

# ***Perception<sup>®</sup>e & ex***

## **DIGITAL PBX**

### **INSTALLATION AND MAINTENANCE MANUAL**

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**TOSHIBA AMERICA INFORMATION SYSTEMS, INC.**

Telecommunication Systems Division

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SERIAL NO. Pe&ex 1248



**PERCEPTION<sub>e&ex</sub>  
INSTALLATION INSTRUCTIONS  
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**CHAPTER 1**  
**INTRODUCTION**

**1. PURPOSE**

**1.00** This section describes the installation procedures necessary to ensure proper operation of the PERCEPTION<sub>e&ex</sub> system.

**2. ORGANIZATION**

**2.00** The organization of this manual is as follows:

1. INTRODUCTION
2. SYSTEM DESCRIPTION
3. INSTALLATION SITE REQUIREMENTS
4. SYSTEM INSTALLATION
5. MDF ARRANGEMENTS

**3. REFERENCE DOCUMENTATION**

**3.00** The PERCEPTION<sub>e&ex</sub> system is supported by a complete set of documentation. A list of the reference documentation associated with the PERCEPTION<sub>e&ex</sub> system is provided below:

<b>Document</b>	<b>Section Number</b>
Fault Finding	200-255-500
General Description	
Operating Procedures	200-255-400
Programming	200-255-300
System Record	

**4. SYSTEM MNEMONICS**

**4.00** The system is provided with a complete set of mnemonics that relate directly to its operation and features. The following alphabetical list describes the mnemonics used in this manual.

- DATT**—Attendant Console
- DDIU**—Digital Data Interface Unit
- DDIU-MA**—Digital Data Interface Unit (Stand Alone)
- DDIU-MAT**—Digital Data Interface Unit (telephone)
- DPFT**—Power Failure/Emergency Transfer Unit

- DSS**—Direct Station Selection Console
- EKT**—Electronic Telephone
- FFD0**—Floppy Disk Drive 0
- FFD1**—Floppy Disk Drive 1
- GND**—Ground
- HHEU**—Optional Headset Module
- LCCU**—Central Control Unit
- LCD**—Liquid Crystal Display
- LCEC-M**—PERCEPTION<sub>ex</sub> Basic Cabinet
- LCEC-S**—PERCEPTION<sub>ex</sub> Expansion Cabinet
- LPSA-M**—PERCEPTION<sub>ex</sub> Main Power Supply
- MDF**—Main Distribution Frame
- NCEC-M**—PERCEPTION<sub>e</sub> Basic Cabinet
- NCEC-S**—PERCEPTION<sub>e</sub> Expansion Cabinet
- NCOU**—Central Office Trunk Unit
- NDCU**—Data Control Unit
- NDSU**—DSS Console Controller Unit
- NDTU**—Digital Trunk Unit
- NEKU**—Electronic Telephone Unit
- NEMU**—E & M TIE Trunk Unit
- NFDU**—Floppy Disk Drive Unit
- NLSU**—DID Trunk Interface Unit
- NMDU**—Modem Pooling Unit
- NPRU**—Paging and Music-on Hold Unit
- NPSA-M**—PERCEPTION<sub>e</sub> Main Power Supply
- NPSA-S**—PERCEPTION<sub>e&ex</sub> Expansion Power Supply
- NRCU**—Receiver Unit
- NSTU**—Standard Telephone Unit
- NTWU**—Time Switch Unit
- PCB**—Printed Circuit Board
- PFT**—Power Fail Transfer
- SMDR**—Station Message Detail Recording
- TTY**—Teletypewriter
- UNA**—Universal Night Answer

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**5. INSPECTION, PACKING and STORAGE**

**5.00 Inspection**

**5.01** When the system is received, examine all packages and make careful note of any visible damage. If any damage is found, bring it to the attention of the delivery carrier and make the proper claims.

**5.02** Check the system against the purchase order and packing slip. If it is determined that equipment is missing, contact your supplier immediately.

**5.03** After unpacking (and before installing), inspect all equipment for damage. If any is detected, contact your supplier immediately.

**CAUTION!**

***When handling (installing, removing, examining, etc.) printed circuit boards (PCBs), do not touch the back (soldered) side or edge connector. Always hold the PCB by its edge whenever handling it.***

**5.10 Packing and Storage**

**5.11** When storing or shipping PCBs, be sure they are packed in their original antistatic bags for protection against static discharge.

**5.20 Required Tools**

**5.21** Installation of the PERCEPTION<sub>e&ex</sub> systems require standard telephony tools. A 13mm socket wrench and extension is recommended for ease of expansion cabinet installation.

## CHAPTER 2

### SYSTEM DESCRIPTION

#### 1. PERCEPTION<sub>e</sub>

##### 1.00 Basic Equipment Cabinet

1.01 The basic equipment cabinet (NCEC-M) consists of a single, free-standing cabinet mounted on casters for easy movement. Once system installation has been completed and the cabinet has been positioned, the casters can be locked to prevent movement. The interior of the cabinet houses three shelves for printed circuit card installation. A separate area is provided for installation of the power supply and peak load battery. MDF connections are facilitated by amphenol connectors located on the rear of the cabinet (Figure 2-1).

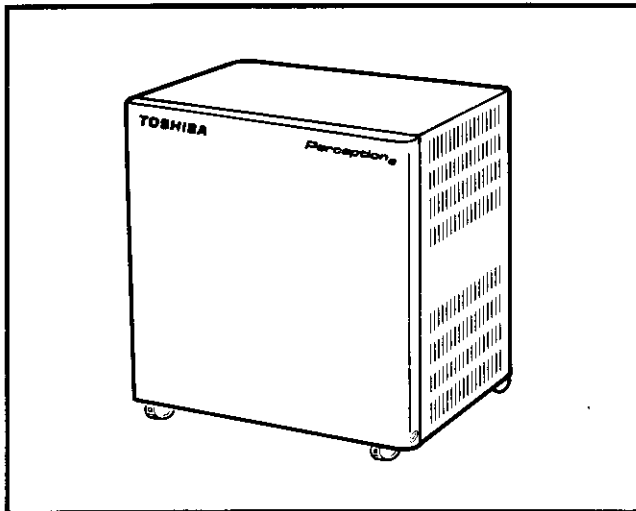


FIGURE 2-1—PERCEPTION<sub>e</sub> BASIC CABINET

##### 1.10 Expansion Cabinet

1.11 The expansion cabinet (NCEC-S) is a single cabinet that mounts on top of the basic cabinet and is secured in place with four bolts. The cabinet houses two shelves for printed circuit card installation. MDF connections are facilitated by amphenol connectors located on the rear of the cabinet (Figure 2-2).

##### 1.20 Power Supply

1.21 The Main Power Supply (NPSA-M) consists of a single metal chassis. In addition to the power

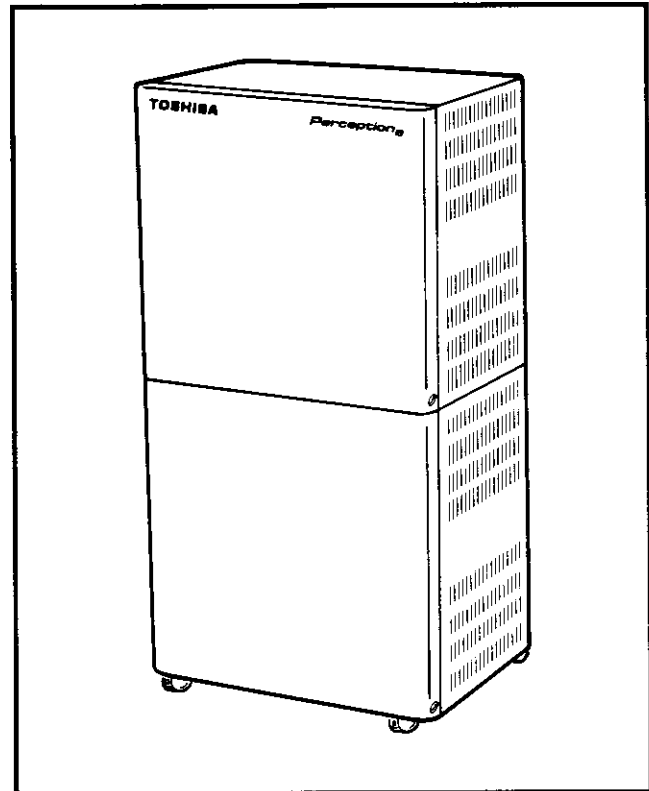


FIGURE 2-2—PERCEPTION<sub>e</sub> EXPANSION CABINET

supply, this chassis contains the system ring generator and a charger/inverter for Reserve Power. Located on the front of the chassis are a circuit breaker and LED indicator for each power supply output, and an AC power indicator, and the system power switch. The battery switch is also on the front of the NPSA-M.

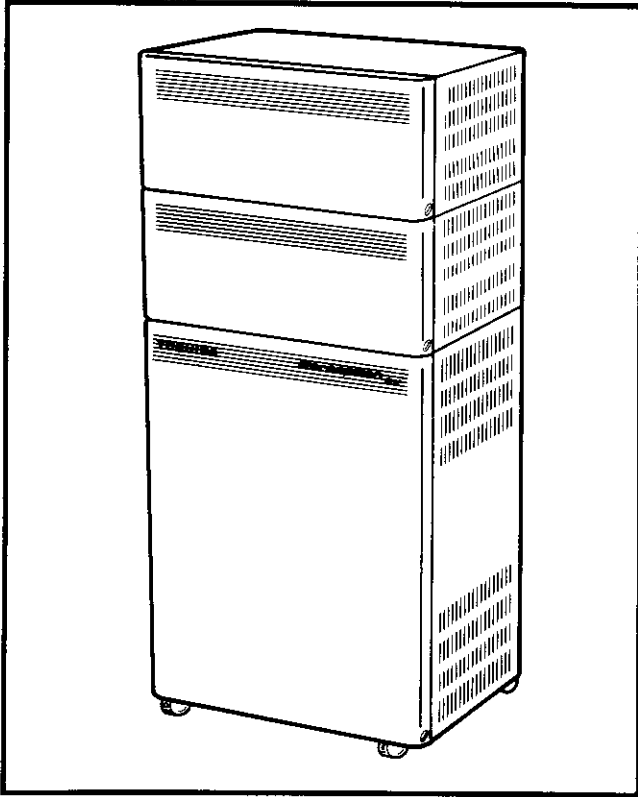
#### 2. PERCEPTION<sub>ex</sub>

##### 2.00 Basic Equipment Cabinet

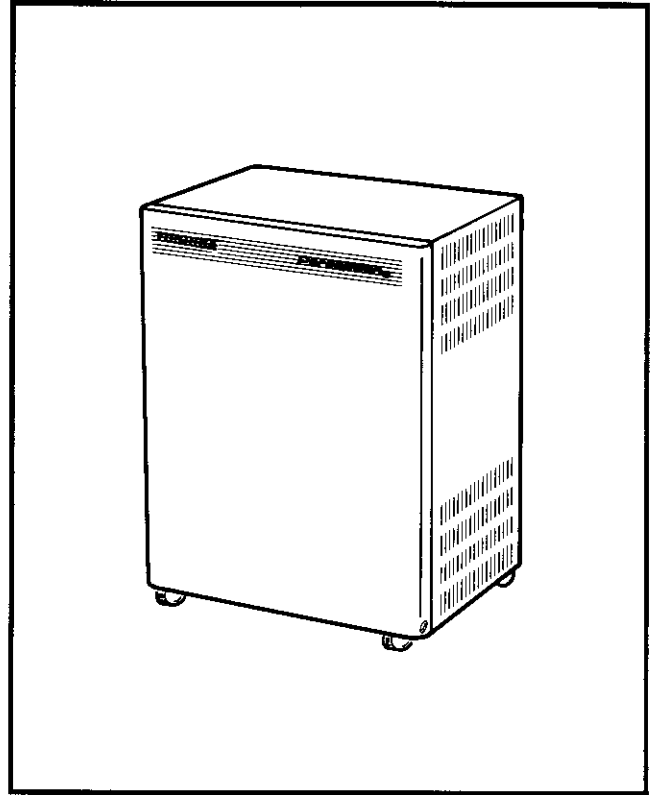
2.01 The basic equipment cabinet (LCEC-M) is a single free-standing cabinet mounted on casters for easy movement. The cabinet contains three shelves for printed circuit card installation. A separate area is provided for power supply and peak load battery installation. MDF connections are facilitated by amphenol connectors located on the rear of the cabinet (Figure 2-3).

##### 2.10 Expansion Cabinet

2.11 The expansion cabinet (LCEC-S) is a single



**FIGURE 2-3—PERCEPTION<sub>ex</sub> BASIC CABINET**



**FIGURE 2-4—PERCEPTION<sub>ex</sub> EXPANSION CABINET**

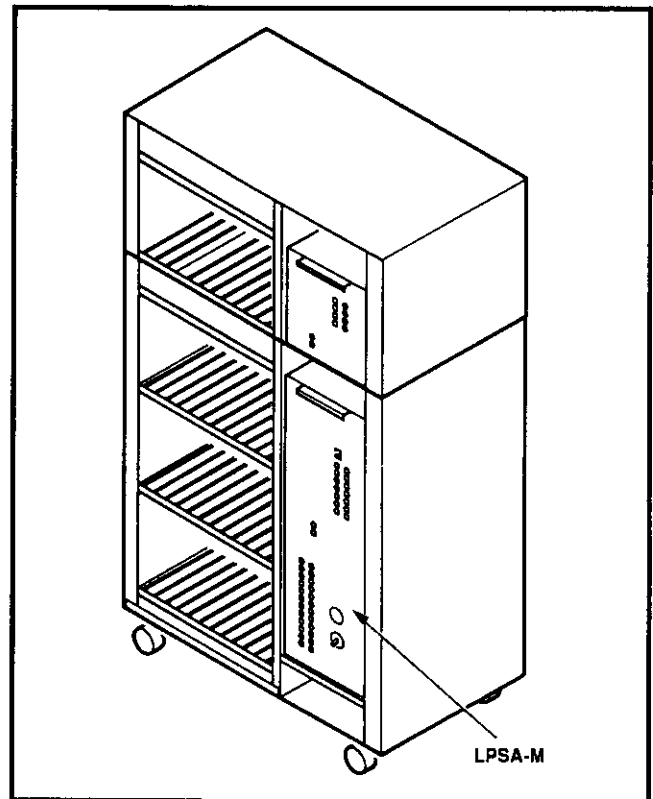
cabinet that houses a single printed circuit card shelf. MDF connections are facilitated by amphe-nol connectors located on the rear of the cabinet (Figure 2-4). Up to two expansion cabinets may be added to the PERCEPTION<sub>ex</sub> basic equipment cabinet.

### 2.20 Power Supply

2.21 The Main Power Supply (LPSA-M) consists of a single metal chassis which contains the system ring generator and charger/inverter for the Reserve Power. A circuit breaker switch, LED indicators, AC power indicator and system power switch are located on the front of the chassis. For ease in installation a handle is located at the top front of the power supply (Figure 2-5).

### 3. PEAK LOAD BATTERY

3.00 The peak load battery will maintain call processing for a maximum of two minutes in the event the PERCEPTION<sub>e</sub> or PERCEPTION<sub>ex</sub> experiences a power failure. Additionally, when the system is under heavy usage the peak load battery will



**FIGURE 2-5—PERCEPTION<sub>ex</sub> MAIN POWER SUPPLY**



avoid power degradation by supplementing the -24 volts, maintaining a constant power level.

**4. EXTENDED RESERVE POWER**

**4.00** The power supply is equipped, as a standard feature, with an internal battery charger/inverter. Full reserve power can be provided for any system by connecting an appropriate, customer-supplied 24-volt battery pack. During normal operation, the power supply charger/inverter will maintain the proper charge in the battery pack. In the event of an AC power failure, switchover to battery power will be automatic. There will be no loss of system operation as a result of power switchover. When AC power is restored, switchback to the power supply will be automatic.

**4.01** Battery selection and size will depend on system size and desired reserve operating time. The maximum power consumption of the basic cabinet is 11.5 amps at -24 VDC. For both a basic and expansion cabinet configuration, the maximum will be 19 amps at -24 VDC. The selected batteries must be compatible with the system's charger float voltage of 27.3 VDC.

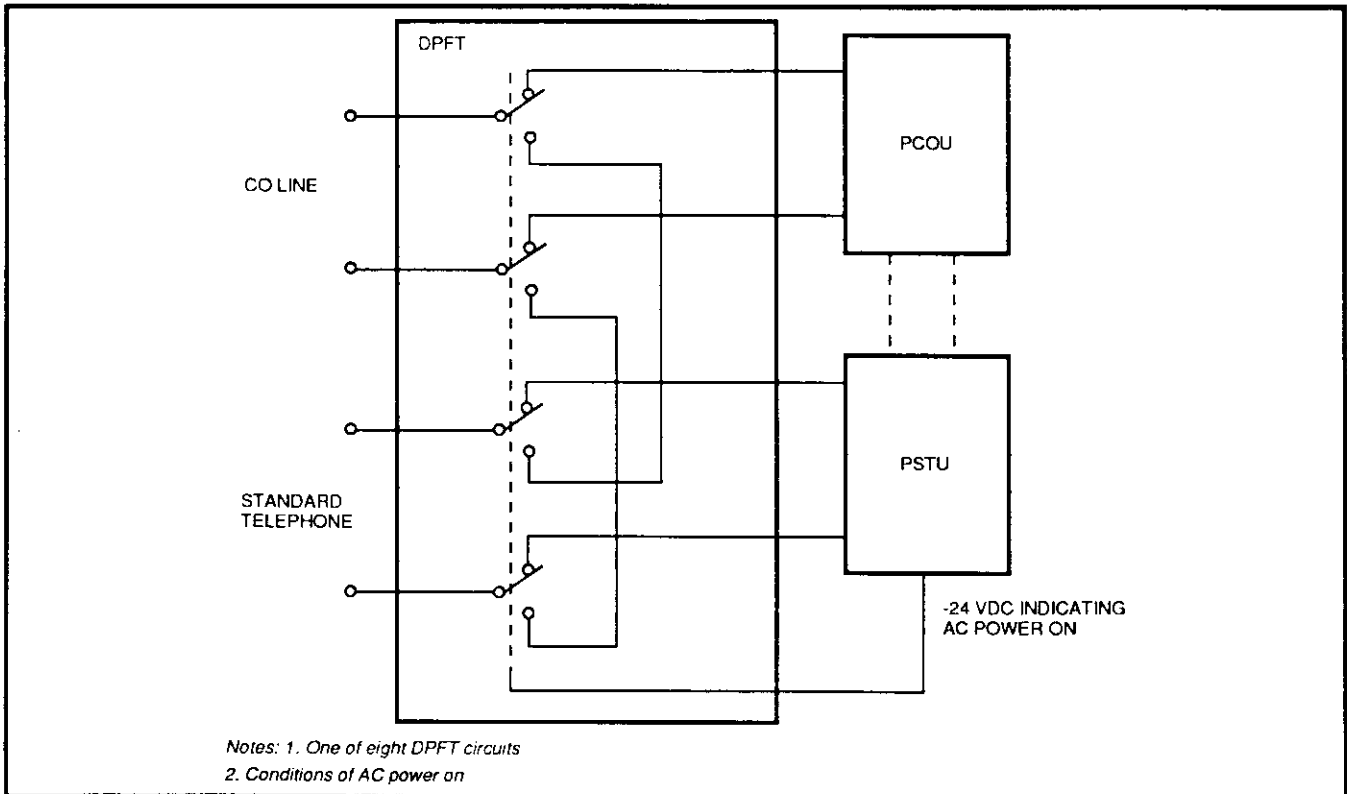
**5. POWER FAILURE/EMERGENCY TRANSFER**

**5.00** The function of the Power Failure/Emergency Transfer Unit (DPFT) is to automatically connect selected trunks to selected standard telephones in the event of system failure while permitting normal operation when the system is in service (maximum of 1 per cabinet).

**5.01** The DPFT is a self-contained module that mounts externally to the basic cabinet, typically on the MDF. Connections to the trunks, stations and basic cabinet are made via two 50-pin amphenol-type connectors (**J1** and **J2**) on the DPFT (see functional diagram in Figure 2-6)

**5.02** The module consists of eight relays that are normally operated, connecting the telephones to NSTU circuits and the trunks to NCOU circuits. If a power failure (or other emergency) occurs, the relays release, connecting the telephones directly to the trunks. Calls can then be placed from the telephones over the CO trunks, bypassing the system (which is out of service).

**5.03** Power Fail Transfer (PFT) telephones con-



**FIGURE 2-6—DPFT FUNCTIONAL DIAGRAM**

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ected to ground-start trunks must have ground taps (tap buttons) in order to make outgoing calls during power fail transfer conditions.

**5.04** A transfer can be caused by a loss of power or triggered manually by either of two buttons, one of which is located on the underside of the attendant console and the other on the front of the NPRU PCB. A transfer that is caused by a power failure will be reset automatically when power is restored; a manual transfer must be reset manually.

**5.05** When the DPFT is reset after a transfer, existing PFT conversations will be protected. Individual circuits will be restored only when they become idle.

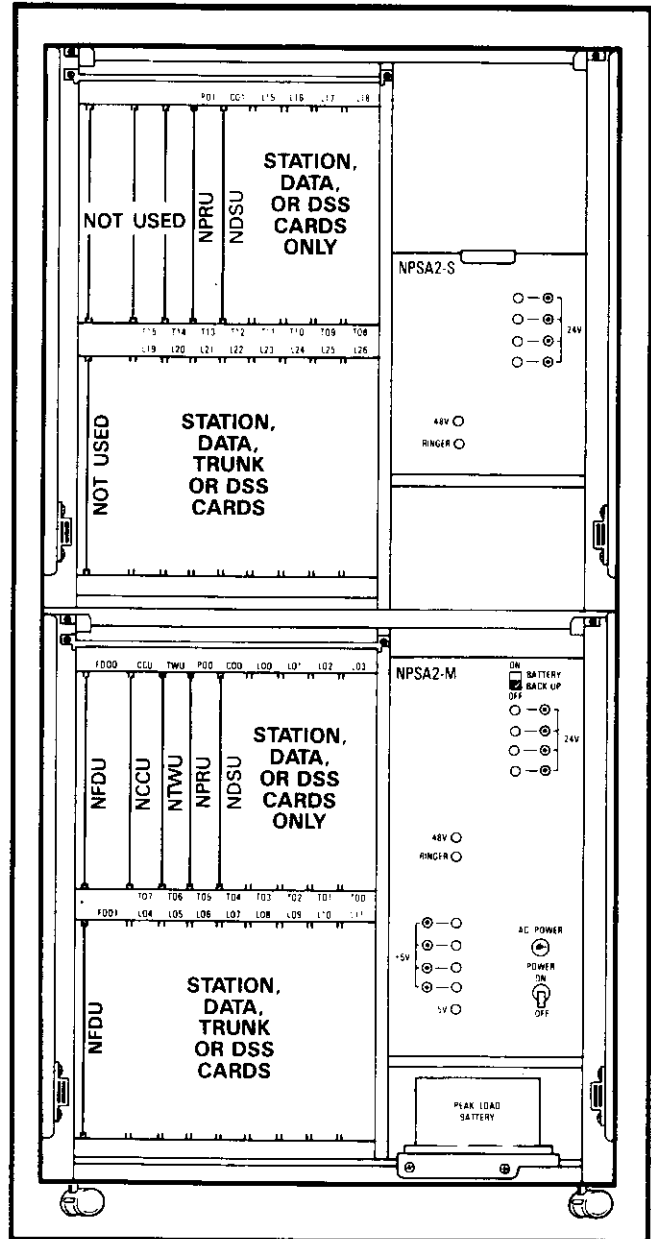
**6. PRINTED CIRCUIT BOARD DESCRIPTION**

**6.00** Fourteen different types of PCBs are available for use in both PERCEPTION systems (Figures 2-7 & 2-8). The universal port architecture enables multiple installation of trunk cards. The PERCEPTION<sub>e</sub> can support a maximum of 16 trunk cards; 8 in the basic cabinet, and 8 in the expansion cabinet. The PERCEPTION<sub>ex</sub> can support a maximum of 32 trunk cards; 24 in the basic cabinet, and 8 in the expansion cabinet.

**NFDU (Floppy Disk Drive Unit)**—one or two per system: This card houses a 3.5 inch, 1.2 Mbyte disk drive. One disk contains system program and customer data. The second disk stores the Maintenance and Administration programs. (Two NFDUs are required in **D.02** and later version software using Remote Maintenance.)

**LCCU (Central Control Unit)**—one per system: The LCCU card contains the circuitry which, under the direction of the system program, provides centralized control for the entire system. Additionally, the LCCU performs data transmission and receiving functions between the central control and all peripheral equipment, including:

- Station PCBs
- Trunk PCBs
- TTY interface
- SMDR interface
- Lodging/Health Care audit interface



**FIGURE 2-7—PERCEPTION<sub>e</sub> PCB INSTALLATION**

- Modem Interface

This circuitry consists of a 16-bit 80C88 main processor, an 8-bit Z-80 secondary processor, and 1Mbyte of memory.

**NTWU (Time Switch Unit)**—one per system: This card performs the time slot interchange function for call processing and the conference features, provides the digital speech paths with digital padding, timing and control for time slot switching and generates system tones.

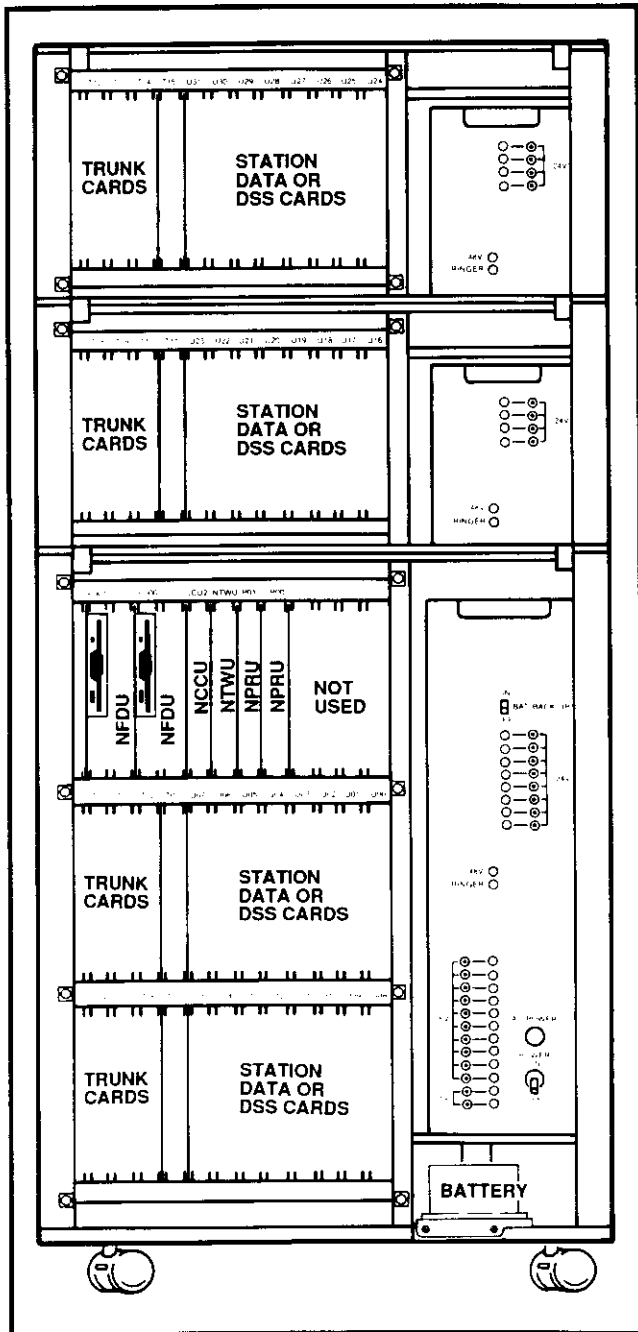


FIGURE 2-8—PERCEPTION<sub>ex</sub>  
PCB INSTALLATION

**NPRU (Paging and Music-on-hold Unit)**—Houses program load and initialization control switches and performs several miscellaneous functions:

- Paging interface and control
- Music-on-hold interface
- UNA control
- Interface for the NRCU

- Power Failure/Emergency transfer control
- Digitized voice message for Automatic Wake-up (optional)

**NRCU (Receiver Unit)**—two per NPRU (4 per system maximum): This card provides DTMF receivers, which are required for receiving tone dialing from standard telephone ports (including voice mail ports) and some incoming trunk (DID, TIE and CCSA) types. It mounts piggy-back on the NPRU board, where there is available space for two NRCUs. Each NRCU provides four DTMF receiver circuits, with a system maximum of 16.

**NEKU (Electronic Telephone Unit)**—one per eight electronic telephones: Interfaces electronic telephone to the system. It also serves as an attendant console interface. Each attendant console requires one EKT circuit.

**PERCEPTION<sub>e</sub>**

- ATT #0-PCB position L00 circuit #1
- ATT #1-PCB position L15 circuit #1

A maximum of 8 NEKU PCBs may be installed in each cabinet (24 PCBs maximum per system).

**PERCEPTION<sub>ex</sub>**

- ATT #0-PCB position L001 circuit #1
- ATT #1-PCB position L011 circuit #1

A maximum of 16 NEKU PCBs can be installed in the PERCEPTION<sub>ex</sub> basic cabinet, and eight in each expansion cabinet.

**NSTU (Standard Telephone Unit)**—Interfaces eight standard telephones (DTMF or rotary dial) to the system.

**NDSU (DSS Console Controller Unit)**—Interfaces four DSS consoles to the system. The NDSU is installed in the C00 or C01, or any line slot for PERCEPTION<sub>e</sub>; or in any universal slot for PERCEPTION<sub>ex</sub>. A maximum of two NDSU PCBs are allowed per system, and both can be installed in the same cabinet.

**NDCU (Data Control Unit)**—Interfaces eight Digital Data Interface Units (DDIUs) to the system. The

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NDCU controls data transmission between the DDIU and the cabinet. A maximum of four NDCU PCBs may be installed in each PERCEPTION<sub>e</sub> cabinet. In the PERCEPTION<sub>ex</sub>, four PCBs per shelf can be installed.

**NMDU (Modem Pooling Unit)**—Interfaces up to four modems and their associated DDIU-MAs. Any of the four DDIU circuits not required by a modem can be used with a standard DDIU (-MA or -MAT). A maximum of four NMDU PCBs may be installed in each PERCEPTION<sub>e</sub> cabinet. In the PERCEPTION<sub>ex</sub>, four PCBs can be installed per shelf.

**NOTE:**

*The system maximum of NDCU or NMDU PCBs consists of any combination of the two PCBs totaling four.*

**NCOU (Central Office Trunk Unit)**—one per four CO trunks: Provides the signaling supervisory functions on loop- and ground-start trunks. Interfaces four CO trunks to the system. These trunks can be incoming, outgoing, or both way CO trunks; WATS trunks, or Foreign Exchange (FX) trunks.

**NEMU (E & M TIE Trunk Unit)**—one per four E & M TIE trunks: Each TIE trunk can be individually strapped for Type I or II operation with either 2-wire or 4-wire connection.

**NLSU (DID Trunk Interface Unit)**—one per four DID trunks: Each NLSU connects four Direct Inward Dialing (DID) trunks to the system.

**NDTU (T1 Interface)**—maximum of two per system (one in the main cabinet, one in the expansion cabinet): Each NDTU provides a maximum of 24 trunk lines. The Digital Trunk printed circuit card enables the PERCEPTION<sub>e&ex</sub> systems to connect directly to T1 span lines either to connect to the telco (through a Channel Service Unit) or a private network using DS1 signaling. T1 transmission can offer a significant reduction in cost of external connectivity as well as the enhanced quality of digital transmission.

## 7. SYSTEM INDICATORS AND CONTROLS

7.00 Several system indicators and controls are

located on the various PCBs and assemblies. The locations and functions are:

### NFDU

- Disk Drive LED—Will light to indicate when the disk is being accessed.
- PUSH Button—Used to eject the diskette from the drive.

### LCCU

- MAJ LED—Lights when a MAJOR alarm exists in the system.
- MDR LED—Lights when the DTR signal from the SMDR device is not present. An MDR alarm on the attendant console lights simultaneously.
- AUX LED—Not currently used. Ignore LED.
- TTY switch—Slide switch used to select 300 or 1,200 bps speed for TTY port. This port is used for either programming and maintenance and/or the Lodging/Health Care Audit.
- MDR switch—Slide switch used to select 300 or 1,200 bps speed for the SMDR port. This port is used for SMDR and/or the Lodging/Health Care Audit.
- AUX switch—This switch is not currently used.

### NTWU

- CLOCK LED—Flashes continuously when the system is functioning as usual.

### NPRU

- FALT LED—Indicates software-detected faults concerning MOH or Paging circuits.
- BSY LED 1 & 2
  - #1 lights when any page is in progress.
  - #2 indicates when MOH is in use (a call is on hold or camp-on).
- MOH volume control—Adjust, Music-on-hold volume level.
- LOAD switch—A momentary switch used in an emergency condition to reload system program and data from disk. All existing calls will be dropped when this switch is pushed.
- INT switch—A momentary switch used in emergency conditions to reset system logic. All existing calls will be dropped when this switch is pushed.
- PFT switch—A locking switch used to manu-

ally activate a transfer with the DPFT unit. A transfer activated by this switch can only be reset by this switch.

- MDM LED—Not currently used.
- PFT LED—LED is **ON** whenever a power fail transfer condition has been manually initiated.
- NRCU FALT LEDs 1, 2, 3 & 4—Used to indicate software-detected faults or a disabled state caused by an input command from the maintenance terminal (**TPER Program**). Each LED indicates two of the four circuits on each of the two NRCUs that can mount on the NPRU.  
FALT #1 = Circuits 1 & 2, NRCU2 1  
FALT #2 = Circuits 3 & 4, NRCU2 1  
FALT #3 = Circuits 1 & 2, NRCU2 2  
FALT #4 = Circuits 3 & 4, NRCU2 2

#### NCOU/NEMU/NLSU

- FALT LEDs 1 & 2—Indicate software-detected faults or a disabled state caused by an input command from the maintenance terminal (**TPER Program**) or while ports are programmed. Each LED indicates two of the four circuits on the NCOU, NEMU or NLSU:  
FALT #1 = Circuits 1 & 2  
FALT #2 = Circuits 3 & 4
- BSY LEDs 1 ~ 4—Indicate the busy/idle status of each of the four circuits on the NCOU, NEMU or NLSU. LED is **ON** when circuit is busy.

#### NDTU

- FALT LED—Indicates software-detected faults or a disabled state caused by an input command from the maintenance terminal (**TPER Program**) or while ports are programmed. LED indicates fault occurring in more than one channel.
- BSY LED—Indicates the busy/idle status of the six channels on the NDTU. LED is **ON** when more than one channel is busy.
- FALM LED—Indicates NDTU has not achieved Synchronization.
- MFALM LED—Indicates NDTU has not achieved Frame Synchronization.
- YALM LED—Indicates a Yellow Alarm is detected by the NDTU.
- BALM LED—Indicates a Blue Alarm is de-

tected by the NDTU.

- Signaling Type Selection Switches S4 ~ S11—Six-element DIP switches used to select one of four available signaling modes, on a per channel basis, for each of the 24 NDTU channels. Available signaling modes are:

CO (Loop Start) mode  
CO (Ground Start) mode  
DID (2-wire signalling)  
TIE Line mode (4-wire E&M)

#### NEKU/NSTU

- FALT LEDs 1 & 2—Indicate software-detected faults or a disabled state caused by an input command from the maintenance terminal (**TPER Program**) or while ports are programmed. Each LED indicates four of the eight circuits on the NEKU or NSTU:  
FALT #1 = Circuits 1 ~ 4  
FALT #2 = Circuits 5 ~ 8

#### NDSU

- FALT LEDs 1 & 2—Indicate software-detected faults or a disabled state caused by an input command from the maintenance terminal (**TPER Program**) or while ports are programmed. Each LED represents two or the four ports on the NDSU:  
FALT #1 = Circuits 1 & 2  
FALT #2 = Circuits 3 & 4

#### NDCU

- FALT LEDs 1 & 2—Indicate software-detected faults or a disabled state caused by an input command from the maintenance terminal (**TPER Program**) and while ports are programmed. Each LED indicates for four of the eight circuits on the DDCU:  
FALT #1 = Circuits 1 ~ 4  
FALT #2 = Circuits 5 ~ 8
- NOT READY LEDs DIU 1 ~ 4 and DIU 5 ~ 8—Indicate the DDIU's (-MA or -MAT) power switch is not in the **ON** position or tip and ring line polarity is reversed.

#### NMDU

- FALT LEDs 1 & 2—Indicate software-detected faults or a disabled state caused by an input command from the maintenance termi-

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nal (**TPER Program**) and while ports are programmed:

FALT #1 = DIU Circuits 1 ~ 4

FALT #2 = Modem Circuits 1 ~ 4

- NOT READY LEDs DIU 1 ~ 4—Indicate the DDIU's (-MA or -MAT) power switch is not in the **ON** position or tip and ring line polarity is reversed.
- BSY LEDs (Modem) 1 ~ 4—Indicate the busy/idle status of each of the four modem circuits (the LED is **ON** when the circuit is busy).

**NPSA-M/LPSA-M**

- LEDs indicate the presence of: Ringer and -48, -24, -12, +12, -5, +5 voltages.
- AC Power LED—Indicates the presence of AC power to the NPSA-M.

**NPSA-S**

- LEDs indicate the presence of: -48 and -24 Voltages.

**8. PERIPHERAL EQUIPMENT**

**8.00 Electronic Telephone**

**8.01** Four different electronic telephones may be used in the system. See the *General Description* for a complete description of the telephones.

**8.02** All electronic telephones share the same dimensions:

Height: 3.7" (94mm)

Width: 7.1" (180mm)

Depth: 9.5" (241mm)

**8.03** All electronic telephones feature modular handset cords and are connected to the system via 4-conductor modular line cords. In addition, each model may be used at any or all stations.

**8.10 Headset Upgrade (HHEU)**

**8.11** Each electronic telephone may also be upgraded to provide a modular headset jack by installing a headset upgrade assembly. The assembly consists of a small PCB (HHEU) which installs on the main PCB, inside the telephone, with a plug-in connector. Most standard headsets are

compatible with the HHEU jack.

**8.20 Attendant Console**

**8.21** The Attendant Console is available with faceplates for the Business and Lodging/Health Care applications. The console consists of a plastic housing with handset/headset modular jacks. Two horizontal rows of non-locking buttons, LEDs and a 12-button dialpad enable call processing.

**8.30 DSS Console**

**8.31** As an option a Direct Station Selection (DSS) console can be used with systems that don't require attendant consoles or require distributed call-handling positions. Two DSS consoles per electronic telephone, up to a system maximum of eight consoles, can be installed.

