/APNSS signaling link dataset, taken from the Dataset Assignment form.
- **Digital Link Control:** Enter the cabinet, shelf, slot and circuit coordinates of the DS1/CEPT Formatter digital link for this MSAN–APNSS Group.
- **Member:** This is a system–generated, protected field indicating the number of members in the MSAN–APNSS Group.
- **Trunk Number:** Enter the Trunk Number of the required trunks, taken from the Trunk Assignment form. The maximum number of trunks per MSAN–APNSS Group is 30 with a CEPT signaling link and 23 with a DS1 signaling link.

MSAN–APNSS GROUP ASSIGNMENT

MSAN–APNSS Group Number:_____

Dataset Directory Number: _____

Digital Link Control Cab:_____ Shelf:_____ Slot:_____ Link:_____

Member	Trunk Number
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
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F00118

MSDN–DPNSS–DASSII Trunk Circuit Descriptor Assignment

Description

20.15 The MSDN–DPNSS–DASSII Trunk Circuit Descriptor Assignment form is used to identify the protocol characteristics of digital trunks. The characteristics are listed under a Trunk Circuit Descriptor Number. The characteristics are then associated with selected trunks by assigning the Trunk Circuit Descriptor Number to trunks in the Trunk Assignment form.

Conditions

1. The DASS II Voice I feature package must be purchased in order to program the signaling protocol as DASS II.
2. The MSDN/DPNSS Voice I feature package must be purchased in order to program the signaling protocol as MSDN–DPNSS.
3. If DASS II is to be programmed as the signaling protocol, the card assigned must be CEPT, and the Dual Seizure Priority field must be programmed as "Outgoing".
4. When DASS II is programmed, the Far End Connection parameter is not applicable.

Form Headings:

- **Trunk Circuit Descriptor Number:** A programmable field used to uniquely assign a Trunk Circuit Descriptor Number.
- **Description:** A system–generated field listing the trunk characteristic options. The options are described in Table 20–11.
- **Value:** See Table 20–11 for the accepted range of values for each descriptor.

MSDN–DPNSS–DASSII TRUNK CIRCUIT DESCRIPTOR ASSIGNMENT

Trunk Circuit Descriptor Number:

Description	Value
Signaling Protocol (MSDN–DPNSS/DASS II)	MSDN–DPNSS
Card Type (CEPT/DS1)	CEPT
Dual Seizure Priority (Incoming/Outgoing)	Incoming
Transmission Parameters	
Far End Connection (Main PBX/Satellite PBX)	Main PBX

F00098

Table 20–11 MSDN–DPNSS–DASSII Trunk Circuit Parameters

Parameter	Description	Default Value
Signaling Protocol (MSDN–DPNSS/DASS II)	Defines the signaling protocol to be used on the trunk.	MSDN–DPNSS
Card Type	A system–generated field specifying the type of formatter card installed. The card may be "CEPT" or "DS1".	CEPT
Dual Seizure Priority	Specifies whether the incoming or outgoing trunk has priority in a glare situation.	Incoming
Transmission Parameters		
Far End	Specifies if the trunk is connected to a main PBX or a satellite PBX.	Main PBX

SCDC Trunk Circuit Descriptor Assignment

Description

20.16 This form completes the definition of SCDC trunk characteristics. With this form, trunk signaling and timing parameters are set for groups of SCDC trunks. The circuit descriptor numbers in this form are referenced in the Trunk Assignment form. To complete this form, select the required values under each descriptor number.

Conditions

The Card Type of the Trunk Assignment form entry referring to an SCDC Trunk Circuit Descriptor must be an SCDC Trunk card.

Form Headings:

- **Circuit Descriptor Number:** Enter the unique number that is used to reference the SCDC Trunk characteristics in the Trunk Assignment form.
- **Descriptor:** Preprinted list of descriptor options. See Table 20–12 for the meaning of the terms.
- **Value:** For the accepted range of values for each descriptor, see Table 20–12.

SCDC TRUNK CIRCUIT DESCRIPTOR ASSIGNMENT

Trunk Circuit Descriptor Number:

Descriptor	Value
Incoming and Outgoing Parameters	
Release Acknowledge Timer (40–2400 units) (unit = 50 ms)	80
Address Signaling (Loop/DTMF)	Loop
Disconnect Timer (150–250 ms)	200
Incoming Parameters	
Incoming Start Type (Immediate/Delay)	Immediate
Dial Tone on Incoming Seize (Yes/No)	No
Outgoing Parameters	
Outpulse Delay Timer (200–1600 ms)	800
Outgoing Start Type (Immediate/Delay)	Immediate
Supervision Parameters	
Fake Answer Supervision After Outpulsing (Yes/No)	No
Ignore Answer Supervision (Yes/No)	No
Release Supervision Expected (Yes/No)	Yes
Audio Inhibit Until Answer Supervision (Yes/No)	Yes
Transmission Parameters	
Balance Network Setting (600/Complex)	600
Trunk Test Parameters	
Perform seize test on out–of–service trunks (Yes/No)	Yes

