CHAPTER 1

SYSTEM DESCRIPTION
CHAPTER 1
SYSTEM DESCRIPTION

TABLE OF CONTENTS

SECTION DESCRIPTION PAGE
110 GENERAL .................. 100-1
120 REGULATORY INFORMATION ........... 100-1
  120.1 General Information .............. 100-1
  120.2 Company Notification .............. 100-2
  120.3 Incidence of Harm ................. 100-2
  120.4 Emitted Radio Frequency Interference .............. 100-2
  120.5 Hearing Aid Compatibility .............. 100-2
  120.6 Service Requirements .............. 100-2
130 GLOSSARY OF ABBREVIATIONS ............ 100-2
140 FEATURE DESCRIPTION 100-3
150 LCD INDICATIONS ............ 100-17
160 FEATURE ACCESS CODES (NUMBERING PLAN) ........ 100-20
  160.1 Codes Dialed While Receiving Dial Tone or Second Dial Tone ........ 100-20
  160.2 Codes Dialed When Not Receiving Dial Tone or Second Dial Tone ........ 100-22
170 EQUIPMENT IDENTIFICATION ............ 100-23
  170.1 General Information .............. 100-24
  170.2 Equipment Description .............. 100-24

SECTION 110
GENERAL

The Electra MarkII Digital Telephone System is a versatile, high performance, microprocessor based, stored program controlled, fully digital telephone system that provides numerous voice and data capabilities for handling both inter- and intraoffice as well as outside traffic.

The Electra MarkII Digital Telephone System offers the flexibility required to meet almost any organization's communication needs, by using the Pulse Code Modulation (PCM) technique and time division switching.

Businesses, both small and large, with single or multiple locations, can derive maximum benefit from the Electra MarkII's port oriented system design.

The Electra MarkII can provide termination for up to 80 stations and up to forty outside lines. Systems can be tailored to a customer's needs by use of the variety of Electra MarkII's Multiline Terminals, plus standard 2500 type single line telephones (see Figure 100-1 Central Control Units).

The Electra MarkII is a total communication system with a wide variety of features. Most of the features are standard and available to all stations in the system.

The Electra MarkII is designed for ease of operation and maximum user convenience. Solid state circuitry, a minimum of mechanical components, and modular construction ensure simple maintenance and high reliability.

This section of the manual provides details of the requirements one should be familiar with prior to the installation of the Electra MarkII.

SECTION 120
REGULATORY INFORMATION

120.1 GENERAL INFORMATION
The Federal Communications Commission (FCC) has established rules which permit this telephone system to be directly connected to the telephone network. A
jack is provided by the telephone company. Jacks for this type of customer provided equipment will not be provided on party lines or coin lines.

The telephone company may make changes in its technical operations and procedures. If such changes affect the compatibility or use of this telephone system, the telephone company is required to give adequate notice of the changes.

120.2 COMPANY NOTIFICATION
Prior to the connection or disconnection of this telephone system to or from the telephone network, the telephone company must be provided with the following:

1. Your telephone number.

2. FCC registration number:

   a. When the Electra MarkII is to be installed as a multifunction system, the registration number to be provided to the local telephone company is:

      AY54SM-19165-MF-E

   b. When the Electra MarkII is to be installed as a key system, the registration number to be provided to the local telephone company is:

      AY54SM-19166-KF-E

To install the Electra MarkII as a key system, the system cannot contain dial access to the Trunk Groups. The Trunk Group to Access Code Group Assignment must be programmed to make vacant all Access Code Group Assignments, or SW3-1 on the CPU-EC4 (if equipped) be in the ON position.

3. Ringer equivalence number: 2.0B

4. USOC Jack required: RJ21X for fifty position amphenol type connector.

   Items 2 and 3 mentioned above, are also indicated on the system equipment label.

120.3 INCIDENCE OF HARM
System malfunctions may also cause harm to the telephone network. The telephone system should be disconnected until the source of the problem can be determined and until repair has been made. If this is not done, the telephone company may temporarily disconnect service.

120.4 EMITTED RADIO FREQUENCY INTERFERENCE
In compliance with FCC Part 15 rules, the following statement is provided:

   IMPORTANT NOTE

"This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the installation service manual, may cause interference to radio communications. This equipment has been tested and approved for compliance with the limits for a 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 telephone system in a residential area, is likely to cause interference, in which case the user, at his or her own expense, will be required to take whatever measures may be required to correct the interference."

120.5 HEARING AID COMPATIBILITY
The NEC Telephones provided for this system are hearing aid compatible. The manufacturer of other single line telephones must provide notice of hearing aid compatibility to comply with FCC rules. FCC rules prohibit the manufacture of non-hearing aid compatible telephones (after August 16, 1989).

120.6 SERVICE REQUIREMENTS
In the event of equipment malfunction, all repairs are to be performed by an authorized agent of NEC America, Inc. or by NEC America, Inc. It is the responsibility of users requiring service to report the need for service to an authorized agent of NEC America, Inc. or to NEC America, Inc.

SECTION 130
GLOSSARY OF ABBREVIATIONS

- A -
ADA Ancillary Device Adaptor
ANA Assigned Night Answer
ANS Answer Key
ATT Attendant

- B -
BGM Background Music
BLF Busy Lamp Field

- C -
CCSA Common Control Switching Arrangement
ACCOUNT CODE ENTRY allows the recording of up to fourteen digits dialed, when on an outside call. This feature requires the use of the SMDR-E ETU and becomes a part of the generated call records.

ACCOUNT CODE - FORCED/VERIFIED: Pre-selected telephones must dial a recognized code before originating an outside call from an extension. Only when the dialed Account Code is found valid can an outside call be processed. The Forced Account Code is
part of the call record generated and can be up to thirteen digits long. A maximum of 500 recognizable codes are possible in a system (must be programmed by the Attendant). A CPU-EB3 (or higher revision level) is required to support this feature.

ADD ON CONFERENCE provides the ability to converse with up to three additional parties in any combination of internal and/or outside lines. However, not more than two outside lines can be included. This feature can be accomplished with the use of a CNF-E ETU, which can be installed in any available interface slot (up to a maximum of four CNF-E ETUs per system). Conference calls are not amplified and are therefore subject to the quality of the CO lines used.

ALL CALL PAGE: All stations, not restricted from access to paging, are able to initiate a voice page to all idle Multiline Terminal speakers. Any station can respond to the page call, releasing the paging and establishing a private conversation. This feature is software controlled and can be disabled, if desired.

ALPHANUMERIC DISPLAY: Two of the five Electra MarkII Multiline Terminals are provided with a two line LCD (see Figure 100-2 Two Line Liquid Crystal Display).

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>K</td>
<td>1</td>
<td>M</td>
<td>L</td>
</tr>
<tr>
<td>12</td>
<td>07</td>
<td>2</td>
<td>09</td>
<td>02</td>
</tr>
</tbody>
</table>

Figure 100-2 Two Line Liquid Crystal Display

Each of the two lines are capable of displaying up to sixteen digits, with more than 100 different fixed and flexible readouts. These Multiline Terminals are the ETE-6D-( ) and ETE-16D-( ) (see Figure 100-3 Multiline Terminals).

The ETE-6-( ) and the ETE-16-2 do not have a display. The ETE-16K-1 Multiline Terminal is equipped with a seven line LCD (see Figure 100-3 Multiline Terminals). Each line is capable of showing sixteen digits. The top two lines of the LCD are equivalent to that of the ETE-6D-( ) and ETE-16D-( ) Multiline Terminals. The bottom five lines provide a directory function with eleven pages individually customized by the Multiline Terminal user. Each page can contain up to ten commonly called numbers (Speed Dial). Each Electra MarkII system can accommodate a maximum of thirty ETE-16K-1 Multiline Terminals (see Section 150 for LCD Indications).

ANCILLARY DEVICE CONNECTION: The Electra MarkII Multiline Terminals have the ability to support the additional operation of either a headset jack, automatic dialer, handset amplifier, external speakerphone, or modem. This is made possible with the addition of an ADA-E Unit to the Multiline Terminal.

ANSWER HOLD provides the ability to place an ongoing call on hold by depressing the Answer Key, to respond to an incoming call.

ANSWER KEY is provided on all Multiline Terminals. The LED associated with the Answer Key, flashes when an internal call is directed to that Multiline Terminal's primary extension, and when any line key is ringing at that station (except for DIT calls). Additionally, the Answer Key's LED flashes when that station receives a Camp-On or Tone Override signal. By depressing the Answer Key, the Multiline Terminal user places any current call on HOLD and answers the incoming or recalling CO call, Camp-On, or Override.

ASSIGNED NIGHT ANSWER (ANA) enables incoming CO lines (trunks) to be programmed to ring directly at an extension, when the system is in the Night Mode and is supported with a CPU-EB2 (or higher revision level) ETU. This ringing assignment operates independently from the day ring assignments.

ATTENDANT CAMP-ON with a Direct Station Selection/Busy Lamp Field (DSS/BLF) console, allows the attendant to expediously process calls, even to busy extensions. Unanswered Camp-On calls recall to the attendant after a preprogrammed time period. The Attendant positions appear on the lowest installed FSI-E( ) ETU in the system.

ATTENDANT POSITIONS (a maximum of four) are possible with the Electra MarkII System. When programmed as an attendant terminal, the ETE-16D-( ) Multiline Terminal only has access to the features available to the attendant. Some of these attendant features are; programming and displaying System Speed Dial memories, setting Night Mode, setting Calendar/Clock, busy out or restore defective CO trunks and MFR ports, use of one (or two) DSS/BLFs, and a CO Add-On Module.

ATTENDANT TRANSFER can be made quickly by use of the Direct Station/Busy Lamp Field (DSS/BLF) consoles. Any attendant may Camp-On or Transfer calls to extensions that appear on one of the DSS keys of the DSS/BLF Console. The Transfers may be supervised (Voice Announced with answer) or unsupervised (ringing before answer). Unanswered Attendant Transfers recall to the Attendant Position, to which the extension the Transfer or Camp-On was made, accompanied with a display identifying both the line key being recalled and the extension number.
AUTOMATIC CALLBACK allows users to prompt the system to notify them when a busy extension becomes available. After calling a busy extension, set an Automatic Callback by dialing * 1 (as set in default). When both parties are idle, the system signals the originator first, and after answer, the called station.

AUTOMATIC HOLD occurs whenever an attendant, with a DSS/BLF Console (engaged in a call), depresses a DSS extension or paging access button (see Figure 100-4 DSS/BLF). This places the call on NON-EXCLUSIVE HOLD. This is also true for Multiline Terminal users that have programmed, and depress the Feature Access keys for DSS or paging access. This places the call on Consultation Hold.

AUTOMATIC RELEASE is performed by the Electra MarkII System when an outside party abandons the call (for this feature to function, the outside line must provide a timed disconnect signal). Automatic Release is normally provided with Ground Start Trunks and E&M Tie lines.

BACKGROUND MUSIC via EXTERNAL SPEAKERS is used for paging from the Electra MarkII System and is interrupted only to those speakers paged (within a zone). This feature requires a locally supplied music source, a paging system and control relays as well as the optional ECR-E ETU.

BACKGROUND MUSIC, via station speakers, can be provided to all Multiline Terminal users. The system is designed to accept two separate music sources. Each user can select either of the music sources.

Figure 100-3 Multiline Terminals
sources to be heard over their Multiline Terminal's speaker (requires an ECR-E ETU).

BATTERY BACKUP of system memory is provided via small batteries on selected printed circuit boards to protect (up to seven days) memories such as, the System Program, Speed Dial, Messages, Clock/Calendar, SMDR, and LCR.

BROKER'S CALL is a calling method offered to allow a station user to alternate between two calls. Multiline Terminal users merely depress the Answer Key to alternate between two calls on the same line key. Single line telephone users provide a hookflash and dial the access code (set in system default as 4#), to alternate between the two parties.

BUSY LAMP FIELD is a standard programmable feature of the ETE-16D ( ) Multiline Terminal. Any of the twenty programmable Feature Access keys which are programmed for Direct Station Selection, also provide Busy Lamp Field indication of the corresponding station, tandem port, or virtual extension programmed. A maximum of ten ETE-16D ( ) (with BLF assigned) Multiline Terminals can be connected to each Central Control Unit (CCU). (Total of thirty in system.)

CALCULATOR FUNCTION is offered to all Multiline Terminals with an LCD. This is a four function, six digit calculator which can be accessed by up to five stations simultaneously.

CALLBACK MESSAGE is an indication on a terminal's LCD of who within the system has called and would like a return call. Up to five Callback Messages can be received at any station with an LCD.

The LCD indicates the number of Callback Messages (a maximum of five, including Message Waiting from an attendant and from the voice mail). The messages can be scanned one at a time. Each message display gives the time the message was left, identifies the caller, and provides a number to call. Callback Messages can be cleared while the terminal is idle, or will be automatically removed when the call is returned.

CALL FORWARD - ALL CALLS allows a station user to redirect all tone ring calls at their extension to another extension, a Virtual Extension, or an Attendant Position. The ability to set Call Forward is a function of the stations' Class of Service assignment. Call Forward All Calls can be set or cancelled by the forwarding station, by the destination station, or by an attendant. Call Forward All Calls can be chained from one station to another, up to two stations, with a CPU-EB3 (or higher revision level) ETU.

CALL FORWARD - BUSY/NO ANSWER allows a station user to redirect all tone ring calls at their extension to another extension, a Virtual Extension, or an Attendant, while they are talking or while they are away from their station. The ability to set Call Forward is a function of the station's Class of Service assignment. Call Forward-Busy/No Answer can be set or cancelled by the forwarding station, by the destination station, or by an Attendant. Call Forward Busy/No Answer cannot be chained to multiple stations.

CALL PARK allows a station user to temporarily park any call (except a four party Conference); removing the call from the extension, placing it on hold, thereby allowing the extension to be free for other call processing functions. The call can be retrieved at any station in the system by dialing an access code (4*X as set in default, where X is a call park location 0~9) and the Call Park location. A parked call will recall to the primary extension of the station that parked the call. The system, when supported by a CPU-EB (or higher revision level) ETU, will provide ten Call Park areas as described.

CALL PICKUP - DIRECTED provides any station the ability to answer a call (voice or ringing) intended for a different station by dialing an access code.

CALL PICKUP - GROUP provides the ability to assign station pickup groups to enable ringing calls in the group to be answered by any station in the group by dialing an access code. The system provides eight Call Pickup Groups.

CALL TRANSFER can be performed by any station in the system. Any call can be transferred to any other
station in the system or network. The ability to originate or receive Camp-On (a form of Transfer to busy extensions) is based on the Class of Service assignment of both stations.

CENTREX RINGING provides two distinctive tone signals to identify internal CENTREX or PBX incoming calls from outside calls. Centrex Ringing requires the support of a CPU-EB3 (or higher revision level) ETU and a COI-EB ETU.

CLASS OF SERVICE is a programming assignment to allow or deny access to Camp-On Originate/Receive, Call Forward, Operator Restriction, Data Line Security, Station Lockout, Paging Access (Originate), Trunk to Trunk Transfer, Forced Account Code, and LCR Priority features. Incoming, Outgoing and Code Restrictions are assigned separately.

A CLOCK/CALENDAR DISPLAY is provided to all Electra MarkII Multiline Terminals with an LCD (see Figure 100-5 Typical Clock Calendar Display).

This display is on the bottom line of the LCD; i.e.: displays the time of day, 07:43, the month, SEP, the date, 04, and the day, WED. This display is only removed during off line programming mode when the Calculator mode is in use or during certain data communication operations.

CO ADD-ON MODULE. The EDE-30( ), Revision B (or higher level), can be installed and programmed as a CO Add-On Module to allow an Attendant Position the ability to have direct access to the system's forty maximum outside line terminations. The system's maximum of six EDE-30( ) applies to both (DSS/BLF and CO Add-On) applications. Only four units can be utilized as a CO Add-On Module (one per Attendant Position). The system must also be equipped with a CPU-EB (or higher revision level) ETU. Lines that appear at the attendant's Multiline Terminal cannot also appear at the CO Add-On Module.

CO DIGIT RESTRICTION provides the ability to restrict the number of digits that can be dialed from a station on a CO line. CO Digit Restriction must be supported by a CPU-EB3 (or higher revision level) ETU and is programmable on a per station basis.

CODE/CALL RESTRICTION aids in the ability to tailor the station dialing restriction to every customer's individual needs. The Electra MarkII offers an advanced network of restrictions to control outside calls, based upon area and local office codes. The restriction feature provides override capability on trunk group and system speed dial basis and accommodates Equal Access to secondary common carriers.

CONSECUTIVE SPEED DIAL simplifies dialing complicated sequences of numbers such as those used for some specialized common carriers, credit card, and other applications. All Electra MarkII Multiline Terminals have the capability to Consecutively Speed Dial, with access to System and Station Speed Dial memories.

CONSULTATION HOLD offers the Electra MarkII system user the convenience of originating a call to a second station in the system from the same line used for an existing call. This allows the user to consult with someone while holding the outside party. Afterwards, the user may initiate a Conference, return to the outside party, alternate between the two calls (Broker's Call), or Transfer the outside party to the consulted internal party.

DATA COMMUNICATION is made available when the system is equipped with a CPU-EB (or higher revision level) ETU and with a DTA-E Unit installed in each Multiline Terminal (ETE-6D(-), ETE-16D(-) and ETE-16K-1) requiring this feature. The DTA-E Unit provides a terminal user with the capability of Voice and Data Communication simultaneously. These data ready Multiline Terminals require ESI-EB ports, which are associated with the first three CCUs.

DATA LINE SECURITY provides a station with protection from receiving audible tones (such as Camp-On or Override) while busy. This prevents disruption of ongoing data transmission.

DC POWER OPERATION may be desired for its simplicity of providing standby power. The system can be powered by a local -48V dc source. When so required, each CCU must be equipped with a PSE-DD-1 PSU. This PSU is installed in place of the PSE-AD-1 PSU.

DELAY ANNOUNCEMENT (UCD) occurs when an incoming DIT call to a UCD group encounters all UCD extensions busy or receives no answer within a preprogrammed period of time. The call is queued and receives a recorded announcement after a predetermined interval. A CPU-EB3 (or higher revision level) ETU is required to support this feature.
Multiple Delay Announcement: First and Second are available with a CPU-EC4 (or higher revision level) ETU.

DELAYED RINGING is provided to Multiline Terminals that are utilized as secondary answering positions. These terminals can be programmed to have their CO/PBX and/or extension lines ring on incoming calls, after a preprogrammed time interval. Separate Day & Night operations are possible. A CPU-EB3 (or higher revision level) ETU is required to support this feature.

DIAL 0 FOR ATTENDANT speeds the calling process when seeking an attendant. If the system is configured with more than one Attendant Position, DIAL 0 enables the user to reach the attendant assigned.

DIRECT INWARD DIALING (DID) allows inbound outside calls on a DID trunk (Dial Pulse only) to be directed to particular stations within the system. These terminations can be accommodated when the system is equipped with TLI-E ETUs and a CPU-EB (or higher revision level) ETU. A maximum of forty such terminations of lines (two per TLI-E ETU) can be accommodated in each system. This total includes E&M Tie lines and CO lines. DID ports support immediate, delayed, and wink start signaling and can be programmed to add, and/or delete, up to 3 digits to the number received from the DID trunk.

DIRECT INWARD TERMINATION (DIT) allows an inbound outside call to be directly terminated on a particular extension within the system, bypassing the Attendant. These terminations can be accommodated if the system is equipped with a CPU-EB2 (or higher revision level) ETU. A maximum of forty such terminations can be accommodated in each system; one per CO line.

DIRECT PAGING ACCESS with the EDE-30-( ) DSS/BLF console provides the attendant added speed in call processing and locating personnel. Buttons can be programmed to provide direct access to Internal, External, and All Zone Paging. The programmable Feature Access keys on the Multiline Terminals can also be used for direct paging access.

DIRECT STATION SELECTION provides one button selection to rapidly call internal parties. DSS/BLF Consoles and the programmable function buttons on the Electra MarkII Multiline Terminals provide this operation.

DIRECTORY FUNCTION of the ETE-16K-1 Multiline Terminal provides the station user with an eleven page LCD, customized by the user (see Figure 100-6 ETE-16K-1 Multiline Terminal). Each page can contain up to ten frequently called numbers. Depressing the directory button causes the pages to change. Depressing one of the selection buttons, while a particular page is being displayed, generates a speed dial call, DSS call, or accesses a feature (depending upon the user's programmed preference). A maximum of thirty ETE-16K-1 Multiline Terminals can be installed in a system.

DISTINCTIVE RINGING allows a user to distinguish between outside, internal, and Boss/Secretary Ring signals. Each Electra MarkII Multiline Terminal user has a choice in selecting between two ringing tones. This selection can be done by user programming at each Multiline Terminal or at the Attendant.

DO NOT DISTURB (DND) provides the Multiline Terminal user with the ability to temporarily stop all audible signals for incoming calls to that station (except calls from an Attendant and Boss/Secretary Ring).

The DSS/BLF CONSOLE is a unit that provides thirty programmable buttons, each with a two color (red and green) LED, for use with an ETE-16D-( ) Multiline Terminal. Together, the console and Multiline Terminal create an Attendant Position. The console provides the Attendant with single button access to assigned extensions, page zone or system features. When a button is assigned for direct station selection, the associated red LED provides the Attendant with Busy Lamp Status of the assigned extension. The associated green LED provides the Attendant with the busy status of the assigned extension, indicating when the Attendant can reach it by means of Override, or Camp-On. When in the
message mode, the associated green LED also provides the Attendant with the status of messages left for busy or unattended stations.

Up to two DSS/BLF Consoles can be set to function with an Attendant Position. Up to three Attendant Positions can be provided with two DSS/BLF Consoles each. The totals are six DSS/BLF Consoles associated with four Attendant Positions. The number of CO Add-On Modules will also affect the six console maximum.

DSS/BLF RECALL with station identification provides the originating Attendants' LCD with the line key number that was transferred or camped on, as well as the station number of the station that did not answer the Transfer or Camp-On. This allows the Attendant to respond and address the recall quickly and efficiently.

The ELAPSED CALL TIMER is a counter which is shown on the LCD of a Multiline Terminal engaged in an outside call. This timer provides a constant reminder of the ongoing call's length (see Figure 100-7 LCD with elapsed call time).

<table>
<thead>
<tr>
<th>ELAPSED</th>
<th>01:45</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:25</td>
<td>SEP 16 TUE</td>
</tr>
</tbody>
</table>

Figure 100-7 LCD with elapsed call time.

E&M TIE LINES are accommodated by the TLI-E or TLI-EB ETUs. Tie Lines can be any combination of loop dial (TLI-E ETU only), 2 wire, or 4 wire Type I or Type V E&M signaling. Tie lines must be dial pulse if terminated on a TLI-E ETU. If terminated on a TLI-EB ETU, they can be DTMF or Dial Pulse. Incoming Tie Line calls can access other outside lines to make calls or to access other systems via Uniform Numbering Networking, if the system is supported by a CPU-EB2 (or higher revision level) ETU.

EQUAL ACCESS ACCOMMODATION permits the Speed Dial memories and Code Restriction processes to allow connection of CO lines that provide access to Specialized Common Carriers (SCC).

EXTERNAL TONE RINGING (four tones) is provided by the ECR-E ETU. The ECR-E ETU contains 10 relays, 7 of these relays are programmable for External Tone Ringing (common audible), Night Chime control, or Delay Announcement start control. Four of the 7 relays can be programmed for common audible with different interruption patterns including a continuous closure. When connected to a locally provided call alerting device (loud bell ringer), this feature provides for wide area coverage or loud ringing for noisy locations.

EXTERNAL ZONE PAGING (WITH MEET ME) enables system users to quickly, and easily locate and communicate with each other. The system provides the ability to set up three zones (plus all zones) of External Paging with the optional ECR-E ETU (and locally provided amplifier, speakers and relays). With the page Meet-Me feature, the Electra MarkII System allows any station in the system the ability to answer a page, at which time the paging circuit is released and is again available for paging.

FLEXIBLE LINE ASSIGNMENT provides the ability to assign any (except for each Multiline Terminal's own primary extension) line key to outside lines, appearances of other extension lines, Save and Repeat, Data Transmit, Data Receive, and Do Not Disturb features.

The Electra MarkII's FLEXIBLE NUMBERING PLAN is assigned by the resident system program, when the system is first initialized. With few exceptions the Numbering Plan can be altered for customer requirements via system programming. Available within the Numbering Plan is the Uniform Numbering Network for multi-location customers with Electra MarkII Systems, each system must be supported by a CPU-EB2 (or higher revision level) ETU. This allows all station users, in a network of Electra MarkII Systems, to dial each station directly without the need of an Attendant to transfer the call.

FLEXIBLE RINGING ASSIGNMENT provides ring tone signals to stations that have an appearance of the CO/PBX or extension line being called. Separate ringing assignments can be set for DAY MODE and NIGHT MODE.

FLEXIBLE TIMEOUTS provide the ability for the system to be altered, via programming, to meet the customer's needs. Standard timeouts are set by the resident system program upon first initialization.

FULL HANDSFREE OPERATION is an optional feature that can be accomplished in either of two methods:

1. Installation of the HFU-E Unit into an LCD equipped Multiline Terminal.
2. Installation of an ADA-E Unit into any Multiline Terminal with a qualified speakerphone (locally provided) connected.
Either method allows a Multiline Terminal user to initiate or receive a call (outside or internal) and converse without lifting the handset.

**GROUND START TRUNKS** minimize the possibility of incoming and outgoing calls colliding on the same COI-E( ) ETU. This phenomenon (collision) is known as glare. In addition, **Automatic Release** is normally provided on **Ground Start Trunks**.

**HANSDFREE ANSWERBACK** is a convenience feature that allows a Multiline Terminal user to respond to a voice call without lifting the handset. When a voice call is received at a Multiline Terminal, the voice is heard from the Multiline Terminal's speaker. The user can respond handsfree via the Multiline Terminal's microphone (the microphone must be on. **ON/OFF** status is indicated by the red LED above the MIC button.

**HANSDFREE DIALING AND MONITORING** allows a Multiline Terminal user to initiate a call and/or monitor the line without lifting the handset.

**HOLD (EXCLUSIVE AND NON-EXCLUSIVE)** with **RECALL** are features provided to allow for individualized and speedy call handling.

**EXCLUSIVE HOLD** allows a station user to place an ongoing conversation on HOLD while ensuring that no other stations are able to accidentally remove it from hold. The holding station's corresponding line key LED (green) provides a special interrupted wink **I-HOLD** indication (ETE-6( ) LED is red) for easy identification. All other stations with that appearance have the corresponding LED (red) lit steadily. (Single line telephones do not have hold indication).

**NON-EXCLUSIVE HOLD** enables a Multiline Terminal user to place an ongoing conversation on HOLD and allows the user to go to any other station with that appearance and retrieve the call from hold. The LED indication of the held line is shown as a **green** (ETE-6( ) is red) **wink** at the holding station (or **interrupted I-HOLD wink**) and a **red wink** at all the other stations. (Single line telephones do not have this feature).

**HOLD RECALL** provides a reminder to the user that has forgotten a call was placed on hold. This recall is provided for either **Exclusive** or **Non-Exclusive Hold**.

The **RECALL** to a station is controlled by a timer that can be preprogrammed by the installer.

The LED at the holding station will **flutter green** (the ETE-6(-) LED is red), while at other stations it will remain **steadily lit** or **winking red**. Accompanying the change in the LED flash rate is an audible **RECALL TONE** (a 1024 Hz tone provided at a duty cycle of 60 IPM) at the holding station.

**I-HOLD INDICATION** shows a Multiline Terminal user which lines on hold are being held by that Multiline Terminal. A **green** LED indication is provided (the ETE-6( ) is red) at the rate of a **burst wink**, all other stations with that appearance see a **red** LED at the rate of a **wink**, or steadily lit.

**I-USE INDICATION** shows a Multiline Terminal user the line on which the user is conversing. The indication provided is a **green** (ETE-6(-) is red) **steadily lit**. All other stations with that appearance see a **red** LED **steadily lit**.

**INCOMING CALL IDENTIFICATION** allows all LCD equipped Multiline Terminal users to quickly know who (internally) is calling. This is provided on the **TOP** line of the LCD, showing the caller's name and extension number. Calls from outside lines generate a display of the line key number and the type of call (i.e. incoming or transfer, etc.). When a call comes in on the **PE** (Primary Extension), the LCD shows who is calling. If the call comes in on an **SE** (Secondary Extension) or **VE** (Virtual Extension), the user must depress the line key (while on-hook) to see the name and number of the caller (see Figure 100-8 LCD Call Display).

**INTERNAL VOICE/TONE SIGNALING** flexibility enables a Multiline Terminal user to select the method with which he wishes to be signaled by other station users. The caller has the added flexibility to tone ring a station that has been set for voice calling by dialing the digit 1.
INTERNAL ZONE PAGING (WITH MEET-ME)

allows anyone (if allowed by Class of Service) within the Electra MarkII System to generate a voice page via station speakers to a selected zone or to all zones of the installation. Up to three zones can be established by program assignment of stations into particular zones. Any station can release the page and talk privately to the originator of the page call by dialing the Meet-Me answer access code (set by default as 556). One zone can be paged at a time.

LAST NUMBER REDIAL allows a station user to redial the last outside number they dialed, either by dial key pad, Save and Repeat key button, or Speed Dial key button. This feature is accessed by dial code (dial *) or a programmable Feature Access key.

LEAST COST ROUTING (dial access to a CO line), processes the completion of an outside call via the Least Costly Route available. The LCR-E ETU provides cost effective call routing based on the time of day and day of week.

LOOP START LINES can be terminated onto the Electra MarkII's MDF via the telephone company provided RJ21X terminal. System assignment of line type (Loop Start or Ground Start) is done on a per line basis, at the associated COI-E( ) ETU.

MAINTENANCE AND SELF DIAGNOSTICS is a function of the Electra MarkII System which automatically checks hardware and software errors. The detected errors are stored in the system memory.

Through the use of the Remote Administration Adaptor (RAA-E), the technician can retrieve information and make programming changes from a remote location, if required.

MESSAGE WAITING indication is provided to all stations within the system (except Single Line Telephones without a Message Waiting lamp or not supported by an SLI-EB ETU). The ETE-6- ( ) or the ETE-16- ( ) will show a lit red LED marked MW, each of the other types of Multiline Terminals will display MSG and the quantity of messages, requests for Call Backs, and Voice Mail Messages sent to that station (maximum of five).

Multiline Terminals with LCD have the ability to select which message to respond to first, by scrolling (on-hook, dial digit 1 to scroll from message 1 to 5) the message. The message displayed shows the time the message was left, the name of the person who left the message, and the extension number of the station from which the caller left the message. To return the call, the station user dials the number indicated. Once dialed, the Message Waiting indicator changes; i.e., LCD may have shown MSG, after call to the calling station, LCD shows MSG2. The red LED (MW) on the ETE-6( ), the ETE-16( ) or Single Line Telephone with a Message Waiting lamp, is extinguished by the setting Attendant when all messages are cleared.

NOTE: The Attendant manually resets the Message Waiting indication on the DSS/BLF Console.

MICROPHONE CONTROL is provided to all Multiline Terminal users to allow muting of the station's microphone. This ensures privacy during an incoming Voice Announcement or during a Handsfree conversation (if equipped with the HFU-E Unit).

MODEM POOLING allows the system user shared access to a pool of up to four modems for external switching of data. It supports asynchronous, half or full duplex calls at 300 or 1200 bps via the outside network. Keyboard dialing and Modem Reserve capabilities can be allowed through system programming if the system is supported with a CPU-EB2 (or higher revision level) ETU.

Each of the modems (four maximum) must be 212A type compatible, provide auto answer, and must be supported by an SLI-E( ) ETU port, a Multiline Terminal with LCD (equipped with a DTA-E Unit) and supported by an ESI-EB ETU port. The system must also be equipped with a CPU-EB ( ) (or higher revision level) ETU and an RSG-E Unit.

MULTIPLE TRUNK GROUPS allow customizing the Electra MarkII's trunks to meet almost any customer's needs. The system allows programming to assign up to forty trunks into a maximum of eight trunk groups. Each trunk group can be assigned a separate access code or can share the same access code.

MUSIC ON HOLD connects a locally provided music source to an outside party whenever a call is placed on any type of HOLD. Music On Hold can also be provided via the music chip on the TSW-E ( ) ETU. This chip offers two different musical selections.

NIGHT CALL PICKUP functions when the system is placed in Night Mode by the Attendant. In the Night Mode, stations are able to answer incoming outside calls by dialing the Night Call Pickup access code (set by default as 60) or by depressing a programmed function button. Tenant assignment and incoming restriction programming affect which calls can be answered. Night Call Pickup is not available for ANA, DIT, or DIL lines.
NIGHT CHIME(S) control is provided when the system is equipped with an ECR-E ETU. The ECR-E ETU contains ten relays. Three of these relays (one per tenant) can be programmed to provide closures when incoming CO/PBX calls are received in the Night Mode. The Night Chime feature is used after normal working hours to alert night personal of incoming outside calls. Locally provided external bells and/or amplifiers are controlled by the system. ANA, DIT or DID trunks will not activate the Night Chime relay(s).

NIGHT TRANSFER is a function controlled only by the Attendant Positions (with or without DSS/BLF Consoles). When an Attendant sets the system into Night Mode, it provides a change from the Day Mode ring assignment and enables the Night Call Pickup and ANA features (if so programmed), in systems supported by a CPU-EB2 (or higher revision level) ETU.

OFF-HOOK VOICE ANNOUNCEMENT can be provided to any Multiline Terminal (except ETE-6( ) and ETE-16-2) with the installation of the DPA-E Unit. The DPA-E Unit provides a Multiline Terminal with a secondary voice path, which allows that station to receive a Voice Announcement while on a handset call with someone else. This requires the Multiline Terminal to be supported by an ESI-EB ETU (located in any of the first three CCUs), as well as being programmed as a Dual Path terminal.

OFF-HOOK RINGING allows a Multiline Terminal user to hear when an incoming call is signaling while the Multiline Terminal handset is in use. The off-hook ring is provided at a reduced level. This feature can be disabled in programming if not desired.

OFF-PREMISES EXTENSION is provided by the connection of a standard Single Line Telephone (DTMP) remotely located from the main installation site, to access the system's features with the same capabilities as an on premises Single Line Telephone. Locally provided Dial Long Line (DLL) equipment is required for this feature.

PC VOICE DIALING allows the system user to dial telephone numbers for voice calls from the PC Keyboard. Modem Pooling is used in conjunction with this feature.

PC Voice Dialing and Modem Reserve capabilities can be allowed through system programming if the system is supported with a CPU-EB3 (V3.05) ETU (or higher revision level). PC Voice Dialing requires the use of a MFR-EA ETU.

Each modem (four maximum) must be able to respond to Keyboard commands such as the HAYES® Commandset, provide auto answer, and must be supported by an SLI-E ( ) ETU port, a Multiline Terminal with LCD (equipped with a DTA-E Unit), and supported by an ESI-EB ETU port.

POOLED LINE allows multiple trunks to be assigned to a multiline Terminal's line key for incoming and outgoing calls. This feature allows station users to answer and originate outside calls for any line belonging to a Pooled Line Group with one Pooled Line key. Up to eight Pooled Line Groups can be assigned per system. This feature requires the support of a CPU-EB3 (or higher revision level) ETU.

POWER FAILURE TRANSFER ensures that a customer can always have access to the central office network, even during a commercial power outage. This feature requires the use of Single Line Telephones supported by SLI-EB ETUs. If power fails to support the Electra MarkII CCUs, the CO Tip and Ring are automatically transferred to the Tip and Ring of a preselected (and cross connected) Single Line Telephone. These SLTs may function in the system during normal operation, or only during power failure, depending upon the customer requirements.

PRIME LINE ASSIGNMENT simplifies the use of the system by providing automatic selection of a line. When a Multiline Terminal, programmed for Prime Line Assignment, goes off-hook, the assigned extension or outside line key is seized automatically. This feature seizes the line when it is IDLE. When a Single Line Telephone, programmed for CO Prime Line Assignment, goes off-hook the assigned CO line is seized. To release this line and obtain a new internal dial tone, hookflash, and dial the preprogrammed release code [when the system is supported with a CPU-EB2 (or higher revision level) ETU].

Variations of this feature are accomplished when the system is programmed for Prime Line pickup for incoming calls, or the terminal is programmed for Ringing Line Preference and Prime Line.

PRIVACY ON ALL CALLS provides the secure knowledge that no one can listen to your ongoing conversation. Only the person holding a conversation can allow another party to enter the conversation (via Add-On Conference). All lines in the system are provided with complete Privacy.

PRIVATE LINES can be assigned via the Flexible Line Assignment feature. Restriction assignments can be used to assure that a line is made private.
PROGRAMMING from Multiline Terminals of system functions is permitted locally at any of up to three ETE-16D-() Multiline Terminal positions, or remotely at a PC, using an RAA-E Unit. Most changes to the system program can be entered while the system is in full operation.

PUSHBUTTON DIAL - DTMF or DP - are provided on all Electra MarkII Multiline Terminals for simplified and speedy calling. Trunks are assigned, on an individual or trunk group basis, to generate either Dual-Tone Multi-Frequency (DTMF) or Dial Pulse (DP) dialing signals.

A RECALL BUTTON is provided on all Electra MarkII Multiline Terminals. This button can be used to generate either a hook flash, to access features provided by an outside exchange, or to abandon a call while retaining the outside line for origination of another call.

REMOTE ADMINISTRATION ADAPTOR (RAA-E UNIT) allows programming to be performed from a remote location when the system is equipped with the RAA-E Unit. The RAA-E Unit provides access to the system with the assistance of the following equipment:

Job Site:
1. CPU-EB(or higher revision level) ETU
2. ESI-E( ) (one circuit for RAA-E termination) ETU
3. A modem (212A compatible with auto answer)
4. SLI-E( ) (one circuit for Modem termination if required) ETU
5. RSG-E unit (if Modem terminates on an SLI-E( ) ETU)

Remote Location:
1. Modem (212A)
2. NEC Powermate or IBM compatible PC. *
3. RAA Host Disk

* or any RAA-E compatible unit, ie., NEC PC8300 Laptop Computer, NEC PC8231A Floppy Disk Drive, Multispeed, or Datavue's SPARK laptop.

The RESIDENT SYSTEM PROGRAM is located in the memory of the CPU-E (or higher revision level) and enables the system to fully function after a first initialization. The CPU scans the installed circuits and Multiline Terminals and assigns standard (default) values. This allows system operation before programming has begun. This provides the installer a method to test the system for normal operation, thereby allowing later problems to be identified as probable programming errors.

RESTRICTION (INCOMING) allows the assignment, on a per station per trunk group basis, of restricting a station's ability to answer incoming calls.

RESTRICTION (OUTGOING) allows the assignment, on a per station per trunk group basis, of restricting outgoing calls.

RINGING LINE PREFERENCE makes call handling more efficient, and is especially useful for Attendant Positions. Any Multiline Terminal can be programmed to seize any ringing incoming call, to that station, by going off-hook.

SAVE and REPEAT allows the storage of telephone numbers (up to sixteen digits). Any line key (except PE) can be programmed to become a Save and Repeat key (maximum of eighty for the system). After dialing an outside number, depression of this line key causes the system to memorize the number dialed and light the associated red LED. Depressing this key, when the station is receiving dial tone, causes the number to be redialed. The number is eliminated from memory when redialed. Each Multiline Terminal in the Electra MarkII System can have at least one Save and Repeat key until the system limit of eighty Save and Repeat keys is reached.

SINGLE LINE TELEPHONES can be used when cable distances exceed the allowed maximum length for Multiline Terminals (refer to Chapter 2 Specifications). The Electra MarkII System provides all Single Line Telephones access to most features available to the Multiline Terminals. The system capacity for SLTs is seventy-six, which requires the support of up to four MFR-EA ETUs, up to three RSG-E Ringing Supply Generators, and up to nineteen SLI-E( ) ETUs. A system must contain at least one ESI-E( ) ETU and ETE-16D-() Multiline Terminal for programming and call processing.

The Single Line Telephone user can access features provided by a PBX or CENTREX, or custom calling features provided by the local operating company by sending a timed hookflash to the CO/PBX line to which it is connected, and then dialing a Feature Access code.

SPEED DIAL (Station) is provided to every station within the Electra MarkII System. Because each station type has its own unique capabilities, access to the individual twenty speed dial buffers may vary.

1. ETE-6-(), dial access to 20 memories.
2. ETE-6D-(), dial access to 10 and direct selection to 10 more, or dial access to all 20.
3. ETE-16-2, dial access to 20 memories.

4. ETE-16D-( ), direct selection and/or dial access to the 20 memories.

5. ETE-16K-1, direct selection to 110 memories.

6. Single Line Telephone, dial access to 20 memories.

Each memory location has the capability of storing up to 16 digits (System Speed Dial numbers can be stored within a Station Speed Dial memory buffer of Multiline Terminals to increase this capacity). Each memory location is programmed by the station user.

**SPEED DIAL (System)** provides eighty memory buffers available for use system wide; this complements the individual twenty memories available for each station. Only the *Attendant Positions* can program these eighty memory locations. These memory locations have an *Override* option, for *Code Restriction* assignments, in blocks. When programmed for *Tenant Service*, the system can proportion the access to the eighty memory locations and *Code Restriction* on a per tenant basis.

**STATION CAMP-ON** allows a call to be transferred to an extension, even when it is busy. If the Camp-On is disallowed for any reason or goes unanswered for a preprogrammed length of time, it recalls to the station that initiated the Camp-On. Camp-On capabilities are controlled by station *Class of Service*. No more than one Camp-On per station is possible.

**STATION HUNTING** distributes incoming calls to multiple extensions which are programmed as one group with a pilot number. When the pilot number is dialed, or when it is the destination of DID, Tie Line, or DIT calls, the incoming call is distributed to an idle extension in the group. If the call is not answered within a determined time, the call is transferred to another extension within the same hunt group. Both Linear and Circular Hunting are possible. A CPU-EB3 (or higher revision level) ETU is required to support this feature.

**STATION LOCKOUT** provides added call security by allowing any station user (programmed via *Class of Service*) to electronically remove his station from service by dialing a system lockout access code and then a private lockout code. Dialing these same codes again restores the station to service. The private code is established and changed by the individual station user. If the private code is displaced or not readily available, the Attendant can override the station lockout, restore the station to normal operation, and reset the private code to its default value.

**STATION MESSAGE DETAIL RECORDING**; **SMDR-E** is an optional ETU which provides detailed call record information about the telephone usage of the system. Call records are generated for incoming, outgoing, conference, and transferred outside calls. Station identification, trunk identification, time of origination, call duration, and account codes are among the information provided. To retrieve these reports, a locally provided printing or call accounting device compatible with the standard serial RS232C output, must be installed. Whether or not incoming calls will generate a record can be selected via system programming.

**STEP CALL** is a feature supported by a CPU-E8 (or higher revision) ETU. When the station user attempts an internal call, or a Transfer reaches a busy extension or Call Park location, another station may be called by dialing the last digit of the number desired to Step to after hearing a busy or Call Waiting tone. Both numbers called must differ by the last (units) digit only. This procedure can be repeated until an idle station or Call Park location is found.

**STORED HOOKFLASH** is a capability provided to each Multiline Terminal (except ETE-6-( ) and ETE-16-2) user to enter a programmable hookflash, and the feature access code required to access Centrex features and PBX features on a *Feature Access Key* for one step access to Centrex and PBX features. A CPU-EB3 (or higher revision level) ETU is required to support this feature.

**SYSTEM DATA UP/DOWN LOAD** feature transfers station speed dial data, system speed dial data, account codes, and all system data from/to an IBM compatible PC. The Up/Down Load may be accomplished from a local or remote location if a CPU-EC4 (or higher revision) ETU is installed in the system.

**TANDEM SWITCHING** of E&M Tie Lines allows E&M Tie Lines to be connected to other lines/trunks through the Electra MarkI1 System without the need of any assistance or supervision by an internal station. This provides the distant end system and Electra MarkII users, the ability to remotely access each others system’s lines. Automatic Pad Control can be provided by a programmable software transmission pad, when using the TLI-EB ETU.

A TLI-E/EB and CPU-EB2 (or higher revision level) ETU are required to support this feature.

**TENANT SERVICE** allows the system to be independently shared by up to three separate tenants. Separate access to outside lines, Attendants, *System
**Speed Dial** memories, **Night Chimes**, and **Night Call Pickup** can be provided.

**TONE OVERRIDE** allows station users to signal an in-use extension they want to talk to. Once alerted, a Multiline Terminal user can immediately answer the **Override** by depressing the **Answer Key** (placing the existing caller on **Consultation Hold**) . Single Line Telephones can place their existing call on **Exclusive Hold** and answer the override call.

**TRUNK/MFR TEST and BUSY OUT**; **Attendant Positions** have the ability to test and busy out trunk and MFR circuits, with the support of a CPU-EB (or higher revision level) ETU. Each individual trunk circuit can be examined to determine if it is in good working order. If a particular trunk is found to be inoperable, the attendant can busy it out. When the problem is corrected, the trunk circuit can be restored.

Additionally, Single Line Telephones can be used to test the dual tone multi-frequency receiver circuits (on the MFR-EA ETUs) to determine if they are operational. If a problem is detected, an attendant can busy out the defective circuit. Once the problem is corrected, the attendant can restore the circuit.

**TRUNK NAME ASSIGNMENT** allows names to be assigned (via programming) to each trunk of the Electra MarkII System. These names appear on the Multiline Terminal’s LCD when a line belonging to one of these trunks receives an outside transferred call, an E&M Tie Line, **Direct Inward Dialing** (DID), **Direct Inward Termination** (DIT) call or ANA. When receiving an outside transferred call or receiving an E&M Tie Line, DIT, or DID call at a Multiline Terminal, the name assigned to the trunk, to which this line belongs, appears in the LCD.

Each of the forty available trunks can be assigned a name. The assigned name cannot be more than eight characters (including spaces). By default, **CO LINE** is assigned for all trunks. The trunk name is not provided on the LCD when receiving an outside call appearing at a direct outside line key on the Multiline Terminal or when originating an outside call. A CPU-EC4 (or higher revision level) ETU is required to support this feature.

**TRUNK to TRUNK TRANSFER** allows any station user the ability to establish a **Trunk to Trunk Transfer** and then hang up, without dropping either call. The **Trunk to Trunk Transfer** can be between any central office calls, two E&M Tie Line calls, or any combination of the two. This feature does not require the use of a conference circuit. A disconnect signal must be provided to the Electra Mark II. A CPU-EB2 (or higher revision level) ETU is required to support this feature.

**TRUNK QUEUING** allows station users to increase their call processing efficiency in a high traffic environment. The system must be supported with a CPU-EB (or higher revision level) ETU, and the stations dial access to the busy trunk group cannot be via LCR.

Station users who are denied a trunk or Tie Line (after dial access via an extension) when all trunks in the trunk group are busy, can queue onto the trunk group by a dial access code. When a trunk in that trunk group becomes idle, the system reserves it and initiates a **Recall** indication to the queuing station's primary extension (when station and extension are idle).

**TWO COLOR LEDs** are provided on the line keys of all Multiline Terminals [except the ETE-B( )] to more rapidly distinguish between the status of lines. A green LED provides the Multiline Terminal user with such status information as I-Hold, I-Use and **Hold Recall**. A red LED provides indication of all other line status. The **DSS/BLF Console** is also provided with two color LEDs, on buttons programmed for direct access to extensions.

**UNIFORM CALL DISTRIBUTION** (UCD) feature permits incoming DIT and DID calls to terminate in a prearranged group in the order of their arrival. Incoming calls are distributed uniformly between all members of the UCD group so that new calls terminate at the next idle station.

A call to a UCD group in which all extensions are busy may be overflowed to another designated group or extension.

When an incoming DIT call to a UCD group encounters all UCD extensions busy or no answer, the call is queued and receives a recorded announcement after a predetermined interval. A CPU-EB3 (or higher revision level) ETU is required to support this feature.

**UNIVERSAL PORTS** provide complete flexibility for installation and cost savings for the end-user. The Electra MarkII System allows the installation of any type interface circuit board into any interface slot. This allows maximum utilization of the CCUs, resulting in minimal hardware costs.

**USER PROGRAMMING CAPABILITY** reduces installer time and involvement and allows the user to make any required changes while the system retains its versatility. Each Multiline Terminal user can program such features as **Off-Hook Ringing**, internal
Voice or Tone Signaling, Ringing Tone selection, Station Speed Dial memories, Background Music channel, Direct Station Selection assignment, and direct feature access assignment.

The ETE-16K-1 Multiline Terminal provides the ability to program an eleven page directory, offering button access to memories (up to 110) used for Speed Dial, direct station selection, and direct feature access.

UNSUPERVISED CONFERENCE provides the ability for Multiline Terminal users to establish a Conference call between two outside lines on one line key and to place the conference on hold and hang up while the Conference continues; freeing their Multiline Terminal for other uses. The Conference may be re-entered at any time by the Multiline Terminal user. After a predetermined time interval, an audible signal is provided to the Multiline Terminal, as a reminder of the ongoing Unsupervised Conference. Single Line Telephones can also perform this type of Conference call.

VIRTUAL EXTENSIONS are forty eight software extensions available beyond the maximum of eighty station based extensions. Virtual Extensions can be assigned to line keys as desired. The system total of extensions cannot be more than 128, which is comprised of the forty eight Virtual Extensions and the eighty station extensions. Virtual Extensions can be used as destinations for call forwards, DID, and DIT calls.

VOICE MAIL INTEGRATION is an option that provides the necessary interfacing of the Electra MarkII System to a locally provided Voice Mail system. Voice Mail Message Waiting display is also supported. This feature requires a VMI-E ETU to be installed in an interface slot as well as the support of an RSG-E Unit and MFR-EA ETU, which may be shared with Single Line Telephones in the system.
# SECTION 150
## LCD INDICATIONS

<table>
<thead>
<tr>
<th>DISPLAY</th>
<th>LOCATION</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>INITIALIZE</td>
<td>All Stations</td>
<td>System is Initializing</td>
</tr>
<tr>
<td>NIGHT</td>
<td>All Stations</td>
<td>System in Night Mode</td>
</tr>
<tr>
<td>EXT NUMBER?</td>
<td>Originator</td>
<td>Prompt in Call Pickup Directed</td>
</tr>
<tr>
<td>VACANT</td>
<td>Originator</td>
<td>Speed Dial Memory Buffer Status</td>
</tr>
<tr>
<td>ACCOUNT CODE ?</td>
<td>Originator</td>
<td>Prompt for Entering Account Code</td>
</tr>
<tr>
<td>MUSIC NBR ?</td>
<td>Originator</td>
<td>Prompt for Station BGM Selection</td>
</tr>
<tr>
<td>MUSIC 1 SET</td>
<td>Originator</td>
<td>Confirmation of Station BGM Channel</td>
</tr>
<tr>
<td>LK15 RECALL</td>
<td>Originator</td>
<td>Hold Recall</td>
</tr>
<tr>
<td>LK16 RECALL 201</td>
<td>Originator</td>
<td>Recall for Unanswered Transfer/Camp-On (from 201)</td>
</tr>
<tr>
<td>DENIED</td>
<td>Originator</td>
<td>Access Denied</td>
</tr>
<tr>
<td>SAVE &amp; REPEAT</td>
<td>Originator</td>
<td>Save and Repeat Number is Stored</td>
</tr>
<tr>
<td>CAMP ON DENIED</td>
<td>Originator</td>
<td>Unable to Set Camp-On Call</td>
</tr>
<tr>
<td>EXT LINE</td>
<td>Originator</td>
<td>On EXT Line Key (Before Dialing)</td>
</tr>
<tr>
<td>CALL WAITING 106</td>
<td>Originator</td>
<td>Call Waiting (on 106)</td>
</tr>
<tr>
<td>BUSY 289</td>
<td>Originator</td>
<td>Called Station is Busy (With Station No.)</td>
</tr>
<tr>
<td>FWD ALL 298 → 209</td>
<td>Originator</td>
<td>Confirming Call Forward Status</td>
</tr>
<tr>
<td>FWD ALL NOT SET</td>
<td>Originator</td>
<td>Confirming Call Forward Status</td>
</tr>
<tr>
<td>FWD BNA 298 → 218</td>
<td>Originator</td>
<td>Confirming Call Forward Status</td>
</tr>
<tr>
<td>FWD BNA NOT SET</td>
<td>Originator</td>
<td>Confirming Call Forward Status</td>
</tr>
<tr>
<td>FWD SET DENIED</td>
<td>Originator</td>
<td>Unable to Set Call Forward</td>
</tr>
<tr>
<td>FWD CANCEL</td>
<td>Originator</td>
<td>Confirming Call Forward Status</td>
</tr>
<tr>
<td>OVERRIDE → 213</td>
<td>Originator</td>
<td>Confirmation of Tone Override (to 213)</td>
</tr>
<tr>
<td>CALLBACK SET</td>
<td>Originator</td>
<td>Confirmation of Automatic Callback</td>
</tr>
<tr>
<td>CALLBACK DENIED</td>
<td>Originator</td>
<td>Denial of Automatic Callback</td>
</tr>
<tr>
<td>MESSAGE SET 222</td>
<td>Originator</td>
<td>Confirmation of Callback Request Set (to 222)</td>
</tr>
<tr>
<td>MESSAGE DENIED</td>
<td>Originator</td>
<td>Denial of Callback Request Attempt</td>
</tr>
<tr>
<td>CAMP ON CO CALL</td>
<td>Called Station</td>
<td>Receive CO Camp-On Call</td>
</tr>
<tr>
<td>CAMP ON EXT 342</td>
<td>Called Station</td>
<td>Receive Internal Camp-On Call (from 342)</td>
</tr>
<tr>
<td>OVERRIDE 320</td>
<td>Called Party</td>
<td>Receive Tone Override (From 320)</td>
</tr>
</tbody>
</table>
**LCD INDICATIONS (Continued)**

<table>
<thead>
<tr>
<th>DISPLAY</th>
<th>LOCATION</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO LINE</td>
<td>Originator</td>
<td>On CO Line Key (Before Dialing)</td>
</tr>
<tr>
<td>CONFERENCE 03:46</td>
<td>Conference Originating</td>
<td>Conference Elapsed Time</td>
</tr>
<tr>
<td></td>
<td>Station</td>
<td></td>
</tr>
<tr>
<td>PAULA 201</td>
<td>Called/Calling Station</td>
<td>During Internal Call</td>
</tr>
<tr>
<td>CONFERENCE</td>
<td>Conference Party</td>
<td>During Conference</td>
</tr>
<tr>
<td>LK16 TR CO CALL</td>
<td>Receiving Station</td>
<td>Receiving CO Transfer</td>
</tr>
<tr>
<td>LK16 NEIL.A 201</td>
<td>Called Station</td>
<td>Receiving Internal Call (from 201)</td>
</tr>
<tr>
<td>LK16 TR EXT CALL</td>
<td>Receiving Station</td>
<td>Receiving Internal Transfer</td>
</tr>
<tr>
<td>NIGHT MODE SET</td>
<td>Attendant</td>
<td>Confirmation of Night Mode</td>
</tr>
<tr>
<td>NIGHT MODE CNCL</td>
<td>Attendant</td>
<td>Confirmation of Night Mode Cancel</td>
</tr>
<tr>
<td>INT ALL CALL</td>
<td>Originator with DSS/BLF</td>
<td>Internal All Call</td>
</tr>
<tr>
<td>INT ZONE 1 PAGE</td>
<td>Originator with DSS/BLF</td>
<td>Internal Zone Paging</td>
</tr>
<tr>
<td>FWD 256 → 342</td>
<td>Calling Party</td>
<td>Call is Being Forwarded</td>
</tr>
<tr>
<td>TRANSFER → 213</td>
<td>Calling Party</td>
<td>Confirmation of Ringing Extension Call Transfer (to 213)</td>
</tr>
<tr>
<td>CAMP ON → 345</td>
<td>Originator, Calling Party</td>
<td>Confirmation of Camp-On Transfer (to 345)</td>
</tr>
<tr>
<td>LK12 CO CALL</td>
<td>Ring Assigned Station</td>
<td>Incoming CO Call</td>
</tr>
<tr>
<td>07:43 SEP 02 SUN</td>
<td>All Stations</td>
<td>Clock/Calendar</td>
</tr>
<tr>
<td>12:31 NEIL.A 201</td>
<td>Called Station</td>
<td>Callback Request (Message from 201)</td>
</tr>
<tr>
<td>11:53 ATT 0</td>
<td>Called Station</td>
<td>Message Waiting (from Attendant)</td>
</tr>
<tr>
<td>ELAPSED 01:35</td>
<td>CO Calling/Called Station</td>
<td>CO Call Duration</td>
</tr>
<tr>
<td>CK 3 CO CALL</td>
<td>Called Attendant</td>
<td>Incoming CO Call on Add-On Module</td>
</tr>
<tr>
<td>LK16 TIE LINE</td>
<td>Ring Assigned Station</td>
<td>Incoming Tie line call on Primary Extension (with Trunk Group Name Assigned)</td>
</tr>
<tr>
<td>INT ALL ZONE PAGE</td>
<td>Originator with DSS/BLF</td>
<td>Internal All Zone Paging</td>
</tr>
<tr>
<td>SPEAKER 2 PAGE</td>
<td>Originator with DSS/BLF</td>
<td>External Speaker Paging</td>
</tr>
<tr>
<td>ALL SPEAKER PAGE</td>
<td>Originator with DSS/BLF</td>
<td>All External Speaker Paging</td>
</tr>
<tr>
<td>CALLBACK 163</td>
<td>Originator</td>
<td>Recall by Automatic Callback (from 163)</td>
</tr>
<tr>
<td>FWD</td>
<td>Originator</td>
<td>Station in Call Forward Mode</td>
</tr>
<tr>
<td>LK16 QUEUE</td>
<td>Originator</td>
<td>Informing of an Available Trunk</td>
</tr>
<tr>
<td>QUEUE SET</td>
<td>Originator</td>
<td>Trunk Queuing is set</td>
</tr>
</tbody>
</table>
## LCD INDICATIONS (Continued)

<table>
<thead>
<tr>
<th>DISPLAY</th>
<th>LOCATION</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0 Originator</td>
<td>Calculator On</td>
<td>System Speed Dial Memory Buffer Number</td>
</tr>
<tr>
<td>S20 Originator</td>
<td></td>
<td>Prompt to Set Lockout Code</td>
</tr>
<tr>
<td>INcorrect CODE?</td>
<td>Originator</td>
<td>Confirmation of Lockout Cancel</td>
</tr>
<tr>
<td>1326436</td>
<td>Originator</td>
<td>Wrong Lockout Code Entered</td>
</tr>
<tr>
<td>LK16 PARK3 RECALL</td>
<td>Originator</td>
<td>Recall for Unanswered Parked Call</td>
</tr>
<tr>
<td>CALCULATOR BUSY</td>
<td>Originator</td>
<td>All Calculator Circuits Busy</td>
</tr>
<tr>
<td>DATA ONTO MODEM3</td>
<td>Originator</td>
<td>During Data Switching with Outside Party</td>
</tr>
<tr>
<td>NEW CODE SET</td>
<td>Originator</td>
<td>Confirmation of New Secret Code</td>
</tr>
<tr>
<td>CURRENT CODE?</td>
<td>Originator</td>
<td>Prompt During Lockout Code Revision</td>
</tr>
<tr>
<td>NEW CODE ?</td>
<td>Originator</td>
<td>Unable to set Lockout</td>
</tr>
<tr>
<td>LOCKOUT SET 298</td>
<td>Originator</td>
<td>Confirmation of Lockout Status (on 298)</td>
</tr>
<tr>
<td>DATA PATH BUSY</td>
<td>Originator</td>
<td>Data Path of Called Station is Busy</td>
</tr>
<tr>
<td>NO DATA PATH 123</td>
<td>Originator</td>
<td>At Station 123: No data Adaptor Installed; No Data Path Available; No DT and DR key programmed</td>
</tr>
<tr>
<td>NOT READY 123</td>
<td>Originator</td>
<td>Data Adaptor or Data Terminal Equipment at Station 123 is Not Ready</td>
</tr>
<tr>
<td>DATA TO 123</td>
<td>Originator</td>
<td>Originating a Data Call</td>
</tr>
<tr>
<td>DATA PATH TO 123</td>
<td>Originator</td>
<td>During Data Switching</td>
</tr>
<tr>
<td>MODEM BUSY</td>
<td>Originator</td>
<td>All Modems are Busy</td>
</tr>
<tr>
<td>DATA END 121</td>
<td>Originator</td>
<td>End Data Switching by Depressing either DT or DR key; If Required, Turn Off DTE</td>
</tr>
<tr>
<td>DATA RESERVE 121</td>
<td>Originator</td>
<td>Reservation for Originating Data Call</td>
</tr>
<tr>
<td>DATA ERROR</td>
<td>Originator</td>
<td>Error Indication</td>
</tr>
<tr>
<td>DATA END MODEM3</td>
<td>Originator</td>
<td>End of Data Switching with Outside Party</td>
</tr>
<tr>
<td>NOT READY MODEM3</td>
<td>Originator</td>
<td>Modem is Not Ready</td>
</tr>
<tr>
<td>PARK NBR ?</td>
<td>Originator</td>
<td>Prompt for Parking Area Selection</td>
</tr>
<tr>
<td>PARK 3 SET</td>
<td>Originator</td>
<td>Confirmation of Call Park</td>
</tr>
<tr>
<td>BUSY PARK</td>
<td>Originator</td>
<td>Parking Area Attempted is Busy</td>
</tr>
<tr>
<td>MSG 2</td>
<td>Called Station</td>
<td>Two Messages on Queue</td>
</tr>
<tr>
<td>MFR2 NORMAL</td>
<td>Attendant</td>
<td>Confirmation of MFR Test (For MFR Installed)</td>
</tr>
<tr>
<td>MFR3 NOT INSTALL</td>
<td>Attendant</td>
<td>Confirmation of MFR Test (MFR not Installed)</td>
</tr>
</tbody>
</table>
### LCD INDICATIONS (Continued)

<table>
<thead>
<tr>
<th>DISPLAY</th>
<th>LOCATION</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFR2 BUSYOUT</td>
<td>Attendant</td>
<td>Confirmation of MFR Busied Out</td>
</tr>
<tr>
<td>DATA OFF MODEM 3</td>
<td>Calling/Called Station</td>
<td>End of Data Communication by ER (Equipment Ready) Signal Going Off</td>
</tr>
<tr>
<td>DATA FROM 123</td>
<td>Receiving Station</td>
<td>Receiving a Data Call</td>
</tr>
<tr>
<td>DATA OFF</td>
<td>Calling/Called Stations</td>
<td>End of Data Switching by DTR (DATA Terminal) Signal Going Off</td>
</tr>
<tr>
<td>CO12 NOT INSTALL</td>
<td>Attendant</td>
<td>Confirmation of Line Test (For Lines Not Installed)</td>
</tr>
<tr>
<td>CO11 NORMAL</td>
<td>Attendant</td>
<td>Confirmation of Line Test (For Lines Installed)</td>
</tr>
<tr>
<td>CO11 BUSY</td>
<td>Attendant</td>
<td>Confirmation of Line Test (For Lines In Use)</td>
</tr>
<tr>
<td>MODEM HELD 123</td>
<td>Modern Station</td>
<td>Reserving Modem. Indication on Multiline Terminal dedicated to the Modem.</td>
</tr>
<tr>
<td>CO11 BUSYOUT</td>
<td>Attendant</td>
<td>Confirmation of Line Busied Out</td>
</tr>
<tr>
<td>RESERVED MODEM 3</td>
<td>Originator</td>
<td>Modem Reserved.</td>
</tr>
<tr>
<td>DATA TO MODEM3</td>
<td>Originator</td>
<td>Modem is Being Activated</td>
</tr>
<tr>
<td>DIT CALL 3</td>
<td>Ring Assigned Station</td>
<td>In use station receiving DIT or ANA call; (3) are in Queue</td>
</tr>
</tbody>
</table>

**NOTE:** LCD Displays shown in **BOLD ITALIC** in this chart **FLASH** on the terminals LCD.

### SECTION 160

**FEATURE ACCESS CODES (NUMBERING PLAN)**

#### 160.1 Codes Dialed While Receiving Dial Tone or Feature Access Tone

<table>
<thead>
<tr>
<th>FEATURE</th>
<th>CONDITION</th>
<th>CODE (Set in Default)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call to Attendant</td>
<td>Fixed</td>
<td>0</td>
</tr>
<tr>
<td>Extension Numbering (3 or 4 digit)</td>
<td>Flexible</td>
<td>xxx or xxxx</td>
</tr>
<tr>
<td>Uniform Dialing Network</td>
<td>Flexible</td>
<td>NONE</td>
</tr>
<tr>
<td>Call Forward-All Calls: Station</td>
<td>Confirm</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td>Set</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td>Cancel</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td></td>
<td>41</td>
</tr>
<tr>
<td></td>
<td></td>
<td>41 xxx</td>
</tr>
<tr>
<td></td>
<td></td>
<td>41 *</td>
</tr>
<tr>
<td>Call Forward-Busy/No Answer: Station</td>
<td>Confirm</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td>Set</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td>Cancel</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td></td>
<td>42</td>
</tr>
<tr>
<td></td>
<td></td>
<td>42 xxx</td>
</tr>
<tr>
<td></td>
<td></td>
<td>42 *</td>
</tr>
<tr>
<td>Call Forward-All Calls: Attendant</td>
<td>Confirm</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td>Set</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td>Cancel</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td></td>
<td>44</td>
</tr>
<tr>
<td></td>
<td></td>
<td>44 xxx yyyy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>44 yyyy *</td>
</tr>
<tr>
<td>Call Forward-Busy/No Answer: Attendant</td>
<td>Confirm</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td>Set</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td>Cancel</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td></td>
<td>45 xxx</td>
</tr>
<tr>
<td></td>
<td></td>
<td>45 xxx yyyy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>45 xxx *</td>
</tr>
</tbody>
</table>
### 160.1 Codes Dialed While Receiving Dial Tone or Feature Access Tone (Continued)

<table>
<thead>
<tr>
<th>FEATURE</th>
<th>CONDITION</th>
<th>CODE (Set in Default)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call Forward-All Calls: Destination</td>
<td>Confirm</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td>Set</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td>Cancel</td>
<td>Flexible</td>
</tr>
<tr>
<td>Call Forward-Busy/No Answer: Destination</td>
<td>Confirm</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td>Set</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td>Cancel</td>
<td>Flexible</td>
</tr>
<tr>
<td>BGM Over Multiline Terminal Speaker</td>
<td>Cancel</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td>Set</td>
<td>Flexible</td>
</tr>
<tr>
<td>Single Line Telephone Exclusive Hold: Set or Retrieve</td>
<td>Flexible</td>
<td>4# (after flash)</td>
</tr>
<tr>
<td>Voice Mail Message:</td>
<td>Set</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td>Cancel</td>
<td>Flexible</td>
</tr>
<tr>
<td>All Call Voice Page via Multiline Terminal Speakers</td>
<td>Flexible</td>
<td>550</td>
</tr>
<tr>
<td>Internal Paging:</td>
<td>Zone 1</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td>Zone 2</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td>Zone 3</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td>All Zones</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td>Meet-Me Answer</td>
<td>Flexible</td>
</tr>
<tr>
<td>External Paging:</td>
<td>Zone 1</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td>Zone 2</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td>Zone 3</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td>All Zones</td>
<td>Flexible</td>
</tr>
<tr>
<td></td>
<td>Meet-Me Answer</td>
<td>Flexible</td>
</tr>
<tr>
<td>Station Speed Dial Program for Single Line Telephones</td>
<td>Flexible</td>
<td>68</td>
</tr>
<tr>
<td>Station Lockout:</td>
<td>Change Special Code</td>
<td>Flexible</td>
</tr>
<tr>
<td>Single Line Telephone Hook Flash to a CO</td>
<td>Flexible</td>
<td>NONE</td>
</tr>
<tr>
<td>Single Line Telephone CO Prime Line Release</td>
<td>Flexible</td>
<td>NONE</td>
</tr>
<tr>
<td>Off-Line For System Programming</td>
<td>Flexible</td>
<td># * 0</td>
</tr>
<tr>
<td>System Speed Dial Access</td>
<td>Fixed</td>
<td># &amp; 20~99</td>
</tr>
<tr>
<td>Station Speed Dial Access</td>
<td>Fixed</td>
<td># &amp; 00~19</td>
</tr>
<tr>
<td>Account Code Entry</td>
<td>Flexible</td>
<td># #</td>
</tr>
<tr>
<td>Last Number Redial</td>
<td>Fixed</td>
<td>*</td>
</tr>
<tr>
<td>Line/MFR Restore (Attendant Only)</td>
<td>Flexible</td>
<td>57xx*</td>
</tr>
<tr>
<td>Line/MFR Busy Out (Attendant Only)</td>
<td>Flexible</td>
<td>57xx#</td>
</tr>
<tr>
<td>MFR Test (SLT only)</td>
<td>Flexible</td>
<td>67xx</td>
</tr>
<tr>
<td>Line Test (Attendant Only)</td>
<td>Flexible</td>
<td>67xx</td>
</tr>
<tr>
<td>Voice Mail Hunt</td>
<td>Flexible</td>
<td>63</td>
</tr>
<tr>
<td>Night Call Pickup</td>
<td>Flexible</td>
<td>60</td>
</tr>
<tr>
<td>Call Park Set:</td>
<td>Flexible</td>
<td>4*x (x=0~9)</td>
</tr>
<tr>
<td>Call Park Retrieve:</td>
<td>Flexible</td>
<td>4*x (x=0~9)</td>
</tr>
</tbody>
</table>
### 160.1 Codes Dialed While Receiving Dial Tone or Feature Access Tone (Continued)

<table>
<thead>
<tr>
<th>FEATURE</th>
<th>CONDITION</th>
<th>CODE (Set in Default)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Lockout: Set or Cancel</td>
<td>Flexible</td>
<td>61 + Special Code</td>
</tr>
<tr>
<td>Cancel from Attendant</td>
<td>Flexible</td>
<td>62xxx</td>
</tr>
<tr>
<td>Station Not Locked Out: Set Default Value from Attendant</td>
<td>Flexible</td>
<td>62xxx*</td>
</tr>
<tr>
<td>Night Mode Set or Cancel (Attendant Only)</td>
<td>Flexible</td>
<td>68</td>
</tr>
<tr>
<td>Call Pickup: Directed</td>
<td>Flexible</td>
<td>6#xxx</td>
</tr>
<tr>
<td>Group</td>
<td>Flexible</td>
<td>6*</td>
</tr>
<tr>
<td>Trunk Access: Group 3 ~ 8</td>
<td>Flexible</td>
<td>70 ~ 75</td>
</tr>
<tr>
<td>Group 2</td>
<td>Flexible</td>
<td>8</td>
</tr>
<tr>
<td>Group 1</td>
<td>Fixed</td>
<td>9</td>
</tr>
<tr>
<td>Forced/Verified Account Code Entry</td>
<td>Flexible</td>
<td>NONE</td>
</tr>
</tbody>
</table>

### 160.2 Codes Dialed When Not Receiving Dial Tone or Feature Access Tone

<table>
<thead>
<tr>
<th>FEATURE</th>
<th>CONDITION</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change Voice Announce to Tone Signal</td>
<td>Fixed</td>
<td>1</td>
</tr>
<tr>
<td>Call Back Messages</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inspect (Receiving Station On-Hook)</td>
<td>Fixed</td>
<td>1</td>
</tr>
<tr>
<td>Set (Calling Station Off-Hook)</td>
<td>Flexible</td>
<td>#</td>
</tr>
<tr>
<td>Cancel (Receiving Station On-Hook)</td>
<td>Fixed</td>
<td>*</td>
</tr>
<tr>
<td>Tone Override/Attendant Override</td>
<td>Flexible</td>
<td>* 0</td>
</tr>
<tr>
<td>Automatic Callback: Set</td>
<td>Flexible</td>
<td>* 1</td>
</tr>
<tr>
<td>Trunk Queuing</td>
<td>Fixed</td>
<td>* 1</td>
</tr>
</tbody>
</table>
### SECTION 170
#### EQUIPMENT IDENTIFICATION

<table>
<thead>
<tr>
<th>DESIGNATION</th>
<th>DESCRIPTION</th>
<th>MAXIMUM PER SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESE-32B-1 CCU</td>
<td>BASIC CENTRAL CONTROL UNIT</td>
<td>1</td>
</tr>
<tr>
<td>ESE-32E-1 CCU</td>
<td>EXPANSION CENTRAL CONTROL UNIT</td>
<td>3</td>
</tr>
<tr>
<td>CCU BASE</td>
<td>WALL MOUNTING PANEL (FOR 4th CCU)</td>
<td>1</td>
</tr>
<tr>
<td>PSE-AD-1 PSU</td>
<td>AC/DC POWER SUPPLY UNIT</td>
<td>4</td>
</tr>
<tr>
<td>PSE-DD-1 PSU</td>
<td>DC/DC POWER SUPPLY UNIT</td>
<td>4</td>
</tr>
<tr>
<td>RSG-E UNIT</td>
<td>RINGING SUPPLY GENERATOR</td>
<td>4</td>
</tr>
<tr>
<td>RAA-E UNIT</td>
<td>REMOTE ADMINISTRATION ADAPTOR</td>
<td>1</td>
</tr>
<tr>
<td>CPU-EC4 ETU</td>
<td>CENTRAL PROCESSING UNIT</td>
<td>1</td>
</tr>
<tr>
<td>MMC-E ETU</td>
<td>MODULE MEMORY AND CONTROLLER</td>
<td>3</td>
</tr>
<tr>
<td>TSW-E ETU</td>
<td>TIME DIVISION SWITCH</td>
<td>1</td>
</tr>
<tr>
<td>TSW-EB ETU</td>
<td>TIME DIVISION SWITCH to be used in a FOUR CCU system</td>
<td>1</td>
</tr>
<tr>
<td>CBL-E UNIT</td>
<td>FOURTH CABINET EXPANSION CABLE UNIT</td>
<td>1</td>
</tr>
<tr>
<td>COI-E ETU</td>
<td>CENTRAL OFFICE LINE INTERFACE</td>
<td>10</td>
</tr>
<tr>
<td>COI EB ETU</td>
<td>CENTRAL OFFICE LINE INTERFACE with CENTREX RINGING CAPABILITY</td>
<td>10</td>
</tr>
<tr>
<td>TLI-E ETU</td>
<td>E&amp;M TIE LINE and DID LINE INTERFACE</td>
<td>20</td>
</tr>
<tr>
<td>TLI-EB ETU</td>
<td>E&amp;M TIE LINE with DTMF DIALING CAPABILITY INTERFACE</td>
<td>20</td>
</tr>
<tr>
<td>ESI-EA ETU</td>
<td>ELECTRONIC STATION INTERFACE</td>
<td>20</td>
</tr>
<tr>
<td>ESI-EB ETU</td>
<td>ELECTRONIC STATION INTERFACE with OFF-HOOK VOICE ANNOUNCEMENT and DATA CAPABILITIES</td>
<td>20</td>
</tr>
<tr>
<td>SLI-EA ETU</td>
<td>SINGLE LINE INTERFACE</td>
<td>19</td>
</tr>
<tr>
<td>SLI-EB ETU</td>
<td>SINGLE LINE INTERFACE with MESSAGE WAITING and POWER FAILURE TRANSFER</td>
<td>19</td>
</tr>
<tr>
<td>MFR-EA ETU</td>
<td>DUAL-TONE MULTI-FREQUENCY RECEIVER</td>
<td>4</td>
</tr>
<tr>
<td>CNF-E ETU</td>
<td>CONFERENCE CIRCUIT</td>
<td>4</td>
</tr>
<tr>
<td>ECR-E ETU</td>
<td>EXTERNAL CONTROL RELAYS</td>
<td>1</td>
</tr>
<tr>
<td>VMI-E ETU</td>
<td>VOICE MAIL INTERFACE</td>
<td>2 *</td>
</tr>
<tr>
<td>SMDR-E ETU</td>
<td>STATION MESSAGE DETAIL RECORDING</td>
<td>1</td>
</tr>
<tr>
<td>LCR-E ETU</td>
<td>LEAST COST ROUTING</td>
<td>1</td>
</tr>
<tr>
<td>ETE-6-( ) TEL</td>
<td>6 LINE MULTILINE TERMINAL</td>
<td>78</td>
</tr>
<tr>
<td>ETE-6D-( ) TEL</td>
<td>6 LINE MULTILINE TERMINAL with DISPLAY</td>
<td>78</td>
</tr>
<tr>
<td>ETE-16-2 TEL</td>
<td>16 LINE MULTILINE TERMINAL</td>
<td>78</td>
</tr>
<tr>
<td>ETE-16D ( ) TEL</td>
<td>16 LINE MULTILINE TERMINAL with DISPLAY(SEE NOTE)</td>
<td>30 (80)</td>
</tr>
<tr>
<td>ETE-16K-1 TEL</td>
<td>16 LINE MULTILINE TERMINAL with DIRECTORY DISPLAY</td>
<td>30</td>
</tr>
<tr>
<td>FTF-1-2</td>
<td>Dterm II SINGLE LINE TELEPHONE</td>
<td>76</td>
</tr>
<tr>
<td>ETE-1HM-2</td>
<td>Dterm II H SINGLE LINE TELEPHONE</td>
<td>76</td>
</tr>
<tr>
<td>EDE-30-( ) DSS/BLF</td>
<td>30 BUTTON DIRECT STATION SELECTION/BUSY LAMP FIELD CONSOLE</td>
<td>6 **</td>
</tr>
<tr>
<td>EDE-30-( )</td>
<td>CO ADD-ON MODULE</td>
<td>4 **</td>
</tr>
<tr>
<td>HFU-E</td>
<td>HANDSFREE UNIT</td>
<td>80</td>
</tr>
<tr>
<td>DPA-E</td>
<td>DUAL PATH ADAPTOR</td>
<td>80 ***</td>
</tr>
<tr>
<td>ADA-E</td>
<td>ANCILLARY DEVICE ADAPTOR</td>
<td>80</td>
</tr>
<tr>
<td>ADA-ER</td>
<td>ANCILLARY DEVICE ADAPTOR (For Full Duplex Recording Devices)</td>
<td>80</td>
</tr>
<tr>
<td>WMU-E</td>
<td>WALL MOUNT UNIT</td>
<td>80</td>
</tr>
<tr>
<td>DTA-E</td>
<td>DATA ADAPTOR</td>
<td>80 ***</td>
</tr>
<tr>
<td>DATASAVE</td>
<td>SYSTEM DATA UP/DOWN LOAD SOFTWARE</td>
<td>1</td>
</tr>
</tbody>
</table>

**NOTE:** No more than 10 ETE-16D-( ) Multiline Terminals with BLF function assigned can be connected to each ESE-32B-1 and ESE-32E-1 CCU installed, for a system maximum of 30. *A CPU-EC4 (or higher revision) is required to support two VMI-E ETU's, otherwise, only one VMI-E ETU may be installed. **The EDE-30-( ) system maximum is six units, when used as BLF, CO Add-On Module and/or DSS/BLF. ***Refer to description of DPA-E and DTA-E.
170.1 GENERAL INFORMATION
One set of Job Specifications and a wall mounting template are included with the ESE-32B-1 CCU. All optional equipment such as external amplifier, MOH source, BGM source, external speaker, modem, etc. must be locally provided.

170.2 EQUIPMENT DESCRIPTION

1. ESE-32B-1 CCU
This CCU is the basic Central Control Unit. This steel cabinet is designed to accommodate other expansion CCUs. A PSE-AD-1 or PSE-DD-1 power supply is required to provide service. It also requires a CPU-E( or higher revision) ETU and a TSW-E ETU.

The ESE-32B-1 CCU provides eight slots in the interface card section that can support four ports each. The ETUs that can be installed in these eight slots are: COI-E, COI-EB, TLI-E, TLI-EB, ESI-EA, ESI-EB, SLI-EA, SLI-EB, CNF-E, MFR-EA, ECR-E and VMI-E ETUs.

Additionally, there are three slots in the common control/optional card section. Two of these three slots are occupied by the CPU-E( ) and the TSW-E ETUs. One slot can be used to install an optional common card such as an SMDR-E or an LCR-E ETU.

When slot eight in the interface card section is not occupied, it can be used to install another optional common card.

The ESE-32B-1 CCU (maximum one per system) provides service for up to thirty two ports.

2. ESE-32E-1 CCU
This CCU is the expansion Central Control Unit. This steel cabinet is designed to be stacked on top of the ESE-32B-1 CCU or on top of another ESE-32E-1 CCU; it is not a stand alone unit and must be used in conjunction with the ESE-32B-1 CCU.

The ESE-32E-1 CCUs require a PSE-AD-1 or PSE-DD-1 power supply to provide service to all equipment supported by this CCU. It also requires an MMC-E ETU to control this equipment.

The ESE-32E-1 CCU provides eight slots in the interface card section; each section can support four ports. The ETUs that can be installed in these eight slots are: COI-E, COI-EB, TLI-E, TLI-EB, MFR-EA, ESI-EA, ESI EB, SLI EA, SLI EB, CNF-E, ECR-E, and VMI-E ETUs.

In addition, there are three slots in the common control/optional common card section. One of the three slots is occupied by the MMC-E ETU. Two slots can be used to install optional cards such as LCR-E and SMDR-E ETUs.

A maximum of three ESE-32E-1 CCUs can be installed. The first expansion CCU expands the total system capacity to sixty-four ports. Two expansion CCUs provide service for system capacity of ninety six ports. The third expansion CCU allows the system a maximum of 128 ports.

3. CCU BASE WALL MOUNTING PANEL
This unit is required for wall mounting the third expansion CCU (ESE-32E-1).

4. PSE-AD-1 PSU
The PSE-AD-1 PSU is an AC/DC power supply and when used, is mounted in each CCU. This PSU converts nominal 117 VAC into the necessary voltages required to operate the system.

The PSU provides the required DC voltages (-5V, +5V, -24V) to ETUs installed in the CCU and to the devices connected to the CCU.
5. PSE-DD-1 PSU

This power supply accepts a DC input voltage of -48VDC and converts it to the necessary operating DC voltages of -5V, +5V and -24V, required by a CCU.

The PSU allows the system to be powered from a locally provided nominal -48VDC power source. Battery Backup can be connected to the -48V DC power source, thereby avoiding disruptions of system operations caused by commercial power failures and brownouts.

The PSE-AD(-) and PSE-DD( ) should not be installed in the same system. Operational integrity of the system may be degraded if power is lost to individual CCU's.

6. RSG-E UNIT

The RSG-E Unit is the Ringing Supply Generator required to provide ringing signal to Single Line Telephones (SLTs), modems, and a Voice Mail system.

The RSG-E Unit is mounted into the CCU (next to the PSU) to support up to thirty two SLTs, up to four modems, and/or Voice Mail.

The RSG-E Unit installed in a CCU supplies ringing signal to SLTs, Voice Mail and modems connected to that CCU. One RSG-E Unit can supply ringing signal to an adjacent CCU, if the combined CCU ringing requirements are not exceeded.

7. RAA-E UNIT

The Remote Administration Adaptor (RAA-E) provides access to the Electra Mark II System program from a remote location. The system program can be changed, defective ports can be busied out or put back into service, after the problem is corrected.

To accomplish this function, the following equipment is required:

a. At Job Site:
   1. CPU-EB (or higher revision level) ETU
   2. ESI-E( ) ETU (one circuit for RAA-E termination)
   3. Modem (212A compatible with auto answer)
   4. SLI-E( ) (one circuit for Modem termination if required) ETU
   5. RSG-E unit (if Modem terminates on an SLI-E( ) ETU)

b. At the Remote Location:
   1. Modem (212A)
   2. NEC Powermate or IBM compatible PC
   3. RAA Host Disk

8. CPU-E ETU

A CPU-E (or higher revision level) ETU is the Central Processing Unit and the heart of this system. It provides overall control via the main processor (16 bit microprocessor) by communicating with the distributed processors mounted on the TSW-E( ) and MMC-E ETUs.

The CPUs RAM memory is backed up with a rechargeable NiCad battery which will retain the memory for up to seven days.

One CPU-E (or higher revision level) ETU must be installed in the ESE-32B-1 CCU.

9. MMC-E ETU

The MMC-E ETU is the Module Memory, with a 4 bit microprocessor, and Controller Unit required for each ESE-32E-1 CCU. It controls data transmission between the CPU-E( ) ETU and the interface cards installed in the ESE-32E-1 CCU in which the MMC-E ETU is installed.

Data from and to the CPU-E( ) ETU and each interface card is temporarily stored in the memories of the MMC-E ETU.

10. TSW-E ETU

The TSW-E ETU is the Time Division Switch Unit required for the ESE-32B-1 CCU. It supplies most of the tones required in processing telephone calls. It establishes paths between stations and outside lines, extension lines or call process tones.

The TSW-E ETU also has functions similar to the MMC-E ETU in the ESE-32B-1 CCU and provides the source output for external paging.

To connect MOH and BGM sources, the TSW-E ETU houses audio digitizer circuits to change analog signals to digital signals.

11. TSW-EB ETU

The TSW-EB ETU is the Time Division Switch Unit required for the ESE-32B-1 CCU when the fourth CCU is installed. It supplies most of the tones required in processing telephone calls and it also establishes paths between stations and outside lines, extension lines or call process tones, the same as the TSW-E ETU.

The TSW-EB ETU also has an additional connector to interface to the fourth MMC-E ETU in the third ESE-32E-1 CCU.
To connect MOH and BGM sources, the TSW-EB ETU houses audio digitizer circuits to change analog signals to digital signals.

12. CBL-E UNIT
This unit provides the required interconnecting cables to install the fourth CCU. The CBL-E is shipped with a special template to facilitate the wall mounting of the fourth CCU.

13. COI-E ETU
The COI-E ETU is the Central Office Line Interface Unit that contains circuitry for outside ring detection, hold, dialing, and control function.

Each COI-E ETU provides four identical circuits to serve up to four CO trunks which can be any mix of Loop Start or Ground Start Trunks, DTMF or dial pulse dialing.

A maximum of ten COI-E ETUs can be installed per system.

14. COI-EB ETU
This Central Office Interface ETU is the same as the COI-E ETU except this ETU supports the Centrex Ringing feature.

15. TLI-E ETU
The TLI-E ETU provides for the termination and operation of up to two lines that can be E&M Tie Lines (loop dial, 2 or 4 wire E&M, Type 1 or Type V) and DID line (10pps pulse dial). Wink, delayed, second dial tone or immediate start loop signaling are supported along with the possible terminations accommodated with the COI-E and TLI-EB ETUs. The system maximum of 40 outside lines is observed.

16. TLI-EB ETU
The TLI-EB ETU provides for the termination and operation of up to two lines that can be E&M Tie Lines (2 or 4 wire E&M, Type 1 or Type V). DTMF, Dial Pulse, Wink start, delayed dial, second dial tone or immediate start loop signaling are supported along with the possible terminations accommodated with the COI-E and TLI-EB ETUs. The system maximum of forty outside lines is observed.

17. ESI-EA ETU
The ESI-EA ETU is the Electronic Station Interface Unit required to provide data control and voice service to the Multiline Terminals without the off-hook announcement feature. It can also accommodate the DSS/BLF Console and CO Add-On Modules.

Each ESI-EA ETU contains four identical circuits to serve up to four Multiline Terminals which can be any mix of Multiline Terminals, DSS/BLF Consoles, RAA-E unit, or CO Add-On Modules.

NOTE: It is recommended that the ESI-EA ETU be the only Multiline Terminal Interface card installed in the fourth CCU. The fourth CCU cannot support the additional features supported by the ESI-EB ETU.

A maximum of twenty ESI-EA ETUs can be installed per system.

18. ESI-EB ETU
The ESI-EB ETU is the Electronic Station Interface Unit which includes the functions of the ESI-EA ETU and supplies the Multiline Terminals (when a DPA-E and/or a DTA-E Unit is installed) with the off-hook announcement and/or Data Communication features.

Each ESI-EB ETU contains four identical circuits to serve up to four Multiline Terminals which can be any mix of Multiline Terminals, DSS/BLF Consoles, RAA unit, or CO Add-On Modules.

NOTE 1: The Data Switching feature has a direct impact on the Dual Path features' system maximum and vice versa. When a station requires both Dual Path and Data Switching it needs the use of three paths (each ESI-EB ETU contains 8 paths utilized by the four ports) therefore, removing the second path from the adjacent port. Only ports one and three of the ESI-EB ETU can have both features, while ports two and four can have either feature (if the adjacent port does not have both).

NOTE 2: It is recommended that the ESI-EA ETU be the only Multiline Terminal Interface card installed in the fourth CCU. The fourth CCU cannot support the additional features supported by the the ESI-EB ETU.

A maximum of twenty ESI-EB ETUs can be installed per system.

19. SLI-EA ETU
The SLI-EA ETU is the Single Line Telephone Interface Unit which provides circuitry for loop status detection, talk battery, sending ringing signal from the RSG-E Unit to SLTs, and voice service to SLTs.

Each SLI-EA ETU contains four identical circuits to serve up to four SLTs.
A maximum of nineteen SLI-EA ETUs can be installed per system.

20. SLI-EB ETU
The SLI-EB ETU is a Single Line Telephone Interface Unit which includes the functions of the SLI-EA ETU and provides Message Waiting indication to SLTs equipped with a Message Waiting lamp.

Each SLI-EB ETU contains four identical circuits to serve up to four SLTs.

The SLI-EB ETU is required for use with power failure transfer of COs to SLTs.

A maximum of nineteen SLI-EB ETUs can be installed per system.

21. MFR-EA ETU
The MFR-EA ETU is a Dual Tone Multi-Frequency Receiver Unit that is used to receive and translate the DTMF signals generated by the SLTs or Voice Mail System.

Each MFR-EA ETU provides two receiver circuits shared by SLTs in a system. When no SLTs or VMI-E ETUs are installed in a system, MFR-EA ETUs are not required.

A maximum of four MFR-EA ETUs can be installed per system.

22. CNF-E ETU
The CNF-E ETU is the Conference Unit that is used to establish a non-amplified Conference between a maximum of four parties, both outside lines and extensions. No more than two outside lines can participate in a Conference call.

A CNF-E ETU is required for each Conference in progress.

A maximum of four CNF-E ETUs can be installed per system.

23. ECR-E ETU
The ECR-E ETU is the External Control Relay Unit that provides control circuits to access one or all three External Paging Zones. If the locally provided amplifier is a both way amplifier, two way paging is available. The ECR-E ETU also provides circuitry for External Ringing applications and Night Chime control in the night mode.

The ECR-E ETU also contains input jacks. The first jack is for an alternative music source or as the playback input for a Delay Announcement unit when used with UCD. The ECR-E ETU also provides an output jack for continuous ring tone.

A maximum of one ECR-E ETU can be installed per system.

24. VMI-E ETU
The Voice Mail Interface has four circuits used to interface between the Electra Mark II Digital Telephone System and a locally provided Voice Mail system. The VMI-E generates DTMF for control of the Voice Mail equipment and provides it with access to MFR-EA ETUs. The system requires an RSG-E Unit to support the VMI-E ETU. Single Line Telephones, DTMF controlled dictation equipment, or a modem can be connected to any unused ports of the VMI-E ETU.

A CPU-EB (or higher revision level) ETU is required to support the connection of an SLT, modem, or DTMF controlled dictation equipment to the VMI-E ETU.

A maximum of two VMI-E ETUs (which allows for 8 ports for Voice Mail) may be installed if a CPU-EC4 (or higher revision level) is installed. Otherwise, only one VMI-E ETU can be installed.

25. SMDR-E ETU
The SMDR-E ETU (Station Message Detail Recording Unit) provides the user with detailed call reports on the usage of the system. Detailed call reports include number dialed, time of initiated/received call, trunk number, trunk group, type of call (outgoing, incoming, transferred, conferenced), station number, length of call, date, account code (if entered), and LCR status. A printer or other peripheral device must be connected to the RS232C connector from the SMDR-E ETU. The call buffer is protected against power loss by a battery. Data output speed range is from 300 to 4800 baud and is set by a switch mounted on the SMDR-E ETU.

A maximum of one SMDR-E ETU can be installed per system.

26. LCR-ETU
The LCR-ETU is the Least Cost Routing Unit that provides the user with the least costly available route when placing outside calls.

The LCR programmed data base is protected against power loss by a battery. Data output speed range is from 150 to 9600 baud and is set by a switch mounted on the LCR-ETU.
A maximum of one LCR-E ETU can be installed per system. Data input (programming) to the LCR is provided by an NEC PC8300 portable computer, disk drive and floppy, NEC Powermate, or IBM compatible PC.

27. ETE-6(-) TEL
The ETE-6(-) TEL is a fully modular, digital Multiline Terminal with six line keys, seven function keys and one message wait LED.

Line keys can be assigned for outside lines, extension lines, DND (Do Not Disturb), S & R (Save and Repeat), and Pooled Lines.

This Multiline Terminal requires twisted two pair cabling to the MDF (Main Distribution Frame) or IDF (Intermediate Distribution Frame).

28. ETE-6D(-) TEL
The ETE-6D(-) TEL is a fully modular, digital Multiline Terminal with six line keys, seven function keys and ten programmable Feature Access keys for DSS, station speed dialing, or feature access codes.

A two color LED is provided to each line key which can be used for outside lines, extension lines, Data Transmit and Data Receive, DND, or Pooled Line features.

This Multiline Terminal is equipped with a two line LCD with sixteen characters per line.

The ETE-6D(-) terminal requires twisted two pair cabling to the MDF or the IDF.

29. ETE-16-2 TEL
This Multiline Terminal is a full modular instrument with sixteen line keys each with two color LED indications, 7 fixed function buttons and a Message Waiting LED.

Fifteen of the sixteen line keys are flexible and can be assigned to any outside line connected to the system, to any extension line, or as a feature button (for Do Not Disturb, Pooled Lines, or Save and Repeat).

30. ETE-16D(-) TEL
The ETE-16D(-) TEL is a fully modular, digital Multiline Terminal with sixteen line keys, seven function keys and twenty programmable Feature Access keys for DSS with BLF indications, Station Speed Dialing, or feature access codes.

A two color LED is provided to each line key which can be used for outside lines, extension lines, Data Transmit and Data Receive, DND, or Pooled Lines features.

This Multiline Terminal is equipped with a two line LCD with sixteen characters per line.

The ETE-16D(-) TEL requires twisted two pair cabling to the MDF or the IDF.

A maximum of ten ETE-16D(-) TELs per CCU can be programmed for the BLF function. The total system allows a maximum of thirty ETE-16D(-) TELs with BLF.

31. ETE-16K-1 TEL
The ETE-16K-1 TEL is a fully modular, digital Multiline Terminal with sixteen line keys, seven function keys and ten programmable Feature Access keys for DSS/BLF, Station Speed Dialing or feature access codes.

The ten programmable Feature Access keys are associated with a seven line, sixteen digit, LCD with eleven pages. The desired page can be selected by the DIR (Directory) key. A total of 110 programmable designation buffers are available.

The top two lines of the LCD are used to indicate Clock/Calendar and the status of call progress. The five bottom lines of the LCD are associated with the ten programmable Feature Access keys.

A two color LED is also provided to each line key which can be assigned for outside lines, extension lines, Data Transmit and Data Receive, DND, Pooled Lines, or S I & I R features.

The ETE-16K-1 requires twisted two pair cabling to the MDF or the IDF.

A maximum of thirty ETE-16K-1 TELs can be installed per system.

32. Single Line Telephone
Single Line Telephones must be 2500 type telephones, Dterm IIs, or Dterm II Hs and must be locally provided.

Only DTMF Single Line Telephones are compatible with this system.

An MFR-EA ETU, an RSG-E Unit and either an SLI-EA ETU or an SLI-EB ETU are required for operation of Single Line Telephones.
33. **EDE-30-( ) DSS/BLF**
The EDE-30-( ) DSS/BLF is the Direct Station Selection/Busy Lamp Field console that is equipped with thirty three programmable non-locking buttons. Thirty buttons are used to assign DSS or such features as Transfer, paging, Attendant Override, Night Mode and Message Waiting. Three buttons are for feature use only.

The first thirty buttons are provided with two color LEDs which indicate station status or Message Waiting status.

Depressing the button assigned for Message Waiting changes the EDE-30-( ) DSS/BLF operation to that of a Message Waiting console.

A maximum of six EDE-30-( ) DSS/BLF Consoles can be installed per system. A maximum of two EDE-30-( ) DSS/BLF Consoles can be associated with any attendant Multiline Terminal.

The EDE-30-( ) can also be utilized as a CO Add-On Module, but must be Revision B or higher. The CO Add-On Module can increase the outside line appearances at an Attendant Position to the system maximum of forty. The system maximum for EDE-30-( ) units remains six, a maximum of four CO Add-On Modules can be installed (one per Attendant Position). When programming an EDE-30-( ) unit as a CO Add-On Module, the system must be supported with a CPU-EB( ) ETU.

34. **HFU-E UNIT**
The HFU-E Unit is the Handsfree unit that provides the user with Full Handsfree operation for both outside and internal calls. It is mounted inside the Multiline Terminal.

**NOTE:** The ETE-6-( ) TEL and ETE-16-2 telephones cannot be equipped with the HFU-E Unit.

35. **DPA-E UNIT**
The DPA-E Unit is a Dual Path Adaptor Unit that provides the user with an off-hook announcement feature and is mounted inside the Multiline Terminal.

**NOTE:** The ETE-6-( ) TEL and ETE-16-2 TEL cannot be equipped with a DPA-E Unit. A Multiline Terminal equipped with a DPA-E Unit must be supported by an ESI-EB ETU installed in any of the first three CCUs. Also refer to the note in paragraph 35. DTA-E Unit.

36. **ADA-E UNIT**
The ADA-E Unit is the Ancillary Device Adaptor Unit that allows the Multiline Terminal to connect locally provided devices (speakerphone, jackset, handset amplifier, modem, etc.), and is mounted into the Multiline Terminal.

37. **ADA-ER UNIT**
The ADA-ER Unit provides the user with Full Duplex capabilities with a Multiline Terminal connected to locally provided equipment; example: dictaphone equipment, and is mounted inside the Multiline Terminal.

38. **WMU-E**
The WMU-E is a universal Wall Mount Unit which can be used to wall mount any Multiline Terminal.

39. **DTA-E UNIT**
The Data Adaptor provides a Multiline Terminal with the capability of asynchronous data switching. A Multiline Terminal equipped with a DTA-E unit can switch data between it and an outside party using a modem; or with an internal station equipped with a DTA-E unit. Speeds of up to 9.6 kbps. can be accommodated internally on the RS-232C type interface.

A maximum of one DTA-E Unit can be installed per Multiline Terminal with LCD. The system maximum is eighty units.

**NOTE:** The Data Switching feature has a direct impact on the Dual Path features' system maximum and vice versa. When a station requires both Dual Path and Data Switching, it needs the use of three paths (each ESI-EB contains eight paths utilized by the four ports), therefore, removing the second path from the adjacent port. Only ports one and three, of the ESI-EB ETU can have both features, while ports two and four can have either feature (if the adjacent port does not have both).

A CPU-EB( ) ETU and an ESI-EB ETU (installed in any of the first three CCUs) are required to support this feature.

40. **DATASAVE**
The System Data Up/Down Load software program allows system data, speed dial numbers, and forced account codes to be stored on diskette(s). An RAA-E Unit and NEC Powermate or IBM compatible PC are required for use of diskette(s).
CHAPTER 2
HARDWARE INSTALLATION
### SECTION 210 GENERAL

This chapter provides a comprehensive understanding of how to properly install each component of the Electra MarkII Digital Telephone System. It is recommended this chapter be read in its entirety to familiarize yourself with its content. This will enable a faster, more productive installation and cut-over.

Power being supplied to the system should be applied as a final step prior to the system operational testing (as described in Chapter 5 of this manual).

The Electronic Telephone Units (ETUs) make extensive use of CMOS technology. **STATIC DISCHARGES TO ANY ETU MUST BE AVOIDED.**

### SECTION 220 SPECIFICATIONS

<table>
<thead>
<tr>
<th>SECTION</th>
<th>DESCRIPTION</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>220.1</td>
<td>General Information</td>
<td>200-2</td>
</tr>
<tr>
<td>220.2</td>
<td>Programming Station</td>
<td>200-2</td>
</tr>
<tr>
<td>220.3</td>
<td>Attendant Stations</td>
<td>200-2</td>
</tr>
<tr>
<td>220.4</td>
<td>Determination of Equipment Required</td>
<td>200-2</td>
</tr>
<tr>
<td>220.5</td>
<td>Power Requirements</td>
<td>200-5</td>
</tr>
<tr>
<td>220.6</td>
<td>Grounding Requirements</td>
<td>200-5</td>
</tr>
<tr>
<td>220.7</td>
<td>Electrical Noise Generators</td>
<td>200-5</td>
</tr>
<tr>
<td>220.8</td>
<td>Additional Equipment</td>
<td>200-6</td>
</tr>
<tr>
<td>220.9</td>
<td>System Capacity</td>
<td>200-6</td>
</tr>
<tr>
<td>220.10</td>
<td>Installation Example</td>
<td>200-7</td>
</tr>
<tr>
<td>220.11</td>
<td>Cabling Requirements</td>
<td>200-7</td>
</tr>
<tr>
<td>220.12</td>
<td>Power Requirements</td>
<td>200-8</td>
</tr>
<tr>
<td>220.13</td>
<td>Environmental Conditions</td>
<td>200-9</td>
</tr>
<tr>
<td>220.14</td>
<td>Outside Line Type</td>
<td>200-9</td>
</tr>
<tr>
<td>220.15</td>
<td>Network and Control</td>
<td>200-9</td>
</tr>
<tr>
<td>220.16</td>
<td>Dialing Specifications</td>
<td>200-10</td>
</tr>
<tr>
<td>220.17</td>
<td>Battery Backup</td>
<td>200-10</td>
</tr>
<tr>
<td>220.18</td>
<td>Dimensions and Weights</td>
<td>200-11</td>
</tr>
<tr>
<td>220.19</td>
<td>External Equipment Interfacing</td>
<td>200-11</td>
</tr>
<tr>
<td>220.20</td>
<td>Visual and Audible Indications</td>
<td>200-11</td>
</tr>
<tr>
<td>220.21</td>
<td>Data Equipment Interfacing</td>
<td>200-11</td>
</tr>
</tbody>
</table>

### SECTION 230 SITE PREPARATION and MDF/IDF CONSTRUCTION

<table>
<thead>
<tr>
<th>SECTION</th>
<th>DESCRIPTION</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>230.1</td>
<td>General Information</td>
<td>200-15</td>
</tr>
<tr>
<td>230.2</td>
<td>Site Survey</td>
<td>200-15</td>
</tr>
<tr>
<td>230.3</td>
<td>Site Limitations</td>
<td>200-15</td>
</tr>
<tr>
<td>230.4</td>
<td>Site Selection Conditions</td>
<td>200-15</td>
</tr>
<tr>
<td>230.5</td>
<td>MDF Construction</td>
<td>200-16</td>
</tr>
<tr>
<td>230.6</td>
<td>CCU Cables</td>
<td>200-16</td>
</tr>
<tr>
<td>230.7</td>
<td>Outside Lines</td>
<td>200-16</td>
</tr>
<tr>
<td>230.8</td>
<td>Station Equipment</td>
<td>200-16</td>
</tr>
</tbody>
</table>

### SECTION 240 CENTRAL CONTROL UNITS (CCUs) CONNECTION

<table>
<thead>
<tr>
<th>SECTION</th>
<th>DESCRIPTION</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>240.1</td>
<td>Wall Mounting the CCU</td>
<td>200-18</td>
</tr>
<tr>
<td>240.2</td>
<td>Floor Mounting the CCU</td>
<td>200-20</td>
</tr>
<tr>
<td>240.3</td>
<td>Notes for ETU Installation</td>
<td>200-22</td>
</tr>
<tr>
<td>240.4</td>
<td>Common Control ETUs</td>
<td>200-22</td>
</tr>
<tr>
<td>240.5</td>
<td>Basic Interface ETUs</td>
<td>200-24</td>
</tr>
<tr>
<td>240.6</td>
<td>Optional Interface ETUs</td>
<td>200-28</td>
</tr>
<tr>
<td>240.7</td>
<td>SMUR-E ETU</td>
<td>200-28</td>
</tr>
<tr>
<td>240.8</td>
<td>LCR-E ETU</td>
<td>200-29</td>
</tr>
</tbody>
</table>

### SECTION 250 POWER SUPPLY INSTALLATION

<table>
<thead>
<tr>
<th>SECTION</th>
<th>DESCRIPTION</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>250.1</td>
<td>PSE-AD-1 PSU</td>
<td>200-32</td>
</tr>
<tr>
<td>250.2</td>
<td>PSE-DD-1 PSU</td>
<td>200-33</td>
</tr>
<tr>
<td>250.3</td>
<td>RSG-E Unit</td>
<td>200-34</td>
</tr>
</tbody>
</table>

### SECTION 260 ANCILLARY DEVICE CONNECTION

<table>
<thead>
<tr>
<th>SECTION</th>
<th>DESCRIPTION</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>260.1</td>
<td>General Information</td>
<td>200-34</td>
</tr>
<tr>
<td>260.2</td>
<td>Handsfree Unit (HFU-E)</td>
<td>200-35</td>
</tr>
<tr>
<td>260.3</td>
<td>Dual Path Adaptor Unit (DPA-E)</td>
<td>200-35</td>
</tr>
<tr>
<td>260.4</td>
<td>Ancillary Device Adaptor Unit (ADA-E)</td>
<td>200-36</td>
</tr>
<tr>
<td>260.5</td>
<td>ADA-E Installation Into ETE-6-() Terminals</td>
<td>200-37</td>
</tr>
<tr>
<td>260.6</td>
<td>Data Terminal Adaptor Unit (DTA-E)</td>
<td>200-37</td>
</tr>
<tr>
<td>260.7</td>
<td>DTA-E Installation</td>
<td>200-39</td>
</tr>
<tr>
<td>260.8</td>
<td>Wall Mount Unit Installation</td>
<td>200-39</td>
</tr>
</tbody>
</table>

### SECTION 270 OPTIONAL EQUIPMENT CONNECTION

<table>
<thead>
<tr>
<th>SECTION</th>
<th>DESCRIPTION</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>270.1</td>
<td>Music on Hold</td>
<td>200-41</td>
</tr>
<tr>
<td>270.2</td>
<td>External Paging</td>
<td>200-42</td>
</tr>
<tr>
<td>270.3</td>
<td>Background Music/Delay Announcements</td>
<td>200-42</td>
</tr>
<tr>
<td>270.4</td>
<td>External Tone Ringing / Night Chime</td>
<td>200-42</td>
</tr>
<tr>
<td>270.5</td>
<td>Modem Termination</td>
<td>200-44</td>
</tr>
</tbody>
</table>
Each interface and optional ETU contains a switch (SW1) to protect its circuitry from damage during insertion and removal while power is applied to the unit, make it a habit to ensure this switch is OFF. (See Figure 200-1)

![Figure 200-1 SW1 of ETUs](image)

**SECTION 220 SPECIFICATIONS**

**220.1 GENERAL INFORMATION**

Prior to configuring a system, first complete the job specification sheets provided (ND-20234) with the CPU-E( ) ETU, and ensure all types of station equipment, time outs, and feature options are taken into account.

An understanding of the system programming is required to properly complete the job specification forms.

Even though each CCU has eight interface slots and thirty two ports, not all ports are used for installing station equipment. The hardware requirements will dictate the availability of ports for installing station equipment.

Twenty five pair cable binders to the MDF should, when possible, pair the same type ETUs together within a cable binder. This will simplify the MDF wiring.

**220.2 PROGRAMMING STATION**

A maximum of four programming positions can be available in a system. Station equipment connected to the first two ports of the first ESI-E( ) ETU are automatically set as programming positions and must be ETE-16D-( ) Multiline Terminals. A third programming position can be assigned to any interface port, with an ESI-E( ) ETU and ETE-16D-( ) installed, by either the first or second programming Multiline Terminal or the RAA-E Unit. The fourth position becomes available when the RAA-E Unit is installed. The first two programming positions are system attendants and are fixed in system software.

**220.3 ATTENDANT STATIONS**

A maximum of four Attendant positions can be installed in a system. Attendant stations must be ETE-16D-( ) Multiline Terminals that are supported by an ESI-E( ) ETU. The third and fourth Attendant positions can only be assigned to the first ESI-E( ) ETU, ports three and four.

Attendant Multiline Terminals can operate in conjunction with up to two EDE-30( ) DSS/BLF Consoles and/or one CO Add-On Module. Each DSS/BLF Console and CO Add-On Module must be supported by an ESI-E( ) ETU. The EDE-30( ) can be attached to an ETE-16D-( ) and/or another EDE-30( ), using the metal bracket supplied with each EDE-30( ) unit.

A maximum of six EDE-30( ) units can be installed per system of which a maximum of four can be assigned as CO Add-On Modules (one per Attendant position). No more than six EDE-30( ) units, (CO Add-On Module and/or DSS/BLF) can be installed per system.

**220.4 DETERMINING EQUIPMENT REQUIRED**

1. **Station Equipment**

Determine the type and the quantity of each station equipment being installed.

Types of station equipment available are as follows:

a. ETE-6( ) TEL
   (6 line Multiline Terminal without LCD).

b. ETE-6D( ) TEL
   (6 line Multiline Terminal with LCD).

c. Durm SeriesII ETE-16-2 TEL
   (16 line Multiline Terminal).

d. ETE-16D( ) TEL
   (16 line Multiline Terminal with LCD).

e. ETE-16K-1 TEL
   (16 line Multiline Terminal with directory LCD).


g. Single Line Telephone with Message Wait Lamp.

h. EDE-30( ) DSS/BLF Console.

i. EDE-30( ) CO Add-On Module.

2. **Interface ETUs**

Table 200-1 shows the recommended quantities of MFR-EA ETUs. The actual quantity, for satisfactory service, will vary depending upon the amount of Single
Line Telephones, modem pooling, and Voice Mail traffic. Heavier traffic may require additional MFR-EA ETUs to be installed even though the amount of SLTs installed are low.

Table 200-1 Recommended MFR-EA ETU Quantities

<table>
<thead>
<tr>
<th>SINGLE LINE TELEPHONES CONNECTED</th>
<th>MFR-EA ETUs RECOMMENDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1-20</td>
<td>1</td>
</tr>
<tr>
<td>21-40</td>
<td>2</td>
</tr>
<tr>
<td>41-60</td>
<td>3</td>
</tr>
<tr>
<td>61-76</td>
<td>4</td>
</tr>
</tbody>
</table>

To determine the quantity of interface ETUs required, refer to Table 200-2.

For your reference, interface slot and port assignment numbers are shown in Figure 200-2.

3. Common ETUs.
   a. A CPU-E( ) ETU must be installed in the CPU slot of the ESE-32B-1 CCU.
   b. TSW-E, or TSW-EB ETU must be installed in the TSW slot in the ESE-32B-1 CCU.
   c. MMC-E ETU must be installed in the MMC slot in each ESE-32E-1 CCU.
   d. SMDR-E ETU can be installed in any option (OP) slot in either the ESE-32B-1 or ESE-32E-1 CCUs.
   e. LCR-E ETU can be installed in any option (OP) slot in either the ESE-32B-1 or ESE-32E-1 CCUs.

4. CCUs, PSUs, and RSGs
   a. An ESE-32B-1 CCU is always required.
   b. ESE-32E-1 CCU:
      Divide the total number of interface ETUs by 8. If the result is not a whole number, round it up to the next higher whole number. The whole number minus one is the quantity of ESE-32E-1 CCUs required.
   NOTE: If total number of interface ETUs is 8 and SMDR-E and LCR-E ETUs are installed, an ESE-32E-1 CCU is required.
   c. PSE-AD-1, PSE-DD-1 PSUs:
      One PSE-AD-1 or PSE-DD-1 PSU is required for each CCU. The quantity of ESE-32B-1 CCU and ESE-32E-1 CCU is equal to the total of PSUs required. PSE-AD-() and PSE-DD-() PSUs should not be installed in the same system. Operational integrity of the system may be degraded if power is lost to the individual CCUs.
   d. RSG-E Unit:
      An RSG-E Unit is required for each (or two adjacent) CCU in which SLD-E( ) and VMI-E ETUs are installed (Refer to Table 200-3).

Table 200-3 Recommended RSG-E Unit Quantities

<table>
<thead>
<tr>
<th>SINGLE LINE TELEPHONES CONNECTED</th>
<th>RSG-E UNITS RECOMMENDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1-24</td>
<td>1</td>
</tr>
<tr>
<td>25-48</td>
<td>2</td>
</tr>
<tr>
<td>49-76</td>
<td>3</td>
</tr>
</tbody>
</table>

Figure 200-2 Interface Slot and Port Assignment Numbers
Table 200-2  Number of Required Interface ETUs

<table>
<thead>
<tr>
<th>ETU</th>
<th>CIRCUITS PER ETU</th>
<th>CALCULATION</th>
<th>MAXIMUM ETUs PER SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>COI-E( )</td>
<td>4</td>
<td>Divide the number of CO/PBX lines being used by 4. (Note 1)</td>
<td>10 (Note 7)</td>
</tr>
<tr>
<td>ESI-EA/B</td>
<td>4</td>
<td>Divide the number of Multiline Terminals, CO Add-On Modules, and DSS/BLF Consoles being used by 4. (Note 2)</td>
<td>20 (Note 4)</td>
</tr>
<tr>
<td>SLI-EA/B</td>
<td>4</td>
<td>Divide the number of Single Line Telephones and/or Modems being used by 4. (Note 3)</td>
<td>19 (Note 4)</td>
</tr>
<tr>
<td>MFR-E</td>
<td>2</td>
<td>See Table 200-1.</td>
<td>4</td>
</tr>
<tr>
<td>CNF-E</td>
<td>1</td>
<td>The number of Conference circuits being used.</td>
<td>4</td>
</tr>
<tr>
<td>ECR-E</td>
<td>10</td>
<td>When installing multiple zones of External Page, Chime, BGM to Multiline Terminals, or Delay Announcement Unit, and/or tone ringers, an ECR-E ETU is required.</td>
<td>1</td>
</tr>
<tr>
<td>VMI-E</td>
<td>4</td>
<td>When connecting Voice Mail system, Single Line Telephone, and/or Dictation equipment, and/or Auto Attendant, VMI-E ETU is required.</td>
<td>2 (Notes 4, 5, 6, &amp; 8)</td>
</tr>
<tr>
<td>TLI-E</td>
<td>2</td>
<td>Divide the number of DID and/or Dial Pulse E&amp;M Tie Lines being used by 2. (Note 1)</td>
<td>20 (Note 7)</td>
</tr>
<tr>
<td>TLI-EB</td>
<td>2</td>
<td>Divide the number of DTMF/Dial Pulse E&amp;M Tie Lines being used by 2. (Note 1)</td>
<td>20 (Note 7)</td>
</tr>
</tbody>
</table>

Note 1:  If the result is not a whole number, round it up to the next higher whole number.

Note 2:  A Multiline Terminal, with DPA-E Unit (Off-hook Announcement Adaptor) or DTA-E Unit (Data Switching Adaptor) installed, requires an ESI-EB ETU, divide the number of those Multiline Terminals installed by 4. If the result is not a whole number, round it up to the next higher whole number. This is the quantity of ESI-EB ETUs required.

If some ports are still available on an ESI-EB, subtract the number of available ports on the ESI-EB ETU from the number of Multiline Terminals being used w/o DPA-E or DTA-E Units. Then, divide the number by 4. If the result is not a whole number, round it up to the next whole number. This is the quantity of ESI-EA ETUs required.

Note 3:  It is necessary for an SLT with Message Wait lamp and/or Power Failure Transfer to be supported by an SLI-EB ETU. Divide the number of modems (used for Modem Pooling) and/or Single Line Telephones with Message Wait lamp by 4. If the result is not a whole number, round it up to the next higher whole number. This is the quantity of SLI-EB ETUs required.

If some ports are still available on an SLI-EB ETU, subtract the number of available ports on the SLI-EB ETU from the number of Single Line Telephones w/o Message Wait lamp. Then divide the resulting number by 4. If the result is not a whole number, round it up to the next whole number. This is the quantity of SLI-EA ETUs required.

Note 4:  Combined total of ESI-EA, ESI-EB, SLI-EA, SLI-EB and VMI-E ETUs cannot exceed 20. A maximum of 80 stations, of which, a maximum of six can be EDE-30-( ) consoles.

Note 5:  When a Voice Mail system is connected to the Electra MarkII, MFR-EA ETU and RSG-E Unit may be required, depending on the model of Voice Mail system.

Note 6:  When Modem Pooling and/or a Voice Mail system is connected to the Electra MarkII, an RSG-E Unit and MFR-EA Unit may be required.

Note 7:  Combined total of CO/PBX, and E&M Tie lines cannot exceed 40. COI-EB ETU's support Centrex ring patterns.

Note 8:  A CPU-EC4 (or higher revision level) ETU is required to support two VMI-E ETUs, otherwise, only one VMI-ETU may be installed.
5. Optional Equipment

Table 200-4 shows optional equipment that can be installed in Multiline Terminals. When a DPA-E Unit, DTA-E Unit, or both, are installed in a Multiline Terminal, the Terminal must be supported by an ESI-EB ETU.

<table>
<thead>
<tr>
<th>OPTIONAL EQUIPMENT</th>
<th>MULTILINE TERMINALS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ETE-6-E</td>
</tr>
<tr>
<td>HFU-E UNIT</td>
<td>NC</td>
</tr>
<tr>
<td>DPA-E UNIT*</td>
<td>NC</td>
</tr>
<tr>
<td>ADA-E UNIT</td>
<td>C</td>
</tr>
<tr>
<td>DTA-E UNIT*</td>
<td>NC</td>
</tr>
</tbody>
</table>

NC = Not connectable  C = Connectable

*Required to be supported by an ESI-EB ETU.

= Compatible with other options simultaneously

220.5 POWER REQUIREMENTS

1. When AC power is to be used to power the system, a PSE-AD-1 PSU must be installed in each CCU.

The system must have a dedicated grounded nominal 117V AC ± 10% outlet. (See paragraph 220.12.)

The AC outlet must be a standard 125 Volt 15 Amp three prong type, which provides circuit ground. If circuit ground is not available, a locally provided frame ground to earth ground connection must be provided. (See paragraph 220.6.)

The AC power must be within the limits provided in paragraph 220.12 of this document.

It is recommended that the best locally available AC surge protection be installed at the AC power outlet.

2. When DC power is to be used to power the system, a PSE-DD-1 PSU must be installed in each CCU.

A locally provided nominal -48VDC power source must be connected to the PSE-DD-1 PSUs.

A frame ground, to earth ground, connection must be provided, as described in paragraph 220.6. The -48VDC power source must operate within the limits provided in paragraph 220.12.

220.6 GROUNDING REQUIREMENTS

The CCUs must be properly grounded. If circuit ground is not available at the dedicated AC outlet, the following steps should be taken:

1. Provide a suitable cold water pipe ground in accordance with the operating telephone company procedures.

2. If no water pipe ground is available, a ground rod should be installed in accordance with the local operating telephone company procedures.

3. Where a ground other than conduit ground is used, a grounding terminal is provided on the ESE-32B-1 CCU as shown in Figure 200-3.

4. Modem Pooling Grounding Requirements: The RS-232C is susceptible to noise and static and requires proper grounding to protect the DTA-E Unit and DTE connected to it. Normally, Data Terminal Equipment (DTE) with RS-232C interface has its frame ground connected to earth ground. Therefore, ensure the DTEs connected to DTA-E Units are properly connected to earth via circuit ground of its AC power cord.

The same care should apply to a modem connected to the DTA-E Unit.

If a modem is not provided with a three prong type AC plug supporting conduit ground, the modem must be properly connected to earth ground.

Figure 200-3 CCU Grounding
220.7 **ELECTRICAL NOISE GENERATORS**

Equipment such as welding machines, thyristor-driven power supplies, electric motors, etc., generate electrical noise. As a stored program unit, the Electra MarkII System is vulnerable to this noise. When this type of machinery is present at an installation, the following precautionary steps are urged:

1. Locate the CCUs terminal equipment and cabling away from these machines.

2. If cables must pass near these machines, use shielded cable with the shield grounded.

3. Ensure all machines of this type are well grounded to a separate ground to minimize noise interference.

220.8 **ADDITIONAL EQUIPMENT**

In addition to electronic station equipment (CCUs and their components) other equipment is required. These are cables, modular connecting jacks, quick-connect blocks, etc. This additional equipment must be locally supplied.

220.9 **SYSTEM CAPACITY**

1. Electra MarkII capacities are as follows:
   b. Outside lines: 40 lines max.
   c. Intercom paths (Multiline Terminals): Non blocking
   d. Terminals: 80 sets max.
   e. DSS/BLF Consoles: 6 units max; of which a max. of 4 units can be CO Add-On Modules.
   f. System Speed Dial: 80 buffers (16 digits each).
   g. Station Speed Dial: 20 buffers each station (16 digits each) (110 buffers for each ETE-16K-1).
   h. Conference circuits: 4 max.
   i. Modem Pool: 4 modems max.
   j. E & M Tie Lines: 40 lines max.

**NOTE:** These figures represent the maximum of individual type devices. Since the system capacity is defined by the 128 ports, some devices may not be installed up to the maximum numbers, depending upon the system configuration.

---

Figure 200-4  System Block Diagram
2. The central equipment of this system consists of up to four Central Control Units (CCUs).
   a. Basic CCU: 32 ports.
   b. Basic CCU + 1 Expansion CCU: 64 ports.
   c. Basic CCU + 2 Expansion CCUs: 96 ports.
   d. Basic CCU + 3 Expansion CCUs: 128 ports.

3. A maximum of two DSS/BLF Consoles and one CO Add-On Module can be equipped at any attendant position, provided the system maximum of six units is not exceeded.

4. Combination of system speed dial memory numbers and any outside number can be assigned to station speed dial (Consecutive Speed Dial Memory Assignment). By using this technique, numbers longer than sixteen digits can be available for speed dialing.

220.10 INSTALLATION EXAMPLE
Table 200-5 provides an example to help in understanding some of the requirements when configuring a system. In this example, 12 CO lines, 12 Multiline Terminals (without optional equipment), 5 Multiline Terminals with DPA-E Unit, 3 Multiline Terminals with DTA-E Unit, 2 Multiline Terminals with both a DTA-E and DPA-E Unit, 10 SLTs without message wait lamp, 6 SLTs with message wait lamp, 3 external speakers for zone paging, 6 HFU-E Units, 4 ADA-E Units, 2 conference circuits, 4 E&M Tie Lines, 3 DSS/BLF Consoles, 1 CO Add-On Module, LCR and SMDR are being installed. Refer to Figure 200-4 to help in the conceptional understanding of the system being installed.

220.11 CABLING REQUIREMENTS
Each CCU is equipped with three 50 position miniature ribbon type (female) amphenol connectors. Fifty position miniature ribbon type connector (male) ended cables are required for connections to the Main Distribution Frame (MDF).

Allowable loop resistance, maximum length, and type of cable. Refer to the Table 200-6.

### Table 200-5  System Configuration Example

<table>
<thead>
<tr>
<th>DEVICE TYPE</th>
<th>SYSTEM EQUIPMENT QUANTITY</th>
<th>REQUIRED UNITS AND QUANTITY</th>
<th>SLOT POSITION</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Control Unit</td>
<td>1</td>
<td>ESE-32B-1</td>
<td>3 interface slots</td>
<td></td>
</tr>
<tr>
<td>Power Supply</td>
<td>2</td>
<td>ESE-32E-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ring Generator</td>
<td>3</td>
<td>PSE-AD-1</td>
<td>PSU</td>
<td></td>
</tr>
<tr>
<td>CO Line</td>
<td>1</td>
<td>RSG-E</td>
<td>RSG</td>
<td>NOTE 1</td>
</tr>
<tr>
<td>Tie Line</td>
<td>12</td>
<td>3 COI-E/EB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiline Terminals with DPA-E</td>
<td>5</td>
<td>3 ESI-EB</td>
<td>2 interface slots</td>
<td></td>
</tr>
<tr>
<td>Multiline Terminals with DTA-E</td>
<td>3</td>
<td>4 ESI-EA</td>
<td>7 interface slots</td>
<td>ETE-6-( ) and ETE-16-2 TELs cannot be equipped with DPA-E, HFU-E or DTA-E Units.</td>
</tr>
<tr>
<td>Multiline Terminals with DTA-E and DPA-E inst.</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiline Terminals without DPA-E</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DSS/BLF consoles, CO Add-On Modules</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single line telephones with message wait lamp</td>
<td>6</td>
<td>2 SLI-EB</td>
<td>4 interface slots</td>
<td>NOTE 2</td>
</tr>
<tr>
<td>Single line telephones without message wait lamp</td>
<td>10</td>
<td>2 SLI-EA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DTMF Receiver Unit</td>
<td>1</td>
<td>1 MFR-E</td>
<td>1 interface slot</td>
<td></td>
</tr>
<tr>
<td>Conference Circuits</td>
<td>2</td>
<td>2 CNF-E</td>
<td>2 interface slots</td>
<td></td>
</tr>
<tr>
<td>External Speakers</td>
<td>3</td>
<td>ECR-E</td>
<td>1 interface slot</td>
<td>NOTE 3</td>
</tr>
<tr>
<td>Station Message Detail Recording</td>
<td>1</td>
<td>SMDR-E</td>
<td>1 option slot</td>
<td></td>
</tr>
<tr>
<td>Least Cost Routing</td>
<td>1</td>
<td>LCR-E</td>
<td>1 option slot</td>
<td></td>
</tr>
<tr>
<td>Off-Hook Announcement</td>
<td>7</td>
<td>7 DPA-E</td>
<td>Installed in Multiline Terminal</td>
<td></td>
</tr>
<tr>
<td>Data Switching</td>
<td>5</td>
<td>5 DTA-E</td>
<td>Installed in Multiline Terminal</td>
<td></td>
</tr>
<tr>
<td>Handsfree Unit</td>
<td>6</td>
<td>6 HFU-E</td>
<td>Installed in Multiline Terminal</td>
<td></td>
</tr>
<tr>
<td>Ancillary Device Adaptor</td>
<td>4</td>
<td>4 ADA-E</td>
<td>Installed in Multiline Terminal</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE 1:** Install the RSG-E unit in the CCU where all SLI-E( ) ETUs are installed, or use supplementary RSG cable, to support SLI in adjacent CCU's.

**NOTE 2:** Install all SLI-E( ) ETUs in one CCU only, if not, then in two adjacent CCU's.

**NOTE 3:** External speakers and amplifiers for paging must be locally provided.
Table 200-6  Loop Resistance and Cable Length

<table>
<thead>
<tr>
<th>ELECTRA MARKII TERMINAL</th>
<th>MAXIMUM LOOP RESISTANCE (OHMS)</th>
<th>22 AWG</th>
<th>24 AWG</th>
<th>26 AWG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>FEET</td>
<td>FEET</td>
<td>FEET</td>
</tr>
<tr>
<td>ETE-6( )</td>
<td>80</td>
<td>2,500</td>
<td>1,500</td>
<td>950</td>
</tr>
<tr>
<td>ETE-6D( )</td>
<td>65</td>
<td>1,800</td>
<td>1,300</td>
<td>650</td>
</tr>
<tr>
<td>ETE-16D( )</td>
<td>40</td>
<td>950</td>
<td>820</td>
<td>350</td>
</tr>
<tr>
<td>ETE-16D( ) With BLF Feature</td>
<td>55</td>
<td>1,200</td>
<td>1,000</td>
<td>450</td>
</tr>
<tr>
<td>ETE-16D( ) Without BLF feature</td>
<td>55</td>
<td>1,200</td>
<td>1,000</td>
<td>450</td>
</tr>
<tr>
<td>ETE-16-2</td>
<td>55</td>
<td>1,200</td>
<td>1,000</td>
<td>450</td>
</tr>
<tr>
<td>ETE-16K-1</td>
<td>55</td>
<td>1,200</td>
<td>1,000</td>
<td>450</td>
</tr>
<tr>
<td>DSS/BLF Console or Add-On Module</td>
<td>55</td>
<td>1,200</td>
<td>1,000</td>
<td>450</td>
</tr>
<tr>
<td>RAA-E UNIT</td>
<td>55</td>
<td>1,200</td>
<td>1,000</td>
<td>450</td>
</tr>
</tbody>
</table>

NOTE: Single Line Telephone: 600 ohms (including instrument)

2. Cable Type
   a. Multiline Terminal: Twisted 2 pair
   b. Single Line Telephone: Twisted pair
   c. DSS/BLF Console: Twisted 2 pair
   d. CO Add-On Module: Twisted 2 pair
   e. RAA-E Unit: Twisted 2 pair
   f. Music Source: Hi-Fi type shielded audio cable
   g. External amplifier: Hi-Fi type shielded audio cable
   h. Modem cable/DTA-E: RS-232C cable with jacks on both ends (Special Null-modem cable, see Figure 200-5)
   i. Delay Announcement Player: Hi-Fi type shielded audio cable

200.12  POWER REQUIREMENTS

1. AC Input (PSE-AD-1)
   a. 117 V AC ± 10% 60 Hz ± 10%, single phase
   b. A dedicated outlet, separately fused and grounded, is required.

2. DC Input (PSE-DD-1)
   - 40VDC - 56VDC (4.3A maximum)

3. Power Consumption (PSE-AD-1 and PSE-DD-1)
   see Tables 200-7 and 200-8.

4. Power Supply Outputs (PSE-AD-1 and PSE-DD-1) see Tables 200-7 and 200-8.

5. RSG-E Unit
   a. Output voltage: 70 - 120 VAC
   b. Output frequency: 17 - 23 Hz
   c. Output power: 4.1 VA

6. Fuse Replacement
   Refer to Table 200-9 for fuse replacement specifications.

Table 200-7  Power Dissipation

<table>
<thead>
<tr>
<th>MODULE</th>
<th>MAXIMUM RMS CURRENT</th>
<th>WATTS USED</th>
<th>POWER DISSIPATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.6A</td>
<td>190</td>
<td>640 BTU/HR.</td>
</tr>
<tr>
<td>2</td>
<td>3.2A</td>
<td>380</td>
<td>1,280 BTU/HR.</td>
</tr>
<tr>
<td>3</td>
<td>3.9A</td>
<td>460</td>
<td>1,500 BTU/HR.</td>
</tr>
<tr>
<td>4</td>
<td>4.5A</td>
<td>530</td>
<td>1,800 BTU/HR.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MODULE</th>
<th>MAXIMUM RMS CURRENT</th>
<th>WATTS USED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: If PSE-DD-1 PSUs are installed, power dissipation of the -48V dc power source and batteries must be considered.
220.13 ENVIRONMENTAL CONDITION

1. Temperature
   a. Operating: 32°F - 104°F (0°C - 40°C)
   b. Recommended long term: 50°F - 90°F (10°C - 32.2°C)

2. Operating Humidity: 10% - 90% relative, non-condensing

220.14 OUTSIDE LINE TYPE

a. Two wire, loop start lines
b. Two wire, ground start trunks
c. Two wire, Loop Dial, DID lines (DialPulse only)
d. Two wire, E&M Tie lines (type I or V, Dial Pulse or DTMF)
e. Four wire, E&M Tie lines (type I or V, Dial Pulse or DTMF)

220.15 NETWORK AND CONTROL

1. Control
   a. Control: Stored program with distributed processing
   b. Central Processor: 16 bit microprocessor
   c. Clock: 8 MHz
   d. Module Processor (TSW-E, TSW-EB & MMC-E): 4 bit 1 chip microprocessor

2. Transmission
   a. Data length:
      From Multiline Terminal to ESI-E( ):
      From ESI-E( ) to Multiline Terminal:
   b. Data transmission rates:
      Between ESI-E( ) and Multiline Terminal:
      To Multiline Terminals and EDE-30(-):
   c. Data transmission pairs:
      To Multiline Terminals and EDE-30(-):
      2 pair data
   d. Scanning time for each Multiline Terminal:
   e. Interface card (COI-E( ), ESI-E( ), etc.):
      4 bit 1 chip microprocessor
   f. Multiline Terminal:
      4 bit 1 chip microprocessor
   g. DSS/BLF Console:
      4 bit 1 chip microprocessor
   h. Directory Multiline Terminal:
      4 bit 1 chip microprocessor
   i. Remote Administration Adaptor:
      8 bit microprocessor
   j. Network TDM switching
      PCM (µLaw)

Table 200-8 Power Supply Outputs

<table>
<thead>
<tr>
<th>DC VOLTAGE</th>
<th>MAXIMUM CURRENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>-24V ± 2V</td>
<td>4.5A</td>
</tr>
<tr>
<td>-5V ± 0.25V</td>
<td>1.2A</td>
</tr>
<tr>
<td>+5V ± 0.25V</td>
<td>8.0A</td>
</tr>
</tbody>
</table>

Table 200-9 Fuse Replacement

<table>
<thead>
<tr>
<th>UNIT</th>
<th>FUSE #</th>
<th>SPECIFICATION</th>
<th>DESCRIPTION</th>
<th>DIMENSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSE-AD-1</td>
<td>F1</td>
<td>125V, 6.3A</td>
<td>AC INPUT</td>
<td>1/4&quot; x 1 1/4&quot;</td>
</tr>
<tr>
<td>PSE-DD-1</td>
<td>F1</td>
<td>125V, 8.0A</td>
<td>DC INPUT (-48V)</td>
<td>1/4&quot; x 1 1/4&quot;</td>
</tr>
<tr>
<td>RSG-E</td>
<td>F1</td>
<td>250V, 0.5A</td>
<td>DC INPUT (-24V)</td>
<td>13/64&quot; x 45/64&quot; (5mm x 20mm)</td>
</tr>
</tbody>
</table>

NOTE: All fuses used are normal blown glass tube or ceramic type. Do not use slow blow fuses.
CHAPTER 2
APRIL, 1990

TDM clock 2.048 MHz
TDM slot period 488.28 ns.
TDM data bus 8 bit
TDM time frame 125 μs.

4. Telephones
a. Multiline Terminal and EDE-30-(1 unit:
   Voltage: -11 - -26 VDC
   Max. current: 200 mA

  Acoustic characteristics meet Electronic Industry
  Association (EIA) standard proposal SP-1288 and standard
  EIA RS-470.

b. Single Line Telephone
   Standard 2500 set: 500 network
   Nominal current: 35 mA
   Ring signal: 65 VAC RMS, 20 Hz

   Term1:
   Nominal current: 20 mA
   Ring signal: 50VAC RMS, 16Hz
   Lamp signal: 53 - 88 V DC

220.16 DIALING SPECIFICATIONS
1. Dial Pulse Address Signaling: (Refer to Table 200-10)
   a. Pulse rate: 10 pps/20 pps
   b. Percent break: 61 ± 3 percent
   c. Interdigital interval: nominal 700 ms.

2. DTMF Address Signaling
   a. Frequencies:

<table>
<thead>
<tr>
<th>Nominal High Group Frequencies (Hz)</th>
<th>1209</th>
<th>1336</th>
<th>1477</th>
</tr>
</thead>
<tbody>
<tr>
<td>697</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>770</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>852</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>941</td>
<td>*</td>
<td>0</td>
<td>#</td>
</tr>
</tbody>
</table>

   b. Frequency deviation: Less than ± 1.5%
   c. Signal level:
      Nominal level per frequency: -6 - -4dBm.

Two sinusoidal signals, one from a high group of three
frequencies and one from a low group of four
frequencies.

   Minimum level per frequency:
   Low group: -10dBm.
   High group: -8 dBm.

   Maximum level per frequency pair: +2dBm.
   d. Rise time: Within 5 ms.
   e. DTMF tone duration:
      Default: 110 ms.
      Minimum: 60 ms.
      Maximum: 760 ms.
   f. Interdigital time:
      Default: 70 ms.
      Minimum: 40 ms.
      Maximum: 180 ms.

3. Dialing Memories
   a. Station speed dialing:
      20 buffers (16 digits each) per station
      110 buffers (16 digits each) per ETE-16K-1
   b. System speed dialing: 80 buffers (16 digits each) per system.
   c. Last number redial: 1 per station (16 digits max.).
   d. Saved number dialed: (Save & Repeat) 80 per system (16 digits max.).

220.17 BATTERY BACKUP
1. Backup Battery power is equipped on the CPU-E(1),
   the SMDR-E ETU and the LCR-E ETU. These
   NiCad batteries, when fully charged, retain
   memory contents for approximately seven days,
   when power is removed from these ETUs.

2. Functions receiving backup with battery power are
   as follows:
   a. System Program
   b. Speed Dial Memories (System and Station)
   c. Night Transfer Status
   d. Call Forwarding
   e. Clock/Calendar
   f. Callback Request
   g. Message Waiting
   h. Do Not Disturb
   i. Save & Repeat
   j. SMDR Data
   k. LCR Data
   l. Forced/Verified Account Codes
   m. Maintenance & Diagnostics Information
### 220.18 DIMENSIONS AND WEIGHTS (Refer to Table 200-11)

<table>
<thead>
<tr>
<th>UNIT</th>
<th>SHIPPING WEIGHT (kg)</th>
<th>HEIGHT (mm)</th>
<th>WIDTH (mm)</th>
<th>DEPTH (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESE-32B-1</td>
<td>43 lbs. 3 oz. (19.6)</td>
<td>14 3/4&quot; (375)</td>
<td>25 9/16&quot; (640)</td>
<td>12 5/8&quot; (320)</td>
</tr>
<tr>
<td>ESE-32E-1</td>
<td>26 lbs. (11.8)</td>
<td>11 13/16&quot; (300)</td>
<td>25 9/16&quot; (640)</td>
<td>12 5/8&quot; (320)</td>
</tr>
<tr>
<td>PSE-AD-1</td>
<td>3 lbs. 11 oz. (1.7)</td>
<td>8 3/32&quot; (206)</td>
<td>3 15/16&quot; (100)</td>
<td>9 1/16&quot; (230)</td>
</tr>
<tr>
<td>PSE-DD-1</td>
<td>3 lbs. 11 oz. (1.7)</td>
<td>8 3/32&quot; (206)</td>
<td>3 15/16&quot; (100)</td>
<td>9 1/16&quot; (230)</td>
</tr>
<tr>
<td>RSG-E</td>
<td>5 lbs. 5 oz. (2.4)</td>
<td>8 3/32&quot; (206)</td>
<td>2 5/32&quot; (55)</td>
<td>7 7/8&quot; (200)</td>
</tr>
<tr>
<td>RAA-E</td>
<td>2 lbs. 6 oz. (1.1)</td>
<td>2 5/32&quot; (55)</td>
<td>3 15/16&quot; (100)</td>
<td>7 7/8&quot; (200)</td>
</tr>
<tr>
<td>ETE-6(-)</td>
<td>2 lbs. (0.9)</td>
<td>3 5/16&quot; (84)</td>
<td>0 7/32&quot; (158)</td>
<td>8 7/8&quot; (225)</td>
</tr>
<tr>
<td>ETE-6D(-)</td>
<td>2 lbs. 10 oz. (1.2)</td>
<td>3 5/16&quot; (84)</td>
<td>8 5/32&quot; (207)</td>
<td>8 7/8&quot; (225)</td>
</tr>
<tr>
<td>ETE-16-2</td>
<td>2 lbs. (0.9)</td>
<td>3 5/16&quot; (84)</td>
<td>6 7/32&quot; (158)</td>
<td>8 7/8&quot; (225)</td>
</tr>
<tr>
<td>ETE-16D(-)</td>
<td>2 lbs. 10 oz. (1.2)</td>
<td>3 5/16&quot; (84)</td>
<td>8 5/32&quot; (207)</td>
<td>8 7/8&quot; (225)</td>
</tr>
<tr>
<td>ETE-16K-1</td>
<td>2 lbs. 10 oz. (1.2)</td>
<td>3 5/16&quot; (84)</td>
<td>10 3/8&quot; (263.5)</td>
<td>8 7/8&quot; (225)</td>
</tr>
<tr>
<td>EDE-30(-)</td>
<td>14 oz. (0.4)</td>
<td>3 5/16&quot; (84)</td>
<td>3 5/8&quot; (90)</td>
<td>8 7/8&quot; (225)</td>
</tr>
</tbody>
</table>

### 220.19 EXTERNAL EQUIPMENT INTERFACING

1. **Music on Hold (MOH)**
   - a. Auxiliary input: 0.6 VRMS signal level
   - b. Input impedance: 10k ohms

2. **SMDR Output**
   - Female connector (System output), Standard RS-232C

3. **External Paging (Audio)**
   - a. Output power: -10.0 dBm signal level
   - b. Output impedance: 600 ohms

4. **Hookswitch Contacts**
   - Contact rating: 100 mA, 48V DC

**NOTE:** Do Not Send AC Signal Through Hookswitch Contacts.

5. **BGM & Delay Announcement Input**
   - a. Auxiliary input: 0.1 VRMS signal level
   - b. Input impedance: 50k ohms

6. **External Paging Contacts**
   - Contact rating: 500 mA, 24 V DC

7. **External Tone Ringer Output**
   - a. Output Level: 0.1V peak to peak - 1.0V peak to peak
   - b. Output Impedance: 600 ohms
   - c. Relay Contact Rating: 500 mA, 24 V DC

8. **Night Chime**
   - Relay Contact Rating: 500 mA, 24 V DC

9. **DTA-E Relay Contact Rating**
   - 24 VDC: 1A
   - 120 VAC: 0.5A

### 220.20 VISUAL and AUDIBLE INDICATIONS

1. **Audible Indications**
   - Audible indications from a Multiline Terminal are shown in Table 200-12.

2. **Multiline Terminal Visual Indications**
   - LED indications on a Multiline Terminal and CO Add-On Module are shown in Table 200-13.

3. **EDE-30(-) Visual Indications**
   - LED indications on a EDE-30(-) unit are shown in Table 200-14.

### 220.21 DATA EQUIPMENT INTERFACING

The DTA-E Unit is provided with an RS-232C for interfacing with Data Terminal Equipment (DTE). Prior to configuring a system with data capability, you should complete the Job Specification (ND-20234) sheets provided with the CPU.

An understanding of system programming is required to complete the Job Specification sheets (See Chapter 3, Programming).

This section contains specifications for the DTA-E Unit and precautions that must be followed when installing the DTA-E Unit.

1. **Interface**
   - The DTA-E Unit is equipped with a female RS-232C connector to support the RS-232C interface. For internal data communication, speeds of up to 9.6 kbps can be accommodated by the RS-232C interface. For connection of an interface unit; a 25 pin RS-232C connector (refer to Figure 200-5 for Straight Cable Pin connections) is provided with the configuration shown in Table 200-15.

2. **Grounding Requirements**
   - Proper grounding is required to protect the DTA-E Unit and the data terminal equipment connected to the DTA-E Unit. Usually, data terminal equipment with an RS-232C interface has its frame connected to earth ground. Ensure that data terminals connected to the DTA-E Units are properly connected to earth ground via circuit ground of the AC power cord used in the data terminals.
3. Power Requirements

The DTA-E Unit is provided with an AC/DC power supply adaptor as an attachment. Specifications for this AC/DC adaptor are as follows:

- **AC Input:**
  
  120V AC, 60 Hz, single phase

- **DC Output:**
  
<table>
<thead>
<tr>
<th>NOMINAL DC VOLTAGE</th>
<th>DC VOLTAGE TOLERANCE</th>
<th>CURRENT</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>+12V</td>
<td>11.4V ± 0.3V</td>
<td>210 mA</td>
<td>RS-232C Line Drive</td>
</tr>
<tr>
<td>-12V</td>
<td>12.6V ± 0.3V</td>
<td>80 mA</td>
<td>RS-232C Line Drive</td>
</tr>
<tr>
<td>+12V</td>
<td>12.4V ± 0.3V</td>
<td>65 mA</td>
<td>DTA-E Circuit</td>
</tr>
</tbody>
</table>

---

**RS-232C Pin Connections**

<table>
<thead>
<tr>
<th>Pin</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FG</td>
</tr>
<tr>
<td>2</td>
<td>TXD</td>
</tr>
<tr>
<td>3</td>
<td>RXD</td>
</tr>
<tr>
<td>4</td>
<td>RTS</td>
</tr>
<tr>
<td>5</td>
<td>CTS</td>
</tr>
<tr>
<td>6</td>
<td>DSR</td>
</tr>
<tr>
<td>7</td>
<td>SG</td>
</tr>
<tr>
<td>8</td>
<td>DCD</td>
</tr>
<tr>
<td>9</td>
<td>DTR</td>
</tr>
<tr>
<td>10</td>
<td>RI</td>
</tr>
</tbody>
</table>

**Note:** Other pins are not connected.

**Figure 200-5 RS-232C Straight Cable Pin Connections**

---

**Table 200-12 Tone Patterns**

<table>
<thead>
<tr>
<th>TONE</th>
<th>FREQUENCY (Hz)</th>
<th>TONE PATTERNS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dial Tone</td>
<td>350/440</td>
<td></td>
</tr>
<tr>
<td>Second Dial Tone</td>
<td>350/440</td>
<td></td>
</tr>
<tr>
<td>Busy Tone</td>
<td>480/620</td>
<td></td>
</tr>
<tr>
<td>Call Waiting Tone</td>
<td>440</td>
<td></td>
</tr>
<tr>
<td>Ringback Tone</td>
<td>440/620</td>
<td>1 sec. ON</td>
</tr>
<tr>
<td>Reorder Tone</td>
<td>480/620</td>
<td>1 sec. ON</td>
</tr>
<tr>
<td>Attendant/Tone Override</td>
<td>440</td>
<td>0.5 sec.</td>
</tr>
<tr>
<td>Camp-On Tone</td>
<td>440</td>
<td></td>
</tr>
<tr>
<td>Call Forward Alert Tone</td>
<td>350/440</td>
<td>0.25 sec. ON x 2 ~ 3 bursts</td>
</tr>
<tr>
<td>Call Forward Confirmation Tone</td>
<td>440</td>
<td></td>
</tr>
<tr>
<td>Confirmation</td>
<td>440</td>
<td></td>
</tr>
<tr>
<td>LCR Dial Tone</td>
<td>480/620</td>
<td>0.5 sec.</td>
</tr>
<tr>
<td>Error Tone Burst</td>
<td>620</td>
<td>0.25 sec. ON x 2 ~ 3 bursts</td>
</tr>
<tr>
<td>Recall Tone</td>
<td>1024</td>
<td>1 sec. ON</td>
</tr>
<tr>
<td>CO/PBX Ring Tone Note</td>
<td>480/606</td>
<td>2 sec. ON</td>
</tr>
<tr>
<td>CO/PBX Ring Tone Note</td>
<td>480/606</td>
<td>4 sec. OFF</td>
</tr>
<tr>
<td>Internal Ring Tone and Attendant Calls</td>
<td>480/606</td>
<td>1 sec. ON</td>
</tr>
<tr>
<td>Boss/Secretary Ring Tone</td>
<td>480/606</td>
<td>0.5 sec.</td>
</tr>
<tr>
<td>DIT Alert Tone</td>
<td>480/620</td>
<td>0.5 sec.</td>
</tr>
<tr>
<td>Voice Page Alert Tone</td>
<td>440</td>
<td>1 sec. ON</td>
</tr>
</tbody>
</table>

**Note:** Centrex Ringing
### Table 200-13 LED Flash Pattern

<table>
<thead>
<tr>
<th>LED</th>
<th>CONDITION</th>
<th>FLASH PATTERNS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outside Extension</strong></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Line</td>
<td>I-Use</td>
<td>Green</td>
</tr>
<tr>
<td></td>
<td>Busy</td>
<td>Red</td>
</tr>
<tr>
<td></td>
<td>Incoming Call</td>
<td>Red</td>
</tr>
<tr>
<td></td>
<td>I-Hold</td>
<td>Green</td>
</tr>
<tr>
<td></td>
<td>Call Hold</td>
<td>Red</td>
</tr>
<tr>
<td></td>
<td>Recall</td>
<td>Green</td>
</tr>
<tr>
<td><strong>Microphone</strong></td>
<td>ON (When mic button ON)</td>
<td>Red</td>
</tr>
<tr>
<td><strong>Speaker</strong></td>
<td>ON (Monitor or Handsfree)</td>
<td>Red</td>
</tr>
<tr>
<td><strong>Conference</strong></td>
<td>Conference in progress</td>
<td>Red</td>
</tr>
<tr>
<td></td>
<td>All Conference circuits busy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Establishing conference</td>
<td>Red</td>
</tr>
<tr>
<td></td>
<td>User Programming</td>
<td>Red</td>
</tr>
<tr>
<td><strong>Answer</strong></td>
<td>Broker's Call</td>
<td>Red</td>
</tr>
<tr>
<td></td>
<td>Incoming call, Camp-On Override, Recall</td>
<td>Red</td>
</tr>
<tr>
<td><strong>Do Not Disturb</strong></td>
<td>ON (DND set) (Note 2)</td>
<td>Red</td>
</tr>
<tr>
<td><strong>Save &amp; Repeat</strong></td>
<td>ON (Saved) (Note 2)</td>
<td>Red</td>
</tr>
<tr>
<td><strong>DT or DR</strong></td>
<td>Modem connection established</td>
<td>Green</td>
</tr>
<tr>
<td></td>
<td>No Data Path available</td>
<td>Red</td>
</tr>
<tr>
<td></td>
<td>Request for modem; DTE turns ON</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Outgoing Data Call (internal)</td>
<td>Red</td>
</tr>
<tr>
<td></td>
<td>Incoming Data Call</td>
<td>Red</td>
</tr>
<tr>
<td></td>
<td>Modem/Data Path reserved</td>
<td>Green</td>
</tr>
<tr>
<td></td>
<td>Request for modem; all modems busy or distant end modem not connected first from modem call.</td>
<td>Red</td>
</tr>
<tr>
<td></td>
<td>Modem not ready.</td>
<td>Red</td>
</tr>
</tbody>
</table>

**NOTE 1:** Green LED indications are not provided for MIC, SPKR, CNF and ANS keys on Multiline Terminals, nor for outside line buttons on ETE-6-( ) Multiline Terminals. (Therefore, red LEDs will light in place of green LEDs on the ETE-6-( ) Multiline Terminal).

**NOTE 2:** DND and Save & Repeat functions may be assigned on line buttons.

* Applies to CO Add-On Module as well as Multiline Terminals.
### Table 200-14 DSS/BLF Visual Indications:

<table>
<thead>
<tr>
<th>LED</th>
<th>STATUS</th>
<th>FLASH PATTERNS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Station is idle or in the busy mode and its Primary Extension has an incoming call, call on hold, or recalling call.</td>
<td>Red</td>
</tr>
<tr>
<td>DSS KEY</td>
<td>Station is off-hook on a call and its Primary Extension is idle or in the I-Use mode. **</td>
<td>Green</td>
</tr>
<tr>
<td>(see Note 1)</td>
<td>Station is idle or in use and its Primary Extension is in use by another station * or off-line or station lockout.</td>
<td>Red (Flashing)</td>
</tr>
<tr>
<td>Internal and External Paging</td>
<td>Do Not Disturb</td>
<td>Red (Winking)</td>
</tr>
<tr>
<td>Message Waiting</td>
<td>DSS/BLF in Message Mode, Message at station</td>
<td>Red</td>
</tr>
<tr>
<td>Night Transfer</td>
<td>Night Mode</td>
<td>Red</td>
</tr>
<tr>
<td></td>
<td>ON</td>
<td>0 sec</td>
</tr>
<tr>
<td>OFF</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE 1:**
- Steadily Lit Red LED - Attendant cannot override a station in this condition
- Flashing Red LED - Attendant cannot override a station in this condition
- Winking Red LED - Attendant can override a station in this condition
- Steadily lit Green LED - Attendant can override a station in this condition
- LED OFF - Attendant can call a station in this condition

**NOTE 2:** LED indications on DSS keys are the same regardless of dual path, but what Attendant can do may be different.

**NOTE 3:** On the Multiline Terminals with built-in BLF, LED flash patterns are same as the ones on the DSS/BLF Console, but green is not available.

* = Phantom extensions appearing on the DSS/BLF also provide this indication when in use.
** = Virtual extensions appearing on the DSS/BLF also provide this indication when in use.

---

4. **Cabling Requirements**

For connecting of data terminal equipment to the DTA-E Unit, a locally provided RS-232C straight cable with a male connector at each end must be obtained. Cable specification is as follows:

- **Length:** 50 feet (15m), maximum.
- **Type:** Shielded RS-232C straight cable with at least one RS-232C male connector.
Table 200-15  DTA-E Unit / RS-232C Connector Pin Configuration

<table>
<thead>
<tr>
<th>PIN #</th>
<th>SIGNAL FLOW</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DTE ↔ DCE</td>
<td>Frame Ground (FG)</td>
</tr>
<tr>
<td>2</td>
<td>DTE → DCE</td>
<td>Transmit Data (TXD)</td>
</tr>
<tr>
<td>3</td>
<td>DTE ↔ DCE</td>
<td>Receive Data (RXD)</td>
</tr>
<tr>
<td>4</td>
<td>DTE → DCE</td>
<td>Request to Send (RTS)</td>
</tr>
<tr>
<td>5</td>
<td>DTE ↔ DCE</td>
<td>Clear to Send (CTS)</td>
</tr>
<tr>
<td>6</td>
<td>DTE → DCE</td>
<td>Data Set Ready (DSR)</td>
</tr>
<tr>
<td>7</td>
<td>DTE ↔ DCE</td>
<td>Signal Ground (SG)</td>
</tr>
<tr>
<td>8</td>
<td>DTE → DCE</td>
<td>Data Carrier Detect (DCD)</td>
</tr>
<tr>
<td>20</td>
<td>DTE → DCE</td>
<td>Data Terminal Ready (DTR)</td>
</tr>
<tr>
<td>22</td>
<td>DTE ↔ DCE</td>
<td>Ring Indicator (RI)</td>
</tr>
</tbody>
</table>

Note: Either full or half duplex can be accommodated with the RS-232C interface.

SECTION 230
SITE PREPARATIONS and MDF/IDF CONSTRUCTION

230.1 GENERAL INFORMATION
This section presents a survey of the planning details that should be considered prior to installing an Electra MarkII System. Detailed planning in advance of the actual installation will help ensure that minimum time and cost are incurred and, concurrently, will cause a minimum disruption of the customer's business activities. Additional benefits of a well planned and executed installation include flexibility for changes and expansion at minimum cost, efficient maintenance, and increased customer satisfaction.

230.2 SITE SURVEY
In most cases, a survey of customer premise is needed to develop a cost estimate of the installation. The preliminary data should be used in the site selection of the Main Distribution Frame (MDF). A second visit to the job site may be necessary to obtain exact dimensions of the area selected for the MDF, cable lengths, and possible IDF locations. This information will provide the basis for planning an orderly and efficient installation.

For example, the collected data about the job site will generally permit the MDF to be partially preassembled at the installer's shop, which helps to minimize the time spent at a customer's premises.

Preassembling the MDF and IDF is especially advantageous for those jobs where the MDF, or IDF, must be placed in an area that is awkward for this type of work.

230.3 SITE LIMITATIONS
Installation of a telephone system is seldom a straightforward routine procedure. The uniqueness of each customer's situation requires a tailored approach to each job. In selecting a permanent site for the MDF, the installer may encounter problems such as the following:

- Limited space is available and must be used, regardless of its suitability.
- The available space may be adequate but may pose one or more environmental hazards.
- The proposed location has limitations, such as, insufficient lighting, or the lack of a suitable ground, for grounding the CCUs.

Whatever the nature of the adversities encountered, the installer must make the necessary decisions to arrive at the best possible solution for the equipment being installed and the customer. It is beyond the scope of this document to cover all possible situations and solutions. The following are general guidelines, precautions and actions which should be observed to help make the installation decisions.

NOTE: Certain specific requirements and precautions, if not followed, will impair the reliability of the system.

230.4 SITE SELECTION CONDITIONS
The following conditions should be met at the site chosen for mounting the Central Control Unit (CCU).

A. Up to three CCUs are normally wall mounted to protect against accident or flooding. When this is done, the fourth CCU must be wall mounted but separated from the other three CCUs by an additional base panel placed atop the third CCU. Then the top panel is mounted on top of the 4th CCU. When floor mounting is used with 4 CCU's, there is no need for a second base panel, however, the 4th CCU must be secured to a wall. Use of a 3/4" fire retardent plywood backboard is recommended for this purpose.

B. The CCU should not be located directly beneath pipes, due to the possibility of leaks or condensation causing damage to the Electra MarkII equipment.

C. The area in which the CCU is to be located must be free of corrosive and inflammable gases, excessive chemical or industrial dusts, and other materials...
which could cause a hazard to personnel or to the proper functioning of the equipment.

D. Heat and humidity must be within the limits provided in Section 220.13 of this document.

E. Although its virtually noiseless operation allows a wide selection of installation sites, care should be taken that CCU(s) do not present a hazard to office traffic. For purposes of economy a central location to minimize cabling is often used.

230.5 MDF CONSTRUCTION

The Main Distribution Frame (MDF) consists of two different types of standard quick-connect terminal blocks, which are to be mounted onto the 3/4" plywood backboard. For the sake of neatness and ease of access, it is also recommended that the blocks be mounted on appropriate standoffs. The recommended blocks are; the 66B50 type, for termination of the CCU J cables, and the 66M50 type, for termination of the station cables.

The Intermediate Distribution Frame (IDF) requires only the 66M50 type blocks.

Both the MDF and the IDF utilize standard bridging clips for each type terminal block. The bridging clips are used to mate the left half of the terminal block (terminated cable run) to the right half of the terminal block (cross connection wire). The bridging clips are also useful during trouble shooting to help isolate the cable runs and terminals/telephones from the central equipment and the Central Office Network from the system.