**8.40 Standard Telephone**

**8.41** Standard telephones can be mixed with electronic telephones as required by the user's application. Standard telephones can access all telephone features using dial code access.

**8.50 DDIU**

**8.51** There are two types of Digital Data Interface Units (DDIUs), DDIU-MAT and DDIU-MA. The DDIU-MAT is a built-in unit that attaches directly to the bottom of a 10- or 20-button electronic telephone (replacing the base). The DDIU-MA is a stand-alone unit. Each unit is equipped with a female RS-232C connector, operation switches and a power supply. This power supply connects to the DDIUs via a 6' cord, and plugs into a standard 117 VAC wall outlet.

**8.60 Paging Equipment**

**8.61** A customer-supplied paging amplifier can work in conjunction with the system's paging interface and speaker zone switching to provide a system paging capability.

**8.70 Music-on-Hold**

**8.71** A standard interface enables a customer-

provided music source to be connected to the system. This music is connected to all calls placed in the hold, camp-on or call waiting condition by a station or the attendant. The same music source can also be used by the Automatic Wake-up feature for wake-up calls.

### **8.80 Universal Night Answer**

**8.81** Incoming calls, when the system is in night operation, can be programmed to go either to a night answer station or to a Universal Night Answer device such as a bell or loud ringer. Any station user can pick up a UNA call by either pressing a **UNA** button on the telephone or by dialing an access code. Up to two UNA zones can be programmed per system.

### **8.90 Station Message Detail Recording**

**8.91** PERCEPTION<sub>e&ex</sub> automatically record call data (such as call duration, digits dialed, originating station and account codes) of calls made to and from the system. Lodging/Health Care feature activation (Automatic Wake-up, Message Registration, etc.) is also recorded. This data can then output to a printer, recording device or call accounting system. The Lodging/Health Care feature audit can be combined with SMDR or can be output separately. SMDR helps the user reduce telephone costs and monitor employee telephone usage.





**CHAPTER 3**

**INSTALLATION SITE REQUIREMENTS**

**1. COMMERCIAL POWER**

**1.00** The system requires a power source of 100 ~ 120 VAC, 50/60 Hz. The AC outlet *must be dedicated* to system use, grounded and fused. To avoid accidental power turn-off, it is recommended that an ON/OFF wall switch not be used on this dedicated AC circuit.

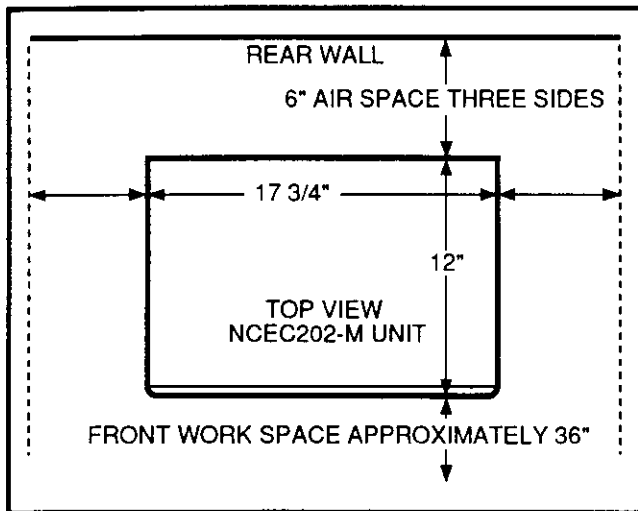
**1.01** If reserve power is to be installed, the battery pack requires a well-ventilated location adjacent to the equipment cabinet.

**2. ENVIRONMENTAL REQUIREMENTS**

**2.00** Humidity at the equipment cabinet should be within 20 ~ 80% (non-condensing), and the temperature should be relatively constant within 32 ~ 104°F (0 ~ 40°C). Exposure to dust and airborne chemicals should be avoided.

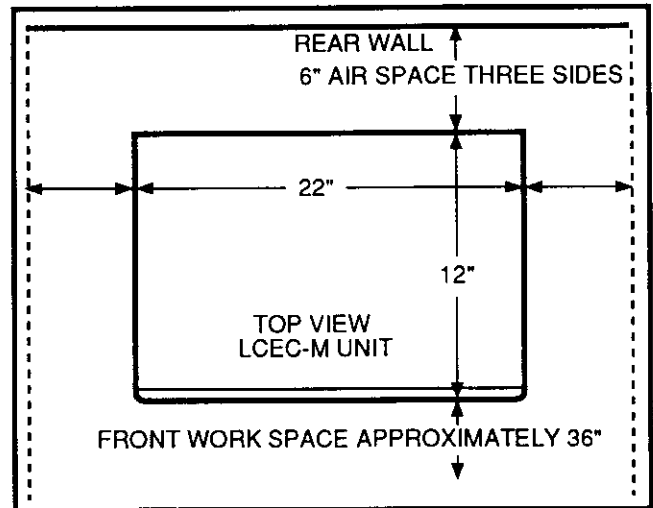
**3. EQUIPMENT ROOM RECOMMENDATIONS**

**3.00** The minimum floor and maintenance space required for installation of each of the two equipment cabinets is shown in Figures 3-1 and 3-2.



**FIGURE 3-1—PERCEPTION<sub>e</sub>  
MINIMUM FLOOR SPACE**

**3.01** The following requirements must be considered when selecting a location for the equipment



**FIGURE 3-2—PERCEPTION<sub>ex</sub>  
MINIMUM FLOOR SPACE**

cabinet:

The location **MUST BE**:

- Dry and clean.
- Well ventilated.
- Well lit.
- Easily accessible.

The location **MUST NOT BE**:

- Subject to extreme heat or cold.
- Subject to corrosive fumes.
- Next to a reproducing or copying machine.

**4. CABLING CONSIDERATIONS**

**4.00** The equipment cabinet must be located close to the facility Main Distribution Frame (MDF). Maximum house cable run distances for station and peripheral equipment must also be considered when choosing the location of the equipment cabinet. The limit for each type of equipment is:

- Electronic Telephone - 1,000 cable feet (305 M), 24 AWG
- Standard telephone - 500-ohms (including telephone)
- Stand-alone DDIU-MA-3,280 cable feet (1,000 M), 24 AWG
- Attendant Console - 1,000 cable feet (305 M), 24 AWG
- DSS - 500 cable feet, 24 AWG

**4.01** Acceptable cable for all telephones is 22 or

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24 AWG twisted pair inside telephone station cable (jacketed but not shielded). Two twisted pairs are required for the electronic telephone and one pair for a standard telephone. Three twisted pairs are required for an electronic telephone equipped with a DDIU-MAT. The stand-alone DDIU-MA requires one twisted pair.

4.02 A 25-pair cable is required for the attendant console. The console is equipped with a male 50-pin amphenol-type connector.

**5. GROUNDING**

5.00 The system requires a solid earth ground for proper operation. Failure to provide such a ground may lead to confusing trouble symptoms and, in extreme cases, system failure. This ground connection is made at the GND terminal on the rear of the basic cabinet power supply (Figures 3-3 and 3-4).

5.01 In most installations, within the continental United States, the ground provided by the "third

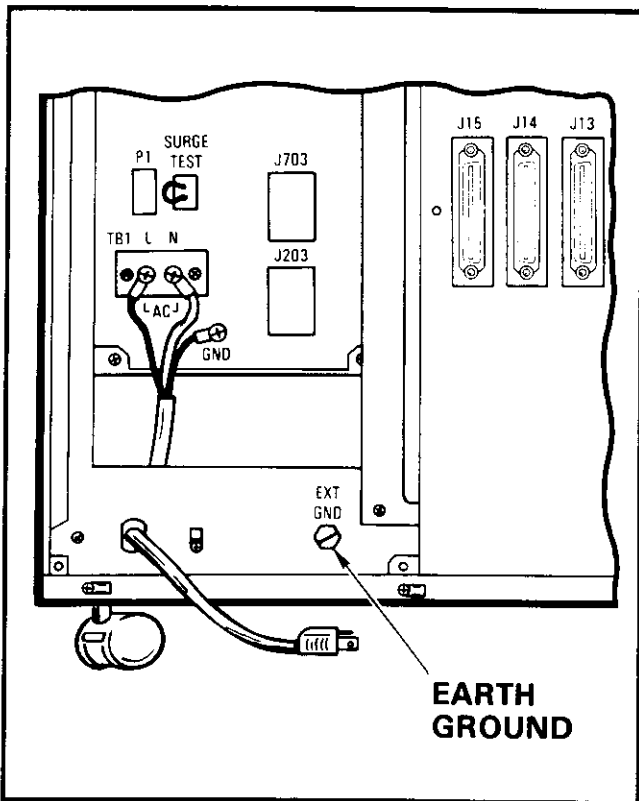
wire ground" at the commercial power outlet will be satisfactory for all system requirements. However, in a small percentage of installations, this ground may be installed incorrectly. Before installing a system, test the third wire ground for continuity by either measuring the resistance between the third prong terminal (earth ground) and a metal cold water pipe (maximum: 10 ohms), or by using a commercially available earth ground indicator. If neither procedure is possible, then the test procedures given in Paragraph 5.10 should be performed.

**WARNING!**

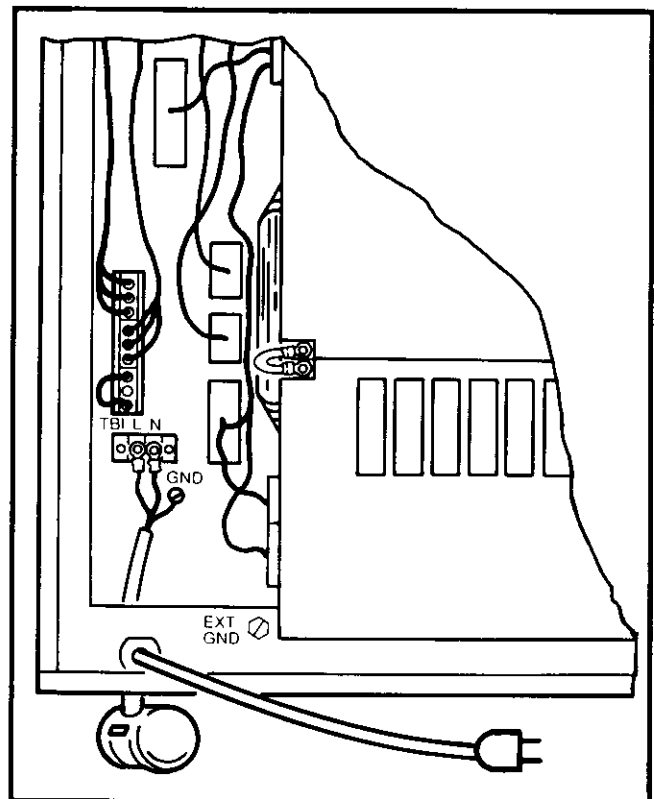
**Hazardous voltages that may cause death or injury is exposed during the following test. Use great care when working with AC power line voltage.**

**5.10 Earth Ground Test**

- 1) Obtain a suitable voltmeter and set it for a possible reading of up to 250 VAC.
- 2) Connect the meter probes between the two AC



**FIGURE 3-3—PERCEPTION<sub>e</sub> EARTH GROUND CONNECTION**



**FIGURE 3-4—PERCEPTION<sub>ex</sub> EARTH GROUND CONNECTION**

voltage terminals (red and black wires) at the wall outlet. The reading obtained should be 100 ~ 120 VAC

- 3) Move one of the meter probes to the third terminal (green wire ground). Either the same reading or a reading of 0 volts should be obtained.
- 4) If the reading is 0V, leave one probe on the ground terminal and move the other probe to the second voltage terminal. If a reading of 0V is obtained on both voltage terminals, the outlet is not properly grounded. Omit Steps 5 and 6, and proceed directly to Step 7.
- 5) If a reading of 0V on one terminal and a reading of 100 ~ 120 VAC on the other terminal is obtained, remove both probes from the outlet.
- 6) Set the meter on the "OHMS/Rx1" scale place one probe on the terminal which gave a reading of 0V. If a reading of less than 1-ohm is not obtained, the outlet is not adequately grounded.
- 7) If the above test shows that the outlet is not properly grounded, that condition should be corrected (per Article 250 of the National Electrical Code) by a qualified electrician before the system is connected.



CHAPTER 4

SYSTEM INSTALLATION

1. PERCEPTION<sub>e</sub>

1.00 Power Supply Installation

1.01 Install the Main Power Supply as follows:

- 1) Remove the two screws securing the basic cabinet front cover. Lift the cover off the cabinet.
- 2) Loosen two screws, and remove and retain four screws securing the basic cabinet rear cover plate and remove the rear cover plate (Figure 4-1).

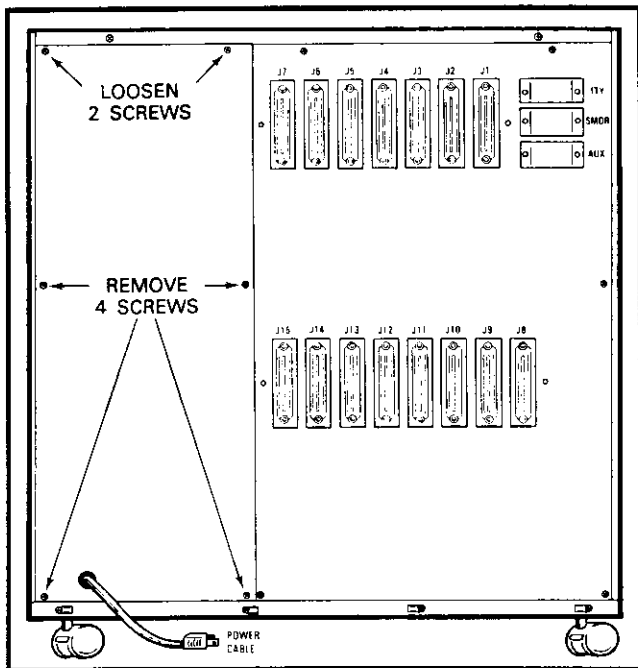


FIGURE 4-1—PERCEPTION<sub>e</sub>  
BASIC CABINET REAR COVER

- 3) Unpack the main power supply and inspect it carefully for any visible damage. Verify that all connectors are securely attached.
- 4) Remove and retain the three corner screws from the back of the main power supply.
- 5) Slide the main power supply into the basic cabinet from the front and secure in place with three screws at the rear.
- 6) Check the 15-amp fuse (F1) located at the top of the power supply to verify that it is in working

order.

- 7) Remove plastic cover from AC connection terminal TB1 by removing two screws.
- 8) Connect the white and black leads to the AC terminal (black to L and white to N) and the green lead (ground) to the GND screw on the main power supply (Figure 4-2). Replace the plastic cover and secure with two screws.

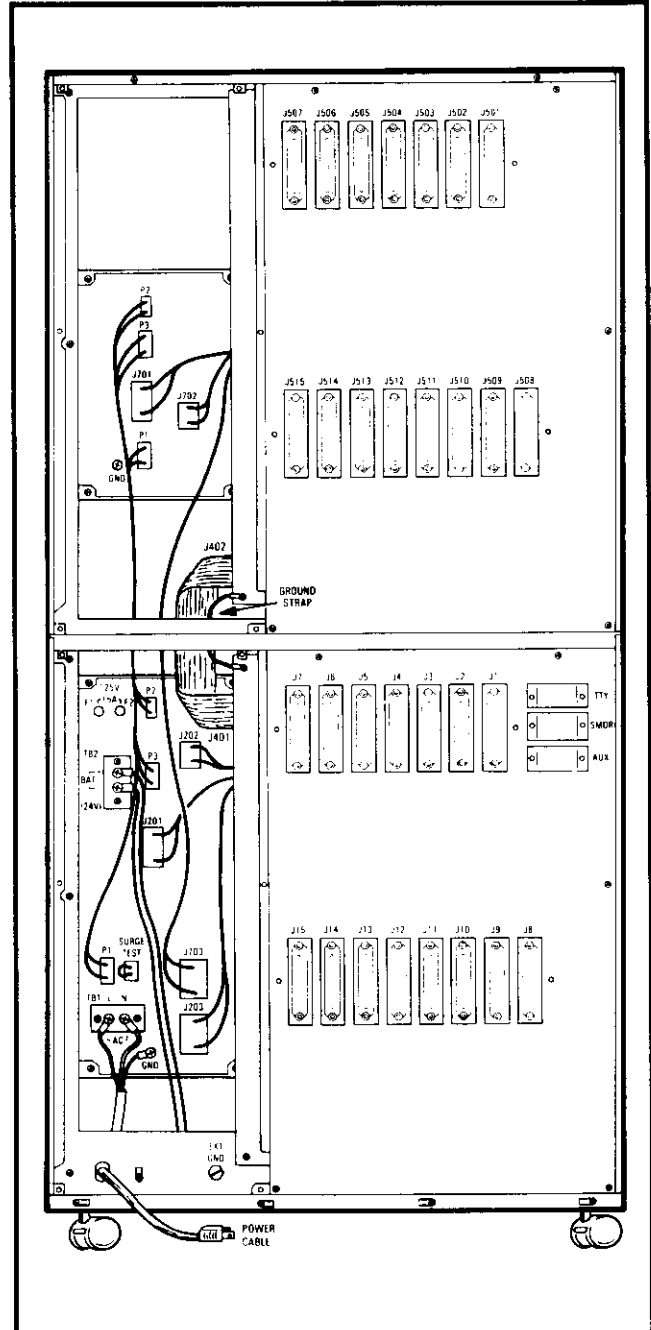


FIGURE 4-2—PERCEPTION<sub>e</sub>  
CABLE CONNECTIONS

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- 9) With the main power supply turned **OFF**, plug the AC power cord into the AC outlet.
- 10) Momentarily press each circuit breaker to verify that it is not tripped.
- 11) Place the main power supply power switch in the **ON** position.

**WARNING!**

***Hazardous voltage that may cause death or injury is exposed at the power supply AC terminal.***

- 12) Verify that all main power supply power indicator LEDs are on (**RINGER** LED should be pulsating rapidly). If any of the LEDs are **not** on, replace the main power supply.
- 13) Using a multimeter (set to the appropriate ranges), check the pins on connectors **J201**, **J202**, **J203** and **J703** for the voltages shown in Figure 4-3. (The connectors are on the rear of the power supply chassis.) Measure between the voltage pin and a ground pin. (All ground leads are tied to a single point, so any can be used.) Figure 4-3 also shows the acceptable range for each output voltage. If a measured voltage falls outside of the acceptable range, replace the main power supply.
- 14) Turn the power supply **OFF** and then connect **J201**, **J202** and **J203**, respectively, as shown in Figure 4-2.
- 15) Remove and retain the two screws securing the peak load battery mounting bracket and slide the bracket out the front of the basic cabinet.
- 16) Install the peak load battery as shown in Figure 4-4. Secure the battery to the mounting bracket with the retaining strap and a single screw.

**WARNING !**

***Hazardous voltage that may cause death or injury is exposed at the peak load battery cables. DO NOT touch wires together.***

- 17) Connect the peak load battery cables to TB2 on the rear of the basic power supply (see Figure 4-2). Ensure that the correct polarity is

observed as follows:

blue to positive (+)  
yellow to negative (-)

- 18) Slide the mounting bracket/battery assembly in place and secure with two screws.
- 19) Set the **BATTERY BACKUP** switch to **ON** (Figure 4-5).

### 1.10 Expansion Cabinet Installation

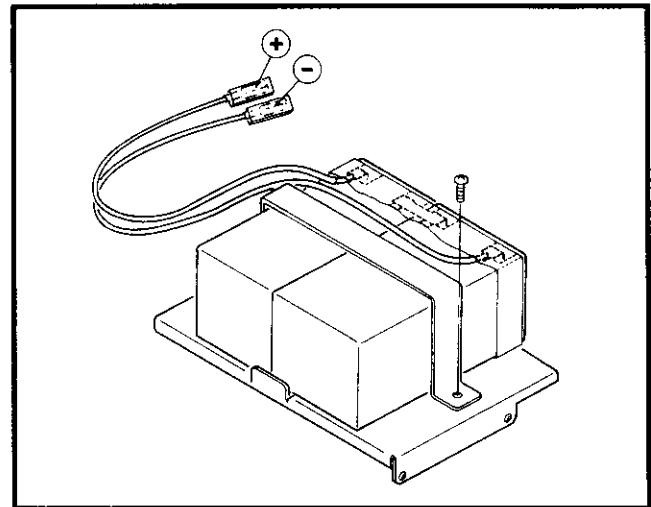
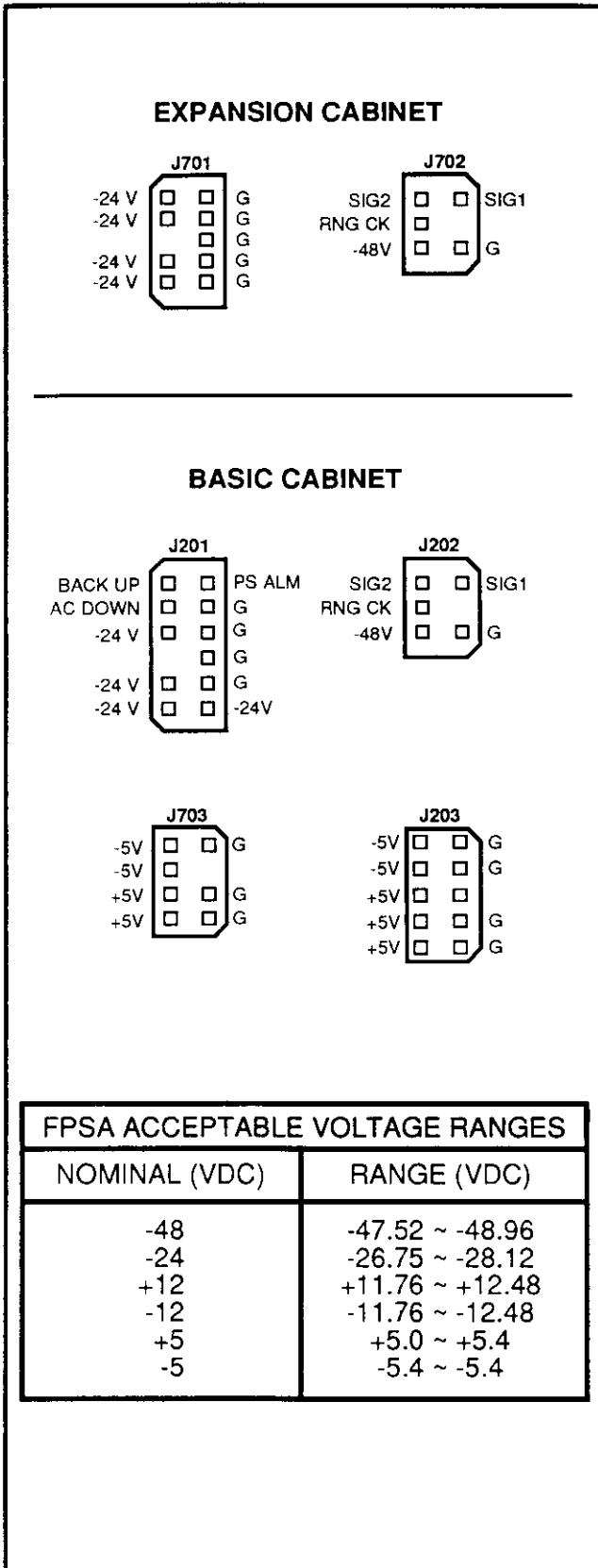
**WARNING!**

***Hazardous voltage that may cause death or injury is present in the system during operation. Ensure that AC power to both cabinets is turned off prior to performing this procedure.***

**NOTE:**

*A 13mm socket wrench and extension is recommended for ease of expansion cabinet installation.*

- 1) Remove and retain the four screws securing the basic cabinet top cover and lift the cover off the cabinet (Figure 4-6).
- 2) Remove and retain the two screws securing each of the expansion cabinet side panels. Pull the side panels off.
- 3) Place the four casters on the basic cabinet in the lock position to ensure cabinet stability during the expansion cabinet installation.
- 4) On both the basic and expansion cabinets, remove and retain two screws securing the cabinet doors. Remove and retain the six screws securing the rear panel on each cabinet.
- 5) Place the expansion cabinet on top of the basic cabinet, ensuring proper alignment of the four mounting holes. Secure in place with four metric bolts, flat washers and lockwashers.
- 6) Reinstall the two side covers on the expansion cabinet and secure in place using four screws (two per side).
- 7) Install the top cover on the expansion cabinet and secure with four screws.
- 8) Connect the intercabinet ground wire in accordance with Figure 4-2.



**FIGURE 4-4—PEAK LOAD BATTERY**

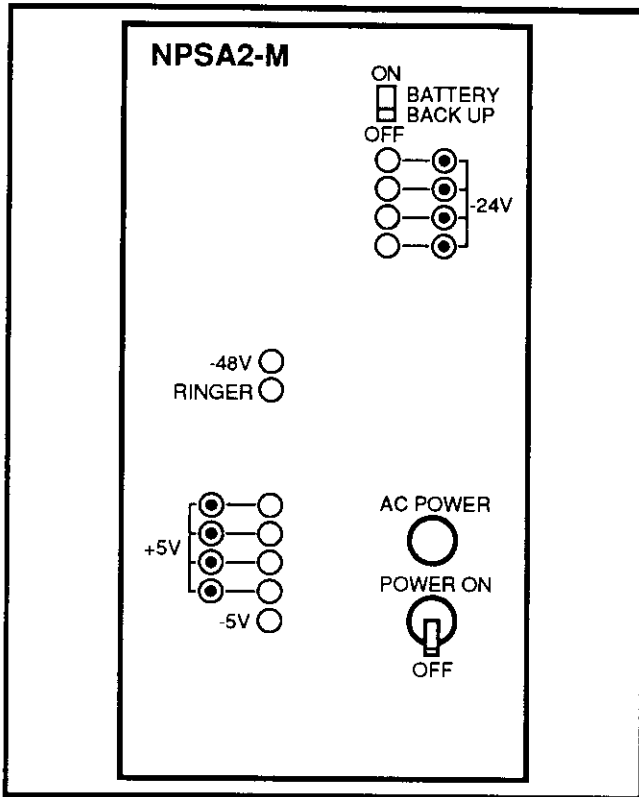
- 9) Route the expansion cabinet ribbon cable from **J402** in the expansion cabinet through the opening provided in the cabinet bottom and connect to the basic cabinet backplane at **J401**.
- 10) Remove three screws from the secondary power supply. From the front of the expansion cabinet slide the power supply into the rack and secure in place with the three rear screws.

**NOTE:**

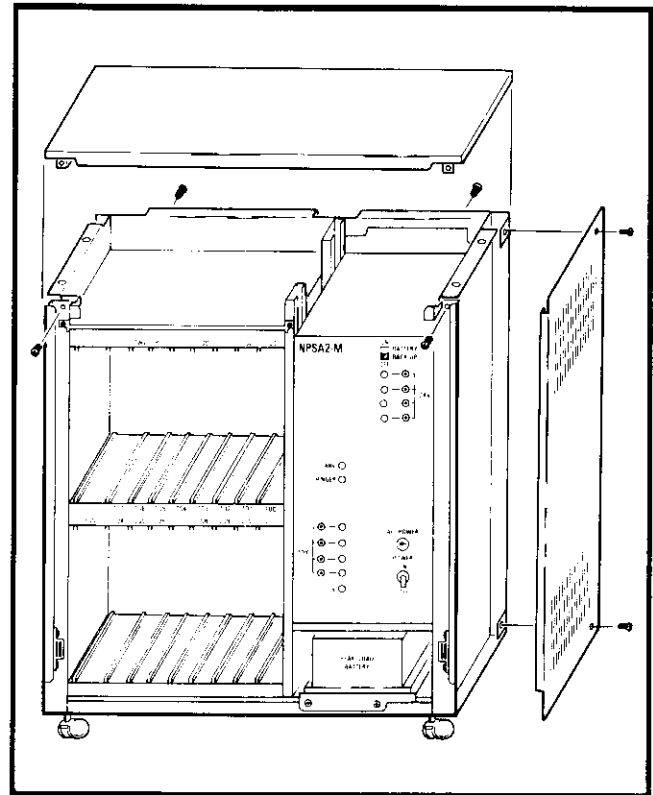
*Prior to routing intercabinet cabling, check the 15-amp fuse (F2) located at the top of the main power supply to verify that it is in working order.*

- 11) Route the power supply cabling through the hole in the expansion cabinet and connect both power supplies at the **P1**, **P2** and **P3** receptacles.
- 12) With the main power supply turned **OFF**, plug the AC power cord into the AC outlet.
- 13) Momentarily press each secondary power supply circuit breaker to verify that it is not tripped.
- 14) Place the main power supply power switch in the **ON** position.
- 15) Verify that all secondary power supply power indicator LEDs are on. If any of the LEDs are **not** on, replace the NPSA-S (**RINGER LED** should be pulsating rapidly).
- 16) Using a multimeter (set to the appropriate ranges), check the pins on connectors **J701**

**FIGURE 4-3—PERCEPTION<sub>e</sub> VOLTAGE CHECKS**



**FIGURE 4-5—PERCEPTION<sub>ex</sub> POWER SUPPLY CONTROLS AND INDICATORS**



**FIGURE 4-6—EXPANSION CABINET INSTALLATION**

and **J702** on the secondary power supply for the voltages shown in Figure 4-3. (The connectors are on the rear of the power supply chassis.) Measure between the voltage pin and a ground pin. (All ground leads are tied to a single point, so any can be used.) Figure 4-3 also shows the acceptable range for each output voltage. If a measured voltage falls outside of the acceptable range, replace the secondary power supply.

- 17) Turn the power supply **OFF**.
- 18) Plug in connectors **J701** and **J702**.
- 19) Route cable **J703** into the basic cabinet and plug it into connector **J703**.
- 20) Reinstall the rear panels and doors on both cabinets and secure in place with screws.

## **2. PERCEPTION<sub>ex</sub>**

### **2.00 Power Supply Installation**

**2.01** Install the Main Power Supply as follows:

- 1) Remove the two screws securing the basic

- cabinet front cover. Lift the cover off the cabinet.
- 2) Remove and retain six screws securing the basic cabinet rear cover plate and remove the rear cover plate (Figure 4-7).
- 3) Unpack the main power supply and inspect it carefully for any visible damage. Verify that all connectors are securely attached.
- 4) Remove and retain the three corner screws from the back of the main power supply.
- 5) Slide the main power supply into the basic cabinet from the front and secure in place with three screws at the rear.
- 6) Check the two 30-amp fuses (F1 and F2) located at the top of the power supply to verify that they are in working order.
- 7) Remove plastic cover from AC connection terminal TB1 by removing two screws.
- 8) Connect the white and black leads to the **AC** terminal (black to **N** and white to **L**) and the green lead (ground) to the **GND** screw on the main power supply (Figure 4-8). Replace the



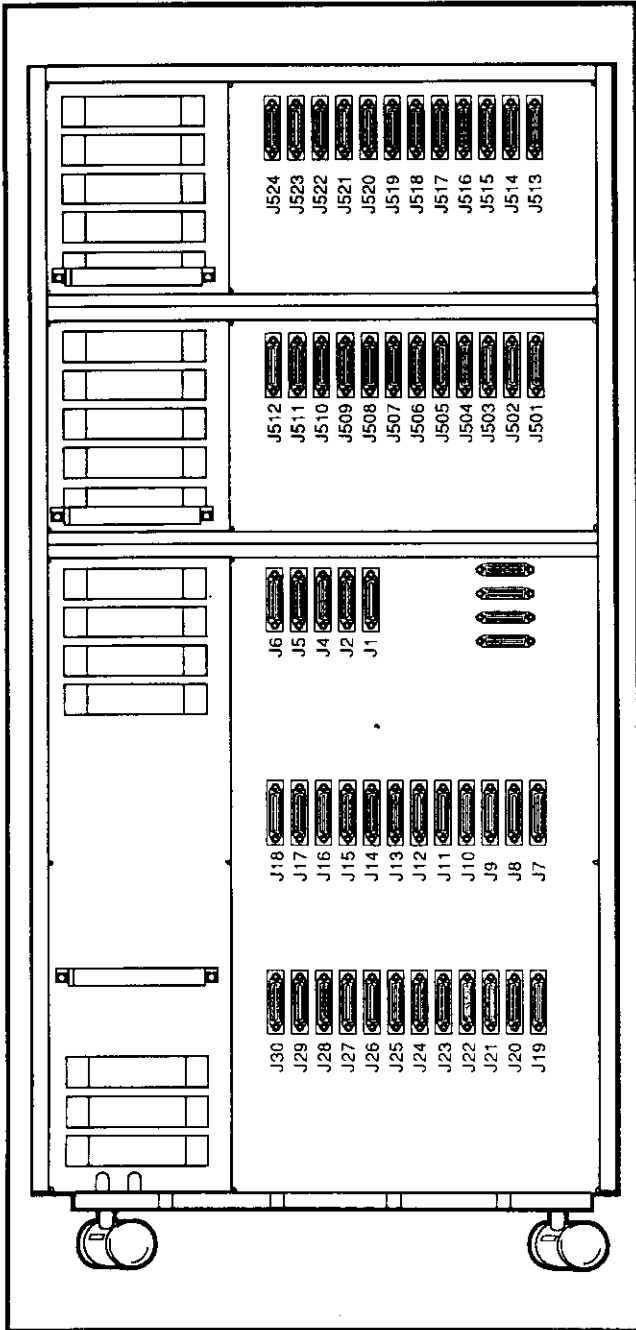


FIGURE 4-7—PERCEPTION<sub>ex</sub> BASIC CABINET REAR COVER

plastic cover and secure with two screws.

- 9) With the main power supply turned OFF, plug the AC power cord into the AC outlet.
- 10) Momentarily press each circuit breaker to verify that it is not tripped.
- 11) Place the main power supply power switch in the ON position.

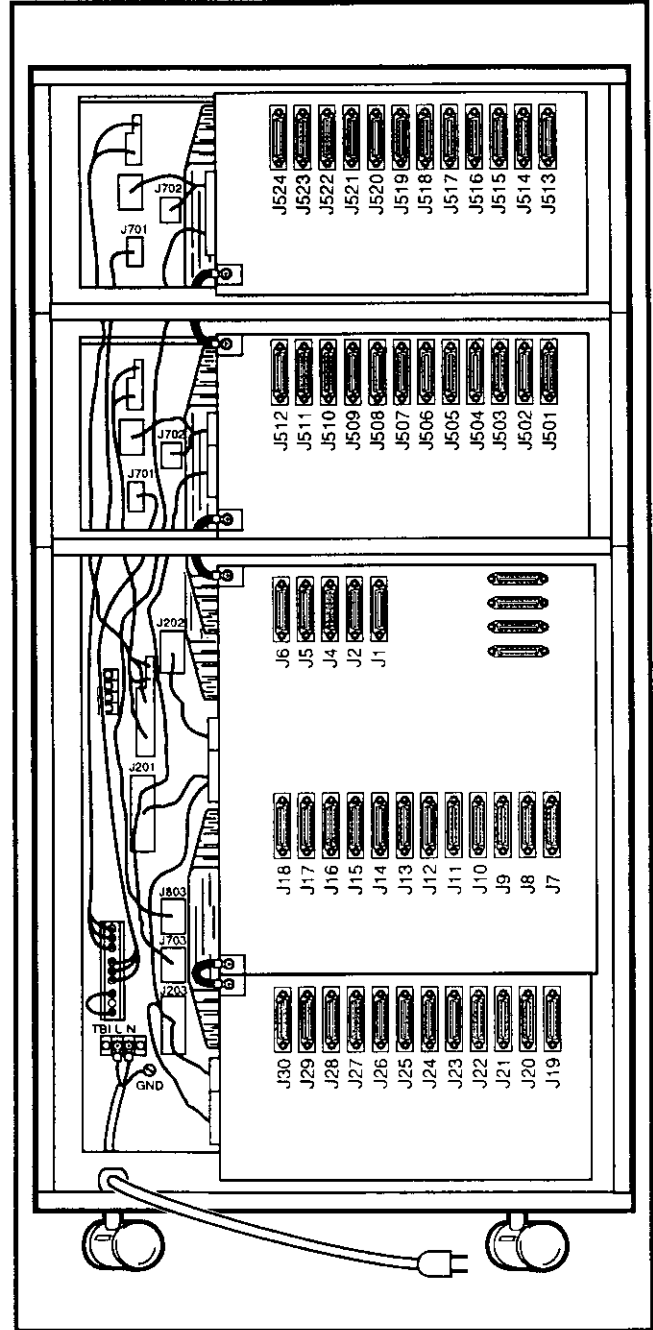


FIGURE 4-8—PERCEPTION<sub>ex</sub> CABINET CONNECTIONS

**WARNING!**

*Hazardous voltage that may cause death or injury is exposed at the power supply AC terminal.*

- 12) Verify that all main power supply power indicator LEDs are on (**RINGER** LED should be pulsating rapidly). If any of the LEDs are **not** on, replace the main power supply.

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- 13) Using a multimeter (set to the appropriate ranges), check the pins on connectors **J201**, **J202**, **J203**, **J703** and **J803** for the voltages shown in Figure 4-9. (The connectors are on the rear of the power supply chassis.) Measure between the voltage pin and a ground pin. (All ground leads are tied to a single point, so any can be used.) Figure 4-9 also shows the acceptable range for each output voltage. If a measured voltage falls outside of the acceptable range, replace the main power supply.
- 14) Turn the power supply **OFF** and then connect **J201**, **J202** and **J203**, respectively, as shown in Figure 4-9.
- 15) Remove and retain the two screws securing the peak load battery mounting bracket and slide the bracket out the front of the basic cabinet.
- 16) Install the peak load battery as shown in Figure 4-4. Secure the battery to the mounting bracket with the retaining strap and a single screw .