F00099

Table 20–12 SCDC Trunk Circuit Descriptor Parameters

Parameter	Description	Default Value
Incoming and Outgoing Parameters		
Release Acknowledge Timer:	Enter a value between "40" and "2400" units, in increments of 50 milliseconds. This timer defines the length of time the *SX–2000* ICS will wait for a release acknowledgement from the far–end.	80 ms
Address Signaling:	Enter "loop" if loop signaling is used by the trunk circuit. Enter "DTMF" if DTMF signaling is used.	Loop
Disconnect Timer:	Enter the duration of the disconnect signal timer. Allowed values are from "150" to "250" milliseconds. This value defines the minimum acceptable duration of a disconnect signal from the far–end.	200 ms
Incoming Parameters		
Incoming Start Type:	Enter "IMMEDIATE" if the *SX–2000* ICS is ready to receive digits immediately after debouncing the incoming seizure. Enter "DELAY" if the *SX–2000* ICS is to send a delay dial signal back to the far end after detecting an incoming seizure, until it is ready to collect digits. Once the system is ready to collect digits, a proceed to send signal is sent back to the far end.	Immediate
Dial Tone on Incoming Seize:	Enter "yes" if dial tone is to be returned by the PABX when a trunk is seized by the far–end. Entering "no" indicates that dial tone will not be returned on a seize.	No
Outgoing Parameters		
Outpulse Delay Timer:	Enter a value between "200" and "1600" milliseconds, in increments of 50 milliseconds. This value defines the length of the delay before outpulsing commences, following a seizure. **Note:** Outpulsing could commence several hundred milliseconds after the programmed duration. Only the minimum duration is guaranteed.	600 ms
Outgoing Start Type:	Enter "IMMEDIATE" if the *SX–2000* ICS is to start outpulsing digits after the Outpulse Delay Timer expires. Enter "DELAY" if the *SX–2000* ICS is to wait for a "DELAY" signal from the far end. If the "DELAY" signal arrives within 200 ms of the *SX–2000* ICS seizing the incoming line, the system waits up to a further 4.5 seconds for a "PROCEED TO SEND" signal. The *SX–2000* ICS will begin outpulsing when the "PROCEED TO SEND" signal is received. If the 4.5 second timer expires, then the received "DELAY" signal will be treated as an "ANSWER" signal and the Main Controller will be informed of the "ANSWER" condition. If the "DELAY" signal arrives 250 ms, after outgoing seize condition, the *SX–2000* ICS treats the signal as an "ANSWER" signal and the Main Controller will be informed of the "ANSWER" condition. If no "DELAY" signal is received in 250 ms, then the call continues as if the "OUTGOING START TYPE" was immediate rather than "DELAY".	Immediate

Table 20–12 SCDC Trunk Circuit Descriptor Parameters (continued)

Parameter	Description	Default Value
Supervision Parameters		
Fake Answer Supervision After Outpulsing:	This option is used to complete the audio connection after outpulsing if the trunk does not provide answer supervision. Enter "yes" if answer supervision is to be provided by the *SX–2000* ICS immediately after outpulsing. Entering "no" will cause the *SX–2000* ICS to wait for answer supervision from the far–end, if any is provided.	No
Ignore Answer Supervision:	Enter "yes" if the *SX–2000* ICS is to ignore answer supervision from the far–end. Answer supervision is generated by using timer and/or tone detectors. Entering "no" indicates that answer supervision from the far–end is to be accepted.	No
Release Supervision Expected:	Enter "yes" if the trunk circuits are expecting release supervision from the far–end. Entering "no" indicates that the trunk circuits do not provide release supervision. The *SX–2000* ICS will not allow two trunks designated as "No Release Supervision Expected" to be connected together.	Yes
Audio Inhibit Until Answer Supervision	This option is used to prevent a DTMF receiver, in linesplit mode, from being connected between the originating party and the outgoing trunk during the digit outpulsing phase of the call processing cycle. This option is used for sites that are tied to very sensitive central offices or remote PABXs. When the option is chosen, the audio path will be fully connected and the two parties will be able to talk only after the answer supervision has taken place. Enter "yes" if a DTMF receiver, in linesplit mode, is NOT to be connected between the originating party and the outgoing trunk during digit outpulsing. Enter "no" if a DTMF receiver, in linesplit mode, IS to be connected between the originating party and the outgoing trunk during digit outpulsing.	Yes
Transmission Parameters		
Balance Network Setting:	Enter "600" if the balance network is a simple 600 ohm circuit. Enter "complex" if the balance network is a complex circuit meeting network requirements.	600
Trunk Test Parameters		
Perform seize tests on out–of–service trunks:	This option is used to ensure that a trunk is working correctly before being returned to service. When maintenance places a circuit into an out–of–service state it generates a log indicating a state change from idle to out–of–service. A background diagnostic process is then initiated to perform a series of tests on the trunk, which include a seize test. Once the trunk has passed the tests it is returned to service. If "yes" is entered the test will be done automatically. If "no" is entered the trunk will remain in an out–of–service state until the tests are run.	Yes

Trunk Assignment

Description

20.17 This form is used to assign an identification number to all trunk circuits in the system. It is also used to assign Trunk Service Numbers which link the trunks to entries in the Trunk Service Assignment and Trunk Circuit Descriptor Assignment forms. The Trunk Numbers assigned in this form are used in the Trunk Group Assignment form.

Conditions

1. Any number of trunks may share the same circuit descriptor and service numbers.
2. The card type of the Trunk Circuit must match the card type of its corresponding circuit descriptor.
3. E&M trunks designated as "Loudspeaker Pager" trunks in System Configuration do not appear in this form.
4. All trunks must have a unique trunk number.
5. A trunk identified as having the DPNSS signaling protocol must reside on a DPNSS link, unless the Mixed DPNSS/DASS II Feature Package has been purchased. In this case, a DPNSS trunk can reside on a DASS II link. (DASS II applies to the United Kingdom only).
6. A trunk identified as having DASS II signaling protocol must reside on a DASS II link. (DASS II applies to the United Kingdom only).
7. Deleting an entry from this form will also remove it from the Trunk Group Assignment form.
8. A trunk cannot be deleted if it is the last trunk in a trunk group which is referenced by an ARS route.
9. Only E&M trunks can be Autovon trunks. Such a trunk must have an E&M trunk circuit descriptor with a guard timer value of 6 seconds (6000 ms).

Form Headings:

- **Cabinet, Shelf, Slot, Circuit:** System–generated, protected fields indicating the location of the trunk cards in the system. These fields are presented in ascending order of cabinet/shelf/slot/circuit.
- **Card Type:** A system–generated, protected field indicating the card type located in the above physical address.
- **Trunk Number:** Enter a number up to four digits in length to identify the trunk. This Trunk Number is used in the Trunk Group Assignment form in order to collect trunks into Trunk Groups. The maximum Trunk Number is based on the Feature Resource Dimension of the site being configured. The number must not exceed the "Trunk" parameter given in Table 5–2, Feature Resource Dimensions.