Refer to Figure 200-7 for a suggested MDF layout. Refer to Section 240 of this document for CCU wall mounting.

230.6 CCU CABLES

Each CCU is equipped with three 50 pin, female amphenol type connectors. These connectors are designated J1 to J3. Since each CCU uses the same designations for the J connectors, it is recommended that the MDF terminal blocks be labeled with the CCU number as well as the connector number; for example: 1J1, 2J1, 3J1, 4J1, 1J2, etc.

230.7 OUTSIDE LINES

A. The FCC authorized connector for the connection of CO lines is an RJ21X. The CO lines will be connected in sequence within this termination block. Therefore, the lines must be ordered in the appearance order best suited to the customer's usage.

B. Table 200-16 provides complete information about the 50 position connector, showing pin number, lead function, running cable color, and circuit designation.

C. Ground start and/or Loop start, loop dial DID, 2 and 4 wire E&M Tie lines (types I and V) can be connected to this system. It is recommended that only twisted pair wiring be used to cross connect the lines from the RJ21X termination block to the MDF. Refer to Table 200-16 for proper connection identification.

D. HALF-TAPPING or PARALLEL CONNECTIONS MUST NOT be used on outside lines connected to the Electra MarkII System. This practice generally results in system malfunctions on the outside lines.

E. Table 200-16 includes termination of PT and PR designations, for the Power Failure Transfer feature. Cross connection between a CO tip (T) and ring (R) and an SLI-EB ETUs PT and PR, provides power failure transfer to a Single Line Telephone installed within the system.

230.8 STATION EQUIPMENT

A. When connecting Multiline Terminals, DSS/BLF Consoles, or CO Add-On Modules to the MDF, or IDF, individually twisted two pair cabling must be used.
<table>
<thead>
<tr>
<th>PIN</th>
<th>RUNNING CABLE</th>
<th>STATION CABLE</th>
<th>KEY TEL</th>
<th>SLT /VMI</th>
<th>LOOP DIAL/DID</th>
<th>CO</th>
<th>2 WIRE E&amp;M LINE</th>
<th>4 WIRE E&amp;M TIE LINE</th>
<th>ECR</th>
<th>J1</th>
<th>J2</th>
<th>J3</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>WH-BL</td>
<td>GN</td>
<td>TA</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td></td>
<td>PORT</td>
<td>PORT</td>
<td>PORT</td>
</tr>
<tr>
<td>27</td>
<td>BL-WH</td>
<td>RD</td>
<td>RA</td>
<td>R</td>
<td>R</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>1A</td>
<td>1B</td>
<td>&quot;33&quot;</td>
<td>&quot;45&quot;</td>
</tr>
<tr>
<td>2</td>
<td>OR-WH</td>
<td>YL</td>
<td>RB</td>
<td>PR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PORT</td>
<td>PORT</td>
<td>PORT</td>
</tr>
<tr>
<td>28</td>
<td>WH-GN</td>
<td>GN</td>
<td>TA</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td></td>
<td>PORT</td>
<td>PORT</td>
<td>PORT</td>
</tr>
<tr>
<td>29</td>
<td>GN-WH</td>
<td>RD</td>
<td>RA</td>
<td>R</td>
<td>R</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>3A</td>
<td>3B</td>
<td>&quot;34&quot;</td>
<td>&quot;46&quot;</td>
</tr>
<tr>
<td>4</td>
<td>WH-BR</td>
<td>BK</td>
<td>TB</td>
<td>PT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PORT</td>
<td>PORT</td>
<td>PORT</td>
</tr>
<tr>
<td>30</td>
<td>WH-SL</td>
<td>GN</td>
<td>TA</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td></td>
<td>PORT</td>
<td>PORT</td>
<td>PORT</td>
</tr>
<tr>
<td>31</td>
<td>RD-BL</td>
<td>RD</td>
<td>RA</td>
<td>R</td>
<td>R</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td></td>
<td>PORT</td>
<td>PORT</td>
<td>PORT</td>
</tr>
<tr>
<td>32</td>
<td>RD-OR</td>
<td>GN</td>
<td>TA</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td></td>
<td>PORT</td>
<td>PORT</td>
<td>PORT</td>
</tr>
<tr>
<td>33</td>
<td>RD-GN</td>
<td>BK</td>
<td>TB</td>
<td>PT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PORT</td>
<td>PORT</td>
<td>PORT</td>
</tr>
<tr>
<td>34</td>
<td>RD-BR</td>
<td>GN</td>
<td>TA</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td></td>
<td>PORT</td>
<td>PORT</td>
<td>PORT</td>
</tr>
<tr>
<td>35</td>
<td>RD-SL</td>
<td>BK</td>
<td>TB</td>
<td>PT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PORT</td>
<td>PORT</td>
<td>PORT</td>
</tr>
<tr>
<td>36</td>
<td>BK-BL</td>
<td>GN</td>
<td>TA</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td></td>
<td>PORT</td>
<td>PORT</td>
<td>PORT</td>
</tr>
<tr>
<td>37</td>
<td>BL-BK</td>
<td>RD</td>
<td>RA</td>
<td>R</td>
<td>R</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>3B</td>
<td>3B</td>
<td>&quot;38&quot;</td>
<td>&quot;50&quot;</td>
</tr>
<tr>
<td>38</td>
<td>BK-GN</td>
<td>GN</td>
<td>TA</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td></td>
<td>PORT</td>
<td>PORT</td>
<td>PORT</td>
</tr>
<tr>
<td>39</td>
<td>GN-BK</td>
<td>RD</td>
<td>RA</td>
<td>R</td>
<td>R</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>5A</td>
<td>5B</td>
<td>&quot;39&quot;</td>
<td>&quot;51&quot;</td>
</tr>
<tr>
<td>40</td>
<td>BK-SL</td>
<td>GN</td>
<td>TA</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td></td>
<td>PORT</td>
<td>PORT</td>
<td>PORT</td>
</tr>
<tr>
<td>41</td>
<td>YL-BL</td>
<td>BK</td>
<td>TB</td>
<td>PT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PORT</td>
<td>PORT</td>
<td>PORT</td>
</tr>
<tr>
<td>42</td>
<td>YL-OR</td>
<td>GN</td>
<td>TA</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td></td>
<td>PORT</td>
<td>PORT</td>
<td>PORT</td>
</tr>
<tr>
<td>43</td>
<td>YL-BN</td>
<td>BK</td>
<td>TB</td>
<td>PT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PORT</td>
<td>PORT</td>
<td>PORT</td>
</tr>
<tr>
<td>44</td>
<td>YL-YL</td>
<td>YL</td>
<td>RB</td>
<td>PR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PORT</td>
<td>PORT</td>
<td>PORT</td>
</tr>
<tr>
<td>46</td>
<td>VI-BL</td>
<td>GN</td>
<td>TA</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td></td>
<td>PORT</td>
<td>PORT</td>
<td>PORT</td>
</tr>
<tr>
<td>47</td>
<td>BL-VI</td>
<td>RD</td>
<td>RA</td>
<td>R</td>
<td>R</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td></td>
<td>PORT</td>
<td>PORT</td>
<td>PORT</td>
</tr>
<tr>
<td>48</td>
<td>OR-VI</td>
<td>YL</td>
<td>RB</td>
<td>PR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PORT</td>
<td>PORT</td>
<td>PORT</td>
</tr>
<tr>
<td>49</td>
<td>VI-GN</td>
<td>GN</td>
<td>TA</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td>T</td>
<td></td>
<td>PORT</td>
<td>PORT</td>
<td>PORT</td>
</tr>
<tr>
<td>50</td>
<td>V.I.SL</td>
<td>SL-VI</td>
<td>N/C</td>
<td>N/C</td>
<td>N/C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PORT</td>
<td>PORT</td>
<td>PORT</td>
</tr>
</tbody>
</table>

**NOTE 1:** 4 sets of numbers are provided. The number at the top corresponds to the base (main) CCU. The number in quotations corresponds to the first expansion CCU. The number enclosed in parentheses corresponds to the 2nd expansion cabinet. The number enclosed in brackets corresponds to the 3rd expansion cabinet.

**NOTE 2:** VM1-E or SLI-EA ETUs do not provide power failure transfer.

**NOTE 3:** The E M designations in bold letters corresponds to the first port of the TLI(-) ETU while the designations shown with standard capital letters correspond to the second port.
Refer to section 220.11 of this document for specifications. Refer to Table 200-16 for lead identifications, and Figure 200-8 for station modular jack (RJ13C/W) connection.

For additional CO line connections to additional SLTs, similar cross connections should be made.

Since all of the SLTs must be equipped with DTMF dials, the outside lines must allow tone dialing if dialing during power failure is required. If trunks are Ground Start, then SLTs must be equipped with a ground button.

C. When SLTs are installed, they can operate as power failure telephones, via cross connection on the MDF.

As an example, to have a Single Line Telephone ring on incoming calls to CO3, during a power failure, or brownout, connections on the MDF are as shown in Table 200-16.

NOTE: SLTs used for Power Failure Transfer must be supported by an SLI-EB ETU.

SECTION 240
CENTRAL CONTROL UNITS (CCUs) CONNECTION

240.1 WALL MOUNTING THE CCU

NOTE: UL regulations require the fourth CCU to always be mounted to the wall, to be provided with a base panel, and never to be attached to the other three CCUs, when they are also wall mounted. Mounting of the fourth CCU should be considered at the beginning but performed at the end of the CCU wall mounting.

A. The ESE-32B-1 CCU is equipped with two metal wall mounting brackets. These brackets must first be detached from the CCU to properly wall mount the unit.

B. Unscrew the two screws located on the lower portion of the front panel, then remove the front panel by sliding it to the left. Place the panel and screws aside for later reinstallation.
C. Unscrew the two screws located on the top front of the CCU, then remove the top panel. Place the panel and screws aside for later reinstallation.

D. Unscrew the two screws located on the bottom front of the CCU, then remove the base panel. Place the panel and screws aside for future reinstallation.

E. Locate the two mounting screws on the upper rear of the CCU (holding the upper mounting bracket to the CCU), remove the two screws and the bracket.

F. Remove the two mounting screws holding the lower mounting bracket to the base panel.

G. Use the template provided with ESE-32B-1 CCU to layout CCU(s) in position. Install eight locally provided fasteners appropriate for wall mounting in positions shown on the template. CCU(s) must be mounted correctly for proper operation. Mount the base panel onto the lower bracket using the two screws removed in step F. (See Figure 200-11).

H. The ESE-32E-1 CCUs are equipped with one wall mounting bracket. This bracket must first be detached from the CCU to properly wall mount the unit.

I. When the first ESE-32E-1 CCU is to be installed, repeat step B. Locate the two mounting screws in the upper rear of the CCU, remove the screws and bracket. Also, remove the two screws located on the top front of the CCU.

J. Mount the metal bracket using four locally provided fasteners as outlined with the template. Refer to Figure 200-11.

K. Ensure the hooks provided on the top rear of the ESE-32B-1 CCU are fully seated within the open slots on the bottom rear of the ESE-32E-1 CCU.

Install the wall mounting metal brackets as shown in Figure 200-11, using the eight locally provided fasteners. After mounting the ESE-32E-1 CCU onto the ESE-32B-1 CCU, secure them using the four screws removed in step I, as shown in Figure 200-13.

L. When the second ESE-32E-1 CCU is installed, it should be attached in the same manner as the first ESE-32E-1 CCU.

M. When the third ESE-32E-1 CCU is installed, it should be attached in the same manner as the ESE-32B-1 CCU.
Using the separately ordered CCU base panel; mount it to the wall just above the second ESE-32E-1 CCU, ensuring that minimum space is between the base panel and the second CCU.

Install the wall mounting metal brackets as shown in Figure 200-11, using the eight locally provided fasteners.

Mount the base panel onto the lower bracket using the two screws provided with the bracket.

Using the open slots provided on the back panel of the CCU, mount the CCU to the knobs of the upper bracket and onto the base panel. Ensure the upper bracket knobs are fully seated within the open slots of the CCU. Tighten the screws from above the CCU to securely attach the CCU to the upper bracket knobs, install the two screws shown in Figure 200-12.

Install the top panel onto the top CCU and secure with the screws removed in step C.

NOTE: All removed front panels should be reinstalled by securing with the screws removed in step B, after the required ETU's are installed and the system is tested. (Refer to Figure 200-14).

240.2 FLOOR MOUNTING THE CCU

NOTE: UL regulations require the fourth CCU to always be mounted to the wall and is to be attached to the other three CCUs. Mounting of the fourth CCU should be considered at the beginning to ensure proper wall spacing for the stack's location.

The CCUs are designed to be wall mounted. When necessary, floor mounting can be accomplished by stacking the CCUs.

A. Place the ESE-32B-1 CCU by a wall in its permanent and safe floor location.

B. Unscrew the two screws located on the lower portion of the front panel, then remove the front panel by sliding it to the left. Place the panel and screws aside for later reinstallation.

C. Unscrew the two screws located on the top front of the CCU, then remove the top panel. Place the panel and screws aside for later reinstallation.

D. When the first ESE-32E-1 CCU is to be installed, repeat step B. Remove the two screws located on the top front of the CCU, then, mount the CCU onto the ESE-32B-1 CCU.

E. Ensure that the hooks provided on the top rear of the ESE-32B-1 CCU are fully seated in the open slots on the bottom rear of the ESE-32E-1 CCU. Secure them both by using the two screws removed in step D.

F. When the second ESE-32E-1 CCU is installed, it should be attached in the same manner as the first ESE-32E-1 CCU.

G. When the third ESE-32E-1 CCU is installed, it should be attached in the same manner as the second ESE-32E-1 CCU.

H. Using the guide lines for wall mounting, mount the bracket for the third ESE-32E-1 ETU to the wall, ensuring that the CCU stack is not leaning in any direction.
Figure 200-13  Wall Mounting ESE-32E-1 CCU

Figure 200-14  Installing Top Panel and Front Panel

Figure 200-15  Floor Mounting 4 CCUs
Install the wall mounting metal brackets as shown in Figure 200-11, using the four locally provided fasteners.

Using the open slots provided on the back panel of the CCU, mount the CCU to the knobs of the upper bracket and onto the base panel. Ensure the upper bracket knobs are fully seated within the open slots of the CCU. Tighten the screws from above the CCU to securely attach the CCU to the upper bracket knobs, install the two screws shown in Figure 200-12.

I. Install the top panel onto the top CCU and secure with the screws removed in step C.

240.3 NOTES FOR ETU INSTALLATION
A. To prevent accidental damage to equipment, it is recommended that power be OFF during installation and maintenance, unless this will seriously inconvenience the user.

B. The ETUs used in this system make extensive use of CMOS technology. Extreme care must be taken to avoid static discharge when handling ETUs.

C. A switch is provided on the interface ETUs to protect circuitry from any damage during installation with system power ON.

D. The component side of ETUs must face the right side of the CCU when installed. (Viewed from the front as shown in Figure 200-16).

240.4 COMMON CONTROL ETUs
A. CPU-E, CPU-EB( ), CPU-EC( ) OR HIGHER REVISION LEVEL ETU
Prior to programming the system data, Switch 2 (SW2) must be set to the ON position to allow memory content retention, in case of a power failure or brownout. Failure to activate the backup battery circuit (SW2 ON) will result in the system data returning to default values and loss of Speed Dialing, Callback Request, Message Waiting, Clock/Calendar, station and trunk Group Name Assignments, etc., if a power failure or brownout occurs.

Anytime a CPU-E( ) ETU is installed, the system Clock/Calendar must be set. This also applies when battery backup fails for any reason. This procedure is

Figure 200-17 CPU-E( ) or CPU-EB( ) Switch Layout
provided in Section 430 of the Installation Service Manual.

When the CPU-E() ETU is removed for long term storage, set the SW2 switch to OFF. This will prevent the battery from constantly discharging. The battery, when fully charged, will retain memory contents for approximately 7 days.

Switch 1 (SW1) is the reset switch. When depressed, this momentary switch interrupts all service in progress causing a second initialization. This switch should not be used in an operating system unless absolutely necessary. The CPU-E() ETU must be installed in the CPU slot of the ESE-32B-1 CCU.

B. CPU-EC() ETU DIP SWITCH

The CPU-EC() ETU has a third switch (SW3) that is made up of three DIP switches (1, 2, and 3). Only dip switch 1 is used. When DIP switch 1 is in the OFF position, it is in the MF mode. When DIP switch 1 is in the ON position, it is in the KF mode.

The MF mode allows a trunk to be seized by two methods:
1. Depressing a line Key.
2. Dialing an access code.

The KF mode allows trunk access by using Line keys only.

The mode selected, (MF or KF), must correspond to the applicable FCC Registration Number (Refer to Chapter 1 of this manual).

C. TSW-E ETU

The TSW-E ETU (refer to Figure 200-18) contains three switches, two LEDs, one connector, and two RCA phono plugs. Switch 1 (SW1) is the reset switch. Depression of this momentary switch causes all service in progress in the ESE-32B-1 CCU, to be interrupted. This switch should not be used in an operating system unless absolutely necessary.

The LEDs indicate module memory working status. Under normal operating conditions, they are fluttering to indicate memories being activated. When SW1 is depressed, the LEDs momentarily turn OFF. Anytime the CCU is disabled, the LEDs are OFF.

Connector CN2 is used for data transmission between the TSW-E and the MMC-E ETUs; the cable provided on the MMC-E ETU is plugged into this connector.

MOH IN/OUT (SW2) is used to select the MOH source from either internal or external. When the music chip is used for MOH source, set this switch to the IN position. If an external MOH source is connected, set this switch to the OUT position. (For external MOH source connection, instructions are provided in Section 270, Optional Equipment Connection).

Figure 200-18 TSW-E Switch Layout
Switch labeled MELODY (SW3) is used to select one of two melodies from the internal MOH music chip, mounted on the TSW-E ETU. VR1 is used to adjust the volume of the melody provided by the melody chip.

RCA phono plug EP provides External Page common audible and is used for connection of a locally provided amplifier for external paging.

RCA phono plug MOH is used for the connection of an external MOH source, if needed.

The TSW-E ETU must be installed in the TSW slot in the ESE-32B-1 CCU.

D. TSW-EB ETU
The TSW-EB ETU provides the same services as the TSW-E ETU. The TSW-EB ETU has one green LED which flutters during normal operation and is equipped with an additional connector (CN3) for the interfacing with the fourth cabinet's MMC-E ETU via the CBL-E expansion cable unit.

E. MMC-E ETU
The MMC-E ETU contains one switch, two LEDs, one cable and one connector. Switch 1 (SW1) is the reset switch. Depression of this switch causes all service associated with the CCU to be interrupted. This switch should not be used in an operating system unless absolutely necessary.

The LEDs indicate module memory working status. Under normal operating conditions, they flutter to indicate memories being activated. When SW1 is depressed, the LEDs momentarily turn OFF. When the CCU is disabled, the LEDs are constantly OFF.

The flat cable must be connected to either connector on the TSW-E( ) ETU or another MMC-E ETU. When it is connected to another MMC-E ETU, the cable of that MMC-E ETU must be connected to the TSW-E ETU (See Figure 200-19).

The MMC-E ETU must be installed in the MMC slot of an ESE-32E-1 CCU.

240.5 BASIC INTERFACE ETUS
Although the system scans all slots to detect which devices are installed, it must be noted that this is only performed by the CPU-E( ) ETU during initial powering up of the system, or after a first initialization. At this time, all busy switches, on all interface ETUs, must be set to the ON position.

Thereafter, if any device is installed and the system is not turned off or a first initialization is not performed, you must inform the system (via programming) of the location and type of device added.

Each basic interface ETU has a busy switch (SW1), a power LED (Green) and may have two or four status LEDs (Red).

Setting the busy switch (SW1) to the ON position, after inserting the ETU, causes the power LED to light.

The red LEDs indicate the status of circuits. Each LED ON indicates that its associated circuit is in use. Refer to Table 200-17, Interface ETU LED and Switch Reference.

A. COI-E ETU
The COI-E ETU contains four switches which are designated SW101 to SW401 for the selection of trunk type. Each switch is associated with a circuit.
When a loop start trunk is connected to a circuit, its associated switch must be set to the LP position. If a ground start trunk is connected, the switch must be set to the GD position.

Figure 200-20 COI-E ( ) Switch Layout

LED1 (Green) lit, indicates that the COI-E is receiving power.

LEDs 101~401 (Red) indicate the status of the four associated circuits. Each LED ON indicates its associated circuit is in use.

A maximum of ten COI-E ETUs can be installed in a system, into any interface slots.

B. COI-EB ETU
This Central Office Interface ETU provides the same services as the COI-E ETU, in addition it supports the CENTREX ringing feature. (CPU-EB3 or higher revision level ETU is also required.)

C. TLI-E ETU
The TLI-E ETU provides circuitry for servicing up to two dial pulse lines; DID, Loop Dial, 2 or 4 wire E&M Tie lines. It contains ten switches and three LEDs.

Switches designated SW101 and SW201 are used to select the type of E&M Tie lines (2 or 4 wire).

NOTE: When Loop Dial /DID lines are connected, these switches must be set to the 2 wire position.

Switches designated SW102 and SW202 are used to select the type of lines (DID/Loop Dial or E&M).

Switches designated SW103 and SW203 are used to select the type of E&M signaling (type I or V) for E&M Tie lines being used.

Figure 200-20 SW301, SW302, SW401 or SW402 pad

All switches OFF = 0db
Switch 1 ON = -2db
Switch 2 ON = -4db
Switch 3 ON = -8db
Switch 4 ON = -12db
All switches ON = -16db

NOTE: Loop Dial/DID lines can not be connected to this type ETU. Switches designated SW102 and SW202 are eight position dip switches used to select loss level for the 2 and 4 wire E&M Tie lines. Loss levels can be adjusted for 0, 2, 4, 8, 12, or 16 db. (See Figure 200-22).

Switches designated SW103 and SW203 are used to select the type of E&M signaling (type I or V) for E&M Tie lines being used.

SW102 (Switches 1~4) sets the transmission loss level for Channel 1.
All switches OFF = 0db
Switch 1 ON = -2db
Switch 2 ON = -4db
Switch 3 ON = -8db
Switch 4 ON = -12db
All 4 switches ON = -16db
Switch 5 ON = -2db
Switch 6 ON = -4db
Switch 7 ON = -8db
Switch 8 ON = -12db
All 4 switches ON = -16db

SW102 (switches 5 - 8) sets the reception loss level for Channel 1.
SW202 (switches 1 - 4) sets the transmission loss level for Channel 2.
SW202 (switches 5 - 8) sets the reception loss level for Channel 2.

NOTE: Transmission and reception loss levels are also programmable for each E&M Tie Line; it is recommended to set switches 1-8, on both SW102 and SW202, to the OFF position.

LEDs 1 and 2 (Red) indicate the status of the two associated circuits.
Each LED ON indicates its associated circuit is in use.

LED 3 (Green) lit, indicates the TLI-EB ETU is receiving power.
A maximum of twenty TLI-EB ETUs can be installed in a system into any interface slot.

E. ESI-EA/EB ETU
Installing an ESI-EA ETU or ESI-EB ETU provides support for up to four Multiline Terminals and/or EDE-30( ) units. (Refer to Figure 200-23). The ESI-EB ETU is required when a Multiline Terminal is equipped with the DPA-E Unit for the dual path feature, or a DTA-E Unit for data capability.

LED 1 (Green) lit indicates the ESI-EB ETU is receiving power. LEDs 101-401 (Red) indicate the status of the four circuits. Each LED ON indicates its associated circuit is in use.

NOTE: It is recommended that only the ESI-EA ETU be installed in the fourth CCU, for the support of Multiline Terminals, as the fourth cabinet cannot support the Data and Dual Path features of the ESI-EB ETU.

F. SLI-EA/EB ETU
Installing an SLI-EA or SLI-EB ETU provides support for up to four single line telephones, modems or Dterm-1Is. The SLI-EB ETU is required when power failure transfer of CO lines and/or message wait signaling to single line telephones and/or voice mail messaging is used in the system.

LED 1 (Green) lit, indicates that the SLI-E( ) ETU is receiving power. LEDs 101-401 (Red) indicate the status of the four circuits. Each LED ON indicates its associated circuit is in use.

A maximum of nineteen SLI-E( ) ETUs can be installed in a system into any interface slot.

G. MFR-EA ETU
The MFR-EA ETU contains a switch and an LED. When inserting or removing an MFR-EA with power applied to the CCU, Switch1 (SW1) must be set to the OFF position.

LED 1 (Green) lit indicates that the MFR-EA ETU is receiving power.
A maximum of four MFR-EA ETUs can be installed in a system into any interface slot to provide a maximum of 8 circuits. The MFR-EA ETU is required to support the dialing of any SLTs, modems and/or VMI-E ETU installed.
### Table 200-17 Interface ETU LED/Switch Reference

<table>
<thead>
<tr>
<th>ETU</th>
<th>PORT</th>
<th>LED</th>
<th>SWITCH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>LED 101 - Busy 1</td>
<td>SW 101 - Trunk Selection (Loop/Ground)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LED 201 - Busy 2</td>
<td>SW 201 - Trunk Selection (Loop/Ground)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LED 301 - Busy 3</td>
<td>SW 301 - Trunk Selection (Loop/Ground)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LED 401 - Busy 4</td>
<td>SW 401 - Trunk Selection (Loop/Ground)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LED 1 - Receiving Power</td>
<td>SW 1 - Busy Out</td>
</tr>
<tr>
<td>COI-E( )</td>
<td>1</td>
<td>LED 1 - Busy 1</td>
<td>SW 1 - Busy Out</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LED 2 - Busy 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LED 3 - Busy 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LED 4 - Busy 4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LED 5 - Receiving Power</td>
<td></td>
</tr>
<tr>
<td>FSI-E( )</td>
<td>1</td>
<td>LED 1 - Busy 1</td>
<td>SW 1 - Busy Out</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LED 2 - Busy 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LED 3 - Busy 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LED 4 - Busy 4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LED 1 - Receiving Power</td>
<td></td>
</tr>
<tr>
<td>SLI-E( ) &amp; VMI-E</td>
<td>1</td>
<td>LED 101 - Busy 1</td>
<td>SW 1 - Busy Out</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LED 201 - Busy 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LED 301 - Busy 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LED 401 - Busy 4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LED 1 - Receiving Power</td>
<td></td>
</tr>
<tr>
<td>MFR-EA &amp; CNF-E</td>
<td>1</td>
<td>LED 1 - Receiving Power</td>
<td>SW 1 - Busy Out</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SW 1 - Busy Out</td>
<td></td>
</tr>
<tr>
<td>ECR-E</td>
<td></td>
<td>LED 1 - Receiving Power</td>
<td>SW 2 - Ring Pattern</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SW 1 - Busy Out</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SW 2 - Ring Pattern</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LED 1 - Receiving Power</td>
<td></td>
</tr>
<tr>
<td>TLI-E</td>
<td>1</td>
<td>LED 1 - Busy 1</td>
<td>SW 101 - Line Type Selection (2 or 4 wire)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LED 2 - Busy 2</td>
<td>SW 102 - Transmission and Receiving Loss Level Selection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LED 3 - Receiving Power</td>
<td>SW 103 - E&amp;M Signaling Type Selection (I or V)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SW 101 - Line Type Selection (Loop/DID or E&amp;M Tie lines)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SW 102 - Trunk Selection (Loop/DID or E&amp;M Tie lines)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SW 103 - E&amp;M Signaling Type Selection (I or V)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SW 301 - Transmission Loss Level Selection</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SW 302 - Receiving Loss Level Selection</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SW 201 - Line Type Selection (2 or 4 wire)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SW 202 - Transmission and Receiving Loss Level Selection</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SW 203 - E&amp;M Signaling Type Selection (I or V)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SW 201 - Line Type Selection (2 or 4 wire)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SW 202 - Transmission and Receiving Loss Level Selection</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SW 301 - Transmission Loss Level Selection</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SW 302 - Receiving Loss Level Selection</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SW 401 - Transmission Loss Level Selection</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SW 402 - Receiving Loss Level Selection</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LED 3 - Receiving Power</td>
<td>SW 1 - Busy Out</td>
</tr>
<tr>
<td>TLI-EB</td>
<td>1</td>
<td>LED 1 - Busy 1</td>
<td>SW 101 - Line Type Selection (2 or 4 wire)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LED 2 - Busy 2</td>
<td>SW 102 - Transmission and Receiving Loss Level Selection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LED 3 - Receiving Power</td>
<td>SW 103 - E&amp;M Signaling Type Selection (I or V)</td>
</tr>
</tbody>
</table>

**NOTE:** When a loop dial trunk(s) is connected to the TLI-E ETU, SW 101 and/or SW201 on the ETU must be set to the 2 wire position. Loop Dial/DID lines cannot be connected to a TLI-EB ETU.
240.6 OPTIONAL INTERFACE ETUs

A. CNF-E ETU
The CNF-E ETU contains a switch (SW1) and an LED (LED1).

SW1 is used to busy out the ETU when the ETU is removed or inserted without powering down the CCU.

LED1 (Green) lit, indicates the CNF-E ETU is receiving power.

A maximum of four CNF-E ETUs can be installed in a system, into any interface slots.

B. ECR-E ETU
The ECR-E ETU contains two switches (SW1 and SW2), an LED, a volume control (VOL1), three RCA phono plugs (JK1, JK2, JK3) and two screw terminal blocks (CN1 and CN2).

SW1 is used to busy out the ETU when the ETU is removed or inserted without powering down the CCU.

SW2 is used to select the ring pattern of the external tone ring output.

LED1 (Green) lit, indicates the ECR-E ETU is receiving power. Phono plug JK2 is an input jack for a BGM source, and JK3 is for input of a second BGM source, or as an input for a Delay Announcement Unit when the system is installed with a CPU-EB3 ETU or CPU-EC3 ETU.

If the Electra MarkII System is installed with a CPU-EC4 (or higher revision level) ETU, JK2 is used for an input jack for a BGM source or as an input for a Delay Announcement unit (First Announcement). JK3 is used for an input of a second BGM source, or as an input for a (Second Announcement) Delay Announcement unit.

NOTE: If only one Delay Announcement is assigned, JK2 is used as the input jack.

VOL1 is used to adjust the audible level of the external tone ringer output. JK1 provides an uninterrupted ring tone.

For installing options, see Section 270, Optional Equipment Connection.

One ECR-E ETU can be installed in a system, into any interface slot.

C. VMI-E ETU
The VMI-E ETU contains a switch (SW1) and five LEDs (LED1, LED101-401).

SW1 is used to busy out the ETU when the ETU is removed or inserted without powering down the CCU.

LED1 (Green) lit, indicates that the VMI-E ETU is receiving power.

LEDs 101~401 (Red) lit, indicate the status of the four circuits. Each LED ON indicates its associated circuit is in use.

One VMI-E ETU can be installed in a system, into any interface slot. The VMI-E ETU requires the support of an RSG-E Unit and may also require the support of an MFR-EA ETU.

NOTE: If the Electra MarkII System is installed with a CPU-EC4 (or higher revision level) ETU, two VMI-E ETUs may be installed in the system.

240.7 SMDR-E ETU
The SMDR-E ETU contains three switches, an LED and an RS-232C connector ended cable.

1. Switch 2, designated SW2 RESET, is a slide switch used to reset the SMDR-E ETU, with interruption of all ongoing operation. This switch is also used to busy out the ETU when it is removed or inserted without powering down the CCU.

Switch 1, designated SW1 ON-OFF, is used to connect the backup battery to the SMDR-E ETUs memory. This switch should be set to the ON position to allow memory retention, during power failure or brownouts, for approximately seven days.

Switch DIP1 is a 5 position DIP switch which is used to select a baud rate (300 - 4800).
Figure 200-25 SMDR-E DIP1 Switch

LED1 (Green) lit, indicates that the SMDR-E ETU is receiving power.

2. Connection of SMDR
   A. The SMDR-E ETU must be installed into either OPT1 or OPT2 slot (or a combination slot) of any CCU. Prior to installing the SMDR-E ETU, ensure that switch SW1 is set to the ON position and that the baud rate switch, DIP1, is set to the proper position.

When installing the SMDR-E ETU, turn SW2 OFF for insertion of this ETU into the slot without powering down the CCU.

B. Route the RS-232C connector ended cable down and to the right side of the CCU in a manner to avoid interference with the insertion and the removal of ETUs and with the 25-pair cables from J1 - J3 connectors. Remove the access panel on the right side of the CCU, which covers three openings, to mount RS-232C connectors. (See Figure 200-26).

C. Connect a printer or other peripheral device to the RS-232C connector mounted on the CCU in Step B. Secure the RS-232C male connector from the printer or other peripheral device with the screws provided with the device.

D. Turn ON SW2 of the SMDR-E ETU.

3. A 25 pin RS-232C connector is provided with the following pin configuration. (All pins are active high).

SMDR-E ETU Output Connector

<table>
<thead>
<tr>
<th>PIN #</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>TXD (Transmit Data)</td>
</tr>
<tr>
<td>3</td>
<td>RXD (Receive Data)</td>
</tr>
<tr>
<td>4</td>
<td>RTS (Request To Send)</td>
</tr>
<tr>
<td>5</td>
<td>CTS (Clear To Send)</td>
</tr>
<tr>
<td>6</td>
<td>DSR (Data Set Ready)</td>
</tr>
<tr>
<td>7</td>
<td>Signal Ground</td>
</tr>
<tr>
<td>8</td>
<td>DCD (Data Carrier Detect) (constant high)</td>
</tr>
<tr>
<td>20</td>
<td>DTR (Data Terminal Ready)</td>
</tr>
</tbody>
</table>

SMDR printout string is as follows:

- ASCII
- 7 bits even parity
- One stop-bit.

4. SMDR Output Format:
   For SMDR general format and sample printouts of call record, refer to Figures 200-28 and 200-29.

240.8 LCR-E ETU

The LCR-E ETU contains three switches, an LED and a RS-232C connector ended cable.

1. Switches:
   Switch 1, designated SW1, is used to connect backup battery to the LCR-E MEMORY. This switch should be set to the ON position to allow memory retention during power failure or brownouts, for approximately seven days.

Switch 2, designated SW2 RESET, is a slide switch used to reset the LCR-E ETU, with interruption of all ongoing operation. This switch is also used to busy out the ETU when the ETU is
Switch DIP1 (see Figure 200-30 and Figure 200-31) is a 7 position dip switch which is used to select baud rates in the range of 150 - 9600 (4800 is the recommended setting).

LED1 (Green) lit, indicates that the LCR-E ETU is receiving power.

When installing the LCR-E ETU, turn SW2 OFF for insertion of this ETU into the slot without powering down the CCU.

NOTE 1: A maximum of 34 characters can be printed per line. NOTE 2: Types of calls are as follows:
OG: Outgoing Call
IC: Incoming Call
OT: Transferred Outgoing Call
IT: Transferred Incoming Call
OGC: Conference on Outgoing Call
ICC: Conference on Incoming Call
OTC: Conference on Transferred Outgoing Call
ITC: Conference on Transferred Incoming Call

NOTE 3: An “A” prior to the Account Code, is printed only when the Forced/Verified function is provided in the system.
INCOMING CALLS
Incoming Call Without an Account Code:
07/04/86 09:00AM 08-05 IC 120
00:15:32

Incoming Call With an Account Code:
07/04/86 09:00AM 08-05 IC 120
00:15:32
34562179

TRANSFERRED CALLS
Transferred Call Without an Account Code:
07/04/86 09:00AM 08-05 IT 120 123
00:05:45

Transferred Call With an Account Code:
07/04/86 09:00AM 08-05 IT 120 123
00:05:45
34562179

CONFERENCE CALLS
A conference call is printed in the following sequence:
07/04/86 09:00AM 08-05 OG Printed when a conference is
00:03:15 102885167537000 established with station 123
07/04/86 09:03AM 08-05 OG 120
00:06:45
Printed when station 120 hangs up on the conference
07/04/86 09:10AM 08-05 OT 120 123
00:04:30
Printed when station 123 hangs up on the call

OUTGOING CALLS USING SYSTEM SPEED DIAL
07/04/86 09:00AM 08-05 OG 120
00:15:32.25
System Speed Dial: S followed by system speed
dial buffer number (Total of 3 characters)

Figure 200-29 SMDR Sample Printouts of Call Records

B. A 25 pin RS-232C connector is provided to
connect the portable computer in order to
input necessary data into the LCR-E ETU.

C. Route the RS-232C connector ended cable
down to the right side of the CCU in such a
way as to avoid interference with the
insertion and removal of ETUs and with the
25 pair cables from the J1 - J3 connectors.

Remove the access panel on the right side of the CCU,
which covers three openings, provided to mount
RS-232C connectors. (See Figure 200-26).

Mount the RS-232C connector in one of these openings
using screws and nuts locally provided. (See Figure
200-27).

D. Connect the portable computer to the RS-
232C connector mounted on the CCU in step C and secure the RS-232C male connector
from the computer using screws locally provided.

E. Turn ON SW2 on the LCR-E ETU.
3. LCR data input is done from an NEC PC8300 portable computer or, NEC Powermate, IBM AT/XT.

For LCR programming, refer to Chapter 7 of the Installation Service manual.

SECTON 250
POWER SUPPLY INSTALLATION

250.1 PSE-AD-1 PSU (See Figure 200-32)

NOTE: Before proceeding, ensure the Power Line Cord is not plugged into the AC receptacle and the system AC power switch located in the left front side of the ESE-32B-1 CCU, (just above the card slots), is in the OFF (down) position. The three prong, AC Power Line Cord is factory provided and is connected to the terminal block located at the left side of the ESE-32B-1 CCU.

A. Remove the four mounting screws (located at the top and bottom of the PSU slot), in each CCU. Place the screws aside for later PSU installation.

B. Install a PSE-AD-1 PSU into the PSU slot in each CCU, as shown in Figure 200-32, making sure its power switch is in the OFF position.

C. Secure each PSU with the four screws previously removed in Step A.

D. Two cables are provided on each PSE-AD-1 PSU. One is a 3 pin connector ended for AC input, the other is a 6 pin connector ended DC output.

Connect the AC cable into any of the AC connectors (J6~J8) located immediately above the corresponding ESE-32B-1 CCU card slots. (See Figure 200-33).

Connect each DC IN power cable of each PSU to the 6 pin (J4) connector located immediately above its corresponding CCU. (See Figure 200-33).

E. Plug the three-prong AC power line cord into the 117V AC receptacle and check the DC output voltages, which can be read on the corresponding 6 pin connector (J4) of each CCU or at the CPU and MMC test points, in accordance with Figure 200-38.
The voltages for each PSU can be checked individually by first turning the system AC switch ON and then the switch on each power supply ON.

250.2 PSE-DD-1 PSU

**NOTE:** Before proceeding to install the PSE-DD-1 PSUs, ensure the Input Line Cords are not connected to the locally provided -48VDC power source and the input power switches on each PSE-DD-1 PSU are in the OFF position. The input line cords for the PSE-DD-1 PSUs must be locally provided.

**A.** Remove the four mounting screws located at the top and bottom of the PSU slot, in each CCU. Place the screws aside for later reuse.

**B.** Install a PSE-DD-1 PSU into the PSU slot in each CCU, making sure its power switch is in the OFF position.

**C.** Secure the PSU with the screws removed in Step A.

**D.** One cable is provided with each PSE-DD-1 PSU. This cable is a six pin connector-ended, for DC OUT power cable. Connect each DC IN power cable of each PSU to the 6 pin (J4) connector located immediately above in its CCU. (See Figure 200-34 and Figure 200-35)

**E.** One screw terminal block provided with four screws is located on the lower front of each PSE-DD-1 PSU. Connect up to four PSE-DD-1 PSUs using locally provided cables, as shown in Figure 200-36.

**F.** Connect the first PSE-DD-1, installed in the ESE-32E-1 CCU, to the output of the locally provided -48 VDC power source, using a locally provided cable.

**G.** 1. Turn ON the locally provided -48V DC power source.

2. Turn ON the power switch on the PSE-DD-1 PSU located in the third ESE-32E-1 CCU.

3. Turn ON the power switch on the PSE-DD-1 PSU located in the second ESE-32E-1 CCU.

4. Turn ON the power switch on the PSE-DD-1 PSU located in the first ESE-32E-1 CCU. (See Figure 200-37)

**H.** Check the DC output voltages which can be read on the corresponding 6 pin (J4) connector of each CCU, as shown in Figure 200-38. These voltages can be checked at the test pins on the CPU-E( ETU or on the MMC-E ETU, in the corresponding CCU.
**CHAPTER 2**

**APRIL, 1990**

**SCREW TERMINAL BLOCK ON PSE-DD-1**
IN THIRD ESE-32E-1

**SCREW TERMINAL BLOCK ON PSE-DD-1**
IN SECOND ESE-32E-1

**SCREW TERMINAL BLOCK ON PSE-DD-1**
IN FIRST ESE-32E-1

**SCREW TERMINAL BLOCK ON PSE-DD-1**
IN ESE-32B-1

---

**NOTE:**
System power should be OFF during the following procedures.

A. Remove the two mounting screws located at the top and bottom of the RSG slot in a CCU, where SLI-EA, SLI-EB or VMI-E ETUs are installed.

B. Install an RSG-E Unit into the RSG slot of the required CCU, as shown in Figure 200-39.

C. Secure the RSG-E Unit with the screws removed in Step A.

D. Connect the 4 pin connector ended cable, provided on the RSG-E Unit, into the designated

---

**SECTION 260**

**ANCILLARY DEVICE CONNECTION**

**260.1 GENERAL INFORMATION**

A. Multiline Terminals can be equipped with ancillary devices such as HFU-E, DPA-E, DTA-E and ADA-E Units.

B. These optional units and their compatibility with Multiline Terminals are shown in Table 200-18.
Table 200-18 Ancillary Device/Multiline Terminal Compatibility

<table>
<thead>
<tr>
<th>ANCILLARY DEVICES</th>
<th>ETE-6( )</th>
<th>ETE-6D-( )</th>
<th>ETE-16-2</th>
<th>ETE-16D-( )</th>
<th>ETE-16K-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>HFU-E ETU</td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>DPA-E ETU</td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>ADA-E ETU</td>
<td>•</td>
<td></td>
<td></td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>DTA-E ETU</td>
<td></td>
<td></td>
<td></td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

* = Compatible

C. These optional devices are installed inside the access panel on the bottom of Multiline Terminals. A maximum of one unit of each type can be installed in each Multiline Terminal, except for ETE-6( ) or the ETE-16-2, which can only accept the ADA-E Unit. The DTA-E Unit comes with a special access panel to allow its installation into the Multiline Terminals.

**WARNING**

Prior to installing any optional device, unplug the line cord from the Multiline Terminal and the RJ13C/W. Failure to do so could result in damage to the optional ancillary devices.

260.2. HANDSFREE UNIT (HFU-E)

**NOTE:** For installation in all Multiline Terminals except the ETE-6( ) or the ETE-16-2.

A. Unplug the line cord at the RJ13C/W and the terminal, then turn the Multiline Terminal upside down (face down) and locate the access panel on the bottom of the Multiline Terminal. Refer to Figure 200-41.

B. Slide the directory out of the way.

C. Insert a flat screwdriver blade into the notched opening (shown as A) and apply light upward pressure until the access panel is cleared of the front lip, at the same time apply pressure (towards you) at the rear of the pedestal (shown as B) until the access panel moves towards you.

D. Remove the access panel and place it aside for later reinstallation.

E. Locate the fourteen pin jack labeled HFU-E, as seen through the access view of the housing, insert the fourteen pin connector from the HFU-E Unit, as shown in Figure 200-42.

F. Place the HFU-E Unit into its designated area, with the cable side down.

G. Secure the HFU-E Unit by inserting the screw provided with the Unit.

H. Replace the access panel

**OR**

continue to install the DPA-E Unit, DTA-E Unit, or ADA-E Unit.

260.3 DUAL PATH ADAPTOR UNIT (DPA-E)

**NOTE:** For installation in all Multiline Terminals except the ETE-6( ) or the ETE-16-2.
panel on the bottom of the Multiline Terminal, refer to Figure 200-41.

B. Slide the directory out of the way.

C. Insert a flat screwdriver blade into the notched opening (shown as A) and apply light upward pressure until the access panel is cleared of the front lip, at the same time apply pressure (towards you) at the rear of the pedestal (shown as B) until the access panel moves toward you.

D. Remove the access panel and place it aside for later reinstallation.

E. Locate the thirteen pin connector labeled DPA-E, as seen through the access view of the Multiline Terminal housing, seat the DPA-E Unit into this connector, using care, securely insert the unit into the notched cavity, refer to Figure 200-42.

F. Replace the access panel

OR

continue to install the ADA-E Unit, DTA-E Unit, or HFU-E Unit.

260.4 ANCILLARY DEVICE ADAPTOR UNIT (ADA-E)

A. Unplug the line cord at the RJ13C/W and the terminal, then turn the Multiline Terminal upside down (face down) and locate the access panel on the bottom of the Multiline Terminal, refer to Figure 200-42.

B. Slide the directory out of the way.

C. Insert a flat screwdriver blade into the notched opening (shown as A) and apply light upward pressure until the access panel is cleared of the front lip, at the same time apply pressure (towards you) at the rear of the pedestal (shown as B) until the access panel moves toward you.

D. Remove the access panel and place it aside for later reinstallation.

E. Locate the eight pin jack labeled ADA, as seen through the access view of the Multiline Terminal housing, just below is a four pin connector and jack labeled HAND, refer to Figure 200-42.

F. Unplug the four pin connector ended harness (labeled HAND) and extend it out from the housing access hole.

G. Locate the four pin connector ended harness from CN1 on the ADA-E Unit into the jack labeled HAND.

H. Locate and insert the eight pin connector ended harness from CN1 and CN2 on the ADA-E Unit into the jack labeled ADA.

I. Insert the four pin connector ended harness, removed in Step F, from the Multiline Terminal into the four pin jack, CN3, located on the ADA-E Unit.

J. The ADA-E Unit is mounted component side down after termination of the optional device required (Refer to Chapter 6, Engineering Technical Information (ETI) Bulletins for various device hookups.

Figure 200-42 Optional Unit Installation
K. Secure the ADA-E Unit by inserting the screw provided with the Unit.

L. Replace the access panel

**OR**

Continue to install the HFU-E Unit, DTA-E Unit, or the DPA-E Unit.

### 260.5 ADA-E INSTALLATION into ETE-6-( ) or ETE-16-2 MULTILINE TERMINALS

**A.** Unplug the line cord at the RJ13C/W and the terminal, then turn the Multiline Terminal upside down (face down) and locate the access panel on the bottom of the Multiline Terminal, (refer to Figure 200-41.)

**B.** Slide the directory out of the way.

**C.** Depress the flexible key tab on the access panel and apply upward pressure.

**D.** Remove the access panel and place it aside for later reinstallation.

**E.** Locate the eight pin jack labeled ADA, as seen through the access view of the Multiline Terminal housing, just below is a four pin connector and jack labeled **HAND**, refer to Figure 200-43.

**F.** Unplug the four pin connector ended harness (labeled **HAND**) and extend it out from the housing access hole.

**G.** Locate CN2, and insert the four pin connector ended harness from the ADA-E Unit into the jack labeled **HAND**.

**H.** Locate CN1, and insert the eight pin connector ended harness from the ADA-E Unit into the jack labeled ADA.

**I.** Insert the four pin connector ended harness, removed in step F from the Multiline Terminal into the four pin jack, CN3, located on the ADA-E Unit.

**J.** The ADA-E Unit is mounted component side down after termination of the optional device required (Refer to Engineering Technical Information (ETI) Bulletins for various device hookups in Chapter 6).

**Figure 200-43** ADA-E Installation into an ETE 6 ( ) or the ETE-16-2 Multiline Terminal

K. Secure the ADA-E Unit by inserting the screw provided with the unit.

L. Replace the access panel.

### 260.6 DATA TERMINAL ADAPTOR UNIT (DTA-E)

**NOTE:** Installation in all Multiline Terminals except the ETE-6-( ) or the ETE-16-2.

**A.** Unplug the line cord at the RJ13C/W and the terminal, then turn the Multiline Terminal upside down (face down) and locate the access panel on the bottom of the Multiline Terminal (See Figure 200-41).

**B.** Slide the directory out of the way.

**C.** Insert a flat screw driver blade into notched the opening (shown as A) and apply light upward pressure until the access panel is cleared of the front lip, at the same time apply pressure (towards you) at the rear of the pedestal (shown as B) until the access panel moves toward you.
Remove the access panel, save for possible future use.

D. Before installing the DTA-E Unit, its switches should be set for the proper assignment. (Refer to Table 200-19).

The DTA-E Unit contains a 7 position DIP switch designated SW1, a slide switch designated SW2, and an 8 position DIP switch designated SW3.

Table 200-19 shows the assignments of these switches.

E. After assigning the switches, locate the fifteen pin connector labeled DTE, as seen through the access view of the Multiline Terminal housing, insert the fifteen pin connector from the DTA-E Unit, as shown in Figure 200-45.

F. Replace the access panel.

OR

Continue to install the ADA-E Unit, DPA-E Unit, or HFU-E Unit.
260.7 DTA-E INSTALLATION

A. For DTA-E Unit installation, refer to Section 260.6 of this document.

NOTE: Display Multiline Terminals with DTA-E Units installed must be supported by an ESI-EB ETU and a CPU-EB (or higher revision level) ETU. If required, both DTA-E and DPA-E Units can be installed in a display Multiline Terminal connected to channel 1 or 3 of an ESI-EB ETU. This arrangement is not possible when a Multiline Terminal is connected to channel 2 or 4 of the same ESI-EB ETU that has either a DTA-E or a DPA-E Unit installed.

B. Data Terminal Equipment Installation

Data terminal equipment (DTE) connected to the DTA-E Units must be equipped with an RS-232C interface. Prior to connecting the DTE to the DTA-E Unit, ensure that the power switch of the DTE is turned off.

1. Position a Multiline Terminal (with a DTA-E Unit already installed) close to the data terminal to be connected.

2. Plug the station line cord into the Multiline Terminal.

3. Plug the AC/DC adaptor (provided with the DTA-E Unit) into the nearest 117V AC receptacle, then connect the DC output cable of the AC/DC adaptor into the connector on the DTA-E Unit, as shown in Figure 200-44.

4. Connect one end of a locally provided RS-232C straight cable to the RS-232C connector of the DTA-E Unit. Refer to Figure 200-44.

5. Secure the RS-232C connector with screws provided with the RS-232C cable. Refer to Figure 200-44.

6. Connect the other end of the RS-232C cable to the DTE as described in the instructions provided with the DTE.

7. Apply power to the DTE.

260.8 WALL MOUNT UNIT INSTALLATION

1. Remove the Wall Mount Unit as shown.

2. Remove the backing from the Rubber Thumb Guards (A) to expose the pressure sensitive tape; install two (2) Rubber Thumb Guards as shown in Figure 200-47.

3. Install Plastic Mount Supports (B) into slots.

4. Attach the Wall Mount to the terminal by guiding the two straight tabs on the Wall Mount into the two notches on the top rear of the Multiline Terminal. Apply pressure to the Rubber Thumb Guards until the Wall Mount snaps in place attaching it securely as shown in Figure 200-48.

5. Slide both Plastic Mount Supports down as shown in Figure 200-49.

6. Remove extension number designation strip, located just above the speaker grill under the handset.

7. Remove the two screws securing the handset wall mounting hook. Slide the plastic hook out, turn it upside down and return it to its position (ensure the hook is exposed and pointed towards the hookswitch).

8. Reinstall the two screws and designation strip.
Table 200-19 DTA-E Switch Assignment

<table>
<thead>
<tr>
<th>SWITCH NUMBER</th>
<th>SWITCH POSITION</th>
<th>SWITCH DESIGNATION</th>
<th>FUNCTION</th>
<th>SETTING</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ER</td>
<td>DTR (data terminal ready) (Pin 20)</td>
<td>ON</td>
<td>DTR is forced high.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*OFF</td>
<td>DTR is to be provided by the data terminal equipment (DTE).</td>
<td>NOTE 1</td>
</tr>
<tr>
<td>2</td>
<td>RS</td>
<td>RTS (request to send) (Pin 4)</td>
<td>ON</td>
<td>RTS is forced high. NOTE 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*OFF</td>
<td>RTS is to be provided by the DATA terminal equipment (DTE).</td>
<td>NOTE 1</td>
</tr>
<tr>
<td>3</td>
<td>PB</td>
<td>PB (Peripheral busy) (Pin 11)</td>
<td>ON</td>
<td>PB (ring indicator from modem) is forced high. NOTE 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*OFF</td>
<td>PB is to be provided by the modem.</td>
<td>NOTE 1</td>
</tr>
<tr>
<td>4</td>
<td>SD</td>
<td>TD (Transmit data) (Pin 2)</td>
<td>ON</td>
<td>TD is forced high.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*OFF</td>
<td>TD is to be provided by the DTE.</td>
<td>NOTE 1</td>
</tr>
<tr>
<td>5</td>
<td>PB/ER</td>
<td>PB (Peripheral busy) ... ER (Peripheral ready)</td>
<td>*ON</td>
<td>Detection of PB (ring indicator from modem) sets DSR high at the remote DTE when SW1-7 is set to the ON position.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OFF</td>
<td>Detection of DTR (Data terminal ready) sets DSR high at the remote DTE when SW1-7 is set to the ON position.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>PR/PN</td>
<td>PR (Polarity reversed) ... PN (Polarity normal)</td>
<td>ON</td>
<td>PB signal (ring indicator from modem) is active low.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*OFF</td>
<td>PB signal (Ring Indicator from Modem) is active high.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>DH/DS</td>
<td>DH (Data hardware controlled) ... DS (Data software controlled)</td>
<td>ON</td>
<td>DTR or PB signal (selected by SW1-5) sets DSR high at the remote DTE or modem (hardware control).</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*OFF</td>
<td>DSR signal is sent to DTE or modem via software control.</td>
<td></td>
</tr>
</tbody>
</table>

* Denotes the recommended switch setting, all switches are shipped in the OFF position.

NOTE 1: If these leads are open, they should be forced high.

SW 2

<table>
<thead>
<tr>
<th>POSITION</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>Loop back test mode</td>
</tr>
<tr>
<td>OFF</td>
<td>*Normal Operation</td>
</tr>
</tbody>
</table>

Switch SW2 is used to perform a remote data loop-back test. A character entered via the local DTE keyboard is echoed back from the remote DTA-E unit. This test verifies that the transmission paths between the DTE and the DTA-E unit are established. While testing, the switch is set to ON. The switch must be set to OFF for normal operation.

SW 3

<table>
<thead>
<tr>
<th>SWITCH POSITION</th>
<th>RCS ON TIME</th>
<th>SWITCH POSITION</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0-sec.</td>
<td>OFF</td>
<td>Only one of these seven switches must be set to the ON position.</td>
</tr>
<tr>
<td>2</td>
<td>0.08 sec.</td>
<td>OFF</td>
<td>Full Duplex</td>
</tr>
<tr>
<td>3</td>
<td>0.24 sec.</td>
<td>OFF</td>
<td>Half Duplex</td>
</tr>
<tr>
<td>5</td>
<td>0.72 sec.</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>1.1 sec.</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>*ON (FD)</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>OFF (HD)</td>
<td>Full Duplex</td>
<td></td>
</tr>
</tbody>
</table>

RTS vs CTS TIME is defined as the time interval for sending the CTS (Clear To Send) signal after receiving the RTS (Request To Send) signal. This time parameter is disabled when SW3 position 8 is in the Full Duplex (FD) position.
SECTION 270
OPTIONAL EQUIPMENT CONNECTION

270.1 MUSIC ON HOLD
Provision has been made to allow connection of a locally provided external music source to provide Music On Hold for held calls.

Music source input is made using the phono jack MOH located on the TSW-E( ) ETU. For music source input level and impedance, refer to Section 220.20 of this document.

NOTE: In compliance with FCC Part 15 regulations, the following procedure must be implemented any time a Music On Hold source is connected to this system.

A. Make a slit on the cable insulation approximately one and one half inches long, at a distance of 12 inches from the plug end, on the cable to be connected to the TSW-E( ) MOH jack.

Take special care not to cut into the shield wire and inner wire insulation.

B. Make a circular cut in the cable insulation at one end of the slit.

C. Pull the cut insulation from the cable to expose the shield for the length of the slit and cut the insulation off.

D. Bend the cable near the middle of the exposed shield and separate the shield from the inner insulation in preparation for soldering, refer to Figure 200-51.

E. Obtain a 7 inch length of 20 - 24 AWG stranded wire and connect a ring tongue type connector at one end.

F. Strip a ¼ inch length of insulation from the other end of the 7 inch wire. Solder this end to the shield previously exposed in step C, place tape around this connection to prevent the possibility of any unwanted short circuits.

G. Connect the plug end into the TSW-E( ) MOH jack.

H. Route the cable down and to the right side of the CCU to avoid interference with the insertion and the removal of ETUs. Exit the other end of the cable at the right rear side of the CCU.
I. The ring tongue type connector installed in Step E must be connected to the screw holding the PSE-AD-1 PSU. Refer to Figure 200-52 showing a suggested connection.

With a locally provided amplifier, only one zone of paging and no background music, the ECR-E ETU is not required. The ECR-E ETU is required to provide control of the external switching for applications with more than one zone of paging or background music.

When External Paging is answered, by meet-me answer, the external paging audio circuit, in the TSW-E ETU and the control circuits in the ECR-E ETU, are released to allow access for another page.

Never connect the amplifier output directly to the ECR-E ETU relay contacts. Crosstalk between line telephones and/or outside lines and the paging circuit may occur.

270.3 BACKGROUND MUSIC / DELAY ANNOUNCEMENT
A. BGM via External Speaker(s) is available if the ECR-E ETU is installed. A BGM source, an amplifier for BGM and external speaker(s) should be locally provided. For connection information, refer to Figure 200-52.

B. BGM via Multiline Terminal Speakers is available if the ECR-E ETU is installed. A maximum of two BGM sources can be connected to the phono jacks, (designated JK2 and JK3), provided on the ECR-E ETU. JK2 and JK3 can be alternately used to connect a Delay Announcement machine when UCD is required in the system. Shielded audio cable should be used for BGM audio connections. For BGM and Delay Announcement sources’ output level and impedance, refer to Section 220.20 of this document.

270.4 EXTERNAL TONE RINGING / NIGHT CHIME
External tone ringing is available when the ECR-E ETU is installed. The ECR-E ETU provides a through EPC 3A and EPC 3B. A maximum of one ECR-E ETU can be installed in a system providing a total of three paging zones.

It is necessary for the audio output to be connected to a locally provided amplifier and speaker(s), which are connected to the output of the amplifier via control relays, also locally provided. If the amplifier is a both way amplifier, two way paging is available. For connection information to a locally provided amplifier, refer to Figure 200-52. For external paging audio output level and impedance, refer to Section 220.20 of this document.
NOTE: Diodes D1-D3 are 1N4004 or equivalent

* = Normal open contacts

+ = Normal closed contacts

**24 VOLT DC POWER SUPPLY**

**EXTERNAL SWITCHING RELAYS**

**Phono Jack**

**"EP" on the TSW-E( ) ETU**

**BGM Source**

**Figure 200-52 Connection of External Paging and External Background Music.**

Continuous tone source for external tone ringing. The External tone can be set to any of four ring patterns. These patterns are selectable with DIP switch SW2 (refer to Table 200-20).

The audio output for external tone ringing appears at the phono jack JK1 on the ECR-E ETU, its level is adjustable with the volume control VOL1 on the ECR-E ETU.

Shielded audio cable is required for this feature. The ECR-E ETU provides four relay contact closures, one per external ring control circuit.

In addition to the three fixed paging zone relays (1~3) the ECR-E ETU contains seven relays which can be programmed to perform external tone ringing (day mode) or night chime (night mode). A maximum of four relays can be programmed for day mode and a maximum of three relays can be programmed for night.

**Table 200-20 ECR-E ETU Ringing Tone Sources**

<table>
<thead>
<tr>
<th>Tone #</th>
<th>Description</th>
<th>SW2 Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Continuous Ring Tone (480/606 Hz modulated by 16 Hz)</td>
<td>OFF OFF</td>
</tr>
<tr>
<td>2</td>
<td>Continuous Ring Tone (480/606 Hz modulated by 8 Hz)</td>
<td>OFF ON</td>
</tr>
<tr>
<td>3</td>
<td>Ping-Pong Sound (1285 Hz / 0.5sec. ON, 1024 Hz / 0.5sec. ON, 5sec. OFF)</td>
<td>ON OFF</td>
</tr>
<tr>
<td>4</td>
<td>Continuous Tone (1024 Hz)</td>
<td>ON ON</td>
</tr>
</tbody>
</table>
mode. Relay contacts (armature) for relays 4, 5, and 6 can be found at the MDF ECR 4A/4B through ECR 6A/6B. Relay contacts (armature) 7, 8, 9, and 10 can be found on the ECR-E ETU A1/B1 through A4/B4 connections CN 1 and CN 2.

Connection information of the locally provided amplifier and speakers is provided in Figure 200-53. Audio output specifications can be found in Section 220.20 of this document.

It is not recommended to connect the locally provided amplifier directly to the ECR-E ETU relay contacts. These contacts are not designed to accept high level AC signaling. Direct connection may also cause audio crosstalk between Single Line Telephone, outside lines and the tone ringing circuit.

270.5 MODEM TERMINATION

For Modem Pooling Connection, the following conditions must be complied with and the following equipment must also be made available:

A. The Electra MarkII System must provide a Multiline Terminal (with DTA-E Unit installed) and an SLI-E( ) port to support each modem being installed.

B. Multiline Terminals with DTA E Units installed (other than those connected to modems) for data communication with outside DTE (Data Terminal Equipment).

C. For supporting the DTA-E Unit, ESI-EB ETUs are required; to allow assignment of ESI-EB and SLI-E( ) ports for modem use, CPU-EB (or higher revision level) ETUs are required.

The Electra MarkII System provides the data connecting paths and supports the control (setting and releasing) of the paths for data communication. Protocol support or conversion is not supported.

Figure 200-54 shows the modem pool connections, the data path, DTE and other equipment required for modem pool operation.

INSTALLATION

NOTE: Prior to connecting the modem to the DTA-E Unit, ensure the modem is not powered.

A. Locate a modem near a Multiline Terminal (with a DTA-E Unit installed) already programmed for modem pooling.

B. Plug in the station line cord into the Multiline Terminal.

C. Plug the AC/DC adaptor into the nearest nominal 117V AC outlet. Connect the DC output cable of
CABLE LENGTH: 50 feet (15 m) max.
CABLE TYPE: Twisted pair shielded RS-232C cross cable with RS-232C male connectors on both ends.

NOTE: The special null modem cable has pin 22 crossed to pin 11.

Figure 200-54 Wiring Connections of RS-232C Cross Cable for Connecting a Modem to a DTA-E (Rev. 1 only) Unit.

the AC/DC adaptor into the DTA-E Unit as shown in Figure 200-44.

D1. Installing keyboard dial/auto answer modems:
Use a modular ended line cord to connect the modem to a vacant SLI-E ETU port that is programmed for the same modem connection as in Step A. Proceed to Step E.

D2. Installing non keyboard dial/auto answer modems:
An Automatic Control Unit (ACU) interface connector is provided with the modem. This connector must be wired to the single line tip and ring, and to the PWR relay contact of the DTA-E Unit. The interface connector is connected as shown in Figures 200-54 and 200-55.

a. Remove the DTA-E Unit from the Multiline Terminal being connected to the modem. Plug in the PWR contact plug in the CN-2 socket of the DTA-E Unit. Refer to Figure 200-56.

b. Connect the other end of the PWR cable (red and white wires) to the TD (pin 5) and TDG (pin 25) of the ACU interface female connector provided with the modem.

c. Connect the SLI tip and ring to be used for the modem, to pins 7 and 8 of the ACU interface female connector.

d. Plug the female ACU interface connector into the male interface connector on the back of the modem.

E. Set the baud rate of the modem to 300 or 1200, as required. This setting must be set to the same baud rate normally used by the distant modem when using modem pooling.

F. Set up the necessary parameters of the modem; (refer to the instructions provided with the modem). If the modem is used for incoming modem pool use, the modem auto answer mode must be enabled.

G. Connect one end of a special null modem RS-232C cross cable to the RS-232C connector of the DTA-E Unit. Refer to Figures 200-54 and 200-55.

H. Secure the RS-232C connector with the screws provided with the RS-232C cable.

I. Connect the other end of the RS-232C cable to the modem, as described in the instructions provided with the modem.
NOTE 1: Switch settings on DTA-E Unit are as follows:
SW 1-2 (RS) ...... ON
SW 3-3 & 8 .......... ON
All other Pins .......... OFF

NOTE 2: If pin 8 (CD) from the modem is high, MB1D2, LK3 must be OFF.

Figure 200-55 Wiring Connections of RS-232C Null Modem Cable for Connecting a Modem to a DTA-E (Rev. 2 or higher) Unit.

Figure 200-56 Data Set Modem (Non Hayes Compatible Modem) Telephone or ACU Interface
J. Connect power to the modem and turn on the power switch on the modem (if one is provided).

K. Repeat the installation steps for all modems (a maximum of four modems) to be installed for use in modem pooling.

L. Refer to Chapter 3 (Programming) of this manual (Memory Block 2B-7) to assign the modems to the single line port and Multiline Terminal (with DTA-E Unit installed) port.

Additional variations of modem terminations can be obtained in Chapter 6 (ETI) of this manual and Application (Sales Manual) Bulletins.
# CHAPTER 3
## PROGRAMMING

### TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>SECTION</th>
<th>DESCRIPTION</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>310</td>
<td>General</td>
<td>300-1</td>
</tr>
<tr>
<td>320</td>
<td>How to Use This Chapter</td>
<td>300-1</td>
</tr>
<tr>
<td>330</td>
<td>Resident System Default Values</td>
<td>300-3</td>
</tr>
<tr>
<td>340</td>
<td>System Programming Data Sheets</td>
<td>300-10</td>
</tr>
</tbody>
</table>

### MEMORY ASSIGNMENT BLOCK

**1E - Station Assignment**

<table>
<thead>
<tr>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>8</td>
</tr>
</tbody>
</table>

**2A - System Feature 1**

<table>
<thead>
<tr>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td>9</td>
</tr>
<tr>
<td>10</td>
</tr>
</tbody>
</table>

**2B - System Feature 2**

<table>
<thead>
<tr>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td>9</td>
</tr>
<tr>
<td>10</td>
</tr>
</tbody>
</table>

**2C - System Group**

<table>
<thead>
<tr>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
</tbody>
</table>

---

1. **Prime / Ringing Line Assignment** 300-30
2. **Data Services Assignment** 300-32
3. **User Program Assignment** 300-34
4. **Trunk Group Incoming Restriction** 300-36
5. **Trunk Group Outgoing Restriction** 300-38
6. **Code Restriction Table Access** 300-40
7. **Class of Service Assignment** 300-42
8. **Terminal to Attendant Assignment** 300-44
9. **Terminal to Paging Zone Assignment** 300-46
10. **Call Pickup Group Assignment** 300-48

---

1. **System Feature** 1
2. **System Feature** 2
3. **System Group**

---

**ND-20292**
**APRIL, 1990**
### MEMORY ASSIGNMENT BLOCK

<table>
<thead>
<tr>
<th>PAGE</th>
<th>MEMORY BLOCK</th>
<th>ASSIGNMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>300-114</td>
<td>5</td>
<td>Delay Announcement Assignment</td>
</tr>
<tr>
<td>300-116</td>
<td>6</td>
<td>Uniform Dial to Trunk Access Code Group</td>
</tr>
<tr>
<td>300-118</td>
<td>7</td>
<td>Night Chime Assignment</td>
</tr>
<tr>
<td>300-120</td>
<td>8</td>
<td>External Ringing Control Assignment</td>
</tr>
<tr>
<td>300-122</td>
<td>9</td>
<td>ECR Relay Assignment</td>
</tr>
<tr>
<td>300-124</td>
<td>10</td>
<td>Virtual Extension Assignment</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAGE</th>
<th>MEMORY BLOCK</th>
<th>ASSIGNMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>300-126</td>
<td>2D</td>
<td>System Time Base</td>
</tr>
<tr>
<td>300-128</td>
<td>1</td>
<td>Time Base Assignment I</td>
</tr>
<tr>
<td>300-130</td>
<td>2</td>
<td>Time Base Assignment II</td>
</tr>
<tr>
<td>300-132</td>
<td>3</td>
<td>Time Base Assignment III</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAGE</th>
<th>MEMORY BLOCK</th>
<th>ASSIGNMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>300-134</td>
<td>2E-1</td>
<td>System Access Code Assignment System Feature (Access) Code List</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAGE</th>
<th>MEMORY BLOCK</th>
<th>ASSIGNMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>300-136</td>
<td>3A</td>
<td>System Attendant</td>
</tr>
<tr>
<td>300-138</td>
<td>2</td>
<td>Attendant 3rd. and 4th. Assignment</td>
</tr>
<tr>
<td>300-140</td>
<td>3</td>
<td>Attendant Overflow Assignment</td>
</tr>
<tr>
<td>300-142</td>
<td>4</td>
<td>Attendant to Tenant Assignment</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAGE</th>
<th>MEMORY BLOCK</th>
<th>ASSIGNMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>300-144</td>
<td>3B</td>
<td>System 2 Feature 1</td>
</tr>
<tr>
<td>300-146</td>
<td>1</td>
<td>First Ring Pattern Assignment</td>
</tr>
<tr>
<td>300-148</td>
<td>2</td>
<td>Centrex Ringing Assignment</td>
</tr>
<tr>
<td>300-150</td>
<td>3</td>
<td>Forced Account Code Digit Assignment</td>
</tr>
<tr>
<td>300-152</td>
<td>4</td>
<td>RAA SLT Assignment</td>
</tr>
<tr>
<td>300-154</td>
<td>5</td>
<td>Station Hunting Pilot Number Assignment</td>
</tr>
<tr>
<td>300-156</td>
<td>6</td>
<td>Station to Hunt Group Assignment</td>
</tr>
<tr>
<td>300-158</td>
<td>7</td>
<td>Station Hunt Type Assignment</td>
</tr>
<tr>
<td>300-160</td>
<td>8</td>
<td>Station Hunt Group Assignment</td>
</tr>
<tr>
<td>300-162</td>
<td>9</td>
<td>Trunk Group to Line Pool Group Assignment</td>
</tr>
<tr>
<td>300-164</td>
<td>10</td>
<td>Line Pool Group Auto Extension Assignment</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAGE</th>
<th>MEMORY BLOCK</th>
<th>ASSIGNMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>300-166</td>
<td>3D</td>
<td>First Initialization</td>
</tr>
<tr>
<td>300-168</td>
<td>2</td>
<td>Second Initialization</td>
</tr>
<tr>
<td>300-170</td>
<td>3</td>
<td>Slot Initialization</td>
</tr>
<tr>
<td>300-172</td>
<td>4</td>
<td>Terminal (TEL, DSS) Initialization</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAGE</th>
<th>MEMORY BLOCK</th>
<th>ASSIGNMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>300-174</td>
<td>3E</td>
<td>System Restriction Table</td>
</tr>
<tr>
<td>300-176</td>
<td>1</td>
<td>Regional Dialing Assignment</td>
</tr>
<tr>
<td>300-178</td>
<td>2</td>
<td>1+ Dialing Assignment</td>
</tr>
<tr>
<td>300-180</td>
<td>3</td>
<td>Rejection Code Assignment</td>
</tr>
<tr>
<td>300-182</td>
<td>4</td>
<td>System Allow / Deny Assignment</td>
</tr>
<tr>
<td>300-184</td>
<td>5</td>
<td>Table Allow / Deny</td>
</tr>
<tr>
<td>300-186</td>
<td>6</td>
<td>Trunk Group to Code Table Assignment</td>
</tr>
<tr>
<td>300-188</td>
<td>7</td>
<td>Table - OCC Flag Assignment</td>
</tr>
<tr>
<td>300-190</td>
<td>8</td>
<td>Table - OCC Code Assignment</td>
</tr>
<tr>
<td>300-192</td>
<td>9</td>
<td>Restriction Table Code Assignment</td>
</tr>
<tr>
<td>300-194</td>
<td>10</td>
<td>Special Code Assignment</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAGE</th>
<th>MEMORY BLOCK</th>
<th>ASSIGNMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>300-196</td>
<td>4A</td>
<td>System All Busy Restore Assignment</td>
</tr>
<tr>
<td>300-198</td>
<td>2</td>
<td>System All Busy Out Assignment</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAGE</th>
<th>MEMORY BLOCK</th>
<th>ASSIGNMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>300-198</td>
<td>4B</td>
<td>Card Mode</td>
</tr>
<tr>
<td>300-200</td>
<td>1</td>
<td>COI-I Initialized Values</td>
</tr>
<tr>
<td>300-202</td>
<td>2</td>
<td>COI-II Initialized Values</td>
</tr>
<tr>
<td>300-204</td>
<td>3</td>
<td>SLI Common Values</td>
</tr>
<tr>
<td>300-206</td>
<td>4</td>
<td>ESI-EB Data and Second Voice Path Assignment</td>
</tr>
<tr>
<td>300-208</td>
<td>5</td>
<td>COI-III Initialized Values</td>
</tr>
<tr>
<td>300-210</td>
<td>6</td>
<td>COI IV Initialized Values Programming Parameters</td>
</tr>
<tr>
<td>300-212</td>
<td>7</td>
<td>VMI Initialize 1 Assignment</td>
</tr>
<tr>
<td>300-214</td>
<td>8</td>
<td>VMI Initialize 2 Assignment</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAGE</th>
<th>MEMORY BLOCK</th>
<th>ASSIGNMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>300-216</td>
<td>4C</td>
<td>Card Interface</td>
</tr>
<tr>
<td>300-214</td>
<td>1</td>
<td>Card Interface Slot Assignment</td>
</tr>
<tr>
<td>300-216</td>
<td>2</td>
<td>Interface Slot Busy Out Assignment</td>
</tr>
<tr>
<td>MEMORY ASSIGNMENT BLOCK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4E- *TLI Programming*

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TLI Line Type Assignment</td>
<td>300-218</td>
</tr>
<tr>
<td>2</td>
<td>TLI Dial Tone Assignment</td>
<td>300-220</td>
</tr>
<tr>
<td>3</td>
<td>TLI Digit Add/Delete Code Assignment</td>
<td>300-222</td>
</tr>
<tr>
<td>4</td>
<td>TLI-I Initialized Values</td>
<td>300-224</td>
</tr>
<tr>
<td>5</td>
<td>TLI-II Initialized Values</td>
<td>300-226</td>
</tr>
<tr>
<td>6</td>
<td>TLI-III Initialized Values</td>
<td>300-228</td>
</tr>
<tr>
<td>7</td>
<td>TLI-IV Initialized Values</td>
<td>300-230</td>
</tr>
<tr>
<td>8</td>
<td>TLI-V Initialized Values</td>
<td>300-232</td>
</tr>
<tr>
<td>9</td>
<td>Tandem Port to Hunt Group Assignment</td>
<td>300-234</td>
</tr>
<tr>
<td>10</td>
<td>Trunk Group to Tandem Hunt Group Assignment</td>
<td>300-236</td>
</tr>
</tbody>
</table>

5A- *Station Copy Assignment*  
300-238

5B-  
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>300-240</td>
<td></td>
<td></td>
</tr>
<tr>
<td>300-242</td>
<td></td>
<td></td>
</tr>
<tr>
<td>300-244</td>
<td></td>
<td></td>
</tr>
<tr>
<td>300-246</td>
<td></td>
<td></td>
</tr>
<tr>
<td>300-248</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5C-  
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>300-252</td>
<td></td>
</tr>
<tr>
<td></td>
<td>300-254</td>
<td></td>
</tr>
</tbody>
</table>

350 *Function Timer Charts*  
300 257

360 *Code/Call Restriction*

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>300-261</td>
<td></td>
<td></td>
</tr>
<tr>
<td>300-262</td>
<td></td>
<td></td>
</tr>
<tr>
<td>300-262</td>
<td></td>
<td></td>
</tr>
<tr>
<td>300-263</td>
<td></td>
<td></td>
</tr>
<tr>
<td>300-264</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
310 GENERAL

The Electra MarkII is a stored program controlled system. Upon initial power up, the system's CPU-E ETU scans each of the possible interface slots (up to thirty two) to determine the hardware configuration. The system stores this information as well as system default values in memory. This area of memory is referred to as the resident system program. After the initial power up, a trained technician can change the resident system program so that the Electra MarkII can meet the particular needs of the customer. A sample of the Job Specification sheets is provided in this chapter. Job Specification sheets help organize each customer's programming needs and should be retained at the job site and on file in the office.

NOTE: Before attempting any programming of the Electra MarkII System, it is important that the battery on the CPU-E ETU be on. Failure to do so may result in loss of system programming.

320 HOW TO USE THIS CHAPTER

Chapter 3, of this Installation Service manual, provides all the necessary information for programming the Electra MarkII System. The chapter is divided into the following sections:

310 General
320 How To Use This Chapter
330 Resident System Default Values
340 System Programming
350 Function Timer Charts
360 Toll/Code Restrictions
370 Job Specifications

The HOW TO USE THIS CHAPTER provides the reader directions and recommendations for using Chapter 3.

SYSTEM PROGRAMMING

Section 340 describes in detail each of the programming areas in the five memory blocks. This section is to be used as a guide when programming. Section 340 provides two reference pages for each programming area: The first page provides step by step instructions as well as all display messages, while programming. The second page supplies supplement charts and notes to help explain the program instructions. It also explains the use of each function and line key as it pertains to the particular program area.

FUNCTION TIMER CHARTS

Section 350 provides a quick cross reference for all of the system's timers which can be set in programming.

This section provides a full description of each timer, explaining their purpose and function within the system as well as their default values, range, and the assigned memory block area.

TOLL/CODE RESTRICTIONS

Section 360 discusses the code restriction plan designed into the Electra MarkII System. Initially this section describes the code restriction tables and their general use when dial restricting stations. Discussion is then extended to the following dialing areas:

A. 1 + dialing areas
B. Direct Dialing areas
C. OCC, Equal Access
D. Puerto Rico area

Flow charts are provided for each dialing area listed. The flow charts provide the reader with a step by step understanding of how each type of restriction is handled. Each flow chart is provided with an outline explanation of the steps in the flow chart to further simplify the discussion. This is all the information needed to have a complete understanding of the Code Restriction Plan.

JOB SPECIFICATION SHEETS

Section 370 contains a sample of the Job Specification sheets. These sheets contain all the system programming values and configurations required for an installation.

Job Specification Sheets (supplied with each CPU-E ETU) are necessary for collecting information to enable an accurate costing and installation of an Electra MarkII System. Customer information that is collected by the salesperson (or installation supervisor) is recorded onto the Job Specification sheets. The sheets are presented in the same order as the memory blocks (as provided in Section 340) to make the system programming as easy and efficient as possible.

The first group of sheets are used for entering the station features. Line button assignments for Multiline Terminals and DSS/BLF consoles, as well as dialing restrictions and class of service (as required by the customer) are listed here. The second group of sheets are for assigning system features, assignment of trunk groups (for specialized service), and the assignment of system attendants. The remaining group of sheets are used for documenting all of the necessary information about the system configuration. This section is useful to the service technicians who keep track of adds, moves, changes, and in some cases, for troubleshooting.

Each Job Specification sheet includes a brief description sheet to explain all the chart entries.
The job sheets must be kept current and LEfT AT THE JOB SITE to provide technicians the information needed to give the customer proper and professional service. A duplicate copy of the job spec sheets should also be maintained at the servicing office (in the customer's file).

**ENTERING THE PROGRAMMING MODE AND THE SELECTION OF MEMORY BLOCKS**

To use the sections discussed above, a brief description of how to enter the programming mode and the selection of memory block areas is necessary.

Programming of the Resident System Program can be accomplished by either of two ETE-16D( ) Multiline Terminals. These station positions are automatically assigned to the two lowest ESI-E( ) ETU ports in the system. Although these positions are fixed, a third programming position can be assigned to any ESI-E( ) ETU port in the system that supports an ETE-16D( ) Multiline Terminal. For an RAA-E Unit, a fourth ESI-E( ) ETU port can be assigned in Memory Block 1E2.

When entering any area of programming, the first step is to place the programming station into the OFF-LINE mode.

**TO GO OFF-LINE**

A. Depress L16 (Primary Extension Line)  
B. Depress the Speaker Key (receive dial tone)  
C. Dial #, *, 0 in sequence

After completing the three steps above, the LCD on the Multiline Terminal will be as shown. The display (X.XX) is the software level of the CPU-E( ) ETU

<table>
<thead>
<tr>
<th>OFF-LINE</th>
<th>X.XX</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROGRAM MODE</td>
<td></td>
</tr>
</tbody>
</table>

While the programming terminal is OFF-LINE it cannot be signaled by any station in the system.

**NOTE 1:** Only one programming terminal can be OFF-LINE at one time.

**NOTE 2:** This does not Time Out.

The next step is to select an area in the system blocks which correspond to the feature or functionality programmed. A memory block index has been provided to help the programmer locate the area needed. Selecting a memory block location is done by depressing the Multiline Terminal's Feature Access keys in a predetermined sequence. The ETE 16D( ) Multiline Terminal has twenty Feature Access keys (F1~F20) which are used for this purpose. The Resident System Program is divided into five memory block areas. Feature Access keys F1~F5 are used to select each memory block area, 1~5 respectively.

In each memory block area memory feature sections are grouped by letter designation; For example: Memory Block 1 is divided into five sections:

- A. Line Key Assignment  
- B. Ringing Assignment  
- C. DSS/BLF and CO Add-On Module Button Assignments  
- D. Station Feature  
- E. Station Assignment

These sections, defined by letters A~E, are accessed by depressing Feature Access keys F6~F10 respectively.

After a memory block area and memory feature section has been selected, select Feature Access keys F11~F20 to enter a particular memory feature item.
<table>
<thead>
<tr>
<th>MEMORY BLOCK</th>
<th>FUNCTION</th>
<th>DEFAULT VALUES</th>
</tr>
</thead>
</table>
| 1A           | Line Key Assignment                                | • 6 Line Multiline Terminal  
Line keys 1 ~ 5 = CO/PBX lines 1 ~ 5  
Line key 6 = Primary extension  
• 16 Line Multiline Terminal  
Line keys 1 ~ 15 = CO/PBX lines 1 ~ 15  
Line key 16 = Primary extension |
| 1B           | Ringing Assignment (Day and Night Mode)            | CO/PBX lines 1 ~ 15 ring at attendants 1 and 2                                |
| 1C1          | DSS/BLF to Attendant Assignment                    | DSS/BLF Consoles 1 and 2 assigned to Attendants 1 and 2 respectively. No other DSS/BLF console assigned to any attendant |
| 1C2          | BLF Terminal Assignment                            | No ETE-16D-( ) Multiline Terminals are assigned the BLF feature              |
| 1C3          | DSS Button Assignment                              | DSS buttons 1 ~ 30 are assigned to stations 100 ~ 129 respectively when 30 or more stations are installed on DSS/BLF consoles 1 and 2. With less than 30 stations installed, the unused keys are assigned vacant. |
| 1C4          | DSS/BLF Flexible Function Key Assignment           | Function Key 1: Message wait On DSS/BLF  
Function Key 2: Night transfer Consoles  
Function Key 3: Transfer 1 and 2 |
| 1C5          | DSS to CO Add-On Module Assignment                 | No DSS/BLF units are assigned as CO Add-On Modules                          |
| 1C6          | CO Add-On Module Line Key Assignment               | Not Assigned                                                                  |
| 1C7          | CO Add-On Module Day Mode Ring Assignment          | Not Assigned                                                                  |
| 1C8          | CO Add-On Module Night Mode Ring Assignment        | Not Assigned                                                                  |
| 1D1          | Prime/Ringing Line Assignment                      | Prime Line to Primary extension  
No ringing line preference is assigned on all Multiline Terminals              |
| 1D2          | Data Service Assignment                            | L1: No auto answer, auto release.  
L2: No automatic release.  
L3: Invalid DTR Signal Validity (terminal).  
L4: Allow Incoming Internal Data Call during CO conversation.  
L5: Allows answer of internal data call.  
L6: Allow LCD indication for data calls. |
| 1D3          | User Program Assignment                            | Off-Hook Ringing to Attendants 1 and 2 only  
Voice/Tone Signalling - Voice  
Ringing Tone - Tone # 1 |
<p>| 1D4          | Trunk Group Incoming Restriction                   | No station is restricted on all trunk groups                                  |
| 1D5          | Trunk Group Outgoing Restriction                   | No station is restricted on all trunk groups                                  |
| 1D6          | Code Restriction Table Access                      | No code restriction table is assigned to any station                          |</p>
<table>
<thead>
<tr>
<th>MEMORY BLOCK</th>
<th>FUNCTION</th>
<th>DEFAULT VALUES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1D7</td>
<td>Class of Service Assignment</td>
<td>Originating Camp-On - All stations are allowed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Receiving Camp-On - All stations are allowed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Call Forward - All stations are allowed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Operator Restriction - No station is restricted</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Data Line Security - No station is assigned</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Station Lockout - No station is allowed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Page Access - All stations are allowed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LCR Priority - No station is assigned to LCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trunk to Trunk TRF - All stations are denied</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Account Code - Forced</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Verified - All stations are denied</td>
</tr>
<tr>
<td>1D8</td>
<td>Terminal to Attendant Assignment</td>
<td>All stations are assigned to Attendant 1</td>
</tr>
<tr>
<td>1D9</td>
<td>Terminal to Paging Zone Assignment</td>
<td>No station is assigned to any zone</td>
</tr>
<tr>
<td>1D10</td>
<td>Call Pickup Group Assignment</td>
<td>No station is assigned to any call pickup group</td>
</tr>
<tr>
<td>1E1</td>
<td>Terminal Exchange</td>
<td>Not assigned</td>
</tr>
<tr>
<td>1E2</td>
<td>Terminal Add Port</td>
<td>Depends on system configuration</td>
</tr>
<tr>
<td>1E3</td>
<td>Terminal Busy Assignment</td>
<td>Not assigned; not busied out</td>
</tr>
<tr>
<td>1E4</td>
<td>Terminal/Telephone Information</td>
<td>Depends on system configuration</td>
</tr>
<tr>
<td>1E5</td>
<td>Port Information</td>
<td>Hardware &amp; software. yes for installed equipment</td>
</tr>
<tr>
<td>1E6</td>
<td>Telephone Number Exchange</td>
<td>Not assigned</td>
</tr>
<tr>
<td>1E7</td>
<td>Telephone Number Change</td>
<td>Not assigned</td>
</tr>
<tr>
<td>1E10</td>
<td>CO Line Digit Restriction</td>
<td>Not assigned</td>
</tr>
<tr>
<td>2A1</td>
<td>Programming Terminal</td>
<td>Attendants 1 and 2: Fixed programming position</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Attendant terminal must be ETE-16D- ( ). Third programming station is not assigned</td>
</tr>
<tr>
<td>2A2</td>
<td>Speed Dial Tenant Assignment</td>
<td>All system speed dial buffers (20 ~ 99) are assigned to Tenant 1</td>
</tr>
<tr>
<td>2A3</td>
<td>Speed Dial Override Assignment</td>
<td>All system speed dial buffers override code restriction</td>
</tr>
<tr>
<td>2A4</td>
<td>Incoming Prime Line Pickup</td>
<td>Disallow</td>
</tr>
<tr>
<td>2A5</td>
<td>CO * and # as 1st. Digit Assignment</td>
<td>Disallow</td>
</tr>
<tr>
<td>2A6</td>
<td>SMDR Incoming Print</td>
<td>Disallow</td>
</tr>
<tr>
<td>2A7</td>
<td>Internal All Call</td>
<td>Disallow</td>
</tr>
<tr>
<td>2A8</td>
<td>Account Code Digit</td>
<td>10 digits</td>
</tr>
<tr>
<td>2A9</td>
<td>PBX Outgoing Code</td>
<td>Code 1 - 9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Code 2 - Not assigned</td>
</tr>
<tr>
<td>2A10</td>
<td>Tie Line Digit Restriction</td>
<td>No restriction</td>
</tr>
<tr>
<td>2B1</td>
<td>Modem Pooling PC Keyboard Dialing</td>
<td>Disallow</td>
</tr>
<tr>
<td>2B2</td>
<td>Allow Forward Override</td>
<td>Allow</td>
</tr>
<tr>
<td>MEMORY BLOCK</td>
<td>FUNCTION</td>
<td>DEFAULT VALUES</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>2B3</td>
<td>DIT Trunk to Tenant Assignment</td>
<td>All DIT trunks assigned to Tenant 1</td>
</tr>
<tr>
<td>2B4</td>
<td>DIT Assignment</td>
<td>No Assignment</td>
</tr>
<tr>
<td>2B5</td>
<td>LCR 1 + Dialing</td>
<td>Not 1 + dial area</td>
</tr>
<tr>
<td>2B6</td>
<td>LCR Local Call Override</td>
<td>Local calls override LCR</td>
</tr>
<tr>
<td>2B7</td>
<td>Modem Pool Assignment</td>
<td>No assignment</td>
</tr>
<tr>
<td>2B8</td>
<td>VMI Assignment</td>
<td>All VMI ports are assigned for Voice Mail</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DTMF automatic dial is not applied to any VMI port</td>
</tr>
<tr>
<td>2B9</td>
<td>LCR Bypass Assignment</td>
<td>All trunk access code groups do not bypass LCR</td>
</tr>
<tr>
<td>2B10</td>
<td>Recall Key for Tie Lines</td>
<td>Extension dial tone</td>
</tr>
<tr>
<td>2C1</td>
<td>Trunk to Trunk Group Assignment</td>
<td>All CO trunks are assigned to trunk group 1. All Tie lines are assigned to trunk group 8</td>
</tr>
<tr>
<td>2C2</td>
<td>Trunk Group to Tenant Assignment</td>
<td>All trunk groups are assigned to Tenant 1</td>
</tr>
<tr>
<td>2C3</td>
<td>Trunk Group to Access Code Group Assignment</td>
<td>All CO trunk groups are assigned access code 9 (Trunk item code group 1) except for trunk group 8, which is assigned access code 8 (Trunk item group 2)</td>
</tr>
<tr>
<td>2C4</td>
<td>Voice Mail Hunt Group Assignment</td>
<td>No extension number is assigned for voice mail hunt group</td>
</tr>
<tr>
<td>2C5</td>
<td>Delay Announcement Assignment</td>
<td>Not assigned</td>
</tr>
<tr>
<td>2C6</td>
<td>Uniform Dial to Trunk Access Code Group</td>
<td>Trunk access code group 2</td>
</tr>
<tr>
<td>2C7</td>
<td>Night Chime Assignment</td>
<td>No Night Chime assigned to any trunk group</td>
</tr>
<tr>
<td>2C8</td>
<td>External Ringing Control</td>
<td>No External Ringing Control Relay assigned to any trunk group</td>
</tr>
<tr>
<td>2C9</td>
<td>ECR Relay Assignment</td>
<td>Relay #1 - External Paging Zone 1 (Fixed)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Relay #2 - External Paging Zone 2 (Fixed)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Relay #3 - External Paging Zone 3 (Fixed)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Relays #4~10 are not assigned.</td>
</tr>
<tr>
<td>2C10</td>
<td>Virtual Extension Assignment</td>
<td>Virtual extensions 01 ~ 48 are assigned to extensions 200 ~ 247</td>
</tr>
<tr>
<td>2D1</td>
<td>Time Base Assignment I</td>
<td>See Section 350 of this chapter</td>
</tr>
<tr>
<td>2D2</td>
<td>Time Base Assignment II</td>
<td>See Section 350 of this chapter</td>
</tr>
<tr>
<td>2D3</td>
<td>Time Base Assignment III</td>
<td>See Section 350 of this chapter</td>
</tr>
<tr>
<td>2E1</td>
<td>System Access Code Assignment</td>
<td>See memory block 2E1 of this chapter</td>
</tr>
<tr>
<td>3A2</td>
<td>Attendant 3rd and 4th Assignment</td>
<td>Not assigned</td>
</tr>
<tr>
<td>3A3</td>
<td>Attendant Overflow Assignment</td>
<td>Not assigned</td>
</tr>
<tr>
<td>MEMORY BLOCK</td>
<td>FUNCTION</td>
<td>DEFAULT VALUES</td>
</tr>
<tr>
<td>--------------</td>
<td>----------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>3A4</td>
<td>Attendant to Tenant Assignment</td>
<td>Attendants 1 &amp; 2 are assigned to Tenant 1 Attendant 1 assignment is fixed</td>
</tr>
<tr>
<td>3B1</td>
<td>First Ring Pattern Assignment</td>
<td>Normal CO ringing (2 secs. ON, 4 secs. OFF)</td>
</tr>
<tr>
<td>3B2</td>
<td>Centrex Ringing Assignment</td>
<td>Normal CO ringing (2 secs. ON, 4 secs. OFF)</td>
</tr>
<tr>
<td>3B3</td>
<td>Forced Account Code Digit Assignment</td>
<td></td>
</tr>
<tr>
<td>3B4</td>
<td>RAA SLT Assignment</td>
<td>None</td>
</tr>
<tr>
<td>3B5</td>
<td>Station Hunting Pilot Number Assignment</td>
<td></td>
</tr>
<tr>
<td>3B6</td>
<td>Station to Hunt Group Assignment</td>
<td>No extension number for hunt group number (1~8)</td>
</tr>
<tr>
<td>3B7</td>
<td>Station Hunt Type Assignment</td>
<td>Linear hunting</td>
</tr>
<tr>
<td>3B8</td>
<td>Station Hunt group Assignment</td>
<td>No FWD destination for hunt group number (1~8)</td>
</tr>
<tr>
<td>3B9</td>
<td>Trunk group to Line Pool Group Assignment</td>
<td></td>
</tr>
<tr>
<td>3B10</td>
<td>Line Pool Group Auto Extension Assignment</td>
<td>Pool Auto Extension is only assigned for primary extension</td>
</tr>
<tr>
<td>3C1</td>
<td>Telephone Name Assignment</td>
<td>Not assigned</td>
</tr>
<tr>
<td>3C2</td>
<td>Trunk Name Assignment</td>
<td>CO CALL</td>
</tr>
<tr>
<td>3D1</td>
<td>First Initialization</td>
<td>Not applicable</td>
</tr>
<tr>
<td>3D2</td>
<td>Second Initialization</td>
<td>Not applicable</td>
</tr>
<tr>
<td>3D3</td>
<td>Slot Initialization</td>
<td>Not applicable</td>
</tr>
<tr>
<td>3D4</td>
<td>Terminal (TEL, DSS) Initialization</td>
<td>Not applicable</td>
</tr>
<tr>
<td>3E1</td>
<td>Regional Dialing Assignment</td>
<td>Direct Dial</td>
</tr>
<tr>
<td>3E2</td>
<td>1+ Dialing Assignment</td>
<td>All trunk groups are assigned for Direct Dial</td>
</tr>
<tr>
<td>3E3</td>
<td>Rejection Code Assignment</td>
<td>No rejection code is assigned to code 1 ~ 4</td>
</tr>
<tr>
<td>3E4</td>
<td>System Allow/Deny Assignment</td>
<td>Allow</td>
</tr>
<tr>
<td>3E5</td>
<td>Table Allow/Deny Assignment</td>
<td>All tables are Deny</td>
</tr>
<tr>
<td>3E6</td>
<td>Trunk Group to Code Table Assignment</td>
<td>No trunk group is assigned to any code table</td>
</tr>
<tr>
<td>3E7</td>
<td>Table- OCC Flag Assignment</td>
<td>No OCC flag is assigned to any code table</td>
</tr>
<tr>
<td>3E8</td>
<td>Table- OCC Code Assignment</td>
<td>No OCC code is assigned to any code table</td>
</tr>
<tr>
<td>3E9</td>
<td>Restriction Table Code Assignment</td>
<td>No area/office code is assigned to any code table</td>
</tr>
<tr>
<td>3E10</td>
<td>Special Code Assignment</td>
<td>No special code is assigned</td>
</tr>
<tr>
<td>MEMORY BLOCK</td>
<td>FUNCTION</td>
<td>DEFAULT VALUES</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>4A1</td>
<td>System All Busy Restore Assignment</td>
<td>System not busied out</td>
</tr>
<tr>
<td>4A2</td>
<td>System All Busy Out Assignment</td>
<td>System not busied out</td>
</tr>
<tr>
<td>4B1</td>
<td>COI-I Initialized Values</td>
<td>DTMF; CO; No disconnect from CO; DTMF duration = 110 mS. Hookflash 1.5 seconds</td>
</tr>
<tr>
<td>4B2</td>
<td>COI-II Initialized Values</td>
<td>Hit Protection Time = 350 mS.; Disconnect Recognition Time = 300 mS. Pause = 1 sec. Interdigit time = 70 mS.</td>
</tr>
<tr>
<td>4B3</td>
<td>SLI Common Values</td>
<td>HFS = 300 mS.; HFE = 1 sec.; BP = 300 mS.</td>
</tr>
<tr>
<td>4B4</td>
<td>ESI-EB Data and Second Voice Path Assignment</td>
<td>All ESI-EB paths are assigned Dual Path</td>
</tr>
<tr>
<td>4B6</td>
<td>COI-III Initialized Values</td>
<td>DTMF; CO; No disconnect signal from CO; DTMF duration = 110 mS. Hookflash 1.5 seconds</td>
</tr>
<tr>
<td>4R7</td>
<td>COI-IV Initialized Values</td>
<td>Hit Protection Time = 350 mS.; Disconnect Recognition Time = 300 mS. Pause = 1 sec. Interdigit time = 70 mS.</td>
</tr>
<tr>
<td>4B8</td>
<td>VMI Initialize 1 Assignment</td>
<td>HFS = 300 mS.; HFE = 1 sec.; BP = 300 mS.</td>
</tr>
<tr>
<td>4B9</td>
<td>VMI Initialize 2 Assignment</td>
<td>Interdigit Interval Time = 110 mS., DTMF duration = 110mS.; Pause Time = 1 Sec.; Disconnect Time = 1.5 Sec.</td>
</tr>
<tr>
<td>4C1</td>
<td>Card Interface Slot Assignment</td>
<td>Depends on system configuration</td>
</tr>
<tr>
<td>4C2</td>
<td>Interface Slot Busy Out Assignment</td>
<td>No slot busied out</td>
</tr>
<tr>
<td>4E1</td>
<td>TLI Line Type Assignment</td>
<td>Second dial tone</td>
</tr>
<tr>
<td>4E2</td>
<td>TLI Dial Tone Assignment</td>
<td>Send dial tone to outside</td>
</tr>
<tr>
<td>4E3</td>
<td>TLI Digit Add/Delete Code Assignment</td>
<td>Delete digits: 0; Add digits: NONE</td>
</tr>
<tr>
<td>4E4</td>
<td>TLI-I Initialized Values</td>
<td>Pause Time = 1 Sec.; Pre pause Time = 3 Sec.; CO Answer = 520 mS.; CO Release = 520 mS.</td>
</tr>
<tr>
<td>4E5</td>
<td>TLI-II Initialized Values</td>
<td>Wink Detect = 520 mS.; Delay Detect = 120 mS.; Loop Off-Guard = 2 Sec.; Wink = 180 mS.</td>
</tr>
<tr>
<td>4E6</td>
<td>TLI-III Initialized Values</td>
<td>With Wink Delay Signal Timeout = 7 Sec.; Outgoing Guard = 3 Sec.</td>
</tr>
<tr>
<td>4E7</td>
<td>TLI-IV Initialized Values</td>
<td>2dB loss to each TIE LINE</td>
</tr>
<tr>
<td>4E8</td>
<td>TLI-V Initialized Values</td>
<td>DTMF Interdigit Interval Time = 70mS. DTMF duration = 110mS.</td>
</tr>
<tr>
<td>4E9</td>
<td>Tandem Port to Hunt Group Assignment</td>
<td>Not Assigned</td>
</tr>
<tr>
<td>4E10</td>
<td>Trunk Group to Tandem Hunt Group Assignment</td>
<td>All trunk groups assigned to Tandem Hunt Group 1.</td>
</tr>
<tr>
<td>MEMORY BLOCK</td>
<td>FUNCTION</td>
<td>DEFAULT VALUES</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>5A</td>
<td>Station Copy Assignment</td>
<td>Not applicable</td>
</tr>
<tr>
<td>5B1</td>
<td>CPU Initial History</td>
<td>Not applicable</td>
</tr>
<tr>
<td>5B2</td>
<td>System Program Check</td>
<td>Not applicable</td>
</tr>
<tr>
<td>5B3</td>
<td>Interface Slot Check</td>
<td>Not applicable</td>
</tr>
<tr>
<td>5D4</td>
<td>Terminal Check</td>
<td>Not applicable</td>
</tr>
<tr>
<td>5B5</td>
<td>Software/Hardware Slot Status</td>
<td>Not applicable</td>
</tr>
<tr>
<td>5B6</td>
<td>Software/Hardware Terminal Status</td>
<td>Not applicable</td>
</tr>
<tr>
<td>5C1</td>
<td>System Data Last Change</td>
<td>Not applicable</td>
</tr>
<tr>
<td>5C2</td>
<td>Data Dump</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
THIS PAGE LEFT BLANK INTENTIONALLY
**OPERATION**  ←  **AND**  →  **DISPLAY**

1. Go off line.

   **OFF LINE** \((X \times X X)\)  **PROGRAM MODE**

2. Depress F1.

   **TERMINAL**


4. Dial station number being assigned.
   Example = Station 104.

   **LINE KEY ASSIGN**  **TEL ?? ?**

5. Depress line button to be assigned (L1~L15). (See Notes 1 and 2).

   **LK ASGN**  **TEL 104**  **SELECT**  **LINE KEY**

6. Depress correct function key to select line type.

<table>
<thead>
<tr>
<th>Function</th>
<th>Key Assignment</th>
<th>CPU Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO line F11</td>
<td>LK ASGN TEL 104</td>
<td>All CPU levels.</td>
</tr>
<tr>
<td>Pool F12</td>
<td>CO - ??</td>
<td>CPU-EB3 or higher.</td>
</tr>
<tr>
<td>Extension F14</td>
<td>LK ASGN TEL 104</td>
<td>All CPU levels.</td>
</tr>
<tr>
<td>Data Transmit F16</td>
<td>LK ASGN TEL 104</td>
<td>CPU-EB or higher.</td>
</tr>
<tr>
<td>Data Receive F17</td>
<td>LK ASGN TEL 104</td>
<td>CPU-EB or higher.</td>
</tr>
<tr>
<td>Save &amp; Repeat F18</td>
<td>LK ASGN TEL 104</td>
<td>All CPU levels.</td>
</tr>
<tr>
<td>DND Position F20</td>
<td>LK ASGN TEL 104</td>
<td>All CPU levels.</td>
</tr>
</tbody>
</table>

   or to make vacant CLEAR

   **LK ASGN**  **TEL 104**  **VACANT**

7. For the line type selected in step 6, enter the assigned number.

<table>
<thead>
<tr>
<th>Function</th>
<th>Key Assignment</th>
<th>CPU Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO line</td>
<td>01~40</td>
<td>All CPU levels.</td>
</tr>
<tr>
<td>Save &amp; Repeat</td>
<td>01~80</td>
<td>All CPU levels.</td>
</tr>
<tr>
<td>*Extension</td>
<td>100~899</td>
<td>All CPU levels.</td>
</tr>
<tr>
<td></td>
<td>1000~8999</td>
<td>Line Pool Group 1~8</td>
</tr>
</tbody>
</table>

   (See Note 3)

8. Depress ENTER key.

9. Repeat steps 5 to 7 for all other assigned positions.

10. If more stations need programming, depress F/W or B/W until desired station number is displayed, then go to step 5.

11. When all stations are programmed, depress the SPKR key to go back on line.

*NOTE: Usable extension numbers depend on feature access codes programmed in Memory Block 2E1*
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEI. # - Select station to be assigned.
F/W (Forward) - Increment station number.
CLEAR - Vacant line assignment.
ENTER - Enter for each line assignment.
B/W (Backward) - Decrement station number.

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A</td>
<td>1B, 1D2, 2E1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2C10, 1E2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3B9, 3B10, 4B4</td>
<td></td>
</tr>
</tbody>
</table>

See Step 6 for CPU levels.

NOTES:

1. When programming appearances for a 6 button station, line buttons L1 ~ L5 should be selected on the programming station.
2. During step 4, if a non-assigned line position is selected, the display will show VACANT.
3. Line keys must be idle before an assignment change can be made.
4. Line key 6 is always the station's primary extension number (for ETE-6( ) and ETE-6D( ) Multiline Terminals).
5. Line key 16 is always the station's primary extension number (for ETE-16( ), ETE-16D( ) and ETE-16K( ) Multiline Terminals).
6. Depression of the ENTER key causes the program to move to the next line key position to the right.

GENERAL INFORMATION - LINE KEY ASSIGNMENT

This area of memory is used to assign line key appearances of the Multiline Terminals in the system. Each line key appearance on each Multiline Terminal can be designated as one of the following (Other than PE):

- CU line (only one appearance of a particular number per terminal)
- Pooled Line (only one appearance of a particular number per terminal)
- Extension (only one appearance of a particular number per terminal)
- Data Transmit (only one appearance per terminal)
- Data Receive (only one appearance per terminal)
- Save and Repeat (No limitation, 80 S&R maximum per system)
- DND Position (only one per terminal)
- VACANT
MEMORY BLOCK 1B - RINGING ASSIGNMENT

OPERATION

1. Go off line.

2. Depress F1.

3. Depress F7.

4. Dial station number being assigned.
   Example: Station 104.

5. Each line position L1 to L15 should be selected to assign the desired ringing feature for the station chosen in step 3. (See Note 2).
   - LED ON (green) = Ring - All CPU levels
   - LED ON (red) = Delayed Ring - CPU-EB3 or higher
   - LED OFF = No Ring - All CPU levels

6. Depress ENTER key. (See Note 1).

7. Repeat step 5 until all desired Multiline Terminals are programmed.

8. Depressing F20 toggles the programming between day and night mode.

9. If more stations need programming, depress F/W or B/W keys until desired station number is displayed, then go to step 5.

10. When all Multiline Terminals have been programmed for day and night mode ringing, depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)
SPKR - ON/OFF Line
TEL # - Select station to be assigned.
F/W (Forward) - Increment station number.
CLEAR -
ENTER - Entry to each station assigned.
B/W (Backward) - Decrement station number.

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1B</td>
<td>1A</td>
<td>1D3, 2D2</td>
</tr>
</tbody>
</table>

See Step 5 for CPU levels.

NOTES

1. Depressing the ENTER key causes the assignment to advance to the next station number.

2. When programming appearances for a 6 button station, L1 ~ L5 are selected on the programming station.

GENERAL INFORMATION - RINGING ASSIGNMENT

This area of memory is used to assign both day and night mode ringing features for the line appearances of each Multiline Terminal (other than the primary extension). The programming allows the flexibility of a per line button per station with immediate or delayed ringing option for day and night conditions.
Chapter 3

Memory Block 1C1 - DSS/BLF to Attendant Assignment

**Operation** ← AND → **Display**

1. Go off line. (See Note 1).
   - Off-line (X.XX)
   - Program Mode

2. Depress F1, then F8.
   - Terminal DSS/BLF

3. Depress F11.
   - DSS to Att Assign.
   - DSS?

4. Enter device number of DSS/BLF to be assigned (1 - 6). Example: 1. (See Notes 2 & 4).
   - DSS to Att Assign.
   - DSS1 - Vacant

5. Enter the attendant number (1 - 4) to be associated with the DSS/BLF.
   Example: 3.
   - DSS to Att Assign.
   - DSS1 - Att3

6. Depress ENTER key.
   - DSS to Att Assign.
   - DSS2 - Vacant

7. Repeat steps 5 and 6 for additional DSS/BLF console assignments. (See Note 4).

8. When all DSS/BLF to attendant assignments are completed, depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # - Selects DSS/BLF to be assigned
F/W (Forward) - Increment device number
CLEAR - Clears previous assignment
ENTER - Enter for each attendant assigned
B/W (Backward) - Decrement device number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1C1</td>
<td>3A2, 3A4</td>
<td>1C3, 1C4</td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES

1. Before a DSS/BLF can be assigned to the 3rd or 4th attendant station, the station must first be assigned as an attendant (MB 3A2).

2. Display will show VACANT or ATT X (X = 1 to 4) depending on whether an assignment was made previously.

3. A maximum of two DSS/BLFs can be assigned to one attendant.

4. Use the B/W and F/W keys to quickly locate a particular device, when required.

GENERAL INFORMATION - DSS/BLF TO ATTENDANT ASSIGNMENT

The DSS/BLF console, of which there can be a maximum of 6, are assigned to attendant positions in this memory block. This programming area is closely related to memory block 3A2 (Attendant 3rd & 4th Assignment) where stations are assigned as attendant positions. Memory blocks 3A2 and 3A4, when needed, must be programmed prior to programming this memory block.
MEMORY BLOCK 1C2 - BLF TERMINAL ASSIGNMENT

OPERATION ← AND → DISPLAY

1. Go off line.  
   
2. Depress F1, then F8.  
   
3. Depress F12.  
   
4. Enter extension number to be assigned.  
   Example: 104. (See Notes 1, 2, and 3).  
   
5. Depress ENTER key.  
   
6. Repeat steps 4 and 5 for each of the required stations to be assigned.  
   
7. When all required stations are assigned, depress the SPKR key to go back on line.  

---

OFF - LINE  ( X - XX )
PROGRAM MODE

TERMINAL DSS/BLF

BLF TEL ASSIGN
01 - TEL104

BLF TEL ASSIGN
02 - TEL???
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # - Returns display to number 01
F/W (Forward) - Increment BLF number
CLEAR - Clears station BLF assigned
ENTER - Enter each assignment
B/W (Backward) - Decrement BLF number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1C2</td>
<td>1E2</td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES

1. A maximum of 30 stations (10 per module) can be assigned the station BLF feature. Only the ETE-16D-( ) Multiline Terminals can be assigned.

2. Depressing the ENTER key causes the display to increment to the next station BLF assignment.

3. A maximum of 10 ETE-16D-( ) Multiline Terminals can be assigned the BLF feature on each module, however, there is a maximum of 30 per system.

GENERAL INFORMATION - BLF TERMINAL ASSIGNMENT

This area of the memory block allows or denies the station BLF (Busy Lamp Field) function onto specific ETE-16D-( ) Multiline Terminals. Stations assigned indicate the station busy status via the LEDs associated with function keys programmed for DSS.
MEMORY BLOCK 1C3 - DSS/BLF BUTTON ASSIGNMENT
(Feature and Station Appearance)

1. Go off line.

2. Depress F1, then F8.


4. Enter device number (1 - 6) for the DSS/BLF desired. Example: DSS 1. (See Note 1).

5. For feature assignment, go to step 8.

6. Dial terminal, virtual extension, or station hunting pilot number to be assigned. Example: Station 104. (VE requires CPU-EB or higher level ETU.) (Hunting pilot number requires CPU-EB3 or higher level.)

7. Go to step 10.

8. Depress L16 to enter feature mode. (See Note 2 and General Information).

9. Dial feature number required. Example: Number 2. (See Notes 3 and 4).

10. Depress ENTER key.

11. Repeat steps 5 to 10 for all DSS buttons as required.

12. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # - Enters ROW number
F/W (Forward) - Increments key assignment
CLEAR - Clears previous assignment
ENTER - Enters key assignment
B/W (Backward) - Decrement key assignment

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1C3</td>
<td>1C1</td>
<td>2C10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3A2, 3A4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1C4</td>
</tr>
</tbody>
</table>

All CPU levels. (See Step 6.)

NOTES

1. Once the device number is entered, the program automatically moves to row 1, button 1 of the selected DSS/BLF which is shown by the LED of L1 ~ L5 of the programming station.

2. Depressing L16 (line key 16) toggles the programming between feature assignment and station assignment. When in feature assignment mode, assignments are made from right to left, starting with row 6 button 5.

3. FEATURE # FEATURE
   2 Paging
   3 Message Wait
   4 Transfer
   5 Attendant Override
   6 Night Transfer

   These features are assigned to row 6, button 5 from right to left in any order, but must be assigned without skipping a button.

4. The following is a list of codes which can be used when assigning paging:
   05 All internal call
   06 Internal zone 1
   07 Internal zone 2
   08 Internal zone 3
   09 All internal zones
   10 External zone 1
   11 External zone 2
   12 External zone 3
   13 All external zones

5. A station or feature should not be assigned to more than one DSS/BLF button per console.

GENERAL INFORMATION - DSS/BLF BUTTON ASSIGNMENT (Feature and Station Appearance)

This area of the memory block is used to designate appearances on the DSS/BLF. Each position on the DSS/BLF can have the appearance of either an extension or a feature. Extension number assignments appear on the DSS/BLF from the upper left to the lower right key, while feature assignments appear from the lower right (Row 6, Button 5) to the upper left key.
MEMORY BLOCK IC4 - DSS/BLF FLEXIBLE FUNCTION KEY ASSIGNMENT

OPERATION ←→ DISPLAY

1. Go off line.

| OFF - LINE | (X - X) | PROGRAM MODE |

2. Depress F1, then F8.

| TERMINAL DSS/BLF |


| DSS FLX. FEATURE DEVICE |

4. Enter device number (1 - 6) for the DSS/BLF desired. Example: DSS 1.

| DSS 1 FLX. FEATURE FLX1 XXXXXXXXXX |


| L1 Left key |
| L2 Center key |
| L3 Right key |

6. Dial the feature number that corresponds to the feature being assigned.

| DSS 1 FLX. FEATURE FLX2 PAGING ZONE ?? |
| DSS 1 FLX. FEATURE FLX2 MSG. WAIT |
| DSS 1 FLX. FEATURE FLX2 TRANSFER |
| DSS 1 FLX. FEATURE FLX2 ATT OVERRIDE |
| DSS 1 FLX. FEATURE FLX2 NIGHT MODE |

7. Depress ENTER key. (See Note 2).
KEY FUNCTION (OFF LINE)

**SPKR -** ON/OFF Line

**TEL # -** Allows entry of new device number

**F/W (Forward) -** Forward to next function key

**CLEAR -** Clear previous assignment

**ENTER -** Enter function key assignment

**B/W (Backward) -** Back to previous function key

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1C1</td>
<td>1D9, 1C3, 3A4,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2A7</td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. For paging assignment, one of the following codes is entered:

<table>
<thead>
<tr>
<th>CODE</th>
<th>FEATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>05</td>
<td>Internal all call</td>
</tr>
<tr>
<td>06</td>
<td>Internal zone 1</td>
</tr>
<tr>
<td>07</td>
<td>Internal zone 2</td>
</tr>
<tr>
<td>08</td>
<td>Internal zone 3</td>
</tr>
<tr>
<td>09</td>
<td>All internal zones</td>
</tr>
<tr>
<td>10</td>
<td>External zone 1</td>
</tr>
<tr>
<td>11</td>
<td>External zone 2</td>
</tr>
<tr>
<td>12</td>
<td>External zone 3</td>
</tr>
<tr>
<td>13</td>
<td>External all zones</td>
</tr>
</tbody>
</table>

2. Depressing the ENTER key causes the display to increment to the next function key.

3. FEATURE # FEATURE

<table>
<thead>
<tr>
<th>FEATURE #</th>
<th>FEATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Paging</td>
</tr>
<tr>
<td>3</td>
<td>Message Wait</td>
</tr>
<tr>
<td>4</td>
<td>Transfer</td>
</tr>
<tr>
<td>5</td>
<td>Attendant Override</td>
</tr>
<tr>
<td>6</td>
<td>Night Transfer</td>
</tr>
</tbody>
</table>

GENERAL INFORMATION - DSS/BLF FLEXIBLE FUNCTION KEY ASSIGNMENT

This area of the memory block is used to program the three Feature Access keys on the lower row of the DSS/BLF. These Feature Access keys can only be assigned to access features, they can not be used to access stations. A feature should not be assigned to more than one key.
MEMORY BLOCK 1C5 - DSS TO CO ADD-ON MODULE ASSIGNMENT

OPERATION  AND  DISPLAY

1. Go off line.
   OFF-LINE  (X.XX)
   PROGRAM MODE

2. Depress F1, then F8.
   TERMINAL  DSS/BLF

3. Depress F15.
   CO ADMODULE ASGN
   DSS?

4. Enter the device number (1~6) of the DSS/BLF to be assigned as a CO Add-On Module.
   Example: DSS/BLF 4. (See Notes 1 & 4).
   CO ADMODULE ASGN
   DSS4 CO ADMOD?

5. Enter the CO Add-On Module device number (1~4) to be assigned to the selected DSS/BLF.
   Example: CO Add-On Module 2. (See Note 5).
   1 = Attendant 1
   2 = Attendant 2
   3 = Attendant 3
   4 = Attendant 4
   CO ADMODULE ASGN
   DSS4 CO ADMOD2

6. Depress ENTER key. (See Note 2).
   CO ADMODULE ASGN
   DSS?

7. Repeat Steps 4 thru 6 for all DSS/BLFs to be assigned as CO Add-On Modules.

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR  - ON/OFF Line
TEL #  - Enter new DSS/BLF device number
F/W  -
CLEAR  - Clears previous assignment
ENTER  - Enter each assignment
B/W  -

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1C5</td>
<td>1C1, 1C7, 1C8</td>
<td>1C6, 1E2, 3A2</td>
</tr>
</tbody>
</table>

CPU-EB or higher.

NOTES:

1. If TEL # key is depressed (any time after step 4) the program is returned to step 3.
2. Depressing the ENTER key will return you to Step 3.
3. The flexible function keys will not operate on a DSS/BLF unit assigned as a CO Add-On module.
4. DSS to Attendant Assignment (1C1) must be vacant before assigning the EDE-30-1 as a CO Add-On module.
5. The CO Add-On module device number (1~4) will automatically associate the CO Add-On module to an attendant position (1~4) respectively and cannot be changed.

GENERAL INFORMATION - DSS TO CO ADD-ON MODULE ASSIGNMENT

This area of the memory block is used to assign EDE-30-1 DSS/BLF units to function as CO Add-On Modules. A maximum of four (4) DSS/BLFs can be assigned as CO Add-On Modules, this impacts the overall limit of six (6) DSS/BLF units that can be installed in a system. It is possible for an Attendant to be assigned two (2) DSS/BLF consoles and one (1) CO Add-On Module. Only an EDE-30-1 Revision B or higher can be assigned as a CO Add-On Module.
MEMORY BLOCK 1C6 - CO ADD-ON MODULE LINE KEY ASSIGNMENT

OPERATION  ←——— AND  ———→ DISPLAY

1. Go off line.

<table>
<thead>
<tr>
<th>OFF-LINE (X.XX)</th>
<th>PROGRAM MODE</th>
</tr>
</thead>
</table>

2. Depress F1, then F8.

<table>
<thead>
<tr>
<th>TERMINAL DSS/BLF</th>
</tr>
</thead>
</table>

3. Depress F16.

<table>
<thead>
<tr>
<th>CO ADMODULE ASGN</th>
</tr>
</thead>
</table>

4. Enter the CO Add-On Module device number (1~4) to be assigned. Example: CO Add-On Module 3. (See Notes 1 and 2).

<table>
<thead>
<tr>
<th>LK ASSIGN ADMOD?</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>LK ASSIGN ADMOD3</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>ROW1 VACANT</th>
</tr>
</thead>
</table>

5. Dial the number of the CO trunk (01~40) to be assigned to the selected line button. Example: CO trunk 10; line keys L1~L5 will light in turn, corresponding to the button location within the particular row being assigned. (See Notes 3 & 4).

<table>
<thead>
<tr>
<th>LK ASSIGN ADMOD3</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>ROW1 CO-10</th>
</tr>
</thead>
</table>

6. Depress ENTER key.

<table>
<thead>
<tr>
<th>LK ASSIGN ADMOD3</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>ROW1 VACANT</th>
</tr>
</thead>
</table>

7. Repeat Steps 5 and 6 for all line buttons on the selected device to be programmed.

8. Depress SPKR key to go back on line.
### GUIDE TO FEATURE PROGRAMMING

The following table outlines the memory block assignments for CO Add-On Module line key assignment:

<table>
<thead>
<tr>
<th>Memory Block Being Programmed</th>
<th>Memory Block That Must Be Programmed</th>
<th>Memory Block That May Have To Be Programmed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1C6</td>
<td>1C5</td>
<td>1A, 1C1, 1C7</td>
</tr>
<tr>
<td></td>
<td>1C8, 1E2</td>
<td>3A2</td>
</tr>
</tbody>
</table>

CPU-EB or higher.

**NOTES:**

1. If TEL # key is depressed once (any time after step 4); the display's second line will change to show:

```
ROW ?
```

This allows selection of individual rows.

2. If TEL # key is depressed twice (any time after step 4) the program is returned to step 3.

3. If a CO trunk is already assigned, depressing the CLEAR and ENTER keys assigns this line key as VACANT.

4. A CO trunk which already appears on a line key on the associated attendants' ETE-16D( ) terminal, cannot also be programmed on the CO line key console.

---

### GENERAL INFORMATION - CO ADD-ON MODULE

**LINE KEY ASSIGNMENT**

This area of the memory block is used to assign CO trunk appearances to the line buttons of DSS/BLF units assigned as CO Add-On Modules.
MEMORY BLOCK 1C7 - CO ADD-ON MODULE DAY RING ASSIGNMENT

OPERATION  AND  DISPLAY

1. Go off line.

<table>
<thead>
<tr>
<th>OFF-LINE   (X·XX)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROGRAM MODE</td>
</tr>
</tbody>
</table>

2. Depress F1, then F8.

| TERMINAL DSS/BLF |

3. Depress F17.

| ADMOD DAY RING |
| ADMOD? |

4. Enter the device number (1~4) of the CO Add-On Module to be programmed.
   Example: CO Add-On Module 2. (See Note 1).

| DAY RING   ADMOD2 |
| ROW 1 |

5. Depress line keys L1~L5 to assign the desired ringing pattern as shown below:

   Green LED ON: Ring - CPU-EB or higher.
   Red LED ON:   Delayed Ring - CPU-EB3 or higher.
   LED OFF:      No Ring - CPU-EB or higher.

| DAY RING   ADMOD2 |
| ROW 1 |

6. Depress ENTER key. (See Note 2).

| DAY RING   ADMOD2 |
| ROW 2 |

7. Repeat Steps 5 and 6 for all line keys to be programmed on the selected device.

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # - Clear row number
F/W (Forward) - Increments row number
CLEAR -
ENTER - Enter each assignment
B/W (Backward) - Decrements row number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1C7</td>
<td>1C5, 1C6</td>
<td>1C8, 1E2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2D2, 3A2</td>
</tr>
</tbody>
</table>

CPU-EB or higher. (See Step 5.)

NOTES:

1. After a device number has been entered, line keys L1-L5 will display the previous ring assignment of the selected row.

2. Depressing the ENTER key will cause the display to increment to the next row of the selected device.

GENERAL INFORMATION - CO ADD-ON MODULE DAY RING ASSIGNMENT

This area of the memory block is used to assign Day Mode Ringing to CO trunk appearances on the CO Add-On Modules.
MEMORY BLOCK 1C8 - CO ADD-ON MODULE NIGHT RING ASSIGNMENT

OPERATION ← AND → DISPLAY

1. Go off line.

2. Depress F1, then F8.

3. Depress F18.

4. Enter the device number (1~4) of the CO Add-On Module to be programmed. Example: CO Add-On Module 3. (See Note 1)

5. Depress line keys L1~L5 to assign the desired ringing pattern:
   - Green LED ON: Ring - CPU-EB or higher.
   - Red LED ON: Delayed Ring - CPU-EB3 or higher.
   - LED OFF: No Ring - CPU-EB or higher.

6. Depress ENTER key. (See Note 2).

7. Repeat Steps 5 and 6 for all line keys to be assigned on the selected device.

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # - Clears row number
F/W (Forward) - Increments row number
CLEAR -
ENTER - Enter each assignment
B/W (Backward) - Decrements row number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1C8</td>
<td>1C5, 1C6</td>
<td>1C7, 1E2</td>
</tr>
<tr>
<td></td>
<td>2D2, 3A2</td>
<td></td>
</tr>
</tbody>
</table>

CPU-EB or higher. (See Step 5.)

NOTES:

1. After a device number has been entered, line keys L1~L5 will display the previous ring assignment of the selected row.

2. Depressing the ENTER key will cause the display to increment to the next row of the selected device.

GENERAL INFORMATION - CO ADD-ON MODULE NIGHT RING ASSIGNMENT

This area of the memory block is used to assign Night Ringing to CO trunk appearances on the CO Add-On Modules.
MEMORY BLOCK 1D1 - PRIME / RINGING LINE ASSIGNMENT

OPERATION \hspace{1cm} AND \hspace{1cm} DISPLAY

1. Go off line.

\[
\begin{array}{c}
\text{OFF\-LINE\ (X\-XX)} \\
\text{PROGRAM\ MODE}
\end{array}
\]

2. Depress F1, then F9.

\[
\begin{array}{c}
\text{TERMINAL\ FEATURE}
\end{array}
\]

3. Depress F11.

\[
\begin{array}{c}
\text{PRM. / RNG. L. PREF} \\
\text{TEL ?? ?}
\end{array}
\]

4. Dial station number to be assigned.
   Example: Station 104. (See Note 1).

\[
\begin{array}{c}
\text{PRM. / RNG. L. PREF} \\
\text{TEL 104 XXXXXXXXXX}
\end{array}
\]

5. Dial a one digit code to select the appropriate function (See Note 2).
   Prime line: dial 1 and depress the line key (LK1-16) to be assigned. (See Note 3).

or Ringing line: Dial 2.

or Prime/Ring line: Dial 3. Depress desired line key. (See Notes 3 & 5).

or For SLT CO Prime Line: Dial 4.
   Enter desired Trunk Number (See Notes 6 & 7).
   (CPU-EB2 or higher.)

or For no assignment: Dial 0.

\[
\begin{array}{c}
\text{PRM. / RNG. L. PREF} \\
\text{TEL 104 PRIME L.}
\end{array}
\]

\[
\begin{array}{c}
\text{PRM. / RNG. L. PREF} \\
\text{TEL 104 RINGING L}
\end{array}
\]

\[
\begin{array}{c}
\text{PRM. / RNG. L. PREF} \\
\text{TEL 104 PRM. / RNG.}
\end{array}
\]

\[
\begin{array}{c}
\text{PRM. / RNG. L. PREF} \\
\text{TEL 104 NOT SET}
\end{array}
\]

6. Depress ENTER key. (See Note 4).

\[
\begin{array}{c}
\text{PRM. / RNG. L. PREF} \\
\text{TEL 105 XXXXXXXXXX}
\end{array}
\]

7. Repeat steps 5 and 6 for all subsequent stations, or go back to step 3 to program a specific station.

\[
\begin{array}{c}
\text{PRM. / RNG. L. PREF} \\
\text{TEL ?? ?}
\end{array}
\]

8. When programming is complete, depress SPKR key to go back on line.
**KEY FUNCTION (OFF LINE)**

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPKR</td>
<td>ON/OFF Line</td>
</tr>
<tr>
<td>TEL. #</td>
<td>Selects station to be programmed</td>
</tr>
<tr>
<td>F/W (Forward)</td>
<td>Increments station number</td>
</tr>
<tr>
<td>CLEAR</td>
<td></td>
</tr>
<tr>
<td>ENTER</td>
<td>Enters assignment to each station</td>
</tr>
<tr>
<td>B/W (Backward)</td>
<td>Decrements the station number</td>
</tr>
</tbody>
</table>

**GUIDE TO FEATURE PROGRAMMING**

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1D1</td>
<td>1A</td>
<td>1B, 2E1</td>
</tr>
</tbody>
</table>

All CPU levels. (See Step 5.)

**NOTES:**

1. During step 4, the display shows the current assignment of the station.

2. **DIGIT CODE FEATURE**
   - 1 Prime Line
   - 2 Ringing Line
   - 3 Prime/Ringing
   - 4 SLT CO Prime Line
   - 0 Not Set

3. For ETE-6-( ) and ETE-6D-( ) Multiline Terminal, LK 1 ~ 6 should be used.

4. Depressing the ENTER key causes the display to increment to the next station number.

5. Ringing line preference takes priority over prime line when both are assigned.

6. SLT CO Prime Line can be assigned to stations supported by SLI or VMI ports only.

7. For Single Line Telephones, an access code must be programmed for CO release if internal dial tone is required (M.B. 2E1 Access code item 93).

**GENERAL INFORMATION - PRIME/RINGING LINE ASSIGNMENT**

This area of the memory block is used to assign prime line and/or ringing line preference to all Multiline Terminals and to assign CO Prime Line or Extension Prime Line to SLTs. When *prime line or prime/ringing line* feature is chosen, a line key must be selected (depressed) for each station.
MEMORY BLOCK 1D2 - DATA SERVICE ASSIGNMENT

OPERATION ← AND → DISPLAY

1. Go off line.

2. Depress F1, then F9.

3. Depress F12.

4. Dial station number to be assigned.
   Example: Station 120. (See Note 1).

5. Depress line keys L1 ~ L6 to select desired parameters. (See Note 2).

6. Depress ENTER key. (See Note 3).

7. Repeat Steps 5 and 6 for all subsequent stations, or go to Step 3 to program a specific station.

8. Depress SPKR key to go back on line.
**KEY FUNCTION (OFF LINE)**

- **SPKR** - ON/OFF Line
- **TEL #** - Select station to be programmed
- **F/W** (Forward) - Increments station number
- **CLEAR** -
- **ENTER** - Enter assignment to each station
- **B/W** (Backward) - Decrements station number

**GUIDE TO FEATURE PROGRAMMING**

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1D2</td>
<td>4B4</td>
<td>1A</td>
</tr>
<tr>
<td></td>
<td>2B7</td>
<td></td>
</tr>
</tbody>
</table>

**CPU-EB or higher.**

**NOTES:**

1. After step 4, line keys L1~L6 will show the parameters previously selected.

2. Line keys L1~L6 correspond to the following:

   - L1 Automatic Answer
     - LED ON: YES
     - *OFF: NO

   - L2 Automatic Release
     - LED ON: YES
     - *OFF: NO

   - L3 DTR Signal Validity* (Terminal)
     - LED ON: VALID
     - *OFF: INVALID

   - DSR Signal Validity* (Modem)
     - LED ON: VALID
     - *OFF: INVALID

   - L4 Incoming Internal Data Call during CO conversation
     - LED ON: ALLOW
     - OFF: PROHIBIT

   - L5 Depressing the DR key after receiving an internal data call, during CO conversation
     - *LED OFF: Rejects the internal call and activates modem pool. Answers the internal data call.

   - L6 LCD Indication for data calls
     - *LED ON: Provided
     - *OFF: Not Provided

   - = Default

3. Depressing the ENTER key causes the display to increment to the next station.

---

**GENERAL INFORMATION - DATA SERVICE ASSIGNMENT**

This area of the memory block is used to assign the various operational parameters to stations equipped and programmed to support data communications.
MEMORY BLOCK 1D3 - USER PROGRAM ASSIGNMENT

<table>
<thead>
<tr>
<th>OPERATION</th>
<th>AND</th>
<th>DISPLAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF-LINE</td>
<td>(X-XX)</td>
<td>PROGRAM MODE</td>
</tr>
<tr>
<td>TERMINAL FEATURE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USER PROGRAM</td>
<td>TEL ???</td>
<td></td>
</tr>
<tr>
<td>USER P. TEL 104</td>
<td>LINE KEY 1-3</td>
<td></td>
</tr>
<tr>
<td>USER P. TEL 105</td>
<td>SET LINE KEY 1-3</td>
<td></td>
</tr>
</tbody>
</table>

1. Go off line.

2. Depress F1, then F9.


4. Dial station number to be assigned. Example: Station 104. (See Note 1).

5. If no change in status is desired, proceed to step 7.

6. Depress L1 ~ L3 to select appropriate feature capability. (See Note 1).

7. Depress ENTER key. (See Note 2). Repeat steps 5 ~ 7 for all subsequent stations, or go to step 3 to program a specific station.

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

- SPKR - ON/OFF Line
- TEL # - Select station to be programmed
- F/W (Forward) - Increment station number
- CLEAR -
- ENTER - Enter assignment to each station
- B/W (Backward) - Decrement the station number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1D3</td>
<td>1D</td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. L1 - L3 selects an optional feature for the selected station.
   - L1 Off Hook Ringing (Note 3) ON: Ring OFF: No Ring
   - L2 Internal Voice/Ring ON: Ring * OFF: Voice
   - L3 Ring Tone ON: Tone #2 * OFF: Tone #1
     * = Default

2. Depressing the ENTER key causes the display to increment to the next station.

3. At Default, only Stations 100 & 101 have Off-Hook Ring

GENERAL INFORMATION - USER PROGRAM ASSIGNMENT

This area of the memory block is used for the programming terminal to individually change certain default optional features that are assigned individually from each Multiline Terminal. These user controlled features include off hook ringing, voice and tone signaling on intercom, and selection of ring tone.
CHAPTER 3
APRIL, 1990

MEMORY BLOCK 1D4 - TRUNK GROUP INCOMING RESTRICTION

OPERATION  AND  DISPLAY

1. Go off line.

   OFF-LINE (X.XX)
   PROGRAM MODE

2. Depress F1, then F9.

   TERMINAL FEATURE


   TRK.G INCOM.REST
   TEL???

4. Dial station number to be assigned.
   Example: Station 104. (See Note 1).

   TRK.G INCOM.REST
   TEL104

5. L1 to L8 represent trunk groups 1 to 8 respectively. If no change in status is required, proceed to step 7.

6. Depress L1 to L8 to allow or deny access to the trunk groups for incoming calls.
   LED ON = Restricted, LED OFF = Unrestricted.

   TRK.G INCOM.REST
   TEL105

7. Depress ENTER key. Repeat steps 5 ~ 7 for all subsequent Multiline Terminals (See Note 2), or go to step 3 to restrict a specific terminal.

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR - ON/OFF Line</th>
<th>TEL # - Selects station to be programmed</th>
<th>F/W (Forward) - Increments station number</th>
<th>CLEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENTER - Enters assignment to each station</td>
<td>B/W (Backward) - Decrements the station</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1D4</td>
<td>2C1</td>
<td>2C2</td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. During step 4, L1 to L8 correspond to trunk groups 1 to 8 respectively and will show any previous assignment.

   LED on = restricted
   LED off = unrestricted (Default)

2. Depressing the ENTER key causes the display to increment to the next station number.

GENERAL INFORMATION - TRUNK GROUP INCOMING RESTRICTION

This memory block is used to assign incoming restrictions to Multiline Terminals and SLTs on a trunk group basis.
MEMORY BLOCK 1D5 - TRUNK GROUP OUTGOING RESTRICTION

OPERATION

1. Go off line.

OFF - LINE (X - XXX) PROGRAM MODE

AND

DISPLAY

2. Depress F1, then F9.

TERMINAL FEATURE

3. Depress F15.

TRK. G OUTGO. REST
TEL ?? ?

4. Dial station number to be assigned.
Example: Station 104. (See Note 1).

TRK. G OUTGO. REST
TEL 104

5. L1 to L8 represent trunk groups 1 to 8 respectively. If no change in status is required, proceed to step 7.

6. Depress L1 to L8 to allow or deny access to the trunk groups for outgoing calls.
LED ON = Restricted, LED OFF = Unrestricted.

7. Depress ENTER key. Repeat steps 5 - 7 for all
subsequent Multiline Terminals or go to step 3
to restrict a specific terminal. (See Note 2).

TRK. G OUTGO. REST
TEL 105

8. Depress SPKR key to go back on line.
### KEY FUNCTION (OFF LINE)

- **SPKR** - ON/OFF Line
- **TEL #** - Select station to be programmed
- **F/W (Forward)** - Increment station number
- **CLEAR** -
- **ENTER** - Enter assignment to each station
- **B/W (Backward)** - Decrement the station number

### GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1D5</td>
<td>2C1</td>
<td>2C2, 2C3</td>
</tr>
</tbody>
</table>

All CPU levels.

### NOTES:

1. During step 4, L1 to L8 correspond to trunk groups 1 to 8 respectively and will show any previous assignment.

   - LED on = restricted
   - LED off = unrestricted (Default)

2. Depressing the ENTER key causes the display to increment to the next station number.

### GENERAL INFORMATION - TRUNK GROUP OUTGOING RESTRICTION

This area of the memory block is used to restrict stations from making outgoing calls on a trunk group basis. The outgoing restriction applies to both direct and dial access trunk groups.
MEMORY BLOCK 1D6 - CODE RESTRICTION TABLE ACCESS

1. Go off line.

<table>
<thead>
<tr>
<th>OPERATION</th>
<th>AND</th>
<th>DISPLAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF-LINE (X XXX)</td>
<td>PROGRAM MODE</td>
<td></td>
</tr>
</tbody>
</table>

2. Depress F1, then F9.

<table>
<thead>
<tr>
<th>TERMINAL FEATURE</th>
</tr>
</thead>
</table>

3. Depress F16.

<table>
<thead>
<tr>
<th>CODE RESTRICTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL ?? ??</td>
</tr>
</tbody>
</table>

4. Dial station number to be assigned.
   Example: Station 104. (See Note 1).

<table>
<thead>
<tr>
<th>CODE REST. #104</th>
</tr>
</thead>
<tbody>
<tr>
<td>TABLE 01-16</td>
</tr>
</tbody>
</table>

5. Depress L1 ~ L16 to assign system code tables 1 to 16.

6. Depress ENTER key. (See Note 2).

<table>
<thead>
<tr>
<th>CODE REST. #104</th>
</tr>
</thead>
<tbody>
<tr>
<td>TABLE 17-32</td>
</tr>
</tbody>
</table>

7. Depress L1 ~ L16 to assign system code tables 17 ~ 32.

8. Depress ENTER key. (See Note 2).

<table>
<thead>
<tr>
<th>CODE REST. #105</th>
</tr>
</thead>
<tbody>
<tr>
<td>TABLE 01-16</td>
</tr>
</tbody>
</table>

9. Repeat steps 5 ~ 8 for all subsequent stations or go to step 3 to restrict a specific station.

10. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

| SPKR - | ON/OFF Line |
| TEL # - | Select station to be programmed |
| F/W (Forward) - | Increment table/station number |
| CLEAR - | |
| ENTER - | Enter assignment to each station |
| B/W (Backward) - | Decrement table/station number |

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1D6</td>
<td>1D7, 3E1, 3E2, 3E3</td>
<td>3E4, 3E7, 3E8, 3E10, 2C1~2C3</td>
</tr>
<tr>
<td></td>
<td>3E5, 3E6, 3E9</td>
<td>4B1 or 4B6, 2A9</td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. During step 4, L1 to L16 will display which of the restriction tables, 1 to 16, have been assigned to the station chosen. L1 to L16 correspond to tables 1 to 16 or 17 to 32.

2. When display shows table 1 to 16, depressing the ENTER key causes the display to increment to tables 17 to 32. If the ENTER key is depressed once again, the display now increments to the next station number.

3. In Memory Block 1D7 (Class of Service Assignment); line key L5 must be ON (Operator Restriction Assigned).

GENERAL INFORMATION - CODE RESTRICTION TABLE ACCESS

This area of the memory block is used to assign up to 32 system code restriction tables to each station as needed. Refer to section 360 of this manual for a discussion of the system code tables.
MEMORY BLOCK 1D7 - CLASS OF SERVICE ASSIGNMENT

1. Go off line.

```
OFF-LINE (X.XX)
PROGRAM MODE
```

2. Depress F1, then F9.

```
TERMINAL FEATURE
```

3. Depress F17.

```
CLASS OF SERVICE
TEL???
```

4. Enter the station number to be programmed.
   Example: Station 104. (See Note 1).

```
CLS.OF SVC. #104
DEPRESS LINE KEY
```

5. Depress appropriate line keys to allow or disallow station features as required (See Note 2).

```
CLS.OF SVC. #105
DEPRESS LINE KEY
```

6. Depress ENTER key. (See Note 3).

7. Repeat steps 5 and 6 for all subsequent stations or go to step 3 to assign a specific station.

8. Depress the SPKR key to go back on line.
**KEY FUNCTION (OFF LINE)**

<table>
<thead>
<tr>
<th>SPKR - ON/OFF Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL # - Selects station to be programmed</td>
</tr>
<tr>
<td>F/W (Forward) - Increments station number</td>
</tr>
<tr>
<td>CLEAR</td>
</tr>
<tr>
<td>ENTER - Enters assignment to each station</td>
</tr>
<tr>
<td>B/W (Backward) - Decrements the station number</td>
</tr>
</tbody>
</table>

**GUIDE TO FEATURE PROGRAMMING**

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1D7</td>
<td>4B1 or 4B6</td>
<td>2D1, 2D2, 2D3, 2E1, 3B3</td>
</tr>
</tbody>
</table>

All CPU levels (See Note 2)

**NOTES:**

1. After the station number is entered, the line key LED's will show any previous assignment to the station.

2. Each of the following programming keys is selected to allow or disallow these terminal features.

   - **LED ON = Enabled**  **LED OFF = Disabled**
   - **L1 = Camp-on Originate (Allow)**
   - **L2 = Camp-on Receive (Allow)**
   - **L3 = Call Forward, All or Busy/No Answer (Allow)**
   - **L5 = Operator Restriction (Deny)**
   - **L6 = Data Line Security (Deny)**
   - **L11 = Station Lockout (Deny)**
   - **L12 = Page Access, Originate (Allow)**
   - **L13 = LCR Priority (Deny)**
   - **L14 = Trunk to Trunk Transfer (Deny) (CPU-EB2 or higher)**
   - **L15 = Account Code Forced/Verified Entry (Deny) (CPU-EB3 or higher)**

   **NOTE:** Defaults are shown between parenthesis.

3. To allow a Trunk to Trunk Transfer, a disconnect signal must be provided by the CO or PBX and programmed in M.B. 4B1 or 4B6.

4. Depressing the ENTER key causes the display to increment to the next station number.

**GENERAL INFORMATION - CLASS OF SERVICE ASSIGNMENT**

This area of the memory block is used to assign a particular class of service to each station. Each class of service allows or disallows the station user specific station features.
MEMORY BLOCK 1D8 - TERMINAL TO ATTENDANT ASSIGNMENT

1. Go off line.

   OPERATION
   AND
   DISPLAY

   OFF-LINE (X.XX)
   PROGRAM MODE

2. Depress F1, then F9.

   TERMINAL FEATURE

3. Depress F18.

   TERM - ATT ASGN.
   TEL ?? ??

4. Enter the station number to be assigned.
   Example: Station 104. (See Note 1).

   TERM - ATT ASGN.
   TEL 104 - - ATT X

5. Enter attendant number (1 ~ 4) to be assigned to
   the station chosen in step 4.
   Example = Attendant 2.

   TERM - ATT ASGN.
   TEL 104 - - ATT 2

6. Depress ENTER key. (See Note 2).

   TERM - ATT ASGN.
   TEL 105 - - ATT X

7. Repeat steps 5 and 6 for all subsequent stations or go to step 3 to assign a specific station.

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

- **SPKR** - ON/OFF Line
- **TEL #** - Select station to be programmed
- **F/W (Forward)** - Increment station number
- **CLEAR** -
- **ENTER** - Enter assignment to each station
- **B/W (Backward)** - Decrement the station number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1D8</td>
<td></td>
<td>3A2, 3A3, 3A4</td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. After station number is entered, the display will show previous attendant assigned to the station.
2. Depressing the ENTER key causes the display to increment to the next station number.

GENERAL INFORMATION - TERMINAL TO ATTENDANT ASSIGNMENT

This area of the memory block is used to assign each station to one of the four possible associated attendants. If the system requires more than 2 attendants and/or more than one tenant, memory blocks 3A2 and/or 3A4 must be programmed BEFORE this memory block.
MEMORY BLOCK 1D9 - TERMINAL TO PAGING ZONE ASSIGNMENT

OPERATION ← AND → DISPLAY

1. Go off line.

   | OFF-LINE (X.XX) |
   | PROGRAM MODE   |

2. Depress F1, then F9.

   TERMINAL FEATURE

3. Depress F19.

   | TERM-ZONE PAGING |
   | TEL ?? ??       |

4. Enter the station number to be assigned. Example: Station 104. (See Note 1).

   | TERM-ZONE PAGING |
   | TEL104-ZONEX    |

5. Enter zone number (0~3) to be assigned to the station chosen in step 5. Example: Zone 2. (See Note 2).

   | TERM-ZONE PAGING |
   | TEL104-ZONE2     |

6. Depress ENTER key. (See Note 3).

   | TERM-ZONE PAGING |
   | TEL105-ZONEX     |

7. Repeat steps 5 and 6 for all required stations or go to step 3 to assign a paging zone to a specific station.

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR - ON/OFF Line</th>
<th>TEL # - Select station to be programmed</th>
<th>F/W (Forward) - Increment station number</th>
<th>CLEAR -</th>
</tr>
</thead>
</table>

ENTER - Enter assignment to each station

B/W (Backward) - Decrement the station number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1D9</td>
<td></td>
<td>2E1</td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:
1. After station number is entered, the display will show previous zone number assigned to the station.
2. Zone 0 is a no zone assignment.
3. Depressing the ENTER key causes the display to increment to the next station number.

GENERAL INFORMATION - TERMINAL TO PAGING ZONE ASSIGNMENT

This area of the memory block is used to assign each Multiline Terminal to one of the three internal paging zones in the system. If necessary, a Multiline Terminal can be placed in a no zone assignment.
MEMORY BLOCK 1D10 - CALL PICK-UP GROUP ASSIGNMENT

OPERATION ← ----------------- AND ----------------- DISPLAY

1. Go off line.

2. Depress F1, then F9.


4. Enter the station number to be assigned. Example: Station 104. (See Note 1).

5. Enter group number to be assigned to the station selected in step 4. Example = Pick-up group 1. (See Note 2).

6. Depress ENTER key. (See Note 5).

7. Repeat steps 5 and 6 for all required stations or go to step 3 to assign a call pick-up to a specific station.

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

- SPKR - ON/OFF Line
- TEL # - Select station to be programmed
- F/W (Forward) - Increment station number
- CLEAR - Clear pickup group assignment
- ENTER - Enter assignment to each station
- B/W (Backward) - Decrement the station number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1D10</td>
<td></td>
<td>2E1</td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. After station number is entered, the display will show either ? or the previous pickup group number assigned to the station.

2. A station can only be assigned to one of 8 possible pickup groups in the system.

3. There is no limit to the number of stations in one Call Pick-up Group.

4. To enter a no group assignment depress the CLEAR key and then the ENTER key.

5. Depressing the ENTER key causes the display to increment to the next station number.

GENERAL INFORMATION - CALL PICKUP GROUP ASSIGNMENT

This area of the memory block is used to assign stations to call pickup groups. There are a total of 8 groups that stations can be assigned to. A station can only be assigned to one group.
MEMORY BLOCK 1E1 - TERMINAL EXCHANGE

OPERATION → AND ← DISPLAY

1. Go off line.

2. Depress F1, then F10.

3. Depress F11.

4. Dial the extension number of one of the stations to be exchanged. Example: 104.

5. Dial the extension number of the second station to be exchanged. Example: 120. (See Note 1).

6. Depress ENTER key.

7. Repeat steps 4 to 6 for any other pair of stations that may require terminal exchange.

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR</th>
<th>ON/OFF Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL #</td>
<td>Select station to be programmed</td>
</tr>
<tr>
<td>F/W</td>
<td>Forward</td>
</tr>
<tr>
<td>CLEAR</td>
<td></td>
</tr>
<tr>
<td>ENTER</td>
<td>Enter assignment to each pair of stations</td>
</tr>
<tr>
<td>B/W</td>
<td>Backward</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1E1</td>
<td>1C2, 2A1, 3A2</td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. This exchange will only operate correctly if the following conditions are met:
   - Both stations are the same type.
   - Neither ETE-16D-( ) is an associated attendant. (See 3A2)
   - Neither ETE-16D-( ) is a programming position. (See 2A1)
   - Both stations are idle.
   - Neither ETE-16D-( ) is assigned BLF feature. (See 1C2).

GENERAL INFORMATION - TERMINAL EXCHANGE

This area of the memory block is used to exchange station numbers and feature programming between two stations of the same type.
MEMORY BLOCK 1E2 - TERMINAL ADD-PORT (EQUIPMENT TYPE ASSIGNMENT)

**OPERATION**  
1. Go off line.  

**DISPLAY**  
OFF-LINE  
PROGRAM MODE  

2. Depress F1, then F10.  

3. Depress F12.  

4. Enter module number (1 to 4), to select a specific CCU. Example: 1. (Selects the ESE-32B-1 CCU).  

5. Enter slot number (1 to 8), to select a specific interface slot. Example: 3. (Selects the 3rd card slot from the right side of the selected CCU).  

6. Enter channel number (1 to 4), to select a specific circuit of an interface card. Example: 4. (Selects the 4th circuit on the selected card slot, in step 5).  

7. Depress the line key associated with the device type to be assigned to the port. (See Note 1).  

8. Depress ENTER key. (See Notes 3, 4, & 5).  

9. Depress TEL # key and repeat steps 4 to 8 for all additional port assignments. (See Note 2).  

10. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # - Selects port to be assigned
F/W (Forward) - Increments channel number
CLEAR -
ENTER - Enters each port assignment
B/W (Backward) - Decrements channel number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1E2</td>
<td>1A, 1B, 1C1, 1C2, 1D*, 2A1, 3A2</td>
<td>3D1, 4C1, 4E9</td>
</tr>
</tbody>
</table>

All CPU levels. (See Note 1.)

NOTES:

*All the memory blocks of Terminal Feature Block 1D.

1. The following is a list showing the relationship of device type to line key assignments:
   - L1 - ETE-16D(-)
   - L2 - ETE-6D(-)
   - L3 - ETE-6(-)
   - L4 - ETE-16-2 (CPU-EB2 or higher)
   - L5 - ETE-16K-1
   - L6 - EDE-30-1
   - L9 - RAA-E Unit (CPU-EB or higher)
   - L16 - Indicates Vacant or Unassigned

2. Single line instruments are not assigned in this memory block. They can be assigned in memory block 4C1 or when the system is first initialized.

3. Station assignments cannot be changed when:
   - Station is busy
   - ETE-16D(-) is an attendant station (3A2)
   - Station is a programming telephone (2A1)
   - ETE-16D(-) is assigned the BLF feature (1C2)
   - Station is assigned as a tandem port (4E9).

4. Terminal add port cannot be completed when the port is assigned as a DSS/BLF, therefore, the DSS/BLF assignment must be removed (1C1) before 1E2 can be completed.

5. Depressing the ENTER key causes the display to increment to the next channel number.

GENERAL INFORMATION - TERMINAL ADD PORT EQUIPMENT TYPE ASSIGNMENT

This area of the memory block is used to assign specific terminal equipment to unused ports in systems that have been previously programmed and to add new terminal equipment when expanding the system. This area of the memory block is also used to change the type of device assigned to a specific port.
MEMORY BLOCK 1E3 - TERMINAL BUSY ASSIGNMENT

OPERATION AND DISPLAY

1. Go off line.

2. Depress F1, then F10.

3. Depress F13 (See Note 1).

4. Enter station number to change its busy out status. Example: Station 104.

5. Depress line key L1 to assign the desired status to the terminal. (See Note 2).

6. Depress ENTER key. (See Notes 3 & 4).

7. To access port area, depress L13.

8. To change the port’s busy out status, enter module (1-4), slot (1-8), and port (1-4) numbers. Example: Module 1, Slot 8, Port 1.

9. Depress L1 to change the status of the selected port. (See Note 2).

10. Depress ENTER key. (See Notes 3 & 4).

11. To access DSS/BLF area, depress L14.

12. Enter DSS/BLF number 1-6 to change its busy out status. Example: DSS/BLF 2.

13. Depress L1 to change the status of the selected DSS/BLF. (See Note 2).

14. Depress ENTER key. (See Notes 3 & 4).

15. To access modem area, depress L12. (CPU-ER or higher).

16. Enter modem number (1-4) to change its Busy Out status. Example: MODEM 1

17. Depress L1 to change the status of the selected modem. (See Note 2).

18. Depress ENTER key. (See Notes 3 & 4).

19. Depress TEL # key and repeat steps 4 through 18 as required to access a specific port or device to check and/or change its busy out status.

20. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # - Selects port/device to be assigned
F/W (Forward) - Increments port/device number
CLEAR -
ENTER - Enters each port/device assignment
B/W (Backward) - Decrements port/device number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1E3</td>
<td></td>
<td>4E9</td>
</tr>
</tbody>
</table>

All CPU levels. (See Step 15.)

NOTES:

1. There are four terminal busy out assignment modes: Station, Port, DSS/BLF and Modem. When entering Memory Block 1E3, the programming station will default to station busy out assignment.

2. After specifying the port device by station number, DSS/BLF number, modem number, or by port location, L1 is set to assign a particular status to the port device. L1 indications are as follows:
   - LED ON - Port Not Busied Out
   - LED Flash - Port Busied Out
   - LED OFF - Port Not Assigned

3. Program changes are not accepted when:
   - Multiline Terminal
     - is unplugged
     - is not idle
   - DSS/BLF console is unplugged
   - SLT or modem is not idle
   - A terminal is assigned as a tandem port
   - The port is a Conference Port (CNF-E ETU)

4. Depressing the ENTER key causes the display to increment to the next device number.

GENERAL INFORMATION - TERMINAL BUSY ASSIGNMENT

This area of the memory block is used to busy out or restore port devices including ESI-E( ), SLI-E( ), COI-E( ), TIL-E( ), VMI-E, and MFR-E( ) ETUs. The port device can be indexed by port, station number, DSS/BLF device number, or modem device number only.
MEMORY BLOCK 1E4 - TERMINAL/TELEPHONE INFORMATION

OPERATION ← AND → DISPLAY

1. Go off line.

2. Depress F1, then F10.

3. Depress F14. (See Note 1).

4. To determine Telephone/Port assignment, dial station number to be referenced. 
   Example: Station 104. (See Note 2).

5. To determine DSS/Port assignment, depress L14.

6. Enter DSS device number (1~6). 
   Example: 6. (See Note 3).

7. To determine device type associated with a particular port, depress L15.

8. Enter port information in order by module, slot, and channel. (See Note 4).
   Example: Module 1 - Slot 3 - Channel 2.

9. Check the information of other stations, ports or modems by using the F/W, B/W, or TEL# keys and going to the step where the desired information is provided.

10. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR</th>
<th>- ON/OFF Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL #</td>
<td>- Select device to be checked</td>
</tr>
<tr>
<td>F/W (Forward)</td>
<td>- Increment device number</td>
</tr>
<tr>
<td>CLEAR</td>
<td>-</td>
</tr>
<tr>
<td>B/W (Backward)</td>
<td>- Decrement device number</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1E4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. When entering memory block 1E4, the display will default to station number information.

2. After entering device number by port (or station number) if any DSS/BLF is associated with this terminal, the DSS/BLF number will be displayed to the right of the station number. The 3rd DSS number (extreme right) on display indicates the CO Add-On module console number.

3. The display in step 6 shows the port and the associated station for the DSS device entered.

4. The display in step 8 shows the station number and the associated DSS/BLF, if any, related to the port entered.

GENERAL INFORMATION - TERMINAL / TELEPHONE INFORMATION

This area of the memory block is used to display information on terminal equipment. For any device entered, the memory block will display the station number, DSS number, port location, and DSS/BLF (if one has been assigned). No changes can be made in this memory block; it is used for reference purposes only.
MEMORY BLOCK 1E5 - PORT INFORMATION

1. Go off line.

2. Depress F1, then F10.

3. Depress F15.

4. Use dial pad and enter module number (1~4) where port is located. Example: Module 2.

5. Use dial pad and enter slot number (1~8) of selected module. Example: Slot 7.

6. Use dial pad and enter channel number (1~4) of chosen slot. Example: Channel 3. (See Note 1).

7. Depress the F/W or B/W or TEL # keys to check any other ports desired.

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR</th>
<th>ON/OFF Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL #</td>
<td>Select port location</td>
</tr>
<tr>
<td>F/W (Forward)</td>
<td>Increment port location</td>
</tr>
<tr>
<td>CLEAR</td>
<td>-</td>
</tr>
<tr>
<td>ENTER</td>
<td>-</td>
</tr>
<tr>
<td>B/W (Backward)</td>
<td>Decrement port location</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1E5</td>
<td></td>
<td>4C1</td>
</tr>
</tbody>
</table>

All CPU levels. (See Note 1.)

NOTES:

1. After port location is entered, the second line of the display will show:

   |X|X|X|X|S|T|X|X|
   
   ETU TYPE PORT STATUS ETU COMMUNICATIONS ERROR
   (From Software)       (CPU-EB3 or higher)

   PORT STATUS

<table>
<thead>
<tr>
<th>HARDWARE</th>
<th>SOFTWARE</th>
<th>PORT STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
<td>NO</td>
<td>0</td>
</tr>
<tr>
<td>NO</td>
<td>YES</td>
<td>1</td>
</tr>
<tr>
<td>YES</td>
<td>YES</td>
<td>2</td>
</tr>
</tbody>
</table>

2. To clear the communication errors, the ETU must be removed in software (M.B. 4C1) then reprogrammed.

3. If an ESI-E() ETU or SLI-E() ETU is removed in software and then reprogrammed, all assignments for those stations are reset to Default values.

GENERAL INFORMATION - PORT INFORMATION

This area of the memory block is used to check the status of a port. When checking the status of a port, three basic items are checked. These are; ETU type, whether the system acknowledges the port through software and hardware and the number of ETU communication errors.
MEMORY BLOCK 1E6 - TELEPHONE NUMBER EXCHANGE

OPERATION AND DISPLAY

1. Go off line.

   OFF-LINE (X-XX)

   PROGRAM MODE

2. Depress F1, then F10.

   TERMINAL ASSIGN

3. Depress F16.

   TEL NBR EXCHANGE

   TEL ??? - - ***

4. Dial one of the station numbers to be exchanged. Example = Station 104.

   TEL NBR EXCHANGE

   TEL 104 - - ???