**WARNING !**

**Hazardous voltage that may cause death or injury is exposed at the peak load battery cables. DO NOT touch wires together.**

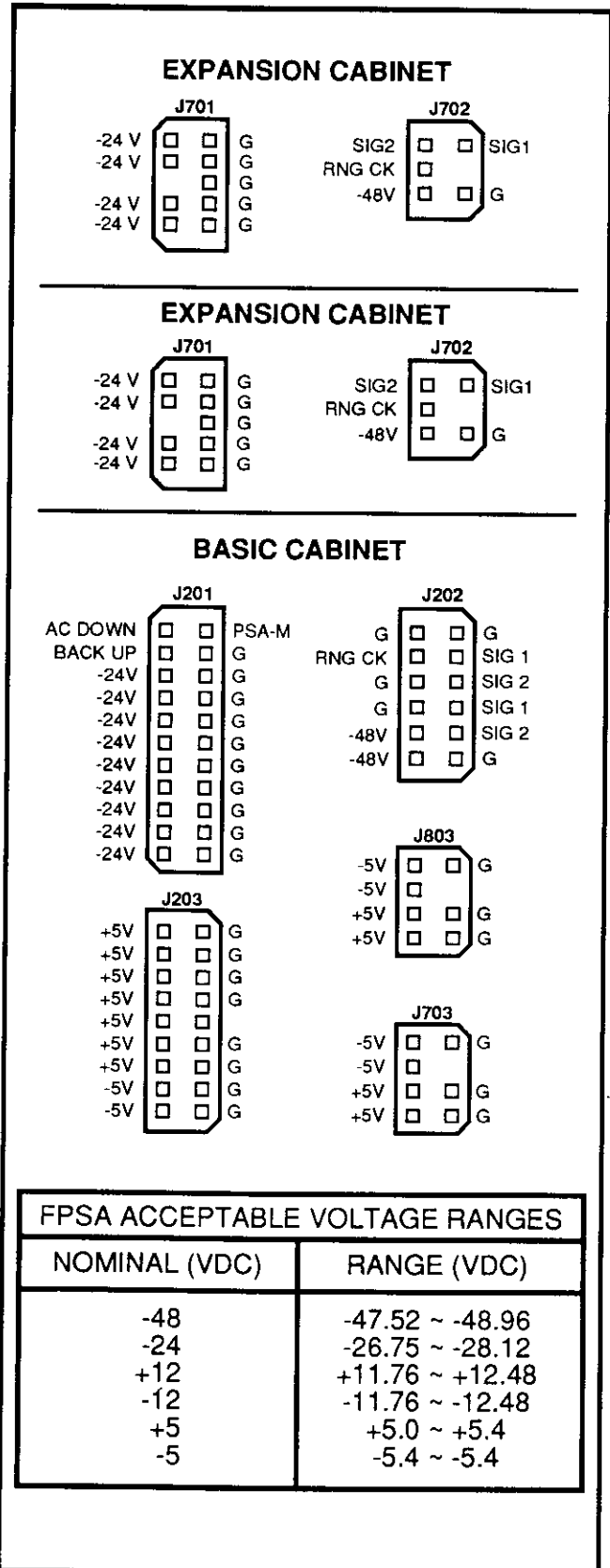
- 17) Connect the peak load battery cables to TB2 on the rear of the basic power supply (see Figure 4-4). Ensure that the correct polarity is observed as follows:
  - blue to positive (+)
  - orange to negative (-)

- 18) Slide the mounting bracket/battery assembly in place and secure with two screws.
- 19) Set the **BATTERY BACKUP** switch to **OFF** Figure 4-10.

**2.10 First Expansion Cabinet Installation**

**WARNING!**

**Hazardous voltage that may cause death or injury is present in the system during operation. Ensure that AC power to both cabinets is turned off prior to performing this procedure.**



**FIGURE 4-9—PERCEPTION<sub>ex</sub> VOLTAGE CHECKS**

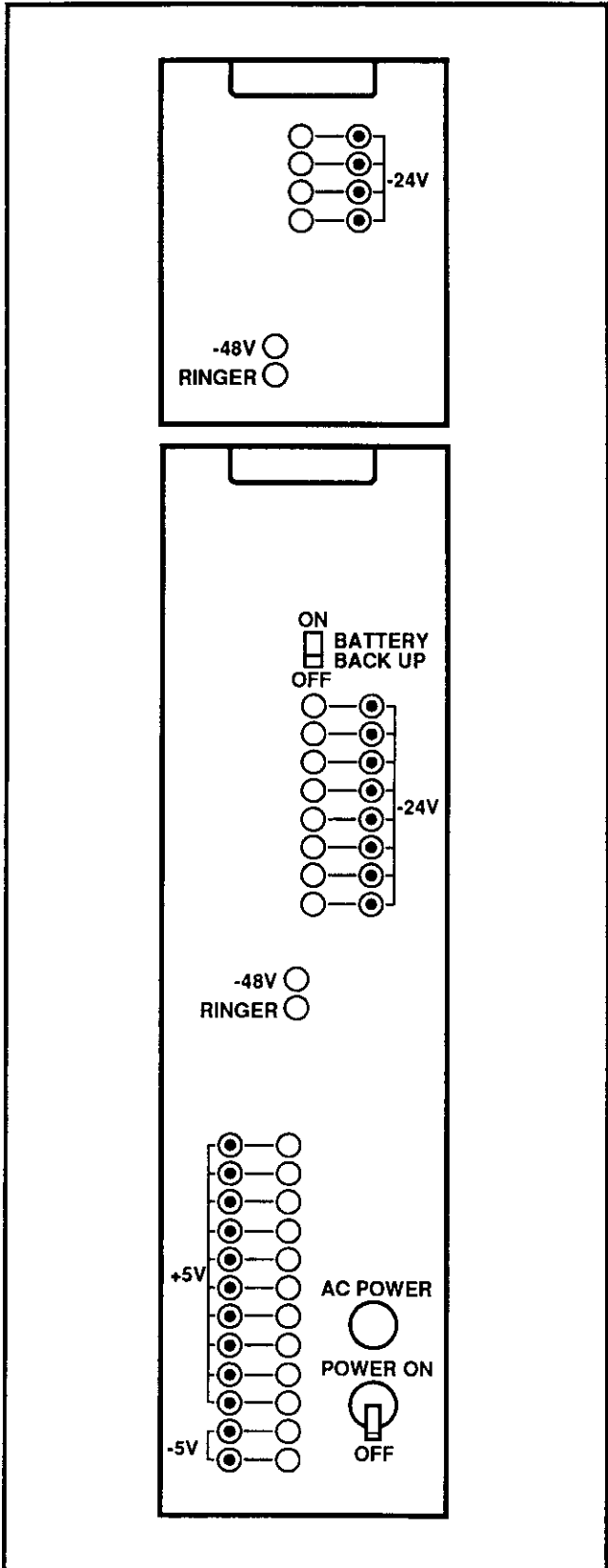


FIGURE 4-10—PERCEPTION<sub>ex</sub> POWER SUPPLY CONTROLS AND INDICATORS

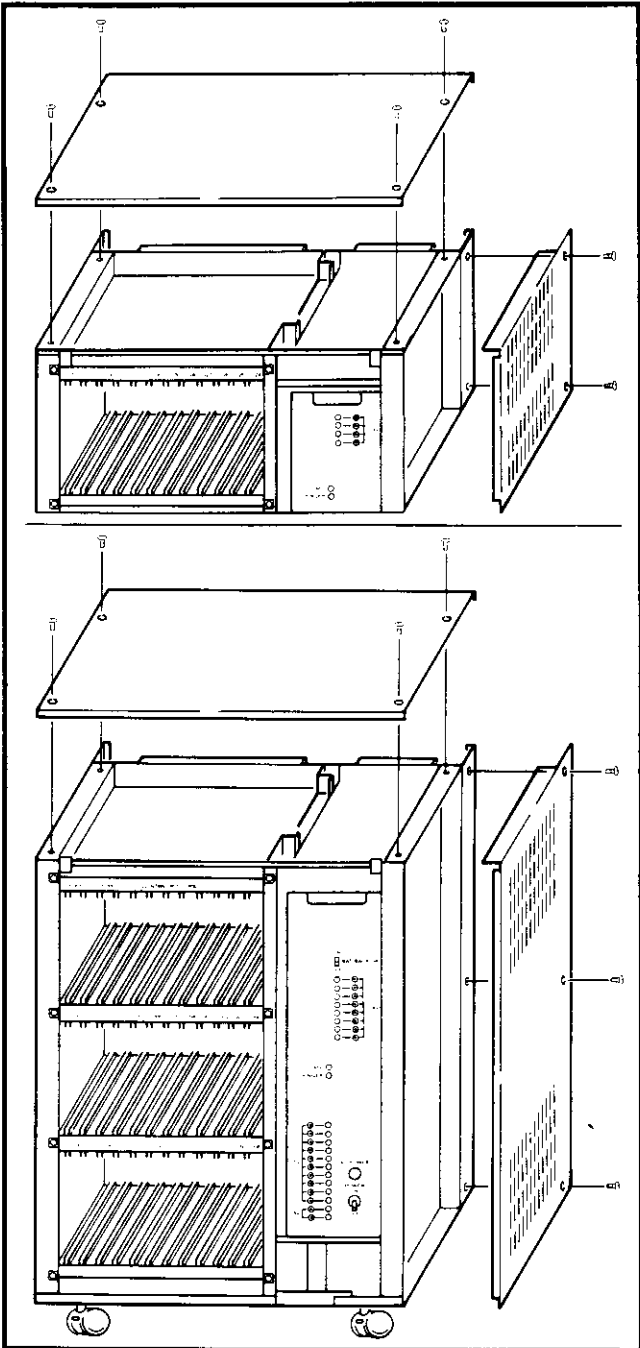


FIGURE 4-11—PERCEPTION<sub>ex</sub> EXPANSION CABINET INSTALLATION

**NOTE:**  
 A 13mm socket wrench and extension is recommended for ease of expansion cabinet installation. Two expansion cabinets can be installed.

- 1) Remove and retain the four screws securing the basic cabinet top cover and lift the cover off the cabinet (Figure 4-11).

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- 2) Remove and retain the two screws securing each of the expansion cabinet side panels. Pull the side panels off.
  - 3) Place the four casters on the basic cabinet in the lock position to ensure cabinet stability during the expansion cabinet installation.
  - 4) On both the basic and expansion cabinets, remove and retain two screws securing the cabinets doors. Remove and retain the six screws securing the rear panel on each cabinet.
  - 5) Place the expansion cabinet on top of the basic cabinet, ensuring proper alignment of the four mounting holes. Secure in place with four metric bolts, flat washers and lockwashers.
  - 6) Reinstall the two side covers on the expansion cabinet and secure in place using four screws (two per side).
  - 7) Install the top cover on the expansion cabinet and secure with four screws.
  - 8) Connect the intercabinet ground wire in accordance with Figure 4-8.
  - 9) Route the expansion cabinet ribbon cable from **J405** in the expansion cabinet through the opening provided in the cabinet bottom and connect to the basic cabinet backplane at **J402**.
  - 10) Remove three screws from the secondary power supply. From the front of the expansion cabinet, slide the power supply into the rack and secure in place with the three rear screws.
- NOTE:*  
*Prior to routing intercabinet cabling, check the 15-amp fuse (F2) located at the top of the main power supply to verify that it is in working order.*
- 11) Route the power supply cabling through the hole in the expansion cabinet and connect both power supplies to the lower connectors at the **P1**, **P2** and **P3** receptacles.
  - 12) With the main power supply turned **OFF**, plug the AC power cord into the AC outlet.
  - 13) Momentarily press each secondary power supply circuit breaker to verify that it is not tripped.
  - 14) Place the main power supply power switch in the **ON** position.
  - 15) Verify that all secondary power supply power indicator LEDs are on. If any of the LEDs are **not** on, replace the NPSA-S (**RINGER** LED should be pulsating rapidly).
  - 16) Using a multimeter (set to the appropriate ranges), check the pins on connectors **J701** and **J702** on the secondary power supply for the voltages shown in Figure 4-9. (The connectors are on the rear of the power supply chassis.) Measure between the voltage pin and a ground pin. (All ground leads are tied to a single point, so any can be used.) Figure 4-9 also shows the acceptable range for each output voltage. If a measured voltage falls outside of the acceptable range, replace the secondary power supply.
  - 17) Turn the power supply **OFF**.
  - 18) Plug in connectors **J701** and **J702**.
  - 19) Route cable **J703** into the basic cabinet and plug it into connector **J703**.
  - 20) Reinstall the rear panels and doors on both cabinets and secure in place with screws.

**2.20 Second Expansion Cabinet Installation**

**WARNING!**

***Hazardous voltage that may cause death or injury is present in the system during operation. Ensure that AC power to both cabinets is turned off prior to performing this procedure.***

*NOTE:*

*A 13mm socket wrench and extension is recommended for ease of expansion cabinet installation. Two expansion cabinets can be installed.*

- 1) Remove and retain the four screws securing the basic cabinet top cover and lift the cover off the cabinet (Figure 4-11).
- 2) Remove and retain the two screws securing each of the expansion cabinet side panels. Pull the side panels off.

- 3) Place the four casters on the basic cabinet in the lock position to ensure cabinet stability during the expansion cabinet installation.
- 4) On both the basic and expansion cabinets, remove and retain two screws securing the cabinets doors. Remove and retain the six screws securing the rear panel on each cabinet.
- 5) Place the expansion cabinet on top of the basic cabinet, ensuring proper alignment of the four mounting holes. Secure in place with four metric bolts, flat washers and lockwashers.
- 6) Reinstall the two side covers on the expansion cabinet and secure in place using four screws (two per side).
- 7) Install the top cover on the expansion cabinet and secure with four screws.
- 8) Connect the intercabinet ground wire in accordance with Figure 4-8.
- 9) Route the expansion cabinet ribbon cable from **J406** in the expansion cabinet through the opening provided in the cabinet bottom and connect to the basic cabinet backplane at **J403**.
- 10) Remove three screws from the secondary power supply. From the front of the expansion cabinet, slide the power supply into the rack and secure in place with the three rear screws.

**NOTE:**

*Prior to routing intercabinet cabling, check the 15-amp fuse (F2) located at the top of the main power supply to verify that it is in working order.*

- 11) Route the power supply cabling through the hole in the expansion cabinet and connect both power supplies to the upper connectors at the **P1**, **P2** and **P3** receptacles.
- 12) With the main power supply turned **OFF**, plug the AC power cord into the AC outlet.
- 13) Momentarily press each secondary power supply circuit breaker to verify that it is not tripped.
- 14) Place the main power supply power switch in the **ON** position.
- 15) Verify that all secondary power supply power

indicator LEDs are on. If any of the LEDs are **not** on, replace the NPSA-S (**RINGER LED** should be pulsating rapidly).

- 16) Using a multimeter (set to the appropriate ranges), check the pins on connectors **J701** and **J702** on the secondary power supply for the voltages shown in Figure 4-9. (The connectors are on the rear of the power supply chassis.) Measure between the voltage pin and a ground pin. (All ground leads are tied to a single point, so any can be used.) Figure 4-9 also shows the acceptable range for each output voltage. If a measured voltage falls outside of the acceptable range, replace the secondary power supply.
- 17) Turn the power supply **OFF**.
- 18) Plug in connectors **J701** and **J702**.
- 19) Route cable **J703** into the basic cabinet and plug it into connector **J803**.
- 20) Reinstall the rear panels and doors on both cabinets and secure in place with screws.

### 3. PRINTED CIRCUIT BOARD INSTALLATION

**3.00** Install an NFDU in the FDD0 slot in the basic cabinet. If the system uses **D.02** or later version software and Remote Maintenance, a second NFDU must be installed in the FDD1 slot in the basic cabinet. There is one strap selection on the NFDU, depending on the slot in which the PCB is installed. The jumper block on the rear of the NFDU must be set as shown in Figure 4-12.

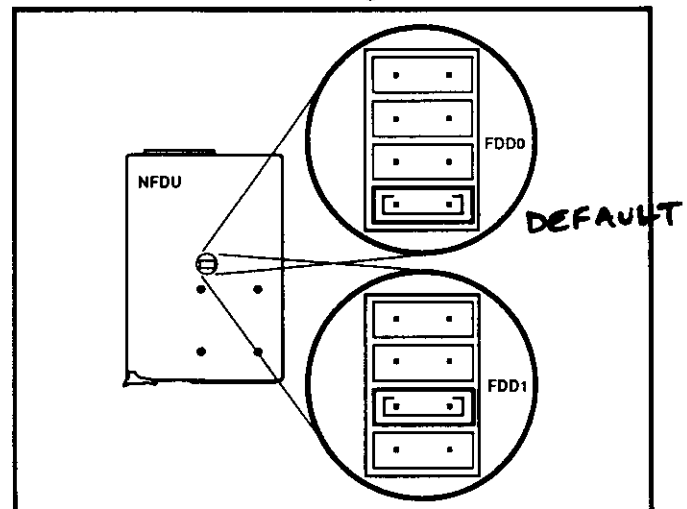
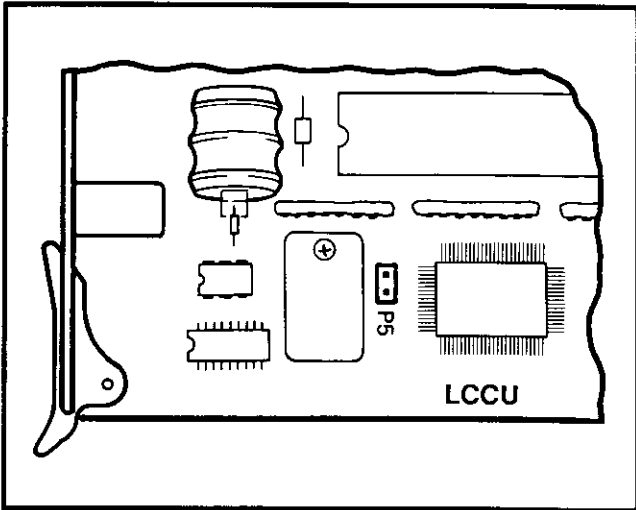


FIGURE 4-12—NFDU STRAPPING

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**FIGURE 4-13—LCCU STRAPPING**

**3.01** Install the LCCU in the CCU slot of the basic cabinet. There are no straps on this PCB; however, there is a plug (P5). Verify that the connection plug is in place in accordance with Figure 4-13.

**3.02** The NTWU has four straps that must be verified before installation (Figure 4-14). Install the NTWU in the TWU slot of the basic cabinet. Ensure

that the straps are as follows:

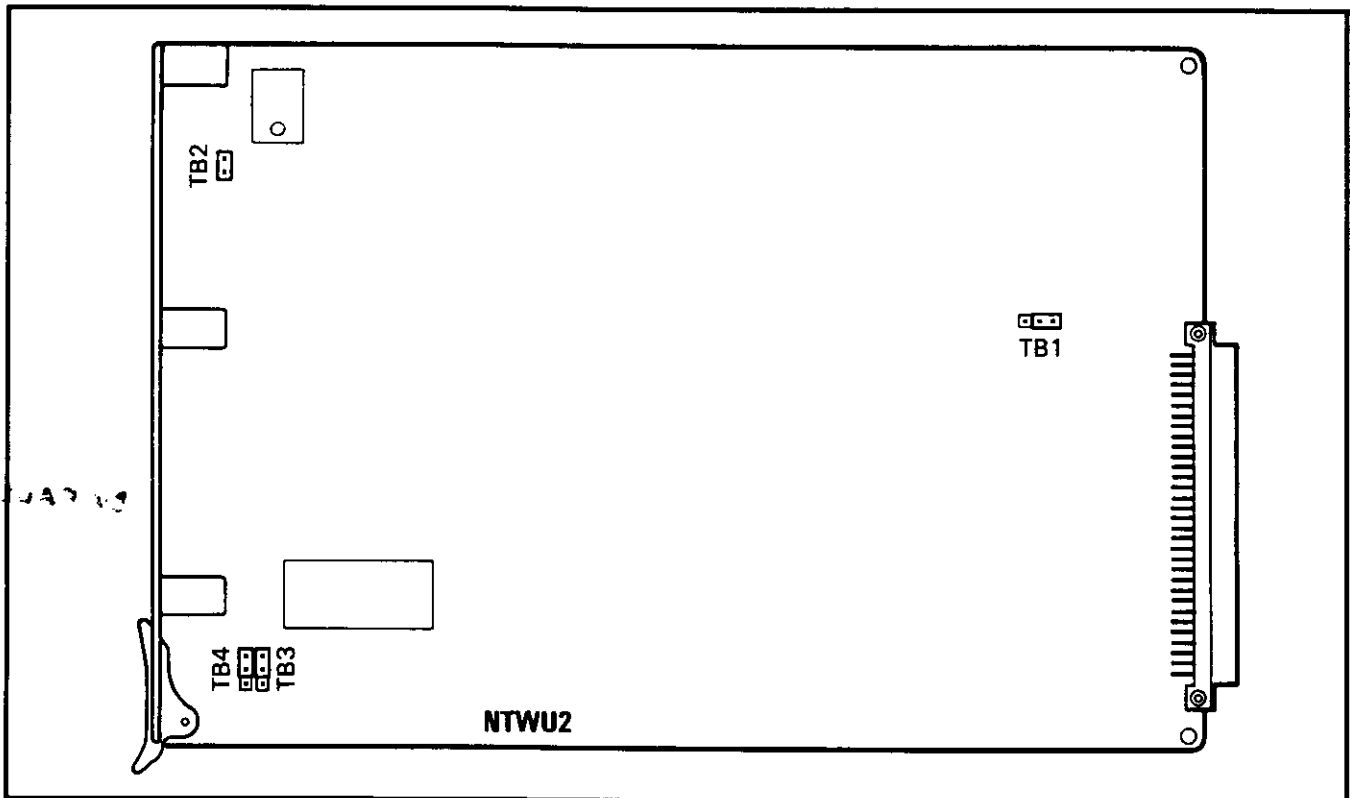
- TB1: pins 1 & 2 must be strapped
- TB2: in place
- TB3: pins 1 & 2 must be strapped
- TB4: pins 1 & 2 must be strapped

**3.03** The NPRU has one strap that requires verification before installation (Figure 4-15). If Automatic Wake-up is required, verify that the DROM is installed in the IC15 socket. Install the NPRU in the P00 slot. (An NPRU must be installed in the P00 card slot.) If a second NPRU PCB is used, install it in the P1 slot in the PERCEPTION<sub>e</sub> expansion cabinet. In the PERCEPTION<sub>ex</sub> both NPRUs are installed in the basic cabinet. Verify that TB1 is strapped as follows:

- TB1: pins 1 and 2 must be strapped.

**3.04** If NRCUs are to be installed, mount them on the NPRU. The first NRCU mounts on connector J3, the second on J4 (see Figure 4-16).

**3.05** Install the NEKU in any of the line designated slots L00 ~ L11 or L15 ~ L26 in the PERCEPTION<sub>e</sub>. If an attendant console is used, an NEKU



**FIGURE 4-14—NTWU STRAPPING**

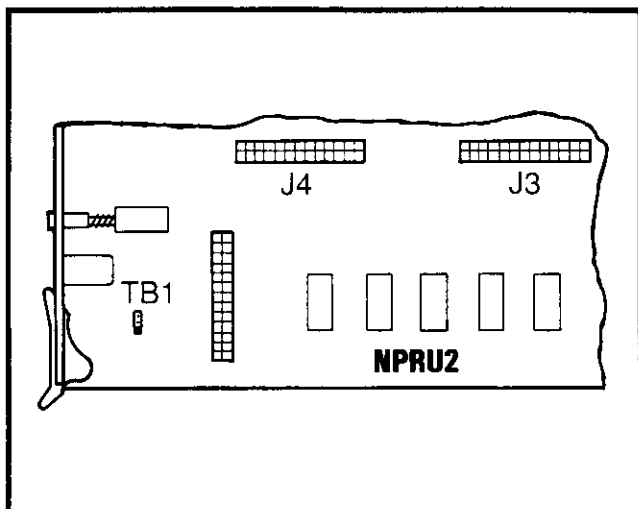


FIGURE 4-15—NPRU STRAPPING

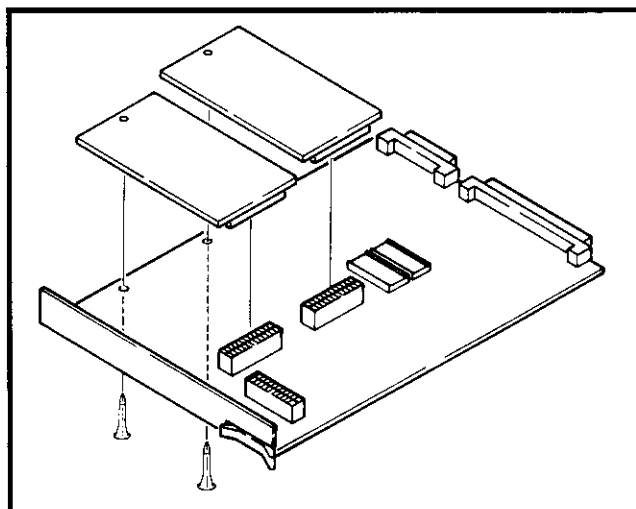


FIGURE 4-16—NRCU STRAPPING

must be installed in slot **L00**. If a second attendant console is installed, a second NEKU must be installed in slot **L15**. Attendant consoles must be installed on circuit 1 in both slots.

For the PERCEPTION<sub>ex</sub> install the NEKU in any designated slot **U00 ~ U31**. To utilize attendant consoles install NEKUs in the following slots:

**ATT#0-PCB position L00 Circuit #1**

**ATT#1-PCB position L01 Circuit #1**

There are no straps on this PCB for either system.

**3.06** Install the NSTU in any of the line designated slots **L00 ~ L11** or **L15 ~ L26** in the PERCEPTION<sub>e</sub> system. The designated slots in PERCEPTION<sub>ex</sub> are **U00 ~ U31**. There are no straps on the PCB for either system.

**3.07** Install the NDSU PCB either in the **C00** or **C01** slots or in any of slots **L00 ~ L11** or **L15 ~ L26** in the PERCEPTION<sub>e</sub> system. Two NDSUs can be installed in the same cabinet. There are no straps on this PCB. There are no **C** slots resident within the PERCEPTION<sub>ex</sub> system so NDSU PCB installation will be in any **U** slot.

**3.08** Trunk PCBs (NEMU, NCOU, and NLSU) may be installed in any **T** slot. Additionally, up to 16 **U** slots may also be used for trunk PCBs.

**3.09** There are four circuits on the NEMU PCB,

and each circuit has its own set of straps (Figure 4-17). On a circuit-by-circuit basis, strap the card as follows:

1) For Type I/II operation:

CIRCUIT	STRAPS	OPERATION	
		TYPE I	TYPE II
1	TB 101 TB 102 TB 106		
2	TB 201 TB 202 TB 206	1 ~ 2	2 ~ 3
3	TB 301 TB 302 TB 306		
4	TB 401 TB 402 TB 406		

2) For 2-wire/4-wire connection:

CIRCUIT	STRAPS	CONNECTION	
		2-WIRE	4-WIRE
1	TB 103 TB 107		
2	TB 203 TB 207	2 ~ 3	1 ~ 2
3	TB 303 TB 307		
4	TB 403 TB 407		

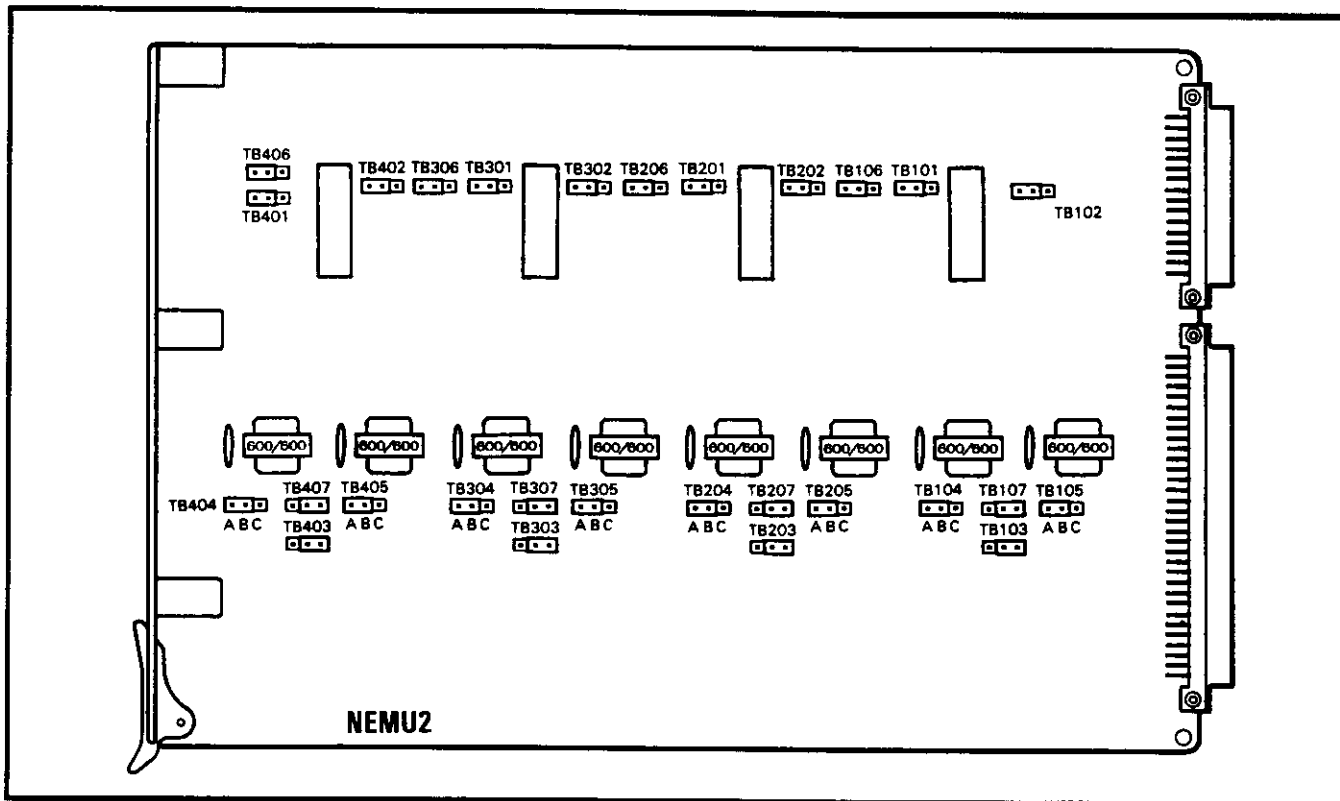


FIGURE 4-17—NEMU STRAPPING

3) For 600-/900-ohm operation:

CIRCUIT	STRAPS	OPERATION	
		600 ohm	900 ohm
1	TB 104 TB 105	A ~ B	B ~ C
2	TB 204 TB 205		
3	TB 304 TB 305		
4	TB 404 TB 405		

3.10 The NCOU PCBs have Ground-/Loop-Start, 600/900-ohm termination, and 2dB pad strap selections that must be made before they are installed (Figure 4-18).

1) Each NCOU circuit is individually strapped for either Ground Start or Loop Start operation. The strapping location and options for each circuit are shown.

CIRCUIT	STRAPS	OPERATION			
		GND ST		LP ST	
		Extend	No Extend	Normal	Reverse
1	TB 104	B ~ C	D ~ E	C ~ D	A ~ B
2	TB 204				
3	TB 304				
4	TB 404				

NOTES:

1. The GROUND START "EXTEND/NO EXTEND" option refers to "loop extenders" on long trunk loops. If a battery boost is used on the trunk, select EXTEND, otherwise NO EXTEND should be selected.
2. The LOOP START "NORMAL/REVERSE" options refers to the system's ability to detect a pre-ring supervision signal in the form of a battery polarity reversal on the CO TIP and RING.



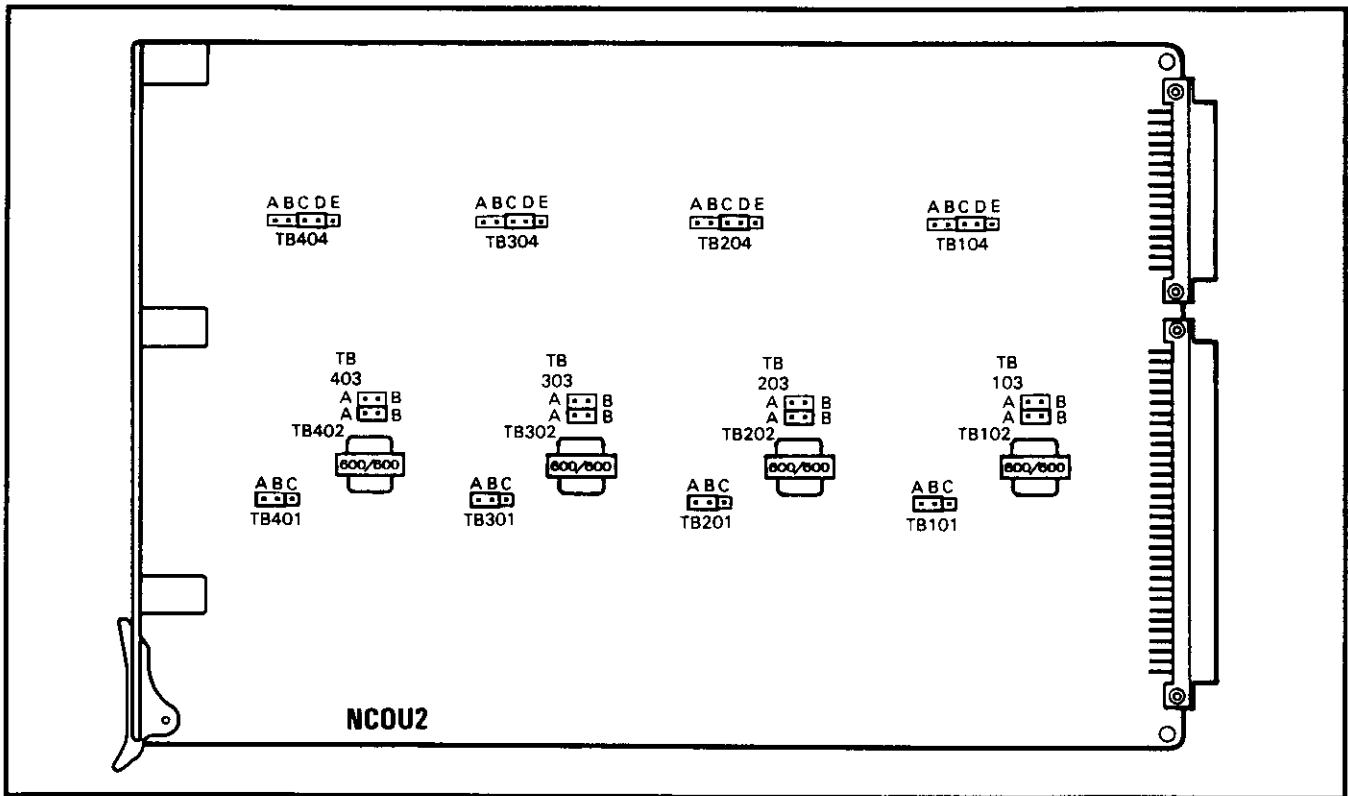


FIGURE 4-18—NCOU STRAPPING

- If *NORMAL* is selected, the system will not be sensitive to CO trunk polarity.
- If *REVERSE* is selected, the CO circuit will be "made busy" when the CO reverses polarity prior to ringing on an incoming call.

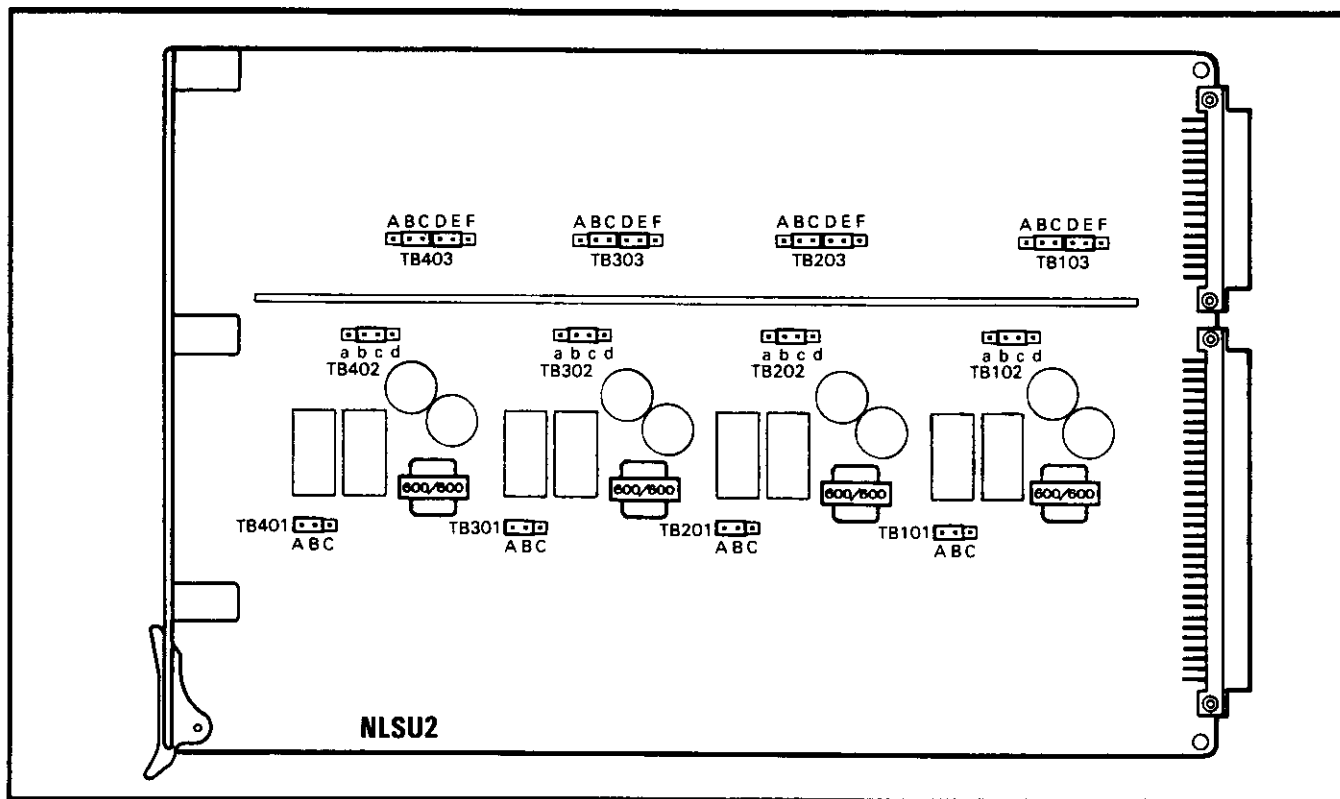
2) Determine the proper impedance for each trunk and then strap its NCOU circuit for either 600- or 900-ohm operation. Install the shorting bar across the center pin and the outer pin labeled either 600 or 900 at each strapping location (Figure 4-18). Each circuit's strapping location is shown as follows:

CIRCUIT	STRAPS	OPERATION	
		600 ohm	900 ohm
1	TB 101	A ~ B	B ~ C
2	TB 201		
3	TB 301		
4	TB 401		

3) In some installations, particularly those near the serving Central Office, noise may be introduced over the CO trunk that will appear as sidetone at the telephone. In such situations, a 2dB pad can be inserted into the line to reduce the sidetone. The following table shows the strapping position for each circuit to either insert or remove the 2dB pad.