TRUNK ASSIGNMENT

Cab	Shlf	Slot	Cir	Card Type	Trunk Number	Trunk Service Number	DTS Service Number	Circuit Descriptor	Inter-connect Number

F00100

- **Trunk Service Number:** Enter the Trunk Service Number which designates a line in the Trunk Service Assignment form where the incoming characteristics of the trunk will be defined. Refer to the "Trunk Answer Points" entry of Table 5–2, MITEL Feature Resource Dimensions for the maximum acceptable Trunk Service Number for the site being configured. The "Trunk Service Number" and the "DTS Trunk Service Number" fields are mutually exclusive entries. Fill in one only.
- **DTS Trunk Service Number:** Enter the DTS service number which designates a line in the DTS Trunk Service Assignment form where the Class of Service and Intercept Number for the trunk are defined. The "Trunk Service Number" and the "DTS Trunk Service Number" fields are mutually exclusive entries. Fill in one only.
- **Circuit Descriptor:** Enter the Trunk Circuit Descriptor Number under which the operational parameters of the trunk circuit are defined. The upper limit of the range of accepted values is 32.
- **Interconnect Number:** Enter a number between 1 and 64 which is used in the Interconnect Restriction table to define which other devices the trunk may be connected to.
- **Comments:** Enter any relevant description relating to the trunk circuit. This column is for reference only and does not appear during CDE.

Trunk Group Assignment

Description

20.18 This form is used to gather outgoing trunks into groups for the Automatic Route Selection forms. The form consists of a Trunk Group Number, Hunt Mode designation, and a list of all trunks belonging to the group. Since the form consists of several columns of 16 lines, separate groups may be defined in adjacent columns, and distinguished by their trunk group numbers. If a group contains more than 16 members, list the additional members in adjacent columns, repeating the trunk Group Number as required.

Conditions

1. Trunks may appear in more than one trunk group.
2. DID trunks and E&M Trunks used as pagers are not allowed in trunk groups.
3. Incoming DID/3 trunks may be grouped with bidirectional trunks, but not with outgoing trunks. Similarly, outgoing DID/3 trunks may be grouped with bidirectional trunks, but not with incoming trunks.
4. Autovon trunks may not be placed in the same trunk group as non–Autovon trunks.

Form Headings:

- **Trunk Group Number:** A reference number up to three digits in length. This number is used in the Route Assignment form. The maximum Trunk Group number is based on the Feature Resource Dimension of the site being configured. The number must not exceed the "Trunk Groups" parameter of Table 5–2, MITEL Feature Resource Dimensions.
- **Hunt Mode:** Select the mode of hunting by entering either "Terminal" for terminal hunting or "Circular" for circular hunting.
- **Trunk Group Busy RAD:** Enter the directory number from the ONS/OPS Assignment form corresponding to the Trunk Group Busy RAD.
- **Maximum Network Hops:** Enter a value between 1 and 26 to specify the maximum number of hops between PBXs that a DPNSS call will be permitted. The default value is 26. Note that this field may not be programmed for routes involving analog trunks.
- **Member:** This is a system–generated, protected field indicating the number of members in the trunk group.
- **Trunk Number:** Enter the Trunk Number of the required trunks, taken from the Trunk Assignment form. List the required trunks in the order in which hunting is to take place. The maximum number of trunks per trunk group is based on the Feature Resource Dimension of this site being configured and must not exceed the "Trunks per Group" parameter of Table 5–2, MITEL Feature Resource Dimensions.

TRUNK GROUP ASSIGNMENT

Trunk Group Number: _____
Hunt Mode (Circular or Terminal): _____
Trunk Group Busy RAD: _____
Maximum Network Hops: _____

Member	Trunk Number

F00101

Trunk Service Assignment

Description

20.19 This form is used to assign a Class of Service, Class of Restriction, Baud Rate, Intercept Numbers and a Trunk Label to all trunks. This form also defines Answer Points for Non–Dial–In (attendant–handled) trunks under the three modes of service: Day, Night 1 and Night 2. The form also defines Digit Modification plans for Dial–In trunks.

Conditions

1. The Answer Point and Digit Modification columns are mutually exclusive. If one is filled out, the other must be left blank for any given trunk.
2. COS and COR numbers must be given for all trunks.
3. Any trunk may have the same Answer Points under each mode of service.
4. Both the Answer Point and Digit Modification columns are left blank if the trunk is outgoing only.
5. Dial–in trunks used as incoming trunks must always have an entry in the Absorb column (enter "0" if no digits are to be absorbed).
6. If a Dial–In trunk does not require digit modification, enter "0" in the Absorb field and leave the Insert field blank.
7. Trunk Labels may contain zero to ten alphanumeric characters. Several Trunk Service Numbers may share the same label.
8. If the RLT field is set to "YES", both PBXs involved in the trunk call must have the MSDN/DPNSS Release Link Trunks feature package enabled for the Release Link Trunks (RLT) feature to work properly.

Form Headings:

- **Trunk Service Number:** Preprinted list of Service Numbers. These numbers are referred to in the Trunk Assignment form.
- **COS:** Enter the COS number which defines the required options for the trunk. Default: 1
- **RLT:** Enter "YES" for a Trunk Service Number that is to specify a Release Link Trunk, if MSDN/DPNSS Release Link Trunks feature package is enabled. Default: No
- **COR:** Enter the COR number for the trunk. This COR number must not have been assigned to a station. Default: 1
- **Baud Rate:** Enter the maximum baud rate which the trunks associated with the descriptor will accept. Allowed values are "110", "150", "200", "300", "600", "1200", "1800", "2400", "4800" and "9600". Default: 300
- **Intercept Number:** Enter an intercept number which will link the trunk service number to a version of the Intercept Handling form. Default: 1

- **Non–Dial–In Trunks Answer Points:** Enter any valid station, hunt group pilot number, DISA number, System Speed call number or Modem Hunt Group Pilot number to which incoming trunk calls can be routed during the specified mode of service (Day, Night 1, Night 2).
- **Dial–In Trunks Digit Modification:**
  - **Absorb:** Number of leading digits to remove from the digit stream received from the Central Office or remote PABX.
  - **Insert:** The digits to insert as leading digits to form a Directory Number or hunt group Pilot Number.
- **Trunk Label:** Enter the character string that will identify the trunk at the Attendant Console and in the Traffic Report. This is an optional, 10 character field. Several trunks may share the same Label.

TRUNK SERVICE ASSIGNMENT

Trunk Service Number	RLT	COS	COR	Baud Rate	Intercept Number	Non–Dial–In Trunks Answer Points			Dial–In Trunks Incoming Digit Modification		Trunk Label
						Day	Night 1	Night 2	Absorb	Insert	
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16 (etc.)											

F00102

Appendix A.