5. Dial the other station number to be exchanged. Example = Station 125.

   TEL NBR EXCHANGE

   TEL 104 - - 125

6. Depress ENTER key. (See Note 1).

   TEL NBR EXCHANGE

   TEL ??? - - * * *

7. Repeat steps 4-6 for all additional exchanges.

   TEL NBR EXCHANGE

   TEL ??? - - * * *

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # - Select station number to exchange
F/W (Forward) -
CLEAR -
ENTER - Enter each number exchange
B/W (Backward) -

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1E6</td>
<td></td>
<td>1C3</td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. Depressing the ENTER key will cause the display to return ??? for additional station entries.

2. DSS/BLF button assignment does not change when a station number is exchanged. The DSS/BLF button assignment stays with the original station.

GENERAL INFORMATION - TELEPHONE NUMBER EXCHANGE

This area of the memory block is used to exchange the station number between two terminals. It is not necessary that the stations be of the same instrument type.
MEMORY BLOCK 1E7 - TELEPHONE NUMBER CHANGE

OPERATION ➔ AND ➔ DISPLAY

1. Go off line.

2. Depress F1, then F10.

3. Depress F17.

4. Dial station number to be changed.
   Example: Station 104.

5. Dial new station number being assigned.
   Example: Station 304. (See Note 1).

6. Depress ENTER key. (See Note 2).

7. Repeat steps 4 to 6 for all additional changes.

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPKR</td>
<td>ON/OFF Line</td>
</tr>
<tr>
<td>TEL #</td>
<td>Select station number to change</td>
</tr>
<tr>
<td>F/W (Forward)</td>
<td></td>
</tr>
<tr>
<td>CLEAR</td>
<td></td>
</tr>
<tr>
<td>ENTER</td>
<td>Enter each number change</td>
</tr>
<tr>
<td>B/W (Backward)</td>
<td></td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>Memory Block Being Programmed</th>
<th>Memory Block That Must Be Programmed</th>
<th>Memory Block That May Have To Be Programmed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1E7</td>
<td></td>
<td>2E1, 1C3, 2C10</td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. In step 5 if a station number which is already assigned is dialed, the system will not allow it to be entered.

2. Depressing the ENTER key will cause the display to return to ??? for additional station entries.

GENERAL INFORMATION - TELEPHONE NUMBER CHANGE

This area of the memory block is used to reassign a station number to a terminal. The new number chosen cannot already be assigned elsewhere.
MEMORY BLOCK 1E10 - CO DIGIT RESTRICTION ASSIGNMENT

OPERATION  AND  DISPLAY

1. Go off line.

2. Depress F1, then F10.


4. Enter Station number to be assigned. Example: Station 102.

5. Enter the maximum number of digits (digit string length) that the station will be allowed to dial when using a CO line. Example: 12 digits (See notes 2 and 3)

6. Depress ENTER key. (See Note 4).

7. Repeat steps 5 and 6 for all additional changes.

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR - ON/OFF Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL # - Select station number to change</td>
</tr>
<tr>
<td>F/W - (Forward) Increments station number</td>
</tr>
<tr>
<td>CLEAR - Clear previous assignment</td>
</tr>
<tr>
<td>ENTER - Enter each number change</td>
</tr>
<tr>
<td>B/W (Backward) - Decrement Station number</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1E10</td>
<td>2C1~2C3</td>
<td>4B1, 2A9</td>
</tr>
<tr>
<td></td>
<td>3E1~3E10</td>
<td>1D6, 1D7</td>
</tr>
</tbody>
</table>

CPU levels: CPU-EB3 (3.06) or higher

NOTES:

1. The default value is 0: No restriction

2. Number of digits which can be assigned are 01 to 99.

3. Depress the CLEAR (HOLD) key to set no restriction.
   The display will change to show:

   CO DIGIT REST
   TEL 1 0 2 - DIGIT ? ?

4. Depressing the ENTER key will increment the display to the next station number.

GENERAL INFORMATION - CO LINE DIGIT RESTRICTION ASSIGNMENT

This area of the memory block is used to limit the maximum number of digits that each station is allowed to dial when using a CO line.
MEMORY BLOCK 2A1 - PROGRAMMING TERMINAL

OPERATION

1. Go off line.

2. Depress F2.


4. Depress F11. (See Note 1).

5. Dial station number to be assigned.
   Example: Station 104. (See Note 2).

6. Depress ENTER key.

7. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR</th>
<th>ON/OFF Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL #</td>
<td>-</td>
</tr>
<tr>
<td>F/W (Forward)</td>
<td>-</td>
</tr>
<tr>
<td>CLEAR</td>
<td>Clear previous entry</td>
</tr>
<tr>
<td>ENTER</td>
<td>Enter new station number</td>
</tr>
<tr>
<td>B/W (Backward)</td>
<td>-</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A1</td>
<td></td>
<td>1E2, 4C1</td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. During step 3 the display will show the previous station assigned.

2. The station number entered must be associated with an ETE-16D( ) Multiline Terminal.

GENERAL INFORMATION - PROGRAMMING TERMINAL

This area of the memory block is used to assign an ETE-16D( ) Multiline Terminal system programming capabilities. Only the first and second system attendants are able to program this memory block. Only one programming station at a time can be off-line.
MEMORY BLOCK 2A2 - SPEED DIAL TENANT ASSIGNMENT

OPERATION → AND → DISPLAY

1. Go off line.

   OFF - LINE (X.XX)
   PROGRAM MODE

2. Depress F2, then F6.

   SYS. FEATURE 1

3. Depress F12. (See Note 1).

   SPD CODE - 3 TENANT
   TENANT 1 20 - 99

4. Enter last speed dial buffer to be assigned to the 1st.
   tenant. Example: 50. (See Note 2).

   SPD CODE - 3 TENANT
   TENANT 2 51 - 00

5. Repeat step 4 for each tenant. (Enter 99 for the last tenant assigned).

   SPD CODE - 3 TENANT
   TENANT 3 00 - 00

6. Depress ENTER key.
### KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR - ON/OFF Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL #</td>
</tr>
<tr>
<td>F/W (Forward)</td>
</tr>
<tr>
<td>CLEAR</td>
</tr>
<tr>
<td>ENTER - Enter each tenant assigned</td>
</tr>
<tr>
<td>B/W (Backward)</td>
</tr>
</tbody>
</table>

### GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A2</td>
<td>2A3, 3A2</td>
<td>3A4, 1D8</td>
</tr>
</tbody>
</table>

All CPU levels.

**NOTES:**

1. During step 3 the display will show the previous number of tenant assigned to the buffer locations.
2. Buffer number must be within the range of 20 to 99.
3. A maximum of three tenants can be assigned.

### GENERAL INFORMATION - SPEED DIAL TENANT ASSIGNMENT

This area of the memory block is used to allocate (in blocks) the system speed dial buffers (20 to 99) to each of the system's tenants. A maximum of three tenants can be assigned and the buffer numbers of each tenant are not allowed to overlap.
MEMORY BLOCK 2A3 - SPEED DIAL OVERRIDE ASSIGNMENT

**OPERATION**  

1. Go off line.

2. Depress F2, then F6.


4. Dial tenant number to be assigned (1-3). Example: Tenant 1. (See Note 1).

5. Enter last system buffer location to be allowed to override 1st. tenant code restriction. Example: 56.

6. Depress ENTER key. (See Note 2).

7. Repeat steps 5 and 6 for each tenant as needed.

8. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>Key</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPKR</td>
<td>ON/OFF Line</td>
</tr>
<tr>
<td>TEL #</td>
<td>Select tenant to be programmed</td>
</tr>
<tr>
<td>F/W (Forward)</td>
<td>Increment tenant number</td>
</tr>
<tr>
<td>CLEAR</td>
<td>Clear number of speed dial buffer</td>
</tr>
<tr>
<td>ENTER</td>
<td>Enter completed tenant assignment</td>
</tr>
<tr>
<td>B/W (Backward)</td>
<td>Decrement tenant number</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A3</td>
<td>2A2</td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. When the tenant number is entered, the display will show current information assigned.
   - VV-XX: Total SPD dial buffer area assigned.
   - VV-ZZ: SPD dial buffer area to override toll restrictions.

2. When the last buffer number to override is dialed, the display will increment to the next tenant.

GENERAL INFORMATION - SPEED DIAL OVERRIDE ASSIGNMENT

This area of the memory block is used to assign certain areas of the system speed dial memory which will override any code restrictions already programmed, for each tenant.
## MEMORY BLOCK 2A4 - INCOMING PRIME LINE PICKUP

### OPERATION AND DISPLAY

1. **Go off line.**
   - **Display:** OFF-LINE (X.XX)
   - **Program Mode:**

2. **Depress F2, then F6.**
   - **Display:** SYS. FEATURE 1

3. **Depress F14.**
   - **Display:** INCOM. PRIME. L

4. **Depress line key (L1) to set feature as required. (See Note 1).**
   - **Display:** INCOM. PRIME. L

5. **Depress ENTER key.**

6. **Depress SPKR key to go back on line.**
KEY FUNCTION (OFF LINE)

**SPKR - ON/OFF Line**
**TEL # -**
**F/W -**
**CLEAR -**
**ENTER Enter option**
**B/W -**

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A4</td>
<td>1A, 1D1</td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. To allow the incoming prime line pickup feature, L1 must be lit before the ENTER key is depressed.

2. To deny the incoming prime line pickup feature, L1 must be off (Default).

GENERAL INFORMATION - INCOMING PRIME LINE PICKUP

This area of the memory block is used to allow or deny the incoming prime line pickup feature (see Section 400 for the operation of this feature) on a system wide basis.
MEMORY BLOCK 2A5 - CO • AND # AS FIRST DIGIT ASSIGNMENT

OPERATION  ←  AND  →  DISPLAY

1. Go off line.

<table>
<thead>
<tr>
<th>OFF-LINE</th>
<th>(X.XX)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROGRAM MODE</td>
<td></td>
</tr>
</tbody>
</table>

2. Depress F2, then F6.

| SYS. FEATURE1 |

3. Depress F15.

| * / # 1ST DIGIT |

4. Depress L1 and L2 to allow or disallow * and/or # to be dialed as a first digit on a CO appearance. (See Note 1).

| * / # 1ST DIGIT |

5. Depress ENTER key.

6. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR - ON/OFF Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL # -</td>
</tr>
<tr>
<td>F/W -</td>
</tr>
<tr>
<td>CLEAR -</td>
</tr>
<tr>
<td>ENTER - Enter option</td>
</tr>
<tr>
<td>B/W -</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. In step 4, L1 and L2 are set to allow or disallow the option according to the following patterns:

   L1
   ON * not sent out if first digit (Default)
   OFF * sent out

   L2
   ON # not sent out if first digit (Default)
   OFF # sent out

**GENERAL INFORMATION - CO * AND # AS FIRST DIGIT ASSIGNMENT**

This area of the memory block is used to allow or disallow * and # from being sent out of the system as the first digit when a station is on an outside line. If the feature is disallowed, dialing * or # as the first digit will access system features such as last number redial. If allowed, then system speed dial and last number redial can be accessed via the primary extension (LK6 or LK16).
MEMORY BLOCK 2A6 - SMDR INCOMING PRINT

OPERATION  ←  AND  →  DISPLAY

1. Go off line.

2. Depress F2, then F6.

3. Depress F16.

4. Depress L1 as required to allow or disallow SMDR output. (See Note 1).

5. Depress ENTER key.

6. Depress SPKR key to go back on line.
### KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR - ON/OFF Line</th>
<th>F/W -</th>
<th>CLEAR -</th>
<th>ENTER - Enter option</th>
<th>B/W -</th>
</tr>
</thead>
</table>

### GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A6</td>
<td></td>
<td>2D1</td>
</tr>
</tbody>
</table>

All CPU levels.

**NOTES:**

1. In step 4, if L1 is on, SMDR output for incoming calls is provided. If L1 is off (Default), SMDR output for incoming calls is not provided.

---

### GENERAL INFORMATION - SMDR INCOMING PRINT

This area of the memory block is used to allow or disallow the SMDR output for incoming calls.
MEMORY BLOCK 2A7 - INTERNAL ALL CALL

**OPERATION** ← AND → **DISPLAY**

1. Go off line.

   | OFF-LINE (X-XX) |
   | PROGRAM MODE   |

2. Depress F2, then F6.

   | SYS. FEATURE 1 |

3. Depress F17.

   | INT ALL CALL |

4. Depress L1 as required to allow or disallow the internal all call feature. (See Note 1).

5. Depress ENTER key.

6. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

| SPKR | ON/OFF Line |
| TEL # | - |
| F/W | - |
| CLEAR | - |
| ENTER | Enter option |
| B/W | - |

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A7</td>
<td></td>
<td>2E1</td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. In step 4, if L1 is on, the internal all call feature is allowed. If L1 is off (Default), the feature is disallowed.

GENERAL INFORMATION - INTERNAL ALL CALL

This area of the memory block is used to allow or disallow the internal All Call system feature. When active, this feature allows all page calls to reach every multiline station. It is used mostly for emergencies.
MEMORY BLOCK 2A8 - ACCOUNT CODE DIGIT

OPERATION ← AND DISPLAY

1. Go off line.

   OFF - LINE (X·XX)
   PROGRAM MODE

2. Depress F2, then F6.

   SYS. FEATURE 1

3. Depress F18. (See Note 1).

   ACCOUNT CODE DIGIT - XX

4. Enter number of digits for the Account Code (01 ~ 14). Example: Enter 09 for a 9 digit account code.

   ACCOUNT CODE DIGIT - 09

5. Depress ENTER key.

6. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR</th>
<th>ON/OFF Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL #</td>
<td></td>
</tr>
<tr>
<td>F/W</td>
<td></td>
</tr>
<tr>
<td>CLEAR</td>
<td></td>
</tr>
<tr>
<td>ENTER</td>
<td>Enter account code digits assignment</td>
</tr>
<tr>
<td>B/W</td>
<td></td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A8</td>
<td>1D7, 2D1, 2E1,</td>
<td>3B3</td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. During step 3, any previous value already set is displayed. Default value is 10 digits.

GENERAL INFORMATION - ACCOUNT CODE DIGIT

This area of the memory block is used to define the maximum number of digits for non forced account codes. This value can be set from 1 to 14 digits in length.
MEMORY BLOCK 2A9 - PBX OUTGOING CODE

OPERATION  <->  AND  <->  DISPLAY

1. Go off line.
   
   
   | OFF - LINE (X - XX) |
   | PROGRAM MODE |

2. Depress F2, then F6.
   
   
   | SYS. FEATURE 1 |

3. Depress F19. (See Note 1).
   
   
   | PBX OUTGOING |
   | CODE 1 - - 9 |
   "9 is Default"

   
   
   | PBX OUTGOING |
   | CODE 1 - - 8 |

5. Depress ENTER key. (See Notes 3 and 4).
   
   
   | PBX OUTGOING |
   | CODE 2 - - ? |

6. If a second PBX outgoing code is desired, repeat steps 4 and 5.

7. Depress the SPKR key to go back on line.
GENERAL INFORMATION - PBX OUTGOING CODE

This area of the memory block is used to assign up to two single digit PBX outgoing codes. These digits are dialed by a station user on a PBX line to access CO dial tone.
MEMORY BLOCK 2A10 - TIE LINE DIGIT RESTRICTION ASSIGNMENT

OPERATION ← AND → DISPLAY

1. Go off line.

2. Depress F2, then F6.


4. Enter station to be assigned. Example: Station 102. (See Note 1).

5. Enter the maximum number of digits (digit string length) that the station will be allowed to dial when using a Tie line (01 ~ 99). (See Note 2).

6. Depress ENTER key. (See Note 3).

7. Repeat Steps 4 and 5 for all subsequent stations or depress TEL # key to assign a specific station.

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # - Selects station to be programmed
F/W - Increments station number
CLEAR - Clears previous assignment
ENTER - Enters each assignment
B/W - Decrements telephone number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A10</td>
<td>4E1<del>4E10, 2B10, 2C1</del>2C3, 2C6,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2E1, 4C1, 3C2</td>
<td></td>
</tr>
</tbody>
</table>

CPU-EB2 or higher.

NOTES:

1. After step 4, the display will show any previous assignment. Default is: ?? (No restriction).
2. Depress the CLEAR key to set no restriction.
3. Depressing the ENTER key will increment the display to the next station number.
4. This digit inspection will occur on all trunk groups associated with Tie lines.

GENERAL INFORMATION - TIE LINE DIGIT RESTRICTION ASSIGNMENT

This area of the memory block is used to limit the maximum number of digits that each station is allowed to dial when using a Tie Line.
MEMORY BLOCK 2B1 - MODEM POOLING / TERMINAL KEYBOARD DIALING ASSIGNMENT

OPERATION  <-    AND    -> DISPLAY

1. Go off line.

<table>
<thead>
<tr>
<th>OFF - LINE (X.X.X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROGRAM MODE</td>
</tr>
</tbody>
</table>

2. Depress F2, then F7.

<table>
<thead>
<tr>
<th>SYS. FEATURE 2</th>
</tr>
</thead>
</table>

3. Depress F11.

<table>
<thead>
<tr>
<th>PC DIAL ASSIGN</th>
</tr>
</thead>
</table>

4. Depress line key 1 to allow or deny terminal keyboard dialing:
   LED ON = Allow
   LED OFF = Deny (Default)

5. Depress ENTER key (See Notes 1 & 2).

6. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

- SPKR - ON/OFF Line
- TEL # -
- F/W -
- CLEAR -
- ENTER - Enter each assignment
- B/W -

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2B1</td>
<td>2B7</td>
<td>2D1</td>
</tr>
</tbody>
</table>

CPU-EB2 or higher.

NOTES:

1. Default is deny; LED off.

2. The amount of time the modem is reserved is programmable in Time Base Assignment 1 (MB 2D1)

GENERAL INFORMATION - MODEM POOLING / TERMINAL KEYBOARD

This area of the memory block is used to assign (system wide) modem pool access via computer terminal keyboard dialing. This allows data users the ability to reserve modems and then dial out from computer terminals instead of their stations.
MEMORY BLOCK 2B2 - ALLOW FORWARD OVERRIDE

OPERATION ← AND → DISPLAY

1. Go off line.
   - OFF-LINE (X·XX)
   - PROGRAM MODE

2. Depress F2, then F7.
   - SYS. FEATURE 2

3. Depress F12. (See Note 1).
   - ALLOW FWD OVER.

4. Depress L1 to allow or deny forward override.
   - L1 LED ON = Allow (Default)
   - L1 LED OFF = Deny
   - ALLOW FWD OVER.

5. Depress ENTER key.
   - ALLOW FWD OVER.

6. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR - ON/OFF Line</th>
<th>TEL #</th>
<th>F/W</th>
<th>CLEAR</th>
<th>ENTER - Enter assignment</th>
<th>B/W</th>
</tr>
</thead>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2B2</td>
<td></td>
<td>1D7</td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. After step 3, line key L1 LED will display the previous assignment.

   L1 LED ON = Allow forward override (Default)
   L1 LED OFF = Deny forward override

---

GENERAL INFORMATION - ALLOW FORWARD OVERRIDE

This area of the memory block is used to allow or deny (on a system wide basis) the ability to re-direct a call forward that was previously set to a different target station from the desired target station.
MEMORY BLOCK 2B3 - DIT TRUNK TO TENANT ASSIGNMENT

OPERATION ← AND → DISPLAY

1. Go off line.

   | OFF-LINE (X XXX) |
   | PROGRAM MODE |

2. Depress F2, then F7.

   | SYS. FEATURE2 |


   | DIT TRK - TENANT |
   | TRUNK?? |

4. Enter the trunk number to be assigned (01~40).
   Example: Trunk 2. (See Note 1).

   | DIT TRK - TENANT |
   | TRUNK02 TENANTX |

5. Enter the tenant number (1~3) to be assigned to the particular trunk. Example: Tenant 2. (See Note 3).

   | DIT TRK - TENANT |
   | TRUNK02 TENANT2 |

6. Depress ENTER key. (See Note 2).

   | DIT TRK - TENANT |
   | TRUNK03 TENANTX |

7. Repeat Steps 4 and 5 for all subsequent trunks, or depress TEL # to assign a specific trunk.

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR - ON/OFF Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL # - Enters Trunk number</td>
</tr>
<tr>
<td>F/W - Increments Trunk number</td>
</tr>
<tr>
<td>CLEAR - Clears previous assignment</td>
</tr>
<tr>
<td>ENTER - Enters each assignment</td>
</tr>
<tr>
<td>B/W - Decrements Trunk number</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2B3</td>
<td>2B4</td>
<td>2C1, 2C2, 3A4</td>
</tr>
</tbody>
</table>

CPU-EB2 or higher.

NOTES:

1. Default trunk assignment: All trunks assigned to Tenant 1.

2. Depressing the ENTER key will increment the display to the next trunk number.

3. DIT trunk to tenant assignments should correspond to the same tenants as assigned in Trunk Group to Tenant assignment in Memory Block 2C2.

GENERAL INFORMATION - DIT TRUNK TO TENANT ASSIGNMENT

This area of the memory block is used to assign DIT trunks to tenants. Each DIT/ANA trunk follows the day/night assignment of its tenant.
MEMORY BLOCK 2B4 - DIT/ANA ASSIGNMENT

OPERATION \(\rightarrow\) AND \(\rightarrow\) DISPLAY

1. Go off line.

\[
\begin{array}{c}
\text{OFF-LINE (X.XX)} \\
\text{PROGRAM MODE}
\end{array}
\]

2. Depress F2, then F7.

\[
\begin{array}{c}
\text{SYS. FEATURE 2}
\end{array}
\]


\[
\begin{array}{c}
\text{DIT DAY MODE}
\end{array}
\]

\[
\begin{array}{c}
\text{TRUNK ??}
\end{array}
\]

4. Enter the trunk number to be assigned (01~40).
   Example: Trunk 2. (See Note 1).

\[
\begin{array}{c}
\text{DIT DAY MODE}
\end{array}
\]

\[
\begin{array}{c}
\text{TRUNK 02 - EXT ?? ??}
\end{array}
\]

5. Enter the extension or station hunting number to be assigned to the chosen trunk.
   Example: Extension 140. (See Note 3).

\[
\begin{array}{c}
\text{DIT DAY MODE}
\end{array}
\]

\[
\begin{array}{c}
\text{TRUNK 02 - EXT 140}
\end{array}
\]

6. Depress ENTER key. (See Note 2).

\[
\begin{array}{c}
\text{DIT DAY MODE}
\end{array}
\]

\[
\begin{array}{c}
\text{TRUNK 03 - EXT ?? ??}
\end{array}
\]

7. Repeat Steps 5 and 6 for each DIT trunk required, or depress TEL # to assign a specific trunk.

8. Depressing LK16 alternates the display between DAY and NIGHT modes.

\[
\begin{array}{c}
\text{DIT NIGHT MODE}
\end{array}
\]

\[
\begin{array}{c}
\text{TRUNK 03 - EXT ?? ??}
\end{array}
\]

9. Depress SPKR key to go back on line.
**KEY FUNCTION (OFF LINE)**

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPKR</td>
<td>ON/OFF Line</td>
</tr>
<tr>
<td>TEL #</td>
<td>Selects trunk to be assigned</td>
</tr>
<tr>
<td>F/W</td>
<td>Increments trunk number</td>
</tr>
<tr>
<td>CLEAR</td>
<td>Clears previous assignment</td>
</tr>
<tr>
<td>ENTER</td>
<td>Enters each assignment</td>
</tr>
<tr>
<td>B/W</td>
<td>Decrements trunk number</td>
</tr>
</tbody>
</table>

**GUIDE TO FEATURE PROGRAMMING**

<table>
<thead>
<tr>
<th>Memory Block Being Programmed</th>
<th>Memory Block That Must Be Programmed</th>
<th>Memory Block That May Have to Be Programmed</th>
</tr>
</thead>
<tbody>
<tr>
<td>2B4</td>
<td>1B8, 2B3, 3A4</td>
<td></td>
</tr>
</tbody>
</table>

CPU-ER2 or higher.

**NOTES:**

1. There is no default assignment but any previous extension number that was set will be displayed.

2. Depressing the ENTER key will increment the display to the next trunk.

3. Extension numbers available = 100 ~ 899
   1000 ~ 8999

4. DIT trunks and the terminals where they are terminated should be assigned to the same tenant.

5. DIT trunks do not have to be assigned to line keys (LK1 ~ LK15) unless the trunk is also being used for outgoing calls.

6. DIT and ANA can be assigned to primary, secondary, or virtual extensions, however, they cannot be assigned to a uniform dialing number.

7. Trunk groups associated with DIT or DID trunks will not activate the External Chime or External Ring contacts on the ECR-E ETU.

**GENERAL INFORMATION - DIT/ANA ASSIGNMENT**

This area of the memory block is used to independently assign day mode and night mode (ANA) extension terminations to incoming trunk calls. A trunk can terminate at one extension only, but several trunks can be terminated at the same extension.
MEMORY BLOCK 285 - LCR 1+ DIALING ASSIGNMENT

OPERATION \rightarrow AND \rightarrow DISPLAY

1. Go off line.

   OFF - LINE (X • XX)
   PROGRAM MODE

2. Depress F2, then F7.

3. Depress F15. (See Note 1).

4. Depress L1 to assign whether or not 1+ dialing is used:
   L1 LED ON = LCR 1+ Dialing is used
   L1 LED OFF = LCR 1+ Dialing is not used (Default)

5. Depress the ENTER key.

6. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR - ON/OFF Line</th>
<th>TEL # -</th>
<th>F/W -</th>
<th>CLEAR</th>
<th>ENTER - Enter assignment</th>
<th>B/W -</th>
</tr>
</thead>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2B5</td>
<td>1D7</td>
<td>2B6, 2B9</td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. After step 3, line key L1 LED will display the current assignment.

GENERAL INFORMATION - LCR 1 + DIALING ASSIGNMENT

This area of the memory block is used to provide the LCR-E ETU with the information whether or not the system is in a 1+ dialing area.
MEMORY BLOCK 2B6 - LCR LOCAL CALL OVERRIDE ASSIGNMENT

OPERATION ← AND ← DISPLAY

1. Go off line.

   OFF-LINE (X-XX)
   PROGRAM MODE

2. Depress F2, then F7.

   SYS. FEATURE 2

3. Depress F16. (See Note 1).

   LCR LOCAL CALL OVERRIDE

4. a. Depress L1 to assign whether or not local calls will override LCR:

   L1 LED ON = Local calls route through LCR
   L1 LED OFF = Local calls override (by-pass) LCR (Default)

   b. Depress L2 to assign whether or not local calls dialed without a 1+ prefix, in a 1+ area, will bypass LCR:

   L2 LED ON = Local calls in 1+ area bypass LCR
   L2 LED OFF = Local calls do not bypass LCR (Default). CPU-EB or higher.

5. Depress ENTER key.

6. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # -
F/W
CLEAR -
ENTER Enter assignment
B/W -

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2B6</td>
<td>1D7</td>
<td>2B5, 2B9</td>
</tr>
</tbody>
</table>

All CPU levels. (See Step 4b.)

NOTES:

1. After step 3, LED L1 and L2 will display the previous assignment.

GENERAL INFORMATION - LCR LOCAL CALL OVERRIDE ASSIGNMENT

This area of the memory block is used to assign (on a system wide basis) whether or not local calls will override (bypass) LCR. This memory block is also used to assign whether or not the dialing pattern NNX + XXXX is routed through LCR, in a 1 + dial area (N = 2~9, X = 0~9).
**MEMORY BLOCK 2B7 - MODEM POOL ASSIGNMENTS**

**OPERATION** → **DISPLAY**

1. Go off line.

2. Depress F2, then F7.

3. Depress F17.

4. Enter the device number of the modem to be assigned (1–4).
   Example: MODEM 2. (See Note 1).

5. Dial the Single Line Telephone station number associated with an SLI or VMI port to be assigned to this modem for modem pooling.
   Example: Station 150.

6. Dial the Multiline Terminal station number equipped with a DTA-E unit (and associated with an ESI-EB ETU) to be assigned to this modem for modem pooling.
   Example: Station 110.

7. Depress ENTER key. (See Notes 2 and 3).

8. Repeat Steps 5 through 7 for all modems to be assigned for modem pooling or depress TEL# to assign a specific modem.

9. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR - ON/OFF Line</th>
<th>TEL # - Enters modem device number</th>
<th>F/W - Increments modem device number</th>
<th>CLEAR - Clears previous assignment</th>
<th>ENTER - Enters each assignment</th>
<th>B/W - Decrements modem device number</th>
</tr>
</thead>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2B7</td>
<td>1A, 1D2, 2B1,</td>
<td>2D1, 4B4</td>
</tr>
</tbody>
</table>

CPU-EB or higher.

NOTES:

1. After Step 4, the display will show any previous assignments.

2. The assignments made cannot be entered unless both an SLT station number and a TERM station number have been assigned.

3. Depressing the ENTER key will increment the display to the next Modem Device number.

4. Depressing the CLEAR key clears the SLT and TERM assignment and returns the program to step 4.

GENERAL INFORMATION - MODEM POOL ASSIGNMENT

This area of the memory block is used to assign an SLI or VMI port and a Multiline Terminal equipped with a DTA-E Unit (and associated with an ESI-EB ETU) to be used by each modem in the Modem Pool. A maximum of four modems can be assigned to the Modem Pool, with each modem requiring a dedicated SLI or VMI port and a Multiline Terminal equipped for data.
MEMORY BLOCK 2B8 - VMI ASSIGNMENT

<table>
<thead>
<tr>
<th>OPERATION</th>
<th>AND</th>
<th>DISPLAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Go off line.</td>
<td>OFF-LINE (X.XX)</td>
<td>PROGRAM MODE</td>
</tr>
<tr>
<td>2. Depress F2, then F7.</td>
<td>SYS. FEATURE 2</td>
<td></td>
</tr>
<tr>
<td>3. Depress F18.</td>
<td>VMI ASSIGNMENT</td>
<td>SET LK1-4 &amp; 9-12</td>
</tr>
</tbody>
</table>

4. Set L1~L4 to assign whether Voice Mail equipment or Single Line Telephones will be connected to each port of the VMI. (See Note 1).
   - LED ON: Voice Mail (Default)
   - LED OFF: SLT (CPU-EB or higher)

5. Set L9~L12 to assign whether DTMF tones will, or will not be automatically sent to each of the VMI ports (See Note 2).
   - LED ON: Send DTMF tones
   - LED OFF: Do not send DTMF tones (Default) (CPU-EB3 or higher)

6. Depress ENTER key.

7. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # -
F/W -
CLEAR -
ENTER - Enter assignment
B/W -

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2B8</td>
<td>4C1, 4B8, 4B9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2B4, 2C4, 2D2</td>
<td></td>
</tr>
</tbody>
</table>

CPU levels. CPU-EB or higher (See Steps 4 and 5 and NOTE 3.)

NOTES:
1. L1~L4 correspond to VMI ports 1~4 and 5~8 respectively.
2. L9~L12 correspond to VMI ports 1~4 and 5~8 respectively.
3. A CPU-EC4(or higher revision level) ETU is required to support 2 VMI-E ETUs.
4. Programming assignments for VMI-E ETUs are done as follows:
   L1 = VMI-E ETU Ports 1 & 5
   L2 = " " " 2 & 6
   L3 = " " " 3 & 7
   L4 = " " " 4 & 8
   L9 = " " " 1 & 5
   L10 = " " " 2 & 6
   L11 = " " " 3 & 7
   L12 = " " " 4 & 8

GENERAL INFORMATION - VMI ASSIGNMENT

This area of the memory block is used to assign either Voice Mail equipment or Single Line Telephones to each of the four (or eight) VMI ports, and whether DTMF tones will be sent or not. The assignment made (Voice Mail or SLT) determines the dial tone (first or second) that is provided upon receiving a hookflash.
MEMORY BLOCK 2B9 - LCR BYPASS ASSIGNMENT

OPERATION  AND  DISPLAY

1. Go off line.

2. Depress F2, then F7.

3. Depress F19. (See Note 1).

4. Depress L2 thru L8 to select which trunk access code groups bypass LCR. (See Note 2).
   LED ON: Bypass LCR
   LED OFF: Restricted (Default)

5. Depress ENTER key. (See Note 4).

6. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # - Changes Assignment
F/W -
CLEAR -
ENTER - Enters assignment
B/W -

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2B9</td>
<td>1D7</td>
<td>2B5, 2B6</td>
</tr>
</tbody>
</table>

CPU-EB or higher.

NOTES:

1. After Step 3 line key LED's 2 thru 8 will display the previous assignment. LEDs 2 thru 8 correspond to trunk access code group 2 thru 8.

2. L1 LED is always off and cannot be changed. Attempting to do so results in error tone.

3. Reorder tone is received by a station assigned for LCR when that station dials an access code not assigned to by-pass LCR.

4. Once ENTER is depressed, no further changes can be made. If new changes are required depress F19 again or TEL# key to re-enter the memory block.

GENERAL INFORMATION - LCR BYPASS ASSIGNMENT

When dialing a station assigned for LCR, this area of the memory block is used to assign (system wide) whether or not Trunk Access Code Groups 2 thru 8 will bypass LCR.
MEMORY BLOCK 2B10 - RECALL KEY OPERATION FOR TIE LINES

OPERATION ← AND → DISPLAY

1. Go off line.

   OFF - LINE (X.XX)
   PROGRAM MODE

2. Depress F2, then F7.

   SYS. FEATURE 2


   TIE RECALL ASGN

4. Set L1 (as required) to receive Tie Line dial tone or extension dial tone. (See Note 1).
   LED off = Extension dial tone (Default)
   LED on = Tie line dial tone

5. Depress ENTER key.

6. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # -
F/W -
CLEAR -
ENTER - Enter each assignment
B/W -

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2B10</td>
<td>4E1 ~ 4E10</td>
<td>2A10, 2C1 ~ 2C3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2C6, 2E1, 3C2, 4C1</td>
</tr>
</tbody>
</table>

CPU-EB2 or higher.

NOTE:

1. Stations that access Tie lines via dial access are affected by this assignment. Direct access of Tie lines is not affected by this assignment.

GENERAL INFORMATION - RECALL KEY OPERATION FOR TIE LINES

This area of the memory block is used to assign (system wide) the type of dial tone that will be returned when the RECALL key on a multibutton set is depressed while using a Tie Line. If DID trunks are in use, the system should be programmed for extension dial tone.
MEMORY BLOCK 2C1 - TRUNK TO TRUNK GROUP ASSIGNMENT

OPERATION AND DISPLAY

1. Go off line.

2. Depress F2, then F8.

3. Depress F11.

4. Dial the trunk number to be entered.
   Example: 01 for Trunk 1. (See Note 1).

5. Dial the Trunk Group (1 ~ 8) the trunk is assigned to.
   Example: 4 for Trunk Group 4.
   (See Notes 2 & 4).

6. Depress ENTER key. (See Note 3).

7. For each subsequent trunk to be assigned, repeat steps 5 and 6, or depress TEL # key to assign a specific trunk.

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # - Enter new trunk number
F/W - Increment trunk number
CLEAR -
ENTER - Enter each assignment
B/W - Decrement trunk number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2C1</td>
<td>1D4, 1D5, 1D7.</td>
<td>2C2, 2C3, 3C2</td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. During step 4, any current Trunk Group assignment for the trunk number entered is displayed.

2. It is recommended that a second initialization be performed after any change.

3. Depressing the ENTER key will cause the display to increment the trunk number.

4. If trunks are connected in ascending numerical order, to prevent collisions, it is recommended that high numbered loop start trunks be assigned to unused low numbered Trunk Groups and low numbered loop start trunks be assigned to high numbered Trunk Groups.

Example: A system with 40 loop start trunks should be programmed as follows:
Trunk Group 1 → Trunks 36 ~ 40
Trunk Group 8 → Trunks 1 ~ 5

Note 4 applies only to CPU-EB2 (or lower revisions) ETUs

GENERAL INFORMATION - TRUNK TO TRUNK GROUP ASSIGNMENT

This area of the memory block is used to program individual trunks into Trunk Groups. This is necessary because system features such as trunk dial access and code restriction are based on Trunk Groups and not individual trunks.
MEMORY BLOCK 2C2 - TRUNK GROUP TO TENANT ASSIGNMENT

OPERATION AND DISPLAY

1. Go off line.

2. Depress F2, then F8.

3. Depress F12.

4. Dial tenant number (1 ~ 3).
   Example: Tenant 1. (See Note 1).

5. Depress L1 to L8 to assign the appropriate Trunk Groups to the tenant chosen. (See Note 2).

6. Depress ENTER key. (See 3).

7. Repeat steps 5 and 6 for all subsequent tenants, or depress TEL # key to program a specific tenant.

8. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR - ON/OFF Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL # - Enters new tenant number</td>
</tr>
<tr>
<td>F/W - Increments tenant number</td>
</tr>
<tr>
<td>CLEAR -</td>
</tr>
<tr>
<td>ENTER - Enters each assignment</td>
</tr>
<tr>
<td>B/W - Decrement tenant number</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2C2</td>
<td>2C1, 2A2, 2A3, 2B3</td>
<td>2B4, 2C3, 3A4</td>
</tr>
<tr>
<td></td>
<td>3C2</td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. During step 4 any previous Trunk Group assignment for the tenant entered is shown by the LED pattern of L1 to L8.

2. In assigning the Trunk Groups to a specific tenant in step 5, the following procedure is used: L1 to L8 correspond to Trunk Groups 1 to 8 respectively.
   - LED on: Assigned to tenant
   - LED off: Not assigned to tenant

3. Depression of the ENTER key will increment the display to the next tenant number.

4. Trunk Groups may be shared between separate Tenants.

GENERAL INFORMATION - TRUNK GROUP TO TENANT ASSIGNMENT

This area of the memory block is used to assign up to eight system Trunk Groups to each of the tenants and to restrict Night Call Pickup.
MEMORY BLOCK 2C3 - TRUNK GROUP TO ACCESS CODE GROUP

OPERATION  AND  DISPLAY

1. Go off line.

2. Depress F2, then F8.


4. Dial Trunk Group number (1 ~ 8).
   Example:  4 for Trunk Group 4. (See Note 1).

5. Dial access item code (A.C.G. 1 ~ 8) to be assigned to the Trunk Group chosen.
   Example: Dial 3 for item code (A.C.G.) number 3. (See Note 2).

6. Depress ENTER key. (See Note 3).

7. Repeat steps 5 and 6 for all subsequent Trunk Groups required, or depress TEL # key to assign a specific Trunk Group.

8. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPKR</td>
<td>ON/OFF Line</td>
</tr>
<tr>
<td>TEL #</td>
<td>Select a new Trunk Group</td>
</tr>
<tr>
<td>F/W</td>
<td>Increment Trunk Group</td>
</tr>
<tr>
<td>CLEAR</td>
<td>Clear access code group assignment</td>
</tr>
<tr>
<td>ENTER</td>
<td>Enter each assignment</td>
</tr>
<tr>
<td>B/W</td>
<td>Decrement Trunk Group number</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>Memory Block Being Programmed</th>
<th>Memory Block That Must Be Programmed</th>
<th>Memory Block That May Have To Be Programmed</th>
</tr>
</thead>
<tbody>
<tr>
<td>2C3</td>
<td>2C1</td>
<td>2E1</td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. During step 4 any current access code group assigned for the Trunk Group chosen is displayed.

2. ACCESS ITEM DIAL CODES (A.C.G.) CODE IN M.B. 2E1

<table>
<thead>
<tr>
<th>Access Item Code</th>
<th>Access Item Code</th>
<th>Access Item Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9 (Fixed)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>8 (Default)</td>
<td>39</td>
</tr>
<tr>
<td>3</td>
<td>70 (Default)</td>
<td>40</td>
</tr>
<tr>
<td>4</td>
<td>71 (Default)</td>
<td>41</td>
</tr>
<tr>
<td>5</td>
<td>72 (Default)</td>
<td>42</td>
</tr>
<tr>
<td>6</td>
<td>73 (Default)</td>
<td>43</td>
</tr>
<tr>
<td>7</td>
<td>74 (Default)</td>
<td>44</td>
</tr>
<tr>
<td>8</td>
<td>75 (Default)</td>
<td>45</td>
</tr>
</tbody>
</table>

3. Depressing the ENTER key will cause the display to increment to the next Trunk Group.

GENERAL INFORMATION - TRUNK GROUP TO ACCESS CODE GROUP

This area of the memory block is used to assign access item codes to the system's Trunk Groups. Access item code 1 cannot be changed, as indicated in note 2 above.
MEMORY BLOCK 2C4 - VOICE MAIL HUNT GROUP ASSIGNMENT

OPERATION ← AND → DISPLAY

1. Go off line.

<table>
<thead>
<tr>
<th>OFFLINE</th>
<th>(X.XX)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROGRAM MODE</td>
<td></td>
</tr>
</tbody>
</table>

2. Depress F2, then F8.

<table>
<thead>
<tr>
<th>SYS GROUP</th>
</tr>
</thead>
</table>

3. Depress F14. (See Note 1).

   | HUNT GROUP |
   | TEL ??? |

4. Enter VMI port extension number to be assigned to the Voice Mail Hunt Group. Example: 147.

   | HUNT GROUP |
   | TEL 147 |

5. Depress ENTER key. (See Note 2).

   | HUNT GROUP |
   | TEL XXX |

6. Repeat steps 4 and 5 for all VMI ports to be assigned to the Voice Mail Hunt Group. (See Note 3).

7. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPKR</td>
<td>ON/OFF Line</td>
</tr>
<tr>
<td>TFI. #</td>
<td></td>
</tr>
<tr>
<td>F/W</td>
<td>Increments item number</td>
</tr>
<tr>
<td>CLEAR</td>
<td>Clears current assignment</td>
</tr>
<tr>
<td>ENTER</td>
<td>Enters each assignment</td>
</tr>
<tr>
<td>B/W</td>
<td>Decrements item number</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>Memory Block Being Programmed</th>
<th>Memory Block That Must Be Programmed</th>
<th>Memory Block That May Have to Be Programmed</th>
</tr>
</thead>
<tbody>
<tr>
<td>2C4</td>
<td>2B3, 2B4, 2B8</td>
<td>2E1, 2B8</td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. After step 3, the display will show any previous assignment.

2. Depressing the ENTER key causes the display to increment to the next extension number.

3. A maximum of 4 VMI port extension numbers can be programmed into the voice mail hunt group.

GENERAL INFORMATION - VOICE MAIL HUNT GROUP ASSIGNMENT

This area of the memory block is used to assign VMI port extension numbers to the Voice Mail Hunt Group. If no VMI-E ETU is installed, memory block 4C1 should be programmed BEFORE 2C4.
MEMORY BLOCK 2C5 - DELAY ANNOUNCEMENT ASSIGNMENT

OPERATION  AND  DISPLAY

1. Go off line.

```
OFF-LINE (X.XX)

PROGRAM MODE
```

2. Depress F2, then F8.

```
SYS GROUP
```

3. Depress F15.

```
DELAY ANNOUNCE
TRUNK??
```

4. Enter the trunk number to be assigned (01–40).
   Example: Trunk 2.

```
DELAY ANNOUNCE
TRUNK 02
```

5. Depress L1 as required to allow or disallow Delay Announcement.

6. Depress ENTER key (See Note 2).

7. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # - Select trunk to be programmed
F/W - Increments item number
CLEAR -
ENTER - Enters each assignment
B/W - Decrements trunk number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2C5</td>
<td>2C9</td>
<td>2D1, 2D2</td>
</tr>
<tr>
<td></td>
<td>3B5~3B8</td>
<td>2B3, 2B4</td>
</tr>
</tbody>
</table>

CPU-EB3 or higher.

NOTES
1. L1 ON = Delay Announcement ON
L1 OFF = Delay Announcement OFF
2. Depressing the ENTER key causes the display to increment to the next trunk number.

GENERAL INFORMATION - DELAY ANNOUNCEMENT ASSIGNMENT

This area of memory block is used to program the Delay Announcement feature for each desired trunk.
MEMORY BLOCK 2C6 - UNIFORM DIAL TO TRUNK ACCESS CODE GROUP
ASSIGNMENT

OPERATION ← AND DISPLAY

1. Go off line.

2. Depress F2, then F8.

3. Depress F16.

4. Enter the uniform dial item number to be assigned (01 ~ 20). Example: 02. (See Note 1).

5. Enter Trunk Access Code Group Number to be assigned to Uniform Dial Number chosen (2 ~ 8). Example: Dial 4 for Trunk Access Code Group 4.

6. Depress ENTER key. (See Note 2).

7. Repeat Steps 4 and 5 to assign all Uniform Dial Numbers required, or depress TEL # to assign a specific Uniform Dial Number.

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR - ON/OFF Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL # - Selects Uniform Dial Number</td>
</tr>
<tr>
<td>F/W - Increments Uniform Dial Number</td>
</tr>
<tr>
<td>CLEAR - Clears previous assignment</td>
</tr>
<tr>
<td>ENTER - Enters each assignment</td>
</tr>
<tr>
<td>B/W - Decrements Uniform Dial Number</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2C6</td>
<td>2C1, 2C3</td>
<td>4E1 ~ 4E10</td>
</tr>
</tbody>
</table>

CPU-EB2 or higher.

NOTES:

1. By default, Uniform Dial Numbers are assigned to Trunk Access Code Group 2.

2. Depressing the ENTER key causes the display to increment to the next Uniform Dial Item Number.

3. The uniform dial Item Number, 01~20, corresponds to Item Code 60~79 in Memory Block 2E1.
   Example:  U.D. 01 = Item Code 60 in M.B. 2E1

GENERAL INFORMATION - UNIFORM DIAL TO TRUNK ACCESS CODE GROUP ASSIGNMENT

This area of the memory block is used to assign Trunk Access Code Groups to the various Uniform Dial Numbers required. With Tie Line service, this assignment determines which trunks will be used when accessing uniform dialing.
MEMORY BLOCK 2C7 - NIGHT CHIME ASSIGNMENT

OPERATION  AND  DISPLAY

1. Go off line.

2. Depress F2, then F8.

3. Depress F17.

4. Dial the night chime number being assigned (1~3).
   Example: Night Chime 1. (See Note 1).

5. Depress L1 to L8 to assign the appropriate Trunk Groups to the night chime selected. (See Note 2).

6. Depress ENTER key. (See Note 3).

7. Repeat steps 5 and 6 for all night chimes to be assigned.

8. Depress the SPKR key to go back on line.
### KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR - ON/OFF Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL # - Enter new Night Chime number</td>
</tr>
<tr>
<td>F/W - Increment Night Chime number</td>
</tr>
<tr>
<td>CLEAR -</td>
</tr>
<tr>
<td>ENTER - Enters each assignment</td>
</tr>
<tr>
<td>B/W - Decrement Night Chime number</td>
</tr>
</tbody>
</table>

### GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2C7</td>
<td>2C1, 2C9</td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels.

**NOTES:**

1. There are 3 Night Chimes (1 ~ 3) that are assigned to tenants (1 ~ 3).

2. When assigning the Trunk Groups to the Night Chimes, line keys 1 ~ 8 correspond to Trunk Groups 1 ~ 8 respectively.
   - LED ON : Assigned to Night Chime
   - LED OFF : Not assigned to Night Chime

3. Depressing the ENTER key will cause the display to increment to the next Night Chime.

4. Trunk groups associated with DIT or DID trunks will not activate the external chime contacts.

### GENERAL INFORMATION - NIGHT CHIME ASSIGNMENT

This area of the memory block is used to assign the Trunk Groups to any or all of the 3 available Night Chime circuits to provide a relay contact closure to connect external common audible ringing, when the tenant is in night mode.
MEMORY BLOCK 2C8 - EXTERNAL RINGING CONTROL ASSIGNMENT

OPERATION AND DISPLAY

1. Go off line.

2. Depress F2, then F8.

3. Depress F18.

4. Dial the number of the External Ringing Control circuit being assigned (1~4).
   Example: Ext Ring 1. (See Note 1).

5. Dial the number of the desired ringing interval (1~5) to be assigned to this External Ringing Control circuit. Example: Interval 2. (See Note 2).

6. Depress L1 to L8 to assign the appropriate Trunk Groups to the External Ringing Control circuit selected. (See Note 3).

7. Depress ENTER key. (See Note 4).

8. Repeat steps 5~7 for all subsequent External Ringing Controls to be assigned, or depress TEL # key to program a specific External Ringing Control circuit.

9. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

- SPKR ON/OFF Line
- TEL # - Enter new Ext. Ring Control circuit #
- F/W - Increment Ext. Ring Control circuit #
- CLEAR - Clears the interval assignment
- ENTER - Enters each assignment
- B/W - Decrement Ext. Ring Control circuit #

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2C8</td>
<td>2C1, 2C9</td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. There are 4 External Ringing Control circuits (1~4) that any or all of the Trunk Groups (1~8) can be assigned to.

2. Each External Ringing Control circuit can be assigned one of five ringing intervals (1~5). During step 4, the previous interval assignment is displayed.

<table>
<thead>
<tr>
<th>INTERVAL NUMBER</th>
<th>RINGING PATTERN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.5 sec.ON / 0.5 sec. OFF</td>
</tr>
<tr>
<td>2</td>
<td>1 sec.ON / 1 sec. OFF</td>
</tr>
<tr>
<td>3</td>
<td>2 sec.ON / 2 sec. OFF</td>
</tr>
<tr>
<td>4</td>
<td>0.5 sec.ON / 0.5 sec. OFF</td>
</tr>
<tr>
<td>5</td>
<td>Continuous (Always ON)</td>
</tr>
</tbody>
</table>

3. When assigning Trunk Groups to the External Ringing Control circuits, L1~L8 correspond to Trunk Groups 1~8 respectively.
   - LED ON = Assigned
   - LED OFF = Not assigned

4. Trunk groups associated with DIT or DID trunks will not activate the external ring contacts.

5. The External Ring control circuit will activate in both Day and Night mode when a line rings in for the Trunk Group assigned.

6. Depressing the ENTER key will cause the display to increment to the next External Ring Control circuit.

GENERAL INFORMATION - EXTERNAL RINGING CONTROL ASSIGNMENT

This area of the memory block is used to assign Trunk Groups to any or all of the 4 available External Ring Control circuits and to assign each of these circuits distinctive ringing control/intervals (1 of 5 available patterns).
### MEMORY BLOCK 2C9 - ECR RELAY ASSIGNMENT

**OPERATION** ←[→ **AND** ←[→ **DISPLAY**

1. Go off line.

<table>
<thead>
<tr>
<th>OFF - LINE (X X X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROGRAM MODE</td>
</tr>
</tbody>
</table>

2. Depress F2, then F8.

<table>
<thead>
<tr>
<th>SYS. GROUP</th>
</tr>
</thead>
</table>

3. Depress F19.

<table>
<thead>
<tr>
<th>RELAY ASSIGN.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELAY ??</td>
</tr>
</tbody>
</table>

4. Dial the number of the relay being assigned (04~10). Example: Relay 04. (See Note 1).

<table>
<thead>
<tr>
<th>R. ASGN RELAY 04</th>
</tr>
</thead>
<tbody>
<tr>
<td>VACANT</td>
</tr>
</tbody>
</table>

5. Depress L1, L2, L3 or L4 to assign the selected relay to Night Chime, External Ring, 1st Delay Announcement or 2nd Delay Announcement respectively. Example: L1 (Night Chime). See Note 2.

<table>
<thead>
<tr>
<th>R. ASGN RELAY 04</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIGHT CHIME ??</td>
</tr>
</tbody>
</table>

6. Dial the number of the Night Chime (1~3) to be assigned to this relay. Example: Night Chime 2.

<table>
<thead>
<tr>
<th>R. ASGN RELAY 04</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIGHT CHIME 2</td>
</tr>
</tbody>
</table>

7. Depress ENTER key. (See Note 6).

<table>
<thead>
<tr>
<th>R. ASGN RELAY 05</th>
</tr>
</thead>
<tbody>
<tr>
<td>VACANT</td>
</tr>
</tbody>
</table>

8. Repeat steps (5~7) for all subsequent relays to be assigned.

9. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

- **SPKR** - ON/OFF Line
- **TEL #** - Enters new relay number
- **F/W** - Increments relay number
- **CLEAR** - Clears assignment (See Note 1)
- **ENTER** - Enters each assignment
- **B/W** - Decrements relay number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2C9</td>
<td>2C7, 2C8</td>
<td>2C5</td>
</tr>
<tr>
<td></td>
<td>2C1, 2B3, 2B4</td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels. (See Note 2.)

NOTES:

1. Although there are a total of 10 relays (1 ~ 10), relays 1~3 are permanently assigned to External Page zones 1~3.

   During step 4, any previously assigned function for the selected relay will appear. If there was no previous assignment, the display will show VACANT.

2. If L1 (Night Chime) is depressed, a number, 1~3, must be entered. If L2 (External Ring) is depressed, a number, 1~4 must be entered.

3. If L3 (Delay Announce) is depressed, no additional digits are required; proceed with step 7. (CPU-EB3 only)

4. With a CPU-EC4 (or higher revision level) LK3 and LK4 can be used for 1st and 2nd Delay Announcement.

5. Trunk groups associated with DIT or DID trunks will not activate the External Chime or External Ring contacts.

6. Depressing the ENTER key will cause the display to increment to the next relay number.

---

GENERAL INFORMATION - ECR RELAY ASSIGNMENT

This area of the memory block is used to assign either Night Chime (1~3), External Ringing Control (1~4), 1st Delay Announcement or 2nd Delay Announcement functions to control relays 4~10. Relays 1~3 have a fixed assignment to External Page zones 1~3.
MEMORY BLOCK 2C10 - VIRTUAL EXTENSION ASSIGNMENT

OPERATION       AND       DISPLAY

1. Go off line.

   OFF-LINE (X-XX)
   PROGRAM MODE

2. Depress F2, then F8.

   SYS. GROUP


   VE ASSIGN
   VE ??

4. Dial number of VE (01 ~ 48) being assigned.
   Example: VE 01. (See Note 1).

   VE ASSIGN VE 01
   EXTENSION-??

5. Dial extension number to be assigned to the VE number chosen.
   Example: Extension 200. (See Note 2).

   VE ASSIGN VE 01
   EXTENSION-200

6. Depress ENTER key. (See Notes 3 & 4).

   VE ASSIGN VE 02
   EXTENSION-XXX

7. Repeat steps 5 and 6 for all subsequent VE numbers to be assigned or go to step 3 to assign a specific Virtual Extension.

8. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

- SPKR - ON/OFF Line
- TEL # - Select a new VE
- F/W - Increment VE
- CLEAR - Clear extension number
- ENTER - Enter each assignment
- B/W - Decrement VE

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2C10</td>
<td>1A, 2E1</td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. During step 4 any previous extension number assigned to a VE number chosen is displayed. Total number of VE numbers is 48 regardless of the number of stations installed.

2. Extension number entered in step 5 cannot be already assigned to a port or to another VE number.

3. Depressing the ENTER key will cause the display to increment the VE number.

4. If a particular VE is busy, programming for that extension number cannot be done until the extension is idle.

5. Default: 
   - VE 01 = EXT. 200
   - VE 02 = EXT. 201
   $$f \ f = f \ f$$
   - VE48 = EXT. 247

GENERAL INFORMATION - VIRTUAL EXTENSION ASSIGNMENT

This area of the memory block is used to assign Virtual Extension numbers. The total number of Virtual Extensions is 48, which are extensions 200~247 in system default.
MEMORY BLOCK 2D1 - TIME BASE ASSIGNMENT I

OPERATION  AND  DISPLAY

1. Go off line.
   OFF - LINE (X - XX)
   PROGRAM MODE

2. Depress F2, then F9.
   SYS. TIME BASE

3. Depress F11.
   TIME BASE 10 SEC
   DEPRESS LINE KEY

4. Depress line key associated with the item to be changed (associated LED lights).
   Example: LK 4 - SMDR Start Timer.
   (See Note 1).
   TIME BASE 10 SEC
   SMDR START - 02

5. Dial count value to be entered (01~99).
   Example: Time Count 03, for a total of 30 seconds. (See Note 3).
   TIME BASE 10 SEC
   SMDR START - 30

6. Depress ENTER key. (See Note 2).
   TIME BASE 10 SEC
   ATT RECALL - 05

7. Repeat steps 5 and 6 for all items required.

8. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR - ON/OFF Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL # - Selects line key</td>
</tr>
<tr>
<td>F/W - Increment to next timer</td>
</tr>
<tr>
<td>CLEAR -</td>
</tr>
<tr>
<td>ENTER - Enters each timer count</td>
</tr>
<tr>
<td>B/W - Decrements to previous timer</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2D1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels. (See Note 1.)

NOTES:

1. During step 4 the display shows the current count of the timer chosen.

   LINE KEY TIMER DEFAULT
   L1 Call Park Recall (CPU-EB) 3 min.
   L2 Time between 1st & 2nd announce, CPU-EC4 (or higher revision level)
       Time count 99 = Infinity
   L3 Delay Announce Auto Release
       CPU-EC3 (or higher) 10 min.
   L4 Start time (SMDR), Elapsed Call Timer
       20 sec.
   L5 DSS/BLF console camp-on recall
       (Att. recall) 50 sec.
   L6 Non Ex-Hold/Transfer (Camp-On) recall (All Stations)
       50 sec.
   L7 Auto callback/Trunk Queuing cancel
       20 sec.
   L8 CPU-EC3 (or lower revision)
       Call Forward/No Answer
       20 sec.
   L8 CPU-EC4 (or higher revision)
       Time between 2nd and repeat of 2nd Announce
       Time count 99 = Infinity
   L9 Exclusive hold recall
       1 min.
   L10 External page access
       5 min.
   L11 Internal page access
       1 min.
   L13 Valid call timer (SMDR)
       40 sec.
   L14 Modem Reserve Timer (CPU-EB2)
       10 min.
   L15 Conference Park recall (CPU-EB3)
       5 min.

2. Depressing the ENTER key causes the programming to move to the next item associated with the next line key.

3. Time out = time base (10 seconds) X count (01 ~ 99).

GENERAL INFORMATION - TIME BASE ASSIGNMENT

This area of the memory block is used to assign time out counts to various system base timers. Refer to Section 350 for explanation of each timer.

BASE x COUNT = VALUE
MEMORY BLOCK 2D2 - TIME BASE ASSIGNMENT II

OPERATION AND DISPLAY

1. Go off line.

OFF-LINE (X-XX)
Program Mode

2. Depress F2, then F9.

SYS. TIME BASE

3. Depress F12.

TIME BASE 1SEC
DEPRESS LINE KEY

TIME BASE 1SEC
MFR TIME OUT - XX

4. Depress line key associated with the item to be changed. Example: LK1 - MFR Time Out. LK1 LED lights. (See Note 1).

5. Dial count value to be entered (01 ~ 99). Example: Time Count 10 for a total of 10 seconds (See Note 3).

TIME BASE 1SEC
MFR TIME OUT - 10

6. Depress ENTER key. (See Note 2).

TIME BASE 1SEC
TALK START - XX

7. Repeat steps 5 and 6 for all items required.

8. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)
SPKR - ON/OFF Line
TEL # - Select line key
F/W - Toggles between the two timers
CLEAR -
ENTER - Enter each timer count value
B/W - Toggles between the two timers

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2D2</td>
<td>1D7, 4B1 or 4B6</td>
<td>2D3, 1A, 1B</td>
</tr>
</tbody>
</table>

All CPU levels. (See Note 1.)

NOTES:

1. During step 4 the display shows the current count of the timer chosen.

LINE KEY TIMER DEFAULT
L1 MFR Timeout 10 sec.
L2 Talk Start Timer (CPU-EB2) 18 sec.
L3 Delayed Ringing (CPU line) 15 sec.
(CPU-EB3)
L4 Delayed Ringing (Extension) 10 sec.
(CPU-EB3)
L5 Voice Mail Automatic Dial Send 2 sec.
Start (CPU-EB3)
L6 Delay Announce Start (CPU-EB3) 20 sec.
L7 1st Delay Announce Duration 10 sec.
(CPU-EC4)
Time Count 99 = Infinity
L8 2nd Delay Announce Duration 10 sec.
(CPU-EC4)
L9 Call Forward/No Answer 20 sec.
(CPU-EC4)
Time Count 99 = Infinity

2. Depressing the ENTER key causes the programming to move to the next item associated with the next line key.

GENERAL INFORMATION - TIME BASE ASSIGNMENT II

This area of the memory block is used to assign various time out counts to Various System Base Timers. Refer to Section 350 for explanation of each timer.

BASE x COUNT = VALUE
MEMORY BLOCK 2D3 - TIME BASE ASSIGNMENT III

1. Go offline.

2. Depress F2, then F9.


4. Depress line key LK1 - Automatic Disconnect Timer. LK1 LED lights. (See Note 1).

5. Dial count value to be entered (01 - 99).
   Example: Time Count 04 for a total of 40 minutes. (See Note 2).

6. Depress ENTER key.

7. Depress the SPKR key to go back on line.
**KEY FUNCTION (OFF LINE)**

- **SPKR** - ON/OFF Line
- **TEL #** - Selects line key
- **F/W** -
- **CLEAR** -
- **ENTER** - Enters timer count value
- **B/W** -

**GUIDE TO FEATURE PROGRAMMING**

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2D3</td>
<td>1D7, 4B1 or 4B6</td>
<td>2D2</td>
</tr>
</tbody>
</table>

CPU-EB-2 or higher level.

**NOTES:**

1. During step 4 the display shows the current time count.

   - **LINE KEY**
     - **L1**
       - **TIMER**
         - Automatic Disconnect
       - **DEFAULT**
         - 60 min.

2. **Time Out** = Time Base (10 min.) x count (01–99)

---

**GENERAL INFORMATION - TIME BASE ASSIGNMENT III**

This area of the memory block is used to assign the time out count for Trunk to Trunk Transfer Automatic Disconnect. Refer to Section 350 for an explanation.

BASE x COUNT = VALUE
MEMORY BLOCK 2E1 - SYSTEM ACCESS CODE ASSIGNMENT

OPERATION ← AND → DISPLAY

1. Go off line.

2. Depress F2, then F10.


4. Dial the number of the item to be set.
   Example: Item 23. (See Note 1).

5. Dial new access code, or depress CLEAR key for VACANT.
   Example: Access code 55. (See Note 2 and 4).

6. Depress ENTER key. (See Note 3).

7. Repeat steps 5 and 6 for all subsequent items required, or depress TEL # key to assign a specific item.

8. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPKR - ON/OFF Line</td>
<td>Allows item number selection</td>
</tr>
<tr>
<td>TEL #</td>
<td>Increment item number</td>
</tr>
<tr>
<td>F/W</td>
<td>Clear access code</td>
</tr>
<tr>
<td>CLEAR</td>
<td>Enter each assignment</td>
</tr>
<tr>
<td>B/W</td>
<td>Decrement item number</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2E1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels. (See Code List on next page.)

NOTES:

1. During step 4 the display shows the previous Access Code assigned to the item chosen.

2. The Access Code entered in step 5 cannot already be assigned to another Access Code number or be associated with the Station Numbering Plan.

3. Depressing the ENTER key causes the display to increment to the next item number.

4. Items 36, 37, and 38 should not be left vacant. If these items must be changed, insert unused access codes in their places.

GENERAL INFORMATION - SYSTEM ACCESS CODE ASSIGNMENT

This area of the memory block is used to reassign the feature Access Codes of the System. For a list of the Access Codes, refer to the page immediately following.
### SYSTEM FEATURE (ACCESS) CODE LIST

#### FLEXIBLE CODES:

<table>
<thead>
<tr>
<th>ITEM</th>
<th>FEATURE</th>
<th>DEFAULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
<td>BGM over station speaker</td>
<td>49</td>
</tr>
<tr>
<td>04</td>
<td>Call Forward All/Originator</td>
<td>41</td>
</tr>
<tr>
<td>05</td>
<td>Call Forward All/Destination</td>
<td>47</td>
</tr>
<tr>
<td>06</td>
<td>Call Forward All/Attendant</td>
<td>44</td>
</tr>
<tr>
<td>07</td>
<td>Call Forward Busy No Answer/Originator</td>
<td>42</td>
</tr>
<tr>
<td>08</td>
<td>Call Forward Busy No Answer/Destination</td>
<td>48</td>
</tr>
<tr>
<td>09</td>
<td>Call Forward Busy No Answer/Attendant</td>
<td>45</td>
</tr>
<tr>
<td>13</td>
<td>Call Park</td>
<td>4*</td>
</tr>
<tr>
<td>14</td>
<td>Call Pickup/Directed</td>
<td>6#</td>
</tr>
<tr>
<td>15</td>
<td>Call Pickup/Group</td>
<td>6*</td>
</tr>
<tr>
<td>17</td>
<td>Ex-Hold, SLT</td>
<td>4#</td>
</tr>
</tbody>
</table>

- **Internal All Call (Non tenant)**
- **Internal Call Zone 1 (Non tenant)**
- **Internal Call Zone 2 (Non tenant)**
- **Internal Call Zone 3 (Non tenant)**
- **Internal Meet-Me Answer (Non tenant)**

- **External Call Zone 1 (Non tenant)**
- **External Call Zone 2 (Non tenant)**
- **External Call Zone 3 (Non tenant)**
- **External All Zone (Non tenant)**
- **External Meet-Me Answer (Non tenant)**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>FEATURE</th>
<th>DEFAULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>Night Call Pickup</td>
<td>60</td>
</tr>
<tr>
<td>27</td>
<td>Night Mode</td>
<td>68</td>
</tr>
<tr>
<td>29</td>
<td>Station Speed Dial Program for SLT</td>
<td>58</td>
</tr>
<tr>
<td>30</td>
<td>Station Lockout</td>
<td>61</td>
</tr>
<tr>
<td>31</td>
<td>Station Lockout Cancel from Attendant (CPU-EB or higher)</td>
<td>62</td>
</tr>
<tr>
<td>32</td>
<td>Special Code Program Change (Station Lockout)</td>
<td>59</td>
</tr>
<tr>
<td>34</td>
<td>Trunk and MFR Select/Test</td>
<td>67</td>
</tr>
<tr>
<td>35</td>
<td>Trunk and MFR Busy Out/Restore</td>
<td>57</td>
</tr>
<tr>
<td>36</td>
<td>Extension Number</td>
<td>1</td>
</tr>
<tr>
<td>37</td>
<td>Extension Number</td>
<td>2</td>
</tr>
<tr>
<td>38</td>
<td>Extension Number</td>
<td>3</td>
</tr>
</tbody>
</table>
### FLEXIBLE CODES:

<table>
<thead>
<tr>
<th>ITEM</th>
<th>FEATURE</th>
<th>DEFAULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>39</td>
<td>Trunk Access Code 2</td>
<td>8</td>
</tr>
<tr>
<td>40</td>
<td>Trunk Access Code 3</td>
<td>70</td>
</tr>
<tr>
<td>41</td>
<td>Trunk Access Code 4</td>
<td>71</td>
</tr>
<tr>
<td>42</td>
<td>Trunk Access Code 5</td>
<td>72</td>
</tr>
<tr>
<td>43</td>
<td>Trunk Access Code 6</td>
<td>73</td>
</tr>
<tr>
<td>44</td>
<td>Trunk Access Code 7</td>
<td>74</td>
</tr>
<tr>
<td>45</td>
<td>Trunk Access Code 8</td>
<td>75</td>
</tr>
<tr>
<td>46</td>
<td>Automatic Call Back/Trunk Queue</td>
<td>* 1</td>
</tr>
<tr>
<td>47</td>
<td>Callback Request Message</td>
<td>#</td>
</tr>
<tr>
<td>50</td>
<td>Tone Override/Attendant Override</td>
<td>* 0</td>
</tr>
<tr>
<td>60 ~ 79</td>
<td>Uniform Dial (CPU-EB2 or higher)</td>
<td>Not Assigned</td>
</tr>
<tr>
<td>90</td>
<td>Voice Mail Hunt</td>
<td>63</td>
</tr>
<tr>
<td>91</td>
<td>Voice Mail Message Waiting</td>
<td>54</td>
</tr>
<tr>
<td>92</td>
<td>Hookflash to CO (SLT only) (CPU-EB2 or higher)</td>
<td>Not Assigned</td>
</tr>
<tr>
<td></td>
<td>(See NOTE 6)</td>
<td></td>
</tr>
<tr>
<td>93</td>
<td>CO Release (SLT only) (CPU-EB2 or higher)</td>
<td>Not Assigned</td>
</tr>
<tr>
<td></td>
<td>(See NOTE 7)</td>
<td></td>
</tr>
<tr>
<td>94</td>
<td>Account Code-Forced/Verified (CPU-EB3 or higher)</td>
<td>Not Assigned</td>
</tr>
</tbody>
</table>

### FIXED CODES:

- Attendant Call: 0
- Trunk Access Code 1: 9
- Last Number Redial: *
- Off-Line for System Programming: # * 0
- Speed Dial (Station): # 00 ~ #19
- Speed Dial (System): # 20 ~ #99
- Internal Voice/Ring Signaling: 1
- Callback Request/Message Retrieve: 1
- Account Code Entry: # #
- Callback Request Message/Cancel: *
MEMORY BLOCK 3A2 - ATTENDANT 3rd AND 4th ASSIGNMENT

OPERATION ← AND → DISPLAY

1. Go off line.

   OFF - LINE (X.XX)
   PROGRAM MODE

2. Depress F3.

   SYSTEM 2


   SYS. ATTENDANT

4. Depress F12. (See Note 1).

   ATT3 & ATT4 ASGN
   DEPRESS LINE KEY

5. Depress L3 and/or L4 to assign or eliminate the 3rd. and/or 4th. Attendant, as needed.

6. Depress ENTER key

7. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

- SPKR - ON/OFF Line
- TEL # - 
- F/W - 
- CLEAR - 
- ENTER - Enters attendant assignment 
- B/W - 

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>3A2</td>
<td>1D8</td>
<td>3A3, 3A4, 1C1, 1E2</td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. During step 3, L3 and L4 display any previous Attendant assignment.
   - L3 LED ON = Third Attendant assigned
   - OFF = Third Attendant not assigned (Default)
   - L4 LED ON = Fourth Attendant assigned
   - OFF = Fourth Attendant not assigned (Default)
   (L1 and L2 LEDs show ON to indicate Attendants 1 and 2 are assigned.)

2. When assigned, these Attendants are automatically assigned to TENANT 1.

3. 3rd and 4th Attendant positions can not be removed when:
   - Any stations are assigned to it for dial 0 (1D8).
   - When any DSS/BLF console is assigned to it (1C1).

4. 3rd and 4th Attendant Assignments must be assigned on the first ESI ETU, (ports 3 and 4 respectively).

GENERAL INFORMATION - ATTENDANT 3rd & 4th ASSIGNMENT

This area of the memory block is used to allow a 3rd and 4th Attendant to be assigned to the system. An ATTENDANT Multiline Terminal must be an ETE-16D-( ).
**MEMORY BLOCK 3A3 - ATTENDANT OVERFLOW ASSIGNMENT**

**OPERATION**

1. Go off line.

<table>
<thead>
<tr>
<th>OPERATE</th>
<th>OFF-LINE</th>
<th>XX</th>
<th>PROGRAM MODE</th>
</tr>
</thead>
</table>

2. Depress F3, then F6.

<table>
<thead>
<tr>
<th>OPERATE</th>
<th>SYS. ATTENDANT</th>
</tr>
</thead>
</table>


<table>
<thead>
<tr>
<th>OPERATE</th>
<th>ATT OVERFLOW</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ATT?</td>
</tr>
</tbody>
</table>

4. Enter attendant number (1 ~ 4) to set. Example: Attendant 2. (See Note 1).

<table>
<thead>
<tr>
<th>OPERATE</th>
<th>ATT OVERFLOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATT2</td>
<td>ATT?</td>
</tr>
</tbody>
</table>

5. Enter second attendant number (1 ~ 4) where calls are to overflow to. Example: Attendant 4.

<table>
<thead>
<tr>
<th>OPERATE</th>
<th>ATT OVERFLOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATT2</td>
<td>ATT4</td>
</tr>
</tbody>
</table>

6. Depress ENTER key. (See Note 2).

<table>
<thead>
<tr>
<th>OPERATE</th>
<th>ATT OVERFLOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATT3</td>
<td>ATT?</td>
</tr>
</tbody>
</table>

7. Repeat steps 5 and 6 for other attendants as required.

8. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

- **SPKR** - ON/OFF Line
- **TEL #** - Enters new attendant
- **F/W** - Increments attendant number
- **CLEAR** - Clears overflow assignment
- **ENTER** - Enters each assignment
- **B/W** - Decrements attendant number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>3A3</td>
<td>3A2</td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. During step 4 the display shows any previous assignment for the attendant to be set.

2. Depressing the ENTER key causes the display to increment to the next attendant number.

3. Overflow is for internal operator (Dial 0) calls only.

GENERAL INFORMATION - ATTENDANT OVERFLOW ASSIGNMENT

This area of the memory block is used to program the Overflow feature on the attendant positions.
MEMORY BLOCK 3A4 - ATTENDANT TO TENANT ASSIGNMENT

OPERATION

1. Go off line.

2. Depress F3, then F6.

3. Depress F14. (See Note 1).

4. Depress F/W key. (See Note 3).

5. Dial the number corresponding to the Tenant (1 ~ 3) to be assigned. Example: Tenant 2. (See Note 4).

6. Depress ENTER key.

7. Repeat steps 5 and 6 for all attendants required. (See Note 2).

8. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR - ON/OFF Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL # - Returns to attendant 1</td>
</tr>
<tr>
<td>F/W - Increments attendant number set</td>
</tr>
<tr>
<td>CLEAR -</td>
</tr>
<tr>
<td>ENTER - Enters each assignment</td>
</tr>
<tr>
<td>B/W - Decrements attendant number set</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>3A4</td>
<td>3A2, 3A3</td>
<td>1C1, 1D8</td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. During step 3 the display shows any current assignment for the attendant to be set.

2. The 3rd and/or 4th attendants must first be allowed in memory block 3A2 before assigning them to a tenant.

3. ATTENDANT 1 is always assigned to TENANT 1.

4. This assignment cannot be made when:
   - any station is assigned to this attendant (1D8).
   - any DSS/BLF console is assigned to this attendant (1C1).

Therefore, all related assignments must first be cleared to allow this assignment to be made.

GENERAL INFORMATION - ATTENDANT TO TENANT ASSIGNMENT

This area of the memory block is used to assign the four possible system attendants to a particular tenant(s). A maximum of three Tenants are available.
MEMORY BLOCK 3B1 - FIRST RING PATTERN ASSIGNMENT

OPERATION ← AND → DISPLAY

1. Go off line.

| OFF-LINE | (X·XXX) |
| PROGR. MODE |

2. Depress F3, then F7.

| SYS2 FEATURE 1 |

3. Depress F11.

| 1ST RING PATTERN |
| DEPRESS LINE KEY |

4. Depress L1 to L8 to assign the appropriate first ring pattern to the desired Trunk Groups. Repetitive depression of those line keys toggles corresponding LED indications between ON and OFF.

   LED ON: 1Hz interrupted tone (0.5 sec. ON, 0.5 sec. OFF)
   LED OFF: 2 secs ON, 4 secs OFF (Default)
   (See Notes 1 and 2).

5. Depress ENTER key.

| 1ST RING PATTERN |
| DEPRESS LINE KEY |

6. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

- SPKR - ON/OFF Line
- TEL # -
- F/W (Forward) -
- CLEAR -
- ENTER - Assigns desired 1st. ring pattern
- B/W (Backward) -

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>3B1</td>
<td>3B2, 4B6</td>
<td></td>
</tr>
</tbody>
</table>

CPU-EB3 or higher.

NOTES:

1. Line key and Trunk Group correspondence.
   
   LK1 = Trunk Group 1  
   LK2 = Trunk Group 2  
   LK3 = Trunk Group 3  
   LK4 = Trunk Group 4  
   LK5 = Trunk Group 5  
   LK6 = Trunk Group 6  
   LK7 = Trunk Group 7  
   LK8 = Trunk Group 8

2. This assignment is valid for COI-EB as well as for COI-E and TLI-E ( ).

GENERAL INFORMATION - FIRST RING PATTERN ASSIGNMENT

This area of the memory block is used to assign in a Trunk Group basis, one of the 2 available ring patterns, to the 1st. ring cycle, after an incoming call is detected.
MEMORY BLOCK 3B2 - CENTREX RINGING ASSIGNMENT

**OPERATION** ← AND → **DISPLAY**

1. Go off line.

   | OFF - LINE (X - XX) |
   | PROGRAM MODE |

2. Depress F3, then F7.

   | SYSTEM FEATURE 1 |

3. Depress F12.

   | CENTREX RINGING |
   | TRUNK GROUP |

4. Dial Trunk Group number (1~8) to be assigned.
   Example: Trunk Group 1

   | CTX RING TRK G1 |
   | DEPRESS LINE KEY |

5. Depress L1 to L8 to assign the appropriate ring pattern and detection time(s) to the Trunk Group selected. (See Note 1.)

   - LED ON: 1 Hz interrupted tone (0.5 sec. ON, 0.5 sec. OFF)
   - LED OFF: 2 sec ON, 4 sec OFF tone (Default)

   | CTX RING TRK G2 |
   | DEPRESS LINE KEY |

6. Depress ENTER key. (See Note 2)

7. Repeat steps 5 and 6 to assign all Trunk Groups required, or depress TEL# to assign a specific Trunk Group.

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # - Selects Trunk Group number
F/W - Increments Trunk Group number
CLEAR -
ENTER - Enters each assignment
B/W - Decrements Trunk Group number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>3B2</td>
<td>486</td>
<td>3B1</td>
</tr>
</tbody>
</table>

CPU-EB3 or higher.

NOTES:

1. Line key and incoming ring duration time correspondence.
   
   LK1 = Less than 0.1 sec
   LK2 = More than 0.1 sec but less than 0.3 sec
   LK3 = More than 0.3 sec but less than 0.45 sec
   LK4 = More than 0.45 sec but less than 0.65 sec
   LK5 = More than 0.65 sec but less than 0.9 sec
   LK6 = More than 0.9 sec but less than 1.5 sec
   LK7 = More than 1.5 sec but less than 2.5 sec
   LK8 = More than 2.5 sec

2. Depressing the ENTER key increments the display to the next Trunk Group number.

3. The Trunk Group number is incremental or decremental with the F/W and B/W keys.

4. This assignment is valid for CENTREX or PBX Lines connected to COI-EB ETUs.

GENERAL INFORMATION - CENTREX RINGING ASSIGNMENT

This area of the memory block is used to assign one of the two Ring Patterns available to particular types of incoming ring signals. The assignments correspond to the duration of the incoming ring signals and are programmed in a Trunk Group basis.
MEMORY BLOCK 3B3 - FORCED ACCOUNT CODE DIGIT ASSIGNMENT

OPERATION ←→ AND → DISPLAY

1. Go off line.

<table>
<thead>
<tr>
<th>OFF-LINE</th>
<th>X·XX</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROGRAM MODE</td>
<td></td>
</tr>
</tbody>
</table>

2. Depress F3, then F7.

<table>
<thead>
<tr>
<th>SYS 2 FEATURE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

(See Note 1).

<table>
<thead>
<tr>
<th>FORCED ACC CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO. OF DIGITS</td>
</tr>
<tr>
<td>10</td>
</tr>
</tbody>
</table>

4. Enter number of digits for the Forced Account Codes. Example: 12
(See Note 2)

<table>
<thead>
<tr>
<th>FORCED ACC CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO. OF DIGITS</td>
</tr>
<tr>
<td>12</td>
</tr>
</tbody>
</table>

5. Depress ENTER key.
(See Note 3).

<table>
<thead>
<tr>
<th>FORCED ACC CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO. OF DIGITS</td>
</tr>
<tr>
<td>12</td>
</tr>
</tbody>
</table>

6. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

- **SPKR** - ON/OFF Line
- **TEL #** - Select number of Forced Account Code digits
- **F/W** -
- **CLEAR** -
- **ENTER** - Enters each assignment
- **B/W** -

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>383</td>
<td>2E1</td>
<td>1D7</td>
</tr>
</tbody>
</table>

CPU-EB3 or higher.

NOTES:

1. During step 3, any previous value already set is displayed.

2. Forced Account Code digit count assignment is 1 to 13 digits. Default assignment is 10 digits.

3. A change in the number of digits cannot be made unless all the previous Forced Account Code entries are cleared first at an Attendant position.

GENERAL INFORMATION - FORCED ACCOUNT CODE DIGIT ASSIGNMENT

This area of the memory block is used to assign the number of digits (1~13) for the Forced Account Codes.
MEMORY BLOCK 3B4 - RAA SLT ASSIGNMENT

OPERATION ← ← AND DISPLAY

1. Go off line.

2. Depress F3, then F7.


4. Dial station number of the SLT port associated with the RAA and then station number of RAA.
   Example: Station No. of SLT = 150
   Station No. of RAA = 104

5. Depress ENTER key.

6. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # - Select Station numbers
F/W (Forward) -
CLEAR - Clears station numbers
ENTER - Enter RAA SLT assignment
B/W (Backward) -

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>3B4</td>
<td></td>
<td>1E2</td>
</tr>
</tbody>
</table>

CPU-EB3 or higher.

NOTES:

1. Default assignment is No Correspondence.

2. To clear the setting, during step 3 depress the CLEAR key and then the ENTER key.

GENERAL INFORMATION - RAA SLT ASSIGNMENT

This area of the memory block is used to assign a guaranteed connection between the RAA and an SLT modem port. Remote maintenance operation is guaranteed by this assignment. For more information: See Chapter 9, Section 900 of this manual.
MEMORY BLOCK 3B5 - STATION HUNTING PILOT NUMBER ASSIGNMENT

OPERATION ← AND DISPLAY

1. Go off line.

   OFF - LINE (X X X)
   PROGRAM MODE

2. Depress F3, then F7.

   SYS 2. FEATURE 1

3. Depress F15.

   HUNT. G - PILOT NO.
   HUNT. G?

4. Dial the STATION HUNT GROUP NO. (1-8).
   Example: HUNT G. No. = 2

   HUNT. G - PILOT NO.
   HNT. G 2 - PILOT???

5. Dial the HUNT GROUP PILOT NO. (EXT NO.
   other than PE and VE).
   Example: PILOT NO. = 190

   HUNT. G - PILOT NO.
   HNT. G 2 - PILOT 190

6. Depress ENTER key. (See Note 1).

   HUNT. G - PILOT NO.
   HNT. G 3 - PILOT???

7. Repeat Steps 3 to 5 for the HUNT GROUPS to be
   specified.

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPKR</td>
<td>ON/OFF Line</td>
</tr>
<tr>
<td>TEL #</td>
<td>Selects a new Hunt Group number</td>
</tr>
<tr>
<td>F/W</td>
<td>Increments the Hunt Group number</td>
</tr>
<tr>
<td>CLEAR</td>
<td>Clears Pilot Number Assignment</td>
</tr>
<tr>
<td>ENTER</td>
<td>Enters each assignment</td>
</tr>
<tr>
<td>B/W</td>
<td>Decrements Hunt Group number</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>Memory Block Being Programmed</th>
<th>Memory Block That Must Be Programmed</th>
<th>Memory Block That May Have To Be Programmed</th>
</tr>
</thead>
<tbody>
<tr>
<td>3B5</td>
<td>3B6</td>
<td>3B7, 3B8</td>
</tr>
</tbody>
</table>

CPU-EB3 or higher.

NOTES:

1. Depressing the ENTER key shifts the assignment HUNT GROUP to the next group number.

2. The Pilot Number must be an unused extension number in the system.

GENERAL INFORMATION - STATION TO HUNT GROUP PILOT NUMBER ASSIGNMENT

This area of the memory block is used to assign the Pilot No. to the Hunt Group No. (1-8).
MEMORY BLOCK 3B6 - STATION TO HUNT GROUP ASSIGNMENT

OPERATION   ←                  AND                  →   DISPLAY

1. Go off line.
   - Off-Line (X:XX) Program Mode

2. Depress F3, then F7.
   - Sys 2 Feature 1

3. Depress F16.
   - Station Hunt.G

4. Dial the required STATION HUNT GROUP NO. (1-8).
   - Example: HUNT GROUP No. = 2

5. Dial an EXT NO. to be assigned as a member of this STATION HUNT GROUP.
   - Example: EXT No. = 100 (See Notes 1)

6. Depress ENTER key. (See Notes 2)

7. Repeat Steps 3 to 5 for the HUNT GROUPS to be assigned.

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPKR</td>
<td>ON/OFF Line</td>
</tr>
<tr>
<td>TEL #</td>
<td>Selects a new Hunt Group number</td>
</tr>
<tr>
<td>F/W</td>
<td>Increments extension number</td>
</tr>
<tr>
<td>CLEAR</td>
<td>Clears extension assignment</td>
</tr>
<tr>
<td>ENTER</td>
<td>Enters each assignment</td>
</tr>
<tr>
<td>B/W</td>
<td>Decrements extension number</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>Memory Block Being Programmed</th>
<th>Memory Block That Must Be Programmed</th>
<th>Memory Block That May Have To Be Programmed</th>
</tr>
</thead>
<tbody>
<tr>
<td>3B6</td>
<td>3B5</td>
<td>3B7, 3B8</td>
</tr>
</tbody>
</table>

CPU-EB3 or higher.

NOTES:

1. Only Virtual and Primary extension numbers can be programmed as members of a HUNT GROUP (16 max.). Pilot numbers or uniform numbers are not accepted. The same extension can be programmed to appear in more than one HUNT GROUP. Also, the same extension can be programmed to appear more than once in a HUNT GROUP.

2. Depressing the ENTER key advances this program to the next extension entry within the same hunt group.

GENERAL INFORMATION - STATION TO HUNT GROUP ASSIGNMENT

This area of the memory block is used to assign extension numbers to the various Hunt groups (1-8).
MEMORY BLOCK 3B7 - STATION HUNT TYPE ASSIGNMENT

OPERATION ← AND → DISPLAY

1. Go off line.

2. Depress F3, then F7.

3. Depress F17.

4. Dial the HUNT GROUP NO. (1-8) for which the search method is to be assigned.
   Example: HUNT GROUP NO. = 1

5. Assign the search method.
   Depress LK1 key.
   LED OFF: LINEAR (Default)
   LED ON: CIRCULAR

6. Depress ENTER key (See Note 1).

7. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

- SPKR - ON/OFF Line
- TEL # - Selects a new Hunt Group number
- F/W - Increments Hunt Group number
- CLEAR -
- ENTER - Enters each assignment.
- B/W - Decrements Hunt Group number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>3B7</td>
<td>3B5, 3B6</td>
<td>3B8</td>
</tr>
</tbody>
</table>

CPU-EB3 or higher.

NOTES:

1. Depressing the ENTER key advances this program to the next HUNT GROUP.

GENERAL INFORMATION - STATION HUNT TYPE ASSIGNMENT

This area of the memory block is used to assign the Hunt Search method for each Hunt Group.
- Linear (Default)
- Circular
MEMORY BLOCK 3B8 - STATION HUNT GROUP FORWARD ASSIGNMENT

OPERATION ↔ AND ↔ DISPLAY

1. Go off line.

```
OFF-LINE (X XXX)
PROGRAM MODE
```

2. Depress F3, then F7.

```
SYS2. FEATURE 1
```

3. Depress F18.

```
HUNT. G FWD ASGN
HUNT. G?
```

4. Dial the STATION HUNT GROUP NO. (1-8) for which the HUNT FORWARD destination is to be assigned.

Example: HUNT G NO. = 1.

```
HUNT. G FWD ASGN
HUNT. G1 - FWD???
```

5. Dial an EXT NO. or HUNT PILOT NO. as the HUNT FORWARD NO.

Example: EXT No. = 300

```
HUNT. G FWD ASGN
HUNT. G1 - FWD 300
```

6. Depress ENTER key. (See Note 1).

```
HUNT. G FWD ASGN
HUNT. G2 - FWD???
```

7. Repeating Steps 3 to 5 until station hunt forward destinations can be registered for all the HUNT GROUPS.

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPKR</td>
<td>ON/OFF Line</td>
</tr>
<tr>
<td>TEL #</td>
<td>Selects a new Hunt Group number</td>
</tr>
<tr>
<td>F/W</td>
<td>Increments Hunt Group number</td>
</tr>
<tr>
<td>CLEAR</td>
<td>Clears FWD destination assignment</td>
</tr>
<tr>
<td>ENTER</td>
<td>Enters each assignment</td>
</tr>
<tr>
<td>B/W</td>
<td>Decrements Hunt Group number</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>Memory Block Being Programmed</th>
<th>Memory Block That Must Be Programmed</th>
<th>Memory Block That Must Be Programmed</th>
</tr>
</thead>
<tbody>
<tr>
<td>3B8</td>
<td>3B5, 3B6</td>
<td>3B7</td>
</tr>
</tbody>
</table>

CPU-EB3 or higher.

NOTES:

1. Depressing the ENTER key advances this program to the next HUNT GROUP.

GENERAL INFORMATION - STATION HUNT GROUP FORWARD ASSIGNMENT

This area of the memory block is used to assign an extension No. or Hunt Group Pilot No. as the Forward destination of a DIT or DID incoming call when all extensions in the Hunt Group are busy.
MEMORY BLOCK 3B9 - TRUNK GROUP TO LINE POOL GROUP ASSIGNMENT

OPERATION AND DISPLAY

1. Go off line.

2. Depress F3, then F7.

3. Depress F19.

4. Dial Pool Group number (1 to 8).
   Example: Pool Group 2. (See Note 1).

5. Depress L1 to L8 to assign the appropriate trunk groups to the Pool Group chosen. (See Note 2)

6. Depress ENTER key. (See Note 3).

7. Repeat Steps 5 and 6 to assign Trunk Groups to all the desired Pool Groups, or depress TEL# key to program a specific Pool Group.

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # - Enters new pool group number
F/W (Forward) - Increments pool group number
CLEAR -
ENTER - Enters each assignment
B/W (Backward) - Decrements pool group number

NOTES:

1. During Step 3, any previous Trunk Group assignment for the Pool Group entered is shown by the LED pattern of L1 to L8.

2. In assigning the Trunk Groups to a specific Pool Group in Step 4, the following procedure is used: L1 to L8 correspond to Trunk Groups 1 to 8 respectively.
   LED ON: Assigned to Pool Group
   LED OFF: Not assigned to Pool Group

3. Depression of the ENTER key will increment the display to the next Pool Group number.

GENERAL INFORMATION - TRUNK GROUP TO LINE POOL GROUP ASSIGNMENT

This area of the memory block is used to assign up to eight system trunk groups to each of the eight possible pool groups.
MEMORY BLOCK 3B10 - LINE POOL GROUP AUTO EXTENSION ASSIGNMENT

OPERATION ← AND → DISPLAY

1. Go off line.

   OFF-LINE (X·XX) PROGRAM MODE

2. Depress F3, then F7.

   SYS 2. FEATURE 1


   POOL AUTO EXT

   TEL ???

4. Dial station number being assigned.
   Example: Station 104

   POOL AUTO EXT

   TEL 104

5. Each extension line position L1 to L15 required to be a Pool Auto Extension (PAE) for the station chosen in Step 3 should be selected. (See Notes 1 & 2).
   LED ON = Assign Pool Auto Extension
   LED OFF = Do Not Assign pool auto extension

6. Depress ENTER key. (See Note 3).

7. Repeat Steps 5 and 6 until all desired Multiline Terminals are programmed or depress the TEL # key to program a particular station.

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # - Select station to be assigned
F/W (Forward) - Increment station number
CLEAR -
ENTER - Entry to each station assigned
B/W (Backward) - Decrement station number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>3B10</td>
<td>1A</td>
<td></td>
</tr>
</tbody>
</table>

CPU-EB3 or higher.

NOTES:

1. When programming appearances for a 6 button station, L1-L5 are selected on the programming station.

2. The primary extension of the specified TEL is always set as a Pool Auto Extension and cannot be changed. (LED always ON)

3. Depressing the ENTER key causes the assignment to advance to the next station number.

GENERAL INFORMATION - LINE POOL GROUP AUTO EXTENSION ASSIGNMENT

This area of the memory block is used to assign Line Pool Group Auto Extensions (PAEs) at line key appearance of Multiline Terminals. Primary extensions are automatically assigned as PAEs.
MEMORY BLOCK 3C1 - TELEPHONE NAME ASSIGNMENT

OPERATION ——— AND ——— DISPLAY

1. Go off line.

   OFF - LINE (X . X X)
P R O G R A M M O D E

2. Depress F3, then F8.

   S Y S . N A M E A S S I G N

3. Depress F11.

   T E L N A M E
   T E L ? ? ?

4. Dial station number to be set.
   Example: Station 104. (See Note 1).

   T E L N A M E - T E L 1 0 4
   N A M E ; X X X X X X X X

5. To enter the name STEVE: Enter the first letter to be set, depress the 7 dial key five times. (See Note 2).

   T E L N A M E - T E L 1 0 4
   N A M E ; S

6. Enter the second letter to be set, depress the 8 dial key twice. (See Note 2).

   T E L N A M E - T E L 1 0 4
   N A M E ; S T

7. Repeat dialing sequence for all letters required. (See Note 3).

8. Depress ENTER key. (See Note 4).

   T E L N A M E - T E L 1 0 5
   N A M E ; X X X X X X X

9. Repeat from step 5 through 7 for all stations required.

10. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # - Enters station number
F/W - Increments to next character
CLEAR - Clears name
ENTER - Enters name assigned
B/W - Removes last character entered

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>3C1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ALL CPU levels.

NOTES:

1. During step 4 the display shows any previous name assigned to the station chosen.

2. Each character is entered by selecting a dial key and depressing it a number of times. Use the table below as a guide. The F/W and B/W keys are used to move to the next or previous entry.

DIAL PAD KEYS

<table>
<thead>
<tr>
<th>DEPRESSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
</tbody>
</table>

These Dial Pad Key patterns are repeated every six depressions.

3. The character string is limited to seven digits including spaces.

4. Depressing the ENTER key causes the display to increment to the next station number.

GENERAL INFORMATION - TELEPHONE NAME ASSIGNMENT

This area of the memory block is used to assign user names to each station, and/or voice mail box.
MEMORY BLOCK 3C2 - TRUNK NAME ASSIGNMENT

OPERATION  AND  DISPLAY

1. Go off line.

2. Depress F3, then F8.

3. Depress F12.

4. Dial the number of the trunk (1~40) to be assigned. Example: Trunk 03. (See Note 1).

5. Using the dial pad, enter the desired name for the selected trunk. Example: New York. (See Note 2).

6. Depress ENTER key. (See Note 3).

7. Repeat steps 4 and 6 for all trunks to be assigned names.

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

**SPKR** - ON/OFF Line
**TEL #** -
**F/W** - Skips to the next letter position
**CLEAR** - Clears current name assignment
**ENTER** - Enters each assignment
**B/W** - Moves back one letter position

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3C2</strong></td>
<td>2C1</td>
<td></td>
</tr>
</tbody>
</table>

CPU-EC4 or higher.

NOTES:

1. For CPU-EC3 (or lower revision levels) ETUs, this memory block was used for Trunk Group name assignments. Trunk Groups 1~8 could be assigned.

2. After a trunk has been selected, the display will show any previous name assignment. (Default name: CO CALL).

3. The name assigned to each trunk is limited to eight (8) characters, including spaces. Each character is entered by selecting a dial key and depressing it a number of times. Use the table below as a guide. The F/W and B/W keys are used to move to the next or previous entry.

   **DIAL PAD KEYS**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>0</th>
<th>*</th>
<th>#</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>0</td>
<td>*</td>
<td>#</td>
</tr>
<tr>
<td><strong>2</strong></td>
<td>A</td>
<td>D</td>
<td>G</td>
<td>J</td>
<td>M</td>
<td>P</td>
<td>T</td>
<td>W</td>
<td>S</td>
<td>P</td>
<td>A</td>
</tr>
<tr>
<td><strong>3</strong></td>
<td>B</td>
<td>E</td>
<td>H</td>
<td>K</td>
<td>N</td>
<td>Q</td>
<td>U</td>
<td>X</td>
<td>S</td>
<td>P</td>
<td>A</td>
</tr>
<tr>
<td><strong>4</strong></td>
<td>C</td>
<td>F</td>
<td>I</td>
<td>L</td>
<td>O</td>
<td>R</td>
<td>V</td>
<td>Y</td>
<td>S</td>
<td>P</td>
<td>A</td>
</tr>
<tr>
<td><strong>5</strong></td>
<td>SPACE</td>
<td>S</td>
<td>A</td>
<td>Z</td>
<td>SPACE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Depressing the ENTER key automatically advances the display to step 3.

The dial pad key patterns repeat every six depressions.

GENERAL INFORMATION - TRUNK NAME ASSIGNMENT

This area of the memory block is used to assign names (of up to eight (8) characters, including spaces) to each trunk. These names will appear in the displays of Multiline Terminals so equipped, when receiving ring transferred, DID, Tie line or DIT calls, to an idle extension.
MEMORY BLOCK 3D1 - FIRST INITIALIZATION

OPERATION AND DISPLAY

1. Go off line.

```
OFF-LINE (X XXX)
PROGRAM MODE
```

2. Depress F3, then F9.

```
SYS. INITIALIZE
```

3. Depress F11.

```
1ST INITIALIZE
DEPRESS LINE KEY
```


5. Depress the ENTER key. (See Notes 1 & 2).

```
INITIALIZE IN PROGRESS
```

NOTE: The display on all stations will go blank (for a brief moment), then INITIALIZE will be displayed momentarily before returning to the default values of time and date.

```
INITIALIZE
```

```
12:00 JAN 01 MON
```
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL# -
F/W -
CLEAR -
ENTER - First initialization command
B/W -

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>3D1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ALL CPU levels.

NOTES:

1. Depressing the ENTER key causes the system to reset and initialize. All current system and user programming is lost and the system data is returned to default. The programming station automatically returns to the ON LINE mode.

2. The initialization process causes all traffic in the system to be cut off.

GENERAL INFORMATION - FIRST INITIALIZATION

This area of the memory block is used to reinitialize the system software and hardware. The system program is returned to default and all calls in progress are dropped.
MEMORY BLOCK 3D2 - SECOND INITIALIZATION

OPERATION ← AND → DISPLAY

1. Go off line.

<table>
<thead>
<tr>
<th>OFF-LINE</th>
<th>(XX.XX)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROGRAM MODE</td>
<td></td>
</tr>
</tbody>
</table>

2. Depress F3, then F9.

| SYS. INITIALIZE |

3. Depress F12.

| 2ND INITIALIZE |

4. Depress ENTER key. (See Notes 1 and 2).

| INITIALIZE IN PROGRESS |

NOTE: The display on all stations will go blank (for a brief moment), then INITIALIZE will be displayed momentarily before returning to time and date.

| INITIALIZE |

| 04:15 NOV 25 TUE |
KEY FUNCTION (OFF LINE)

- SPKR - ON/OFF Line
- TEL # -
- F/W -
- CLEAR -
- ENTER - Second initialization command
- B/W -

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>3D2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ALL CPU levels.

NOTES:

1. Depressing the ENTER key causes the system hardware to reset. Any traffic occurring at this time is released.

2. Make sure that all battery switches on the ETU's are turned on before performing a second initialization. Failure to do so may result in program loss.

GENERAL INFORMATION - SECOND INITIALIZATION

This area of the memory block is used to reinitialize all system hardware. All system software and user programming is retained, after the second initialization.
MEMORY BLOCK 3D3 - SLOT INITIALIZATION

OPERATION  AND  DISPLAY

1. Go off line.

2. Depress F3, then F9.


4. Dial module number (1~4) of the slot to be initialized.
   Example: Module 1. (See Note 1).

5. Dial slot number (1~8) to be initialized.
   Example: Slot 5. (See Note 1).

6. Depress ENTER key.
   (1) When initialized
   (2) When not initialized

7. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

| SPKR   | ON/OFF Line          |
| TEL #  | Enters new module and slot number |
| F/W    | Increments slot number |
| CLEAR  | Enters each slot initialization |
| B/W    | Decrements slot number |

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>3D3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CPU-EB3 or higher.

NOTES:

1. During step 4 the status of L1 to L16 indicates the type of card assigned to the slot chosen. See figure below:

   - LED
     - ON: Assigned
     - OFF: Not assigned

   - COI
   - TLI
   - SLI
   - MPR EA
   - NOT USED
   - CNF
   - NOT USED
   - VMI

   - ESI EA
   - ESI EB
   - ECR
   - NOT USED
   - NOT USED
   - NOT USED
   - NOT USED

   - L9
   - L10
   - L11
   - L12
   - L13
   - L14
   - L15
   - L16

   - ABC
   - DEF
   - GHI
   - JKL
   - MNO
   - PRS
   - TUV
   - WXY
   - * OPER
   - 0
   - #
   - F1
   - F2
   - F3
   - F4
   - F5
   - F6
   - F7
   - F8
   - F9
   - F10
   - F11
   - F12
   - F13
   - F14
   - F15
   - F16
   - F17
   - F18
   - F19
   - F20

GENERAL INFORMATION - SLOT INITIALIZATION

This area of the memory block is used to initialize interface cards to the CCU interface slots.
MEMORY BLOCK 3D4 - TERMINAL (TEL, DSS) INITIALIZATION

OPERATION

1. Go off line.

2. Depress F3, then F9.


4. Dial station number to be initialized. Example: Station 120.

5. Depress ENTER key. (See Note 2).
   (1) When initialized
   (2) When not initialized (See Note 3).

6. To access DSS/BLF area, depress L14.

7. Dial DSS/BLF number 1~6 to be initialized. Example: DSS/BLF 2.

8. Depress ENTER key
   (1) When initialized
   (2) When not initialized (See Note 3).

9. To access port area, depress L15.

10. Enter port location to be initialized and depress ENTER key

11. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPKR</td>
<td>ON/OFF Line</td>
</tr>
<tr>
<td>TEL #</td>
<td>Selects port/device number</td>
</tr>
<tr>
<td>F/W</td>
<td>Increments port/device number</td>
</tr>
<tr>
<td>CLEAR</td>
<td></td>
</tr>
<tr>
<td>ENTER</td>
<td>Enters each port/device to be initialized</td>
</tr>
<tr>
<td>B/W</td>
<td>Decrements port/device number</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>Memory Block Being Programmed</th>
<th>Memory Block That Must Be Programmed</th>
<th>Memory Block That May Have To Be Programmed</th>
</tr>
</thead>
<tbody>
<tr>
<td>3D4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CPU-EB3 or higher.

NOTES:

1. There are three terminal initialization modes: Station, DSS/BLF and Port. When entering Memory Block 3D4, the programming station will default to station initialization.

2. Depressing the **ENTER** key causes the particular station or DSS/BLF to be initialized.

3. If no initialization occurs due to abnormal conditions, the station or DSS/BLF should be disconnected and connected (by unplugging and plugging the line cord) or the associated ESI ETU should be initialized.

GENERAL INFORMATION - TERMINAL (TEL, DSS)_INITIALIZATION

This area of the memory block is used to initialize port devices including ESI-EA and ESI-EB ETUs. The port device can be indexed by port, station number or DSS/BLF device number only.
MEMORY BLOCK 3E1 - REGIONAL DIALING ASSIGNMENT

**OPERATION** ← AND → **DISPLAY**

1. Go off line.

2. Depress F3, then F10.

3. Depress F11. (See Note 1).

4. Dial area number to be set (1~3).
   Example: 1 Direct Dial. (See Note 2).

5. Depress ENTER key.

6. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR</th>
<th>ON/OFF Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL #</td>
<td>-</td>
</tr>
<tr>
<td>F/W</td>
<td>-</td>
</tr>
<tr>
<td>CLEAR</td>
<td>-</td>
</tr>
<tr>
<td>ENTER</td>
<td>Enters area type</td>
</tr>
<tr>
<td>D/W</td>
<td>-</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>3E1</td>
<td>1D7, 1D6, 4B1 or 4B6</td>
<td>2A9, 2C1~2C3</td>
</tr>
<tr>
<td></td>
<td>1E10, 3E2~3E10</td>
<td></td>
</tr>
</tbody>
</table>

ALL CPU levels.

NOTES:

1. After step 3, the display will show the previous region assignment.

2. The following is a description of each area number that can be entered:

<table>
<thead>
<tr>
<th>REGION NUMBER</th>
<th>DIALING TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Direct Dial/1 + Dial</td>
</tr>
<tr>
<td>2</td>
<td>Independent Telephone Co.</td>
</tr>
<tr>
<td>3</td>
<td>Puerto Rico (Type) Dialing</td>
</tr>
</tbody>
</table>

GENERAL INFORMATION – REGIONAL DIALING ASSIGNMENT

This area of the memory block is used to designate the type of dialing area where the system is installed. This information is important when applying code restrictions to stations.
MEMORY BLOCK 3E2 - 1+ DIALING ASSIGNMENT

OPERATION AND DISPLAY

1. Go off line.

   OFF - LINE (X X)
   PROGRAM MODE

2. Depress F3, then F10.

   SYS. REST. TABLE

3. Depress F12.

   DIRECT/1+DIAL

4. Depress L1 to L8 to assign 1+ or direct dial to each Trunk Group. (See Note 1).

5. Depress ENTER key.

6. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR -</th>
<th>ON/OFF Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL #</td>
<td></td>
</tr>
<tr>
<td>F/W</td>
<td></td>
</tr>
<tr>
<td>CLEAR</td>
<td></td>
</tr>
<tr>
<td>ENTER</td>
<td>Enters assignment</td>
</tr>
<tr>
<td>B/W</td>
<td></td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>3E2</td>
<td>1D7, 1D6, 2A9</td>
<td>2C1 to 2C3, 3E1,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1E10, 3E10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4B1 or 4B6</td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. L1 to L8 correspond to Trunk Groups 1 to 8 respectively.

   Line key LED ON = 1 + dial area
   OFF = direct dial (Default)

GENERAL INFORMATION - 1 + DIALING ASSIGNMENT

This area of the memory block is used to designate whether 1 + dialing and/or direct dialing service is required on the CO lines installed. This designation is assigned on a Trunk Group basis.
MEMORY BLOCK 3E3 - REJECTION CODE ASSIGNMENT

**OPERATION** ← AND → **DISPLAY**

1. Go off line.

   ![OFF-LINE](X.XX)
   | PROGRAM MODE |

2. Depress F3, then F10.

   ![SYS. REST. TABLE](OFF-LINE)

3. Depress F13. (See Note 1).

   ![REJECT. CODE ASGN](SYS. REST. TABLE)
   | CODE 1 | ? |

4. Dial single digit rejection code (2 - 9).
   Example: 2, assigns the first rejection code.
   (See Note 3).

   ![REJECT. CODE ASGN](REJECT. CODE ASGN)
   | CODE 1 | 2 |

5. Depress ENTER key. (See Note 2).

   ![REJECT. CODE ASGN](REJECT. CODE ASGN)
   | CODE 2 | X |

7. Repeat steps 4 and 5 for any additional rejection codes required.

8. Depress the SPKR key to go back on line.
### KEY FUNCTION (OFF LINE)

- **SPKR** - ON/OFF Line
- **TEL #** - Selects code ONE
- **F/W** - Increments to next code
- **CLEAR** - Deletes rejection code
- **ENTER** - Enters rejection code
- **B/W** - Decrements to current code

### GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>3E3</td>
<td>1D7, 1D6, 1E10, 2A9</td>
<td>2C1~2C3, 3E1</td>
</tr>
<tr>
<td></td>
<td>3E2, 3E4~3E10</td>
<td>4B1 or 4B6</td>
</tr>
</tbody>
</table>

All CPU levels.

### NOTES:

1. During step 3 the display shows any current entry for code 1.
2. Depressing the ENTER key causes the display to increment to the next entry location.
3. Up to four single digit rejection codes can be assigned.

### GENERAL INFORMATION - REJECTION CODE ASSIGNMENT

This area of the memory block is used to assign up to 4 single digit Rejection Codes. The Rejection Code is used to prevent a code restricted station from bypassing the dialing restriction by first dialing out a sequence of single digits.
MEMORY BLOCK 3E4 - SYSTEM ALLOW/DENY ASSIGNMENT

OPERATION ← AND → DISPLAY

1. Go off line.

2. Depress F3, then F10.

3. Depress F14. (See Note 1).

4. Depress L1 to Allow or Deny.

5. Depress ENTER key.

6. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>OFF LINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPKR</td>
<td>ON/OFF Line</td>
</tr>
<tr>
<td>TEL #</td>
<td></td>
</tr>
<tr>
<td>F/W</td>
<td></td>
</tr>
<tr>
<td>CLEAR</td>
<td></td>
</tr>
<tr>
<td>ENTER</td>
<td>Enters allow/deny option</td>
</tr>
<tr>
<td>B/W</td>
<td></td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>3E4</td>
<td>1D7</td>
<td>1D6, 1E10,</td>
</tr>
<tr>
<td></td>
<td>2A9, 2C1~2C3,</td>
<td>2A9, 2C1~2C3,</td>
</tr>
<tr>
<td></td>
<td>3E1~3E3</td>
<td>3E1~3E3</td>
</tr>
<tr>
<td></td>
<td>3F5~3F10</td>
<td>3F5~3F10</td>
</tr>
<tr>
<td></td>
<td>4B1 or 4B6</td>
<td>4B1 or 4B6</td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:
1. During step 3 the indication on line key L1 shows the previous assignment.

   L1 On = Allow (Default)
   Off = Deny

GENERAL INFORMATION - SYSTEM ALLOW/DENY ASSIGNMENT

This area of the memory block is used to decide, system wide, whether code restricted stations are allowed or denied to dial numbers that do not match the codes entered in the assigned code tables.
MEMORY BLOCK 3E5 - TABLE ALLOW / DENY

1. Go off line.

2. Depress F3, then F10.

3. Depress F15.

4. Dial table number to be set (01 ~ 32). Example: Table number 14. (See Note 1).

5. Depress L1 to allow or deny table chosen.

6. Depress ENTER key. (See Note 2).

7. Repeat steps 5 and 6 for all subsequent tables required or go to step 3 to select a particular table.

8. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR - ON/OFF Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL # - Enters new table number</td>
</tr>
<tr>
<td>F/W - Increments table number</td>
</tr>
<tr>
<td>CLEAR -</td>
</tr>
<tr>
<td>ENTER - Enters allow/deny option</td>
</tr>
<tr>
<td>B/W - Decrements table number</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>3E5</td>
<td>1D6, 1D7</td>
<td>2A9, 2C1~2C3</td>
</tr>
<tr>
<td></td>
<td>3E6, 3E9</td>
<td>3E1~3E4, 3E7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3E8, 3E10, 1E10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4B1 or 4B6</td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. During step 4 the LED indication on L1 indicates the previous assignment for the table chosen.
   - L1 LED On = Allow Table
   - L1 LED Off = Deny Table (Default)

2. Depressing the ENTER key causes the display to increment to the next table.

GENERAL INFORMATION - TABLE ALLOW/DENY

This memory block area of the program is used to individually assign each of the 32 code restriction tables as either allow or deny tables.
MEMORY BLOCK 3E6 - TRUNK GROUP TO CODE TABLE ASSIGNMENT

OPERATION AND DISPLAY

1. Go off line.

   OFF-LINE (X.XX) PROGRAM MODE

2. Depress F3, then F10.

   SYS. REST. TABLE

3. Depress F16.

   TRUNK G-TABLE TABLE ?

4. Dial table number to be set (01 ~ 32).
   Example: Table number 14. (See Note 1).

   TRK. G-TBL TBL14

5. Depress up to four line keys L1 to L8 to assign the appropriate Trunk Groups for the table chosen.
   (See Note 2).

6. Depress ENTER key. (See Note 3).

   TRK. G-TBL TBL15

7. Repeat steps 5 and 6 for all subsequent tables required or go to step 3 to select a particular table.

8. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR - ON/OFF Line</th>
<th>TEL # - Enters new table number</th>
<th>F/W - Increments table number</th>
<th>CLEAR -</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ENTER - Enters each table assignment</td>
<td>B/W - Decrements table number</td>
<td></td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1D6, 1D7, 2A9, 2C1~2C3</td>
<td>3E6, 3E9, 3E1~3E4, 3E7</td>
<td>3E8, 3E10, 1E10</td>
</tr>
<tr>
<td>3E6</td>
<td>4B1 or 4B6</td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. During step 4 the line key LED indication displays the trunk groups previously assigned to the table chosen. L1 to L8 correspond to trunk groups 1 to 8 respectively.

   LED On = Assigned
   Off = Not Assigned (Default)

2. A maximum of 4 Trunk Groups can be assigned to each table.

3. Depressing the ENTER key causes the display to increment to the next table.

GENERAL INFORMATION - TRUNK GROUP TO CODE TABLE ASSIGNMENT

This memory block area of the program is used to assign Trunk Groups to code restriction tables. Up to four trunk groups can be assigned to each table.
MEMORY BLOCK 3E7 - TABLE OCC FLAG ASSIGNMENT

OPERATION ← AND → DISPLAY

1. Go off line.

   | OFF - LINE (X . XX) |
   | PROGRAM MODE       |

2. Depress F3, then F10.

   | SYS.       |
   | REST.      |
   | TABLE      |

3. Depress F17.

   | OCC FLAG   |
   | TABLE ??   |

4. Dial table number to be set (01 ~ 32).
   Example: Table number 14. (See Note 1).

   | OCC FLAG   |
   | TBL 14     |

5. Depress L1 to set or not set OCC flag to table chosen.

6. Depress ENTER key. (See Note 2).

   | OCC FLAG   |
   | TBL 15     |

7. Repeat steps 5 and 6 for all subsequent tables required or go to step 3 to select a particular table.

8. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # - Enters new table number
F/W - Increments table number
CLEAR -
ENTER - Enters each table assignment
B/W - Decrements table number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>3E7</td>
<td>1D6, 1D7, 3E5, 2A9, 2C1~2C3</td>
<td>3E6, 3E8, 3E9, 3E1~3E4, 3E10</td>
</tr>
<tr>
<td></td>
<td>4B1 or 4B1</td>
<td>1E10</td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. During step 4 L1 LED displays whether the OCC flag had previously been set to the table chosen.

   L1 LED On = OCC flag set
   Off = OCC flag not set (Default)

2. Depressing the ENTER key causes the display to increment to the next table.

GENERAL INFORMATION - TABLE OCC FLAG ASSIGNMENT

This memory block area of the program is used to assign an OCC flag to each table. All stations assigned restriction tables that have the OCC flag set are allowed, or denied, to dial the common carriers, which are specified in memory block 3E8.
MEMORY BLOCK 3E8 - TABLE OCC CODE ASSIGNMENT

OPERATION  ⌁  AND  ⌁  DISPLAY

1. Go off line.

```
OFF - LINE  (X.XXX)
PROGRAM MODE
```

2. Depress F3, then F10.

```
SYS. REST. TABLE
```

3. Depress F18.

```
OCC CODE
TABLE ??
```

4. Dial table number to be set (01 ~ 32).
   Example: Table number 14. (See Note 1).

```
OCC CODE TBL 14
CODE 1 - 10 ?? ??
```

5. Dial last three digits of OCC code to be entered.
   Example: 233.

```
OCC CODE TBL 14
CODE 1 - 10233
```

6. Depress ENTER key. (See Notes 2 and 4).

```
OCC CODE TBL 14
CODE 2 - 10 ?? ??
```

7. Repeat steps 5 and 6 for the second code to be entered at the chosen table. (See Note 3).

8. Depress TEL # key and repeat steps 4 to 7 for all additional tables required.

```
OCC CODE
TABLE ??
```

9. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR</th>
<th>ON/OFF Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL #</td>
<td>Enters new table number</td>
</tr>
<tr>
<td>F/W</td>
<td>Increments table number</td>
</tr>
<tr>
<td>CLEAR</td>
<td>Clears OCC code</td>
</tr>
<tr>
<td>ENTER</td>
<td>Enters each OCC code</td>
</tr>
<tr>
<td>B/W</td>
<td>Decrements table number</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>3E8</td>
<td>1D6, 1D7, 2A9, 2C1~2C3</td>
<td>3E5<del>3E7, 3E9 3E1</del>3E4, 3E10</td>
</tr>
<tr>
<td></td>
<td>4B1 or 4B6, 1E10</td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. During step 4 the display may show a previous OCC code set to code 1 of the table chosen.

2. Depressing the ENTER key causes the display to increment to the next code number.

3. Up to 2 OCC codes can be set in each code table.

4. During step 6 the display may show any current OCC code set to code 2 of the table chosen.

GENERAL INFORMATION - TABLE OCC CODE ASSIGNMENT

This area of the memory block is used to assign a maximum of 2 OCC codes to each code table. This can force code restricted stations that are assigned tables with OCC codes to dial long distance calls on less expensive carriers.
MEMORY BLOCK 3E9 - RESTRICTION TABLE CODE ASSIGNMENT

OPERATION  AND  DISPLAY

1. Go off line.

2. Depress F3, then F10.

3. Depress F19.

4. Dial table number to be assigned (01 ~ 32).
   Example: Table 14

5. Enter code number to be set (1 ~ 8).
   Example: Code number 5. (See Notes 1 and 2).

6. Dial area code to be set.
   Example: Area code 516.

7. Dial office code to be set.
   Example: Office code 777.

8. Depress ENTER key. (See Note 3).

9. Repeat steps 6 to 8 for all code numbers in the table as required. (See Notes 4 and 5).

10. Depress TEL # key and repeat steps 4 to 8 for all tables required.

11. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # - Enters new table number
F/W - Increments table number
CLEAR - Clears code
ENTER - Enters each code
B/W - Decrements table number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>3E9</td>
<td>1D6, 1D7, 2A9, 2C1~2C3, 3E5, 3E6</td>
<td>3E1~3E4, 3E7, 3E8, 3E10, 4B1 or 4B6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1E10</td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. During step 4 the display shows any current area and office code assigned to the code number and table chosen.

2. Each table can have a maximum of 8 code numbers (entries).

3. Depressing the ENTER key causes the display to increment to the next code number in the table.

4. The * key is used to enter three *'s in the area and/or office code positions. These three *'s represent any digits dialed, from 1 ~ 0, *, and #.

5. The # key is used to enter blanks in the office and area code position areas. (Blanks (-) are shown in the corresponding positions).

6. Any time an area code is programmed, blanks cannot be left in the office code position.

GENERAL INFORMATION - RESTRICTION TABLE CODE ASSIGNMENT

This area of the memory block is used to program area and office codes into the system code restriction tables. There are 32 code tables available and each table can hold up to 8 area and office codes.
### MEMORY BLOCK 3E10 - SPECIAL CODE ASSIGNMENT

<table>
<thead>
<tr>
<th>OPERATION</th>
<th>AND</th>
<th>DISPLAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF - LINE</td>
<td>(X·XX)</td>
<td>PROGRAM MODE</td>
</tr>
</tbody>
</table>

1. Go off line.

2. Depress F3, then F10.

3. Depress F20. (See Note 1).

4. Dial code number to be set. Example: Code number 144.

5. Depress ENTER key. (See Notes 2 and 3).

6. Repeat steps 4 and 5 for each subsequent special code required.

7. Depress SPKR key to go back on line.

<table>
<thead>
<tr>
<th>SPECIAL C. ASGN</th>
<th>CODE 1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CODE 1</td>
<td>144</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPECIAL C. ASGN</th>
<th>CODE 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CODE 2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPECIAL C. ASGN</th>
<th>CODE 1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CODE 1</td>
<td>? ? ?</td>
<td></td>
</tr>
</tbody>
</table>
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # - Returns display to code 1
F/W - Increments code number
CLEAR - Delete special code assigned
ENTER - Enters each code
B/W - Decrements code number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>3E10</td>
<td>1D6, 1D7, 3E1, 2A9, 2C1~2C3</td>
<td>3E5, 3E6, 3E9, 3E4, 1E10</td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. During step 3 the display shows any current Special Code entry in the first code location.

2. Depressing the ENTER key causes the display to increment to the next code location. Up to 8 Special Codes can be entered.

3. When the (Puerto Rico) Special Code is assigned in the area assignment, code table 32 becomes the Special Code table.

GENERAL INFORMATION - SPECIAL CODE ASSIGNMENT

This area of the memory block is used to enter Special Codes into a table. This table is used only when the system area is programmed for the Puerto Rico area in memory block 3E1.
## MEMORY BLOCK 4A1 - SYSTEM ALL BUSY RESTORE ASSIGNMENT

<table>
<thead>
<tr>
<th>OPERATION</th>
<th>AND</th>
<th>DISPLAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Go off line.</td>
<td></td>
<td><strong>OFF-LINE</strong>  (X·XX)  <strong>PROGRAM MODE</strong></td>
</tr>
<tr>
<td>2. Depress F4.</td>
<td></td>
<td><strong>CARD</strong></td>
</tr>
<tr>
<td>3. Depress F6.</td>
<td></td>
<td><strong>SYSTEM ALL BUSY</strong></td>
</tr>
<tr>
<td>4. Depress F11. (See Note 1).</td>
<td></td>
<td><strong>SYSTEM RESTORE</strong></td>
</tr>
<tr>
<td>5. If no change in the system status is required, go to step 6.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Depress ENTER key to restore the system.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Depress SPKR key to go back on line.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

300 - 194
**KEY FUNCTION (OFF LINE)**

<table>
<thead>
<tr>
<th>SPKR</th>
<th>ON/OFF Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL #</td>
<td></td>
</tr>
<tr>
<td>F/W</td>
<td></td>
</tr>
<tr>
<td>CLEAR</td>
<td></td>
</tr>
<tr>
<td>ENTER</td>
<td>Enters busy in system</td>
</tr>
<tr>
<td>B/W</td>
<td></td>
</tr>
</tbody>
</table>

**GUIDE TO FEATURE PROGRAMMING**

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>4A1</td>
<td>4A2</td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels.

**NOTES:**

1. During step 3 the status of line key L1 indicates if the system is busied out.
   - L1 ON = System busied out
   - L1 OFF = System not busied out

**GENERAL INFORMATION - SYSTEM ALL BUSY RESTORE ASSIGNMENT**

This area of the memory block is used to restore a system that is busied out. During a busy out condition, the system does not provide any call processing. Programming station is able to enter program mode during a system busy out condition.
MEMORY BLOCK 4A2 - SYSTEM ALL BUSY OUT ASSIGNMENT

OPERATION          AND          DISPLAY

1. Go off line.

2. Depress F4, then F6.

3. Depress F12. (See Note 1).

4. If no change in the system status is required, go to step 6.

5. Depress ENTER key to Busy Out the system.

6. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR - ON/OFF Line</th>
<th>TEL # -</th>
<th>F/W -</th>
<th>CLEAR -</th>
<th>ENTER - To busy out</th>
<th>B/W -</th>
</tr>
</thead>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>4A2</td>
<td>4A1</td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. During step 3 the status of line key L1 indicates if the system is busied out.

   L1 ON = System busied out
   OFF = System not busied out

GENERAL INFORMATION - SYSTEM ALL BUSY OUT ASSIGNMENT

This area of the memory block is used to busy out a system. During a Busy Out condition, the system does not provide any call processing.
MEMORY BLOCK 4B1 - COI-I INITIALIZED VALUES

<table>
<thead>
<tr>
<th>OPERATION</th>
<th>AND</th>
<th>DISPLAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF-LINE</td>
<td>(X.X.X)</td>
<td>PROGRAM MODE</td>
</tr>
<tr>
<td>CARD MODE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Go off line.

2. Depress F4, then F7.

3. Depress F11. (See Note 1).

4. Dial CCU module number (1 ~ 4) where COI port is to be programmed. Example: Module 1.

5. Dial CCU slot number (1 ~ 8) where COI port is to be programmed. Example: Slot 2.

6. Dial COI channel number (1 ~ 4) of COI port to be assigned. Example: Channel 1. (See Note 2).

7. Depress L1 to L12 to set the desired parameters of the COI port. Corresponding LED(s) turn on or off accordingly.

8. Depress ENTER key. (See Note 4).

9. Repeat steps 7 and 8 for all additional COI ports as required or go to step 3 to select a particular COI port.

10. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

- **SPKR** - ON/OFF Line
- **TEL #** - Selects COI port number
- **F/W** - Increments channel number
- **CLEAR** -
- **ENTER** - Enters each assignment
- **B/W** - Decrements channel number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>Memory Block Being Programmed</th>
<th>Memory Block That Must Be Programmed</th>
<th>Memory Block That May Have To Be Programmed</th>
</tr>
</thead>
<tbody>
<tr>
<td>4B1</td>
<td>1D7, 2D2, 2C1</td>
<td>4B2, 4B6, 4B7</td>
</tr>
</tbody>
</table>

All CPU levels (See L4 in Note 2).

NOTES:

1. It is recommended that 4B6 be programmed prior to 4B1, since 4B6 programming overrides all 4B1 programming already done for all the trunks in the group.

2. During step 6, the status of L1 to L12 LEDs indicate the current parameters set to the COI channel selected. See figure below.
   - L1 = 10 or 20 PPS for rotary dialing (Default: 10 PPS)
   - L2 = Rotary or DTMF dialing (Default: DTMF)
   - L3 = CO or PBX line interface (Default: CO)
   - L4 = Disconnect Signal from CO (YES/NO) (Default: NO) (CPU-EB2 or higher)
   - A disconnect signal must be sent from CO for Trunk to Trunk transfer to operate.

3. See Section 350 for definitions and additional information.

4. Depressing the ENTER key causes the display to increment to the next channel, or the first channel of the next slot with a COI-E ETU.

LED OFF means upper parameter

<table>
<thead>
<tr>
<th>LED OFF</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>L5</th>
<th>L6</th>
<th>L7</th>
<th>L8</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>10 PPS</td>
<td>MF</td>
<td>CO</td>
<td>PBX</td>
<td>NO</td>
<td>DTMF DURATION</td>
<td>23</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>20 PPS</td>
<td>DP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LED OFF</th>
<th>L9</th>
<th>L10</th>
<th>L11</th>
<th>L12</th>
<th>L13</th>
<th>L14</th>
<th>L15</th>
<th>L16</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>2^</td>
<td></td>
<td>2^</td>
<td></td>
<td>2^</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

GENERAL INFORMATION - COI-I INITIALIZED VALUES

This area of the memory block is used to set the parameters to COI-E ports on a per port (channel) basis.
MEMORY BLOCK 4B2 - COI-II INITIALIZED VALUES

OPERATION

1. Go off line.

   OFF- LINE (X - XX)
   PROGRAM MODE

2. Depress F4, then F7.

   CARD MODE

3. Depress F12.

   COI INITIALIZED
   MOD? SLOT* CH*

4. Dial module number (1 ~ 4) of COI port to be assigned. Example: Module 1.

   COI INITIALIZED
   MOD1 SLOT ? CH*

5. Dial slot number (1 ~ 8) of COI port to be assigned. Example: Slot 2.

   COI INITIALIZED
   MOD1 SLOT 2 CH?

6. Dial channel number (1 ~ 4) of COI port to be assigned. Example: Channel 1. (See Note 2).

   COI INITIALIZED
   MOD1 SLOT 2 CH1

7. Depress L1 to L16 to set the desired parameters of the COI port.

8. Depress ENTER key. (See Note 4).

9. Repeat steps 7 and 8 for all additional COI ports as required or go to step 3 to select a particular COI port.

10. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

**SPKR** - ON/OFF Line
**TEL #** - Enters new port number
**F/W (Forward)** - Increments channel number
**CLEAR** -
**ENTER** - Enters each assignment
**B/W (Backward)** - Decrements channel number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>4B2</td>
<td>4B1, 4B6, 4B7, 2C1</td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. It is recommended that 4B7 be programmed prior to 4B2, since 4B7 programming overrides all 4B2 programming already done for all the trunks within that trunk group.

2. During step 6 the status of L1 to L16 will indicate the previous parameters set to the CO1 port (See chart).

3. See Section 350 for definitions and additional information.

4. Depressing the ENTER key causes the display to increment to the next channel, or the first channel of the next slot containing a COI-E ETU.

### LINE BUTTONS

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>L2</td>
<td>L3</td>
<td>L4</td>
<td>(HP)</td>
</tr>
<tr>
<td>L5</td>
<td>L6</td>
<td>L7</td>
<td>L8</td>
<td>(DR)</td>
</tr>
<tr>
<td>L9</td>
<td>L10</td>
<td>L11</td>
<td>L12</td>
<td>(PS)</td>
</tr>
<tr>
<td>L13</td>
<td>L14</td>
<td>L15</td>
<td>L16</td>
<td>(IDI)</td>
</tr>
</tbody>
</table>

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>14</td>
</tr>
</tbody>
</table>

**Multiplier =** $M$

**HP (Hit Protection) Time** = $50 \text{ mS} \times M$

( Default: $350 \text{ mS}$ )

**DR (Disconnect Recognition) Time** = $100 \text{ mS} \times M$

( Default: $300 \text{ mS}$ )

**PS (Pause) Time** = $500 \text{ mS} \times M$

( Default: $1000 \text{ mS}$ )

**IDI (Interdigit Interval) Time** = $(10 \text{ mS} \times M) + 40 \text{ mS}$

( Default: $70 \text{ mS}$ )

### GENERAL INFORMATION - COI-II INITIALIZED VALUES

This area of the memory block is used to assign timing parameters to each COI port. For a description of each parameter, see section 350.
## MEMORY BLOCK 4B3 - SLI COMMON VALUES

<table>
<thead>
<tr>
<th>OPERATION</th>
<th>AND</th>
<th>DISPLAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Go off line.</td>
<td></td>
<td>[OFF-LINE (X.XX)]</td>
</tr>
<tr>
<td></td>
<td>[PROGRAM MODE]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CARD MODE</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>SLI INITIALIZE</th>
<th>SLI COMMON</th>
</tr>
</thead>
</table>

2. Depress F4, then F7.

3. Depress F13. (See Note 1).

4. Depress L1 to L12 to set the desired SLI common values.

5. Depress ENTER key.

6. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # -
F/W (Forward) -
CLEAR -
ENTER - Enters SLI common values.
B/W (Backward) -

GUIDE TO FEATURE PROGRAMMING

MEMORY BLOCK
BEING PROGRAMMED  MEMORY BLOCK THAT
MUST BE PROGRAMMED  MEMORY BLOCK THAT MAY
HAVE TO BE PROGRAMMED

4B3

All CPU levels.

LINE BUTTONS

<table>
<thead>
<tr>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4 (HFS)</th>
<th>L5</th>
<th>L6</th>
<th>L7</th>
<th>L8 (HFE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
</tbody>
</table>

Multiplier = M
HFS (Hookflash Start) Time = (50 mS. x M) + 100 mS. (Default: 300 mS.)
HFE (Hookflash End) Time = (100 mS. x M) + HFS (Default: 1000 mS.)
BP (Bounce Protect) Time = 100 mS. x M (Default: 300 mS.)

NOTES:
1. During step 3 the status of L1 to L12 will indicate the previous SLI Common values assigned (See chart).
2. Hookflash Start Time and Bounce Protect Time should always equal each other.

GENERAL INFORMATION - SLI COMMON VALUES

This area of the memory block is used to assign timing parameters to all single line telephones. See Section 350 for a description of each parameter.
**MEMORY BLOCK 4B4 - ESI-EB DATA AND SECOND VOICE PATH ASSIGNMENT**

**OPERATION** ← AND → **DISPLAY**

1. Go off line.

   | OFF-LINE (X-XX) |
   | PROGRAM MODE   |

2. Depress F4, then F7.

   | CARD MODE |


   | ESI INITIALIZE |
   | MODULE? SLOT*  |

4. Dial module number (1 ~ 4) of ESI card to be assigned. Example: Module 2.

   | ESI INITIALIZE |
   | MODULE 2 SLOT?|

5. Dial slot number (1 ~ 8) of ESI card to be assigned. Example: Slot 4. (See Note 1).

   | ESI INITIALIZE |
   | MODULE 2 SLOT 4|

6. Depress L1 to L8 to assign each ESI port as required. (See Note 2).

7. Depress ENTER key. (See Note 4).

   | ESI INITIALIZE |
   | MODULE 2 SLOT 5|

8. Repeat steps 6 and 7 for each ESI card as required or go to step 3 to select a particular ESI-EB port.

9. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

- SPKR - ON/OFF Line
- TEL # - Enters new module and slot number
- F/W - Increments to next ESI slot
- CLEAR -
- ENTER - Enters each ESI path assignment
- B/W - Decrements to next ESI slot

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>4B4</td>
<td>1D2, 1A</td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels (See Note 1).

NOTES:

1. During step 5 the display will show the previous ESI path assignment for the ESI ports chosen. Although a slot associated with an ESI-EA ETU can be accessed and will display its path assignment, no assignments can actually be changed. See figure below:

<table>
<thead>
<tr>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>L5</th>
<th>L6</th>
<th>L7</th>
<th>L8</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA</td>
<td>DUAL VOICE</td>
<td>DATA</td>
<td>DUAL VOICE</td>
<td>DATA</td>
<td>DUAL VOICE</td>
<td>DATA</td>
<td>DUAL VOICE</td>
</tr>
<tr>
<td>CH 1</td>
<td>CH 2</td>
<td>CH 3</td>
<td>CH 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L1</td>
<td>L2</td>
<td>L3</td>
<td>L4</td>
<td>L5</td>
<td>L6</td>
<td>L7</td>
<td>L8</td>
</tr>
<tr>
<td>OFF</td>
<td>OFF</td>
<td>Single Voice Path</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OFF</td>
<td>ON</td>
<td>Dual Voice Path</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ON</td>
<td>OFF</td>
<td>Data (CPU-EB or higher)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ON</td>
<td>ON</td>
<td>Data and Dual Voice (CPU-EB or higher)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Only Channels 1 and 3 can be assigned for both data and dual voice path. For this to be done, the next adjacent channel(s) (Channel 2 and/or Channel 4) must be assigned single voice only, however, data and single voice can be assigned to all four channels.

3. ETE-6-( ) or ETE-16-2 Multiline Terminals are not compatible with data or dual path features.

4. Depressing the ENTER key will cause the display to increment to the next ESI slot.

GENERAL INFORMATION - ESI-EB DATA AND SECOND VOICE PATH ASSIGNMENT

This area of the memory block is used to assign data capability and/or a second voice path to an ESI-EB port. Multiline Terminals assigned a dual path are able to receive a voice page while off-hook. All dual path terminals have to be equipped with a Dual Path Adaptor (DPA-E), and assigned to an ESI-EB ETU. All stations assigned for data capability must be equipped with a data adapter (DTA-E) and assigned to an ESI-EB ETU in CCUs 1 through 3.
MEMORY BLOCK 4B6 - COI-III INITIALIZED VALUES

OPERATION AND DISPLAY

1. Go off line.

   OFF-LINE (X-XX)
   PROGRAM MODE

2. Depress F4, then F7.

   CARD MODE

3. Depress F16.

   COI INITIALIZE
   TRUNK GROUP?

4. Dial trunk group number (1 ~ 8) to be assigned.
   Example: Trunk Group 2.
   (See Note 1).

5. Depress L1 to L12 to set the desired parameters of the CO group. Corresponding LED(s) go on or off accordingly.

6. Depress ENTER key. (See Note 3).

   COI INITIALIZE
   TRUNK GROUP

7. Repeat steps 5 and 6 for each CO group required or go to step 3 to select a particular trunk group number.

8. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR -</th>
<th>ON/OFF line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL #  -</td>
<td>Selects trunk group number</td>
</tr>
<tr>
<td>F/W -</td>
<td>Increments trunk group number</td>
</tr>
<tr>
<td>CLEAR -</td>
<td></td>
</tr>
<tr>
<td>ENTER -</td>
<td>Enters each assignment</td>
</tr>
<tr>
<td>B/W -</td>
<td>Decrements trunk group number</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>4B6</td>
<td>1D7, 2D2, 2C1, 4B1, 4B2, 4B7</td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels (See Note 1, L4).

NOTES:

1. During step 4, the status of L1 to L12 LEDs indicate the current parameters set to the trunk group chosen. See figure below.

   L1 = 10 or 20 PPS for rotary dialing  
   (Default: 10 PPS) 
   L2 = Rotary or DTMF dialing (Default: DTMF) 
   L3 = CO or PBX line interface (Default: CO) 
   L4 = Disconnect Signal from CO (YES/NO) 
   (Default: NO) (CPU-EBB or higher) 
   A disconnect signal must be sent from CO for Trunk to Trunk transfer to operate. 
   L5 to L8 = DTMF digit duration (In binary form) 
   (M x 50 mS.) + 60 mS. 
   (Default: 110 mS.) 
   L9 to L12 = CO Hookflash time (In binary form) 
   (M x 100 mS.) + 300 mS. 
   (Default: 1500 mS.) 
   To adjust C.O. hookflash on a Ground Start Trunk, the Trunk must be assigned as PBX (LK3, ON). If the Trunk is assigned as CO (LK3, OFF) the Hookflash will be 1,500 mS.

2. See Section 350 for definitions and additional information.

3. Depressing the ENTER key causes the display to increment to the next trunk group.

   LED OFF means upper parameter

<table>
<thead>
<tr>
<th>LED OFF</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>L5</th>
<th>L6</th>
<th>L7</th>
<th>L8</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 PPS</td>
<td>MF</td>
<td>DP</td>
<td>CO</td>
<td>NO</td>
<td>2(^3)</td>
<td>2(^2)</td>
<td>2(^1)</td>
<td>2(^0)</td>
</tr>
<tr>
<td>20 PPS</td>
<td>DP</td>
<td>PBX</td>
<td>PBX</td>
<td>YES</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   LED OFF | L9 | L10 | L11 | L12 | L13 | L14 | L15 | L16 |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CO Hookflash Time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2(^1)</td>
<td>2(^2)</td>
<td>2(^1)</td>
<td>2(^0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

GENERAL INFORMATION - COI-III INITIALIZED VALUES

This area of the memory block is used to set the desired parameters to the COI-E circuits. These settings are on a trunk group basis.
MEMORY BLOCK 4B7 - COI-IV INITIALIZED VALUES
PROGRAMMING PARAMETERS

OPERATION ← AND → DISPLAY

1. Go off line.

| OFF-LINE (X.XX) |
| PROGRAM MODE |

2. Depress F4, then F7

| CARD MODE |

3. Depress F17.

| COI INITIALIZE 4 |
| TRUNK GROUP? |

4. Dial trunk group number (1 ~ 8) to be assigned. Example: Trunk Group 4. (See Note 1).

| COI INITIALIZE 4 |
| TRUNK GROUP 4 |

5. Depress L1 to L16 to set timing parameters to the trunk group.

6. Depress ENTER key. (See Note 3).

| COI INITIALIZE 4 |
| TRUNK GROUP 5 |

7. Repeat steps 5 and 6 for all trunk groups required or go to step 3 to select a particular trunk group.

8. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # - Enter new trunk group
F/W - Increment trunk group
CLEAR -
ENTER - Enter each trunk group assigned
B/W - Decrement trunk group

GUIDE TO FEATURE PROGRAMMING

MEMORY BLOCK BEING PROGRAMMED	MEMORY BLOCK THAT MUST BE PROGRAMMED	MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED

| 4B7   | 2C1   | 4B1, 4B2, 4B6 |

All CPU levels.

LINE BUTTONS

<table>
<thead>
<tr>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>(HP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L5</td>
<td>L6</td>
<td>L7</td>
<td>L8</td>
<td>(DR)</td>
</tr>
<tr>
<td>L9</td>
<td>L10</td>
<td>L11</td>
<td>L12</td>
<td>(PS)</td>
</tr>
<tr>
<td>L13</td>
<td>L14</td>
<td>L15</td>
<td>L16</td>
<td>(IDI)</td>
</tr>
</tbody>
</table>

| 0 0 0 0 | 0 0 0 1 | 0 0 1 0 | 0 0 1 1 | 0 1 0 0 | 0 1 0 1 | 0 1 1 0 | 0 1 1 1 | 1 0 0 0 | 1 0 0 1 | 1 0 1 0 | 1 0 1 1 | 1 1 0 0 | 1 1 0 1 | 1 1 1 0 | 1 1 1 1 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Multiplier = M
HP (Hit Protection) Time =
50 mS x M (Default: 350 mS.)
DR (Disconnect Recognition) Time =
100 mS x M (Default: 300 mS.)
PS (Pause) Time =
500 mS x M (Default: 1000 mS.)
IDI (Interdigit Interval) Time =
(M x 10 mS.) + 40 mS. (Default: 70 mS.)

NOTES:
1. During step 4 the status of L1 to L16 indicate the previous timing parameters assigned to the trunk group chosen.
2. See Section 350 for definitions and additional information.
3. Depressing the ENTER key causes the display to increment to the next CO group.

GENERAL INFORMATION - COI-IV INITIALIZED VALUES PROGRAMMING PARAMETERS

This area of the memory block is used to assign timing parameters to trunk groups.
Chapter 3

April, 1990

Memory Block 4B8 - VMI Initialize 1 Assignment

Operation: 

1. Go off line.

   Display:
   OFF-LINE (X XX)
   PROGRAM MODE

2. Depress F4, then F7.

   Display:
   CARD MODE

3. Depress F18.

   Display:
   VMI INITIALIZE
   MOD? SLOT* CH*

4. Dial the module number to be assigned.
   Example: Module 1.

   Display:
   VMI INITIALIZE
   MOD 1 SLOT? CH*

5. Dial the slot number to be assigned.
   Example: Slot 7.

   Display:
   VMI INITIALIZE
   MOD 1 SLOT 7 CH?

6. Dial the channel number to be assigned.
   Example: Channel 1.(See Note 1).

   Display:
   VMI INITIALIZE
   MOD 1 SLOT 7 CH 1

Note: The following conditions apply when either the first or second VMI-E ETU is entered.
   Channel 1 affects VMI-E Ports 1 and 5
   Channel 2 affects VMI-E Ports 2 and 6
   Channel 3 affects VMI-E Ports 3 and 7
   Channel 4 affects VMI-E Ports 4 and 8
   (CPU-EC4 or higher revision is required to support two VMI-E ETUs)

7. Depress L1 to L12 to set the desired timing parameters of the selected VMI port. (See Note 2).

8. Depress ENTER key. (See Note 4).

   Display:
   VMI INITIALIZE
   MOD 1 SLOT 7 CH 2

9. Repeat steps 7 and 8 for all VMI ports to be assigned.

10. Depress the SPKR key to go back on line.

300 - 210
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # - Selects new mod, slot, channel location
F/W - Increments channel number
CLEAR -
ENTER - Enters each assignment
B/W - Decrements channel number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>4B8</td>
<td></td>
<td>2B4, 2B8, 2C4, 2D2, 3C1, 4B9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3B5-3B8, 4C1</td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. During step 6, L1 ~ L12 shows the previous assignments.
2. See Section 350 for definitions and additional information.
3. Hookflash Start Time and Bounce Protect Time should always equal each other.
4. Depressing the ENTER key will increment the display to the next VMI port.

GENERAL INFORMATION - VMI INITIALIZE 1 ASSIGNMENT

This area of the memory block is used to assign various signal timing parameters to each VMI port.

Multiplier = M
HFS (Hookflash Start) Time = (50 mS. x M) + 100 mS. (Default: 300 mS.)
HFE (Hookflash End) Time = (100 mS. x M) + HFS (Default: 1000 mS.)
BP (Bounce Protect) Time = 100 mS. x M (Default: 300 mS.)
MEMORY BLOCK 4B9 - VMI INITIALIZE 2 ASSIGNMENT

OPERATION ← AND → DISPLAY

1. Go off line.

2. Depress F4, then F7.

3. Depress F19.

4. Dial the module number to be assigned.
   Example: Module 1.

5. Dial the slot number to be assigned.
   Example: Slot 7.

6. Dial the channel number to be assigned.
   Example: Channel 1. (See Note 1).

NOTE: The following conditions apply when either the first or second VMI-E ETU is entered.
Channel 1 affects VMI-E Ports 1 and 5
Channel 2 affects VMI-E Ports 2 and 6
Channel 3 affects VMI-E Ports 3 and 7
Channel 4 affects VMI-E Ports 4 and 8
(CPU-EC4 or higher revision is required to support two VMI-E ETUs)

7. Depress L1 to L12 to set the desired timing parameters of the selected VMI port. (See Note 2).

8. Depress ENTER key. (See Note 3).

9. Repeat steps 7 and 8 for all VMI ports to be assigned.

10. Depress the SPKR key to go back on line.
**KEY FUNCTION (OFF LINE)**

<table>
<thead>
<tr>
<th>SPKR</th>
<th>ON/OFF Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL #</td>
<td>Selects new mod, slot, channel location</td>
</tr>
<tr>
<td>F/W</td>
<td>Increments channel number</td>
</tr>
<tr>
<td>CLEAR</td>
<td></td>
</tr>
<tr>
<td>ENTER</td>
<td>Enters each assignment</td>
</tr>
<tr>
<td>B/W</td>
<td>Decrements channel number</td>
</tr>
</tbody>
</table>

**GUIDE TO FEATURE PROGRAMMING**

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>4B9</td>
<td>2B4, 2B8, 2C4,</td>
<td>2D2, 3B5-3B8, 3C1, 4B8, 4C1</td>
</tr>
</tbody>
</table>

All CPU levels.

**NOTES:**

Multiplier

Interdigit Interval Time = \( 40 \text{ mS.} + (10 \text{ mS.} \times M) \)  
(Default: 110 mS.)

DTMF Digit Duration = \( 60 \text{ mS.} \times M + (50\text{mS.xM}) \)  
(Default: 110 mS.)

Pause Time = 500 mS. x M  
(Default: 1000 mS.)

Disconnect Time = 500 mS. + (200 mS. x M)  
(Default: 1500 mS.)

**LINE BUTTONS**

<table>
<thead>
<tr>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>INTERDIGIT INTERVAL TIME</th>
<th>MULTIPLIER (M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L5</td>
<td>L6</td>
<td>L7</td>
<td>L8</td>
<td>DTMF DIGIT DURATION</td>
<td></td>
</tr>
<tr>
<td>L9</td>
<td>L10</td>
<td>L11</td>
<td>L12</td>
<td>PAUSE TIME</td>
<td></td>
</tr>
<tr>
<td>L13</td>
<td>L14</td>
<td>L15</td>
<td>L16</td>
<td>DISCONNECT TIME</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>14</td>
<td>14</td>
</tr>
</tbody>
</table>

Multiplier = M  
Interdigit Interval Time = \( 40 \text{ mS.} + (10 \text{ mS.} \times M) \)  
(Default: 110 mS.)

DTMF Digit Duration = \( 60 \text{ mS.} \times M + (50\text{mS.xM}) \)  
(Default: 110 mS.)

Pause Time = 500 mS. x M  
(Default: 1000 mS.)

Disconnect Time = 500 mS. + (200 mS. x M)  
(Default: 1500 mS.)

**GENERAL INFORMATION - VMI INITIALIZE 1 ASSIGNMENT**

This area of the memory block is used to assign various signal timing parameters to each VMI port.

1. During step 6, L1 \( \sim \) L12 shows the previous assignments.
2. See Section 350 for definitions and additional information.
3. Depressing the ENTER key will increment the display to the next VMI port.
MEMORY BLOCK 4C1 - CARD INTERFACE SLOT ASSIGNMENT

OPERATION  AND  DISPLAY

1. Go off line.
   
2. Depress F4, then F8.
   
3. Depress F11.
   
4. Dial module number (1 ~ 4) of the slot to be assigned. Example: Module 2.
   
5. Dial slot number (1 ~ 8) to be set. Example: Slot 4. (See Note 1).
   
6. Depress one of the line keys (L1 to L11) to assign the required card to the slot chosen.
   
7. Depress ENTER key. (See Note 2).
   
8. Repeat steps 6 and 7 for all slots required or go to step 3 to select a particular interface slot.
   
9. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)
- SPKR - ON/OFF Line
- TEL # - Enters new module and slot number
- F/W - Increments slot number
- CLEAR -
- ENTER - Enters each slot assignment
- B/W - Decrements slot number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>4C1</td>
<td>2A1, 4C2</td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels (See Note 1).

NOTES:

1. During step 5 the status of L1~L16 indicates the type of card assigned to the slot selected. See figure below:

   CPU-EB (or higher revision level) ETU

<table>
<thead>
<tr>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>L5</th>
<th>L6</th>
<th>L8</th>
</tr>
</thead>
<tbody>
<tr>
<td>COI</td>
<td>TLI</td>
<td>SLI</td>
<td>MPR</td>
<td>EA</td>
<td>NOT</td>
<td>CNF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>USED</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>L9</th>
<th>L10</th>
<th>L11</th>
<th>L16</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESI</td>
<td>EA</td>
<td>ESI</td>
<td>EB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   LED
   ON: Assigned
   OFF: Not assigned

2. Depressing the ENTER key will cause the display to increment to the next slot.

3. ESI assignment cannot be removed or changed to a different type of card when:
   - ETE-16D-( ) has BLF assignments. (1C2)
   - ATTENDANT Multiline Terminal is assigned (3A2, 1D8, 1C1, 3A3, 3A4).
   - Programming Multiline Terminal is assigned (2A1).

4. SLI assignment cannot be removed or changed to a different type of card when Modem Pooling is assigned (2B7).

GENERAL INFORMATION - CARD INTERFACE SLOT ASSIGNMENT

This area of the memory block is used to assign interface cards to the CCU Interface slots.
### MEMORY BLOCK 4C2 - INTERFACE SLOT BUSY OUT ASSIGNMENT

**OPERATION** - **AND** - **DISPLAY**

1. Go off line.

   ![Display](OFF-LINE (X·XX) PROGRAM MODE)

2. Depress F4, then F8.

   ![Display](CARD INTERFACE)

3. Depress F12.

   ![Display](INTERFACE BUSY MODULE? SLOT *)

4. Dial module number (1 ~ 4) of the slot to be set.
   Example: Module 1.

   ![Display](INTERFACE BUSY MODULE 1 SLOT?)

5. Dial slot number (1 ~ 8) to be set.
   Example: Slot 4. (See Note 1).

   ![Display](INTERFACE BUSY MODULE 1 SLOT 4)

6. Depress one of the line keys (L1 to L11) to set the interface slot as required.

7. Depress ENTER key. (See Note 2).

   ![Display](INTERFACE BUSY MODULE 1 SLOT 5)

8. Repeat steps 6 and 7 for each slot required or go to step 3 to select a particular interface slot.

9. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

- **SPKR** - ON/OFF Line
- **TEL #** - Enters new module and slot number
- **F/W** - Increments slot number
- **CLEAR** -
- **ENTER** - Enters each slot assigned
- **B/W** - Decrements slot number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>4C2</td>
<td>4C1</td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. During step 5 the status of L1~L16 indicates the type of card and status for the slot selected. See figure below:

<table>
<thead>
<tr>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>L5</th>
<th>L6</th>
<th>L7</th>
<th>L8</th>
</tr>
</thead>
<tbody>
<tr>
<td>COI</td>
<td>TLI</td>
<td>SLI</td>
<td>MFR</td>
<td>NOT USED</td>
<td>CNF</td>
<td>VMI</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>L9</th>
<th>L10</th>
<th>L11</th>
<th>L16</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESI A</td>
<td>ESI B</td>
<td>ECR</td>
<td></td>
</tr>
</tbody>
</table>

   LED
   ON: Not busied out
   OFF: Not assigned
   FLASHING: Busied out

2. Depressing the ENTER key will cause the display to increment to the next slot.

GENERAL INFORMATION - INTERFACE SLOT BUSY OUT ASSIGNMENT

This area of the memory block is used to busy out or restore individual interface slots in the system.
MEMORY BLOCK 4E1 - TLI LINE TYPE ASSIGNMENT

<table>
<thead>
<tr>
<th>OPERATION</th>
<th>AND</th>
<th>DISPLAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF-LINE</td>
<td>(X·XX)</td>
<td>PROGRAM MODE</td>
</tr>
</tbody>
</table>

1. Go off line.

2. Depress F4, then F10.

3. Depress F11.

4. Dial the number of the Trunk Group (1 ~ 8) to be assigned. Example: Trunk Group 2. (See Note 1).

5. Dial the number (1 ~ 4) of the line type to be assigned. Example: 3. (See Note 2).

6. Depress the ENTER key. (See Note 3).

7. Repeat Steps 4 thru 6 for all Trunk Groups, associated with a TLI-E( ) ETU, to be programmed.

8. Depress SPKR key to go back on-line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR</th>
<th>ON/OFF Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL #</td>
<td>Enters new Trunk Group number</td>
</tr>
<tr>
<td>F/W</td>
<td>Increments Trunk Group number</td>
</tr>
<tr>
<td>CLEAR</td>
<td></td>
</tr>
<tr>
<td>ENTER</td>
<td>Enters each assignment</td>
</tr>
<tr>
<td>B/W</td>
<td>Decrements Trunk Group number</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>4E1</td>
<td>2A10, 2B10,</td>
<td>2C1~2C3, 2C6,</td>
</tr>
<tr>
<td></td>
<td>2E1, 3C2, 4C1,</td>
<td>4E2~4E10</td>
</tr>
</tbody>
</table>

CPU-EB or higher.

NOTES:

1. After step 4, the display will show the line type previously assigned to the selected trunk group.

2. Numbers 1~4 dialed in Step 5 correspond to the following line types:
   - 1 - Second Dial Tone
   - 2 - Immediate Start
   - 3 - Delay Dial
   - 4 - Wink Start

   When assigning this parameter for E&M Tie Lines, type 1~4 are available. With DID trunks, only types 2~4 will apply. By default, the Second Dial Tone type is assigned.

3. Depressing the ANS key will automatically return you to Step 3.

GENERAL INFORMATION - TLI LINE TYPE ASSIGNMENT

This area of the memory block is used to assign the method of loop supervision to be used for each of the Trunk Groups which are associated with TLI-B( ) ETUs.
MEMORY BLOCK 4E2 - TLI DIAL TONE ASSIGNMENT

OPERATION AND DISPLAY

1. Go off line.

```
OFF-LINE (X.X)
PROGRAM MODE
```

2. Depress F4, then F10.

```
TLI PROGRAMMING
```

3. Depress F12.

```
DIAL TONE ASSIGN
TRUNK GROUP?
```

4. Dial the number of the Trunk Group (1 ~ 8) to be assigned. Example: Trunk Group 2. (See Note 1).

```
DIAL TONE TRK-G2
SET LINE KEY 1-2
```

5. Depress L1 and/or L2 to set desired parameters. (See Notes 2 & 4).

6. Depress ENTER key. (See Note 3).

```
DIAL TONE ASSIGN
TRUNK GROUP?
```

7. Repeat Steps 4 thru 6 for all Trunk Groups associated with TLI-E ( ) ETU's to be programmed.

8. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

- **SPKR - ON/OFF Line**
- **TEL # - Enters new Trunk Group number**
- **F/W - Increments Trunk Group number**
- **CLEAR**
- **ENTER - Enters each assignment**
- **B/W - Decrements Trunk Group number**

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>4E2</td>
<td>4E1</td>
<td>2A10, 2B10, 2C1<del>2C3, 2C6, 2E1, 4E3</del>4E10</td>
</tr>
</tbody>
</table>

**NOTES:**

1. After a Trunk Group has been selected, L1 and L2 will show the previous assignment.

2. When the Trunk Group being programmed is comprised of DID trunks, do not send dial tone to either side.

3. Depressing the ANSWER key will automatically bring you to Step 3.

4. Distant End L1
   - ON: Send
   - OFF: Do not send

   System End L2
   - ON: Dial
   - OFF: Send Tone

GENERAL INFORMATION - TLI DIAL TONE ASSIGNMENT

This area of the memory block is used to assign whether or not the Electra Mark II will provide dial tone to either side of a Tie line for each of the Trunk Groups which are associated with TLI-B( ) ETUs.
MEMORY BLOCK 4E3 - TLI DIGIT ADD / DELETE CODE ASSIGNMENT

OPERATION → AND → DISPLAY

1. Go off line.

2. Depress F4, then F10.


4. Dial the number of the Trunk Group (1 ~ 8) to be assigned. Example: Trunk Group 3 (See Note 1.)

5. Dial the number of digits to be deleted. Example: 2 (See Notes 2 and 3.)

6. Dial the additional numbers to be added. Example: 3 (See Notes 2 and 3.)

7. Depress ENTER key. (See Note 4.)

8. Repeat Steps 4 thru 7 for all Trunk Groups, associated with a TLI-E( ) ETU, to be programmed.

9. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR - ON/OFF Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL # - Enters new Trunk Group number</td>
</tr>
<tr>
<td>F/W - Increments Trunk Group number</td>
</tr>
<tr>
<td>CLEAR - Clears previous assignment</td>
</tr>
<tr>
<td>ENTER - Enters each assignment</td>
</tr>
<tr>
<td>B/W - Decrements Trunk Group number</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>4E3</td>
<td>4E1, 4E2</td>
<td>2A10, 2B10, 2C1<del>2C3, 2C6, 2E1, 4E4</del>4E10</td>
</tr>
</tbody>
</table>

CPU-EB or higher.

NOTES:

1. During step 4, the display will show the previous assignment of the selected Trunk Group.

2. Depressing the # key on the dial pad during step 5 will clear the additional digits assignment on display and reset the number of digits to be deleted.

3. Up to three (3) additional digits can be added. Up to three (3) digits can be deleted.

4. Depressing the ENTER key will automatically return you to step 3.

GENERAL INFORMATION - TLI DIGIT ADD / DELETE CODE ASSIGNMENT

This area of the memory block is used to delete and/or add up to three (3) digits for each of the Trunk Groups which are associated with TLI-E( ) ETUs. The purpose of adding and/or deleting digits is to facilitate the connection of DID trunks and Tie Lines to the system which are supported by TLI-E( ) ETUs.
MEMORY BLOCK 4E4 - TLI - I INITIALIZED VALUES

OPERATION ← AND → DISPLAY

1. Go off line.

   OFF-LINE (X.X.X)
   PROGRAM MODE

2. Depress F4, then F10.

   TLI PROGRAMMING


   TLI INITIALIZE 1
   TRUNK GROUP?