CIRCUIT	STRAPS	OPERATION	
		OPEN	2 db PAD
1	TB 102	A ~ B	
	TB 103		A ~ B
2	TB 202	A ~ B	
	TB 203		A ~ B
3	TB 302	A ~ B	
	TB 303		A ~ B
4	TB 402	A ~ B	
	TB 403		A ~ B

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**FIGURE 4-19—NLSU STRAPPING**

3.11 Three separate strappings must be made for each of the four circuits on the NLSU PCB (Figure 4-19).

- 1) Determine the proper impedance for the trunk line to be used, and then set the 600-ohm/900-ohm loop termination for each circuit as follows:

CIRCUIT	STRAPS	OPERATION	
		600 ohm	900 ohm
1	TB 101	A ~ B	B ~ C
2	TB 201		
3	TB 301		
4	TB 401		

- 2) When the CO distance exceeds 2,000-ohm loop resistance, Battery-to-Ground Dial Pulsing should be used. For a distance of less than 2,000-ohm loop resistance, use Loop Dial Pulsing. Strap each circuit as shown as follows.

CIRCUIT	STRAPS	OPERATION	
		BAT-GND DP	LOOP DP
1	TB 103	A ~ B	B ~ C
2	TB 203		
3	TB 303	E ~ F	D ~ E
4	TB 403		

- 3) Each NLSU circuit must be adjusted for CO trunk loop resistance to ensure proper detection of incoming digits. Each circuit adjustment is made by strapping shown below.

CIRCUIT	STRAPS	OPERATION		
		LEAST	MID	MOST
1	TB 102	c ~ d	b ~ c	a ~ b
2	TB 202			
3	TB 302			
4	TB 402			

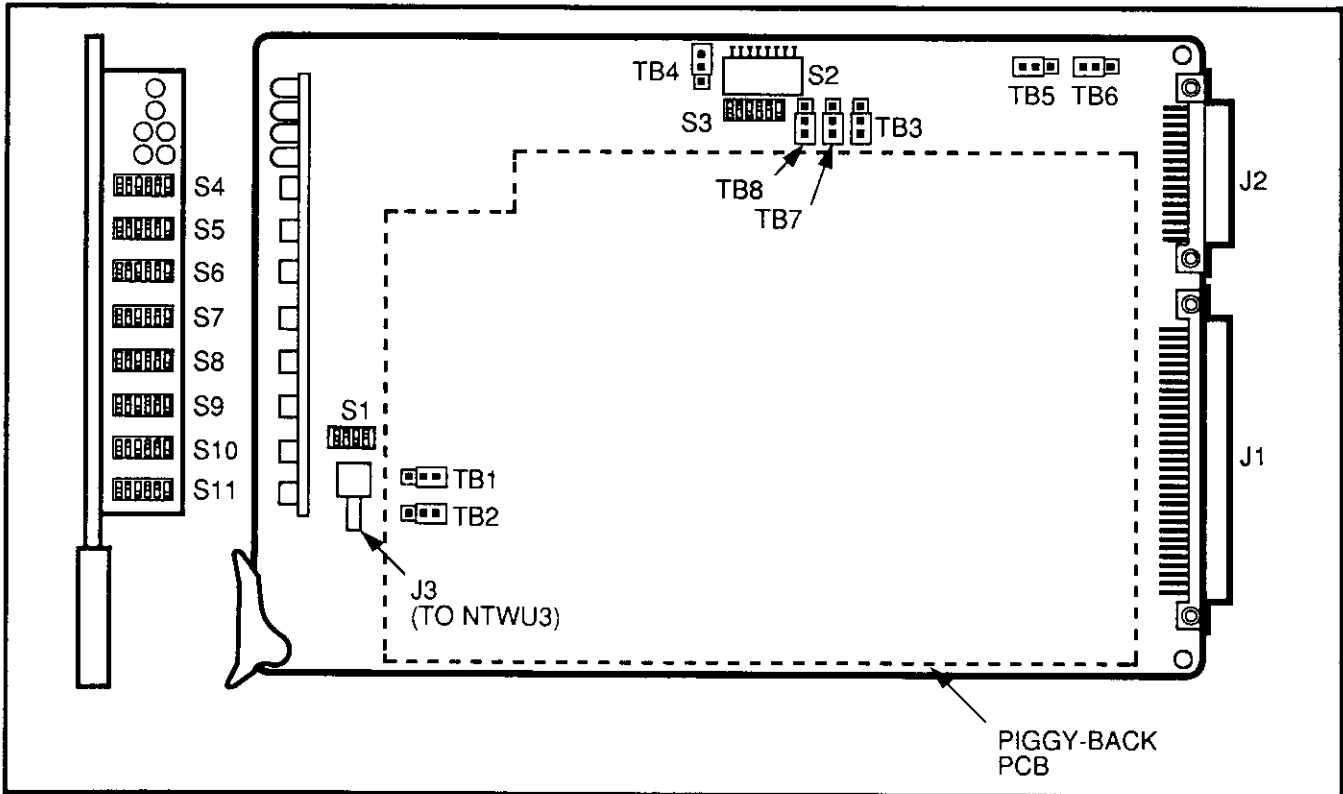


FIGURE 4-20—NDTU STRAPPING

**NOTE:**

This strapping should be made only after the appropriate CO distance strapping (step 2) has been made. The CO trunk loop resistance values are arbitrary and are used as an initial strapping guide. If the incoming digits are not being detected properly, move the strap to the next most sensitive position and test again for proper operation.

3.12 A maximum of two NDTU PCBs (Figure 4-20) may be installed. The system must be equipped with an NTWU-3 to ensure proper operation of the NDTU. The NDTU is connected to the telco through a customer-supplied Channel Service Unit (CSU). A separate CSU is required for each NDTU. Each NDTU has 11 DIP switches and eight strapping options which must be verified before installation.

**NOTE:**

The factory-default switch settings and strapping options are indicated by an asterisk (\*).

- 1) Select the desired operating mode using Mode

Selection Switch S1 (4-element DIP switch) as follows:

ELEMENT	POSITION	MODE
s1	ON*	12 Multi (Robbed bit signaling)
s1	OFF	24 Multi (Common channel signaling)
s2	ON	Zero Code Suppression (ZCS)
s2	OFF*	Binary Eight Zero Suppression (B8ZS)
s3	ON	DMI Bit Oriented Signaling format (Note 1)
s3	OFF*	System 75 format (Note 2)
s4	Not used	

- NOTES: Super Frame
1. Digital Multiplexed Interface BOS.
  2. Used for AT&T system 75.

- 2) Determine the proper transmit equalizer setting; either short (0 ~ 150 feet), medium (150 ~ 450 feet), or long (450 ~ 655 feet); then select the appropriate setting using Transmit Equalizer Setting Switch S2 (8-element DIP switch) as follows:

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ELEMENT	SETTING		
	SHORT*	MEDIUM	LONG
s1	ON	OFF	OFF
s2	OFF	ON	OFF
s3	OFF	OFF	ON
s4	OFF	ON	OFF
s5	OFF	OFF	ON
s6	OFF	ON	OFF
s7	OFF	OFF	ON
s8	Not used		

3) The NDTU is installed in the T00 slot. A second NDTU may be installed in the T08 slot. Each NDTU provides a maximum of 24 channels, divided into groups consisting of four channels each. The first group would fill trunk slot T00, the second T01 with the remaining four groups occupying trunk slots T02 ~ T05 for a total of six groups. For example, if eight channels are active on the NDTU then slots T00 and T01 are active i.e. no PCB may be installed in slot T01. However, PCBs may be installed in slots T02~T05. Enable the appropriate channels using slot enable/disable switch S3 (6-element DIP switch) as follows:

ELEMENT	POSITION	CHANNELS	SLOT POSITION	
			MAIN	EXPANSION
s1	ON*	1 ~ 4	T00	T08
s1	OFF	1 ~ 4	T00	T08
s2	ON*	5 ~ 8	T01	T09
s2	OFF	5 ~ 8	T01	T09
s3	ON*	9 ~ 12	T02	T10
s3	OFF	9 ~ 12	T02	T10
s4	ON*	13 ~ 16	T03	T11
s4	OFF	13 ~ 16	T03	T11
s5	ON*	17 ~ 20	T04	T12
s5	OFF	17 ~ 20	T04	T12
s6	ON*	21 ~ 24	T05	T13
s6	OFF	21 ~ 24	T05	T13

**NOTE:**

Set switch element to ON to enable associated digital trunk channels; OFF to disable channels.

4) Signaling modes are individually selectable for each active channel. Determine the appropriate signaling mode for each channel; either CO (Loop Start) mode, CO (Ground Start) mode, DID (2-wire loop signaling), or TIE Line (4-wire E&M) mode; then assign the selected signaling

modes using signaling type selection switches S4 ~ S11 (6-element DIP switches) as follows:

CHANNEL	SWITCH	ELEMENT	MODE			
			CO (Loop)	CO (Ground)	DID	TIE
CH1	S4	s1	OFF	ON	ON	OFF
		s2	OFF	ON	OFF	ON
CH2	S4	s3	OFF	ON	ON	OFF
		s4	OFF	ON	OFF	ON
CH3	S4	s5	OFF	ON	ON	OFF
		s6	OFF	ON	OFF	ON
CH4	S5	s1	OFF	ON	ON	OFF
		s2	OFF	ON	OFF	ON
CH5	S5	s3	OFF	ON	ON	OFF
		s4	OFF	ON	OFF	ON
CH6	S5	s5	OFF	ON	ON	OFF
		s6	OFF	ON	OFF	ON
CH7	S6	s1	OFF	ON	ON	OFF
		s2	OFF	ON	OFF	ON
CH8	S6	s3	OFF	ON	ON	OFF
		s4	OFF	ON	OFF	ON
CH9	S6	s5	OFF	ON	ON	OFF
		s6	OFF	ON	OFF	ON
CH10	S7	s1	OFF	ON	ON	OFF
		s2	OFF	ON	OFF	ON
CH11	S7	s3	OFF	ON	ON	OFF
		s4	OFF	ON	OFF	ON
CH12	S7	s5	OFF	ON	ON	OFF
		s6	OFF	ON	OFF	ON
CH13	S8	s1	OFF	ON	ON	OFF
		s2	OFF	ON	OFF	ON
CH14	S8	s3	OFF	ON	ON	OFF
		s4	OFF	ON	OFF	ON
CH15	S8	s5	OFF	ON	ON	OFF
		s6	OFF	ON	OFF	ON
CH16	S9	s1	OFF	ON	ON	OFF
		s2	OFF	ON	OFF	ON
CH17	S9	s3	OFF	ON	ON	OFF
		s4	OFF	ON	OFF	ON
CH18	S9	s5	OFF	ON	ON	OFF
		s6	OFF	ON	OFF	ON
CH19	S10	s1	OFF	ON	ON	OFF
		s2	OFF	ON	OFF	ON
CH20	S10	s3	OFF	ON	ON	OFF
		s4	OFF	ON	OFF	ON
CH21	S10	s5	OFF	ON	ON	OFF
		s6	OFF	ON	OFF	ON
CH22	S11	s1	OFF	ON	ON	OFF
		s2	OFF	ON	OFF	ON
CH23	S11	s3	OFF	ON	ON	OFF
		s4	OFF	ON	OFF	ON
CH24	S11	s5	OFF	ON	ON	OFF
		s6	OFF	ON	OFF	ON

- 5) Configure the NDTU for the appropriate ROM type, either 64 Kbit or 256 Kbit, using the strapings shown below.

STRAPS	ROM TYPE	
	64K BIT	256K BIT
TB1 and TB2	1 ~ 2*	2 ~ 3

- 6) When configured for normal operation, the NDTU is in the slave mode, and PERCEPTION serves as the master clock. For testing purposes, the NDTU may be configured as the master. Configure the NDTU for the appropriate operating mode using the strapping options shown below.

STRAPS	OPERATING MODE		LOOPBACK OPTION	
	SLAVE	MASTER	MASTER	SLAVE
TB3 and TB4	1 ~ 2*	2 ~ 3		
TB5 and TB6			1 ~ 2	2 ~ 3*

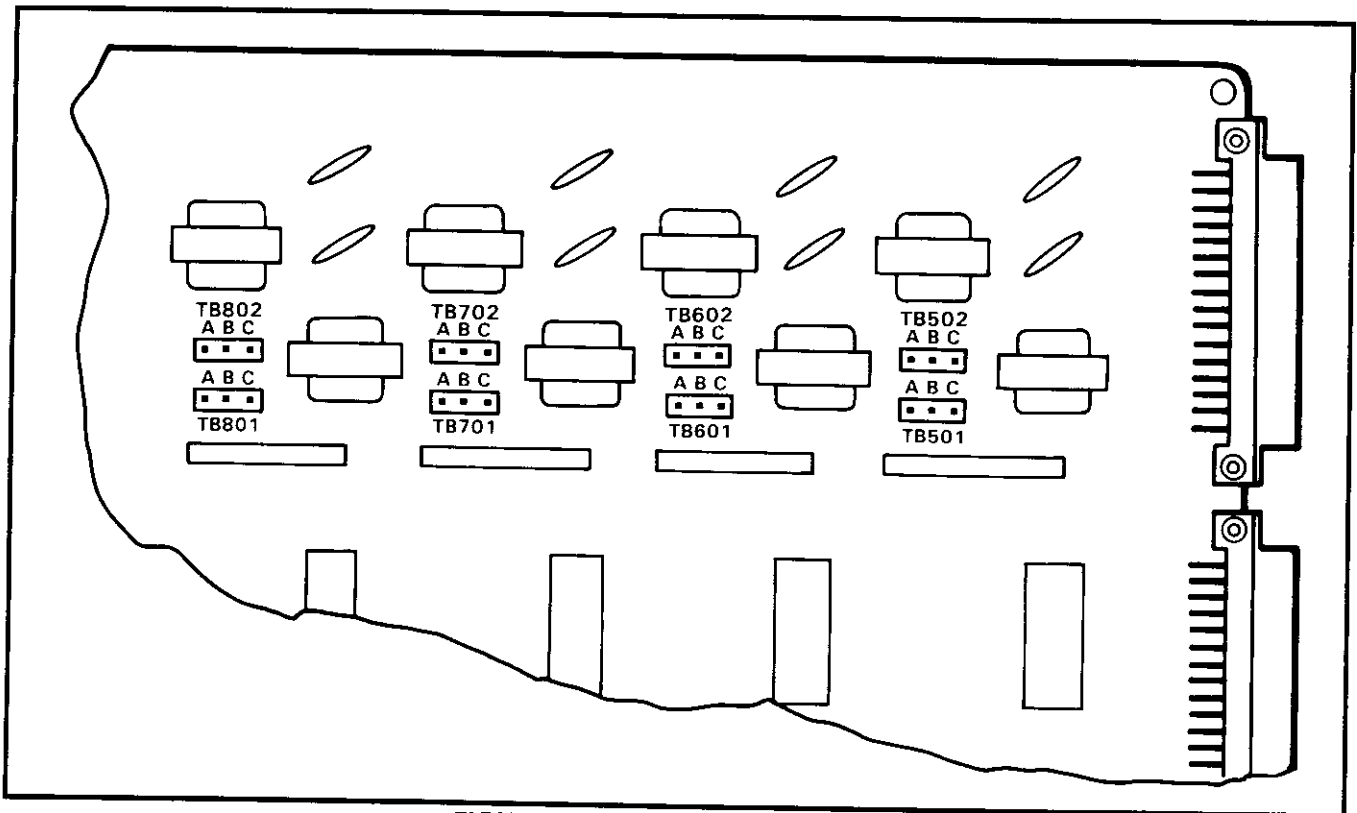
- 7) In some installations, particularly those near the serving Central Office, noise may be introduced over the CO trunk that will appear as sidetone at the telephone. In such situations, a

2dB pad can be inserted into the line, for either incoming voice or outgoing voice, to reduce the sidetone. Strapping options for the 2dB pad are shown below.

STRAPS	OPERATION			
	INCOMING		OUTGOING	
	OPEN	2dB PAD	OPEN	2dB PAN
TB7	1 ~ 2*	2 ~ 3		
TB8			1 ~ 2*	2 ~ 3

- 8) Install the NDTU in the T00 slot in the main cabinet. If applicable, install a second NDTU in the T08 slot. Connect the NDTU to the CSU using the Toshiba-supplied cable.
- 9) The NDTU contains an on-board 12.288 MHz clock used to synchronize the NDTU with the NTWU-3. Connect a coaxial clock cable from NDTU connector J3 to NTWU connector J2.

**3.13** The NMDU (Figure 4-21) must be strapped for operation with either a one-pair or two-pair modem connection. The two strapping positions for each modem are shown below.



**FIGURE 4-21—NMDU STRAPPING**

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CIRCUIT	STRAPS	OPERATION	
		One-Pair	Two-Pair
1	TB 501 TB 502	B ~ C	A ~ B
2	TB 601 TB 602		
3	TB 701 TB 702		
4	TB 801 TB 802		

To change the strap positions on TB 801/802 it is necessary to lift the small piggyback PCB off the NMDU. Replace the PCB once the straps have been changed.

If any of the first four NMDU circuits are not used for Modem Pooling, the corresponding DDIU circuit may be used for a DDIU (-MA or -MAT) connection. Use the **DDIU Program** in Section 200-255-300, *Programming*, to assign the desired port (1 ~ 4) on the NMDU.

**3.14** The NDCU PCB is installed at a rate of one PCB for each group of eight DDIUs.

**4. CABLE CONNECTIONS**

**4.00** All connections to the system are made on the rear of the basic and expansion cabinets and on the Power Failure Transfer Unit. Cables with standard male 25-pair amphenol-type connectors are used for everything except the TTY, SMDR and MODEM connectors (which require male RS-232C DB25-pin connectors).

**4.01** Detailed connection information for each cable is shown in Chapter 5.

**IMPORTANT!**

*Note the station, trunk, DSS and DDIU connections are identified by the PCB location and circuit number on that PCB. These numbers combine to form a Port Number and are used in the programming section as the station, DSS console circuit's or trunk circuit's identifier when directory numbers and features are assigned.*

**4.02** Determine the station and DSS console (or data) port numbers as follows:

PCB LOCATION	PCB CIRCUIT	PORT NO.
P <sub>e</sub> L00 ~ L26	1 ~ 8	
P <sub>ex</sub> U00 ~ U31	1 ~ 8	L012
Example: L01	2	L012

**4.03** Determine trunk port numbers as follows:

PCB LOCATION	PCB CIRCUIT	PORT NO.
P <sub>e</sub> T00 ~ T15	1 ~ 4	
P <sub>ex</sub> T00 ~ T15 U00 ~ U31	1 ~ 4	T023
Example: T02	3	T023

**5. STATION EQUIPMENT INSTALLATION**

**5.00 Electronic Telephone Connections**

**5.01** See the **DEKT Program** in Section 200-255-300, *Programming*, for instructions on programming electronic telephones. The system must be told which type of electronic telephone (10- or 20-button, LCD) and what button assignment is required.

**5.02** Electronic telephones are connected to the MDF via standard twisted-pair jacketed telephone cable. (Two-pair wiring is required; however, 3-pair wiring is strongly recommended to permit future upgrades, such as data, etc.) To accommodate the electronic telephone line cord, terminate the cable in a modular station connector block (RJ25) at the station location. The standard modular electronic telephone cord length is 7 feet (the maximum allowed length is 25 feet).

**5.03** The overall length of the electronic telephone cable run from equipment cabinet to phone must not exceed 1,000 feet (305 M), 24 AWG cable.

**IMPORTANT!**

*When installing the electronic telephone cable, do not run parallel to and within 3 feet of an AC power line. Such power lines should be crossed at right angles (90°) only.*

**5.04** Electronic telephone connection details are shown in Figure 4-22).

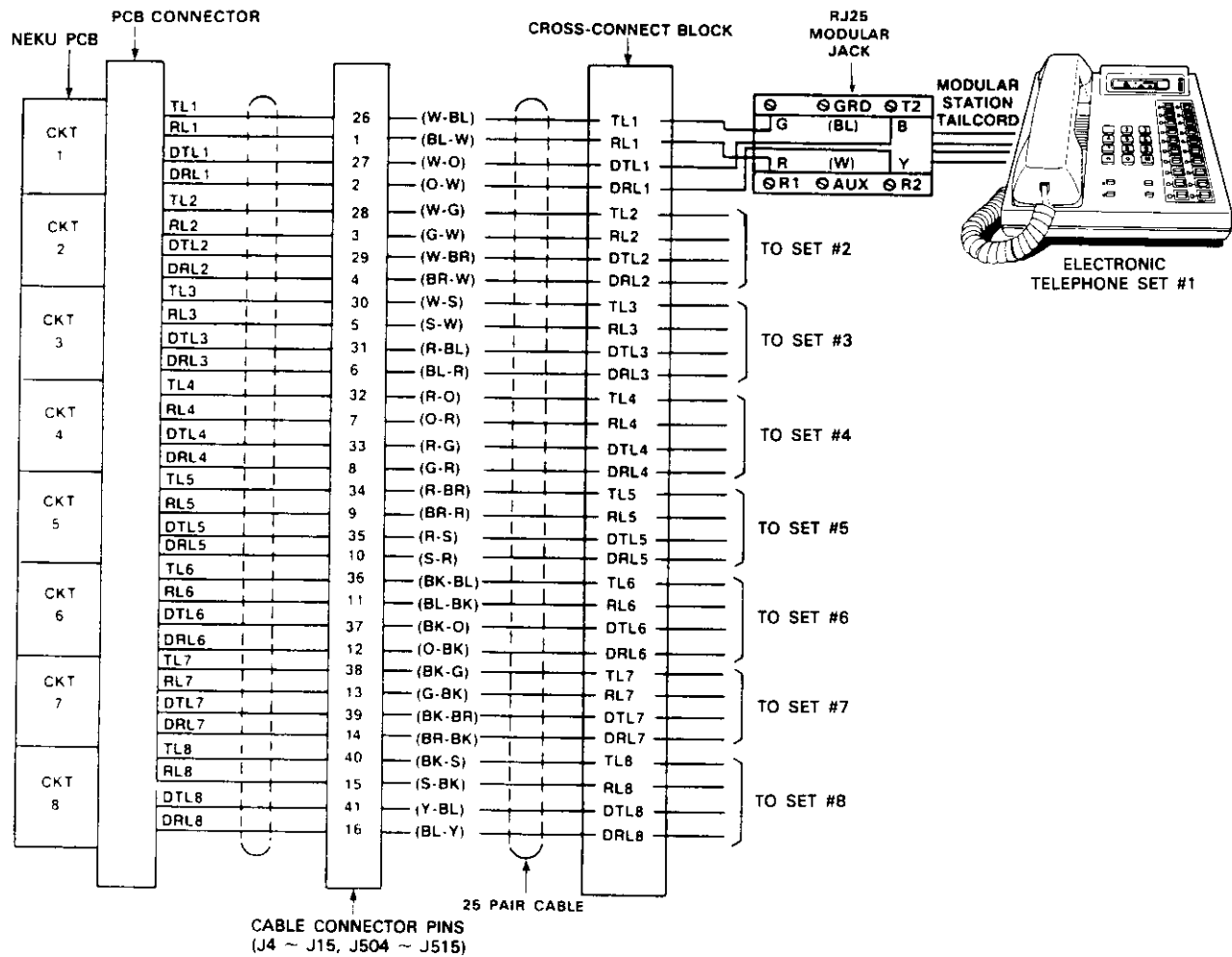
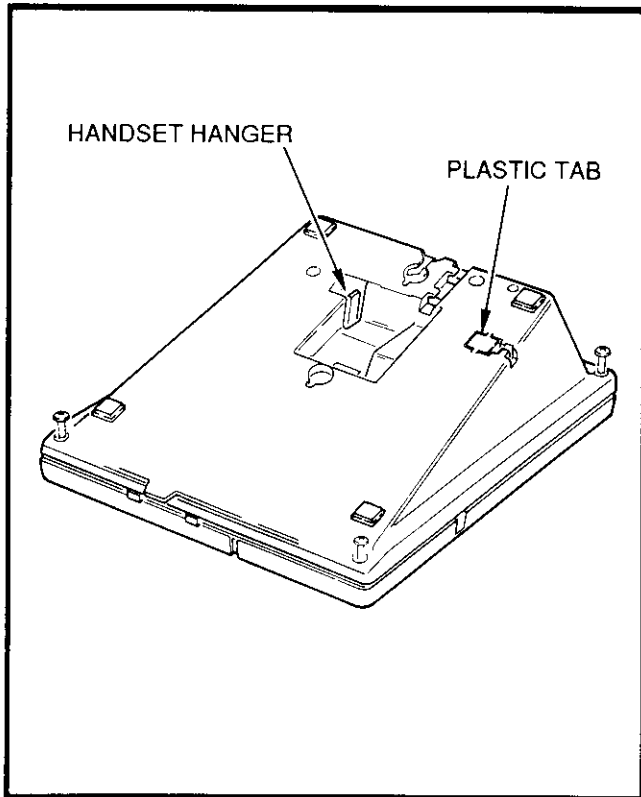
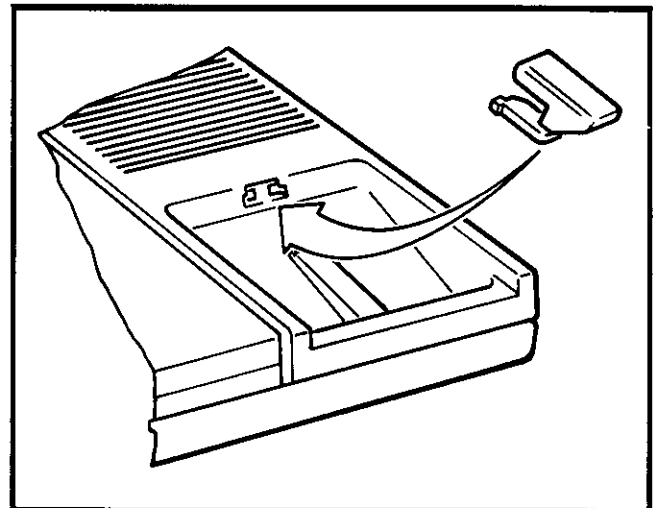


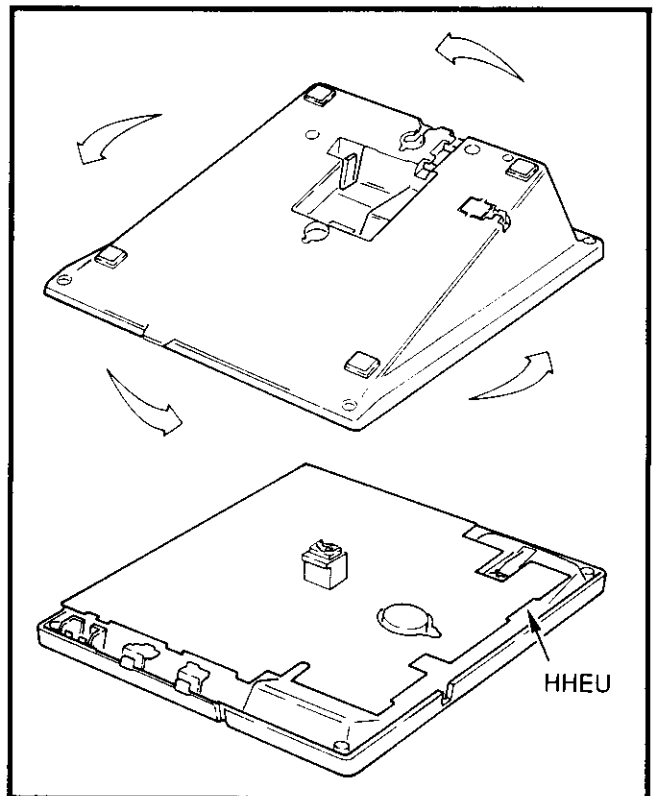
FIGURE 4-22—ELECTRONIC TELEPHONE CONNECTION



**FIGURE 4-23—REMOVAL OF ELECTRONIC TELEPHONE BASE**



**FIGURE 4-24—REMOVAL OF HANDSET HANGER**



**FIGURE 4-25—INSTALLATION OF MOUNTING BASE FOR WALL-MOUNT INSTALLATION**

**5.10 Electronic Telephone Wall Mounting**

**5.11** All electronic telephones are wall-mounted in the same manner, and they may be mounted on a wall or any other flat, vertical surface to which the base can be secured. When selecting the mounting site, consider the electronic telephone's weight and the additional stresses to which the mounting will be subjected.

**5.12** Loosen the four captive screws securing the electronic telephone's base, and remove the base (Figure 4-23).

**5.13** Using a cutter, remove the handset hanger from the base. Insert the handset hanger in the slot provided on the front of the telephone (Figure 4-24). The hanger fits in the notch on the handset.

**5.14** Rotate the mounting base 180° and secure to the telephone with the four captive screws (Figure 4-25).

**5.15** Connect the electronic telephone to the wall

modular connector with a short cord (approximately 3 inch length). Route the cord into the hollow portion of the base, then mount the electronic telephone on the wall mounting connector. Test each electronic telephone using the **TTRM Program**, Section 200-255-300, *Programming*.



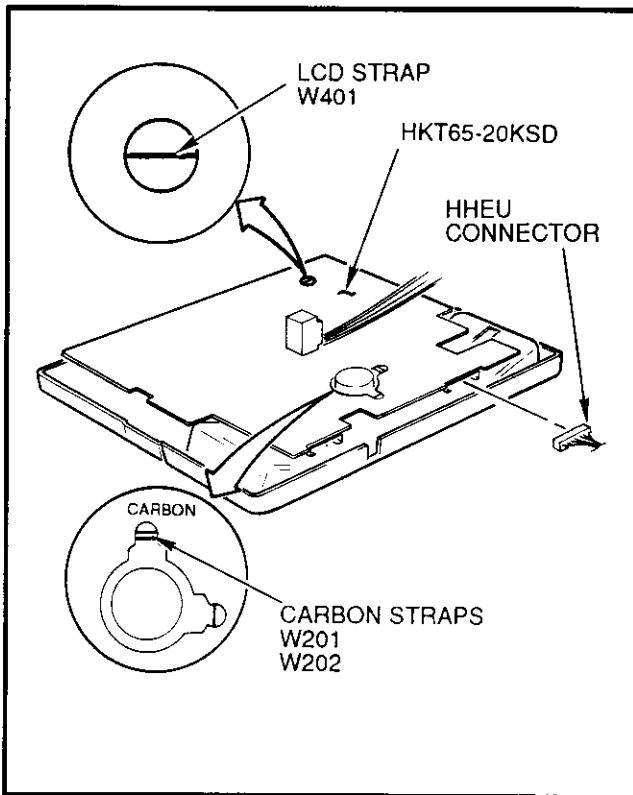


FIGURE 4-26—LOCATION OF CARBON STRAPS

## 5.20 Carbon Handset Transmitter Installation

5.21 If a customer-supplied carbon-type handset is used with the 6500-series electronic telephone, it is necessary to cut two jumper straps located on the main PCB inside the telephone. Cut the jumpers as follows:

5.22 Loosen the four captive screws securing the electronic telephone's base, and remove the base (Figure 4-23).

5.23 Locate the two carbon straps **W201** and **W202** (Figure 4-26). Cut both straps.

5.24 Reinstall the electronic telephone's base and secure using the four captive screws.

5.25 Remove the Toshiba handset and connect the carbon-type handset.

## 5.30 HHEU Installation

5.31 The HHEU option provides the interface and

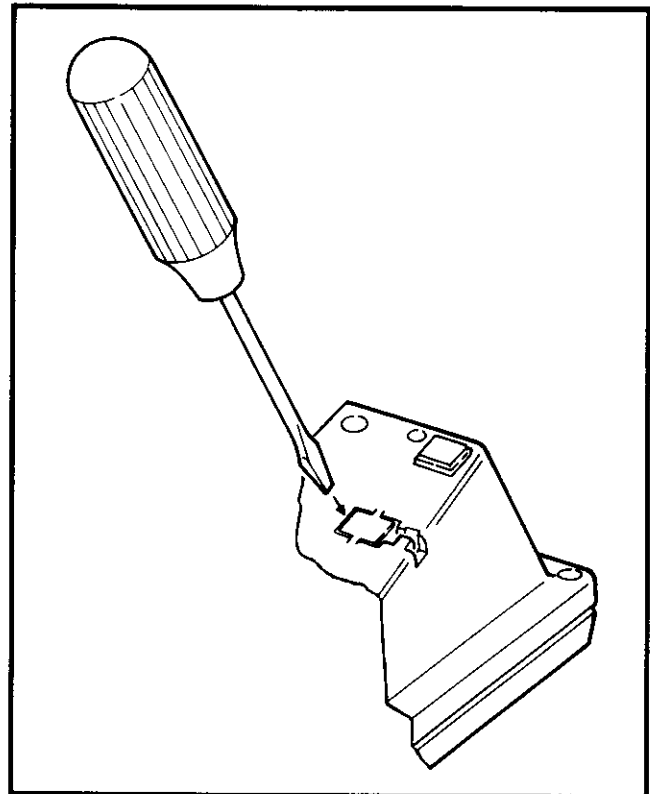


FIGURE 4-27—REMOVAL OF HHEU MODULAR CONNECTOR ACCESS TAB

control for a customer-supplied headset.

5.32 Loosen the four captive screws securing the electronic telephone's mounting base, and remove the base as shown in Figure 4-23.

5.33 Using a screwdriver or other suitable tool, remove the plastic access tab located on the back of the mounting base (Figure 4-27). The HHEU modular connector is accessed through this opening.

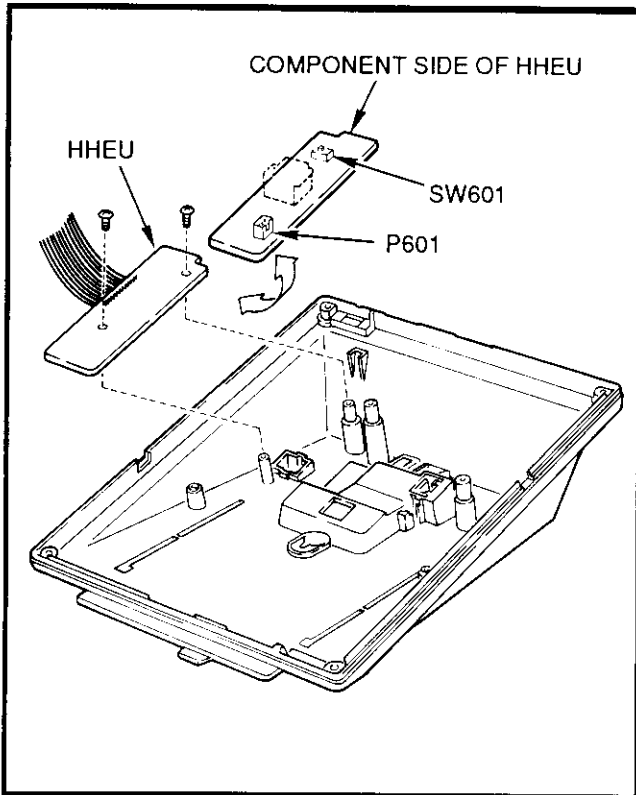
5.34 Set **HEADSET/EXT IO** switch **SW601** on the HHEU PCB (Figure 4-28) to the **HEADSET** position.

5.35 Position the HHEU PCB on the standoffs inside the mounting base, and secure in place using the two screws provided.

5.36 Connect the HHEU PCB to the electronic telephone PCB (Figure 4-26).

5.37 Connect the headset modular cord through

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**FIGURE 4-28—INSTALLATION OF HHEU UPGRADE OPTION**

the access hole created in Paragraph 5.33 of this procedure.

**5.38** Reinstall the electronic telephone's base and secure in place using the four captive screws.

#### **5.40 Standard Telephone Connections**

**5.41** See the **DSTT Program** in Section 200-255-300, *Programming*, for instructions on programming standard telephones. The system must be told at which ports standard telephones are installed.

**5.42** Standard telephones require single-pair wire and are connected to the MDF via standard twisted-pair telephone cables.

**5.43** Standard telephone connection details are shown in Figure 4-29.

#### **5.50 Attendant Console Connection**

**5.51** The attendant console is connected to the MDF via an industry-standard 25-pair cable

equipped with a female amphenol-type connector at the console location.

**5.52** Connection details for the attendant console(s) are shown in Figures 4-30 and 4-31.

**5.53** Each attendant console requires a port on an NEKU PCB to provide a speech path. The NEKUs must be installed as follows:

#### **PERCEPTION<sub>e</sub>**

**Att#0-PCB position L00 Circuit #1**

**Att#1-PCB position L15 Circuit #1**

#### **PERCEPTION<sub>ex</sub>**

**Att#0-PCB position L00 Circuit #1**

**Att#1-PCB position L01 Circuit #1**

#### **NOTE:**

***DO NOT*** cross connect an electronic telephone with either of these ports if the associated attendant console is installed.

#### **5.60 DSS Console Connections**

**5.61** See the **DSS Program** in Section 200-255-300, *Programming*, to input information concerning DSS consoles.

**5.62** The DSS console must be positioned adjacent to an electronic telephone (preferably an LCD model). DSS consoles use 2-pair wiring and are connected to the MDF via standard twisted-pair telephone cables. The console connection is made using only the Data pair. An RJ25 modular connector should be attached to the instrument-end of the telephone cable to permit connection to the DSS console.

**5.63** The overall length of the DSS console cable run from the equipment cabinet must not exceed 500 feet (152.5 M), 24 AWG cable.