CDE ERROR MESSAGES AND PROMPTS

The following tables, Table A–1 to Table A–8, summarize the prompts and error messages which appear in the Command and Responses Area during a CDE session for the higher level functions such as those involving the forms editor, system commands, Formprint utility, <QUIT> and [4 commit] functions. In addition, the tables list the required action to be taken when such messages appear on the screen.

Form–specific messages are not covered in this Appendix. The craftsperson should find these messages complete and sufficient, requiring no further explanation.

Table A–1 Login and Logout Messages

Message	Meaning and Required Action
USER logged in	Appears when the user has provided a correct user name and password.
USER logged out	This message appears following the logout command.
ERROR – user name required	A user name must be entered followed by <ENTER>.
ERROR – no such user	The user name entered was incorrect. Press [1 start session] and enter a correct user–name followed by <ENTER>.
ERROR – Abbreviated user name is not unique	The abbreviated username entered was not uniquely recognized. Press [1 start session] and enter a correctly abbreviated user name followed by <ENTER>.
Enter password	This prompt appears when a correct user name has been entered.
ERROR – password required	A password must be provided in order to complete login procedure. Enter the required password and press the RETURN key.
ERROR – incorrect password	The password entered was incorrect. Press [1 start session] and enter a correct user name and password.
Communication to switch is currently disabled	The *SUPERSET 7* workstation is unable to talk to the system. Maintenance is required.

Table A–2 Command Interpreter Messages

Message	Meaning and Required Action
ERROR – incomplete command	The command specified was incomplete. To make corrections use the <RUBOUT> key if necessary and type the required characters to complete the command. Press <ENTER> to re-initiate processing of the command.
You are not authorized to use this command	The user is not allowed to use the command and log in with the necessary authorization level before attempting the command again.
Unknown keyword	A keyword (a word in the command) was not recognized. Make the necessary changes and press <ENTER>.
Non – unique keyword abbreviation. Use longer keyword	The abbreviated command was not recognized. Type a correctly abbreviated command followed by <ENTER>.
This number is out of range	An incorrect numerical value in the command was entered. Use the <RUBOUT> key, enter the correct parameter and press <ENTER>.
ERROR – illegal character	An illegal character was entered.
No use of Customer Data in 15 minutes. Session may terminate in 15 minutes.	User has entered a CDE session but has not performed any CDE operation for the last fifteen minutes. If no further CDE operations occur in the next fifteen minutes, the CDE session will be automatically terminated by the system.
No use of Customer Data in 30 minutes. Session has been terminated.	User has entered a CDE session but has not performed any CDE operations for the last 30 minutes. The session has been automatically terminated by the system.
Customer Data available only on *SUPERSET 7* during Data Save.	This message will only appear on the Maintenance terminal. It occurs when the user attempts to enter a CDE session with a Data Save/Restore operation already under way.
This form is unavailable on this system as it has not been purchased.	The user is trying to access a form necessary to program a feature that has not been purchased by the customer.
WARNING: There are more members on this form than can be displayed.	The form or form instance has more data than can be displayed by CDE.
Customer Data unavailable due to volume SYSUSER set to READ ONLY.	The system disk, SYSUSER, has been set to READ ONLY access. CDE can be initiated only in the volume SYSUSER is READ WRITE access enabled.

Table A–3 Formprint Messages

Message	Meaning and Required Action
All Formprint messages are preceded by FORMPRINT:	
Request in Progress	The Formprint utility has received a request to print a form and begun processing it.
Request completed normally	The print request has been completed.
Request completed abnormally	The form may have not printed. The system was interrupted by an unusual event. Resubmit the request.
This form has no data	The print request was for a form that does not contain data.
This instance has no data	The print request was for an instance or version of a form that does not contain data.
INSTANCE parameter invalid	The requested instance does not exist or the parameter was specified incorrectly. Correct the parameter and resubmit the request.
INSTANCE and ALL parameters are mutually exclusive	Both those parameters can not be specified in the same command sequence.
Must enter the form name or /ALL	No form name was specified in the command string and the /ALL parameter was not present. Resubmit the command specifying either /ALL or a form name.
Must specify an instance with Moves and Changes form	The /ALL parameter is not allowed on this form. An instance must be supplied with this form.
Maximum number of Formprint requests are active	Up to five simultaneous Formprint requests can be processed. This limit has been exceeded.
KILL command has no parameters	/KILL command takes no further parameters. Re–enter the command using the correct syntax.
Multiple requests with the /ALL parameter is not allowed	An attempt was made to enter a print request using the /ALL parameter while the system was processing an /ALL request. This is not permitted.
Requested printer does not exist	A Formprint request was submitted to a non–existent printer. Check the System Port Assignment form for the names of the available printers.
Error occurred in printer system	An error condition has been detected at the printer. Check the power and communications cables of the printer. This message may also arise if a job is canceled using the CANCEL PRINT command.
INSTANCE may not be specified for this form	The form specified is not a multiple instance form.
This form requires INSTANCE or ALL to be specified	The form specified is a multiple instance form. The /ALL parameter causes all instances of the form to be printed. The /INSTANCE parameter initiates printing of that specific instance of the form.
Cannot access this form Locked by another user	The requested form is being edited by another CDE user.

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Table A–3 Formprint Messages (continued)

Message	Meaning and Required Action
Restarting FORMPRINT /ALL after activity switch	Formprint has started printing the form that was in process when the activity switch took place.
Note: Other messages generated by Formprint are caused by system problems. Please call your local MITEL representative if reissuing the request does not clear the problem.	