4. Dial the number of the Trunk Group (1 ~ 8) to be assigned. Example: Trunk Group 1. (See Note 1).

   TLI INITIALIZE 1
   TRUNK GROUP 1

5. Depress L1 ~ L16 to set the required timing parameters to the selected Trunk Group. (See Note 2).

   TLI INITIALIZE 1
   TRUNK GROUP 1

6. Depress ENTER key. (See Note 5).

   TLI INITIALIZE 1
   TRUNK GROUP?

7. Repeat steps 4 thru 7 for all Trunk Groups, associated with TLI-E( ) ETUs, to be programmed.

8. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

- **SPKR - ON/OFF Line**
- **TEL # - Enters new Trunk Group number**
- **F/W - Increments Trunk Group number**
- **CLEAR -**
- **ENTER - Enters each assignment**
- **B/W - Decrements Trunk Group number**

**GUIDE TO FEATURE PROGRAMMING**

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>4E4</td>
<td>4E1~4E3</td>
<td>2A10, 2B10, 2C1<del>2C3, 2C6, 2E1, 4E5</del>4E10</td>
</tr>
</tbody>
</table>

**C CPU-EB or higher.**

**NOTES:**

1. After a trunk group has been selected, L1~L16 will show the previous assignments.
2. Timing Parameters:

<table>
<thead>
<tr>
<th>LINE BUTTONS</th>
<th>FUNCTION</th>
<th>Pre Pause time</th>
<th>Pause Time (500mS. x M)</th>
<th>CO Answer Detect (130mS x M)</th>
<th>CO Release Detect (130mS x M)</th>
<th>MULTIPLIER (M)</th>
<th>IN SECS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>6</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>6.0</td>
<td>6.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>9</td>
<td>7.0</td>
<td>7.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>8.0</td>
<td>8.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>11</td>
<td>9.0</td>
<td>9.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>12</td>
<td>10.0</td>
<td>10.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>13</td>
<td>11.0</td>
<td>11.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>14</td>
<td>12.0</td>
<td>12.0</td>
</tr>
</tbody>
</table>

3. See Section 350 for definitions and additional information.

**GENERAL INFORMATION - TLI - I INITIALIZE VALUES**

This area of the memory block is used to assign various timing parameters, listed above, to each Trunk Group associated with TLI-E( ) ETUs.

4. **DEFAULTS:**
   - Pre Pause Time = 3 sec.
   - Pause Time = 1 sec.
   - CO Answer Detect = 520 msec.
   - CO Release Detect = 520 msec.

5. Depressing the ENTER key will automatically return you to step 3.
MEMORY BLOCK 4E5 - TLI- II INITIALIZED VALUES

OPERATION        AND        DISPLAY

1. Go off line.

| OFF-LINE (X:XX) |
| PROGRAM MODE |

2. Depress F4, then F10.

| TLI PROGRAMMING |

3. Depress F15.

| TLI INITIALIZE2 |
| TRUNK GROUP? |

4. Dial the number of the Trunk Group (1 - 8) to be assigned. Example: Trunk Group 1. (See Note 1).

| TLI INITIALIZE2 |
| TRUNK GROUP1 |

5. Depress L1-L16 to set the required timing parameters to the selected trunk group. (See Note 2).

| TLI INITIALIZE2 |
| TRUNK GROUP1 |

6. Depress ENTER key. (See Note 3).

| TLI INITIALIZE2 |
| TRUNK GROUP? |

7. Repeat steps 4 thru 7 for all trunk groups, associated with TLI-E( ) ETUs, to be programmed.

8. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)
- SPKR - ON/OFF Line
- TEL # - Enters new Trunk Group number
- F/W - Increments Trunk Group number
- CLEAR -
- ENTER - Enters each assignment
- B/W - Decrements Trunk Group number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>4E5</td>
<td>4E1-4E4</td>
<td>2A10,2B10,2C1-2C3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2C6,2E1,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4E6-4E10</td>
</tr>
</tbody>
</table>

CPU-EB or higher.

NOTES:
1. After a trunk group has been selected, L1-L16 will show the previous assignments.

2. Timing Parameters:

<table>
<thead>
<tr>
<th>LINE BUTTONS</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>L5 L6 L7 L8</td>
<td>Loop Off-Guard Time</td>
</tr>
<tr>
<td>L1 L2 L3 L4</td>
<td>Wink/Delay Incoming Detection Time</td>
</tr>
<tr>
<td>L9 L10 L11 L12</td>
<td>Length of Wink Signal (30 mS x M) + 30 mS</td>
</tr>
<tr>
<td>L13 L14 L15 L16</td>
<td>Length of Delay Signal 300 mS x M</td>
</tr>
<tr>
<td></td>
<td>MULTIPLIER (M)</td>
</tr>
<tr>
<td>0 0 0 0 0</td>
<td>0 0</td>
</tr>
<tr>
<td>0 0 0 0 1</td>
<td>0 0.5</td>
</tr>
<tr>
<td>0 0 0 1 0</td>
<td>0 1.0</td>
</tr>
<tr>
<td>0 0 0 1 1</td>
<td>0 1.5</td>
</tr>
<tr>
<td>0 0 0 2 0</td>
<td>0 2.0</td>
</tr>
<tr>
<td>0 0 0 2 1</td>
<td>0 3.0</td>
</tr>
<tr>
<td>0 0 0 3 0</td>
<td>0 4.0</td>
</tr>
<tr>
<td>0 0 0 3 1</td>
<td>0 5.0</td>
</tr>
<tr>
<td>0 0 0 4 0</td>
<td>0 6.0</td>
</tr>
<tr>
<td>0 0 0 4 1</td>
<td>0 7.0</td>
</tr>
<tr>
<td>0 0 0 5 0</td>
<td>0 8.0</td>
</tr>
<tr>
<td>0 0 0 5 1</td>
<td>0 9.0</td>
</tr>
<tr>
<td>0 0 0 6 0</td>
<td>0 10.0</td>
</tr>
<tr>
<td>0 0 0 6 1</td>
<td>0 11.0</td>
</tr>
<tr>
<td>0 0 0 7 0</td>
<td>0 12.0</td>
</tr>
</tbody>
</table>

3. See Section 350 for Definitions and additional information.

GENERAL INFORMATION - TLI - II INITIALIZE VALUES

This area of the memory block is used to assign various timing parameters, listed above, to each Trunk Group associated with TLI-E( ) ETUs.
MEMORY BLOCK 4E6 - TLI - III INITIALIZED VALUES

OPERATION AND DISPLAY

1. Go off line.

```
OFF-LINE (X.XX)
PROGRAM MODE
```

2. Depress F4, then F10.

```
TLI PROGRAMMING
```

3. Depress F16.

```
TLI INITIALIZE3
TRUNK GROUP?
```

4. Dial the number of the Trunk Group (1 - 8) to be assigned. Example: Trunk Group 4. (See Note 1.)

```
TLI INITIALIZE3
TRUNK GROUP 4
```

5. Depress L1 - L8 and L13 - L16 to set the required timing parameters to the selected Trunk Group. (See Note 2.)

```
TLI INITIALIZE3
TRUNK GROUP 4
```

6. Depress ENTER key. (See Note 7.)

```
TLI INITIALIZE3
TRUNK GROUP?
```

7. Repeat steps 4 thru 7 for all Trunk Groups, associated with TLI-E( ) ETUs, to be programmed.

8. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

- SPEKR - ON/OFF Line
- TEL # - Enters new Trunk Group number
- F/W - Increments Trunk Group number
- CLEAR
- ENTER - Enters each assignment
- B/W - Decrements Trunk Group number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>4E6</td>
<td>4E1~4E5</td>
<td>2A10, 2B10, 2C1~2C3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2CE, 2E1, 4E7~4E10</td>
</tr>
</tbody>
</table>

CPU-EB or higher (See NOTE 2)

NOTES:
1. After a trunk group has been selected, L1~L8 and L13~L16 will show the previous assignments. L9~L12 may be lit and can be changed in status, however, they perform no function at this time.

2. Timing Parameters:

<table>
<thead>
<tr>
<th>LINE BUTTONS</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tandem Restriction / LCR CPU-EB or higher</td>
</tr>
<tr>
<td>L13 L14 L15 L16</td>
<td>F/T Control Timer</td>
</tr>
<tr>
<td>L5 L6 L7 L8</td>
<td>Time out for Wink/Delay Signal Detection</td>
</tr>
<tr>
<td>L1 L2 L3</td>
<td>IN SECS.</td>
</tr>
<tr>
<td>L4</td>
<td>IN SECS.</td>
</tr>
</tbody>
</table>

- 0 0 0 0 - 0 0 0 - 0 0 1 0 - 0 0 1 0 - 0 0 1 1 - 0 1 0 0 - 0 1 0 1 - 0 1 1 0 - 0 1 1 1 - 1 0 0 0 - 1 0 0 1 - 1 0 1 0 - 1 0 1 1 - 1 1 0 0 - 1 1 0 1 - 1 1 1 0 - 1 1 1 1 |

3. Outgoing Guard Time must be assigned less than 10 seconds.
4. Outgoing Guard Timer can be used for Loop Dial Tie Lines only.
5. E&M Tie Lines have a fixed outgoing Guard Time of 20 msec.
6. See Section 350 for definitions and additional information.
7. Depressing the ENTER key will automatically return you to step 3.

GENERAL INFORMATION - TLI-III INITIALIZE VALUES

This area of the memory block is used to assign various timing parameters, listed above, to each Trunk Group associated with TLI-E( ) ETUs.
MEMORY BLOCK 4E7 - TLI-IV INITIALIZED VALUES

OPERATION ↔ AND ↔ DISPLAY

1. Go off line.

2. Depress F4, then F10.

3. Depress F17.

4. Dial CCU module number (1 ~ 4) where TLI port being assigned is located. Example: Module 1.

5. Dial CCU slot number (1 ~ 8) where TLI port is being assigned. Example: Slot 5.

6. Dial TLI channel number (1 ~ 2) of TLI port to be assigned. Example: Channel 1.

7. Depress L1 to L16 to set the desired pad parameters (See Note 1). Corresponding LEDs go on or off accordingly.

8. Depress ENTER key (See Note 2).

9. Repeat steps 4 thru 8 for all trunks associated with TLI-EB ETUs to be programmed, or depress TEL # to program a specific TLI-EB port.

10. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

- **SPKR** - ON/OFF line
- **TEL #** - Selects TLI port number
- **F/W** - Increments TLI port number
- **CLEAR** -
- **ENTER** - Enters pad loss assignment
- **B/W** - Decrements TLI port number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>4E7</td>
<td>4E1~4E6</td>
<td>2A10, 2B10, 2C1~2C3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2C6, 2E1, 4E8~4E10</td>
</tr>
</tbody>
</table>

CPU-EB2 or higher.

### LINE BUTTONS FUNCTION

<table>
<thead>
<tr>
<th>LINE BUTTONS</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1 L2 L3 L4</td>
<td>RECEIVE - INTERNAL</td>
</tr>
<tr>
<td>L5 L6 L7 L8</td>
<td>TRANSMIT - INTERNAL</td>
</tr>
<tr>
<td>L9 L10 L11 L12</td>
<td>RECEIVE - EXTERNAL</td>
</tr>
<tr>
<td>L13 L14 L15 L16</td>
<td>TRANSMIT - EXTERNAL</td>
</tr>
</tbody>
</table>

**DEFAULTS**

<table>
<thead>
<tr>
<th>CODE</th>
<th>dB LOSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>1</td>
<td>8</td>
</tr>
</tbody>
</table>

**NOTES:**

1. Pad Definitions:
   - **Internal** = dB loss between Tie line and distant station.
   - **External** = dB loss between Tie line and distant trunk.
   - **Default** = 2dB for Internal and External.

2. Depressing the ENTER key causes the display to increment to the next channel, or the first channel of the next slot with a TLI-E B installed.

**GENERAL INFORMATION - TLI - IV INITIALIZED VALUES**

This area of the memory block is used to assign attenuation levels to software controlled pads used in the Tie lines between the local station and a distant station or a distant trunk. These loss levels are independent of the loss levels controlled by switches located on the TLI-EB cards.
MEMORY BLOCK 4E8 - TLI-V INITIALIZED VALUES

OPERATION ← AND → DISPLAY

1. Go off line.

   OFF-LINE (X-XX)
   PROGRAM MODE

2. Depress F4, then F10.

   TLI PROGRAMMING

3. Depress F18.

   TLI INITIALIZE
   MOD? SLOT* CH*

4. Dial CCU module number (1 ~ 4) where the TLI port to be programmed is located.
   Example: Module 1.

   TLI INITIALIZE
   MOD 1 SLOT? CH*

5. Dial CCU slot number (1 ~ 8) where TLI port is to be programmed. Example: Slot 5.

   TLI INITIALIZE
   MOD 1 SLOT 5 CH?

6. Dial TLI channel number (1 ~ 2) of TLI port to be assigned.
   Example: Channel 1.

   TLI INITIALIZE
   MOD 1 SLOT 5 CH1

7. Depress L1 to L12 to set the desired DTMF parameters of the selected TLI port (See Note 1).
   Corresponding LED(s) go on or off accordingly.

   TLI INITIALIZE
   MOD 1 SLOT 5 CH2

8. Depress ENTER key. (See Note 2).

9. Repeat steps 4 thru 8 for all trunks associated with TLI-EB ETUs to be programmed.

10. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # - Selects TLI port number
F/W - Increments channel number
CLEAR -
ENTER - Enters each assignment
B/W - Decrements channel number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>4E8</td>
<td>4E1~4E7</td>
<td>2A10, 2B10</td>
</tr>
<tr>
<td></td>
<td>2C1~2C3, 2C6,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2E1, 4E9, 4E10</td>
<td></td>
</tr>
</tbody>
</table>

4E8

CPU-EB2 or higher.

NOTES:
1. During step 7, the status of L1~L12 indicates the previous parameters set to the Tie line chosen:
   L1~L4 = DTMF Interdigit Time
   40 ms. + (10 ms x M) (M = 0~14)
   Default = 70 msec.
   L5~L8 = DTMF Duration Time
   60 ms. + (50 ms x M) (M = 0~14)
   Default = 110 msec.

LINE BUTTONS FUNCTION

<table>
<thead>
<tr>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>L5</th>
<th>L6</th>
<th>L7</th>
<th>L8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DTMF Interdigit Time
40 ms. + (10 ms x M) (M = 0~14)

DTMF Duration Time
60 ms. + (50 ms x M) (M = 0~14)

MULTIPLIER
(M)

0 0 0 0 0 0
0 0 0 1 1
0 0 1 0 2
0 0 1 1 3
0 1 0 0 4
0 1 0 1 5
0 1 1 0 6
0 1 1 1 7
1 0 0 0 8
1 0 0 1 9
1 0 1 0 10
1 0 1 1 11
1 1 0 0 12
1 1 0 1 13
1 1 1 0 14

1=ON
0=OFF

2. See Section 350 for Definitions and additional information

GENERAL INFORMATION - TLI - V INITIALIZED VALUES

This area of the memory block is used to assign DTMF parameters for TIE lines.
MEMORY BLOCK 4E9 - TANDEM PORT TO HUNT GROUP ASSIGNMENT

OPERATION  AND  DISPLAY

1. Go off line.

2. Depress F4, then F10.

3. Depress F19.

4. Enter the extension number to be assigned to the Tandem Port Hunt Group. Example: 300. (See Notes 2, 6, & 7).

5. Enter the Tandem Port Hunt Group number to be assigned to the chosen port (1 ~ 8). Example: Hunt Group 2.

6. Depress ENTER key. (See Note 9).

7. Repeat Steps 4 and 5 to assign all Tandem Ports required.

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF line
TEL # - Enters extension number
F/W - Increments extension number
CLEAR - Clears previous Hunt Group assignment
ENTER - Enters Hunt Group assignment
B/W - Decrments extension number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>4E9</td>
<td>1E2, 4C1, 2A10, 2B10</td>
<td>2C1~2C3, 2C6, 2E1, 4E10</td>
</tr>
</tbody>
</table>

CPU-EB2 or higher.

NOTES:

1. Tandem switching uses software ports assigned as ETE-16D-( ) stations. These ports require no supporting hardware to function, but they must be assigned as follows:

Assign an ESL card to an unused slot (4C1). The corresponding port numbers are automatically assigned by the system. Program these slots as ETE-16D-( ) phantom terminals (1E2).

2. Ports associated with any type of installed, working stations, cannot be assigned as Tandem Ports.

3. Maximum Tandem Ports = 20

4. Tandem Port default = None

5. Maximum Tandem Port Hunt Groups = 8

6. Virtual extensions cannot be assigned to a tandem port hunt group.

7. During step 4, any current Tandem Port hunt group assigned for the Tandem Port chosen is displayed.

8. The Talk Start Timer (2D2) controls the length of time the Tandem Port is held.

9. Depressing the ENTER key causes the display to go to step 3.

GENERAL INFORMATION - TANDEM PORT TO HUNT GROUP ASSIGNMENT

This area of the memory block is used to assign software Tandem Ports into Hunt Groups. When a tandem connection is being processed, the system will search for an idle Phantom Tandem Port within the corresponding Hunt Group.
MEMORY BLOCK 4E10 - TRUNK GROUP TO TANDEM HUNT GROUP ASSIGNMENT

OPERATION  AND  DISPLAY

1. Go off line.  

| OFF - LINE | (X - XXX) |
| PROGRAM    | MODE      |

2. Depress F4, then F10.  

| TLI         | PROGRAMMING |


| TANDEM      | HUNT ASGN   |
| TRK. G?     |            |

4. Enter the Trunk Group number to be assigned (1 ~ 8). Example: Trunk group 2.  

| TANDEM      | HUNT ASGN   |
| TRK. G2     | HUNT. G2    |

5. Enter the Tandem Hunt Group number to be assigned to the chosen Trunk Group (1 ~ 8). Example: Hunt Group 2. (See Note 1).  

| TANDEM      | PORT ASGN   |
| TRK. G2     | HUNT. G2    |

6. Depress ENTER key. (See Note 3.)  

| TANDEM      | PORT ASGN   |
| TRK. G3     | HUNT. G2    |

7. Repeat Steps 5 and 6 to assign all Trunk Groups required, or depress TEL # to assign a specific trunk group.  

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

- SPKR: ON/OFF Line
- TEL #: Enters Trunk Group number
- F/W: Increments Trunk Group number
- CLEAR:
- ENTER: Enters each assignment
- D/W: Decrements Trunk Group number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>4E10</td>
<td>1E2, 4C1, 4E9</td>
<td>2A10, 2B10, 2D2</td>
</tr>
<tr>
<td></td>
<td>2C1~2C3, 2C6</td>
<td>2E1, 4E1~4E8</td>
</tr>
</tbody>
</table>

CPU: EB2 or higher.

NOTES:

1. By default, all trunk groups (1 ~ 8) are assigned to Tandem Hunt Group 1.
2. The Talk Start Timer (2D2) controls the length of time the Tandem Port is held.
3. Depressing the ENTER key causes the display to increment to the next Trunk Group.

GENERAL INFORMATION - TRUNK GROUP TO TANDEM HUNT GROUP ASSIGNMENT

This area of the memory block is used to assign Trunk Groups to Tandem Hunt Groups. Different Trunk Groups may be assigned the same Hunt Group.
MEMORY BLOCK 5A - STATION COPY ASSIGNMENT

OPERATION ← AND → DISPLAY

The feature to be copied must be shown in the display before entering copying mode.
Example: Ringing assignment on Station 104.

1. Depress F5.

2. Depress F6.

3. Dial the station number to be copied.
   Example: Station 105.

4. Dial the last (highest) station number to be copied.
   Example: Station 125.

5. Depress ENTER key. (See Notes 1 and 2).

6. Depress the SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR - ON/OFF Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL # -</td>
</tr>
<tr>
<td>F/W -</td>
</tr>
<tr>
<td>CLEAR -</td>
</tr>
<tr>
<td>ENTER - Copy</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>5A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All CPU levels.

NOTES:

1. The following memory blocks are the only memory blocks that can be copied using this feature:

   1A Line Key Assignment (copies all Line Keys except Secondary Extension or Primary Extension).
   1B Ringing Assignment (Day & Night)
   1C3 DSS Button Assignment (Feature and Station Appearance)
   1C4 Flexible Function Key Assignment
   1D1 Prime/Ringing Line Assignment
   1D4 Trunk Group Incoming Restriction
   1D5 Trunk Group Outgoing Restriction
   1D6 Code Restriction Table Access
   1D7 Class of Service
   1D8 Station to Attendant Assignment
   3C2 Trunk name Assignment

2. All stations being copied should be the same type.

3. Depressing the ENTER key will cause the feature assigned to the station identified in step 1 to be copied to all stations between the lowest and highest station (inclusive) defined.

4. After the ENTER key is depressed, the display will return to the feature from step 1 with the station number incremented by one.

GENERAL INFORMATION - STATION COPY ASSIGNMENT

This area of the memory block is used to copy the assignment of one station to as many stations as desired in one step. This greatly reduces programming time by allowing the repetitious assignments to be copied instead of using the individual programming steps.
MEMORY BLOCK 5B1 - CPU INITIAL HISTORY

OPERATION AND DISPLAY

1. Go off line.

   OFF-LINE (X XXX)
   PROGRAM MODE

2. Depress F5.

3. Depress F7.

4. Depress F11. (See Notes 2 and 3).

5. If the history is not to be cleared, proceed to step 8.

6. To clear the history, Depress CLEAR key.

7. Depress ENTER key. (See Note 2).

8. Depress SPKR key to go back on line.

   CPU INITIAL 01
   CLEAR DATA ?

   CPU INITIAL 01
   VACANT
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # - Select the latest events of Initial History
F/W - Increment Initial History event number
CLEAR - Select Initial History clear mode
ENTER - Enter Initial History clear
B/W - Decrement Initial History event number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>5B1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CPU-EB3 or higher

NOTES

1. During step 4 when the F/W or B/W key is depressed, the Initial History event number is incremental or decremental.

```
<table>
<thead>
<tr>
<th>CPU INITIAL</th>
<th>01</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:14JAN22-88 T1</td>
<td></td>
</tr>
<tr>
<td>F/W</td>
<td></td>
</tr>
<tr>
<td>R/W</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CPU INITIAL</th>
<th>02</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:31JAN04-88 T2</td>
<td></td>
</tr>
</tbody>
</table>
```

2. Up to the ten latest Initial History events can be referenced.

3. T1~T5 are Initial History codes.

<table>
<thead>
<tr>
<th>History Code</th>
<th>Initial History Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>System hardware reset or a forced initialization has occurred.</td>
</tr>
<tr>
<td>T2</td>
<td>Automatic initialization due to system error has occurred.</td>
</tr>
<tr>
<td>T3</td>
<td>Automatic initialization due to system error has occurred.</td>
</tr>
<tr>
<td>T4</td>
<td>There were &quot;Power Off&quot; conditions.</td>
</tr>
<tr>
<td>T5</td>
<td>There were &quot;Main Program&quot; (ROM) replacements (enhancements, upgrades, etc.).</td>
</tr>
</tbody>
</table>

GENERAL INFORMATION - CPU INITIAL HISTORY

This area of the memory block is used to refer to the CPU's Initial History.
MEMORY BLOCK 5B2 - SYSTEM PROGRAM CHECK

OPERATION AND DISPLAY

1. Go off line.
   OFF-LINE (x.xx)
   PROGRAM MODE

2. Depress F5, then F7.
   MAINTENANCE 1

3. Depress F12.
   (1) Case of Error
   SYS. PROG. CHECK
   "ERROR"
   "": Flashing
   (2) Case of No Error
   SYS. PROG. CHECK
   NO ERROR

4. Depress L1~L5 to display the program error count.
   Example:  L2
   (See Note 2).
   SYS. PROG. CHECK
   PROGRAM 2 - XXX

5. If the counter value is not to be cleared, proceed to Step 8.

6. Depress CLEAR key.
   SYS. PROG. CHECK
   CLEAR DATA ?

7. Depress ENTER key. (See Note 3).
   SYS. PROG. CHECK
   VACANT

8. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPKR</td>
<td>ON/OFF Line</td>
</tr>
<tr>
<td>TEL #</td>
<td>Selects new program error information</td>
</tr>
<tr>
<td>F/W</td>
<td>Increments program number</td>
</tr>
<tr>
<td>CLEAR</td>
<td>Clears all program errors</td>
</tr>
<tr>
<td>ENTER</td>
<td>Enters the clear command</td>
</tr>
<tr>
<td>B/W</td>
<td>Decrements program number</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>Memory Block Being Programmed</th>
<th>Memory Block That Must Be Programmed</th>
<th>Memory Block That May Have To Be Programmed</th>
</tr>
</thead>
<tbody>
<tr>
<td>5B2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CPU-EB3 or higher.

NOTES:

1. During step 2, L1 to L5 correspond to programs 1 to 5 respectively and will show program status.
   - Red LED flashes = Error
   - LED OFF = No Error

2. During step 3 the LCD bottom row xxx will show the number of program errors. Up to 255 errors may be displayed.

3. When the clear operation is performed, all error counts for programs 1 to 5 are cleared.

4. Program number and EPROM number correspondence.

<table>
<thead>
<tr>
<th>Program No.</th>
<th>EPROM No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ROM 00 &amp; 01</td>
</tr>
<tr>
<td>2</td>
<td>ROM 02, 03, 04, 05, 06 &amp; 07</td>
</tr>
<tr>
<td>3</td>
<td>ROM 06, 07, 08, &amp; 09</td>
</tr>
<tr>
<td>4</td>
<td>ROM 08, 09, 10, 11, 12 &amp; 13</td>
</tr>
<tr>
<td>5</td>
<td>ROM 12 &amp; 13</td>
</tr>
</tbody>
</table>

GENERAL INFORMATION - SYSTEM PROGRAM CHECK

This area of the memory block is used to refer to the System Program Status.
CHAPTER 3
APRIL, 1990

MEMORY BLOCK 5B3 - INTERFACE SLOT CHECK

OPERATION → AND → DISPLAY

1. Go off line.

2. Depress F5, then F7.


4. Dial module number (1~4) of the slot to be checked.
   Example: Module 1

5. Dial slot number (1~8) for the required slot.
   Example: Slot 5
   (See Note 1.)

6. If the counter value is not to be cleared, proceed to Step 9.

7. Depress CLEAR key.

8. Depress ENTER key. (See Note 2).

9. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>SPKR - ON/OFF Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEL # - Selects new Interface Slot information</td>
</tr>
<tr>
<td>F/W - Increments the Interface Slot number</td>
</tr>
<tr>
<td>CLEAR - Clears Interface Slot check information</td>
</tr>
<tr>
<td>ENTER - Enters the clear command</td>
</tr>
<tr>
<td>B/W - Decrements the Interface Slot number</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>5B3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CPU-EB3 or higher.

NOTES:

1. During step 5, the ETU error count is displayed as xxx on the bottom row of the LCD. Up to 255 errors can be displayed.

2. After depressing the CLEAR key and then the ENTER key, the number of interface errors is cleared.

GENERAL INFORMATION - INTERFACE SLOT CHECK

This area of the memory block is used to record erroneous PRWs. An erroneous PRW will also register when the ETU busy out switch is turned off. Every time an ETU is busied out, the particular error counter is incremented by 1.
MEMORY BLOCK 5B4 - TERMINAL CHECK

OPERATION → AND ← DISPLAY

1. Go off line.
2. Depress F5, then F7.
3. Depress F14 (See Note 1).
4. To determine Telephone/Port number assignment, dial station number to be referenced. Example: Station 120 (See Note 2).
5. To determine DSS/Port assignment, depress L14.
7. To determine device type associated with a particular port, depress L15.
8. Enter module slot, and channel number. Example: Module 1 Slot 3 Channel 2.
9. If the counter value is not to be cleared, proceed to Step 12.
10. Depress CLEAR key.
11. Depress ENTER key. (See Note 2).
12. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

<table>
<thead>
<tr>
<th>Key</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPKR</td>
<td>ON/OFF Line</td>
</tr>
<tr>
<td>TEL #</td>
<td>Selects new port device information</td>
</tr>
<tr>
<td>F/W</td>
<td>Increments port device number</td>
</tr>
<tr>
<td>CLEAR</td>
<td>Clears error count number</td>
</tr>
<tr>
<td>ENTER</td>
<td>Enters the clear command</td>
</tr>
<tr>
<td>B/W</td>
<td>Decrements port device number</td>
</tr>
</tbody>
</table>

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>5B4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CPU-EB3 or higher.

NOTES:

1. During step 3, the terminal error count device is displayed as xxx on the bottom row of the LCD. Up to 255 errors can be displayed.

2. After depressing the CLEAR key and then the ENTER key, the number of terminal errors are cleared.

GENERAL INFORMATION - TERMINAL CHECK

This area of the memory block is used to record erroneous PRW’s of port devices including ESI-EA and ESI-EB ETUs.

This information checks whether the communication between each terminal and its corresponding interface card is stable. An erroneous PRW will also register when the terminal is unplugged.
MEMORY BLOCK 5B5 - SOFTWARE/HARDWARE SLOT STATUS

OPERATION AND DISPLAY

1. Go off line.

2. Depress F5, F7.

3. Depress F15.

4. Dial module number of the slot to be referenced (1~4).
   Example: Module 1

5. Dial slot number to be referenced (1~8).
   Example: Slot 5
   (See Note 1 and 2).

6. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

- SPKR - ON/OFF Line
- TEL # - Select new slot information
- F/W - Increments slot number
- CLEAR -
- ENTER -
- B/W - Decrements slot number

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>5B5</td>
<td></td>
<td>4C1</td>
</tr>
</tbody>
</table>

CPU-EB3 or higher.

NOTES:

1. The xxx display at the bottom row of the LCD is the software slot assignment type and yyy is the hardware slot (installed card) type.

<table>
<thead>
<tr>
<th>Card type</th>
<th>LCD display</th>
</tr>
</thead>
<tbody>
<tr>
<td>COI</td>
<td>C O I</td>
</tr>
<tr>
<td>TLI</td>
<td>T L I</td>
</tr>
<tr>
<td>SLI</td>
<td>S L I</td>
</tr>
<tr>
<td>MFR-EA</td>
<td>M F R A</td>
</tr>
<tr>
<td>CNF</td>
<td>C N F</td>
</tr>
<tr>
<td>VMI</td>
<td>V M I</td>
</tr>
<tr>
<td>ESI-EA</td>
<td>E S I A</td>
</tr>
<tr>
<td>ESI-EB</td>
<td>E S I B</td>
</tr>
<tr>
<td>ECR</td>
<td>E C R</td>
</tr>
</tbody>
</table>

2. When a slot is not installed or assigned, "NON" is displayed.
3. If the hardware slot type is different from the software slot type, the Interface card does not work.

   i.e. Software card type: the type that has been recognized by the main software presently. Hardware card type: the type which is presently installed.

GENERAL INFORMATION - SOFTWARE/HARDWARE SLOT STATUS

This area of the memory block is used to display software/hardware information for each ETU.

To change the software card type; reassign the Software card in system programming. (4C-1 Card Interface Slot Assignment).
1. Go off line.

2. Depress F5, then F7.

3. Depress F16 (See Note 1).

4. To determine Telephone/Port assignment dial station number to be referenced.
   Example: Station 120 (See Notes 1 and 2).

5. To determine DSS/Port assignment, depress L14.

6. Enter DSS device number (1–6).

7. To determine device type associated with a particular port, depress L15.

8. Enter module, slot and channel number.
   Example: Module 1 - Slot 3 - Channel 2.

9. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

- **SPKR** - ON/OFF Line
- **TEL #** - Select new terminal information
- **F/W** - Increments terminal number
- **CLEAR** -
- **ENTER** -
- **B/W** - Decrements terminal number

**GUIDE TO FEATURE PROGRAMMING**

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>5B6</td>
<td></td>
<td>1E2</td>
</tr>
</tbody>
</table>

**CPU** - EB3 or higher.

**NOTES:**

1. The ***xxx*** display at the bottom row of the LCD is the software terminal assignment type and ***yyy*** is the hardware port (installed terminal) type.
2. When a terminal is not installed or assigned at the corresponding port, **NON** is displayed.
3. If the hardware terminal type is different from the software one, the terminal does not work.

**Terminal type**

<table>
<thead>
<tr>
<th>LCD display</th>
<th>Terminal type</th>
<th>LCD display</th>
</tr>
</thead>
<tbody>
<tr>
<td>16D</td>
<td>16K</td>
<td>16D</td>
</tr>
<tr>
<td>6D</td>
<td>DSS</td>
<td>6D</td>
</tr>
<tr>
<td>6</td>
<td>RAA</td>
<td>6</td>
</tr>
<tr>
<td>16E</td>
<td>SLT</td>
<td>16E</td>
</tr>
</tbody>
</table>

**NOTES:**

1. The ***xxx*** display at the bottom row of the LCD is the software terminal assignment type and ***yyy*** is the hardware port (installed terminal) type.
2. When a terminal is not installed or assigned at the corresponding port, **NON** is displayed.
3. If the hardware terminal type is different from the software one, the terminal does not work.

**General Information - Software/Hardware Terminal Status**

This area of the memory block is used to display information of software/hardware terminal type.
MEMORY BLOCK 5C1 - SYSTEM DATA LAST CHANGE

OPERATION  AND  DISPLAY

1. Go off line.

OFF-LINE (X.XX)

PROGRAM MODE

MAINTENANCE 2

SYS. DATA CHANGE
03:12 JAN 22 1A-04

2. Depress F5, and F8.

3. Depress F11. (See Note 1).

4. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

SPKR - ON/OFF Line
TEL # -
F/W -
CLEAR -
ENTER -
B/W -

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>5C1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CPU-EB3 or higher.

NOTES:

1. During step 3, displayed time and memory block number is the last time and memory block number the Answer key was depressed, except when the Error Tone was heard.

03:12 JAN 22 1A-04

Hour, minute Month Day Memory DSS Button Block Depressed

<table>
<thead>
<tr>
<th>DSS BUTTON</th>
<th>DSS BUTTON DEPRESSED INDICATIONS</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>01</td>
<td>CO Line</td>
</tr>
<tr>
<td>12</td>
<td>02</td>
<td>Pool Line</td>
</tr>
<tr>
<td>14</td>
<td>04</td>
<td>EXT Line</td>
</tr>
<tr>
<td>16</td>
<td>06</td>
<td>Data XMIT</td>
</tr>
<tr>
<td>17</td>
<td>07</td>
<td>Data Receive</td>
</tr>
<tr>
<td>18</td>
<td>08</td>
<td>Save &amp; Repeat</td>
</tr>
<tr>
<td>20</td>
<td>10</td>
<td>DND Position</td>
</tr>
</tbody>
</table>

GENERAL INFORMATION - SYSTEM DATA LAST CHANGE

This area of the memory block is used to display information about the last system data change. This includes Time, Date, and Memory Block.
MEMORY BLOCK 5C2 - DATA DUMP

OPERATION  ←  AND  →  DISPLAY

1. Go off line.

2. Depress F5, F8, and F12, in order.

3. Depress L1~L16 for setting the desired address to be referred.
   Example: Address 400000
   (See Notes 1 and 2).

4. Depress ENTER key. (See Notes 3 and 4).

5. Depress SPKR key to go back on line.
KEY FUNCTION (OFF LINE)

- SPKR - ON/OFF Line
- TEL # - Refer to new address
- F/W - Increment address
- CLEAR - Changes displayed data size
- ENTER - Enter displayed data mode
- B/W - Decrement address

GUIDE TO FEATURE PROGRAMMING

<table>
<thead>
<tr>
<th>MEMORY BLOCK BEING PROGRAMMED</th>
<th>MEMORY BLOCK THAT MUST BE PROGRAMMED</th>
<th>MEMORY BLOCK THAT MAY HAVE TO BE PROGRAMMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>5C2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CPU-EB3 or higher.

NOTES:

1. Line key and Address Correspondence.

2. The displayed Address is shifted to the left.

3. During step 4 when the ENTER key is depressed, the data corresponding to the address is displayed.

4. Each time the CLEAR key is depressed, the displayed data size is changed.
   - 1 byte → 4 bytes → 6 bytes → 8 bytes → 1 byte.

GENERAL INFORMATION - DATA DUMP

This area of the memory block is used to display the system's memory.
This facility is useful for diagnostics and remote maintenance service in the event of system's trouble.
This Memory Block is reserved for future use.
## SECTION 350
### FUNCTION TIMER CHART

<table>
<thead>
<tr>
<th>TIMER</th>
<th>MEMORY BLOCK</th>
<th>DEFINITION</th>
<th>TIMING VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call Park Recall</td>
<td>2D-1</td>
<td>Time before a call placed in call park recalls. (except conference call)</td>
<td>Minimum: 10 sec.</td>
</tr>
<tr>
<td>Time between 1st &amp; 2nd Announcement</td>
<td>2D-1</td>
<td>Time allowed for MOH after the 1st Delay Announcement and the beginning of the 2nd Announcement</td>
<td>Default: 180 sec.</td>
</tr>
<tr>
<td>Delay Release Auto Release</td>
<td>2D-1</td>
<td>Time Delay before Delay Announcement stops and the trunk is released.</td>
<td>Maximum: 990 sec.</td>
</tr>
<tr>
<td>Start Time (SMDR and Elapsed Call Timer)</td>
<td>2D-1</td>
<td>Delay Time before system starts recording the duration of an outgoing call.</td>
<td>Minimum: 10 sec.</td>
</tr>
<tr>
<td>DSS/BLF Camp-On/Recall (Att. recall)</td>
<td>2D-1</td>
<td>Timing for a recall back to the attendant station, after a DSS/BLF Transfer or Camp-On.</td>
<td>Default: 20 sec.</td>
</tr>
<tr>
<td>Non Ex-Hold Transfer (Camp-On) Recall</td>
<td>2D-1</td>
<td>Recall timing for any call from a non-attendant position after a Camp-On Transfer or a call placed on Non-Exclusive Hold is unanswered.</td>
<td>Maximum: 990 sec.</td>
</tr>
<tr>
<td>Cancel Automatic Callback</td>
<td>2D-1</td>
<td>Timeout value for a callback and Trunk Queing that goes unanswered.</td>
<td>Minimum: 10 sec.</td>
</tr>
<tr>
<td>Time between 2nd &amp; repeat of 2nd Announce</td>
<td>2D-1</td>
<td>Time allowed for MOH after the 2nd Delay Announcement and the repeat of the 2nd Announcement</td>
<td>Default: 20 sec.</td>
</tr>
<tr>
<td>Exclusive Hold Recall</td>
<td>2D-1</td>
<td>Time before a call placed on Exclusive Hold recalls.</td>
<td>Maximum: 990 sec.</td>
</tr>
<tr>
<td>Internal Page Access</td>
<td>2D-1</td>
<td>Allowed time for Internal Page</td>
<td>Default: 300 sec.</td>
</tr>
<tr>
<td>Valid Call Timer (SMDR)</td>
<td>2D-1</td>
<td>Minimum duration of an outside call before the system provides an SMDR report.</td>
<td>Maximum: 990 sec.</td>
</tr>
<tr>
<td>Modem Reserve Timer</td>
<td>2D-1</td>
<td>Maximum time a modem within a modem pool can be reserved by a station.</td>
<td>Minimum: 10 sec.</td>
</tr>
<tr>
<td>Conference Park Recall</td>
<td>2D-1</td>
<td>Time before a conference call placed in call park recalls.</td>
<td>Default: 300 sec.</td>
</tr>
<tr>
<td>MFR Timeout</td>
<td>2D-2</td>
<td>Maximum time MFR will remain on line before the first and between each digit dialed by a Single Line Telephone.</td>
<td>Maximum: 99 sec.</td>
</tr>
<tr>
<td>Call Forward No Answer and UCD Ring</td>
<td>2D-2</td>
<td>Time before a call forwards after no answer.</td>
<td>Minimum: 1 sec.</td>
</tr>
<tr>
<td>No Answer</td>
<td>2D-2</td>
<td>Minimum time needed after dialing on a trunk to establish a trunk to trunk transfer.</td>
<td>Default: 20 sec.</td>
</tr>
</tbody>
</table>
### SECTION 350

#### FUNCTION TIMER CHART (Contd.)

<table>
<thead>
<tr>
<th>TIMER</th>
<th>MEMORY BLOCK</th>
<th>DEFINITION</th>
<th>TIMING VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voice Mail Automatic Dial Send Start</td>
<td>2D-2</td>
<td>Delay time before DTMF tones are sent to the VMI ports.</td>
<td>Minimum 1 sec. Default 2 sec. Maximum 99 sec.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st Delay Announce Duration Time</td>
<td>2D-2</td>
<td>Time Interval for the 1st Delay Announcement message</td>
<td>Minimum 1 sec. Default 10 sec. Maximum Infinity</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd Delay Announce Duration Time</td>
<td>2D-2</td>
<td>Time Interval for the 2nd Delay Announcement message</td>
<td>Minimum 1 sec. Default 10 sec. Maximum Infinity</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Automatic Disconnect Timer</td>
<td>2D-3</td>
<td>Maximum time before automatic disconnect of trunk to trunk connections.</td>
<td>Minimum 10 min. Default 60 min. Maximum 990 min.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DTMF Digit Duration (COI)</td>
<td>4B-1,4B-6, 4B-9</td>
<td>Duration time for each digit dialed on an outside line.</td>
<td>Minimum 60 mS. Default 110 mS. Maximum 760 mS.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trunk Hookflash (COI)</td>
<td>4B-1,4B-6</td>
<td>Duration of CO/PBX hookflash when RECALL button is depressed.</td>
<td>Minimum 300 mS. Default 1500 mS. Maximum 1700 mS.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hit Protection Time (COI)</td>
<td>4B-2, 4B-7</td>
<td>Minimum duration of a disconnect signal sent from the central office, before the system disconnects the line.</td>
<td>Minimum 0. Default 350 mS. Maximum 700 mS.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pause Time (COI)</td>
<td>4B-2, 4B-7</td>
<td>Duration of pauses stored in speed dial memories.</td>
<td>Minimum 0. Default 1 sec. Maximum 7 sec.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disconnect Recognition Time (COI)</td>
<td>4B-2, 4B-7</td>
<td>Minimum time interval after the system releases a CO line before it can be reaccessed. (This allows time for the CO network to also release the line.)</td>
<td>Minimum 0. Default 300 mS. Maximum 1400 mS.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interdigital Interval Time (COI)</td>
<td>4B-2,4B-7</td>
<td>Minimum allowable time interval between two consecutively dialed DTMF digits sent by the system to the Central Office.</td>
<td>Minimum 40 mS. Default 70 mS. Maximum 180 mS.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interdigital Interval Time (VMI)</td>
<td>4B-9</td>
<td>Minimum allowable time interval between two consecutively dialed DTMF digits sent by the system.</td>
<td>Minimum 40 mS. Default 110 mS. Maximum 180 mS.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hookflash Start Time (SLT)</td>
<td>4R-3, 4R-8</td>
<td>Minimum hookflash duration from a Single Line Telephone in order to receive second dial tone.</td>
<td>Minimum 100 mS. Default 300 mS. Maximum 800 mS.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hookflash End Time (SLT)</td>
<td>4B-3, 4B-8</td>
<td>Maximum hookflash duration from a Single Line Telephone in order to receive second dial tone.</td>
<td>HF Start Time 1000 mS. Maximum 2200 mS.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bounce Protection Time (SLT)</td>
<td>4B-3, 4B-8</td>
<td>Length of time before a valid Hookflash is detected from a Single Line Telephone or Voice Mail System.</td>
<td>Minimum 0. Default 300 mS. Maximum 1400 mS.</td>
</tr>
</tbody>
</table>
### SECTION 350

**FUNCTION TIMER CHART (Contd.)**

<table>
<thead>
<tr>
<th>TIMER</th>
<th>MEMORY BLOCK</th>
<th>DEFINITION</th>
<th>TIMING VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disconnect Time (VMI)</td>
<td>4E-9</td>
<td>Duration of timed disconnect signal which is sent to the Voice Mail System</td>
<td>Minimum: 500 mS.</td>
</tr>
<tr>
<td>Answer Detect (TLI)</td>
<td>4E-4</td>
<td>Time duration needed to recognize an answer from the called party.</td>
<td>0 mS.</td>
</tr>
<tr>
<td>Release Detect (TLI)</td>
<td>4E-4</td>
<td>Minimum time after hanging up before E lead recognizes a disconnect from the CO.</td>
<td>0 mS.</td>
</tr>
<tr>
<td>Pre-Pause Time (TLI)</td>
<td>4E-4</td>
<td>Lapsed time before sending pulsed digits to CO after distant end goes off-hook.</td>
<td>0 mS.</td>
</tr>
<tr>
<td>Pause Time (TLI)</td>
<td>4E-4</td>
<td>Duration of pauses stored in speed dial memories.</td>
<td>0 mS.</td>
</tr>
<tr>
<td>Wink/Delay</td>
<td>4E-5</td>
<td>Time duration lapsed before recognizing an off-hook condition from the CO with a delay or wink signal.</td>
<td>0 mS. Delay: 120 mS.</td>
</tr>
<tr>
<td>Incoming Detection Time</td>
<td>4E-5</td>
<td>Time duration lapsed before recognizing an off-hook condition from the CO with a delay or wink signal.</td>
<td>0 mS. Delay: 120 mS.</td>
</tr>
<tr>
<td>Length of Wink Signal</td>
<td>4E-5</td>
<td>Length of wink signal sent to the distant end.</td>
<td>30 mS.</td>
</tr>
<tr>
<td>Length of Delay Signal</td>
<td>4E-5</td>
<td>Length of delayed signal sent to the distant end.</td>
<td>0 mS.</td>
</tr>
<tr>
<td>Loop Off-Guard Time</td>
<td>4E-5</td>
<td>Time duration lapsed before recognizing a disconnect condition after sending an answer signal (on loop dial Tie lines).</td>
<td>0 mS.</td>
</tr>
<tr>
<td>Wink/Delay Signal</td>
<td>4E-6</td>
<td>The length of time, in seconds, that the system will monitor the central office line for receipt of a wink signal.</td>
<td>1 sec.</td>
</tr>
<tr>
<td>Detection Timeout</td>
<td>4E-6</td>
<td>Time duration lapsed after sending a disconnect signal that the line is monitored to verify a distant disconnect (on loop dial Tie Lines).</td>
<td>20 mS.</td>
</tr>
<tr>
<td>Outgoing Guard Time</td>
<td>4E-6</td>
<td>Time duration lapsed after sending a disconnect signal that the line is monitored to verify a distant disconnect (on loop dial Tie Lines).</td>
<td>2 sec.</td>
</tr>
<tr>
<td>Tandem Restriction /</td>
<td>4E-6</td>
<td>When using a Tandem Port, the maximum time before the voice path is established, after dialing the first digit and between each digit dialed.</td>
<td>2 sec.</td>
</tr>
<tr>
<td>LCR Control Timer (TLI)</td>
<td>4E-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DTMF Interdigit Time</td>
<td>4E-8</td>
<td>Minimum time duration between DTMF digits when dialing.</td>
<td>40 mS.</td>
</tr>
<tr>
<td>DTMF Duration Time (TLI)</td>
<td>4E-8</td>
<td>Duration time of tie line DTMF digits.</td>
<td>60 mS.</td>
</tr>
</tbody>
</table>
SECTION 360
CODE/CALL RESTRICTION

360.1 General
To provide dialing restrictions on an individual station basis, a method of code restriction has been designed into the Electra MarkII system. The Electra MarkII utilizes a pattern of 32 system tables containing specific area and office codes. Each table is set as an allow or deny table. Allowing restricted stations to dial only specific area and office codes is then accomplished by assigning one or more tables to the stations as required. If operator restriction (Memory Block 1D7) is not assigned to a station, then it is not restricted from dialing any number. This section will fully explain this procedure. It is recommended that before attempting to program any code restrictions that this section be fully reviewed.

Table 360-1

<table>
<thead>
<tr>
<th>MEMORY BLOCK</th>
<th>CODE TABLE NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>3E5</td>
<td>ALLOW/DENY</td>
</tr>
<tr>
<td>3E6</td>
<td>TRUNK GROUP</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>3E7</td>
<td>OCC FLAG</td>
</tr>
<tr>
<td>3E8</td>
<td>OCC CODE ASSIGNMENT</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>3E9</td>
<td>CODE</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

There are 32 system code tables (Example shown in Table 360-1) available on the Electra MarkII system. Each table has several parameters assignable.

Allow/Deny Parameter
Each table can be assigned as an allow or a deny table. If a table is set as a deny table, stations assigned this table will be restricted from dialing any area code or area + office code, or office code entered into the table. If a station is assigned a deny table and an allow table that both contain identical area or area + office codes, or office codes, the system will allow the station to dial the number if the allow table number comes before the deny table number.

Example: Operator restriction is assigned to station 104. (M.B. 1D7, LK5 = ON)
A. Station 104 is assigned Table 01 and Table 14
B. Table 01 is assigned as an allow
C. Table 14 is assigned as a deny
D. Table 01 has its first entry programmed for 516 753
E. Table 14 has its first entry programmed for 516***

After the 516 is dialed, the system will inspect all the tables assigned to this station starting with the first table then to the next in numerical order; the Electra Mark II system will look for a match between the number entered into a table and the number dialed. The example shows that if 516 is dialed there will be an area code match in Table 01 (containing 516-753) and Table 14, (containing 516). The system only sees the match for Table 01 as it scans the tables in numerical order. If the system first saw the match in Table 14, the station user would have been restricted because Table 14 has been set as deny. Although there is a match in Table 01, it is not a complete match because the 516 in the table also contains an office code (753).

The system will, therefore, allow Station 104 to dial 3 more digits. If 753 has not been dialed, it no longer sees the match in Table 01. The system will, therefore, only see the match in Table 14 (where an office code has not been specified). If 753 had been dialed, the match would still be seen in Table 01. This example shows a way to restrict a station from dialing all but one office code in a particular area code.

Trunk Group Parameter
Each table can be assigned a maximum of four trunk groups. When a code restricted station dials out on a particular trunk group, the system will only look at those tables which are assigned to the station and to the trunk group the station is dialing out on. This allows different restrictions to be set on a station on the trunk group that is accessed.

OCC (Other Common Carrier) Flag Parameter
Each table has an OCC Flag Parameter which can be set or not. When a station user dials a second common carrier, it is necessary to first dial 10-XXX (XXX identifies the carrier service to be used) before the actual telephone number. To allow/deny a toll restricted station to dial beyond 10, the OCC Flag Parameter must be set in at least one table assigned to the station.
OCC (Other Common Carrier) Code Parameter
If a station is assigned a table with the OCC Flag set, the system will allow the station to dial 10. To allow the station to choose a particular carrier the table assigned must have the 3 digit OCC identification code entered. This assignment allows only certain OCC codes to be used by restricted stations.

Code Numbers Parameters
Each of the systems' 32 tables contain eight entries for digit entry. Each item can hold an area code (3 digit) and/or office code (3 digits). Area or office codes to be restricted are placed in deny tables. Area codes or office codes to be allowed are placed in allow tables.

To simplify the understanding of Code Restriction on the Electra MarkII system, the discussion will be divided into the following sub sections:

1. 1 + dialing area (prefix dialing)
2. Direct dialing area (standard dialing)
3. Equal Access (OCC usage)
4. Puerto Rico area type dialing

Note: Depending on the area the Electra MarkII system is installed, one of these four sub sections should apply.

360.2 1 + dialing area (discussion of flow chart) (refer to flow chart Table 360-2)

Step 1. First digit dialed
A. Digit 0: disconnect station
B. Digit 1: allow second digit (go to step 3)
C. Any digit 2~9: If digit is not a rejection code let user dial two more digits (go to step 2)

Step 2. Check last 3 digits dialed
A. Lowest possible table assigned to station which contains the three digit number as an office code entry is found.
   1. Table is allow: Allow user free dialing
   2. Table is deny: Disconnect station
B. No table is found (Check memory block 3E-4)
   1. System Allow: allow user free dialing
   2. System Deny: Disconnect station

Step 3. Second digit dialed
A. Digit 0: (See OCC discussion)
B. Digit 1: Disconnect station
C. Any digit 2~9 (go to step 4)

Step 4. Third digit dialed
A. Any digit 2~9: Disconnect station
B. Digit 0 or 1 (go to step 5)

Step 5. Fourth digit dialed
A. Lowest possible table assigned to Station which contains the last three digits dialed, as an area code item, is found.
   1. Table is allow:
      a. Matched item in table also contains an office code (go to step 6)
      b. Matched item in table has only area code: Allow user free dialing
   2. Table is deny
      a. Matched item in table also contains an office code (go to step 6)
      b. Matched item in table has only area code: Disconnect station
   3. No Table is found
      a. System Allow: Allow user free dialing
      b. System Deny: Disconnect station

Step 6. Allow three more digits to be dialed
A. If item in table matches area and office code dialed:
   1. Table is allow: Allow user free dialing
   2. Table is deny: Disconnect station
B. If item in table no longer matches for area code and office code dialed, locate next lowest table which contains a three digit entry which matches the area code dialed or a 6 digit entry which matches the area and office code dialed.
   1. New table found:
      a. Table is allow: Allow user free dialing
      b. Table is deny: Disconnect station
   2. No Table is found (Check Memory Block 3E-4)
      a. System allow: Allow user free dialing
      b. System deny: Disconnect station

360.3 Direct dial area (refer to Table 360-3)

Step 1. First digit dialed
A. Digit 0: Disconnect station
B. Digit 1: (go to step 3)
C. Any digit 2~9: If digit is not a rejection code allow user to dial second digit (next step)

Step 2. Second digit dialed
A. Digit 1 or 0: Allow next digit to be dialed (go to step 7)
B. Any digit 2~9: Allow next digit to be dialed (go to step 6)
Step 3. Second digit dialed
A. Digit 0: (See OCC discussion)
B. Digit 1: Disconnect station
C. Any digit 2~9: (next step)

Step 4. Check memory block 3E1 (area assignment)
A. System not assigned ITC: Disconnect station
B. System assigned ITC: Allow 3rd digit (next step)

Step 5. Third digit dialed
A. Digit 1 or 0: Allow next digit (go to step 7)
B. Any digit 2~9: Allow next digit to be dialed (next step)

Step 6. Check last 3 digits dialed
A. Lowest possible table assigned to station which contains the three digit number as an office code is found.
   1. Table is allow: Allow user free dialing
   2. Table is deny: Disconnect station
B. No table is found. Check Memory Block 3E-4
   1. System allow: Allow user free dialing
   2. System deny: Disconnect station

Step 7. Check last 3 digits dialed:
A. Lowest possible table assigned to station which contains the last three digits dialed as an area code item is found
   1. Table is allow: Allow user free dialing
      a. Matched item in Table also contains an office code. (go to step 8)
      b. Matched item in table has only area code: Allow user free dialing
   2. Table is deny: Disconnect station
      a. Matched item in table also contains an office code. (go to step 8)
      b. Matched item in table has only area code: Disconnect station
B. No table found: Check Memory Block 3E-4
   1. System allow: Allow user free dialing
   2. System deny: Disconnect station

Step 8. Allow three more digits to be dialed
A. Item in table matches area and office code dialed
   1. Table is allow: Allow user free dialing
   2. Table is deny: Disconnect station
B. If item in table no longer matches area and office code dialed, locate next lowest table which contains a three digit entry which matches the area code dialed or a six digit entry which matches the area and office code dialed.
   1. New table found
      a. Table is allow: Allow user free dialing
      b. Table is deny: Disconnect station
   2. No table is found. Check Memory Block 3E-4
      a. System allow: Free dialing
      b. System deny: Disconnect station

360.4 OCC (other common carrier access) (refer to Table 360-4)

Step 1. First two digits dialed are 10:
A. If one or more tables assigned have OCC Flag set, then allow 3 more digits to be dialed (next step)
B. If no table assigned has OCC Flag set, then disconnect station

Step 2. Check last three digits dialed:
A. All three digits are dialed within ten seconds: Allow next digit to be dialed (next step)
B. All three digits not dialed within 10 seconds: Disconnect station

Step 3. Sixth digit dialed:
A. Digit 0: Disconnect station
B. Digit 1: Allow 3 more digits (go to step 6)
C. Any digit 2~9: Allow one more digit (next step)

Step 4. Seventh digit dialed:
A. Digit 1 or 0: Allow one more digit (go to step 6)
B. Any digit 2~9: Allow one more digit (next step)

Step 5. Check last 6 digits dialed:
A. Lowest possible table assigned to the station which contains the third, fourth, and fifth digits as an OCC code and the sixth, seventh, and eighth digits as an office code is found:
   1. Table is allow: Allow user free dialing
   2. Table is deny: Disconnect station
B. Table is not found. Check Memory Block 3E-4
   1. System allow: Allow user free dialing
   2. System deny: Disconnect station

Step 6. Check third, fourth, and fifth digits and the last three digits dialed
A. Lowest possible table assigned to station which contains third, fourth, and fifth digit as an OCC code item and the last three digits dialed as an area code entry is found:
1. Table is allow
   a. Matched area code item in table also contains an office code: (go to step 7)
   b. Matched area code item in table does not include an office code: Allow user free dialing

2. Table is deny
   a. Matched area code item in table also contains an office code: (go to step 7)
   b. Matched area code item in table does not include an office code: Disconnect station

3. No table found. Check Memory Block 3E-4
   a. System allow: Allow user free dialing
   b. System deny: Disconnect station

Step 7. Allow three more digits to be dialed
A. Six digit item in table matches last six digits dialed
   1. Table is allow: Allow user free dialing
   2. Table is deny: Disconnect station
B. If item in table no longer matches the last six digits dialed, locate next lowest table assigned to the station which contains an OCC code which matches the third, fourth, and fifth digits dialed and either a three digit entry which matches the area code dialed or a six digit entry that matches the last 6 digits dialed (area + office code).
   1. New table found:
      a. Table is allow: Allow user free dialing
      b. Table is deny: Disconnect station
   2. No table found. Check Memory Block 3E-4
      a. System allow: Allow user free dialing
      b. System deny: Disconnect station

360.5 Puerto Rico (refer to Table 360-5)

Step 1. First digit dialed
A. Digit 0: Disconnect station
B. Any digit 1~9: Allow two more digits to be dialed

Step 2. Check last three digits dialed
A. An item in the special code table matches last three digits dialed: Allow another digit (next step)

NOTE: When Memory Block 3E-1 is assigned as Puerto Rico, Code Table 32 is used as a special code table only.

B. No item in the special code table matches last three digits dialed.

Step 3. 4th Digit Dialed
A. Digit 1 or 0: Disconnect station
B. Any digit 2~9: Allow user to dial another digit (next step)

Step 4. 5th Digit Dialed
A. Digit 1 or 0: Allow another digit (go to step 6)
B. Any digit 2~9: Allow another digit (next step)

Step 5. Check last 3 digits dialed
A. Lowest possible table assigned to station which contains the last three digits dialed as an office code entry is found.
   1. Table is allow: Allow user free dialing
   2. Table is deny: Disconnect station
B. No table is found. Check Memory Block 3E-4
   1. System is allow: Allow user free dialing
   2. System is deny: Disconnect station

Step 6. Check last 3 digits dialed
A. Lowest possible table assigned to station which contains the last three digits dialed as an area code entry.
   1. Table is allow
      a. Matched item in table also contains an office code. (go to step 7)
      b. Matched item in table has only area code: Allow user free dialing
   2. Table is deny
      a. Matched item in table also contains an office code. (go to step 7)
      b. Matched item in table has only area code: Disconnect station
B. No table is found. Check Memory Block 3E-4
   1. System allow: Check Memory Block 3E-4
   2. System deny: Disconnect station

Step 7. Allow three more digits to be dialed
A. Item in table matches last 6 digits dialed
   1. Table is allow: Allow user free dialing
   2. Table is deny: Disconnect station
B. If item in table no longer matches the last six digits dialed, locate next lowest table which contains a three digit entry which matches the area code dialed or a six digit entry which matches the area and office code (last 6 digits) dialed.

300-264
1. New table found
   a. Table is allow: Allow user free dialing
   b. Table is deny: Disconnect station

2. No table found. Check Memory Block 3E-4
   a. System allow: Allow user free dialing
   b. System deny: Disconnect station
TABLE 360-2 1+ DIAL AREA
(M.B. 3E2, L1~L8 ON!)

PBX ACCESS CODE
M.B. 481, or 486, L3 ON = PBX & M.B. 2A9, ("9" & "?"") is Default

DISCONNECT

1ST DIGIT

1

2 - 9

REJECTION CODE
M.B. 3E3
"2 2 2 2"

YES

DISCONNECT

NO

OCC
M.B. 3E / 3E8

2 - 9

2ND DIGIT

3RD DIGIT

0 / 1

DISCONNECT

ALLOW USER TO
DIAL 1 MORE DIGIT

Match Found
(Deny Table)
NOTE

Area Code
Restriction Table
M.B. 3E9

Match Found
(Allow Table)

No Perfect Match Found

A. C. & O. C.
Assigned in
Restriction Table
M.B. 3E9

NOTE: 1. No office code included with area code entry.
TABLE 360-3 DIRECT DIAL AREA
(MB 3E2, L1~L8 OFF!)

DIRECT DIAL

PRX ACCESS CODE
M.B. 4B1 or 4B6, L3 ON = PBX & M.B. 2A9 ("9" & "9" is Default)

DISCONNECT

1ST DIGIT

2~9

REJECTION CODE
M.B. 3E3
"?????"

YES

DISCONNECT

DISCONNECT

2ND DIGIT

0

OCC
M.B. 3E7 & 3E8

NO

DISCONNECT

Direct Dial / 1 + Dial

I.T.C. AREA
M.B. 3E1

Independant
Telephone Co.

3RD DIGIT

2~9

2~9

2ND DIGIT

0/1

ALLOW USER TO
DIAL 1 MORE DIGIT

Match Found
(Assign to Table)

Area Code
Restriction Table
M.B. 3E9

Match Found
(Deny Table)

Match Found
(Assign to Table)

Office Code
Restriction Table
M.B. 3E9

Match Found
(Assign to Table)

No Perfect
Match Found

AC & OC
Assigned in
Restriction Table
M.B. 3E9

NO

YES

ALLOW USER TO
DIAL 1 MORE DIGIT

ALLOW USER TO
DIAL 1 MORE DIGIT

DISCONNECT

DISCONNECT

DISCONNECT

SYSTEM
ALLOW/DENY
M.B. 3E4

Deny

ALLOW USER
FREE DIALING

ALLOW USER
FREE DIALING

NOTE:
1. No office code included with area code entry.

NOTE 1

300 - 268
TABLE 360-4  OTHER COMMON CARRIER ACCESS

NOTES:
1. No office code included with area code entry.
2. Office code included with area code entry.
TABLE 360-5 SPECIAL CODE OVERRIDE TABLE
MB 3E1, Puerto Rico (Type) Dialing

NOTES:
1. No office code included with area code entry.
2. Office code included with area code entry.
### Section 370

#### Job Specification Sheets

#### Table of Contents

<table>
<thead>
<tr>
<th>MEMORY BLOCK</th>
<th>ASSIGNMENT</th>
<th>PAGE</th>
<th>MEMORY BLOCK</th>
<th>ASSIGNMENT</th>
<th>PAGE</th>
<th>MEMOR BLOCK</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A</td>
<td>Line Key Assignment</td>
<td>300-274</td>
<td>3</td>
<td>User Program</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>CO Line</td>
<td></td>
<td>4</td>
<td>Trunk Group Incoming Restriction</td>
<td>2B</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Pooled Line</td>
<td></td>
<td>5</td>
<td>Trunk Group Outgoing Restriction</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Extension</td>
<td></td>
<td>6</td>
<td>Code Restriction Table Access</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Data Transmit</td>
<td></td>
<td>7</td>
<td>Class of Service</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Data Receive</td>
<td></td>
<td>8</td>
<td>Terminal to Attendant Assignment</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Save &amp; Repeat</td>
<td></td>
<td>9</td>
<td>Terminal to Paging Zone Assignment</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>1D</td>
<td>Storage Block</td>
<td>300-276</td>
<td>10</td>
<td>Call Pickup Group Assignment</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>1B</td>
<td>Ringing Assignment</td>
<td>300-274</td>
<td>2</td>
<td>Data Services Assignment</td>
<td>300-284</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Day/Night Mode</td>
<td></td>
<td>4</td>
<td>Terminal Exchange</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>1C</td>
<td>DSS Button Assignment</td>
<td>300-271</td>
<td>1</td>
<td>Terminal Add Port</td>
<td>2C</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>DSS/BLF to Attendant</td>
<td></td>
<td>2</td>
<td>CO Line Digit Restriction</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Feature and Station Appearance</td>
<td></td>
<td>2E</td>
<td>Station Assignment</td>
<td>300-282</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Flexible Function Key Assignment</td>
<td></td>
<td>1</td>
<td>Terminal Exchange</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>BLF Feature to Telephone Assignment</td>
<td>300-278</td>
<td>2</td>
<td>Speed Dial Tenant Assignment</td>
<td>300-286</td>
<td></td>
</tr>
<tr>
<td>1E</td>
<td></td>
<td></td>
<td>2</td>
<td>Speed Dial Override Assignment</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>DSS to CO Add-On Module Assignment</td>
<td>300-280</td>
<td>3</td>
<td>Programming Telephone 300-288</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>4</td>
<td>incoming Prime Line Pickup</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td>5</td>
<td>CO # and * as 1st. Digit</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td>6</td>
<td>SMDR Print (Incoming)</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>1D</td>
<td></td>
<td>300-272</td>
<td>7</td>
<td>Internal All Call</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Prime/Ringing Line Assignment</td>
<td></td>
<td>8</td>
<td>Account Code Digit</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>9</td>
<td>PBX Outgoing Code</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

---

300-271
### JOB SPECIFICATION SHEETS

#### TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>MEMORY BLOCK</th>
<th>ASSIGNMENT</th>
<th>PAGE</th>
<th>MEMORY BLOCK</th>
<th>ASSIGNMENT</th>
<th>PAGE</th>
<th>MEMORY BLOCK</th>
<th>ASSIGNMENT</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2D</td>
<td>System Time Base</td>
<td>300-298</td>
<td>1</td>
<td>Telephone Name Assignment</td>
<td>7</td>
<td>COI-IV Initialized Values (Trunk Group Programming Parameters)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Time Base Assign I</td>
<td></td>
<td>2</td>
<td>Trunk Group Name Assignment</td>
<td></td>
<td>VMI Initialize 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Time Base Assign II</td>
<td></td>
<td>3</td>
<td>Time Base Assign III Assignment</td>
<td></td>
<td>VMI Initialize 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3E</td>
<td>System Access Code</td>
<td>300-300</td>
<td></td>
<td>System Restriction Table</td>
<td>4C</td>
<td>Card Interface</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2E</td>
<td>System Access Code</td>
<td></td>
<td>1</td>
<td>Regional Dialing Type 300-308</td>
<td></td>
<td>Card Interface Slot Assignment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3A</td>
<td>System Attendant</td>
<td>300-300</td>
<td>2</td>
<td>1 + Dialing Assignment</td>
<td></td>
<td>TLI Programming</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Attendant 3rd. and 4th. Assignment</td>
<td></td>
<td>3</td>
<td>Rejection Code Assignment</td>
<td></td>
<td>TLI Line Type Assignment 300-318</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Attendant (Overflow) Call Shift</td>
<td></td>
<td>4</td>
<td>System Allow / Deny</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Attendant to Tenant Assignment</td>
<td></td>
<td>10</td>
<td>Special Code Assignment</td>
<td>4E</td>
<td>TLI Dial Tone Assignment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>System Hunt Assignment</td>
<td></td>
<td>5</td>
<td>Table Allow / Deny</td>
<td></td>
<td>TLI Digit Add/Delete Assignment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Forced Account Code Digit Assignment 300-290</td>
<td></td>
<td>6</td>
<td>Trunk Group to Code Table</td>
<td></td>
<td>TLI-1 Initialized Values 300-320</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Telephone Name Assignment</td>
<td></td>
<td>7</td>
<td>Table - OCC Flag Assignment</td>
<td></td>
<td>TLI-2 Initialized Values</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>System Hunt Assignment</td>
<td></td>
<td>8</td>
<td>Table - OCC Code Assignment</td>
<td></td>
<td>TLI-3 Initialized Values 300-322</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4B</td>
<td>System Restriction Table</td>
<td>300-308</td>
<td>9</td>
<td>Restriction Table Code Assignment</td>
<td></td>
<td>TLI-4 Initialized Values</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3B</td>
<td>System Hunt Assignment</td>
<td></td>
<td></td>
<td>Card Mode</td>
<td>4E</td>
<td>TLI-5 Initialized Values</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Forced Account Code Digit Assignment 300-290</td>
<td></td>
<td></td>
<td>COI-I Initialized Values (Trunk Programming Parameters) 300-312</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>RAA SLT Assignment</td>
<td></td>
<td></td>
<td>COI-II Initialized Values (Trunk Programming Parameters) 300-312</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Trunk Group to Line Pool Group Assignment</td>
<td></td>
<td></td>
<td>SLI Common Values 300-314</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>First Ring Pattern Assignment 300-306</td>
<td></td>
<td></td>
<td>ESI-EB Data and Second Voice Path Assignment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Centrex Ringing Assignment</td>
<td></td>
<td></td>
<td>COI-III Initialized Values (Trunk Group Programming Parameters) 300-274</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Station to Hunt Group Pilot Number Assignment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Station to Hunt Group Assignment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Line Pool Group Assignment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3C</td>
<td>System Name Assignment</td>
<td>300-304</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**300-272**
This section consists of Job Specification Sheets that when filled out contain all the system programming values and configuration information.

During the initial stages of system planning, the job specification sheets are necessary for collecting information to accurately configure the installation of the Electra MarkII system. The customer information, as collected by the salesperson (or installation supervisor) is recorded onto the specification sheets. Samples of these sheets are arranged in logical order of the memory blocks to make the system programming as efficient as possible. The first group of sheets are used for entering station features. Line button assignments for Multiline Terminals and DSS/BLFs as well as dialing restrictions and class of service (as required by the customer) are listed here. The second group of sheets are used for assigning system features. Assignment of trunk groups, specialized services, and assignment of system attendants are entered in this group. The last group is used for documenting all the necessary information about the hardware configuration. This group is very useful to service technicians who need to keep track of adds, moves, and changes. In some cases this group is used during troubleshooting.

The first page of each job sheet includes a brief description of each column and possible entries. After initial installation, job sheets must be kept up to date and left on site to provide technicians with the necessary information required when servicing the system; a duplicate copy should also be kept in the servicing office customer’s file.

Each CPU-E(ETU is shipped with a copy of the complete job specification sheet manual (ND-20234). Additional copies can be obtained by ordering Stock Number 700402.
## JOB SPECIFICATION INSTRUCTIONS

**FOR**

MEMORY BLOCKS 1A, 1B & 3B-10  LINE KEY, RINGING AND LINE POOL GROUP AUTO
EXTENSION ASSIGNMENT

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>ENTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>EXTENSION BEING ASSIGNED</strong> (STATION NUMBER)</td>
<td>EXTENSION (100 ~ 899) or (1000 ~ 8999)</td>
</tr>
<tr>
<td></td>
<td>ASSOCIATED STATION CABLE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RUN NUMBER</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NAME / LOCATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TYPE OF TERMINAL</strong> (STATION TYPE)</td>
<td>ETE-6-( ) (6), ETE-16K-( ) (16K) ETE-6D-( ) (6D), RAA-E UNIT (RAA) ETE-16-( ) (16) ETE 16D ( ) (16D)</td>
</tr>
<tr>
<td></td>
<td>NAME AND/OR LOCATION OF STATION USER</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>LINE KEY APPEARANCE</strong></td>
<td>TRUNK/CO LINE (T01 ~ T40), POOL (P1~P8) EXTENSION (100 ~ 899) or (1000 ~ 8999) SAVE &amp; REPEAT (S01 ~ S80), DO NOT DISTURB (DND) DATA TRANSMIT (DT), DATA RECEIVE (DR)</td>
</tr>
<tr>
<td></td>
<td><strong>RINGING ASSIGNMENT</strong></td>
<td>DAY RING (D), NIGHT RING (N) BOTH RING (B), LEAVE BLANK FOR NO RING DAY DELAYED (DL), NIGHT DELAYED (NL) BOTH DELAYED (BL), DAY RING &amp; NIGHT DELAYED (RL) DAY DELAYED &amp; NIGHT RING (LR)</td>
</tr>
<tr>
<td></td>
<td><strong>LINE POOL GROUP AUTO EXTENSION ASSIGNMENT</strong></td>
<td>(L1) ASSIGNED L1 NOT ASSIGNED</td>
</tr>
</tbody>
</table>
### MEMORY BLOCKS 1A, 1B & 3B-10
**LINE KEY, RINGING AND POOL AUTO EXTENSION ASSIGNMENTS**

<table>
<thead>
<tr>
<th>STATION #</th>
<th>RUN #</th>
<th>STA. TYPE</th>
<th>NAME / LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>L1</td>
<td>L9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L2</td>
<td>L10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L3</td>
<td>L11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L4</td>
<td>L12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L5</td>
<td>L13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L6</td>
<td>L14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L7</td>
<td>L15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L8</td>
<td>L16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STATION #</th>
<th>RUN #</th>
<th>STA. TYPE</th>
<th>NAME / LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>L1</td>
<td>L9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L2</td>
<td>L10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L3</td>
<td>L11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L4</td>
<td>L12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L5</td>
<td>L13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L6</td>
<td>L14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L7</td>
<td>L15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L8</td>
<td>L16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STATION #</th>
<th>RUN #</th>
<th>STA. TYPE</th>
<th>NAME / LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>L1</td>
<td>L9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L2</td>
<td>L10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L3</td>
<td>L11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L4</td>
<td>L12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L5</td>
<td>L13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L6</td>
<td>L14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L7</td>
<td>L15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L8</td>
<td>L16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STATION #</th>
<th>RUN #</th>
<th>STA. TYPE</th>
<th>NAME / LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>L1</td>
<td>L9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L2</td>
<td>L10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L3</td>
<td>L11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L4</td>
<td>L12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L5</td>
<td>L13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L6</td>
<td>L14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L7</td>
<td>L15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L8</td>
<td>L16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STATION #</th>
<th>RUN #</th>
<th>STA. TYPE</th>
<th>NAME / LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>L1</td>
<td>L9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L2</td>
<td>L10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L3</td>
<td>L11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L4</td>
<td>L12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L5</td>
<td>L13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L6</td>
<td>L14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L7</td>
<td>L15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L8</td>
<td>L16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STATION #</th>
<th>RUN #</th>
<th>STA. TYPE</th>
<th>NAME / LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>L1</td>
<td>L9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L2</td>
<td>L10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L3</td>
<td>L11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L4</td>
<td>L12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L5</td>
<td>L13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L6</td>
<td>L14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L7</td>
<td>L15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L8</td>
<td>L16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STATION #</th>
<th>RUN #</th>
<th>STA. TYPE</th>
<th>NAME / LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>L1</td>
<td>L9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L2</td>
<td>L10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L3</td>
<td>L11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L4</td>
<td>L12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L5</td>
<td>L13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L6</td>
<td>L14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L7</td>
<td>L15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L8</td>
<td>L16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STATION #</th>
<th>RUN #</th>
<th>STA. TYPE</th>
<th>NAME / LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>L1</td>
<td>L9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L2</td>
<td>L10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L3</td>
<td>L11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L4</td>
<td>L12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L5</td>
<td>L13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L6</td>
<td>L14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L7</td>
<td>L15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L8</td>
<td>L16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STATION #</th>
<th>RUN #</th>
<th>STA. TYPE</th>
<th>NAME / LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>L1</td>
<td>L9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L2</td>
<td>L10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L3</td>
<td>L11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L4</td>
<td>L12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L5</td>
<td>L13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L6</td>
<td>L14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L7</td>
<td>L15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L8</td>
<td>L16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STATION #</th>
<th>RUN #</th>
<th>STA. TYPE</th>
<th>NAME / LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>L1</td>
<td>L9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L2</td>
<td>L10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L3</td>
<td>L11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L4</td>
<td>L12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L5</td>
<td>L13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L6</td>
<td>L14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L7</td>
<td>L15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L8</td>
<td>L16</td>
</tr>
</tbody>
</table>
JOB SPECIFICATION INSTRUCTIONS FOR
MEMORY BLOCKS 1C-1, -3, & -4 DSS BUTTON ASSIGNMENTS FOR EDE-30-()

ITEM DESCRIPTION ENTRY
ASSOCIATED ATTENDANT STATION ASSOCIATED ATTENDANT BEING ASSIGNED ASSOCIATED ATTENDANT EXTENSION NUMBER

ASSIGNMENT OF DSS BUTTONS
(EXTENSION NUMBERS AND/OR FEATURES)
EXTENSION (100~899) or (1000~8999)
VIRTUAL EXTENSION (200~247)
VMI EXTENSION (100~899 or 1000~8999)
HUNT PILOT NUMBER (100~899 or 1000~8999)
MW = MESSAGE WAIT
XFR = TRANSFER
OVRD = ATTENDANT OVERRIDE
NT = NIGHT TRANSFER
PZ(#) = PAGE ZONE (5~13)
  05 = Internal All Call
  06 = Internal Zone 1
  07 = Internal Zone 2
  08 = Internal Zone 3
  09 = Internal All Zones
  10 = External Zone 1
  11 = External Zone 2
  12 = External Zone 3
  13 = External All Zones

ASSIGNMENT OF FUNCTION BUTTONS
(FEATURES ONLY)

300 - 276
Memory Blocks 1C-1, -3, & -4  DSS Button Assignments for EDE-30(-)

<table>
<thead>
<tr>
<th>DSS/BLF #1</th>
<th>DSS/BLF #2</th>
<th>DSS/BLF #3</th>
<th>DSS/BLF #4</th>
<th>DSS/BLF #5</th>
<th>DSS/BLF #6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Associated Attendant Station</td>
<td>Associated Attendant Station</td>
<td>Associated Attendant Station</td>
<td>Associated Attendant Station</td>
<td>Associated Attendant Station</td>
<td>Associated Attendant Station</td>
</tr>
</tbody>
</table>

### DSS/BLF #1

<table>
<thead>
<tr>
<th>ROW</th>
<th>COLUMN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>L1</td>
</tr>
<tr>
<td>2</td>
<td>L2</td>
</tr>
<tr>
<td>3</td>
<td>L3</td>
</tr>
<tr>
<td>4</td>
<td>L4</td>
</tr>
<tr>
<td>5</td>
<td>L5</td>
</tr>
</tbody>
</table>

### DSS/BLF #2

<table>
<thead>
<tr>
<th>ROW</th>
<th>COLUMN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>L1</td>
</tr>
<tr>
<td>2</td>
<td>L2</td>
</tr>
<tr>
<td>3</td>
<td>L3</td>
</tr>
<tr>
<td>4</td>
<td>L4</td>
</tr>
<tr>
<td>5</td>
<td>L5</td>
</tr>
</tbody>
</table>

### DSS/BLF #3

<table>
<thead>
<tr>
<th>ROW</th>
<th>COLUMN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>L1</td>
</tr>
<tr>
<td>2</td>
<td>L2</td>
</tr>
<tr>
<td>3</td>
<td>L3</td>
</tr>
<tr>
<td>4</td>
<td>L4</td>
</tr>
<tr>
<td>5</td>
<td>L5</td>
</tr>
</tbody>
</table>

### DSS/BLF #4

<table>
<thead>
<tr>
<th>ROW</th>
<th>COLUMN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>L1</td>
</tr>
<tr>
<td>2</td>
<td>L2</td>
</tr>
<tr>
<td>3</td>
<td>L3</td>
</tr>
<tr>
<td>4</td>
<td>L4</td>
</tr>
<tr>
<td>5</td>
<td>L5</td>
</tr>
</tbody>
</table>

### DSS/BLF #5

<table>
<thead>
<tr>
<th>ROW</th>
<th>COLUMN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>L1</td>
</tr>
<tr>
<td>2</td>
<td>L2</td>
</tr>
<tr>
<td>3</td>
<td>L3</td>
</tr>
<tr>
<td>4</td>
<td>L4</td>
</tr>
<tr>
<td>5</td>
<td>L5</td>
</tr>
</tbody>
</table>

### DSS/BLF #6

<table>
<thead>
<tr>
<th>ROW</th>
<th>COLUMN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>L1</td>
</tr>
<tr>
<td>2</td>
<td>L2</td>
</tr>
<tr>
<td>3</td>
<td>L3</td>
</tr>
<tr>
<td>4</td>
<td>L4</td>
</tr>
<tr>
<td>5</td>
<td>L5</td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

Flexible Function
**JOB SPECIFICATION INSTRUCTIONS**  
**FOR**  
**MEMORY BLOCK 1C-2 BLF FEATURE TO TELEPHONE ASSIGNMENT**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>ENTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EXTENSION NUMBER OF EACH ETE-16D-( ) MULTILINE TERMINAL WITH BLF FEATURE.</td>
<td>EXTENSION (100<del>899) or (1000</del>8999)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MODULE 1</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BLF ASSIGNMENT NUMBER</td>
<td>STATION NUMBER</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** 30 terminals may have the BLF feature assigned (Maximum of 10 per CCU)
**MEMORY BLOCK 1C-2 BLF FEATURE TO TELEPHONE ASSIGNMENT**

<table>
<thead>
<tr>
<th>MODULE 1</th>
<th>MODULE 2</th>
<th>MODULE 3</th>
<th>MODULE 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BLF ASSIGNMENT NUMBER</strong></td>
<td><strong>STATION NUMBER</strong></td>
<td><strong>BLF ASSIGNMENT NUMBER</strong></td>
<td><strong>STATION NUMBER</strong></td>
</tr>
<tr>
<td>1</td>
<td>11</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>2</td>
<td>12</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>3</td>
<td>13</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>4</td>
<td>14</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>5</td>
<td>15</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>6</td>
<td>16</td>
<td>26</td>
<td>26</td>
</tr>
<tr>
<td>7</td>
<td>17</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td>8</td>
<td>18</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>9</td>
<td>19</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>10</td>
<td>20</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

**NOTE:** Only ETE-16D() Multiline Terminals can be assigned this feature.

**NOTE:** 30 terminals may have the BLF feature assigned (Maximum of 10 per CCU)
### Job Specification Instructions

**FOR MEMORY BLOCKS 1C-5, -6, -7 & -8**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>ENTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASSOCIATED ATTENDANT STATION</td>
<td>ASSOCIATED ATTENDANT BEING ASSIGNED</td>
<td>EXTENSION NUMBER (XXX OR XXXX)</td>
</tr>
<tr>
<td>EDE-30() UNIT DEVICE NUMBER</td>
<td>ASSIGNMENT OF EDE-30() UNIT AS A CO ADD-ON MODULE</td>
<td>EDE-30() UNIT DEVICE NUMBER (1~6)</td>
</tr>
<tr>
<td>ASSOCIATED ATTENDANT STATION</td>
<td>ASSIGNMENT OF LINE KEYS</td>
<td>CO TRUNKS (01~40)</td>
</tr>
<tr>
<td>EDE-30() DEVICE NUMBER</td>
<td>RINGING ASSIGNMENT</td>
<td>ENTER:</td>
</tr>
<tr>
<td>COLUMN</td>
<td></td>
<td>DAY RING (D)</td>
</tr>
<tr>
<td>ROW</td>
<td></td>
<td>NIGHT RING (N)</td>
</tr>
<tr>
<td>L1</td>
<td></td>
<td>BOTH RING (B)</td>
</tr>
<tr>
<td>L2</td>
<td></td>
<td>LEAVE BLANK FOR NO RING</td>
</tr>
<tr>
<td>L3</td>
<td></td>
<td>DAY DELAYED (DL)</td>
</tr>
<tr>
<td>L4</td>
<td></td>
<td>NIGHT DELAYED (NL)</td>
</tr>
<tr>
<td>L5</td>
<td></td>
<td>BOTH DELAYED (BL)</td>
</tr>
<tr>
<td>L6</td>
<td></td>
<td>DAY RING &amp; NIGHT DELAYED (RL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DAY DELAYED &amp; NIGHT RING (LR)</td>
</tr>
</tbody>
</table>
### MEMORY BLOCKS 1C-5,-6,-7 & -8 CO ADD-ON MODULE ASSIGNMENTS FOR EDE-30(-)

<table>
<thead>
<tr>
<th>CO ADD-ON MODULE #1</th>
<th>ASSOCIATED ATTENDANT STATION</th>
<th>EDE-30(-) DEVICE NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ROW</strong></td>
<td><strong>COLUMN</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>L1</td>
<td>L2</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CO ADD-ON MODULE #3</th>
<th>ASSOCIATED ATTENDANT STATION</th>
<th>EDE-30(-) DEVICE NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ROW</strong></td>
<td><strong>COLUMN</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>L1</td>
<td>L2</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CO ADD-ON MODULE #2</th>
<th>ASSOCIATED ATTENDANT STATION</th>
<th>EDE-30(-) DEVICE NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ROW</strong></td>
<td><strong>COLUMN</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>L1</td>
<td>L2</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CO ADD-ON MODULE #4</th>
<th>ASSOCIATED ATTENDANT STATION</th>
<th>EDE-30(-) DEVICE NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ROW</strong></td>
<td><strong>COLUMN</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>L1</td>
<td>L2</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Job Specification Instructions for Memory Blocks

## 1D-1, -3, -4, -5, -6, -7, -8, -9, -10, and 1E-1 & -2 Station Assignments

### 1D-1, -3, -4, -5, -6, -7, -8, -9, -10

**Prime/Ringing Instructions:**
- **Program Trunk Restrictions:**
  - F 0
  - F 1
  - I = IN
  - O = OUT
  - B = BOTH
  - Leave blank for unrestricted

### Code Table Access

#### ID#1

**Class of Service:**
- RN L 1
- NE,: TRUNK GROUPS
  - C AM P
  - C AM P
  - P R I M E
  - P R I M E
  - L I N E
  - L I N E
  - L I N E

**Trunk Groups:**
- Enter Table
- #s Assigned

### Station Add Port

**Station Number to Be Assigned**

**Line Key to Be Assigned**

**Idle Line Seized When Going Off Hook**

**Line Seized During Ring When Going Off Hook**

**Selection of Both Prime Line and Ringing Line Features**

**Co Line to Be Assigned as Prime Line For an SLT.**

**Incoming Ringing While Off Hook.**

**Selection of Voice or Tone Incoming Signaling**

**Selection of a Ringing Tone**

**Restrictions Applied to the 8 Trunk Groups**

**Tables Previously Assigned for Code Restriction**

**Ability to Camp Onto a Busy Extension**

**Ability to Receive a Camp-On While Busy**

**Ability to Call Forward Station Calls**

**Operator Restriction on CO Lines**

**Denies All Incoming Tones To Protect Data Transmission**

**Places Station Out of Service By Using a Special Code**

**Access to Paging Codes**

**Provides Least Cost Routing on Extension Calls to Outside**

**Capability to Transfer Trunk To Trunk Without Using a CNF-E ETU**

**Account Code - Forced/Verified**

**Selection of Associated Attendant (Dial 0)**

**Assignment of Station Into Internal Paging Zone**

**Assignment of Station Into Call Pickup Group**

**Exchange of Assigned Extension Numbers**

**Station Type Assignment**

**SLT Assignment**

**CO Line Digit Restriction**

<table>
<thead>
<tr>
<th>Extension (100<del>399 or 1000</del>1299)</th>
<th>Virtual Extension (200~247)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1~16</td>
<td>1~16</td>
</tr>
<tr>
<td>[ ] IF CHOSEN, OR,</td>
<td>[ ] IF CHOSEN, OR,</td>
</tr>
<tr>
<td>[ ] TO ALLOW</td>
<td>[ ] TO ALLOW</td>
</tr>
<tr>
<td>V = VOICE OR T = TONE</td>
<td>V = VOICE OR T = TONE</td>
</tr>
<tr>
<td>1 = TONE #1</td>
<td>2 = TONE #2</td>
</tr>
<tr>
<td>I = INCOMING RESTRICTED</td>
<td>O = OUTGOING RESTRICTED</td>
</tr>
<tr>
<td>O = OUTGOING RESTRICTED</td>
<td>B = IN/OUT RESTRICTED</td>
</tr>
<tr>
<td>BLANK = UNRESTRICTED</td>
<td></td>
</tr>
</tbody>
</table>

**Maximum Number of Digits That The Station Will Be Allowed To Dial When On A CO Line.**

1. 300
2. 282
3. 00 = NO RESTRICTION
4. 01 = 99
MEMORY BLOCKS 1D-1, 3-4, 5-6, 7-8, 9-10, AND 1E-1 & -2 STATION ASSIGNMENTS

<table>
<thead>
<tr>
<th>STATION</th>
<th>1D-1</th>
<th>1D-3</th>
<th>1D-4 &amp; 1D-5</th>
<th>1D-6</th>
<th>1D-7</th>
<th>1D-8</th>
<th>1D-9</th>
<th>1D-10</th>
<th>1E-1</th>
<th>1E-2</th>
<th>1E-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>#</td>
<td>PRIME/RINGING</td>
<td>USER PROGRAM</td>
<td>TRUNK RESTRICTIONS</td>
<td>CODE TABLE ACCESS</td>
<td>CLASS OF SERVICE</td>
<td>STATION ASSIGNMENT</td>
<td>ADD PORT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SLT</td>
<td>RING</td>
<td>CO</td>
<td>RING</td>
<td>TONE</td>
<td>ID-1</td>
<td>ID-3</td>
<td>ID-4</td>
<td>ID-5</td>
<td>ID-6</td>
<td>ID-7</td>
</tr>
<tr>
<td></td>
<td>L1</td>
<td>L2</td>
<td>L3</td>
<td>L4</td>
<td>L5</td>
<td>L6</td>
<td>L7</td>
<td>L8</td>
<td>L9</td>
<td>L10</td>
<td>L11</td>
</tr>
<tr>
<td></td>
<td>SLT</td>
<td>RING</td>
<td>CO</td>
<td>RING</td>
<td>TONE</td>
<td>ID-1</td>
<td>ID-3</td>
<td>ID-4</td>
<td>ID-5</td>
<td>ID-6</td>
<td>ID-7</td>
</tr>
<tr>
<td></td>
<td>L1</td>
<td>L2</td>
<td>L3</td>
<td>L4</td>
<td>L5</td>
<td>L6</td>
<td>L7</td>
<td>L8</td>
<td>L9</td>
<td>L10</td>
<td>L11</td>
</tr>
</tbody>
</table>

LEAVE BLANK FOR UNRESTRICTED

ASSIGN TO ONE (L1-L16)

300-283
## JOB SPECIFICATION INSTRUCTIONS
### FOR
### MEMORY BLOCK 1D-2  DATA SERVICE ASSIGNMENT

<table>
<thead>
<tr>
<th>ITEM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong></td>
</tr>
<tr>
<td><strong>2</strong></td>
</tr>
<tr>
<td><strong>3</strong></td>
</tr>
<tr>
<td><strong>4</strong></td>
</tr>
<tr>
<td><strong>5</strong></td>
</tr>
<tr>
<td><strong>6</strong></td>
</tr>
<tr>
<td><strong>7</strong></td>
</tr>
</tbody>
</table>

### ENTRY

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXTENSION NUMBER (100 ~ 899 or 1000~8999)</td>
</tr>
<tr>
<td>IF ASSIGNED; LEAVE BLANK IF NOT ASSIGNED.</td>
</tr>
<tr>
<td>IF ASSIGNED; LEAVE BLANK IF NOT ASSIGNED.</td>
</tr>
<tr>
<td>IF DTR SIGNAL IS TO BE CONSIDERED VALID; LEAVE BLANK IF IT WILL BE CONSIDERED INVALID.</td>
</tr>
<tr>
<td>IF ALLOW; LEAVE BLANK IF PROHIBITED.</td>
</tr>
<tr>
<td>IF INCOMING CALL IS TO BE REJECTED AND THE MODEM POOL ACTIVATED; LEAVE BLANK IF THE INCOMING INTERNAL DATA CALL IS TO BE ACCEPTED.</td>
</tr>
<tr>
<td>IF PROVIDED; LEAVE BLANK IF NOT PROVIDED.</td>
</tr>
</tbody>
</table>
### MEMORY BLOCK 1D-2 DATA SERVICE ASSIGNMENT

<table>
<thead>
<tr>
<th>STATION #</th>
<th>ENABLE AUTOMATIC ANSWER FOR DATA CALLS</th>
<th>ENABLE AUTOMATIC RELEASE FOR DATA CALLS</th>
<th>DTR SIGNAL VALID</th>
<th>ALLOW INCOMING INTERNAL DATA CALL DURING CONVERSATION</th>
<th>DURING CO CONVERSATION, OR KEY DEPRESSION TO REJECT INCOMING INTERNAL DATA CALL AND ACTIVATE MODEM POOL</th>
<th>RECEIVE LCD INDICATION FOR DATA CALLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>(L1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(L2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(L3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(L4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(L5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(L6)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**JOB SPECIFICATION INSTRUCTIONS FOR MEMORY BLOCKS 2A-2 & -3 SPEED DIAL TENANT AND OVERRIDE ASSIGNMENTS**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>ENTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BUFFERS ARE ASSIGNED TO TENANTS 1 ~ 3. A MAXIMUM OF 16 CHARACTERS MAY BE ASSIGNED TO EACH BUFFER.</strong></td>
<td>UP TO 16 DIGITS / CHARACTERS, #, *, 1 ~ 9, PAUSE CHECK BOX IN TENANT(S) COLUMN(S) ASSIGNED.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BUFFER #</th>
<th>NUMBER STORED (16 CHARACTERS MAXIMUM)</th>
<th>TENANT #1</th>
<th>TENANT #2</th>
<th>TENANT #3</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td></td>
<td>OVERRIDE</td>
<td>OVERRIDE</td>
<td>OVERRIDE</td>
</tr>
<tr>
<td>21</td>
<td></td>
<td>OVERRIDE</td>
<td>OVERRIDE</td>
<td>OVERRIDE</td>
</tr>
<tr>
<td>22</td>
<td></td>
<td>OVERRIDE</td>
<td>OVERRIDE</td>
<td>OVERRIDE</td>
</tr>
</tbody>
</table>

| **BUFFERS ALREADY ASSIGNED TO A TENANT CAN BE SELECTED TO OVERRIDE CODE RESTRICTION.** | CHECK OVERRIDE BOX IN TENANT COLUMN TO ALLOW OVERRIDE OF CODE RESTRICTION OF ASSIGNED BUFFERS. |

<table>
<thead>
<tr>
<th>BUFFER #</th>
<th>NUMBER STORED (16 CHARACTERS MAXIMUM)</th>
<th>TENANT #1</th>
<th>TENANT #2</th>
<th>TENANT #3</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td></td>
<td>OVERRIDE</td>
<td>OVERRIDE</td>
<td>OVERRIDE</td>
</tr>
<tr>
<td>21</td>
<td></td>
<td>OVERRIDE</td>
<td>OVERRIDE</td>
<td>OVERRIDE</td>
</tr>
<tr>
<td>22</td>
<td></td>
<td>OVERRIDE</td>
<td>OVERRIDE</td>
<td>OVERRIDE</td>
</tr>
</tbody>
</table>
JOB SPECIFICATION INSTRUCTIONS FOR
MEMORY BLOCKS 2A-1,-4,-5,-6,-7,-8,-9, 2R-1,-2,-5,-6,-9, 2C-1,-2,-3,-4 AND 3B-3,-4&-9 SYSTEM GROUPS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>ENTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A-1</td>
<td>PROGRAMMING TELEPHONE</td>
<td>ASSIGNING THIRD PROGRAMMING STATION</td>
</tr>
<tr>
<td>2A-4</td>
<td>INCOMING PRIME LINE PICKUP</td>
<td>ALLOW PRIME LINE PICKUP IN THE SYSTEM</td>
</tr>
<tr>
<td>2A-5</td>
<td>CO &amp; # AND/OR &quot;#&quot; AS FIRST DIGIT</td>
<td>PROVIDE # AS 1st. DIGIT FOR CO DIALING</td>
</tr>
<tr>
<td>2A-6</td>
<td>SMIDR INCOMING REPORT</td>
<td>PROVIDE * AS 1st. DIGIT FOR CO DIALING</td>
</tr>
<tr>
<td>2A-7</td>
<td>ALL INTERNAL CALL</td>
<td>RECORDING OF INCOMING CO INFORMATION</td>
</tr>
<tr>
<td>2A-8</td>
<td>ACCOUNT CODE DIGITS (1~14)</td>
<td>TO INCLUDE ALL STATIONS FOR INTERNAL PAGE</td>
</tr>
<tr>
<td>2A-9</td>
<td>PBX OUTGOING CODE</td>
<td>PROVIDE # AS 1st. DIGIT FOR CO DIALING</td>
</tr>
<tr>
<td>2B-1</td>
<td>KEYBOARD DIALING (MODEM)</td>
<td>PROVIDE * AS 1st. DIGIT FOR CO DIALING</td>
</tr>
<tr>
<td>2B-2</td>
<td>ALLOW FORWARD DIALING</td>
<td>TO ALLOW</td>
</tr>
<tr>
<td>2B-3</td>
<td>TRUNK GROUP 1+ DIALING</td>
<td>TO ALLOW</td>
</tr>
<tr>
<td>2B-4</td>
<td>SLT PORT WITH RAA</td>
<td>TO ALLOW</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TRUNK ACCESS CODE GROUP</th>
<th>ACCESS CODE</th>
<th>LCR BYPASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>71</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>74</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>7A</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>78</td>
<td></td>
</tr>
</tbody>
</table>

ASSIGNS TRUNK ACCESS GROUP TO BYPASS LCR

ASSIGNS VOICE MAIL EXTENSIONS

EXTENSION (100~899 or 1000~8999)

CIRCUIT NUMBER FROM THE CO
CIRCUIT ASSIGNED TO THE TRUNK GROUP
CIRCUIT ASSIGNED TO TENANT
ITEM CODE ASSIGNED TO TRUNK ACCESS
(SEE REFERENCE TABLE)
POOLED LINE

ASSIGNS SLT PORT WITH RAA

EXTENSION (100~899 OR 1000~8999)

EXTENSION (100~899 OR 1000~8999)

ASSIGNS VOICE MAIL EXTENSIONS

EXTENSION (100~899 OR 1000~8999)
MEMORY BLOCKS 2A-1,-4,-5,-6,-7,-8,-9, 2B-1,-2,-5,-6,-9, 2C-1,-2,-3,-4 AND 3B-3,-4 & -9 SYSTEM GROUPS

<table>
<thead>
<tr>
<th>2A-1</th>
<th>PROGRAMMING TELEPHONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A-4</td>
<td>INCOMING PRIME LINE PICKUP</td>
</tr>
<tr>
<td>2A-5</td>
<td>CO # AS FIRST DIGIT</td>
</tr>
<tr>
<td>2A-6</td>
<td>SMDR INCOMING REPORT</td>
</tr>
<tr>
<td>2A-7</td>
<td>ALL INTERNAL CALL</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2C-4</th>
<th>VOICE MAIL HUNT GROUP ASSIGNMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXTENSION #</td>
<td>63</td>
</tr>
<tr>
<td>(ACCESS CODE)</td>
<td>(IN DEFAULT)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2B-9</th>
<th>TRUNK TENANT ITEM POOLED</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRUNK NUMBER</td>
<td>TELEPHONE NUMBER</td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2C-1</th>
<th>2C-2</th>
<th>2C-3</th>
<th>3B-9</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRUNK NUMBER</td>
<td>TELEPHONE NUMBER</td>
<td>TRUNK GROUP (1~8)</td>
<td>TENANT NUMBER (1~3)</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2B-9</th>
<th>TRUNK ACCESS CODE GROUP</th>
<th>ACCESS CODE</th>
<th>LCR BYPASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>75</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REFERENCE TABLE (SEE 2E-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITEM NUMBER</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>DEFAULT</td>
</tr>
<tr>
<td>39</td>
</tr>
<tr>
<td>40</td>
</tr>
<tr>
<td>41</td>
</tr>
<tr>
<td>42</td>
</tr>
<tr>
<td>43</td>
</tr>
<tr>
<td>44</td>
</tr>
<tr>
<td>45</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2A-8</th>
<th>ACCOUNT CODE DIGITS (1~14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A-9</td>
<td>PBX OUTGOING CODE</td>
</tr>
<tr>
<td>2B-1</td>
<td>KEYBOARD DIALING (MODEM)</td>
</tr>
<tr>
<td>2B-2</td>
<td>ALLOW FORWARD OVERRIDE</td>
</tr>
<tr>
<td>2B-5</td>
<td>LCR 1 + DIALING</td>
</tr>
<tr>
<td>2B-6</td>
<td>LCR LOCAL CALL OVERRIDE</td>
</tr>
<tr>
<td>3B-3</td>
<td>FORCED ACCT. CODE DIGITS (1~13)</td>
</tr>
<tr>
<td>3B-4</td>
<td>SLT PORT WITH RAA</td>
</tr>
<tr>
<td>ITEM</td>
<td>DESCRIPTION</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td></td>
<td>MAXIMUM NUMBER OF DIGITS THAT A STATION CAN DIAL WHEN USING A TIE LINE</td>
</tr>
<tr>
<td></td>
<td>STATION BEING ASSIGNED</td>
</tr>
</tbody>
</table>
# Memory Block 2A-10 Tie Line Digit Restriction Assignment

<table>
<thead>
<tr>
<th>Number of Digits That Can Be Dialed</th>
<th>Station Number</th>
<th>Number of Digits That Can Be Dialed</th>
<th>Station Number</th>
<th>Number of Digits That Can Be Dialed</th>
<th>Station Number</th>
<th>Number of Digits That Can Be Dialed</th>
<th>Station Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>21</td>
<td></td>
<td>41</td>
<td></td>
<td>61</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>22</td>
<td></td>
<td>42</td>
<td></td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>23</td>
<td></td>
<td>43</td>
<td></td>
<td>63</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>24</td>
<td></td>
<td>44</td>
<td></td>
<td>64</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>25</td>
<td></td>
<td>45</td>
<td></td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>26</td>
<td></td>
<td>46</td>
<td></td>
<td>66</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>27</td>
<td></td>
<td>47</td>
<td></td>
<td>67</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>28</td>
<td></td>
<td>48</td>
<td></td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>29</td>
<td></td>
<td>49</td>
<td></td>
<td>69</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>30</td>
<td></td>
<td>50</td>
<td></td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>31</td>
<td></td>
<td>51</td>
<td></td>
<td>71</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>32</td>
<td></td>
<td>52</td>
<td></td>
<td>72</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>33</td>
<td></td>
<td>53</td>
<td></td>
<td>73</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>34</td>
<td></td>
<td>54</td>
<td></td>
<td>74</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>35</td>
<td></td>
<td>55</td>
<td></td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td>36</td>
<td></td>
<td>56</td>
<td></td>
<td>76</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
<td>37</td>
<td></td>
<td>57</td>
<td></td>
<td>77</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
<td>38</td>
<td></td>
<td>58</td>
<td></td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
<td>39</td>
<td></td>
<td>59</td>
<td></td>
<td>79</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td>40</td>
<td></td>
<td>60</td>
<td></td>
<td>80</td>
<td></td>
</tr>
</tbody>
</table>
JOBSPECIFICATION INSTRUCTIONS FOR
MEMORY BLOCKS 2B3, -4, -7, -8 AND 2C-5 DIT/ANA, MODEM POOL AND SLT TO VMI ASSIGNMENTS

2B3 2B4 2C5

<table>
<thead>
<tr>
<th>TRUNK NUMBER</th>
<th>DIT/ANA TRUNK TO TENANT 1 ~ 3</th>
<th>DIT/ANA TO EXTENSION NUMBER</th>
<th>DELAY ANNOUNCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ITEM

2B7

<table>
<thead>
<tr>
<th>MODEM</th>
<th>ASSOCIATED SLT EXTENSION #</th>
<th>ASSOCIATED TERMINAL EXTENSION #</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2B8

<table>
<thead>
<tr>
<th>VMI CHANNEL NUMBER</th>
<th>VMI EXTENSION NUMBER</th>
<th>VOICE MAIL</th>
<th>SLT</th>
<th>AUTO DIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE: Memory Block 2B10 is located on page 104.

DESCRIPTION ENTRY

1 Assigns a tenant to the DIT/ANA trunk. 1 ~ 3

2 The extension or hunt number that the DIT (day mode) is assigned to. Extension Number or Hunt Number (100~899 or 1000 ~ 8999)

3 The extension or hunt number that the ANA (night mode) is assigned to. Extension Number or Hunt Number (100~899 or 1000 ~ 8999)

4 Delay Announcement Assignment.

5 SLT extension associated with a modem for use with the Modem Pool. Extension Number (100~899 or 1000~8999)

6 Multiline Terminal's extension number associated with a modem for use in the Modem Pool. Extension Number (100~899 or 1000~8999)

7 VMI extension number. VMI, Extension Number (100~899 or 1000~8999)

8 Voice Mail/SLT assignment. To select equipment type connected to VMI Channels 1&5, 2&6, 3&7, 4&8 (voice mail equipment, or single line telephone).

9 Auto Dial Assignment. To allow Channels 1&5, 2&6, 3&7, 4&8
## MEMORY BLOCKS 2B-3, -4, -7, -8 AND 2C-5 DIT/ANA, MODEM POOL AND SLT TO VMI ASSIGNMENTS

<table>
<thead>
<tr>
<th>TRUNK NUMBER</th>
<th>2B3</th>
<th>2B4</th>
<th>2C-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIT/ANA TRUNK TO TENANT 1 - 3</td>
<td>DIT/ANA TO EXTENSION NUMBER</td>
<td>DIT/ANA TO EXTENSION NUMBER</td>
<td>DIT/ANA TO EXTENSION NUMBER</td>
</tr>
<tr>
<td>TRUNK NUMBER</td>
<td>DAY MODE</td>
<td>NIGHT MODE (ANA)</td>
<td>DELAY ANNOUNCE</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 2B7

<table>
<thead>
<tr>
<th>MODEM</th>
<th>ASSOCIATED SLT EXTENSION #</th>
<th>ASSOCIATED TERMINAL EXTENSION #</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 2B8

<table>
<thead>
<tr>
<th>VMI CHANNEL NUMBER</th>
<th>VMI EXTENSION NUMBER</th>
<th>VOICE MAIL</th>
<th>SLT</th>
<th>AUTO DIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**JOB SPECIFICATION INSTRUCTIONS**

**FOR**

**MEMORY BLOCKS 2C-7, -8, AND -9 RELAY ASSIGNMENTS**

<table>
<thead>
<tr>
<th>ECR RELAY</th>
<th>NIGHT* CHIME (3 MAX) (L1)</th>
<th>EXTERNAL RING CONTROL (4 MAX) (L2)</th>
<th>DELAY ANNOUNCEMENT</th>
<th>TRUNK GROUPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>#</td>
<td>N</td>
<td>T</td>
<td>R1</td>
<td>R2</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**EXTERNAL RING PATTERNS**

- **R1 - R5**: Ring patterns assign numbers 1 to 5.
- **1st & 2nd**: Positions for the first and second ring patterns.
- **1 - 8**: Trunk groups from 1 to 8.

**Note**: Used for external paging only.

- **Enter N1 ~ N3** to indicate night chime number and T1 ~ T3 for tenant number.
- **Enter E1 ~ E4** to indicate external ring number.
- **Check** to indicate relay in use.
- **Check** to allow delay announcement (Maximum of 1 per announcement).
- **Check** for ringing pattern (select one per relay).
- **Check** for trunk group assignment for night and/or external ring.

* THE RINGING INTERVAL FOR NIGHT CHIME IS FIXED BY SYSTEM SOFTWARE AND CANNOT BE CHANGED.
**JOB SPECIFICATION INSTRUCTIONS**

**FOR**

**MEMORY BLOCKS 2C-7, -8, AND -9 RELAY ASSIGNMENTS**

<table>
<thead>
<tr>
<th>ECR RELAY #</th>
<th>NIGHT* CHIME (3 MAX) L1</th>
<th>EXTERNAL RING CONTROL (4 MAX) L2</th>
<th>RING PATTERNS</th>
<th>DELAY ANNOUNCEMENT</th>
<th>TRUNK GROUPS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N T</td>
<td>R1 R2 R3 R4 R5</td>
<td></td>
<td></td>
<td>1 2 3 4 5 6 7 8</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>USED FOR EXTERNAL PAGING ONLY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* THE RINGING INTERVAL FOR NIGHT CHIME IS FIXED BY SYSTEM SOFTWARE AND CANNOT BE CHANGED.
## JOB SPECIFICATION INSTRUCTIONS FOR MEMORY BLOCK 2C-10 VIRTUAL EXTENSION ASSIGNMENT

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>ENTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DEFAULT VIRTUAL EXTENSION NUMBER ASSIGNMENTS. ANY UNASSIGNED EXTENSION NUMBER CAN BE USED TO REPLACE THE DEFAULT VALUE.</td>
<td>NEW VIRTUAL EXTENSION NUMBER (100 ~ 899 OR 1000 ~ 8999)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VE</th>
<th>VE #</th>
<th>STATIONS ASSIGNED (SEE MB 1A, LK ASSIGNMENT)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>01</td>
<td>200</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VE</th>
<th>VE #</th>
<th>STATIONS HAVING APPEARANCES FOR THE ASSIGNED VIRTUAL EXTENSION.</th>
<th>PRIMARY EXTENSION (PE) NUMBER OF STATION ASSIGNED (100 ~ 899 OR 1000 ~ 8999)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>01</td>
<td>200</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** 48 VIRTUAL EXTENSIONS ARE AVAILABLE.
## MEMORY BLOCK 2C-10 VIRTUAL EXTENSION ASSIGNMENT

<table>
<thead>
<tr>
<th>VE</th>
<th>VE #</th>
<th>STATIONS ASSIGNED (SEE MB 1A, LK ASSIGNMENT)</th>
<th>VE</th>
<th>VE #</th>
<th>STATIONS ASSIGNED (SEE MB 1A, LK ASSIGNMENT)</th>
<th>VE</th>
<th>VE #</th>
<th>STATIONS ASSIGNED (SEE MB 1A, LK ASSIGNMENT)</th>
<th>VE</th>
<th>VE #</th>
<th>STATIONS ASSIGNED (SEE MB 1A, LK ASSIGNMENT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>200</td>
<td></td>
<td>13</td>
<td>212</td>
<td></td>
<td>25</td>
<td>224</td>
<td></td>
<td>37</td>
<td>236</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>201</td>
<td></td>
<td>14</td>
<td>213</td>
<td></td>
<td>26</td>
<td>225</td>
<td></td>
<td>38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>202</td>
<td></td>
<td>15</td>
<td>214</td>
<td></td>
<td>27</td>
<td>226</td>
<td></td>
<td>39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>203</td>
<td></td>
<td>16</td>
<td>215</td>
<td></td>
<td>28</td>
<td>227</td>
<td></td>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>204</td>
<td></td>
<td>17</td>
<td>216</td>
<td></td>
<td>29</td>
<td>228</td>
<td></td>
<td>41</td>
<td></td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>205</td>
<td></td>
<td>18</td>
<td>217</td>
<td></td>
<td>30</td>
<td>229</td>
<td></td>
<td>42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>206</td>
<td></td>
<td>19</td>
<td>218</td>
<td></td>
<td>31</td>
<td>230</td>
<td></td>
<td>43</td>
<td></td>
<td></td>
</tr>
<tr>
<td>08</td>
<td>207</td>
<td></td>
<td>20</td>
<td>219</td>
<td></td>
<td>32</td>
<td>231</td>
<td></td>
<td>44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>09</td>
<td>208</td>
<td></td>
<td>21</td>
<td>220</td>
<td></td>
<td>33</td>
<td>232</td>
<td></td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>209</td>
<td></td>
<td>22</td>
<td>221</td>
<td></td>
<td>34</td>
<td>233</td>
<td></td>
<td>46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>210</td>
<td></td>
<td>23</td>
<td>222</td>
<td></td>
<td>35</td>
<td>234</td>
<td></td>
<td>47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>211</td>
<td></td>
<td>24</td>
<td>223</td>
<td></td>
<td>36</td>
<td>235</td>
<td></td>
<td>48</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

300 - 297
**JOB SPECIFICATION INSTRUCTIONS**

**FOR**

**MEMORY BLOCKS 2D-1, -2 & -3 SYSTEM TIME BASE ASSIGNMENTS**

The timing required for each feature is multiplied by the base value to arrive at the time value of each feature.

### Timer Description

<table>
<thead>
<tr>
<th>Description</th>
<th>New Value</th>
<th>New Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call Park Recall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time Between 1st &amp; 2nd Announce</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delay Announce Auto Release</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start Time (SMDR, Elapsed Call Timer)</td>
<td>990</td>
<td>300-298</td>
</tr>
<tr>
<td>DSS/BLF Camp-On/Recall (Att.Recall)</td>
<td>INF</td>
<td></td>
</tr>
<tr>
<td>Non Ex-Hold/Transfer (Camp-On) Recall</td>
<td>990</td>
<td>300-298</td>
</tr>
<tr>
<td>Auto Callback/Trunk Queing Cancel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time Between 2nd &amp; Repeat of 2nd Announce</td>
<td>990</td>
<td>300-298</td>
</tr>
<tr>
<td>Exclusive Hold Recall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>External Page Access</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Enter 1 ~ 7*

*Enter 1 ~ 99*
<table>
<thead>
<tr>
<th>TIMER DESCRIPTION</th>
<th>BASE</th>
<th>COUNT</th>
<th>VALUE</th>
<th>MIN.</th>
<th>MAX.</th>
<th>NEW VALUE</th>
<th>NEW COUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALL PARK RECALL</td>
<td>10</td>
<td>18</td>
<td>180</td>
<td>10</td>
<td>990</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIME BETWEEN 1ST &amp; 2ND ANNOUNCE</td>
<td>10</td>
<td>99</td>
<td>*Infinity</td>
<td>10</td>
<td>*Infinity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DELAY ANNOUNCE AUTO RELEASE</td>
<td>10</td>
<td>60</td>
<td>600</td>
<td>10</td>
<td>990</td>
<td></td>
<td></td>
</tr>
<tr>
<td>START TIME (SMDR, ELAPSED CALL TIMER)</td>
<td>10</td>
<td>2</td>
<td>20</td>
<td>10</td>
<td>990</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DSS/BLF CAMP-ON / RECALL (ATT.RECALL)</td>
<td>10</td>
<td>5</td>
<td>50</td>
<td>10</td>
<td>990</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NON EX-HOLD / TRANSFER (CAMP-ON) RECALL</td>
<td>10</td>
<td>5</td>
<td>50</td>
<td>10</td>
<td>990</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUTO CALLBACK / TRUNK QUEING CANCEL</td>
<td>10</td>
<td>2</td>
<td>20</td>
<td>10</td>
<td>990</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIME BETWEEN 2ND &amp; REPEAT OF 2ND ANNOUNCE</td>
<td>10</td>
<td>99</td>
<td>*Infinity</td>
<td>10</td>
<td>*Infinity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXCLUSIVE HOLD RECALL</td>
<td>10</td>
<td>6</td>
<td>60</td>
<td>10</td>
<td>990</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXTERNAL PAGE ACCESS</td>
<td>10</td>
<td>30</td>
<td>300</td>
<td>10</td>
<td>990</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INTERNAL PAGE ACCESS</td>
<td>10</td>
<td>6</td>
<td>60</td>
<td>10</td>
<td>990</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VALID CALL TIMER (SMDR)</td>
<td>10</td>
<td>4</td>
<td>40</td>
<td>10</td>
<td>990</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MODEM RESERVE TIMER</td>
<td>10</td>
<td>60</td>
<td>600</td>
<td>10</td>
<td>990</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONFERENCE PARK RECALL</td>
<td>10</td>
<td>30</td>
<td>300</td>
<td>10</td>
<td>990</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MFR TIME OUT</td>
<td>1</td>
<td>10</td>
<td>10</td>
<td>1</td>
<td>99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TALK START TIMER</td>
<td>1</td>
<td>18</td>
<td>18</td>
<td>1</td>
<td>99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DELAYED RINGING (CO LINE)</td>
<td>1</td>
<td>15</td>
<td>15</td>
<td>1</td>
<td>99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DELAYED RINGING (EXTENSION)</td>
<td>1</td>
<td>10</td>
<td>10</td>
<td>1</td>
<td>99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VOICE MAIL AUTOMATIC DIAL SEND START</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DELAY ANNOUNCE START</td>
<td>1</td>
<td>20</td>
<td>20</td>
<td>1</td>
<td>99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1ST DELAY ANNOUNCE DURATION TIME</td>
<td>1</td>
<td>10</td>
<td>10</td>
<td>1</td>
<td>*Infinity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2ND DELAY ANNOUNCE DURATION TIME</td>
<td>1</td>
<td>10</td>
<td>10</td>
<td>1</td>
<td>*Infinity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CALL FORWARD / NO ANSWER</td>
<td>1</td>
<td>20</td>
<td>20</td>
<td>1</td>
<td>99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOTE: Base x Count = Value</td>
<td></td>
<td></td>
<td></td>
<td>MIN.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* NOTE: Base x 99 = Infinity</td>
<td></td>
<td></td>
<td></td>
<td>MIN.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**2D-3** AUTOMATIC DISCONNECT TIMER

<table>
<thead>
<tr>
<th>Default</th>
<th>VALUE RANGE</th>
<th>NEW VALUE</th>
<th>NEW COUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>60</td>
<td>10</td>
<td>990</td>
</tr>
</tbody>
</table>

*NOTE: Base x 99 = Infinity*
<table>
<thead>
<tr>
<th>FEATURE</th>
<th>ITEM</th>
<th>DEFAULT CODE</th>
<th>NEW CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>BGM OVER STATION SPEAKER</td>
<td>3</td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>CALL FWD. ALL/ORIGINATOR</td>
<td>4</td>
<td>41</td>
<td></td>
</tr>
<tr>
<td>CALL FWD. ALL/DESTINATION</td>
<td>5</td>
<td>47</td>
<td></td>
</tr>
</tbody>
</table>

NEW FEATURE ACCESS CODE DESIRED
ANY UNUSED CODE PATTERN
## MEMORY BLOCK 2E-1 SYSTEM ACCESS CODES

<table>
<thead>
<tr>
<th>FEATURE</th>
<th>ITEM</th>
<th>DEFAULT CODE</th>
<th>NEW CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>BGM OVER STATION SPEAKER</td>
<td>3</td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>CALL FWD. ALL/ORIGINATOR</td>
<td>4</td>
<td>41</td>
<td></td>
</tr>
<tr>
<td>CALL FWD. ALL/DESTINATION</td>
<td>5</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>CALL FWD. ALL/ATTENDANT</td>
<td>6</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>CALL FWD. BUSY NO ANS/ORIGINATOR</td>
<td>7</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>CALL FWD. BUSY NO ANS/DESTINATION</td>
<td>8</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>CALL FWD. BUSY NO ANS/ATTENDANT</td>
<td>9</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>CALL PARK</td>
<td>13</td>
<td>4*</td>
<td></td>
</tr>
<tr>
<td>CALL PICKUP/DIRECTED</td>
<td>14</td>
<td>6#</td>
<td></td>
</tr>
<tr>
<td>CALL PICKUP/GROUP</td>
<td>15</td>
<td>6*</td>
<td></td>
</tr>
<tr>
<td>EXTERNAL HOLD SLT SET/RETRIEVE</td>
<td>17</td>
<td>4#</td>
<td></td>
</tr>
<tr>
<td>INTERNAL PAGE</td>
<td>23</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>EXTERNAL PAGE</td>
<td>24</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>NIGHT CALL PICKUP</td>
<td>26</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>NIGHT MODE</td>
<td>27</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>STATION SPEED DIAL - SLT PROGRAM</td>
<td>29</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>STATION LOCKOUT</td>
<td>30</td>
<td>61</td>
<td></td>
</tr>
<tr>
<td>STATION LOCKOUT CANCEL/ATTENDANT</td>
<td>31</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>SPECIAL CODE PROGRAM</td>
<td>32</td>
<td>59</td>
<td></td>
</tr>
<tr>
<td>TRUNK AND MFR SELECT/TEST</td>
<td>34</td>
<td>67</td>
<td></td>
</tr>
<tr>
<td>TRUNK AND MFR BUSYOUT/RESTORE</td>
<td>35</td>
<td>57</td>
<td></td>
</tr>
<tr>
<td>EXTENSION NUMBER</td>
<td>36</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>EXTENSION NUMBER</td>
<td>37</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>EXTENSION NUMBER</td>
<td>38</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>TRUNK ACCESS CODE 2</td>
<td>39</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>TRUNK ACCESS CODE 3</td>
<td>40</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>TRUNK ACCESS CODE 4</td>
<td>41</td>
<td>71</td>
<td></td>
</tr>
<tr>
<td>TRUNK ACCESS CODE 5</td>
<td>42</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td>TRUNK ACCESS CODE 6</td>
<td>43</td>
<td>73</td>
<td></td>
</tr>
<tr>
<td>TRUNK ACCESS CODE 7</td>
<td>44</td>
<td>74</td>
<td></td>
</tr>
<tr>
<td>TRUNK ACCESS CODE 8</td>
<td>45</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>AUTOMATIC CALLBACK/TRUNK QUEUE</td>
<td>46</td>
<td>*1</td>
<td></td>
</tr>
<tr>
<td>CALL BACK REQUEST MESSAGE</td>
<td>47</td>
<td>#</td>
<td></td>
</tr>
<tr>
<td>TONE/ATTENDANT OVERRIDE</td>
<td>50</td>
<td>*0</td>
<td></td>
</tr>
<tr>
<td>UNIFORM DIAL</td>
<td>60</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>UNIFORM DIAL</td>
<td>61</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>UNIFORM DIAL</td>
<td>62</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>UNIFORM DIAL</td>
<td>63</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>UNIFORM DIAL</td>
<td>64</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>UNIFORM DIAL</td>
<td>65</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>UNIFORM DIAL</td>
<td>66</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>UNIFORM DIAL</td>
<td>67</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>UNIFORM DIAL</td>
<td>68</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>UNIFORM DIAL</td>
<td>69</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>UNIFORM DIAL</td>
<td>70</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>UNIFORM DIAL</td>
<td>71</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>UNIFORM DIAL</td>
<td>72</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>UNIFORM DIAL</td>
<td>73</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>UNIFORM DIAL</td>
<td>74</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>UNIFORM DIAL</td>
<td>75</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>UNIFORM DIAL</td>
<td>76</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>UNIFORM DIAL</td>
<td>77</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>UNIFORM DIAL</td>
<td>78</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>UNIFORM DIAL</td>
<td>79</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>VOICE MAIL HUNT</td>
<td>90</td>
<td>63</td>
<td></td>
</tr>
<tr>
<td>VOICE MAIL MESSAGE WAITING</td>
<td>91</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>HOOKFLASH TO CO FOR SLTs</td>
<td>92</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>CO PRIME LINE RELEASE FOR SLTs</td>
<td>93</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>ACCOUNT CODE - FORCED/VERIFIED</td>
<td>94</td>
<td>NONE</td>
<td></td>
</tr>
</tbody>
</table>

*300 - 301*
### JOB SPECIFICATION INSTRUCTIONS

#### FOR

**MEMORY BLOCK 2E-1 SYSTEM ACCESS CODES**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>ENTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITEM</td>
<td>DEFAULT CODE</td>
<td>NEW CODE</td>
</tr>
<tr>
<td>BGM OVER STATION SPEAKER</td>
<td>3</td>
<td>49</td>
</tr>
<tr>
<td>CALL FWD. ALL/ORIGINATOR</td>
<td>4</td>
<td>41</td>
</tr>
<tr>
<td>CALL FWD. ALL-DESTINATION</td>
<td>5</td>
<td>47</td>
</tr>
<tr>
<td>CALL FWD. ALL/ATTENDANT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FEATURE</td>
<td>ITEM</td>
<td>DEFAULT CODE</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-------------</td>
<td>--------------</td>
</tr>
<tr>
<td>ATTENDANT CALL</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>TRUNK ACCESS CODE 1</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>LAST NUMBER REDIAL</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>OFF-LINE FOR PROGRAMMING</td>
<td></td>
<td>#*0</td>
</tr>
<tr>
<td>SPEED DIAL</td>
<td></td>
<td>#0</td>
</tr>
<tr>
<td>SPEED DIAL</td>
<td></td>
<td>#1</td>
</tr>
<tr>
<td>SPEED DIAL</td>
<td></td>
<td>#2</td>
</tr>
<tr>
<td>SPEED DIAL</td>
<td></td>
<td>#3</td>
</tr>
<tr>
<td>SPEED DIAL</td>
<td></td>
<td>#4</td>
</tr>
<tr>
<td>SPEED DIAL</td>
<td></td>
<td>#5</td>
</tr>
<tr>
<td>SPEED DIAL</td>
<td></td>
<td>#6</td>
</tr>
<tr>
<td>SPEED DIAL</td>
<td></td>
<td>#7</td>
</tr>
<tr>
<td>SPEED DIAL</td>
<td></td>
<td>#8</td>
</tr>
<tr>
<td>SPEED DIAL</td>
<td></td>
<td>#9</td>
</tr>
<tr>
<td>INTERNAL VOICE/RING</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>CALL BACK REQUEST/RETRIEVE</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>ACCOUNT CODE ENTRY</td>
<td></td>
<td>##</td>
</tr>
<tr>
<td>CALL BACK REQUEST/CANCEL</td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

300 - 303
JOB SPECIFICATION INSTRUCTIONS
FOR
MEMORY BLOCKS 3A-2, -3, -4, AND 3C-1, -2

**ITEM**

<table>
<thead>
<tr>
<th>MEMORY BLOCKS</th>
<th>3A-2</th>
<th>3A-3</th>
<th>3A-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATT. NUMBER</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STATION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUMBER</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATTENDANT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASSIGNMENT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATT. OVERFLOW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATT. TO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TENANT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1 - 3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DESCRIPTION**

- TENANT NUMBER ATTENDANT IS ASSIGNED TO;
  ATTENDANT 1 IS ALWAYS ASSIGNED TO TENANT 1

- DESTINATION ATTENDANT DURING OVERFLOW CONDITIONS

- ASSIGNMENT OF THE 3rd. & 4th. ATTENDANT

- STATION NUMBER ASSIGNED TO ATTENDANT

- UP TO 7 CHARACTERS; NAME ASSIGNED TO STATION

- STATION NUMBER BEING ASSIGNED A NAME

- TRUNK

- UP TO 8 CHARACTERS; NAME ASSIGNED TO A TRUNK

- TRUNK BEING ASSIGNED A NAME

**ENTRY**

1 ~ 3

1 ~ 4

√ FOR ASSIGNED

100 ~ 899 or 1000 ~ 8999

A ~ Z, 0~9, *, # AND SPACE

100 ~ 899 or 1000 ~ 8999

A ~ Z, 0~9, *, # AND SPACE

1 ~ 8
MEMORY BLOCKS 3A-2, -3, -4, AND 3C-1, -2

MEMORY BLOCK 3C-1

MEMORY BLOCK 3C-2
JOB SPECIFICATION INSTRUCTIONS
FOR
MEMORY BLOCKS 3B-1, -2, -5, -6, -7, & -8 CENTREX RINGING AND
STATION HUNTING ASSIGNMENT

<table>
<thead>
<tr>
<th>ITEM</th>
<th>3B-1</th>
<th>3B-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRUNK GROUP</td>
<td>FIRST RING PATTERN</td>
<td>CENTREX RING</td>
</tr>
<tr>
<td>1</td>
<td>L1</td>
<td>L1</td>
</tr>
<tr>
<td>2</td>
<td>L2</td>
<td>L2</td>
</tr>
<tr>
<td>3</td>
<td>L3</td>
<td>L3</td>
</tr>
<tr>
<td>4</td>
<td>L4</td>
<td>L4</td>
</tr>
<tr>
<td>5</td>
<td>L5</td>
<td>L5</td>
</tr>
<tr>
<td>6</td>
<td>L6</td>
<td>L6</td>
</tr>
<tr>
<td>7</td>
<td>L7</td>
<td>L7</td>
</tr>
<tr>
<td>8</td>
<td>L8</td>
<td>L8</td>
</tr>
</tbody>
</table>

FIRST RING PATTERN

CENTREX RING

ENTRY

LEAVE BLANK FOR 2 SEC. ON 4 SEC. OFF

OR

CHECK OFF BOX FOR .5 SEC. ON .5 SEC. OFF (1 HZ RING)

HUNT PILOT NUMBER ASSIGNED TO HUNT GROUP

100~899 or 1000~8999

HUNT TYPE ASSIGNED TO HUNT GROUP

LINEAR (L) CIRCULAR (C)

HUNT FORWARD DESTINATION ASSIGNED TO HUNT GROUP

100~899 or 1000~8999

EXTENSION NUMBER ASSIGNED TO HUNT GROUP MEMBER

100~899 or 1000~8999

300 - 306
JOB SPECIFICATION INSTRUCTIONS
FOR
MEMORY BLOCKS 3B-1, -2, -5, -6, -7, & -8 CENTREX RINGING AND STATION HUNTING ASSIGNMENT

<table>
<thead>
<tr>
<th>TRUNK GROUP</th>
<th>FIRST RING PATTERN</th>
<th>CENTREX RING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L1</td>
<td>L2</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HUNT GROUP</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>3B-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3B-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3B-7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3B-8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PILOT NUMBER</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>HUNT TYPE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GROUP FORWARD</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>HUNT MEMBER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
</tr>
</tbody>
</table>
JOB SPECIFICATION INSTRUCTIONS
FOR
MEMORY BLOCKS 3E-1, -2, -3, -4, AND -10 SYSTEM RESTRICTIONS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>ENTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEMORY BLOCK 3E-1</td>
<td>TYPE OF DIALING AVAILABLE IN THE AREA.</td>
<td>☑ APPROPRIATE TYPE (ONE ONLY)</td>
</tr>
<tr>
<td>MEMORY BLOCK 3E-2</td>
<td>DIALING METHODS USED FOR TOLL CALLING</td>
<td>☑ APPROPRIATE TYPE (ONE ONLY) FOR EACH TRUNK GROUP</td>
</tr>
<tr>
<td>MEMORY BLOCK 3E-3</td>
<td>REJECTION OF FIRST DIGIT DIALED</td>
<td>1 ~ 9 IN EACH OF THE FOUR BOXES</td>
</tr>
<tr>
<td>MEMORY BLOCK 3E-4</td>
<td>CHOICE OF ALLOW OR DENY OF DIGITS DIALED THAT DO NOT MATCH THE CODES ENTERED IN THE RESTRICTION TABLE ASSIGNMENTS IN MEMORY BLOCK 1D-6</td>
<td>☑ CHOICE</td>
</tr>
<tr>
<td>MEMORY BLOCK 3E.10</td>
<td>WHEN PUERTO RICO IS SELECTED IN MEMORY BLOCK 3E-1 (ENTER ALL EIGHT 3 DIGIT LONG DISTANCE CODES). (REPLACES TABLE 32 IN MEMORY BLOCK 3E-8)</td>
<td>3 DIGIT CODES</td>
</tr>
</tbody>
</table>

300 - 308
MEMORY BLOCKS 3E-1, -2, -3, -4, AND -10 SYSTEM REST

<table>
<thead>
<tr>
<th>MEMORY BLOCK 3E-1</th>
<th>MEMORY BLOCK 3E-2</th>
<th>MEMORY BLOCK 3E-3</th>
<th>MEMORY BLOCK 3E-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>STANDARD DIAL AREA</td>
<td>DIAL TRUNK 1+ GROUP 1</td>
<td>REJECTION CODE 1 (Single Digit)</td>
<td>SYSTEM ALLOW</td>
</tr>
<tr>
<td>INDEPENDENT TELEPHONE COMPANY</td>
<td>DIAL TRUNK 2 GROUP 2</td>
<td>REJECTION CODE 2 (Single Digit)</td>
<td>SYSTEM DENY</td>
</tr>
<tr>
<td>PUERTO RICO</td>
<td>DIAL TRUNK 3 GROUP 3</td>
<td>REJECTION CODE 3 (Single Digit)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DIAL TRUNK 4 GROUP 4</td>
<td>REJECTION CODE 4 (Single Digit)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DIAL TRUNK 5 GROUP 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DIAL TRUNK 6 GROUP 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DIAL TRUNK 7 GROUP 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DIAL TRUNK 8 GROUP 8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

300 - 309
# JOB SPECIFICATION INSTRUCTIONS FOR MEMORY BLOCKS 3E-5, -6, -7, -8, & -9 SYSTEM RESTRICTIONS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TABLE NUMBER FOR ASSIGNMENTS AND REFERENCE</strong></td>
<td>1 ~ 32</td>
</tr>
<tr>
<td><strong>ALLOW OR DENY</strong></td>
<td>1 ~ 8</td>
</tr>
<tr>
<td><strong>UP TO FOUR (OF EIGHT AVAILABLE) TRUNK GROUPS CAN BE ASSIGNED TO EACH TABLE</strong></td>
<td>SET OR NOT SET</td>
</tr>
<tr>
<td><strong>ALLOWS INSPECTION OF TABLE DURING EQUAL ACCESS DIALING</strong></td>
<td>3 DIGIT CARRIER CODE</td>
</tr>
<tr>
<td><strong>PERMITS UP TO SIX DIGIT CODES FOR ALLOW OR DENY; CAN BE SET FOR ONLY AREA CODES (3 DIGITS), ONLY OFFICE CODES (3 DIGITS), OR A COMBINATION OF BOTH (6 DIGITS) ALSO, 3 DIGIT OFFICE CODES FOR ALL AREA CODES; AS IN XXX 976</strong></td>
<td>3 OR 6 DIGIT CODES</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MEMORY BLOCK</th>
<th>CODE TABLE NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3E5</strong></td>
<td>ALLOW/DENY</td>
</tr>
<tr>
<td><strong>3E6</strong></td>
<td>TRUNK GROUP</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>3E7</strong></td>
<td>OCC FLAG</td>
</tr>
<tr>
<td><strong>3E8</strong></td>
<td>OCC CODE ASSIGNMENT</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>C O D E</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

300 - 310
## Memory Blocks 3E-5, -6, -7, -8, & -9 System Restrictions

### Code Table Number 01

<table>
<thead>
<tr>
<th>Memory Block</th>
<th>Code Table Number</th>
<th>01</th>
</tr>
</thead>
<tbody>
<tr>
<td>3E5</td>
<td>Allow/Deny</td>
<td></td>
</tr>
<tr>
<td>3E6</td>
<td>Trunk Group</td>
<td>1  2 3 4</td>
</tr>
<tr>
<td>3E7</td>
<td>OCC Flag</td>
<td></td>
</tr>
<tr>
<td>3E8</td>
<td>OCC Code Assignment</td>
<td>1  2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>No.</th>
<th>Area Code</th>
<th>Office Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Code Table Number 02

<table>
<thead>
<tr>
<th>Memory Block</th>
<th>Code Table Number</th>
<th>02</th>
</tr>
</thead>
<tbody>
<tr>
<td>3E5</td>
<td>Allow/Deny</td>
<td></td>
</tr>
<tr>
<td>3E6</td>
<td>Trunk Group</td>
<td>1  2 3 4</td>
</tr>
<tr>
<td>3E7</td>
<td>OCC Flag</td>
<td></td>
</tr>
<tr>
<td>3E8</td>
<td>OCC Code Assignment</td>
<td>1  2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>No.</th>
<th>Area Code</th>
<th>Office Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Code Table Number 03

<table>
<thead>
<tr>
<th>Memory Block</th>
<th>Code Table Number</th>
<th>03</th>
</tr>
</thead>
<tbody>
<tr>
<td>3E5</td>
<td>Allow/Deny</td>
<td></td>
</tr>
<tr>
<td>3E6</td>
<td>Trunk Group</td>
<td>1  2 3 4</td>
</tr>
<tr>
<td>3E7</td>
<td>OCC Flag</td>
<td></td>
</tr>
<tr>
<td>3E8</td>
<td>OCC Code Assignment</td>
<td>1  2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>No.</th>
<th>Area Code</th>
<th>Office Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Code Table Number 04

<table>
<thead>
<tr>
<th>Memory Block</th>
<th>Code Table Number</th>
<th>04</th>
</tr>
</thead>
<tbody>
<tr>
<td>3E5</td>
<td>Allow/Deny</td>
<td></td>
</tr>
<tr>
<td>3E6</td>
<td>Trunk Group</td>
<td>1  2 3 4</td>
</tr>
<tr>
<td>3E7</td>
<td>OCC Flag</td>
<td></td>
</tr>
<tr>
<td>3E8</td>
<td>OCC Code Assignment</td>
<td>1  2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>No.</th>
<th>Area Code</th>
<th>Office Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Code Table Number 05

<table>
<thead>
<tr>
<th>Memory Block</th>
<th>Code Table Number</th>
<th>05</th>
</tr>
</thead>
<tbody>
<tr>
<td>3E5</td>
<td>Allow/Deny</td>
<td></td>
</tr>
<tr>
<td>3E6</td>
<td>Trunk Group</td>
<td>1  2 3 4</td>
</tr>
<tr>
<td>3E7</td>
<td>OCC Flag</td>
<td></td>
</tr>
<tr>
<td>3E8</td>
<td>OCC Code Assignment</td>
<td>1  2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>No.</th>
<th>Area Code</th>
<th>Office Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Code Table Number 06

<table>
<thead>
<tr>
<th>Memory Block</th>
<th>Code Table Number</th>
<th>06</th>
</tr>
</thead>
<tbody>
<tr>
<td>3E5</td>
<td>Allow/Deny</td>
<td></td>
</tr>
<tr>
<td>3E6</td>
<td>Trunk Group</td>
<td>1  2 3 4</td>
</tr>
<tr>
<td>3E7</td>
<td>OCC Flag</td>
<td></td>
</tr>
<tr>
<td>3E8</td>
<td>OCC Code Assignment</td>
<td>1  2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>No.</th>
<th>Area Code</th>
<th>Office Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# JOB SPECIFICATION INSTRUCTIONS

## FOR

### MEMORY BLOCKS 4B-1 AND -2

#### COI INITIALIZED VALUES

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 PPS OR 20 PPS</td>
<td>TIMING OF CO/PBX HOOK FLASH FROM THE RECALL KEY OF A MULTILINE TERMINAL TO THE CO</td>
</tr>
<tr>
<td>DTMF OR DP</td>
<td>DURATION OF A DIALED DTMF DIGIT</td>
</tr>
<tr>
<td>CO OR PBX</td>
<td>DISCONNECT SIGNAL FROM CO</td>
</tr>
<tr>
<td>CO DISC. SIG.</td>
<td>SELECT WHETHER DIAL TONE IS CO DIAL TONE OR PBX DIAL TONE</td>
</tr>
<tr>
<td>DTMF LENGTH (mS.)</td>
<td>SELECT EITHER PUSHBUTTON OR ROTARY DIALING, DEPENDING ON CO/PBX CAPABILITY AND CUSTOMER REQUIREMENTS</td>
</tr>
<tr>
<td>CO HOOK FLASH (mS.)</td>
<td>SELECT THE PULSE RATE USED FOR ROTARY DIALING, DEPENDING UPON CO TYPE</td>
</tr>
<tr>
<td>DEFAULT</td>
<td>(300 \text{ to } 1700) (100 mS. increments)</td>
</tr>
<tr>
<td>10 PPS DTMF CO NO 110 1300</td>
<td>(60 \text{ to } 760) (50 mS. increments)</td>
</tr>
<tr>
<td>YES OR NO</td>
<td>CO OR PBX</td>
</tr>
<tr>
<td>DTMF OR DP</td>
<td>(10 \text{ OR } 20)</td>
</tr>
<tr>
<td>350 300 1000 70</td>
<td>(40 \text{ to } 180) (10 mS. increments)</td>
</tr>
<tr>
<td></td>
<td>(0 \text{ to } 7000) (500 mS. increments)</td>
</tr>
<tr>
<td></td>
<td>(0 \text{ to } 1400) (100 mS. increments)</td>
</tr>
<tr>
<td></td>
<td>(0 \text{ to } 700) (50 mS. increments)</td>
</tr>
</tbody>
</table>
## MEMORY BLOCKS 4B-1 AND 4B-2 COI INITIALIZED VALUES

<table>
<thead>
<tr>
<th>ITEM</th>
<th>10 PPS</th>
<th>DTMF</th>
<th>CO</th>
<th>DISC. LENGTH</th>
<th>HIT PROTECT TIME</th>
<th>DISCONNECT RECOGNIZE TIME</th>
<th>PAUSE TIME</th>
<th>INTER-DIGITAL TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10 PPS</td>
<td>DTMF</td>
<td>CO</td>
<td>NO</td>
<td>110</td>
<td>350</td>
<td>300</td>
<td>1000</td>
</tr>
<tr>
<td>2</td>
<td>20 PPS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITEM</th>
<th>10 PPS</th>
<th>DTMF</th>
<th>CO</th>
<th>DISC. LENGTH</th>
<th>HIT PROTECT TIME</th>
<th>DISCONNECT RECOGNIZE TIME</th>
<th>PAUSE TIME</th>
<th>INTER-DIGITAL TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>10 PPS</td>
<td>DTMF</td>
<td>CO</td>
<td>NO</td>
<td>110</td>
<td>350</td>
<td>300</td>
<td>1000</td>
</tr>
<tr>
<td>22</td>
<td>20 PPS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

300 - 313
JOB SPECIFICATION INSTRUCTIONS FOR MEMORY BLOCKS 4B-3, -4, -6, -7, -8, AND -9

**ITEM**

**DESCRIPTION**

**ENTRY**

**MEMORY BLOCKS 4B-3 AND 4B-8**

- **MINIMUM TIME BEFORE SINGLE LINE TELEPHONE AND/OR VOICE MAIL HOOK FLASH IS RECOGNIZED**
  
  100 - 800 (50 mS. increments)

- **MAXIMUM TIME SINGLE LINE TELEPHONE AND/OR VOICE MAIL HOOK FLASH IS RECOGNIZED**
  
  HOOK FLASH START TIME ~ 2200
  
  (100 mS. increments)

- **LAPSED TIME AFTER HOOK FLASH BEFORE DETECTING ON-HOOK CONDITION**
  
  0 ~ 1400 (100 mS. increments)

  ✓ IF PROVIDED

  ✓ IF PROVIDED

  1 ~ 4

  1 ~ 8

  1 ~ 3

  100 ~ 899 OR 1000 ~ 8999

  300 ~ 1700 (100 mS. increments)

  YES OR NO

  CO OR PBX

  DTMF OR DP

  10 OR 20 PPS

- **DISCONNECT TIME**
  
  40 ~ 180 (10 mS. increments)

- **DURATION OF EACH PUSHBUTTON DIGIT**
  
  60 ~ 760 (50 mS. increments)

- **DISCONNECT SIGNAL FROM CO**
  
  YES OR NO

- **TYPE OF LINE**
  
  CO OR PBX

- **TYPE OF DIALING SCHEME OF CO**
  
  DTMF OR DP

- **SPEED OF ROTARY PULSES SENT TO CO**
  
  10 OR 20 PPS

- **INTERDIGIT INTERVAL DIALING TIME**
  
  40 ~ 180 (10 mS. increments)

- **SPEED DIAL PAUSE TIME**
  
  0 ~ 7000 (500 mS. increments)

- **CO DISCONNECT RECOGNITION TIME**
  
  0 ~ 1400 (100 mS. increments)

- **CO LINE HIT PROTECTION TIME**
  
  0 ~ 700 (50 mS. increments)

- **INTERDIGIT INTERVAL DIALING TIME**
  
  40 ~ 180 (10 mS. increments)

- **SPEED DIAL PAUSE TIME**
  
  0 ~ 7000 (500 mS. increments)

- **DISCONNECT TIME**
  
  500 ~ 3300 (200 mS. increments)

- **DURATION OF EACH PUSHBUTTON DIGIT**
  
  60 ~ 760 (50 mS. increments)
SLI COMMON VALUES (MEMORY BLOCK 4B-3)

VMI INITIALIZE 1 (MEMORY BLOCK 4B-8)

<table>
<thead>
<tr>
<th>TIMER</th>
<th>DEFAULT</th>
<th>NEW (mS.)</th>
<th>NEW (mS.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOOK FLASH START TIME</td>
<td>300 mS.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HOOK FLASH END TIME</td>
<td>1000 mS.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOUNCE PROTECT TIME</td>
<td>300 mS.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

VMI INITIALIZE 2 (MEMORY BLOCK 4B-9)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DTMF DURATION (mS.)</th>
<th>DISCONNECT TIME (mS.)</th>
<th>PAUSE TIME (mS.)</th>
<th>IDI TIME (mS.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>185</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C2</td>
<td>274</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C3</td>
<td>337</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C4</td>
<td>448</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

COI (GROUP) INITIALIZED VALUES

<table>
<thead>
<tr>
<th>ITEM</th>
<th>10 PPS (uS)</th>
<th>DTMF (uS)</th>
<th>CO (uS)</th>
<th>PFX</th>
<th>CO GCO.</th>
<th>DTMF LENGTH (mS.)</th>
<th>CO-HOOK FLASH (mS.)</th>
<th>H.P. TIME (mS.)</th>
<th>D.B. TIME (mS.)</th>
<th>PAUSE TIME (mS.)</th>
<th>IDI TIME (mS.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ESI-EB DATA AND SECOND VOICE PATH ASSIGNMENT * (MEMORY BLOCK 4B-4)

* NOTE: Only channels 1 and 3 can be assigned for both dual voice path and data in one ESI-EB card. Channels 2 and 4 must then be set for single voice only.
JOB SPECIFICATION INSTRUCTIONS
FOR
MEMORY BLOCK 4C-1 CARD INTERFACE SLOT ASSIGNMENT

MODULE POWER SUPPLY
RING GENERATOR
(REQUIRED FOR SLI, MODEMS, AND VMI)
☑ IF REQUIRED

OPTION SLOT: SMDR-E OR LCR-E - ENTER APPROPRIATE INFORMATION

TSW-E OR TSW-EB WHEN USING 4 CCUs

INTERFACE/OPTION SLOT:
SMDR-E, LCR-E, OR INTERFACE CARD (ENTER APPROPRIATE INFORMATION)

IN THESE AREAS (BOXES) ENTER THE ETU INSTALLED IN EACH SLOT SUCH AS:
ESI-EA or ESI-EB
COI-E or COI-EB
TLI-E
TLI-EB
SLI-EA or SLI-EB
MFR-EA
CNF-E
ECR-E
--MI-E

For each slot and channel in use, enter either the Extension # (100~899 or 1000~8999) and type of Terminal Equipment installed, or EDE-30-# (1~6), or CO/Tie Line # (1~40).
### Description

- **① ~ ③** Type of line supervision provided.
- **④** Dial tone provided to distant end of E&M Tie Line
- **⑤** Dial tone provided to system end of E&M Tie Line
- **⑥** Number of digits to be deleted.
- **⑦** Number of digits to be added.

### Entry

- **①** Type assigned
- **④** If provided
- **⑤** If provided
- **⑥** None, 1, 2 or 3
- **⑦** 0−9 for each (up to 3) digit to be added
### MEMORY BLOCKS 4E-1, -2, AND -3 TLI LINE AND SIGNALING PARAMETERS

<table>
<thead>
<tr>
<th>TRUNK GROUP</th>
<th>LINE TYPE</th>
<th>4E-1 TLI LINE TYPE ASSIGNMENT</th>
<th>4E-2 TLI LINE DIAL TONE ASSIGNMENT</th>
<th>4E-3 TLI DIGIT ADD/DELETE ASSIGNMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SECOND DIAL TONE</td>
<td>IMMEDIATE START</td>
<td>DELAY DIAL</td>
</tr>
<tr>
<td>1</td>
<td>E&amp;M Tie Line</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>E&amp;M Tie Line</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>E&amp;M Tie Line</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>E&amp;M Tie Line</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>E&amp;M Tie Line</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>E&amp;M Tie Line</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>E&amp;M Tie Line</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>E&amp;M Tie Line</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
JOB SPECIFICATION INSTRUCTIONS
FOR MEMORY BLOCKS 4E-4, -5, AND -6 TLI INITIALIZED VALUES

ITEM | DESCRIPTION | ENTRY
--- | --- | ---
1 | DURATION OF FORCED GROUND BETWEEN PULSED DIGITS. | 0 ~ 7000 mS. (500 mS. INCREMENTS).
2 | LAPPED TIME BEFORE SENDING PULSED DIGITS TO CO AFTER DISTANT END GOES OFF-HOOK. | 0 ~ 12 SECONDS (0 ~ 2 SECONDS IN 500 mS. INCREMENTS; 2 ~ 12 IN 1 SECOND INCREMENTS).
3 | MINIMUM TIME INTERVAL AFTER THE CALLED PARTY ANSWERS BEFORE A CONVERSATION MAY START. | 0 ~ 1820 mS. (130 mS. INCREMENTS).
4 | MINIMUM TIME AFTER HANGING UP BEFORE T LEAD RECOGNIZES A DISCONNECT FROM THE CO. | 0 ~ 1820 mS. (130 mS. INCREMENTS).
5 | TIME DURATION LAPPED BEFORE RECOGNIZING AN OFF-HOOK CONDITION FROM THE CO WITH A DELAY OR WINK SIGNAL. | FOR WINK START = 0 ~ 1820 mS. (130 mS. INCREMENTS) FOR DELAY DIALING = 0 ~ 420 mS. (30 mS. INCREMENTS) 0 ~ 12 SECONDS (FROM 0 ~ 2 SECONDS IN 500 mS. INCREMENTS; FROM 2 ~ 12 SECONDS IN 1 SECOND INCREMENTS).
6 | LAPPED TIME AFTER LOCAL STATION ANSWERS BEFORE A VOICE PATH IS ESTABLISHED. | 30 mS. ~ 450 mS. (30 mS. INCREMENTS)
7 | LENGTH OF WINK SIGNAL SEND TO THE DISTANT END. | 0 ~ 4200 mS. (300 mS. INCREMENTS)
8 | LENGTH OF DELAY SIGNAL SEND TO THE DISTANT END. | 1 ~ 14 SECOND OR = (1 ~ 14 SECONDS IN 1 SECOND INCREMENTS).
9 | THE LENGTH OF TIME, IN SECONDS, THAT THE SYSTEM WILL MONITOR THE CENTRAL OFFICE LINE FOR RECEIPT OF A WINK SIGNAL. | 1 ~ 9 SECONDS
10 | LENGTH OF TIME THE SYSTEM WILL NOT ORIGINATE AFTER HANGING UP. | 2 ~ 28 SECONDS OR = (2 ~ 28 SECONDS IN 2 SECOND INCREMENTS).
<table>
<thead>
<tr>
<th>MEMORY BLOCK</th>
<th>4E-4</th>
<th>4E-5</th>
<th>4E-6</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITEM PAUSE TIME</td>
<td>PRE-PAUSE TIME</td>
<td>CO ANSWER DETECT TIME</td>
<td>CO RELEASE DETECT TIME</td>
</tr>
<tr>
<td>DEFAULT</td>
<td>1000 mS</td>
<td>3 sec</td>
<td>520 mS</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## JOB SPECIFICATION INSTRUCTIONS FOR MEMORY BLOCKS 4E-7 & 4E-8 - TLI

### PARAMETERS

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>CCU MODULE (1~4)</th>
<th>CCU SLOT (1~8)</th>
<th>TLI CHANNEL (1 OR 2)</th>
<th>INTERNAL (0~8)</th>
<th>EXTERNAL (0~8)</th>
<th>DTMF INTER DIGIT TIMER (40~180)</th>
<th>DTMF TIME DURATION (60~760)</th>
<th>SENDER DIAL TYPE (DP or MF)</th>
<th>RECEIVER DIAL TYPE (DP, MF, DP/MF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>70 ms.</td>
<td>110 ms.</td>
<td>DP</td>
<td>DP</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td>DP</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td>0</td>
<td>DP</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td>0</td>
<td>DP</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>70 ms.</td>
<td>110 ms.</td>
<td>DP</td>
<td>DP</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td>0</td>
<td>DP</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td>0</td>
<td>DP</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td>0</td>
<td>DP</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td>0</td>
<td>DP</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td>0</td>
<td>DP</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td>0</td>
<td>DP</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td>0</td>
<td>DP</td>
</tr>
</tbody>
</table>

### DESCRIPTION

1. **Tie Line trunk number.**
   - **ENTRY:** 1 ~ 40
2. **CCU/Module number where the associated TLI card is located.**
   - **ENTRY:** 1 ~ 4
3. **CCU/Slot number where the associated TLI card is located.**
   - **ENTRY:** 1 ~ 8
4. **Channel (circuit) on the TLI card associated with the Tie Line.**
   - **ENTRY:** 1 ~ 2
5. **dB pad value assigned to E&M receive circuit during internal Tie Line connections.**
   - **ENTRY:** 0 ~ 8
6. **dB pad value assigned to E&M transmit circuit during internal Tie Line connections.**
   - **ENTRY:** 0 ~ 8
7. **dB pad value assigned to E&M receive circuit during external tandem Tie Line connections.**
   - **ENTRY:** 0 ~ 8
8. **dB pad value assigned to E&M transmit circuit during external tandem Tie Line connections.**
   - **ENTRY:** 0 ~ 8
9. **Minimum time duration between DTMF digits when dialing.**
   - **ENTRY:** 40 ms. ~ 180 ms.
10. **Time duration of Tie line DTMF digits.**
    - **ENTRY:** 60 ms. ~ 760 ms.
11. **Selects rotary (DP) or pushbutton (MF) dialing.**
    - **ENTRY:** DP or MF
12. **Selects rotary (DP), pushbutton (MF), or both DP/MF dialing.**
    - **ENTRY:** DP, MF, or DP/MF
## TLI INITIALIZED VALUES

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>CCU MODULE (1-4)</th>
<th>CCU SLOT (1-6)</th>
<th>TLI CHANNEL (1 or 2)</th>
<th>INTERNAL (1-8)</th>
<th>EXTERNAL (1-8)</th>
<th>DTMF INTERDIGIT TIMER (40 - 100)</th>
<th>DTMF TIME DURATION (60 - 760)</th>
<th>SENDER DIAL TYPE (DP or MF)</th>
<th>RECEIVER DIAL TYPE (DP,MF,DP/MF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIE LINE TRUNK NUMBER</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>70 mS</td>
<td>110 mS</td>
<td>DP</td>
<td>DP</td>
</tr>
<tr>
<td>TIE LINE TRUNK NUMBER</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIE LINE TRUNK NUMBER</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIE LINE TRUNK NUMBER</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## JOB SPECIFICATION INSTRUCTIONS FOR MEMORY BLOCKS 4E-9 & 4E-10 - TLI

### PARAMETERS AND MEMORY BLOCKS 2B-10 & 2C-6 - UNIFORM DIALING

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>ENTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEMORY BLOCK 4E-9</td>
<td><strong>TANDEM PORT</strong>&lt;br&gt;ASSIGNS A TANDEM HUNT GROUP TO A TANDEM PORT.</td>
<td>1 ~ 8&lt;br&gt;HARDWARE OR SOFTWARE</td>
</tr>
<tr>
<td></td>
<td><strong>HARDWARE</strong>&lt;br&gt;ASSIGNS HARDWARE AND SOFTWARE TANDEM PORTS. HARDWARE PORTS ARE ASSIGNED TO EXISTING ESI PORTS; SOFTWARE PORTS ARE ASSIGNED TO IMAGINARY PORTS.</td>
<td>100 ~ 899 OR 1000 ~ 8999</td>
</tr>
<tr>
<td>MEMORY BLOCK 4E-10</td>
<td><strong>SELECTS A TANDEM PORT</strong>&lt;br&gt;TANDEM HUNT GROUP ASSIGNED TO EACH TRUNK GROUP.</td>
<td>1 ~ 8</td>
</tr>
<tr>
<td>MEMORY BLOCK 2B-10</td>
<td><strong>RECALL KEY OPERATION ON TIE LINES (INT/TIE)</strong>&lt;br&gt;ASSIGNS INTERNAL OR TIE LINE DIAL TONE WHEN THE RECALL KEY IS</td>
<td>INT OR TIE</td>
</tr>
<tr>
<td>MEMORY BLOCK 2C-6</td>
<td><strong>UNIFORM DIAL NUMBER (01 ~ 20)</strong>&lt;br&gt;SELECTS A UNIFORM DIAL NUMBER.&lt;br&gt;<strong>TRUNK ACCESS CODE GROUP (2 ~ 8)</strong>&lt;br&gt;SELECTS A TRUNK ACCESS CODE GROUP FOR THE UNIFORM DIAL NUMBER SELECTED.</td>
<td>01 ~ 20&lt;br&gt;2 ~ 8</td>
</tr>
<tr>
<td>TANDEM PORT</td>
<td>HARDWARE OR SOFTWARE</td>
<td>HUNT GROUP (1 ~ 8)</td>
</tr>
<tr>
<td>-------------</td>
<td>----------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TRUNK GROUP TO TANDEM HUNT GROUP ASSIGNMENT (4E-10)**

<table>
<thead>
<tr>
<th>TRUNK GROUP</th>
<th>TANDEM HUNT GROUP (1 ~ 8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

**TIE LINE OR EXTENSION DIAL TONE ASSIGNMENT (2B-10)**

<table>
<thead>
<tr>
<th>RECALL KEY OPERATION ON TIE LINES (INT or TIE)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

**TRUNK ACCESS CODE GROUP I UNIFORM DIAL NUMBER ASSIGNMENT (2C-6)**

<table>
<thead>
<tr>
<th>UNIFORM DIAL NUMBER (01~20)</th>
<th>TRUNK ACCESS CODE GROUP (2~8)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER 4

STATION OPERATION
## CHAPTER 4
### STATION OPERATION

#### 420 Multiline Terminal Operation

<table>
<thead>
<tr>
<th>Paragraph</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>420.1</td>
<td>CO/PBX (Outside) Calls</td>
<td>400-02</td>
</tr>
<tr>
<td>420.2</td>
<td>Pooled Line</td>
<td>400-10</td>
</tr>
<tr>
<td>420.3</td>
<td>Tie Lines &amp; DID</td>
<td>400-13</td>
</tr>
<tr>
<td>420.4</td>
<td>Extension (Internal) Calls</td>
<td>400-17</td>
</tr>
<tr>
<td>420.5</td>
<td>Handsfree Call</td>
<td>400-22</td>
</tr>
<tr>
<td>420.6</td>
<td>Dual Path Call</td>
<td>400-24</td>
</tr>
<tr>
<td>420.7</td>
<td>Transfer</td>
<td>400-26</td>
</tr>
<tr>
<td>420.8</td>
<td>Trunk to Trunk Transfer</td>
<td>400-28</td>
</tr>
<tr>
<td>420.9</td>
<td>Conference</td>
<td>400-30</td>
</tr>
<tr>
<td>420.10</td>
<td>Unsupervised Conference</td>
<td>400-37</td>
</tr>
<tr>
<td>420.11</td>
<td>Internal Zone Paging</td>
<td>400-39</td>
</tr>
<tr>
<td>420.12</td>
<td>External Zone Paging</td>
<td>400-41</td>
</tr>
<tr>
<td>420.13</td>
<td>Consultation Hold (Broker's Call)</td>
<td>400-42</td>
</tr>
<tr>
<td>420.14</td>
<td>Call Park</td>
<td>400-45</td>
</tr>
<tr>
<td>420.15</td>
<td>Dial 0 For Attendant</td>
<td>400-47</td>
</tr>
<tr>
<td>420.16</td>
<td>Call Pickup</td>
<td>400-48</td>
</tr>
<tr>
<td>420.17</td>
<td>Night Call Pickup</td>
<td>400-50</td>
</tr>
<tr>
<td>420.18</td>
<td>Callback Request Message</td>
<td>400-51</td>
</tr>
<tr>
<td>420.19</td>
<td>Camp On</td>
<td>400-54</td>
</tr>
<tr>
<td>420.20</td>
<td>Tone Override</td>
<td>400-55</td>
</tr>
<tr>
<td>420.21</td>
<td>Automatic Callback</td>
<td>400-56</td>
</tr>
<tr>
<td>420.22</td>
<td>Account Code Entry</td>
<td>400-58</td>
</tr>
<tr>
<td>420.23</td>
<td>Save and Repeat</td>
<td>400-60</td>
</tr>
<tr>
<td>420.24</td>
<td>Do Not Disturb</td>
<td>400-61</td>
</tr>
<tr>
<td>420.25</td>
<td>Call Forward</td>
<td>400-62</td>
</tr>
<tr>
<td>420.26</td>
<td>Programming Station Speed Dial and Feature Access Keys</td>
<td>400-66</td>
</tr>
<tr>
<td>420.27</td>
<td>User Programming</td>
<td>400-72</td>
</tr>
<tr>
<td>420.28</td>
<td>Background Music</td>
<td>400-73</td>
</tr>
<tr>
<td>420.29</td>
<td>Calculation (Multiline Terminal with a Display)</td>
<td>400-74</td>
</tr>
<tr>
<td>420.30</td>
<td>Station Lockout</td>
<td>400-79</td>
</tr>
<tr>
<td>420.31</td>
<td>Voice Mail Call</td>
<td>400-81</td>
</tr>
<tr>
<td>420.32</td>
<td>Data Communications</td>
<td>400-84</td>
</tr>
<tr>
<td>420.33</td>
<td>Modem Pooling</td>
<td>400-101</td>
</tr>
</tbody>
</table>

#### 430 Attendant Operation

<table>
<thead>
<tr>
<th>Paragraph</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>430.1</td>
<td>CO/PBX/Tie (Outside) Calls using the CO Add On Module</td>
<td>400-113</td>
</tr>
<tr>
<td>430.2</td>
<td>CO Trunk Selection and Test</td>
<td>400-117</td>
</tr>
<tr>
<td>430.3</td>
<td>CO Trunk and MFR Circuit</td>
<td>400-118</td>
</tr>
<tr>
<td>430.4</td>
<td>Originating Extension (Internal) Calls</td>
<td>400-119</td>
</tr>
<tr>
<td>430.5</td>
<td>Attendant Transfer</td>
<td>400-120</td>
</tr>
<tr>
<td>430.6</td>
<td>DND Override</td>
<td>400-121</td>
</tr>
<tr>
<td>430.7</td>
<td>Internal Zone Paging</td>
<td>400-122</td>
</tr>
<tr>
<td>430.8</td>
<td>External Zone Paging</td>
<td>400-123</td>
</tr>
<tr>
<td>430.9</td>
<td>Message Waiting</td>
<td>400-124</td>
</tr>
<tr>
<td>430.10</td>
<td>Night Transfer</td>
<td>400-125</td>
</tr>
<tr>
<td>430.11</td>
<td>Attendant Camp-On</td>
<td>400-127</td>
</tr>
<tr>
<td>430.12</td>
<td>Attendant Off-Hook Ringing</td>
<td>400-128</td>
</tr>
<tr>
<td>430.13</td>
<td>Station Lockout</td>
<td>400-129</td>
</tr>
<tr>
<td>430.14</td>
<td>Call Forward Set/Verify/Cancel</td>
<td>400-130</td>
</tr>
<tr>
<td>430.15</td>
<td>Programming System Speed Dial</td>
<td>400-132</td>
</tr>
<tr>
<td>430.16</td>
<td>Clock/Calendar Setting</td>
<td>400-134</td>
</tr>
<tr>
<td>430.17</td>
<td>Programming Forced/Account Code</td>
<td>400-138</td>
</tr>
<tr>
<td>430.18</td>
<td>Delay Announcement Set/Cancel</td>
<td>400-141</td>
</tr>
</tbody>
</table>

#### 440 Single Line Telephone Operation

<table>
<thead>
<tr>
<th>Paragraph</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>440.1</td>
<td>CO/PBX/Tie Line (Outside) Calls</td>
<td>400-142</td>
</tr>
<tr>
<td>440.2</td>
<td>Extension (Internal) Calls/Step Call</td>
<td>400-144</td>
</tr>
<tr>
<td>440.3</td>
<td>MFR Circuit Selection and Test</td>
<td>400-145</td>
</tr>
<tr>
<td>440.4</td>
<td>Trunk Queuing</td>
<td>400-146</td>
</tr>
<tr>
<td>440.5</td>
<td>Transfer</td>
<td>400-147</td>
</tr>
<tr>
<td>440.6</td>
<td>Trunk to Trunk Transfer</td>
<td>400-148</td>
</tr>
<tr>
<td>440.7</td>
<td>Conference</td>
<td>400-149</td>
</tr>
<tr>
<td>440.8</td>
<td>Unsupervised Conference</td>
<td>400-150</td>
</tr>
<tr>
<td>440.9</td>
<td>Internal Zone Paging</td>
<td>400-151</td>
</tr>
<tr>
<td>440.10</td>
<td>External Zone Paging</td>
<td>400-151</td>
</tr>
</tbody>
</table>
## CHAPTER 4
### STATION OPERATION

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Page</th>
<th>Section</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>440.11</td>
<td>Consultation Hold (Broker's Call)</td>
<td>400 - 152</td>
<td>440.21</td>
<td>Call Forward</td>
<td>400 - 160</td>
</tr>
<tr>
<td>440.12</td>
<td>Call Park</td>
<td>400 - 153</td>
<td>440.22</td>
<td>Programming Station Speed Dial</td>
<td>400 - 161</td>
</tr>
<tr>
<td>440.13</td>
<td>Dial 0 For Attendant</td>
<td>400 - 153</td>
<td>440.23</td>
<td>Station Lockout</td>
<td>400 - 162</td>
</tr>
<tr>
<td>440.14</td>
<td>Call Pickup</td>
<td>400 - 154</td>
<td>440.24</td>
<td>Voice Mail Call</td>
<td>400 - 163</td>
</tr>
<tr>
<td>440.15</td>
<td>Night Call Pickup</td>
<td>400 - 154</td>
<td>450</td>
<td>Directory Terminal Operation</td>
<td></td>
</tr>
<tr>
<td>440.16</td>
<td>Callback Request Message</td>
<td>400 - 155</td>
<td>450.1</td>
<td>General</td>
<td>400 - 164</td>
</tr>
<tr>
<td>440.17</td>
<td>Camp-On</td>
<td>400 - 156</td>
<td>450.2</td>
<td>Page Selection</td>
<td>400 - 165</td>
</tr>
<tr>
<td>440.18</td>
<td>Tone Override</td>
<td>400 - 157</td>
<td>450.3</td>
<td>Programming Page List Name</td>
<td>400 - 166</td>
</tr>
<tr>
<td>440.19</td>
<td>Automatic Callback</td>
<td>400 - 158</td>
<td>450.4</td>
<td>Programming Station Speed Dial</td>
<td>400 - 167</td>
</tr>
<tr>
<td>440.20</td>
<td>Account Code Entry</td>
<td>400 - 159</td>
<td>450.5</td>
<td>Originating Calls</td>
<td>400 - 173</td>
</tr>
</tbody>
</table>
410 GENERAL

The Electra MarkII Station User's Operation Guide is divided into four sections. Each section is further sub-divided to provide a detailed step-by-step operation. Operations that are performed by the station user are indicated with a bullet (●). This guide provides the LED and LCD status for each operation.