#### **IMPORTANT!**

***When installing the DSS console cable, do not run parallel to and within 3' of an AC power line. Such power lines should be crossed at right angles (90°) only.***

**5.64** DSS console connection details are shown in Figure 4-32.

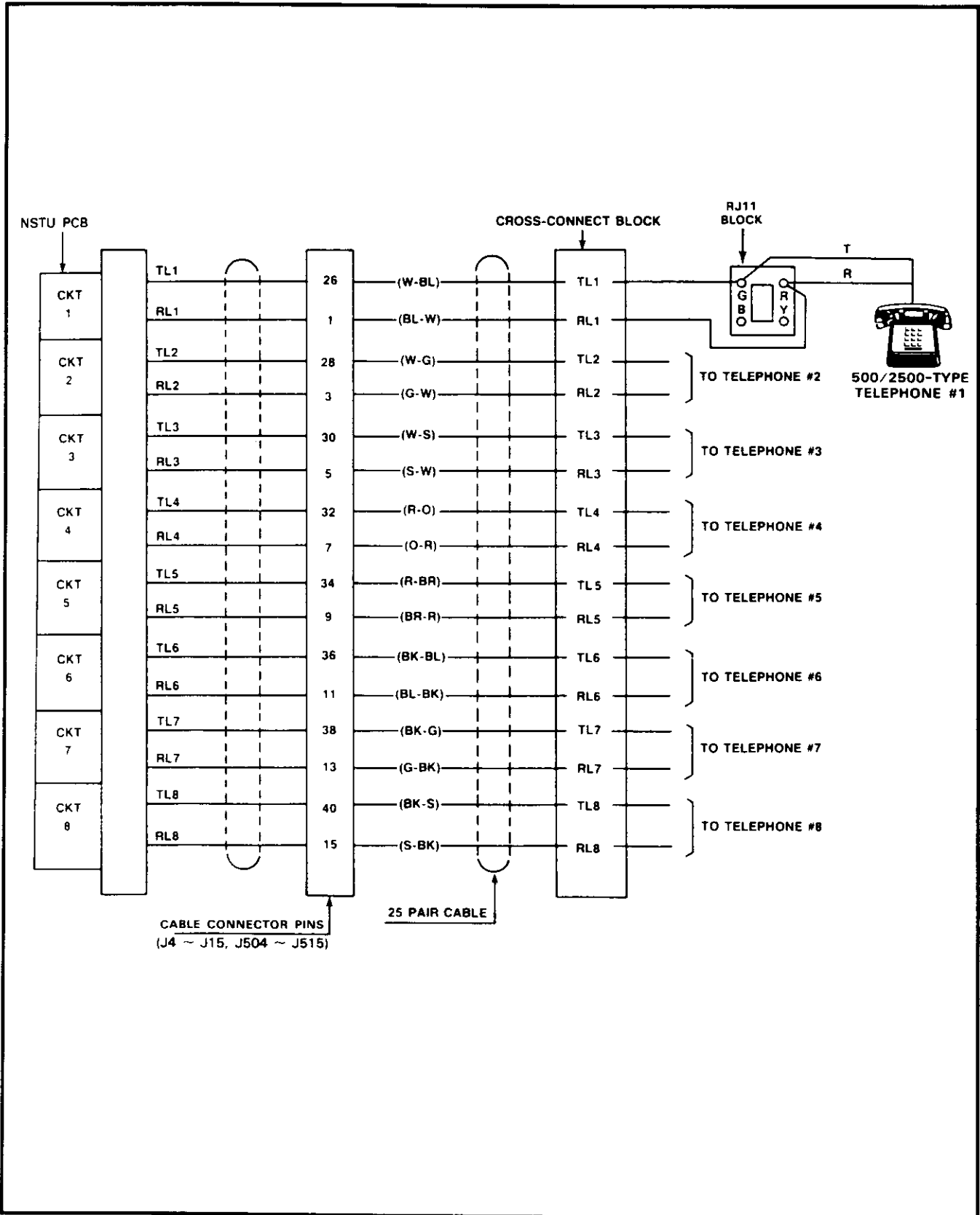
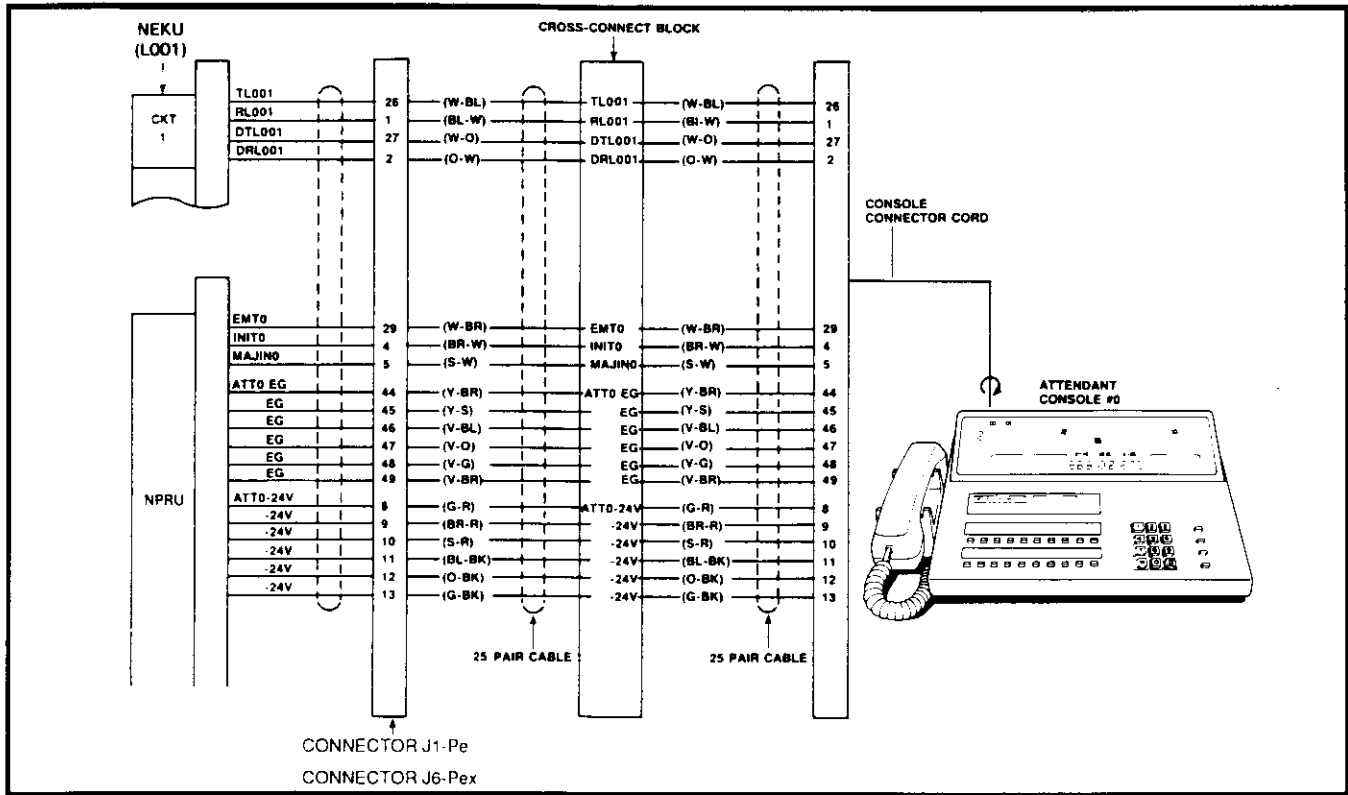


FIGURE 4-29—STANDARD TELEPHONE CONNECTION

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**FIGURE 4-30—ATTENDANT CONSOLE #0 CONNECTION**

**5.70 Digital Data Interface Unit Connections**

**5.71** See the **DDIU Program** in Section 200-255-300, *Programming*, to input information concerning Digital Data Interface Units. The system *must* be told which type of DDIU (-MA or -MAT) is installed at each location.

**5.72** Digital Data Interface Units require only single-pair wiring and are connected to the MDF via standard twisted-pair telephone cables.

**NOTE:**

*The DDIU-MAT requires an additional two-pair for electronic telephone operation. (For this reason, three-pair cable should be used at locations where a DDIU-MAT may be installed.)*

**5.73** Digital Data Interface Unit connection details are shown in Figure 4-33.

**5.80 DDIU-MAT**

**5.81** The DDIU-MAT (Figure 4-34) mounts di-

rectly on the bottom of an electronic telephone (forming a single unit) as follows:

- 1) Remove the electronic telephone base (see Paragraph 5.12).
- 2) Replace the telephone base with the DDIU-MAT.

**NOTE:**

*An electronic telephone with a DDIU-MAT attached cannot be wall-mounted.*

**5.82** The DDIU-MAT requires four types of connections for proper operation.

- Power Supply (to power outlet).
- 25-pin female RS-232C connector (to data device).
- 2-pair modular line cord (to electronic telephone).
- 3-pair modular connector (to LCEC/NCEC).

**5.83** The power supply (provided) connects the DDIU-MAT to a 117 VAC wall outlet. The 25-pin female RS-232C connector interfaces with the customer-supplied Data Terminal Equipment (DTE) and uses the following pins:

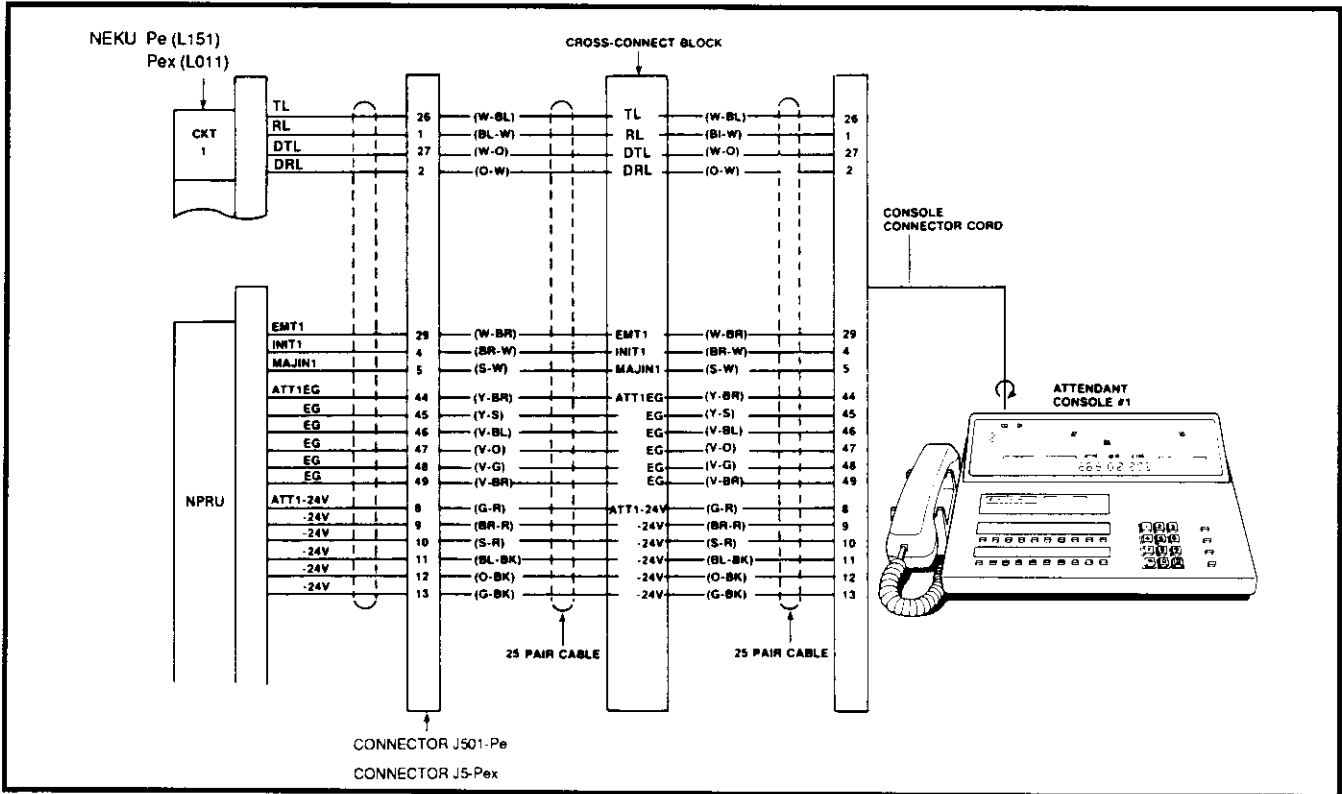


FIGURE 4-31—ATTENDANT CONSOLE #1 CONNECTION

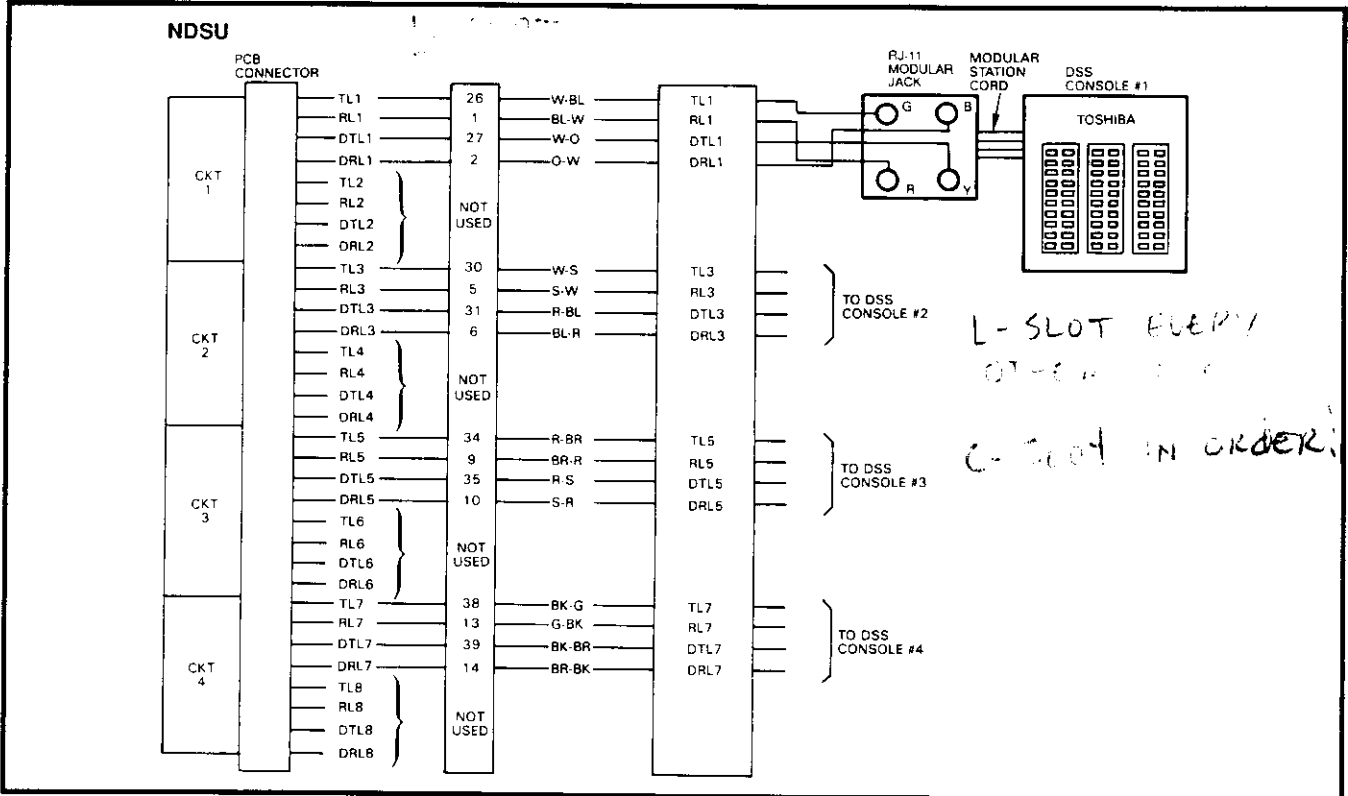
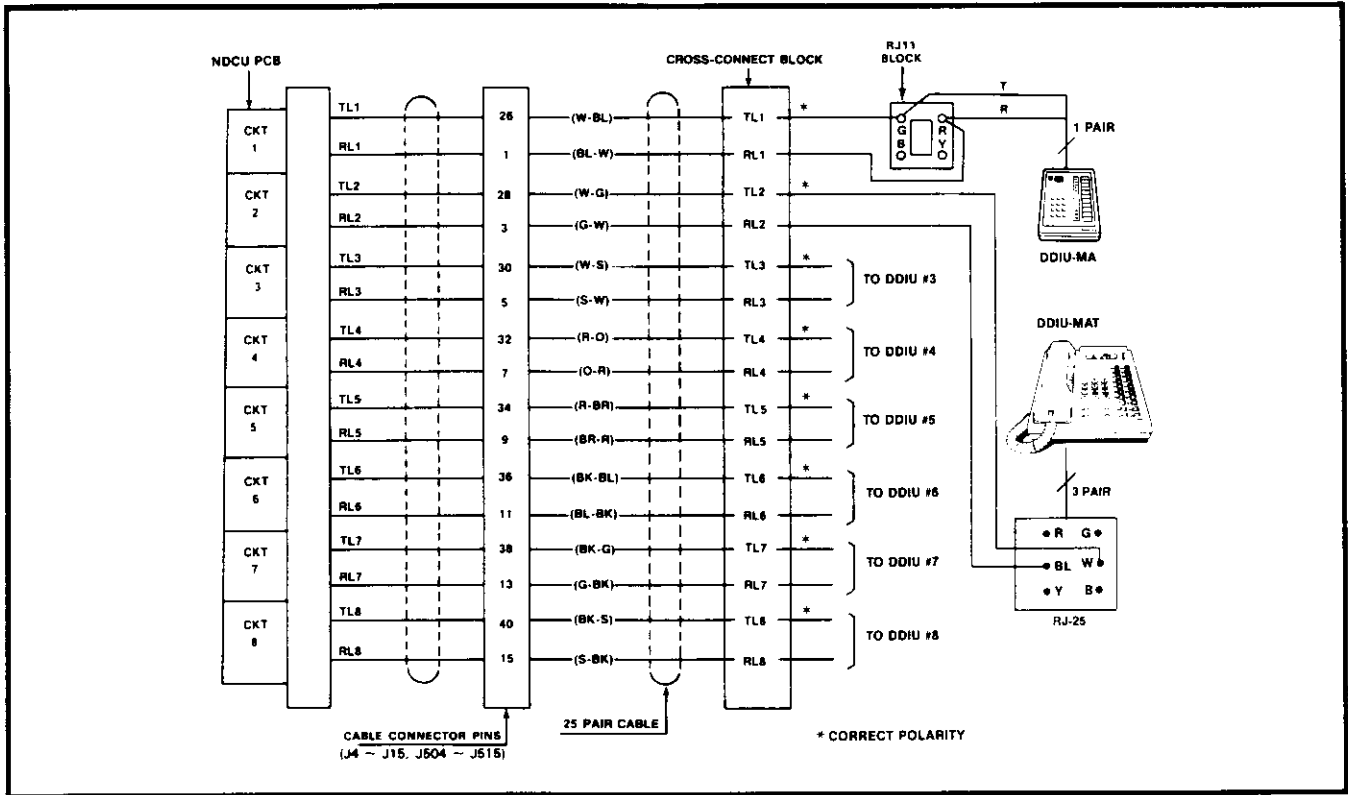
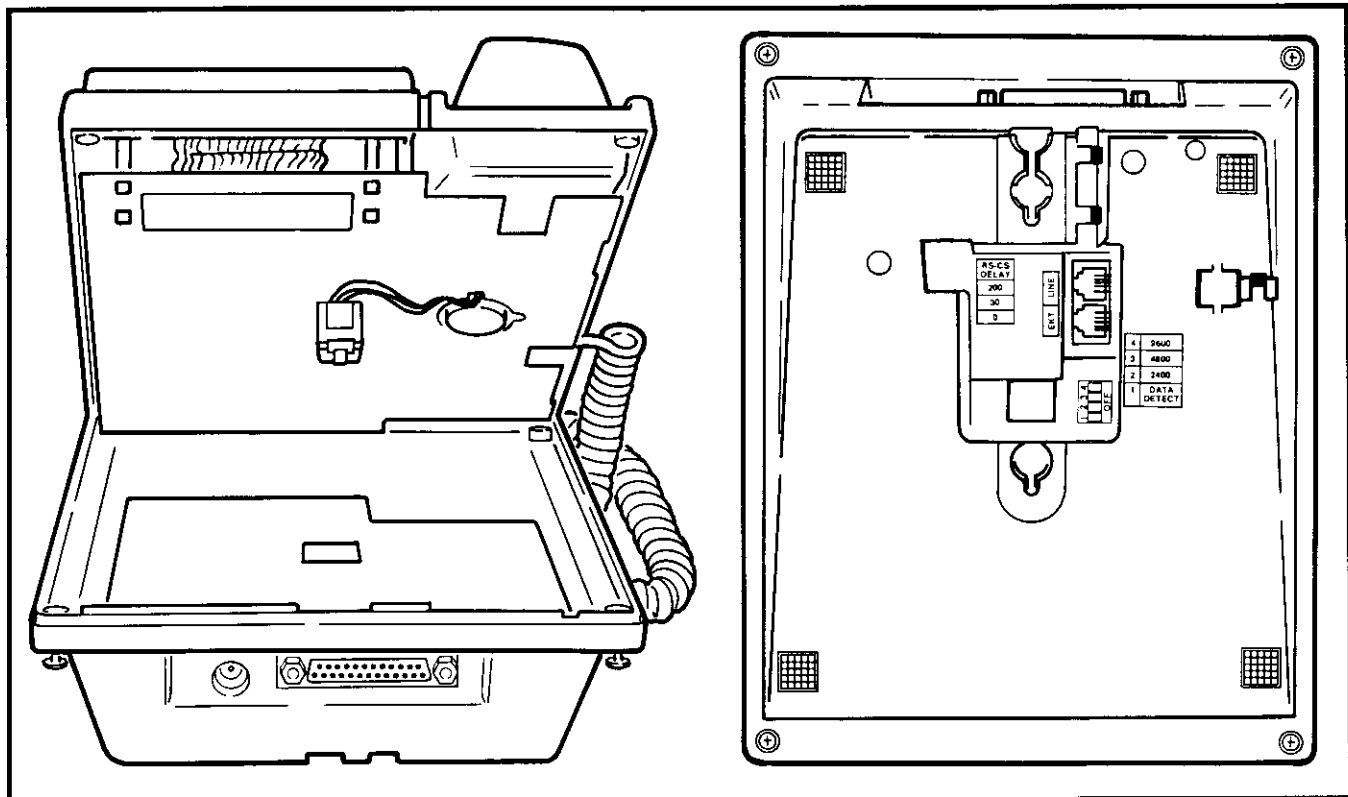


FIGURE 4-32—DSS CONSOLE CONNECTION

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**FIGURE 4-33—DIGITAL DATA INTERFACE UNIT CONNECTION**

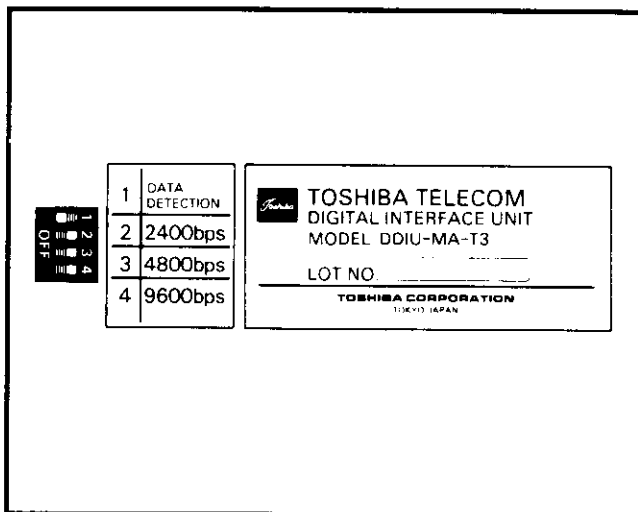


**FIGURE 4-34—INSTALLING DDIU-MAT**

Pin No.		Designation
1	FG	Protective Ground/Frame
2	SD	Transmitted Data (to DDIU)
3	RD	Receive Data (from DDIU)
4	RTS	Request to Send (to DDIU)
5	CTS	Clear to Send (from DDIU)
6	DSR	Data Set Ready (from DDIU)
7	SG	Signal Gound/Common Return
8	RCD	Receive Carrier Detect (from DDIU)
15	ST2	Transmission Signal Element Timing (from DDIU)
17	RT	Transmission Signal Element Timing (from DDIU)
20	DTR	Data Terminal Ready/Equipment Ready (to DDIU)
22	CI	Ring Indicator (from DDIU)

**5.84** The provided 2-pair modular line cord connects the DDIU-MAT to the electronic telephone line connector. The 3-pair modular line connector connects to the three-pair house cable run from the LCEC/NCEC (see Digital Data Interface Unit Connections, Paragraph 5.70).

**5.85** Several DIP switches found on the bottom of the DDIU-MAT must be set for proper operation (Figure 4-35).



**FIGURE 4-35—DDIU-MAT DIP SWITCHES**

**5.86** When the **DATA DETECTION** switch (Switch 1) is placed on the **ON** position, the automatic data release feature will be activated (data connection is automatically released if no data is transmitted for a period of 18 minutes).

**5.87** **Switches 2, 3 and 4** select the data speed for synchronous transmission only.

Switch 2 = 2400 bps

Switch 3 = 4800 bps

Switch 4 = 9600 bps

If asynchronous operation is used, the switches will have no effect and the data speed will self-adjust to a maximum speed of 19.2 kbps or less.

**5.88** A power **ON/OFF** switch that appears on some early DDIU-MAT models controls power to the DDIU-MAT from the power supply. If the switch is **OFF**, the DDIU-MAT will not function, but the electronic telephone will continue functioning normally. When the switch is **ON**, both DDIU-MAT and electronic telephone are functional. In later models, the DDIU-MAT is operational when the power supply is plugged in.

**IMPORTANT!**

**All connections to DDIUs (-MA or -MAT) must observe correct tip and ring polarity for proper operation.**

**5.90 DDIU-MA**

**5.91** The DDIU-MA is a stand-alone unit that incorporates both the manual dialing and auto-answering features of the DDIU-MAT, but is used as a data transceiver only.

**5.92** The DDIU-MA has several internal and external switches that must be set for proper operation.

**5.93** The power **ON/OFF** switch, on the bottom of the DDIU-MA, must be turned **ON** for the DDIU-MA to operate. When the switch is on, an LED on the front faceplate will light.

**5.94** The DDIU-MA's faceplate must be removed to set the internal DIP switches. Remove the faceplate by carefully lifting the lower right corner and then pulling the faceplate away from the base. Set the following parameters as required at switch **S26** on the internal DIUA PCB (Figure 4-36):

Switch 1\* = Equipment Ready Supervision  
**ON**-Data device provides an Equipment Ready

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signal to the DDIU (the Terminal Ready LED will light only when the signal is received).

**OFF**-Data device does not provide an Equipment Ready signal to the DDIU (the Terminal Ready LED will remain lit continuously).

Switch 2 = not used.

Switch 3 = not used.

Switch 4 = **ON** (Enables automatic answer mode of operation.)

Switch 5 = **ON** (Activates Automatic Data Release feature. The data connection is automatically released if no data is transmitted for a period of 18 minutes.)

Switch 6 = 2400 BPS \*\*

Switch 7 = 4800 BPS \*\*

Switch 8 = 9600 BPS \*\*

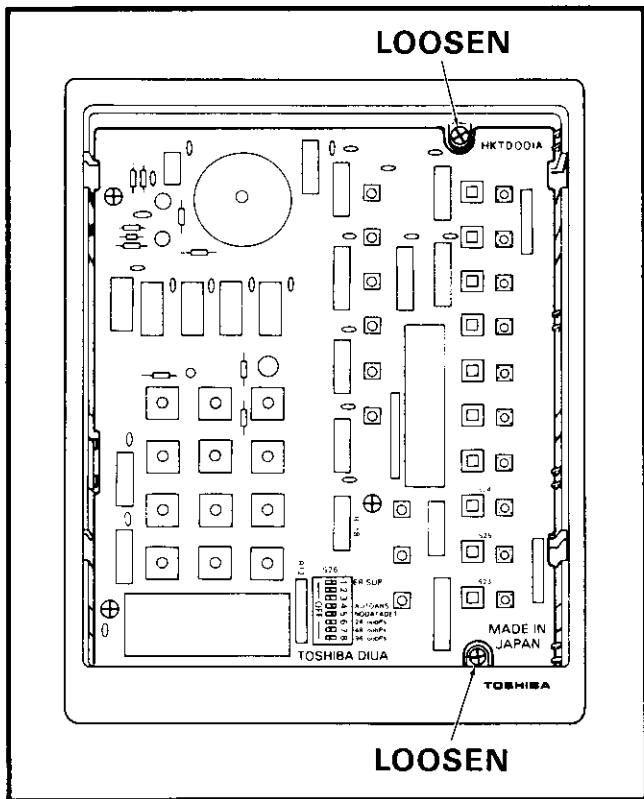
*\*A data path cannot be established if the Terminal Ready light is **OFF** (even though a DDIU-MA can be answered manually). The Terminal Ready light **must** be **ON** to establish a data path when answering manually.*

*\*\*Select the appropriate speed for synchro-*

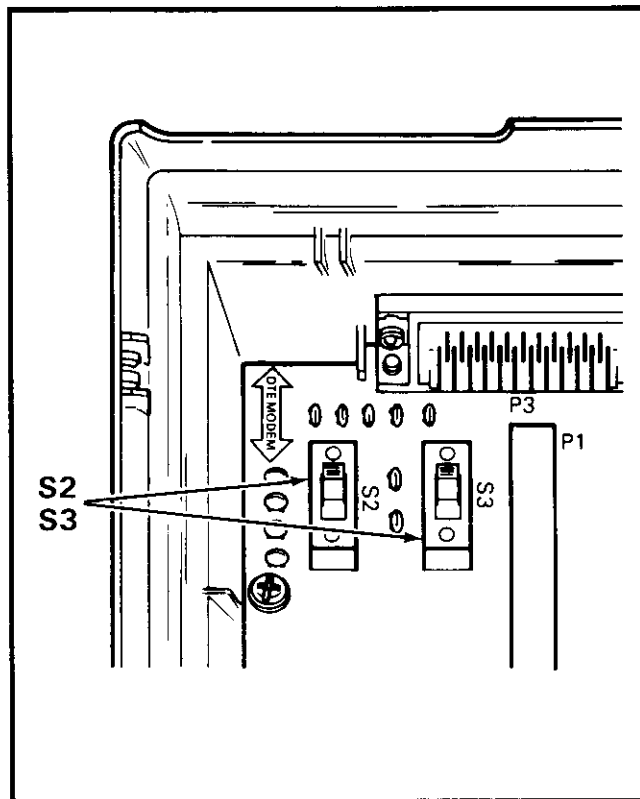
*nous data transmission. If the asynchronous mode of operation is used, these switches have no effect and the DDIU-MA will automatically adjust to the appropriate speed (to a maximum of 19.2 kbps).*

**5.95** Two switches on the DIUB PCB must be set for either DTE or MODEM (DCE) operation. The pin assignments shown in Paragraph 5.83 explain the RS-232C cable signaling differences between DTE and DCE devices. (Typically, a DTE is a terminal device such a personal computer or printer, while a DCE is an intermediate device such as a modem or protocol converter connected to a host. Refer to the data device manufacturer's documentation for its signaling information.) Set the DIUB PCB switches as follows:

- 1) Loosen the two screws found under the DDIU-MA's faceplate on the right side (top and bottom) of the DIUA PCB (Figure 4-36).
- 2) Carefully separate the two halves of the DDIU-MA to expose the **S2** and **S3** (DTE/MODEM) switches (Figure 4-37) in the upper left corner of the DIUB PCB.



**FIGURE 4-36—DDIU-MA DIUA PCB**



**FIGURE 4-37—DIUB PCB**



3) If the DDIU-MA is to be connected to a **DTE**, both switches must be in the DTE position. If it will be connected to a **DCE**, both switches must be in the **MODEM** position.

4) Reassemble the DDIU-MA.

**5.96** See *Operating Procedures* or DDIU-MA and Electronic Telephone *User Guides* for information on the DDIU dial pad, LED/button operation and functions.

**5.97** The DDIU-MA requires three types of connections for proper operation:

- Power supply (to facility power).
- 25-pin female RS-232C connector (DDIU-MA to LCEC/NCEC).
- Single-pair modular connector (DDIU-MA to LCEC/NCEC).

**5.98** The power supply (provided) connects the DDIU-MA to a 117 VAC wall outlet. The 25-pin female RS-232C connector connects to the customer-supplied data device and is configured for either DTE or DCE operation as shown below:

**DTE Position:**

Pin No.		Designation
1	FG	Protective Ground/Frame
2	SD	Transmitted Data (to DDIU)
3	RD	Receive Data (from DDIU)
4	RTS	Request to Send (to DDIU)
5	CTS	Clear to Send (from DDIU)
6	DSR	Data Set Ready (from DDIU)
7	SG	Signal Gound/Common Return
8	RCD	Receive Carrier Detect (from DDIU)
15	ST2	Transmission Signal Element Timing 2 (from DDIU)
17	RT	Transmission Signal Element Timing 2 (from DDIU)
20	DTR	Data Terminal Ready/Equipment Ready (to DDIU)
22	CI	Ring Indicator (from DDIU)

**DCE (MODEM) Position:**

Pin No.		Designation
1	FG	Protective Ground/Frame
2	TD	Transmitted Data (from DDIU)
3	RD	Receive Data (to DDIU)
4	RTS	Request to Send (from DDIU)
5	CTS	Clear to Send (to DDIU)
6	DSR	Data Set Ready (to DDIU)
7	SG	Signal Gound/Common Return
20	ER	Data Terminal Ready/Equipment Ready (from DDIU)
24	ST1	Transmit Signal Element Timing 1 (to DDIU)

The DDIU-MA connects to the LCEC/NCEC with a single pair station line cable that plugs into the modular connector on the back of the base (see Digital Data Interface Unit Connections, Paragraph 5.70).

**IMPORTANT!**

**All connections to DDIUs (-MA or -MAT) must observe correct tip and ring polarity for proper operation.**

**5.100 Trunk Connections**

**5.10** Connections from the telephone company jack (RJ21X for CO/FX/WATS/DID and RJ2EX for E & M TIE trunk) should be terminated on a 66-block, and then cross-connected to the appropriate leads on the CO portion of the MDF, using the Tables 5-7, 5-8, and 5-13 ~ 5-15 as guides. Connection requirements for each type of trunk are shown below.

DESIGNATOR	FUNCTION	TRUNK TYPE
T	Tip	CO, DID, TIE
R	Ring	CO, DID, TIE
T1	Tip 1	TIE (4-wire)
R1	Ring 1	TIE (4-wire)
E	E	TIE
SG	Sig. Gnd.	TIE (Type II)
M	M	TIE
SB	Sig. Bat.	TIE (Type II)

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**6. PERIPHERAL EQUIPMENT INSTALLATION**

**6.00 Modem Pooling Connections**

**6.01** See the **NMDM Program** in Section **200-255-300, Programming**, to input information concerning *Modem Pooling*.

**6.02** Most modems require only single-pair wiring and are connected to the MDF via standard twisted-pair telephone cables. However, some modems may require a two-pair connection (one for transmit—one for receive). For this type of connection, use the next wire pair (which is not normally used). Modem Pooling connection details are shown in Figure 4-38.

**IMPORTANT!**

**All connections to DDIUs (-MA or -MAT) must observe correct tip and ring polarity for proper operation.**

**6.10 Power Failure/Emergency Transfer**

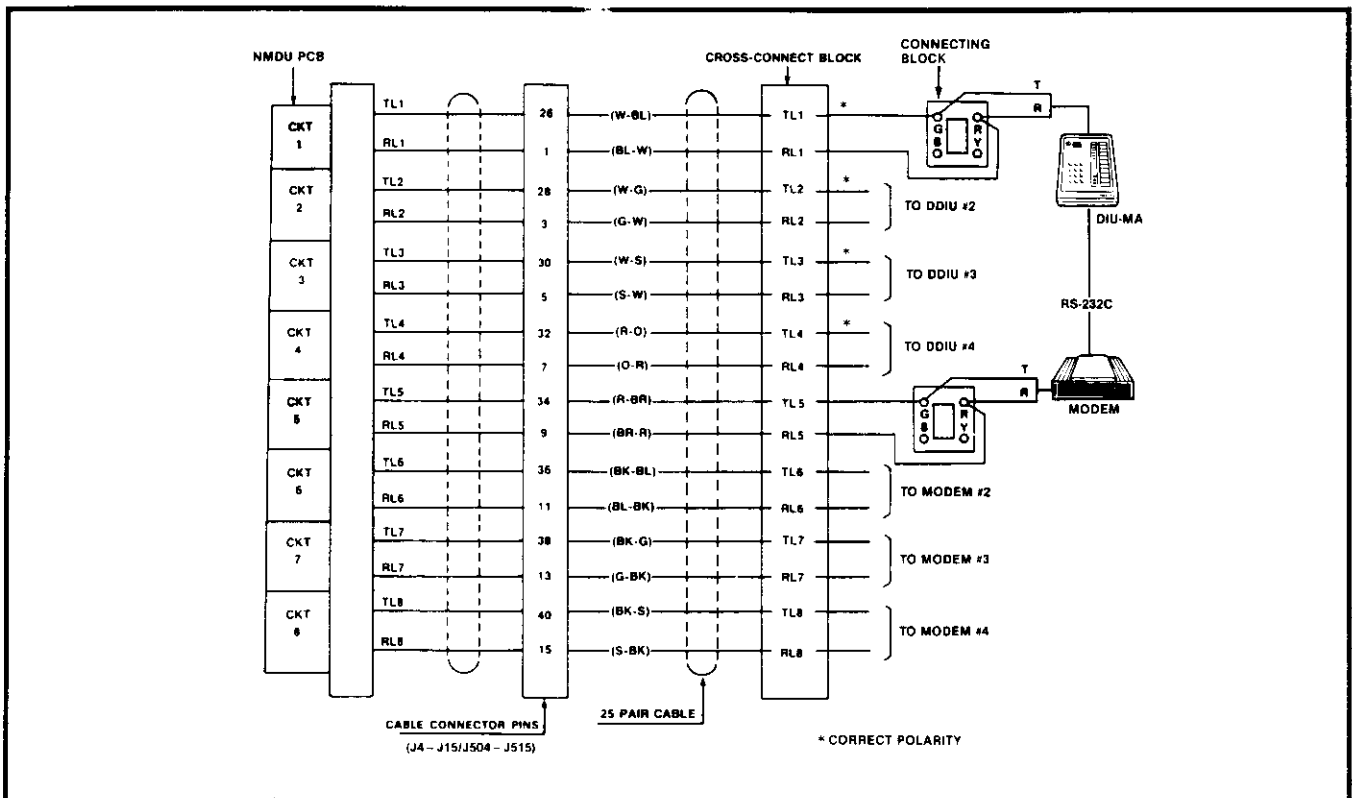
**6.11** One DPFT can be installed in a two-cabinet

system. Install the DPFT as follows:

- 1) Mount the DPFT near the MDF.
- 2) Using 25-pair cables with amphenol-type connectors (female for **J1**, male for **J2**), connect the DPFT to two 66-type cross-connect blocks.
- 3) Using Tables 5-8 and 5-15 for guides:
  - Connect the trunks selected for emergency use to the **J1** block "CO Tip" and "CO Ring" terminals.
  - Connect the NCOU circuits supporting to the emergency trunks to the **J1** block "NCOU Tip" and "NCOU Ring" terminals.
- 4) Using Tables 5-6, 5-7, 5-9, 5-14 and 5-16 for guides:
  - Connect the standard telephone stations, designated for emergency use, to the proper terminals on the **J2** block "TEL Tip" and "TEL Ring" terminals.
- 5) At the MDF, connect the DPFT to the system as follows:

**PERCEPTION<sub>e</sub>**

DPFT **J1** (trunk) = LCEC/NCEC-M & S **J8-**



**FIGURE 4-38—MODEM POOLING CONNECTION**

**J15/J508-J515**  
Pin 25 (S-V) = Pin 25 (S-V)\*  
Pin 50 (V-S) = Pin 50 (V-S)\*  
DPFT **J2** (station) = LCEC/NCEC-M & S **J4-**  
**J15/J504-J515**

**PERCEPTION<sub>ex</sub>**  
Any trunk position

\*On the **J1** connector, the Pin 25 connection provides the -24 VDC input required to drive the DPFT and the Pin 50 connection provides ground. There are no power connections on connector **J2**.