Table A–4 CDE – Form Request Messages

Message	Meaning and Required Action
Customer Data Entry is not available.	This indicates severe system problems. Customer Data Entry session cannot be initiated.
There are no further forms.	This error message may occur as result of requesting prerequisites or dependents of specific form in menu. It means that the form did not have any prerequisites or dependents.
Specify form to edit and press ENTER	This prompt appears when the [2 edit form] is pressed. Enter the name of the form and press the <ENTER> key.
Specify form to read and press ENTER	This prompt appears when the [6 read form] softkey is pressed. Enter the name of the form and press the <ENTER> softkey.
The specified form name is ambiguous. Please enter a longer name.	After pressing the [6 read form] or [2 edit form] softkeys, the user has typed in an abbreviated name which is not sufficient to uniquely identify the required form. Press either the [2 edit form] or [6 read form] softkey and re–enter the form name using a sufficient number of characters to make the name unambiguous.
Requested form cannot be displayed	This indicates a serious system problem. The requested form or some of its components cannot be retrieved from the database, or a failure occurred in course of displaying the form.
Serious system problem.	This indicates a severe system problem. CDE is unable to display any data for the form.
Data for the specified form cannot be read.	This indicates a severe system problem. CDE is unable to retrieve the data from the database.
Requested form cannot be used. It is currently locked by XXX.	The requested form is currently being used by user XXX. This other user may be performing Save/Restore, printing a form, or editing a form. The form in question is either the requested form itself or a form that is not mutually exclusive with the requested form. The form cannot be accessed until the other user has completed the operations on it.

Table A–4 CDE – Form Request Messages (continued)

Message	Meaning and Required Action
You may only read this form; you cannot edit it.	The craftsperson has been granted only read access to this form. No modifications can be made to it.
The language table for this form could not be found.	The system was unable to retrieve the language table for the form.
There is no data in this form instance. The form cannot be edited.	The version of the form exists but has no data entries and cannot be edited.
System is very busy. Please have patience.	There is currently a heavy flow of traffic in the Main Controller. The current request will take some time to process.
You are not allowed to access the requested form.	The user does not have the required authorization to access the form.

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Table A–5 CDE – Recall Messages

Message	Meaning and Required Action
Form–specific messages are NOT contained in the table.	
The specified key does not exist.	The requested form or form version does not exist in the database. Request another form, or enter another Version number and press [1 recall].
Please specify an instance key at top of form.	A value must be entered in first field of the upper section of the form. The [1 recall] or [7 delete instance] softkeys cannot be pressed until this has been done.
A RECALL operation is required.	No data can be entered and the cursor cannot be moved to the lower section of the form until a specific version of the form is recalled.
Data for the specified form cannot be recalled.	This indicates a severe system problem. CDE is unable to retrieve the necessary information required in order to recall the form.

Table A–6 CDE – Editor Messages

Message	Meaning and Required Action
There are no entries in this instance – the form cannot be edited or read.	Trying to access a specific instance of an instance form for which there is no data and the form does not allow any lines to be inserted or appended, for example, Personal Speed Call Directory. If recalled extension does not have any personal speed call entries allocated to it in the Personal Speed Call Assignment form, then this specific instance will have no data/ entries.
There are no cards assigned for this device – the form cannot be edited.	Trying to edit a device assignment form when there are no devices of that type programmed in System Configuration. For example, edit ONS/OPS Assignment when no On Premise or Off Premise line cards have been programmed in System Configuration. Hence there is no data in the ONS/OPS Assignment form to edit.
This is a read–only form. You may not add, update or delete a record.	Only read access is permitted for this form. No modifications can be made to the form.
Specify number of lines and press <ENTER>.	This prompt appears when the [5 number of lines] softkey is pressed during Range Programming. Enter the number of entries to be programmed and press the <ENTER> key to store the value.
Specify incremental value and press <ENTER>.	This prompt appears when the [7 incremental value] softkey is pressed during Range Programming. Enter the value by which each successive entry is to increase and press the <ENTER> key to store the value.
You are at end of form.	The last line in the form has been reached. The cursor can only be moved upwards.
Limit for uncommitted changes has been reached. Please commit changes now.	The maximum limit for the number of uncommitted changes has been reached. Changes already made should be committed.
You are not allowed to change data in this form.	Either an attempt was made to edit a form to which only read–access has been authorized, or the form has no data to be edited.
Data in current field is not in proper format. Please correct.	The data entered in the current field is not valid. The data may either be out of range or of the wrong format. (e.g., a card name was entered in a field that accepts a telephone number). The cursor cannot be moved out of the current field until a correct value is entered.
Serious system problem. Range Programming cannot be performed.	This indicates a severe system problem. CDE is unable to execute Range Programming.
Serious system problem. Unable to execute search.	This indicates a severe system problem. CDE is unable to execute the search operation.
Search operation is not possible in this form.	The search operation is not supported in this form. The required entry must be found by cursoring through the form.

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Table A–6 CDE – Editor Messages (continued)

Message	Meaning and Required Action
Search operation failed. No entries satisfy the search parameters.	No lines matched the search parameters specified.
Direction is backward.	The current search and cursor direction is backward (i.e., towards the top of the form).
Direction is forward.	The current search and cursor direction is forward (i.e., towards the bottom of the form).
Insert operation is not possible in this form.	The insertion or appending of new lines is not allowed in this form.
Form is full. Insert operation is not possible.	The maximum size of the form has been reached. No new lines can be inserted until some existing lines have been deleted and committed.
Serious system error. Customer Data Entry is terminated.	This indicates a severe system problem.The system is unable to perform the requested operation and Customer Data Entry has been stopped.
You are at top of form.	The top line in the form has been reached. The cursor can only be displaced downwards.
You may not delete any line.	The [6 delete line] softkey applies only to lines in the lower section of the form. The cursor must be out of the upper section of the form.
No more new lines can be entered or inserted.	The maximum size of the form has been reached. No new lines can be appended or inserted until some existing lines have been deleted and those changes committed.
Form is full. No more new lines can be added or inserted.	The maximum size of the form has been reached. No new lines can be appended or inserted until some existing lines have been deleted and those with changes committed.
Range programming is not allowed in that section of the form.	Range Programming is not allowed while the cursor is in the upper section of the form. Position the cursor in the lower section of the form and press the [2 range programming] softkey.
Range programming with blank data is not allowed at end of form.	Range programming is not allowed to begin at the last line of the form with a blank field.
This field is non–numeric. Incremental value is ignored.	The incremental value specified in Range Programming only applies to numeric fields. Programming will proceed, disregarding the incremental value specified.
Incremental value is too large for this field value;	The incremental value specified exceeds the maximum integer value and has been ignored. Specify another incremental value and press the <ENTER> key.
Number of lines programmed has not been specified. Please enter via softkey.	The number of lines to be programmed must be specified before pressing the [1 execute range] softkey. Press the [5 number of lines] softkey.