The four sections of Chapter 4 are:

420 Multiline Terminal Operation
430 Attendant Operation
440 Single Line Telephone Operation
450 Directory Terminal Operation

Section 420 provides all operations available to Multiline Terminals.
Section 430 augments section 420; with only attendant operations included in this section.
Section 440 provides all operations available to Single Line Telephones.
Section 450 augments section 420 for users of the Directory Terminal; only the operations available to the Directory Terminals are included.
420 Multiline Terminal Operation

NOTE: ETE-6 Series Multiline Terminals provide red LED indications only.

420.1 CO/PBX (Outside) Calls

1. Originating
      • Depress an idle CO/PBX line key.
      • Lift handset to receive dial tone. **CO/PBX** green LED lights.
      • Dial desired number and receive ring back tone.
      • Converse with called party.

      • Depress an idle extension line key.
      • Lift handset to receive dial tone. **EXT** green LED lights.
      • Dial trunk access code (Default 9, 8, 70~75) and desired number. (Access code 9 is fixed.) Receive ring back tone.

      **NOTE:** CO/PBX red LED lights if seized trunk is also a line key appearance.

   c. Last CO/PBX Number Redial
      • Depress an idle extension or CO/PBX line key. **CO/PBX** or **EXT** green LED lights.
      • Lift handset to receive dial tone.

  **SAMPLE LED INDICATIONS**

<table>
<thead>
<tr>
<th>Time</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45 OCT 28</td>
<td>CO LINE</td>
</tr>
<tr>
<td>10:45 OCT 28</td>
<td>EXT LINE</td>
</tr>
<tr>
<td>10:45 OCT 28</td>
<td>ELAPSED 00:37</td>
</tr>
</tbody>
</table>

  **SAMPLE LCD INDICATIONS**

<table>
<thead>
<tr>
<th>Time</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45 OCT 28</td>
<td>CO LINE</td>
</tr>
<tr>
<td>10:45 OCT 28</td>
<td>EXT LINE</td>
</tr>
<tr>
<td>10:45 OCT 28</td>
<td>ELAPSED 00:37</td>
</tr>
</tbody>
</table>
• Dial *(If * is assigned to be dialed on CO/PBX lines as a first digit, depress DSS key assigned for last number redial when using CO/PBX line keys.).

• Converse with called party.

d. Station Speed Dialing
• Depress an idle extension or CO/PBX line key.

• Lift handset to receive dial tone.

• Depress desired DSS key programmed for speed dial, or dial # followed by station speed dial buffer number (00~19) example: #01.

• Converse with called party.

e. System Speed Dialing
• Depress an idle extension or CO/PBX line key.

• Lift handset to receive dial tone.

• Dial # followed by system speed dial buffer number (20 ~ 99) example: #20.

NOTE 1: If # is programmed to be dialed on CO/PBX lines as a first digit, depress DSS key assigned for speed dial, and dial # followed by station or system speed dial buffer number when trunk seized via direct access.

NOTE 2: CO/PBX red LED lights if seized trunk is also a line key appearance.

• Converse with called party.
f. Consecutive Dialing

- Depress an idle extension or CO/PBX line key.
- Lift handset to receive dial tone.
- Use any combinations of manual dialing, station speed dialing and system speed dialing.
- Converse with called party.

g. Prime Line

- Lift handset to receive dial tone.
- Use any of the dialing methods described here.

NOTE: An additional dialing step may be required in the following cases:

When a system speed dialing sequence follows a manual dialing sequence, DSS key programmed for speed dial access must be depressed prior to accessing the system speed dialing.

When a system speed dialing sequence follows a station or another system speed dialing sequence, DSS key programmed for speed dial access must be depressed prior to accessing the system speed dialing unless the last digit of number stored in the preceding speed dial buffer is *.

When a station speed dialing sequence (using # followed by speed dial buffer number) follows a manual dialing sequence, it does not function.
When a station speed dialing sequence (using # followed by speed dial buffer number) follows a system or another station speed dialing sequence, it does not function unless the last digit of numbers stored in the preceding speed dial buffer is *.

2. **Answering** (CO/PBX, and DIT/ANA calls)

   a. **Manually Selecting Line**
      - Depress CO/PBX or extension line key associated with flashing LED.
      - Use handset to respond.

   b. **Answer Key**
      - Depress ANS key with flashing LED.
      - Use handset to respond.

   c. **Prime Line or Ringing Line Preference**
      - Lift handset to respond.

**NOTE 1:** Depression of ANS key with call in progress places original call on hold, with I-hold LED indication.

**NOTE 2:** System programming data must be entered for trunk group name assignment (other than default) to be displayed.

**NOTE 3:** CO CALL is the default trunk name displayed when receiving a DIT/ANA, Tie line, or a transferred CO/PBX call. System programming data must be entered to change the name.

**NOTE 4:** System data must be entered for incoming calls to be picked up on prime line.

---

### SAMPLE LED INDICATIONS

<table>
<thead>
<tr>
<th>CO/PBX or EXT</th>
<th>ANS red LED's flash</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO/PBX or EXT</td>
<td>green LED lights</td>
</tr>
<tr>
<td>ANS</td>
<td>LED goes off</td>
</tr>
<tr>
<td>CO/PBX or EXT</td>
<td>green LED lights</td>
</tr>
<tr>
<td>ANS</td>
<td>LED goes off</td>
</tr>
</tbody>
</table>

### SAMPLE LCD INDICATIONS

<table>
<thead>
<tr>
<th>L K 1 2</th>
<th>C O C A L L</th>
<th>1 0 : 4 5 O C T 2 8 F R I</th>
</tr>
</thead>
<tbody>
<tr>
<td>E L A P S E D</td>
<td>0 0 : 0 3</td>
<td></td>
</tr>
<tr>
<td>L K 1 2</td>
<td>C O C A L L</td>
<td>1 0 : 4 5 O C T 2 8 F R I</td>
</tr>
<tr>
<td>E L A P S E D</td>
<td>0 0 : 0 3</td>
<td></td>
</tr>
<tr>
<td>L K 1 2</td>
<td>C O C A L L</td>
<td>1 0 : 4 5 O C T 2 8 F R I</td>
</tr>
<tr>
<td>E L A P S E D</td>
<td>0 0 : 0 3</td>
<td></td>
</tr>
</tbody>
</table>
d. An incoming DIT/ANA call into a busy extension with a call in progress:

- Incoming DIT/ANA calls into the busy extension.

**NOTE 1:** Station users hear a DIT alert tone whenever a DIT/ANA call is received.

**NOTE 2:** Bold characters in the **SAMPLE LCD INDICATION** column are displayed for 5 seconds whenever a DIT/ANA call is received.

**NOTE 3:** The number in the DIT call display indicates the quantity of DIT/ANA calls waiting to be answered.

**NOTE 4:** When a station is set for Forward Busy/No Answer, and is busy, a DIT/ANA call to this station will immediately ring at the forwarded station. If the forwarded station is busy, a DIT alert tone will be heard at the called station.

3. **Placing a Call On Hold**

a. **Without an Incoming Call:**

- Depress HOLD key once for non-exclusive hold.

  OR

- Depress HOLD key twice for exclusive hold.

**SAMPLE LED INDICATIONS**

- **EXT** green LED is lit.

**SAMPLE LCD INDICATIONS**

```
ELAPSED 00:23
10:45 OCT 28 FRI
```

```
DIT CALL 2
10:45 OCT 28 FRI
```

```
ELAPSED 00:23
10:45 OCT 28 FRI
```

```
10:45 OCT 28 FRI
```

```
ELAPSED 00:23
10:45 OCT 28 FRI
```

```
10:45 OCT 28 FRI
```

```
10:45 OCT 28 FRI
```

**NOTE:** Bold characters are displayed for 5 seconds.
b. With an Incoming Call:

- Depress ANS key for non-exclusive hold.
  - CO/PBX green LED winks intermittently.
  - EXT green LED lights.
  - ANS LED goes off.

  OR

- Depress HOLD key twice for exclusive hold.
  - CO/PBX green LED winks intermittently.
  - EXT green LED lights.
  - ANS LED goes off.

- Depress ANS key.
  - CO/PBX green LED winks intermittently.
  - EXT green LED lights.
  - ANS LED goes off.

NOTE: The Multiline Terminal placing a call on hold will be recalled on the line key after a predetermined time lapse. Depress the line key with fluttering LED or the ANS key and lift handset to answer the hold recall.

4. Abandoning A Call

a. Using handset.
- Restore handset.
  - CO/PBX green LED is lit steady.
  - CO/PBX green LED goes off.
b. Using Recall key

- Depress RECALL key at the end of the call.
- CO/PBX call is released, line is retained and new outside dial tone is heard.

**NOTE:** Depending on the CO/PBX exchange the Electra MarkII is connected to, when loop start trunks are used, depression of the RECALL key might not release a call when on the receiving side of the call. When this happens, the user does not get new dial tone. When using LCR, the recall key provides internal (LCR) dial tone.

5. Trunk Queuing

a. To set a Trunk Queue: After attempting to seize a CO/PBX trunk via dial access from an extension line and receiving busy tone, because all of the trunks in that particular group are busy.

- Dial Trunk Queue Access Code *1, receive confirmation tone
- Restore handset.
b. Receiving Trunk Queue Recall: When a trunk within the Trunk Group, to which the queue was set, becomes idle the station which set the queue when it is also idle will receive a recall tone.

- Depress flashing ANS key or EXT line key, receive CO/PBX dial tone.
- Dial desired number; receive ring back tone; wait for called party to respond.
- Converse.

c. Trunk Queue cancellation:

1. A Trunk Queue will be automatically cancelled if the recall to the extension is not answered within a preprogrammed time interval.

2. A Trunk Queue will be cancelled by any attempt to access any CO/PBX or Tie line via dial access from any extension, by the station which set the Trunk Queue.

**NOTE 1:** Trunk Queuing cannot be accessed by a station that is assigned LCR. If this is attempted, reorder tone will be heard.

**NOTE 2:** Recall will not occur until the station that set the queue and it's primary extension are idle.

---

**SAMPLE LED INDICATIONS**

- **EXT** green LED flutters and **ANS** red LED flashes.
- **EXT** green LED lights.

**SAMPLE LCD INDICATIONS**

- **LK16:** QUEUE
  - 10:52 OCT 28 FRI

- **CO LINE**
  - 10:52 OCT 28 FRI

- **ELAPSED**
  - 03:16
  - 10:45 OCT 28 FRI
CHAPTER 4
APRIL, 1990

420.2 Pooled Line

Only Muliline Terminale that have pooled line appearances can use this function.

NOTE 1: When several Pooled Auto Extension (PAE) lines are assigned in addition to the primary extension line, the PAE lines are seized in ascending line key order. The lower number extension line keys are seized first. The primary extension is the last choice for PAE.

NOTE 2: When all the Pooled Auto Extensions (including primary extension) are not idle, you cannot originate calls using the Pooled Line keys.

1. Originating

   a. Manual Dialing
      - Depress an idle Pooled Line key.
      - Lift handset and receive dial tone.

      - Dial desired number and receive ring back tone.

      - Converse with called party.

SAMPLE LED INDICATIONS

<table>
<thead>
<tr>
<th>PAE</th>
<th>POOLED</th>
</tr>
</thead>
<tbody>
<tr>
<td>green LED lights.</td>
<td>red LED lights only if all other CO trunks in this Pooled Line are busy.</td>
</tr>
</tbody>
</table>

SAMPLE LCD INDICATIONS

```
10:45 OCT 28 FR1
```

```
51 6 7 5 3 7 0 0 0
```

```
10:45 OCT 28 FR1
```

```
ELAPSED 00:27
```

```
10:45 OCT 28 FR1
```

400 - 10
b. Prime Line

This function can be used when Pooled Line key is set as the Prime Line by system programming.

- Lift handset and receive dial tone.
- Dial desired number and receive ring back tone.
- Converse with called party.

NOTE 1: After lifting handset, pooled line LED lights red if all other CO trunks in the pooled line are busy.

NOTE 2: If the Pooled red LED is lit and/or all PAEs are busy, busy tone will result.

2. Answering

a. Manually Selecting Line:

- Depress Pooled Line key associated with flashing LED.
- Use handset to respond.

b. Answer Line (continued):

- Lift handset and receive dial tone.
- Dial desired number and receive ring back tone.
- Converse with called party.

NOTE 1: After lifting handset, pooled line LED lights red if all other CO trunks in the pooled line are busy.

NOTE 2: If the Pooled red LED is lit and/or all PAEs are busy, busy tone will result.

2. Answering (continued):

a. Manually Selecting Line:

- Depress Pooled Line key associated with flashing LED.
- Use handset to respond.
b. Answer key
   - Depress ANS key.
   - Use handset to respond.

c. Prime line or Ringing line Preference
   - Lift handset to respond.

NOTE: This is not a default feature, therefore, system data must be entered for incoming calls to be picked up on prime line.

3. Abandoning a Call
   a. Using a handset
      - Restore handset.
   b. Using Recall key
      - Depress RECALL key at the end of call.
      - CO/PBX call is released, line is reinstated, and new outside dial tone is heard.

NOTE: If RECALL timer is set for hookflash timing, system sends a hookflash signal to the engaged CO line.
420.3 Tie Lines & DID

1. Originating (for Tie lines only)
   a. Manual Dialing
      - Depress an idle line key dedicated to a Tie line and lift handset to receive dial tone.
      - Dial desired extension number within the distant system and receive ring back tone.
      - Dial trunk access code to access distant CO dial tone, remote dial tone, dial desired number and receive ringback tone.
      - Converse with called party.

   b. Dial Access On Extension Line
      - Depress an idle extension line key and lift handset to receive dial tone.
      - Dial Tie line access code (Default: 8, 9, or 70~75), dial the desired extension number. Receive ring back tone.
      - Dial trunk access code to access distant CO dial tone and receive remote dial tone, dial desired number, and receive ringback tone.
      - Converse with called party.

   ![Tie green LED lights.]

   ![EXT green LED lights.]

   ![SAMPLE LED INDICATIONS]

   ![SAMPLE LCD INDICATIONS]
c. Uniform Numbering Network Dialing:
- Depress an idle extension line key and lift handset to receive dial tone.
- Dial an extension number within the remote system and receive ringback tone.
- Converse with called party.

NOTE 1: Tie line LED lights red if seized trunk is also a line key appearance.

NOTE 2: Last number redial, station speed dialing or system speed dialing can also be used to originate outside calls via Uniform Numbering Network.

NOTE 3: Automatic Callback, Message Wait, Camp-On etc. cannot be set to extension numbers of the remote system.

2. Answering
   a. Manually Selecting Line:
   - Depress extension line key with flashing LED.
   - Lift handset to respond.

   b. Answer Key
   - Depress ANS key with flashing LED.
   - Lift handset to respond.

   NOTE 1: Depression of the ANS key with a call in progress places the original call on hold, with I-Hold LED indication.

   NOTE 2: System programming data must be entered for trunk name assignment (other than default) to be displayed.
3. Abandoning

a. Using Handset:
With call on Tie line in progress.

- Restore handset.

b. Using Recall Key:
With a Tie line call in progress on a line key assigned as a Tie line.

- Depress RECALL key when call is completed, the connection is released, the Tie line is retained and new Tie line dial tone is received (depending on system programming).

With a Tie line or DID call in progress on an extension line key.

- Depress RECALL key when call is completed the connection is released and new internal dial tone is received (depending on system programming).

OR

- Depress the RECALL key before the call is completed, the connection is released, the Tie line is retained and new Tie line dial tone is received (applies to Tie lines only).

4. Abandoning by Distant Party

a. Connection on direct Tie line key:
With call on Tie line in progress:

- Other party abandons call; reorder tone is heard.

**SAMPLE LED INDICATIONS**

<table>
<thead>
<tr>
<th>EXT</th>
<th>green LED lights steady.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXT</td>
<td>LED goes off.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tie line</th>
<th>Tie</th>
<th>green LED lights steady.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tie line</td>
<td>Tie</td>
<td>LED remains lit.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Primary</th>
<th>EXT</th>
<th>green LED lights steady.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>EXT</td>
<td>LED goes off.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tie line</th>
<th>Tie</th>
<th>green LED lights steady.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tie line</td>
<td>Tie</td>
<td>LED goes off.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Primary</th>
<th>EXT</th>
<th>green LED remains lit.</th>
</tr>
</thead>
</table>

**SAMPLE LCD INDICATIONS**

<table>
<thead>
<tr>
<th>ELAPSED</th>
<th>03:10</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45 OCT 28 FRI</td>
<td>10:45 OCT 28 FRI</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tie line</th>
<th>Tie</th>
<th>green LED lights steady.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tie line</td>
<td>Tie</td>
<td>LED remains lit.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Primary</th>
<th>EXT</th>
<th>green LED lights steady.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>EXT</td>
<td>LED goes off.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tie line</th>
<th>Tie</th>
<th>green LED lights steady.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tie line</td>
<td>Tie</td>
<td>LED goes off.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Primary</th>
<th>EXT</th>
<th>green LED remains lit.</th>
</tr>
</thead>
</table>

10:45 OCT 28 FRI
5. **Hold, Transfer, Conference:**

Station operations for these features are the same as those for regular CO/PBX lines.

**NOTE:** Calls on Tie lines cannot be placed on hold unless the call is already established.
420.4 Extension (Internal) Calls

1. Originating
   a. Manual Dialing
      • Depress an idle extension line key.
      • Lift handset and receive dial tone.
      • Dial extension number or Hunt pilot number; receive ring back tone, voice page tone, or forward alert tone.
      • Converse with called extension.

   NOTE 1: When a called station is programmed for Voice, a caller can voice announce or dial 1 to change to tone signalling.

   NOTE 2: When a called station is programmed for tone, a caller must wait for the called station to answer.

   b. Using DSS Key
      • Depress an idle extension line key.
      • Lift handset and receive dial tone.
      • Depress DSS key programmed to call the desired number.
      • Converse with called extension.

   NOTE 1: When the Station Hunt pilot number is registered on the DSS key, LED does not light.

SAMPLE LED INDICATIONS

EXT green LED lights.

SAMPLE LCD INDICATIONS

<table>
<thead>
<tr>
<th></th>
<th>EXT</th>
<th>LINE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45</td>
<td>OCT</td>
<td>28</td>
<td>FRI</td>
</tr>
<tr>
<td>300</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:45</td>
<td>OCT</td>
<td>28</td>
<td>FRI</td>
</tr>
<tr>
<td>137</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NOTE 2: Extensions can be called by depressing a DSS key that has been programmed with the corresponding extension number.

NOTE 3: The LED's (next to the DSS keys) serve as busy lamp field indicators for their corresponding DSS keys. This feature is available on ETR-161-( ) Multiline Terminals only.

NOTE 4: Built-in BLF LED's on the Multiline Terminals are only red LED's.

NOTE 5: For BLF LED flashing patterns, see Table 220-13 in Section 220 of this manual.

c. Prime Line.

When prime line assignment is for an extension line, the following sequence can be made:

- Lift handset and receive internal dial tone.
- Use any of the dialing methods described here.

d. Boss/Secretary ring (Multiline Terminals with DSS key only).

When a DSS key is programmed for Boss/Secretary ring followed by extension number, this DSS key can be used to place an internal call to Boss or Secretary.

| 10:45 | OCT | 28 | P R I |

400 - 18
Depress an idle extension line key.
Lift handset to receive dial tone.
Depress the DSS key programmed for Boss/Secretary ring.

Voice Page is heard at called Multiline Terminal
Dial 1.
Boss/Secretary ring tone rings at the called Multiline Terminal.
Use handset to talk when answered.

NOTE: When depressing the DSS key, make sure that the associated LED is off.

E. Step Calling:
After calling an extension and receiving Busy Tone or Call Waiting Tone.
Dial last digit of extension. Voice Page or, if Ring Back Tone is heard, wait for called party to answer.
Converse.

f. Station Hunting
Hunt pilot number is specified by the system programming (Max: 8 groups)

2. Answering
This operation is the same as for Manual Dialing, using DSS key and Prime Line operation above.

a. Manually Selecting Line.
Depress extension line key associated with flashing LED.
Use handset to respond.

SAMPLE LED INDICATIONS

<table>
<thead>
<tr>
<th>EXT</th>
<th>green LED lights.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSS</td>
<td>LED lights.</td>
</tr>
</tbody>
</table>

SAMPLE LCD INDICATIONS

<table>
<thead>
<tr>
<th>BUSY</th>
<th>1 1 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 0 : 4 5</td>
<td>O C T</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>L O U</th>
<th>1 1 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 0 : 4 5</td>
<td>O C T</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>S T E V E</th>
<th>1 3 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 0 : 4 5</td>
<td>O C T</td>
</tr>
</tbody>
</table>
b. Answer Key

- Depress ANS key.
- Use handset to respond.

**NOTE:** Depression of ANS key with call in progress places original call on hold, with I-hold LED indication.

c. Prime Line or Ringing Line Preference

- Lift handset to respond.

**NOTE:** System data is required for incoming calls to be picked up by prime line and ringing line preference.

3. Placing a Call On Hold With a Call in Progress

a. With No Incoming Call

- Depress HOLD key once for non-exclusive hold.

**OR**

- Depress HOLD key twice for exclusive hold.

**SAMPLE LED INDICATIONS**

- **EXT** and **ANS** red LED's flash.
- **EXT** green LED lights.
- **ANS** LED goes off.

**SAMPLE LCD INDICATIONS**

- **EXT** green LED is lit steady.

**OR**

- **EXT** green LED winks intermittently.

- **EXT** green LED winks intermittently.
b. Receiving an Incoming Call

- Depress ANS key for non-exclusive hold.
- OR
- Depress HOLD key twice for exclusive hold.
- Depress ANS key.

**NOTE:** Any internal call placed on hold is not automatically released even if the held party abandons the call during the hold condition. Both stations must be off-hook to place the call on hold.

Regarding held recalls, see item 3, Section 420.1 of this chapter.

4. Abandoning a Call

- Restore handset.
- OR
- Depress RECALL key to place another call.

**SAMPLE LED INDICATIONS**

- **EXT** green LED is lit steady.
- **CO/PBX** and **ANS** red LED's flash.
- **EXT** green LED winks intermittently.
- **CO/PBX** green LED lights.
- **ANS** LED goes off.
- **EXT** green LED winks intermittently.
- **CO/PBX** green LED lights.
- **ANS** LED goes off.

**SAMPLE LCD INDICATIONS**

- Ext  green LED is lit steady.
- CO/PBX  and  ANS  red LED's flash.
- Ext  green LED winks intermittently.
- CO/PBX  green LED lights.
- ANS  LED goes off.
- Ext  green LED winks intermittently.
- CO/PBX  green LED lights.
- ANS  LED goes off.
420.5 Handsfree Call

Multiline Terminals equipped with HFU-E units provides full both-way handsfree operation.

1. Originating
   • Depress an extension line key or a CO/PBX line key.
   • Depress SPKR key and receive dial tone.
   • Dial desired number or depress DSS key programmed for Station Speed Dial.
   • Converse with party when answered.

   NOTE 1: Make sure that MIC LED is lit.
   NOTE 2: Any methods described in Section 420.1 and 420.2 can be used for full both-way handsfree operation.
   NOTE 3: When a call is in progress using handsfree operation, the Multiline Terminal does not receive Boss/Secretary Alert and Ring tone (Internal Ring Tone, CO/PBX Ring tone, Recall Tone, or Dual Path calls).

2. Answering
   • Depress the line key receiving an incoming call or a recall, or depress ANS key.

   SPKR LED lights.
   CO/PBX green LED lights.
   EXT and ANS red LED's flash.
   SPKR LED is lit.
3. Placing a Call On Hold

See Section 420.1, item 3. and 420.2, item 3. of this chapter.

4. Abandoning a Call

a. Using SPKR key

- Depress SPKR key.

NOTE: Make sure that MIC LED is lit.

NOTE: Depression of ANS key with call in progress places original call on hold, with I-hold indication.

b. Using Recall key.

- Depress RECALL key at the end of the call.
- The call is released and new dial tone is heard.

NOTE: When LCR is used, the recall key will provide an internal dial tone.

---

SAMPLE LED INDICATIONS

<table>
<thead>
<tr>
<th>EXT</th>
<th>green LED lights.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPKR</td>
<td>LED lights.</td>
</tr>
<tr>
<td>ANS</td>
<td>LED goes off.</td>
</tr>
</tbody>
</table>

SAMPLE LCD INDICATIONS

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45</td>
<td>OCT 28</td>
<td>FRI</td>
<td>10:45</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>05:43</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
420.6 Dual Path Call

1. With call in progress on a line key other than primary extension line key, using handset:
   - A Multiline Terminal equipped with a DPA-E unit receives an incoming extension call on primary extension line and voice page alert tone.
   - Respond with handsfree answer back.

NOTE 1: Calling party originates a dual path call as a regular extension call.

NOTE 2: For Multiline Terminals to receive dual path call, the following conditions are required:

- Available to ETE-6D( ), ETE-16D( ) and ETE-16K-1 Multiline Terminals equipped with DPA-E units.
- Multiline Terminals with DPA-E units must be supported by ESI-EB ETU(s).
- Dual path assignment must be programmed by system data.
- Multiline Terminals with dual path should be programmed for voice page, not ring assignment.

Multiline Terminals with dual path should have a call in progress using the handset.
NOTE 3: Going Off-Hook and seizing a line key while receiving voice page on primary path makes the voice page call shift to secondary path.

NOTE 4: Depressing the SPKR key and a line key while receiving voice page, call shifts to ring mode. (Calling party hears ring back tone, but called Multiline Terminal does not receive ring tone). This ring call remains the same, even when the called Multiline Terminal resumes the conversation through the handset.

2. With call in progress on a primary extension line key, using handset:
   - A Multiline Terminal equipped with a DPA-E unit receives voice page after alert tone.
   - Respond with handsfree answer back.

   OR

   - Depressing the ANS key automatically places the first party on Consultation Hold and answers the new calling (Voice Page) party.

SAMPLE LED INDICATIONS

- Multiline Terminals with dual path should not be in DND, OFF-LINE or LOCKOUT mode.

SAMPLE LCD INDICATIONS

- Primary **EXT** green LED lights.

- **ANS** LED flashes.

- **ANS** LED lights.
### 420.7 Transfer

#### 1. Using Transfer Key

With call in progress:

- **Depress TRF key; receive second dial tone.**
- **Dial extension number.**

- **When ring back tone is heard, depress TRF key or restore handset.** (Transfer is completed when party answers.)

**OR**

- **When call waiting tone is heard, restore handset or depress TRF key** (Original call is camped-on to busy extension).

**NOTE:** Unanswered transferred calls will recall to the primary extension of the user who initiated the transfer after the recall time interval has elapsed.

---

### SAMPLE LED INDICATIONS

<table>
<thead>
<tr>
<th>LED</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO/PBX</td>
<td>green LED is lit steady.</td>
</tr>
<tr>
<td>ANS</td>
<td>LED lights.</td>
</tr>
</tbody>
</table>

### SAMPLE LCD INDICATIONS

<table>
<thead>
<tr>
<th>Time</th>
<th>Day</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>05:43</td>
<td>Wed</td>
<td>10/28/FRI</td>
</tr>
<tr>
<td>13:7</td>
<td>Fri</td>
<td>10/28/FRI</td>
</tr>
<tr>
<td>05:43</td>
<td>Mon</td>
<td>10/28/FRI</td>
</tr>
<tr>
<td>13:7</td>
<td>Fri</td>
<td>10/28/FRI</td>
</tr>
<tr>
<td>05:43</td>
<td>Mon</td>
<td>10/28/FRI</td>
</tr>
<tr>
<td>13:7</td>
<td>Fri</td>
<td>10/28/FRI</td>
</tr>
</tbody>
</table>

**CALL W.** (FRI)
2. Using DSS Key

With call in progress:

- Depress DSS key programmed to call the desired extension number.

- When ring back is heard or voice announcement is made, restore handset. (Transfer is completed when party answers).

OR

- When call waiting tone is heard, restore handset or depress TRF key. (Original call is camped on to busy extension).

**SAMPLE LED INDICATIONS**

- **CO/PBX** green LED is lit steady.
- **DSS** and **ANS** LED's light.
- **CO/PBX** red LED lights.
- **ANS** LED goes off.

- **E L A**
- **C A L**
- **C A M**

10
### 420.8 Trunk to Trunk Transfer

1. **With call in progress:**
   - **Depress TRF key; receive second dial tone** (original call is placed on hold).
   - **Dial trunk access code (8, 9, 70-75 as set in default) and desired number or Uniform Numbering Network number, or Speed dial number.** Receive ringback tone and wait for called party to answer.
   - **When party answers, depress TRF key and restore handset.**

   **NOTE 1:** CO/PBX/Tie LED lights red if seized trunk is also a line key appearance at the station.

   **NOTE 2:** Transfers to a Tie line will not take effect if the called party does not answer. Transfers to a CO/PBX line will not take effect until 18 seconds (default) has elapsed after the last digit has been dialed.

   **NOTE 3:** Both trunks must provide disconnect signals and must be programmed appropriately in system data.

2. **When second trunk is a CO/PBX line and the called party is busy or unattended:**
   - **With call in progress:**
   - **Depress TRF key and dial trunk access code followed by desired number.**

   Receive busy tone or no answer:
   - **Depress ANS key.**
   - **Return to first party.**

---

### SAMPLE LED INDICATIONS

<table>
<thead>
<tr>
<th>SAMPLE LED INDICATIONS</th>
<th>SAMPLE LCD INDICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CO/PBX/Tie/DID/EXT</strong> green LED is lit steady.</td>
<td></td>
</tr>
<tr>
<td><strong>ANS</strong> LED lights.</td>
<td></td>
</tr>
<tr>
<td><strong>ANS</strong> LED goes off.</td>
<td></td>
</tr>
</tbody>
</table>

**CO/PBX/Tie/DID/EXT green LED is lit steady.**

| **ANS** LED lights.          |            |
| **ANS** LED goes off.        |            |

**CO/PBX/Tie/DID/EXT green LED is lit steady.**

| **ANS** LED lights.          |            |
| **ANS** LED goes off.        |            |

**CO/PBX/Tie/DID/EXT green LED is lit steady.**
3. When second trunk is a Tie line and the called station is busy or unattended.

- With call in progress:
  - CO/PBX/Tie/DID/EXT green LED is lit steady.

- Depress TRF key and dial trunk access code followed by desired number.

Receive busy tone or no answer.

- Depress ANS key.
- Return to first party.

SAMPLE LED INDICATIONS

CO/PBX/Tie/DID/EXT green LED is lit steady.

ANS LED lights.

ANS LED goes off.

SAMPLE LCD INDICATIONS

ELAPSED 05:02
10:45 Oct 28 Fri

ELAPSED 05:42
10:45 Oct 28 Fri
420.9 Conference

Possible conferences are as follows:

4 stations - No CO/PBX/Tie/DID lines
3 stations - No CO/PBX/Tie/DID lines
3 stations - 1 CO/PBX/Tie/DID line
2 stations - 1 CO/PBX/Tie/DID line
2 stations - 2 CO/PBX/Tie/DID lines
1 station - 2 CO/PBX/Tie/DID lines

NOTE 1: When all conferences circuits are busy, CNF LED will light on all Multiline Terminals. No additional conferences can be made at this time.

NOTE 2: With four party conference call in progress, depression of CNF key is ignored and error tone burst is heard.

NOTE 3: Conference calls can be transferred using the following operation:

With three party conference in progress:

- Depress CNF key; LED flashes.
- Dial desired extension number and wait for called party to answer.
- Converse with called party, and depress CNF key to establish four party conference; CNF LED steadily lights.
NOTE 4: Four party conference calls cannot be transferred.

1. Three Party Conference

a. Using One Line Key:
   - With first call in progress, depress CNF key to receive second dial tone.
   - Originate second call and wait for called party to answer.
   - Depress CNF key and establish a 3 party conference.

   **Sample LED Indications**
   - EXT green LED is lit steady.
   - CNF LED flashes.
   - ANS LED lights.

   **Sample LCD Indications**
   - CONFERENCE 10:25
   - FLAILED DEM 02:35
   - 10:45 OCT 28 FRI

b. Using Two Line Keys:
   - With first call in progress, depress CNF key.
   - Depress another line key and originate second call, then wait for called party to answer.

   **Sample LED Indications**
   - EXT green LED lights.
   - ANS LED lights.

   **Sample LCD Indications**
   - STEVE 10:45 OCT 28 FRI
   - CONFERIENCIE 02:50
   - 10:45 OCT 28 FRI

- Restore handset to drop from the conference.
CHAPTER 4
APRIL, 1990

2. Four Party Conference
   a. Using One Line Key:
      - With a 3 party conference in progress, depress CNF key to receive second dial tone.
      - Originate another call and wait for called party to answer.
      - Depress CNF key and establish a 4 party conference.

   b. Using Two Line Keys.
      - With 3 party conference in progress using one line key.

   b.1 With 3 party conference in progress using one line key.

   SAMPLE LED INDICATIONS

   - Depress CNF key and establish a 3 party conference.
     [CNF] LED lights.
     [ANS] LED goes off.

   - Using One Line Key:
     [CNF] green LED is lit steady.
     - With a 3 party conference in progress, depress CNF key to receive second dial tone.
     [CNF] LED is lit steady.
     [ANS] LED lights.

   - Originating another call and wait for called party to answer.

   - Depress CNF key and establish a 4 party conference.
     [CNF] LED lights steady.
     [ANS] LED goes off.

   b. Using Two Line Keys.

   b.1 With 3 party conference in progress using one line key.

   [EXT] green LED is lit steady.
   [CNF] LED is lit steady.

   SAMPLE LCD INDICATIONS

   [CONFERENCE] 10:45 OCT 28 FRI
   [CONFERENCE] 05:17
   [CONFERENCE] 05:37
   [CONFERENCE] 05:17
### SAMPLE LED INDICATIONS

- **Depress CNF key and depress another line key.**
  - ANS LED lights.
  - CNF LED flashes
  - Another EXT green LED lights.

- **Originate another call and wait for called party to answer.**

- **Depress CNF key and establish a 4 party conference.**
  - CNF LED lights steady.
  - ANS LED goes off.

- **b.2 With 3 party conference in progress using two line keys.**
  - Two EXT green LED's are lit steady.
  - CNF LED is lit steady.

- **Depress CNF key to receive second dial tone.**
  - CNF LED flashes
  - ANS LED lights.

- **Originate another call and wait for called party to answer.**

### SAMPLE LCD INDICATIONS

<table>
<thead>
<tr>
<th>Time</th>
<th>Line</th>
<th>Name</th>
<th>Dest</th>
<th>Time</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>00:28</td>
<td>Ext Line</td>
<td>John</td>
<td>134</td>
<td>05:37</td>
<td>00:30</td>
</tr>
<tr>
<td>10:45</td>
<td>OCT 28 FRI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:45</td>
<td>OCT 28 FRI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:45</td>
<td>OCT 28 FRI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:45</td>
<td>OCT 28 FRI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Depress CNF key and establish a 4 party conference.

**SAMPLE LED INDICATIONS**

<table>
<thead>
<tr>
<th>CNF</th>
<th>LED lights steady.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANS</td>
<td>LED goes off.</td>
</tr>
</tbody>
</table>

**SAMPLE LCD INDICATIONS**

```
CONFERENCE 00:35
10:45 OCT 28 FRI
```

3. Using Three Line Keys:
   - With a 3 party conference in progress using two line keys.
   - Depress CNF key.
   - Depress another line key and originate another call. Wait for called party to answer.

**SAMPLE LED INDICATIONS**

- Two **CO/PBX** green LED's are lit steady.
- **CNF** LED is lit steady.
- **CNF** LED flashes
- **ANS** LED lights.

**SAMPLE LCD INDICATIONS**

```
CONFERENCE 03:25
10:45 OCT 28 FRI
```

<table>
<thead>
<tr>
<th>EXT LINE</th>
<th>10:45 OCT 28 FRI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10:45 OCT 28 FRI</td>
</tr>
<tr>
<td>JOHN</td>
<td>13:4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONFERENCE</th>
<th>03:40</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45 OCT 28 FRI</td>
<td></td>
</tr>
</tbody>
</table>

3. Placing a Conference Call on Hold
   - With conference call in progress:

**SAMPLE LED INDICATIONS**

- Two **CO/PBX** green LED's are lit steady.
- **CNF** LED is lit steady.

**SAMPLE LCD INDICATIONS**

```
CONFERENCE 06:27
10:45 OCT 28 FRI
```

<table>
<thead>
<tr>
<th>CONFERENCE</th>
<th>06:27</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45 OCT 28 FRI</td>
<td></td>
</tr>
</tbody>
</table>
Depress HOLD key and hang up.

LED's associated with the line keys involved show I-Hold (Exclusive hold) indication.

**NOTE:** When a conference call using multiple line keys is placed on hold, it splits into an individually exclusive held line key. If any line key contains more than one party, (only this case), a conference circuit is reserved to reenter the conference and the parties on the line key can still talk to each other. Other than this case, the conference circuit is released.

4. Abandoning a Conference Call

a. Dropping from Conference (more than one internal station).

- With conference call in progress.

- Restore handset.

If another internal station was in the conference, the station will continue to converse normally.

**SAMPLE LED INDICATIONS**

<table>
<thead>
<tr>
<th>CNF</th>
<th>LED flashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANS</td>
<td>LED lights</td>
</tr>
</tbody>
</table>

**SAMPLE LCD INDICATIONS**

```
<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10:45</td>
<td>OCT</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>CONFERENCE</td>
<td></td>
<td>FRI</td>
</tr>
</tbody>
</table>
```

```
<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10:45</td>
<td>OCT</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>EXT green LED is lit steady.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CNF LED is lit steady.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

```
<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10:45</td>
<td>OCT</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>EXT and CNF LED's go off.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```
b. Abandoning

- With conference call in progress
  - LED's are lit steady.
  - LED is lit steady.

- Restore handset
  - LED's go off.
420.10 Unsupervised Conference

1. To Establish

With a three party conference including two CO/PBX parties in progress using an extension line key:

- Depress HOLD key; two CO/PBX parties can still talk to each other.
- Hang up.

2. To Re-enter the Conference

- Depress the held extension line key.
- Lift handset to reenter the conference.

3. To Answer Conference Recall

After predetermined time since an unsupervised conference is established.

- The Multiline Terminal is recalled on the extension line key. Depress the line key or ANS key.

**SAMPLE LED INDICATIONS**

<table>
<thead>
<tr>
<th>Key</th>
<th>LED Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXT</td>
<td>green LED is lit steady.</td>
</tr>
<tr>
<td>CNF</td>
<td>LED is lit steady.</td>
</tr>
<tr>
<td></td>
<td>green LED winks intermittently.</td>
</tr>
<tr>
<td></td>
<td>LED remains lit steady.</td>
</tr>
<tr>
<td></td>
<td>green LED lights.</td>
</tr>
</tbody>
</table>

**SAMPLE LCD INDICATIONS**

<table>
<thead>
<tr>
<th>LCD Display</th>
<th>Time</th>
<th>Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONFE RENCE</td>
<td>06:27</td>
<td>2:00</td>
</tr>
<tr>
<td>10:45 OCT</td>
<td>28</td>
<td>FRI</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LCD Display</th>
<th>Time</th>
<th>Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONFE RENCE</td>
<td>03:52</td>
<td>2:00</td>
</tr>
<tr>
<td>10:45 OCT</td>
<td>28</td>
<td>FRI</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LCD Display</th>
<th>Time</th>
<th>Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>LK16 RECALL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:45 OCT</td>
<td>28</td>
<td>FRI</td>
</tr>
</tbody>
</table>
SAMPLE LED INDICATIONS

- Lift handset or depress SPKR key to answer the conference recall.

4. Abandoning a Conference

After reentering the conference or answering the conference recall:

- Restore handset.

SAMPLE LCD INDICATIONS

<table>
<thead>
<tr>
<th>CONFERENCE</th>
<th>06:28</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45 OCT 28 FRI</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONFERENCE</th>
<th>07:13</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45 OCT 28 FRI</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONFERENCE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45 OCT 28 FRI</td>
<td></td>
</tr>
</tbody>
</table>

EXT green LED lights.
ANS LED goes off.

EXT green LED is lit steady.
CNF LED is lit steady.

EXT and CNF LED's go off.
420.11 Internal Zone Paging

1. To Originate:
   - Depress an idle extension line key.
   - Lift handset.
   - Dial access code.

Default values are as follows: (Last digit of each access code is fixed).

- 550 - All Call
- 551 - Zone 1
- 552 - Zone 2
- 553 - Zone 3
- 554 - All Zones

OR

- Depress DSS key programmed for one of these access codes.
- Use handset to page.
2. To Answer (Meet-me):

**NOTE:** To use Meet-Me answer feature, the paged station must be in the same zone as the paging station.

- Depress an idle extension line key. **EXT** green LED lights.
- Lift handset.
- Dial access code.

(Default value is 556. Last digit of the access code is fixed).

**OR**

- Depress DSS key programmed for this access code.
- Converse with paging party on handset.

### SAMPLE LED INDICATIONS

<table>
<thead>
<tr>
<th>EXT</th>
<th>LINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45</td>
<td>OCT 28 FR 1</td>
</tr>
</tbody>
</table>

### SAMPLE LCD INDICATIONS

<table>
<thead>
<tr>
<th>JIMMY</th>
<th>132</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45</td>
<td>OCT 28 FR 1</td>
</tr>
</tbody>
</table>
420.12 External Zone Paging

1. To Originate:
   - Depress an idle extension line key.
   - Lift handset.
   - Dial access code.

   Default values are as follows: (Last digit of each access code is fixed).
   - 561 - Zone 1
   - 562 - Zone 2
   - 563 - Zone 3
   - 564 - All Zones

   OR
   - Depress DSS key programmed for one of these access codes.
   - Use handset to page.

2. To Answer (Meet-me):
   - Depress an idle extension line key.
   - Lift handset.
   - Dial access code (Default value is 566. Last digit of the access code is fixed).

   OR
   - Depress DSS key programmed for this access code.
   - Converse with paging party on handset.
420.13 Consultation Hold (Broker's Call)

The status of consultation hold occurs during the process of transfer, conference or broker's call. ANS LED steadily lights on any Multiline Terminal having consultation hold.

When a station having consultation hold goes on-hook, the station will be immediately recalled.

1. Transfer or Conference

With call in progress:

- Depress TRF or CNF key: first party goes on consultation hold - receive second dial tone.
  - \[\text{CNF LED flashes}\]
  - \[\text{ANS LED lights.}\]

- Dial a station number.

- Consult with second party when answered.

- Depress RECALL key to disconnect second party and ANS key to return to first party.
  - \[\text{CNF and ANS LED's go off.}\]

OR

- Depress TRF key or hang up to complete transfer, or depress CNF key to establish a conference.
  - \[\text{CNF LED lights steady.}\]
  - \[\text{ANS LED goes off.}\]

**Sample LED Indications**

- **EXT** green LED is lit steady.
- **CNF** LED flashes
- **ANS** LED lights.

**Sample LCD Indications**

- **ELAPSED** 03:18
  - 10:45 OCT 28 Fri
- **CONFERENCE** 03:50
  - 10:45 OCT 28 Fri
2. Broker's Call

a. Originating:

With call in progress:

- Depress TRF key, first party goes on consultation hold.
- Receive second dial tone.
- Dial a station number.
- Consult with second party when answered.
- Depress ANS key to place second party on consultation hold and return to first party.

b. Answering:

With call in progress:

- The Multiline Terminal receives camp-on or tone override, then depress ANS key to answer the camped on call or tone overridden call.

(DEPRESSING ANS key places first call on consultation hold.)
• Depress ANS key again to place second party on consultation hold and return to first party.

NOTE: In the preceding cases (a. and b.), successive depression of the ANS key alternates the connection between the first and second parties.
420.14 Call Park

1. To Park a Call:

With call in progress

- Depress TRF key, receive feature dial tone (call is placed on Consultation Hold).

- Dial Call Park Access Code (Default 4*) or depress DSS key programmed for this access code.

- Dial Call Park Location Number (0-9), receive confirmation tone.

   OR

If the Call Park Location Number dialed is Busy (Busy Tone Received):

- Use step calling to advance to an idle call park location by consecutively dialing single digits until confirmation tone is received.

- Restore handset.

SAMPLE LED INDICATIONS

- CO/PBX/Tie or EXT green LED lit.
- CO/PBX/Tie or EXT green LED flashing (I-hold).
- ANS red LED lit.

SAMPLE LCD INDICATIONS

- ELAPSED 01:29
- 10:45 OCT 28 FRI

- PARK NBR ?
- 10:45 OCT 28 FRI

- BUSY PARK 0
- 10:45 OCT 28 FRI

- PARK 2
- 10:45 OCT 28 FRI
2. To Park a conference Call:

NOTE 1: A four (4) party conference cannot be parked.

NOTE 2: The parties on Park Hold can talk to each other.

With conference call in progress:
- Depress TRF key and receive feature dial tone.
- Dial access code (Default: 4*) or depress DSS key programmed for this access code.
- Dial Call Park location number (0~9), receive confirmation tone.
- Restore handset.

3. Retrieving a Call from Park:
- Seize an Extension line and lift handset, receive dial tone.
- Dial Call Park Access Code (Default 4*).
- Dial Call Park Location number (0~9) of the call to be retrieved; converse.

4. Recall:
Any call left in Call Park for longer than a pre-programmed interval will recall on the primary extension of the station which parked the call. This recall can be picked up by other stations in the system via Directed Call Pickup. (Default 6#xxx)

NOTE 1: A Station that placed a conference call on exclusive hold or parked a conference call cannot retrieve another parked call or answer the recall for another unanswered parked conference call.
NOTE 2: Two independently adjustable recall timers (conference and 2 party calls) are available for Call Park calls. This allows for the parties of an outside parked conference to continue communicating without frequently recalling to the party that parked the call.

420.15 Dial 0 For Attendant

- Depress an idle extension line key and lift handset.

- Dial 0 to call the associated attendant.

- Converse with the attendant.

NOTE: When the associated attendant is busy, calls to the attendant can be routed to another attendant depending upon system programming. If the associated attendant is call forwarded to another station, calls to the attendant will be automatically forwarded to the station.
420.16 Call Pickup

1. Call Pickup - Directed

Station A is receiving an incoming call:

- Depress an idle extension line key of Multiline Terminal B. green LED lights.
- Lift handset of Multiline Terminal B.
- Dial access code (Default: 6#) or depress DSS key programmed for this access code.
- Dial the extension number of Station A.
- Use handset to talk to party who was calling Station A.

Incoming calls to be picked up are as follows:

CO/PBX calls, extension calls, transferred calls, hold recalls, transfer recalls, and voice paged calls.
2. Call Pickup - Group

A station is receiving an incoming call:

- Depress an idle extension line key of a Multiline Terminal within the call pickup group. **EXT** green LED lights.
- Lift handset.
- Dial the access code (Default: 6*) or depress DSS key programmed for this access code.
- Use handset to talk to party who was calling the station.

Incoming calls to be picked up are CO/PBX calls, extension calls and transferred calls.

A station must be assigned to the same call pickup group as the station that is ringing for the call to pickup.

**NOTE:** Group call pickup does not work when ringing station is off-hook.
420.17  **Night Call Pickup**

With incoming CO/PBX call present during night mode:

- Depress an idle extension line key.  
  ![EXT](green LED lights).

- Lift handset.

- Dial access code (Default 60) or depress DSS key programmed for this access code.

- Use handset to talk to calling party.

Incoming calls to be picked up are CO/PBX calls only.

**NOTE:** DIT/ANA calls cannot be picked up using Night Call Pickup.
420.18 Callback Request Message

1. To Set:

Upon receiving call waiting tone, busy tone or no answer when placing an extension call:

- Dial access code (Default: #) or depress DSS key programmed for this access code.
- Receive confirmation tone and hang up.

**NOTE:** Callback requests (3 maximum) can only be set at a Multiline Terminal with LCD. They cannot be set at SLTs or Multiline Terminals without LCD.

2. To Cancel:

a. From originating Multiline Terminal:

- Depress primary extension line key. **EXT** green LED lights.
- Lift handset to receive dial tone.
- Redial the extension number.
- Restore handset.
b. From receiving Multiline Terminal:

With message on the LCD:

- Dial 1 repeatedly until the message to be cancelled appears on the LCD.

- Dial *, within 5 seconds after the message appears.

  OR

- Depress primary extension key and lift handset.

  Primary EXT green LED lights.

- Dial the extension number which set the callback request message.

- Restore handset.

  Primary EXT LED goes off.

3. To Call Back:

With message on the LCD:

- Dial 1 repeatedly until a callback message appears.
- Depress primary extension key and lift handset.

- Primary **EXT** green LED lights.

- Dial the extension number to be called back.

- Converse when party answers.

- Restore handset.

Primary **EXT** LED goes off.

---

**SAMPLE LCD INDICATIONS**

- 10:45 Oct 28 Fri 1

- 137

- Steve 137

- MSG 2

- 10:45 Oct 28 Fri 1
420.19 Camp-On

1. To Originate:

Upon receiving call waiting tone when transferring a call to a station:

- Depress TRF key and receive camp-on tone.
- Restore handset.

NOTE: When a camp-on is denied, an error tone burst followed by call waiting tone or busy tone is heard, and the station requesting the camp-on is recalled after hanging up.

The station that established the camp-on will be recalled if the camped on call is not answered within a predetermined time.

2. To answer:

Upon receiving camp-on tone for a second:

- Depress ANS key.

   OR

- Restore handset, then receive ring tone.
- Depress ANS key or primary extension key, then lift the handset.

Primary EXT green LED is lit steady.
ANS LED flashes.
ANS LED lights steady.

Primary EXT and ANS red LED's flash.
Primary EXT green LED lights steady.
ANS LED goes off.
420.20  Tone Override

1. To Originate:
Upon receiving call waiting tone when placing an extension call:

- Dial access code (Default : *0) or depress DSS key programmed for this access code, and receive override tone.
- Talk to party when answered.

2. To Answer:
Upon receiving override tone:

- Depress ANS key.

OR

- Restore handset, then receive ring tone.

- Depress ANS key or primary extension key, then lift handset.
420.21  Automatic Callback

1. To Set:

Upon receiving call waiting tone or busy tone when placing an extension call:

- Dial access code (Default: *1) or depress DSS key programmed for this access code.

- Receive confirmation tone and hang up.

- Primary extension line rings when called station becomes idle.

- Depress ANS key or primary extension line key then lift handset.

- Called station automatically rings or receives voice page.

- Use handset to talk when answered.

**SAMPLE LED INDICATIONS**

- **EXT** green LED is lit steady.

- **EXT** LED goes off.

- **EXT** and **ANS** LED's flash.

- **EXT** green LED lights.

**SAMPLE LCD INDICATIONS**

- **BUSY**

| 10:45 | OCT 28 | FRI 1 |

- **CALLBACK SET**

| 10:45 | OCT 28 | FRI 1 |

- **CALLBACK**

| 10:45 | OCT 28 | FRI 1 |

- **ANS** LED goes off.
2. To Cancel:

- Depress primary extension line key and lift handset to receive internal dial tone. **EXT** green LED lights.

- Redial the extension number.

- Restore handset. **EXT** LED goes off.

**NOTE:** Any station can set and receive a maximum of 3 automatic callbacks per station. Automatic callback will time out if unanswered within a predetermined time at originating station.
420.22 Account Code Entry

1. With CO/PBX/Tie/DID call in progress:
   - Depress TRF key and dial # # (If a DSS key is programmed for account code entry, depress the DSS key instead of TRF key, followed by dialing # #).
   - Dial an account code.
   - Automatically return to conversation.

NOTE: A maximum 14 of digits can be entered as an account code. The number of digits in the account code can be assigned by system programming.
2. Account Code- Forced/ Verified

Outside Call Origination by Account Code

- Lift handset and receive dial tone.
  
- Dial a forced account code entry access code and receive second dial tone.
  
- Dial a valid account code and receive dial tone.
  
- Dial a trunk access code and desired number.

NOTE 1: If the dialed account code does not coincide with the registered account code, ROT (reorder tone) will be issued and outside call origination is not enabled.

NOTE 2: Valid Forced account codes can only be programmed from Attendant telephones.

NOTE 3: Conference calls are not available with this feature.
420.23  Save and Repeat

1. To Save:

With originating CO/PBX call in progress:

- Depress line key programmed for save & repeat.
- Number dialed is stored into the memory and restore handset.

NOTE: A maximum of 80 Save & Repeat buffers are provided in a system. Each buffer can contain up to 16 digits. Any Multiline Terminal can have multiple Save & Repeat keys.

2. To Repeat:

- Depress an idle extension or CO/PBX line key.
- Lift handset to receive dial tone.
- Depress save & repeat key with LED lit.
- Wait for called party to answer.

NOTE: When an extension line key is used to originate an outside call, the system automatically seizes an idle trunk within the trunk group previously used to save the number.
SAMPLE LED INDICATIONS

420.24  Do Not Disturb

- Depress line key programmed for Do Not Disturb.  
  **DND** red LED lights steady.

NOTE: Stations in DND mode can receive:

a. Call from attendant (voice page and ring tone)
b. Boss/Secretary Ring Tone
c. Recall Tone
d. Camp-on Tone
e. Override tone
f. Error tone burst
g. Background Music

SAMPLE LCD INDICATIONS

1 0 4 5  O C T  2 8  F R I
420.25 Call Forward

1. From Source Multiline Terminal:
   a. To Set:
      • Depress primary extension line key.
      • Lift handset.
      • Dial access code (Default: All Call - 41, Busy/No Answer - 42) or depress DSS key programmed for this access code.
      • Dial extension number to where the incoming calls to your primary extension are forwarded.
      • Receive confirmation tone and hang up.

   NOTE: Access code followed by extension number can be programmed on a DSS key.

   b. To Verify (Only from Multiline Terminal with LCD):
      • Depress primary extension line key.
      • Lift handset.
      • Dial access code (Default: All Call - 41, Busy/No Answer - 42) or depress DSS key programmed for this access code.

   Primary **EXT** green LED lights.
   Primary **EXT** LED goes off.
Verify call forward setting and hang up.

To Cancel:

- Depress primary extension line key and lift handset.
- Dial access code (Default: All Call - 41, Busy/No Answer - 42) or depress DSS key programmed for this access code.
- Dial * and receive confirmation tone.
- Hang up.

2. From Destination Multiline Terminal:

To Set:

- Depress primary extension line key on destination Multiline Terminal and lift handset.
- Dial access code (Default: All Call - 47, Busy/No Answer - 48) or depress DSS key programmed for this access code.
- Dial source extension number.
- Dial extension number of the destination Multiline Terminal.

- Receive confirmation tone and hang up.

**NOTE:** A DSS key can also be assigned for access code, followed by source and the destination Multiline Terminal extension numbers.

b. To Verify (Only from Multiline Terminal with LCD):

- Depress primary extension line key on destination Multiline Terminal and lift handset.

- Dial access code (Default: All Call - 47, Busy/No Answer - 48) or depress DSS key programmed for this access code.

- Dial source extension number.

- Verify call forward setting and hang up.

**SAMPLE LED INDICATIONS**

<table>
<thead>
<tr>
<th>FWD</th>
<th>ALL</th>
<th>137</th>
<th>130</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45</td>
<td>OCT</td>
<td>28</td>
<td>FRI</td>
</tr>
</tbody>
</table>

Primary **EXT** LED goes off.

**SAMPLE LCD INDICATIONS**

Primary **EXT** green LED lights.

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45</td>
<td>OCT</td>
<td>28</td>
<td>FRI</td>
</tr>
</tbody>
</table>

Primary **EXT** green LED lights.

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45</td>
<td>OCT</td>
<td>28</td>
<td>FRI</td>
</tr>
</tbody>
</table>

Primary **EXT** goes off.
c. To Cancel:

- Depress primary extension line key on destination Multiline Terminal and lift handset.

- Dial access code (Default: All Call - 47, Busy/No Answer - 48) or depress DSS key programmed for this access code.

- Dial source extension number.

- Dial * and receive confirmation tone.

- Hang up.

SAMPLE LED INDICATIONS

<table>
<thead>
<tr>
<th>Primary EXT green LED lights.</th>
<th>SAMPLE LCD INDICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45 OCT 28 FRI</td>
<td>47</td>
</tr>
<tr>
<td>10:45 OCT 28 FRI</td>
<td>130</td>
</tr>
<tr>
<td>10:45 OCT 28 FRI</td>
<td>FWD CANCEL</td>
</tr>
<tr>
<td>10:45 OCT 28 FRI</td>
<td>130</td>
</tr>
</tbody>
</table>
CHAPTER 4
APRIL, 1990

420.26 Programming Station Speed Dial and Feature Access Keys

DSS keys can be programmed to enter station speed dials, feature access codes and the following functions:

Account Code Entry, Boss/Secretary Ring, Last Number Redial, System Speed Dial, Calculator Function.

1. Programming Station Speed Dial

a. To Program:

a.1 Using DSS key (ETE-6D & ETE-16D Multiline Terminals):

• Depress CNF key.
• Depress desired DSS key.
• Dial internal extension or trunk access code followed by telephone number to be stored.
• Depress CNF key.

a.2 Using Dial Access (All Multiline Terminals):

• Depress CNF key.
• Dial speed dial buffer number (00 ~ 19).

SAMPLE LED INDICATIONS

<table>
<thead>
<tr>
<th>「CNF」</th>
<th>LED flutters.</th>
</tr>
</thead>
</table>

SAMPLE LCD INDICATIONS

<table>
<thead>
<tr>
<th>PROGRAM SPEED ? ?</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD TRK AC ?</td>
</tr>
<tr>
<td>SPD TRK AC 9</td>
</tr>
<tr>
<td>5 1 6 7 5 3 7 0 0 0</td>
</tr>
<tr>
<td>1 0 : 4 5 OCT 2 8 FRI</td>
</tr>
</tbody>
</table>

400 - 66
NOTE 1: When system speed dial number needs to be entered into speed dial buffer, enter a trunk access code, depress ANS key in place of dialing #, and then enter system speed dial buffer number (20~99). If a pause is required anywhere in the dialing of the number, depress the TRF key (Each depression counts as one of the 16 digits).

NOTE 2: Hookflash (RECALL key) signal can be registered as the first digit of a Speed Dial number at a Multiline Terminal with an LCD only. The CO/PBX line must be programmed as PBX. A Hookflash counts as 1 digit.

b. To Verify (Only from Multiline Terminal with LCD):

b.1 Using DSS key:

- Depress desired DSS key to be verified.
- Check contents of the buffer on the LCD. (The LCD automatically returns to normal mode in about 10 seconds.)
b.2 Using Dial Access:

- Depress CNF key.  
  ![CNF LED flutters.]

- Dial speed dial buffer number (00 ~ 19) to be verified.
  
- Check the contents of the buffer with LCD, then depress CNF key.  
  ![CNF LED goes off.]

c. To Clear:

c.1 Using DSS key (ETE-6D & ETE-16D Multiline Terminals):

- Depress CNF key.  
  ![CNF LED flutters.]

- Depress desired DSS key.

- Depress HOLD key.

- Depress CNF key.  
  ![CNF LED goes off.]

c.2 Using Dial Access (All Multiline Terminals):

- Depress CNF key.  
  ![CNF LED flutters.]

- Dial speed dial buffer number (00 ~ 19) to be cleared.

---

**SAMPLE LED INDICATIONS**

<table>
<thead>
<tr>
<th>PRESSURE</th>
<th>SPD</th>
<th>TRK</th>
<th>AC</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROGRAM</td>
<td>SPD</td>
<td>TRK</td>
<td>AC</td>
</tr>
<tr>
<td>5 1 6 7 5 3 7 0 0 0</td>
<td>1 0 : 4 5</td>
<td>O C T</td>
<td>2 8</td>
</tr>
</tbody>
</table>

**SAMPLE LCD INDICATIONS**

<table>
<thead>
<tr>
<th>PRESSURE</th>
<th>SPD</th>
<th>TRK</th>
<th>AC</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROGRAM</td>
<td>SPD</td>
<td>TRK</td>
<td>AC</td>
</tr>
<tr>
<td>5 1 6 7 5 3 7 0 0 0</td>
<td>1 0 : 4 5</td>
<td>O C T</td>
<td>2 8</td>
</tr>
</tbody>
</table>

400 - 68
CHAPTER 4
APRIL, 1990

SAMPLE LED INDICATIONS

- Depress HOLD key.
- Depress CNF key. **CNF** LED goes off.

SAMPLE LCD INDICATIONS

<table>
<thead>
<tr>
<th>SPD</th>
<th>TRK</th>
<th>AC ?</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>45</td>
<td>OCT 28 FRI</td>
</tr>
</tbody>
</table>

2. Programming Feature Access Codes (Multiline Terminal with DSS key Only)

a. To Program:
- Depress CNF key. **CNF** LED flutters.
- Depress desired DSS key.
- Dial desired feature access code.
- Depress CNF key. **CNF** LED goes off.

b. To Verify:
- Depress desired DSS key to be verified.
- Check contents of the DSS key on the LCD (The LCD automatically returns to normal mode in approximately ten seconds).
c. To Clear:

- Depress CNF key.
- Depress desired DSS key.
- Depress HOLD key.
- Depress CNF key.

3. Programming Functions (Multiline Terminal with DSS Key Only)

a. To Program:

- Depress CNF key.
- Depress desired DSS key.
- Depress ANS key.
- Dial one of the following digits for various functions:
  - Dial 02 Account Code Entry
  - Dial 03 Calculator Function
  - Dial 04 Speed Dial Access
  - Dial 05 Last Number Redial
• Dial 06 followed by extension number
  Boss/Secretary Ring

• Depress CNF key.
  [CNF] LED goes off.

b. To Verify:
• Depress desired DSS key.

• Check contents of the DSS key on the
  LCD (The LCD automatically returns to
  normal mode in about 10 seconds).

  [CNF] LED goes off.

  10:45 OCT 28 FRI

  [SPD] [TRK] [AC]
  03; CALCULATOR [F]

  10:45 OCT 28 FRI

  PROGRAM [SPD] ???

  [SPD] [TRK] [AC]
  03; CALCULATOR [F]

  [SPD] [TRK] [AC] ?

  19:45 OCT 28 FRI

• Depress CNF key.

  [CNF] LED goes off.
420.27 User Programming

Each Multiline Terminal can be programmed for the following three features:

1. Off hook Ringing.
2. Voice/Tone Signaling.
3. Ringing Tone 0 or 1.

- Depress CNF key.
- Depress desired line key.

<table>
<thead>
<tr>
<th>LINE KEY NUMBER</th>
<th>FEATURE</th>
<th>LED ON</th>
<th>LED OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Off hook Ringing</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>2</td>
<td>Voice/Tone Signaling</td>
<td>Tone</td>
<td>Voice</td>
</tr>
<tr>
<td>3</td>
<td>Ringing Tone</td>
<td>Tone 0</td>
<td>Tone 1</td>
</tr>
</tbody>
</table>

- Depress CNF key

**SAMPLE LED INDICATIONS**

- CNF LED flutters.
- LK1 ~ LK3 green LED's light.
- CNF LED goes off
- LK1 ~ LK3 green LED's go off.
420.28 Background Music

1. To Set:
   - Depress primary extension line key and lift handset.
   - Dial access code (Default: 49) for BGM.
   - Dial Channel Number (1 or 2).
   - Hang up.

   - Background music is heard over station speaker.

2. To Cancel:
   - Depress primary extension line key and lift handset.
   - Dial access code (Default: 49) for BGM.
   - Hang up.

   - Make sure that background music is no longer heard over station speaker.
Calculation function is provided to ETE-6D-( ) TEL, ETE-16D-( ) TEL and ETE-16K-1 TEL. This calculator function provides four arithmetic calculations, (addition, subtraction, multiplication and division).

Layout of function keys is as follows:

Each function is printed on DSS key designation paper.

<table>
<thead>
<tr>
<th>DSS KEY</th>
<th>FUNCTION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>OFF</td>
<td>Calculation mode off</td>
</tr>
<tr>
<td>2</td>
<td>Not used</td>
<td>Not used</td>
</tr>
<tr>
<td>3</td>
<td>C</td>
<td>Clear the calculator</td>
</tr>
<tr>
<td>4</td>
<td>CE</td>
<td>Clear the last entry</td>
</tr>
<tr>
<td>5</td>
<td>+</td>
<td>Divide</td>
</tr>
<tr>
<td>6</td>
<td>×</td>
<td>Multiply</td>
</tr>
<tr>
<td>7</td>
<td>-</td>
<td>Subtract</td>
</tr>
<tr>
<td>8</td>
<td>+</td>
<td>Add</td>
</tr>
<tr>
<td>9</td>
<td>•</td>
<td>Decimal point</td>
</tr>
<tr>
<td>10</td>
<td>=</td>
<td>Equal</td>
</tr>
</tbody>
</table>
1. **Programming DSS Key For Calculator Function:**

- Depress CNF key.
- Depress desired DSS key. (DSS key number 1 is recommended.)
- Depress ANS key.
- Dial 03.
- Depress CNF key.

2. **Going Into Calculation Mode:**

- Depress the DSS key programmed for calculator function.

3. **Getting Out of Calculation Mode:**

- In calculation mode

- Depress DSS key 1; the Multiline Terminal is now in normal mode.

---

**SAMPLE LED INDICATIONS**

- **CNF** LED flutters.
- **CNF** LED goes off.

**SAMPLE LCD INDICATIONS**

- PROGRAM SPD ??
- SPD TRK AC?
- SPD TRK AC
- SPD TRK AC
- 03: CALCULATOR
- 10:45 OCT 28 FRI
- 0
- 102
- 10:45 OCT 28 FRI
4. Calculator Function Samples

The bottom row of the LCD shows calculation progress indications.

**NOTE:** If nothing appears on the LCD during calculation, do not continue making entries.

a. Addition, Subtraction

   - Input: $123 + 456 + 789 = $  
     Answer: 1368

   - Input: $100 - 25 - 35 = $  
     Answer: 40

   - Input: $125 - 55 + 10 = $  
     Answer: 80

b. Multiplication, Division

   - Input: $50 \times 2 \div 4 = $  
     Answer: 25

   - Input: $5 \times =$(Squared)  
     Answer: 25

c. Combinations of Arithmetic Function

   - Input: $1 + 2 \times 3 = $  
     Answer: 9

   - Input: $15 - 3 \div 2 = $  
     Answer: 6

d. Constant Addition

  The first number entered is the addend

   - Input: $3 + + 4 = $  
     Answer: 7

   - Input: $5 = $  
     Answer: 8
The repeat addition works as follows:

```
Input: 3 + + = Answer: 6
Input: 3 + + - - Answer: 12
```

e. Constant Multiplication

The first number entered is the multiplicand.

```
Input: 3 × × 4 = Answer: 12
Input: 5 = Answer: 15
```

The repeat multiplication works as follows:

```
Input: 3 × × = Answer: 9
Input: 3 × × = = = Answer: 81
```

f. Using CE Key

Depress CE key once during a calculation and the last entry is cleared.

```
Input: 123 + 455 CE 456 = Answer: 579
```

5. Error Conditions

In the case of an error, the display shows ERROR. An error will be caused by calculations or instructions beyond the capacity of the calculator. An error can be cleared by depressing the C key.
Errors will occur when:

a. The value of a calculation result (including decimal point and negative symbol) exceeds 7 digits (except for a calculation result from division).

b. A number is divided by 0 (zero).

c. Number of digits in a particular entry reaches 6; following digit(s) in that entry will be ignored.
420.30 Station Lockout

1. To Set:
   - Depress primary extension line key and lift handset.
   - Dial access code (Default: 61).
   - Dial lockout code.
   - Receive confirmation tone and hang up.

2. To Cancel:
   - Lift handset.
   - Dial access code (Default: 61).
   - Dial lockout code.
   - Receive confirmation tone and hang up.

---

**SAMPLE LED INDICATIONS**

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Primary **EXT** green LED lights.
- Primary **EXT** LED goes off.

**SAMPLE LCD INDICATIONS**

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Lockout Code?
- Lockout Set
- Lockout Cancel
3. To Change Lockout Code:

- Depress primary extension line key and lift handset.
- Dial access code (Default: 59).
- Dial current lockout code.
- Dial *.
- Dial new lockout code.
- Dial *.
- Receive confirmation tone and hang up.

NOTE 1: Default value of lockout code is 0000000000 (10 zeros). A maximum number of digits for lockout code is 10.

NOTE 2: Station lockout capability is determined by class of service. Callback request message, message waiting, and automatic callback can be set to a station programmed for lockout.

NOTE 3: The only available activity on a locked out station is to cancel station lockout.

NOTE 4: Call forward setting prior to station lockout is still valid.
420.31 Voice Mail Call

1. Originating:
   - Depress primary extension line key and lift handset.
   - Dial access code (Default: 63) for voice mail entry port.
   - Follow the instructions given by voice mail system when answered.

   NOTE: System programming is required for voice mail hunting.

2. Answering:
   - Depress associated extension line key on flashing LED or depress ANS key.
   - Lift handset to respond.
   - Listen for a message from voice mail system.

   NOTE: Some voice mail systems cannot originate calls.

3. Retrieving and Canceling a Message:

   When MSG 2 is shown on the LCD, perform the following operations to retrieve the message:

   ![Sample LED Indications]

   ![Sample LCD Indications]
SAMPLE LED INDICATIONS

- Dial 1 repeatedly until the message from the voice mail system is displayed.
- Depress primary extension line key and lift the handset. Primary [EXT] green LED lights.
- Call voice mail system by dialing access code (Default: 63) and reach your mailbox.
- Listen for a message.
- Replace handset.

NOTE 1: Some voice mail systems cannot leave a message on a station. Only Multiline Terminals can distinguish that messages have been sent from voice mail. No activities on the Multiline Terminal (with LCD) within 5 seconds during message mode allows the Multiline Terminal to return to the normal mode.

NOTE 2: Depending on the voice mail system used, the voice mail message is automatically cancelled by the voice mail system after the user calls their mailbox.

SAMPLE LCD INDICATIONS

- 10:35 VMAIL 63
- 10:45 OCT 28 Fri
- Primary EXT LINE
- 10:45 OCT 28 Fri
- 10:45 OCT 28 Fri
- MSG 1
- 10:45 OCT 28 Fri

400 - 82
4. Abandoning a Call:
   a. Using handset:
      - **EXT** green LED is lit steady.
      - **EXT** green LED goes off.
   b. Using Recall key:
      - **EXT** green LED is lit steady.
      - Depress RECALL key to place another call.  
      - **EXT** green LED remains lit.
420.32 Data Communications

Glossary:

**Terminal** - A computer terminal, usually a video display terminal (VDT), a hard copy terminal (Decwriter*, TI* Silent 700), or a personal computer placed in terminal emulation mode (Crosstalk*, Smartcomm*).

**DCE (Data Communications Equipment)** - A device at one end of a communications link, usually a modem or a main frame front end.

**DTE (Data Terminal Equipment)** - A device at one end of a communications link, usually a terminal.

**DTA-E (Data Terminal Adaptor)** - The Electra MarkII Data Terminal Adaptor option. The DTA-E is mounted in the base of any Multiline Terminal with a display.

**DTR (Data Terminal Ready)** - An RS-232 signal appearing at pin 20 of the connector. This signal is generated by the DTE to inform the DCE that the DTE is present. This signal can be instructed to be on or off when the terminal is turned on via dip switches located in the terminal.

**DSR (Data Set Ready)** - An RS-232 signal appearing at pin 6 of the connector. This signal is generated by the DCE to inform the DTE that the DCE is present. This signal can be instructed to be on or off when the modem is turned on via dip switches located in the modem.
1. **Originating:**
   
a. **DTR Signals ON (Manual Answer)**
   
   **With call in progress:**
   
   - Station 131 depress DT key.
   
   **Called party (Station 137) depresses DR key to answer.**
   
   **SAMPLE LED INDICATIONS**
   
   **EXT** green LED is lit steady.
   
   **DT** green LED is lit steady.
   
   **SAMPLE LCD INDICATIONS**
   
<table>
<thead>
<tr>
<th>STEVE</th>
<th>137</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45</td>
<td>10-28 Fri</td>
</tr>
</tbody>
</table>

   **b. DTR Signals OFF (Manual Answer)**
   
   **With call in progress:**
   
   - Station 131 depress DT key.
   
   **DTR signal from calling DTE (Station 131) comes ON.**
   
   **Called party (Station 137) depresses DR key to answer.**
   
   **SAMPLE LED INDICATIONS**
   
   **EXT** green LED is lit steady.
   
   **DT** red LED lights.
   
   **SAMPLE LCD INDICATIONS**
   
<table>
<thead>
<tr>
<th>STEVE</th>
<th>137</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45</td>
<td>10-28 Fri</td>
</tr>
</tbody>
</table>

   **DT** green LED flashes.
   
   **DATA TO** 137

   **DT** red LED lights.
   
   **DATA PATH TO** 137

   **DT** green LED lights.
   
   **DATA PATH TO** 137
c. DTR Signals ON (Automatic Answer)

With call in progress.

- Depress DT key.

DTR signal from calling DTE comes ON.

DTR signal from called DTE comes ON.

---

d. DTR Signal OFF (Automatic Answer)

With call in progress.

- Depress DT key

DTR signal from calling DTE comes ON.

DTR signal from called DTE comes ON.

---

e. DTR Signal invalid by system data (Manual Answer)

With call in progress.

- Depress DT key

Called party depresses DR key.

---

**SAMPLE LED INDICATIONS**

<table>
<thead>
<tr>
<th>Ext</th>
<th>DT</th>
</tr>
</thead>
<tbody>
<tr>
<td>green LED is lit steady.</td>
<td>green LED lights.</td>
</tr>
</tbody>
</table>

**SAMPLE LCD INDICATIONS**

<table>
<thead>
<tr>
<th></th>
<th>STEVE</th>
<th>137</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45</td>
<td>OCT 28</td>
<td>FRI 1</td>
</tr>
<tr>
<td></td>
<td>STEVE</td>
<td>137</td>
</tr>
<tr>
<td></td>
<td>NOT READY</td>
<td>131</td>
</tr>
<tr>
<td></td>
<td>STEVE</td>
<td>137</td>
</tr>
<tr>
<td></td>
<td>NOT READY</td>
<td>137</td>
</tr>
<tr>
<td></td>
<td>STEVE</td>
<td>137</td>
</tr>
<tr>
<td></td>
<td>DATA PATH TO</td>
<td>137</td>
</tr>
</tbody>
</table>

|         | STEVE | 137 |
|         | 10:45 | OCT 28 |
|         | STEVE | 137 |
|         | DATA TO | 137 |
|         | STEVE | 137 |
|         | DATA PATH TO | 137 |

---

400 - 86
f. DTR Signal ON - Calling DTE
   DTR Signal OFF - Called DTE (Called Party Busy)

   - Depress an extension line key and lift handset to receive dial tone
   - Dial extension number.
   - Depress DT key.

   Called party depresses DR key

   DTR signal from called DTE comes ON.

   - green LED lights.
   - green LED flashes.
   - red LED lights.
   - green LED lights.

---

g. DTR signal On (Call Waiting for Called Party)

   - Depress an extension line key and lift handset to receive dial tone.
   - Dial extension number, then receive call waiting tone.
   - Depress DT key

   Called party depresses DR key.

   - green LED lights.
   - green LED flashes.
   - green LED lights.
h. DTR Signals ON (Call Forwarding is set on Called Party)

- Depress an extension line key and lift handset to receive dial tone.
- Dial extension number, then receive forward alert tone, followed by ringing tone.
- Depress DT key.

The party to where the call is forward depresses DR key.
2. Receiving

a. DTR Signals ON (manual answer)

With call in progress.

Receive data call.

- Depress DR key.

<table>
<thead>
<tr>
<th>LED Indication</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EXT</strong></td>
<td>green LED is lit steady.</td>
</tr>
<tr>
<td><strong>DR</strong></td>
<td>red LED flashes.</td>
</tr>
</tbody>
</table>

b. DTR Signals OFF (manual answer)

With call in progress.

Calling party depresses DT key.

DTR signal from calling DTE comes ON.

- Depress DR key.

<table>
<thead>
<tr>
<th>LED Indication</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EXT</strong></td>
<td>green LED is lit steady.</td>
</tr>
<tr>
<td><strong>DR</strong></td>
<td>red LED lights.</td>
</tr>
</tbody>
</table>

DTR signal from called DTE comes ON.

<table>
<thead>
<tr>
<th>LED Indication</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DR</strong></td>
<td>red LED lights.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LCD Indication</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STEVE 137</strong></td>
<td></td>
</tr>
<tr>
<td><strong>OCT 28 FRI</strong></td>
<td></td>
</tr>
<tr>
<td><strong>DATA FROM</strong></td>
<td>137</td>
</tr>
<tr>
<td><strong>DATA PATH TO</strong></td>
<td>137</td>
</tr>
</tbody>
</table>
### SAMPLE LED INDICATIONS

**c. DTR Signals ON (automatic answer)**

With call in progress.

Calling party depresses DT key.

- **EXT** green LED is lit steady.
- **DT** green LED lights.

**d. DTR Signals OFF (automatic answer)**

With call in progress.

Calling party depresses DT key.

- **DT** red LED lights.
- DTR signal from calling DTE comes ON.
- DTR signal from called DTE comes ON.

**e. DTR Signal invalid by system data (manual answer)**

With call in progress.

Calling party depresses DT key.

- **DT** red LED flashes.
- **DR** green LED lights.

### SAMPLE LCD INDICATIONS

**EXT** green LED is lit steady.

**DATA FROM** 137

**DATA PATH TO** 137

**DATA PATH TO** 137
f. DTR Signals ON (Called Party Busy)
   - Talking with an internal party.
   - Receive a data call from a different internal party.
   - Depress DR key.

   **SAMPLE LED INDICATIONS**
   - **EXT** green LED is lit steady.
   - **DR** red LED flashes.
   - **DR** green LED lights.

---

h. DTR Signal ON - Calling DTE
   - Talking with an internal party.

   **SAMPLE LED INDICATIONS**
   - **EXT** green LED is lit steady.
   - **DR** red LED flashes.
   - **DR** green LED lights.

---

**SAMPLE LCD INDICATIONS**

<table>
<thead>
<tr>
<th>Time</th>
<th>JIMMY</th>
<th>132</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45</td>
<td>OCT 28</td>
<td>FRI</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>JIMMY</th>
<th>132</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DATA FROM</td>
<td>137</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>JIMMY</th>
<th>132</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DATA PATH TO</td>
<td>137</td>
</tr>
</tbody>
</table>

400 - 91
h. DTR Signals ON (No Voice Call in Progress).

- Receive an incoming signal.
- Calling party depresses DT key.
- Depress DR key.

3. Abandoning

a. Abandoning a Voice Call:

- With voice and data call in progress.
- Restore handset.

- Called party restores handset. Data path remains.

NOTE: Either calling, or called party, can restore the handset first.
b. Abandoning a Data Call:

b.1 Calling party abandons first:

With voice and data call in progress:

- Depress DT key.

DTR signal from calling DTE goes off.

DTR signal from called party goes off; called party depresses the DR key.

b.2 Called party abandons first:

With voice and data call in progress:

- Depress DT key.

DTR signal from called DTE goes off.

DT red LED goes off.

Ext and DT green LEDs are lit steady.

DT red LED lights.

DT red LED goes off.

Ext and DT green LEDs are lit steady.

DT red LED lights.

DT red LED flutters.

DT red LED goes off.

Ext and DT green LEDs are lit steady.

DT red LED lights.

DT red LED goes off.
b.3 Automatic Release:

With voice and data call in progress:

- Depress DT key.
- DTR signal from calling DTE goes off.
- DTR signal from called DTE goes off.

b.4 DTR Signal invalid by system data:

Calling party abandons first:

With data call in progress:

- Depress DT key.
- Calling party depresses DR key.

b.5 DTR Signal invalid by system data:

Called party abandons first:

With data call in progress:

- Called party depresses DR key.
- Depress DT key.
SAMPLE LED INDICATIONS

a.2 DTR Signal: OFF for both, calling and called DTE

With Voice Call in progress:

- Depress DT key.
- Depress DT key again.

b. Called party depresses DR key.

b.1 DTR Signal:

ON for calling DTE
OFF for called DTE

With voice call in progress:

- Depress DT key.

Called party depresses DR key.

- Depress DT key.

DTR signal from calling DTE goes off.

Called party depresses DR key.
4. **DTR Signal Disconnect**

   a. Signal from calling DTE goes off:
      With data call in progress:
      - DTR signal from calling DTE goes off.
      - Depress DT key.

   b. Signal from called DTE goes off:
      With data call in progress:
      - DTR signal from called DTE goes off.
      - Depress DT key.

5. **Abandoning During Data Call Origination**

   a. Called party does not depress DR key.

   a.1 DTR Signal:
      - ON for calling DTE
      - OFF from called DTE

      With Voice Call in progress:
      - Depress DT key.
      - Depress DT key again.

      DTR signal from calling DTE goes off.

**SAMPLE LED INDICATIONS**

- **EXT** and **DT** green LEDs are lit steady.
- **DT** red LED flutters.
- **DT** red LED goes off.

**SAMPLE LCD INDICATIONS**

<table>
<thead>
<tr>
<th>DATA PATH TO</th>
<th>1 3 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA OFF</td>
<td>1 3 1</td>
</tr>
<tr>
<td>1 0 : 4 5</td>
<td>OCT 2 8</td>
</tr>
</tbody>
</table>

**NOTE**

Bold letters in display indicate flashing letters.
b.2 DTR Signal: OFF for called DTE, rendered invalid for calling DTE by the system.

With voice call in progress:

- Depress DT key.

Called party depresses DR key.

- Depress DT key.

Called party depresses DR key.

**NOTE:** When receiving a DATA FROM XXX LCD indication, the called party can depress the DR key twice in succession to drop the attempted data call.

6. Failed Data Call Attempt - Called Party's Data Path Busy

With voice call in progress:

- Depress DT key.

- Depress DT key again.
7. Losing DTR Signal When Originating Data Call (DTR signal set as valid in system data)

With voice call in progress:
- Depress DT key.
- DTR signal from calling DTE goes off.
- Depress DT key.

8. Reserving Data Path to Originate Data Call

a. To set:
- Depress DT key.

b. To cancel from reservation mode while in an idle condition:
- Depress DT key.

c. To establish a data call with the existing called party (voice call) while in reserve mode:
- Depress DT key.

d. To cancel a data path reservation with a voice call in progress:
- Place call on hold.
- Depress DT key.
- Return to party on hold.

**SAMPLE LED INDICATIONS**

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXT</td>
<td>green LED is lit steady.</td>
</tr>
<tr>
<td>DT</td>
<td>green LED flashes.</td>
</tr>
<tr>
<td>DT</td>
<td>red LED flutters.</td>
</tr>
<tr>
<td>DT</td>
<td>red LED goes off.</td>
</tr>
</tbody>
</table>

**SAMPLE LCD INDICATIONS**

```
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>STEVE</td>
<td>137</td>
</tr>
<tr>
<td>10:45</td>
<td>OCT 28</td>
<td>FRI</td>
</tr>
</tbody>
</table>
```

**NOTE**

Bold letters in sample display indicate flashing letters on actual display.
9. Abandoning a Data Call to a Multiline Terminal with a Data Path Reserved

With voice call in progress:

- Depress DT key.
- Depress DT key again.

10. Originating Data Call to a Multiline Terminal with CO call in Progress via the primary extension

a. Called Party - No Data Path Reserved

- Place called party on hold.
- Depress an idle extension line key and lift handset to receive dial tone.
- Dial extension number.
- Depress DT key.

Called party depresses DR key.

**SAMPLE LED INDICATIONS**

- **EXT** green LED is lit steady.
- **DT** red LED flutters.
- **DT** red LED goes off.

**SAMPLE LCD INDICATIONS**

<table>
<thead>
<tr>
<th>10:45</th>
<th>OCT 28</th>
<th>FRI</th>
<th>STEVE 137</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA</td>
<td>RESERVE</td>
<td>137</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10:45</th>
<th>OCT 28</th>
<th>FRI</th>
<th>STEVE 137</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALL</td>
<td>WAITING</td>
<td>137</td>
<td></td>
</tr>
<tr>
<td>DATA</td>
<td>TO</td>
<td>137</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10:45</th>
<th>OCT 28</th>
<th>FRI</th>
<th>STEVE 137</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALL</td>
<td>WAITING</td>
<td>137</td>
<td></td>
</tr>
<tr>
<td>DATA</td>
<td>PATH</td>
<td>137</td>
<td></td>
</tr>
</tbody>
</table>
b. Called Party - Data Path Reserved

- Depress an idle extension line key and lift handset to receive dial tone.
  - EXT green LED lights.
- Dial extension number.
- Depress DT key.
  - DT red LED flattters.
- Depress DT key again.
  - DT LED goes off.

**SAMPLE LED INDICATIONS**

<table>
<thead>
<tr>
<th>EXT</th>
<th>LINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45</td>
<td>OCT 28 FRIDAY</td>
</tr>
</tbody>
</table>

**SAMPLE LCD INDICATIONS**

<table>
<thead>
<tr>
<th>CALLING</th>
<th>WAITING</th>
<th>137</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45</td>
<td>OCT 28 FRIDAY</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CALLING</th>
<th>WAITING</th>
<th>137</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45</td>
<td>OCT 28 FRIDAY</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CALLING</th>
<th>WAITING</th>
<th>137</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45</td>
<td>OCT 28 FRIDAY</td>
<td></td>
</tr>
</tbody>
</table>
420.33 Modem Pooling

The Glossary at the beginning of Section 420.32 applies to this section also.

1. Originating:

a. DTR Signal OFF. (Example DTE is a PC that is not in Terminal Mode).

a.1 With CO call in progress:
   
   • Depress DT key.

   • Place PC in Terminal Mode.

   • DTR signal from DTE comes ON and ring back tone is received.

   • For Hayes® compatible modems; use the terminal keyboard and type ATD and then depress the ENTER (return) key.

   a.1.1 Modems that do not provide DSR signal to the Multiline Terminal will go off-hook.

   a.1.2 Modems that provide a DSR signal to the Multiline Terminal initially (before DSR signal occurs) will go off-hook.

After DSR signal from modem comes on.

a. 2 With Terminal Keyboard Dialing assigned.

   • CO/PBX green LED is lit steady.

   • DT red LED lights.

   • DTR green LED flashes.

   • ANS LED lights.

   • CO/PBX red and DT green LED lights.

   • ANS LED goes off.

   • CO/PBX and DT red LEDs light.

   • ANS LED goes off.

   • DT green LED lights.
NOTE 1: Terminal Keyboard Dialing must be assigned in system programming data.

NOTE 2: The modems in the modem pool must be capable of responding to keyboard command sets such as the Hayes Command Set.

- Depress SPKR key and seize primary extension.
- Depress DT key.

DSR signal from DTE comes on.

- Initiate dialing from the terminal keyboard.

a.2.1 Modems that do not provide DSR signal to the Multiline Terminal will go off-hook.

a.2.2 Modems that provide a DSR signal to the Multiline Terminal will go off-hook (before DSR signal occurs).

After DSR signal from modem comes on.

NOTE: After initiating a call via Terminal Keyboard Dialing, the Multiline Terminal user will hear carrier tone from the remote modem via the multiline terminal speaker. If the on-site modem does not provide a DSR signal to the Multiline Terminal, this tone will not stop automatically. The user must go on-hook to stop it. However, if the modem does provide a DSR signal to the Multiline Terminal, this tone will stop automatically.

### SAMPLE LED INDICATIONS

- Primary **EXT** green LED lights.
- **DT** red LED lights.
- **DT** green LED winks intermittently.
- **CO/PBX** red and **DT** green LED lights.
- **ANS** LED goes off.

### SAMPLE LCD INDICATIONS

- **EXT LINE**
  - Primary **EXT** green LED lights.
  - **DT** red LED lights.
  - **DT** green LED winks intermittently.
  - **CO/PBX** red and **DT** green LED lights.
  - **ANS** LED goes off.
  - **DT** green LED lights.
b. DTR Signal ON. (Example: DTE is a PC that is in Terminal Mode.)

b.1 With a CO call in progress:
   - Depress DT key and receive ring back tone.
   - For Hayco® compatible modems; use the terminal keyboard and type ATD and then depress the ENTER (return) key.

b.1.1 Modems that do not provide DSR signal to the Multiline Terminal will go off-hook.

b.1.2 Modems that provide a DSR signal to the Multiline Terminal will go off-hook (before DSR signal occurs).

After DSR signal from modem comes on

b.2 With Terminal Keyboard Dialing assigned
   - Depress SPKR key and seize primary extension.
   - Depress DT key.
   - Initiate dialing from the terminal keyboard.

**SAMPLE LED INDICATIONS**

- **CO/PBX** green LED is lit steady.
- **DT** green LED flashes.
- **ANS** LED lights.
- **CO/PBX** red and **DT** green LEDs light.
- **ANS** LED goes off.
- **CO/PBX** and **DT** red LEDs light.
- **ANS** LED goes off.

**SAMPLE LCD INDICATIONS**

- **ELAPSED** 03:10
- **10:45 OCT 28 FRI**

- **DATA TO MODEM 2**
- **DATA ONTO MODEM 2**
- **NOT READY MODEM 2**
- **DATA ONTO MODEM 2**
- **DATA ONTO MODEM 2**
- **DATA ONTO MODEM 2**
b.2.1 Modems that do not provide DSR signal to the Multiline Terminal will go off-hook.

b.2.2 Modems that provide a DSR signal to the Multiline Terminal will go off-hook (before DSR signal occurs).

After DSR signal from modem comes on.

NOTE: After initiating a call via Terminal Keyboard Dialing, the Multiline Terminal user will hear a carrier tone from the remote modem via the multilime terminal's speaker. If the on-site modem does not provide a DSR signal to the Multiline Terminal, the tone will not stop automatically. The user must go on hook to stop it. However, if the modem does provide a DSR signal to the Multiline Terminal the tone will stop automatically.

2. Receiving

NOTE: Modems must be set in the automatic answer mode.

a. DTR Signal OFF (PC not in Terminal Mode).

With CO call in progress:

- Depress DR key and receive ring back tone.
- Place PC in Terminal Mode.

DTR signal from DTE comes ON.
SAMPLE LED INDICATIONS

a.1 Modems that do not provide DSR signal to the Multiline Terminal will go off-hook.

- CO/PBX red and DR green LEDs light.
- ANS LED goes off.

a.2 Modems that provide a DSR signal to the Multiline Terminal will go off-hook (before DSR signal occurs).

- CO/PBX and DR red LEDs light.
- ANS LED goes off.

After DSR signal from modem comes on.

b. DTR Signal ON. (PC in Terminal Mode).

With CO call in progress:
- Depress DR key and receive ring back tone.

- CO/PBX green LED is lit steady.
- DR green LED flashes.
- ANS LED lights.

b.1 Modems that do not provide DSR signal to the Multiline Terminal will go off hook.

- CO/PBX red and DR green LEDs light.
- ANS LED goes off.

b.2 Modems that provide a DSR signal to the Multiline Terminal will go off hook (before DSR signal occurs).

- CO/PBX and DR red LEDs light.
- ANS LED goes off.

After DSR signal from modem comes on.

- DR green LED lights.

SAMPLE LCD INDICATIONS

- DATA ON TO MODEM 2

- NOT READY MODEM 2

- DATA ON TO MODEM 2

- ELAPSED 03:10

- DATA TO MODEM 2

- DATA ON TO MODEM 2

- NOT READY MODEM 2

- DATA ON TO MODEM 2

- DATA ON TO MODEM 2
3. Abandoning

NOTE: Depressing the DT key returns the Data Call to a Will Call

a. From Multiline Terminal in the system.
   a.1 Data call originated by Multiline Terminal.

With data call in progress:

- Depress DT key.
- Take PC out of Terminal Mode (or turn PC off).

DTR signal from DTE goes OFF.

a.1.1 Modems that do not provide DSR signal to the Multiline Terminal will go off-hook.

a.1.2 Modems that provide a DSR signal to the Multiline Terminal will go off-hook (before DSR signal occurs).

After DSR signal from modem comes on.

a.2 Data call received by Multiline Terminal.

With data call in progress:

- Depress DR key.
- Take PC out of Terminal Mode (or turn PC off).

DTR signal from DTE goes OFF.

### SAMPLE LED INDICATIONS

<table>
<thead>
<tr>
<th>CO/PBX</th>
<th>red LED is lit steady</th>
</tr>
</thead>
<tbody>
<tr>
<td>DT</td>
<td>green LED is lit steady</td>
</tr>
<tr>
<td>DT</td>
<td>red LED lights</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DATA ONTO MODEM 2</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DATA END</th>
<th>131</th>
</tr>
</thead>
</table>

| DT | red LED goes off. |

| DATA END  | 131 |

<table>
<thead>
<tr>
<th>DATA ONTO MODEM 2</th>
</tr>
</thead>
</table>

| CO/PBX | red LED goes off. |

| DATA END  | 131 |

<table>
<thead>
<tr>
<th>DATA ONTO MODEM 2</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>CO/PBX</th>
<th>red LED is lit steady</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO/PBX</td>
<td>red LED goes off.</td>
</tr>
</tbody>
</table>

| DATA END  | 131 |

<table>
<thead>
<tr>
<th>DATA ONTO MODEM 2</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>CO/PBX</th>
<th>red LED is lit steady</th>
</tr>
</thead>
<tbody>
<tr>
<td>DT</td>
<td>green LED is lit steady</td>
</tr>
<tr>
<td>DR</td>
<td>red LED lights.</td>
</tr>
</tbody>
</table>

| DATA END  | 131 |

<table>
<thead>
<tr>
<th>DATA ONTO MODEM 2</th>
</tr>
</thead>
</table>

| DR | red LED goes off. |

| DATA END  | 131 |
a.2.1 Modems that do not provide DSR signal to the Multiline Terminal.

a.2.2 Modems that provide a DSR signal to the Multiline Terminal initially (before DSR signal goes off).

After DSR signal from modem goes off.

b. From data terminal keyboard:

NOTE: Modems in the modem pool must be capable of responding to keyboard commands such as the Hayes \(^\circ\) command set.

b.1 Data call originated by a Multiline Terminal:

With data call in progress:

- Send data communication release command (example: ++ + then, ATH) from terminal keyboard.

DSR signal from modem goes off and modem goes on hook.

NOTE 1: When modem is reserved (above status) the next data call can be originated from the terminal keyboard without any Multiline Terminal operations.

NOTE 2: When both automatic release and DTR invalid are assigned by system data, the user does not need to depress DT key to terminate a data call.

### SAMPLE LED INDICATIONS

- **CO/PBX** red LED goes off.

- **CO/PBX** red LED is lit steady.

- **CO/PBX** red LED goes off.

### SAMPLE LCD INDICATIONS

```
1 0 4 5 O C T 2 8 F R I
```

```
DATA ON TO MODEM 2
```

```
1 0 4 5 O C T 2 8 F R I
```

```
DATA ON TO MODEM 2
```

```
1 0 4 5 O C T 2 8 F R I
```

```
RESERVED MODEM 2
```
SAMPLE LED INDICATIONS

b.2 Data call received by a Multiline Terminal:

With data call in progress:

- Send data communication release command (example: ++ then; ATH) from terminal keyboard.

DSR signal from modem goes OFF and modem goes on hook.

- Take PC out of terminal mode (or turn PC off).

DTR signal from DTE goes OFF.

- Depress DR key.

NOTE: When both automatic release and DTR invalid are assigned by system data, the user does not need to depress the DR key to terminate a data call.

c. From Outside Party

b.1 Data call originated by a Multiline Terminal.

With data call in progress:

DSR signal from modem goes OFF and modem goes on-hook.

NOTE 1: When modem is reserved (above status) the next data call can be originated from the terminal keyboard without any Multiline Terminal operations.

NOTE 2: When both automatic release and DTR invalid are assigned by system data, the user does not need to depress DT key to terminate a data call.

SAMPLE LCD INDICATIONS

NOTE: BOLD letters in sample display indicate flashing letters on actual display.
b.2 Data call received by Multiline Terminal.

With data call in progress:

DSR signal from modem goes OFF and modem goes on-hook.

- Take PC out of Terminal Mode (or turn PC off).

DTR signal from DTE goes OFF.

- Depress DR key.

**NOTE:** When both automatic release and DTR invalid are assigned by system data, the user does not need to depress the DR key to terminate a data call.

4. Abandoning Data Call while in Process.

a. When Originating:

a.1 Waiting for DTR signal from DTE:

Waiting for DTR signal from DTE to come ON: (PC is off or not in Terminal Mode).

- Depress DT key.

**SAMPLE LED INDICATIONS**

| CO/PBX | red LED is lit steady. |
| DTR   | green LED is lit steady. |
| DR    | red LED lights.         |
| CO/PBX| red LED goes off.       |

**SAMPLE LCD INDICATIONS**

<table>
<thead>
<tr>
<th>DATA</th>
<th>NT</th>
<th>OMOD</th>
<th>EM2</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DATA</th>
<th>END</th>
<th>OMOD</th>
<th>EM2</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DATA</th>
<th>OFF</th>
<th>OMOD</th>
<th>EM2</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DATA</th>
<th>10:45</th>
<th>OCT</th>
<th>28</th>
<th>FRI</th>
</tr>
</thead>
</table>

**NOTE:** BOLD letters in sample display indicate flashing letters on actual display.
a.2 Waiting for DSR signal from modem:

Waiting for DSR signal from modem to come ON.

- Depress DT key.
- Take PC out of Terminal Mode (or turn PC off).

DTR signal from DTE goes OFF.

b. When Receiving

b.1 Waiting for DTR signal from DTE:

Waiting for DTR signal from DTE to come ON:

(PC is off or not in Terminal Mode).

- Depress DR key.

b.2 Waiting for DSR signal from modem:

Waiting for DSR signal from modem to come ON:

- Depress DR key.

**SAMPLE LED INDICATIONS**

- **CO/PBX** green LED is lit steady.
- **DT** green LED is flashing.
- **ANS** LED is lit steady.
- **DT** red LED lights.
- **ANS** LED goes off.
- **DT** red LED goes off.

**SAMPLE LCD INDICATIONS**

- **DATA TO MODEM**
- **1 4 0**
- **DATA END**
- **1 3 1**
- **CO/LINE**
- **1 0 4 5 OCT 28 FRI**
- **NOT READY**
- **1 3 1**
- **ELAPSED**
- **03:10**
- **1 0 4 5 OCT 28 FRI**
- **DATA TO MODEM**
- **1 4 0**
- **DATA END**
- **1 3 1**
- Take PC out of Terminal Mode (or turn PC off).
  
  DTR signal from DTE goes OFF.

5. **Modem Reserve Timer times out**  
   (Terminal Keyboard Dialing assigned)

   With modem reserved.

   Modem Reserve Timer times out.

- Take PC out of terminal mode (or turn PC off).
  
  DTR signal from DTE goes off.

- Depress DT key.

6. **All modems busy.**  

   With CO call in progress:

- Depress DT key.
- Depress DT key (again).

7. **Cancelling Data Reserve Mode**

   DTR signal from DTE is off.

   **NOTE:** With CO call in progress, depressing the DT key to cancel a reserved data path initiates a modem pool data call.

- Depress DT key.
- Depress DT key again.

8. **Returning Data Call to Voice Call**

- Depress DT key
- Converse with called party (CPU EC3 or higher)

### SAMPLE LED INDICATIONS

<table>
<thead>
<tr>
<th>LED</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DR</td>
<td>red LED goes off.</td>
</tr>
<tr>
<td>DT</td>
<td>green LED winks intermittently.</td>
</tr>
<tr>
<td>DT</td>
<td>red LED lights.</td>
</tr>
<tr>
<td>DT</td>
<td>red LED flutters.</td>
</tr>
<tr>
<td>DT</td>
<td>LED goes off.</td>
</tr>
<tr>
<td>CO/PBX</td>
<td>green LED is lit steady.</td>
</tr>
<tr>
<td>DT</td>
<td>red LED flutters.</td>
</tr>
<tr>
<td>DT</td>
<td>red LED goes off.</td>
</tr>
<tr>
<td>DT</td>
<td>green LED is winking intermittently.</td>
</tr>
<tr>
<td>DT</td>
<td>red LED lights.</td>
</tr>
<tr>
<td>DT</td>
<td>LED goes off.</td>
</tr>
</tbody>
</table>

### SAMPLE LCD INDICATIONS

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>03:13</td>
<td>10:45</td>
<td>OCT 28 FRI</td>
</tr>
<tr>
<td>03:10</td>
<td>10:45</td>
<td>OCT 28 FRI</td>
</tr>
<tr>
<td>03:12</td>
<td>10:45</td>
<td>OCT 28 FRI</td>
</tr>
<tr>
<td>03:14</td>
<td>10:45</td>
<td>OCT 28 FRI</td>
</tr>
<tr>
<td>03:10</td>
<td>OCT 28 FRI</td>
<td></td>
</tr>
<tr>
<td>03:12</td>
<td>OCT 28 FRI</td>
<td></td>
</tr>
<tr>
<td>03:14</td>
<td>OCT 28 FRI</td>
<td></td>
</tr>
</tbody>
</table>
420.34  **Delayed Ringing**

When a line key on a Multiline Terminal is assigned Delayed Ringing, incoming ring tone starts after a predetermined time. All Multiline Terminal operations and indications at specific line keys are the same as those for regular CO/PBX and internal incoming calls with the exception that the audible ring occurs after a preprogrammed time interval. Separate delays for day and night operations can be programmed.

420.35  **Centrex Ringing**

Ring tone duty cycle from CO line and PBX line can be selected by the system programming.

Two ringing selected patterns are available to help differentiate outside incoming calls from those originated by a Centrex or PBX telephone.

1. **2 See ON, 4 See OFF**

2. **0.5 sec ON, 0.5 sec OFF (Intermittent tone)**

Example: If the system is programmed so that ring pattern $\odot$ is used for incoming calls (as well as for the 1st ring cycle) and pattern $\oplus$ is used for internal Centrex/PBX calls, the following applies:

1. **Incoming Outside Calls**

   All operations and indications are the same as those of regular incoming outside calls and the ring pattern is as in $\odot$ above.

2. **Incoming Internal Centrex/PBX Calls**

   All operations and indications are the same as those of regular incoming outside calls, however, the first ring cycle uses pattern $\odot$ while subsequent ring cycles follow pattern $\oplus$. 
430 Attendant Operation

430.1 CO/PBX/Tie (Outside) Calls using the CO Add-On Module:

1.Originating:
   a. Manual Dialing
      • Depress an idle CO/PBX/Tie line key on the CO Add-On Module.
      • Lift handset to receive dial tone.
      • Dial desired number.
      • Converse with called party.

   b. Last CO/PBX/Tie Number Redial.
      • Depress an idle extension or CO/PBX/Tie line key on the CO Add-On Module.
      • Lift handset to receive dial tone.
      • Dial * (If * is assigned to be dialed on CO/PBX/Tie lines as a first digit, depress DSS key assigned for last number redial when using CO/PBX/Tie line keys).
      • Converse with called party.

SAMPLE LED INDICATIONS

<table>
<thead>
<tr>
<th>CO/PBX/Tie</th>
<th>green LED on the CO Add-On Module lights.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45 Oct 28 Fri</td>
<td></td>
</tr>
</tbody>
</table>

SAMPLE LCD INDICATIONS

<table>
<thead>
<tr>
<th>CO LINE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45 Oct 28 Fri</td>
<td></td>
</tr>
</tbody>
</table>

400 - 113
c. Station Speed Dialing

- Depress an idle CO/PBX/Tie line key on the CO Add-On Module.
- Lift handset to receive dial tone.
- Depress DSS key programmed for speed dial, or dial # followed by station speed dial buffer number (00 ~ 19).
- Converse with called party.

**NOTE:** If # is programmed to be dialed on CO/PBX/Tie lines as a first digit, depress DSS key assigned for speed dial, and dial # followed by station speed dial buffer number when calling on CO/PBX/Tie lines.

d. System Speed Dialing

- Depress an idle CO/PBX/Tie line key on the CO Add-On Module.
- Lift handset to receive dial tone.
- Dial # followed by system speed dial buffer number (20 ~ 99).
- Converse with called party.

**NOTE:** If # is programmed to be dialed on CO/PBX/Tie lines as a first digit, depress DSS key assigned for speed dial, and dial # followed by system speed dial buffer number when calling on CO/PBX/Tie lines.

---

**SAMPLE LED INDICATIONS**


---

**SAMPLE LCD INDICATIONS**

- CO LINE
  - 10:45 OCT 28 FRI

- 5 1 6 7 5 3 7 0 0 0
  - 10:45 OCT 28 FRI

- E L A P S E D 0 0 : 2 7
  - 10:45 OCT 28 FRI

- CO LINE
  - 10:45 OCT 28 FRI

- S 2 0
  - 10:45 OCT 28 FRI

- E L A P S E D 0 0 : 3 7
  - 10:45 OCT 28 FRI
e. Consecutive Dialing:

- Depress an idle CO/PBX/Tie line key on the CO Add-On Module.
- Lift handset to receive dial tone.
- Use any combination of manual dialing, station speed dialing and system speed dialing.
- Converse with called party.

NOTE: An additional dialing step may be required in the following cases:

1. When a system speed dialing sequence follows a manual dialing sequence, DSS key programmed for speed dial access must be depressed before accessing the system speed dialing.

2. When a system speed dialing sequence follows a station or another system speed dialing sequence, DSS key programmed for speed dial access must be depressed before accessing the system speed dialing unless the last digit of number stored in the preceding speed dial buffer is *.

3. When a station speed dialing sequence (using # followed by speed dial buffer number) follows a manual dialing sequence, it does not function.

4. When a station speed dialing sequence (using # followed by speed dial buffer number) follows a system or another station speed dialing sequence, it does not function unless the last digit of numbers stored in the preceding speed dial buffer is *.

**SAMPLE LED INDICATIONS**

- CO/PBX/Tie green LED on the CO Add-On Module lights.

**SAMPLE LCD INDICATIONS**

```
<table>
<thead>
<tr>
<th>CO</th>
<th>LINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45 OCT 28 FRI</td>
<td></td>
</tr>
</tbody>
</table>
```

```
<table>
<thead>
<tr>
<th>E L A P S E D</th>
</tr>
</thead>
<tbody>
<tr>
<td>00:27</td>
</tr>
<tr>
<td>10:45 OCT 28 FRI</td>
</tr>
</tbody>
</table>
```
2. Answering

a. Manually Selecting Line:

- Depress CO/PBX/Tie line key on the CO Add-On Module associated with flashing LED.
- Use handset to talk.

b. Answer Key:

- Depress ANS key with flashing LED.
- Use handset to respond.

c. Ringing Line Preference:

- Lift handset to respond.

NOTE 1: CO line must be programmed for CO Add-On Module day ringing assignment.

NOTE 2: Depressing ANS key with call in progress places original call on hold, with I-hold LED indication.

NOTE 3: Prime line cannot be assigned to a line key appearing on a CO Add-On Module.

NOTE 4: Hold, transfer, and conference are performed in the same manner as if the line keys were on the Multiline Terminal.

<table>
<thead>
<tr>
<th>SAMPLE LED INDICATIONS</th>
<th>SAMPLE LCD INDICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO/PBX/Tie</td>
<td>CK1 2</td>
</tr>
<tr>
<td>Ans</td>
<td>10:45 Oct 28 Fri1</td>
</tr>
<tr>
<td></td>
<td>Elapsed</td>
</tr>
<tr>
<td></td>
<td>00:03</td>
</tr>
<tr>
<td></td>
<td>10:45 Oct 28 Fri1</td>
</tr>
</tbody>
</table>

400 - 116
430.2 CO Trunk Selection and Test

a. CO Trunk Selection and Test:

- Depress Primary Extension line key.
- Lift handset or depress SPKR key to receive dial tone.
- Dial Selection Access Code: (Default 67).
- Dial Trunk Number (01~40) to be selected (Example 03).
- If the selected CO Trunk was idle and in good working order when selected, dial tone will be heard. Digits dialed will appear in the LCD.

OR

- If the CO trunk selected was busy, Busy Tone will be heard.

OR

- If the CO Trunk number selected is not installed, Reorder or busied out tone will be heard.
- Restore handset or depress SPKR key to end testing. Repeat the above steps to test each CO Trunk circuit as required.

NOTE: MFR circuits can also be tested, but this must be performed from a Single Line Telephone. Refer to Section 440.3 for this procedure.

### SAMPLE LED INDICATIONS

- **EXT** green LED lit.

### SAMPLE LCD INDICATIONS

<table>
<thead>
<tr>
<th>EXT</th>
<th>LINE</th>
<th>10:45</th>
<th>OCT</th>
<th>28</th>
<th>FRI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>10</td>
<td>45</td>
<td>OCT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FRI</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CO</th>
<th>3</th>
<th>BUSY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CO</th>
<th>NOT</th>
<th>INSTALL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CO</th>
<th>3</th>
<th>BUSY</th>
<th>OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FRI</td>
</tr>
</tbody>
</table>
430.3 CO Trunk and MFR Circuit Busy Out/Restore:

- Depress Primary extension line key.
- Lift handset or depress SPKR key to receive dial tone.
- Dial Busy Out/Restore Access Code: (Default 57).
- Dial Trunk Number (01-40) or MFR circuit number (41-48) to be busied out or restored. The LCD will indicate the current status of the selected circuit.

  OR
  Busied out.

  OR
  Not installed.

- Dial # to busy out the selected circuit. Receive confirmation tone.

  OR

- Dial * to restore the selected circuit from Busy Out. Receive confirmation tone.
- Restore handset or depress SPKR to return to standby. Repeat the above steps to Busy Out/Restore additional CO Trunk or MFR circuits as required.

NOTE 1: The same NORMAL indication is provided regardless of whether the trunk is idle or in use.

NOTE 2: There can only be 4 MFR-E ETUs with 2 circuits per card.

NOTE 3: If the trunk is in use, the call in process is dropped after the busy out.

SAMPLE LED INDICATIONS

<table>
<thead>
<tr>
<th>LED Indication</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXT green LED lit.</td>
<td>BUSY OUT</td>
</tr>
<tr>
<td>EXT green LED goes off</td>
<td>NORMAL</td>
</tr>
</tbody>
</table>

SAMPLE LCD INDICATIONS

<table>
<thead>
<tr>
<th>Time</th>
<th>CO</th>
<th>Normal/Busy Out</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45 Oct 28 Fri</td>
<td>CO 1</td>
<td>BUSY OUT</td>
<td>10:45 Oct 28 Fri</td>
</tr>
<tr>
<td>10:45 Oct 28 Fri</td>
<td>CO 1</td>
<td>NOT INSTALL</td>
<td>10:45 Oct 28 Fri</td>
</tr>
<tr>
<td>10:45 Oct 28 Fri</td>
<td>CO 1</td>
<td>NORMAL</td>
<td>10:45 Oct 28 Fri</td>
</tr>
</tbody>
</table>
430.4 Originating Extension (Internal) Calls

1. Originating

- Lift handset.
- Depress DSS key on the DSS/BLF console, to call the desired extension.
- If the call is not answered, another DSS key can be consecutively depressed to place another extension call (chain calling).

NOTE 1: Virtual Extensions can also be assigned to DSS keys on the DSS/BLF console.

NOTE 2: If the Station Hunt pilot number is stored on the DSS key, the associated LED does not light.

2. Answering, Hold, Abandoning

See Sections 420.1.2, 420.1.3 and 420.1.4 of this manual.
430.5 Attendant Transfer

With call in progress:

- Depress DSS key on the DSS/BLF console to transfer the call; call is now on nonexclusive hold.

- Voice announcement or ring back tone is heard.

- Depress TRF key on the DSS/BLF console before party answers.

OR

- Depress TRF key on the DSS/BLF console after party answers.

NOTE 1: Called party must press specified line or ANS key to receive transferred call.

NOTE 2: Called party's extension will ring or receive camp-on depending upon status.

NOTE 3: When transferring a call to an extension, the line key will remain reserved (on hold) until answered at called extension.

NOTE 4: Upon completing a transfer, the line key LED indication (depending on type of line key) changes as follows:

- CO/PBX line key:
  - After transfer is completed

- Extension line key:
  - After transfer is completed

**SAMPLE LED INDICATIONS**

<table>
<thead>
<tr>
<th>CO/PBX</th>
<th>DSS</th>
<th>EXT</th>
</tr>
</thead>
<tbody>
<tr>
<td>green LED is lit steady.</td>
<td>red LED lights.</td>
<td>green LED winks intermittently.</td>
</tr>
<tr>
<td>green LED winks intermittently.</td>
<td>red LED remains lit.</td>
<td>red LED lights.</td>
</tr>
<tr>
<td>CO/PBX green LED lights.</td>
<td>DSS green LED lights.</td>
<td>CO/PBX red LED lights.</td>
</tr>
<tr>
<td>CO/PBX red LED lights.</td>
<td>DSS red LED lights.</td>
<td>DSS green LED lights.</td>
</tr>
<tr>
<td>DSS red LED lights.</td>
<td>DSS green LED lights.</td>
<td>DSS red LED lights.</td>
</tr>
</tbody>
</table>

**SAMPLE LCD INDICATIONS**

<table>
<thead>
<tr>
<th>ELAPSED</th>
<th>03:12</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45</td>
<td>OCT 28 FRI</td>
</tr>
<tr>
<td>10:45</td>
<td>OCT 28 FRI</td>
</tr>
<tr>
<td>10:45</td>
<td>OCT 28 FRI</td>
</tr>
</tbody>
</table>
430.6 DND Override

1. Internal Calls
   - Lift handset and depress DSS key on the DSS/BLF console to call the desired extension in DND mode; receive ringback tone or splash tone to voice page.
   - Wait for called party to answer, converse.

2. Transferring Calls (Camp-on):
   With a call in progress:
   - Depress DSS key on the DSS/BLF console to call the desired extension in DND mode; call on nonexclusive hold. Receive ringback tone or splash tone to voice page.
   - Depress TRF key on the DSS/BLF console before party answers;
     OR
   - Depress TRF key on the DSS/BLF console after party answers.

SAMPLE LED INDICATIONS

| DSS | red LED winks. |
| CO/PBX | green LED is lit steady. |
| CO/PBX | green LED winks intermittently. |
| DSS | red LED winks. |
| CO/PBX | red LED lights. |
| DSS | red LED continues winking. |
| CO/PBX | red LED lights. |
| DSS | red LED continues winking. |

SAMPLE LCD INDICATIONS

400 - 121
430.7 Originating Internal Zone Paging

- Lift handset.
- Depress DSS key on the DSS/BLF console programmed for internal zone paging.
- Use handset to page.

**SAMPLE LED INDICATIONS**

- DSS red LED lights.

**SAMPLE LCD INDICATIONS**

<table>
<thead>
<tr>
<th>INT ZONE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45</td>
<td>OCT 28 FRI</td>
</tr>
</tbody>
</table>
430.8 Originating External Zone Paging

- Lift handset.
- Depress DSS key on the DSS/BLF console programmed for external zone paging.
- Use handset to page.

SAMPLE LED INDICATIONS

DSS red LED lights.

SAMPLE LCD INDICATIONS

<table>
<thead>
<tr>
<th>SPEAKER</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45</td>
<td>OCT 28 FRI</td>
</tr>
</tbody>
</table>
430.9 Message Waiting

1. To Set:

- Depress DSS key on the DSS/BLF console programmed for message waiting.

- Depress DSS key(s) on the DSS/BLF console where you want to leave a message.

- Depress MSG key on the DSS/BLF console.

SAMPLE LED INDICATIONS

- MSG red LED lights.

- DSS green LED(s) will light.

- MSG red LED goes off.

2. To Cancel:

- Depress MSG key on the DSS/BLF console.

- Depress the DSS key(s) on the DSS/BLF console where the message was set.

- Depress MSG key on the DSS/BLF console.

SAMPLE LED INDICATIONS

- MSG red LED lights.

- DSS green LED(s) will go off.

- MSG red LED goes off.

NOTE 1: When an attendant is associated with two DSS/BLF consoles, both consoles go into message waiting mode even if only one of the two consoles is put into the message waiting mode.

NOTE 2: While in the message waiting mode, if no DSS key is depressed within ten seconds, the DSS/BLF console automatically returns to DSS mode.
430.10 Night Transfer

1. To Set:
   
   a. Dial access:
      
      • Depress primary extension line key during day mode.
      
      • Lift handset.
      
      • Dial access code (Default: 68) for night transfer.
      
      • Receive confirmation tone and hang up.

   b. Using NT Key:
      
      • Depress NT key on the DSS/BLF console during day mode (NT: Key programmed for night transfer).

2. To Cancel:
   
   a. Dial Access:
      
      • Depress primary extension line key during night mode.
      
      • Lift handset.

Sample LED Indications

- Primary EXT green LED lights.
- Red LED associated with the key programmed for night transfer lights.
- Primary EXT LED goes off.
- NT red LED lights.
- NT red LED is lit steady.
- Primary EXT green LED lights.
• Dial access code (Default: 68) for night transfer.

• Receive confirmation tone and hang up.

b. Using NT Key:

• During night mode.

• Depress NT key on the DSS/RLF Console.

NOTE: If there are two or more attendants within a tenant, the tenant goes into night mode when either attendant sets night mode.

---

**SAMPLE LED INDICATIONS**

- **NT** red LED goes off.

- Primary **EXT** LED goes off.

- **NT** red LED is lit steady.

- **NT** red LED goes off.

---

**SAMPLE LCD INDICATIONS**

<table>
<thead>
<tr>
<th>NIGHT</th>
<th>MODE</th>
<th>CNCL</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45</td>
<td>OCT</td>
<td>28</td>
</tr>
<tr>
<td>FRI</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NIGHT</th>
<th>MODE</th>
<th>CNCL</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45</td>
<td>OCT</td>
<td>28</td>
</tr>
<tr>
<td>FRI</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
430.11 Attendant Camp-On

With Call in Progress:

- Depress DSS key on the DSS/BLF console to transfer the call; call on non-exclusive hold.
- Called party is busy and call waiting tone or busy tone is heard.
- Depress TRF key on the DSS/BLF console.
- Receive confirmation tone and hang up.

**NOTE 1:** If a camped on call is not answered within a predetermined time, the attendant will be recalled on the line key used for the call unless it is the primary extension line key.

**NOTE 2:** When camp-on is denied, error tone burst followed by call waiting tone or busy tone is heard.

**SAMPLE LED INDICATIONS**

- **CO/PBX** green LED is lit steady.
- **DSS** green LED is lit steady.
- **CO/PBX** green LED winks intermittently.
- **CO/PBX** red LED lights in place of green.

**SAMPLE LCD INDICATIONS**

- **ELAPSED**
  - 02:14
  - 10:45 OCT 28 FRI
- **CALL WAITING**
  - 137
  - 10:45 OCT 28 FRI
- **CAMP ON**
  - 137
  - 10:45 OCT 28 FRI
430.12 Attendant Off-Hook Ringing

When receiving off-hook ringing with call in progress using handset, one of the following operations can be chosen.

a. Place present call on hold and depress line key with flashing LED to answer the incoming call.

b. Depress ANS key to answer the incoming call and present call is automatically placed on nonexclusive hold.

<table>
<thead>
<tr>
<th>SAMPLE LED INDICATIONS</th>
<th>SAMPLE LCD INDICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CO/PBX</strong> green LED is lit steady.</td>
<td>E L A P S E D 0 6 : 2 7</td>
</tr>
<tr>
<td><strong>EXT</strong> and <strong>ANS</strong> red LED's are flashing.</td>
<td>1 0 : 4 5 O C T 2 8 F R I</td>
</tr>
</tbody>
</table>

| **CO/PBX** green LED winks intermittently. | **STEVE** 1 3 7 |
| **EXT** green LED lights. | 1 0 : 4 5 O C T 2 8 F R I |
| **ANS** LED goes off. | |

| **CO/PBX** green LED winks intermittently. | **STEVE** 1 3 7 |
| **EXT** green LED lights. | 1 0 : 4 5 O C T 2 8 F R I |
| **ANS** LED goes off. | |
430.13 Station Lockout

a. Cancellation of Station Lockout
   - Depress primary extension line key.
   - Lift handset.
   - Dial access code (Default: 62).
   - Dial extension number of the station where lock out is to be cancelled.
   - Receive confirmation tone and hang up.

b. Default of secret lockout code.
   - Depress primary extension line key.
   - Lift handset.
   - Dial access code (Default: 62).
   - Dial extension number of station requiring lockout code defaulted to 0000000000.
   - Dial * to default station lockout code and receive confirmation tone.
   - Hang up.

NOTE: To default the lockout code of a station that is in the lockout mode you must first cancel the station lockout.

---

**SAMPLE LED INDICATIONS**

- Primary [EXT] green LED lights.
- Primary [EXT] green LED goes off.

**SAMPLE LCD INDICATIONS**

- Primary EXT green LED lights.
- Primary EXT green LED goes off.

- LOCKOUT CANCEL
  - 13:45 OCT 28 FRI

- CODE CANCELLED
  - 10:45 OCT 28 FRI
430.14 Call Forward Set/Verify/Cancel

1. To Set:
   - Depress primary extension line key.
   - Lift handset.
   - Dial access code (Default: All Call - 44; Busy/No Answer - 45).
   - Dial source extension number (where calls are forwarded from).
   - Dial destination extension number (where calls are forwarded to).
   - Receive confirmation tone and hang up.

2. To Verify:
   - Depress primary extension line key.
   - Lift handset.
   - Dial access code (Default: All Call - 44; Busy/No Answer - 45).
   - Dial source extension number.
   - Check with LCD and hang up.

SAMPLE LED INDICATIONS

Primary [EXT] green LED lights.

<table>
<thead>
<tr>
<th>EXT</th>
<th>LINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>45</td>
</tr>
<tr>
<td>OCT</td>
<td>28</td>
</tr>
<tr>
<td>FRI</td>
<td></td>
</tr>
</tbody>
</table>

SAMPLE LCD INDICATIONS

<table>
<thead>
<tr>
<th>44</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
</tr>
<tr>
<td>45</td>
</tr>
<tr>
<td>OCT</td>
</tr>
<tr>
<td>28</td>
</tr>
<tr>
<td>FRI</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FWD</th>
<th>ALL</th>
<th>NOT</th>
<th>SET</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>45</td>
<td>OCT</td>
<td>28</td>
</tr>
<tr>
<td>FRI</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FWD</th>
<th>ALL</th>
<th>137</th>
<th>130</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>45</td>
<td>OCT</td>
<td>28</td>
</tr>
<tr>
<td>FRI</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
</tr>
<tr>
<td>OCT</td>
</tr>
<tr>
<td>28</td>
</tr>
<tr>
<td>FRI</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
</tr>
<tr>
<td>OCT</td>
</tr>
<tr>
<td>28</td>
</tr>
<tr>
<td>FRI</td>
</tr>
</tbody>
</table>
3. To Cancel:

- Depress primary extension line key.
- Lift handset.
- Dial access code (Default: All Call - 44; Busy/No Answer - 45).
- Dial source extension number.
- Dial *.
- Receive confirmation tone and hang up.

**SAMPLE LED INDICATIONS**

Primary **EXT** green LED lights.

Primary **EXT** green LED goes off.

**SAMPLE LCD INDICATIONS**

```
10:45 Oct 28 Fri

FWD ALL 137 → 130
10:45 Oct 28 Fri

FWD CANCEL
10:45 Oct 28 Fri
```
430.15 Programming System Speed Dial

An attendant can program, erase, and verify system speed dial buffers allotted to the tenant. Allocation of system speed dial buffers to each tenant must be done via system programming.

1. To Program (while station is idle):
   - Depress CNF key.
   - Dial #.
   - Dial desired system speed dial buffer number (20 ~ 99). Example: Dial 45.
   - Dial trunk access code followed by telephone number you want to enter. Example: Dial 73 and 516 753 7000.
   - Depress ANS key to enter the number you programmed.

When programming system speed dial consecutively, dial another system speed dial buffer number after depressing ANS key.
   - Depress CNF key.

2. To Verify:
   - Depress CNF key.
   - Dial #

SAMPLE LED INDICATIONS

- CNF LED flutters.
- Programm SPD ??
- Programm SYSSPD ??
- SPD 45 TRK AC ?
- SPD TRK AC ?
- SPD TRK AC ?
- SPD TRK AC ?
- SPD TRK AC ?
- CNF LED goes off.
  - CNF LED flutters.

SAMPLE LCD INDICATIONS

- PROGRAM SPD ??
- PROGRAM SYSSPD ??
- 10:45 OCT 28 FRI
To verify the contents of speed dial buffers, consecutively depress ANS key and dial another speed dial buffer.

- Depress CNF key.

### 3. To Delete:

- Depress CNF key.
- Dial #.
- Dial desired system speed dial buffer number (20 ~ 99).
- Depress HOLD key.
- Depress ANS key.

When consecutively deleting the contents of speed dial buffers, dial another buffer number and depress HOLD, ANS key.

- Depress CNF key.

<table>
<thead>
<tr>
<th>SAMPLE LED INDICATIONS</th>
<th>SAMPLE LCD INDICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CNF</strong> LED goes off.</td>
<td><strong>CNF</strong> LED flutters.</td>
</tr>
<tr>
<td><strong>CNF</strong> LED flutters.</td>
<td><strong>CNF</strong> LED goes off.</td>
</tr>
<tr>
<td><strong>CNF</strong> LED goes off.</td>
<td><strong>CNF</strong> LED goes off.</td>
</tr>
</tbody>
</table>
**430.16 Clock/Calendar Setting**

The clock/calendar can only be set from the attendant Multiline Terminal.

**EXAMPLE:** Friday, July 4, 1986, 8:35 A.M.

1. Depress CNF key and *. **CNF LED flutters.**

2. Hour Setting: Dial 0, 8.

3. Depress DSS key 20. *(See NOTE 4)*


5. Depress DSS key 20.

6. Day Setting: Dial 0, 4.

7. Depress DSS key 20.

8. Month Setting: Depress line key 7. *(See NOTE 1)*


---

### SAMPLE LED INDICATIONS

<table>
<thead>
<tr>
<th>LED Indication</th>
<th>CNF</th>
<th>Hour</th>
<th>Clock</th>
<th>??</th>
</tr>
</thead>
<tbody>
<tr>
<td>El</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CNF</td>
<td></td>
<td></td>
<td></td>
<td>??</td>
</tr>
</tbody>
</table>

### SAMPLE LCD INDICATIONS

<table>
<thead>
<tr>
<th>LCD Indication</th>
<th>PROGRAM</th>
<th>CLOCK</th>
<th>MINUTE</th>
<th>??</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1R</td>
<td></td>
<td></td>
<td></td>
<td>??</td>
</tr>
<tr>
<td>P1R</td>
<td></td>
<td></td>
<td></td>
<td>??</td>
</tr>
<tr>
<td>+! HOUR</td>
<td>111111</td>
<td>10181</td>
<td>??</td>
<td></td>
</tr>
<tr>
<td>P1R</td>
<td></td>
<td></td>
<td></td>
<td>??</td>
</tr>
<tr>
<td>P1R</td>
<td></td>
<td></td>
<td></td>
<td>??</td>
</tr>
<tr>
<td>DAY</td>
<td></td>
<td></td>
<td>04</td>
<td></td>
</tr>
<tr>
<td>P1R</td>
<td></td>
<td></td>
<td></td>
<td>??</td>
</tr>
<tr>
<td>P1R</td>
<td></td>
<td></td>
<td></td>
<td>??</td>
</tr>
<tr>
<td>MONTH</td>
<td></td>
<td></td>
<td>07</td>
<td></td>
</tr>
<tr>
<td>P1R</td>
<td></td>
<td></td>
<td></td>
<td>??</td>
</tr>
<tr>
<td>YEAR</td>
<td></td>
<td></td>
<td></td>
<td>??</td>
</tr>
</tbody>
</table>
10. Year Setting: Dial 8, 6.
   (See NOTE 3)

11. Depress ANS key to enter data.
   (See NOTE 4)

**Note 1:** Valid Entries

- **Hour:** 00 ~ 23
- **Minute:** 00 ~ 59
- **Day:** 01 ~ 31
- **Month:** JAN ~ DEC (set by line key)

**Month entry:**

**Note 2:** Day of the Week, Leap Year

Day of the week and leap year will be automatically set by entering month, date and year data.
### SAMPLE LCD INDICATIONS

<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>CLOCK</th>
</tr>
</thead>
<tbody>
<tr>
<td>YEAR</td>
<td>86</td>
</tr>
</tbody>
</table>

10:45 OCT 28 FRI
Note 3: Year Data Entry:

If year data is 86 or greater than 86, the year is automatically considered 1986 ~ 1999. If less than 86, the year is considered 2000 ~ 2085.

Note 4: DSS Key 20, ANS Key:

Depression of DSS key 20 advances setting mode. LCD goes back to display Hour Setting mode after Year Setting mode.

Depression of ANS key enters data, and the LCD automatically returns to normal mode.

Note 5: Error Conditions:

When invalid data is entered, error tone is heard. Enter valid data and depress DSS key 20 to proceed.
430.17 Programming Forced Account Codes

1. To Set
   - Depress CNF key and TRF key.
   - Dial an account number (001~500).
   - Dial an account code (Max.: 13 digits).
   - Depress ANS key.
     (The next account number is displayed allowing account codes to be programmed consecutively.)
   - Depress CNF key.

NOTE: Account number: Max. 500 locations (001~500)
Account code: Max. 13 digits (Default: 10 digits)

<table>
<thead>
<tr>
<th>SAMPLE LED INDICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNF LED rapidly winks.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLE LCD INDICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROGRAM</td>
</tr>
<tr>
<td>? ? ?</td>
</tr>
<tr>
<td>1 2 3 4 5 6 7 8</td>
</tr>
</tbody>
</table>
2. To Clear Account Codes

There are two ways to clear account codes; individual clear and multiple clear.

a. Individual clear

- Depress CNF key and TRF key.

- Dial an account number (001~500).

- Depress HOLD key.

- Depress ANS key.

(Next account number is displayed and account code can be cleared consecutively.)

- Depress CNF key.

**SAMPLE LED INDICATIONS**

- **CNF** LED rapidly winks.

**SAMPLE LCD INDICATIONS**

- PROGRAM ACCOUNT
  NO. ?? ??

- ACCOUNT NO. 001
  12345678

- ACCOUNT NO. 002
  33333333

- 10:45 OCT 28 FRI
b. Clearing Multiple Account Codes Simultaneously

- Depress CNF key and TRF key.

- Dial *.

- Dial start and end numbers (001 ~ 500) of a consecutive range of account code numbers to be cleared.

- Depress ANS key.

(To clear multiple account numbers furthermore, repeat steps from “Dial *” and after.)

- Depress CNF key.

**SAMPLE LED INDICATIONS**

| CNF | LED rapidly winks. |

**SAMPLE LCD INDICATIONS**

<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>ACCOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO.</td>
<td>?? ??</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>ACCOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
<td>- - 200</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>ACCOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO.</td>
<td>?? ??</td>
</tr>
</tbody>
</table>

| 10:45 | OCT 28 | FRI |

400 - 140
430.18  Delay Announcement Set/Cancel

Only attendants can set and cancel Delay Announcement activation on a tenant basis.

- Depress CNF key.

- Depress desired line key.

<table>
<thead>
<tr>
<th>LINE KEY NUMBER</th>
<th>FEATURE</th>
<th>LED ON</th>
<th>LED OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Day Mode</td>
<td>Set</td>
<td>Cancel</td>
</tr>
<tr>
<td>10</td>
<td>Night Mode</td>
<td>Set</td>
<td>Cancel</td>
</tr>
</tbody>
</table>

SAMPLE LED INDICATIONS

- CNF LED flutters

- LK9 ~ LK10 green LEDs light.

SAMPLE LCD INDICATIONS

<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>SPD</th>
<th>?</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>USER</th>
<th>PROGRAM</th>
</tr>
</thead>
</table>
440 Single Line Telephone Operation

440.1 CO/PBX/Tie Line (Outside) Calls

1. Originating:
   a. Manual Dialing:
      • Lift handset and receive internal dial tone.
      • Dial trunk access code (Default: 9, 8, 70 ~ 75).
      • Dial number for outside party.
      • Converse when called party answers.
   b. CO as Prime Line Dialing:
      • Lift handset and receive outside dial tone.
      • Dial number for outside party.
      • Converse when called party answers.
   c. Uniform Numbering Network Dialing:
      • Lift handset and receive internal dial tone.
      • Dial extension number associated with the Uniform Numbering Network.
      • Converse when called party answers.
   d. Station Speed Dialing:
      • Lift handset and receive internal dial tone.
      • Dial # followed by station speed dial buffer number (00 ~ 19) associated with outside party to be dialed.
      • Converse when called party answers.
   e. System Speed Dialing:
      • Lift handset and receive internal dial tone.
      • Dial # followed by system speed dial buffer number (20 ~ 99) associated with outside party to be dialed.
      • Converse when called party answers.
   f. Last CO/PBX/Tie Line Number Redial:
      • Lift handset and receive internal dial tone.
      • Dial * for last number redial.
      • Converse when called party answers.
   g. Consecutive Dialing:
      • Lift handset and receive internal dial tone.

Use manual dialing, followed by station speed dialing or system speed dialing.
NOTE: Consecutive dialing cannot be made in the following cases:

- Station or system speed dialing sequence follows a manual dialing sequence.
- Station or system speed dialing sequence follows another speed dialing sequence.

2. Answering:
- Lift handset and converse.

3. Placing A Call On Hold:
With call in progress:
- Depress the FLASH key (or momentarily depress the hookswitch) and receive second dial tone.
- Dial access code (Default: 4 #) to place call on exclusive hold and hang up.
- Lift handset to place another call or to retrieve the held party by dialing access code (Default: 4 #).

4. Abandoning a Call
a. Using the handset:
- Restore handset.
b. Using the FLASH key (or momentarily depressing the hookswitch):
- Depress the FLASH key and receive second dial tone.
- Dial the CO release access code. CO/PBX/Tie line/DID call is released and new internal dial tone is provided.

OR

Dial the Hookflash to CO access code and new outside dial tone is received.

5. Sending a Hookflash to the CO/PBX Line:
With call in progress:
- Depress the FLASH key (or momentarily depress the hookswitch) and receive second dial tone.
- Dial the Hookflash to CO access code.

NOTE: CO Release access code and Hookflash to CO access code must be assigned to the system before these features can be used. This feature will operate only when the trunk is programmed as a PBX line.
440.2 Extension (Internal) Calls/Step Calls/Station Hunt

1. Originating:
   - Lift handset and receive internal dial tone.
   - Dial desired extension number.
   - Converse when called party answers.

2. Step Calling:
   After calling an extension (Example: 111) and receiving Busy Tone or Call Waiting Tone, to call extension 112:
   - Dial new Last Digit (Example: 2), receive Ring Back Tone; wait for called party (Ext. 112) to answer; converse.

3. Station Hunt (Originating):
   - Lift handset and receive dial tone.
   - Dial Hunt pilot number.
   - Converse with called extension.

4. Answering:
   - Lift handset and converse.

5. Placing a Call on Hold:
   With call in progress:
   - Depress the FLASH key (or momentarily depress the hookswitch) to receive second dial tone.
   - Dial access code (Default: 4#) to place the call on hold and hang up.
   - Lift handset to place another call or to answer the held call by dialing access code (Default: 4#).

6. Abandoning a Call:
   - Restore handset.
440.3 MFR Circuit Selection and Test

- Lift handset, receive internal dial tone.
- Dial Selection Access Code (Default 67).
- Dial MFR device number (41~48) to be selected and tested.
  - If the MFR circuit selected is idle and in good working order, internal dial tone will be heard.
  
  OR

- If it is busy, busy tone will be heard.

  OR

- If it is not installed or busied out, reorder tone will be heard.

- Restore handset. Repeat the steps above to test all MFR circuits required.

NOTE: MFR circuits can be busied out or restored only by an attendant's Multiline Terminal. Refer to Section 430.3 for this procedure.
440.4 Trunk Queuing

1. To set a Trunk Queue:

After attempting to seize a CO/PBX/Tie trunk via dial access and receiving busy tone because all of the trunks in that group are busy:

- Dial Trunk Queue Access Code, *1; receive confirmation tone.
- Restore handset.

2. Receiving Trunk Queue Recall:

As soon as a trunk within the trunk group, to which the trunk queue was set, and the station which set the queue are idle, CO/PBX/Tie ringing will be received:

- Lift handset, receive CO/PBX/Tie dial tone.
- Dial desired number.
- Converse.

3. To cancel a Trunk Queue:

- Lift handset, receive internal dial tone.
- Dial any Trunk Access code.
- Restore handset.

NOTE 1: Trunk Queue will be automatically cancelled if the recall to the station is not answered within a pre-programmed time interval.

NOTE 2: Trunk Queuing cannot be accessed by any station that is assigned LCR. If this is attempted, reorder tone will result.

NOTE 3: Recall will not occur until both a trunk in the queue group and the extension which set the queue are both idle.
440.5 Transfer

With call in progress:

- Depress the FLASH key (or momentarily depress the hookswitch); call is on consultation hold.

- Dial extension number to be transferred to.

- When ring back tone is heard, restore handset (transfer is completed when party answers).

  OR

- When party answers, restore handset (transfer is completed).

  OR

- When call waiting tone is heard, restore handset (original call is camped on to busy extension).

NOTE: Unanswered transferred or camped on call will recall the station that initiated the transfer after the recall time interval has elapsed.
440.6 Trunk to Trunk Transfer

1. With CO/PBX/Tie Line/DID call in progress:
   - Depress the FLASH key (or momentarily depress the hookswitch); call is on consultation hold.
   - Dial trunk access code (default: 9, 8, 70~75) and desired number.
   - Receive ringback tone and wait for called party to answer.
   - When party answers, restore handset.

NOTE 1: Both trunks involved in the transfer must be capable of providing remote call disconnect signals and must be programmed accordingly.

NOTE 2: Transfers will not be completed if the transferred call is not answered or before the talk start timer has elapsed (default is 18 seconds).

2. When second trunk is a CO/PBX line and the called station is busy or unattended:
   With outside call in progress:
   - Depress the FLASH key (or momentarily depress the hookswitch); call is on consultation hold.
   - Dial trunk access code (default: 9, 8, 70~75) and desired number.

3. When second trunk is a Tie line and the called station is busy or unattended:
   With outside call in progress:
   - Receive busy tone or no answer, before the talk start timer times out, (default 18 secs.) depress the FLASH key (or momentarily depress the hookswitch) or restore the handset.
   - Second call is released and first call recalls.
   - OR
   - Depress the FLASH key (or momentarily depress the hookswitch) after the talk start timer times out.
   - Transfer is completed.
   - Restore handset.

- Second trunk is released and first call recalls.
440.7 Conference

Possible conferences are as follows:

- 4 stations - No CO/PBX/Tie/DID lines
- 3 stations - No CO/PBX/Tie/DID lines
- 3 stations - 1 CO/PBX/Tie/DID line
- 2 stations - 1 CO/PBX/Tie/DID line
- 2 stations - 2 CO/PBX/Tie/DID lines
- 1 station - 2 CO/PBX/Tie/DID lines

1. Three Party Conference

With call in progress:

- Depress the FLASH key (or momentarily depress the hookswitch); original call goes on consultation hold.
- Call second party.
- Converse when called party answers.
- Depress the FLASH key (or momentarily depress the hookswitch) to establish a three party conference.

NOTE: Three party conference calls can be transferred by establishing a four party conference and dropping out from the conference.

2. Four Party Conference

With three party conference in progress:

- Depress the FLASH key (or momentarily depress the hookswitch); original conference goes on consultation hold and parties on hold can still talk to each other.
- Call third party.
- Converse when called party answers.
- Depress the FLASH key (or momentarily depress the hookswitch) to establish a four party conference.

NOTE: Four party conference calls cannot be transferred.

3. Placing a Conference Call on Hold

With conference call in progress:

- Depress the FLASH key (or momentarily depress the hookswitch); conference call goes on consultation hold.
- Dial access code for exclusive hold (Default: 4 #).
- Restore handset.

NOTE: A four party conference call cannot be placed on hold.

4. Abandoning a Conference Call

- Restore handset.
440.8 Unsupervised Conference

1. To Establish

With three party conference including two CO/PBX/Tie/DID parties in progress:

- Hookflash and receive second dial tone.
- Dial access code (Default: 4 #) for exclusive hold.
- Restore handset.

2. To Re-enter the Conference

- Lift handset and receive internal dial tone.
- Dial access code (Default: 4 #) to reenter the conference.

3. To Answer Conference Recall

After a predetermined time since an unsupervised conference is established.

- The SLT rings for recall.
- Lift handset to answer the conference recall.

4. Abandoning a Conference

After reentering the conference or answering the conference recall.

- Restore handset.
440.9 Internal Zone Paging

1. To Originate:
   - Lift handset and receive internal dial tone.
   - Dial access code and page.

   Default values are as follows: (Last digit of each access code is fixed).
   - 550 - All Call
   - 551 - Zone 1
   - 552 - Zone 2
   - 553 - Zone 3
   - 554 - All Zones

2. To Answer (Meet-Me):
   - Lift handset and receive internal dial tone.
   - Dial access code (Default value is 556. Last digit of the access code is fixed).
   - Converse with paging party.

440.10 External Zone Paging

1. To Originate:
   - Lift handset and receive internal dial tone.
   - Dial access code and page.

   Default values are as follows: (Last digit of each access code is fixed).
   - 561 - Zone 1
   - 562 - Zone 2
   - 563 - Zone 3
   - 564 - All Zones

2. To Answer (Meet-Me):
   - Lift handset and receive internal dial tone.
   - Dial access code (Default value is 566. Last digit of the access code is fixed).
   - Converse with paging party.
440.11 Consultation Hold (Broker's Call)

Consultation hold is established during the process of transfer, conference or broker's call. When a station having a call on consultation hold goes on-hook, the station will be immediately recalled.

1. Transfer or Conference:

   With call in progress:
   - Depress the FLASH key (or momentarily depress the hookswitch); first party goes on consultation hold.
   - Dial second party.
   - Consult with second party when answered.
   - Hang up to complete transfer, or hookflash to establish a conference.

   OR

   - When second party (internal) hangs up, the station is reconnected to the first party.

2. Broker’s Call:

   a. Originating:

      With call in progress:
      - Depress the FLASH key (or momentarily depress the hookswitch) to receive second dial tone.

      OR

      - Dial access code (Default: 4 #) to place first party on exclusive hold.
      - Receive internal dial tone and call second party.
      - Converse with second party when answered.
      - Depress the FLASH key (or momentarily depress the hookswitch) and dial access code (Default: 4 #) to place second party on exclusive hold.

      The station is automatically reconnected to the first party.

   b. Answering:

      With call in progress:
      - The station receives camp on or override tone, then hook flash and dial access code (Default: 4 #) to place first call on exclusive hold.
      - Hang up and receive ring tone.
      - Lift handset to answer the second call.
      - Depress the FLASH key (or momentarily depress the hookswitch) and dial access code (Default: 4 #) to place the second call on exclusive hold.

      The station is automatically reconnected to the first party.

NOTE: In operations a. and b., successive access to exclusive hold alternates the connection between the first and second parties.
440.12 Call Park

1. To Park a Call:

   With an extension, CO/PBX/Tie/DID or conference call in progress:
   - Depress the FLASH key (or momentarily depress the hookswitch) and receive second dial tone, (call is placed on Consultation Hold).
   - Dial Call Park Access Code (Default 4*).
   - Dial Call Park Location Number (0~9) Example: 0, receive confirmation tone.
   
   OR
   - If the Call Park Location number dialed is busy (busy tone received).

   - Use step calling to advance to an idle call park location. Example: Dial 1, receive confirmation tone.

   - Restore handset.

2. Retrieving a Call from Park:

   - Lift handset and receive internal dial tone.

   - Dial Call Park Access Code (Default 4*).

   - Dial Call Park Location number (0~9) of the call to be retrieved; converse. If an idle Call Park location number is dialed, reorder tone will be heard.

OTE 1: Any call left in Call Park for more than a pre-programmed interval will recall to the station which parked the call. This recall can be picked up by other stations in the system via Directed Call Pickup. If you park a conference call or put a conference call on exclusive hold, you cannot retrieve another parked call and you cannot answer another recalling parked conference call.

OTE 2: Two independent adjustable recall timers (conference and 2 party calls) are available for Call Park calls. This allows for parked conference outside parties to maintain a conversation without frequent recalls to the party that parked the call.

440.13 Dial 0 For Attendant

   - Lift handset and receive internal dial tone.

   - Dial 0 to call the associated attendant.

OTE: When the associated attendant is busy, calls to the attendant can be routed to another attendant, depending upon system programming. If the associated attendant is call forwarded to another station, calls to the attendant will be automatically forwarded to the station.
440.14 Call Pickup

1. Call Pickup - Directed

Another station is receiving an incoming call:

- Lift handset and receive internal dial tone.
- Dial access code (Default: 6 #).
- Dial the extension number receiving the incoming call.
- Converse with calling party.

NOTE: Incoming CO/PBX/Tie calls, Extension Calls, Transferred Calls, Hold Recalls, Transfer Recalls, and Voice paged calls can be picked up.

2. Call Pickup - Group

Another station is receiving an incoming call.

- Lift handset and receive internal dial tone.
- Dial access code (Default: 6*) and converse with calling party.

NOTE: To pick up incoming calls a station must be within the same call pickup group as the station the call was originally directed to.

Incoming CO/PBX/Tie calls, ringing extension calls and transferred calls can be picked up.

440.15 Night Call Pickup

With incoming CO/PBX call during night mode:

- Lift handset and receive internal dial tone.
- Dial access code (Default: 60).
- Converse with calling party.

NOTE: Only incoming CO/PBX calls can be picked up.
440.16 Callback Request Message

1. To Set:

Upon receiving call waiting tone, busy tone or no answer when placing an extension call:

- Dial access code (Default: #).
- Receive confirmation tone and hang up.

**NOTE:** Access code must be dialed within a predetermined time after dialing the extension number.

2. To Cancel:

- Lift handset and receive internal dial tone.
- Redial the extension number.
- Restore handset.
440.17 Camp-On

1. To Originate:

Upon receiving call waiting tone when transferring a call to a station:

- Restore handset.

NOTE: The station originating camp-on will be recalled when camp-on is denied or when camped on call is not answered within a predetermined time.

2. To Answer:

With call in progress; receive camp-on tone:

a. Terminating Present Call:

- Hang up to terminate present call.
- Lift handset to answer the camped on call when station rings.

b. Placing Present Call on Exclusive Hold:

- Depress the FLASH key (or momentarily depress the hookswitch) to receive second dial tone.
- Dial access code (Default: 4 #) to place present call on exclusive hold.
- Hang up, then receive ring tone.
- Lift handset to answer the camped on call.
- Restore handset to terminate the camped on call, then lift handset to retrieve the exclusive held call by dialing the access code (Default: 4 #).

OR

- Depress the FLASH key (or momentarily depress the hookswitch) and dial the access code (Default: 4 #) to place the camped on call on exclusive hold, then converse with the exclusive held party again (Broker's Call).
440.18 Tone Override

1. To Originate:
   Upon receiving call waiting tone when placing an extension call:
   - Dial access code (Default: *0).
   - Receive override tone.
   - Talk to party when answered.

   NOTE: Access code must be dialed within a predetermined time after dialing the extension number.

2. To Answer:
   With call in progress; receive override tone:
   a. Terminating Present Call:
      - Hang up to terminate present call.
      - Lift handset to answer the tone overridden call when station rings.
   b. Placing Present Call on Exclusive Hold:
      - Depress the FLASH key (or momentarily depress the hookswitch) to receive second dial tone.
      - Dial access code (Default: 4#) to place present call on exclusive hold.
      - Hang up, then receive ring tone.
      - Lift handset to answer the tone overridden call.
      - Restore handset to terminate the tone overridden call, then lift handset to retrieve the exclusive held call by dialing access code (Default: 4#).

      OR

      - Depress the FLASH key (or momentarily depress the hookswitch) and dial access code (Default: 4#) to place the tone overridden call on exclusive hold, then converse with the exclusive held part again (Broker's Call).
440.19 Automatic Callback

1. To Set:
   Upon receiving call waiting tone or busy tone when placing an extension call:
   - Dial access code (Default: *1).
   - Receive confirmation tone and hang up.
   - The station setting automatic callback rings when called station becomes idle.
   - Lift handset and wait for called station to answer.
   - Converse with called party.

   NOTE: Access code must be dialed within a predetermined time after dialing the extension number.