### 6.20 Reserve Power

6.21 Install Reserve Power as follows (Figure 4-39):

- 1) Place the customer-supplied battery pack where it will be located.

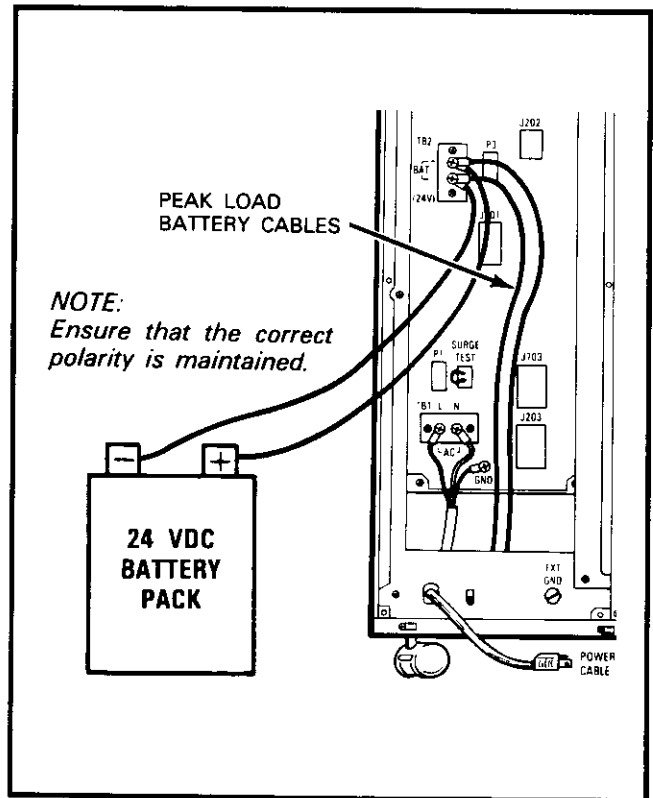
#### **CAUTION!**

**Batteries can emit fumes that are poisonous to people, potentially explosive, and corrosive to electronic components. Locate batteries so that any fumes are adequately vented per local fire codes.**

- 2) Place the **POWER** switch (on the front of the main power supply) in the **OFF** position and remove the AC power cable from the outlet.
- 3) Connect the battery pack leads (customer-supplied) to **TB2 BAT** on the NPSA-M or LPSA (Figure 4-39). Observe the correct polarity. Leave the leads from the peak load battery connected.
- 4) Connect the leads to the battery pack (Figure 4-38). Observe the correct polarity. Fix battery leads to the cabinet using the clamp.
- 5) Place the **BAT BACK UP** switch on the front of the main power supply in the **ON** position.
- 6) Plug the AC cable into the outlet and turn the **POWER** switch **ON**.

### 6.30 Paging Equipment

6.31 By combining a single customer-supplied



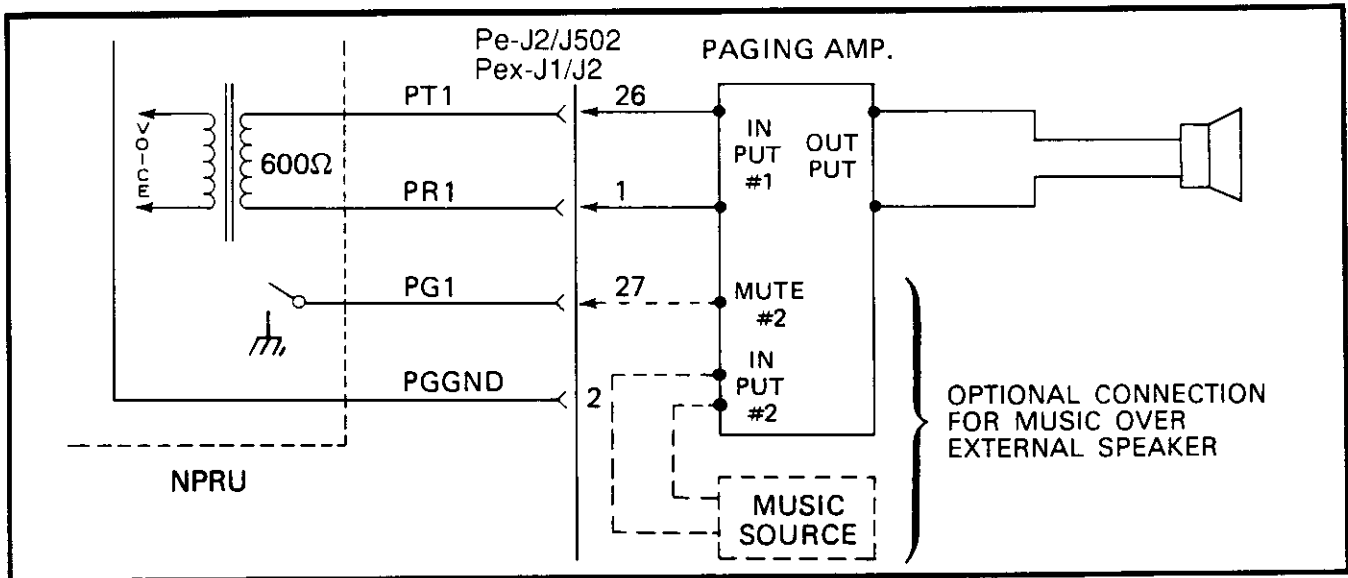
**FIGURE 4-39—RESERVE POWER INSTALLATION**

paging amplifier with the system's paging interface and speaker zone switching, it is possible to provide a paging system of up to five zones with All Zone Page capability.

6.32 Figures 4-40, 4-41 and 4-42 show possible paging arrangements. As a standard feature (part of the NPRU PCB), the system provides a 600-ohm output to a paging amplifier. If more than one paging zone is required, the output of the amplifier can be routed back to the NPRU PCB where it will be switched to one of five sets of speakers. The speaker operated is determined by the access code dialed by the station user. The actual access code is assigned in software (see Section 200-255-300, *Programming*).

6.33 An All Page code can also be defined in software. When that code is dialed, all relays will be activated simultaneously to permit paging to all speaker zones.

6.34 If the power loads of the different zones are such that a single amplifier is not suitable, multiple amplifiers (up to one for each zone) can be con-



**FIGURE 4-40—PAGING with MOH FROM SAME AMPLIFIER**

nected as shown in Figure 4-42.

**6.35** If music is to be broadcast over the paging system, two arrangements are possible:

- 1) If the music is supplied from a separate amplifier (as in Figures 4-41 and 4-42), it can be connected between the speaker common line and the **PG GND** input to the NPRU (PERCEPTION<sub>e</sub> **J2/J502** and pin #2 or PERCEPTION<sub>ex</sub> **J1/J2** and pin #2). The music will be connected to all speaker zones when no page is in progress. When a page access code is dialed, the music is disconnected from the zone and the page amplifier output is connected.
- 2) If the music is connected to a second input of the paging amplifier (Figure 4-40), the PG1 control lead (**J2** and **J502** pin #27 or **J1** and **J2** for PERCEPTION<sub>e&ex</sub>, respectively) can be connected to the MUTE terminal of the page amplifier music channel. When any page access code is dialed, a ground output is applied to the **PG1** lead to mute the music.

**6.36** All paging connections are made at the **J2** and **J502** or **J1** and **J2** connectors on the PERCEPTION<sub>e&ex</sub> system, respectively. The connectors are located on the rear of the basic and expansion cabinets. See Tables 5-4 and 5-10 for details.

#### **6.40 Music-on-Hold**

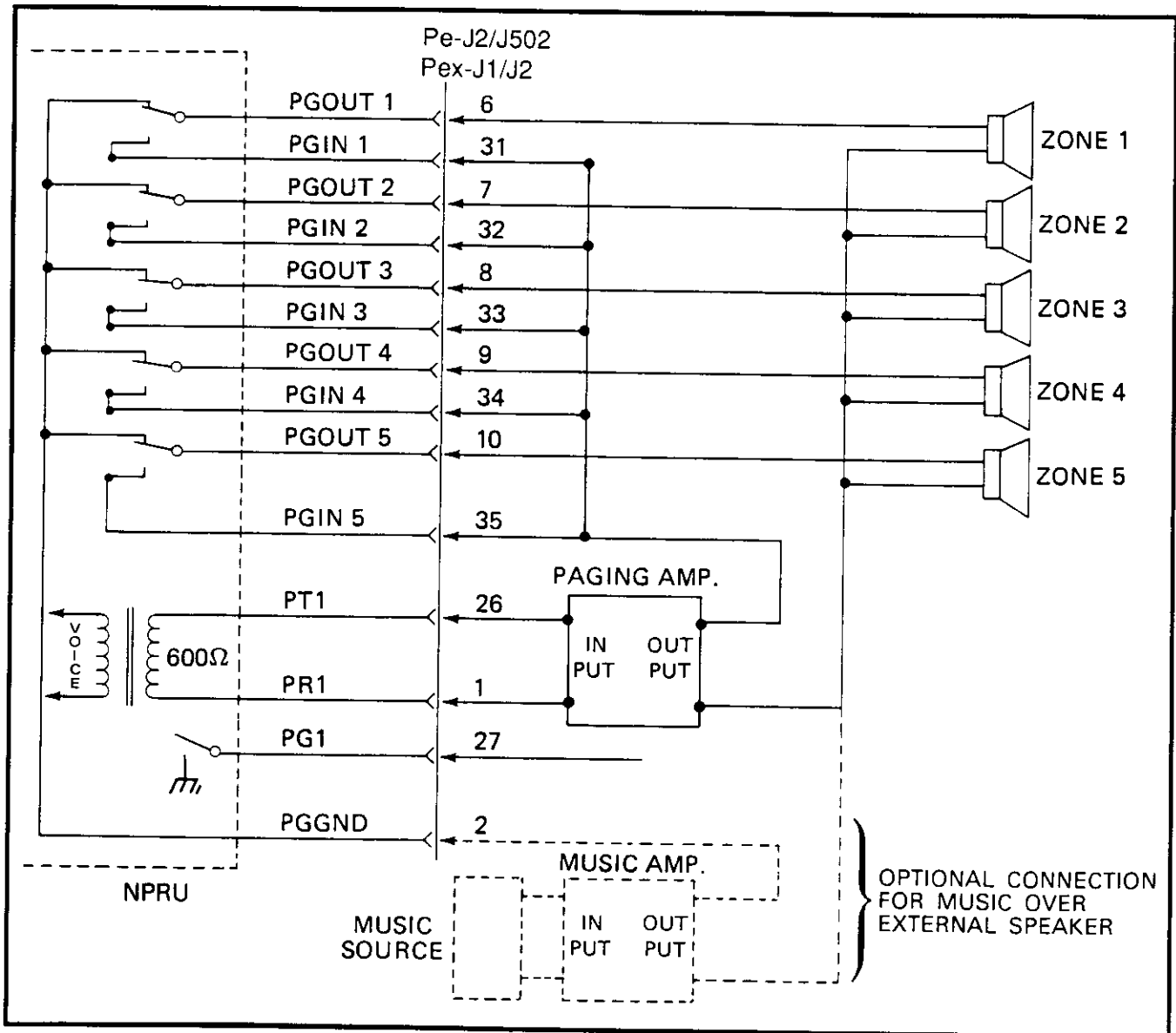
**6.41** A Music-on-Hold (MOH) interface is a standard feature on the system. The circuitry occupies part of the NPRU PCB. If MOH is equipped, it will be heard by any station or trunks on-hold in the system, or by any trunk put into the camp-on state.

**6.42** A tuner or other program source, supplied by the customer, is connected to the MOH input via pins #4 and #29 (Br-W and W-BR) of **J2** or **J502** / **J1** or **J2** for the PERCEPTION<sub>e&ex</sub> systems, respectively (see Tables 5-4 and 5-10). The input impedance is 600 ohms. (This cannot be the same source used to provide music over external speakers.)

**6.43** Adjust the MOH volume with the MOH volume control on the front of the NPRU PCB. Maximum volume is limited by internal circuits in order to comply with FCC regulations.

#### **6.50 Universal Night Answer**

**6.51** The Universal Night Answer (UNA) feature provides an output of interrupted ringing voltage (85 ±10 VRMS, 20 Hz superimposed on -24 VDC) whenever the system is in Night Service and an incoming call is received by a trunk designated for



**FIGURE 4-41—PAGING with ONE AMPLIFIER**

UNA. Any station user, upon hearing the chime or bell, can dial the UNA access code and be connected to the caller.

**6.52** The ringing voltage output is intended to control a strategically located chime or loud ringing bell. The available power is five ringer equivalents.

**6.53** Two UNA zones can be installed in tenant systems. Either zone can be assigned in programming to either tenant. For PERCEPTION<sub>e</sub>, connections to the UNA ringing signal are via pins #12 and #37 (O-BK, BK-O) of J2. This connection is to J502 in the expansion cabinet for UNA Zone 1 (see

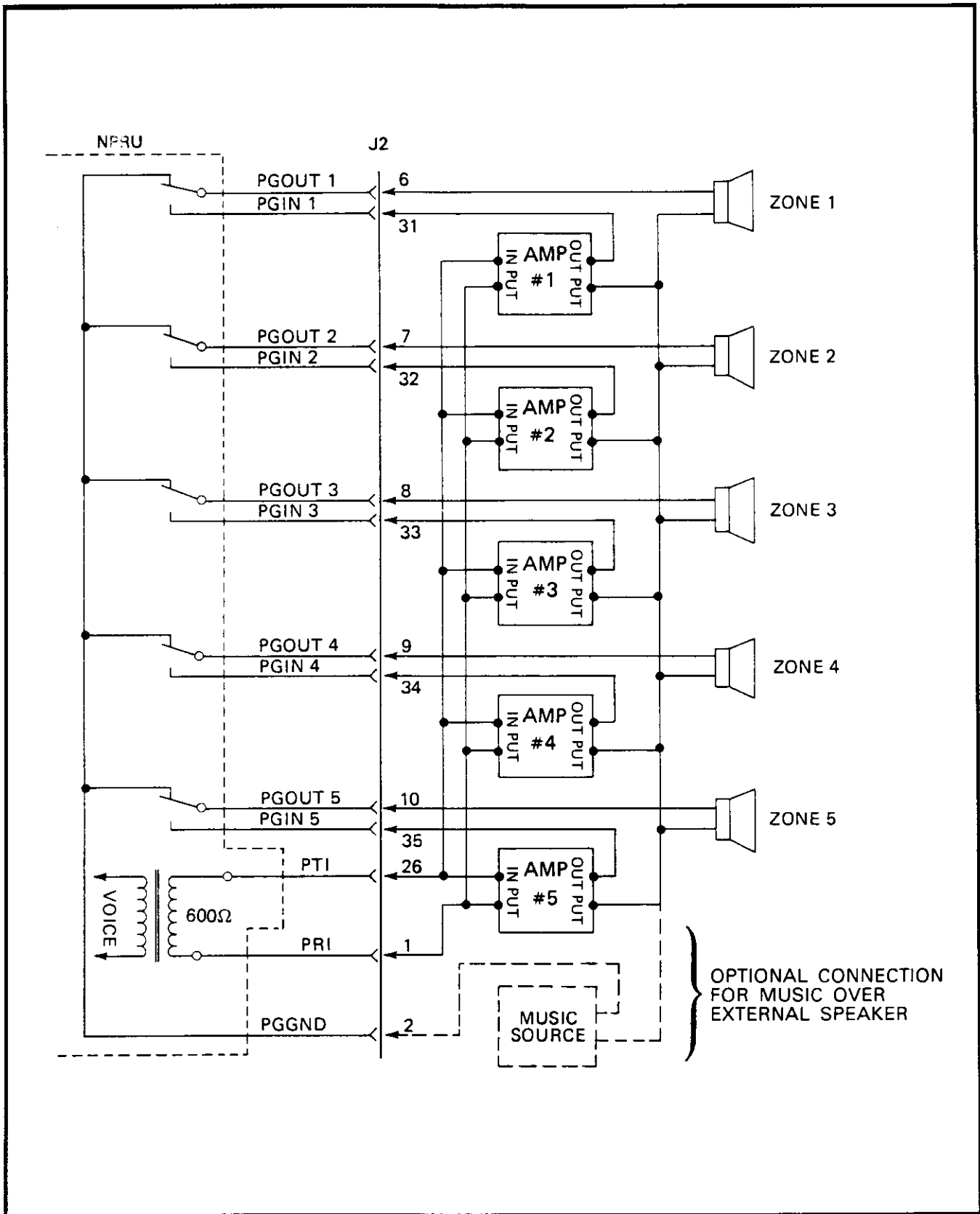
Tables 5-4 and 5-10). UNA zone 1 requires a second NPRU card in the expansion cabinet.

**6.54** UNA connections for PERCEPTION<sub>ex</sub> are made at pins #12 and #37 connectors J1 and J2 on the basic cabinet. A second UNA device requires a second NPRU to be installed in the basic cabinet.

### **6.60 Station Message Detail Recording**

**6.61** The Station Message Detail Recording (SMDR) feature enables a business to monitor and control its telephone costs. Data can be collected for each outgoing and/or incoming trunk call. Each

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**FIGURE 4-42—PAGING with MULTIPLE AMPLIFIERS**

such call generates a call record that is output at the SMDR connector on the connector panel at the upper rear of the LCEC-M or NCEC-M. (In Lodging/Health Care applications, data specific to those applications are included in the SMDR output.)

**6.62** SMDR output can be connected to a variety of customer-provided equipment:

- A local 80-column printer for an on-line printout at the termination of each trunk call.
- A recording device to store data for subsequent processing, either on-site or by a service bureau.
- Call accounting equipment to provide customized call reports.

**6.63** Refer to the external device manufacturer's documentation for information on its SMDR connector pin assignments below.

**6.64** The SMDR output speed can be set for either 300 bps or 1200 bps by the MDR switch on the front panel of the LCCU PCB (Figure 4-43). SMDR pin assignments are as follows:

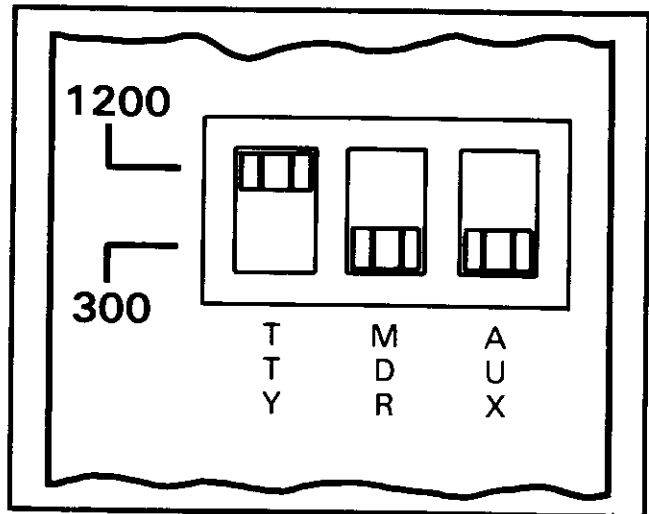
PIN	SIGNAL
1	Receive Data (from SMDR device)
2	Transmit Data (to SMDR device)
3	Request to Send (to SMDR device)
4	Clear to Send (to SMDR device)
5	Data Set Ready*
6	Signal Ground
7	Carrier Detect*
8	Data Set Ready (from SMDR device)

**6.65** The code used by SMDR is standard 7-level ASCII using one start bit, one stop bit and one parity bit (even parity).

**6.66** SMDR can be programmed to record data under any one of the following conditions:

- Incoming calls only.
- Outgoing calls only.
- Incoming and outgoing calls.
- Outgoing toll calls only.
- All incoming calls and outgoing toll calls.

**6.67** When outgoing calls are chosen, all calls seizing a trunk will be recorded regardless of



**FIGURE 4-43—LCCU SWITCHES**

duration. On incoming calls, all answered calls will be recorded. Calls disconnected by Toll or Code Restriction features are not recorded.

**6.68** Timing for recorded calls will start as follows (Figure 4-44):

- Outgoing—when trunk is seized.
- Incoming to attendant only—when attendant answers.
- Incoming and extended by the attendant—when attendant answers.
- Incoming to a station—when answered.

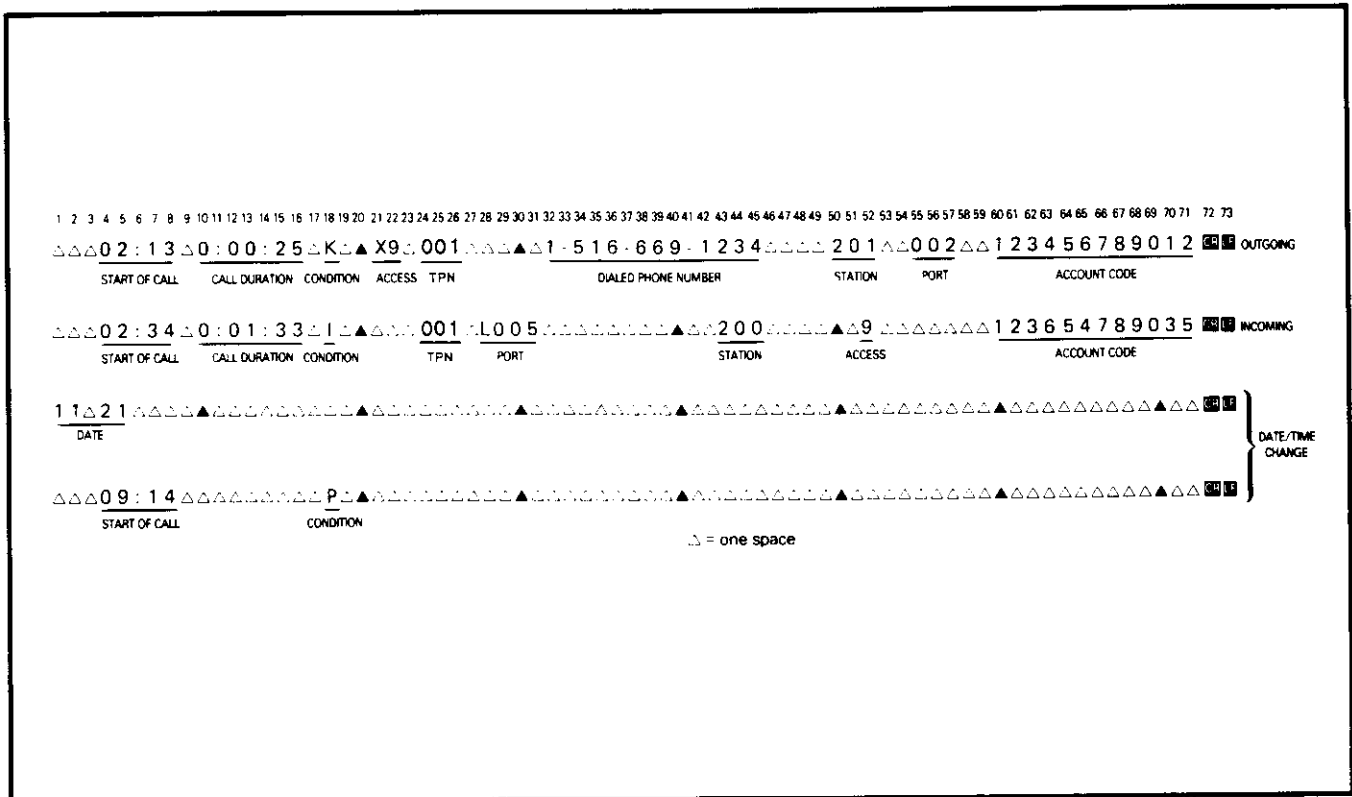
**6.69** A station user can enter a charge account code of up to 12 digits for each call. This code is included in the SMDR output.

**6.70** The recording criteria and account code length are defined in **DMDR Program** (see Section 200-255-300, *Programming*).

**6.71** Each time a trunk is seized, data is collected for that call until the trunk is released. This data is output at the SMDR port in the following format (see Figure 4-44).

- Time
  - Start of Call Hour - tens - units  
Minute - tens - units
  - Call Duration Hour - units  
Minute - tens - units  
Seconds - tens - units
  - Condition Code (see table)  
A = Attendant handled

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**FIGURE 4-44—EXAMPLE: SMDR CALL RECORD**

- D = Call > 10 hours
- E = Maintenance (SMDR port)
- F = Maintenance (trunk test)
- I = Incoming call
- K = Outgoing call
- L = Conference Attendant or 3-party
- M = Transfer or Call Forward
- N = SPCC #1
- O = SPCC #2
- P = Date/Time change
- Q = System Initialize
- R = Incomplete call
- S = Date printed (every hour)

- Access Code           3 digits maximum
- Dialed Number        15 digits maximum
- Calling DN            4 digits maximum
- Trunk Port            3 digits Maximum
- Calling Port No.      3 digits maximum
- Account Code         12 digits maximum

The format of the special record, for Initialize/Reload and Time Change, is as follows:

Initialize/Reload:

NNNN etc. (previous records-usual call)  
 00 (Initialize or Reload)

Any record printed after the initialize record will appear on the same line and be offset three columns from the usual record.

Example:

NNNN (previous record)  
 00 NNNNN (Initialize and next record)  
 NNNNNN

Time Change:

MM DD (old date)  
 HH : MM (old time)  
 MM DD (new date)  
 HH : MM (new time)

**6.72** Some complex calls will cause multiple call records (CR) for the same station or trunk.

Examples:

- 1) Station 1 transfers Trunk 1 to Station 2  
 CR for Station 1 ~ Trunk 1  
 = Condition Code I or K  
 CR for Station 2 ~ Trunk 1  
 = Condition Code M
- 2) Station 1 transfers Trunk 1 to Trunk 2  
 CR for Station 1 ~ Trunk 1



= Condition Code I or K  
CR for Station 1 ~ Trunk 2  
= Condition Code L  
CR for Trunk 1 ~ Trunk 2  
= Condition Code M

- 3) Station 1 holds Trunk 1 and calls Trunk 2  
CR for Station 1 ~ Trunk 1  
= Condition Code I or K  
CR for Station 1 ~ Trunk 2  
= Condition Code K

**6.73** All connections to miscellaneous equipment are made via J2, J1, TTY, SMDR and MODEM connectors on the connector panels of the system.

### 6.80 Lodging/Health Care Data Audit

**6.81** The Lodging/Health Care Data Audit feature enables the user to record and analyze the registration and operation of specific features in Lodging/Health Care applications.

**6.82** Lodging/Health Care audit data is output at either the **SMDR** (as part of the SMDR printout) or the **TTY** (as a separate report) connector on the upper rear of the basic cabinet. (Because the **TTY** connector is required for on-site programming and maintenance procedures, it is recommended that the SMDR port be used.) The selection of data to be output and the connector choice (TTY or SMDR) are software-controlled (see **DHMF Program** in Section 200-255-300, *Programming*).

**6.83** The SMDR or TTY output can be connected to either:

- A local 80-column printer for an on-line printout.
- Compatible call accounting or property management interface equipment, supplied by another vendor.

**6.84** The audit pin-out assignments at the SMDR or the TTY connector are not identical. Refer to Paragraph 6.64 for the pin-out assignments of each connector. For instruction on connecting equipment provided by other vendors, refer to the manufacturer's documentation.

**6.85** The audit data output rate can be set for either 300 bps or 1200 bps (depending on the configuration of the receiving equipment) at either the

**SMDR** switch or the **TTY** switch on the front panel of the LCCU PCB.

### CAUTION!

*If the TTY connector is used for programming and maintenance operations, (either with an on-site teleprinter or remotely via a modem) be careful not to change the data rate setting of the TTY switch so that it is incompatible with programming equipment.*

**6.86** Figure 4-45 shows a typical Lodging/Health Care audit printout. Notes on the figure explain the possible value for each column.

## 7. SYSTEM POWER UP

### 7.00 General

**7.01** Upon initial power up, the system will automatically load its operating system and customer data from the disk. Two sets of disks are provided with each system; one set should always be mounted in the drive, the other kept as a spare.

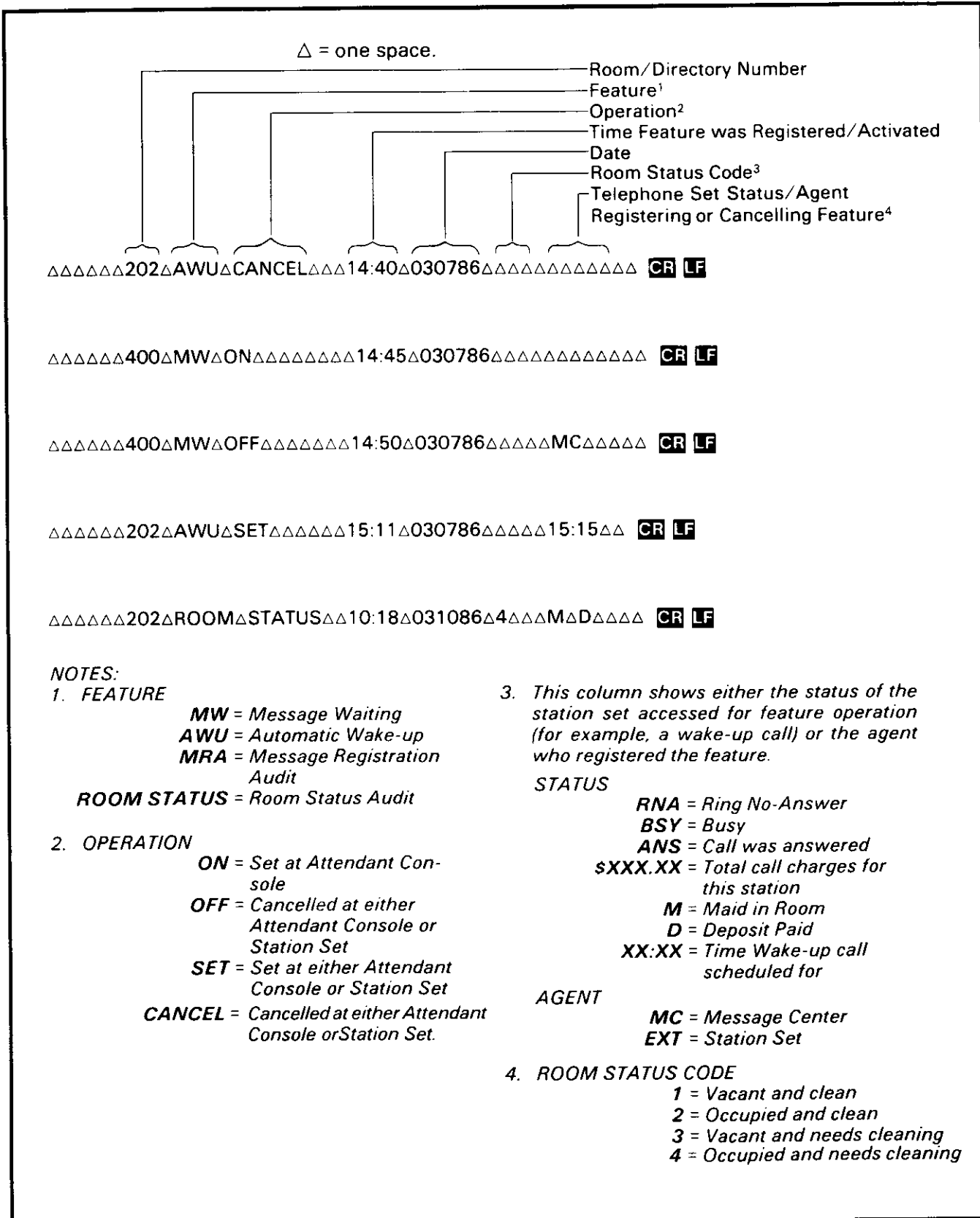
**7.02** Activate the system as follows:

- 1) Be sure the main power switch on the NPSA-M is in the **OFF** position, and plug the AC cord into the outlet.
- 2) If the system uses **D.02** or later version software, insert the **SYSTEM** disk in **FDD0**. (If two drives are used, insert the **MAINTENANCE** disk (Figure 4-46) in **FDD1**. If the system uses **D.01** software, insert the program disk in **FDD0**.)
- 3) Turn the main power switch on the NPSA-M to the **ON** position.
- 4) The floppy disk will run: LED will come on.
  - LCCU MAJ ALARM LED will be on.
  - NPRU PFT LED will be on.
- 5) When loading is complete, the system will initialize and clear all LEDs. Only a true fault indication will remain. Refer to Section 200-255-500, *Fault Finding Procedures*, for meaning of indications and assistance with fault clearing.
- 6) Refer to Section 200-255-300, *Programming*, to complete customer data assignments.

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**FIGURE 4-45—EXAMPLE: AUDIT PRINTOUT (LODGING/HEALTH CARE)**

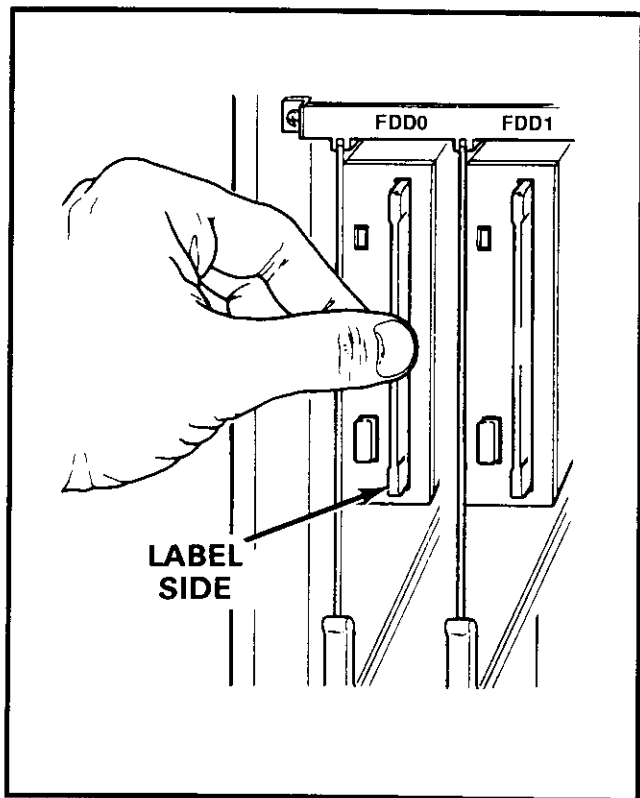


FIGURE 4-46—INSERTING DISK



## CHAPTER 5

### MDF ARRANGEMENT

**1.00** All connections from the system to external equipment, such as trunks, stations, data interface units, etc, are made via a customer-provided main distribution frame (MDF).

**1.01** Cables with male amphenol-type connectors are attached to the connector panels of the basic and expansion cabinets and secured with the connector locking bar (Figure 5-1). Plastic cable clamps are provided along the base of the basic cabinet to secure cables. The opposite ends of the cables are then terminated on 66-type quick-connect terminal blocks on the MDF (split blocks with bridging clips should be used to allow for fault isolation). A typical MDF layout is shown in Figure 5-2. Connect each cable from the basic and expansion cabinets to one side of the block and external equipment cables to the other side. Use bridge clips to make the connections.

**1.02** FCC regulations prohibit unregistered equipment from being terminated on the same block as CO trunks. It is good practice to separate trunks from all other equipment at the MDF.

**1.03** Table 5-1 shows the connector-card slot match-up. Table 5-2 lists the connector cables required for the system. Each connector provides the interface for only a single card slot.