Table A–6 CDE – Editor Messages (continued)

Message	Meaning and Required Action
Maximum field value has been reached. Range programming is terminated.	The maximum value for the field being programmed was reached. Range Programming is terminated regardless of the number of lines specified. All lines that were successfully programmed have been entered. The cursor is positioned at the last field to be range–programmed.
End of form has been reached. Range programming is terminated.	The end of the form was reached and the processing of the Range Programming request was not completed. All lines that were successfully range–programmed have been entered.
Range programming completed.	Processing of the Range Programming request was completed successfully.
There are no cards assigned for this device. The form cannot be edited.	The cards required for the type of device specified are not assigned in the System Configuration form. In order to edit the current form, the required card type must be entered in the System Configuration form.
The displayed data default values only. A COMMIT is required to keep them.	The data recalled reflects only default values temporarily assigned in the database. In order to retain the displayed values, the form must be committed.

Table A–7 CDE – Commit Messages

Message	Meaning and Required Action
COMMIT will cause loss of service. Please confirm or cancel.	Making modifications to the Message Link Cable Assignment form can cause a loss of communications to the *SUPERSET 7* workstations and hence result in a loss of service.
Not all fields are deleted. Some of them must be filled in.	Some or all of the fields on the current line must contain values; they cannot be left blank. Enter the required values and commit the form.
You may not delete a record.	The specified version number or entry cannot be deleted from the database.
You may not add a new record.	The new version number or entry cannot be added to the database.
You may not add or update a record.	The specified version number or entry cannot be committed to the database.
Key is in use; record cannot be added	The specified version number or entry is already defined in the database and cannot be added again.
There is no more room for new records.	The maximum space in the database for the current release has been allocated; there is no more room to add new entries.

Table A–7 CDE – Commit Messages (continued)

Message	Meaning and Required Action
Serious system problem. Can't commit the data.	This indicates a serious system problem. The changes made during the current session cannot be committed to the database.
Changes have been committed.	The changes made have been successfully written to the database. The commit operation is complete.
COMMIT will write changes to the database.Please confirm or cancel.	This message is a reminder that changes made to the version of the form will be written to the database. It is necessary to confirm or cancel the operation by pressing the [1 confirm] or [3 cancel] softkey.
There are no changes to commit.	The COMMIT operation was requested but no changes have been made. No commit will be done.
Operation failed. Please issue your request again.	This indicates a system problem. Reissue the request again.
Serious system problem. A new line cannot be inserted or appended.	This indicates a severe system problem. CDE cannot insert or append a new line.
Specified instance will be deleted. Uncommitted changes will be lost.	The specified version of the form is to be deleted. This message warns that changes made to the form will be lost if the operation is continued.
– working –	This flashing message confirms that CDE is processing a request.
No more new instances of this form can be created. Limit has been reached.	The maximum number of versions of the form has been reached. No new versions will be accepted.
The leading digits must be the same as those you recalled the data with.	In the Automatic Route Selection form, the leading digits field cannot be changed and then committed. Restore the initial leading digits and commit the form.
Field number XXX cannot be left blank. A value must be entered for it.	The field indicated by XXX must contain a value. Enter a value in the indicated field and commit the form.
You cannot create a new instance by copying an existing instance.	A new version of this form cannot be created by duplicating an existing one. To create a new version, the original version must be recalled. Its version number must then be changed, as well as the data contained in the form. Once these steps have been done, the form is committed.
Error number XXX on commit. Missing error message; cannot report it.	A semantic error was detected by the Database on the commit. However, CDE cannot display the appropriate error string. This may be because the error language table for the specific CDE form is out of date.

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Table A–7 CDE – Commit Messages (continued)

Message	Meaning and Required Action
This circuit descriptor number already assigned to a trunk of another type.	The user is in a trunk circuit descriptor assignment form and the trunk circuit descriptor number he is trying to do a recall on is already programmed as another specific trunk type. For example, User is in CO Trunk Circuit Descriptor form and is trying to recall trunk circuit descriptor number 10. However, trunk circuit descriptor 10 has already been programmed to be of trunk type DID.

Table A–8 CDE –Quit Messages

Message	Meaning and Required Action
QUIT will cause uncommitted changes to be lost. Please confirm or cancel.	The <QUIT> key was pressed after making changes to the form. This message is a warning that the QUIT operation is confirmed, all changes will be lost. The [1 confirm] or [3 cancel] softkey is pressed, pending on the required action.
Changes are not saved.	The <QUIT> key was pressed and confirmed without committing the changes made in the current session.

Appendix B.

PROGRAMMING FORMS GROUPED BY FUNCTION

This Appendix lists the forms required to program various functions on the *SX–2000* ICS.

INSTALLATION AND UPGRADE

- Cabinet Assignment (*SX–2000* FD systems only)
- System Configuration
- Circuit Link Cable Assignment
- Message Link Cable Assignment
- System Options
- Dimension and Feature Selection
- Dimension and Feature Display
- Dimension Selection

PRINTER ASSIGNMENT

- System Port Assignment
- Application Logical Port Assignment

VOICE STATION ASSIGNMENT

- ONS/OPS Circuit Descriptor Assignment
- Single Line Set Assignment
- Class of Service Options
- Station Service Assignment
- Feature Access Code
- Interconnect Restriction

ATTENDANT CONSOLE ASSIGNMENT

- Attendant Assignment
- DNI Circuit Assignment for DNIC–based *SUPERSET 7* workstations and *SUPERCONSOLE 1000* consoles
- Attendant Softkey Assignment
- Station Service Assignment

MULTILINE SET ASSIGNMENT

- Applicable Voice Station Assignment forms listed above
- Multiline Set Assignment
- Multiline Set Key Assignment
- Multiline Set Group Assignment
- Station Service Assignment
- Multiline Set Status Message Assignment for *SUPERSET* 4, *SUPERSET* 430, and *SUPERSET* 4 DN telephones

CALL ANNOUNCE ASSIGNMENT (*SUPERSET 4* telephones only)

- ONS/OPS Circuit Descriptor
- Single Line Set Assignment
- Multiline Set Assignment
- Multiline Set Key Assignment
- Station Service Assignment
- Class of Service Options Assignment

TELEPHONE DIRECTORY ASSIGNMENT

- Department Assignment
- Location Assignment
- Telephone Directory

SPEEDCALL AND GROUP ASSIGNMENTS

- System Speedcall Assignment
- Personal Speedcall Assignment
- Hunt Group Assignment
- Pickup Group Assignment