2. To Cancel:
   - Lift handset and receive internal dial tone.
   - Redial the extension number.
   - Restore handset.

   NOTE: Each station can set and receive a maximum of three automatic callbacks at any one time. Automatic callback will be cancelled at originator’s station if unanswered within a predetermined time.
440.20 Account Code Entry

1. With CO/PBX/Tie/DID call in progress:
   - Depress the FLASH key (or momentarily depress the hookswitch) and dial #, #.
   - Dial an account code.
   - Automatically go back to conversation.

   **NOTE:** A maximum of 14 digits can be entered as an account code. The maximum number of digits for the account code is determined by system programming.

2. Account Code - Forced/Verified

   Outside Call Origination by Account Code:
   - Lift handset and receive dial tone.
   - Dial a valid account code and receive dial tone.
   - Dial a trunk access code and desired number.

   **NOTE 1:** If the dialed Account Code does not coincide with the registered account code, ROT (reorder tone) will be issued and outside call origination is not enabled.

   **NOTE 2:** The valid Account Codes can only be programmed from Attendant Telephones.
440.21 Call Forward

1. From source SLT
   a. To Set:
      - Lift handset and receive internal dial tone.
      - Dial access code (Default: All call - 41, Busy/No Answer - 42).
      - Dial destination station's extension number.
      - Receive confirmation tone and restore handset.
   b. To Cancel:
      - Lift handset and receive internal dial tone.
      - Dial access code (Default: All call - 41, Busy/No Answer - 42).
      - Dial *.
      - Receive confirmation tone and restore handset.

2. From destination SLT
   a. To Set:
      - Lift handset and receive internal dial tone.
      - Dial access code (Default: All call - 47, Busy/No Answer - 48).
      - Dial source station's extension number.
      - Dial destination SLT's extension number.
      - Receive confirmation tone and restore handset.
   b. To Cancel:
      - Lift handset and receive internal dial tone.
      - Dial access code (Default: All call - 47, Busy/No Answer - 48).
      - Dial *.
      - Dial source station's extension number.
      - Receive confirmation tone and restore handset.
440.22 Programming Station Speed Dial

- Lift handset and receive internal dial tone.
- Dial access code (Default: 58) and speed dial buffer number (00 ~ 19).
- Dial trunk access code.
- Dial number to be stored.
- Restore handset.

NOTE: Pause or hookflash signals cannot be programmed into SLT station speed dial.
440.23 Station Lockout

1. To Set:
   - Lift handset and receive internal dial tone.
   - Dial access code (Default: 61) and lockout code.
   - Receive confirmation tone and restore handset.

2. To Cancel:
   - Lift handset.
   - Dial access code (Default: 61) and lockout code.
   - Receive confirmation tone and restore handset.

3. Change of Lockout Code:
   - Lift handset and receive internal dial tone.
   - Dial access code (Default: 59) and current lockout code.
   - Dial *, new lockout code and *.
   - Receive confirmation tone and restore handset.

NOTE 1: Default value of lockout code is 0000000000 (ten zeros). The maximum number of digits for lockout code is 10.

NOTE 2: Station lockout capability is determined by class of service assignment. Message waiting and automatic callback can be set to a station programmed for lockout.

NOTE 3: The only available activity for a locked out station is to cancel station lockout.
440.24 Voice Mail Call

1. To Originate:
   - Lift handset and receive internal dial tone.
   - Dial access code (Default: 63) for voice mail entry port.
   - Follow the instructions given by voice mail system when answered.

2. To Answer:
   - Lift handset.
   - Listen for a message from voice mail system.

   NOTE: Some voice mail systems cannot originate calls.

3. Retrieving a Message:
   The following operation only applies to SLTs with a message lamp.
   (See Notes 1 & 2)
   
   When message lamp is lit:
   - Lift handset and receive internal dial tone.

   - Dial access code (Default: 63) for voice mail entry port and reach your mail box.
   - Listen for a message.

   NOTE 1: Some voice mail systems cannot leave a message on a station.

   NOTE 2: Attendant Multiline Terminals may also leave a message on a single line telephone that has a message lamp. Consequently, there may not be a message from voice mail when message lamp is lit.

   NOTE 3: System programming is required for voice mail hunting.

4. Canceling a Message:
   Retrieving a message from voice mail cancels the message indication.

5. Abandoning a Call:
   - Restore handset.
CHAPTER 4
APRIL, 1990

Directory Terminal Operation

450.1 General

ETE-16K-1 Multiline Terminal is the Directory Terminal described in Section 170 of this manual.

The unique DIRECTORY feature with large display is available only to this Multiline Terminal.

Standard system features other than the Directory feature also apply to this Multiline Terminal, therefore, only operations of the DIRECTORY with large display are described in this section.
450.2 Page Selection

While in idle mode, the large display shows DSS/Station Speed Dial indications as the first page.

- Depress DIR key; the large LCD shows LOCATION/SECTION page as the second page.

- Depress DSS key associated with desired LOCATION/SECTION (Page 3 ~ 12).

NOTE 1: While displaying LOCATION/SECTION page (Page 2), depression of DIR key makes the LCD display Page 1.

NOTE 2: While displaying one of the Pages, 3~12, depressing the DIR key makes the LCD display LOCATION/SECTION page (Page 2).

NOTE 3: The LCD changes to display Page 1 if there is no action performed within 10 seconds while displaying Page 2~12.
450.3 Programming Page List Name

1. To Program:
   a. Depress DIR key.
   b. Depress CNF key.
   c. Depress DSS key.
   d. Enter desired name by dialing digits using the keypad. (Refer to chart on page 400-168).
   e. Depress CNF key to enter page name.
   f. Depress CNF key.
450.4 Programming Station Speed Dial

1. To Program

   a. Select page as described in Section 450.2.

   b. Depress CNF key.

   c. Depress DSS key to program name.

   **SAMPLE LED INDICATIONS**

   **CNF** LED flutters.

   **CNF** LED flutters.
d. Enter desired name by dialing digits as follows:

<table>
<thead>
<tr>
<th>DIGIT</th>
<th>NUMBER OF DEPRESSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>#</td>
<td>#</td>
</tr>
</tbody>
</table>

As each character is selected, depress ANS key to enter it. Repeat the step to enter other characters.

NOTE: SP represents SPACE.
e. Depress DIR key to program trunk access code and telephone number to be stored.

f. Dial trunk access code and telephone number to be stored.

g. Depress CNF key to enter trunk access code and telephone number.

Station Speed Dial has now been programmed into the DSS key. The Multiline Terminal user may repeat steps c–g to perform additional station SPD programming.

If it is necessary to program another Station Speed Dial into a DSS key in another page, return to on-line mode by depressing CNF key again and repeat steps a–g.

h. Depress CNF key to return to on-line mode.

NOTE 1: When changing the name only, skip steps e and f, and perform steps g and h.
NOTE 2: When changing trunk access code and telephone number to be stored, skip step d, and perform steps e, f, g and h.

NOTE 3: A maximum of 7 characters can be entered for name.

NOTE 4: A maximum of 16 digits can be entered for a telephone number.

NOTE 5: When a system speed dial number has to be entered into a speed dial buffer, enter a trunk access code, depress ANS key (instead of dialing #) and enter a system dial buffer number (20-99). If a pause is required anywhere in the dialing of the number, depress the TRF key (each depression counts as one of the 16 digits).

NOTE 6: Hookflash (RECALL key) signal can be programmed as the first digit of a Speed Dial number. Hookflash counts as 1 digit.

2. To Verify

- Select page as described in Section 450.2.
- Depress desired DSS key; contents of station speed dial will be shown for 10 seconds.

3. To Clear

a. Select page as described in Section 450.2.
b. Depress CNF key.

<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>SPD</th>
<th>TRK</th>
<th>AC 73</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45</td>
<td>5167537000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCT 28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRI</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHARLES</th>
<th>PAUL</th>
</tr>
</thead>
<tbody>
<tr>
<td>JOAN</td>
<td>MARY</td>
</tr>
<tr>
<td>GEORGE</td>
<td>DOUG</td>
</tr>
<tr>
<td>ROCKY</td>
<td>PATTY</td>
</tr>
<tr>
<td>PETER</td>
<td>FRAN</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLE LED INDICATIONS</th>
<th>SAMPLE LCD INDICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. LED flutters.</td>
<td>1. LED flutters.</td>
</tr>
</tbody>
</table>
c. Depress desired DSS key.

d. Depress HOLD key to erase name.

To retain the same name, depress DIR key instead of HOLD.

e. Depress DIR key.

f. Depress HOLD key to erase present trunk access code and telephone number.

To retain the same number, skip steps e and f.
g. Depress CNF key.

The Multiline Terminal user can repeat step c-g to clear another Station Speed Dial.

If it is necessary to clear another station speed dial on a different page, go back to on-line mode by depressing CNF key again, and repeat step a-g.

h. Depress CNF key again to go back to on-line mode.