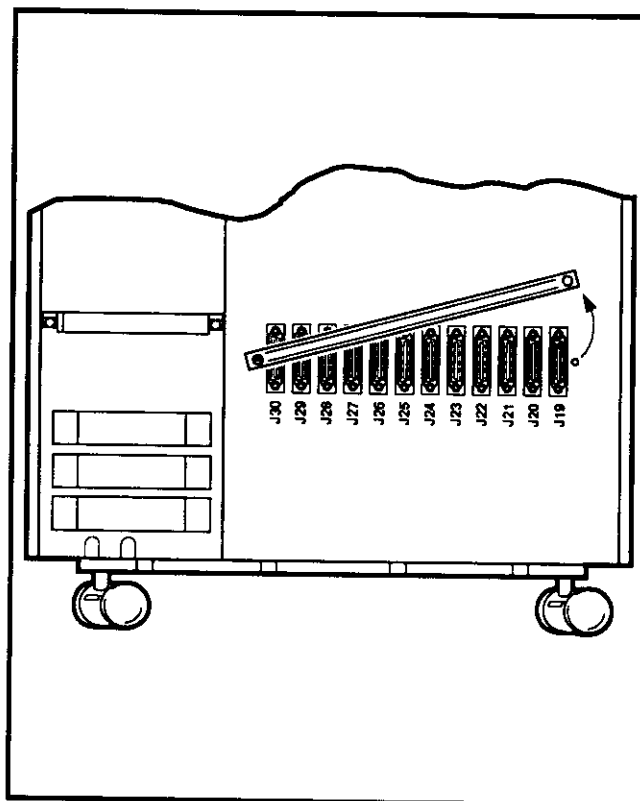
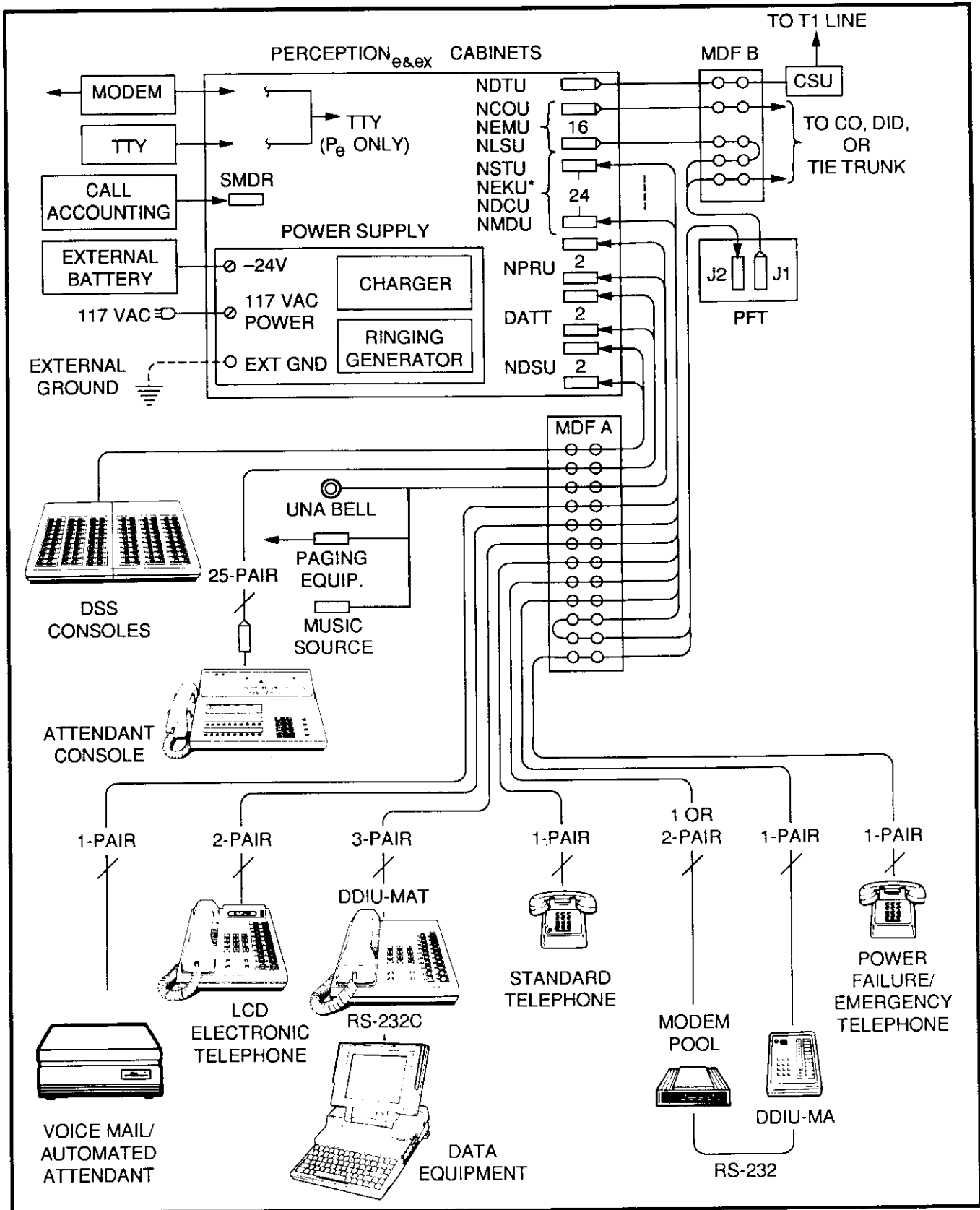


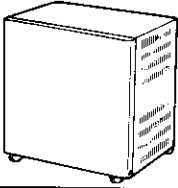
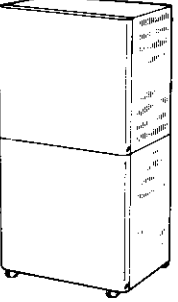
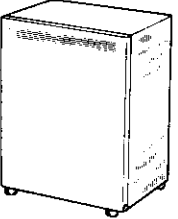
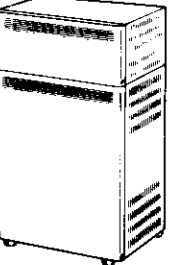
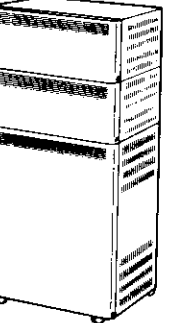
FIGURE 5-1—CONNECTOR LOCKING BAR

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**FIGURE 5-2—MAIN DISTRIBUTION FRAME LAYOUT**

TABLE 5-1  
CARD SLOT/CABLE CONNECTOR MATRIX

	CONFIGURATION	CARD SLOT	CONNECTOR	CARD SLOT	CONNECTOR
PERCEPTION <sup>®</sup>	BASIC 	C00 L00 L01 L02 L03 L04/T07 L05/T06	J3 J4 J5 J6 J7 J8 J9	L06/T05 L07/T04 L08/T03 L09/T02 L10/T01 L11/T00	J10 J11 J12 J13 J14 J15
	EXPANDED 	C01 L15 L16 L17 L18 L19/T15 L20/T14	J503 J504 J505 J506 J507 J508 J509	L21/T13 L22/T12 L23/T11 L24/T10 L25/T09 L26/T08	J510 J511 J512 J513 J514 J515
PERCEPTION <sup>EX</sup>	BASIC 	U00 U01 U02 U03 U04 U05 U06 U07 T03 T02 T01 T00	J18 J17 J16 J15 J14 J13 J12 J11 J10 J09 J08 J07	U08 U09 U10 U11 U12 U13 U14 U15 T07 T06 T05 T04	J30 J29 J28 J27 J26 J25 J24 J23 J22 J21 J20 J19
	EXPANDED (ONE EXPANSION UNIT) 	U16 U17 U18 U19 U20 U21	J512 J511 J510 J509 J508 J507	U22 U23 T11 T10 T09 T08	J506 J505 J504 J503 J502 J501
	EXPANDED (TWO EXPANSION UNITS) 	U24 U25 U26 U27 U28 U29	J524 J523 J522 J521 J520 J519	U30 U31 T15 T14 T13 T12	J518 J517 J516 J515 J514 J513

NOTE: PAGING AND MUSIC P1-J1 AND P2-J2  
ATTENDANT CONSOLES #0-J1 AND #1-J5  
FUTURE ATTENDANT CONSOLES #2-J4 AND #3-J3

TABLE 5-2  
LIST OF CONNECTOR CABLES

PERCEPTION <sub>e</sub>			
CARD SLOT	CONN. NO.	CONTENT OF CONNECTOR	DESC. TABLE
MDF	J 3 & J501	ATT0 & ATT1	5-3
MDF	J2 & J502	Paging, Music & UNA Ringing	5-4
MDF	J3 & J503	NDSU	5-5
MDF	J4~J7 & J504~J507	NDSU/NEKU/NSTU/NDCU/NMDU <sup>1</sup>	5-6
MDF	J8~J15 & J508~J515	NDSU/NEKU/NSTU/NDCU/NMDU or NCOU/NLSU/NEMU <sup>1</sup>	5-7
From PFT to MDF	PFT Conn. No.	CO Line & NCOU 00~07 (Maximum: 8) (Maximum: 8)	5-8
From PFT to MDF	PFT Conn. No.	STT Line & NSTU 00~14 (Maximum: 8) (Maximum: 8)	5-9
PERCEPTION <sub>ex</sub>			
MDF	J1 & J2	Paging, Music & UNA Ringing	5-10
MDF	J6 & J5	ATT0 & ATT1	5-11
MDF	J4 & J3	ATT2 & ATT3 <sup>3</sup>	5-12
MDF	J07~J10/J19~J22/ J501~J504/J513~J518	NCOU/NEMU/NLSU/NDTU <sup>2</sup>	5-13
MDF	J11~J18/J23~J30/ J505~J512/J517~J524	NDSU/NEKU/NSTU/NMDU or NCOU/NEMU/NLSU/NDTU <sup>2</sup>	5-14
From PFT to MDF	PFT Conn. No.	CO Line & NCOU 00~07 (Maximum: 8) (Maximum: 8)	5-15
From PFT to MDF	PFT Conn. No.	STT Line & NSTU 00~14 (Maximum: 8) (Maximum: 8)	5-16

NOTES:

1. In PERCEPTION<sub>e</sub> the J connector cabinet is determined by 1- and 2-digit numbers indicating the basic cabinet. Three-digit number connectors are located in the expansion cabinet.
2. In PERCEPTION<sub>ex</sub> the J connector cabinet is determined by 1- and 2-digit numbers indicating the basic cabinet. Three-digit numbers J501 ~ J512 identify expansion cabinet #1. Three-digit numbers J513 ~ J524 identify expansion cabinet #2.
3. Not used.

4-33



**TABLE 5-3  
TERMINAL SEQUENCE & DESIGNATIONS  
CONNECTOR NO. J1/J501  
ATTENDANT CONSOLE #0 & #1**

PAIR	PIN	COLOR CODE	LEAD DESIGNATION	FUNCTION	PCB POSITION
1T	26	W-BI	TL 001/151	Tip-Line CKT 001	NEKU L00
R	1	BI-W	RL 001/151	Ring-Line CKT 001	NEKU L00
2T	27	W-O	DTL 001/151	Data Tip-Line CKT 001	NEKU L00
R	2	O-W	DRL 001/151	Data Ring-Line CKT 001	NEKU L00
3T	28	W-G	Spare		
R	3	G-W	Spare		
4T	29	W-Br	EMT 0	Emergency Transfer SWT	NPRU
R	4	Br-W	INIT 0	Initialize Switch	NPRU
5T	30	W-S	SPare		
R	5	S-W	MAJ IN 0	Major Alarm	NPRU
6T	31	R- BI	Spare		
R	6	BI-R	Spare		
7T	32	R-O	Spare		
R	7	O-R	Spare		
8T	33	R-G	Spare		
R	8	G-R	ATT0-24V	-24V	NPRU
9T	34	R-Br	Spare		
R	9	Br-R	ATT0-24V	-24V	NPRU
10T	35	R-S	Spare		
R	10	S-R	ATT0-24V	-24V	NPRU
11T	36	Bk-BI	Spare		
R	11	BI-Bk	ATT0-24V	-24V	NPRU
12T	37	Bk-P	Spare		
R	12	P-Bk	ATT0-24V	-24V	NPRU
13T	38	Bk-G	Spare		
R	13	G-Bk	ATT0-24V	-24V	NPRU
14T	39	Bk-Br	Spare		
R	14	Br-Bk	Spare		
15T	40	Bk-S	Spare		
R	15	S-Bk	Spare		
16T	41	Y-BI	Spare		
R	16	BI-Y	Spare		
17T	42	Y-O	Spare		
R	17	O-Y	Spare		
18T	43	Y-G	Spare		
R	18	G-Y	Spare		
19T	44	Y-Br	ATT0 EG	Ground	NPRU
R	19	Br-Y	Spare		
20T	45	Y-S	ATT0 EG	Ground	NPRU
R	20	S-Y	Spare		
21T	46	V-BI	ATT0 EG	Ground	NPRU
R	21	BI-V	Spare		
22T	47	V-O	ATT0 EG	Ground	NPRU
R	22	O-V	Spare		
23T	48	V-G	ATT0 EG	Ground	NPRU
R	23	G-V	Spare		
24T	49	V-Br	ATT0 EG	Ground	NPRU
R	24	Br-V	Spare		
25T	50	V-S	Spare		
R	25	S-V	Spare		

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**TABLE 5-4**  
**TERMINAL SEQUENCE & DESIGNATIONS**  
**CONNECTOR NO. J2/J502**  
**PAGING, MUSIC & UNA RINGING**

PAIR	PIN	COLOR CODE	LEAD DESIGNATION	FUNCTION	PCB POSITION
1T	26	W-BI	PT 1	Paging Tip	NPRU
R	1	BI-W	PR 1	Paging Ring	NPRU
2T	27	W-O	PG 1	Paging Equip. Control	NPRU
R	2	O-W	PG Gnd	Paging Equip. Common	NPRU
3T	28	W-G	Spare		
R	3	G-W	Spare		
4T	29	W-Br	MT	MOH Source Tip	NPRU
R	4	Br-W	MR	MOH Source Ring	NPRU
5T	30	W-S	Spare		
R	5	S-W	Spare		
6T	31	R-BI	PG In 1	Paging Amp #1 Out	NPRU
R	6	BI-R	PG Out 1	Page Zone #1 Out	NPRU
7T	32	R-O	PG In 2	Paging Amp #2 Out	NPRU
R	7	O-R	PG Out 2	Page Zone #2 Out	NPRU
8T	33	R-G	PG In 3	Paging Amp #3 Out	NPRU
R	8	G-R	PG Out 3	Page Zone #3 Out	NPRU
9T	34	R-Br	PG In 4	Paging Amp #4 Out	NPRU
R	9	Br-R	PG Out 4	Page Zone #4 Out	NPRU
10T	35	R-S	PG In 5	Paging Amp #5 Out	NPRU
R	10	S-R	PG Out 5	Page Zone #5 Out	NPRU
11T	36	Bk-BI	Spare		
R	11	BI-Bk	Spare		
12T	37	Bk-P	UNA B	UNA Ringing Ground	NPRU
R	12	P-Bk	UNA A	UNA Ringing 20 Hz	NPRU
13T	38	Bk-G	Spare		
R	13	G-Bk	Spare		
14T	39	Bk-Br	Spare		
R	14	Br-Bk	Spare		
15T	40	Bk-S	Spare		
R	15	S-Bk	Spare		
16T	41	Y-BI	Spare		
R	16	BI-Y	Spare		
17T	42	Y-O	Spare		
R	17	O-Y	Spare		
18T	43	Y-G	Spare		
R	18	G-Y	Spare		
19T	44	Y-Br	Spare		
R	19	Br-Y	Spare		
20T	45	Y-S	Spare		
R	20	S-Y	Spare		
21T	46	V-BI	Spare		
R	21	BI-V	Spare		
22T	47	V-O	Spare		
R	22	O-V	Spare		
23T	48	V-G	Spare		
R	23	G-V	Spare		
24T	49	V-Br	Spare		
R	24	Br-V	Spare		
25T	50	V-S	Spare		
R	25	S-V	Spare		

**TABLE 5-5**  
**TERMINAL SEQUENCE & DESIGNATIONS**  
**CONNECTOR NO. J3/J503**  
**NDSU (DSS CONSOLES)**

PAIR	PIN	COLOR CODE	STATION FUNCTION	LINE CIRCUIT
1T	26	W-BI	Tip-Line	CXX1
R	1	BI-W	Ring-Line	
2T	27	W-O	Data Tip-Line	
R	2	O-W	Data Ring-Line	
3T	28	W-G	Tip-Line	CXX2
R	3	G-W	Ring-Line	
4T	29	W-Br	Data Tip-Line	
R	4	Br-W	Data Ring-Line	
5T	30	W-S	Tip-Line	CXX3
R	5	S-W	Ring-Line	
6T	31	R-BI	Data Tip-Line	
R	6	BI-R	Data Ring-Line	
7T	32	R-O	Tip-Line	CXX4
R	7	O-R	Ring-Line	
8T	33	R-G	Data Tip-Line	
R	8	G-R	Data Ring-Line	

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**TABLE 5-6**  
**TERMINAL SEQUENCE & DESIGNATIONS**  
**CONNECTOR NO. J4~J7/J504~J507**  
**NDSU/NEKU/NSTU/NDCU/NMDU (L00~L03/L15~L18)**

PAIR	PIN	COLOR CODE	STATION FUNCTION	LINE CIRCUIT
1T	26	W-BI	Tip-Line	LXX1
R	1	BI-W	Ring-Line	
2T	27	W-O	Data Tip-Line	LXX1
R	2	O-W	Data Ring-Line	
3T	28	W-G	Tip-Line	LXX2
R	3	G-W	Ring-Line	
4T	29	W-Br	Data Tip-Line	LXX2
R	4	Br-W	Data Ring-Line	
5T	30	W-S	Tip-Line	LXX3
R	5	S-W	Ring-Line	
6T	31	R- BI	Data Tip-Line	LXX3
R	6	BI-R	Data Ring-Line	
7T	32	R-O	Tip-Line	LXX4
R	7	O-R	Ring-Line	
8T	33	R-G	Data Tip-Line	LXX4
R	8	G-R	Data Ring-Line	
9T	34	R-Br	Tip-Line	LXX5
R	9	Br-R	Ring-Line	
10T	35	R-S	Data Tip-Line	LXX5
R	10	S-R	Data Ring-Line	
11T	36	Bk-BI	Tip-Line	LXX6
R	11	BI-Bk	Ring-Line	
12T	37	Bk-P	Data Tip-Line	LXX6
R	12	P-Bk	Data Ring-Line	
13T	38	Bk-G	Tip-Line	LXX7
R	13	G-Bk	Ring-Line	
14T	39	Bk-Br	Data Tip-Line	LXX7
R	14	Br-Bk	Data Ring-Line	
15T	40	Bk-S	Tip-Line	LXX8
R	15	S-Bk	Ring-Line	
16T	41	Y-BI	Data Tip-Line	LXX8
R	16	BI-Y	Data Ring-Line	

**TABLE 5-7**  
**TERMINAL SEQUENCE & DESIGNATIONS**  
**CONNECTOR NO. J8~J15/J508~J515**  
**NDSU/NEKU/NSTU/NDCU/NMDU (L04~L11/L19~L26) or NCOU/NLSU/NEMU (T07~T00/T15~T08)**

PAIR	PIN	COLOR CODE	STATION FUNCTION	LINE CIRCUIT	TRUNK FUNCTION	TRUNK CIRCUIT	
1T	26	W-BI	Tip-Line	LXX1	T	TXX1	
R	1	BI-W	Ring-Line		R		
2T	27	W-O	Data Tip-Line		T1		
R	2	O-W	Data Ring-Line		R1		
3T	28	W-G	Tip-Line	LXX2	E		TXX2
R	3	G-W	Ring-Line		SG		
4T	29	W-Br	Data Tip-Line		M		
R	4	Br-W	Data Ring-Line		SB		
5T	30	W-S	Tip-Line	LXX3	T	TXX3	
R	5	S-W	Ring-Line		R		
6T	31	R-BI	Data Tip-Line		T1		
R	6	BI-R	Data Ring-Line		R1		
7T	32	R-O	Tip-Line	LXX4	E		TXX4
R	7	O-R	Ring-Line		SG		
8T	33	R-G	Data Tip-Line		M		
R	8	G-R	Data Ring-Line		SB		
9T	34	R-Br	Tip-Line	LXX5	T	TXX3	
R	9	Br-R	Ring-Line		R		
10T	35	R-S	Data Tip-Line		T1		
R	10	S-R	Data Ring-Line		R1		
11T	36	Bk-BI	Tip-Line	LXX6	E		TXX4
R	11	BI-Bk	Ring-Line		SG		
12T	37	Bk-P	Data Tip-Line		M		
R	12	P-Bk	Data Ring-Line		SB		
13T	38	Bk-G	Tip-Line	LXX7	T	TXX4	
R	13	G-Bk	Ring-Line		R		
14T	39	Bk-Br	Data Tip-Line		T1		
R	14	Br-Bk	Data Ring-Line		R1		
15T	40	Bk-S	Tip-Line	LXX8	E		TXX4
R	15	S-Bk	Ring-Line		SG		
16T	41	Y-BI	Data Tip-Line		M		
R	16	BI-Y	Data Ring-Line		SB		

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**TABLE 5-8**  
**TERMINAL SEQUENCE & DESIGNATIONS**  
**CENTRAL OFFICE LINE CONNECTION & PFT CONTROL**  
**J1**

PAIR	PIN	COLOR CODE	LEAD DESIGNATION	FUNCTION	PCB POSITION
1T	26	W-BI	T	Tip-CO #1	
R	1	BI-W	R	Ring-CO #1	
2T	27	W-O	T	Tip-NCOU #1	
R	2	O-W	R	Ring-NCOU #1	
3T	28	W-G	T	Tip-CO #2	
R	3	G-W	R	Ring-CO #2	
4T	29	W-Br	T	Tip-NCOU #2	
R	4	Br-W	R	Ring-NCOU #2	
5T	30	W-S	T	Tip-CO #3	
R	5	S-W	R	Ring-CO #3	
6T	31	R-BI	T	Tip-NCOU #3	
R	6	BI-R	R	Ring-NCOU #3	
7T	32	R-O	T	Tip-CO #4	
R	7	O-R	R	Ring-CO #4	
8T	33	R-G	T	Tip-NCOU #4	
R	8	G-R	R	Ring-NCOU #4	
9T	34	R-Br	T	Tip-CO #5	
R	9	Br-R	R	Ring-CO #5	
10T	35	R-S	T	Tip-NCOU #5	
R	10	S-R	R	Ring-NCOU #5	
11T	36	Bk-BI	T	Tip-CO #6	
R	11	BI-Bk	R	Ring-CO #6	
12T	37	Bk-P	T	Tip-NCOU #6	
R	12	P-Bk	R	Ring-NCOU #6	
13T	38	Bk-G	T	Tip-CO #7	
R	13	G-Bk	R	Ring-CO #7	
14T	39	Bk-Br	T	Tip-NCOU #7	
R	14	Br-Bk	R	Ring-NCOU #7	
15T	40	Bk-S	T	Tip-CO #8	
R	15	S-Bk	R	Ring-CO #8	
16T	41	Y-BI	T	Tip-NCOU #8	
R	16	BI-Y	R	Ring-NCOU #8	
17T	42	Y-O	Spare		
R	17	O-Y	Spare		
18T	43	Y-G	Spare		
R	18	G-Y	Spare		
19T	44	Y-Br	Spare		
R	19	Br-Y	Spare		
20T	45	Y-S	Spare		
R	20	S-Y	Spare		
21T	46	V-BI	Spare		
R	21	BI-V	Spare		
22T	47	V-O	Spare		
R	22	O-V	Spare		
23T	48	V-G	Spare		
R	23	G-V	Spare		
24T	49	V-Br	Spare		
R	24	Br-V	Spare		
25T	50	V-S	PFT EG	PFT Ground (Input)	NPRU
R	25	S-V	PFT -24V	PFT -24V (Input)	NPRU

**TABLE 5-9**  
**TERMINAL SEQUENCE & DESIGNATIONS**  
**STATION LINE CONNECTION**  
**J2**

PAIR	PIN	COLOR CODE	LEAD DESIGNATION	FUNCTION	PCB POSITION
1T	26	W-BI	T	Tip-TEL #1	
R	1	BI-W	R	Ring-TEL #1	
2T	27	W-O	T	Tip-NSTU2 #1	
R	2	O-W	R	Ring-NSTU2 #1	
3T	28	W-G	T	Tip-TEL #2	
R	3	G-W	R	Ring-TEL #2	
4T	29	W-Br	T	Tip-NSTU2 #2	
R	4	Br-W	R	Ring-NSTU2 #2	
5T	30	W-S	T	Tip-TEL #3	
R	5	S-W	R	Ring-TEL #3	
6T	31	R-BI	T	Tip-NSTU2 #3	
R	6	BI-R	R	Ring-NSTU2 #3	
7T	32	R-O	T	Tip-TEL #4	
R	7	O-R	R	Ring-TEL #4	
8T	33	R-G	T	Tip-NSTU2 #4	
R	8	G-R	R	Ring-NSTU2 #4	
9T	34	R-Br	T	Tip-TEL #5	
R	9	Br-R	R	Ring-TEL #5	
10T	35	R-S	T	Tip-NSTU2 #5	
R	10	S-R	R	Ring-NSTU2 #5	
11T	36	Bk-BI	T	Tip-TEL #6	
R	11	BI-Bk	R	Ring-TEL #6	
12T	37	Bk-P	T	Tip-NSTU2 #6	
R	12	P-Bk	R	Ring-NSTU2 #6	
13T	38	Bk-G	T	Tip-TEL #7	
R	13	G-Bk	R	Ring-TEL #7	
14T	39	Bk-Br	T	Tip-NSTU2 #7	
R	14	Br-Bk	R	Ring-NSTU2 #7	
15T	40	Bk-S	T	Tip-TEL #8	
R	15	S-Bk	R	Ring-TEL #8	
16T	41	Y-BI	T	Tip-NSTU2 #8	
R	16	BI-Y	R	Ring-NSTU2 #8	
17T	42	Y-O	Spare		
R	17	O-Y	Spare		
18T	43	Y-G	Spare		
R	18	G-Y	Spare		
19T	44	Y-Br	Spare		
R	19	Br-Y	Spare		
20T	45	Y-S	Spare		
R	20	S-Y	Spare		
21T	46	V-BI	Spare		
R	21	BI-V	Spare		
22T	47	V-O	Spare		
R	22	O-V	Spare		
23T	48	V-G	Spare		
R	23	G-V	Spare		
24T	49	V-Br	Spare		
R	24	Br-V	Spare		
25T	50	V-S	Spare		
R	25	S-V	Spare		

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**TABLE 5-10**  
**TERMINAL SEQUENCE & DESIGNATIONS**  
**CONNECTOR NO. J1 & J2**  
**PAGING, MUSIC & UNA RINGING**

PAIR	PIN	COLOR CODE	LEAD DESIGNATION	FUNCTION	PCB POSITION
1T	26	W-BI	PT 1	Paging Tip	NPRU
R	1	BI-W	PR 1	Paging Ring	NPRU
2T	27	W-O	PG 1	Paging Equip. Control	NPRU
R	2	O-W	PG Gnd	Paging Equip. Common	NPRU
3T	28	W-G	Spare		
R	3	G-W	Spare		
4T	29	W-Br	MT	MOH Source Tip	NPRU
R	4	Br-W	MR	MOH Source Ring	NPRU
5T	30	W-S	Spare		
R	5	S-W	Spare		
6T	31	R-BI	PG In 1	Paging Amp #1 Out	NPRU
R	6	BI-R	PG Out 1	Paging Zone #1 Out	NPRU
7T	32	R-O	PG In 2	Paging Amp #2 Out	NPRU
R	7	O-R	PG Out 2	Paging Zone #2 Out	NPRU
8T	33	R-G	PG In 3	Paging Amp #3 Out	NPRU
R	8	G-R	PG Out 3	Paging Zone #3 Out	NPRU
9T	34	R-Br	PG In 4	Paging Amp #4 Out	NPRU
R	9	Br-R	PG Out 4	Paging Zone #4 Out	NPRU
10T	35	R-S	PG In 5	Paging Amp #5 Out	NPRU
R	10	S-R	PG Out 5	Paging Zone #5 Out	NPRU
11T	36	Bk-BI	Spare		
R	11	BI-Bk	Spare		
12T	37	Bk-⊕	UNA B	UNA Ringing Ground	NPRU
R	12	⊕-Bk	UNA A	UNA Ringing 20 Hz	NPRU
13T	38	Bk-G	Spare		
R	13	G-Bk	Spare		
14T	39	Bk-Br	Spare		
R	14	Br-Bk	Spare		
15T	40	Bk-S	Spare		
R	15	S-Bk	Spare		
16T	41	Y-BI	Spare		
R	16	BI-Y	Spare		
17T	42	Y-O	Spare		
R	17	O-Y	Spare		
18T	43	Y-G	Spare		
R	18	G-Y	Spare		
19T	44	Y-Br	Spare		
R	19	Br-Y	Spare		
20T	45	Y-S	Spare		
R	20	S-Y	Spare		
21T	46	V-BI	Spare		
R	21	BI-V	Spare		
22T	47	V-O	Spare		
R	22	O-V	Spare		
23T	48	V-G	Spare		
R	23	G-V	Spare		
24T	49	V-Br	Spare		
R	24	Br-V	Spare		
25T	50	V-S	Spare		
R	25	S-V	Spare		



**TABLE 5-11**  
**TERMINAL SEQUENCE & DESIGNATIONS**  
**CONNECTOR NO. J6 & J5**  
**ATTENDANT CONSOLE #0 & #1**

PAIR	PIN	COLOR CODE	LEAD DESIGNATION	FUNCTION	PCB POSITION
1T	26	W-BI	TL 001	Tip-Line CKT 001	NEKU L15
R	1	BI-W	RL 001	Ring-Line CKT 001	NEKU L15
2T	27	W-O	DTL 001	Data Tip-Line CKT 001	NEKU L15
R	2	O-W	DRL 001	Data Ring-Line CKT 001	NEKU L15
3T	28	W-G	Spare		
R	3	G-W	Spare		
4T	29	W-Br	EMT 0	Emergency Transfer SWT	NPRU
R	4	Br-W	INIT 0	Intialize Switch	NPRU
5T	30	W-S	Spare		
R	5	S-W	MAJ IN 0	Major Alarm	NPRU
6T	31	R- BI	Spare		
R	6	BI-R	Spare		
7T	32	R-O	Spare		
R	7	O-R	Spare		
8T	33	R-G	Spare		
R	8	G-R	ATT0 -24V	-24V	NPRU
9T	34	R-Br	Spare		
R	9	Br-R	ATT0 -24V	-24V	NPRU
10T	35	R-S	Spare		
R	10	S-R	ATT0 -24V	-24V	NPRU
11T	36	Bk-BI	Spare		
R	11	BI-Bk	ATT0 -24V	-24V	NPRU
12T	37	Bk-P	Spare		
R	12	P-Bk	ATT0 -24V	-24V	NPRU
13T	38	Bk-G	Spare		
R	13	G-Bk	ATT0 -24V	-24V	NPRU
14T	39	Bk-Br	Spare		
R	14	Br-Bk	Spare		
15T	40	Bk-S	Spare		
R	15	S-Bk	Spare		
16T	41	Y-BI	Spare		
R	16	BI-Y	Spare		
17T	42	Y-O	Spare		
R	17	O-Y	Spare		
18T	43	Y-G	Spare		
R	18	G-Y	Spare		
19T	44	Y-Br	ATT0 EG	Ground	NPRU
R	19	Br-Y	Spare		
20T	45	Y-S	ATT0 EG	Ground	NPRU
R	20	S-Y	Spare		
21T	46	V-BI	ATT0 EG	Ground	NPRU
R	21	BI-V	Spare		
22T	47	V-O	ATT0 EG	Ground	NPRU
R	22	O-V	Spare		
23T	48	V-G	ATT0 EG	Ground	NPRU
R	23	G-V	Spare		
24T	49	V-Br	ATT0 EG	Ground	NPRU
R	24	Br-V	Spare		
25T	50	V-S	Spare		
R	25	S-V	Spare		

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**TABLE 5-12**  
**TERMINAL SEQUENCE & DESIGNATIONS**  
**CONNECTOR NO. J4 & J3**  
**ATTENDANT CONSOLE #2 & #3**

NOT USED

PAIR	PIN	COLOR CODE	LEAD DESIGNATION	FUNCTION	PCB POSITION
1T	26	W-BI	TL 001	Tip-Line CKT 001	NEKU L15
R	1	BI-W	RL 001	Ring-Line CKT 001	NEKU L15
2T	27	W-O	DTL 001	Data Tip-Line CKT 001	NEKU L15
R	2	O-W	DRL 001	Data Ring-Line CKT 001	NEKU L15
3T	28	W-G	Spare		
R	3	G-W	Spare		
4T	29	W-Br	EMT 0	Emergency Transfer SWT	NPRU
R	4	Br-W	INIT 0	Intialize Switch	NPRU
5T	30	W-S	Spare		
R	5	S-W	MAJ IN 0	Major Alarm	NPRU
6T	31	R- BI	Spare		
R	6	BI-R	Spare		
7T	32	R-O	Spare		
R	7	O-R	Spare		
8T	33	R-G	Spare		
R	8	G-R	ATT0 -24V	-24V	NPRU
9T	34	R-Br	Spare		
R	9	Br-R	ATT0 -24V	-24V	NPRU
10T	35	R-S	Spare		
R	10	S-R	ATT0 -24V	-24V	NPRU
11T	36	Bk-BI	Spare		
R	11	BI-Bk	ATT0 -24V	-24V	NPRU
12T	37	Bk-P	Spare		
R	12	P-Bk	ATT0 -24V	-24V	NPRU
13T	38	Bk-G	Spare		
R	13	G-Bk	ATT0 -24V	-24V	NPRU
14T	39	Bk-Br	Spare		
R	14	Br-Bk	Spare		
15T	40	Bk-S	Spare		
R	15	S-Bk	Spare		
16T	41	Y-BI	Spare		
R	16	BI-Y	Spare		
17T	42	Y-O	Spare		
R	17	O-Y	Spare		
18T	43	Y-G	Spare		
R	18	G-Y	Spare		
19T	44	Y-Br	ATT0 EG	Ground	NPRU
R	19	Br-Y	Spare		
20T	45	Y-S	ATT0 EG	Ground	NPRU
R	20	S-Y	Spare		
21T	46	V-BI	ATT0 EG	Ground	NPRU
R	21	BI-V	Spare		
22T	47	V-O	ATT0 EG	Ground	NPRU
R	22	O-V	Spare		
23T	48	V-G	ATT0 EG	Ground	NPRU
R	23	G-V	Spare		
24T	49	V-Br	ATT0 EG	Ground	NPRU
R	24	Br-V	Spare		
25T	50	V-S	Spare		
R	25	S-V	Spare		

TABLE 5-13  
TERMINAL SEQUENCE & DESIGNATIONS  
CONNECTOR NO. J07~J10/J19~J22/J501~J504/J513~J518  
NCOU/NEMU/NLSU/NDTU

PAIR	PIN	COLOR CODE	TRUNK FUNCTION	TRUNK CIRCUIT
1T	26	W-BI	T	TXX1
R	1	BI-W	R	
2T	27	W-O	T1	
R	2	O-W	R1	
3T	28	W-G	E	
R	3	G-W	SG	
4T	29	W-Br	M	
R	4	Br-W	SB	
5T	30	W-S	T	TXX2
R	5	S-W	R	
6T	31	R-BI	T1	
R	6	BI-R	R1	
7T	32	R-O	E	
R	7	O-R	SG	
8T	33	R-G	M	
R	8	G-R	SB	
9T	34	R-Br	T	TXX3
R	9	Br-R	R	
10T	35	R-S	T1	
R	10	S-R	R1	
11T	36	Bk-BI	E	
R	11	BI-Bk	SG	
12T	37	Bk-P	M	
R	12	P-Bk	SB	
13T	38	Bk-G	T	TXX4
R	13	G-Bk	R	
14T	39	Bk-Br	T1	
R	14	Br-Bk	R1	
15T	40	Bk-S	E	
R	15	S-Bk	SG	
16T	41	Y-BI	M	
R	16	BI-Y	SB	

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**TABLE 5-14**  
**TERMINAL SEQUENCE & DESIGNATIONS**  
**CONNECTOR NO. J07~J513**

**NDSU/NEKU/NSTU/NDCU/NMDU (U07~U31) or NCOU/NEMU/NLSU/NDTU (T00~T15)**

PAIR	PIN	COLOR CODE	TRUNK FUNCTION	TRUNK CIRCUIT
1T	26	W-BI	T	TXX1
R	1	BI-W	R	
2T	27	W-O	T1	
R	2	O-W	R1	
3T	28	W-G	E	
R	3	G-W	SG	
4T	29	W-Br	M	
R	4	Br-W	SB	
5T	30	W-S	T	TXX2
R	5	S-W	R	
6T	31	R-BI	T1	
R	6	BI-R	R1	
7T	32	R-O	E	
R	7	O-R	SG	
8T	33	R-G	M	
R	8	G-R	SB	
9T	34	R-Br	T	TXX3
R	9	Br-R	R	
10T	35	R-S	T1	
R	10	S-R	R1	
11T	36	Bk-BI	E	
R	11	BI-Bk	SG	
12T	37	Bk-P	M	
R	12	P-Bk	SB	
13T	38	Bk-G	T	TXX4
R	13	G-Bk	R	
14T	39	Bk-Br	T1	
R	14	Br-Bk	R1	
15T	40	Bk-S	E	
R	15	S-Bk	SG	
16T	41	Y-BI	M	
R	16	BI-Y	SB	

**TABLE 5-15**  
**TERMINAL SEQUENCE & DESIGNATIONS**  
**CENTRAL OFFICE LINE CONNECTION & PFT CONTROL**  
J1

PAIR	PIN	COLOR CODE	LEAD DESIGNATION	FUNCTION	PCB POSITION
1T	26	W-BI	T	Tip-CO #1	
R	1	BI-W	R	Ring-CO #1	
2T	27	W-O	T	Tip-NCOU #1	
R	2	O-W	R	Ring-NCOU #1	
3T	28	W-G	T	Tip-CO #2	
R	3	G-W	R	Ring-CO #2	
4T	29	W-Br	T	Tip-NCOU #2	
R	4	Br-W	R	Ring-NCOU #2	
5T	30	W-S	T	Tip-CO #3	
R	5	S-W	R	Ring-CO #3	
6T	31	R-BI	T	Tip-NCOU #3	
R	6	BI-R	R	Ring-NCOU #3	
7T	32	R-O	T	Tip-CO #4	
R	7	O-R	R	Ring-CO #4	
8T	33	R-G	T	Tip-NCOU #4	
R	8	G-R	R	Ring-NCOU #4	
9T	34	R-Br	T	Tip-CO #5	
R	9	Br-R	R	Ring-CO #5	
10T	35	R-S	T	Tip-NCOU #5	
R	10	S-R	R	Ring-NCOU #5	
11T	36	Bk-BI	T	Tip-CO #6	
R	11	BI-Bk	R	Ring-CO #6	
12T	37	Bk-P	T	Tip-NCOU #6	
R	12	P-Bk	R	Ring-NCOU #6	
13T	38	Bk-G	T	Tip-CO #7	
R	13	G-Bk	R	Ring-CO #7	
14T	39	Bk-Br	T	Tip-NCOU #7	
R	14	Br-Bk	R	Ring-NCOU #7	
15T	40	Bk-S	T	Tip-CO #8	
R	15	S-Bk	R	Ring-CO #8	
16T	41	Y-BI	T	Tip-NCOU #8	
R	16	BI-Y	R	Ring-NCOU #8	
17T	42	Y-O	Spare		
R	17	O-Y	Spare		
18T	43	Y-G	Spare		
R	18	G-Y	Spare		
19T	44	Y-Br	Spare		
R	19	Br-Y	Spare		
20T	45	Y-S	Spare		
R	20	S-Y	Spare		
21T	46	V-BI	Spare		
R	21	BI-V	Spare		
22T	47	V-O	Spare		
R	22	O-V	Spare		
23T	48	V-G	Spare		
R	23	G-V	Spare		
24T	49	V-Br	Spare		
R	24	Br-V	Spare		
25T	50	V-S	PFT EG	PFT Ground (Input)	NPRU
R	25	S-V	PFT -24V	PFT -24V (Input)	NPRU

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**TABLE 5-16**  
**TERMINAL SEQUENCE & DESIGNATIONS**  
**STATION LINE CONNECTION**

*SEE PG. 5-11*

*TABLE J2*

PAIR	PIN	COLOR CODE	LEAD DESIGNATION	FUNCTION	PCB POSITION
1T	26	W-BI	T	Tip-CO #1	
R	1	BI-W	R	Ring-CO #1	
2T	27	W-O	T	Tip-NCOU #1	
R	2	O-W	R	Ring-NCOU #1	
3T	28	W-G	T	Tip-CO #2	
R	3	G-W	R	Ring-CO #2	
4T	29	W-Br	T	Tip-NCOU #2	
R	4	Br-W	R	Ring-NCOU #2	
5T	30	W-S	T	Tip-CO #3	
R	5	S-W	R	Ring-CO #3	
6T	31	R-BI	T	Tip-NCOU #3	
R	6	BI-R	R	Ring-NCOU #3	
7T	32	R-O	T	Tip-CO #4	
R	7	O-R	R	Ring-CO #4	
8T	33	R-G	T	Tip-NCOU #4	
R	8	G-R	R	Ring-NCOU #4	
9T	34	R-Br	T	Tip-CO #5	
R	9	Br-R	R	Ring-CO #5	
10T	35	R-S	T	Tip-NCOU #5	
R	10	S-R	R	Ring-NCOU #5	
11T	36	Bk-BI	T	Tip-CO #6	
R	11	BI-Bk	R	Ring-CO #6	
12T	37	Bk-P	T	Tip-NCOU #6	
R	12	P-Bk	R	Ring-NCOU #6	
13T	38	Bk-G	T	Tip-CO #7	
R	13	G-Bk	R	Ring-CO #7	
14T	39	Bk-Br	T	Tip-NCOU #7	
R	14	Br-Bk	R	Ring-NCOU #7	
15T	40	Bk-S	T	Tip-CO #8	
R	15	S-Bk	R	Ring-CO #8	
16T	41	Y-BI	T	Tip-NCOU #8	
R	16	BI-Y	R	Ring-NCOU #8	

**TABLE 11-1**

**Procedure — Digital Data Interface Unit Data Block**

*MA/MAT*

Authorization Procedure must be completed. If an OK response is received, proceed as follows

ITEM	PROMPT	USER ENTRY	NOTE
	OK	DDIU	
<b>- DISK LOADING -</b>			
	REQ	NEW, CHG, OUT	
Port Number	POR	LNNX	1, 2, & 3
Type of DDIU	TYP	DIU1 or DIU2	4
Directory Number <i>MAT</i>	DN	1 ~ 4 digits	5 & 6
Hunt Directory Number <i>"</i>	HNT	1 ~ 4 digits or NONE	5 & 7
Class of Service Group	COS	0 ~ 15	8
Groups of DDIUs	GOD	0 ~ 15	9
Tenant Number <i>MAT</i>	TEN	0 or 1	10
Button Assignment <i>MA ONLY</i>	KEY	0 ~ 9 [space] FEATURE	11

**NOTES:**

1. NN = PCB location.
2. X = Circuit number.
3. Ports LNN1 ~ 4 on a NMDU PCB can be used if they are not assigned in the DMDM Program.
4. DIU1 = DDIU-MA. DIU2 = DDIU-MAT.
5. This prompt will only appear when DIU2 (DDIU-MAT) is entered after the TYP prompt.
6. This directory number will appear on an electronic telephone.
7. Enter the number to which this DN hunts. NONE = No hunt.
8. There are 16 different COS groups (which are defined in the COS Data Block).
9. Assigns this DDIU to one of 16 possible groups. Dial access into a group can be denied by Class of Service.
10. The TEN entry for a DDIU-MAT should be the same as the TEN entry for the electronic telephone to which it is assigned.
11. Enter the button number, followed by a space and then the feature entry. Button 0 must be the station's primary DN. See Table 11-1a for possible entries.
12. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

**SPECIAL NOTE:**

When a DIU2 is assigned, two key entries must be made in the DEKT PROGRAM as follows:

PROMPT	USER ENTRY	NOTE
KEY	DIU LNNX	1
KEY	DRS	2

**NOTES:**

1. Port number of DIU attached to the electronic telephone (Data DN).
2. Data release button.

**TABLE 11-1a**  
**DDIU BUTTON ASSIGNMENTS**

DIRECTORY NUMBER	ENTRY	NOTE
Single Call Ring	SCR NNNN XXXX	1
Single Call No Ring	SCN NNNN XXXX	1

FEATURE	ENTRY	NOTE
Automatic Callback	ACB	
Automatic Dialing	ADL/FAD XXX	2
Do Not Disturb	DND	
Repeat Last Number Dialed	RND	
Station Speed Dial Controller/User	SDC XX/SDU XX	
System Speed Dial	SDS	

**NOTES:**

1. NNNN = Directory Number: 1-, 2-, 3-, or 4-digit DNs are allowed if there is no conflict (i.e., 30X is not allowed if 30 is used).  
 XXXX = Hunt DN – enter NONE to remove present DN. Also see Station Hunt-Distributed.
2. The maximum number of ADL/FAD buttons for the entire system is 500.
3. CTRL X = Ignore line entered.  
 CTRL H = Backspace.  
 DEL = Stop printing and return to REQ.  
 DEL DEL = Exit program.