CALL HANDLING

- Intercept Handling
- Call Rerouting Assignment
- Call Rerouting First Alternative
- Call Rerouting Second Alternative
- Call Rerouting Always Alternative
- Miscellaneous Assignment

ANALOG TRUNKS

- Trunk Circuit Descriptor Assignment
  * CO (LS/GS)
  * E&M
  * DID
  * DID/3 (Germany only)
  * Loop Tie
  * AC15 (UK only)
  * AC13 (UK only)
  * SCDC (UK only)
- Trunk Assignment
- DTS Service Assignment
- Trunk Service Assignment
- Loudspeaker Pager Assignment

DIGITAL TRUNKING OPTIONS

CEPT Trunks

- System Configuration
- Link Descriptor
- Digital Link Assignment
- Network Synchronization
- MSDN–DPNSS–DASSII Trunk Circuit Descriptor Assignment
- Trunk Assignment
- Trunk Service Assignment

DS1 Trunks
- System Configuration
- Circuit Link Assignment
- Message Link Assignment
- Digital CO Trunk Circuit Descriptor
- Digital DID Trunk Circuit Descriptor
- Digital E&M Trunk Circuit Descriptor
- Link Descriptor
- Digital Link Assignment
- Network Synchronization
- Trunk Assignment
- Trunk Service Assignment

DASS II Trunks (UK Only)
- System Configuration
- Link Descriptor
- Digital Link Assignment
- Network Synchronization
- MSDN–DPNSS–DASSII Trunk Circuit Descriptor Assignment
- Trunk Assignment
- Trunk Service Assignment

APNSS

- System Configuration
- DNI Circuit Assignment
- E&M Trunk Circuit Descriptor
- Link Descriptor
- Digital Link Assignment
- Network Synchronization
- Trunk Assignment
- Trunk Service Assignment
- Trunk Group Assignment
- APNSS Group Assignment

ARS

- Call Progress Tone Plan
- System Account Code Assignment
- COR Group Assignment
- Route Assignment
- Route List Assignment
- ARS Assignment
- Maximum Dialed Digits Assignment

ADVANCED ARS OPTION

- Day and Time Zone Assignment
- Route Plan
- ARS Assignment

NETWORKING

- Node ID
- ARS Assignment

SMDR

- SMDR Options Assignment
- Class of Service Options Assignment

DATA STATIONS

- Dataset Circuit Descriptor
- Dataset Assignment
- Station Service Assignment
- Associated Directory Number Assignment
  * Hotline
  * ADL
- Interconnect Restriction
- Dataset Hunt Group

ADVANCED DATA OPTIONS

- System Configuration
- Dataset Circuit Descriptor
- Dataset Assignment
- DTE Terminal Profile
- DTE Session Profile
- Application Profile
- Associated Directory Number Assignment

***HCI* OPTION**

- System Configuration
- Dataset Circuit Descriptor
- Dataset Assignment
- DTE Terminal Profile
- *HCI* Session Profile
- Application Profile
- Associated Directory Number Assignment

DIGITAL DATASET OPTION

- System Configuration
- DNI Circuit Assignment
- Dataset Circuit Descriptor

MODEM ELEMENTS

- ONS/OPS Circuit Descriptor
- Dataset Circuit Descriptor
- Modem Element Assignment
- Modem Element Hunt Group

MESSAGE CENTER APPLICATION

- Miscellaneous Assignment
- Call Rerouting Assignment
- Call Rerouting First Alternative
- Call Rerouting Second Alternative
- Call Rerouting Always Assignment
- Feature Access Code Assignment
- Telephone Directory
- Attendant Softkey Assignment
- System Port Assignment
- Application Logical Port Assignment

HOTEL/MOTEL APPLICATION

- Hotel Options Assignment
- Feature Access Code Assignment
- System Port Assignment
- Application Logical Port Assignment

TRAFFIC REPORTING OPTION

- Traffic Options Assignment
- System Port Assignment
- Application Logical Port Assignment

DSU SHELF OPTION (*SX–2000* SG systems)

- System Configuration
- Circuit Link Cable Assignment
- Message Link Cable Assignment

Appendix C.

SUGGESTED PROGRAMMING FORMS ENTRY SEQUENCE

This Appendix presents one of the possible sequences to be followed during CDE. Also given is the minimum abbreviation that is acceptable to the system for each form.

Table C–1 Programming Forms Entry Sequence

Sequence Number	Form Name	Accepted CDE Abbreviation
1	Form Access Authorization	FO A
2	Cabinet Assignment	CA A
3	System Configuration	SY C
4	System Options Assignment	SY O
5	Message Link Cable Assignment	ME L
6	Circuit Link Cable Assignment	CI L
7	Node Identity Assignment	NO
8	Class of Service Options Assignment	CL O S
9	Interconnect Restriction Table	INTERCO
10	DNI Circuit Assignment	DN
11	Digital CO Trunk Circuit Descriptor Assignment	DIG C
12	Digital DID Trunk Circuit Descriptor Assignment	DIG D
13	Digital E AND M Trunk Circuit Descriptor Assignment	DIG E
14	Loop Tie Trunk Circuit Descriptor Assignment	LOO
15	DID Trunk Circuit Descriptor Assignment	DID
16	DID3 Trunk Circuit Descriptor Assignment	DID3
17	E AND M Trunk Circuit Descriptor Assignment	E
18	CO Trunk Circuit Descriptor Assignment	CO
19	AC15 Trunk Circuit Descriptor Assignment	AC15
20	AC13 Trunk Circuit Descriptor Assignment	AC13
21	SCDC Trunk Circuit Descriptor Assignment	SC
22	MSDN/DPNSS/DASSII Trunk Circuit Descriptor Assignment	MSD T
23	DTS Service Assignment	DTS
24	Digital Link Assignment	DIGITA
25	Link Descriptor Assignment	LINK
26	Trunk Assignment	TRU A
27	ONS OPS Circuit Descriptor Assignment	ONS OPS C
28	Single Line Set Assignment	SI

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Table C–1 Programming Forms Entry Sequence (continued)