**SAMPLE LED INDICATIONS**

- **SAMPLE LCD INDICATIONS**

```
<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>SPD</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHARLES</td>
<td>PAUL</td>
</tr>
<tr>
<td>JOHN</td>
<td>MARY</td>
</tr>
<tr>
<td>GEORGE</td>
<td>DOUG</td>
</tr>
<tr>
<td>ROCKY</td>
<td></td>
</tr>
<tr>
<td>PETER</td>
<td>FRAN</td>
</tr>
</tbody>
</table>
```

```
| 10:45   | OCT 28 | FRI |
| NEIL    | STEVE  |
| MADE MELISSA | JIMMY   |
| ALICE   | JOHN   |
| NANCY   | MIKE   |
| PAGE    | FWD ALL|

**CNF** LED goes off.
450.5 Originating Calls

- Depress an idle extension or CO/PBX line key.
- Lift handset.
- Select page as described in Section 450.2. (If page selection is not necessary, skip this operation.)
- Depress desired DSS key.
- Converse with called party when answered. (LCD will redisplay page 1 in 10 seconds after depressing the DSS key.)

NOTE: When originating calls in sequence, the page selection step can be interchanged with the step which seizes an idle line.
CHAPTER 5
MAINTENANCE
CHAPTER 5
MAINTENANCE

TABLE OF CONTENTS
SECTION DESCRIPTION PAGE
510 GENERAL 500-1
520 OPERATIONAL CURRENT AND VOLTAGE CHECKS 500-1
530 OPERATIONAL TEST PROCEDURES
530.1 General 500-1
530.2 Before Initialization 500-2
530.3 System Initialization 500-2
530.4 After Initialization 500-2
540 TROUBLESHOOTING FLOW CHARTS
540.1 Problem Solving 500-3
550 SELF DIAGNOSTICS AND MAINTENANCE
550.1 Self Diagnostics 500-3
550.2 Maintenance 500-4

SECTION 510
GENERAL

This Chapter is to be used as a guide for diagnoses and troubleshooting problems during and after system installation. The troubleshooting flow charts, general test procedures and Maintenance Memory Blocks (See Chapter 3 of this manual) 1E5, 3B4, 3D3, 3D4, 5B1 to 5B6, 5C1 and 5C2 will help the technician to identify the cause of a problem by defining the problem area and isolating the valid symptoms.

In addition, with the System Data Up/Down Load feature, all system programming, speed dial data, and Forced Account Code information can be stored on diskette. (Refer to Chapter 9 of this Manual.) After all system programming has been completed, it should be down loaded onto diskettes for a backup copy of the system programming. In case of system memory failure, the system could be up loaded with the backup diskettes.

SECTION 520
OPERATIONAL CURRENT AND VOLTAGE CHECKS

The effectiveness of this portion of the maintenance section depends upon the technician's ability to answer correctly all questions posed as accurately as possible. Due to external factors, it is important that no answer be assumed. For example, it cannot be assumed that a power supply is working properly because it has been replaced with another power supply. It is necessary to test the output of the power supply with a volt meter (See Table 520-1 for specifications). Before a technician can attempt any troubleshooting, the correct tools should be available.

1. Digital or Analog Multimeter, capable of reading:
   A. DC current and voltage
   B. AC current and voltage
   C. DC Resistance

2. Test Set, linemen, being capable of:
   A. Termination and Monitor Modes
   B. DTMF and Dial Pulse dialing

3. Hand tools:
   A. Set of screwdrivers (common and Phillips head blades)
   B. Set of pliers, long nose and diagonals
   C. Punch down tool

4. The complete Electra MarkII Installation Service Manual with all the latest up to date information, as well as the completed job specifications.

SECTION 530
OPERATIONAL TEST PROCEDURES

530.1 When the Electra MarkII System is first powered up it runs through an initialization process. During this process the CPU-E ( ) ETU, in module 1, scans each of the thirty two interface slots to determine the hardware configuration used. This information is stored in the Resident System Program memory with the system default values. Section 530 provides test procedures to be used before, during, and after this initialization process.
530.2 Before Initialization
It is important that the following steps be taken by the installation technician:

1. Cable Connections
All wiring for power supplies, RSG, flat cable connectors, etc., should be checked for solid connections. Refer to Chapter 2 (Hardware Installation) of this manual for connection instructions.

2. AC/DC Power
Check all power with an AC/DC multimeter (see Table 520-1). It is recommended that this test be run with only the TSW-E (), CPU-E () ETUs, and 1, 2, or 3 MMC-E(s) installed in the CCUs, on two, three or four cabinet configurations.

3. Initialization Check
To check if the system is initializing correctly, it is suggested that only Module 1 be powered up with the CPU-E (), TSW-E () ETUs, and one ESI-E () ETU with terminals installed. After initialization, all the terminals assigned to the ESI-E () ETU should be able to call each other via intercom. (These stations by default will be assigned station numbers 100-103. The first two terminals must be ETE-16D()-).

530.3 System Initialization
After the three steps in 530.2 are completed and checked, the entire system should be initialized.

With the power off, all the interface and option cards can be installed in each module as indicated on the job specification document. It is important to check that the battery switch on the CPU-E () ETU is turned off and all interface and option ETU switches are on. At this point the technician can power up the system. During the power up procedure, each display terminal will temporarily display INITIALIZE. After the initialization process, each station display will show default time and date indication. Example: 12:00 JAN 01 SUN.

It is recommended that a First Initialization (Memory Block 3D-1) be performed from one of the system programming stations (first two ESI-E () ports) after the power up of the system. Refer to Chapter 3 of this manual.

530.4 After Initialization
Before any programming is attempted, the battery switch on the CPU-E () ETU should be turned on. This will prevent all completed programming from being lost if the system loses power.

<table>
<thead>
<tr>
<th>VOLTAGES</th>
<th>TOLERANCE</th>
<th>MEASURING POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 1</td>
<td>+5 ± 0.25 volts</td>
<td>CPU-E () TP1 GND</td>
</tr>
<tr>
<td>-5 volts</td>
<td>-5 ± 0.25 volts</td>
<td>TP2 +5 V</td>
</tr>
<tr>
<td>-24 volts</td>
<td>-24 ± 2.0 volts</td>
<td>TP3 -5 V</td>
</tr>
<tr>
<td>Modules 2, 3 &amp; 4</td>
<td>+5 ± 0.25 volts</td>
<td>TP4 -24 V</td>
</tr>
<tr>
<td>+5 volts</td>
<td>-5 ± 0.25 volts</td>
<td>MMC-E: TP2 GND</td>
</tr>
<tr>
<td>-5 volts</td>
<td>-24 ± 2.0 volts</td>
<td>TP3 +5 V</td>
</tr>
<tr>
<td>-24 volts</td>
<td>MMC-E: TP4 GND</td>
<td></td>
</tr>
<tr>
<td>AC Voltage (117 VAC)</td>
<td>117 ± 10% VAC</td>
<td>AC TERMINAL STRIP</td>
</tr>
<tr>
<td>Hot to Neutral</td>
<td>L to N</td>
<td></td>
</tr>
<tr>
<td>Hot to Conduit Ground</td>
<td>L to C</td>
<td></td>
</tr>
<tr>
<td>Neutral to Conduit Ground</td>
<td>N to G</td>
<td></td>
</tr>
<tr>
<td>Ring Generator (SLT)</td>
<td>70~120 VRMS @ 20 Hz*</td>
<td>Across TIP &amp; RING of any ringing SLT</td>
</tr>
<tr>
<td>CO Line</td>
<td>25 to 50 mA</td>
<td>In series with TIP side of CO line at MDF</td>
</tr>
<tr>
<td>Off-hook line current</td>
<td>-48 volts input</td>
<td>On the input Terminal Strip of PSE-DD-1</td>
</tr>
<tr>
<td>Module 1, 2, 3 &amp; 4</td>
<td>-48 ± 8volts</td>
<td>-48V</td>
</tr>
</tbody>
</table>

NOTE: Measurement of ring voltage may be lower if the meter is designed for measuring 60 Hz signals only.
All ports may be checked in software to ensure the initialization process scanned all hardware correctly. This can be done by displaying the contents of Memory Block 1E-5 on the system programming Terminal. (Refer to Section 330 for explanation of Memory Blocks.) After all previous steps have been checked and any problems corrected, the system programming can be completed. Using Job Specification sheets (supplied in Section 370) helps simplify the programming process.

CAUTION

Ensure the battery switch on the CPU-E ( ) ETU is turned ON.

The next step for the technician is to perform a Second Initialization (not a First Initialization). Performing a First Initialization a second time will cause all programming memory to be lost, whereas the Second Initialization “cleans out” or “refreshes” the system RAM without any loss of memory.

This completes the installation procedure for the Electra MarkII System. The technician should check the operation of each Multiline Terminal to ensure the system is working properly.

SECTION 540 TROUBLESHOOTING FLOW CHARTS

540.1 Problem Solving
To find the cause of a problem, first consider all the symptoms carefully. As each aspect of the problem is considered the technician is guided to a probable solution. It is imperative the problem be defined as accurately as possible, so the most efficient steps to a solution can be taken. The troubleshooting flow charts, in this section, will help define a problem and direct the technician through the troubleshooting steps.

1. System Down
   Although this term is used to describe many conditions, it will only be used in this section to describe one of the following situations:

   A. No access to intercom dial tone on any Multiline Terminal or Single Line Telephone installed.
   B. No LED indications or no display indications on any Multiline Terminal installed.
   C. No system tones are generated.

2. Partial Operation
   This term will refer to any situation which cannot be completely described under the conditions of a SYSTEM DOWN. (Refer to the index table listing these conditions.)

3. Reset Definition
   In the troubleshooting flow charts, the technician is at times directed to reset the station and/or ETU.

   A. Terminal Reset - Is accomplished by unplugging the station line cord from the station and then plugging it back in.
   B. ETU Reset - The ETUs are reset by turning the ON/OFF switch on the ETU to the OFF position and then turning it back ON. To give capacitors in the ETU time to discharge, allow some time before turning the switch back to the ON position.
   C. Remote Reset - For Terminal Reset use Memory Block 3D4 and for ETU Reset use Memory Block 3D3. Refer to Chapter 3 of this manual.

SECTION 550 SELF DIAGNOSTICS AND MAINTENANCE

NOTE: Some Self Diagnostics record the time and date of a particular occurrence. Therefore, it is suggested that the system time and date be programmed prior to any customized programming.

550.1 Self Diagnostic Function
The Electra MarkII CPU automatically checks for hardware and software errors. The detected errors are stored in the systems memory. This provides the installer or troubleshooter with the ability to retrieve error information to help diagnose and correct problems. This is accomplished using a local programming Multiline Telephone or can be accomplished remotely with a computer and modem via the RAA-E.

The following self check functions are supported:

1. System CPU initialize (Reset) History (Memory Block 5B1) - The history (time and type) of resets (errors) generated in the system can be retrieved from the system programming mode. The last ten resets are stored. (Initial power up is always the first reset stored.)
Five types of resets are recognized:

T1 Occurs the first time the system is turned on.
T2 Occurs during subsequent power failures.
T3 Occurs when the CPU recognizes a system error (abnormal reset).
T4 Occurs when the CPU reset button is depressed.
T5 Occurs when a first or second initialization is performed from a programming station.

5. Port Information (Memory Block 1E5):
The number of port data communication (PAW, PRW) errors for each port is stored (up to 99 errors) and can be retrieved from system programming mode.

NOTE: The error count stored in each Memory Block can be cleared.

550.2 Maintenance Function

1. Forced Initialization (Reset Memory Blocks 3D1, 3D2, 3D3 and 3D4) - In case certain troubles occur in the system, normal system operation may be restored by resetting the system or a particular interface ETU or Multiline Terminal from the system programming mode.

2. Software/Hardware Status Check
   A. Interface ETU (Memory Block 5B5) - Software/Hardware information of each slot is displayed.
   B. Terminal (Memory Block 5B6) - Software/Hardware information of each terminal is displayed.

3. Data Dump Read Only (Memory Block 5C2) - RAM and ROM data can be examined in increments of 1, 4, 6 or 8 bytes at a time.

4. System Data Change History (Memory Block 5C1)
   When the system program is altered, the last change made and the date and time at which it occurred is stored in system memory and can be retrieved from system programming mode.

5. Busy Out/Restore - In case trouble does occur in the system, the defective device(s) (interface card, MFR channel or terminal) can be disabled from the system programming mode.
## INDEX TABLE

<table>
<thead>
<tr>
<th>CONDITION</th>
<th>FLOW CHART NUMBER</th>
<th>PAGE NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. SYSTEM DOWN</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. No Internal Dial Tone To Any Multiline Terminal or Single Line Telephone.</td>
<td>A1</td>
<td>500-6</td>
</tr>
<tr>
<td>2. No LED or Display Indications on Any Multiline Terminal.</td>
<td>A2</td>
<td>500-7</td>
</tr>
<tr>
<td>3. No System Tones Are Available.</td>
<td>A3</td>
<td>500-8</td>
</tr>
<tr>
<td><strong>B. PARTIAL OPERATIONS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Central Office Line Problems:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Intermittent ring Problems.</td>
<td>C1</td>
<td>500-10</td>
</tr>
<tr>
<td>b. Calls Dropping.</td>
<td>C2</td>
<td>500-11</td>
</tr>
<tr>
<td>c. No Outside Dial Tone Access.</td>
<td>C3</td>
<td>500-12</td>
</tr>
<tr>
<td>d. CO Signaling Problem.</td>
<td>C4</td>
<td>500-13</td>
</tr>
<tr>
<td>3. Multiline Terminal Problems:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Terminal Function Problem.</td>
<td>D1</td>
<td>500-14</td>
</tr>
<tr>
<td>b. Ringing Problems.</td>
<td>D2</td>
<td>500-15</td>
</tr>
<tr>
<td>c. Dial Tone Access Problems.</td>
<td>D3</td>
<td>500-16</td>
</tr>
<tr>
<td>4. Single Line Telephone Problems:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. No Dial Tone Access.</td>
<td>E1</td>
<td>500-17</td>
</tr>
<tr>
<td>b. Ringing Problem</td>
<td>E2</td>
<td>500-18</td>
</tr>
<tr>
<td>c. No Dial Access To Features.</td>
<td>E3</td>
<td>500-19</td>
</tr>
<tr>
<td>5. Low Volume Problems.</td>
<td>F1</td>
<td>500-20</td>
</tr>
<tr>
<td>6. External Paging Problem.</td>
<td>G1</td>
<td>500-21</td>
</tr>
<tr>
<td>7. Station Message Detail Recording (SMDR) Problems (No Call Accounting System)</td>
<td>H1</td>
<td>500-22</td>
</tr>
</tbody>
</table>
No Internal Dial Tone To Any Multiline Terminal or SLT

Check All DC Voltages

No DC Voltage or incorrect DC voltage(s)

Check AC Power and the fuse.

Correct AC Power Problem

Pull out all connectors and printed circuit boards except for CPU-E( ), TSW-E( ) and the first installed ESI-E( ) in Module 1, associated with the programming station.

AC Power

Good

Replace Fuse(s)

Bad

Fuses

Good

Replace Corresponding Power Supply

Done

Yes

Problem solved?

No

Replace CCU

Bad

Rebuild system one card at a time until problem reappears. Replace defective card.

Dial Tone

Retest for dial tone on ESI-E( )

installed

No Dial Tone

Reset ESI-E( ); if trouble persists THEN replace ESI-E( )

Dial Tone

Retest for dial tone

No Dial Tone

Perform 2nd initialization. Replace TSW-E( ) and test. If problem is not solved, perform 1st initialization, replace CPU-E( ). Test system using default program.
No LED or Display Indications On Any Multiline Terminal

- Check All DC Voltages
  - Bad: Check AC Power and the fuse.
  - Good: Terminate one Multiline Terminal from Module 1, first ESI (programming station) directly on the MDF and test.

- Correct AC Power Problem
  - Bad: Replace Fuses(s)
  - Good: Replace Corresponding Power Supply

- Recheck station cabling
  - Yes: Multiline Terminal Indications
  - No: Pull out all ribbon connectors and printed circuit boards except the CPU-E( ), TSW-E( ) and the first installed ESI-E( ) in Module 1, associated with the programming station.

- No Indication
  - Retest for Indication on Multiline Terminal installed
  - Correct Indication: Rebuild system one card at a time. If problem reappears, replace defective card(s).
  - No indication: Replace ESI-E( )

- Retest for Indications
  - Correct Indications
  - No indication: Perform 2nd initialization. Replace TSW-E( ) and test. If problem is not solved, perform 1st initialization. replace CPU-E( ). Test system using default program.

- Done
  - Yes: Problem Solved?
  - Good: Replace CCU
No System Tones Are Available

Test for internal call processing

Internal Call Processing (No Internal Dial Tone)

- Not Working
  - Redefine problem and select the correct flowchart.
- Working

Check cables between TSW-E( ) and MMC-E's

Ribbon Cables?

- Bad
  - Replace MMC-E together with associated ribbon cable
- Good

Remove ribbon cables and check for tones in Module 1

Tones?

- Yes
  - Reinstall one ribbon cable on Mod 2 then test for problem
- No
  - Replace TSW-E

Retest Tones

- Tones
  - Perform 2nd initialization and test. If problem is not solved, perform 1st initialization, replace CPU-E( ). Test system using default program.
- No Tones
  - Reinstall remaining ribbon cables

Problem solved?

- Yes
  - Replace MMC Mod 3
- No
  - Replace MMC Mod 4
Radio Frequency Interference (RFI)

Test to see if interference is only during outside calls or anytime a station is off-hook.

- **RFI Occurrence**
  - On CO Calls Only
  - Multiline Terminal Off-Hook

- **Check cable of affected Multiline Terminal(s)**
  - More than 2 pair Twisted

- **Ground all unused pairs at MDF**

- **Twisted Pair Cable**
  - No
    - **Recable with 2-pair twisted cable**
  - Yes

- **2 Pair Twisted**

- **RFI Cleared:**
  - Yes
  - **End**
  - No

Follow the steps below, one at a time and test after each. (Refer to ETI No. MK-006 in Chapter 6.)

1. Place a 0.01 microfarad (μF) capacitor across the receiver element in the Multiline Terminal handset.

2. Place a 0.01 microfarad (μF) capacitor across pins 1 & 2 and pins 3 & 4 of the handset connector harness on the solder side of the main PC board in the Multiline Terminal.
**Intermittent Ring Problems**

Test to see if problem occurs on one line or several lines

1 Line Occurrence Several Lines

Check memory block 18 to ensure line is programmed to ring on an existing station

Ringing Assigned? Yes

Program ring Assignment and test

Corrected? No

End

Corrected? Yes

Run the following tests:

1. Measure CO ring voltage with AC meter (100 vat 20Hz) at the MDF.
2. Perform a second initialization.
3. Place an external ringer in front of the system on a worst case CO line. Find out if the customer can hear the external ringer at times when the system does not detect ringing on this line.
4. Replace TSW-E and test. If problem is not solved, perform 1st initialization, replace CPU-E ( ). Test system using default program.

Test to see if problem occurs on all Multiline Terminals assigned ringing

All Terminals Occurrence Not All Terminals

Replace at least one Multiline Terminal which has problems.

Replaced for Problem Not Cleared

Program the station for off-hook ring, DayNight ring and deny the DND feature. Test again.

Corrected? No

Done

Corrected? Yes

Check to see if lines affected can be isolated to one COI-E ETU

One COI-E( ) ETU? Yes

Reset COI-E( ) ETU and test. Replace COI-E( ) ETU

No

Check to see if lines affected can be isolated to one module

Same Module? No

Reset MMC-E ETU and test. Replace MMC-E ETU. Reset TSW-E ETU and test. Replace TSW-E ETU.

Yes

Done
Radio Frequency Interference (RFI)

Test to see if interference is only during outside calls or anytime a station is off-hook.

RFI Occurrence

On CO Calls Only

Check CO cabling into system at MDF

Multiline Terminal Off-Hook

No

RFI on CO Lines: Yes

Inform TELCO

No

More than 2 pair Twisted

Ground all unused pairs at MDF

Twisted Pair Cable

No

Relable with 2-pair twisted cable

Yes

RFI Cleared:

End

Follow the steps below, one at a time and test after each. (Refer to ETI No. MK-006 in Chapter 6.)

1. Place a 0.01 microfarad (µF) capacitor across the receiver element in the Multiline Terminal handset.

2. Place a 0.01 microfarad (µF) capacitor across pins 1 & 2 and pins 3 & 4 of the handset connector harness on the solder side of the main PC board in the Multiline Terminal.

End
Intermittent Ring Problems

Test to see if problem occurs on one line or several lines

1 Line Occurrence? Several Lines

Check memory block 1B to ensure line is programmed to ring on an existing station

Ringing Assigned? Yes

Program ring Assignment and test

Corrected? Yes

End

No

Test to see if problem occurs on all Multiline Terminals assigned ringing

All Terminals Occurrence? Not All Terminals

Replace at least one Multiline Terminal which has problems.

Return Detective Terminal for Repair

Reinstall ETU and test. If problem is not cleared, replace CPU-E ( ).

Reset MMC-E ETU and test. Replace MMC-E ETU. Reset TSW-E ETU and test. Replace TSW-E ETU.

Run the following tests:

1. Measure CO ring voltage with AC meter (100 vac 20Hz) at the MDF.

2. Perform a second initialization.

3. Place an external ringer in front of the system on a worst case CO line. Find out if the customer can hear the external ringer at times when the system does not detect ringing on this line.

4. Replace TSW-E and test. If problem is not solved, perform 1st initialization, replace CPU-E ( ). Test system using default program.

Done
CHAPTER 5
APRIL, 1990

C2
Call Dropping

Check to see if problem happens on all lines

No

Calls dropping on all lines?

Yes

Check to see if all lines drop at the same time

No

All lines together?

Yes

Check the outside line button indication after the call drops

CO line Button LED status

On

Off

Check COI-E LED

COI-E LED status

On

Off

Have Telco check line circuit(s)

Have Telco check the line circuits. Increase the Hit Protection Timer for the lines, Memory Block 4B-2 or 4B-7

1. Perform Second Initialization; if trouble persists, THEN
2. Replace COI-E( ) ETU, retest; if trouble persists THEN
3. Replace TSW-E( ) and Test

Problem Solved?

No

Perform 1st initialization. Replace CPU E( ) and test System using default program.

Yes

Return defective ETU for Repair

500 - 11
CHAPTER 5
APRIL, 1990

C3
No Outside Dial Tone Access

Multiline Terminal or SLT?
Both

Check Multiline Terminals for intercom dial tone.
1. Reset Multiline Terminal & Test.
2. Replace Multiline Terminal.

Check for intercom dial tone?
Yes

Intercom Dial Tone?
No

1. Reset ESI-E( ) & Test.
2. Replace ESI-E( ) & Test.

Go to Flowchart A1

Check Memory Block 1E-5 for status on MFR-EA and SLI-E( ).
1. Reset & Test MFR-EA.
2. Does Trouble Persist? THEN
3. Replace MFR-EA and Test.
4. Does Trouble Persist? THEN
5. Reset and Test SLI-E( )
6. Replace and Test SLI-E( )

Go to Flowchart A1
Leave 1 SLI( ), 1 ESI( ) and 1 MFR installed

Check Memory Block 1D-5 for station restriction.
2. Check Memory Blocks 2C-1,2&3 for CO assignment

Test for CO dial tone with a test set and check the CO wiring

CO Dial Tone?
Yes

If lines are ground start check conduit and frame ground to system

1. Reset and test. Replace COI-E( ) and test. If trouble persists, THEN
2. Reset and test. Replace MMC-E and test. If trouble persists, THEN
3. Reset and test. Replace TSW-E( ) and test. If trouble persists, THEN
4. Perform second initialization. If trouble persists, THEN
5. Perform 1st initialization. If trouble persist,
6. Replace CPU-E( ), and test during default program.

Have Telco check lines

500-12
CO Signaling Problem

Check lines with test set to see if they are DTMF or Rotary

- Rotary or DTMF?
  - Rotary or DTMF Program?
    - DTMF: Reprogram as Rotary (10 pps)
    - Rotary: Check Memory Block 48-1 to ensure line(s) are programmed for rotary (DP)
  - DTMF: Check lines with test set to see if they are DTMF or Rotary

- DTMF: Line Type Program?
  - Rotary: Check lines with a test set to see if they are DTMF or Rotary
  - DTMF: Check lines with a test set to see if they are DTMF or Rotary

- Rotate or DTMF?
  - DTMF: Reprogram lines for Rotary
  - Rotary: Monitor line with a test set and verify if system is sending digits correctly

- Digits sent correctly?
  - Yes: Monitor line with a test set and verify if system is sending digits correctly
  - No: 1. If lines are DTMF increase the DTMF duration in Memory Blocks 48-1 & 6
       2. If lines are Rotary choose the 10 pps option in Memory Blocks 48-1 & 6
       3. Check off-hook CO line current

- SLT Problem Only?
  - Yes: Check Memory Blocks 48-1 & 6, Lines programmed for DTMF or DP (Rotary)
  - No: Check Memory Blocks 48-1 & 6, Lines programmed for DTMF or DP (Rotary)

1. Reset COI-E and test. If trouble persists,
   THEN
2. Replace COI-E and test. If trouble persists,
   THEN
3. Reset MMC-E and test. If trouble persists,
   THEN
4. Replace MMC-E and test. If trouble persists,
   THEN
5. Reset TSW-E and test. If trouble persists,
   THEN
6. Replace TSW-E and test. If trouble persists,
   THEN
7. Perform 2nd initialization and test. If trouble persists,
   THEN
8. Perform 1st initialization and test. If trouble persists,
   THEN
Multiline Terminal Function Problems

1. Unplug terminal line cord.
2. Hold Down * and # keys together while plugging in line cord.
3. Depress each Terminal button to test tones, LED's and button contacts.
4. Return terminal on line by taking handset off hook then return on hook.

Perform Terminal Self Test:

- Reset and test. Replace defective Multiline Terminal; Test
- Connect Multiline Terminal directly to MDF and Test
- Send Multiline Terminal for repair
- Replace station cable
- Send ESI-E() in for repair

1. Reset MMC-E and test. If trouble persists, THEN
2. Replace MMC-E and test. If trouble persists, THEN
3. Reset TSW-T and test. If trouble persists, THEN
4. Replace TSW-E and test. If trouble persists, THEN
5. Perform 2nd initialization and test. If trouble persists, THEN
6. Perform 1st initialization and test. If trouble persists, THEN
7. Replace CPU-E().
Multiline Terminal Ringing Problems

Go to Flowchart C1

Problem Occurrence?

Intermittent

Consistent

Check to see if problem occurs on CO or internal calls*

Internal

Problem Occurrence?

CO

Both

Check to see if station is call forwarded or in DND

Yes

Station call forwarded/DND?

No

Cancel feature

Check and adjust volume control. Test

Is Problem Solved?

Yes

Done

No

Reset station then Reset ESI-E()

Is Problem Solved?

Yes

Done

No

Check Memory Block 1A for the correct line button assignment

Incorrect Assignment?

Yes

Reprogram

No

Check Memory Block 1B for both day and night ringing assignments

Incorrect Assignment?

Yes

Reprogram

No

Replace Multiline Terminal then ESI-E()

Send in Multiline Terminal for repair

Problem Solved?

Yes

No

1. Allow off-hook ring on station and test. If trouble persists, THEN
2. Disallow DND.

*NOTE: Internal calls include station to station as well as transferred calls.
D3

Multiline Terminal Dial Tone Access Problems

Check to see if problem occurs on CO or internal

- Go to Flowchart C3
- CO
- CO or Internal Dial Tone? Internal
  - Go to Flowchart A1
  - Both
  - Go to Flowchart A1

Go to Flowchart A1
No Dial Tone Access on SLT

Check Memory Block 4C-1 for Correct MFR-EA and SLI-E( ) assignments.

Is Problem Solved?

Yes: Reassign Assignment(s) Correct?

No: Replace SLT and test

Go to Flow Chart C3

Internal

Replace SLT and test

Return defective ETU for repair

Go to Flow chart A1
Leave 1 SLI-E(), 1 ESI-E(), and 1 MFR-EA installed
CHAPTER 5
APRIL, 1990

Ringing Problem on SLT

Replace SLI

Ringing Problem Solved?

Yes

SLT Defective

No

Check to see if ringing problem is intermittent

Intermittent Problem?

Yes

Check to see if SLT is call forwarded

No

Call Forwarded

Yes

Cancel Forwarding

Check RSG-E cabling and RSG-E output with an AC meter

RSG Test?

Pass

Replace RSG-E

Fail

Check BLF indication for station

Idle

BLF indication?

Busy

Terminate SLT on MDF

Check MDF Connection

Busy

BLF Indication?

Idle

Check or replace station cable

1. Check Memory Block 1F-5 for status
2. Change SLI-E() first; test
3. Change MMC-E or TSW-E; test
4. Perform 2nd Initialization
5. Perform first initialization; test
6. Change CPU-E( ); test using default program
No Dial Access to Features on SLT

Check to see if SLT can access intercom or CO dial tone

Access to dial tone?

Yes

Check memory Block 1D-7 for Class of Service assignment

Does Class of Service allow feature?

No

Reprogram COS to allow feature and test.

Yes

Check Memory Block 2E-1 for access code assignment of feature

Is correct code used?

No

Recheck feature access with correct code

Yes

Recheck SLT features operation selection to verify procedure for feature
Low Volume Problems

All Lines?

No

Is anything bridged on the CO line ahead of the system?

No

Move suspected bad line to a good COI-E( ) port and move a good line to the original COI-E( ) port.

Yes

Remove it.

All stations?

No

db level test should be run on lines with 1KHZ test tone (No less than -8db at MDF is required).

Yes

Replace Multiline Terminal

Port

Does problem stay with port or line?

Line

Reset COI-E( ) and test again

Check line with db meter and contact Telco

Problem Corrected?

Yes

Done

No

1. Reset; Replace MMC
2. Reset; Replace TSW
3. Perform 2nd initialization; test
4. Perform 1st initialization and test at default program
5. Replace CPU-E( )
External Paging Problem

- Amplifier Provided?
  - Yes
  - No
    - Amplifier is Needed

- 2 or more zones of Ext. Pages?
  - Yes
  - No
    - Check Memory Block ZE-1 for correct access code for paging (external not internal)

- Is ECR-E ETU installed?
  - Yes
    - Place Test Set on output of paging [TSW-E( )] with all external wiring removed
  - No
    - ECR-E ETU is needed for multizone paging
      - External amplifier or wiring is defective

- Is Ext. Page audible on test set?
  - Yes
  - No
    - Check Memory Block ZE-1 for correct access code for paging (external not internal)

1. Perform 2nd initialization and test
2. Replace TSW-E()
3. Perform 1st initialization and test
4. Replace CPU-E( ) and test using default program

Access code correct?
SMDR Output Problems (No Call Accounting System)

Is Problem with incoming call reports only?

Is Printer RS232C compatible?

SMDR requires an RS232C connection

Compare each of the following parameters between the printer and the SMDR-E:
1. Baud rate 300 - 4800
2. ASCII output
3. 7 bit word with 1 stop bit
4. Even parity

Parameter Match?

Set parameters correctly

Is SMDR-E ETU in option slot?

Must be installed in option slot

LED1 on SMDR-E ON or OFF?

Check ON/OFF switch on SMDR-E. If switch is off, turn switch on.

Test for proper operation

Check SMDR-E in another option slot

LED1 on SMDR-E ON or OFF?

Recheck in original slot

1. Check installation manual of RS232C cable connection
2. Run printer self test if available
3. Using a break-out box, check to see if pins 4 & 20 are logic high from printer to SMDR-E. Pins 4 & 20 must be high for SMDR to print.

1. Perform a 2nd. Initialization. If LED is still off, then;
2. Replace SMDR-E ETU. If LED is still off, then;
3. Replace CPU-E( ). ETU.
CHAPTER 6
ETIS
### ELECTRA MARKII

**ETI Bulletins**

<table>
<thead>
<tr>
<th>ETI NUMBER</th>
<th>DESCRIPTION</th>
<th>DATE</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MK-001</td>
<td>Plantronics JS-180 Jackset Connection</td>
<td>02/87</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>MK-002</td>
<td>Panasonic Autodialer Connection</td>
<td>03/87</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>MK-003</td>
<td>Genesis Genie Voice Mail System Connection</td>
<td>07/87</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>MK-004</td>
<td>DSS/BLF CO Add-On module Upgrade</td>
<td>08/87</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>MK-005</td>
<td>DASA D-480 Directory Dialer Connection</td>
<td>10/87</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>MK-006</td>
<td>Locating and Eliminating Radio Frequency Interference (RFI)</td>
<td>02/88</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>MK-007</td>
<td>Melco S-11 and Tone Commander TA-20 Handset Amplifier Connection</td>
<td>03/88</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>MK-008</td>
<td>Hayes 1200 Smart Modem Connection To: ETE-6D-1, ETE-16D, ETE-16K-1, or ETE-6-1</td>
<td>03/88</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>MK-009</td>
<td>Installation of Teltone M-106 Remote Service Access Unit For DISA</td>
<td>05/88</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>MK-010</td>
<td>Installation and Operation Of The Confer Six Party Digital Voice Conferencing Bridge Unit</td>
<td>05/88</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>MK-011</td>
<td>Connection Of Audio Tape Recorder</td>
<td>05/88</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>MK-012</td>
<td>AEC Two Channel Announcement Machine</td>
<td>12/88</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>MK-012A</td>
<td>AEC Two Channel Announcement Machine</td>
<td>04/90</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>MK-013</td>
<td>Installation of Fourth CCU Cabinet **</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MK-014</td>
<td>DEES Automatic Ground Start Unit</td>
<td>04/90</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>MK-015</td>
<td>Viking Door Release</td>
<td>04/90</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>MK-016</td>
<td>RAA-E Unit</td>
<td>04/90</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>MK-017</td>
<td>Viking Fax jack</td>
<td>04/90</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>MK-018</td>
<td>SoftCom Scout jr.</td>
<td>04/90</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>MK-019</td>
<td>Active Voice Repartee Voice mail</td>
<td>04/90</td>
<td>ACTIVE</td>
</tr>
</tbody>
</table>

** Included in Chapter 2 (Hardware Installation) of the Electra MarkII Installation Service Manual.
PLANTRONICS JS-180 JACKSET CONNECTION

1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the steps necessary to install an ADA-E (Ancillary Device Adapter) unit into an ETE-6D-1, ETE-16D-1, ETE-16K-1, or ETE-6-1 Multiline Terminal, to provide for connection and operation of a Plantronics Jackset (Model JS-180).

2. PARTS REQUIRED

2.1 ADA-E Unit Adapter Kit (Stock # 700340)
2.2 JS-180 Jackset
2.3 Compatible Headset
2.4 Electra Mark II Multiline Terminal

3. OPERATION

3.1 By moving the Jackset "Rocker Switch" to the ON position, the Electra Mark II Multiline Terminal will go into the OFF-HOOK condition. The operator can now talk over the headset, after depressing a CO or extension line key on the Multiline Terminal.

3.2 The call can be terminated by moving the "Rocker Switch" to the OFF position.

3.3 The Multiline Terminal is seen as OFF-HOOK when the Jackset is turned on, therefore, it may be desirable to program the Multiline Terminal for off-hook ringing.

4. PROCEDURE

4.1 Turn the Multiline Terminal upside down (face down) and locate the access panel on the bottom of the Multiline Terminal, refer to Figure 1.

4.2 Disconnect the modular line cord from under the telephone and from the RJ-11C/W jack.

4.3 Disconnect the modular handset cord from the lower housing.

4.4 Slide the directory out of the way (Not required for ETE-6-1 Multiline Terminal).
4.5 Removal of access panel (Perform only the step that applies, either 4.5.1 or 4.5.2) Refer to Figure 1.

4.5.1 ETE-6D-1, ETE-16D-1, or ETE-16K-1 Multiline Terminal; Insert flat screwdriver blade into notched opening (shown as A) and apply light upward pressure until access panel is cleared of the front lip, at the same time apply pressure (towards you) at the rear of the pedestal (shown as B) until the access panel moves towards you. Remove panel.

4.5.2 ETE-6-1 Multiline Terminal; depress the flexible notched tab (shown as C) on the access panel and apply upward pressure. Remove panel.

NOTE: Do not discard removed access panel; save for possible future use.

4.6 Locate the eight pin jack labeled "ADA", as seen through the access view of the Multiline Terminal housing.

4.7 Unplug the four pin connector ended harness (labeled "HAND") and extend it out from the housing access opening.

4.8 Set the Dip switches on the ADA-E unit as shown on Table 1 (See Figure 3). Place the jumper strap across ST2 and the center pin. Set SW1 to the "MAKE" position.

4.9 Make the jackset connections as indicated in Figure 3. Use one of the spade tipped jumper wires provided to make a connection between T6 and T8. Use a section of the tubing provided with the ADA-E Kit to insulate the remaining (unused) Jackset wires which must be separately insulated to prevent short circuits.

4.10 Locate and insert the four pin connector ended harness from CN2 on the ADA-E unit into the jack labeled "HAND".

4.11 Locate and insert the eight pin connector ended harness from CN1 on the ADA-E unit into the jack labeled "ADA".

4.12 Insert the four pin connector ended harness (removed in step 4.7) into the four pin jack, CN3, located on the ADA-E unit.

4.13 Install the ADA-E unit and secure it to the terminal housing with the screw provided, as shown in Figure 2.

4.14 Two access panels are provided with the ADA kit, the narrower panel is used with the ETE-6-1 model, the wider panel for all other models. Remove the plastic tongue on the underside of the access panel being installed (using a pair of pliers) to provide clearance for cables in the cable exit groove.

4.15 Place the Jackset cable into the cable exit groove (Figure 2) making certain that all wires are inside the terminal housing. Install the proper access panel.

4.16 Reinstall the modular handset and modular line cords.

4.17 If slid out of the way in step 4.4, slide the directory back into place.

4.18 Plug a compatible headset into the JS-180 and verify proper operation.
Unplug Line Cord

Flat Screwdriver Rinda

Apply Pressure and Slide Out the Access Panel

Remove Directory

Unplug Handset Cord

Apply Pressure and Slide Out the Access Panel

Figure 1 Access Panel Removal
Figure 2 ADA-E Unit Installation
Figure 3 ADA-E Unit Connections and Dip Switch Setting for Plantronics Jackset Model JS-180
PANASONIC AUTODIALER CONNECTION

1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the steps necessary to install an ADA-E (Ancillary Device Adapter) unit into an ETE-6D-1, ETE-16D-1, ETE-16K-1, or ETE-6-1 Multiline Terminal, to provide for connection and operation of a Panasonic Autodialer (Models KX-T1225/KX-T1235).

2. LIMITATIONS

2.1 The dialer must be manually turned OFF after the call is established.

2.2 The dialer cannot be used for intercom calls or for most functions requiring an access code.

2.3 The dialer bypasses both Toll Restriction and LCR.

2.4 The digits dialed, from the dialer, will not appear on the SMDR printout.

3. PARTS REQUIRED

3.1 ADA-E Unit Adapter Kit (Stock # 700340).

3.2 Panasonic Autodialer (KX-T1225/KX-T1235).

3.3 RJ-35X modular jack.

3.4 Eight small spade lugs.

3.5 Approximately 7 feet of four conductor station wire cable; enough to reach from the Multiline Terminal to the RJ-35X.

3.6 Electra Mark II Multiline Terminal.

4. OPERATION

4.1 Access an idle CO/PBX line.

4.2 On the Autodialer, depress the ON/OFF button; then depress the desired Speed Dial button.

4.3 Monitor the call through the speaker of the Autodialer.
4.4 When called party answers, lift the handset and converse.

4.5 After call is established, manually turn OFF the Autodialer by depressing its ON/OFF button.

5. **PROCEDURE**

5.1 Turn the Multiline Terminal upside down (face down) and locate the access panel on the bottom of the Multiline Terminal, refer to Figure 1.

5.2 Disconnect the modular line cord from under the telephone and from the RJ-11C/W jack.

5.3 Disconnect the modular handset cord from the lower housing.

5.4 Slide the directory out of the way (Not required for ETE-6-1 Multiline Terminal).

5.5 Removal of access panel (Perform only the step that applies, either 5.5.1 or 5.5.2) Refer to Figure 1.

5.5.1 ETE-6D-1, ETE-16D-1, or ETE-16K-1 Multiline Terminal; Insert flat screwdriver blade into notched opening (shown as A) and apply light upward pressure until access panel is cleared of the front lip, at the same time apply pressure (towards you) at the rear of the pedestal (shown as B) until the access panel moves towards you. Remove panel.

5.5.2 ETE-6-1 Multiline Terminal; depress spring loaded notched tab (shown as C) on the access panel and apply upward pressure. Remove panel.

NOTE: Do not discard removed access panel. While it will not be used at this time, save for possible future use.

5.6 Locate the eight pin jack labeled "ADA", as seen through the housing access opening of the Multiline Terminal housing.

5.7 Unplug the four pin connector ended harness (labeled "HAND") and extend it out from the housing access opening, of the Multiline Terminal.

5.8 Set the Dip switches on the ADA-E unit as shown on Table 1 (See Figure 3). Place the jumper strap across ST2 and the center pin. Set SW1 to the "BREAK" position.

5.9 Remove approximately 3 inches of outer insulation from both ends of the 4 conductor station wire cable and strip off ¼ inch of wire insulation from each of the four wires; solder or crimp a spade lug to each wire end.

5.10 Make the RJ-35X connections as indicated in Figure 3 using the prepared 4 conductor station wire cable. Use one of the two spade tipped jumper wires provided with the ADA kit to make a connection between T1 and T5; connect the other jumper wire between T2 and T4 on the ADA E unit.

5.11 Locate and insert the four pin connector ended harness from CN1 on the ADA-E unit into the jack labeled "HAND" in the Multiline Terminal.

5.12 Locate and insert the eight pin connector ended harness from CN1 and CN2 on the ADA-E unit into the jack labeled "ADA" in the Multiline Terminal.

5.13 Insert the four pin connector ended harness (removed in step 5.7) into the four pin jack, CN3, located on the ADA-E unit.
5.14 Install the ADA-E unit and secure it to the terminal housing with the screw provided, as shown in Figure 2.

5.15 Two access panels are provided with the ADA kit, the narrower panel is used with the ETE-6-1 Multiline Terminal, the wider panel for all other Terminals. Remove the plastic tongue on the underside of the access panel being installed (using a pair of pliers) to provide clearance for cables in the cable exit groove.

5.16 Place the RJ-35X cable into the cable exit groove (Figure 2) making certain that all wires are inside the terminal housing. Install the proper access panel.

5.17 Reinstall the modular handset and modular line cords.

5.18 If slid out of the way in step 5.4, slide the directory back into place.

5.19 Plug the modular line cord of the Autodialer into the RJ-35X receptacle.

5.20 Plug in the Autodialer AC Adapter, first into the Autodialer and then into the nearest AC outlet.

5.21 Test both the Autodialer and the Multiline Terminal for proper operation.
Figure 1 Access Panel Removal
Figure 3 ADA-E Unit Connections and Dip Switch Setting for Panasonic Autodialer Models KX-1225/1235.
GENESIS GENIE VOICE MAIL SYSTEM CONNECTION PROCEDURE

1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the procedure for connecting the Genesis Genie Voice Mail System to the Electra MarkII system via the VMI-E ETU.

NOTE: Before undertaking this procedure, the installer should be familiar with the Genesis Genie, Technical reference manual and Chapter 8 of the Electra MarkII Installation Service Manual.

2. PARTS REQUIRED

2.1 VMI-E ETU (An MFR-EA ETU and an RSG-E unit associated with the CCU in which the VMI-E ETU is installed are also required).


2.3 A serial computer terminal (The NEC PC8201A or PC8300 portable computers are recommended).

2.4 RS232C Null Modem cable (Pins 2 and 3 reversed).

2.5 Modular Line Cords (2), RJ11C/W connectors and cable.

3. OPERATION

After installation and programming are completed, users of the Electra MarkII will be able to access the Genie system from any internal extension either by Hunt Group Access (Default Code 63) or by dialing one of the VMI extensions directly.

Once a call is placed into the Genie system, the user is directed by the audible menu prompts of the Genie on how to access the various features available. For a complete explanation of the features available with the Genesis Genie Voice Mail System, refer to the Genie System User's Guide and System Manager's Guide.

4. PROCEDURE

4.1 Connection

4.1.1 Install the VMI-E ETU in an available interface slot, in a CCU which is supported by an RSG-E unit.
4.1.2 The Genie Voice Mail System provides two ports (AIUs) for Voice Mail Access. These ports connect to two (of the four available) VMI-E extension positions. These VMI-E extensions should be cross-connected from the appropriate J block on the MDF and connected to an RJ11C connector to facilitate connection to the Genie using modular line cords (See Figure 1).

Figure 1. Genie Connection Block Diagram

4.2 Electra Mark II System Programming

4.2.1 If the VMI-E ETU is being added to an existing system in an interface slot previously occupied by a different type of ETU, it is necessary to assign the interface slot to be used for the VMI-E ETU in Memory Block 4C1. (Refer to Chapter 3 of the Installation/Service Manual).

4.2.2 The two voice mail extensions connected to the Genie System can be programmed in the Voice Mail Hunt Group in Memory Block 2C4. (Refer to Chapter 3 of the Installation/Service Manual).

4.3 Installing/Initializing Genie

NOTE: Ensure both the Genie and the computer terminal power switches are turned off.

4.3.1 Configure the serial computer terminal to be used with the Genie as follows:
- 8-bit word length
- no parity (ignore parity on some terminals)
- 1 stop bit
- auto-line feed off
- full duplex
- 1200 baud
4.3.2 Connect the terminal to Genie RS232C cable connector using an RS232C null modem cable (pins 2 and 3 reversed) and ensure the switch is set to **TERMINAL/PRINTER** (See FIGURE 1).

4.3.3 Apply power to the terminal.

4.3.4 Apply power to the Genie (The System Diagnostic message should appear on the terminal).

4.3.5 Refer to the Genie Technical Reference Manual for setup information.

**NOTE:** Genie BAUD Rate Settings

The Genie RS232C port is pre-set for 1200 baud. If the terminal being used cannot be configured for 1200 baud, Genie's baud rate can be changed to 300, 2400 or 9600 as follows:

- Remove Genie's top cover by removing four (4) screws (two on top and two on the bottom).
- Remove Genie's front cover (shown in Figure 1) by removing four (4) screws (two on top and two on the bottom) holding the cover in place and the two HEX screws securing the RS232C connector to the front cover.
- Locate the CPU card (the lowest PCB with two ribbon cables attached).
- Disconnect the two ribbon cables from the CPU card.
- Remove the CPU card. **HANDLE THE CPU CARD BY THE EDGES ONLY.**
- Locate the Baud Rate Jumper Block #2 on the CPU card (near the ribbon cable connectors).
- Move the jumper to the desired baud rate setting.

<table>
<thead>
<tr>
<th>JUMPER LOCATION MARKING</th>
<th>BAUD RATE SELECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>96</td>
<td>9600</td>
</tr>
<tr>
<td>48</td>
<td>300</td>
</tr>
<tr>
<td>24</td>
<td>2400</td>
</tr>
<tr>
<td>12</td>
<td>1200</td>
</tr>
</tbody>
</table>

- Reinstall the CPU card. **Again, be careful to handle the CPU by the edges only.**
- Reconnect the two ribbon cables to the CPU card.
- Replace the front and top covers.

---

**Figure 2. RS232C Communications Terminal Interface**
1. DESCRIPTION

This Engineering Technical Information (ETI) procedure describes the steps necessary to upgrade existing EDE-30-1 Revision A ( ) units to revision B. EDE-30-1 revision B units can be used as either a DSS/BLF Console or as a CO ADD-ON Module.

2. LIMITATIONS

Only EDE-30-1 units in boxes marked with a uP on the outside of the box, after the revision level, can be upgraded to revision B using the information contained in this ETI procedure.

3. PARTS REQUIRED

3.1 Microprocessor D75104CW 063 and revision labels provided with each EDE-30-1 unit by NEC America, Inc.
   3.1.1 Three revision B labels.
   3.1.2 One revision 3 label.

3.2 Anti-static wrist band and grounding strap (3M Model 2213 or similar, locally provided).

3.3 Anti-static mat (3M Model 8501 or similar, locally provided).

3.4 Chip insertion/extraction tool (locally provided).

CAUTION: Microprocessors and some other chips used on the EDE-30-1 unit are static sensitive devices. Proper care in handling is necessary to assure that neither the microprocessor nor the printed circuit board (PCB) is damaged. This procedure minimizes the possibility of damage due to static electricity discharge.

4. SET UP PROCEDURE

4.1 Attach the anti-static mat to earth ground.

4.2 Put on the anti-static wrist band and attach the band to the anti-static mat.

4.3 Unpack the new microprocessor and labels provided.
5. **PROCEDURE**

5.1 Verify that the revision level stamped on the EDE-30-1 unit packing box is A( ). Only packing boxes with a **uP** stamped after the revision level contain the microprocessor required to upgrade the EDE-30-1 to revision B. For location of revision level, see Figure 1B.

5.2 Turn the EDE-30-1 unit face down and loosen the cross head retaining screw located at the bottom of the EDE-30-1 housing (See Figure 1A).

5.3 Refer to Figure 1A and separate the lower and upper housing halves of the EDE-30-1 unit by applying inward pressure to the upper half while at the same time lifting up on the lower half.

5.4 Using the chip extraction/insertion tool remove the installed microprocessor IC1 from its socket (Refer to Figure 2). Follow the IC extractor manufacturer's recommended procedure.

5.5 Using the same tool as in step 5.4, and following the IC insertion tool manufacturer's recommended procedure, insert the supplied microprocessor into the IC1 chip socket. Observe IC polarity and ensure that the IC pins are not bent and that all pins are properly inserted in the IC socket (Refer to Figure 2).

5.6 Using the revision 3 label provided, change the revision number on the PCB to REV 3 (See Figure 2).

5.7 Use a revision B label and change the revision level on the outside of the bottom half of the EDE-30-1 unit (See Figure 1C). Affix the other two revision B labels to the outside of the packing box, in two places, following the lot number (See Figure 1B).

5.8 Reassemble the upper and lower housing halves of the EDE-30-1 unit.

5.9 Test the unit for proper operation both as a DSS/BLF Console and as a CO ADD-ON Module. Refer to the Electra MarkII Installation Service Manual, Chapter 3, for programming instructions and Chapter 4, Station Operation, for operating instructions.
Loosen Screw (step 5.2)

Lift Up and Separate Upper and Lower Halves (step 5.3)

Apply Inward Pressure (step 5.3)

Loosen Screw (step 5.2)

Upper Half

Lower Half

A. EDE-30-1 Unit Side View

B. EDE-30-1 Unit Packing Box

Verify Revision Level Stamped on the outside of box (steps 5.1, 5.7).

C. EDE-30-1 Unit Bottom View

Paste Revision Label on the Underside of EDE-30-1 Unit (step 5.7).

Figure 1 Separating Upper and Lower Housing Halves of EDE-30-1 Unit and Locating Revision Level Label.
Figure 2 View of EDF-30-1 Unit PCB
DASA D-4800 DIRECTORY DIALER CONNECTION

1. DESCRIPTION
This Engineering Technical Information (ETI) Bulletin describes the steps necessary to install an ADA-E (Ancillary Device Adaptor) into an ETE-6D-1, ETE-16D-1, ETE-16K-1, or ETE-6-1 Multiline Terminal, for the connection and operation of a DASA Directory Dialer (Model D-4800). It also provides the information required to connect the DASA Directory Dialer to the ADA-E unit and to get it ready for programming.

2. LIMITATIONS
2.1 You must depress the CLEAR button on the D-4800 dialer, after a connection to a CO line is established and station goes off hook, to release the dialer from the line.

2.2 The dialer cannot be used for internal calls or for any system feature function requiring a dial access code.

3. PARTS REQUIRED
3.1 ADA-E Adaptor kit. (Stock #700340)
3.2 DASA D-4800 Directory Dialer.
3.3 RJ-35X modular jack.
3.4 Approximately 6 feet of four conductor station wire; to reach from the Multiline Terminal to the RJ-35X.
3.5 Four small spade lug terminals (to fit wires in step 3.4).
3.6 Electra MarkII Multiline Terminal.

4. PROCEDURE
4.1 Disconnect the modular handset cord from the lower housing.
4.2 Disconnect the modular line cord from under the terminal and from the RJ-13C/W jack.
4.3 Turn the Multiline Terminal upside down (face down) and place it on a flat surface (refer to Figure 1).
4.4 Slide the directory out of the way (Not required for ETE-6-1 Multiline Terminal).
4.5 From one end of the station cable provided (step 3.4) remove approximately 4 inches of outer insulation and strip off ¼ inch of the inner insulation from each of the four wires. To each conductor fasten one of the spade lugs locally provided, either by soldering or crimping.

4.6 To remove the access panel, perform only the step that applies, either 4.6.1 or 4.6.2 (Refer to Figure 1).

4.6.1 ETE-6D-1, ETE-16D-1, or ETE-16K-1 Multiline Terminal; Insert a flat screwdriver blade into notched opening (shown as A) and apply light upward pressure until the access panel clears the front lip, at the same time apply pressure (toward you) at the rear of the pedestal (shown as B) until the access panel moves toward you. Remove panel.

4.6.2 ETE-6-1 Multiline Terminal; Depress the flexible notched tab (shown as C) on the access panel and apply upward pressure. Remove panel.

NOTE: Do not discard removed access panel: save for possible future use.

4.7 Locate the four pin connector and jack labeled HAND (as seen through the access view of the Multiline Terminal housing). Unplug this connector and extend it out from the housing access opening.

4.8 Set the SW2 Dip switches, on the ADA-E unit, as shown in Table 1 of Figure 2. Place the jumper across pin ST2 and the center pin. Set SW1 to the BREAK position.

4.9 Make the wiring connections as indicated in Figure 2. The connections between T1 & T5 and between T2 & T4 are made with the jumper wires provided in the ADA-E kit. If necessary, use a section of the clear plastic tubing provided in the ADA-E kit to insulate the connections.

4.10 Locate and insert the four pin connector ended harness from the ADA-E unit into the jack labeled HAND on the Multiline Terminal.

4.11 Locate and insert the eight pin connector ended harness from the ADA-E unit into the jack labeled ADA on the Multiline Terminal.

4.12 Insert the four pin connector ended harness (removed in step 4.7) into the four pin jack, CN3, located on the ADA-E unit.

4.13 Install the ADA-E unit with the component side down ensuring the wires are not pinched. Secure the ADA-E unit to the terminal housing with the screw provided as shown in Figure 3.

NOTE: Two access panels are provided with the ADA-E kit; a narrow panel to be used with ETE-6-1 Multiline Terminals and a wide panel to be used with all other terminals. Ensure the correct access panel is used.

4.14 Route the locally provided station wire (already connected to the ADA-E unit) through one of the two notched grooves on the access panel. Install the access panel.

4.15 Install the RJ-35X block in a convenient location. Connect the station cable from the ADA-E unit to the RJ-35X block, connecting Red to Red, Green to Green, etc.

4.16 Plug the modular cord from the Autodialer into the RJ-35X receptacle.

4.17 Slide the directory back into place, if required.
4.18 Reinstall the handset and modular line cords onto the Multiline Terminal.

5. **OPERATION**

**NOTE:** The following is the *current* operation of the D-4800 Autodialer.

5.1 Refer to the D-4800 Users Guide for programming and operation instructions.

5.2 Apply power to the Autodialer by first connecting the Autodialer AC adaptor to the Autodialer, then plugging it into a convenient AC outlet (the Autodialer does not have an ON/OFF switch).

   Autodialer display shows: **DIRECTORY DIALER**

**NOTE:** Steps 5.3 thru 5.9 refer to the Autodialer's keyboard and display.

5.3 Depress the **CLEAR** and **SPACE** buttons.
   The display shows: **SETUP:**

5.4 Type **INIT** and depress the **ENTER** button.
   The display shows: **INITIALIZE? (Y)**

5.5 Type **Y.**
   The display shows: **ARE YOU SURE? (Y)**

5.6 Type **Y.**
   Display shows: **TESTING MEMORY** and then changes to **DIRECTORY DIALER**

5.7 Depress the **CLEAR** and **SPACE** buttons.
   Display shows: **SETUP:**

5.8 Type **AUXMODE** and depress the **ENTER** button.
   Display shows: **AUX 1-ON 2-OFF**

5.9 Type **1.**
   Display shows: **DIRECTORY DIALER**

**NOTE:** The Autodialer is now ready for programming with instructions provided in the D-4800 Users Guide.

5.10 Program the Autodialer.

5.11 After programming the Autodialer, test both the Autodialer and the Multiline Terminal for proper operation.
Unplug Line Cord

Flat Screwdriver Blade

Apply Pressure and Slide Out the Access Panel

Remove Directory

Unplug Handset Cord

Apply Pressure and Slide Out the Access Panel

Figure 1 Access Panel Removal
Figure 2 ADA-E Connections and Switch Positions for DASA Directory Dialer Model D-4800

<table>
<thead>
<tr>
<th>SWITCH</th>
<th>POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>OFF</td>
</tr>
<tr>
<td>2</td>
<td>OFF</td>
</tr>
<tr>
<td>3</td>
<td>ON</td>
</tr>
<tr>
<td>4</td>
<td>ON</td>
</tr>
<tr>
<td>5</td>
<td>OFF</td>
</tr>
<tr>
<td>6</td>
<td>ON</td>
</tr>
<tr>
<td>7</td>
<td>OFF</td>
</tr>
<tr>
<td>8</td>
<td>OFF</td>
</tr>
</tbody>
</table>
Figure 3 ADA-E Installation
LOCATING AND ELIMINATING RADIO FREQUENCY INTERFERENCE (RFI) ON ELECTRA MARKII INSTALLATIONS

1. DESCRIPTION

The Electra MarkII is a digital communications system, and under normal conditions is immune to radio frequency interference. However, in areas with very strong RFI fields, the Electra MarkII may be affected. This Engineering Technical Information (ETI) Bulletin describes the steps necessary to eliminate radio frequency interference. This modification procedure should be implemented only to the portion of the system experiencing RFI.

2. INSTALLATION CONSIDERATIONS

2.1 AC GROUNDING: The AC circuit used to power the Electra MarkII system must be a dedicated circuit with a ground provided through the AC outlet wiring, back to the main entrance power panel. This method of grounding prevents certain types of equipment (such as arc welders, which may generate RFI) from coupling RFI to the Electra MarkII system via the AC wiring.

2.2 OTHER GROUND: If a suitable ground is not available at the AC outlet, an earth ground rod or cold water pipe ground must be used. This ground must be connected to the ground lug provided on the ESE-32B-1 CCU via 12AWG wire, minimum. When using a cold water pipe for ground, ensure that the water pipe is providing earth ground. If the water pipe is not common to earth ground, it may act as an antenna, coupling RFI to the system. If there is any doubt about the available ground, an earth ground rod should be installed in accordance with local Telephone Operating Company procedures.

Grounding the Electra MarkII system, to both AC circuit ground and cold water pipe ground or a ground rod, may cause a ground loop, leading to sporadic system operation if the two grounds are at different potentials. Multiple ground connections are not recommended.

2.3 UNUSED WIRE PAIRS: Any unused wire pairs in the station cables (and the 25 pair J cable) should be connected to a confirmed earth ground, at the MDF side. Grounding the spare wires (in the station cable) at both ends of the cable run may cause the spare wires to act as an antenna, if the two grounds are at different potentials, and is therefore not recommended.

3. LOCATING THE RFI SOURCE:

Prevailing conditions at each site are rarely the same, therefore, there are no specific guide lines to follow in locating RFI sources. The primary task is to identify the area(s) where RFI is being induced to the Electra MarkII system. In some instances, RFI may be introduced into the system at more than one place. The major areas in the Electra MarkII to be investigated, to locate RFI input, are:

- Station handset
- Station line cord
Some RFI conditions cannot be addressed in this bulletin due to the many possible variables involved. These variables are generally particular to each site and require that pertinent data be known, such as the frequencies involved. In situations where RFI is still present after following the instructions provided in this bulletin, contact your local NEC America, Inc. SBS Field Support Engineer for further assistance in resolving the RFI condition.

If RFI is present during CO (outside) calls, check for RFI at the Telephone Company on site demarcation terminal, with the Electra MarkII system isolated from the demarcation terminal. If RFI is present at the demarcation terminal, contact the local Telephone Operating Company.

If RFI is not present at the demarcation terminal, reconnect the Electra MarkII system and go off-hook at a Multiline Terminal with RFI present in the handset and stretch the handset cord. If RFI changes (increases or decreases in amplitude) when the handset cord is stretched, modify the Multiline Terminal as outlined in step 4. If RFI does not change, contact your local NEC America, Inc., SBS Field Support Engineer.

4. PROCEDURE - RFI LOCALIZED TO THE HANDSET

4.1 Disconnect the modular cord from the handset.

4.2 Open the handset (See Figure 1).
   4.2.1 Remove two screws from the inside grip of the handset.
   4.2.2 Set the handset face down (transmitter and receiver facing down) over a solid, clean surface. Place the fingers of one hand under the transmitter end and with the thumb of the same hand apply downward pressure to the center of the handset grip. With the other hand, at the receiver end, separate the handset halves.

4.3 Inside the handset half containing the receiver and transmitter elements, loosen the screws holding the leads to the receiver and transmitter elements. Obtain two .01μF ceramic disk capacitors and cut both capacitor leads approximately ¼ inch in length as shown in Figure 1. Install one .01μF ceramic disk capacitor across the receiver element and another .01μF ceramic disk capacitor across the transmitter element. Use plastic sleeving over the capacitor leads to prevent electrical shorts. Tighten the screws and secure all leads. (See Figure 1).

4.4 Join both halves of the handset and secure with two screws (Removed in 4.2.1).

4.5 Connect the modular handset cord and test the station for RFI and normal audio levels. If RFI is still present, continue to step 4.6.

4.6 Open the handset (Refer to 4.2).

4.7 Solder a length of insulated, single strand wire to each lead of a .01 μF ceramic disk capacitor. Ensure the wire is the same gauge as the capacitor leads and long enough for one capacitor lead to reach one of the transmitter element screws and the other capacitor lead to reach one of the receiver element screws inside the handset (See Figure 1). Use shrink sleeving over the prepared capacitor leads to prevent electrical shorts. Inside the handset half containing the receiver and transmitter elements, loosen one screw from each element (transmitter and receiver) and install the .01 μF ceramic disk capacitor between the transmitter and receiver elements.

4.8 Join both halves of the handset and secure with two screws (Removed in 4.2.1)
4.9 Connect the modular handset cord and test the station for RFI and normal audio levels. If RFI is still present, open the handset, remove the capacitor between the transmitter and receiver elements, and join both handset halves. Continue to step 4.10.

Figure 1  Handset with all Three Capacitors Installed
4.10 Disconnect the modular line cord from under the Multiline Terminal and from the RJ-13C/W jack.

4.11 Disconnect the modular handset cord from the lower housing.

4.12 Turn the Multiline Terminal upside down (face down) and place it on a flat clean surface.

4.13 Slide the directory out of the way (Not required for ETE-6-1 Multiline Terminal).

NOTE: When modifying an ETE-6-1 Multiline Terminal, start with step 4.14.
When modifying an ETE-6D-1, ETE-16D-1, or ETE-16K-1 Multiline Terminal, start with step 4.15.

4.14 ETE-6-1 MULTILINE TERMINAL ONLY

4.14.1 From the bottom of the lower housing, loosen two captive screws and separate the upper and lower housings. Set the lower housing aside.

4.14.2 From the upper housing, remove the volume slide control handle and set it aside.

4.14.3 Disconnect the flat ribbon cable at the main PC board connector.

4.14.4 Remove three screws securing the main PC board to the housing; lift and turn the main PC board over (with solder side facing up) and place it on top of the speaker.

4.14.5 Solder two .01µF ceramic disk capacitors on the solder side of the handset connector designated HAND on the main PC board; one capacitor across pins 1 & 2 and the other across pins 3 & 4. Use plastic sleeving over the capacitor leads to prevent electrical shorts. KEEP THE LEADS AS SHORT AS POSSIBLE. (See Figure 2).

4.14.6 Position the PC board in place and secure with three screws (Removed in 4.14.4).

4.14.7 Connect the flat ribbon cable to the PC board connector (Disconnected in 4.14.3).

4.14.8 Position the volume slide control in place; ensure the modular line cord connector and hookswitch levers are positioned properly. Join the upper and lower housings and tighten two captive screws.

4.14.9 Proceed to 4.17.

4.15 ETE-6D-1, ETE-16D-1, or ETE-16K-1 MULTILINE TERMINALS

4.15.1 From the bottom of the lower housing, loosen two captive screws and separate the upper and lower housings. Set the lower housing aside.

4.15.2 From the upper housing, remove the volume and display intensity slide control handles; set them aside.

4.15.3 Disconnect two flat ribbon cables at the main PC board connector.

4.15.4 On ETE-6D-1 or ETE-16D-1 Multiline Terminals, remove six screws securing the main PC board to the housing; lift and turn the main PC board over (with solder side facing up) and place it on top of the speaker. On ETE-16K-1 Multiline Terminal, remove three screws securing the main PC board to the housing; disconnect the speaker plug, lift and turn the PC board (with solder side facing up) and set it on the opposite side of the speaker.
4.15.5 Solder two .01µF ceramic disk capacitors to the solder side of the handset connector designated HAND on the main PC board; one capacitor across pins 1 & 2 and the other across pins 3 & 4. Use plastic sleeving over the capacitor leads. KEEP THE LEADS AS SHORT AS POSSIBLE. (For ETE-6D-1 or ETE-16D-1 Terminals, see Figure 3. For ETE-16K-1 Terminal, see Figure 4.)

4.15.6 Position the PCB board in place and secure with six screws (ETE-16K-1 has only three screws) (Removed in 4.15.4).

4.15.7 Connect two flat ribbon cables to the PCB connector (Disconnected in 4.15.3). On ETE-16K-1 Terminal, connect the speaker plug to the speaker connector.

4.15.8 Position the volume and display intensity slide control handles in place; ensure the modular line cord connector and hookswitch levers are positioned properly. Join the upper and lower housings; tighten two captive screws.

4.16 Slide the Multiline Terminal directory back into place.

4.17 Install the handset and modular line cords into the Multiline Terminal, and RJ-13CW jack.

4.18 Ensure that the station operates normally. If RFI is still present, contact your local NEC America Inc., SBS Field Support Engineer.
Figure 2 Solder Side View of ETE-6-1 Main PCB
Figure 3 Solder Side View of ETE-6D-1 or ETE-16D-1 Main PCB
Figure 4 Solder Side View of ETE-16K-1 Main PCB
MELCO S-11 AND TONE COMMANDER TA-20 HANDSET AMPLIFIER CONNECTION PROCEDURE

1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the steps necessary to install an ADA-E (Ancillary Device Adaptor) unit into an ETE-6D-1, ETE-16D-1, ETE-16K-1, or ETE-6-1 Multiline Terminal, to provide for connection and operation of a MELCO Model S-11 or a Tone Commander Model TA-20 handset amplifier.

2. PARTS REQUIRED

2.1 ADA-E Unit Adaptor kit (Stock # 700340)

2.2 MELCO Model S-11 or Tone Commander Model TA-20 Handset Amplifier, locally provided. (Both amplifiers are available with spade lug or modular ended wire harness. Use the spade lug ended type only.)

2.3 Appropriate Electra MarkII Multiline Terminal

3. PROCEDURE

3.1 Disconnect the modular line cord from under the terminal and from the RJ-13C/W jack.

3.2 Disconnect the modular handset cord from the lower housing.

3.3 Turn the Multiline Terminal upside down (face down) and place it on a flat clean surface (refer to Figure 1).

3.4 Slide the directory out of the way (Not required for ETE-6-1 Multiline Terminal).

3.5 To remove the access panel, perform only the step that applies, either 3.5.1 or 3.5.2 (Refer to Figure 1).

3.5.1 ETE-6D-1, ETE-16D-1, or ETE-16K-1 Multiline Terminal: Insert a flat screwdriver blade into notched opening (shown as A) and apply light upward pressure until the access panel clears the front lip, at the same time apply pressure (toward you) at the rear of the pedestal (shown as B) until the access panel moves toward you. Remove panel.

3.5.2 ETE-6-1 Multiline Terminal: Depress the flexible notched tab (shown as C) on the access panel and apply upward pressure. Remove panel.

NOTE: Do not discard removed access panel; save for possible future use.
3.6 Locate the four pin connector and jack labeled HAND (as seen through the access view of the Multiline Terminal housing). Unplug this connector and extend it out from the housing access opening.

3.7 On the ADA-E Unit, set the Dip switches (SW2) as shown in Table 1 (See Figure 2). Place the jumper across the center pin and the pin labeled ST2; set switch SW1 to the BREAK position.

3.8 Make the handset amplifier connections as indicated in Figure 2. Insulate connections with the tubing provided, if necessary.

**NOTE:** The green lead provided in the Melco-S11 amplifier wire harness has a female connector that cannot be connected directly to the T-11 terminal. Use one of the double ended spade lug short jumper wires provided in the ADA-E kit and connect one end of the jumper wire to the female connector of the green lead and the other end to the T-11 terminal. Use tape to insulate the connection.

3.9 Locate and insert the four pin connector ended harness from the ADA-E unit into the jack labeled HAND on the Multiline Terminal.

3.10 Locate and insert the eight pin connector ended harness from the ADA-E unit into the jack labeled ADA on the Multiline Terminal.

3.11 Insert the four pin connector ended harness (removed in step 3.6) into the four pin jack, CN3, located on the ADA-E unit.

3.12 Install the ADA-E unit with the component side down ensuring the wires are not pinched. Secure the ADA-E unit to the terminal housing with the screw provided as shown in Figure 3.

**NOTE:** Two Access Cover Panels are provided with the ADA-E Unit, the narrower panel is for the ETE-6-1 Multiline Terminal, the wider panel is for all other Multiline Terminals.

3.13 Place the handset amplifier wiring into the cable exit groove (Figure 3) making certain that all wires are inside the housing. Install the correct access cover assembly.

**NOTE:** The handset amplifier may be mounted to the side of the Multiline Terminal with double sided foam tape or any other secure method of your own choosing.

3.14 Reinstall the handset and modular line cords.

3.15 If slid out of the way in step 3.4, slide the directory back into place.

3.16 Adjust the amplifier volume control and test the Multiline Terminal and amplifier for proper operation.
Figure 1 Access Panel Removal
Table 1
DIP SWITCH (SW2) SETTING FOR HANDSET AMPLIFIERS

<table>
<thead>
<tr>
<th>SWITCH</th>
<th>POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ON</td>
</tr>
<tr>
<td>2</td>
<td>ON</td>
</tr>
<tr>
<td>3</td>
<td>OFF</td>
</tr>
<tr>
<td>4</td>
<td>ON</td>
</tr>
<tr>
<td>5</td>
<td>OFF</td>
</tr>
<tr>
<td>6</td>
<td>OFF</td>
</tr>
<tr>
<td>7</td>
<td>OFF</td>
</tr>
<tr>
<td>8</td>
<td>OFF</td>
</tr>
</tbody>
</table>

NOTE: Colors in ( ) indicate wiring for the Tone Commander TA-20 Amplifier.

Figure 2 ADA-E Unit Connections and Switch Positions for Melco S-11 and Tone Commander TA-20 Handset Amplifiers
Figure 3 ADA-E Unit Installation
HAYES® 1200 SMART MODEM CONNECTION TO:
ETE-6D-1, ETE-16D-1, ETE-16K-1, or ETE-6-1

1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the steps necessary to install an ADA-E (Ancillary Device Adaptor) into an ETE-6D-1, ETE-16D-1, ETE-16K-1, or ETE-6-1 Multiline Terminal, for the connection of a Hayes® 1200 Smart Modem or equivalent modem.

2. LIMITATIONS

2.1 To respond hands-free to an internal call while using the modem, a DPA-E must be installed and the user must be off-hook on a CO line.

2.2 Incoming data calls must be answered by the Multiline Terminal and by an off-hook command to the modem. Modem auto answer is not available.

2.3 A CO line must be accessed prior to instructing the modem to dial a telephone number. (It is recommended that a CO line be assigned as prime line in system programming.)

2.4 Code restriction is bypassed when the telephone number is dialed by the modem.

2.5 LCR cannot be utilized in this application if the telephone number is dialed by the modem.

2.6 SMDR will not indicate the telephone number dialed by the modem.

2.7 A and A1 leads must be supported to provide on-hook and off-hook signaling from the modem. (Dip switch 7 in the ON position on the Hayes® 1200 Smart Modem provides A and A1 lead support).

3. PARTS REQUIRED

3.1 ADA-E Adaptor kit. (Stock #700340)

3.2 Hayes® 1200 Smart Modem or equivalent.

3.3 A four conductor modular line cord with spade lugs on one end. (If the modem has a hard-wired (fixed) modular cord, a standard RJ-11C jack with spade lugs may be used).

3.4 Electra MarkII Multiline Terminal.
4. **PROCEDURE**

4.1 Disconnect the modular line cord from under the terminal and from the RJ-13C/W jack.

4.2 Disconnect the modular handset cord from the lower housing.

4.3 Turn the Multiline Terminal upside down (face down) and place it on a flat surface (refer to Figure 1).

4.4 Slide the directory out of the way (Not required for ETE-6-1 Multiline Terminal).

4.5 To remove the access panel, perform only the step that applies, either 4.5.1 or 4.5.2 (Refer to Figure 1).

4.5.1 ETE-6D-1, ETE-16D-1, or ETE-16K-1 Multiline Terminal; Insert a flat screwdriver blade into notched opening (shown as A) and apply light upward pressure until the access panel clears the front lip, at the same time apply pressure (toward you) at the rear of the pedestal (shown as B) until the access panel moves toward you. Remove panel.

4.5.2 ETE-6-1 Multiline Terminal; Depress the flexible notched tab (shown as C) on the access panel and apply upward pressure. Remove panel.

**NOTE:** Do not discard removed access panel; save for possible future use.

4.6 Locate the four pin connector and jack labeled HAND (as seen through the access view of the Multiline Terminal housing). Unplug this connector and extend it out from the housing access opening.

4.7 Set the SW2 Dip switches, on the ADA-E unit, as shown in Table 1 of Figure 2. Place the jumper across pin ST2 and the center pin. Set SW1 to the BREAK position.

4.8 Make the wiring connections as indicated in Figure 2. The connections between T1 & T5 and between T2 & T4 are made with the jumper wires provided in the ADA-E kit. If necessary, use a section of the clear plastic tubing provided in the ADA-E kit to insulate the connections.

4.9 Locate and insert the four pin connector ended harness from the ADA-E unit into the jack labeled HAND on the Multiline Terminal.

4.10 Locate and insert the eight pin connector ended harness from the ADA-E unit into the jack labeled ADA on the Multiline Terminal.

4.11 Insert the four pin connector ended harness (removed in step 4.6) into the four pin jack, CN3, located on the ADA-E unit.

4.12 Install the ADA-E unit with the component side down ensuring the wires are not pinched. Secure the ADA-E unit to the terminal housing with the screw provided as shown in Figure 3.

**NOTE:** Two access panels are provided with the ADA-E kit; a narrow panel to be used with ETE-6-1 Multiline Terminals and a wide panel to be used with all other terminals. Ensure the correct access panel is used.

4.13 Route the locally provided modular line cord (already connected to the ADA-E unit) through one of the two notched grooves on the access panel. Install the access panel.

4.14 Slide the Multiline Terminal directory back into place, if required.

4.15 Reinstall the handset line cord onto the Multiline Terminal.
4.16 Plug the modular line cord from the ADA-E unit into the RJ-11C (Tel Line) receptacle located at the rear of the modem.

4.17 Connect the modem to the RJ-13C/W jack according to the manufacturers instructions.

4.18 Apply power to the modem and test both the modem and the Multiline Terminal for proper operation.

Figure 1 Access Panel Removal
Table 1
ADA-E UNIT DIP SWITCH (SW2) SETTINGS

<table>
<thead>
<tr>
<th>SWITCH</th>
<th>POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>OFF</td>
</tr>
<tr>
<td>2</td>
<td>OFF</td>
</tr>
<tr>
<td>3</td>
<td>ON</td>
</tr>
<tr>
<td>4</td>
<td>ON</td>
</tr>
<tr>
<td>5</td>
<td>OFF</td>
</tr>
<tr>
<td>6</td>
<td>ON</td>
</tr>
<tr>
<td>7</td>
<td>OFF</td>
</tr>
<tr>
<td>8</td>
<td>OFF</td>
</tr>
</tbody>
</table>

Figure 2 ADA-E Connections and Switch Positions for Hayes® 1200 Smart Modem or Equivalent Modem Connection
Figure 3 ADA-E Installation
INSTALLATION OF TELTONE M-106
REMOTE SERVICE ACCESS UNIT FOR DISA

1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the steps necessary to connect a Teltone M-106 Remote Service Access Unit to an Electra MarkII system for providing Direct Inward Service Access (DISA). When connected to a non-dedicated line, this adaptor can function as a special off-premises extension of the Electra MarkII providing complete access to single line station features. With the unit turned off via a remote night transfer switch, calls directed to the adaptor terminate at the MarkII attendant station. When connected to a dedicated line, the adaptor functions primarily as a security device, limiting access to the single line station features to off-premise callers using a security code.

2. LIMITATIONS

2.1 Must be connected to a single line port and DTMF signaling provided.

2.2 Cannot be used with party lines or coin lines.

3. PARTS REQUIRED

NOTE: The installation procedure for all models listed is identical. This procedure covers the installation of Model M-106-07 that comes equipped with modular line cords. If any other model is installed, modular line cords must be locally acquired.

3.1 Remote Service Access Unit, Model M-106 ordering options:
   3.1.1 M-106-01 (48V unit with Lorain repeater).
   3.1.2 M-106-02 (24V unit with Lorain repeater).
   3.1.3 M-106-05 (48V unit without Lorain repeater).
   3.1.4 M-106-06 (24V unit without Lorain repeater).
   3.1.5 M-106-07 (24V unit with Lorain repeater and two 7 foot, 8 position modular cords).

3.2 Two modular jacks, type RJ-34X.

3.3 Four conductor station cable (26 AWG) long enough to connect the RJ-34X jacks to the MDF.

3.4 Valcom -24 Volt, 1 Amp. power supply Model VP 1024, or equivalent. (1 to 3 remote access units can be supplied with each power supply; approx. 300 mA are required for each remote unit).

NOTE: An equivalent 48 volt power source must be used if a 48 volt Teltone unit is installed.
3.5 One in-line fuse holder and 1/2 amp. 250V fuse for each unit installed.

3.6 One three position barrier block (For one and two unit installation, a barrier block is not necessary).

3.7 18 ~ 20 AWG stranded, insulated wire, to run three wires from the barrier block to the wall mounted power supply. (Do not use single conductor station wire for this application).

3.8 Teltone Installation Manual.

4. OTHER REQUIREMENTS

4.1 One single line (SLI) port from the Electra MarkII system.

4.2 One incoming CO line (Preferably a ground start line. Loop start lines may be used, however, it is recommended that the optional call timer be implemented to prevent service interruptions. See Step 6.11).

4.3 For test purposes only:
   4.3.1 One loop start CO line.
   4.3.2 One ETT-1-( ) or equivalent polarity guarded DTMF single line telephone.

4.4 When night transfer option is selected:
   4.4.1 One ETT-1-( ) or equivalent DTMF single line telephone.
   4.4.2 One CO (CO11 port from the Electra MarkII.

5. SITE REQUIREMENTS

5.1 A vertical surface, preferably the Electra MarkII MDF, near an available 120 VAC circuit.

5.2 Ambient room temperature range: 0 ~ 55°C.

5.3 Relative humidity: up to 85% (non condensing).

6. PROCEDURE

![System Block Diagram](image-url)

Figure 1. System Block Diagram
6.1 Position the M-106 case against the vertical surface. Ensure the lettering on the front panel is right side up and the FCC regulation label is on top.

6.2 Fasten the unit to the wall with wood screws or wall anchors.
NOTE: Ensure there is enough room in front of the front panel (at least 12 inches) and for reaching the screws in the rear of the unit securing the printed circuit board (PCB) to allow for removal and insertion of the PCB.

6.3 Use the key provided with the M-106 and remove the front panel

6.4 Remove the two screws on the rear panel and slide the M-106 PCB out.

6.5 On the M-106 PCB, set dip switch (S1-1) to the ON position. Set all other dip switches (S1-2 - S1-6) to the OFF position (See Figure 2).

6.6 If using a three digit security code, select the desired security code with S2.
NOTE: The security code is read from top to bottom, with the top number dialed first. Connect the security code enable / disable cable to the desired location (See Figure 2).

6.7 Reinstall the PCB and secure with two screws. Reinstall the front panel.

6.8 Mount the barrier block no further than 7 feet from the M-106 unit and close to the power supply.
NOTE: The barrier block is not necessary when installing one or two units and the power supply is located within 6 feet of the M-106 unit.

6.9 Mount the power supply according to the manufacturer's instructions. Make the connections from the DC power supply to the barrier block (or M-106 unit), strapping the ground post to the + (positive side) as shown in Figure 3.
NOTE: Ground must be provided either by the AC outlet or a suitable Electra MarkII system ground.

6.10 Install a fuse holder and 1/2 amp. 250V fuse in line with each white power cable between the M-106 unit and the barrier block (or power supply). Connect the red and yellow wire to the positive (ground) terminal on the barrier block (or power supply) (See Figure 3).

6.11 Use the call timer jumper and set the optional call timer to the desired time limit (See Figure 4).
NOTE: This timer limits the call duration placed through the M-106 unit to a predetermined time as set by the call timer jumper. This automatic disconnect timer can be set to 5, 10, 15, or 20 minutes, or not implemented, at the user's option.

6.12 Set the power supply to the proper voltage (if so equipped) and plug the power supply into the AC outlet.

6.13 Mount the RJ34X jack within 7 feet of the M-106 unit.
NOTE: Longer 8 position modular cords can be locally acquired.

6.14 Wire the modular jacks as shown in Figure 5.
NOTE: Pins 1 and 8 do not have to be wired if the remote ON/OFF option (Night Transfer) is not used. This option permits the M-106 to be enabled or disabled from a switch located in a remote location, to free the CO line and the SLI port associated with the M-106 for use by the Electra MarkII (when the M-106 unit is disabled) (See Figure 1).

6.15 Connect the jacks to the MDF as shown in Figure 6.

6.16 Connect the 8 position modular cords from the CO port to J3, and from the single line port to J4.
7. TEST PROCEDURE

7.1 Without turning the unit on, check the single line station for dial tone and station operation.

7.2 With any single line station, access a trunk and dial the phone number assigned as the incoming CO line. Confirm that it operates normally and then hang up.

7.3 Turn the M-106 unit on and verify that the green LED on the front panel lights. Go off-hook on the single line telephone connected to the M-106 unit and verify that it is inoperative; hang up the phone.

7.4 Use any single line telephone and dial the incoming CO line number assigned to the M-106 unit.
   7.4.1 If the security code is enabled, the M-106 unit provides a short tone. After receiving the tone, dial in the security code as selected with S2; LED 3 comes on and dial tone is provided.
   7.4.2 If the security code is not enabled, LED 3 comes on and dial tone is provided.

7.5 Dial any station in the system and confirm proper voice communication. Depress the * key for less than one second, party goes on transfer hold and transfer dial tone received. Dial a second station and when party answers depress the * key for more than one second; observe that LED 3 flashes briefly and internal dial tone is provided to the originating station.
Figure 2. M-106 Circuit Board

Figure 3. Power Supply Block with Power Connections
Figure 4. Optional Call Timer Connections

Figure 5. Front View of RJ-34X and Pin Numbers

Figure 6. M-106 Connection to the Electra MarkII MDF
INSTALLATION AND OPERATION OF THE CONFER® SIX PARTY DIGITAL VOICE CONFERENCING BRIDGE UNIT

1. DESCRIPTION
This Engineering Technical Information (ETI) Bulletin describes the steps necessary to connect a CONFER® 6-party digital voice conferencing unit, to an Electra MarkII system. The CONFER® unit is a conference bridge that provides conference capability for up to six parties from an internal extension or five parties from a remote location. After establishing a conference, the CONFER® unit provides automatic voice level control to all members of the conference. Figure 1 shows a typical installation.

2. LIMITATIONS
2.1 Maximum of five outside (CO) lines can confer on a remotely established conference.

2.2 Maximum of six parties (five external and one internal) can confer on an internally established conference.

2.3 Only 2-wire loop start DTMF lines can be used.

3. PARTS REQUIRED
3.1 Sixty six block (or space for connecting 5 CO lines on existing block).

3.2 CONFER® Unit which includes:
- Telephone cable (multi pair) with 36-pin connector on one end
- Cable support bracket and screws
- Cable tie

3.3 Small flat tipped screwdriver

3.4 Digital voltmeter.

4. REFERENCES

5. SITE REQUIREMENTS
5.1 A vertical surface, preferably the Electra MarkII MDF, near an available 120 VAC circuit.

5.2 Ambient room temperature range: 40°F ~ 120°F (5°C ~ 50°C).

5.3 Relative humidity: 25% ~ 85% (non-condensing).
6. **PROGRAMMING**

**NOTE:** The CONFER® unit is programmed via the control line, which is the last CO line connected to the 66 block on the MDF. The following software commands (and their function) are dialed with the telephone keypad to program the CONFER® unit:

1. Places current party on hold and provides dial tone to dial a new party into the conference.
2. Disconnects the last party called.
3. Establishes a conference of all parties on hold.
196. Allows entering remote access authorization code.
197. Removes the CONFER® unit from remote access mode.
198. Activates remote access mode on the CONFER® unit.
199. Places the CONFER® unit in conference mode so that a conference can be initiated internally.
# Terminates the conference.

6.1 **Remote Access and Authorization Code Programming:**
From a Multiline Terminal within the Electra MarkII system:

6.1.1 Depress the line key with the control line appearance.

6.1.2 Dial 196 and after receiving confirmation tone, dial a 4-digit authorization code.

6.1.3 Dial 198, receive confirmation tone and then dial tone; hang up. (If no confirmation tone is received, either the authorization code is not programmed or was lost due to a power interruption).

6.2 **Removing the CONFER® Unit from Remote Access Mode:**
From a Multiline Terminal within the Electra MarkII system:

6.2.1 Depress the line key with the control line appearance.

6.2.2 Dial 197; hang up.

7. **OPERATION**

7.1 **Establishing an internally initiated conference:**

7.1.1 From a Multiline Terminal within the Electra MarkII system, lift the handset and depress the line key assigned as the control line for the CONFER® unit.

7.1.2 When CO dial tone is heard, dial 199 to initiate a conference call. Note that dial tone is broken momentarily and new dial tone is received indicating that the CONFER unit is enabled.

7.1.3 Dial the telephone number of the first party to be conferenced. When the first party answers, inform the party that you are initiating a conference call and then dial 1. Dialing 1 puts the party on hold and new dial tone is received. (If dialing 1 returns busy tone, this indicates that no more lines are available).

**NOTE:** When dialing a telephone number, do not wait more than 5 seconds between digits. Also, after the telephone number is dialed, **wait at least 5 seconds before depressing command digits 1, 2, or 3.** This time delay is required by the system to differentiate between the called telephone number and the command digit.

7.1.4 Repeat step 7.1.3 for all parties to be conferenced. If a mistake is made in dialing, or if the number dialed is busy, dial 2 to disconnect the last number called (Wrong number or busy number).
7.1.5 After all parties are connected and on hold (except the last number which was dialed), wait 5 seconds and dial 3 to establish the conference.

**NOTE:** After dialing 3 and establishing a conference, dialing 1 provides the initiator with dial tone while the parties in the conference can continue their conversation.

### 7.2 Establishing a remotely initiated conference.

**NOTE:** To access the CONFER® unit from a remote location, the CONFER® unit must be programmed for remote access mode and an authorization code (four digit code) must already be programmed (See step 6.1).

- **7.2.1** Call the control line number assigned to the CONFER® unit.

- **7.2.2** Once the CONFER® unit answers (after approximately 4 rings) and confirmation tone is returned, dial the 4-digit remote access authorization code **after the confirmation tone stops**.

- **7.2.3** When dial tone is heard, dial the telephone number of the first party to be conferenced. When the first party answers, inform the party that you are initiating a conference and then dial 1. (Dialing 1 puts the party on hold and new dial tone is received).

- **7.2.4** Repeat step 7.2.3 until you have called all the parties to be involved in the conference (maximum of five including the originator). If a mistake is made in dialing, or if the number dialed is busy, dial 2 to disconnect the last number called.

- **7.2.5** After all parties are connected and on hold (except the last number which was dialed), dial 3 to establish the conference.

**NOTE:** After dialing 3 and establishing a conference, dialing 1 provides the initiator with dial tone while the conference continues.

### 7.3 Terminating or leaving a conference.

- **7.3.1** Any party that wishes to leave the conference hangs up; remaining parties continue conferencing.

- **7.3.2** The initiator of the conference hangs up or dials # to terminate the conference.

### 8. PROCEDURE

![Figure 1. Typical Installation](image)

**8.1** Refer to Figure 1 for an overview of a typical installation.
8.2 Loosen four screws (2 on top, 2 on the bottom) and remove the CONFER® unit cover.

8.3 Position the CONFER® unit against a vertical surface. Make sure that the arrow on the power unit’s shield is pointing up (See Figure 2).

8.4 Using the CONFER® unit as a template, mark and drill four holes on the vertical surface and fasten the CONFER® unit to a wall using wood screws or wall anchors.

8.5 Connect the 36-pin male connector to the CONFER® unit (See Figure 2).

8.6 Locate the last five CO line pairs on the 66 block and remove the bridging clips.

8.7 Connect the open end of the 36 pin connector cable to the 66 block, on the KSU side, as shown in Figure 3. Any spare wires should be insulated and tied back.

8.8 Ground the CONFER® housing to an available ground connection as described in the CONFER® Installation Manual.

8.9 Plug the CONFER® unit into the AC outlet and observe that the red power LED on the upper corner of the CONFER® unit lights.

8.10 Depress the reset button located at the lower right hand corner of the CONFER® board (See Figure 2).

8.11 Refer to the installation manual and match each CO line to the CONFER® unit as described.
8.12 Establish one internal and one external conference to test the CONFER® unit for proper operation (See PROGRAMMING & OPERATION).

8.13 Install the cable bracket on the side of the CONFER® unit with the two screws provided (See Figure 2). Use the plastic cable tie provided to secure the cable to the bracket.

8.14 For Music On Hold (MOH), connect a music source with an 1/8th. inch phone plug to the MOH jack (See Figure 2) or connect the music source to the brown/red pair from the 36-pin connector cable at the 66 block (See Figure 3).

8.15 Install the CONFER® unit cover and tighten 4 screws (2 top and 2 bottom).
1. DESCRIPTION
This Engineering Technical Information (ETI) Bulletin describes the steps necessary to install an ADA-E (Ancillary Device Adaptor) into an ETE-6D-1, ETE-16D-1, ETE-16K-1, or ETE-6-1 Multiline Terminal, for the connection and operation of a cassette tape recorder with remote controlled microphone.

2. LIMITATIONS
2.1 For the recorder to function automatically, the handset must be used.
2.2 To rewind or playback the recordings, the remote plug must be removed from its corresponding jack.

CAUTION: THE USE OF A MONITORING DEVICE TO EAVESDROP OR RECORD TELEPHONE CONVERSATIONS MAY CONSTITUTE AN ILLEGAL INVASION OF PRIVACY UNDER SOME CIRCUMSTANCES AND LAWS. YOU SHOULD CONSULT A LEGAL ADVISOR PRIOR TO IMPLEMENTING ANY PRACTICE INVOLVING RECORDING OF TELEPHONE CALLS.

FCC ORDER IN DOCKET #20940 PERMITS THE USE OF BEEP TONE - OR - THE CONSENT OF ALL PARTIES WHEN CONVERSATIONS ARE RECORDED. SECTIONS 2510 TO 2520 OF THE U.S. CRIMINAL CODE (18U.S.C.2510 et seq.) PROVIDES STIFF PENALTIES FOR UNAUTHORIZED DISCLOSURE OF WIRE OR ORAL COMMUNICATIONS.

3. PARTS REQUIRED
3.1 ADA-E Adaptor kit. (Stock #700340)
3.2 Cassette tape recorder.
NOTE: The recorder must have remote microphone capability to be automatically triggered by hookswitch.
3.3 One 1/8 inch Mini Phone Plug.
3.4 One 3/32 Micro Phone Plug.
3.5 #22 AWG four conductor stranded cable.
3.6 Four small spade lug terminals to fit wires in step 3.5 (locally provided).
4. **PROCEDURE**

4.1 Disconnect the modular handset cord from the lower housing.

4.2 Disconnect the modular line cord from under the terminal and from the RJ-13C/W jack.

4.3 Turn the Multiline Terminal upside down (face down) and place it on a flat surface (refer to Figure 1).

4.4 Slide the directory out of the way (Not required for ETE-6-1 Multiline Terminal).

4.5 From one end of the cable provided (step 3.5) remove approximately 4 inches of outer insulation and strip off ¼ inch of the inner insulation from each of the four wires. To each conductor fasten one of the spade lugs locally provided, either by soldering or crimping.

4.6 To remove the access panel, perform only the step that applies, either 4.6.1 or 4.6.2 (Refer to Figure 1).

4.6.1 ETE-6D-1, ETE-16D-1, or ETE-16K-1 Multiline Terminal; Insert a flat screwdriver blade into notched opening (shown as A) and apply light upward pressure until the access panel clears the front lip, at the same time apply pressure (toward you) at the rear of the pedestal (shown as D) until the access panel moves toward you. Remove panel.

4.6.2 ETE-6-1 Multiline Terminal; Depress the flexible notched tab (shown as C) on the access panel and apply upward pressure. Remove panel.

**NOTE:** Do not discard removed access panel; save for possible future use.

4.7 Locate the four pin connector and jack labeled HAND (as seen through the access view of the Multiline Terminal housing). Unplug this connector and extend it out from the housing access opening.

4.8 Set the SW2 Dip switches, on the ADA-E unit, as shown in Table 1 of Figure 2. Place the jumper across pin ST1 and the center pin. Set SW1 to the BREAK position.

4.9 Make the wiring connections as indicated in Figure 2. The connections between T10 & T11 are made with the jumper wire provided in the ADA-E kit. If necessary, use a section of the clear plastic tubing provided in the ADA-E kit to insulate the connections.

4.10 Locate and insert the four pin connector ended harness from the ADA-E unit into the jack labeled HAND on the Multiline Terminal.

4.11 Locate and insert the eight pin connector ended harness from the ADA-E unit into the jack labeled ADA on the Multiline Terminal.

4.12 Insert the four pin connector ended harness (removed in step 4.7) into the four pin jack, CN3, located on the ADA-E unit.

4.13 Install the ADA-E unit with the component side down ensuring the wires are not pinched. Secure the ADA-E unit to the terminal housing with the screw provided as shown in Figure 3.

**NOTE:** Two access panels are provided with the ADA-E kit; a narrow panel to be used with ETE-6-1 Multiline Terminals and a wide panel to be used with all other terminals. Ensure the correct access panel is used.

4.14 Route the locally provided station wire (already connected to the ADA-E unit) through one of the two notched grooves on the access panel. Install the access panel.
4.15 Slide the directory back into place, if required.

4.16 Reinstall the handset and modular line cords onto the Multiline Terminal.

4.17 Insert the 1/8 mini plug and the 3/32 micro plug into their respective tape recorder jacks (See Figure 2).

4.18 Plug the tape recorder into an AC power outlet; insert a tape cassette into the tape recorder and depress the RECORD and PLAY buttons simultaneously.

5. TESTING

5.1 Establish a call using the handset. Speak in a normal voice and verify that the tape recorder is activated. With the handset still off-hook, remove the REMOTE plug from its jack, rewind the tape and verify that the recording took place (If the tape recorder is equipped with a recording level control, the level may have to be adjusted).

5.2 Reconnect the REMOTE plug and hang up the handset.
Figure 1 Access Panel Removal
Figure 2 ADA-E Connections and Switch Positions for Automatic Operation of Cassette Tape Recorder
Figure 3 ADA-E Installation
AEC TWO CHANNEL ANNOUNCEMENT MACHINE

1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the steps necessary for the installation of an AEC Messenger, Model 212 Plus, dual line announcer for operation with an ECR-E ETU. The delayed announcement feature may be desirable when using a Hunt Group in conjunction with DIT or ANA to provide UCD. Any time all stations in the Hunt Group are busy or unable to answer, the Delay Announcer can be used to provide a short repeating message to callers, instructing them to wait or call back later.

2. LIMITATIONS

2.1 Only one repeating announcement available at a time.

2.2 Will lose one of two BGM channels.

3. PARTS REQUIRED

3.1 ECR-E and CPU-EB3 ETUs or higher.

3.2 AEC - Messenger, Model 212 Plus. This part can be ordered from:

AUTOMATION ELECTRONICS CORPORATION
11501 Dublin Blvd., Dublin, CA 94568
Tel: 1-800-232-4653
California and Alaska (415) 828-2880

3.3 RJ - 31X Modular Jack.

3.4 8 pin modular cable approximately 7 feet long.

3.5 100 Ohm, ¼-watt carbon film resistor.

3.6 RCA male audio plug (with cable optional).
3.7 Length of 2-pair station cable long enough to reach from the ECR-E ETU card to the RJ-31X modular jack, located near the AEC, model 212 Plus.

4. REFERENCES

4.1 AEC's, model 212 Plus, owner's manual.

4.2 Electra MarkII Installation Service Manual.

5. OPERATION

The first DIT/ANA caller who encounters a busy or no answer condition within a pre-programmed amount of time will receive a prerecorded message from the beginning. This announcement will repeat until the call is answered or abandoned. Subsequent callers may be connected to the Delay Announcer at any time while the message is in progress and may not get the complete message until it repeats again. Therefore, keeping the message short will minimize confusion.

6. PROCEDURE

NOTE

Ensure that antistatic handling precautions are observed when handling the ECR-E ETU.

6.1 Wiring connections to the ECR-E ETU. (Refer to Figure 1)

6.1.1 Remove approximately 3 inches of outer insulation from both ends of the 4 conductor cable and strip off ¼ inch of insulation from each of the four wires.

6.1.2 Choose a relay to be used (4 - 10) for Delay Announce. Use of relay 10 is recommended. Figure 1 shows the use of relay 10.

6.1.3 Connect one lead from the 4-conductor cable to the A side of the relay chosen. (Connections for relays 04 - 06 are found on the MDF and connections for relays 07 - 10 are found on the CN1 terminal strip on the ECR-E ETU.)

6.1.4 Connect a second lead from the 4-conductor cable to the B side of the relay chosen.

6.1.5 Connect a third lead from the 4-conductor cable to the center terminal of an RCA plug.

6.1.6 Connect the fourth lead from the 4-conductor cable to the ground side of the RCA plug.

6.1.7 Insert the RCA plug into JK3 of the ECR-E ETU.
NOTE
If noise interference is encountered during operation, it may be necessary to use shielded cable.

6.1.8 Install the ECR-E ETU in an available interface slot in a CCU making sure that the busy switch (SW1) is in the OFF position. After the ECR-E ETU is properly seated in its slot, turn on SW1. (Refer to Chapter 3 of the Electra Mark II Installation Service Manual Memory Block 4C1.)

6.2 RJ-31X Connection

6.2.1 Connect the other end of the station cable as follows:

<table>
<thead>
<tr>
<th>TERMINAL</th>
<th>STATION CABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Center terminal of RCA plug.</td>
</tr>
<tr>
<td>5</td>
<td>Ground side of RCA plug.</td>
</tr>
<tr>
<td>7</td>
<td>A Side of ECR relay.</td>
</tr>
<tr>
<td>8</td>
<td>B Side of ECR relay</td>
</tr>
</tbody>
</table>

Also, install a 100 ohm ½ watt resistor across terminals four and five, in parallel for reducing voice level (See Figure 1).

6.2.2 Plug in one end of the 8 conductor modular cable into the RJ-31X.

6.3 Installing and programming the AEC 212 Plus Announcer (Refer to Figure 1)

NOTE: Ensure that the 212 Plus power pack is disconnected from the Announcer unit before proceeding.

6.3.1 Refer to the AEC 212 owner’s manual and set the internal jumper plugs (1 per channel) for 600 ohms transformer coupled audio output. (These jumpers are internal to the AEC equipment).

6.3.2 Set the start mode switches on the back of the unit as follows:

<table>
<thead>
<tr>
<th>SWITCH</th>
<th>SETTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW1</td>
<td>ON (continuous play)</td>
</tr>
<tr>
<td>SW2</td>
<td>OFF</td>
</tr>
<tr>
<td>SW3</td>
<td>OFF</td>
</tr>
<tr>
<td>SW4</td>
<td>ON (relay closure start)</td>
</tr>
</tbody>
</table>

6.3.3 Plug the other end of the 8 conductor modular cable to the Line 1 jack on the back of the AEC 212 Plus unit.

6.3.4 The AEC Model 212 Plus Announcer provides two ports that can be independently recorded. By manually switching port connections, DAY and NIGHT announcements can be provided. (See Figure 1).
6.3.5 Connect the 12-14V power pack into the AEC 212 first, and then into the nearest AC power outlet.

6.3.6 Using the built-in microphone, or a carbon type handset, record the desired announcement as indicated in the AEC 212 Plus owner's manual. For maximum effectiveness, it is recommended that the message be limited to a maximum of 15 seconds followed by a silent period of 2 seconds.

6.4 Electra MarkII system programming (Refer to the Electra MarkII Installation Manual)

6.4.1 Assign individual trunks for DIT or ANA operation in Memory Blocks 2B3 and 2B4. (Delay Announcement is available for DIT or ANA trunks only).

6.4.2 Assign the Delay Announcement feature to each required DIT or ANA trunk in Memory Block 2C5.

6.4.3 Assign desired time delay between incoming ring signal recognition and the start of the Delay Announcement to the calling party in Memory Block 2D2, using line key 6. This timer is adjustable from 1 to 99 seconds. Use of the system default value (20 seconds) is recommended.

6.4.4 Assign the desired Delay Announcement Auto Release Timer in Memory Block 2D1, using line key 3. This timer determines how long an outside line will remain connected to the announcement device after encountering either a busy signal or no answer from a Hunt Group. If the outside line can provide a remote disconnect signal, the remote disconnect will supercede this timer if the remote disconnect signal occurs before the timer elapses. Timer ranges from 10 to 990 seconds and can be disabled. Default value of 600 seconds (10 minutes) is recommended.

6.4.5 Select one of the ECR-E ETU relays to activate the announcement unit in Memory Block 2C9. Use of relay number 10 is recommended. (See Figure 1)

6.4.6 If station Hunt Groups are required, use Memory Blocks 3B5 thru 3B8 to assign the required parameters.

6.4.7 Activate the Day and Night Delay Announcement feature from an idle Attendant station as follows:

6.4.7.1 Depress CNF key.

6.4.7.2 Depress line key 9 (for Day Mode) and 10 (for Night Mode) (Both LEDs illuminate).

6.4.7.3 Depress CNF key (to return ON LINE).

7. TESTING

After installation and programming is completed, test the operation as follows:
7.1 Render all extensions in the Hunt Group busy and call the pilot number of the DIT Hunt Group.

7.1.1 Go off hook.

7.1.2 Seize a trunk with either an access code or a line key.

7.1.3 Dial the seven digit phone number of the Hunt Group.

7.2 Do not answer and note that the caller is provided with the pre-recorded announcement within the pre-programmed period of time. Establish that the recording repeats until the call is automatically terminated by the Delay Announcement Auto Release Timer (10 minutes).

7.3 Render all extensions in the Hunt Group busy and make multiple simultaneous calls to the pilot number of the DIT Hunt Group (see 7.1 - 7.1.3). Do not answer and note that all callers are connected to the pre-recorded announcement. Answer each call and establish that the recording is released and normal conversations can ensue.

8. ATTENDANT ACTIVATION AND DEACTIVATION OF DELAY ANNOUNCEMENT

8.1 To Activate Day/Night Time Delay Announcement: (Idle mode)

8.1.1 Depress the CNF key.

8.1.2 For Day Time Delay Announcement, depress line key 9 (LED turns ON)

8.1.3 For Night Time Delay Announcement, depress line key 10 (LED turns ON)

8.1.4 Depress the CNF key to return ON LiNE.

8.2 For deactivating Day time and Night time Delay Announcement, repeat the same procedure for activating the announcement, except turn the LEDs OFF instead of ON.
Figure 1. Connection of the AEC Dual Line Announcer to the ECR-E ETU
NOTE: This ETI is revised from MK-012 and provides information for a 2 channel Delay Announcement with Electra MarkII - Series 400 Software. This ETI is also applicable for Series 300 Software.

1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the steps necessary for the installation of an AEC Messenger, Model 212 Plus, dual line announcer for operation with an ECR-E ETU. The delayed announcement feature may be desirable when using a Hunt Group in conjunction with DIT or ANA to provide UCD. Any time all stations in the Hunt Group are busy or unable to answer, the Delay Announcer can be used to provide one (1) or two (2) delay announcements instructing callers to wait or call back later.

2. LIMITATIONS

2.1 For only one (1) delay announcement, ignore information pertaining to the second delay announcement.

Station BGM channel 1 is the same as MOH. Only one each of the items mentioned in 3.3 through 3.7 will be required. In addition, in memory block 2D1, if Line Key 2 is changed to any number other than 99, both station BGM channels are same as MOH.

2.2 If two (2) delay announcements are used, both station BGM channels will be the same as MOH.

3. PARTS REQUIRED

3.1 ECR-E and CPU-EC4 ETUs or higher.

3.2 AEC - Messenger, Model 212 Plus. This part can be ordered from:

AUTOMATION ELECTRONICS CORPORATION
11501 Dublin Blvd., Dublin, CA 94568
Tel: 1-800-232-4653
California and Alaska (415) 828-2880

3.3 Two RJ-31X Modular Jacks.

3.4 Two 8 pin modular cables approximately 7 feet long.

3.5 Two 100 Ohm, 1/4 - watt carbon film resistors.

3.6 Two RCA male audio plugs with audio shielded cable.

3.7 Two lengths of 2-pair station cable.

A. One piece of 2-pair cable is connected from the Electra MarkII Frame Ground to the RJ-31X modular jacks that are located near the AEC (model 212 Plus).

B. The second piece of 2-pair cable is connected from the ECR-E ETU card to the Electra MarkII Frame Ground.
ETI NUMBER: MK-012A

4. REFERENCES

4.1 AEC's, model 212 Plus, owner's manual.

4.2 Electra MarkII Installation Service Manual.

5. OPERATION

The first DIT/ANA caller who encounters a busy or no answer condition within a preprogrammed amount of time will receive the first delay announcement message from its beginning. After the message has been played, the caller will hear music-on-hold (MOH). After a programmed amount of time, the caller will hear the second delay announcement message. Upon completion of the second delay announcement message, the caller will hear MOH. The caller will continue to be transferred between the second delay announcement and MOH until someone in the UCD group answers the call.

6. PROCEDURE

NOTE 1: Ensure that antistatic handling precautions are observed when handling the ECR-E ETU.

NOTE 2: If the System Software is upgraded from Series 300, the input connection for the first announcement must be changed to JK2 on the ECR-E ETU.

NOTE 3: If system is operating with Series 300 software (allows only one Delay Announcement), JK3 on the ECR-E ETU must be used.

6.1 Wiring connections to the ECR-E ETU from the System Frame Ground. (Refer to Figure 1)

6.1.1 Remove approximately 3 inches of outer insulation from both ends of the two lengths of 2-pair Station cable. Strip off ½ inch of insulation from each of the eight wires.

6.1.2 Select a relay to be used (4-10) for Delay Announcement. Use of relay 10 for the First Delay Announcement and relay 9 for the Second Delay Announcement is recommended. Figure 1 shows the use of relays 10 and 9.

6.1.3 For the First Delay Announcement, connect one lead from one of the 4-conductor cables to the System Frame Ground. Connect the opposite end of the same lead to the A side of the relay chosen (A4 is recommended). Perform the same procedure for the Second Delay Announcement (A3 is recommended) using another conductor from the same cable. Connections for relays 04-06 are located on the MDF and connections for relays 07-10 are located on the CN1 terminal strip on the ECR-E ETU.

6.2 RJ-31X Connection

6.2.1 Using the RCA male audio plugs and the audio shielded cable, make the following connections between the ECR-E ETU and the RJ-31X Modular jacks. (See Figure 1.)

<table>
<thead>
<tr>
<th>Delay Announcement #1</th>
<th>CABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TERMINAL</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Center terminal of RCA plug.</td>
</tr>
<tr>
<td>5</td>
<td>Ground side of RCA plug.</td>
</tr>
<tr>
<td>7</td>
<td>To System Frame Ground.</td>
</tr>
<tr>
<td>8</td>
<td>B Side of ECR relay.</td>
</tr>
</tbody>
</table>
ETI NUMBER: MK-012A

Delay Announcement # 2

<table>
<thead>
<tr>
<th>TERMINAL</th>
<th>CABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Center terminal of RCA plug.</td>
</tr>
<tr>
<td>5</td>
<td>Ground side of RCA plug.</td>
</tr>
<tr>
<td>7</td>
<td>To pin 7 of the First Delay Announcement.</td>
</tr>
<tr>
<td>8</td>
<td>B Side of ECR relay</td>
</tr>
</tbody>
</table>

6.2.1 Install a 100 ohm ½ watt resistor across terminals four and five (in parallel) for reducing voice level (See Figure 1).

6.2.3 Plug one end of the 8 conductor modular cable into the respective RJ-31X’s that represents the the first and second announcements.

6.2.4 Install the ECR-E ETU in an available interface slot in a CCU making sure that the busy switch (SW1) is in the OFF position. After the ECR-E ETU is properly seated in its slot, turn on SW1. (Refer to Chapter 3 of the Electra Mark II Installation Service Manual Memory Block 4C1.)

6.3 Installing and programming the AEC 212 Plus Announcer (Refer to Figure 1)

NOTE: Ensure that the 212 Plus power pack is disconnected from the Announcer unit before proceeding.

6.3.1 Refer to the AEC 212 owner’s manual and set the internal jumper plugs (1 per channel) for 600 ohms transformer coupled audio output. (These jumpers are internal to the AEC equipment. See Figure 2.)

6.3.2 Set the start mode switches on the back of the unit as follows:

<table>
<thead>
<tr>
<th>SWITCH</th>
<th>SETTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW1</td>
<td>ON (continuous play)</td>
</tr>
<tr>
<td>SW2</td>
<td>OFF</td>
</tr>
<tr>
<td>SW3</td>
<td>OFF</td>
</tr>
<tr>
<td>SW4</td>
<td>ON (relay closure start)</td>
</tr>
</tbody>
</table>

6.3.3 Plug the other ends of the 8 conductor modular cable to the Line 1 and Line 2 jacks, for first and second announcements respectively, on the back of the AEC 212 Plus unit.

6.3.4 The AEC Model 212 Plus Announcer provides two ports that can be independently recorded. (See Figure 1).

6.3.5 Connect the 12-14V power pack into the AEC 212 first, and then into the nearest AC power outlet.

6.3.6 Using the built-in microphone, or a carbon type handset, record the desired announcement as indicated in the AEC 212 Plus owner’s manual. For maximum effectiveness, it is recommended that messages be limited to a maximum of 15 seconds followed by a silent period of 2 seconds.
6.4 Electra MarkII System programming (Refer to the Electra MarkII Installation Service Manual)

6.4.1 Assign individual trunks for DIT or ANA operation in Memory Blocks 2B3 and 2B4. (Delay Announcement is available for DIT or ANA trunks only).

6.4.2 Assign the Delay Announcement feature to each required DIT or ANA trunk in Memory Block 2C5.

6.4.3 Assign desired time delay between incoming ring signal recognition and the start of the Delay Announcement to the calling party in Memory Block 2D2, using line key 6. This timer is adjustable from 1 to 99 seconds. System default value is 20 seconds.

6.4.4 Assign the desired Delay Announcement Auto Release Timer in Memory Block 2D1, using line key 3. This timer determines how long an outside line will remain connected to the announcement device after encountering either a busy signal or no answer from a Hunt Group. If the outside line can provide a remote disconnect signal this timer is not required, the remote disconnect will supersede this timer. Timer ranges from 10 to 980 seconds with 990 being infinity, and can be disabled. Default value is 600 seconds (10 minutes).

6.4.5 Select one of the FCR-F ETU relays to activate the announcement unit in Memory Block 2C9. Use of relay number 10 is recommended for the first announcement. Relay number 9 is recommended for the second delay announcement. (See Figure 1).

6.4.6 Assign the duration for the first and second delay announcements in memory block 2D2. Line Key 7 represents the first announcement and Line Key 8 represents the second announcement. Timer ranges are from 1-98 seconds with 99 being infinity. Default is 10 seconds (Series 400 only).

NOTE: If the timer assignment is between 1~98 seconds, MOH will automatically begin after the assigned time. If timer assignment is 99, the announcement will continue to replay (same as Series 300).

6.4.7 Assign the MOH duration between the first and second announcements (LK2) and between the second and repeat of the second announcement (LK8) in memory block 2D1. Timer ranges are from 10-980 seconds with 99 being infinity (Series 400 only).

NOTE: If the time assignment between the 1st and 2nd announcement is 10~980 seconds, JK3 (2nd Announcement input) will automatically be the input for the Second Delay Announcement and the TSW-E/EB MOH inputs become the input for Station BGM. If the timer is left at default, 99 (infinity), JK3 is the input for Station BGM.

6.4.8 If station Hunt Groups are required, use Memory Blocks 3B5 through 3B8 to assign the required parameters.

7. ATTENDANT ACTIVATION AND DEACTIVATION OF DELAY ANNOUNCEMENT

7.1 To Activate Day/Night Time Delay Announcement: (Idle mode)

7.1.1 Depress the CNF key.

7.1.2 For Day Time Delay Announcement, depress line key 9 (LED turns ON)

7.1.3 For Night Time Delay Announcement, depress line key 10 (LED turns ON)

7.1.4 Depress the CNF key to return ON LINE.

7.2 For deactivating Day time and Night time Delay Announcement, repeat the same procedure for activating the announcement, except turn the LEDs OFF instead of ON.
8. **TESTING**

After installation and programming is completed, test the operation as follows:

8.1 Render all extensions in the Hunt Group busy and call the pilot number of the DIT Hunt Group.

8.1.1 Go off hook.

8.1.2 Seize a trunk with either an access code or a line key.

8.1.3 Dial the seven digit phone number of the Hunt Group.

8.2 Do not answer and note that the caller is provided with the first announcement, then MOH, then the second announcement, then MOH, then the second announcement again, then MOH, and so on. Establish that the recording repeats until the call is automatically terminated by the Delay Announcement Auto Release Timer (10 minutes).

8.3 Render all extensions in the Hunt Group busy and make multiple simultaneous calls to the pilot number of the DIT Hunt Group (see 8.1 - 8.1.3). Do not answer and note that callers are connected to the prerecorded announcements. Answer each call and establish that the recording is released and normal conversations can ensue.
Figure 1. Connection of the AEC Dual Line Announcer to the ECR-E ETU
ETI NUMBER: MK-012A

Figure 2. Internal Jumper Plug Settings
ETI MK-013 IS OMITTED INTENTIONALLY
INSTALLATION OF FOURTH CCU IS INCLUDED IN
CHAPTER 2
1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the steps necessary to connect a DEES Automatic Ground Start Unit (Model 155 Mk2) to a Single Line Telephone (SLT) on the Electra MarkII for operation during a power failure.

2. PARTS REQUIRED

2.1 COI-E/EB ETU

2.2 SLI-EB ETU

2.3 DEES Automatic Ground Start Unit (Model 155 mk2).

DEES Communications Engineering, Inc.
4130 148th Ave. Northeast
Redmond, WA 98052
1 800 654 5604

2.4 24 AWG one pair wire.

2.5 ETE-1-2 Telephone or standard 2500 set.

2.6 Modular line cord (1) with RJ11 connectors.

2.7 Modular Jack.

3. OPERATION

3.1 There are no special operating procedures for the DEES 155 Mk2 to work. When the Electra Mark II is operating, the SLT operates normally.

3.2 During power failure of the Electra Mark II, the ground start trunk that is connected to the DEES 155 Mk2 is automatically switched over to a direct connection with the SLT. The SLT can then originate or receive outside calls.

4. PROCEDURES

4.1 If an SLT port is not already available, insert SLI-EB ETU into an available interface slot.

4.2 Connect Ground Start Trunk to an available COI-E/EB port on the MDF

See Figures 1 and 2 for the following procedures.
4.3 Punch down 24 AWG one pair wire into Tip (T) and Ring (R) of SLI-EB port at the MDF.

4.4 Punch down the other end of this wire to one of the available channels (T IN and R IN) of the 155 Mk2 quick-connect block.

4.5 Punch down the 24 AWG one pair wire to the PT and PR of the SLI-EB port being used.

4.6 Half tap the other end of this wire to the Ground Start Trunk that is being used at the MDF.

4.7 Using the 24 AWG wire, connect GND on the quick-connect block to frame ground of the Electra Mark II. Frame ground is located on the outside of the ESE-328-1 CCU.

4.8 Using a modular jack, connect T OUT and R OUT by using the 24 AWG one pair wire.

4.9 Plug the modular line cord (with RJ11 connectors) into the modular jack and the SLT.

5. TEST PROCEDURES

5.1 With the Electra Mark II system operating, make outgoing and incoming calls with/to the SLT.

NOTE

For the following procedure, be sure that the CPU battery is ON.

5.2 Power down the Electra Mark II system and make outgoing and incoming calls with/to the SLT.

Figure 1. Connecting DEES Automatic Ground Start to an SLT.

NOTE: This unit can handle a maximum of 3 SLTs.
Figure 2. Quick-Connect Block
1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the steps necessary for connection and operation of a Viking W-1000/W-2000 Handsfree Doorbox and a Viking RC-2A Remote Touch-Tone On/Off Industrial Controller with the Electra MarkII. (The Viking RC-2A can be used to control door releases, gate openers, lighting, etc.)

2. Configurations

The products mentioned in this ETI can be connected to the Electra MarkII as follows:

2.1 Handsfree Doorbox with Door Release connected to COI-E/EB ETU port.
2.2 Handsfree Doorbox connected to COI-E/EB ETU port.
2.3 Door Release connected to VMI-E ETU port.

NOTE

The Door Release requires DTMF signaling for control of its relays.

3. Parts Required

3.1 For Configuration 2.1 (Handsfree Doorbox with Door Release connected to COI-E/EB ETU port.)
   - COI-E/EB ETU port
   - Viking W-1000/W-2000 handsfree Doorbox
   - Viking RC-2A Remote Touch-Tone On/Off Industrial Controller (Door Release application)
   - Modular Line Cords (2) with RJ11 connector and cable.
   - 24 AWG One Pair wire

3.2 For Configuration 2.2 (Handsfree Doorbox connected to COI-E/EB ETU port).
   - COI-E/EB ETU port
   - Viking W-1000/W-2000 handsfree Doorbox.
   - 24 AWG One Pair wire.

3.3 For Configuration 2.3 (Door Release connected to VMI-E ETU port).
   - VMI-E ETU port.
   - RSG-E Unit (To support the VMI-E ETU).
   - Viking RC-2A Remote Touch-Tone On/Off Industrial Controller (Door Release application).
   - Modular Line Cords (2) with RJ11 connector and cable.
   - 24 AWG One Pair wire.
4. **References**

Viking Technical Practice notes (Included with product).

Viking Electronics, Inc.
1531 Industrial Street
Hudson, WI 54016
715-386-8861

5. **Operation**

5.1 **Doorbox**

When the Call button on the Doorbox is depressed, the CO line representing this device will ring twice at a station. The station user answers and converses with the caller.

5.2 **Door Release**

After accessing the Door Release, a caller may enter command codes from a dial pad which control relays (turn off or on) that operate access to entries/exits.

6. **Site Requirements**

6.1 The Viking W-1000/W-2000 Handsfree Doorbox should be mounted on a flat surface and in a location that protects it from rain, wind, extreme temperature changes. Power source must be indoor, 120V ac.

6.2 Recommended mounting location of the Viking RC-2A Door Release is in the telephone equipment room and near a 120V ac power source.

7. **Procedure**

7.1 For configuration 2.1 (Handsfree Doorbox with Door Release connected to COI-E/EB ETU). See Figure 1.

7.1.1 Determine the location for mounting the Viking W-1000/W-2000 Handsfree Doorbox and/or Viking RC-2A Remote Touch-Tone On/Off Industrial Controller Door Release. Ensure that there is an indoor 120V ac power source nearby.

7.1.2 Install the COI-E/EB ETU in an available interface slot (if a COI port is not already available). The COI-E/EB ETU port to be used must be set as a Loop Start Trunk.

7.1.3 Insert the RJ11 connector end of the modular line cord into the RJ-OUT of the Viking RC-2A Door Release.

7.1.4 With the other end of the modular line cord, punch down the Green and Red wires onto Tip and Ring, respectively, of the available CO port at the MDF block.

7.1.5 Using the other modular line cord, insert the RJ11 connector into RJ-IN of the Viking RC-2A Door Release.

7.1.6 With the other end of this modular line cord, connect the Red and Green wires to the Viking W-1000/W-2000 as shown in Figure 1.

7.1.7 Set the Entry (Security) Code (a security code is required before the relays can be activated/deactivated) of the Viking RC-2A by rotating the dials shown under Entry Code 1-2-3.

7.1.8 Connect the W-1000/W-2000 power supply and plug into nearest 120V ac outlet.
Figure 1 Handsfree Doorbox with Door Release connected to COI-E/EB ETU

7.1.9 Connect the RC-2A power supply and plug into nearest 120V ac outlet.
7.2 Electra MarkII Programming

7.2.1 A CO line appearance representing the CO port for the Viking products must be assigned to the appropriate stations that will be answering and controlling them. MB 1A can be used for this assignment.

7.2.2 To control the Viking RC-2A Door Release, a * must be sent first; therefore, MB 2A5, Line Key 1 must be turned off.

7.2.3 DTMF digit duration must be increased for sending control codes to the Viking RC-2A Door Release. The CO port that the Viking products are connected to, MB 4B1, Line Keys 5-8 must be changed to OFF-OFF-ON-OFF.

7.2.4 Test the Viking W-1000/W-2000, and RC-2A for proper operation in conjunction with the Electra MarkII.

7.3 For configuration 2.2 (Handsfree Doorbox connected to COI-E/EB ETU). See Figure 2.

7.3.1 Determine the location for mounting the Viking W-1000/W-2000 Handsfree Doorbox and/or Viking RC-2A Remote Touch-Tone On/Off Industrial Controller Door Release. Ensure that there is an indoor 120V ac power source nearby.

7.3.2 Install the COI-E/EB ETU in an available interface slot (if a COI port is not already available). The COI-E/EB ETU port to be used must be set as a Loop Start Trunk.

7.3.3 Using the 24 AWG one pair wire, punch down the wire onto the Tip and Ring of the available COI port at the MDF.

7.3.4 Connect the other end of the 24 AWG one pair wire to the Viking W-1000/W-2000 as shown in Figure 2.

7.3.5 Connect the power supply to the W-1000/W2000 and plug into the nearest 120V ac outlet.

---

**Figure 2** Handsfree Doorbox connected to COI-E/EB ETU
Electra MarkII Programming

7.4.1 A CO line appearance representing the CO port for the Viking products must be assigned to the appropriate stations that will be answering and controlling them. MB 1A can be used for this assignment.

7.4.2 Test the Viking W-1000/W-2000 for proper operation in conjunction with the Electra MarkII.

For configuration 2.3 (Door Release connected to VMI port). See Figure 3.

7.5.1 Determine the location for mounting the Viking RC-2A Remote Touch-Tone On/Off Industrial Controller Door Release. Ensure that there is an indoor 120V ac power source nearby.

7.5.2 Install the VMI-E ETU in an available interface slot (if a VMI port is not already available).

7.5.3 Install the RSG-E Unit in an available RSG slot, in the same or adjacent Electra MarkII CCU where the VMI-E ETU is installed, provided an RSG-E Unit is not already installed.

7.5.4 Insert the RJ11 connector end of the modular line cord into the RJ-OUT of the Viking RC-2A Door Release.

7.5.5 Insert the other RJ11 connector into the modular jack representing the available VMI port.

7.5.6 Set the Entry (Security) Code (a security code is required before the relays can be activated/deactivated) of the Viking RC-2A by rotating the dials shown under Entry Code 1-2-3.

7.5.7 Plug the unit into the nearest 120V ac outlet.

Electra MarkII programming

7.6.1 To control the Viking RC-2A Door Release, a * must be sent first; therefore, MB 2A5, Line Key 1 must be turned off.

7.6.2 DTMF digit duration must be increased for sending control codes to the Viking RC-2A Door Release. The VMI port that the Viking products are connected to, MB 4B9, Line Keys 5-8 must be changed to OFF-OFF-ON-OFF.

7.6.3 Connect additional equipment that is to be controlled by the Viking RC-2A to contacts A and B. The “shunt” on the RC-2A (representing Normally Closed or Normally Open) may need to be changed (depends on requirements of additional equipment).

7.6.4 Test the Viking RC-2A for proper operation in conjunction with the Electra MarkII. Testing can be accomplished using the following procedures.

A. Dial station number representing the VMI port.

B. After RC-2A answers, enter * and Entry Code.

C. Enter Command Codes and listen for confirmation tone.
Figure. 3 Door Release connected to VMI Port
1. DESCRIPTION

This Engineering Technical Information (ETI) bulletin provides the steps necessary to upgrade an existing RAA-E Unit to revision 2A which involves changing one IC. This upgrade is required in order to use the RAA-E Unit with the RAA Unit Disk (COMLINK: V2.0 or higher) and the System Data Up/Down Load (DATASAVE) (Stock No. 700539 for 5.25' diskette or No. 700540 for 3.5' diskette) software. RAA-E Units revision 3 or higher do not require this upgrade.

2. PARTS REQUIRED

2.1 The RAA-E Unit Upgrade Kit (Stock No 700537) consists of:
   2.1.1 One revision A label.
   2.1.2 One revision 2A label.
   2.1.3 One V3.1 EPROM IC.
   2.1.4 RAA-E Unit Disk (COMLINK) V2.0.

2.2 Anti-static wrist band and grounding strap (3M Model 2213 or similar, locally provided).

2.3 Anti-static mat (3M Model 8501 or similar, locally provided).

2.4 IC Chip insertion/extraction tool capable of handling a 28 pin IC (locally provided).

CAUTION: Microprocessors and some other chips used on the RAA-E Unit are static sensitive devices. Proper care in handling is necessary to assure that neither the microprocessor nor the printed circuit board (PCB) is damaged. This procedure minimizes the possibility of damage due to static electricity discharge.

3. SET UP PROCEDURE

3.1 Attach the anti-static mat to earth ground.

3.2 Put on the anti-static wrist band and attach the band to the anti-static mat.

3.3 Unpack the new EPROM IC and labels provided.
4. PROCEDURE

4.1 Loosen the cross head cover retaining screw located at the rear of the housing (See Figure 1).

4.2 Remove the RAA-E Unit cover by applying inward pressure to the lower half while at the same time pulling back on the upper half.

4.3 Remove the HIC-E PCB by lifting it off of the RAC-E Unit.

4.4 Using the chip extraction/insertion tool, remove the installed EPROM (Z2) from its socket (Refer to Figure 2). Follow the IC extractor manufacturer's recommended procedure.

4.5 Using the same tool as in step 4.4, and following the IC insertion tool manufacturer's recommended procedure, insert the supplied EPROM into the IC chip socket. Observe IC polarity and ensure that the IC pins are not bent and that all pins are properly inserted in the IC socket (Refer to Figure 2).

4.6 Using the revision A label provided, add the A revision after the number on the RAC-E PCB (See Figure 2).

4.7 Use the revision 2A label and change the revision level on the outside of the bottom half of the RAA-E Unit (See Figure 3).

4.8 Set SW5 on the HIC-E Unit to the Low setting.

4.9 Reassemble the upper and lower housing halves of the RAA-E Unit.

4.10 Test the unit for proper operation. This can be done with either the "COMLINK" (V2.0) or "DATASAVE" (V1.00) Software. Refer to the Electra MarkII Installation Service Manual, Chapter 9, for programming instructions.
Figure 2 - Inserting the EPROM and Adding the A Revision Label
Figure 3 - Adding Revision Label 2A to Outside of RAA-E Unit.
1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the steps necessary for connection and operation of a Viking Fax Jack III and a Viking Pathfinder (Phone/Data/Fax Switch) with the Electra Markll. Both products can be used for the connection of fax machines, modems, and other data transmission devices. By connecting these units to an incoming CO line, Voice calls can be routed to the Electra Markll. However, Fax/Data calls will be directed to appropriate devices. This allows multi-use of a CO line.

2. CONFIGURATIONS

Both products must be connected to the Electra Markll via a COI-E/EB ETU port. Fax machines, modems, and other data transmission devices are then connected directly to the Viking products. Fax machines may be G1, G2, G3, etc., type machines. An incoming call from a fax machine that provides CNG tones will be automatically routed to the fax that is connected to the Viking product. An incoming call from a fax machine that does not provide CNG tones will not be routed automatically. The call must be taken via telephone and transferred to the fax machine by depressing "#, 1" on the same line that the call came in on. Refer to the Viking Technical Practice Notes that are provided with each of these products.

NOTE: Carrier Tone must be sent before incoming modem calls that are to be directed to the modem that is connected to the Viking product. This can be accomplished by the digits dialed by the incoming modem, followed by three pauses, then a string of 2s (a minimum of three 2s is recommended). The string must be longer than the time required by the Telco to connect and ring the line.

If Carrier Tone is not sent, the call must be taken by telephone and transferred to the modem by depressing "#, 2" on the same line that the call came in on.

3. PARTS REQUIRED

For connection of either the Viking Fax Jack III or the Viking Pathfinder.

- COI-E/EB ETU
- Viking Fax Jack III (Model FAXJ-300) or Viking Pathfinder (Model PDF-1)
- Modular Line Cords with RJ11 Connectors

NOTE 1: The Fax Jack III comes with a line cord to connect to the COI-E/EB port. Two additional line cords with RJ11 connectors, allow connection of additional devices.

NOTE 2: The Pathfinder requires one line cord to connect the unit to an COI-E/EB port. A maximum of three additional line cords, with RJ11 connectors, allow connection of additional devices.

NOTE 3: Calls from Fax machines may require longer timers for CNG tones.
NOTE 4: In-house Fax machines may require a minimum time (number of rings) before a Fax to Fax connection can be made.

4. REFERENCES

Viking Technical Practice notes (included with product).

Viking Electronics, Inc.
1531 Industrial Street
Hudson, WI 54016
Sales: (715) 386-8861

5. SITE REQUIREMENTS

Both products must be mounted near a 120V AC source. Site location is limited only by the location of the COI-E/EB ETU port jack and the additional devices.

6. PROCEDURE

6.1 For connection of the Viking Fax Jack III. See Figure 1.

6.1.1 Determine the location for mounting the Viking Fax Jack III. Ensure that the designated COI-E/EB ETU port jack and 120V AC power source are nearby.

6.1.2 Install the COI-E/EB ETU in an available interface slot (if an COI port is not available).

6.1.3 Insert the RJ11 connector from the Fax Jack III to an incoming CO line port jack.

6.1.4 Using a modular line cord with RJ11 connectors, connect a COI-E/EB ETU to the Phone Connector on the Fax Jack III.

6.1.5 Using another modular line cord with RJ11 connectors, connect the data port on the Fax Jack III to either a fax machine, modem, or other data transmission device.

NOTE: Switch 1 (located on the rear of the Fax Jack III) determines whether a fax machine or a modem will be connected to the data port.

6.1.6 Plug the AC adaptor into the Fax Jack III and the 120V AC power source. Refer to the Technical Practice notes for proper switch setting.

6.2 Electra Mark II Programming

6.2.1 No special programming is required for the Electra Mark II. When installing the COI-E/EB ETU, a trunk number is automatically assigned for the port representing the Fax Jack III.

6.2.2 Refer to the Viking Technical Practice notes for programming the Fax Jack III to your particular application.

6.2.3 Test the Viking Fax Jack III for proper operation with the Electra Mark II.

6.3 For connection of the Viking PathFinder see Figure 2.
6.3.1 Determine the location for mounting the Viking PathFinder. Ensure that the designated COI-E/EB ETU port jack and 120V AC power source are nearby.

6.3.2 Install the COI-E/EB ETU in an available interface slot (if a COI port is not already available).

6.3.3 Insert a modular line cord with RJ11 connectors from the Telco connector of the PathFinder to incoming CO line port jack.

6.3.4 Using a modular line cord with RJ11 connectors, connect a COI-E/EB ETU to the phone connector on the PathFinder.

6.3.5 Using other modular line cords with RJ11 connectors, connect a fax machine to the fax connector on the PathFinder and a modem to the modem connector on the PathFinder.

NOTE: These port can be used to connect other fax machines, modems, or data transmission devices.

6.3.6 Plug the AC adaptor from the PathFinder to the 120V AC power source.

6.4 Electra MarkII Programming

6.4.1 No special programming is required for the Electra MarkII. Upon installation of the COI-E/EB ETU, a trunk number is automatically assigned for the port representing the PathFinder.

6.4.2 Refer to the Viking Technical Practice notes for programming the PathFinder to your particular application.

6.4.3 Test the Viking PathFinder for proper operation with the Electra MarkII.
Figure 1  Connecting the Viking FaxJack III
ETI NUMBER: MK-017

Figure 2 Connecting the Viking PathFinder
1. **DESCRIPTION**

This Engineering Technical Information (ETI) Bulletin describes the procedure for connecting the Soft-Com Scout Jr. Call Accounting System to the Electra MarkII system via the SMDR-E ETU. This Call Accounting System consists only of software that must be stored on a personal computer hard disk.

**NOTE:** Before undertaking this procedure, the installer should be familiar with the Soft-Com Scout Jr. Technical reference manual and Chapter 2 of the Electra MarkII Installation Service Manual.

2. **PARTS REQUIRED**

2.1 SMDR-E ETU.

2.2 Soft-Com Scout Jr. (Version 4.3 or higher) Call Accounting System. This system can support a maximum of eighty (80) extension numbers.

Soft-Com Inc.
140 West 22nd Street
New York, NY 10011
(212) 242-9595

2.3 RS-232C Straight Cable with male connectors at both ends.

2.4 An NEC Powermate or IBM compatible computer with hard disk. The following are the basic requirements:

- 640K RAM
- Communications Port
- Hard Disk - 20 Mbytes Minimum
  - 5 Mbytes for storing the Scout Jr. resident program.
  - 10 Mbytes allows 10,000 calls to be stored.
- One 5-1/4” or 3-1/2” Floppy Disk Drive
- Display/Printer Interface Card
- Monitor
- MS-DOS Version 3.1 or higher

(Refer to the Scout Jr. manual for additional computer hardware requirements)

2.5 Serial or parallel printer (to be used for the printing of call record reports). This printer must be connected to the computer.

3. **OPERATION**

After installation and programming are completed, system managers of the Scout Jr. system will be able to print call record reports showing incoming and outgoing calls by extensions, departments, trunks, account codes, etc. In addition, the Scout Jr. allows custom reports to be printed for programmable variables.
4. PROCEDURE

4.1 Scout Jr. Installation
Load the call accounting software into the computer in accordance with the Scout Jr. manual. Scout Jr. already contains the switch parameters for the Electra MarkII; therefore, choose the item number that represents the Electra MarkII in the switch setup during installation.

4.2 Connections (refer to Figure 1)

4.2.1 Install the SMDR-E ETU into an available option slot in a CCU. (Refer to Chapter 2 of the Installation Service Manual.)

4.2.2 Connect one end of the RS-232C cable to the female connector of the SMDR-E ETU. Connect the other end of the RS-232C cable to a COM Port on the computer.

4.3 Electra MarkII Programming

4.3.1 If SMDR output of incoming calls is required, Memory Block 2A6, Line Key 1 must be ON.

4.3.2 In memory Block 2D1, Line Key 4 represents the time until the Electra MarkII will begin recording the duration of the call.

4.3.3 In memory Block 2D1, Line Key 13 represents the time that must pass on a call before the Electra MarkII will provide an SMDR report.

4.3.4 Memory Block 2A8 allows you to program the number of digits that will be used for Account Codes.

4.4 Scout Jr. Programming
The following is general information concerning the programming required with Scout Jr. for a customer's site:

- Site Information:
  - Company Name
  - Company Address
  - Company Telephone Number

- Department Numbers

- Extension Numbers and Names of Users

- Trunks: (Types of Trunks Used and Numbers)

- Call Pricing Information: Carrier (MCI, Sprint, AT&T, etc.)
  The call pricing can also be customized for a customer's needs.

(Refer to the Scout Jr. manual for additional information.)
Figure 1  Connecting the SMDR-E ETU to the COM Port on the Computer
1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the procedure for connecting the Active Voice Repartee Voice Mail/Automated Attendant System to the Electra MarkII System via the VMI-E ETU.

NOTE: Before undertaking this procedure, the installer should be familiar with the Active Voice Repartee System Managers Manual and Chapter 8 of the Electra MarkII Installation Service Manual.

2. CONFIGURATION

The Active Voice Repartee system is very flexible for allowing the system to meet the demands of a customer site. The following is a condensed list of features available with this system:

**Automated Attendant**
- Call Screening
- Call Holding (queuing)
- Transfer to Attendant at any time
- Port Independence (allows different ports to be answered with different introduction messages)
- Call Transferring

**Voice Mail**
- Taking Messages
- Group Messages
- Date and Time Stamp
- Message Notification (Turn on/off MSG on the Electra MarkII stations, ring an extension, outside number, pager, etc.)
- Message redirection
- Message Receipt Verification

**Voice Response**
- Interactive Questioning
- Information Distribution

3. PARTS REQUIRED

3.1 VMI-E ETU (an MFR-EA ETU and an RSG-E Unit associated with the CCU in which the VMI-E ETU is installed are also required). With a CPU-EC4 ETU (or higher revision level) installed, two VMI-E ETUs can be supported allowing 8 ports for voice mail interfacing.

3.2 Active Voice Repartee (Version 6.01 or higher) Voice Mail System (including the System Managers Manual).

Active Voice Corporation
101 Stewart Street
Seattle, Washington 98101
(206) 441-4700
3.3 An NEC Powermate or IBM compatible computer with hard disk. The following are the basic requirements:

- 640K RAM
- One or Two 8-bit Expansion Slots
- Hard Disk - 20 Mbytes Minimum
  - 5 Mbytes for the REPARTEE Resident program.
  - 10 Mbytes allow for up to one hour of messages to be stored.
- One 5-1/4" Floppy Disk Drive
- Parallel Port, Clock/Calendar
- MS-DOS Version 2.1 or higher
- Monitor

(Refer to the Repartee Manual for additional hardware requirements.)

3.4 Modular Line Cords with RJ14 connectors.

4. OPERATION

When using the Automated Attendant feature, incoming DID/DIT calls will be answered by the Automated Attendant. The outside caller will be asked to enter a desired extension number, then the Automated Attendant will attempt to transfer the call. The features listed in section 2 of this document can be used for the Automated Attendant.

When using the Voice Mail feature, and by programming extensions on the Electra MarkII for Call Forward (All Calls or Busy/No Answer) to the voice mail system, incoming DID/DIT calls to these stations can be sent to the station user's mailbox. The station user, upon receiving a MSG signal at his/her station can access their voice mailbox via a speed dial button, enter their personal password, and retrieve their message(s).

When using the Voice Response feature, the Repartee can ask incoming callers a series of questions (Example: “What is your name? Address? Problems or Concerns that you may have?” etc.) or Repartee can provide information about the customer site. (Example: “We are open Monday through Friday, 8:00 am to 5:00 pm. In case of an emergency, dial 1-800-367-0632.”)

5. PROCEDURE

5.1 Repartee Installation

5.1.1 Install Repartee Voice cards in the personal computer in accordance with the Repartee System Managers Manual.

5.1.2 Install the Repartee protection key in the parallel port of the personal computer.

5.1.3 Load the software in accordance with the Repartee System Managers Manual.

5.2 Connection

5.2.1 Install the VMI-E ETU(s) into an available interface slot, in a CCU that is supported by an RSG-E Unit. (Refer to Chapter 2 of the Electra MarkII Installation Service Manual).

5.2.2 The Repartee Voice Mail System provides two to eight ports for Voice Mail and/or Automated Attendant Access. Each of the two Repartee ports connect to two (of the 8 available ports). Each of the VMI-E extensions should be cross-connected from the appropriate J block on the MDF and connected to an RJ14C connector to facilitate connection to the Repartee Voice Card using modular line cords (see Figure 1).
5.3 Initializing Repartee

5.3.1 Configure Repartee Voice Mail System
- Enter Name of Enrolled Callers
- Enter Extension Numbers
- Enter Personal Identifications
- Enter Voice Names

5.3.2 Refer to the Repartee System Managers Manual for additional setup information.

5.4 Electra MarkII System Programming

5.4.1 If the VMI-E ETU(s) is being added to an existing system in an interface slot previously occupied by a different type of ETU, it is necessary to assign the interface slot to be used for the VMI-E ETU in Memory Block 4C1. (Refer to Chapter 3 of the Electra MarkII Installation Service Manual.) Two VMI-E ETUs can be installed in the system when using a CPU-EC4 ETU.

5.4.2 Up to four voice mail ports connected to the Repartee System can be programmed in the Voice Mail Hunt Group in Memory Block 2C4. (Refer to Chapter 3 of the Electra MarkII Installation Service Manual.)

5.4.3 In Memory Block 2B8, be sure that Line Keys 1~4 are programmed as Voice Mail ports and Line Keys 9~12 are programmed to send DTMF.

5.4.4 Memory Blocks 4B8 and 4B9 will remain at default values for most cases; however, be aware that these timing parameters can be changed.

5.4.5 A hunt group for the VMI ports may have to be programmed in Memory Blocks 3B5 to 3B8 depending on the customer site requirements.

5.4.6 Station Speed Dial can be programmed to allow for easier access to the station users voice mailbox to retrieve messages and/or leave messages.
ETI NUMBER: MK-019

Rear of Computer

Rear of Computer

Repartee Voice Card Location

Figure 1 Repartee Connection Block Diagram

Figure 1 Repartee Connection Block Diagram
# ELECTRA MARKII

## Dterm II SINGLE LINE TELEPHONES

### ETI BULLETINS

<table>
<thead>
<tr>
<th>ETI NUMBER</th>
<th>DESCRIPTION</th>
<th>DATE</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS-001</td>
<td>Connection of Plantronics Phonebeam to Dterm II (ETE-1-2)</td>
<td>06/90</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>DS-002</td>
<td>Connection of Northern Telecom Companion II Speakerphone to Dterm II (ETE-1-2)</td>
<td>06/90</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>DS-003</td>
<td>Connection of Plantronics jackset (Model JS-180) to Dterm II (ETE-1-2)</td>
<td>06/90</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>DS-004</td>
<td>Connection of TA-20 or S-11 Handset Amplifier to Dterm II (ETE-1-2)</td>
<td>06/90</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>DS-005</td>
<td>Connection of an Audio Tape Recorder to Dterm II (ETE-1-2)</td>
<td>06/90</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>DS-006</td>
<td>Connection of Northern Telecom Companion 45 Speakerphone to Dterm II (ETE-1-2 and 1HM-2)</td>
<td>06/90</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>DS-007</td>
<td>Connection of Panasonic Audiodialer Recorder to Dterm II (ETE-1-2)</td>
<td>06/90</td>
<td>ACTIVE</td>
</tr>
</tbody>
</table>
1. DESCRIPTION
This Engineering Technical Information (ETI) Bulletin provides installation instructions for connecting a Plantronics phonebeam speakerphone to a Dterm II telephone (ETE-1-2).

2. LIMITATIONS
2.1 Dterm II can transmit only when speakerphone is turned off.
2.2 Speakerphone can transmit only when the Dterm II is on-hook.

3. PARTS REQUIRED
3.1 Dterm II (ETE-1-2).
3.2 PLANTRONICS Phonebeam Speakerphone.
3.3 Electrical insulation tape.
3.4 Needlenose pliers

4. REFERENCES
4.1 PLANTRONICS installation manual 15499-01.
4.2 Dterm II (ETE-1-2) User Guide.

5. OPERATION
5.1 Initiating calls
   A. Initiate calls by going off-hook with the Dterm II handset (Speakerphone turned “OFF”),
   OR
   B. Depress the “ON” key on the Speakerphone (Dterm II on-hook),
   OR
   C. Switch the remote microphone unit of the phonebeam speakerphone to the “ON” position and then hang up the handset.
5.2 Transferring calls

A. From Dterm II handset to Speakerphone; depress "ON" key on speakerphone,

OR

Switch remote microphone unit to "ON" position and then hang up the handset.

B. From Speakerphone to Dterm II handset; lift the handset of the Dterm II and then turn off the Speakerphone.

6. PROCEDURE

6.1 Disconnect the line and handset cord from the Dterm Telephone.

6.2 Place the Dterm II upside down on a clean flat work surface.

6.3 Slide the Directory out and place it aside.

6.4 Remove the access panel by applying pressure (at the notch of the panel) and slide the access panel out as shown in Figure 1.

6.5 Connect the leads from the Speakerphone as shown in Table - 1 and Figure 2. (Spade lug H4 can be accessed by using Needle nose pliers.)
Table 1: Speakerphone Cable Connection

<table>
<thead>
<tr>
<th>PHONEBEAM CABLE</th>
<th>DTERM II TERMINAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>RED</td>
<td>H1</td>
</tr>
<tr>
<td>LIGHT GREEN</td>
<td>H3</td>
</tr>
<tr>
<td>WHITE</td>
<td>H4</td>
</tr>
<tr>
<td>BLACK</td>
<td>H4</td>
</tr>
<tr>
<td>DARK GREEN</td>
<td>TX1</td>
</tr>
<tr>
<td>PINK</td>
<td>TX2</td>
</tr>
</tbody>
</table>

Figure 2. Phonebeam wire Connection On Dterm II (ETE-1-2 PCB)

6.6 Following the pre-molded guides inside the access panel cover assembly, cut the notch and route the phonebeam cable through this notch. (See Figure 3.)
Insulate spare Phonebeam wires with electrical tape. Store these wires in a neat bundle inside the access panel cover.

Attach the access panel cover to the Dterm II main body.

Connect the line and handset cords to the Dterm II.

Plug the Phonebeam power supply into a local 110/120V ac outlet. (See Figure 4.)

Test for normal operation
Figure 4. Line Drawing For Completed Installation
1. **DESCRIPTION**
   This Engineering Technical Information (ETI) Bulletin provides installation instructions for connecting a Companion 2 Speakerphone to a Dterm II telephone (ETE-1-2).

2. **LIMITATIONS**
   2.1 Dterm II can transmit only when speakerphone is turned off.
   2.2 Speakerphone can transmit only when the Dterm II is on-hook.

3. **PARTS REQUIRED**
   3.1 Dterm II (ETE-1-2).
   3.2 Northern Telecom Companion 2 Speakerphone.
   3.3 Electrical insulation tape.
   3.4 Needlenose pliers

4. **REFERENCES**
   4.1 Northern Telecom Companion 2 installation manual POS25745.
   4.2 Dterm II (ETE-1-2) User Guide.

5. **OPERATION**
   5.1 Initiating calls
   A. Initiate calls by going off-hook with the Dterm II handset (Speakerphone turned “OFF”),
      OR
   B. Depress the “ON” key on the Speakerphone (Dterm II on-hook),

   5.2 Transferring calls
   A. From Dterm II handset to Speakerphone; depress “ON” key on speakerphone and hang up the handset.
      OR
   B. From Speakerphone to Dterm II handset; lift the handset of the Dterm II, the Speakerphone turns off automatically.
6. **PROCEDURE**

6.1 Disconnect the line and handset cord from the Dterm Telephone.

6.2 Place the Dterm II upside down on a clean flat work surface.

6.3 Slide the Directory out and place it aside.

6.4 Remove the access panel by applying pressure (at the notch of the panel) and slide the access panel out as shown in Figure 1.

6.5 Connect the brown/white and white/brown power leads from the Companion 2 unit to a NE-2012B (or equivalent) transformer.

**NOTE:** If the revision for the ETE-1-2 telephone is A (e.g., 294 A) proceed to step 6.6
If the revision for the ETE-1-2 telephone is B or higher proceed to step 6.7
The revision level of an ETE-1-2 telephone can be determined from the label on the bottom housing of the telephone. Example: If the Lot No. on the label is 295A, the revision level of that particular telephone is A.

6.6 For ETE-1-2 Revision A. Connect the nine (9) wires from the Companion 2 Speakerphone to the Dterm II (ETE-1-2) PCB as shown in Table - 1 and Figure 2. Cut strap 58 from the PCB. (Spade lug receptacles H4 and H5 can be accessed with Needlenose pliers.)

6.7 For ETE-1-2 Revision B and higher. Connect nine (9) wires from Companion 2 Speakerphone to Dterm II (ETE-1-2) PCB as shown in Table 2 and Figure 3. Cut strap S8 from the PCB.
### Table 1: Companion 2 Speakerphone Cable Connection (ETE-1-2 Rev. A)

<table>
<thead>
<tr>
<th>COMPANION 2 CABLES</th>
<th>DTERM II TERMINAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLUE/WHITE</td>
<td>H1</td>
</tr>
<tr>
<td>WHITE/BLUE</td>
<td>I13</td>
</tr>
<tr>
<td>SLATE/BLUE</td>
<td>H3</td>
</tr>
<tr>
<td>SLATE/RED</td>
<td>H4</td>
</tr>
<tr>
<td>YELLOW/BROWN</td>
<td>H4</td>
</tr>
<tr>
<td>RED/SLATE</td>
<td>H5</td>
</tr>
<tr>
<td>YELLOW/SLATE</td>
<td>J3</td>
</tr>
<tr>
<td>ORANGE/VIOLET</td>
<td>TX1</td>
</tr>
<tr>
<td>BROWN/YELLOW</td>
<td>TX2</td>
</tr>
<tr>
<td>SLATE/YELLOW</td>
<td>RX2</td>
</tr>
</tbody>
</table>

* Cut Strap 58 on the PCB

---

**Figure 2.** Companion 2 Speakerphone wire Connection On Dterm II (ETE-1-2) PCB (Rev. A)
Table - 2  Companion 2 Speakerphone Cable Connection (ETE-1-2 Rev. B or higher)

<table>
<thead>
<tr>
<th>COMPANION 2 CABLE</th>
<th>PCB SPADE LUGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLUE/WHITE</td>
<td>H1</td>
</tr>
<tr>
<td>WHITE/BLUE</td>
<td>H3</td>
</tr>
<tr>
<td>SLATE/RED</td>
<td>H4</td>
</tr>
<tr>
<td>YELLOW/BROWN</td>
<td>H4</td>
</tr>
<tr>
<td>RED/SLATE</td>
<td>H5</td>
</tr>
<tr>
<td>YELLOW/SLATE</td>
<td>J3</td>
</tr>
<tr>
<td>ORANGE/VIOLET</td>
<td>TX2</td>
</tr>
<tr>
<td>BROWN/YELLOW</td>
<td>TX1</td>
</tr>
<tr>
<td>SLATE/YELLOW</td>
<td>RX2</td>
</tr>
</tbody>
</table>

* Cut Strap S8 on the PCB

Figure 3.  Companion 2 Speakerphone Wire Connection On Dterm II (ETE-1-2) PCB (Rev. B and Higher)
6.8 Following the pre-molded guides inside the access panel cover assembly, cut the notch and route the Speakerphone cable through this notch. (See Figure 4.)

6.9 Insulate spare Phonebeam wires with electrical tape. Store these wires in a neat bundle inside the access panel cover.

6.10 Attach the access panel cover to the Dterm II main body.

6.11 Connect the line and handset cords to the Dterm II.

6.12 Plug the Companion 2 power supply into a local 110/120V ac outlet.

6.13 Test for normal operation.

Figure 4. Speakerphone Cable Exit Groove on Dterm II Telephone
CONNECTION OF PLANTRONICS JACKSET (MODEL JS-180) TO A Dterm II (ETE-1-2)

1. DESCRIPTION
   This Engineering Technical Information (ETI) Bulletin provides installation instructions for connecting a Plantronics Jackset (Model JS-180) to a Dterm II telephone (ETE-1-2).

2. LIMITATIONS
   NONE

3. PARTS REQUIRED
   3.1 Dterm II (ETE-1-2).
   3.2 JS-180 Plantronics Jackset
   3.3 Electrical insulation tape.
   3.4 Needle nose pliers

4. REFERENCES
   4.2 Dterm II (ETE-1-2) User Guide

5. OPERATION
   5.1 Initiating calls
      A. Initiate calls by going off-hook with the Dterm II handset (JS-180 “Rocker Switch” turned “OFF”).
   5.2 Transferring calls
      A. By moving the Jackset JS-180 “Rocker Switch” to the ON position, the call can be transferred to the headset. Set the handset of the Dterm II telephone to ON-HOOK.
   5.3 Receiving Calls.
      A. By moving the Jackset “Rocker Switch” to the ON position, the Dterm II telephone will become OFF-HOOK. The operator can talk over the headset.
      B. The call can be terminated by moving the “Rocker Switch” to the off position.
6. PROCEDURE

6.1 Disconnect the line and handset cord from the Dterm telephone.
6.2 Place the Dterm II upside down on a clean, flat work surface.
6.3 Slide the Directory out and place it aside.
6.4 Remove the access panel by applying pressure (at the notch of the panel) and slide the access panel out as shown in Figure 1.

![Figure 1. Access Panel Removal](image)

6.5 Cut strap 58 on the telephone PCB as shown in Figure 2 and Figure 3. (Strap 58 is visible from the access panel window.)

NOTE: If the revision for the ETE-1-2 telephone is A (e.g., 294 A) proceed to step 6.6
If the revision for the ETE-1-2 telephone is B or higher proceed to step 6.7
The revision level of an ETE-1-2 telephone can be determined from the label on the bottom housing of the telephone. Example: If the Lot No. on the label is 295A, the revision level of that particular telephone is A.

6.6 For ETE-1-2 Revision A. Connect the leads from the JS-180 to the spade lug connectors on the PCB. Refer to Table - 1 and Figure 2. Needlenose pliers may be used to push spade lugs into their receptacles.

6.7 For ETE-1-2 Revision B and higher. Connect the leads from the JS-180 to the spade lug connectors on the PCB. Refer to Table - 2 and Figure 3. Needlenose pliers may be used to push spade lugs into their receptacles.

6.8 Following the pre-molded guides inside the access panel cover assembly, cut the notch and route the Jackset JS-180 cable through this notch. (See Figure 4.)

6.9 Insulate spare Jackset wires with electrical tape. Store these wires in a neat bundle in the access panel cover.

6.10 Attach the access panel cover to the Dterm II main body.
6.11 Connect the line and handset cords to the Dterm II.
6.12 Test for normal operation.
Table 1: Jackset JS-180 Cable Connection (ETE-1-2 Rev. A)

<table>
<thead>
<tr>
<th>JACKSET JS-180 CABLE</th>
<th>Dterm II PCB SPADE LUG CONNECTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIOLET</td>
<td>H3</td>
</tr>
<tr>
<td>RED</td>
<td>H1</td>
</tr>
<tr>
<td>ORANGE/WHITE</td>
<td>TX1</td>
</tr>
<tr>
<td>YELLOW/WHITE</td>
<td>TX2</td>
</tr>
<tr>
<td>YELLOW</td>
<td>RX</td>
</tr>
<tr>
<td>BLACK**</td>
<td>RX1</td>
</tr>
<tr>
<td>ORANGE</td>
<td>RX2</td>
</tr>
<tr>
<td>BLUE</td>
<td>J1</td>
</tr>
<tr>
<td>BROWN</td>
<td>J3</td>
</tr>
</tbody>
</table>

**NOTE:** For better voice quality, connect a 3.6K ohm resistor between the Black wire and Spade lug RX1.

Figure 2: Jackset JS-180 wire Connection On Dterm II (ETE-1-2) PCB (Rev. A)

**NOTE:** If the Jackset JS-180 is disconnected from the ETE-1-2 telephone, Strap S8 must be reconnected for proper operation of the telephone.
Table 2  Jackset JS-180 Cable Connection (ETE-1-2 Rev. B or higher)

<table>
<thead>
<tr>
<th>JS-180 CABLES</th>
<th>DTERM SPADE LUG CONNECTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>RED</td>
<td>H1</td>
</tr>
<tr>
<td>VIOLET</td>
<td>H3</td>
</tr>
<tr>
<td>BLUE</td>
<td>J1</td>
</tr>
<tr>
<td>BROWN</td>
<td>J3</td>
</tr>
<tr>
<td>YELLOW</td>
<td>J3</td>
</tr>
<tr>
<td>ORANGE/WHITE</td>
<td>TX1</td>
</tr>
<tr>
<td>YELLOW/WHITE</td>
<td>TX2</td>
</tr>
<tr>
<td>ORANGE</td>
<td>RX2</td>
</tr>
<tr>
<td>BLACK</td>
<td>RX3</td>
</tr>
</tbody>
</table>

* Cut Strap S8 on the PCB

Figure 3. Jackset JS-180 Cable Connection to Dterm II (ETE-1-2) PCB (Rev. B and Higher)
Figure 4. Jackset JS-180 Cable Exit Groove on Dterm II Telephone
1. DESCRIPTION
This Engineering Technical Information (ETI) Bulletin provides installation instructions for connecting a TA-20 or S-11 Handset Amplifier to a Dterm II telephone (ETE-1-2).

2. LIMITATIONS
NONE

3. PARTS REQUIRED
3.1 Dterm II (ETE-1-2).
3.2 TA-20 or S-11 Handset Amplifier
3.3 Double sided insulation tape.

4. REFERENCES
NONE

5. OPERATION
5.1 Adjust the desired volume level via the rotary switch on the TA-20 or S-11 handset amplifier.

6. PROCEDURE
6.1 Disconnect the line and handset cord from the Dterm Telephone.
6.2 Place the Dterm II upside down on a clean flat work surface.
6.3 Slide the Directory out and place it aside.
6.4 Remove the access panel by applying pressure (at the notch of the panel) and slide the access panel out as shown in Figure 1.
6.5 Cut strap 58 on the telephone PCB as shown in Figures 2 and 3 (Revision A), and Figures 4 and 5 (Revision B or higher). (Strap 58 is visible from the access panel window.)

NOTE: If the revision for the ETE-1-2 telephone is A (e.g., 294 A) proceed to step 6.6 (TA-20) or 6.7 (S-11)
If the revision for the ETE-1-2 telephone is B or higher proceed to step 6.8 or 6.9
The revision level of an ETE-1-2 telephone can be determined from the label on the bottom housing of the telephone. Example: If the Lot No. on the label is 295A, the revision level of that particular telephone is A.

6.6 For ETE-1-2 Revision A. Connect the leads from the TA-20 Handset Amplifier to the spade lug connectors on the ETE-1-2 PCB. Refer to Table - 1 and Figure 2. Needlenose pliers may be used to push spade lugs into their receptacles.

6.7 For ETE-1-2 Revision A. Connect the leads from the S-11 Handset Amplifier to the spade lug connectors on the ETE-1-2 PCB. Refer to Table - 2 and Figure 3. Needlenose pliers may be used to push spade lugs into their receptacles.
ETI NUMBER: DS-004

Apply Pressure and slide out the Access Panel

Figure 1. Access Panel Removal

Table - 1 TA-20 Handset Amplifier Cable Connection (ETE-1-2 Rev. A)

<table>
<thead>
<tr>
<th>TA-20 HANDSET AMPLIFIER CABLES</th>
<th>Dterm II PCB SPADE LUG CONNECTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>YELLOW</td>
<td>RX2</td>
</tr>
<tr>
<td>RED</td>
<td>RX1</td>
</tr>
<tr>
<td>GREEN</td>
<td>RX</td>
</tr>
<tr>
<td>BLACK</td>
<td>J1</td>
</tr>
</tbody>
</table>

Cut Strap S8 on the telephone PCB

Table - 2 S-11 Handset Amplifier Cable Connection (ETE-1-2 Rev. A)

<table>
<thead>
<tr>
<th>S-11 HANDSET AMPLIFIER CABLES</th>
<th>Dterm II PCB SPADE LUG CONNECTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>YELLOW</td>
<td>RX1</td>
</tr>
<tr>
<td>RED</td>
<td>J1</td>
</tr>
<tr>
<td>GREEN</td>
<td>RX2</td>
</tr>
<tr>
<td>BLACK</td>
<td>RX</td>
</tr>
</tbody>
</table>

Cut Strap S8 on the telephone PCB
Figure 2. TA-20 Handset Amplifier Wire Connection On Dterm II (ETE-1-2) PCB (Rev. A)

Figure 3. S-11 Handset Amplifier Wire Connection On Dterm II (ETE-1-2) PCB (Rev. A)
6.8 TA-20: For ETE-1-2 Revisit
spade lug connectors on the
push spade lugs into the recept.

6.9 S-11: For ETE-1-2 Revision
lug connectors on the ETE
spade lugs into the recept.

6.10 Following the pre-molded
or S-11 cable through this

6.11 Attach the access panel co

6.12 Use a piece of double side
telephone.
Figure 4. TA-20 Handset Amplifier Cable Connection to Dterm II (ETI-1-2) PCB (Rev. B and Higher)

Figure 5. S-11 Handset Amplifier Cable Connection to Dterm II (ETI-1-2) PCB (Rev. B and Higher)
Figure 6. TA-20 or S-11 Cable Exit Groove on Dterm II Telephone
1. DESCRIPTION
   This Engineering Technical Information (ETI) Bulletin provides installation instructions for connecting an Audio Tape Recorder to a Dterm II telephone (ETE-1-2).

2. LIMITATIONS
   2.1 For the tape recorder to function automatically, the handset must be used.
   2.2 To rewind or play back recordings, the remote plug must be removed from its corresponding jack.

   CAUTION: THE USE OF A MONITORING DEVICE TO EAVESDROP OR RECORD TELEPHONE CONVERSATIONS MAY CONSTITUTE AN ILLEGAL INVASION OF PRIVACY UNDER SOME CIRCUMSTANCES AND LAWS. YOU SHOULD CONSULT A LEGAL ADVISOR PRIOR TO IMPLEMENTING ANY PRACTICE INVOLVING RECORDING OF TELEPHONE CALLS.

   FCC ORDER IN DOCKET # 20940 PERMITS THE USE OF BEEP TONE - OR - THE CONSENT OF ALL THE PARTIES WHEN CONVERSATIONS ARE RECORDED. SECTIONS 2510 TO 2520 OF THE U.S. CRIMINAL CODE (U.S.C. 2510 et seq) PROVIDES STIFF PENALTIES FOR UNAUTHORIZED DISCLOSURE OF WIRE OR ORAL COMMUNICATIONS.

   NOTE: Dterm II is designed for dual way communication i.e., the message or beep tone can be played from a tape recorder and be communicated to called or calling parties (conversations can be recorded).

3. PARTS REQUIRED
   3.1 Dterm II (ETE-1-2).
   3.2 Cassette tape recorder.
   3.3 One 1/8" Mini phone plug.
   3.4 One 3/32" Micro phone plug.
   3.5 #22 AWG four conductor stranded cable.
   3.6 Four small spade lug terminals to fit wires in step 3.5.
   3.7 Phillips head screwdriver.

4. REFERENCES
   NONE

5. OPERATION
   5.1 Plug the tape recorder into a 110-120V ac power outlet.
   5.2 Insert the tape cassette into the tape recorder.
   5.3 Establish the call and press the PLAY button to transmit any beep tone to the called party to indicate that the conversation is being recorded.
5.4 Activate RECORD mode
5.5 Upon completion of the
5.6 Remove the remote plu
5.7 Reconnect the remote plu

6. PROCEDURE
   6.1 Disconnect the line and
   6.2 Place the Dterm II upsid
   6.3 Slide the Directory out
   6.4 Remove the access pan
STEP A: To separate ETE-1-2 Telephone housing, hold the Telephone in a vertical position on a flat work surface and push the lower housing upward, while simultaneously, push the upper housing downward.

STEP B: Slide the upper housing upward, while simultaneously, slide the lower housing downward.

Figure 2. Separating Upper and Bottom housings
Table - 1  Tape Recorder Cable Connection

<table>
<thead>
<tr>
<th>TAPE RECORDER CABLES</th>
<th>DTERM II PCB SPADE LUG CONNECTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>REMOTE PLUG</td>
<td>SHAFT &amp; TIP</td>
</tr>
<tr>
<td></td>
<td>H4 &amp; H5 REVERSIBLE</td>
</tr>
<tr>
<td>MIC PLUG</td>
<td>SHAFT &amp; TIP</td>
</tr>
<tr>
<td></td>
<td>H2 &amp; H3 REVERSIBLE</td>
</tr>
</tbody>
</table>

Figure 3. PCB Connection for Automatic Operation of Tape Recorder
6.10 Attach the access panel cover to the Dterm II main body.

6.11 Insert the 1/8" mini plug and the 3/32" micro plug into the respective tape recorder jacks.

6.12 Connect the line and handset cords to the Dterm II.

6.13 Test for normal operation.

A. Plug the tape recorder into a 110-120V ac power supply.
B. Insert the tape cassette into the tape recorder.
C. Establish a call using the handset.
D. Speak in a normal voice and verify that the tape recorder is activated.
E. With the handset off-hook, remove the Remote plug from its jack.
F. Rewind the tape and press PLAY to verify that the test recording was taped.
G. Reinsert the Remote plug and hang up the handset.
1. **DESCRIPTION**
   This Engineering Technical Information (ETI) Bulletin provides installation instructions for connecting Northern Telecom Companion 4S Speakerphone to Dterm II telephones (ETE-1-2 and ETE-1HM-2).

2. **LIMITATIONS**
   2.1 Dterm II telephones can transmit only when the speakerphone is turned off.
   2.2 Speakerphone can transmit only when the Dterm II is on-hook.

3. **PARTS REQUIRED**
   3.1 Dterm II telephone (ETE-1-2 or ETE-1HM-2).
   3.2 Northern Telecom Companion 4S (NT1L06) handsfree unit. This unit includes:
   - Transformer
   - Line cord
   - T Adaptor jack

   To order or for more information on this product call: 1-800-361-7800

4. **REFERENCES**
   4.1 Companion 4S installation and users Guide.
   4.2 Dterm II (ETE-1-2 or ETE-1HM-2) users Guide.

5. **OPERATION**
   5.1 Initiating calls
   A. Initiate calls by going off-hook with the Dterm II handset (Speakerphone turned "OFF"),
   OR
   B. Depress the "ON" key on the Speakerphone (Dterm II on-hook). Dial tone should be heard and the red indicator LED should light.

   5.2 Transferring calls
   A. From Dterm II handset to Speakerphone; depress "ON" key on speakerphone and hang up the handset.
   OR
   B. From Speakerphone to Dterm II handset; lift the handset of the Dterm II, the Speakerphone will automatically turn off.
6. **PROCEDURE**

6.1 Disconnect the line cord of the Dterm II telephone from the RJ11 wall jack.

6.2 Plug the Dterm II telephone line cord into the T-adapter jack marked "PH".

6.3 Insert the Companion 4S line cord into the jack in the base of the unit. Insert the other end of Companion 4S line cord into the T-adapter jack marked "HF".

6.4 Plug the T-adapter in the RJ11 wall jack.

6.5 Plug the Transformer into a local 110-120V ac outlet. Refer to Figure 1. for connection of Companion 4S to a Dterm Telephone.

6.6 Test the following steps for normal operation.

   A. Press the "ON" button on the Companion 4S (dial tone should be heard and the red LED should light).

   B. Place a call using the Companion 4S dial pad. After the call is established, pick up the Dterm handset (the Red LED will go off) and verify proper communication. Transfer the call back to the Companion 4S by pressing the "ON" button (the Red LED will blink).

   C. Release the call by pressing the "RLS" key, the line connection and LED will go off.
1. DESCRIPTION
   This Engineering Technical Information (ETI) Bulletin provides installation instructions for connecting a Panasonic Autodialer to a Dterm II telephone (ETE-1-2).

2. LIMITATIONS
   2.1 Autodialer should be turned off after the call is established.

3. PARTS REQUIRED
   3.1 Dterm II (ETE-1-2).
   3.2 Panasonic Autodialer (model KX-T1235D)
      Autodialer is available at any local Panasonic sales office.
   3.3 RJ-35X Modular jack
   3.4 Needlenose pliers.
   3.5 Four pieces of 24 AWG wire (minimum length: 6" each)
   3.6 Four small spade lugs.

4. REFERENCES
   4.1 Panasonic Autodialer installation Guide.
   4.2 Dterm II (ETE-1-2) Users Guide.

5. OPERATION
   5.1 Depress the ON/OFF button on the Autodialer to the ON position.
   5.2 If using the Speed Dial button, set the Dialing Selector to Auto mode on the autodialer. If using the dial pad on the Autodialer, switch the Dialing Selector to manual mode.
   5.3 Depress the desired Speed dial button or use the dial pad to place a call.
   5.4 Monitor the call through the speaker of the Autodialer.
   5.5 When the called party answers, lift the handset, depress the ON/OFF button on the Autodialer to OFF and converse.

6. PROCEDURE
   6.1 Disconnect the line and handset cord from the Dterm telephone.
   6.2 Place the Dterm II upside down on a clean, flat work surface.
   6.3 Slide the Directory out and place it aside.
6.4 Remove the access panel by applying pressure (at the notch of the panel) and slide the access panel out as shown in Figure 1.

6.5 Unscrew the two captive screws from the bottom of the housing. Separate the upper and bottom housings as shown in Figure 2.

6.6 Obtain an RJ-35X modular jack, four 24 AWG conductor wires and four small spade lugs.

6.7 Remove 1/4" (approximately) of wire insulation from both ends of all four pieces of 24 AWG wires. Solder or crimp a spade lug to one end of each wire.

6.8 Make the RJ-35X connections (refer to Figure 3) using the prepared 24 AWG wires (wire end without spade lug). Route the other end (with spade lug) of the 24 AWG wires through the access panel window to make connections on the PCB of the Dterm II (refer to Table 1 and Figure 3).

6.9 After the connections are made, replace the upper and lower housings by following the steps below.

A. Ensure the handset modular socket is properly placed in the correct position.

B. Position the lower housing on top of the upper housing. All wires should be routed out from the access panel window.

C. Slide the lower housing upwards so that the self-locking tabs on the bottom of the telephone are aligned.

D. Pull the lower housing upward while pressing it onto the upper housing until the self-locking tabs engage.

E. Secure the housings with the two captive screws that were removed in step 6.5.
STEP A: To separate ETE-1-2 Telephone housing, hold the Telephone in a vertical position on a flat work surface and push the lower housing upward, while simultaneously, push the upper housing downward.

STEP B: Slide the upper housing upward, while simultaneously, slide the lower housing downward.

Figure 2. Separating Upper and Bottom Housings
Table -1 Modular Jack RJ-35X Wire Connection to Dterm II PCB

<table>
<thead>
<tr>
<th>WIRE CONNECTION ON RJ-35X</th>
<th>PCB SPADE LUG CONNECTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONNECTOR 3</td>
<td>TX2</td>
</tr>
<tr>
<td>CONNECTOR 4</td>
<td>H1</td>
</tr>
<tr>
<td>CONNECTOR 5</td>
<td>H2</td>
</tr>
<tr>
<td>CONNECTOR 6</td>
<td>TX1</td>
</tr>
</tbody>
</table>

Figure 3. RJ-35X Connections For Dterm II PCB
6.10 Following the pre molded guides inside the access panel cover assembly, route the four wires through the cable exit groove. Refer to Figure 4.

6.11 Attach the access panel cover to the Dterm II main body.

6.12 Connect the line and handset cords to the Dterm II.

6.13 Plug the modular line cord from the Autodialer into the RJ-35X receptacle.

6.14 Plug in ac adapter:
   A. Plug the ac adapter into the Autodialer.
   B. Plug the other end of the ac adapter into a local 110-120V ac outlet.

6.15 Test the Autodialer and the Dterm telephone for normal operation.
## ETI Bulletins

<table>
<thead>
<tr>
<th>ETI NUMBER</th>
<th>DESCRIPTION</th>
<th>DATE</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DT-001</td>
<td>Connection of Plantronics JS-180 Jackset Speakerphone to a Dterm II (ETE-1-2)</td>
<td>12/88</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>DT-002</td>
<td>Panasonic Autodialer Connection to Dterm Series II</td>
<td>12/88</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>DT-003</td>
<td>Melco S-11 and Tone Commander TA-20 Handset Amplifier Connection to Dterm Series II</td>
<td></td>
<td>ACTIVE</td>
</tr>
<tr>
<td>DT-004</td>
<td>Connection of Audio Tape Recorder to Dterm Series II</td>
<td>01/88</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>DT-005</td>
<td>Connection of Northern Telecom Companion II Speakerphone to Dterm Series II</td>
<td>06/89</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>DT-006</td>
<td>Connection of Plantronics Speakerphone to Dterm Series II</td>
<td>06/89</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>DT-007</td>
<td>Connecting Dterm Series II to Dictaphone via ADA-ER Unit</td>
<td>06/89</td>
<td>ACTIVE</td>
</tr>
</tbody>
</table>
1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the steps necessary to install an ADA-E (Ancillary Device Adapter) unit into an ETE-6D-2, ETE-16D-2, ETE-16-2, or ETE-6-2 Multiline Terminal, to provide for connection and operation of a Plantronics Jackset (Model JS-180).

2. PARTS REQUIRED

2.1 ADA-E Unit Adapter Kit (Stock # 560280)

2.2 JS-180 Jackset

2.3 Compatible Headset

2.4 Dterm Series II Multiline Terminal

3. OPERATION

3.1 By moving the Jackset "Rocker Switch" to the ON position, the Dterm Series II Multiline Terminal will go into the OFF-HOOK condition. The operator can now talk over the headset, after depressing a CO or extension line key on the Multiline Terminal.

3.2 The call can be terminated by moving the "Rocker Switch" to the OFF position.

3.3 The Multiline Terminal is seen as OFF-HOOK when the Jackset is turned on, therefore, it may be desirable to program the Multiline Terminal for off-hook ringing.

4. PROCEDURE

4.1 Turn the Multiline Terminal upside down (face down) and locate the access panel on the bottom of the Multiline Terminal, refer to Figure 1.

4.2 Disconnect the modular line cord from under the telephone and from the RJ-11C/W jack.
4.3 Disconnect the modular handset cord from the lower housing.

4.4 Slide the directory out of the way (Not required for ETE-6-2 or ETE-16-2 Multiline Terminal).

4.5 Removal of access panel (Perform only the step that applies, either 4.5.1 or 4.5.2) Refer to Figure 1.

4.5.1 ETE-6D-2 or ETE-16D-2 Multiline Terminal; Insert a flat screwdriver blade into notched opening (shown as A) and apply light upward pressure until access panel is cleared of the front lip, at the same time apply pressure (towards you) at the rear of the pedestal (shown as B) until the access panel moves towards you. Remove panel.

4.5.2 ETE-6-2 or ETE-16-2 Multiline Terminal; depress the flexible notched tab (shown as C) on the access panel and apply upward pressure. Remove panel.

NOTE: Do not discard removed access panel; save for possible future use.

4.6 Locate the eight pin jack labeled "ADA", as seen through the access view of the Multiline Terminal housing.

4.7 Unplug the four pin connector ended harness (labeled "HAND") and extend it out from the housing access opening.

4.8 Set the Dip switches on the ADA-E unit as shown on Table 1 (See Figure 3). Place the jumper strap across ST2 and the center pin. Set SW1 to the "MAKE" position.

4.9 Make the jackset connections as indicated in Figure 3. Use one of the spade tipped jumper wires provided to make a connection between T6 and T8. Use a section of the tubing provided with the ADA-E Kit to insulate the remaining (unused) Jackset wires which must be separately insulated to prevent short circuits.

4.10 Locate and insert the four pin connector ended harness from CN2 on the ADA-E unit into the jack labeled "HAND".

4.11 Locate and insert the eight pin connector ended harness from CN1 on the ADA-E unit into the jack labeled "ADA".

4.12 Insert the four pin connector ended harness (removed in step 4.7) into the four pin jack, CN3, located on the ADA-E unit.

4.13 Install the ADA-E unit and secure it to the terminal housing with the screw provided, as shown in Figure 2.

4.14 Two access panels are provided with the ADA kit, the narrower panel is used with the ETE-6-2 and ETE-16-2 models, the wider panel for all other models. Remove the plastic tongue on the underside of the access panel being installed (using a pair of pliers) to provide clearance for cables in the cable exit groove.

4.15 Place the Jackset cable into the cable exit groove (Figure 2) making certain that all wires are inside the terminal housing. Install the proper access panel.

4.16 Reinstall the modular handset and modular line cords.

4.17 If slid out of the way in step 4.4, slide the directory back into place.

4.18 Plug a compatible headset into the JS-180 and verify proper operation.
Figure 1 Access Panel Removal
Figure 2 ADA-E Unit Installation
Figure 3 ADA-E Unit Connections and Dip Switch Setting for Plantronics Jackset Model JS-180

Table I

<table>
<thead>
<tr>
<th>SWITCH</th>
<th>POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>OFF</td>
</tr>
<tr>
<td>2</td>
<td>OFF</td>
</tr>
<tr>
<td>3</td>
<td>ON</td>
</tr>
<tr>
<td>4</td>
<td>ON</td>
</tr>
<tr>
<td>5</td>
<td>ON</td>
</tr>
<tr>
<td>6</td>
<td>OFF</td>
</tr>
<tr>
<td>7</td>
<td>OFF</td>
</tr>
<tr>
<td>8</td>
<td>OFF</td>
</tr>
</tbody>
</table>
PANASONIC AUTODIALER CONNECTION

1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the steps necessary to install an ADA-E (Ancillary Device Adapter) unit into an ETE-6D-2, ETE-16D-2, ETE-16-2, or ETE-6-2 Multiline Terminal, to provide for connection and operation of a Panasonic Autodialer (Models KX-T1225/KX-T1235).

2. LIMITATIONS

2.1 The dialer must be manually turned OFF after the call is established.

2.2 The dialer cannot be used for intercom calls or for most functions requiring an access code.

2.3 The dialer bypasses both Toll Restriction and LCR.

2.4 The digits dialed, from the dialer, will not appear on the SMDR printout.

3. PARTS REQUIRED

3.1 ADA-E Unit Adapter Kit (Stock # 560280).

3.2 Panasonic Autodialer (KX-T1225/KX-T1235).

3.3 RJ-35X modular jack.

3.4 Eight small spade lugs.

3.5 Approximately 7 feet of four conductor station wire cable; enough to reach from the Multiline Terminal to the RJ-35X.

3.6 Dterm Series II Multiline Terminal.
4. OPERATION

4.1 Access an idle CO/PBX line.

4.2 On the Autodialer, depress the ON/OFF button; then depress the desired Speed Dial button.

4.3 Monitor the call through the speaker of the Autodialer.

4.4 When called party answers, lift the handset and converse.

4.5 After call is established, manually turn OFF the Autodialer by depressing its ON/OFF button.

5. PROCEDURE

5.1 Turn the Multiline Terminal upside down (face down) and locate the access panel on the bottom of the Multiline Terminal, refer to Figure 1.

5.2 Disconnect the modular line cord from under the telephone and from the RJ-11C/W jack.

5.3 Disconnect the modular handset cord from the lower housing.

5.4 Slide the directory out of the way (Not required for ETE-6-2 or ETE-16-2 Multiline Terminal).

5.5 Removal of access panel (Perform only the step that applies, either 5.5.1 or 5.5.2) Refer to Figure 1.

5.5.1 ETE-6D-2 or ETE-16D-2 Multiline Terminal: Insert flat screwdriver blade into notched opening shown as A) and apply light upward pressure until access panel is cleared of the front lip, at the same time apply pressure (towards you) at the rear of the pedestal (shown as B) until the access panel moves towards you. Remove panel.

5.5.2 ETE-6-2 or ETE-16-2 Multiline Terminal, depress spring loaded notched tab (shown as C) on the access panel and apply upward pressure. Remove panel.

NOTE: Do not discard removed access panel. While it will not be used at this time, save for possible future use.

5.6 Locate the eight pin jack labeled “ADA”, as seen through the housing access opening of the Multiline Terminal housing.

5.7 Unplug the four pin connector ended harness (labeled “HAND”) and extend it out from the housing access opening, of the Multiline Terminal.

5.8 Set the Dip switches on the ADA-E unit as shown on Table 1 (See Figure 3). Place the jumper strap across ST2 and the center pin. Set SW1 to the “BREAK” position.

5.9 Remove approximately 3 inches of outer insulation from both ends of the 4 conductor station wire cable and strip off ⅛ inch of wire insulation from each of the four wires; solder or crimp a spade lug to each wire end.

5.10 Make the RJ-35X connections as indicated in Figure 3 using the prepared 4 conductor station wire cable. Use one of the two spade tipped jumper wires provided with the ADA kit to make a connection between T1 and T5; connect the other jumper wire between T2 and T4 on the ADA-E unit.

5.11 Locate and insert the four pin connector ended harness from CN1 on the ADA-E unit into the jack labeled “HAND” in the Multiline Terminal.
5.12 Locate and insert the eight pin connector ended harness from CN1 and CN2 on the ADA-E unit into the jack labeled “ADA” in the Multiline Terminal.

5.13 Insert the four pin connector ended harness (removed in step 5.7) into the four pin jack, CN3, located on the ADA-E unit.

5.14 Install the ADA-E unit and secure it to the terminal housing with the screw provided, as shown in Figure 2.

5.15 Two access panels are provided with the ADA kit, the narrower panel is used with the ETE-6-2 and ETE-16-2 Multiline Terminals, the wider panel for all other Terminals. Remove the plastic tongue on the underside of the access panel being installed (using a pair of pliers) to provide clearance for cables in the cable exit groove.

5.16 Place the RJ-35X cable into the cable exit groove (Figure 2) making certain that all wires are inside the terminal housing. Install the proper access panel.

5.17 Reinstall the modular handset and modular line cords.

5.18 If slid out of the way in step 5.4, slide the directory back into place.

5.19 Plug the modular line cord of the Autodialer into the RJ-35X receptacle.

5.20 Plug in the Autodialer AC Adapter, first into the Autodialer and then into the nearest AC outlet.

5.21 Test both the Autodialer and the Multiline Terminal for proper operation.
Figure 1 Access Panel Removal
Figure 2 ADA-E Unit Installation
Figure 3 ADA-E Unit Connections and Dip Switch Setting for Panasonic Autodialer Models KX-1225/1235.
MELCO S-11 AND TONE COMMANDER TA-20 HANDSET AMPLIFIER CONNECTION PROCEDURE

1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the steps necessary to install an ADA-E (Ancillary Device Adaptor) unit into an ETE-6D-2, ETE-16D-2, ETE-16-2, or ETE-6-2 Multiline Terminal, to provide for connection and operation of a MELCO Model S-11 or a Tone Commander Model TA-20 handset amplifier.

2. PARTS REQUIRED

2.1 ADA-E Unit Adaptor kit (Stock # 560280)

2.2 Melco S-11 or Tone Commander TA-20 Handset Amplifier, locally provided. (Both amplifiers are available with spade lug or modular ended wire harness. Use the spade lug ended type only.)

2.3 Appropriate Dterm Series II Multiline Terminal

3. PROCEDURE

3.1 Disconnect the modular line cord from under the terminal and from the RJ-11C/W jack.

3.2 Disconnect the modular handset cord from the lower housing.

3.3 Turn the Multiline Terminal upside down (face down) and place it on a flat clean surface (refer to Figure 1).

3.4 Slide the directory out of the way (Not required for ETE-6-2 or ETE-16-2 Multiline Terminal).

3.5 To remove the access panel, perform only the step that applies, either 3.5.1 or 3.5.2 (Refer to Figure 1).

3.5.1 ETE 6D 2 or ETE 16D 2 Multiline Terminals, Insert a flat screwdriver blade into notched opening (shown as A) and apply light upward pressure until the access panel clears the front lip, at the same time apply pressure (toward you) at the rear of the pedestal (shown as B) until the access panel moves toward you. Remove panel.

3.5.2 ETE-6-2 or ETE-16-2 Multiline Terminals, Depress the flexible notched tab (shown as C) on the access panel and apply upward pressure. Remove panel.
NOTE: Do not discard removed access panel; save for possible future use.

3.6 Locate the four pin connector and jack labeled HAND (as seen through the access view of the Multiline Terminal housing). Unplug this connector and extend it out from the housing access opening.

3.7 On the ADA-E Unit, set the Dip switches (SW2) as shown in Table 1 (See Figure 2). Place the jumper across the center pin and the pin labeled ST2; set switch SW1 to the BREAK position.

3.8 Make the handset amplifier connections as indicated in Figure 2. Insulate connections with the tubing provided, if necessary.

NOTE: The green lead provided in the Melco-S11 amplifier wire harness has a female connector that cannot be connected directly to the T-11 terminal. Use one of the double ended spade lug short jumper wires provided in the ADA-E kit and connect one end of the jumper wire to the female connector of the green lead and the other end to the T-11 terminal. Use tape to insulate the connection.

3.9 Locate and insert the four pin connector ended harness from the ADA-E unit into the jack labeled HAND on the Multiline Terminal.

3.10 Locate and insert the eight pin connector ended harness from the ADA-E unit into the jack labeled ADA on the Multiline Terminal.

3.11 Insert the four pin connector ended harness (removed in step 3.6) into the four pin jack, CN3, located on the ADA-E unit.

3.12 Install the ADA-E unit with the component side down ensuring the wires are not pinched. Secure the ADA-E unit to the terminal housing with the screw provided as shown in Figure 3.

NOTE: Two Access Cover Panels are provided with the ADA-E Unit, the narrower panel is for the ETE-6-2 and ETE-16-2 Multiline Terminals, the wider panel is for all other Multiline Terminals.

3.13 Place the handset amplifier wiring into the cable exit groove (Figure 3) making certain that all wires are inside the housing. Install the correct access cover assembly.

NOTE: The handset amplifier may be mounted to the side of the Multiline Terminal with double sided foam tape or any other secure method of your own choosing.

3.14 Reinstall the handset and modular line cords.

3.15 If slid out of the way in step 3.4, slide the directory back into place.

3.16 Adjust the amplifier volume control and test the Multiline Terminal and amplifier for proper operation.
Figure 1 Access Panel Removal
Table 1
DIP SWITCH (SW2) SETTING FOR HANDSET AMPLIFIERS

<table>
<thead>
<tr>
<th>SWITCH</th>
<th>POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ON</td>
</tr>
<tr>
<td>2</td>
<td>ON</td>
</tr>
<tr>
<td>3</td>
<td>OFF</td>
</tr>
<tr>
<td>4</td>
<td>ON</td>
</tr>
<tr>
<td>5</td>
<td>OFF</td>
</tr>
<tr>
<td>6</td>
<td>OFF</td>
</tr>
<tr>
<td>7</td>
<td>OFF</td>
</tr>
<tr>
<td>8</td>
<td>OFF</td>
</tr>
</tbody>
</table>

NOTE: Colors in ( ) indicate wiring for the Tone Commander TA-20 Amplifier.

Figure 2  ADA-E Unit Connections and Switch Positions for Melco S-11 and Tone Commander TA-20 Handset Amplifiers
Figure 3  ADA-E Unit Installation
1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the steps necessary to install an ADA-E (Ancillary Device Adaptor) into an ETE-6D-2, ETE-16D-2, ETE-16-2, or ETE-6-2 Multiline Terminal, for the connection and operation of a cassette tape recorder with remote controlled microphone.

2. LIMITATIONS

2.1 For the recorder to function automatically, the handset must be used.

2.2 To rewind or playback the recordings, the remote plug must be removed from its corresponding jack.

CAUTION: THE USE OF A MONITORING DEVICE TO EAVESDROP OR RECORD TELEPHONE CONVERSATIONS MAY CONSTITUTE AN ILLEGAL INVASION OF PRIVACY UNDER SOME CIRCUMSTANCES AND LAWS. YOU SHOULD CONSULT A LEGAL ADVISOR PRIOR TO IMPLEMENTING ANY PRACTICE INVOLVING RECORDING OF TELEPHONE CALLS.

FCC ORDER IN DOCKET #20940 PERMITS THE USE OF BEEP TONE-OR- THE CONSENT OF ALL PARTIES WHEN CONVERSATIONS ARE RECORDED. SECTIONS 2510 TO 2520 OF THE U.S. CRIMINAL CODE (18U.S.C.2510 et seq.) PROVIDES STIFF PENALTIES FOR UNAUTHORIZED DISCLOSURE OF WIRE OR ORAL COMMUNICATIONS.

3. PARTS REQUIRED

3.1 ADA-E Adaptor kit. (Stock #560280)

3.2 Cassette tape recorder.

NOTE: The recorder must have remote microphone capability to be automatically triggered by hookswitch.

3.3 One 1/8 inch Mini Phone Plug.
3.4 One 3/32 Micro Phone Plug.

3.5 #22 AWG four conductor stranded cable.

3.6 Four small spade lug terminals to fit wires in step 3.5 (locally provided).

4. PROCEDURE

4.1 Disconnect the modular handset cord from the lower housing.

4.2 Disconnect the modular line cord from under the terminal and from the RJ-11C/W jack.

4.3 Turn the Multiline Terminal upside down (face down) and place it on a flat surface (refer to Figure 1).

4.4 Slide the directory out of the way (Not required for ETE-6-2 or ETE-16D-2 Multiline Terminal).

4.5 From one end of the cable provided (step 3.5) remove approximately 4 inches of outer insulation and strip off ¼ inch of the inner insulation from each of the four wires. To each conductor fasten one of the spade lugs locally provided, either by soldering or crimping.

4.6 To remove the access panel, perform only the step that applies, either 4.6.1 or 4.6.2 (Refer to Figure 1).

4.6.1 ETE-6D-2, ETE-16D-2 Multiline Terminal; Insert a flat screwdriver blade into notched opening (shown as A) and apply light upward pressure until the access panel clears the front lip, at the same time apply pressure (toward you) at the rear of the pedestal (shown as B) until the access panel moves toward you. Remove panel.

4.6.2 ETE-6-2 or ETE-16-2 Multiline Terminal; Depress the flexible notched tab (shown as C) on the access panel and apply upward pressure. Remove panel.

NOTE: Do not discard removed access panel; save for possible future use.

4.7 Locate the four pin connector and jack labeled HAND (as seen through the access view of the Multiline Terminal housing). Unplug this connector and extend it out from the housing access opening.

4.8 Set the SW2 Dip switches, on the ADA-E unit, as shown in Table 1 of Figure 2. Place the jumper across pin ST1 and the center pin. Set SW1 to the BREAK position.

4.9 Make the wiring connections as indicated in Figure 2. The connections between T10 & T11 are made with the jumper wire provided in the ADA-E kit. If necessary, use a section of the clear plastic tubing provided in the ADA-E kit to insulate the connections.

4.10 Locate and insert the four pin connector ended harness from the ADA-E unit into the jack labeled HAND on the Multiline Terminal.

4.11 Locate and insert the eight pin connector ended harness from the ADA-E unit into the jack labeled ADA on the Multiline Terminal.

4.12 Insert the four pin connector ended harness (removed in step 4.7) into the four pin jack, CN3, located on the ADA-E unit.

4.13 Install the ADA-E unit with the component side down ensuring the wires are not pinched. Secure the ADA-E unit to the terminal housing with the screw provided as shown in Figure 3.
NOTE: Two access panels are provided with the ADA-E kit; a narrow panel to be used with ETE-6-2 or ETE-16-2 Multiline Terminals and a wide panel to be used with all other terminals. Ensure the correct access panel is used.

4.14 Route the locally provided station wire (already connected to the ADA-E unit) through one of the two notched grooves on the access panel. Install the access panel.

4.15 Slide the directory back into place, if required.

4.16 Reinstall the handset and modular line cords onto the Multiline Terminal.

4.17 Insert the 1/8 mini plug and the 3/32 micro plug into their respective tape recorder jacks (See Figure 2).

4.18 Plug the tape recorder into an AC power outlet; insert a tape cassette into the tape recorder and depress the RECORD and PLAY buttons simultaneously.

5. TESTING

5.1 Establish a call using the handset. Speak in a normal voice and verify that the tape recorder is activated. With the handset still off-hook, remove the REMOTE plug from its jack, rewind the tape and verify that the recording took place (If the tape recorder is equipped with a recording level control the level may have to be adjusted).

5.2 Reconnect the REMOTE plug and hang up the handset.
Figure 1 Access Panel Removal
Figure 2 ADA-E Connections and Switch Positions for Automatic Operation of Cassette Tape Recorder
Figure 3 ADA-E Installation
1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the steps necessary to install an ADA-E (Ancillary Device Adaptor) into an ETE-6D(-), ETE-16D(-), ETE-16(-), ETE-6(-), or ETE-16K-I Multiline Terminal, for the connection and operation of a Northern Telecom Companion II Speakerphone.

2. PARTS REQUIRED

2.1 ADA-E Unit (Stock # 700340).

2.2 Northern Telecom Companion II Speakerphone.

2.3 Hardware (solder, spade lugs, etc.) to connect the external power supply wires to the power wires of the Companion II Speakerphone (see Note and Figure 2. for details).

NOTE 1

It is the customer's choice to choose the means of connecting (solder, spade lugs, etc.) the power wires (WHITE/BROWN and BROWN/WHITE) of the Northern Telecom Companion II Speakerphone to the power supply wires. The connections should be insulated with heat shrink tubing or electrical tape.

2.4 Two Conductor wire, long enough to reach from the ADA-E unit to AC outlet. (The maximum allowable length of 24 AWG cable for connecting the power supply to the Companion II Speakerphone is 250 feet.)

3. REFERENCE


4. OPERATION

4.1 Initiating Calls

4.1.1. Go off-hook with the Multiline Terminal handset (Companion II Speakerphone turned off),

OR

4.1.2 Depress the "ON" key of the Companion II Speakerphone (Multiline Terminal handset on-hook).
4.2 Transferring a call from handset to Speakerphone; or Speakerphone to handset.

4.2.1. To transfer a call from the Multiline Terminal handset to the Companion II Speakerphone, perform 1 of the two (2) following procedures.

4.2.1.1. Depress the “ON” key on the Companion II Speakerphone continuously until you hang-up.

OR

4.2.1.2. Depress the “SPKR” button on the Multiline Terminal and hang-up the handset. Then depress the “ON” key on the Companion II Speakerphone.

4.2.2 To transfer a call from the Companion II Speakerphone to the Multiline Terminal handset, lift the Multiline Terminal handset.

5. PROCEDURE

5.1 Turn the Multiline Terminal upside down (face down) and locate the access panel on the bottom of the Multiline Terminal, refer to Figure 1.

5.2 Disconnect the modular line cord from under the telephone at the RJ-11C/W jack.

5.3 Disconnect the modular handset cord from the lower housing.

5.4 Slide the directory out of the way (Not required for ETE-6-() or ETE-16-() Multiline Terminal).

5.5 To remove the access panel, perform only the step that applies, either 5.5.1 or 5.5.2 (Refer to Figure 1).

5.5.1 ETE-6D-(), ETE-16D-(), or ETE-16K-1 Multiline Terminal; Insert a flat screwdriver blade into notched opening (shown as A) and apply light upward pressure until the access panel clears the front lip, at the same time apply pressure (toward you) at the rear of the pedestal (shown as B) until the access panel moves toward you. Remove panel.

5.5.2 ETE-6-(), or ETE-16-() Multiline Terminal; Depress the flexible notched tab (shown as C) on the access panel and apply upward pressure. Remove panel.

NOTE 2

Do not discard removed access panel; save for possible future use.

5.6 Locate the four pin connector and jack labeled HAND (as seen through the access view of the Multiline Terminal housing). Unplug this connector and extend it out from the housing access opening.

5.7 Set the SW2 DIP switches, on the ADA-E unit, as shown in Table 1 of Figure 2. Place the jumper across pin ST2 and the center pin. Set SW1 to the MAKE position.

5.8 Remove about 1/4 inch of inner insulation from both ends of the two conductor wire.
5.9 Connect one end of the two conductor wire to the screw terminals on the provided power supply. Connect the other end of the two conductor wire to the (BROWN/WHITE and WHITE/BROWN) of the Companion II Speakerphone (See Figure 2).

5.10 Using the connecting cable from the Speakerphone, make the wiring connections shown in Figure 2. If necessary, use a section of the clear plastic tubing provided in the ADA-E kit to insulate the connections. Individually insulate the unused leads.

5.11 Locate and insert the four pin connector ended harness from the ADA-E unit into the jack labeled HAND on the Multiline Terminal.

5.12 Locate and insert the eight pin connector ended harness from the ADA-E unit into the jack labeled ADA on the Multiline Terminal.

5.13 Insert the four pin connector ended harness (removed in step 5.6) into the four pin jack, CN3, located on the ADA-E unit.

5.14 Install the ADA-E unit with the component side down ensuring the wires are not pinched. Secure the ADA-E unit to the terminal housing with the screw provided as shown in Figure 3a. (ETE-6D-0, ETE-16D-0, or ETE-16K-1) or 3b (ETE-6-0, or ETE-16-O).

   **NOTE 3**

   Two access panels are provided with the ADA-E unit; a narrow panel to be used with ETE-6-O or ETE-16-O Multiline Terminals and a wide panel to be used with all other terminals. Ensure the correct access panel is used.

5.15 Route the Speakerphone wires (already connected to the ADA-E unit) through one of the two notched grooves on the access panel. Install the access panel.

5.16 Slide the Multiline Terminal directory back into place, if required.

5.17 Reinstall the handset line cord onto the Multiline Terminal.

5.18 Plug the AC adaptor to the Speakerphone first, then plug it into a convenient AC outlet.

5.19 Refer to the Speakerphone’s user guide and test both the Speakerphone and the Multiline Terminal for proper operation.
ETI NUMBER: DT-005

Unplug Line Cord

**Apply Pressure and Slide Out the Access Panel**

4 of 7

Figure 1. Access Panel Removal
Figure 2. ADA-E Unit Connection and DIP Switch Settings for Northern Telecom Companion II Speakerphone
ETI NUMBER: DT-005

Figure 3a. ADA E Installation
Figure 3b. ADA-E Installation
1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the steps necessary to install an ADA-E (Ancillary Device Adaptor) into an ETE-6D-(), ETE-16D-(), ETE-16-(), ETE-6-(), or ETE-16K-1 Multiline Terminal, for the connection and operation of a Plantronics Phonebeam Infrared Speakerphone.

2. LIMITATIONS

2.1 With a Phonebeam Speakerphone connected and operating normally, lifting the handset on the Multiline Terminal provides a dual connection to both the speakerphone and the handset; the speakerphone does not automatically switch off.

2.1.1 To converse using the Multiline Terminal handset only, the speakerphone must be turned off.

2.1.2 To converse using the Speakerphone only, the Multiline Terminal handset must be on-hook.

3. PARTS REQUIRED

3.1 ADA-E Unit (Stock # 700340).

3.2 Phonebeam Speakerphone with IR2 adaptor.

4. REFERENCES


4.2 Dterm Series II Multiline Terminal Users Guide or Electra Mark II Multiline Terminal User’s Guide.

5. OPERATION

5.1 Initiating Calls.

5.1.1 Go off-hook with the Multiline Terminal handset (Phonebeam Speakerphone turned off),

OR

5.1.2 Depress the ON key of the Phonebeam Speakerphone (Multiline Terminal handset on-hook),

OR

5.1.3 Switch the remote microphone unit of the Phonebeam Speakerphone to the ON position (Multiline Terminal handset on-hook).
5.2 Transferring a call from handset to Speakerphone; or Speakerphone to handset:

5.2.1 To transfer a call from the Multiline Terminal handset to the Phonebeam Speakerphone, depress the "ON" key of the Speakerphone (or switch the Speakerphone remote microphone unit to the "ON" position) and then hang up the Multiline Terminal handset.

5.2.2 To transfer a call from the Phonebeam Speakerphone to the Multiline Terminal handset, lift the Multiline Terminal handset and turn off the Phonebeam Speakerphone.

6. PROCEDURE

6.1 Turn the Multiline Terminal upside down (face down) and locate the access panel on the bottom of the Multiline Terminal, refer to Figure 1.

6.2 Disconnect the modular line cord from under the telephone at the RJ-11C/W jack.

6.3 Disconnect the modular handset cord from the lower housing.

6.4 Slide the directory out of the way (Not required for ETE-6-() or ETE-16-() Multiline Terminal).

6.5 To remove the access panel, perform only the step that applies, either 6.5.1 or 6.5.2 (Refer to Figure 1).

6.5.1 ETE-6D-(), ETE-16D-(), or ETE-16K-1 Multiline Terminal; Insert a flat screwdriver blade into notched opening (shown as A) and apply light upward pressure until the access panel clears the front lip, at the same time apply pressure (toward you) at the rear of the pedestal (shown as B) until the access panel moves toward you. Remove panel.

6.5.2 ETE-6-(), or ETE-16-() Multiline Terminal; Depress the flexible notched tab (shown as C) on the access panel and apply upward pressure. Remove panel.

NOTE

Do not discard removed access panel; save for possible future use.

6.6 Locate the four pin connector and jack labeled HAND (as seen through the access view of the Multiline Terminal housing). Unplug this connector and extend it out from the housing access opening.

6.7 Set the SW2 DIP switches, on the ADA-E unit, as shown in Table 1 of Figure 2. Place the jumper across pin ST2 and the center pin. Set SW1 to the MAKE position.

6.8 Using the connecting cable from the Speakerphone, make the wiring connections shown in Figure 2. If necessary, use a section of the clear plastic tubing provided in the ADA-E kit to insulate the connections. Individually insulate the unused leads.

6.9 Locate and insert the four pin connector ended harness from the ADA-E unit into the jack labeled HAND on the Multiline Terminal.

6.10 Locate and insert the eight pin connector ended harness from the ADA-E unit into the jack labeled ADA on the Multiline Terminal.

6.11 Insert the four pin connector ended harness (removed in step 6.6) into the four pin jack, CN3, located on the ADA-E unit.
6.12 Install the ADA-E unit with the component side down ensuring the wires are not pinched. Secure the ADA-E unit to the terminal housing with the screw provided as shown in Figure 3a. (ETE-6D-0, ETE-16D-0, or ETE-16K-1) or 3b (ETE-6-0, or ETE-16-0).

**NOTE**

Two access panels are provided with the ADA-E kit; a narrow panel to be used with ETE-6-0, or ETE-16-0) Multiline Terminals and a wide panel to be used with all other terminals. Ensure the correct access panel is used.

6.13 Route the Speakerphone wires (already connected to the ADA-E unit) through one of the two notched grooves on the access panel. Install the access panel.

6.14 Slide the Multiline Terminal directory back into place, if required.

6.15 Reinstall the handset line cord onto the Multiline Terminal.

6.16 Plug the AC adaptor to the Speakerphone first, then plug it into a convenient AC outlet.

6.17 Refer to the Speakerphone's user guide and test both the Speakerphone and the Multiline Terminal for proper operation.
ETI NUMBER: DT-006

Unplug Line Cord

Apply Pressure and Slide Out the Access Panel

Flat Screwdriver Blade

Remove Directory

ETE-0, ETE-16D-0, or ETE-16K-1

Unplug Handset Cord

Apply Pressure and Slide Out the Access Panel

Figure 1. Access Panel Removal
DIP SWITCH LEVERS
(Shown in Black)

SW2

ON

OFF

CN3

ST2

ST1

JUMPER
(STEP 6.7)

TO
PHONEBEAM
SPEAKERPHONE

Figure 2. ADA-E Unit Connection and DIP Switch Settings for Plantronics Phonebeam Speakerphone
Figure 3a. ADA-E Installation

ETE-60(-0)
ETE-160(-0), or
ETE-16K-1

CABLE EXIT GROOVE
Figure 3b. ADA-E Installation
1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the steps necessary to install an ADA-ER (Ancillary Device Adaptor) into an ETE-6D-0, ETE-16D-0, ETE-16-0, ETE-6-0, or ETE-16K-1 Multiline Terminal, for the connection and operation of a Dictaphone Veritraco® 5000/9000 voice recorder.

2. LIMITATIONS

2.1 The Multiline Terminals do not need any control over the DICTAPHONE voice recorder.

CAUTION

THE USE OF A MONITORING DEVICE TO EAVESDROP OR RECORD TELEPHONE CONVERSATIONS MAY CONSTITUTE AN ILLEGAL INVASION OF PRIVACY UNDER SOME CIRCUMSTANCES AND LAWS. YOU SHOULD CONSULT A LEGAL ADVISOR PRIOR TO IMPLEMENTING ANY PRACTICE INVOLVING RECORDING OF TELEPHONE CALLS.

FCC ORDER IN DOCKET #20940 PERMITS THE USE OF BEEP TONE -OR- THE CONSENT OF ALL PARTIES WHEN CONVERSATIONS ARE RECORDED. SECTIONS 2510 TO 2520 OF THE U.S. CRIMINAL CODE (18U.S.C.2510 et seq.) PROVIDES STIFF PENALTIES FOR UNAUTHORIZED DISCLOSURE OF WIRE OR ORAL COMMUNICATIONS.

3. PARTS REQUIRED

3.1 ADA-ER Unit (Stock #560281).

3.2 A Dictaphone Veritraco® Series 5000/9000 voice recorder.

3.3 #24 AWG two conductor stranded cable.

3.4 Two small spade lug terminals to fit wires in step 3.3 (locally provided).

4. PROCEDURE

4.1 Turn the Multiline Terminal upside down (face down) and locate the access panel on the bottom of the Multiline Terminal, refer to Figure 1.

4.2 Disconnect the modular line cord from under the telephone at the RJ-11C/W jack.

4.3 Disconnect the modular handset cord from the lower housing.

4.4 Slide the directory out of the way (Not required for ETE-6-0 or ETE-16-0 Multiline Terminal).
4.5 From one end of the two conductor wire (Step 3.3) remove approximately 4 inches of outer insulation and strip off ¼ inch of the inner insulation from each of the two wires. To each conductor fasten one of the spade lugs locally provided, either by soldering or crimping.

4.6 To remove the access panel, perform only the step that applies, either 4.6.1 or 4.6.2 (Refer to Figure 1).

4.6.1 ETE-6D()-, ETE-16D()- or, ETE-16K-1 Multiline Terminal; Insert a flat screwdriver blade into notched opening (shown as A) and apply light upward pressure until the access panel clears the front lip, at the same time, apply pressure (toward you) at the rear of the pedestal (shown as B) until the access panel moves toward you. Remove panel.

4.6.2 ETE-6()- or ETE-16()- Multiline Terminal; Depress the flexible notched tab (shown as C) on the access panel and apply upward pressure. Remove panel.

NOTE:
Do not discard removed access panel; save for possible future use.

4.7 Locate the four pin connector and jack labeled HAND (as seen through the access view of the Multiline Terminal housing). Unplug this connector and extend it out from the housing access opening.

4.8 Set the SW2 Dip switches, on the ADA-ER unit, as shown in Table 1 of Figure 2. Place the jumper across pin ST1 and the center pin. Set SW1 to the BREAK position.

4.9 Make the wiring connections as indicated in Figure 2. If necessary, use a section of the clear plastic tubing provided in the ADA-ER kit to insulate the connections.

4.10 Locate and insert the four pin connector ended harness from the ADA-ER unit into the jack labeled HAND on the Multiline Terminal.

4.11 Locate and insert the eight pin connector ended harness from the ADA-ER unit into the jack labeled ADA on the Multiline Terminal.

4.12 Insert the four pin connector ended harness (removed in step 4.7) into the four pin jack, CN3, located on the ADA-ER unit.

4.13 Install the ADA-ER unit with the component side down ensuring the wires are not pinched. Secure the ADA-ER unit to the terminal housing with the screw provided as shown in Figure 3a [ETE-6D()-, ETE-16D()- or, ETE-16K-1] or, 3b [ETE-6()- or, ETE-16()-]

NOTE
Two access panels are provided with the ADA-ER kit; a narrow panel to be used with ETE-6()- or ETE-16()- Multiline Terminals, and a wide panel to be used with all other terminals. Ensure the correct access panel is used.

4.14 Route the locally provided cable (already connected to the ADA-ER unit) through the cable exit grooves on the access panel. Install the access panel. (Refer to Figure 3 for cable exit groove location)

4.15 Slide the directory back into place, if required.

4.16 Reinstall the handset and modular line cords onto the Multiline Terminal.
5. TESTING

5.1 After installing the ADA-ER Unit into the Dterm Series II terminal and connecting the voice pair to the Dictaphone voice recorder, establish a call using the Dterm Series II terminal which is connected to the Dictaphone voice recorder and verify that the call has been recorded.
Unplug Line Cord

- Apply Pressure and Slide Out the Access Panel

Flat Screwdriver Blade

- ETE-6D-(), ETE-16D-(), or ETE-16K-1

Remove Directory

Figure 1. Access Panel Removal
Figure 2. ADA-ER Unit Connection and DIP Switch Settings for Dictaphone Vertitrac® Series 5000/9000 Voice Recorder
Figure 3a ADA-ER Installation
Figure 3b. ADA-ER Installation
4.15 Slide the directory back into place, if required.

4.16 Reinstall the handset and modular line cords onto the Multiline Terminal.

4.17 Insert the 1/8 mini plug and the 3/32 micro plug into their respective tape recorder jacks (See Figure 2).

4.18 Plug the tape recorder into an AC power outlet; insert a tape cassette into the tape recorder and depress the RECORD and PLAY buttons simultaneously.

5. TESTING

5.1 Establish a call using the handset. Speak in a normal voice and verify that the tape recorder is activated. With the handset still off-hook, remove the REMOTE plug from its jack, rewind the tape and verify that the recording took place (If the tape recorder is equipped with a recording level control, the level may have to be adjusted).

5.2 Reconnect the REMOTE plug and hang up the handset.
Figure 1 Access Panel Removal

- Unplug Line Cord
- Flat Screwdriver Blade
- Apply Pressure and Slide Out the Access Panel
- Unplug Handset Cord
- Apply Pressure and Slide Out the Access Panel

ETE-6D-1, ETE-16D-1, ETE-16K-1

4 of 6
Figure 2 ADA-E Connections and Switch Positions for Automatic Operation of Cassette Tape Recorder
Figure 3 ADA-E Installation
AEC TWO CHANNEL ANNOUNCEMENT MACHINE

1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the steps necessary for the installation of an AEC Messenger, Model 212 Plus, dual line announcer for operation with an ECR-E ETU. The delayed announcement feature may be desirable when using a Hunt Group in conjunction with DIT or ANA to provide UCD. Any time all stations in the Hunt Group are busy or unable to answer, the Delay Announcer can be used to provide a short repeating message to callers, instructing them to wait or call back later.

2. LIMITATIONS

2.1 Only one repeating announcement available at a time.

2.2 Will lose one of two BGM channels.

3. PARTS REQUIRED

3.1 ECR-E and CPU-EB3 ETUs or higher.

3.2 AEC - Messenger, Model 212 Plus. This part can be ordered from:

AUTOMATION ELECTRONICS CORPORATION
11501 Dublin Blvd., Dublin, CA 94568
Tel: 1-800-232-4653
California and Alaska (415) 828-2880

3.3 RJ - 31X Modular Jack.

3.4 8 pin modular cable approximately 7 feet long.

3.5 100 Ohm, ¼-watt carbon film resistor.

3.6 RCA male audio plug (with cable optional).
3.7 Length of 2-pair station cable long enough to reach from the ECR-E ETU card to the RJ-31x modular jack, located near the AEC, model 212 Plus.

4. REFERENCES

4.1 AEC's, model 212 Plus, owner's manual.

4.2 Electra MarkII Installation Service Manual.

5. OPERATION

The first DIT/ANA caller who encounters a busy or no answer condition within a pre-programmed amount of time will receive a prerecorded message from the beginning. This announcement will repeat until the call is answered or abandoned. Subsequent callers may be connected to the Delay Announcer at any time while the message is in progress and may not get the complete message until it repeats again. Therefore, keeping the message short will minimize confusion.

6. PROCEDURE

NOTE

Ensure that antistatic handling precautions are observed when handling the ECR-E ETU.

6.1 Wiring connections to the ECR-E ETU. (Refer to Figure 1)

6.1.1 Remove approximately 3 inches of outer insulation from both ends of the 4 conductor cable and strip off \( \frac{1}{4} \) inch of insulation from each of the four wires.

6.1.2 Choose a relay to be used (4 - 10) for Delay Announce. Use of relay 10 is recommended. Figure 1 shows the use of relay 10.

6.1.3 Connect one lead from the 4-conductor cable to the A side of the relay chosen. (Connections for relays 04 - 06 are found on the MDF and connections for relays 07 - 10 are found on the CN1 terminal strip on the ECR E ETU.)

6.1.4 Connect a second lead from the 4-conductor cable to the B side of the relay chosen.

6.1.5 Connect a third lead from the 4-conductor cable to the center terminal of an RCA plug.

6.1.6 Connect the fourth lead from the 4-conductor cable to the ground side of the RCA plug.

6.1.7 Insert the RCA plug into JK3 of the ECR-E ETU.
NOTE

If noise interference is encountered during operation, it may be necessary to use shielded cable.

6.1.8 Install the ECR-E ETU in an available interface slot in a CCU making sure that the busy switch (SW1) is in the OFF position. After the ECR-E ETU is properly seated in its slot, turn on SW1. (Refer to Chapter 3 of the Electra Mark II Installation Service Manual Memory Block 4C1.)

6.2 RJ-31X Connection

6.2.1 Connect the other end of the station cable as follows:

<table>
<thead>
<tr>
<th>TERMINAL</th>
<th>STATION CABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Center terminal of RCA plug.</td>
</tr>
<tr>
<td>5</td>
<td>Ground side of RCA plug.</td>
</tr>
<tr>
<td>7</td>
<td>A Side of ECR relay.</td>
</tr>
<tr>
<td>8</td>
<td>B Side of ECR relay</td>
</tr>
</tbody>
</table>

Also, install a 100 ohm ¼ watt resistor across terminals four and five, in parallel for reducing voice level (See Figure 1).

6.2.2 Plug in one end of the 8 conductor modular cable into the RJ-31X.

6.3 Installing and programming the AEC 212 Plus Announcer (Refer to Figure 1)

NOTE: Ensure that the 212 Plus power pack is disconnected from the Announcer unit before proceeding.

6.3.1 Refer to the AEC 212 owner's manual and set the internal jumper plugs (1 per channel) for 600 ohms transformer coupled audio output. (These jumpers are internal to the AEC equipment).

6.3.2 Set the start mode switches on the back of the unit as follows:

<table>
<thead>
<tr>
<th>SWITCH</th>
<th>SETTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW1</td>
<td>ON (continuous play)</td>
</tr>
<tr>
<td>SW2</td>
<td>OFF</td>
</tr>
<tr>
<td>SW3</td>
<td>OFF</td>
</tr>
<tr>
<td>SW4</td>
<td>ON (relay closure start)</td>
</tr>
</tbody>
</table>

6.3.3 Plug the other end of the 8 conductor modular cable to the Line 1 jack on the back of the AEC 212 Plus unit.

6.3.4 The AEC Model 212 Plus Announcer provides two ports that can be independently recorded. By manually switching port connections, DAY and NIGHT announcements can be provided. (See Figure 1).
6.3.5 Connect the 12-14V power pack into the AEC 212 first, and then into the nearest AC power outlet.

6.3.6 Using the built-in microphone, or a carbon type handset, record the desired announcement as indicated in the AEC 212 Plus owner's manual. For maximum effectiveness, it is recommended that the message be limited to a maximum of 15 seconds followed by a silent period of 2 seconds.

6.4 Electra MarkII system programming (Refer to the Electra MarkII Installation Manual)

6.4.1 Assign individual trunks for DIT or ANA operation in Memory Blocks 2B3 and 2B4. (Delay Announcement is available for DIT or ANA trunks only).

6.4.2 Assign the Delay Announcement feature to each required DIT or ANA trunk in Memory Block 2C5.

6.4.3 Assign desired time delay between incoming ring signal recognition and the start of the Delay Announcement to the calling party in Memory Block 2D2, using line key 6. This timer is adjustable from 1 to 99 seconds. Use of the system default value (20 seconds) is recommended.

6.4.4 Assign the desired Delay Announcement Auto Release Timer in Memory Block 2D1, using line key 3. This timer determines how long an outside line will remain connected to the announcement device after encountering either a busy signal or no answer from a Hunt Group. If the outside line can provide a remote disconnect signal, the remote disconnect will supercede this timer if the remote disconnect signal occurs before the timer elapses. Timer ranges from 10 to 990 seconds and can be disabled. Default value of 600 seconds (10 minutes) is recommended.

6.4.5 Select one of the ECR-E ETU relays to activate the announcement unit in Memory Block 2C9. Use of relay number 10 is recommended. (See Figure 1)

6.4.6 If station Hunt Groups are required, use Memory Blocks 3B5 thru 3D8 to assign the required parameters.

6.4.7 Activate the Day and Night Delay Announcement feature from an idle Attendant station as follows:

6.4.7.1 Depress CNF key.

6.4.7.2 Depress line key 9 (for Day Mode) and 10 (for Night Mode) (Both LEDs illuminate).

6.4.7.3 Depress CNF key (to return ON LINE).

7. TESTING

After installation and programming is completed, test the operation as follows:
7.1 Render all extensions in the Hunt Group busy and call the pilot number of the DIT Hunt Group.

7.1.1 Go off hook.

7.1.2 Seize a trunk with either an access code or a line key.

7.1.3 Dial the seven digit phone number of the Hunt Group.

7.2 Do not answer and note that the caller is provided with the pre-recorded announcement within the pre-programmed period of time. Establish that the recording repeats until the call is automatically terminated by the Delay Announcement Auto Release Timer (10 minutes).

7.3 Render all extensions in the Hunt Group busy and make multiple simultaneous calls to the pilot number of the DIT Hunt Group (see 7.1 - 7.1.3). Do not answer and note that all callers are connected to the pre-recorded announcement. Answer each call and establish that the recording is released and normal conversations can ensue.

8. ATTENDANT ACTIVATION AND DEACTIVATION OF DELAY ANNOUNCEMENT

8.1 To Activate Day/Night Time Delay Announcement: (Idle mode)

8.1.1 Depress the CNF key.

8.1.2 For Day Time Delay Announcement, depress line key 9 (LED turns ON)

8.1.3 For Night Time Delay Announcement, depress line key 10 (LED turns ON)

8.1.4 Depress the CNF key to return ON LINE.

8.2 For deactivating Day time and Night time Delay Announcement, repeat the same procedure for activating the announcement, except turn the LEDs OFF instead of ON.
Figure 1. Connection of the AEC Dual Line Announcer to the ECR-E ETU
NOTE: This ETI is revised from MK-012 and provides information for a 2 channel Delay Announcement with Electra MarkII - Series 400 Software. This ETI is also applicable for Series 300 Software.

1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the steps necessary for the installation of an AEC Messenger, Model 212 Plus, dual line announcer for operation with an ECR-E ETU. The delayed announcement feature may be desirable when using a Hunt Group in conjunction with DIT or ANA to provide UCD. Any time all stations in the Hunt Group are busy or unable to answer, the Delay Announcer can be used to provide one (1) or two (2) delay announcements instructing callers to wait or call back later.

2. LIMITATIONS

2.1 For only one (1) delay announcement, ignore information pertaining to the second delay announcement. Station BGM channel 1 is the same as MOH. Only one each of the items mentioned in 3.3 through 3.7 will be required. In addition, in memory block 2D1, if Line Key 2 is changed to any number other than 99, both station RGM channels are same as MOH.

2.2 If two (2) delay announcements are used, both station BGM channels will be the same as MOH.

3. PARTS REQUIRED

3.1 ECR-E and CPU-EC4 ETUs or higher.

3.2 AEC - Messenger, Model 212 Plus. This part can be ordered from:

AUTOMATION ELECTRONICS CORPORATION
11501 Dublin Blvd., Dublin, CA 94568
Tel: 1-800-232-4653
California and Alaska (415) 828-2880

3.3 Two RJ-31X Modular Jacks.

3.4 Two 8 pin modular cables approximately 7 feet long.

3.5 Two 100 Ohm, ½ - watt carbon film resistors.

3.6 Two RCA male audio plugs with audio shielded cable.

3.7 Two lengths of 2-pair station cable.
   A. One piece of 2-pair cable is connected from the Electra MarkII Frame Ground to the RJ-31X modular jacks that are located near the AEC (model 212 Plus).
   B. The second piece of 2-pair cable is connected from the ECR-E ETU card to the Electra MarkII Frame Ground.
ETI NUMBER: MK-012A

4. REFERENCES

4.1 AEC’s, model 212 Plus, owner’s manual.

4.2 Electra MarkII Installation Service Manual.

5. OPERATION

The first DIT/ANA caller who encounters a busy or no answer condition within a preprogrammed amount of time will receive the first delay announcement message from it’s beginning. After the message has been played, the caller will hear music-on-hold (MOH). After a programmed amount of time, the caller will hear the second delay announcement message. Upon completion of the second delay announcement message, the caller will hear MOH. The caller will continue to be transferred between the second delay announcement and MOH until someone in the UC0 group answers the call.

6. PROCEDURE

NOTE 1: Ensure that antistatic handling precautions are observed when handling the ECR-E ETU.

NOTE 2: If the System Software is upgraded from Series 300, the input connection for the first announcement must be changed to JK2 on the ECR-E ETU.

NOTE 3: If system is operating with Series 300 software (allows only one Delay Announcement), JK3 on the ECR-E ETU must be used.

6.1 Wiring connections to the ECR-E ETU from the System Frame Ground. (Refer to Figure 1)

6.1.1 Remove approximately 3 inches of outer insulation from both ends of the two lengths of 2-pair Station cable. Strip off ¼ inch of insulation from each of the eight wires.

6.1.2 Select a relay to be used (4-10) for Delay Announce. Use of relay 10 for the First Delay Announcement and relay 9 for the Second Delay Announcement is recommended. Figure 1 shows the use of relays 10 and 9.

6.1.3 For the First Delay Announcement, connect one lead from one of the 4-conductor cables to the System Frame Ground. Connect the opposite end of the same lead to the A side of the relay chosen (A4 is recommended). Perform the same procedure for the Second Delay Announcement (A3 is recommended) using another conductor from the same cable. Connections for relays 04-06 are located on the MDF and connections for relays 07-10 are located on the CN1 terminal strip on the ECR-E ETU.

6.2 RJ-31X Connection

6.2.1 Using the RCA male audio plugs and the audio shielded cable, make the following connections between the ECR-E ETU and the RJ-31X Modular jacks. (See Figure 1.)

<table>
<thead>
<tr>
<th>Delay Announcement # 1</th>
<th>CABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TERMINAL</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Center terminal of RCA plug.</td>
</tr>
<tr>
<td>5</td>
<td>Ground side of RCA plug.</td>
</tr>
<tr>
<td>7</td>
<td>To System Frame Ground.</td>
</tr>
<tr>
<td>8</td>
<td>B Side of ECR relay.</td>
</tr>
</tbody>
</table>
Delay Announcement # 2

<table>
<thead>
<tr>
<th>TERMINAIS</th>
<th>CABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Center terminal of RCA plug.</td>
</tr>
<tr>
<td>5</td>
<td>Ground side of RCA plug.</td>
</tr>
<tr>
<td>7</td>
<td>To pin 7 of the First Delay Announcement.</td>
</tr>
<tr>
<td>8</td>
<td>B Side of ECR relay</td>
</tr>
</tbody>
</table>

6.2.1 Install a 100 ohm ½ watt resistor across terminals four and five (in parallel) for reducing voice level (See Figure 1).

6.2.3 Plug one end of the 8 conductor modular cable into the respective RJ-31X's that represents the the first and second announcements.

6.2.4 Install the ECR-E ETU in an available interface slot in a CCU making sure that the busy switch (SW1) is in the OFF position. After the ECR-E ETU is properly seated in its slot, turn on SW1. (Refer to Chapter 3 of the Electra Mark II Installation Service Manual Memory Block 4C1.)

6.3 Installing and programming the AEC 212 Plus Announcer (Refer to Figure 1)

NOTE: Ensure that the 212 Plus power pack is disconnected from the Announcer unit before proceeding.

6.3.1 Refer to the AEC 212 owner’s manual and set the internal jumper plugs (1 per channel) for 600 ohms transformer coupled audio output. (These jumpers are internal to the AEC equipment. See Figure 2.)

6.3.2 Set the start mode switches on the back of the unit as follows:

<table>
<thead>
<tr>
<th>SWITCH</th>
<th>SETTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW1</td>
<td>ON      (continuous play)</td>
</tr>
<tr>
<td>SW2</td>
<td>OFF</td>
</tr>
<tr>
<td>SW3</td>
<td>OFF</td>
</tr>
<tr>
<td>SW4</td>
<td>ON      (relay closure start)</td>
</tr>
</tbody>
</table>

6.3.3 Plug the other ends of the 8 conductor modular cable to the Line 1 and Line 2 jacks, for first and second announcements respectively, on the back of the AEC 212 Plus unit.

6.3.4 The AEC Model 212 Plus Announcer provides two ports that can be independently recorded. (See Figure 1).

6.3.5 Connect the 12-14V power pack into the AEC 212 first, and then into the nearest AC power outlet.

6.3.6 Using the built-in microphone, or a carbon type handset, record the desired announcement as indicated in the AEC 212 Plus owner’s manual. For maximum effectiveness, it is recommended that messages be limited to a maximum of 15 seconds followed by a silent period of 2 seconds.
6.4 Electra Markll System programming (Refer to the Electra Markll Installation Service Manual)

6.4.1 Assign individual trunks for DIT or ANA operation in Memory Blocks 2B3 and 2B4. (Delay Announcement is available for DIT or ANA trunks only).

6.4.2 Assign the Delay Announcement feature to Each required DIT or ANA trunk in Memory Block 2C5.

6.4.3 Assign desired time delay between incoming ring signal recognition and the start of the Delay Announcement to the calling party in Memory Block 2D2, using line key 6. This timer is adjustable from 1 to 99 seconds. System default value is 20 seconds.

6.4.4 Assign the desired Delay Announcement Auto Release Timer in Memory Block 2D1, using line key 3. This timer determines how long an outside line will remain connected to the announcement device after encountering either a busy signal or no answer from a Hunt Group. If the outside line can provide a remote disconnect signal this timer is not required, the remote disconnect will supersede this timer. Timer ranges from 10 to 980 seconds with 990 being infinity, and can be disabled. Default value is 600 seconds (10 minutes).

6.4.5 Select one of the ECR-E ETU relays to activate the announcement unit in Memory Block 2C9. Use of relay number 10 is recommended for the first announcement. Relay number 9 is recommended for the second delay announcement. (See Figure 1).

6.4.6 Assign the duration for the first and second delay announcements in Memory Block 2D2. Line Key 7 represents the first announcement and Line Key 8 represents the second announcement. Timer ranges are from 1-98 seconds with 99 being infinity. Default is 10 seconds (Series 400 only).

NOTE: If the timer assignment is between 1~98 seconds, MOH will automatically begin after the assigned time. If timer assignment is 99, the announcement will continue to replay (same as Series 300).

6.4.7 Assign the MOH duration between the first and second announcements (LK7) and between the second and repeat of the second announcement (LK8) in Memory Block 2D1. Timer ranges are from 10-980 seconds with 99 being infinity (Series 400 only).

NOTE: If the time assignment between the 1st and 2nd announcement is 10~980 seconds, JK3 (2nd Announcement input) will automatically be the input for the Second Delay Announcement and the TSW-E/EB MOH inputs become the input for Station BGM. If the timer is left at default, 99 (infinity), JK3 is the input for Station BGM.

6.4.8 If station Hunt Groups are required, use Memory Blocks 3B5 through 3B8 to assign the required parameters.

7. ATTENDANT ACTIVATION AND DEACTIVATION OF DELAY ANNOUNCEMENT

7.1 To Activate Day/Night Time Delay Announcement: (Idle mode)

7.1.1 Depress the CNF key.

7.1.2 For Day Time Delay Announcement, depress line key 9 (LED turns ON)

7.1.3 For Night Time Delay Announcement, depress line key 10 (LED turns ON)

7.1.4 Depress the CNF key to return ON LINE.

7.2 For deactivating Day time and Night time Delay Announcement, repeat the same procedure for activating the announcement, except turn the LEDs OFF instead of ON.

4 OF 7
8. Testing

After installation and programming is completed, test the operation as follows:

8.1 Render all extensions in the Hunt Group busy and call the pilot number of the DIT Hunt Group.
   8.1.1 Go off hook.
   8.1.2 Seize a trunk with either an access code or a line key.
   8.1.3 Dial the seven digit phone number of the Hunt Group.

8.2 Do not answer and note that the caller is provided with the first announcement, then MOH, then the second announcement, then MOH, then the second announcement again, then MOH, and so on. Establish that the recording repeats until the call is automatically terminated by the Delay Announcement Auto Release Timer (10 minutes).

8.3 Render all extensions in the Hunt Group busy and make multiple simultaneous calls to the pilot number of the DIT Hunt Group (see 8.1 - 8.1.3). Do not answer and note that callers are connected to the prerecorded announcements. Answer each call and establish that the recording is released and normal conversations can ensue.
Figure 1. Connection of the AEC Dual Line Announcer to the ECR-E ETU
Figure 2. Internal Jumper Plug Settings
ETI MK-013 IS OMITTED INTENTIONALLY
INSTALLATION OF FOURTH CCU IS INCLUDED IN
CHAPTER 2
1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the steps necessary to connect a DEES Automatic Ground Start Unit (Model 155 Mk2) to a Single Line Telephone (SLT) on the Electra MarkII for operation during a power failure.

2. PARTS REQUIRED

2.1 COI-E/EB ETU
2.2 SLI-EB ETU
2.3 DEES Automatic Ground Start Unit (Model 155 mk2).

DEES Communications Engineering, Inc.
4130 148th Ave. Northeast
Redmond, WA 98052
1-800-654-5604
2.4 24 AWG one pair wire.
2.5 ETE-1-2 Telephone or standard 2500 set.
2.6 Modular line cord (1) with RJ11 connectors.
2.7 Modular Jack.

3. OPERATION

3.1 There are no special operating procedures for the DEES 155 Mk2 to work. When the Electra Mark II is operating, the SLT operates normally.

3.2 During power failure of the Electra Mark II, the ground start trunk that is connected to the DEES 155 Mk2 is automatically switched over to a direct connection with the SLT. The SLT can then originate or receive outside calls.

4. PROCEDURES

4.1 If an SLT port is not already available, insert SLI-EB ETU into an available interface slot.

4.2 Connect Ground Start Trunk to an available COI-E/EB port on the MDF.

See Figures 1 and 2 for the following procedures.
4.3 Punch down 24 AWG one pair wire into Tip (T) and Ring (R) of SLI-EB port at the MDF.

4.4 Punch down the other end of this wire to one of the available channels (T IN and R IN) of the 155 Mk2 quick-connect block.

4.5 Punch down the 24 AWG one pair wire to the PT and PR of the SLI-EB port being used.

4.6 Half tap the other end of this wire to the Ground Start Trunk that is being used at the MDF.

4.7 Using the 24 AWG wire, connect GND on the quick-connect block to frame ground of the Electra Mark II. Frame ground is located on the outside of the ESE-32B-1 CCU.

4.8 Using a modular jack, connect T OUT and R OUT by using the 24 AWG one pair wire.

4.9 Plug the modular line cord (with RJ11 connectors) into the modular jack and the SLT.

5. TEST PROCEDURES

5.1 With the Electra Mark II system operating, make outgoing and incoming calls with/to the SLT.

NOTE
For the following procedure, be sure that the CPU battery is ON.

5.2 Power down the Electra Mark II system and make outgoing and incoming calls with/to the SLT.

Figure 1. Connecting DEES Automatic Ground Start to an SLT.

NOTE: This unit can handle a maximum of 3 SLTs.
Figure 2. Quick-Connect Block
1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the steps necessary for connection and operation of a Viking W-1000/W-2000 Handsfree Doorbox and a Viking RC-2A Remote Touch-Tone On/Off Industrial Controller with the Electra MarkII. (The Viking RC-2A can be used to control door releases, gate openers, lighting, etc.)

2. Configurations

The products mentioned in this ETI can be connected to the Electra MarkII as follows:

2.1 Handsfree Doorbox with Door Release connected to COI-E/EB ETU port.
2.2 Handsfree Doorbox connected to COI-E/EB ETU port.
2.3 Door Release connected to VMI-E ETU port.

NOTE

The Door Release requires DTMF signaling for control of its relays.

3. Parts Required

3.1 For Configuration 2.1 (Handsfree Doorbox with Door Release connected to COI-E/EB ETU port.)
   - COI-E/EB ETU port
   - Viking W-1000/W-2000 handsfree Doorbox
   - Viking RC-2A Remote Touch-Tone On/Off Industrial Controller (Door Release application).
   - Modular Line Cords (2) with RJ11 connector and cable.
   - 24 AWG One Pair wire.

3.2 For Configuration 2.2 (Handsfree Doorbox connected to COI-E/EB ETU port).
   - COI-E/EB ETU port
   - Viking W-1000/W-2000 handsfree Doorbox.
   - 24 AWG One Pair wire.

3.3 For Configuration 2.3 (Door Release connected to VMI-E ETU port).
   - VMI-E ETU port.
   - RSG-E Unit (To support the VMI-E ETU).
   - Viking RC-2A Remote Touch-Tone On/Off Industrial Controller (Door Release application).
   - Modular Line Cords (2) with RJ11 connector and cable.
   - 24 AWG One Pair wire.
ETI NUMBER: MK-015

4. References

Viking Technical Practice notes (included with product).

Viking Electronics, Inc.
1531 Industrial Street
Hudson, WI 54016
715-386-8861

5. Operation

5.1 Doorbox

When the Call button on the Doorbox is depressed, the CO line representing this device will ring twice at a station. The station user answers and converses with the caller.

5.2 Door Release

After accessing the Door Release, a caller may enter command codes from a dial pad which control relays (turn off or on) that operate access to entries/exits.

6. Site Requirements

6.1 The Viking W-1000/W-2000 Handsfree Doorbox should be mounted on a flat surface and in a location that protects it from rain, wind, extreme temperature changes. Power source must be indoor, 120V ac.

6.2 Recommended mounting location of the Viking RC-2A Door Release is in the telephone equipment room and near a 120V ac power source.

7. Procedure

7.1 For configuration 2.1 (Handsfree Doorbox with Door Release connected to COI-E/EB ETU). See Figure 1.

7.1.1 Determine the location for mounting the Viking W-1000/W-2000 Handsfree Doorbox and/or Viking RC-2A Remote Touch-Tone On/Off Industrial Controller Door Release. Ensure that there is an indoor 120V ac power source nearby.

7.1.2 Install the COI-E/EB ETU in an available interface slot (if a COI port is not already available). The COI-E/EB ETU port to be used must be set as a Loop Start Trunk.

7.1.3 Insert the RJ11 connector end of the modular line cord into the RJ OUT of the Viking RC-2A Door Release.

7.1.4 With the other end of the modular line cord, punch down the Green and Red wires onto Tip and Ring, respectively, of the available CO port at the MDF block.

7.1.5 Using the other modular line cord, insert the RJ11 connector into RJ-IN of the Viking RC-2A Door Release.

7.1.6 With the other end of this modular line cord, connect the Red and Green wires to the Viking W-1000/W-2000 as shown in Figure 1.

7.1.7 Set the Entry (Security) Code (a security code is required before the relays can be activated/deactivated) of the Viking RC-2A by rotating the dials shown under Entry Code 1-2-3.

7.1.8 Connect the W-1000/W-2000 power supply and plug into nearest 120V ac outlet.
7.1.9 Connect the RC 2A power supply and plug into nearest 120V ac outlet.
7.2 Electra Markll Programming

7.2.1 A CO line appearance representing the CO port for the Viking products must be assigned to the appropriate stations that will be answering and controlling them. MB 1A can be used for this assignment.

7.2.2 To control the Viking RC-2A Door Release, a * must be sent first; therefore, MB 2A5, Line Key 1 must be turned off.

7.2.3 DTMF digit duration must be increased for sending control codes to the Viking RC-2A Door Release. The CO port that the Viking products are connected to. MB 481, Line Keys 5-8 must be changed to OFF-OFF-ON-OFF.

7.2.4 Test the Viking W-1000/W-2000, and RC-2A for proper operation in conjunction with the Electra Markll.

7.3 For configuration 2.2 (Handsfree Doorbox connected to COI-E/EB ETU). See Figure 2.

7.3.1 Determine the location for mounting the Viking W-1000/W-2000 Handsfree Doorbox and/or Viking RC-2A Remote Touch-Tone On/Off Industrial Controller Door Release. Ensure that there is an indoor 120V ac power source nearby.

7.3.2 Install the COI-E/EB ETU in an available interface slot (if a COI port is not already available). The COI-E/EB ETU port to be used must be set as a Loop Start Trunk.

7.3.3 Using the 24 AWG one pair wire, punch down the wire onto the Tip and Ring of the available COI port at the MDF.

7.3.4 Connect the other end of the 24 AWG one pair wire to the Viking W-1000/W-2000 as shown in Figure 2.

7.3.5 Connect the power supply to the W-1000/W2000 and plug into the nearest 120V ac outlet.

![Figure 2 Handsfree Doorbox connected to COI-E/EB ETU](image-url)
Electra MarkII Programming

7.4.1 A CO line appearance representing the CO port for the Viking products must be assigned to the appropriate stations that will be answering and controlling them. MB 1A can be used for this assignment.

7.4.2 Test the Viking W-1000/W-2000 for proper operation in conjunction with the Electra MarkII.

For configuration 2.3 (Door Release connected to VMI port). See Figure 3.

7.5.1 Determine the location for mounting the Viking RC-2A Remote Touch-Tone On/Off Industrial Controller Door Release. Ensure that there is an indoor 120V ac power source nearby.

7.5.2 Install the VMI-E ETU in an available interface slot (if a VMI port is not already available).

7.5.3 Install the RSG-E Unit in an available RSG slot, in the same or adjacent Electra MarkII CCU where the VMI-E ETU is installed, provided an RSG-E Unit is not already installed.

7.5.4 Insert the RJ11 connector end of the modular line cord into the RJ-OUT of the Viking RC-2A Door Release.

7.5.5 Insert the other RJ11 connector into the modular jack representing the available VMI port.

7.5.6 Set the Entry (Security) Code (a security code is required before the relays can be activated/deactivated) of the Viking RC-2A by rotating the dials shown under Entry Code 1-2-3.

7.5.7 Plug the unit into the nearest 120V ac outlet.

Electra MarkII programming

7.6.1 To control the Viking RC-2A Door Release, a * must be sent first; therefore, MB 2A5, Line Key 1 must be turned off.

7.6.2 DTMF digit duration must be increased for sending control codes to the Viking RC-2A Door Release. The VMI port that the Viking products are connected to, MB 4B9, Line Keys 5~8 must be changed to OFF-OFF-ON-OFF.

7.6.3 Connect additional equipment that is to be controlled by the Viking RC-2A to contacts A and B. The "shunt" on the RC-2A (representing Normally Closed or Normally Open) may need to be changed (depends on requirements of additional equipment).

7.6.4 Test the Viking RC-2A for proper operation in conjunction with the Electra MarkII. Testing can be accomplished using the following procedures.

   A. Dial station number representing the VMI port.

   B. After RC-2A answers, enter * and Entry Code.

   C. Enter Command Codes and listen for confirmation tone.
ETI NUMBER: MK-015

Figure 3 Door Release connected to VMI Port
RAA-E UNIT UPGRADE

ELECTRA MARKII

ETI NUMBER: MK-016  DATE: APRIL, 1990

1. DESCRIPTION

This Engineering Technical Information (ETI) bulletin provides the steps necessary to upgrade an existing RAA-E Unit to revision 2A which involves changing one IC. This upgrade is required in order to use the RAA-E Unit with the RAA Unit Disk (COMLINK: V2.0 or higher) and the System Data Up/Down Load (DATASAVE) (Stock No. 700539 for 5.25' diskette or No. 700540 for 3.5' diskette) software. RAA-E Units revision 3 or higher do not require this upgrade.

2. PARTS REQUIRED

2.1 The RAA-E Unit Upgrade Kit (Stock No 700537) consists of:
   2.1.1 One revision A label.
   2.1.2 One revision 2A label.
   2.1.3 One V3.1 EPROM IC.
   2.1.4 RAA-E Unit Disk (COMLINK) V2.0.

2.2 Anti-static wrist band and grounding strap (3M Model 2213 or similar, locally provided).

2.3 Anti-static mat (3M Model 8501 or similar, locally provided).

2.4 IC Chip insertion/extraction tool capable of handling a 28 pin IC (locally provided).

CAUTION: Microprocessors and some other chips used on the RAA-E Unit are static sensitive devices. Proper care in handling is necessary to assure that neither the microprocessor nor the printed circuit board (PCB) is damaged. This procedure minimizes the possibility of damage due to static electricity discharge.

3. SET UP PROCEDURE

3.1 Attach the anti-static mat to earth ground.

3.2 Put on the anti-static wrist band and attach the band to the anti-static mat.

3.3 Unpack the new EPROM IC and labels provided.
4. PROCEDURE

4.1 Loosen the cross head cover retaining screw located at the rear of the housing (See Figure 1).

4.2 Remove the RAA-E Unit cover by applying inward pressure to the lower half while at the same time pulling back on the upper half.

4.3 Remove the HIC-E PCB by lifting it off of the RAC-E Unit.

4.4 Using the chip extraction/insertion tool, remove the installed EPROM (Z2) from its socket (Refer to Figure 2). Follow the IC extractor manufacturer’s recommended procedure.

4.5 Using the same tool as in step 4.4, and following the IC insertion tool manufacturer’s recommended procedure, insert the supplied EPROM into the IC chip socket. Observe IC polarity and ensure that the IC pins are not bent and that all pins are properly inserted in the IC socket (Refer to Figure 2).

4.6 Using the revision A label provided, add the A revision after the number on the RAC-E PCB (See Figure 2).

4.7 Use the revision 2A label and change the revision level on the outside of the bottom half of the RAA-E Unit (See Figure 3).

4.8 Set SW5 on the HIC-E Unit to the Low setting.

4.9 Reassemble the upper and lower housing halves of the RAA-E Unit.

4.10 Test the unit for proper operation. This can be done with either the “COMLINK” (V2.0) or “DATASAVE” (V1.00) Software. Refer to the Electra MarkII Installation Service Manual, Chapter 9, for programming instructions.
Insert EPROM into IC chip socket.

Add revision label A after the number.
Figure 3 - Adding Revision Label 2A to Outside of RAA-E Unit.
1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the steps necessary for connection and operation of a Viking Fax Jack III and a Viking PathFinder (Phone/Data/Fax Switch) with the Electra MarkII. Both products can be used for the connection of fax machines, modems, and other data transmission devices. By connecting these units to an incoming CO line, Voice calls can be routed to the Electra MarkII. However, Fax/Data calls will be directed to appropriate devices. This allows multi-use of a CO line.

2. CONFIGURATIONS

Both products must be connected to the Electra MarkII via a COI-E/EB ETU port. Fax machines, modems, and other data transmission devices are then connected directly to the Viking products. Fax machines may be G1, G2, G3, etc., type machines. An incoming call from a fax machine that provides CNG tones will be automatically routed to the fax that is connected to the Viking product. An incoming call from a fax machine that does not provide CNG tones will not be routed automatically. The call must be taken via telephone and transferred to the fax machine by depressing "#, 1" on the same line that the call came in on. Refer to the Viking Technical Practice Notes that are provided with each of these products.

NOTE: Carrier Tone must be sent before incoming modem calls that are to be directed to the modem that is connected to the Viking product. This can be accomplished by the digits dialed by the incoming modem, followed by three pauses, then a string of 2s (a minimum of three 2s is recommended). The string must be longer than the time required by the Telco to connect and ring the line.

If Carrier Tone is not sent, the call must be taken by telephone and transferred to the modem by depressing "#, 2" on the same line that the call came in on.

3. PARTS REQUIRED

For connection of either the Viking Fax Jack III or the Viking PathFinder:

- COI-E/EB ETU
- Viking Fax Jack III (Model FAXJ-300) or Viking PathFinder (Model PDF-1)
- Modular Line Cords with RJ11 Connectors

NOTE 1: The Fax Jack III comes with a line cord to connect to the COI-E/EB port. Two additional line cords with RJ11 connectors, allow connection of additional devices.

NOTE 2: The PathFinder requires one line cord to connect the unit to an COI-E/EB port. A maximum of three additional line cords, with RJ11 connectors, allow connection of additional devices.

NOTE 3: Calls from fax machines may require longer timers for CNG tones.
NOTE 4: In-house Fax machines may require a minimum time (number of rings) before a Fax to Fax connection can be made.

4. REFERENCES

Viking Technical Practice notes (included with product).

Viking Electronics, Inc.
1531 Industrial Street
Hudson, WI 54016
Sales: (715) 386-8861

5. SITE REQUIREMENTS

Both products must be mounted near a 120V AC source. Site location is limited only by the location of the COI-E/EB ETU port jack and the additional devices.

6. PROCEDURE

6.1 For connection of the Viking Fax Jack III. See Figure 1.

6.1.1 Determine the location for mounting the Viking Fax Jack III. Ensure that the designated COI-E/EB ETU port jack and 120V AC power source are nearby.

6.1.2 Install the COI-E/EB ETU in an available interface slot (if an COI port is not available).

6.1.3 Insert the RJ11 connector from the Fax Jack III to an incoming CO line port jack.

6.1.4 Using a modular line cord with RJ11 connectors, connect a COI-E/EB ETU to the Phone Connector on the Fax Jack III.

6.1.5 Using another modular line cord with RJ11 connectors, connect the data port on the Fax Jack III to either a fax machine, modem, or other data transmission device.

NOTE: Switch 1 (located on the rear of the Fax Jack III) determines whether a fax machine or a modem will be connected to the data port.

6.1.6 Plug the AC adaptor into the Fax Jack III and the 120V AC power source. Refer to the Technical Practice notes for proper switch setting.

6.2 Electra Mark II Programming

6.2.1 No special programming is required for the Electra Mark II. When installing the COI-E/EB ETU, a trunk number is automatically assigned for the port representing the Fax Jack III.

6.2.2 Refer to the Viking Technical Practice notes for programming the Fax Jack III to your particular application.

6.2.3 Test the Viking Fax Jack III for proper operation with the Electra Mark II.

6.3 For connection of the Viking PathFinder see Figure 2.
6.3.1 Determine the location for mounting the Viking PathFinder. Ensure that the designated COI-E/EB ETU port jack and 120V AC power source are nearby.

6.3.2 Install the COI-E/EB ETU in an available interface slot (if a COI port is not already available).

6.3.3 Insert a modular line cord with RJ11 connectors from the Telco connector of the PathFinder to incoming CO line port jack.

6.3.4 Using a modular line cord with RJ11 connectors, connect a COI-E/EB ETU to the phone connector on the PathFinder.

6.3.5 Using other modular line cords with RJ11 connectors, connect a fax machine to the fax connector on the PathFinder and a modem to the modem connector on the PathFinder.

NOTE: These port can be used to connect other fax machines, modems, or data transmission devices.

6.3.6 Plug the AC adaptor from the PathFinder to the 120V AC power source.

6.4 Electra MarkII Programming

6.4.1 No special programming is required for the Electra MarkII. Upon installation of the COI-E/EB ETU, a trunk number is automatically assigned for the port representing the PathFinder.

6.4.2 Refer to the Viking Technical Practice notes for programming the PathFinder to your particular application.

6.4.3 Test the Viking PathFinder for proper operation with the Electra MarkII.
Figure 1  Connecting the Viking FaxJack III
Figure 2  Connecting the Viking PathFinder
1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the procedure for connecting the Soft-Com Scout Jr. Call Accounting System to the Electra Markll system via the SMDR-E ETU. This Call Accounting System consists only of software that must be stored on a personal computer hard disk.

NOTE: Before undertaking this procedure, the installer should be familiar with the Soft-Com Scout Jr. Technical reference manual and Chapter 2 of the Electra Markll Installation Service Manual.

2. PARTS REQUIRED

2.1 SMDR-E ETU.

2.2 Soft-Com Scout Jr. (Version 4.3 or higher) Call Accounting System. This system can support a maximum of eighty (80) extension numbers.

Soft-Com Inc.
140 West 22nd Street
New York, NY 10011
(212) 242-9595

2.3 RS-232C Straight Cable with male connectors at both ends.

2.4 An NEC Powermate or IBM compatible computer with hard disk. The following are the basic requirements:
   • 640K RAM
   • Communications Port
   • Hard Disk - 20 Mbytes Minimum
     ▶ 5 Mbytes for storing the Scout Jr. resident program.
     ▶ 10 Mbytes allows 10,000 calls to be stored.
   • One 5-1/4" or 3-1/2" Floppy Disk Drive
   • Display/Printer Interface Card
   • Monitor
   • MS-DOS Version 3.1 or higher

(Refer to the Scout Jr. manual for additional computer hardware requirements).

2.5 Serial or parallel printer (to be used for the printing of call record reports). This printer must be connected to the computer.

3. OPERATION

After installation and programming are completed, system managers of the Scout Jr. system will be able to print call record reports showing incoming and outgoing calls by extensions, departments, trunks, account codes, etc. In addition, the Scout Jr. allows custom reports to be printed for programmable variables.
4. PROCEDURE

4.1 Scout Jr. Installation
Load the call accounting software into the computer in accordance with the Scout Jr. manual. Scout Jr. already contains the switch parameters for the Electra Markll; therefore, choose the item number that represents the Electra Markll in the switch setup during installation.

4.2 Connections (refer to Figure 1)

4.2.1 Install the SMDR-E ETU into an available option slot in a CCU. (Refer to Chapter 2 of the Installation Service Manual.)

4.2.2 Connect one end of the RS-232C cable to the female connector of the SMDR-E ETU. Connect the other end of the RS-232C cable to a COM Port on the computer.

4.3 Electra Markll Programming

4.3.1 If SMDR output of incoming calls is required, Memory Block 2A6, Line Key 1 must be ON.

4.3.2 In memory Block 2D1, Line Key 4 represents the time until the Electra Markll will begin recording the duration of the call.

4.3.3 In memory Block 2D1, Line Key 13 represents the time that must pass on a call before the Electra Markll will provide an SMDR report.

4.3.4 Memory Block 2A8 allows you to program the number of digits that will be used for Account Codes.

4.4 Scout Jr. Programming
The following is general information concerning the programming required with Scout Jr. for a customer’s site:

- Site Information:
  - Company Name
  - Company Address
  - Company Telephone Number
- Department Numbers
- Extension Numbers and Names of Users
- Trunks: (Types of Trunks Used and Numbers)
- Call Pricing Information: Carrier (MCI, Sprint, AT&T, etc.)
  The call pricing can also be customized for a customer’s needs.

(Refer to the Scout Jr. manual for additional information.)
Figure 1  Connecting the SMDR-E ETU to the COM Port on the Computer
1. DESCRIPTION

This Engineering Technical Information (ETI) Bulletin describes the procedure for connecting the Active Voice Repartee Voice Mail/Automated Attendant System to the Electra MarkII System via the VMI-E ETU.

NOTE: Before undertaking this procedure, the installer should be familiar with the Active Voice Repartee System Managers Manual and Chapter 8 of the Electra MarkII Installation Service Manual.

2. CONFIGURATION

The Active Voice Repartee system is very flexible for allowing the system to meet the demands of a customer site. The following is a condensed list of features available with this system:

- Automated Attendant
  - Call Screening
  - Call Holding (queuing)
  - Transfer to Attendant at any time
  - Port Independence (allows different ports to be answered with different introduction messages)
  - Call Transferring

- Voice Mail
  - Taking Messages
  - Group Messages
  - Date and Time Stamp
  - Message Notification (Turn on/off MSG on the Electra MarkII stations, ring an extension, outside number, pager, etc.)
  - Message redirection
  - Message Receipt Verification

- Voice Response
  - Interactive Questioning
  - Information Distribution

3. PARTS REQUIRED

3.1 VMI-E ETU (an MFR-EA ETU and an RSG-E Unit associated with the CCU in which the VMI-E ETU is installed are also required). With a CPU-EC4 ETU (or higher revision level) installed, two VMI-E ETUs can be supported allowing 8 ports for voice mail interfacing.

3.2 Active Voice Repartee (Version 6.01 or higher) Voice Mail System (including the System Managers Manual).

Active Voice Corporation
101 Stewart Street
Seattle, Washington 98101
(206) 441-4700
3.3 An NEC Powermate or IBM compatible computer with hard disk. The following are the basic requirements:
- 640K RAM
- One or Two 8-bit Expansion Slots
- Hard Disk - 20 Mbytes Minimum
  - 5 Mbytes for the REPARTEE Resident program.
  - 10 Mbytes allow for up to one hour of messages to be stored.
- One 5-1/4" Floppy Disk Drive
- Parallel Port, Clock/Calendar
- MS-DOS Version 2.1 or higher
- Monitor

(Refer to the Repartee Manual for additional hardware requirements.)

3.4 Modular Line Cords with RJ14 connectors.

4. OPERATION

When using the Automated Attendant feature, incoming DID/DIT calls will answered by the Automated Attendant. The outside caller will be asked to enter a desired extension number, then the Automated Attendant will attempt to transfer the call. The features listed in section 2 of this document can be used for the Automated Attendant.

When using the Voice Mail feature, and by programming extensions on the Electra MarkII for Call Forward (All Calls or Busy/No Answer) to the voice mail system, incoming DID/DIT calls to these stations can be sent to the station user's mailbox. The station user, upon receiving a MSG signal at his/her station can access their voice mailbox via a speed dial button, enter their personal password, and retrieve their message(s).

When using the Voice Response feature, the Repartee can ask incoming callers a series of questions (Example: “What is your name? Address? Problems or Concerns that you may have?”, etc.) or Repartee can provide information about the customer site. (Example: “We are open Monday through Friday, 8:00 am to 5:00 pm. In case of an emergency, dial 1-800-367-0632.”)

5. PROCEDURE

5.1 Repartee Installation

5.1.1 Install Repartee Voice cards in the personal computer in accordance with the Repartee System Managers Manual.

5.1.2 Install the Repartee protection key in the parallel port of the personal computer.

5.1.3 Load the software in accordance with the Repartee System Managers Manual.

5.2 Connection

5.2.1 Install the VMI-E ETU(s) into an available interface slot, in a CCU that is supported by an RSG-E Unit. (Refer to Chapter 2 of the Electra MarkII Installation Service Manual).

5.2.2 The Repartee Voice Mail System provides two to eight ports for Voice Mail and/or Automated Attendant Access. Each of the two Repartee ports connect to two (of the 8 available ports). Each of the VMI-E extensions should be cross-connected from the appropriate J block on the MDF and connected to an RJ14C connector to facilitate connection to the Repartee Voice Card using modular line cords (see Figure 1).
5.3 Initializing Repartee

5.3.1 Configure Repartee Voice Mail System
- Enter Name of Enrolled Callers
- Enter Extension Numbers
- Enter Personal Identifications
- Enter Voice Names

5.3.2 Refer to the Repartee System Managers Manual for additional setup information.

5.4 Electra Markll System Programming

5.4.1 If the VMI-E ETU(s) is being added to an existing system in an interface slot previously occupied by a different type of ETU, it is necessary to assign the interface slot to be used for the VMI-E ETU in Memory Block 4C1. (Refer to Chapter 3 of the Electra Markll Installation Service Manual.) Two VMI-E ETUs can be installed in the system when using a CPU-EC4 ETU.

5.4.2 Up to four voice mail ports connected to the Repartee System can be programmed in the Voice Mail Hunt Group in Memory Block 2C4. (Refer to Chapter 3 of the Electra Markll Installation Service Manual.)

5.4.3 In Memory Block 2B8, be sure that Line Keys 1~4 are programmed as Voice Mail ports and Line Keys 9~12 are programmed to send DTMF.

5.4.4 Memory Blocks 4B8 and 4B9 will remain at default values for most cases; however, be aware that these timing parameters can be changed.

5.4.5 A hunt group for the VMI ports may have to be programmed in Memory Blocks 3B5 to 3B8 depending on the customer site requirements.

5.4.6 Station Speed Dial can be programmed to allow for easier access to the station users voice mailbox to retrieve messages and/or leave messages.
Figure 1  Repartee Connection Block Diagram
# ELECTRA MARKII

**Dterm II SINGLE LINE TELEPHONES**

## ETI BULLETINS

<table>
<thead>
<tr>
<th>ETI NUMBER</th>
<th>DESCRIPTION</th>
<th>DATE</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS-001</td>
<td>Connection of Plantronics Phonebeam to Dterm II (ETE-1-2)</td>
<td>06/90</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>DS-002</td>
<td>Connection of Northern Telecom Companion II Speakerphone to Dterm II (ETE-1-2)</td>
<td>06/90</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>DS-003</td>
<td>Connection of Plantronics jackset (Model JS-180) to Dterm II (ETE-1-2)</td>
<td>06/90</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>DS-004</td>
<td>Connection of TA-20 or S-11 Handset Amplifier to Dterm II (ETE-1-2)</td>
<td>06/90</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>DS-005</td>
<td>Connection of an Audio Tape Recorder to Dterm II (ETE-1-2)</td>
<td>06/90</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>DS-006</td>
<td>Connection of Northern Telecom Companion 45 Speakerphone to Dterm II (ETE-1-2 and 1HM-2)</td>
<td>06/90</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>DS-007</td>
<td>Connection of Panasonic Audiodialer Recorder to Dterm II (ETE-1-2)</td>
<td>06/90</td>
<td>ACTIVE</td>
</tr>
</tbody>
</table>
1. **DESCRIPTION**

This Engineering Technical Information (ETI) Bulletin provides installation instructions for connecting a Plantronics phonebeam speakerphone to a Dterm II telephone (ETE-1-2).

2. **LIMITATIONS**

2.1 Dterm II can transmit only when speakerphone is turned off.

2.2 Speakerphone can transmit only when the Dterm II is on-hook.

3. **PARTS REQUIRED**

3.1 Dterm II (ETE-1-2).

3.2 PLANTRONICS Phonebeam Speakerphone.

3.3 Electrical insulation tape.

3.4 Needlenose pliers

4. **REFERENCES**

4.1 PLANTRONICS installation manual 15499-01.

4.2 Dterm II (ETE-1-2) User Guide.

5. **OPERATION**

5.1 Initiating calls

   A. Initiate calls by going off-hook with the Dterm II handset (Speakerphone turned “OFF”),

   OR

   B. Depress the “ON” key on the Speakerphone (Dterm II on-hook),

   OR

   C. Switch the remote microphone unit of the phonebeam speakerphone to the “ON” position and then hang up the handset.
5.2 Transferring calls
   A. From Dterm II handset to Speakerphone; depress "ON" key on speakerphone,
      OR
      Switch remote microphone unit to "ON" position and then hang up the handset.
   B. From Speakerphone to Dterm II handset; lift the handset of the Dterm II and then turn off the
      Speakerphone.

6. PROCEDURE
   6.1 Disconnect the line and handset cord from the Dterm Telephone.
   6.2 Place the Dterm II upside down on a clean flat work surface.
   6.3 Slide the Directory out and place it aside.
   6.4 Remove the access panel by applying pressure (at the notch of the panel) and slide the access panel out as
       shown in Figure 1.

6.5 Connect the leads from the Speakerphone as shown in Table - 1 and Figure 2. (Spade lug H4 can be
   accessed by using Needle nose pliers.)
Table 1 Speakerphone Cable Connection

<table>
<thead>
<tr>
<th>PHONEBEAM CABLE</th>
<th>DTERM II TERMINAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>RED</td>
<td>H1</td>
</tr>
<tr>
<td>LIGHT GREEN</td>
<td>H3</td>
</tr>
<tr>
<td>WHITE</td>
<td>H4</td>
</tr>
<tr>
<td>BLACK</td>
<td>H4</td>
</tr>
<tr>
<td>DARK GREEN</td>
<td>TX1</td>
</tr>
<tr>
<td>PINK</td>
<td>TX2</td>
</tr>
</tbody>
</table>

Figure 2. Phonebeam wire Connection On Dterm II (ETE-1-2 PCB)

6.6 Following the pre-molded guides inside the access panel cover assembly, cut the notch and route the phonebeam cable through this notch. (See Figure 3.)
6.7 Insulate spare Phonebeam wires with electrical tape. Store these wires in a neat bundle inside the access panel cover.

6.8 Attach the access panel cover to the Dterm II main body.

6.9 Connect the line and handset cords to the Dterm II.

6.10 Plug the Phonebeam power supply into a local 110/120V ac outlet. (See Figure 4.)

6.11 Test for normal operation
Figure 4. Line Drawing For Completed Installation
1. DESCRIPTION
This Engineering Technical Information (ETI) Bulletin provides installation instructions for connecting a Companion 2 Speakerphone to a Dterm II telephone (ETE-1-2).

2. LIMITATIONS
2.1 Dterm II can transmit only when speakerphone is turned off.
2.2 Speakerphone can transmit only when the Dterm II is on-hook.

3. PARTS REQUIRED
3.1 Dterm II (ETE-1-2).
3.2 Northern Telecom Companion 2 Speakerphone.
3.3 Electrical insulation tape.
3.4 Needlenose pliers

4. REFERENCES
4.1 Northern Telecom Companion 2 installation manual POS25745.
4.2 Dterm II (ETE-1-2) User Guide.

5. OPERATION
5.1 Initiating calls
A. Initiate calls by going off-hook with the Dterm II handset (Speakerphone turned "OFF"),

OR

B. Depress the "ON" key on the Speakerphone (Dterm II on-hook),

5.2 Transferring calls
A. From Dterm II handset to Speakerphone; depress "ON" key on speakerphone and hang up the handset.

OR

B. From Speakerphone to Dterm II handset; lift the handset of the Dterm II, the Speakerphone turns off automatically.
6. PROCEDURE

6.1 Disconnect the line and handset cord from the Dterm Telephone.

6.2 Place the Dterm II upside down on a clean flat work surface.

6.3 Slide the Directory out and place it aside.

6.4 Remove the access panel by applying pressure (at the notch of the panel) and slide the access panel out as shown in Figure 1.

6.5 Connect the brown/white and white/brown power leads from the Companion 2 unit to a NE-2012B (or equivalent) transformer.

NOTE: If the revision for the ETE-1-2 telephone is A (e.g., 294 A) proceed to step 6.6
If the revision for the ETE-1-2 telephone is B or higher proceed to step 6.7

The revision level of an ETE-1-2 telephone can be determined from the label on the bottom housing of the telephone. Example: If the Lot No. on the label is 295A, the revision level of that particular telephone is A.

6.6 For ETE-1-2 Revision A. Connect the nine (9) wires from the Companion 2 Speakerphone to the Dterm II (ETE-1-2) PCB as shown in Table 1 and Figure 2. Cut strap S8 from the PCB. (Spade lug receptacles H4 and H5 can be accessed with Needle nose pliers.)

6.7 For ETE-1-2 Revision B and higher. Connect nine (9) wires from Companion 2 Speakerphone to Dterm II (ETE-1-2) PCB as shown in Table 2 and Figure 3. Cut strap S8 from the PCB.
Table 1: Companion 2 Speakerphone Cable Connection (ETE-1-2 Rev. A)

<table>
<thead>
<tr>
<th>COMPANION 2 CABLES</th>
<th>DTERM II TERMINAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLUE/WHITE</td>
<td>H1</td>
</tr>
<tr>
<td>WHITE/BLUE</td>
<td>H3</td>
</tr>
<tr>
<td>SLATE/RED</td>
<td>H4</td>
</tr>
<tr>
<td>YELLOW/BROWN</td>
<td>H4</td>
</tr>
<tr>
<td>RED/SLATE</td>
<td>H5</td>
</tr>
<tr>
<td>YELLOW/SLATE</td>
<td>J3</td>
</tr>
<tr>
<td>ORANGE/VIOLET</td>
<td>TX1</td>
</tr>
<tr>
<td>BROWN/YELLOW</td>
<td>TX2</td>
</tr>
<tr>
<td>SLATE/YELLOW</td>
<td>RX2</td>
</tr>
</tbody>
</table>

* Cut Strap S8 on the PCB

Figure 2: Companion 2 Speakerphone Wire Connection On Dterm II (ETE-1-2) PCB (Rev. A)
### Table - 2  Companion 2 Speakerphone Cable Connection (ETE-1-2 Rev. B or higher)

<table>
<thead>
<tr>
<th>COMPANION 2 CABLE</th>
<th>PCB SPADE LUGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLUE/WHITE</td>
<td>H1</td>
</tr>
<tr>
<td>WHITE/BLUE</td>
<td>H3</td>
</tr>
<tr>
<td>SLATE/RED</td>
<td>H4</td>
</tr>
<tr>
<td>YELLOW/BROWN</td>
<td>H4</td>
</tr>
<tr>
<td>RED/SLATE</td>
<td>H5</td>
</tr>
<tr>
<td>YELLOW/SLATE</td>
<td>J3</td>
</tr>
<tr>
<td>ORANGE/VIOLET</td>
<td>TX2</td>
</tr>
<tr>
<td>BROWN/YELLOW</td>
<td>TX1</td>
</tr>
<tr>
<td>SLATE/YELLOW</td>
<td>RX2</td>
</tr>
</tbody>
</table>

* Cut Strap S8 on the PCB

---

**Figure 3.** Companion 2 Speakerphone Wire Connection On Dterm II (ETE-1-2) PCB (Rev. B and Higher)
6.8 Following the pre-molded guides inside the access panel cover assembly, cut the notch and route the Speakerphone cable through this notch. (See Figure 4.)

6.9 Insulate spare Phonebeam wires with electrical tape. Store these wires in a neat bundle inside the access panel cover.

6.10 Attach the access panel cover to the Dterm II main body.

6.11 Connect the line and handset cords to the Dterm II.

6.12 Plug the Companion 2 power supply into a local 110/120V ac outlet.

6.13 Test for normal operation.

Figure 4. Speakerphone Cable Exit Groove on Dterm II Telephone
1. **DESCRIPTION**

This Engineering Technical Information (ETI) Bulletin provides installation instructions for connecting a Plantronics Jackset (Model JS-180) to a Dterm II telephone (ETE-1-2).

2. **LIMITATIONS**

NONE

3. **PARTS REQUIRED**

3.1 Dterm II (ETE-1-2).
3.2 JS-180 Plantronics Jackset
3.3 Electrical insulation tape.
3.4 Needlenose pliers

4. **REFERENCES**

4.2 Dterm II (ETE-1-2) User Guide.

5. **OPERATION**

5.1 Initiating calls
   
   A. Initiate calls by going off-hook with the Dterm II handset (JS-180 "Rocker Switch" turned "OFF"),

5.2 Transferring calls

   A. By moving the Jackset JS-180 "Rocker Switch" to the ON position. the call can be transferred to the headset. Set the handset of the Dterm II telephone to ON-HOOK.

5.3 Receiving Calls.

   A. By moving the Jackset "Rocker Switch" to the ON position, the Dterm II telephone will become OFF-HOOK. The operator can talk over the headset.

   B. The call can be terminated by moving the "Rocker Switch" to the off position.
6. PROCEDURE

6.1 Disconnect the line and handset cord from the Dterm telephone.

6.2 Place the Dterm II upside down on a clean, flat work surface.

6.3 Slide the Directory out and place it aside.

6.4 Remove the access panel by applying pressure (at the notch of the panel) and slide the access panel out as shown in Figure 1.

6.5 Cut strap S8 on the telephone PCB as shown in Figure 2, and Figure 3. (Strap S8 is visible from the access panel window.)

NOTE:
If the revision for the ETE-1-2 telephone is A (e.g., 294 A) proceed to step 6.6
If the revision for the ETE-1-2 telephone is B or higher proceed to step 6.7
The revision level of an ETE-1-2 telephone can be determined from the label on the bottom housing of the telephone. Example: If the Lot No. on the label is 295A, the revision level of that particular telephone is A.

6.6 For ETE-1-2 Revision A. Connect the leads from the JS-180 to the spade lug connectors on the PCB. Refer to Table - 1 and Figure 2. Needlenose pliers may be used to push spade lugs into their receptacles.

6.7 For ETE-1-2 Revision B and higher. Connect the leads from the JS-180 to the spade lug connectors on the PCB. Refer to Table - 2 and Figure 3. Needlenose pliers may be used to push spade lugs into their receptacles.

6.8 Following the pre-molded guides inside the access panel cover assembly, cut the notch and route the Jackset JS-180 cable through this notch. (See Figure 4.)

6.9 Insulate spare Jackset wires with electrical tape. Store these wires in a neat bundle in the access panel cover.

6.10 Attach the access panel cover to the Dterm II main body.

6.11 Connect the line and handset cords to the Dterm II.

6.12 Test for normal operation.
Table 1: Jackset JS-180 Cable Connection (ETE-1-2 Rev. A)

<table>
<thead>
<tr>
<th>JACKSET JS-180 CABLE</th>
<th>Dterm II PCB SPADE LUG CONNECTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIOLET</td>
<td>H3</td>
</tr>
<tr>
<td>RED</td>
<td>H1</td>
</tr>
<tr>
<td>ORANGE/WHITE</td>
<td>TX1</td>
</tr>
<tr>
<td>YELLOW/WHITE</td>
<td>TX2</td>
</tr>
<tr>
<td>YELLOW</td>
<td>RX</td>
</tr>
<tr>
<td>BLACK**</td>
<td>RX1</td>
</tr>
<tr>
<td>ORANGE</td>
<td>RX2</td>
</tr>
<tr>
<td>BLUE</td>
<td>J1</td>
</tr>
<tr>
<td>BROWN</td>
<td>J3</td>
</tr>
</tbody>
</table>

**NOTE:** For better voice quality, connect a 3.6K ohm resistor between the Black wire and Spade lug RX1

Figure 2: Jackset JS-180 wire Connection On Dterm II (ETE-1-2) PCB (Rev. A)

**NOTE:** If the Jackset JS-180 is disconnected from the ETE-1-2 telephone, Strap S8 must be reconnected for proper operation of the telephone.
Table 2: Jackset JS-180 Cable Connection (ETE-1-2 Rev. B or higher)

<table>
<thead>
<tr>
<th>JS-180 CABLES</th>
<th>DTERM SPADE LUG CONNECTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>RED</td>
<td>H1</td>
</tr>
<tr>
<td>VIOLET</td>
<td>H3</td>
</tr>
<tr>
<td>BLUE</td>
<td>J1</td>
</tr>
<tr>
<td>BROWN</td>
<td>J3</td>
</tr>
<tr>
<td>YELLOW</td>
<td>J3</td>
</tr>
<tr>
<td>ORANGE/WHITE</td>
<td>TX1</td>
</tr>
<tr>
<td>YELLOW/WHITE</td>
<td>TX2</td>
</tr>
<tr>
<td>ORANGE</td>
<td>RX2</td>
</tr>
<tr>
<td>BLACK</td>
<td>RX3</td>
</tr>
</tbody>
</table>

* Cut Strap S8 on the PCB

Figure 3. Jackset JS-180 Cable Connection to Dterm II (ETE-1-2) PCB (Rev. B and Higher)
Figure 4. Jackset JS-180 Cable Exit Groove on Dterm II Telephone
1. DESCRIPTION
This Engineering Technical Information (ETI) Bulletin provides installation instructions for connecting a TA-20 or S-11 Handset Amplifier to a Dterm II telephone (ETE-1-2).

2. LIMITATIONS
NONE

3. PARTS REQUIRED
   3.1 Dterm II (ETE-1-2).
   3.2 TA-20 or S-11 Handset Amplifier
   3.3 Double sided insulation tape.

4. REFERENCES
NONE

5. OPERATION
   5.1 Adjust the desired volume level via the rotary switch on the TA-20 or S-11 handset amplifier.

6. PROCEDURE
   6.1 Disconnect the line and handset cord from the Dterm Telephone.
   6.2 Place the Dterm II upside down on a clean flat work surface.
   6.3 Slide the Directory out and place it aside.
   6.4 Remove the access panel by applying pressure (at the notch of the panel) and slide the access panel out as shown in Figure 1.
   6.5 Cut strap 58 on the telephone PCB as shown in Figures 2 and 3 (Revision A), and Figures 4 and 5 (Revision B or higher). (Strap 58 is visible from the access panel window.)

   NOTE: If the revision for the ETE-1-2 telephone is A (e.g., 294 A) proceed to step 6.6 (TA-20) or 6.7 (S-11).
   If the revision for the ETE-1-2 telephone is B or higher proceed to step 6.8 or 6.9.
   The revision level of an ETE-1-2 telephone can be determined from the label on the bottom housing of the telephone. Example: If the Lot No. on the label is 295A, the revision level of that particular telephone is A.

   6.6 For ETE-1-2 Revision A. Connect the leads from the TA-20 Handset Amplifier to the spade lug connectors on the ETE-1-2 PCB. Refer to Table - 1 and Figure 2. Needlenose pliers may be used to push spade lugs into their receptacles.

   6.7 For ETE-1-2 Revision A. Connect the leads from the S-11 Handset Amplifier to the spade lug connectors on the ETE-1-2 PCB. Refer to Table - 2 and Figure 3. Needlenose pliers may be used to push spade lugs into their receptacles.
ETI NUMBER: DS-004

**Apply Pressure and slide Out the Access Panel**

![Dterm II Telephone](image)

**Figure 1. Access Panel Removal**

### Table - 1 TA-20 Handset Amplifier Cable Connection (ETE-1-2 Rev. A)

<table>
<thead>
<tr>
<th>TA-20 HANDSET AMPLIFIER CABLES</th>
<th>Dterm II PCB SPADE LUG CONNECTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>YELLOW</td>
<td>RX2</td>
</tr>
<tr>
<td>RED</td>
<td>RX1</td>
</tr>
<tr>
<td>GREEN</td>
<td>RX</td>
</tr>
<tr>
<td>BLACK</td>
<td>J1</td>
</tr>
</tbody>
</table>

Cut Strap 58 on the telephone PCB

### Table - 2 S-11 Handset Amplifier Cable Connection (ETE-1-2 Rev. A)

<table>
<thead>
<tr>
<th>S-11 HANDSET AMPLIFIER CABLES</th>
<th>Dterm II PCB SPADE LUG CONNECTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>YELLOW</td>
<td>RX1</td>
</tr>
<tr>
<td>RED</td>
<td>J1</td>
</tr>
<tr>
<td>GREEN</td>
<td>RX2</td>
</tr>
<tr>
<td>BLACK</td>
<td>RX</td>
</tr>
</tbody>
</table>

Cut Strap 58 on the telephone PCB
Figure 2. TA-20 Handset Amplifier Wire Connection On Dterm II (ETE-1-2) PCB (Rev. A)

Figure 3. S-11 Handset Amplifier Wire Connection On Dterm II (ETE-1-2) PCB (Rev. A)
6.8 TA-20: For ETE-1-2 Revision B and higher. Connect the leads from the TA-20 Handset Amplifier to the spade lug connectors on the ETE-1-2 PCB. Refer to Table - 3 and Figure 4. Needle nose pliers may be used to push spade lugs into the receptacles.

6.9 S-11: For ETE-1-2 Revision B and higher. Connect the leads from the S-11 Handset Amplifier to the spade lug connectors on the ETE-1-2 PCB. Refer to Table - 4 and Figure 5. Needle nose pliers may be used to push spade lugs into the receptacles.

6.10 Following the pre-molded guides inside the access panel cover assembly, cut the notch and route the TA-20 or S-11 cable through this notch. (See Figure 6.)

6.11 Attach the access panel cover to the Dterm II main body.

6.12 Use a piece of double sided tape to secure the TA-20 or S-11 Handset Amplifier to the side of the Dterm II telephone.

6.13 Connect the line and handset cords to the Dterm II.

6.14 Test for normal operation.

NOTE: If the TA-20 or S-11 is disconnected from the ETE-1-2 telephone, Strap S8 must be reconnected for proper operation of the telephone.

Table - 3 TA-20 Handset Amplifier Cable Connection (ETE-1-2 Rev. B or higher)

<table>
<thead>
<tr>
<th>TA-20 HANDSET AMPLIFIER CABLES</th>
<th>DTERM SPADE LUG CONNECTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>YELLOW</td>
<td>RX1</td>
</tr>
<tr>
<td>RED</td>
<td>RX2</td>
</tr>
<tr>
<td>GREEN</td>
<td>J1</td>
</tr>
<tr>
<td>BLACK</td>
<td>J3</td>
</tr>
</tbody>
</table>

* Remove the existing spade lug connector from RX1 and plug it in J1.
** Cut Strap S8 on the PCB.

Table - 4 S-11 Handset Amplifier Cable Connection (ETE-1-2 Rev. B or higher)

<table>
<thead>
<tr>
<th>S-11 HANDSET AMPLIFIER CABLES</th>
<th>DTERM SPADE LUG CONNECTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>YELLOW</td>
<td>RX1</td>
</tr>
<tr>
<td>RED</td>
<td>RX2</td>
</tr>
<tr>
<td>GREEN</td>
<td>RX3</td>
</tr>
<tr>
<td>BLACK</td>
<td>J3</td>
</tr>
</tbody>
</table>

* Remove the existing spade lug connector from RX1 and plug it in J1.
** Cut Strap S8 on the PCB.
Figure 4. TA-20 Handset Amplifier Cable Connection to Dterm II (ETE-1-2) PCB (Rev. B and Higher)

Figure 5. S-11 Handset Amplifier Cable Connection to Dterm II (ETE-1-2) PCB (Rev. B and Higher)
Figure 6. TA-20 or S-11 Cable Exit Groove on Dterm II Telephone
1. DESCRIPTION
This Engineering Technical Information (ETI) Bulletin provides installation instructions for connecting an Audio Tape Recorder to a Dterm II telephone (ETE-1-2).

2. LIMITATIONS
2.1 For the tape recorder to function automatically, the handset must be used.
2.2 To rewind or play back recordings, the remote plug must be removed from its corresponding jack.

CAUTION: THE USE OF A MONITORING DEVICE TO EAVESDROP OR RECORD TELEPHONE CONVERSATIONS MAY CONSTITUTE AN ILLEGAL INVASION OF PRIVACY UNDER SOME CIRCUMSTANCES AND LAWS. YOU SHOULD CONSULT A LEGAL ADVISOR PRIOR TO IMPLEMENTING ANY PRACTICE INVOLVING RECORDING OF TELEPHONE CALLS.

FCC ORDER IN DOCKET # 20940 PERMITS THE USE OF BEEP TONE - OR - THE CONSENT OF ALL THE PARTIES WHEN CONVERSATIONS ARE RECORDED. SECTIONS 2510 TO 2520 OF THE U. S. CRIMINAL CODE (U.S.C. 2510 et seq) PROVIDES STIFF PENALTIES FOR UNAUTHORIZED DISCLOSURE OF WIRE OR ORAL COMMUNICATIONS.

NOTE: Dterm II is designed for dual way communication i.e., the message or beep tone can be played from a tape recorder and be communicated to called or calling parties (conversations can be recorded).

3. PARTS REQUIRED
3.1 Dterm II (ETE-1-2).
3.2 Cassette tape recorder.
3.3 One 1/8" Mini phone plug.
3.4 One 3/32" Micro phone plug.
3.5 #22 AWG four conductor stranded cable.
3.6 Four small spade lug terminals to fit wires in step 3.5.
3.7 Phillips head screwdriver.

NOTE: Any tape recorder with remote control capability to be started automatically via hookswitch may be used.

4. REFERENCES
NONE

5. OPERATION
5.1 Plug the tape recorder into a 110-120V ac power outlet.
5.2 Insert the tape cassette into the tape recorder.
5.3 Establish the call and press the PLAY button to transmit any beep tone to the called party to indicate that the conversation is being recorded.
5.4 Activate RECORD mode and converse with called party.
5.5 Upon completion of the call, place the handset on hook and stop RECORD.
5.6 Remove the remote plug from the jack, rewind the tape and playback the recording.
5.7 Reconnect the remote plug for recording of the next call.

6. PROCEDURE
6.1 Disconnect the line and handset cord from the Dterm telephone.
6.2 Place the Dterm II upside down on a clean, flat work surface.
6.3 Slide the Directory out and place it aside.
6.4 Remove the access panel by applying pressure (at the notch of the panel) and slide the access panel out as shown in Figure 1.
6.5 Unscrew the two captive screws from the bottom of the housing. Separate the upper and bottom housings as shown in Figure 2.
6.6 Route the #22 AWG four conductor stranded cable from the tape recorder through the access panel window.
6.7 Make the wire connection to the spade lug connectors on the PCB. Refer to Table - 1 and Figure 3 for these connections.
6.8 Place the upper and bottom housings together, secure with the two captive screws that were removed in step 6.5.
6.9 Following the pre molded guides inside the access panel cover assembly, route the Remote and MIC cables through this notch. Refer to Figure 4.
STEP A: Push the Upper housing downward and pull to separate from Lower housing.

STEP B: Slide the Upper housing upward, while simultaneously, slide the Lower housing downward.

STEP A: To separate ETE-1-2 Telephone housing, hold the Telephone in a vertical position on a flat work surface and push the lower housing upward, while simultaneously, push the upper housing downward.

STEP B: Slide the upper housing upward, while simultaneously, slide the lower housing downward.

Figure 2. Separating Upper and Bottom Housings
Table - 1 Tape Recorder Cable Connection

<table>
<thead>
<tr>
<th>TAPE RECORDER CABLES</th>
<th>DTERM II PCB SPADE LUG CONNECTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>REMOTE PLUG</td>
<td>SHAFT &amp; TIP</td>
</tr>
<tr>
<td></td>
<td>H4 &amp; REVERSIBLE</td>
</tr>
<tr>
<td>MIC PLUG</td>
<td>SHAFT &amp; TIP</td>
</tr>
<tr>
<td></td>
<td>H2 &amp; REVERSIBLE</td>
</tr>
</tbody>
</table>

Figure 3. PCB Connection for Automatic Operation of Tape Recorder
CHAPTER 7
LEAST COST ROUTING
(LCR)
CHAPTER 7
LEAST COST ROUTING (LCR)

TABLE OF CONTENTS

SECTION DESCRIPTION PAGE

SECTION DESCRIPTION PAGE

710 GENERAL 700-1

720 EQUIPMENT IDENTIFICATION 700-2

720.1 General 700-2

720.2 LCR-E ETU 700-2

720.3 Programming Computer 700-2

730 INSTALLATION OF LCR-E ETU 700-4

730.1 General 700-4

730.2 Installation of LCR-E ETU 700-5

730.3 Switch SW1 Setting 700-5

730.4 Switch DIP1 Setting 700-5

730.5 Switch SW2 Setting 700-6

730.6 Routing the RS-232C Cable 700-6

730.7 Mounting the RS-232C Connector 700-6

730.8 Verifying SW2 Setting 700-6

740 INSTALLATION OF PC-8300 700-6

740.1 General 700-6

740.2 AC Power Adapter 700-6

740.3 Battery Backup 700-7

740.4 Floppy Disk Unit PC-8231A Connection 700-7

740.5 Printer Connection 700-8

740.6 PC-8300 Connection To LCR-E ETU 700-8

750 PROGRAMMING 700-9

750.1 General 700-9

750.2 How To Use This Section 700-9

750.3 Programming System NPM for LCR 700-9

750.4 LCR Programming Construction 700-13

750.5 Initializing the PC-8300 700-17

750.6 Initializing IBM Compatible PCs 700-19

750.7 Programming the LCR-E ETU 700-20

750.8 Input of Data 700 29

750.9 Explanation of LCR Commands 700-33

750.10 Error Messages 700-57

760 ALGORITHMS 700-59

760.1 CPU Processing for LCR 700-59

760.2 LCR Processing 700-60

770 JOB SPEC SAMPLES 700-64

770.1 Area Code Tables 700-64

770.2 Weekly Schedule Tables 700-68

770.3 Daily Schedule Tables 700-70

770.4 Route Advance Tables 700-72

770.5 Route Tables 700-74

770.6 Office Code Tables 700-76

770.7 Extra Code Tables and Home NPA 700-78

SECTION 710 GENERAL

The Least Cost Routing (LCR) feature is used by the system to select the most economical route (line) when originating outside calls.

The Electra MarkII provides this feature as an option and requires the installation of an LCR-E ETU. Additionally, a portable computer PC-8201A/PC-8300 or APC IV manufactured by NEC Corporation (or equivalent) is required to program the LCR feature.

The LCR feature provided with the Electra MarkII Digital Telephone System can select lines, such as FX (Foreign Exchange), SCC (Specialized Common Carrier), Outward WATS (Wide Area Telecommunications Service), DDD (Direct Distance Dial), and Tie lines. LCR directs the calls through the least expensive route, based on the number dialed, the time of day, and the day of the week, as previously programmed in the LCR package.

LCR cannot access CCSA (Common Control Switching Arrangement) lines or incoming only lines such as DID (Direct Inward Dial) or Inward WATS lines. In addition, the LCR feature cannot be used to place operator, credit card, international, or uniform dialing calls. Manually selecting a trunk bypasses LCR.
SECTION 720
EQUIPMENT IDENTIFICATION

720.1 GENERAL
The LCR-E ETU is an option in the system. Equipment such as the portable computer, PC-8300 or APC IV, IBM PC XT or AT, Datavue's Spark Laptop, Epson's Equity LT Laptop, or IBM PS/2 Model 30, which is required for programming, must be locally provided.

720.2 LCR-E ETU
The LCR-E ETU is the Least Cost Routing Unit that consists of an 8 bit microprocessor, a 256K ROM chip, a 256K RAM chip, clock generator circuit, RS-232C interface and common memory circuit.

The LCR-E contains three switches, an LED and an RS232C connector ended ribbon cable (see Figure 700-1 LCR-E ETU Switch/LED Layout).

Switch 1, designated SW1, is used to turn on a backup battery for the LCR-E memory. This switch should be set to the ON position to allow memory retention during power failure or brownout conditions.

Switch 2, designated SW2 is used to busy in/out the LCR-E ETU allowing the ETU to be removed or inserted without powering down the system.

The DIP1 switch is a seven position dip switch used to select a baud rate in the range of 150-9600. This switch should normally be set to 4800 baud. See Figure 700-1 LCR-E ETU Switch/LED Layout.

LP1 LED (green) lights in conjunction with SW2 being in the ON position, indicating that the LCR-E ETU is receiving power.

A 25 pin RS-232C connector ended ribbon cable is provided to connect to the programming computer, which is used to enter data into the LCR-E ETU memory.

A maximum of one LCR-E ETU can be installed in a system, into either OP1, OP2, or OP3 slots of any CCU.

720.3 PROGRAMMING COMPUTER
1. General
The Electra MarkII Digital Telephone System uses the PC-8300 or NEC's APC IV etc. to program the LCR-E ETU.

2. Specifications
For PC-8300 specifications, refer to the operations manual provided with the PC-8300.

3. Equipment Required
The following equipment is required to install, program, and maintain the LCR-E ETU.

A. APC IV or equivalent computer with a built in 3.5" or 5.25" drive OR
B. PC-8300
   a. PC-8300 Portable Computer
   b. Floppy Disk Drive Unit PC-8231A
   c. PC-8298A FDD Cable (included with the PC-8231A Floppy Disk Drive unit)
   d. RS-232C Cable PC-8495A-01
   e. Parallel Printer Cable PC-8494A or (PC-8294A)
   f. LCR Floppy Disk (3.5 inches) (provided with LCR-E ETU)
   g. Parallel Interface Printer

NOTE: The PC-8201A requires six 8k RAM ICs installed. The RAM ICs are PC-8201A-06.

   • Items a - e can be obtained from an NEC Home Electronics distributor.
   • Item f is provided from NEC America, Inc.
   • Item g must be locally provided.

4. Equipment Configuration

   Figure 700-2 PC-8300 Configuration

5. Equipment Description

A. PC-8300 (see Figure 700-3 Outside View of PC-8300)

   The PC-8300 consists of the following:
   CPU, ROM, RAM section
   Key Board
   8 line x 40 digit LCD
   Printer Interface
   Floppy Disk Drive Interface
   RS-232C Interface
   Telephone Interface
   Bar Code Reader Interface
   Data Recorder Interface

   The PC-8300 requires a floppy disk unit (PC-8231A) to program and maintain the LCR-E ETU. It also requires an RS-232C cable for the connection of the LCR-E ETU to the PC-8300.

B. Floppy Disk Unit PC-8231A

   The floppy disk unit, PC-8231A, is connected to the PC-8300 using a floppy disk cable (included with the PC-8231A). The PC-8231A accommodates a 3.5 inch floppy disk used to enter and store LCR data. See Figure 700-2 PC-8300 Configuration.

C. RS-232C Cable PC-8495A-01

   The RS-232C cable (PC-8495A-01) is used to connect the PC-8300 to the LCR-E ETU.

   One end of the RS-232C cable is connected to the RS-232C connector located on the rear panel of the PC-8300. The other end of the cable is connected to the RS-232C connector provided with the LCR-E ETU. See Figures 700-4~700-6.

D. Printer Cable PC-8494A (or PC-8294A)

   This printer cable is used for connecting a parallel printer to the PC-8300.

   The 26 pin (female) end is connected to the PRINTER connector located on the rear panel of the PC-8300. The 36 pin (male) end is connected to the connector provided on the parallel printer. See Figures 700-7 Outside View of Parallel Printer Cable, 700-8 Connector Pin Configuration, and Table 700-1 Connector Wiring Connection.
Figure 700-4  Outside View of RS-232C Cable
PC-8495A-01

Figure 700-5  Connector Pin Configuration

<table>
<thead>
<tr>
<th>PIN NO.</th>
<th>SIGNAL</th>
<th>PIN NO.</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GND</td>
<td>1</td>
<td>Protective Ground</td>
</tr>
<tr>
<td>2</td>
<td>TxD</td>
<td>2</td>
<td>Transmit Data</td>
</tr>
<tr>
<td>3</td>
<td>RxD</td>
<td>3</td>
<td>Receive Data</td>
</tr>
<tr>
<td>4</td>
<td>RTS</td>
<td>4</td>
<td>Request to Send</td>
</tr>
<tr>
<td>5</td>
<td>CTS</td>
<td>5</td>
<td>Clear to Send</td>
</tr>
<tr>
<td>6</td>
<td>DSR</td>
<td>6</td>
<td>Data Set Ready</td>
</tr>
<tr>
<td>7</td>
<td>SG</td>
<td>7</td>
<td>Signal Ground</td>
</tr>
<tr>
<td>8</td>
<td>DCD</td>
<td>8</td>
<td>Data Carrier Detect</td>
</tr>
<tr>
<td>19</td>
<td>DTR</td>
<td>19</td>
<td>Data Terminal Ready</td>
</tr>
<tr>
<td>22</td>
<td>RI</td>
<td>22</td>
<td>Ring Indicator</td>
</tr>
</tbody>
</table>

OTHER PINS ARE NOT CONNECTED.

Figure 700-6  Connector Wiring Designation

F. Parallel Interface Printer
Any parallel interface printer that conforms with the Centronics® Standard can be connected to the PC-8300.

A printer is used to provide a hard copy for verifying and checking the programmed LCR data.

SECTION 730 INSTALLATION OF LCR-E ETU

730.1  GENERAL
This section provides a complete and comprehensive understanding of the proper installation of the LCR-E ETU and the programming computer. It is recommended that this section be read in its entirety to familiarize yourself with its contents to enable a faster, more productive installation. The LCR-E ETU makes extensive use of CMOS technology. Special care must be taken to avoid any static discharge to the LCR-E ETU.

The floppy disk is used for programming and maintenance of the LCR data.

The LCR programming software and LCR data is stored in this floppy disk.
730.2 INSTALLATION OF THE LCR-E ETU
The LCR-E ETU is installed in the OP1, OP2, OP3, or dual purpose card slot of any CCU. The component side of the LCR-E ETU must face to the right side as viewed from the front of the CCU. See Figure 700-9 Installing the LCR-E ETU.

![Figure 700-9 Installing the LCR-E ETU](image)

730.3 SWITCH SW1 SETTING
Prior to installation, ensure that SW1 is set to the ON position. See Figure 700-1 LCR-E ETU Switch/LED Layout and Figure 700-10 Battery Backup Switch SW1.

![Figure 700-10 Battery Backup Switch SW1](image)

730.4 SWITCH DIP1 SETTING
Set switch DIP1 to the proper position for the baud rate. (Switch DIP1 is normally set at a baud rate of 4800). See Figure 700-1 LCR-E ETU Switch/LED Layout and Figure 700-11 Switch DIP1 For Baud Rate.

![Figure 700-11 Switch DIP1 For Baud Rate](image)

Table 700-1 Connector Wiring Connection

<table>
<thead>
<tr>
<th>CONNECTOR (Centronics Parallel)</th>
<th>26 PIN CONNECTOR (8201A)</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>DATA STROBE</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>Parallel Data 0</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>21</td>
<td>Printer Busy</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>25</td>
<td>Printer Select</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>6</td>
<td>Signal Ground</td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21 ~ 26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>31 ~ 36</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 700-5
CHAPTER 7

730.5 SWITCH SW2 SETTING
When installing the LCR-E ETU, turn SW2 to the OFF position. This will allow the insertion or removal of the LCR-E ETU into the slot without powering down the CCU. After installing the LCR-E ETU in the CCU, turn SW2 to the ON position.

When the LCR-E ETU is installed without power applied to the CCU, SW2 must be set to the ON position before applying power to the CCU. See Figure 700-1 LCR-E ETU Switch/LED Layout and Figure 700-12 Busy In/Out Switch SW2.

730.6 ROUTING THE RS-232C CABLE
Route the RS-232 Connector ended cable down and to the right side of the CCU to avoid any interference with the insertion and removal of other ETUs. See Figure 700-1 LCR-E ETU Switch/LED Layout and Figure 700-9 Installing the LCR-E ETU.

730.7 MOUNTING THE RS-232C CONNECTOR
Mount the RS-232C connector (in one of the openings made accessible after removing the knock out with screws and nuts (locally provided). See Figure 700-13 Mounting the RS-232C Connector.

730.8 VERIFYING SW2 SETTING
If the LCR-E ETU was installed with power applied to the CCU, verify that SW2 switch is set to the ON position (if required, turn ON).

SECTION 740
INSTALLATION OF PC-8300

740.1 GENERAL
The PC 8300 is powered by four AA size (1.5 volt) batteries. An optional NiCad (nickel cadmium) Battery Pack (PC-8201-90) is also available for use in place of the regular battery pack.

There is a backup system which consists of internal NiCad batteries which automatically switches on for emergency use. These batteries charge continuously whenever the computer is operating normally.

While the PC-8300 is in a storage condition, the backup batteries can maintain the contents of the RAM for up to 30 days, depending upon the amount of RAM installed. Keep in mind that these batteries cannot actively operate the PC-8300 for very long.

If the main batteries have a low charge, causing the backup battery system to be used, the LOW BATTERY LED indicator on the PC-8300 will light up. The batteries should be changed when this indicator lights up, since the PC-8300 can only be operated for approximately 20 minutes from this point. Storing the PC-8300 for a long time with a low charge will cause it to become inoperable.

NOTE 1: If the PC-8300 is operated with the Low Battery Indicator lit up for more than 20 minutes, the unit will become inoperable and all the data stored in RAM will be lost.

NOTE 2: Batteries should be replaced as soon as possible after the LOW BATTERY LED lights up. The power switch should always be turned OFF during change of batteries.

740.2 AC POWER ADAPTER
The AC power adapter (PC-8271A-01) converts 120 volts AC to 8.5 volts DC, which is used to operate the PC-8300. This may be used when an outlet is available in order to prolong the life of the batteries.

NOTE 1: When connecting the AC power adapter to the PC-8300 ALWAYS plug the adapter into the wall outlet before connecting it to the unit. For disconnection, the adapter
should be unplugged from the PC-8300 first.

NOTE 2: Be certain that only the PC-8271A-01 is used. Damage to the PC-8300 personal computer may be caused by the use of any other adapter.

NOTE 3: Before connecting the AC power adapter to the PC-8300, make sure to turn the computer and all the peripherals OFF.

740.3 BATTERY BACKUP
1. Make sure the power switch located on the right side of the PC-8300 is set to the OFF position. See Figure 700-14 PC-8300 Power Switch.

2. Remove the cover of the battery compartment. See Figure 700-15 PC-8300 Battery Compartment Cover.

3. Install four AA size dry batteries in the battery compartment. See Figure 700-16 PC-8300 Battery Installation.

4. Replace the cover of the battery compartment.

5. Turn ON the battery backup switch (located on the bottom of the PC-8300). See Figure 700-17 PC-8300 Battery Backup Switch.

NOTE 1: As outlined in the section on batteries, the backup power source consists of internal nickel cadmium batteries. The Backup Power switch located on the bottom of the PC-8300 must be in the ON position for the computer to operate.

NOTE 2: If the PC-8300 is stored and is unused for more than 30 days, the backup power switch should be set to OFF to prevent the total discharge of the batteries and deterioration in performance.

740.4 FLOPPY DISK UNIT PC-8231A CONNECTION
1. Power to the micro floppy disk unit is supplied by an AC pack (included) or by an optional battery pack. When using the unit in the home or office, AC power can be obtained by inserting the AC pack. See Figure 700-18 Inserting the AC Power Pack. Insert the AC pack into the device until it clicks, thus making sure that it will not pop out during use. The inlet is usually covered by a sliding cover.

2. The lid of the PC-8231A is opened by the slide lock buttons on the left and right side of the unit. See Figure 700-19 Opening the PC-8231A Lid. Place your hands on both of these buttons and lift the top half of the unit while pulling these slide lock buttons. Raise the front side of the unit approximately 5cm and the lid will automatically open and the front side of the unit will slowly come down. The lid will support the disk unit in the open position.
3. Locate the PC-8300 and the floppy disk unit (PC-8231A) near each other. See Figure 700-20 Locating Floppy Disk Unit PC-8231A.

4. Connect one side of the 8-pin floppy disk cable to the FDD interface on the rear panel of the PC-8300. See Figure 700-20 Locating Floppy Disk Unit PC-8231A.

5. Connect the end with the ferrite toroid to the floppy disk unit PC-8231A. See Figure 700-20 Locating Floppy Disk Unit PC-8231A.

740.5 PRINTER CONNECTION
1. Locate the PC-8300 and the printer near each other. See Figure 700-21 Locating Printer.

2. Connect the 26 pin connector (female) of the printer cable PC-8494A (or PC-8294) to the PRINTER interface on the rear panel of the PC-8300.

3. Connect the 36 pin connector (male) of the printer cable to the parallel input connector of the printer.

740.6 PC-8300 CONNECTION TO LCR-E ETU

2. Connect the other end of the RS-232C cable to the RS-232C connector of the LCR-E ETU which was previously mounted on the right side of the CCU in paragraph 730.8.

3. Using the APC IV (or Equivalent PC)
   By ordering the IBM/LCR 5.25" or 3.5" floppy diskettes, LCR can be programmed with an NEC APC IV PC or other approved MS DOS Personnel Computer. Since the IBM/LCR floppy diskettes do not contain a disk operating system (DOS), one must be resident in the PC prior to inserting the diskettes into the PC's floppy disk drive. LCR programming is performed by executing the file LCR, which resides on the 5.25" or 3.5" floppy diskette.
SECTION 750
PROGRAMMING

750.1 GENERAL
This section is intended to provide the user with a complete understanding of how to program the LCR subsystem. It is strongly recommended that this section be read in its entirety BEFORE attempting the actual programming. This will allow more efficient programming.

750.2 HOW TO USE THIS SECTION
The remainder of the programming section (Section 750) is divided into the following subsections:

PROGRAMMING SYSTEM NPM FOR LCR (Section 750.3) describes in detail, the related programming areas within the system memory blocks which are required to properly implement the LCR feature.

LCR PROGRAMMING CONSTRUCTION (Section 750.4) provides a basic description of how the LCR subsystem is configured within the Electra MarkII Digital Telephone system, and provides an explanation of the various parameters of the LCR data programming.

INITIALIZING THE PC-8300 (Section 750.5) explains how to initialize the PC-8300 portable computer in preparation for LCR programming and how to set it up to allow the automatic execution of the LCR data program upon power up of the PC-8300.

PROGRAMMING LCR DATA (Section 750.6) explains how data is entered into the LCR program via the PC-8300.

INPUT OF DATA (Section 750.7) explains the general flow of programming and provides detailed examples on how the various sections of the program are accessed.

EXPLANATION OF LCR COMMANDS (Section 750.8) describe each command and gives examples of their use.

ERROR MESSAGES (Section 750.9) explains the various possible error messages as well as the reasons why they occur and possible solutions for each of them.

750.3 PROGRAMMING SYSTEM MEMORY
FOR LCR
1. Programming System Data
Prior to programming LCR data using the programming computer, system data relating to LCR must be programmed from a programming

IMPORTANT NOTE
Before going into system data programming, make sure the switch SW1 on the LCR-E ETU is turned ON for battery backup of system data.

NOTE: Memory Blocks 2C1, 2C2 and 2C3 may have to be referenced for proper LCR operation.

Incoming Tie lines can use tandem access to seize outgoing trunks. Economy of service can be achieved by assigning LCR to the tandem ports associated with those Tie lines. This allows the system to route the tandem calls to the most economical line available.

Figure 700-22 Programming Keys

A. Override of LCR
Override can be assigned by class of service on a station basis. When it is programmed to a station, LCR does not apply to the station.

B. LCR 1 Plus Dialing Assignment
LCR 1 plus dialing assignment must be programmed if the location of the system is a 1 plus dialing area. This assignment is on a system basis.
C. Local Call Override
Local call override can be assigned on a system wide basis. When it is programmed, LCR does not apply to local calls on a system wide basis.

D. LCR Bypass
Should a station user find it necessary to bypass LCR, the user can directly access a CO line via a CO line button. A Single Line Telephone (SLT) or a Multiline Terminal without access to CO Line appearances can be assigned LCR bypass (on a trunk access code group basis) via Memory Block 2B9. To assign LCR bypass, line button L2~L8 correspond to trunk access code group 2~8 respectively. Any line button LED that is lit when the ENTER key is depressed assigns the associated trunk access code group to bypass LCR.

2. System/Station Speed Dial Consideration
System/Station speed dialing sometimes requires pause(s) between telephone numbers, especially when using SCCs. These pauses may cause the LCR E ETU not to seize a least cost route, because the pauses may be considered digits dialed.

Pauses should be programmed as part of extra codes in the Extra Code Add table when system or station speed dialing is programmed to use SCCs.

The system data is programmed as follows:
MEMORY BLOCK 1D7 (Class of Service)

OPERATION
1. Go off line. (Depress \[Lk16\] and \[Spkr\], then dial \[# , * , 0\].)
2. Depress \[F1\], then \[F9\].
3. Depress \[F17\].
4. Enter the station number to be programmed. (Example: Station 104). See NOTE 1.
5. Depress \[Lk13\], if required. 
   (Override of LCR: Associated LED OFF
   Not override of LCR: Associated LED ON)
   See NOTE 2.
6. Depress \[Ans\]. See NOTE 3.
7. After all stations are programmed as required, depress \[Spkr\] to go on line.

NOTE 1: After the station number is entered, the LCD will show all previous assignments to the station.
NOTE 2: If no change is required, proceed to step 7.
NOTE 3: Depression of ANS causes the LCD to increment to the next station number.

MEMORY BLOCK 2B5 (LCR 1 Plus Dialing)

OPERATION
1. Go off line. (Depress \[Lk16\] and \[Spkr\], then dial \[# , * , 0\].)
2. Depress \[F2\] , \[F7\] , then \[F15\].
3. Depress \[Lk1\], if required.
   (1 + Dialing: Associated LED ON
   Not 1 + Dialing: Associated LED OFF)
   See NOTE 4.
4. Depress \[Ans\].
5. Depress \[Spkr\] to go on line.

NOTE 4: If no programming change is required, go to Step 5.
MEMORY BLOCK 2B6 (Local Call Override)

**OPERATION**

1. Go off line. (Depress **LK 16** and **SPKR**, then dial **#**, **•**, **0**).

2. Depress **F2**, **F7**, then **F16**.

3. a. Depress **L1** to assign whether or not local calls will override LCR:
   - **L1 LED ON** = Local calls route through LCR
   - **L1 LED OFF** = Local calls override (bypass) LCR

   b. Depress **L2** to assign whether or not local calls dialed without a 1+ prefix in a 1+ area, will bypass LCR:
   - **L2 LED ON** = Local calls in 1+ area bypass LCR.
   - **L2 LED OFF** = Local calls do not bypass LCR.

4. Depress **ANS**.

5. Depress **SPKR** to go on line.

MEMORY BLOCK 2B9 (LCR Bypass Assignment)

**OPERATION**

1. Go off line. (Depress **LK 16** and **SPKR**, then dial **#**, **•**, **0**).

2. Depress **F2**, then **F7**.

3. Depress **F19**.

4. Depress **L2** through **L8** to select which trunk access code groups bypass LCR.
   - **LED ON**: Bypass LCR
   - **LED OFF**: Restricted

5. Depress **ENTER** key.

6. Depress **SPKR** key to go back on line.
1. BLOCK DIAGRAM,

Figure 700-23 is a block diagram of the Electra MarkII with the LCR installed.

![Figure 700-23 LCR Block Diagram](image)

The LCR-E ETU contains the LCR subsystem section of the Electra MarkII.

The LCR subsystem selects the least cost route based on a request from the CPU and informs the CPU of the same.

The LCR subsystem is composed of the interface section and LCR proper section.

The interface section executes functions relating to the Electra MarkII. The LCR proper section contains the LCR data and executes functions such as least cost route selection and LCR data entry.

2. PROGRAM CONFIGURATION

LCR data is stored in the LCR proper section by the programming computer.

This section discusses how the LCR system data is configured.

The LCR proper section contains the following data (see Figure 700-24 LCR System Data Configuration):

**Area Code Tables**

Three Area Code Tables (1 ~ 3) are provided (although there is a table 0, it cannot be used). When Tenant Service is used in the Electra MarkII System, Area Code Tables 1 ~ 3 are associated with Tenants 1 ~ 3 respectively.

Each table contains 160 possible area codes and contains data that specifies which Weekly Table or which Route Advance Table is to be referenced when a given area code is dialed.

**Weekly Tables**

Sixty-four Weekly Tables (00 ~ 63) are provided. Each table contains seven items, which correspond to the days of the week. These tables designate which Daily Table is to be referenced.

**Daily Tables**

Sixty-four Daily Tables (00 ~ 63) are provided. Each table contains twenty four items that correspond to the hours in a day. These tables designate which Route Tables are to be referenced.

**Route Advance Tables**

Sixty-four Route Advance Tables (00 ~ 63) are provided. Each table can contain 4 entries (1 ~ 4) that correspond to which Route Tables will be accessed in priority order (1 ~ 4). The LCR subsystem will attempt to seize routes based on this order starting with the first. If this route is unavailable, the second route will be accessed, etc. If no route is available, or if a lower priority route is not specified, the user is denied access to the outside trunks.

**Route Tables**

Two hundred and fifty six Route Tables (000 ~ 255) are provided. The specified Route Table will determine which Trunk Access Code group will be selected and what digits are to be dialed to complete a call routed via LCR.

Each route table contains the following items:

A. **Trunk Access Code Group (TRK ACSS CODE)**

A maximum of eight Trunk Access Code Groups are available. A Trunk Access Code Group (1 ~ 8) must be programmed in each Route Table for Trunk Group Selection.

B. **Area Code Delete (AREA CODE DEL)**

The LCR subsystem is Area Code Based. Therefore, an area code is required to route calls properly. Once a Route Table (and a trunk group) has been selected, depending on the types of trunk service provided, the area code may or may not be required to complete the call.

If, to complete the call on the selected trunk group, the area code must be deleted, then DEL should be programmed for Area Code Deletion. If the area code is required, then NO should be programmed and the area code will be included.

**NOTE:**

LCR Always inserts the HOME NPA (Local Area Code) when local calls are assigned to be routed via LCR in System Programming.
C. Extra Code Add (ETR CODE ADD)
   In some applications it may be necessary to add an Extra Code in front of the number to be dialed. When ADD is programmed, the digits in the specified Extra Code Table will be added. NO is programmed when no extra codes are to be used.

D. Prefix Add/Check (PFX ADD CHK)
   When the prefix 1 is needed in front of the number to be dialed, regardless of the office code dialed, then YES should be programmed. When prefix 1 is not required, NO should be programmed. If whether or not the prefix 1 is to be added depends on the office code dialed, then CHK should be programmed. This will perform a check of this specified office code table and either add the prefix 1 or not depending on the information provided for the office code which was dialed.

NOTE: When the system resides in a 1+ Dialing area, prefix ADD/CHECK must be set to add as LCR ALWAYS STRIPS THE 1 WHEN IT IS DIALED BY THE USER.

E. Service Area Check (SVC AREA CHK)
   If service on the selected route is available for all office codes, then NO should be programmed and NO Service Area Check will be performed. When CHK is programmed, the specified office code table will be checked for information on whether or not service to the office code dialed is provided by the selected route. If service is provided, the call will be completed. If service is not provided, then the next route table in the Route Advance Table will be selected.

Extra Code Tables (ETR CODE TBL)
Sixteen Extra Code Tables (00~15) are provided. Each Extra Code Table can contain a maximum of 24 digits. When EXTRA CODE ADD is programmed for CHK within a Route Table, the specified Extra Code Table will be referenced and the extra code it contains will be added in front of the number to be dialed.

Office Code Tables (OFC CODE TBL)
One hundred twenty eight Office Code Tables (000~127) are provided. Each Office Code Table contains all the possible office codes and a flag bit for each office code which can be set either as 0 or 1. The meaning of the setting of each flag bit depends on whether the Office Code Table is referenced by the Prefix Add/Check or Service Area Check parameters of a given Route Table.

1. For Prefix Add/Check:
   0 – The prefix 1 is to be added to the number to be dialed when this office code is dialed.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRUNK ACCESS CODE GROUP (TRK ACCS CODE)</td>
<td>(Program Designation) 1~8 The Trunk Group which corresponds to the Trunk Access Code Group related will be used to complete the call.</td>
</tr>
<tr>
<td>AREA CODE DELETE (AREA CODE DEL)</td>
<td>DEL - Delete the area code from the number to be dialed. NO - includes the area code in the number to be dialed.</td>
</tr>
<tr>
<td>EXTRA CODE ADD (ETR CODE ADD)</td>
<td>ADD - adds the extra code from the specified Extra Code table in front of the number to be dialed. NO - No extra code is added.</td>
</tr>
<tr>
<td>PREFIX ADD/CHECK (PFX ADD CHK)</td>
<td>YES - Add the Prefix 1 in front of the number to be dialed. NO - Do not add the Prefix 1. CHK - Whether or not the Prefix 1 is added depends on the office code dialed. This is determined by the information in the specified office code table.</td>
</tr>
<tr>
<td>SERVICE AREA CHECK (SRV AREA CHK)</td>
<td>NO - Service or the selected route is available for all office codes. CHK - checks the specified office code for information on whether the selected route provides service to the office code dialed.</td>
</tr>
</tbody>
</table>
1 = The Prefix 1 is not added when this office code is dialed.

2. For Service Area Check:
   0 = Service is not provided by the specified route for this office code.
   1 = Service is provided by the specified route for the office code.

Home NPA Table (Home NPA Code)
One Home NPA Table is provided. This table is used to enter the Area Code of the area in which the system resides. This assignment is very important and MUST be made. When local calls (calls dialed without an area code) are to be routed through LCR the area code which is programmed into the Home NPA Table will be added to the number dialed.
750.5 INITIALIZING THE PC-8300

There are two types of initialization with the PC-8300 computer.

1. Cold Start:
   Used during initial installation or when battery failure occurs. All contents of RAM are erased.

2. Warm Start:
   Used after installation and during normal operation to run the same program. All contents of RAM are retained.

Under normal operating conditions (after initial installation) the first display provided is the LCR Main Menu upon power up or reset.

750.51 Cold Start Initialization

Under normal operating conditions the memory data in the PC-8300 is battery backed and is retained when the power switch is turned off. If the battery voltage drops too low, the memory may be lost and a cold start is required. The following procedure describes how to reinitialize the PC-8300. This procedure is also followed when the PC-8300 is first used for LCR programming.

1. Ensure that the batteries are fully charged and that the backup switch (located at the bottom of the PC-8300) is turned to the ON position.

2. Ensure that the LCR floppy disk is not installed in the disk drive unit (PC-8231A).

   The micro floppy disk is removed by pushing the eject button until the disk is completely ejected. See Figure 700-25 Removing the Floppy Disk.

3. Ensure that both the PC-8300 and disk drive unit are turned off.

4. Close the write protection hole on the floppy disk.

   NOTE 1: Opening the write protection hole will prevent writing onto the micro floppy disk. Closing it will permit writing on to the micro floppy disk. Data and files which you do not wish erased are protected by opening the write protection hole. To change or replace data or programs contained on the micro floppy disk, the write protection hole must be closed. It opens and closes by way of a small slide switch.

5. Insert the LCR floppy disk into the disk drive unit. See Figure 700-26, Inserting the Floppy Disk.

   The micro floppy disk after insertion
   
   Correctly inserted position  Incorrectly inserted position

   Figure 700-26 Inserting the Micro Floppy Disk

6. Turn the disk drive unit on. Ensure that the green LED goes on and that shortly thereafter the red LED turns on for a second or two and then turns off. If the red LED does not come on for a second or two and then turns off, go back to step 1 above.

   NOTE: In step 7 below, the computer is turned on while depressing the SHIFT and CTRL keys. Cold start is also accomplished (with power to the computer already on) by depressing the RESET button (located on the rear of the PC-8300 while depressing the SHIFT and CTRL). See Figure 700-27 Rear Side View of the PC-8300.

7. While depressing the SHIFT and CTRL key simultaneously, turn on the PC-8300. Ensure that the red LED on the disk drive lights for a second or two and then goes off. If this does not occur, go back to step 1 above.

8. Proceed to the auto start setting procedure.
750.5.2 Warm Start
The Warm Start is performed by turning the power switch ON. This is the normal method used that allows retention of the LCR Main Menu program in the computer. Under normal conditions, the last screen displayed when power was turned off is returned when power is turned back on.

750.5.3 Auto Start Setting
The PC-8300 has an auto start feature which allows the computer to automatically load the LCR Main Menu program from the disk drive unit when the reset switch is used. The following procedure describes the setting of the auto start feature to automatically load the LCR Main Menu program. See Figure 700-27 Rear Side View of the PC-8300.

1. With the PC-8300 main menu displayed, depress the f1 key. Display shows:

   ![Display Image]

2. The computer is prompting for a file name to be loaded. The file name desired is IPL.DO. Since the file is in the disk, it is necessary to enter 1: prior to the file name. At this time use the keyboard

   ![Diagram Image]

Figure 700-27 Rear Side View of the PC-8300

700 - 18
(capital letters only) and enter the following:
1: IPL.DO and depress the RETURN key to enter the data. Display shows:

1983/05/01 14:22:43 (C) Microsoft #1
BASIC TEXT TELCOM
...
...
...
Load from 1: IPL.DO

1983/05/01 14:28:13 (C) Microsoft #1
BASIC TEXT TELCOM
...
...
...
Save as

1983/05/01 14:29:04 (C) Microsoft #1
BASIC TEXT TELCOM
...
...
...
Save as IPL.DO Ready?

3. The computer now is prompting for the file name that the file will be stored in RAM. Enter IPL.DO and then depress the RETURN key to enter the data. Display shows:

1983/05/01 14:29:04 (C) Microsoft #1
BASIC TEXT TELCOM
...
...
...
Save as IPL.DO

4. Depress the RETURN key or the letter Y (for yes). Display shows:

1983/05/01 14:31:24 (C) Microsoft #1
BASIC TELCOM IPL.DO
...
...
...
Load Save Name List 12374

5. Using the cursor movement keys, move the cursor to the upper right corner of the display over the file name IPL.DO. Depress the SHIFT key. While the SHIFT key is depressed, depress the f1 key. Note that an asterisk is inserted in the file name at the upper right of the display (IPL*DO) indicating that the file IPL.DO has been set as the new automatic loading file. Display shows:

1983/05/01 14:31:24 (C) Microsoft #1
BASIC TEXT TELCOM IPL.DO
...
...
...
Load Save Name List 12374

6. Now perform a Warm Start by depressing the RESET button located on the rear of the computer. The LCR Main Menu should appear in the display after a few seconds.

750.6 INITIALIZING IBM COMPATIBLE PCs

Equipment Required
1. IBM XT, IBM AT, or NEC APC IV must be locally provided.

NOTE: The IBM type version LCR software will run on either a 1.2mb high density disk drive or a 360kb low density disk drive.

2. IBM LCR version diskette (available on a 5.25" or a 3.5" diskette).

3. Operating system on the IBM PC XT or AT or NEC APC IV has to be MS-DOS® (Equivalent to NEC APC IV MS-DOS 3.2).

Executing IBM Type Software
1. Insert the LCR diskette into an available disk drive. After verifying the drive prompt on the screen corresponds to the drive where the LCR diskette is located, enter LCR.

2. Depress ➪ (Enter). Display shows:

***LCR MAIN MENU***
1 DOWN LOAD 6 PRINT OUT
2 UP LOAD 7 SYSTEM DATA CLEAR
3 VERIFY 8
4 MODIFY 9
5 DISPLAY 10 SYSTEM CONTROL
ENTER MENU NO.

IBM LCR
1. When UP/DOWN LOADING or verifying, there is a message after completion:
2. In MODIFY mode, when first accessing a ROUTE TABLE, if you enter '00x' for a table #, the program aborts back to DOS. If 'x' is entered first, the problem goes away.

3. In MODIFY mode, if X is used to clear an entry in a ROUTE TABLE, every line in the display gets shifted up.

4. INSERT and DELETE functions do not work.

5. System Control: after 'PHASE EXECUTING' is over:

   NORMAL END

is written over 'PHASE EXECUTING'.

Field display should read:

PHASE EXECUTING
NORMAL END

750.7 PROGRAMMING THE LCR-E ETU
KEY LAYOUT AND EXPLANATION OF KEYS

General Information
Once the initialization procedure has been completed, powering up the PC-8300 results in a display of the LCR main menu. (See section 740.5 for the initialization procedure if this has not been completed.)

Figure 700-28 Keyboard Layout and 700-29 General Programming Flow Diagram show the keyboard layouts and the keys which are used during programming of the LCR-E ETU, when using a PC-8300 and an NEC APC IV, respectively.

PC 8300 LCR
1. If C is used (by mistake when trying to input X), LCR program aborts back to BASIC.

   ABNORMAL END
   LINE TROUBLE

is written over 'PHASE EXECUTING'.

Field display should read:

PHASE EXECUTING
ABNORMAL END
LINE TROUBLE
1. **Number Keys (1-9 and 0)**
   The number keys are used to enter data and to select menu options as required.

2. **CR (Carriage Return or Return)**
   The return key is used as an enter key during programming. Normally this key will be depressed any time data is entered on the keyboard and after it is displayed on the screen. Shown below are some examples of the use of the CR key.

   - To select a function from the main LCR menu, depress a number key and then depress CR RETURN).

   - While in the DOWN LOAD, UP LOAD, VERIFY, or SYSTEM DATA CLEAR functions, a RETURN arrow (shown at right) is provided. At this time, depressing CR (RETURN) is required to return to the preceding menu display.

   **NOTE:** When using an IBM/LCR disk, the carriage return symbol (↓) is represented by (CR).
3. If a problem occurs during DOWN LOAD, UP LOAD, or VERIFY an error is displayed, as shown at right. Using the CR clears the display and returns it to the preceding menu.

- Whenever MODIFY, DISPLAY, or PRINT OUT is used, the carriage return is depressed after making the entries for selection of desired data.

- During MODIFY mode, CR (RETURN) is used to enter the selected data entries for a particular programming segment.

- During DISPLAY or PRINT OUT mode, CR (RETURN) is used to request display of additional data (in consecutive numerical order).

3. ESC - Escape Key
The ESC key is used to return to previous menu display any time a menu is displayed on the screen. Also, the ESC key is used in the MODIFY mode after completing the selection and/or entry of desired data.

- Example of ESC key being used to go from the DISPLAY menu to the LCR main menu.

- Depress ESC key  Display shows:

- During MODIFY mode, use of the ESC key causes data to be saved to the disk drive and then returns the display to the MODIFY menu, as shown at right.
4. **Cursor Keys (↑, ↓, →, ←)**

The cursor keys (the 4 arrow keys at the right side of the keyboard) are used to move the cursor, on the screen, in the respective direction of the arrow shown on the key. This key is mainly used during the MODIFY mode.

5. **CTRL-X (Control key + X key)**

The CTRL key and the X key, when depressed at the same time, are used to delete an entry during the MODIFY mode.

- Shown at right is a display when in the MODIFY mode.

- Depressing CTRL-X, clears the entry in the display. (When the ESC key is depressed this cleared entry is saved onto the disk in the disk drive.)

6. **Space Bar**

The Space Bar is used to select desired options when in the MODIFY mode. The following examples indicate the various options selected by the Space Bar.

- In Area Code Table Modify mode, the Space Bar is used to select between WEEKLY and ROUTE ADVANCE Table assignment for the displayed Area Code. Depressing it once selects WEEKLY.

- Depressing the Space Bar again will select ROUTE ADVANCE.

**NOTE 1:** If the entry is blank (*****), use of the Space Bar will display WEEKLY as the selected option.

**NOTE 2:** Repeated use of the Space Bar will cause the selected option to alternate between WEEKLY and ROUTE ADVANCE.

**NOTE 3:** Selection of WEEKLY tells the LCR-E processor to go look in the weekly schedule tables and then the Daily Schedule tables for the time of day and the route advance table to be referenced.

**NOTE 4:** Selection of ROUTE tells the LCR processor to immediately go to the route advance tables for further directions.

---

**SAMPLE LCD INDICATIONS**

<table>
<thead>
<tr>
<th><em><strong>AREA CODE TABLE MODIFY</strong></em></th>
</tr>
</thead>
<tbody>
<tr>
<td>TENANT NO. : ?</td>
</tr>
<tr>
<td>AREA CODE : ?</td>
</tr>
<tr>
<td>TABLE NAME : WEEKLY</td>
</tr>
<tr>
<td>TABLE NO. : 01</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><em><strong>AREA CODE TABLE MODIFY</strong></em></th>
</tr>
</thead>
<tbody>
<tr>
<td>TENANT NO. : ?</td>
</tr>
<tr>
<td>AREA CODE : ?</td>
</tr>
<tr>
<td>TABLE NAME : *****</td>
</tr>
<tr>
<td>TABLE NO. : **</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><em><strong>AREA CODE TABLE MODIFY</strong></em></th>
</tr>
</thead>
<tbody>
<tr>
<td>TENANT NO. : ?</td>
</tr>
<tr>
<td>AREA CODE : ?</td>
</tr>
<tr>
<td>TABLE NAME : WEEKLY</td>
</tr>
<tr>
<td>TABLE NO. : **</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><em><strong>AREA CODE TABLE MODIFY</strong></em></th>
</tr>
</thead>
<tbody>
<tr>
<td>TENANT NO. : ?</td>
</tr>
<tr>
<td>AREA CODE : ?</td>
</tr>
<tr>
<td>TABLE NAME : ROUTE ADVANCE</td>
</tr>
<tr>
<td>TABLE NO. : **</td>
</tr>
</tbody>
</table>
When in ROUTE TABLE MODIFY mode, the use of the Space Bar makes the selection of the various options available for each line in the ROUTE TABLE MODIFY display (except Table No. and Trunk Access Code, which are number entries).

- Example for Area Code Delete:

- Depress Space Bar:

**NOTE 1:** When the entry is blank (***), use of the Space Bar provides NO as the selected option.

**NOTE 2:** Repeated use of the Space Bar will cause the selected option to alternate between NO and DEL (DELETE).

**NOTE 3:** Selection of NO tells the LCR-E that the area code should not be deleted when the number is dialed out by the system.

**NOTE 4:** Selection of DEL tells the system to delete the area code when it dials out the number dialed by the user.

- Example of Extra Code Add:

- Depress Space Bar:

**NOTE 1:** When the ETR CODE ADD entry is blank (***), use of the Space Bar provides NO as the selected option.

**NOTE 2:** Repeated use of the Space Bar will cause the selected option to alternate between NO and ADD. The ← arrow key should be used to position the cursor towards 'ADD' when alternating from ADD to NO.
NOTE 3: Selection of NO tells the LCR-E that extra digits should not be added when the number is dialed out by the system.

NOTE 4: Selection of ADD tells the system to add extra digits before it dials out the number dialed by the user. An entry of the associated Extra code table number is required when this option is selected.

- Example of Prefix Add/Check:

- Depress Space Bar:

- Depress Space Bar again:

NOTE 1: When the PFX ADD CHK entry is blank (***) use of the Space Bar provides NO as the selected option.

NOTE 2: Repeated use of the Space Bar will cause the selected option to alternate between NO, ADD and CHK. The ← arrow key should be used to position the cursor towards CHK, when alternating from CHK to NO.

NOTE 3: Selection of NO tells the LCR-E that the digit 1, as a prefix, should not be added when the number is dialed out by the system.

NOTE 4: Selection of ADD tells the system to dial the digit 1 before it dials out the number dialed by the user. This option is used when an FX line that is selected requires 1 + dialing.
NOTE 5: Selection of CHK (check) tells the LCR-E to look in an office code table for the central office code dialed by the user to determine whether to dial the digit 1 before dialing the number dialed by the user. It is required that an entry of an office code table number be made when this option is selected.

- Example of Service Area Check:

- Depress Space Bar:

NOTE 1: When the SRV AREA CHK entry is blank (***), use of the Space Bar provides NO as the selected option.

NOTE 2: Repeated use of the Space Bar will cause the selected option to alternate between NO and CHK. The ← arrow key should be used to position the cursor towards CHK, when alternating from CHK to NO.

NOTE 3: Selection of NO tells the LCR-E that no check of an office code table is necessary. This option is used when the number dialed by the user is being routed to a line which will not use an OCC (Other Common Carrier). This option can also be selected if the OCC has no limitation relative to office code dialed by the user.

NOTE 4: Selection of CHK (check) tells the LCR-E to look in an office code table for the central office code which the user dialed to determine whether this number can be dialed via the selected route. This option is used to determine whether the selected route, to which the user is being routed, provides service to the specified office code area.
Special use of the numbers 0 and 1 is made in the office code table assignment which may be required for either prefix check or service area check.

- The example at right shows how these are used.

- Depress 0:

<table>
<thead>
<tr>
<th>TABLE NO.</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFC CODE</td>
<td>200</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>210</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>220</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>230</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>240</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

**NOTE 1:** For service area check

0 = No service in area, check route advance table for next route available.
1 = Service is available, continue.

**NOTE 2:** For prefix check

0 = Prefix required, add the digit 1 before the number to be dialed.
1 = No prefix required, do not add the digit 1 before the number to be dialed.

**NOTE 3:** In the example above the cursor position is indicated by the box around the digit.

7. **Other Keys Used (P, #, *, INS, DEL)**

In MODIFY mode, other keys may be used within the Extra Code Table when assigning additional digits to be dialed out on the line to which the user is being routed. One possible application for this feature may be the need for dialing an access code plus a pause if the line is a PBX line. Another application might be the dialing of a local number followed by an account code if the line is to be used for dialing through an OCC. The use of a P in this table assignment means that the system is to pause when it gets to the P in the dialing sequence. The # and * symbols will cause the system to dial the # or *, respectively. The use of the INS key allows the programmer to insert digits in front of the present cursor position.
The use of DEL allows the programmer to delete the character located at the present cursor position. An example of both INS and DEL use follows.

- **INS Key example:**

- **Depress INS key:**

- **Depress 0:**

**NOTE 1:** During Insert mode, the display will show INS MODE, and the position to the left of the cursor is filled in with the new character.

**NOTE 2:** The cursor is indicated by a box around the character at the present cursor position in the example above.

**NOTE 3:** The use of the cursor keys removes the programmer from Insert Mode.

- **Example of DEL (delete):**

- **Depress DEL:**

**NOTE 1:** The use of delete causes the character under the cursor to disappear and all characters to the right shift left.

**NOTE 2:** The cursor is indicated by a box over the character at the present cursor position in the example above.
INPUT OF DATA

General
All input of data begins at the LCR Main Menu. The LCR Main menu provides various functions which the programmer can access by selecting a number. After the programmer makes a selection, the CR (RETURN) key is depressed and the program to access that selected function is loaded from the floppy disk into the computer. A new menu is displayed allowing the programmer to select the desired table. Again a number is selected from the menu and the CR key is depressed. The data for the chosen table is loaded from the floppy disk into the computer. At this stage in programming, various options may be available depending on which function was chosen from the LCR main menu. The data may now be modified, displayed, or printed.

From the information above, it is apparent that a keystroke serves two functions; a command function, and data function.

From the menu, a selection number, followed by a CR (RETURN), obtains the program for a specific function, or retrieves data for a specific table. After table data is displayed, usage of the keys changes data, permits movement through the table to obtain specific data, or to enter new data.

To exit a table, depress the ESC (escape) key. Data for that table is saved to the floppy disk (MODIFY MODE) and the previous menu is displayed. Depress the ESC key again to return to the LCR main menu, or select a new number and depress CR (RETURN) to retrieve another table.

As an aid in understanding the programming procedure, refer to Figure 700-29 General Programming Flow Diagram. This diagram provides a general overview of the programming procedure.

As shown in the diagram, eight functions are available from the LCR Main Menu. Only one function (or operational mode) may be used at any one time. The use of a second function is only available by returning to the LCR Main Menu.

After a function is selected, a new menu is provided (except SYSTEM CONTROL) where a table type can be selected. Selecting SYSTEM CONTROL from the Main Menu sends a reset signal to the LCR-E ETU allowing return to the Main Menu. After selecting a table type, different operations are available based on the function selected.

Refer to section 750.8.1 for an explanation of the LCR Main Menu and a brief description of the eight available functions.

Section 750.8.2 provides a detailed explanation of each function as related to the programming procedure.

The DOWN LOAD, UP LOAD and Verify functions are used for the maintenance function where data is transferred to and from the LCR-E ETU and the LCR disk.

The MODIFY MODE is used to customize the data, for a specific application, on the LCR Disk. The DISPLAY MODE is used to examine data without changing data. (This is similar to the MODIFY MODE but runs faster because no changing or saving of data is done.) PRINTOUT is used to retrieve a printed copy of the system data. SYSTEM DATA CLEAR is used to clear the data on the disk that is no longer desired.
GENERAL PROGRAMMING FLOW DIAGRAM

1. **DOWNLOAD**: Data is copied from disk to LCR-E.
2. **UPLOAD**: Data is copied from LCR-E to disk.
3. **VERIFY**: Data is compared between LCR-E ETU and disk.

**LCR MAIN MENU**

- **DOWN LOAD**
  - **SELECT DESIRED TABLE**
    - **DOWN LOAD OCCURS**
      - **RETURN TO DOWN LOAD MENU**
      - **SELECT ANOTHER TABLE**
        - **OR ESCAPE TO LCR MAIN MENU**

- **UP LOAD**
  - **SELECT DESIRED TABLE**
    - **UP LOAD OCCURS**
      - **RETURN TO UP LOAD MENU**
      - **SELECT ANOTHER TABLE**
        - **OR ESCAPE TO LCR MAIN MENU**

- **VERIFY**
  - **SELECT DESIRED TABLE**
    - **VERIFY OCCURS**
      - **RETURN TO VERIFY MENU**
      - **SELECT ANOTHER TABLE**
        - **OR ESCAPE TO LCR MAIN MENU**

- **MODIFY**
  - **SELECT DESIRED TABLE**
    - **SELECT DESIRED TABLE NUMBER**
      - **RETURN TO MODIFY MENU**
      - **SELECT ANOTHER TABLE**
        - **OR ESCAPE TO MODIFY MENU**

- **DISPLAY**
  - **SELECT DESIRED TABLE**
    - **SELECT DESIRED TABLE NUMBER**
      - **RETURN TO DISPLAY MENU**
      - **SELECT ANOTHER TABLE**
        - **OR ESCAPE TO DISPLAY MENU**

- **PRINT OUT**
  - **SELECT TABLE TO BE PRINTED**
    - **IF OFFICE CODE TABLE IS SELECTED, ENTER TABLE NUMBER**
      - **TABLE DATA IS PRINTED**
      - **RETURN TO PRINT OUT MENU**
      - **SELECT ANOTHER TABLE**
        - **OR ESCAPE TO LCR MAIN MENU**

- **SYSTEM DATA CLEAR**
  - **SELECT TABLE TYPE TO BE CLEARED**
    - **SELECTED TABLE IS CLEARED**
      - **RETURN TO SYSTEM DATA CLEAR MENU**

- **SYSTEM CONTROL**
  - **RESET LCR**
    - **RETURN TO LCR MAIN MENU**

**FUNCTIONAL DESCRIPTION**

- **COMMANDS**: Down Load, Up Load, Verify, Modify, Display, Print Out, System Data Clear, System Control.
- **TABLES**: Office Code, General Programming.
- **INTERNAL PROCESS**: Menu selection, data transfer, verification, modification, display, printing, data clearance, system control.

**NOTES**

- **Menu Structure**: LCR Main Menu, Download Menu, Upload Menu, Verify Menu, Modify Menu, Display Menu, Print Out Menu, System Data Clear Menu, System Control Menu.
- **Data Flow**: Interactive process between disk, LCR-E ETU, and user input.

**LEGEND**

- Arrow directions indicate flow of control or data.
- Boxes represent commands or menu options.
- Text within boxes explains the command or menu option function.
Examples are provided below.

1. Selecting a function from the LCR Main Menu:
   - With the LCR Main Menu displayed
     
     - Depress 1, then depress CR (RETURN).

   - The program for DOWN LOAD is loaded from the floppy disk. A example of the display is shown to the right.

   At this time, any table to be down loaded can be selected.

   **NOTE:** Only one table can be loaded into the computer at a time. This applies to all functions.

2. Selecting a table from a Function Menu:
   - With the Modify Menu displayed:
     
     - Depress 1, then depress the CR (RETURN) key.
(The program for modifying the table chosen is loaded.)

- After the program is loaded the table is displayed.

3. Example of Table Input:
   After table data is retrieved, the number of the specific table to be displayed (or in this case modified) must be entered, followed by pushing the CR (RETURN) key.
   - With Area Code table modify displayed:

   4. Example of Advancing to the next Table:
   Advancing to a table is done by depressing the CR (RETURN). When in a table, depressing the CR (RETURN) enters the data into the computer and increments the table number being viewed. If no data has been entered for a specific item within a table, that item remains blank. A blank entry is shown by *** in the display. In most tables more than one item (for example - area codes) are available for display or modification. In this case entering the item number (for example-area code number) in the appropriate line ((followed by CR (RETURN)) will display the contents for that item.
Shown is the use of CR (RETURN) to increment the item number.

- With Area Code Table Modify in the display (as shown at right):
  - Depress CR (RETURN) key.
  - Depress CR (RETURN) again to display the contents (see Notes below).
  - To return to the previous menu, depress the ESC key.

**NOTE 1:** After the first carriage return, the cursor is positioned at the new item number line. At this time a different item number may be chosen. If this is done before the carriage return, the data contents of the chosen item number will be displayed. This option applies to modify mode only.

**NOTE 2:** The first CR (RETURN) increments the item number. The second CR (RETURN) displays the data for the item number.

### 750.9 EXPLANATION OF LCR COMMANDS
This section explains the LCR (RETURN) support terminal commands required to properly program the required data for operation of the LCR-E ETU. It is recommended that section 750.7 be fully read and understood before reading this section.

After the initialization procedure has been completed, powering up the programming computer results in display of the LCR Main Menu. (See section 750.5 for the initialization procedure if this has not been completed.) The LCR Main Menu provides the programmer with eight options.
The options and key in numbers are:

1 - Down Load
2 - Up Load
3 - Verify
4 - Modify
5 - Display
6 - Print Out
7 - System Data Clear
10 - System Control

NOTE: Key in numbers 8 and 9 are not used.

Selecting any of the options above (except System Control) results in the display of a second menu.

- With the Main Menu displayed, depress the number of the desired function and press CR (RETURN) key.

750.9.1 General Explanation of LCR Main Menu Options

1. Down Load
The Down Load option is used to transfer data from the floppy disk to the LCR-E ETU. It should not be confused with normal loading which is from the floppy disk to the computer. This option is generally used after data has been changed on the floppy disk. No change to the actual working memory on the LCR-E ETU occurs until this procedure is completed.

2. Up Load
The Up Load option is used to transfer data from the LCR-E ETU to the floppy disk. This option is generally used to retrieve the actual programmed data presently in the LCR-E ETU. This might be done to check the actual contents of the LCR-E ETU.

3. Verify
The Verify option is used to compare the contents of the LCR-E ETU to the contents of the floppy disk. This option is used after a down load or up load to verify that the transfer of data just completed was completed properly and no problem was encountered that was not caught by the computer. Also this option can be used to check that a floppy disk contains the latest program presently in the LCR-E ETU.

4. Modify
The Modify option is used to change the data in the floppy disk. This option is the main function used by the programmer in customizing the LCR program. It should be noted that this option changes only the data in the floppy disk, not in the LCR-E ETU.
5. Display
The Display option is used to allow the programmer to view the contents of the data presently in the floppy disk. This option does not allow changing of data, and is used only to confirm the present data.

6. Print Out
The Print Out option is used to send table data to a printer for purposes of having a hard copy. This option is recommended to be completed as the last step after verification of proper LCR function, to obtain a hard copy of the LCR program.

The office code table can be printed as follows: with the PRINT OUT menu in the display, depress \[7\] and \[\leftarrow\].

Enter the start table number and depress \[\leftarrow\]. Example 001.

Enter the end table number and depress \[\leftarrow\]. Example 002.

7. System Data Clear
The system data clear option is used to clear data from the tables. This option clears the data in the floppy disk, not the LCR-E ETU. The option is provided to clear only one table at a time.

8. System Control
The system control option is used to restart the LCR-E ETU. This option is recommended for use after any changes are made to the programming in the LCR-E.

750.9.2 Command Descriptions
In general, commands from the main menu result in the display of a second menu (except for system control). This menu is a listing of the available tables. Programming is done on a per table basis.
1. Down Load Mode
   - Selection of down load mode results in the menu display at right.

   At this time selection of one of the available table numbers will result in the following display.

   - Example for area code down load: Depress 1, then depress CR (RETURN).

   **NOTE 1:** The display shown is an example of area code data being down loaded from the floppy disk into the LCR-E. The name of the table chosen will be shown in the display.

   **NOTE 2:** Exceptions to note 1, are the office code table and all data down load selections. These two selections, due to their large memory requirements show darkened boxes to indicate the relative amount of data that has been transferred.

   **NOTE 3:** If no problem is encountered during down load, the display shown (or one similar to it) is provided. Depression of the CR (RETURN) key is required to return to the Down Load Menu.

   **NOTE 4:** If a problem is encountered during down load, the display shown (or one similar to it) is provided. Depression of the CR (RETURN) key is required to return to the Down Load Menu.

   **NOTE 5:** It is recommended that the RS-232C cable between the LCR-E ETU and the computer be checked prior to doing a down load or up load.

2. Up Load Mode
   - Selection of up load mode results in the menu display shown:

   **SAMPLE LCD INDICATIONS**

   ***DOWN LOAD***
   1 AREA CODE TABLE
   2 WEEKLY SCHEDULE
   3 DAILY SCHEDULE
   4 ROUTE ADVANCE
   5 ROUTE TABLE
   6 EXTRA CODE TABLE
   7 OFFICE CODE TABLE
   8 HOME NPA CODE
   10 ALL DATA

   ENTER MENU NO.  □

   AREA CODE TABLE DOWN LOAD START  □

   OFFICE CODE TABLE DOWN LOAD START  □

   ALL DATA UP LOAD START  □

   AREA CODE TABLE DOWN LOAD START
   NORMAL END  □

   AREA CODE TABLE DOWN LOAD START
   ABNORMAL END
   LINE TROUBLE

   ***UP LOAD***
   1 AREA CODE TABLE
   2 WEEKLY SCHEDULE
   3 DAILY SCHEDULE
   4 ROUTE ADVANCE
   5 ROUTE TABLE
   6 EXTRA CODE TABLE
   7 OFFICE CODE TABLE
   8 HOME NPA CODE
   10 ALL DATA

   ENTER MENU NO. □
At this time selection of one of the available table numbers will result in the display shown:

- Example for area code up load: depress 1, then depress CR (RETURN).

NOTE 1: The display shown is an example of area code data being up loaded from the LCR-E ETU into the floppy disk. The name of the table selected will be shown in the display.

NOTE 2: Exceptions to Note 1, are the office code table and all data up load selections. These are shown in the All Data Up Load Start display. These two selections, due to their large memory requirements, show darkened boxes to indicate the relative amount of data that has been transferred.

NOTE 3: During up load, (if no problems are encountered) the display shown at right, or one similar to it, is provided.

Depress the CR (RETURN) key to return to the Down Load Menu.

NOTE 4: If a problem is encountered during up load, the following display (or one similar to it) is provided. Depression of the CR (RETURN) key is required to return to the Up Load Menu.

NOTE 5: It is recommended that the RS-232C cable between the LCR-E ETU and the computer be checked prior to doing a down load or up load.

3. Verify Mode
Selection of verify mode results in the menu display shown at right:

At this time selection of one of the available table numbers will result in the display shown at right:

Example for area code verify: Depress 1, then depress CR (RETURN).
NOTE 1: The previous display is an example of area code data being verified between the floppy disk and the LCR-E ETU. The name of the selected table will be shown in the display.

NOTE 2: Exceptions to Note 1, are the office code table and all data verify selections. These are shown at right. These two selections, due to their large memory requirements, show darkened boxes to indicate the relative amount of data that has been transferred or verified.

NOTE 3: If no problem is encountered during verify, the display shown (or one similar to it) is provided. Depression of the CR (RETURN) key is required to return to the verify menu.

NOTE 4: If a problem is encountered during verify, the display shown (or one similar) is provided. Depression of the CR (RETURN) key is required to return to the verify menu.

NOTE 5: It is recommended that the RS-232C cable between the LCR-E ETU and the computer be checked prior to performing a verify.

4. Modify Mode
The modify mode is used to make changes to the LCR data base in the floppy disk. In this mode the programmer customizes the LCR program to accommodate the need of the system user. With the LCR Main Menu displayed, depress 4, then depress CR (RETURN). The Modify program is now loaded from the floppy disk. An example of the display is shown to the right.

The programmer is given the option to select the table to be modified. Only one table type can be modified at a time. The following pages provide an example of each table as it is being modified, and the associated displays provided by the computer. Before making any program changes, it is recommended that the programmer have a complete listing of all desired data clearly written down for easy reference while programming LCR.
A. Area Code Table Modify

With the Modify Menu displayed, depress 1, then depress CR (RETURN).

The computer loads the area code table data from the floppy disk and, when done, displays the Area Code Table Modify display as shown.

At this time, enter the tenant number for the area code assignments to be made. Depress a number 1-3, then depress CR (RETURN).

NOTE: Although it is possible to enter 0 as a tenant number, this assignment has no function when used with the Electra MarkII and will result in no operation or incorrect operation of the LCR.

Type in the area code to be assigned, then depress CR (RETURN). The example shows the display for selection of tenant 1 and area code 200.

Based on the area code dialed, the LCR determines which tables should be examined. The first decision that must be made is the type of table to be routed through. Two types of tables can be selected based on the area code. The first type is the weekly schedule tables. The second type is the route advance tables. Depress the Space Bar to select the type of table. The first depression of the Space Bar causes the display to show WEEKLY as the selected table type.

Depressing the Space Bar again selects ROUTE ADVANCE as the selected table type. After selecting the table type, depress the Cursor Down key to get to the Table No. line and enter the desired table number (for the table type selected). The example shows the selection of WEEKLY table number 10. A maximum of sixty four tables can be selected (00-63) for either WEEKLY or ROUTE ADVANCE.

Once the above steps are completed, two options are available. If corrections are required, use the Cursor Up key to return to the line to be changed. If no changes to the data are required, depress the CR (RETURN) and the display increments to the next area code. Selection of a new area code can be made at this time or depress CR (RETURN).
Once all changes to area code assignment are made, the programmer depresses the ESC key and the data is saved to the floppy disk as shown.

NOTE 1: The area code assignments made in these tables determine which table will be searched by the LCR-E ETU. In the above examples it should be noted that the selection of WEEKLY sends the LCR to the WEEKLY schedule tables. If ROUTE ADVANCE is chosen, the LCR-E ETU will proceed to look in the ROUTE ADVANCE tables for further directions. The use of WEEKLY tables eventually results in the selection of route advance tables (via the DAILY tables). In both cases, the least cost route is selected from the final information located in the Route Tables.

NOTE 2: Data is not saved onto the floppy disk until the ESC (escape) key is depressed. At that time the display is returned to the Modify Menu.

B. Weekly Schedule Table Modify
The option of selecting a different route based on day of week and time of day is made available by assigning the table type as weekly in the area code tables. If this option is chosen, it is necessary to assign weekly tables and then daily tables. The following steps show the procedure for weekly schedule table assignments.

With the Modify Menu in the display, depress 2, then CR (RETURN). The display at right is provided.

C. Daily Schedule Table Modify
The daily schedule tables are used to select different assignments of route advance tables for a specific area code based on the time of day. The available assignments are done on an hourly basis using military time (0-23 hours).

To assign the daily schedule tables the following steps are used:

With the Modify Menu in the display, depress 3, then depress CR (RETURN). The display shown will be provided.

Available entries are now 00-63. This is the number of the daily schedule table to be modified. Depress the number desired, then depress CR (RETURN). The example to the right is for table 03.
Once the table data is displayed the programmer must enter the route advance table number to which the LCR-E should refer, to determine which route table will be used to process the attempted call.

Route advance tables are numbered 00-63. One of these table numbers should be assigned under each hourly number shown in the display. In the daily schedule display, the numbers 0-23 correspond to the hours of the day, in military time. If hour 0 is assigned a table, that table will be referred to from the hour of midnight to 00:59:59 AM. The use of hour number 13 refers to the time between 01:00:00 PM and 01:59:59 PM.

After selecting a table assignment for each hour, depressing CR (RETURN) enters the data into the computer for that table and increments the table number by one. Depressing the return key will now allow programming of the next table. Prior to depressing the return key a second time, the programmer can enter a new table number to be modified.

NOTE 1: The use of cursor keys allows the programmer to freely move the cursor position to correct any mistakes made during entry of data.

NOTE 2: If any hourly assignments are left blank (unassigned), when the LCR-E ETU looks at this table during that hour, a busy tone is returned to the calling party restricting the calling party.

NOTE 3: No data is entered into the floppy disk until the ESC key is depressed. At the time that the ESC key is depressed, the data is saved to the floppy disk and the display is returned to the Modify Menu.

D. Route Advance Table
The route advance table is used to select which route tables will be used by the LCR-E ETU to determine the trunk used to process the attempted call. The route advance table makes available to the programmer up to four different route table assignments which can be used by the LCR-ETU to find the trunk to be used. The priority of selection is from top to bottom, first to fourth route table number assignment. The following steps show how to modify the route advance tables.
With the Modify Menu in the display, depress 4, depress CR (RETURN). The display at right is shown.

Enter the number of the route advance table to be modified, depress CR (RETURN). The example to the right shows table 20.

Now entered is the route table to be used by the LCR-E ETU as the first, second, third, or fourth route. Available assignments for route tables are 000–255. The reason for providing a maximum of four routes is in case the first route is busy, or cannot be used for a given reason the LCR-E ETU can continue to choose a different route of slightly higher cost but does not restrict the user, until an available route is found. If all routes are unavailable, the user is restricted.

Once all desired routes are assigned a route advance table, depress the CR (RETURN) to enter the data into the computer. The route advance table number is incremented by one. Depress the return key to access the next table to be programmed. Enter the table number to be modified and depress the return key.

NOTE 1: Using the cursor keys allows correction of mistakes made during data entry.

NOTE 2: Data are not entered on the floppy disk until the ESC key is depressed. When the ESC key is depressed, the data is saved to the floppy disk and the display is returned to the Modify Menu.

E. Route Table Modify
The route table is the heart of the LCR programming. The purpose of the other tables, previously discussed, is to allow the LCR-E ETU to reach a specific route table based on the area code dialed and either the time of day and day of week (if used) and/or based on the available routes.

Each route table contains specific data that is used by the LCR-E ETU to determine not only which trunk access code will be used to select the trunk, but the manner in which the number is to be dialed. The following steps are used to properly assign route tables.
With the Modify Menu in the display, depress 5, then depress CR (RETURN). The display at right is shown.

The number of the route table to be modified is now entered, followed by a CR (RETURN). Available route tables are 000-255. The example at right shows table 120.

Data are now entered from top to bottom, starting at TRK ACSS CODE (trunk access item code). The entry for trunk access code determines which trunk access code will be used by the system CPU to select a trunk.

Depress the number of the trunk access item code desired. The cursor will jump down to the AREA CODE DEL line automatically. If an incorrect number is entered, the Cursor UP key can be used to return to the TRK ACSS CODE line for correction. Although the computer will accept entries from 00~15 as trunk access code, only codes 01~08 will work on the Electra MarkII.

Enter the next data on the AREA CODE DEL line. This entry determines whether the area code dialed by the caller should be dialed out on the chosen trunk. This option is provided in case the caller is being routed to a line (such as an FX line) where it is not necessary to dial the area code. Depressing the space bar allows selection of one of two options for this line. The first time the space bar is depressed selects NO (do not delete) as the entry. The second depression of the space bar selects DEL (delete) as the entry. The example shows the selection of DEL as the entry.

After area code delete selection is made, depress the cursor down key to position the cursor at the ETR CODE ADD line. This option is used to tell the LCR-E ETU whether it is necessary to dial extra digits prior to dialing the number. Depressing the space bar will cause the display to show a NO as the entry for this line.
To add digits before the number dialed, depress the space bar again. This option may be desired for an SCC (secondary common carrier) call where it may be necessary to dial a local number followed by an account code before dialing the long distance number. Another application might include a call that is routed through a PBX (or Centrex) line where it may be necessary to dial an access code before obtaining CO (central office) dial tone. The display at right is shown.

It is necessary to enter a table number for the Extra Code Table (to be referred to by the LCR-E ETU) if extra digits are to be dialed. Available entries are 00~15.

Depress the number keys for the desired table assignment.

After entering the table number for extra code, the display automatically drops to the next line - PFX ADD CHK. If NO was entered in the extra code add line, it is necessary to use the cursor down key to get to the PFX ADD CHK line.

At the PFX ADD CHK line, depress the space bar to select NO for adding a prefix digit 1 before the number dialed by the caller. Depressing the space bar a second time selects ADD for PFX ADD CHK. This option tells the LCR-E ETU that a digit 1 must be added before the number dialed by the caller. This option might be used when the trunk, to which the call is being routed, is an FX (foreign exchange) line that requires a digit 1 as a first digit (1 + dial area).

The displays to the right are provided for the options of NO or ADD on the PFX ADD CHK line.

In cases where the decision to add a prefix 1 is dependent on the CO (central office) exchange number dialed by the caller, a third depression of the space bar selects the option CHK (check). This option tells the LCR-E ETU to check in an office code table to determine if the digit 1 should be added or not.

If the option is selected, the display at the right is shown.
When the CHK option is selected, it is necessary to assign an office table number which the LCR-E ETU can check for a flag. Available table numbers are 000-127. After the table number is assigned, the cursor position automatically moves to the next line. If NO or ADD is selected, it is necessary to use the cursor down key to move to the next line.

Depressing the space bar a second time selects the option CHK (check). This option tells the LCR-E ETU to check the office code table for a flag to determine if service is available for the office code dialed by the caller.

Service area check is an option used when the line to which the call is being routed is using an OCC and it is necessary to check for OCC service to a specific area based on the office code. This option allows the programmer to tell the LCR-E ETU to refer to an office code table to determine whether service is available for that office.

Depress the space bar once to select NO for this option.

If the CHK(check) option is selected, it is necessary to enter an office code table number for the LCR-E ETU to check. Available entries are 000-127. The example shows office code table number 100 assigned for service area check.

**NOTE 1:** Each item in the route table must have an assignment made to it for the route table to be written into the computer. If any items are left unassigned, the entire table remains unassigned.

**NOTE 2:** If mistakes are made during the entry of data to this table, the use of the cursor keys allows moving the cursor to the item to be corrected and corrections can then be made.
NOTE 3: When all data in the table are correct, depress the CR (RETURN) to enter the data into the computer's memory. The display increments the table number by one. Depress the return key to allow programming of the next table. Before depressing the return key a second time, the programmer can enter a new table number to be modified.

NOTE 4: When all route tables are assigned correctly, the use of the ESC key causes the data to be saved to the floppy disk and causes the display to return to the modify menu.

F. Extra Code Table Modify
Whenever the option of adding extra digits is selected in the route table assignment, an assignment to the extra code table is required. This option allows the entry of a maximum of twenty four digits in a table which can be dialed out ahead of the number dialed by the caller. This option is provided for use mainly for when the line to which the caller is being connected is using an OCC (or SCC) and requires that extra digits be dialed (such as local number dialed and account code). This option can also be used for access to a PBX line where it is necessary to dial a PBX access code or to tandem access a remote system's line(s) through a Tie line. The following procedure explains modification of the extra code tables.

With the Modify Menu in the display depress 6, then depress CR (RETURN).

Depress table number to be modified. Then CR (RETURN).

Enter the number to be dialed ahead of the caller's number. Available entries are digits 0~9, #, *, and the letter P (for pause).

NOTE 1: If mistakes are made during entry, the cursor keys can be used to make corrections.
NOTE 2: After the digits are properly displayed, depressing the return key will enter the data into the computer's memory and increment the table number by one. Depressing the return key will now allow programming of the next table. Before deppressing the return key a second time, the programmer can enter a new table number to be modified. When all extra code tables are assigned correctly, the use of the ESC key causes the data to be saved to the floppy disk and causes the display to return to the modify menu.

G. Office Code Table Modify
Whenever the option of either prefix check or service check is assigned in the route tables it is necessary to modify the office code tables for the LCR-E ETU to check and determine how the call is to be processed.

Note that 128 office code tables are made available, and that these 128 tables are used for both prefix check and service area check. Normally these tables are used for either one check or the other, not both.

The following procedure shows how to modify the office code tables as required. With the Modify Menu in the display, depress 7, then depress CR (RETURN). The display to the right is shown.

Enter the table number to be modified, then depress CR (RETURN). Available entries are 000–127. The example at right shows table 010.

Enter the office code number to be modified. Available entries are 200-999. The example at the right shows 201.

The display will appear as a grid showing the entry of 0 or 1 in the position for a maximum of fifty office codes. To the left of the grid is displayed the starting number for each row of the office codes. Across the top of the grid is provided columns 0–9 which correspond to the last digit of the office code on any line.
For example, to find the office code position for 201 in the display (on the previous page) locate the number 200 and look to the right under the column labeled 1. The cross point between row 200 and column 1 is the position corresponding to 201.

The cursor will be positioned at the office code that was chosen in the step above.

Two methods are now available for changing the assignment in the office code table. Depressing 0 or 1, as required, will enter that number into the display. Depressing the space bar causes the cursor position to alternate between 0 and 1 or 1 and 0.

Using the cursor keys allows the programmer to move around the grid to change any desired office code position.

The significance of the 0 or 1 depends on the type of assignment made in the route tables for this office code table, either prefix check or service area check.

They are as follows:
Prefix area check 0 Add the prefix 1 to the number dialed.
1 Do not add the prefix 1.

Service area check 0 Service is not available.
1 Service is available.

NOTE 1: When all changes are made to the grid, depressing the return key causes data to be entered into the computer's memory. The display shows the starting position of the next fifty office codes. Depressing return again causes the next fifty codes to be displayed. Before depressing the return key the second time, the programmer may choose a new office code.

NOTE 2: When all changes are made to all office codes, using the ESC key causes data to be saved to the floppy disk and returns the Modify Menu to the display.

H. Home NPA Code Modify
To allow the LCR option to be applied properly to local calls, it is necessary to enter the local area code number into the Home NPA code table. For use of LCR on local calls, the LCR-E ETU will temporarily insert the Home NPA Code ahead of the number dialed to allow it to route through the area code table and on to the different routes.
The following procedure describes modification of the Home NPA code table.

With the Modify Menu in the display, depress 8, then depress CR (RETURN). The display shown at the right will be provided.

Type in the numbers corresponding to the local area code in which the system is installed.

Depress return to enter the data into the computer memory.

Depress the ESC key to enter the data onto the floppy disk and return the display to the Modify Menu.

Depress the ESC key to return the display to the LCR main menu.

5. Display Mode
The display mode function is made available at the LCR Main Menu. This function allows the programmer to view (not change) the data available in any of the tables in the floppy disk. Since this function only allows viewing data from the floppy disk, the programmer may decide to upload data from the LCR-E ETU to the floppy disk (before using this option) if it is desired to view the contents of the present data in the LCR-E ETU.

The following pages show the steps required to properly use the display mode function.

The first step in using the display mode function is to make sure that the LCR MAIN MENU is in the display of the computer. Depress 5, on LCR Main Menu, then depress the return key.

The program for the display function is loaded from the floppy disk and the display at right is shown.

The Display Menu allows the programmer to choose any table for viewing. The normal sequence of operation within the display mode is to select a number from the display. After entering the selection number, depress the return key. This causes the computer to load the data from the floppy disk into the computer's memory. Once this is done, a display is provided, which requests the table number to be viewed. Within the area code tables, an area code must also be entered. The office code tables also require an additional entry. After this information is entered into the computer, the display mode function displays the contents of the requested table.
Once the table has been viewed, the programmer depresses return and the table number in the display is incremented by one. The contents of the new table may be viewed. Using the cursor up key allows moving to the table number position and selecting a different table for viewing. If this is done, depressing the return displays the new table.

After all desired tables have been viewed, depress the ESC key to return to the Display Menu. A new table type can be selected and further viewing is possible.

Using the ESC key while in the Display Menu returns the display to the LCR Main Menu.

Below and on the following pages is provided an example of the display mode as applied to each table type selection.

A. Area Code Table Display
While in the Display Menu depress 1, then depress the CR (RETURN) key. The display at the right is shown:

Enter the Tenant number (1~3) desired, then depress the CR (RETURN) key.

Enter the desired area code, then depress the CR (RETURN) key.

The content of the desired area code table is now displayed.

B. Weekly Schedule Table Display

NOTE 1: Using the ESC key returns the display to the Display Menu.

NOTE 2: Using the CR (RETURN) key causes the displayed area code to be incremented by one and displays the contents of the new table.

NOTE 3: Using the cursor up key allows moving the cursor back to the table number position and changing it to a new number. Depress CR (RETURN) to view the new table.
C. Daily Schedule Table Display
While in the Display Menu depress 3, then depress the CR (RETURN) key. The display, at right, is shown:

Enter the desired table number (00-63) then depress the CR (RETURN) key.

NOTE 1: Using the ESC key returns to Display Menu.

NOTE 2: If desired, successive depressions of the CR (RETURN) key allows viewing of consecutive tables.

NOTE 3: Using the cursor up key allows moving the cursor back to the table number position and changing it to a new number. Depress CR (RETURN) to view the new table.

D. Route Advance Table Display
While in the Display Menu, depress 4, then depress the CR (RETURN) key. The display is shown to the right.

Enter the desired table number (00-63) then depress the CR (RETURN) key.

NOTE 1: Using the ESC key returns the Display Menu.

NOTE 2: If desired, successive depression of the CR (RETURN) key allows viewing of consecutive tables.

NOTE 3: Using the cursor up key allows moving the cursor back to the table number position and changing it to a new number. Depress CR (RETURN) to view the new table.
E. Route Table Display
While in the Display Menu, depress 5, then depress the CR (RETURN) key. The following display is provided:

Enter the desired number (000-255), depress the CR (RETURN) key.

NOTE 1: Using the ESC key returns the Display Menu.

NOTE 2: If desired, successive depression of the CR (RETURN) key allows viewing of consecutive tables.

NOTE 3: Using the cursor up key allows moving the cursor back to the table number position and changing it to a new number. Depress CR (RETURN) to view the new table.

F. Extra Code Table Display
While in the Display Menu, depress 6, then depress the CR (RETURN) key. The display to the right is shown.

Enter the desired table number (00-15), depress the CR (RETURN) key.

NOTE 1: Using the ESC key returns the Display Menu.

NOTE 2: Successive depressions of the CR (RETURN) key allows viewing of consecutive tables.

NOTE 3: Using the cursor up key allows moving the cursor back to the table number position and changing it to a new number. Then depress CR (RETURN) to view the new table.
G. Office Code Table Display

While in the Display Menu, depress 7, then depress the CR (RETURN) key. The display at right is shown.

Enter the desired Table number (000-127), then depress CR (RETURN).

Enter the desired office code, then depress CR (RETURN). The status of fifty office codes (including the selected one) is now displayed.

NOTE 1: To change the table or office codes being viewed, use the cursor up key to return to the office code or table number position, where a new table number and/or new office code can be entered. Depress the CR (RETURN) key.

NOTE 2: Depressing the CR (RETURN) key causes the table number to be incremented by one and displays the contents of the new table.

NOTE 3: Using the ESC key returns to the Display Menu.

H. Home NPA Code

While in the Display Menu, depress 8, then depress CR (RETURN). The display to the right is shown.

NOTE: After the home NPA code is viewed, the only option available is to depress the ESC key and CR (RETURN) to return to the Display Menu.
6. Print Out Mode
The option of obtaining a hard copy of the table data is made available using the PRINT OUT Menu selected from LCR Main Menu. The data printed out is the information presently stored on the floppy disk. The following steps allow the programmer to obtain a print out of any table data.

With the LCR Main Menu in the display, depress 6, then depress CR (RETURN). The display shown is provided:

```
**PRINT OUT***
1 AREA CODE TABLE  6 EXTRA CODE TABLE
2 WEEKLY SCHEDULE  7 OFFICE CODE TABLE
3 DAILY SCHEDULE  8 HOME NPA CODE
4 ROUTE ADVANCE
5 ROUTE TABLE
ENTER MENU NO. [7
```

Select the number of the desired table, then depress CR (RETURN). The example shows the display provided if option 1 (Area Code) is selected.

If 7 (OFFICE CODE TABLE) is selected, two additional steps are required.

With the PRINT OUT MODE in the display, depress 7, then CR (RETURN). The display to the right is provided.

- Input the starting table number and CR (RETURN).
- Input the end table number and CR (RETURN).

**NOTE 1:** The display is an example of area code data being printed out from the floppy disk. The blocked off area is replaced with the name of the table chosen, but otherwise looks the same for all other selections.

**NOTE 2:** Depress CR (RETURN) to go back to the Print Out display.

If no problems are encountered during the printout process, the display to the right is shown.

```
**OFFICE CODE TABLE PRINT***
TABLE NO. FROM [5
```

```
**OFFICE CODE TABLE PRINT***
TABLE NO. FROM 100
TO [5
```

```
HOME NPA CODE  TABLE PRINT OUT START
NORMAL END [5
```
If a problem is encountered during the printout process, the display to the right is shown.

NOTE 1: In the example, the blocked off area is replaced with the name of the table selected.

NOTE 2: Refer to the table of errors (elsewhere in this chapter) for further guidance if a problem is encountered.

NOTE 3: Using the ESC key returns the display to the LCR Main Menu from the Print Out Menu.

7. System Data Clear

When major changes to the floppy disk data are required, the option is provided at the LCR Main Menu to clear out data on a table basis. The following steps provide the procedures for using this option.

With the LCR Main Menu displayed, depress 7, then depress CR (RETURN). An example of the display is shown to the right.

Enter the number of the table to be cleared and depress CR (RETURN). The example shows the display for selection 1 (area code table clear).

If no problems are encountered during the clearing process, the display shown to the right is provided.

If a problem is encountered during the clearing process, the display to the right is shown.

Depress the CR (RETURN) key to go back to the System Data Clear Menu.
NOTE 1: The displays shown are typical of what may be seen during the clearing process. The blocked off area is replaced with the name of the selected table name. Due to the large memory used in the office code table, when it is cleared the display will show darkened cursor blocks to indicate the progress of the clearing process.

NOTE 2: At the end of the clearing process, depress CR (RETURN) to get back to the System Data Clear Menu.

NOTE 3: Refer to the table of errors (elsewhere in this chapter) for further guidance if a problem is encountered.

8. System Control Mode

The LCR Main Menu provides an option to restart the LCR-E ETU. This option is made available to allow resetting the LCR-E ETU without affecting the rest of the system (in other words a CPU-E( ) reset is not necessary to reset the LCR-E ETU). Under normal conditions this option is not used.

To use this option the following procedure is required.

With the LCR Main Menu in the display, enter 10, then depress RETURN. The display shown is provided.

If no problem is encountered during the restarting process, the display shown is provided.

If a problem is encountered during the restarting process, the display shown is provided.

NOTE 1: After the restarting process is completed, depress CR (RETURN) to get back to the LCR Main Menu.

SAMPLE LCD INDICATIONS

PHASE EXECUTING

PHASE EXECUTING
NORMAL END

PHASE EXECUTING
ABNORMAL END
LINE TROUBLE

700 - 56
750.10 ERROR MESSAGES
This section is provided to assist the programmer in understanding the possible error indications provided by the LCR support equipment.

This section is divided into two parts. The first part provides an example of each error display. The second part is a table that provides the following:

a. Listing of error.
b. Reason for error.
c. Possible solution(s) for each error.
d. The Command Mode during which the error may occur.

750.10.1 PC-8300 and Associated Equipment Troubles

1. Line trouble
When the line (connection) to the LCR-E ETU is faulty, a display similar to the one shown will be provided:

   AREA CODE TABLE DOWN LOAD START
   ABNORMAL END
   LINE TROUBLE   ➯

2. Floppy Disk I/O Error
When the computer cannot communicate properly with the Disk Drive Unit, a display similar to the one shown is provided:

   SYSTEM DATA SAVING
   FDD I/O ERROR   ➯

3. Printer Output Error
When the printer does not indicate to the computer that it is ready to receive data, a display similar to the one shown is provided:

   EXTRA CODE TABLE PRINT OUT START
   ABNORMAL END
   PRINTER NOT READY   ➯

750.10.2 LCR-E ETU Status Indications

1. LCR Restart
Should the LCR-E ETU restart during a transfer of data between the computer and the LCR-E ETU (other than during a System Control command), a display similar to the one shown is provided:

   AREA CODE TABLE DOWN LOAD START
   ABNORMAL END
   LCR RESTARTED   ➯
2. Insufficient Data
When this program is transferred from the LCR-E ETU to the computer and an LCR program was created (which does not produce enough information to allow Call Routing), a display, similar to the one to the right, is shown.

3. Electra Mark II Not Ready
If the computer is unable to communicate with the LCR-E ETU, a display similar to the one at the right is shown.

NOTE: During the input of data or commands, if an invalid input is keyed into the computer, it will generate a beep tone to indicate an invalid command or data was entered.

### SAMPLE LCD INDICATIONS

<table>
<thead>
<tr>
<th>Route Advance Table Down Load Start</th>
<th>Abnormal End</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sys Data Incomplete</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area Code Table Down Load Start</th>
<th>Abnormal End</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key Sys Not Ready</td>
<td></td>
</tr>
</tbody>
</table>

### ERROR | REASON | POSSIBLE SOLUTION | COMMAND MODE |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Line Trouble</td>
<td>LCR-E ETU and computer Disk Drive not communicating properly</td>
<td>Check RS-232C cable. Verify cable connections. Ensure LCR-E ETU Busyout switch is ON</td>
<td>Down Load Up Load Verify System Control</td>
</tr>
<tr>
<td>FDD I/O Error</td>
<td>Computer and Disk Drive not communicating properly</td>
<td>Check cable between computer and Disk Drive. Check power on Disk Drive. Check for properly inserted diskette. Check that diskette write protect tab is set properly.</td>
<td>All commands except System Control</td>
</tr>
<tr>
<td>Printer Not Ready</td>
<td>Computer cannot communicate with printer</td>
<td>Check connections to printer. Check printer power. Check that printer is ON LINE. Check paper feed.</td>
<td>Print Out</td>
</tr>
<tr>
<td>LCR Restarted</td>
<td>LCR-E restart during command associated with LCR-E</td>
<td>Check baud rate on COM Port and LCR-E card. Replace LCR-E.</td>
<td>Down Load Up Load Verify System Control</td>
</tr>
<tr>
<td>System Data Incomplete</td>
<td>Insufficient Data received from LCR-E</td>
<td>Check LCR program. Down Load all Tables. Replace LCR-E</td>
<td>Down Load</td>
</tr>
<tr>
<td>Key System Not Ready</td>
<td>Invalid data or no data from LCR-E</td>
<td>Check LCR-E switch settings. If settings are correct, replace LCR-E.</td>
<td>Down Load</td>
</tr>
<tr>
<td>Beep Tone</td>
<td>Invalid input keyed in.</td>
<td>Check cursor position to determine required input and enter valid entry.</td>
<td>All command modes</td>
</tr>
</tbody>
</table>
NOTE: Normal operation indicates that a trunk will be accessed from the 9 Access Code Group.
DIRECT DIAL AREA

1st DIGIT

0 1

DISCONNECT

NORMAL OPERATION (NO LCR)

2nd DIGIT?

2-9

ALLOW 3rd DIGIT

0/1

LOCAL CALL OVERRIDES LCR?

M.B. 286 L.1 ON

M.B. 286 L.1 OFF

NORMAL OPERATION NO LCR

WAS N11 DIALED?

YES

NO

LCR - TOLL CALL N 0/1 X + NXX + XXXX

GO TO 1

LCR - LOCAL CALL NNX + XXXX

GO TO 2

NORMAL OPERATION NO LCR

N = 2-9
X = 0-9; Any Digit

Note: N11 calls cannot be routed through LCR (e.g.: 411 & 911).
NORMAL OPERATION (NO LCR)

ALLOW NEXT 2 DIGITS

1st DIGIT

1

2-9

0

NORMAL OPERATION (NO LCR)

ALLOW NEXT 2 DIGITS

3rd DIGIT

0/1

2-9

ALLOW 1 MORE DIGIT

DO 2nd-4th DIGITS EQUAL N11?

NO

NORMAL OPERATION 1 + N11 CALL NO LCR

YES

NORMAL OPERATION LOCAL/TOLL CALL NO LCR

LOCAL CALL OVERRIDES LCR?

NO

M.B. 286 L.1 ON

YES

M.B. 286 L.1 OFF

NORMAL OPERATION NO LCR

LCR - TOLL CALL 1 + N 0/1 X + NNX + XXXX

GO TO 1

LCR - LOCAL/TOLL CALL 1 + NNX + XXXX

GO TO 2

LCR - LOCAL CALL NNX + XXXX

GO TO 2

X = 0-9; Any Digit
N = 2-9

Note: N11 calls cannot be routed through LCR (e.g.: 411 & 911).
1. ADD HOME NPA
2. RECEIVE 3-DIGIT AREA CODE
   - CHECK AREA CODE TABLE ASSIGNMENT
     - NOT ASSIGNED
       - NORMAL OPERATION (AFTER DIALING 6 DIGITS)
     - ROUTE ADVANCE TABLE ASSIGNMENT
       - ROUTE TABLE ASSIGNMENT
         - CHECK ROUTE TABLE ASSIGNMENT
           - NOT ASSIGNED
             - REORDER TONE (AFTER DIALING 6 DIGITS)
           - ASSIGNED
             - WHAT IS SERVICE AREA CHECK ASSIGNMENT
               - CHECK
                 - RECEIVE NEXT 3 DIGITS
                   - CHECK OFFICE CODE TABLE ASSIGNMENT
                     - 0 = NO SERVICE AVAILABLE
         - REORDER TONE (AFTER DIALING 6 DIGITS)
   - WEEKLY TABLE ASSIGNMENT
     - NOT ASSIGNED
       - ROUTE ADVANCE TABLE ASSIGNMENT
         - DAILY TABLE ASSIGNMENT
           - NOT ASSIGNED
             - REORDER TONE (AFTER DIALING 6 DIGITS)
     - ROUTE TABLE ASSIGNMENT
       - GET TABLE NUMBER OF 1ST PRIORITY
         - CHECK ROUTE TABLE ASSIGNMENT
           - NOT ASSIGNED
             - REORDER TONE (AFTER DIALING 6 DIGITS)
           - ASSIGNED
             - WHAT IS SERVICE AREA CHECK ASSIGNMENT
               - CHECK
                 - RECEIVE NEXT 3 DIGITS
                   - CHECK OFFICE CODE TABLE ASSIGNMENT
                     - 0 = NO SERVICE AVAILABLE
   - NOT REORDER TONE (AFTER DIALING 6 DIGITS)
     - NOT REORDER TONE (AFTER DIALING 6 DIGITS)
   - ROUTE TABLE ASSIGNMENT
     - DELETE PREFIX

3. B
3

WHAT IS PREFIX ADD/CHECK ASSIGNMENT

ADD 1 IN FRONT OF NUMBER TO BE DIALED

DO NOT ADD 1 (PREFIX DO NOT ADD)

CHECK OFFICE CODE TABLE ASSIGNMENT

ADD EXTRA CODE ADD ASSIGNMENT

DO NOT ADD

ADD 1 IN FRONT OF NUMBER TO BE DIALED

WHAT IS AREA CODE DELETE ASSIGNMENT

DELETE AREA CODE FROM NUMBER DIALED

DELETE

GET TRUNK ACCESS FROM ROUTE TABLE

SEND TRUNK ACCESS CODE AND NUMBER DIALED TO CPU

IS TRUNK AVAILABLE FOR USE

NO

YES

DIAL NUMBER

4

CHECK NEXT PRIORITY ROUTE IN ROUTE INVENTORY

NONE

NEXT PRIORITY AVAILABLE

REORDER TONF (AFTER DIALING 6 DIGITS)

INCREMENT PRIORITY COUNTER BY 1
## AREA CODE TABLES

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>ENTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenant Number</td>
<td>1 ~ 3</td>
</tr>
<tr>
<td>Area Code</td>
<td>2X0 ~ 9X9</td>
</tr>
<tr>
<td></td>
<td>X = 0 or 1</td>
</tr>
<tr>
<td>Table Name (Route Advance or Weekly Assignment)</td>
<td>R (Route Advance)</td>
</tr>
<tr>
<td>Table Number Assignment</td>
<td>00 ~ 63</td>
</tr>
<tr>
<td>AREA CODE TABLES</td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td></td>
</tr>
<tr>
<td>TABLE 1</td>
<td></td>
</tr>
<tr>
<td>TABLE 2</td>
<td></td>
</tr>
<tr>
<td>TABLE 3</td>
<td></td>
</tr>
<tr>
<td>TABLE 4</td>
<td></td>
</tr>
<tr>
<td>TABLE 5</td>
<td></td>
</tr>
<tr>
<td>TABLE 6</td>
<td></td>
</tr>
<tr>
<td>TABLE 7</td>
<td></td>
</tr>
<tr>
<td>TABLE 8</td>
<td></td>
</tr>
<tr>
<td>TABLE 9</td>
<td></td>
</tr>
<tr>
<td>TABLE 10</td>
<td></td>
</tr>
<tr>
<td>TABLE 11</td>
<td></td>
</tr>
<tr>
<td>TABLE 12</td>
<td></td>
</tr>
<tr>
<td>TABLE 13</td>
<td></td>
</tr>
<tr>
<td>TABLE 14</td>
<td></td>
</tr>
<tr>
<td>TABLE 15</td>
<td></td>
</tr>
<tr>
<td>TABLE 16</td>
<td></td>
</tr>
<tr>
<td>TABLE 17</td>
<td></td>
</tr>
<tr>
<td>TABLE 18</td>
<td></td>
</tr>
<tr>
<td>TABLE 19</td>
<td></td>
</tr>
<tr>
<td>TABLE 20</td>
<td></td>
</tr>
<tr>
<td>TABLE 21</td>
<td></td>
</tr>
<tr>
<td>TABLE 22</td>
<td></td>
</tr>
<tr>
<td>TABLE 23</td>
<td></td>
</tr>
<tr>
<td>TABLE 24</td>
<td></td>
</tr>
<tr>
<td>TABLE 25</td>
<td></td>
</tr>
<tr>
<td>TABLE 26</td>
<td></td>
</tr>
<tr>
<td>TABLE 27</td>
<td></td>
</tr>
<tr>
<td>TABLE 28</td>
<td></td>
</tr>
<tr>
<td>TABLE 29</td>
<td></td>
</tr>
<tr>
<td>TABLE 30</td>
<td></td>
</tr>
<tr>
<td>TABLE 31</td>
<td></td>
</tr>
<tr>
<td>TABLE 32</td>
<td></td>
</tr>
<tr>
<td>TABLE 33</td>
<td></td>
</tr>
<tr>
<td>TABLE 34</td>
<td></td>
</tr>
<tr>
<td>TABLE 35</td>
<td></td>
</tr>
<tr>
<td>TABLE 36</td>
<td></td>
</tr>
<tr>
<td>TABLE 37</td>
<td></td>
</tr>
<tr>
<td>TABLE 38</td>
<td></td>
</tr>
<tr>
<td>TABLE 39</td>
<td></td>
</tr>
<tr>
<td>TABLE 40</td>
<td></td>
</tr>
<tr>
<td>TABLE 41</td>
<td></td>
</tr>
<tr>
<td>TABLE 42</td>
<td></td>
</tr>
<tr>
<td>TABLE 43</td>
<td></td>
</tr>
<tr>
<td>TABLE 44</td>
<td></td>
</tr>
<tr>
<td>TABLE 45</td>
<td></td>
</tr>
<tr>
<td>TABLE 46</td>
<td></td>
</tr>
<tr>
<td>TABLE 47</td>
<td></td>
</tr>
<tr>
<td>TABLE 48</td>
<td></td>
</tr>
<tr>
<td>TABLE 49</td>
<td></td>
</tr>
<tr>
<td>TABLE 50</td>
<td></td>
</tr>
<tr>
<td>TABLE 51</td>
<td></td>
</tr>
<tr>
<td>TABLE 52</td>
<td></td>
</tr>
<tr>
<td>TABLE 53</td>
<td></td>
</tr>
<tr>
<td>TABLE 54</td>
<td></td>
</tr>
<tr>
<td>TABLE 55</td>
<td></td>
</tr>
<tr>
<td>TABLE 56</td>
<td></td>
</tr>
<tr>
<td>TABLE 57</td>
<td></td>
</tr>
<tr>
<td>TABLE 58</td>
<td></td>
</tr>
<tr>
<td>TABLE 59</td>
<td></td>
</tr>
<tr>
<td>TABLE 60</td>
<td></td>
</tr>
<tr>
<td>TABLE 61</td>
<td></td>
</tr>
<tr>
<td>TABLE 62</td>
<td></td>
</tr>
<tr>
<td>TABLE 63</td>
<td></td>
</tr>
<tr>
<td>TABLE 64</td>
<td></td>
</tr>
<tr>
<td>TABLE 65</td>
<td></td>
</tr>
<tr>
<td>TABLE 66</td>
<td></td>
</tr>
<tr>
<td>TABLE 67</td>
<td></td>
</tr>
<tr>
<td>TABLE 68</td>
<td></td>
</tr>
<tr>
<td>TABLE 69</td>
<td></td>
</tr>
<tr>
<td>TABLE 70</td>
<td></td>
</tr>
<tr>
<td>TABLE 71</td>
<td></td>
</tr>
<tr>
<td>TABLE 72</td>
<td></td>
</tr>
<tr>
<td>TABLE 73</td>
<td></td>
</tr>
<tr>
<td>TABLE 74</td>
<td></td>
</tr>
<tr>
<td>TABLE 75</td>
<td></td>
</tr>
<tr>
<td>TABLE 76</td>
<td></td>
</tr>
<tr>
<td>TABLE 77</td>
<td></td>
</tr>
<tr>
<td>TABLE 78</td>
<td></td>
</tr>
<tr>
<td>TABLE 79</td>
<td></td>
</tr>
<tr>
<td>TABLE 80</td>
<td></td>
</tr>
<tr>
<td>TABLE 81</td>
<td></td>
</tr>
<tr>
<td>TABLE 82</td>
<td></td>
</tr>
<tr>
<td>TABLE 83</td>
<td></td>
</tr>
<tr>
<td>TABLE 84</td>
<td></td>
</tr>
<tr>
<td>TABLE 85</td>
<td></td>
</tr>
<tr>
<td>TABLE 86</td>
<td></td>
</tr>
<tr>
<td>TABLE 87</td>
<td></td>
</tr>
<tr>
<td>TABLE 88</td>
<td></td>
</tr>
<tr>
<td>TABLE 89</td>
<td></td>
</tr>
<tr>
<td>TABLE 90</td>
<td></td>
</tr>
<tr>
<td>TABLE 91</td>
<td></td>
</tr>
<tr>
<td>TABLE 92</td>
<td></td>
</tr>
<tr>
<td>TABLE 93</td>
<td></td>
</tr>
<tr>
<td>TABLE 94</td>
<td></td>
</tr>
<tr>
<td>TABLE 95</td>
<td></td>
</tr>
<tr>
<td>TABLE 96</td>
<td></td>
</tr>
<tr>
<td>TABLE 97</td>
<td></td>
</tr>
<tr>
<td>TABLE 98</td>
<td></td>
</tr>
<tr>
<td>TABLE 99</td>
<td></td>
</tr>
<tr>
<td>TABLE 100</td>
<td></td>
</tr>
<tr>
<td>TABLE 101</td>
<td></td>
</tr>
<tr>
<td>TABLE 102</td>
<td></td>
</tr>
<tr>
<td>TABLE 103</td>
<td></td>
</tr>
<tr>
<td>TABLE 104</td>
<td></td>
</tr>
<tr>
<td>TABLE 105</td>
<td></td>
</tr>
<tr>
<td>TABLE 106</td>
<td></td>
</tr>
<tr>
<td>TABLE 107</td>
<td></td>
</tr>
<tr>
<td>TABLE 108</td>
<td></td>
</tr>
<tr>
<td>TABLE 109</td>
<td></td>
</tr>
<tr>
<td>TABLE 110</td>
<td></td>
</tr>
<tr>
<td>TABLE 111</td>
<td></td>
</tr>
<tr>
<td>TABLE 112</td>
<td></td>
</tr>
<tr>
<td>TABLE 113</td>
<td></td>
</tr>
<tr>
<td>TABLE 114</td>
<td></td>
</tr>
<tr>
<td>TABLE 115</td>
<td></td>
</tr>
<tr>
<td>TABLE 116</td>
<td></td>
</tr>
<tr>
<td>TABLE 117</td>
<td></td>
</tr>
<tr>
<td>TABLE 118</td>
<td></td>
</tr>
<tr>
<td>TABLE 119</td>
<td></td>
</tr>
<tr>
<td>TABLE 120</td>
<td></td>
</tr>
<tr>
<td>TABLE 121</td>
<td></td>
</tr>
<tr>
<td>TABLE 122</td>
<td></td>
</tr>
<tr>
<td>TABLE 123</td>
<td></td>
</tr>
<tr>
<td>TABLE 124</td>
<td></td>
</tr>
<tr>
<td>TABLE 125</td>
<td></td>
</tr>
<tr>
<td>TABLE 126</td>
<td></td>
</tr>
<tr>
<td>TABLE 127</td>
<td></td>
</tr>
<tr>
<td>TABLE 128</td>
<td></td>
</tr>
<tr>
<td>TABLE 129</td>
<td></td>
</tr>
<tr>
<td>TABLE 130</td>
<td></td>
</tr>
<tr>
<td>TABLE 131</td>
<td></td>
</tr>
<tr>
<td>TABLE 132</td>
<td></td>
</tr>
<tr>
<td>TABLE 133</td>
<td></td>
</tr>
<tr>
<td>TABLE 134</td>
<td></td>
</tr>
<tr>
<td>TABLE 135</td>
<td></td>
</tr>
<tr>
<td>TABLE 136</td>
<td></td>
</tr>
<tr>
<td>TABLE 137</td>
<td></td>
</tr>
<tr>
<td>TABLE 138</td>
<td></td>
</tr>
<tr>
<td>TABLE 139</td>
<td></td>
</tr>
<tr>
<td>TABLE 140</td>
<td></td>
</tr>
<tr>
<td>TABLE 141</td>
<td></td>
</tr>
<tr>
<td>TABLE 142</td>
<td></td>
</tr>
<tr>
<td>TABLE 143</td>
<td></td>
</tr>
<tr>
<td>TABLE 144</td>
<td></td>
</tr>
<tr>
<td>TABLE 145</td>
<td></td>
</tr>
<tr>
<td>TABLE 146</td>
<td></td>
</tr>
<tr>
<td>TABLE 147</td>
<td></td>
</tr>
<tr>
<td>TABLE 148</td>
<td></td>
</tr>
<tr>
<td>TABLE 149</td>
<td></td>
</tr>
<tr>
<td>TABLE 150</td>
<td></td>
</tr>
<tr>
<td>TABLE 151</td>
<td></td>
</tr>
<tr>
<td>TABLE 152</td>
<td></td>
</tr>
<tr>
<td>TABLE 153</td>
<td></td>
</tr>
<tr>
<td>TABLE 154</td>
<td></td>
</tr>
<tr>
<td>TABLE 155</td>
<td></td>
</tr>
<tr>
<td>TABLE 156</td>
<td></td>
</tr>
<tr>
<td>TABLE 157</td>
<td></td>
</tr>
<tr>
<td>TABLE 158</td>
<td></td>
</tr>
<tr>
<td>TABLE 159</td>
<td></td>
</tr>
<tr>
<td>TABLE 160</td>
<td></td>
</tr>
<tr>
<td>TABLE 161</td>
<td></td>
</tr>
<tr>
<td>TABLE 162</td>
<td></td>
</tr>
<tr>
<td>TABLE 163</td>
<td></td>
</tr>
<tr>
<td>TABLE 164</td>
<td></td>
</tr>
<tr>
<td>TABLE 165</td>
<td></td>
</tr>
<tr>
<td>TABLE 166</td>
<td></td>
</tr>
<tr>
<td>TABLE 167</td>
<td></td>
</tr>
<tr>
<td>TABLE 168</td>
<td></td>
</tr>
<tr>
<td>TABLE 169</td>
<td></td>
</tr>
<tr>
<td>TABLE 170</td>
<td></td>
</tr>
<tr>
<td>TABLE 171</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**AREA CODE TABLES**
<table>
<thead>
<tr>
<th>Code</th>
<th>Area Code</th>
<th>Tenant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### WEEKLY SCHEDULE TABLES

**DESCRIPTION**

#### Weekly Schedule Table

- **Number Being Assigned**

<table>
<thead>
<tr>
<th>TABLE NUMBER</th>
<th>SUN</th>
<th>MON</th>
<th>TUE</th>
<th>WED</th>
<th>THU</th>
<th>FRI</th>
<th>SAT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ENTRY**

00 ~ 63

#### Day Being Assigned (Entry of Daily Schedule Table Number)

<table>
<thead>
<tr>
<th>TABLE NUMBER</th>
<th>SUN</th>
<th>MON</th>
<th>TUE</th>
<th>WED</th>
<th>THU</th>
<th>FRI</th>
<th>SAT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ENTRY**

00 ~ 63
### WEEKLY SCHEDULE TABLES

<table>
<thead>
<tr>
<th>TABLE NUMBER</th>
<th>SUN</th>
<th>MON</th>
<th>TUE</th>
<th>WED</th>
<th>THU</th>
<th>FRI</th>
<th>SAT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TABLE NUMBER</th>
<th>SUN</th>
<th>MON</th>
<th>TUE</th>
<th>WED</th>
<th>THU</th>
<th>FRI</th>
<th>SAT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TABLE NUMBER</th>
<th>SUN</th>
<th>MON</th>
<th>TUE</th>
<th>WED</th>
<th>THU</th>
<th>FRI</th>
<th>SAT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Daily Schedule Table

<table>
<thead>
<tr>
<th>Description</th>
<th>Entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Schedule Table</td>
<td>00 - 63</td>
</tr>
<tr>
<td>Number Being Assigned</td>
<td></td>
</tr>
<tr>
<td>Hourly Assignment (Entry of Route Advance Table)</td>
<td>00 - 63</td>
</tr>
</tbody>
</table>

The table represents a schedule with entries for each hour from 00 to 05, with shaded cells indicating assigned times. The diagram visualizes the schedule with rows for different times and columns for each slot, with the shaded cells marking the assigned times.
## ROUTE ADVANCE TABLES

### DESCRIPTION

<table>
<thead>
<tr>
<th>TABLE NUMBER</th>
<th>1st ROUTE</th>
<th>2nd ROUTE</th>
<th>3rd ROUTE</th>
<th>4th ROUTE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Route Advance Table
Number Being Assigned

<table>
<thead>
<tr>
<th>TABLE NUMBER</th>
<th>1st ROUTE</th>
<th>2nd ROUTE</th>
<th>3rd ROUTE</th>
<th>4th ROUTE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Route Advance Priority Assignments
(Assigned Route Tables)

<table>
<thead>
<tr>
<th>TABLE NUMBER</th>
<th>1st ROUTE</th>
<th>2nd ROUTE</th>
<th>3rd ROUTE</th>
<th>4th ROUTE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

00 ~ 33

000 ~ 255
## ROUTE ADVANCE TABLES

<table>
<thead>
<tr>
<th>TABLE NUMBER</th>
<th>1st. ROUTE</th>
<th>2nd. ROUTE</th>
<th>3rd. ROUTE</th>
<th>4th. ROUTE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TABLE NUMBER</th>
<th>1st. ROUTE</th>
<th>2nd. ROUTE</th>
<th>3rd. ROUTE</th>
<th>4th. ROUTE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TABLE NUMBER</th>
<th>1st. ROUTE</th>
<th>2nd. ROUTE</th>
<th>3rd. ROUTE</th>
<th>4th. ROUTE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TABLE NUMBER</th>
<th>1st. ROUTE</th>
<th>2nd. ROUTE</th>
<th>3rd. ROUTE</th>
<th>4th. ROUTE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ROUTE TABLES

DESCRIPTION

ROUTE TABLE NUMBER BEING ASSIGNED

TRUNK ACCESS CODE NUMBER BEING ASSIGNED TO THE ROUTE TABLE

AREA CODE DELETE

EXTRA CODE DIGITS (ADD OR DO NOT ADD)

PREFIX ADD/CHECK:
   a. If adding prefix 1 regardless of office code
   b. If no prefix 1 is to be added
   c. If adding prefix 1 to number dialed, based on office code

WHEN DIALING EXTRA CODE DIGITS, WHICH EXTRA CODE TABLE?

OFFICE CODE TABLE ASSIGNMENT FOR PREFIX 1 CHECK

OFFICE CODE TABLE ASSIGNMENT FOR SERVICE AREA CHECK

SERVICE AREA CHECK:
   a. If no service area check is required
   b. If service area check is required, based on office code

ENTRY

000 ~ 255

01 ~ 08

Del = Delete
No = Do Not Delete

Add = Yes
No = Do Not Add

Add, No, or Check
Add
No
Check

00 ~ 15

000 ~ 127

000 ~ 127

No or Check
No
Check
<table>
<thead>
<tr>
<th>ROUTE TABLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>TABLE NUMBER</td>
</tr>
<tr>
<td>TABLE NUMBER</td>
</tr>
<tr>
<td>TABLE NUMBER</td>
</tr>
<tr>
<td>TABLE NUMBER</td>
</tr>
<tr>
<td>TABLE NUMBER</td>
</tr>
<tr>
<td>TABLE NUMBER</td>
</tr>
<tr>
<td>TABLE NUMBER</td>
</tr>
<tr>
<td>TABLE NUMBER</td>
</tr>
</tbody>
</table>
OFFICE CODE TABLES

DESCRIPTION

<table>
<thead>
<tr>
<th>ENTRY</th>
<th>0 or 1</th>
</tr>
</thead>
</table>

In this area enter the designation flag for prefix check or service area check.

For prefix check:
0 = Add prefix 1
1 = Do not add prefix 1

For service area check:
0 = No service available
1 = Service available
**EXTRA CODE TABLES AND HOME NPA**

**ENTRY**

00 ~ 15

**DESCRIPTION**

In this column is entered the table number being assigned.

**DIGITS TO**

Any digit 0 ~ 9 plus 
P (Pause), * and #.

(Maximum of 24 digits)

**Local area code**

**The Home Numbering Plan Area Code**

**The Home Numbering Plan Area Code**

**TABLE NUMBER**

**DIGITS TO**

**TABLE NUMBER**

5

**HOME NPA CODE**

700 - 78
<table>
<thead>
<tr>
<th>TABLE NUMBER</th>
<th>DIGITS TO BE DIALED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>24</td>
<td>24</td>
</tr>
</tbody>
</table>

HOME NPA CODE
CHAPTER 8

VOICE MAIL INTEGRATION
CHAPTER 8
VOICE MAIL INTEGRATION

TABLE OF CONTENTS

SECTION DESCRIPTION PAGE
810 GENERAL 800-1
820 SPECIFICATIONS
820.1 General Information 800-1
820.2 Signaling Parameters 800-1
820.3 Additional Functions 800-1
820.4 Hardware Requirements 800-2
820.5 Hardware Installation 800-2
830 PROGRAMMING
830.1 Required Programming 800-2
830.2 Recommended Programming 800-2

SECTION 810
GENERAL

The Voice Mail Interface ETU (VMI-E) provides the Electra MarkII Digital Telephone System with the ability to support selected Voice Mail and/or dictation equipment, or Single Line Telephones. The types of equipment and the methods of connection will determine the level of integration.

The VMI-E ETU will support (when used with Voice Mail equipment that provides the following features):

a. Internal access to a Voice Mail system via Hunt Group.
b. In Band Message Waiting Indications (Set and Cancel).
c. Direct access to the Voice Mail system by an outside party.
d. Call placement by the Voice Mail System.
e. DTMF controlled dial dictation equipment.
f. Single Line Telephones.
g. ModemS.

SECTION 820
SPECIFICATIONS

820.1 GENERAL INFORMATION

The VMI-E ETU provides four discrete, two way communications channels that are used for interfacing a Voice Mail system, dictation equipment, Single Line Telephones, or modems. Each VMI-E ETU channel is equipped with a DTMF generating circuit which sends DTMF signaling to the equipment. DTMF signaling allows telephones in the system to communicate with the Voice Mail or dictation equipment via dial pad.

820.2 SIGNALING PARAMETERS

Signal timing parameters are assigned to the VMI-E ETU channels via programming of the Electra MarkII system.

NOTE: Dial Pulse (Rotary) Signaling is not supported by the VMI-E ETU.

820.3 ADDITIONAL FUNCTIONS

In addition to voice path and signaling functions, the VMI-E ETU provides ringing signal control and a path to the MFR-EA ETU. This allows certain Voice Mail equipment to dial internally for Voice Message delivery (call placement), access outside lines, and the setting and cancelling of Message Waiting indication using in-band DTMF signaling.

If an incoming DIT call is forwarded to a VMI-E channel, the original extension number can be automatically sent to the VMI-E ETU channel using in-bound DTMF signaling after the Voice Mail Equipment answers the call. This additional function is a programmable option. (CPU-EB3 ETU or higher revision level is required.)

NOTE 1: The VMI-E ETU is designed to pass access codes from the Voice Mail Equipment, for handling Voice Message Waiting Indications.

NOTE 2: The Voice Mail system must be capable of providing 2 different access codes, followed by the extension number of the associated station. One code is used to set the Message Waiting indication, while the second code is used to cancel it.

NOTE 3: Default Voice Mail Message Waiting access codes are 541xxx to set and 545xxx to cancel (xxx is an extension number) a Message Waiting indication.
820.4 HARDWARE REQUIREMENTS

Connection of a Voice Mail system, dictation equipment, SLTs, or modems to the Electra Mark11 System requires a VMI-E ETU and an RSG-E Unit that supports the CCU in which the VMI-E ETU is installed.

If the Voice Mail equipment to be connected provides call placement and/or in-band message wait signaling capability, an MFR-EA ETU is also required.

The RSG-E Unit and the MFR-EA ETU may be shared with single line telephones and other devices installed in the system.

One VMI-E ETU can be installed in any interface slot.

NOTE: Two VMI-E ETUs can be installed in a system that has a CPU-EC4 (or higher revision level) ETU.

820.5 HARDWARE INSTALLATION

Refer to Chapter 2 of this manual for information regarding hardware installation.

SECTION 830 PROGRAMMING

830.1 REQUIRED PROGRAMMING

Memory Blocks 4B8 and 4B9 are used to assign signal timing parameters to each pair of channels of the VMI-E ETUs.

Refer to the specifications of the Voice Mail or dictation equipment being connected to determine any changes necessary for proper operation. Chapter 6 of this manual (Engineering Technical Information (ETIs) bulletins) are issued to assist in the connection of specific equipment.

Memory Block 4C1 - CARD INTERFACE SLOT ASSIGNMENT, can be used to assign the VMI-E ETU to the appropriate CCU interface slot.

When installing a VMI-E ETU in a vacant interface slot that has not been previously assigned, no additional programming of this memory block is required. However, if a VMI-E ETU is added to an existing system, and the interface slot was previously occupied by a different type ETU, it is necessary to reassign the CCU interface slot, using this memory block, after the VMI-E ETU has been installed.

830.2 RECOMMENDED PROGRAMMING

Memory Block 1C3 - DSS/BLF BUTTON ASSIGNMENT. It is recommended that VMI-E ETU extension appearances be programmed into the attendant’s DSS/BLF to permit easy access for calls and transfers to the Voice Mail or dictation equipment.

NOTE: Before programming Memory Block 1C3, Memory Block 1C1 - DSS/BLF to Attendant Assignment should already be programmed. Any change made to this memory block will erase any previous assignments made in Memory Block 1C3, and will have to be reentered.

Memory Block 2B4 - DIT ASSIGNMENT can assign specific trunks directly to a specific VMI port, so the Voice Mail system can be accessed directly by an external party. This Memory Block can also be used to assign specific trunks to a specific VMI port when the system is put into the Night Mode (ANA).

Memory Block 2B8 - VMI ASSIGNMENT is used to assign VMI-E ETU channels as Single Line Telephones or Voice Mail ports. In addition, this memory block can be programmed to send or not send automatic in-band DTMF signaling to the Voice Mail system, by corresponding extension numbers of the station number that has been Call Forwarded to that Voice Mail Port.

Memory Block 2C4 - VOICE MAIL HUNT GROUP ASSIGNMENT is used to assign up to four VMI-E ETU extension numbers to the Voice Mail hunt group. After this is done, when the Voice Mail Hunt Group Access Code (Default 63) is dialed internally, the system will hunt for the first Idle extension within the hunt group.

Memory Block 2D2 - SYSTEM TIME BASE ASSIGNMENT II can be used to assign a time delay before the in-band DTMF signaling for VMI forwarded calls are sent.

Memory Block 3C1 - TELEPHONE NAME ASSIGNMENT can be used to name each VMI-E ETU channel. When Message Waiting displays are sent from a Voice Mail system, this name will be included in the Message Display that is sent to a Multiline Terminal with a display (Example: MAIL).

Memory Block 3B5 to 3B8 - STATION HUNT ASSIGNMENT is used to assign station, Virtual, and/or VMI-E ETU extension numbers to a station hunt group. Each station hunt group can be assigned up to sixteen extensions of which eight can be VMI-E ETU extension numbers.
VMI-E ETU Signal Timing Parameters (Memory Blocks 2D2, 4B8 and 4B9)

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>MINIMUM</th>
<th>MAXIMUM</th>
<th>DEFAULT</th>
<th>INCREMENTS</th>
<th>MEMORY BLOCK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voice Mail Automatic Dial Send Start</td>
<td>1 sec.</td>
<td>99 sec.</td>
<td>2 sec.</td>
<td>1 sec.</td>
<td>2D2</td>
</tr>
<tr>
<td>Hookflash Start Time (HFS)</td>
<td>100 mS.</td>
<td>800 mS.</td>
<td>300 mS.</td>
<td>50 mS.</td>
<td>4B8</td>
</tr>
<tr>
<td>Hookflash End Time (HFE)</td>
<td>100 mS.</td>
<td>2200 mS.</td>
<td>1000 mS.</td>
<td>100 mS.</td>
<td>4B8</td>
</tr>
<tr>
<td>Bounce Protection Time (BP)</td>
<td>0 mS.</td>
<td>1400 mS.</td>
<td>300 mS.</td>
<td>100 ms</td>
<td>4B8</td>
</tr>
<tr>
<td>Pause Time</td>
<td>0 mS.</td>
<td>7000 mS.</td>
<td>1000 mS.</td>
<td>500 mS.</td>
<td>4B9</td>
</tr>
<tr>
<td>Disconnect Time</td>
<td>500 mS.</td>
<td>3300 mS.</td>
<td>1500 mS.</td>
<td>200 mS.</td>
<td>4B9</td>
</tr>
<tr>
<td>Interdigit Interval Time</td>
<td>40 mS.</td>
<td>180 mS.</td>
<td>110 mS.</td>
<td>10 mS.</td>
<td>4B9</td>
</tr>
<tr>
<td>DTMF Digit Duration</td>
<td>60 mS.</td>
<td>760 mS.</td>
<td>110 mS.</td>
<td>50 mS.</td>
<td>4B9</td>
</tr>
</tbody>
</table>
CHAPTER 9
REMOTE ADMINISTRATION
ADAPTOR RAA-E
INSTALLATION AND
PROGRAMMING PROCEDURES
# CHAPTER 9
REMOTE ADMINISTRATION ADAPTOR

## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>SECTION DESCRIPTION</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>910 EQUIPMENT DESCRIPTION</td>
<td></td>
</tr>
<tr>
<td>910.1 Remote Administration Adaptor Unit (With Host Disk)</td>
<td>900-1</td>
</tr>
<tr>
<td>910.2 PC-8300 Personal Computer</td>
<td>900-1</td>
</tr>
<tr>
<td>910.3 PC-8231A Micro Floppy Disk Drive</td>
<td>900-2</td>
</tr>
<tr>
<td>910.4 PC-8295A-01 RS232C Cable - Normal</td>
<td>900-2</td>
</tr>
<tr>
<td>910.5 PC-8295A-02 RS232C Cable - Reversed</td>
<td>900-2</td>
</tr>
<tr>
<td>910.6 Modems</td>
<td></td>
</tr>
<tr>
<td>920 RAA-E and MODEM INSTALLATION</td>
<td></td>
</tr>
<tr>
<td>920.1 RAA-E Unit Switch Settings</td>
<td>900-3</td>
</tr>
<tr>
<td>920.2 Wall Mounting the RAA-E Unit</td>
<td>900-4</td>
</tr>
<tr>
<td>920.3 Connecting the RAA-E to the Electra MarkII</td>
<td>900-5</td>
</tr>
<tr>
<td>920.4 Connecting the RAA-E to the Modem</td>
<td>900-5</td>
</tr>
<tr>
<td>920.5 Connecting the Modem to a Line</td>
<td>900-6</td>
</tr>
<tr>
<td>920.6 Grounding the RAA-E and Modem</td>
<td>900-6</td>
</tr>
<tr>
<td>920.7 Modem to Modem Connection</td>
<td>900-6</td>
</tr>
<tr>
<td>930 PC-8300 and PC-8231A INSTALLATION</td>
<td></td>
</tr>
<tr>
<td>930.1 General</td>
<td></td>
</tr>
<tr>
<td>930.2 Program Boot Procedure</td>
<td>900-7</td>
</tr>
<tr>
<td>930.3 Programming via the PC-8300</td>
<td>900-8</td>
</tr>
<tr>
<td>930.4 Programming Example</td>
<td>900-9</td>
</tr>
<tr>
<td>930.5 IBM Type Compatible Version Software</td>
<td>900-12</td>
</tr>
<tr>
<td>930.6 General Programming Notes</td>
<td>900-14</td>
</tr>
<tr>
<td>940 PROGRAMMING</td>
<td></td>
</tr>
<tr>
<td>940.1 General</td>
<td>900-7</td>
</tr>
<tr>
<td>940.2 Program Boot Procedure</td>
<td>900-7</td>
</tr>
<tr>
<td>940.3 Programming via the PC-8300</td>
<td>900-8</td>
</tr>
<tr>
<td>940.4 Programming Example</td>
<td>900-9</td>
</tr>
<tr>
<td>940.5 IBM Type Compatible Version Software</td>
<td>900-12</td>
</tr>
<tr>
<td>940.6 General Programming Notes</td>
<td>900-14</td>
</tr>
<tr>
<td>950 SYSTEM UP/DOWN LOAD</td>
<td></td>
</tr>
<tr>
<td>950.1 General</td>
<td>900-15</td>
</tr>
<tr>
<td>950.2 Equipment Required and Installation</td>
<td>900-15</td>
</tr>
</tbody>
</table>

### SECTION 910
EQUIPMENT DESCRIPTION

#### 910.1 REMOTE ADMINISTRATION ADAPTOR UNIT

The Remote Administration Adaptor Unit (RAA-E) is a compact, self contained unit (7.9 in x 3.9 in x 1.9 in, 200mm x 100mm x 50mm) that allows remote or local programming of the Electra MarkII system by means of a personal computer.

The RAA-E Unit contains an RJ11C modular jack for connection to the Electra MarkII system, and an RS-232C connector for connection to a modem or a PC. It also contains 5 switches for proper interface settings; a green LED to indicate power is available; a hybrid IC card for interfacing with the system; an 8-bit processor; a 16KBYTE ROM IC; and associated circuitry.

The RAA-E Unit requires no external power source. It is powered by the Electra MarkII system via the modular jack connection.

The function of the RAA-E Unit is to translate the Manchester Encoded data (from the ESI-E( ETU) to ASCII signals for use by the PC or modems.

A floppy disk is supplied with the RAA-E Unit. This disk software is written in one of two formats:

A. CP/M-DOS 82 Basic (for use with the NEC PC-8300 or equivalent computer).

OR

B. MS-DOS Basic (for use with the NEC APC IV or equivalent computer).

The CP/M-DOS is available in one disk size, 3.5 inches. The MS DOS is available in one of two disk sizes, 5.25 inches or 3.5 inches.
The CPM-DOS disk contains the Disk Operating System and the RAA Host Program which is listed as file named ADMS.DO.

The MS-DOS disk does not contain a disk operating system; it does contain a Communication Application Program and the RAA Host Program, both listed in a file named COMLINK.

### 910.2 PC-8300 PERSONAL COMPUTER

The PC-8300 is an NEC portable laptop personal computer containing 128K ROM and 64K RAM. It uses an 8085 microprocessor and CMOS components for low power consumption. It comes equipped with an RS-232C serial I/O port and a Centronics parallel printer port. When connected to the RAA-E via modems, the PC-8300 can be used to program the system from a remote location. (See Figure 910-1.)

A PC-8201A (expanded to 64K RAM), IBM PC XT, IBM AT, NEC APCIV, NEC Powermate, Datavue's Sparks Laptop, NEC Multispeed or NEC Prospeed, may be used instead of the PC-8300.

### 910.3 PC-8231A MICRO FLOPPY DISK DRIVE

The PC-8231A is an NEC micro floppy disk drive unit designed to work with NEC's PC-8300 and PC-8201A computers. This disk drive unit uses a single, 3.5 inch single sided, double density, 320K diskette. It is not required when using the IBM compatible computers.

### 910.4 PC-8295A-01 RS-232C CABLE - NORMAL

The NEC PC-8295A-01 cables are standard RS-232C jack-to-jack (male to male) cables used to connect the computer and RAA-E Units to modems. This cable uses pins 1 through 8, 20, and 22.

### 910.5 PC-8295A-02 RS-232C CABLE - REVERSED

The PC-8295A-02 cable is an RS-232C jack-to-jack (male to male) cable which has several wiring reversals as compared to a standard RS-232C cable. This cable is sometimes called a null modem cable. The following leads which are used with the RAA-E are reversed within the cable: 2 and 3; 4 and 5; and 6 and 20. Pins 1 and 7 are not reversed. This cable is used when the RAA-E unit is connected directly to the computer (without a modem). This arrangement can be used to test the RAA-E Unit with the computer or to familiarize oneself with the operation of the computer in conjunction with the RAA-E.

### 910.6 MODEMS

Two modems are required for programming via the Remote Administration Adaptor. The first modem is connected to the RAA-E Unit located at the job site where the system being programmed is located. The second modem is connected to the computer located at the distant location, from which the actual data entry is being made. (See Figure 910-1.)

The modems must be locally provided. They must be asynchronous type modems capable of transmitting/receiving data at 300, 600, 1200 or 2400 baud. Both modems and the RAA must be set at the same baud rate.

The RAA-E Unit uses 8 bit ASCII Protocol with 2 start/stop bits and no parity.

---

Figure 910-1 RAA-E Block Diagram Hook Up & Signal Flow
Refer to the modem instruction manual to set up the different parameters. Some modems use dip switches for set up, and some types need a PC with a terminal emulation program to set these parameters.

**NOTE:** Problems may occur at baud rates higher than 1200 on standard voice grade telephone lines. If a transmission rate of 2400 baud is required, it may be necessary to use data grade lines to ensure the integrity of the data being transmitted between modems.

Figure 910-1 provides an overview of the relationship of equipment used with an RAA-E Unit. After a connection is established, the signal flow at the remote location is from the computer, to the modem and out through the CO. At the Electra MarkII location, the signal comes in from the CO in one of two ways (A): through the COI-E ETU; from there it is transferred or diverted via DIT/ANA into the SLI-E( ) ETU. From the SLI-E( ) ETU; the signal goes through the modem to the RAA-E Unit and to the ESI-E( ) ETU programming port of the Electra MarkII system. Signal flow from the on site location (to a remote location) is in the opposite direction. OR (B): the CO may be connected directly to the modem if so desired.

### SECTION 920
**RAA-E and MODEM INSTALLATION**

#### 920.1 RAA-E Unit SWITCH SETTINGS

The RAA-E Unit has five switches which are used to set up proper interfacing to the modem or computer, and between the RAA-E Unit and the Electra MarkII system. Switch SW1 is located on the front of the RAA-E Unit. Switches SW2-SW5 are accessed by removing the grounding screw located on the rear of the RAA-E Unit and pulling back and up on the RAA-E cover (See Figure 920-1). Reassembly is accomplished by reversing this procedure. Switches perform the following functions:

**NOTE:** If the switch settings are changed for any reason, disconnect and reconnect the modular line cord. This allows the RAA-E Unit to read the new settings. (Table 920-1 shows the switch settings.)

1. **SW1 - Baud Rate Switch** is a bank switch consisting of 4 dip switches accessible from the front panel next to the POWER LED indicator. This switch must be set to the same baud rate as the modem connected to the RAA-E Unit. Only one dip switch should be set to the ON position, the other three must be off. A baud rate setting of 300, 600, 1200, or 2400 can be obtained by turning on the corresponding dip switch.

2. **SW2 - Direct/Modem Switch** is used to tell the processor in the RAA-E Unit that it is connected directly to the computer (DIRECT position) or to a modem (MODEM position).

3. **SW3 - RAA/16LK Switch** tells the RAA-E Unit how to configure itself to translate the information being received from the system and being sent to the system. This switch should be set to the RAA position. The 16LK position is reserved for future use.
Table 920-1 RAA-E Switch Setting

<table>
<thead>
<tr>
<th>SWITCH NUMBER</th>
<th>SWITCH NAME</th>
<th>FIGURE</th>
<th>DEFAULT VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Baud Rate</td>
<td></td>
<td>300 Baud</td>
</tr>
<tr>
<td>2</td>
<td>Modem</td>
<td></td>
<td>Direct</td>
</tr>
<tr>
<td>3</td>
<td>Type Request</td>
<td></td>
<td>16LK</td>
</tr>
<tr>
<td>4</td>
<td>System Select</td>
<td></td>
<td>MKII</td>
</tr>
<tr>
<td>5</td>
<td>Software Version</td>
<td></td>
<td>Low</td>
</tr>
</tbody>
</table>

4. SW4 - IMS/MKII Switch tells the RAA-E Unit the type of system to which it is connected: Electra IMS or Electra MarkII. Set the switch to the MKII position.

5. SW5 - High/Low Switch. When using the PC 8300, this switch should always be set at High. For IBM PC's set the switch for Low, only when using RAA Unit Disk (COMLINK) V2.0 or higher with RAA-Unit Revision 2A or higher. All other IBM PC setups should use the High SW5 setting.

920.2 WALL MOUNTING the RAA-E Unit
When wall mounting the RAA-E Unit, the site selected should meet the following conditions:

1. High enough off the floor to prevent damage due to flooding.
2. Away from water pipes to prevent damage due to leaks or condensation.
3. An area free of corrosive or flammable gasses, excessive chemical or industrial dust, and other materials which could be a hazard to personnel or equipment.
4. Away from strong electric and/or magnetic fields, heavy motors, radio transmission, etc.
5. An ambient temperature of +50°F to +90°F (10°C to 32°C) and 10% to 90% relative, non-condensing humidity.

6. Mounted on the systems MDF, or an adjacent backboard.

A wall mounting bracket is supplied with the RAA-E Unit. The following steps outline the procedure for wall mounting the RAA-E Unit.

NOTE: When locating the RAA-E Unit on the wall, allow space for the connection of the RS-232C cable to avoid sharp bends on the cable. The RS-232C cable should not exceed 50ft. in length.
1. Attach the wall mounting bracket to the RAA-E Unit with the screws provided, as shown above in Figure 920-3.

2. Locate the RAA-E Unit with mounting bracket on the wall in the desired position.

3. Using the wall mounting bracket, already attached to the RAA-E Unit, as a template, mark the location of the wall mounting screws (A and B).

4. Using Number 8 pan head wood screws, insert the screws into the positions marked. Do not tighten the screws all the way, leave enough room for the bracket to be placed over the screw head.

5. Place the RAA-E Unit with mounting bracket attached onto the mounting screws and secure it to the wall by tightening the screws (A and B).

920.3 CONNECTING the RAA-E to the ELECTRA MARKII

1. The RAA-E Unit is connected to the system via a standard modular line cord (not provided). Connect one end of the modular line cord to the modular jack (RJ11C) located at the rear of the RAA-E Unit (labeled line).

2. Connect the other end of the modular line cord to a modular jack (RJ11C) connected to an ESI-E( ) station port of the system at the MDF J-blocks.

NOTE 1: The Electra MarkII System may have up to four programming station ports. The first two are permanently assigned to the first two ports of the first ESI-E( ) ETU. The third position can be assigned by either of the first two programming stations to be any ESI-E( ) ETU port supporting an ETE-16D(- ). When connected, the fourth programming assignment is for the RAA-E Unit. (See Chapter 3, Programming, Memory Block 1E2). The RAA-E maintains its programming port status, even after an extended power loss or after a 1st initialization occurs.

NOTE 2: Ensure that all the RAA-E switch settings are correct before plugging in the RAA-E modular jack.

NOTE 3: If the RAA-E is connected to an Attendant port the RAA-E will gain Attendant Programming features.

920.4 CONNECTING the RAA-E to a MODEM

Refer to Table 920-2 for the pin functions of the PC-8295A-01 cable.

<table>
<thead>
<tr>
<th>Pin #</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Frame Ground (FG)</td>
</tr>
<tr>
<td>2</td>
<td>Transmit Data (TXD)</td>
</tr>
<tr>
<td>3</td>
<td>Receive Data (RXD)</td>
</tr>
<tr>
<td>4</td>
<td>Request to Send (RTS)</td>
</tr>
<tr>
<td>5</td>
<td>Clear to Send (CTS)</td>
</tr>
<tr>
<td>6</td>
<td>Data Set Ready (DSR)</td>
</tr>
<tr>
<td>7</td>
<td>Signal Ground (SG)</td>
</tr>
<tr>
<td>8</td>
<td>Carrier Detect (CD)</td>
</tr>
<tr>
<td>9</td>
<td>Data Terminal Ready (DTR)</td>
</tr>
<tr>
<td>10</td>
<td>Ring Indicator (Detect) (RI)</td>
</tr>
</tbody>
</table>

1. Connect one end of the PC-8295A-01 to the RS-232C connector located on the rear of the RAA-E Unit.

2. Connect the other end of the PC-8295A-01 to the RS-232C connector of the modem.

Refer to Table 920-3 for the pin assignments of the RAA-E RS-232C connector.

<table>
<thead>
<tr>
<th>Pin #</th>
<th>Function</th>
<th>Signal Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Frame Ground</td>
<td>←→</td>
</tr>
<tr>
<td>2</td>
<td>Transmit Data</td>
<td>→</td>
</tr>
<tr>
<td>3</td>
<td>Receive Data</td>
<td>←→</td>
</tr>
<tr>
<td>4</td>
<td>RTS</td>
<td>←→</td>
</tr>
<tr>
<td>5</td>
<td>CTS</td>
<td>←→</td>
</tr>
<tr>
<td>6</td>
<td>DSR</td>
<td>←→</td>
</tr>
<tr>
<td>7</td>
<td>Signal Ground</td>
<td>←→</td>
</tr>
<tr>
<td>8</td>
<td>CD</td>
<td>←→</td>
</tr>
<tr>
<td>20</td>
<td>DTR</td>
<td>←→</td>
</tr>
<tr>
<td>22</td>
<td>RI (not connected)</td>
<td>←→</td>
</tr>
</tbody>
</table>

920.5 CONNECTING the MODEM to a LINE

It is possible to dedicate a CO line to an on site modem for remote administration purposes. However, it is recommended that the modem be connected to a single line port of the system. When calling in to use the Remote Administration Adaptor, the System Attendant can transfer the calling party (programmer) to the station number associated with the SLI port connected to the modem.

A trunk may be programmed to terminate directly to the single line port, thereby eliminating the need for
Attendant intervention with a system supported by a CPU-EB2 (or higher) ETU.

To prevent an accidental disconnection, it is recommended to assign the following system data.

**NOTE:** In this application, the modem connected to the RAA-E Unit must have auto answer capability.

**MEMORY BLOCK 3B-4 RAA SLT ASSIGNMENT**
(CPU-EB3 ETU required)

This Memory Block is used to avoid accidental disconnections between the RAA-E unit and the associated programming ETUs (ESI, SLI, VMI, COI or TLI) when remote or local programming/maintenance is being performed. See Figure 910-1.

This program inhibits disruption of the RAA-E Unit programming connection when any of the following changes are attempted for slots, ports or ETUs involved:

<table>
<thead>
<tr>
<th>MEMORY BLOCK</th>
<th>FUNCTION</th>
<th>PERTINENT EQUIPMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>3D3</td>
<td>Forced Slot Initialization</td>
<td>SLI-I( ), ESI-I( ), VMI, COI-I( )</td>
</tr>
<tr>
<td>3D4</td>
<td>Forced Terminal Initialization</td>
<td>RAA-E Unit</td>
</tr>
<tr>
<td>4A2</td>
<td>System All Busy Out Assignment</td>
<td>SLI-I( ), VMI, COI-I( ), TLI-I( ), ESI-I( )</td>
</tr>
<tr>
<td>4C2</td>
<td>Interface Slot Busy Out Assignment</td>
<td>SLI-I( ), VMI, COI-I( ), TLI-I( ), ESI-I( )</td>
</tr>
<tr>
<td>1E3</td>
<td>Terminal Busy Out Assignment</td>
<td>RAA-E Unit, SLI-I( ), VMI Extensions</td>
</tr>
<tr>
<td>1E3</td>
<td>Port Busy Out Assignment</td>
<td>RAA-E Unit, SLI-I( ), VMI, COI (TLI)</td>
</tr>
</tbody>
</table>

The following program changes will disconnect the RAA-E connection when applied to the equipment involved.

The following steps should be considered when connecting the modem to a line.

1. Ensure that all switches are properly set in the modem. Take special care that the baud rate setting of the modem matches that of the RAA-E Unit, and that the modem is set for auto answer.

2. If a dedicated Central Office (CO) line is being used, connect the CO line to the modem as described in the instruction manual provided by the modem manufacturer. If a single line port position is used, connect the modem to the single line port as if it were an SLT, following the instructions provided by the modem manufacturer. If a line is not already available, it may be necessary to run a cable and connect a modular jack to a single line port of the system's MDF.

**920.6 GROUNDING the RAA-E and MODEM**

The RAA-E Unit and the modem connected to it, must be grounded to the same earth ground point. In order to effectively ground the RAA-E Unit, a spade lug connected to an 18 AWG grounded wire should be fastened underneath the screw on the back (RS-232C side) of the RAA-E Unit. (See Figure 920-1.)

**920.7 MODEM to MODEM CONNECTION**

Depending upon the type of modems and computers used, the procedures used to make the end to end modem connections will vary. Refer to the modem's and computer's instruction manual to determine the proper procedure for end to end connection. Things to take into account are manual or auto-dial capabilities and manual or auto-answer capabilities. It should also be noted that the ADMI.DO File is a stand alone Host program and does not contain a Communications Application program, therefore, Request To Send (RTS) and Data Terminal Ready (DTR) will not be ON at the PC Communications Port (COM PORT) when the file is executed.

**SECTION 930**

**PC8300 and PC-8231A INSTALLATION**

Refer to Chapter 7, Sections 740 and 750.5.
SECTION 940
PROGRAMMING

940.1 GENERAL

NOTE: Before programming with the RAA-E Unit, its connecting port must be programmed as an RAA-E port in Memory Block 1E2 (LK9). Programming Memory Block 1E2 is not required if the RAA-E Unit is connected to the Electra MarkII System prior to performing a first initialization. Make sure that the RAA-E switch settings are set properly. (See Table 920-1).

The programmer must be completely familiar with the programming procedures of the Electra MarkII System before programming using the Remote Administration Adaptor (RAA-E). Programming procedures for the Electra MarkII System using the RAA-E are outlined in the following paragraphs.

The Remote Administration Adaptor (RAA-E) allows a PC to be used as a programming terminal. To program the Electra MarkII System, Function and Line Keys are used when inputting information from a programming station. To input information from a PC enter the actual characters shown on the keyboard. For example: to enter data for Function Button F1, Press characters F and then 1 on the keyboard of the PC, then Press \( \text{c} \) (Return Key) to enter the information. To enter data for Line Button L1, Press characters L and 1 on the keyboard, then Press \( \text{c} \) (Return) to enter the information.

Table 940-1 lists all the programming keys and the corresponding PC keyboard entries. To enter data for Function and Line Keys, the CAPS key on the PC keyboard must be depressed and locked. If the CAPS key is not locked on, the characters representing letters will not be recognized or displayed on the screen.

If Function/Line Key numbers that are in the valid range (F1~F20 and L1~L16) are entered but not in a recognized sequence in the Electra MarkII program, an ALARM 1 signal is displayed on the PC screen accompanied by four tones. For example: F3, F8, and F18 entered.

ALARM 1 is displayed because F18 is not in the sequence recognizable by the Electra MarkII program, even though it is within the range of valid Function Key numbers.

ALARM 2 is displayed when data input is temporarily prohibited from being entered for one of the following reasons:

1. An attempt has been made to eliminate a line key appearance while the line key is in a ringing, I-use or I-hold mode.
2. A busyout of a station is attempted while the station is in use.
3. While a station is communicating data, a data change is attempted to the station.

ALARM 3 is displayed when an illegal entry is attempted for System Speed Dial entry or clock/calendar setting. Example: Trying to enter System Speed Dial buffer 100 or time of day as 25 hours.

An INPUT NUMBER ERROR display is received when an invalid Function Key number or Line Key number which is outside the range of valid Function/Line Key numbers (F21 and above and L17 and above) is entered. For Example: F1, F9, and F21. In this case F21 is an invalid key number outside the range of Function Key numbers.

940.2 PROGRAM BOOT PROCEDURES

940.2.1 INITIAL PROGRAM BOOT PROCEDURE (SET-UP)

After a Cold Start power up of the PC-8300, the initial display is as shown with the word BASIC highlighted in dark shading.

<table>
<thead>
<tr>
<th>1983 / 01 / 01 00:00:00 (C)Microsoft</th>
<th>TEXT</th>
<th>TELCOM</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASIC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TEXT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TELCOM</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Load from _

1. Press special function button f1 (load) on the PC. (Located directly below the display screen, left side).

Display changes to:

<table>
<thead>
<tr>
<th>1983 / 01 / 01 00:00:00 (C)Microsoft</th>
<th>TEXT</th>
<th>TELCOM</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASIC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TEXT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TELCOM</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Load from _

2. Type: 1: ADMILDO (Ensure Caps Lock is on). Press: \( \text{c} \) (Return)

Display changes to:
CHAPTER 9
APRIL, 1990

3. Type: ADMI.BA
   Press: ← (Return).
   Display prompts: Ready?
   Press: ← (Return)

Red LED on disk drive flashes on, then off.
Display changes to:

940.2.2 RAA PROGRAM BOOT (PC-8300)

1. Using the cursor movement keys, move the cursor to the upper right hand corner of the display over the word ADMI.BA

2. Press: ← (RETURN)
   Display prompts:
   *** MAINTENANCE TERMINAL ***
   HIT ANY KEY TO LOG IN

3. Press any key. (A tone is provided.)
   Display prompts:

   PLEASE SELECT YOUR SYSTEM
   A: ELECTRA-IMS
   B: ELECTRA-MARKII

4. Press B to select the Electra MarkII System. (A tone is provided.)
   Display prompts:

   PLEASE INPUT KEY DATA FOR bps
   A: 2400 bps     B: 1200 bps
   C: 600 bps      D: 300 bps

NOTE: Baud Rate selected must be the same as the setting of Baud Rate Switch on RAA-E Unit and at which modems are working (when provided).

5. Press appropriate key for Baud Rate. (A tone is provided.)

The following display appears on the screen:

12:01 JAN 01 FRI
<ON HOOK>

LK 1 5 9 13
----- ----- ----- ----- ----- -----

NOTE: The Clock/Calendar is the indication that the PC to Electra MarkII System communications link has actually been established. Clock/Calendar may take up to one minute to appear on the display. Line status (dashed lines) will appear upon any change to line status. If you are manually dialing the on site modem using a SLT, Clock/Calendar and line status (dash lines) will appear when the modem to modem connection is made (Section 940.2.1).

Anytime ✈ is Pressed on the PC, whether in idle or program mode, a SELF CHECK OK !!! display is received. This verifies that the modem and/or PC 8300 and the RAA-E Unit are communicating.

After SELF CHECK is performed, Press ← (Return) before continuing with the next function. Once you are in a Memory Block, and a self check is performed, an ALARM 1 is received if another function is attempted before ← (Return) is Pressed.

940.3 PROGRAMMING VIA the PC-8300

Besides the LCD display of the programming Multiline Terminal, the PC also provides line button indications similar to that of the Multiline Terminal.

The display shows the letters LK (signifying Line Key) followed by four line key numbers (1, 5, 9, and 13) equally spaced.

Idle line keys are represented as dashes in groups of four under the corresponding line key numbers.

Once the modem to modem (or direct) connection is established and the RAA program is in use but not in...
program mode, the PC will display the line status of each line key.

The following display indications are provided on the PC when used for remote administration:

- Line key in use - green - steady
- Line key flashing
- Line key in use - red - steady
- Line key is idle

1. To go off-hook using the PC, press @ and receive the following display:

```
EXT LINE
00:00 JAN 00 FRI
<OFF HOOK>
LK  1  5  9  13
    ----- ----- ----- ----- @
```

2. To go into program mode, type #*0 (Return) and receive the following display:

```
OFF-LINE (X.XX)
PROGRAM MODE
<OFF HOOK>
LK  1  5  9  13
    ----- ----- ----- ----- 
#*0
```

940.4 PROGRAMMING EXAMPLE

In this example, extension 100 and different line key appearances will be programmed on station 102 as follows:

```
OFF-LINE (X.XX)
PROGRAM MODE
<OFF HOOK>
LK  1  5  9  13
    ----- ----- ----- ----- 
#*0
```

LK1 - EXT 100,
LK2 - Save and Repeat 01,
LK3 - DND position.

Go into program mode as described above.
Display shows:

Type: F1 (Return) (To enter Terminal Mode).
Display shows:

```
TERMINAL
<OFF HOOK>
LK  1  5  9  13
    ----- ----- ----- ----- 
F1
```

Type: F6 (RETURN) (To enter Line Key Assignment Mode).
Display shows:

```
LINE KEY ASSIGN
TEL ???
<OFF HOOK>
LK  1  5  9  13
    ----- ----- ----- ----- 
F6
```

Type: 202 (Return) (To enter EXT number being programmed).
Display shows:

```
LK ASGN TEL 102
SELECT LINE KEY
<OFF HOOK>
LK  1  5  9  13
    ----- ----- ----- ----- 
102
```

Type: L1 (Return) (To enter Line Key number 1 to be programmed).
Display shows:

```
LK ASGN TEL102
CO-01
<OFF HOOK>
LK  1  5  9  13
    ----- ----- ----- ----- 
L1
```
Type: F14 ← (Return) (To select line type as EXT).
Display shows:

```
LK ASGN  TEL102
EXTENSION - ??
LK  1  5  9  13
□- - - - - - - - - -
F 14
```

Type: 100 ← (Return) (To select EXT number 100).
Display shows:

```
LK ASGN  TEL102
EXTENSION - 100
LK  1  5  9  13
□- - - - - - - - - -
100
```

While holding down the CTRL key, press E. (To enter information into the Electra MarkII program memory). System automatically advances to LK2.
Display shows:

```
LK ASGN  TEL102
CO-02
LK  1  5  9  13
-□- - - - - - - - - -
```

Type: F18 ← (RETURN) (To select line type as Save & Repeat).
Display shows:

```
LK ASGN  TEL102
SAVE & REPEAT - ??
LK  1  5  9  13
□- - - - - - - - - -
F 18
```

Type: 01 ← (RETURN) (To select Save & Repeat buffer 1).
Display shows:

```
LK ASGN  TEL102
SAVE & REPEAT - 01
LK  1  5  9  13
-□- - - - - - - - - -
01
```

While holding down the CTRL key, press E. (To enter information into the Electra MarkII program memory). System automatically advances to LK3.
Display shows:

```
LK ASGN  TEL102
CO-03
LK  1  5  9  13
-□- - - - - - - - - -
```

Type: F20 ← (RETURN) (To select line key function as DND position).
Display shows:

```
LK ASGN  TEL102
DND POSITION
LK  1  5  9  13
-□- - - - - - - - - -
F 20
```

While holding down the CTRL key, press E. (To enter information into the Electra MarkII program memory). System automatically advances to LK4.
Display shows:

```
LK ASGN  TEL102
CO-04
LK  1  5  9  13
-□- - - - - - - - - -
```

900 - 10
# TABLE 940-1
Corresponding PC-8300 Keyboard Entries For Programming Function Keys On
ELECTRA MARKII SYSTEM

<table>
<thead>
<tr>
<th>PC-8300 KEYBOARD ENTRIES</th>
<th>PROGRAMMING TERMINAL FUNCTION KEYS</th>
<th>PC-8300 KEYBOARD ENTRIES</th>
<th>PROGRAMMING TERMINAL FUNCTION KEYS</th>
</tr>
</thead>
<tbody>
<tr>
<td>L 1</td>
<td>L1</td>
<td>F 1</td>
<td>F1</td>
</tr>
<tr>
<td>L 2</td>
<td>L2</td>
<td>F 2</td>
<td>F2</td>
</tr>
<tr>
<td>L 3</td>
<td>L3</td>
<td>F 3</td>
<td>F3</td>
</tr>
<tr>
<td>L 4</td>
<td>L4</td>
<td>F 4</td>
<td>F4</td>
</tr>
<tr>
<td>L 5</td>
<td>L5</td>
<td>F 5</td>
<td>F5</td>
</tr>
<tr>
<td>L 6</td>
<td>L6</td>
<td>F 6</td>
<td>F6</td>
</tr>
<tr>
<td>L 7</td>
<td>L7</td>
<td>F 7</td>
<td>F7</td>
</tr>
<tr>
<td>L 8</td>
<td>L8</td>
<td>F 8</td>
<td>F8</td>
</tr>
<tr>
<td>L 9</td>
<td>L9</td>
<td>F 9</td>
<td>F9</td>
</tr>
<tr>
<td>L 10</td>
<td></td>
<td>F 1 0</td>
<td>F10</td>
</tr>
<tr>
<td>L 11</td>
<td>L11</td>
<td>F 1 1</td>
<td>F11</td>
</tr>
<tr>
<td>L 12</td>
<td>L12</td>
<td>F 1 2</td>
<td>F12</td>
</tr>
<tr>
<td>L 13</td>
<td>L13</td>
<td>F 1 3</td>
<td>F13</td>
</tr>
<tr>
<td>L 14</td>
<td>L14</td>
<td>F 1 4</td>
<td>F14</td>
</tr>
<tr>
<td>L 15</td>
<td>L15</td>
<td>F 1 5</td>
<td>F15</td>
</tr>
<tr>
<td>L 16</td>
<td>L16</td>
<td>F 1 6</td>
<td>F16</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>F 1 7</td>
<td>F17</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>F 1 8</td>
<td>F18</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>F 1 9</td>
<td>F19</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>F 2 0</td>
<td>F20</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*</td>
<td>*</td>
<td>@</td>
<td></td>
</tr>
<tr>
<td>#</td>
<td>#</td>
<td>$</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** When two keys are separated by an & sign, this indicates that two keys should be pressed simultaneously.
At this time you may continue programming other features or exit program mode by going on-hook (CTRL-D).

NOTE: The programmer must go on-hook (CTRL-D) before terminating the communication link. Failure to do so results in the port associated with the RAA-E to remain busy and if the PC was in program mode, the other programming stations will not be able to go into program mode.

940.5 IBM type COMPATIBLE VERSION SOFTWARE

A. EQUIPMENT REQUIRED:

NOTE: The modem must be capable of executing the Hayes@ Command Set.

1. NEC Powermate, Prospeed laptops, or IBM compatible PCs must be locally provided.

NOTE: The IBM type version RAA software will run on either a 1.2 mb high density disk drive or a 360 kb low density disk drive.

2. IBM RAA version diskette (available on either a 5.25" or a 3.5" diskette) stock numbers 700528 and 700527.

3. Operating system must be MS-DOS® (Equivalent to NEC Powermate MS-DOS® 3.2 or higher).

4. Refer to Sections 910.4~920.6 and Figure 910.1 for RS-232C cables, modem, and block diagram information, etc.

B. EXECUTING IBM TYPE COMPATIBLE SOFTWARE

1. Insert the RAA disk into the available drive. Ensure drive prompt is for the drive that the RAA disk is in and enter COMLINK.

2. Press ← (Return).

Display shows:

NEC Remote Administrator  
Terminal Emulator Ver 1.0  
Caps lock key must be set on  
Press any key to continue

3. Press any key (Caps lock must be on).

Display shows:

4. Enter Y for Yes, or N for No, (enables access to the modem screen when needed). If Y is entered, the display shows:

5. If selection is system B (Electra MarkII), Type B.

Display shows:

6. Select COM PORT which applies to applicable configuration (A or B).

For example: Type A.

Display shows:

RAA TERMINAL EMULATOR  
Are you using a Modem (Y/N)  
Select System  
A : Electra IMS  
B : Electra MarkII  
Select Com Port  
A) Com 1  B) Com 2  
: \> B

RAA TERMINAL EMULATOR  
A : Electra IMS  
B : Electra MarkII  
Select Com Port  
A) Com 1  B) Com 2  
RAA Unit Switch 5 Selection  
A) High  (Refer to I/S Ch. 9)  
B) Low  
: \> A
7. Select the RAA Unit Switch 5 (A,B) setting. If the System Data Up/Down Load software is being used, the Switch 5 setting in the RAA must be set for low. In addition, you must be using COMLINK V2.0 or higher. Refer to Section 920.1 number 5.

For example: Type B
Display shows:

![RAA TERMINAL EMULATOR]

- Com 1
- Com 2

RAA Unit Switch 5 Selection
A) High (Refer to I/S Ch. 9)
B) Low

Select Baud Rate
A: 2400 Baud  B: 1200 Baud
C: 600 Baud    D: 300 Baud

8. Select baud rate (A, B, C, or D). Ensure the baud rate selected matches the baud rate of the modems and that of the RAA-E Unit

Display shows: (If modem is used.) Otherwise see display in step 10 and continue from there.

![MODEM]

AT? = help
OK
: \ > ATDT 753 0093

9. Enter ATDT* followed by the telephone number for the modem associated with the RAA-E at the job site and press ←(RETURN) (EX: ATDT 7530093 ←(RETURN))

a) Modem will go off line and will dial the telephone number entered.

Display shows:

![MODEM]

AT? = help
ATDT 753 0093

: \ > ATDT 753 0093

b) Carrier tone is received and a connection is made.

(If left in this mode, the time and date will appear in the screen. Example 11:58)

* Assumes modem is connected to DTMF Telco line

10. Enter ATO and Press ←(RETURN). Computer screen returns to the RAA display. (Pressing the ESC key at any time during programming brings up the modem screen; pressing ALT H any time during programming brings up the help screen).

NOTE: With RAA Unit Disk V2.0 or higher, the screen will show "RAA Check" after ATO has been entered. Programming can begin when this message disappears. If an error is displayed, refer to SW5 setting in Section 920.1

![MARK II]

11:58 JAN 01 SUN

ATO

11. Press @ to go off-hook.

Display shows:
If no modems are used (direct connection).

Display shows:

```
< MARKII >
EXT LINE < OFF HOOK >
11.59 JAN 01 MON
LK 1 5 9 13
- - - - - - - - - -
Alt H = Help Screen
```

NOTE: The following display indications are provided on the computer when used for remote administration:

- □ - Line key in use - green - steady
- X - Line key flashing
- * - Line key in use - red - steady
- - Line key is idle

12. Press #, *, 0 and ← (RETURN) to go off-line (Program Mode). Program as you would with a ETE-16D-( ). Pressing the Alt H shows the number of keystrokes needed for proper programming. (Help Screen).

```
< MARKII >
OFF LINE < X.XX > < OFF HOOK >
PROGRAM MODE
LK 1 5 9 13
- - - - - - - - - -
Alt H = Help Esc = Modem Online
```

13. To exit the RAA terminal emulator program, perform the following procedures:

1. Insure that the RAA is ON-HOOK.
2. Press ESC to display the modem screen (OK will appear on the screen within a few seconds).
3. Press ESC again. The following prompt will be displayed:

```
< MODEM > AT? = help
OK
Calling another system (Y/N)
For DATASAVE press (ESC)
```

4. Enter Y (yes) if calling another modem.

```
< MODEM > AT? = help
OK
Calling another system (Y/N)
For DATASAVE press (ESC)
```

OR

Enter N (no) if not calling another modem.

a. If selection is Y, go back to step 3 and continue from there.
b. If selection is N, the following prompt will be displayed:
c. If selection is (ESC), the following prompt will be displayed.

```
: \ > Exit RAA Emulator
Press any key to exit _
```

If N was selected, press any key to terminate the modem connection. The computer boots MS-DOS®.

If (ESC) was selected, press any key to use DATASAVE program. The modem will not be disconnected.

NOTE 1: Anytime ? is Pressed on the PC, (while idle or in program mode), a SELF CHECK OK !!! display is received. This verifies that the modem and the RAA-E are communicating.

NOTE 2: Anytime ESC is Pressed on the Computer, (while idle or in program mode), a CONNECT XXXX (BAUD RATE CHOSEN) ← (RETURN) display is received. This verifies that the modem and/or PC and the RAA-E are communicating.

NOTE 3: After SELF CHECK is performed, press ← (RETURN) to return to the programming screen. After you are in a memory block, a self check is performed, whenever another function is attempted before ← (RETURN) is pressed an ALARM 1 is received.

940.6 GENERAL PROGRAMMING NOTES

In the above example, entering information to the RAA-E Unit is done as follows: type F1, press ← (RETURN) to enter information to the RAA-E unit;
type F9, press (RETURN) to enter the information, etc. Another means of entering consecutive Function Button numbers or Line Button numbers in program mode is available. For the PC8300, instead of entering F1 (RETURN) then F9 (RETURN) then F17 (RETURN) (Class of Service Assignment), you can enter up to 16 characters by using only the first F or L in the string of numbers and inserting a comma (,) after each item to send the information to the RAA-E, therefore the same information could be entered as F1, 9, 17 (RETURN). Once a (RETURN) is used, you must enter another F or L to begin another string. Another example of entering line button assignments while in the Line Key Assignment, Memory Block (F1, F6) is as follows: the line button assignments can be checked by typing L1 (RETURN) then L2 (RETURN) then L3 (RETURN) etc. A fast method would be L1, 2, 3, etc. while viewing each assignment every time the comma is used.

For IBM compatible computers, Memory Blocks can be entered as follows; Example: with Memory Block 1D7 (Class of Service) - Enter "M1D_7". Note that an underline(_) must follow the Memory Feature Selection and precede the Memory Feature Item. Line Key selection is then performed one line key at a time.

When assigning a name in Memory Block 3C, an ! must be entered as a lead character in front of the name being assigned. The ! tells the computer that what follows is an alphabetical string instead of a command. After the new name is entered, press (RETURN) to enter the name in the display followed by a CTRL-E which enters the name in memory. If more characters are entered, ALARM 1 is displayed and the extra character is not accepted.

SECTION 950
SYSTEM UP LOAD/DOWN LOAD PROGRAM

950.1 GENERAL
The Electra MarkII Digital Telephone System Up Load/Down Load software program (DATASAVE) provides a means of storing system programming on diskette or hard drive. By storing the system program on diskette, the entire system software can be reloaded without having to manually reprogram the system. In addition, by using the RAA software, "COMLINK", with the System data Up/Down Load, Maintenance and Diagnostics is made easier and more efficient. This is a desirable feature to have in case of a system power failure where memory is lost. The programming may be accomplished from a Local or Remote location. CPU-EB2 (or higher) ETUs can be saved on diskette.

Down Loading system data during traffic conditions does not pose a problem for data transfer. However, system operation cannot be guaranteed if Up Loading is attempted during system usage.

The "DATASAVE" software has been provided on a double sided, double density (DS/DD) diskette. Storing System Data requires 800Kb of free disk space; therefore, you will need to store system data from the customer's site on either a PC hard drive or a double sided, high density (DS/HD) diskette.

950.2 EQUIPMENT / SOFTWARE REQUIRED and INSTALLATION
Refer to Sections 910~920 and Section 940.5 concerning the RAA-E Unit and IBM compatible type software ONLY. DATASAVE software cannot be used with the PC8300 computer.

RAA-E Unit is required (Rev. 3 or higher). If your RAA is lower than Rev. 3, please order RAA Upgrade Kit, Stock No. 700537.

The PC that is being used must be operating with MS-DOS version 3.2 or higher.

If DATASAVE software is used from a remote location, RAA software (IBM version COMLINK only) must be used first to establish a connection with the remote site.

950.3 PC SYSTEM SETUP
Before using the System Data Up/Down Load program, your PC must include the following in its CONFIG.SYS File: DEVICE=DOS\ANSI.SYS. If your MS-DOS program is under a different directory name other than "DOS", substitute this name for DOS when you assign Device. The best way to check if this file already includes ANSI.SYS as a device is to type the following from the C:> prompt: TYPE CONFIG.SYS and press RETURN.

If DEVICE=DOS\ANSI.SYS is included in this file, you may proceed with Section 950.4. If it is not included, proceed with the following steps to include ANSI.SYS as a device. (This information is included in the MS-DOS manual that came with your PC.)

A. After typing, TYPE CONFIG.SYS, write down all of the information that was printed on the screen, exactly line for line.

B. To include DEVICE=DOS\ANSI.SYS, type the following command: COPY CON CONFIG.SYS and press RETURN.
C. Proceed to retype the information, line by line, that was included in your previous CONFIGSYS File. After this information has been typed in, type DEVICE = ANSI.SYS and press RETURN.

D. Press (CTRL) Z and RETURN.

E. Reboot the system. (This can be done by pressing (CTRL) (ALT) (DEL) at the same time.)

950.4 CREATING A DIRECTORY
A Directory must first be created on either the computer hard disk, or a Double Sided High Density diskette. A name or code (maximum of eight alpha/numeric characters) for a particular customer site is recommended; (Example: ABC). The following procedure is required to create a Directory:

From the Disk/Hard Drive prompt representing the location where the data is to be stored, type the command "MD\" followed by the Directory file name that is being created. (Example A:> MD\ABC) This will create a Directory file for the location of the system data under "ABC".

To remove this directory, delete all files in the directory first, then from the A:> prompt, for example, type the command "RD\" followed by the directory name.

950.5 REMOTE OPERATION SETUP
From a remote location, you must use the IBM V2.0 of COMLINK software with the RAA to establish communication with the remote site. To establish this communication, refer to the Electra MarkII Installation Service Manual, Chapter 9, Section 940.5 (Parts A and B).

After communication with the remote site is established, exit from the COMLINK program to the A:> prompt. This can be done as follows:

1. Press (ESC) key.
2. The screen prompts you if you are calling another system or if you wish to use DATASAVE. Press (ESC) key.
3. The screen then prompts you that you are exiting the RAA emulator. Press any key to exit.
4. You are now at the A > or B > prompt.
5. Proceed with Step 1 of Section 950.6 (Operating Procedures).

NOTE: After any programming is done to the remote Electra MarkII System with the COMLINK software, you can escape from this program to use the System Data Up/Down Load program by using the same modem connection.

950.6 OPERATING PROCEDURES
1. Install the "DATASAVE" diskette into the PC disk drive.

2. To start the program. Enter "Datasave" and press ← (Return) at the A:> prompt if you are using the COM1 Port. When the COM2 Port is being used, the following must be entered: "DATASAVE 2" and press ← (Return). Display shows:

```plaintext
< ELECTRA MARK 2 DIGITAL KEY TELEPHONE SYSTEM >

SYSTEM MEMORY UP LOAD / DOWN LOAD VERSION X.XX

(C) COPYRIGHT NEC CORPORATION 1990

ENTER DISK DRIVE (AND PATH):
```
3. Enter "A:\ABC" and press ←(Return)

The example "ABC" is the file name that was selected for storing the System information. A DIRECTORY name preceded by a "\" must be entered.

---

4. Select baud rate (1, 2, 3, or 4). Ensure that the baud rate selected matches the baud rate of the modems and the RAA-E Unit.

Enter baud rate. (Example: 1) and press ←(Return). The Main Menu Display shows:

---

Item 1: Allows user to store programming data from the Electra MarkII onto selected Directory File location. (Go to Step 5.)

Item 2: Allows user to transfer data from a selected Directory File location to the Electra MarkII. (Go to Step 11.)

Item 3: Allows user to perform a First or Second Initialization. (Go to Step 9.)

Item 4: Returns user to the A:\ prompt.
5. Down Loading

Enter menu number (Example: 1, which is Down load, and press ←(Return). Display shows:

```
< SYSTEM MEMORY DOWN LOAD >

DRIVE AND PATH = A:\ABC\ 

1: SYSTEM DATA
2: SYSTEM SPEED DIAL
3: STATION SPEED DIAL FOR STATION 100-119 (DEFAULT HARDWARE LOCATION)
4: STATION SPEED DIAL FOR STATION 120-139 (DEFAULT HARDWARE LOCATION)
5: STATION SPEED DIAL FOR STATION 140-159 (DEFAULT HARDWARE LOCATION)
6: STATION SPEED DIAL FOR STATION 160-179 (DEFAULT HARDWARE LOCATION)
7: STATION SPEED DIAL FOR ALL STATIONS
8: SPEED DIAL FOR 16K TELEPHONES 1-2
9: SPEED DIAL FOR 16K TELEPHONES 3-5
10: SPEED DIAL FOR 16K TELEPHONES 6-30
11: SPEED DIAL FOR ALL 16K TELEPHONES (1-30)
12: FORCED ACCOUNT CODE
13: SELECTION MODE

ENTER ITEM NO.
OR HIT (ESC) TO RETURN TO MENU
```

**NOTE 1:** Regardless of the Station numbering scheme that is programmed, Hardware Location is the Station location in System Default.

**NOTE 2:** When performing an Up Load or Down Load of the Speed Dial for the 16K telephones, items 8~11 on the Up or Down Load menu screens, a second step may be required in order to complete this procedure. If you had entered Item 13 and had selected items 3~7 that coincide with items 8~10, the second step is not required. A message informing you of the second step appears on the screen after the first step has been performed.

The following lists the steps necessary to perform the 16K telephone procedure:

1. From the Down Load menu, choose item(s) 8~11.
2. Screen prompts you to enter with or without Verify.
3. Loading begins.
4. After receiving "NORMAL END", return to the Down Load menu. At this time, you must select the Station Speed Dial, Item(s) 3~7, that represents the 16K telephones that you were previously loading.
5. Screen prompts you to enter with or without Verify.
7. Receive "NORMAL END".
8. Return to the main Menu and select item 3, Electra Mark2 Initialization.
9. From the Initialization Menu, select a SECOND INITIALIZATION.
10. When the initialization is finished, Speed Dial for the 16K telephones has been completed.
6. Entering item numbers 1–12 will go to Step 7. Selecting item 13 allows multiple items to be selected. (Example: enter item number 13 and press ← (Return). Display shows:

```
< SYSTEM MEMORY DOWN LOAD >
DRIVE AND PATH = A:\ABC\n
1: SYSTEM DATA
2: SYSTEM SPEED DIAL
3: STATION SPEED DIAL FOR STATION 100-119 (DEFAULT HARDWARE LOCATION)
4: STATION SPEED DIAL FOR STATION 120-139 (DEFAULT HARDWARE LOCATION)
5: STATION SPEED DIAL FOR STATION 140-159 (DEFAULT HARDWARE LOCATION)
6: STATION SPEED DIAL FOR STATION 160-179 (DEFAULT HARDWARE LOCATION)
7: STATION SPEED DIAL FOR ALL STATIONS
8: SPEED DIAL FOR 16K TELEPHONES 1-2
9: SPEED DIAL FOR 16K TELEPHONES 3-5
10: SPEED DIAL FOR 16K TELEPHONES 6-30
11: SPEED DIAL FOR ALL 16K TELEPHONES (1-30)
12: FORCED ACCOUNT CODE
13: ALL SYSTEM DATA (DEFAULT: 1, 2, 3, 4, 8)

ENTER ITEM NO.
OR HIT (ESC) TO RETURN TO MENU
```

Multiple items may be selected from the above menu.

7. Enter item numbers (Example: 1, 3, 12) and press ← (Return). Display shows:

```
< SYSTEM MEMORY DOWN LOAD >
DRIVE AND PATH = A:\ABC\n
1. DOWN LOAD WITHOUT VERIFY (HIGH SPEED)
2. DOWN LOAD WITH VERIFY

ENTER NO.
OR HIT (ESC) TO RETURN TO MENU
```

For Down Load times with and without Verify, see Table 950-1 and Table 950-2.

**NOTE:** For Remote Operation, Item 2 must be selected: DOWN LOAD WITH VERIFY
8. Enter item number (Example: 1) and press \*(Return). Display shows:

```
< SYSTEM MEMORY DOWN LOAD >
DRIVE AND PATH = A:ABC:

----- EXECUTING -----
```

Upon completion of this procedure, the system will indicate "NORMAL END". If there are any problems during this procedure, see Table 950-3 for a list of errors.

**NOTE 1:** When more than one item is selected by the Selection Mode (13), the display will show Execute, with or without Verify, for each item. Example: If 1,2 is selected to be loaded, the screen will show Execute and Verify (for item 1), then show Execute and Verify again (for item 2).

**NOTE 2:** When Down Loading with verify, if a Verify Error message appears, another message will appear informing you that you may be experiencing line or RAA problems. If this occurs, exit from the program and attempt another correction to the Electra MarkII System. (Refer to Table 950-3)

9. **System Initialization**

   Enter an item number from the main Menu Display (Example: 3), press \*(Return). Display shows:

```
< SYSTEM INITIALIZATION >

1. FIRST INITIALIZATION
2. SECOND INITIALIZATION

ENTER MENU NO. OR HIT (ESC) TO RETURN TO MENU
```

10. For Local Operation

    Enter item number (Example: 2), press \*(-(Return) and (ESC).

    The display will return to the Main Menu before the Initialization (First or Second) begins. If an attempt is made to perform another function (Down Load, Up Load, Initialization) before the Initialization is completed, the program will respond with a "OFF LINE BUSY" message. If this occurs, depress (ESC) to return to the Main Menu display.

    For Remote Operation

    Enter item number (Example: 2), press \*(-(Return).

    The modems will be disconnected.
11. Up Loading
Enter item number (Example: 2, which is Up load, and depress ← (Return). Display shows:

```< SYSTEM MEMORY UP LOAD>
DRIVE AND PATH = A:\ABC\`

1: SYSTEM DATA
2: SYSTEM SPEED DIAL
3: STATION SPEED DIAL FOR STATION 100-119 (DEFAULT HARDWARE LOCATION)
4: STATION SPEED DIAL FOR STATION 120-139 (DEFAULT HARDWARE LOCATION)
5: STATION SPEED DIAL FOR STATION 140-159 (DEFAULT HARDWARE LOCATION)
6: STATION SPEED DIAL FOR STATION 160-179 (DEFAULT HARDWARE LOCATION)
7: STATION SPEED DIAL FOR ALL STATIONS
8: SPEED DIAL FOR 16K TELEPHONES 1-2
9: SPEED DIAL FOR 16K TELEPHONES 3-5
10: SPEED DIAL FOR 16K TELEPHONES 6-30
11: SPEED DIAL FOR ALL 16K TELEPHONES (1-30)
12: FORCED ACCOUNT CODE
13: SELECTION MODE
```

ENTER ITEM NO.
OR HIT (ESC) TO RETURN TO MENU

NOTE 1: Regardless of the Station numbering scheme that is programmed, Hardware Location is the Station location in System Default.

NOTE 2: When performing an Up Load or Down Load of the Speed Dial for the 16K telephones, items 8~11 on the Up or Down Load menu screens, a second step may be required in order to complete this procedure. If you had entered Item 13 and had selected items 3~7 that coincided with items 8~10, the second step is not required. A message informing you of the second step appears on the screen after the first step has been performed.

The following lists the steps necessary to perform the 16K telephone procedure:

1. From the Up Load menu, choose item(s) 8~11.
2. Screen prompts you to enter with or without Verify.
3. Loading begins.
4. After receiving "NORMAL END", return to Up Load menu. At this time, you must select the Station Speed Dial, Item(s) 3~7, that represents the 16K telephones that you were previously loading.
5. Screen prompts you to enter with or without Verify.
7. Receive "NORMAL END".
8. Return to the main Menu and select item 3, Electra Mark2 Initialization.
9. From the Initialization Menu, select a SECOND INITIALIZATION.
10. When the initialization is finished, Speed Dial for the 16K telephones has been completed.
12. Entering item numbers 1~12 will go to Step 13. Selecting item 13 allows multiple items to be selected.
(Example: enter item number 13 and press ←(Return). Display shows:

```
< SYSTEM MEMORY UPLOAD >
DRIVE AND PATH = A:\ABC\n
1: SYSTEM DATA
2: SYSTEM SPEED DIAL
3: STATION SPEED DIAL FOR STATION 100-119 (DEFAULT HARDWARE LOCATION)
4: STATION SPEED DIAL FOR STATION 120-139 (DEFAULT HARDWARE LOCATION)
5: STATION SPEED DIAL FOR STATION 140-159 (DEFAULT HARDWARE LOCATION)
6: STATION SPEED DIAL FOR STATION 160-179 (DEFAULT HARDWARE LOCATION)
7: STATION SPEED DIAL FOR ALL STATIONS
8: SPEED DIAL FOR 16K TELEPHONES 1-2
9: SPEED DIAL FOR 16K TELEPHONES 3-5
10: SPEED DIAL FOR 16K TELEPHONES 6-30
11: SPEED DIAL FOR ALL 16K TELEPHONES (1-30)
12: FORCED ACCOUNT CODE
13: ALL SYSTEM DATA (DEFAULT: 1, 2, 3, 4, 8)
```

Enter item no.
OR HIT (ESC) TO RETURN TO MENU

Multiple items may be selected from the above menu.

13. Enter item numbers (Example: 1, 2, 3, 12) and press ←(Return).
Display shows:

```
< SYSTEM MEMORY UPLOAD >
DRIVE AND PATH = A:\ABC\n
1. UP LOAD WITHOUT VERIFY (HIGH SPEED)
2. UP LOAD WITH VERIFY
```

Enter no.
OR HIT (ESC) TO RETURN TO MENU

For Up Load times with and without Verify, see Table 950-1 and Table 950-2.

NOTE: For Remote Operation, Item 2 must be selected (UP LOAD WITH VERIFY).

14. Enter item number (Example: 2) and press ←(Return). Display shows:

```
< SYSTEM MEMORY UPLOAD >
DRIVE AND PATH = A:\ABC\n
--- EXECUTING ---
```
15. When the Executing is completed, the Verify process will begin. The following display shows:

\[
\begin{align*}
\text{< SYSTEM MEMORY UPLOAD>} \\
\text{DRIVE AND PATH = A:\ABC\} \\
\text{--- UPLOAD EXECUTED ---} \\
\text{--- VERIFYING ---}
\end{align*}
\]

**NOTE 1:** When more than one item is selected by the Selection Mode (13), the display will show Execute, with or without Verify, for each item.

*Example:* If 1,2 is selected to be loaded, the screen will show Execute and Verify (for item 1), then show Execute and Verify again (for item 2).

**NOTE 2:** When Verifying is completed, go to step 12. If Up Loading includes item 1, System Data, go to step 16. If the display shows a Verify Error, a message will appear informing you that you may be experiencing line or RAA problems. If this occurs, exit from the program and attempt another connection to the Electra MarkII System. (Refer to Table 950-3)

16. Display shows:

\[
\begin{align*}
\text{< SYSTEM MEMORY UPLOAD>} \\
\text{DRIVE AND PATH = A:\ABC\} \\
\text{NORMAL END} \\
\text{HIT Y TO EXECUTE SECOND INITIALIZATION AND RETURN} \\
\text{OR HIT N TO RETURN TO UPLOAD MENU}
\end{align*}
\]

Hit Y to go to step 9 and enter item 2 to perform a Second Initialization or Hit N to go to step 11.

**NOTE:** If Up Loading includes item 1, System Data, a Second Initialization is recommended.
<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>DOWN LOAD</th>
<th>UP LOAD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>W/O VERIFY</td>
<td>W/ VERIFY</td>
</tr>
<tr>
<td>ITEM 1</td>
<td>25 min.</td>
<td>45 min.</td>
</tr>
<tr>
<td>ITEM 2</td>
<td>1 min.</td>
<td>3 min.</td>
</tr>
<tr>
<td>ITEM 3</td>
<td>5 min.</td>
<td>10 min.</td>
</tr>
<tr>
<td>ITEM 4</td>
<td>5 min.</td>
<td>10 min.</td>
</tr>
<tr>
<td>ITEM 5</td>
<td>5 min.</td>
<td>10 min.</td>
</tr>
<tr>
<td>ITEM 6</td>
<td>&lt;5 min.</td>
<td>10 min.</td>
</tr>
<tr>
<td>ITEM 7</td>
<td>20 min.</td>
<td>40 min.</td>
</tr>
<tr>
<td>ITEM 8</td>
<td>5 min.</td>
<td>10 min.</td>
</tr>
<tr>
<td>ITEM 9</td>
<td>8 min.</td>
<td>16 min.</td>
</tr>
<tr>
<td>ITEM 10</td>
<td>1 hr. 00 min.</td>
<td>2 hr. 00 min.</td>
</tr>
<tr>
<td>ITEM 11</td>
<td>1 hr. 15 min.</td>
<td>2 hr. 30 min.</td>
</tr>
<tr>
<td>ITEM 12</td>
<td>5 min.</td>
<td>10 min.</td>
</tr>
<tr>
<td>ITEM 13*</td>
<td>41 min.</td>
<td>1 hr. 23 min.</td>
</tr>
</tbody>
</table>

* ... SELECTION MODE DEFAULT

**NOTE 1:** This chart pertains to a Baud Rate of 2400 bps and when using a NEC Powermate personal computer or compatible.

**NOTE 2:** For baud rate refer to Table 950-2

**NOTE 3:** For a 600 baud rate, multiply the time factors by three. Example: ITEM 5 DOWN LOAD W/O VERIFY becomes 15 min. (5 x 3 = 15), W/VERIFY becomes 30 min. (10 x 3 = 30), etc.

**NOTE 4:** For a 300 baud rate, multiply the time factors by four. Example: ITEM 5 DOWN LOAD W/O VERIFY becomes 20 min. (5 x 4 = 20), W/VERIFY becomes 40 min. (10 x 4 = 40), etc.
<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>DOWN LOAD</th>
<th>UP LOAD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>W/O VERIFY</td>
<td>W/ VERIFY</td>
</tr>
<tr>
<td>ITEM 1</td>
<td>37 min.</td>
<td>1 hr. 07 min.</td>
</tr>
<tr>
<td>ITEM 2</td>
<td>2 min.</td>
<td>5 min.</td>
</tr>
<tr>
<td>ITEM 3</td>
<td>8 min.</td>
<td>15 min.</td>
</tr>
<tr>
<td>ITEM 4</td>
<td>8 min.</td>
<td>15 min.</td>
</tr>
<tr>
<td>ITEM 5</td>
<td>8 min.</td>
<td>15 min.</td>
</tr>
<tr>
<td>ITEM 6</td>
<td>8 min.</td>
<td>15 min.</td>
</tr>
<tr>
<td>ITEM 7</td>
<td>30 min.</td>
<td>1 hr. 00 min.</td>
</tr>
<tr>
<td>ITEM 8</td>
<td>8 min.</td>
<td>15 min.</td>
</tr>
<tr>
<td>ITEM 9</td>
<td>12 min.</td>
<td>24 min.</td>
</tr>
<tr>
<td>ITEM 10</td>
<td>1 hr. 30 min.</td>
<td>3 hr. 00 min.</td>
</tr>
<tr>
<td>ITEM 11</td>
<td>1 hr. 52 min.</td>
<td>3 hr. 45 min.</td>
</tr>
<tr>
<td>ITEM 12</td>
<td>8 min.</td>
<td>15 min.</td>
</tr>
<tr>
<td>ITEM 13*</td>
<td>1 hr. 01 min.</td>
<td>2 hr. 11 min.</td>
</tr>
</tbody>
</table>

*SELECTION MODE DEFAULT

**NOTE:** This chart pertains to a Baud Rate of 1200 bps and when using a NEC Powermate personal computer or compatible.
Table 950-3  DISPLAY ERRORS

<table>
<thead>
<tr>
<th>ERROR DISPLAY</th>
<th>CAUSE OF ERROR</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF LINE BUSY</td>
<td>Another terminal is in the OFF-LINE Mode. The RAA-E Unit is unable to access the System or System is in Initialization mode.</td>
</tr>
<tr>
<td>DRIVE OR PATH NAME ERROR</td>
<td>The Drive or Path Name cannot be found.</td>
</tr>
<tr>
<td>UP LOAD ERROR</td>
<td>Failure during Up Load. (See Note)</td>
</tr>
<tr>
<td>DOWN LOAD ERROR</td>
<td>Failure during Down Load. (See Note)</td>
</tr>
<tr>
<td>COMMUNICATION ERROR or</td>
<td>There is a communication error between the RAA-E Unit and the PC. Check connections. During remote operations, the program will automatically disconnect the line.</td>
</tr>
<tr>
<td>ADDRESS CLEAR ERROR</td>
<td></td>
</tr>
<tr>
<td>DISK WRITE</td>
<td>There was an error when writing to the disk.</td>
</tr>
<tr>
<td>NO DISK SPACE</td>
<td>There is not enough space on the disk for writing the System’s data.</td>
</tr>
<tr>
<td>SECTOR NOT FOUND</td>
<td>The Disk where System Data is to be stored is not formatted.</td>
</tr>
<tr>
<td>FILE NOT FOUND</td>
<td>Cannot find the file. Be sure that the file entered was first created on the disk.</td>
</tr>
<tr>
<td>VERIFY ERROR</td>
<td>Failure during the Verify mode. (See Note)</td>
</tr>
</tbody>
</table>

NOTE: The DATASAVE program has attempted several retries to exchange the correct data but is experiencing problems, either through the line connection or at the RAA. Exit from the program and attempt another connection.