Sequence Number	Form Name	Accepted CDE Abbreviation
29	Attendant Assignment	AT A
30	Multiline Set Assignment	MU S A
31	Multiline Set Key Assignment	MU S K
32	Multiline Set Group Assignment	MU S G
33	Attendant Softkey Assignment	AT S
34	Dataset Circuit Descriptor Assignment	DAT C
35	Dataset Assignment	DAT A
36	Dataset Hunt Group Assignment	DAT H
37	Dataset Location Assignment	DAT L
38	Network Synchronization	NE
39	Modem Element Assignment	MOD E A
40	Model Element Hunt Group Assignment	MOD E H
41	Station Service Assignment	ST
42	System Speed Call Assignment	SY
43	Miscellaneous Assignment	MI
44	MSAN–APNSS Group Assignment	MSAN G
45	Trunk Group Assignment	TRU G
46	Hunt Group Assignment	HU
47	Pickup Group Assignment	PI
48	System Account Code Definition	SY
49	Digit Modification Assignment	DIGIT
50	Class of Restriction Group Assignment	CL O R
51	Route Assignment	R A
52	Route List Assignment	RO L
53	Route Plan Assignment	RO P
54	Automatic Route Selection Assignment	AU R
55	Department Assignment	DEP
56	Location Assignment	LOC
57	Telephone Directory	TE
58	Personal Speed Call Assignment	PE S C A
59	Personal Speed Call Directory	PE S C D
60	Feature Access Code Assignment	FE
61	User Authorization Profile	U
62	Call Progress Tone Detection Plan Assignment	CA P
63	Call Rerouting Assignment	CA R AS
64	Call Rerouting First Alternative Assignment	CA R F
65	Call Rerouting Second Alternative Assignment	CA R S
66	Call Rerouting Always Alternative Assignment	CA R AL

Table C–1 Programming Forms Entry Sequence (continued)

Sequence Number	Form Name	Accepted CDE Abbreviation
67	DTE Terminal Profile Assignment	DTE T
68	Intercept Handling Assignment	INTERCE
69	SMDR Options Assignment	SM
70	DTE Session Profile Assignment	DTE S
71	*HCI* Session Profile Assignment	HC
72	Application Profile Assignment	AP P
73	Default Account Code Definition	DEF
74	Independent Account Code Assignment	IND
75	Day and Time Zone Assignment	DAY
76	Associated Directory Number Assignment	AS
77	Multiline Set Status Message Assignment	MU S S
78	Loudspeaker Paging Assignment	LOU
79	Trunk Service Assignment	TRU S
80	Hotel Options Assignment	HO
81	Maximum Dialed Digits	MA
82	Traffic Options Assignment	TRA
83	System Port Assignment	SY P
84	Application Logical Port Assignment	AP L

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Appendix D.

SPECIAL SETS TERMINOLOGY

Multiline Set Telephones

D.1 In programming the *SUPERSET 3*, *SUPERSET 3* DN, *SUPERSET 4*, *SUPERSET 410*, *SUPERSET 430* or *SUPERSET 4* DN Line Select keys, two implicit functions are the creation of key system and multicall groups. The programming of these features through the Multiline Set Key Assignment form must be carried out carefully, because of the inherent complexities of the operation. The following definitions apply to the types of lines which may be associated to the Multiline Set's line select keys.

(a) **Single Line:** A single line is dedicated to one and only one *SUPERSET* telephone. If a directory number appears only on one set's line key, it is a single line. A single line may also be declared in the Multiline Set Assignment form if the line happens to be a prime directory number.

(b) **Key System:** A key system group is a group of *SUPERSET* multiline telephones. One industry standard (2500/500) or *SUPERSET 401* set may be added to form a mixed multiline group which shares a specific line appearance. When a call is directed to the number associated with the Key System Group, all sets in the group will receive the indication. Once a set answers the call, all other sets in the group will see the corresponding line as busy. If a key system line's number is also the prime directory number of a *SUPERSET* telephone, this set must be indicated as being 'Key System' in the Line Type entry of the Multiline Set Assignment form. The converse of this argument is also true: a fictitious Directory Number may be used to create a key system group. This means that a directory number may be set up which is not associated to any device in the system, but only to a key system group. This is done implicitly by associating a previously unassigned directory number to the *SUPERSET* line select keys through the key assignment form.

(c) **Multicall:** A Multicall group is a group of *SUPERSET* telephones. One 2500/500 set or *SUPERSET 401* set may be added to form a mixed multiline group which shares a specific line appearance. When a call is directed to the number associated with the Multicall group all idle sets in the group will receive the indication. Once a set answers the call, all other idle sets in the group will still have access to the line either to answer or originate calls. If another call is directed to the multicall number, the above description applies. If a multicall line number is also the prime directory number of a *SUPERSET* telephone, this set must be indicated as being 'Multicall' in the Line Type entry of the Multiline Set Assignment form. As with key system numbers, a fictitious number may be assigned to Multicall groups.

Note: In cases where a single 2500/500 set or *SUPERSET 401* is added to either a Key System Group or a Multicall Group, the following restrictions apply:

1. The *SUPERSET 401* or 2500/500 set must be the prime directory number of the group.

2. The group number cannot appear on the first key of any *SUPERSET* multiline telephone.

3. The single line set cannot be designated as Night Bell.

4. Call rerouting cannot be set up for the single line set itself, but only for the group.

Attendant Consoles

D.2 In programming the *SUPERSET 7* workstation and the *SUPERCONSOLE 1000* and *SUPERSET 7000* Attendant Console softkeys, broadcast groups may be formed. The programming of this feature through the Attendant Softkey Assignment form involves the following:

Broadcast Groups: In programming the console softkeys, the creation of broadcast groups is done implicitly. Contrary to the multiline set key system and multicall groups, it is not possible to assign numbers other than fictitious directory numbers to softkeys on different consoles. In the case of the consoles, the definition of a broadcast group requires a close correspondence with the Trunk Service Assignment form. The reason for this is that the trunk service form defines answer points for incoming trunks. In the majority of cases, these answer points will be attendant consoles. If any answer point is to appear at more than one console, the way to proceed is to create a broadcast group for the consoles involved, and assign to one softkey on each set the directory number specified in the trunk service form. This directory number will become the broadcast group identifier and trunk calls which are routed to the group's directory number will ring all consoles simultaneously.