**Error Codes**

Program Name: DDIU Data Block (DDIU)	
Error Code	Meaning
ERDIU 00	A PCB is not equipped in that location.
ERDIU 01	The PCB is not an NDCU or NMDU type.
ERDIU 02	The port is busy (REQ = CHG or OUT).
ERDIU 03	The port is already assigned to a station, DSS console, or DDIU (REQ = NEW).
ERDIU 04	#1 was entered, but tenant service was not enabled in the System Data Block.
ERDIU 05	#1 was entered, but Attendant #1 was not programmed (no Attendant Data Block).
ERDIU 06	The button number is not allowed (exceeds maximum allowed for this DDIU).
ERDIU 08	The maximum number of <b>ADL</b> / <b>FAD</b> buttons is already assigned (maximum = 500).
ERDIU 10	The DN conflicts with existing DN.
ERDIU 11	512 DNs are already assigned in the system.
ERDIU 12	The DN is already assigned to its maximum number of appearances (maximum for a Primary DN = 1; Secondary DN = 95).
ERDIU 14	The next hunt DN is not assigned.
ERDIU 16	The input DN is already assigned to the port.
ERDIU 17	The input data was erased because the program was aborted during a NEW entry.
ERDIU 18	The port is not assigned.
ERDIU 19	Another type of data is assigned to the input port.
ERDIU 20	SDC is already assigned to the input list.
ERDIU 23	The input DN is a trunk DN (VCP NNN HUNT DN).
ERDIU 24	The first digit of an input DN cannot be "0" or "9."
ERDIU 33	Only one DN can be assigned to a DIU.
ERDIU 34	The port is already assigned to a trunk.

**2. Print Digital Data Interface Unit Data Block (Table 11-2)**

2.01 To use the Print Digital Data Interface Unit Data Block (**PDIU Program**):

- Perform the Authorization Procedure (Level 1, 2, or 3).  
 Enter: PDIU (in response to the OK prompt).

- When a REQ prompt is received after the program is loaded:  
 Enter: PORALL.
- All DDIU Data Blocks will be output in numerical order of ports (lowest first)

**TABLE 11-2**

**Procedure — Print Digital Data Interface Unit Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	PDIU	
- DISK LOADING -			
	REQ		1
- EXECUTE -			
	REQ		1

**NOTES:**

1. The only response possible is:  
**PORALL** = Outputs all DDIU Data Blocks in numerical order of ports (lowest first).
2. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

### 3. Modem Pooling Data Block (Table 11-3)

3.01 The Modem Pooling Data Block (**DMDM Program**) identifies the Modem Pooling ports.

**REQ (Request)**—Indicates that the program has loaded. Two responses are possible:  
NEW—To assign a new Data Block.  
OUT—To delete an existing Data Block.

**POR (Port Number)**—Identifies the hardware location of the NMDU circuits that are to be defined. The port number has two parts:

- 1) NMDU PCB location:  
PERCEPTION<sub>e</sub>—L00 ~ L11/L15 ~ L26 (NN).  
PERCEPTION<sub>ex</sub>—L00 ~ L31.
- 2) Circuit number on that PCB: 1 ~ 4 (X).
- 3) When a circuit number is identified, two circuits are assigned, one for a modem and one for its associated DDIU (i.e., if circuit 1 is identified, circuits 1 and 5 are assigned; if circuit 2 is identified, circuits 2 and 6 are assigned, and so on).  
Enter: Port number (LNNX).

**NOTE:**  
*Port L314 cannot be assigned.*

**TABLE 11-3**

**Procedure — Modem Pooling Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	DMDM	
- DISK LOADING -			
	REQ	NEW, OUT	
Port Number	POR	LNNX	1 & 2

**NOTES:**

1. NN = PCB location.  
 PERCEPTION<sub>e</sub> - L00 ~ L11/L15 ~ L26.  
 PERCEPTION<sub>x</sub> - L00 ~ L31.
2. X = Circuit number (1 ~ 4).
3. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

NMDU

**Error Codes**

Program Name: Modem Pooling Data Block (DMDM)	
Error Code	Meaning
ERMDP 00	A PCB is not equipped in that location.
ERMDP 01	The PCB is not a NMDU type.
ERMDP 02	The port is busy (REQ = CHG or OUT).
ERMDP 03	The port is already assigned to a station, DSS console, or DIU (REQ = NEW).
ERMDP 04	The port is not assigned (REQ) = OUT).
ERMDP 05	The input port is wrong (LNNX, X is not 1 ~ 4).
ERMDP 06	The port is already assigned to an attendant console.
ERMDP 07	The input port is not a modem pooling port (NMDM).
ERMDP 08	The port is already assigned to a trunk.

**4. Print Modem Pooling Data Block (Table 11-4)**

**4.01 To use the Print Modem Pooling Data Block (PMDM Program):**

- Perform the Authorization Procedure (Level 1, 2, or 3).  
 Enter: PMDM (in response to the OK prompt).

- When the REQ prompt is received after the program is loaded:  
 Enter: PORALL.
- All Modem Pooling Data Blocks will be output in numerical order of ports (lowest first).

**TABLE 11-4**

**Procedure — Print Modem Pooling Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	PMDM	
– DISK LOADING –			
	REQ		1
– EXECUTE –			
	REQ		1

**NOTES:**

1. The only response possible is:  
*PORALL = Outputs all Modem Pooling Data Blocks in numerical order of ports (lowest first).*
2. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.



**CHAPTER 12**

**LEAST COST ROUTING DATA BLOCK**

**1. Least Cost Routing Data Block (Table 12-1)**

**1.01** The Least Cost Routing Data Block (**DLCR Program**) defines the proper outgoing trunk based on the outside number that is dialed. LCR stores and examines the number dialed, checking the area and/or office codes. Based on this examination and the time of day, LCR chooses the proper trunk from a programmed route table. The LCR Data Block has been divided between two utility programs (**DLC1** and **DLC2**).

- **DLC1** defines the miscellaneous system parameters, the 15 area code tables, and the 16 area/office tables which further modify the area code tables.
- **DLC2** defines the 15 route tables, containing six routes each, and includes three schedules for time of day selection and 12 modify digits tables. Each route table's data (**DLC1** or **DLC2**) is entered as follows:

**REQ (Request)**—Indicates that the program has loaded. The only response possible is CHG.

**TYPE (Sub-program Type)**—There are three sub-programs within the **DLC1 Program** and two within the **DLC2 Program**. The possible responses are as follows:

**DLC1:**

PAR (Miscellaneous Parameters Table)—Identifies the system operating parameters.

ACT (Area Code Table)—Defines each area code table.

AOC (Area/Office Code Table)—Modifies an area code table.

**DLC2:**

RTB (Route Table)—Defines routes and the routing selection sequence.

MDT (Modify Digits Table)—Defines the digit modification that is to be applied to a dialed number.

Enter: DLC1 or DLC2, followed by the desired sub-program:

DLC1: PAR, ACT, or AOC.

DLC2: RTB or MDT.

**1.02** After entering the desired sub-program, press the return key (**CR**). The prompts associated with each sub-program will then be issued sequentially.

**TABLE 12-1**

**Procedure — Least Cost Routing Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
LCR Utility #1 or #2	OK	DLC1, DLC2	1
- DISK LOADING -			
	REQ	CHG	
Data Table Type	TYPE	PAR, ACT, AOC (DLC1), or RTB, MDT (DLC2)	2

**NOTES:**

1. LCR utilities are divided between two programs:

Enter: DLC1 for: PAR (Miscellaneous Parameters)

ACT (Area Code Table)

AOC (Area/Office Code Table)

DLC2 for: RTB (Route Table)

MDT (Modify Digits Table)

2. If DLC1 was entered, the possible responses are PAR, ACT, or AOC. If DLC2 was entered, the possible responses are RTB or MDT.

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**2. Least Cost Routing Data Block 1 (Tables 12-2 ~ 12-4)**

When entering **DLC1, PAR** (Table 12-2), the next prompt will be:

**ICC (Interchangeable Codes)**—A “Y” informs the system that interchangeable codes are used. These are office codes that have 0 or 1 as the second digit (N0/1X format). Area codes will be identified as the three digits following the DDD prefix. Office codes will be identified as the first three digits when a DDD prefix is not dialed (see **DTOL Program**, PAR table, DDP prompt).  
Enter: Y or N.

**OTO (Operator Call Timeout)**—Defines the time, in seconds, that the system will wait for additional digits to be dialed after **0** is pressed.  
Enter: Time in seconds (for example: 10).

**RTD1 (Return Dial Tone)**—A “Y” response returns system dial tone after the LCR access code has been dialed. An “N” response will return silence.  
Enter: Y or N.

**WTA (Warning Tone Allowed?)**—A “Y” response will cause the system to give a 3-second 440 Hz warning tone when the most expensive (last choice) route is being selected.  
Enter: Y or N.

**HAC (Home Area Code)**—Defines the area code in which the system is operating. A home area code is also used to analyze dialed numbers which do not contain an area code. Data that is entered here will appear in the Toll Restriction Data Block (**DTOL Program**, PAR table, HAC prompt).  
Enter: N0/1X (Area Code).

**NOTE:**

$N = 2 \sim 9$     $0/1 = 0 \text{ or } 1$     $X = 0 \sim 9$ .

**TFC (Toll-Free Calls)**—A “Y” response will route toll-free calls (area code = 800) to the route table defined in the Local Call Route (LCR) prompt. An “N” response informs the system to treat area code 800 as a normal area code.  
Enter: Y or N.

**LCR (Local Call Route)**—Defines the route to be selected for local calls (undefined numbers), area code 800 calls (TFC prompt), and Service Code calls (SVC prompt).  
Enter: Route Table (1 ~ 15).

**SVC (Service Code Table)**—Defines the local service codes (411, 611, 911, etc.) that are to be routed via the Route Table defined by the LCR prompt (maximum: 10 3-digit codes).  
Enter: A NXX NXX etc. (to add service codes),  
and/or . . .  
D NXX NXX etc. (to delete service codes).

**DAC (Directory Assistance Calls Allowed)**—A “Y” response will route long distance directory assistance calls (NPA + 555 + XXXX) to the route table defined in the long distance information route (LDI prompt). An “N” response will not allow long distance directory assistance calls using Least Cost Routing.  
Enter: Y or N.

**LDI (Long Distance Information Route)**—Defines the route table that is to be selected for long distance directory assistance calls (NPA + 555 + XXXX) if permitted by the DAC prompt.  
Enter: Route Table (1 ~ 15).

**DDP (Direct Distance Dialing Prefix)**—Defines the Direct Distance Dialing (DDD) prefix in the Numbering Plan Area (NPA). If ICC is “Y,” then N0/1X and NXX become interchangeable, enabling area codes and office codes to have 0 or 1 as their second digit. In this case, the DDP is used to differentiate between the two code types (see example). If the ICC response is “N,” then calls will be made using the normal NPA formula of N0/1X and NNX.  
Enter: 1, 2, or 3 digits or NONE.

Example: If ICC is “Y” and the DDP is programmed as 1, then the dialed number 209-1234 is recognized as a call within the home area code, while the dialed number 1-209-555-1234 is recognized as a call outside the home area code. If ICC is “N,” this dialing plan is not used.



**TABLE 12-2**

**Miscellaneous Parameters Table**

Load the **DLC1 Utility Program**. When **TYPE** is prompted, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	<b>TYPE</b>	PAR	
Interchangeable Codes	<b>ICC</b>	Y or N	1
"O" Call Timeout	<b>OTO</b>	Time in seconds: 0 ~ 99	
Return Dial Tone after LCR Access Code	<b>RTD</b>	Y or N	
Warning Tone to caller when the most expensive route is selected	<b>WTA</b>	Y or N	
Home Area Code	<b>HAC</b>	N0/1X (Home Area Code)	2
Toll Free (800) calls permitted via the Local Call Route	<b>TFC</b>	Y or N	3
Local Call Route	<b>LCR</b>	XX (Local Call Route Table 1 ~ 15)	
Service Code Table	<b>SVC</b>	A NXX NXX or NXX NXX NXX	3 & 4
Directory Assistance (555) Call Allow	<b>DAC</b>	Y or N	5
Directory Assistance (555) Call Route	<b>LDI</b>	1 ~ 15	
DDD Prefix	<b>DDP</b>	1 ~ 3 digits or NONE	

**NOTES:**

1. Informs the system if interchangeable codes are used (Office Codes with N0/1X format).
2. Defines the area code in which the system is located. Home area codes are used to route dialed numbers which do not contain an area code. This entry is coupled with the HAC entry in the PAR table Toll Restriction (**DTOL Program**). Data that is entered here will also appear in that table.
3. These calls will be routed via the Local Call Route.
4. Following the SVC prompt, the system will prompt an "A." Any entries made will be added. To delete a code, press the return key. The system will then prompt "D," and any entries made will be deleted. Codes cannot be added and deleted in the same pass through the table. A separate pass is required for each step.
5. Route Table to be used for 555 calls.
6. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

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When entering **DLC1, ACT** (Table 12-3), the next prompt will be:

**RNO (Route Table Number)**—Identifies the number of the Route Table (programmed in the RTB sub-program of the **DLC2 Program**) to which this Area Code Table is assigned. Entering **OUT** will clear all area codes from Route Table Numbers (RNO) 1 ~ 14 and will assign all area codes to RNO 15. Entering a Route Table Number 1 ~ 14, followed by **OUT** will clear only RNO XX and will assign the area codes to RNO 15.

Enter: 1 ~ 15 or  
 OUT or  
 1 ~ 14 OUT.

**ACA (Area Codes-Add)**—Indicates the area codes

that are to be added to this RNO. A maximum of 160 area codes are permitted. Initially, RNO 15 contains all possible 160 area codes, but as codes are added to RNO 1 ~ 14, they are automatically deleted from RNO 15.

Enter: N0/1X N0/1X etc.

**NOTE:**

N = 2 ~ 9 0/1 = 0 or 1 X = 0 ~ 9.

**ACD (Area Codes-Delete)**—Indicates the area codes that are to be deleted from this RNO. As codes are deleted from RNO 1 ~ 14, they are automatically added to RNO 15. Codes can only be deleted from RNO 15 by adding them to another RNO (1 ~ 14).

Enter: N0/1X N0/1X etc.

**TABLE 12-3**

**Area Code Table**

Load the **DLC1 Utility Program**. When **TYPE** is prompted, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	TYPE	ACT	
Route Table Number	RNO	Route Table 1 ~ 15, OUT, or NN OUT	1
Area Codes — Add	ACA	N0/1X, N0/1X, etc.	2
Area Codes — Delete	ACD	N0/1X, N0/1X, etc.	3

**NOTES:**

1. **OUT** clears RNO 1 ~ 14 and assigns all area codes to RNO 15. **NN OUT** clears RNO NN and assigns the cleared area codes to RNO 15.
2. Input area codes to be added to this RNO. A maximum of 160 codes in the format N0/1X are permitted (N = 2 ~ 9, X = 0 ~ 9). At start-up, RNO 15 contains all possible area codes. As codes are added to RNO 1 ~ 14, they are automatically deleted from RNO 15.
3. Input codes to be deleted from this RNO. As codes are deleted from RNO 1 ~ 14, they are automatically added to RNO 15. Codes can only be deleted from RNO 15 by adding them to another RNO.
4. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

**When entering DLC1, AOC (Table 12-4), the next prompt will be:**

**TNO (Table Number)**—Selects one of the 16 area/office code modification (AOC) tables that are to be used.  
 Enter: 01 ~ 16.

**ARC (Area Code)**—Identifies the area code to which this AOC table is assigned.  
 Enter: N0/1X or NONE.

**RNO (Route Table Number)**—Specifies the number of the route table (RNO) that is to be followed for the calls meeting the area/office code criteria of this AOC table.  
 Enter: 1 ~ 15

**OCA (Office Codes-Add)**—Indicates the office codes that are assigned to the AOC modification table. Office codes may be added either as single 3-digit codes or as a "range," covering up to 10 sequential 3-digit codes. Ranges are entered by using a 4-digit format, where the first two digits are common to all codes in this range; the third digit represents the starting (from) point

of the range; and the fourth digit represents the end (to) point of the range for the last office code digit. See RANGES example.  
 Enter: NXXX NXX NXXXX etc.

**OCD (Office Codes-Delete)**—Indicates the office codes that are to be deleted from the AOC modification table. Office codes may be deleted by using either single 3-digit codes or a range of codes (entered in the same manner as a range for adding codes). See OCA prompt and RANGES example.  
 Enter: NXXX NXX NXXX etc.

<b>RANGES EXAMPLE:</b>	
<b>4-digit Format</b>	<b>Office Codes</b>
2209	220 ~ 229
2316	231 ~ 236
2478	247 ~ 248

**NOTE:**  
*Codes cannot be added and deleted in the same pass through the table. A separate pass is required for each step.*

**TABLE 12-4**

**Area/Office Code Table**

Load the **DLC1 Utility Program**. When **TYPE** is prompted, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	<b>TYPE</b>	AOC	
Table Number	<b>TNO</b>	1 ~ 16	
Area Code	<b>ARC</b>	N 0/1X or NONE	
Route Table Number	<b>RNO</b>	1 ~ 15	
Office Codes — Add	<b>OCA</b>	NXX NXXX etc.	1
Office Codes — Delete	<b>OCD</b>	NXX NXXX etc.	1

**NOTE:**  
*A maximum of 800 3-digit numbers (in the format NXX [N = 2 ~ 9, X = 0 ~ 9]) are permitted. Ranges are possible (7309 = 730 ~ 739).*

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### 3. Least Costing Routing Data Block 2 (Tables 12-5 ~ 12-6)

When entering **DLC2**, **RTB** (Table 12-5), the next prompt will be:

**RNO (Route Table Number)**—Identifies the number of the Route Table to which an Area Code Table (ACT) and/or an AOC Table is assigned. Entering **OUT** will clear all Route Tables. Entering **RNO 1 ~ 15**, followed by **OUT** will clear **RNO XX**.

Enter: 1 ~ 15 or  
1 ~ 15 **OUT**.

**RT1 ~ 6 (Route Definition)**—Defines the Trunk Group for each route in this Route Table. If a Trunk Group is entered at this time, then a Modify Digits Table must also be entered. A particular routing definition (**RT1**, **RT2**, etc.) may only be used one time per routing schedule.

Enter: **XX MM** or **NONE**  
(**XX** = Trunk Group Number 0 ~ 15).  
(**MM** = Modify Digits Table Number 1 ~ 12).

**NOTE:**

*The existing Route Schedule data will be automatically printed after the response to **RT6** prompt is entered.*

**SCHA (Route Schedule A)**—Defines the time-of-day interval for the first of three possible routing schedules. Start and end times are entered by using a 24-hour clock format.

Enter: Start Time End Time  
(for example: 0900 1700).

**LC3 (Class 3 Routing Priority)**—Defines the routing choice sequence that is accessible to station classes **LC3**, **LC2**, and **LC1** during Schedule A time interval. Enter the routes (**RT1 ~ 6**) in the order of selection priority.

Enter: Routing Choice (for example: **RT6 RT1** etc.)

... or ...

**NONE** (this entry for **LC3** will also change **LC2** & **LC1** to **NONE** for this schedule).

**LC2 (Class 2 Routing Priority)**—Defines the

routing choice sequence that is accessible to station classes **LC2** and **LC1** during Schedule A time interval. Enter the routes (**RT1 ~ 6**) in the order of selection priority.

Enter: Routing Choice (for example: **RT5 RT2** etc.)

... or ...

**NONE**.

**LC1 (Class 1 Routing Priority)**—Defines the routing choice sequence that is accessible to station class **LC1** during Schedule A time interval. Enter the routes (**RT1 ~ 6**) in the order of selection priority.

Enter: Routing Choice (for example: **RT4 RT3** etc.)

... or ...

**NONE**.

**NOTE:**

*The **DCOS** Data Block is used to define station class of service for Least Cost Routing (**LCR**) by using three classes of service for **LCR**. The access permitted to each **LCR** Class of Service is as follows:*

**LC1**—Allows routes defined for **LC3**, **LC2**, and **LC1**.

**LC2**—Allows routes defined for **LC2** and **LC3**.

**LC3**—Allows routes defined for **LC3** only.

**SCHB (Route Schedule B)**—Defines the time-of-day interval for the second of three possible routing schedules. The start time, which is the end time of Schedule A, will be automatically printed (24-hour clock format).

Enter: End Time (for example: 2300).

**LC3 (Class 3 Routing Priority)**—Same as **LC3** in Schedule A, but for Schedule B time interval.

Enter: Routing Choice (for example: **RT5 RT4** etc.)

... or ...

**NONE** (this entry for **LC3** will also cause **LC2** & **LC1** to be longer for this schedule).

**LC2 (Class 2 Routing Priority)**—Same as **LC2** in Schedule A, but for Schedule B time interval.

Enter: Routing Choice (for example: **RT3 RT2** etc.)

... or ...

NONE.

**LC1 (Class 1 Routing Priority)**—Same as LC1 in Schedule A, but for Schedule B time interval.

Enter: Routing Choice (for example: RT1 RT6 etc.)

... or ...

NONE.

**SCHC (Route Schedule C)**—Defines the time-of-day interval for the last of three possible routing schedules. The start time, which is the end time of Schedule B, and the end time, which is the start time of Schedule A, will be automatically printed (24-hour clock format).

No entry is necessary.

**LC3 (Class 3 Routing Priority)**—Same as LC3 in Schedule A and B, but for Schedule C time interval.

Enter: Routing Choice (for example: RT1 RT6 etc.)

... or ...

NONE (this entry for LC3 will also cause LC2 and LC1 to be NONE for this schedule).

**LC2 (Class 2 Routing Priority)**—Same as LC2 in Schedules A and B, but for Schedule C time interval.

Enter: Routing Choice (for example: RT2 RT3 etc.)

... or ...

NONE.

**LC1 (Class 1 Routing Priority)**—Same as LC1 in Schedules A and B, but for Schedule C time interval.

Enter: Routing Choice (for example: RT4 RT5 etc.)

... or ...

NONE.

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**TABLE 12-5**

**Route Table**

Load the **DLC2 Utility Program**. When **TYPE** is prompted, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	<b>TYPE</b>	RTB	1
Route Table Number	<b>RNO</b>	1 ~ 15 or NN OUT	2
Route #1 Definition	<b>RT1</b>	XX MM or NONE (NONE)	2
Route #2 Definition	<b>RT2</b>	XX MM or NONE (NONE)	2
Route #3 Definition	<b>RT3</b>	XX MM or NONE (NONE)	2
Route #4 Definition	<b>RT4</b>	XX MM or NONE (NONE)	2
Route #5 Definition	<b>RT5</b>	XX MM or NONE (NONE)	2
Route #6 Definition	<b>RT6</b>	XX MM or NONE (NONE)	2
— Printout of Existing Route Schedule —			3
Route Schedule A	<b>SCHA</b>	HHMM, HHMM	4
Class 3 Routing Priority	<b>LC3</b>	RTX, RTX, etc. or NONE (NONE)	5 & 8
Class 2 Routing Priority	<b>LC2</b>	RTX, RTX, etc. or NONE (NONE)	5 & 8
Class 1 Routing Priority	<b>LC1</b>	RTX, RTX, etc. or NONE (NONE)	5 & 8
Route Schedule B	<b>SCHB</b>	HHMM	4 & 6
Class 3 Routing Priority	<b>LC3</b>	RTX, RTX, etc. or NONE (NONE)	5 & 8
Class 2 Routing Priority	<b>LC2</b>	RTX, RTX, etc. or NONE (NONE)	5 & 8
Class 1 Routing Priority	<b>LC1</b>	RTX, RTX, etc. or NONE (NONE)	5 & 8
Route Schedule C	<b>SCHC</b>	<b>CR</b>	4 & 7
Class 3 Routing Priority	<b>LC3</b>	RTX, RTX, etc. or NONE (NONE)	5 & 8
Class 2 Routing Priority	<b>LC2</b>	RTX, RTX, etc. or NONE (NONE)	5 & 8
Class 1 Routing Priority	<b>LC1</b>	RTX, RTX, etc. or NONE (NONE)	5 & 8

Default values are noted in parentheses ( ).

TABLE 12-5 (continued)

NOTES:

1. *OUT* = Will clear all Route Tables. *NN OUT* = Will clear Route Table *NN*.
2. Route definition — maximum is six routes.  
Format is: *XX* = Trunk Group Number (0 ~ 15).  
*MM* = Modify Digits Table to be applied (1 ~ 12). Modify Digits Table **must** be entered.
3. Existing Route Schedule data is printed automatically after the response to *RT6* prompt is entered.
4. Time-of-day interval for this routing schedule.
5. Maximum combined entries for *LC3*, *LC2*, *LC1* are six routes. **Do not** assign the same route to more than one class.
6. Entry required for schedule *B* end time only. Schedule *A* end time has defined schedule *B* start time.
7. No entry required. Schedule *A* start time has defined the schedule *C* end time and schedule *B* end time has defined the schedule *C* start time.
8. *LC3*, *LC2*, and *LC1* are used in *DCOS* Data Block to define Station Class of Service. The access permitted to each class is as follows: *LC1* = All routes defined for *LC1*, *LC2*, *LC3*.  
*LC2* = Routes defined for *LC2*, *LC3*.  
*LC3* = Routes defined for *LC3* only.
9. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to *REQ*.  
**DEL DEL** = Exit program.

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When entering DLC2, MDT (Table 12-6), the next prompt will be:

**TNO (Modify Digits Table Number)**—Specifies the Modify Digits Table Number assigned to the defined routes in the Route Tables (RT1 ~ RT6). The same Modify Digits Table may be used for more than one route.  
 Enter: Table Number (1 ~ 12).

**DLT (Digits to be Deleted)**—Defines the number of digits that are to be deleted from the start of a dialed number. The system will remove these digits before prefixing any digits defined by the digits to be added (ADD) prompt. Maximum: 10 digits.  
 Enter: Number of digits to be deleted or NONE.

**ADD (Digits to be Added)**—Defines the actual digits to be prefixed to a dialed number. The system will prefix these digits after removing the number of digits defined by the digits to be deleted (DLT) prompt. Maximum: 20 digits.  
 Enter: Actual digits to be prefixed or NONE.

**NOTE:**  
*The following codes are used in response to the ADD prompt to insert pauses: \*1 = 1-second pause, \*2 = 2-second pause, \*3 = 6-second pause (\*X = 1 digit).*

**TABLE 12-6**

**Modify Digits Table**

Load the **DLC2 Utility Program**. When TYPE is prompted, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	TYPE	MDT	
Table Number	TNO	1 ~ 12	
Number of digits to be deleted from dialed number	DLT	XX etc., maximum: 10 or NONE (NONE)	1
Digits to be prefixed to dialed number	ADD	XXXX etc, maximum: 20 or NONE (NONE)	1 & 2

*Default values are noted in parentheses ().*

**NOTES:**

1. Default Value = NONE.
2. The following codes are used to insert pauses in response to ADD:  
 \*1 = 1 digit = 1-second pause. \*2 = 1 digit = 2 second pause. \*3 = 1 digit = 6-second pause.
3. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.



TABLE 12-6 (continued)

Error Codes

Program Name: Least Cost Routing Data Block (DLC1 and DLC2)	
Error Code	Meaning
ERLCR 00	Input time (in seconds) is out of range (0 ~ 99).
ERLCR 01	Area Code (N 0/1X) is out of range (N = 2 ~9, X = 0 ~ 9).
ERLCR 02	Route number is out of range (1 ~ 15).
ERLCR 03	Service Code error.
ERLCR 04	Service Codes exceed the maximum (10).
ERLCR 05	Table number is out of range (1 ~ 16).
ERLCR 06	Office Code is out of range.
ERLCR 07	Trunk Group number is out of range.
ERLCR 08	Modify Digits Table number is out of range (1 ~ 12).
ERLCR 09	Route number error (RT1 ~ RT6).
ERLCR 10	The number of digits to be deleted is out of range (10).
ERLCR 11	The digits to be added exceed the maximum (20).
ERLCR 12	The digit to be added is incorrect.
ERLCR 13	Numeric error (0 ~ 9).
ERLCR 14	The number of Area Codes exceeds maximum (maximum = 160).
ERLCR 15	The number of Office Codes exceeds maximum (maximum = 800).
ERLCR 16	Schedule time is out of range (HH = 0 ~ 23, MM = 0 ~ 59).
ERLCR 17	Schedule time error.
ERLCR 18	Route number is already assigned.

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**4. Print Least Cost Routing Data Block (Table 12-7)**

**4.01** To use the Print Least Cost Routing Data Block (**PLCR Program**).

- Perform Authorization Procedure (Level 1 or 2).  
Enter: PLCR (in response to the OK prompt).
- When the REQ prompt is received after the program is loaded, enter one of the following commands:

**LCRALL**—All Least Cost Routing Data Blocks will be output.

**PAR**—Miscellaneous Parameters Table will be output.

**ACTALL**—All Area Code Tables will be output.

**ACTRNXX**—All Area Code Tables that point to Route Number (RN) XX will be output.

**AOCALL**—All Area/Office Code Tables will be output.

**AOCNOXX**—Area/Office Code Table XX will be output.

**AOCRNXX**—All Area/Office Code Tables that point to Route Number (RN) XX will be output.

**CODXXX**—All Area/Office Code Tables relating to Area Code XXX will be output.

**RTALL**—All Route Tables will be output.

**RTXX**—Route Table XX will be output.

**TGPXX**—All Route Tables using Trunk Group XX will be output.

**RTMDXX**—All Route Tables using Modify Digits Table XX will be output.

**MDTXX**—Modify Digits Table XX will be output.

**TABLE 12-7**

**Procedure — Print Least Cost Routing Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	PLCR	
- DISK LOADING -			
	REQ		1
- EXECUTE -			
	REQ		1

**NOTES:**

1. The following responses are possible:

- LCRALL = Outputs all Least Cost Routing Data Blocks.
- PAR = Outputs Miscellaneous Parameters Table.
- ACTALL = Outputs all Area Code Tables.
- ACTRNXX = Outputs all Area Code Tables that point to Route Number (RNO) XX.
- AOCALL = Outputs all Area/Office Code Tables.
- AOCNOXX = Outputs Area/Office Code Table XX.
- AOCRNXX = Outputs all Area/Office Code Tables that point to Route Number (RNO) XX.
- CODXXX = Outputs all Area Code and Area/Office Code Tables relating to Area Code XXX.
- RTALL = Outputs all Route Tables.
- RTXX = Outputs Route Table XX.
- TGPXX = Outputs all Route Tables using Trunk Group XX.
- RTMDXX = Outputs all Route Tables using Modify Digits Table XX.
- MDTXX = Outputs Modify Digits Table XX.

2. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.



## CHAPTER 13

### LODGING/HEALTH CARE DATA

#### 1. Lodging/Health Care Features Data Block (Table 13-1)

1.01 The Lodging/Health Care Features Data Block (DHMF Program) defines the number of miscellaneous parameters that pertain to the Lodging/Health Care features. Data is entered as follows:

**REQ (Request)**—Indicates that the program has loaded. Three responses are possible:

NEW—To create a new Data Block.

CHG—To alter an existing Data Block.

OUT—To delete an existing Data Block.

**NOTE:**

*If OUT is entered, all entries will be set to "NONE."*

**AWU SRC (Automatic Wake-up Source)**—Identifies the source that the called party will hear after the wake-up call has been answered.

Enter: MOH—Music-on-Hold.

VCE—Preprogrammed digitized voice announcement.

NONE—Silence.

**AWU POR (Automatic Wake-up)**—Identifies the output port that the system will use to send automatic wake-up verification information.

Enter: SMDR, TTY, or NONE.

**MW POR (Message Waiting)**—Identifies the output port that the system will use to send message waiting verification information.

Enter: SMDR, TTY, or NONE.

**MR POR (Message Registration)**—Identifies the output port that the system will use to send message registration information.

Enter: SMDR, TTY, or NONE.

**RMS (Room Status Audit)**—Identifies the output port that the system will use to send Room Status Audit information.

Enter: SMDR, TTY, or NONE.

**TABLE 13-1**

**Procedure — Lodging/Health Care Features Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	DHMF	
- DISK LOADING -			
	REQ	NEW, CHG, OUT	1
Automatic Wake-up Source	AWU SRC	MOH, VCE, or NONE	2
Automatic Wake-up	AWU POR	SMDR, TTY, or NONE	
Message Waiting	MW POR	SMDR, TTY, or NONE	
Message Registration	MR POR	SMDR, TTY, or NONE	
Room Status Audit	RMS	SMDR, TTY, or NONE	

**NOTES:**

1. "OUT" sets all entries to "NONE."
2. MOH = Music-on-Hold source.  
VCE = Preprogrammed digitized voice announcement.
3. CTRL X = Ignore line entered.  
CTRL H = Backspace.  
DEL = Stop printing and return to REQ.  
DEL DEL = Exit program.

**Error Codes**

Program Name: Lodging/Health Care Features Data Block (DHMF)	
Error Code	Meaning
ERHMF 00	The input data was erased because the program was aborted during a NEW entry.

*Automatic  
wake-up*

**2. Print Lodging/Health Care Data Block (Table 13-2)**

**2.01 To use the Print Lodging/Health Care Features Data Block (PHMF Program):**

- Perform the Authorization Procedure (Level 1, 2, or 3).  
 Enter: PHMF (in response to the OK prompt).

- When an REQ prompt is received after the program is loaded:  
 Enter: PRT
- The Lodging/Health Care Data Block will be output, with features listed in the order that they were input in the **DHMF Program**.

**TABLE 13-2**

**Procedure — Print Lodging/Health Care Features Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	PHMF	
- DISK LOADING -			
	REQ		1
- EXECUTE -			
	REQ		1

**NOTES:**

1. The only response possible is: PRT = Outputs Lodging/Health Care Features Data Block.
2. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace. . . . .  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

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**3. Message Registration Data Block (Table 13-3)**

**3.01 The Message Registration Data Block (DMRD Program)** defines all parameters for the Message Registration feature.

**REQ (Request)**—Indicates that the program has loaded. Two responses are possible:  
CHG—To change an existing Data Block.  
OUT—To delete an existing Data Block.

**ICC (Interchangeable Codes)**—A "Y" informs the system that interchangeable codes are used. These are office codes that have 0 or 1 as the second digit (N0/1X format). Area codes will be identified as the three digits following the DDD prefix. Office codes will be identified as the first three digits when a DDD prefix is not dialed (see DDP prompt).  
Enter: Y or N.

**DDP (Direct Distance Dialing Prefix)**—Defines the Direct Distance Dialing (DDD) prefix in the Numbering Plan Area (NPA). If ICC is "Y," then N0/1X and NXX become interchangeable, enabling area codes and office codes to have 0 or 1 as their second digit. In this case, the DDP is used to differentiate between the two code types (see example). If the ICC response is "N," then calls will be made using the normal NPA formula of N0/1X and NNX.  
Enter: 1, 2, or 3 digits or NONE.

Example: If ICC is "Y" and the DDP is programmed as 1, then the dialed number 209-1234 is recognized as a call within the home area code, while the dialed number 1-209-555-1234 is recognized as a call outside the home area code. If ICC is "N," this dialing plan is not used.

**HAC (Home Area Code)**—Defines the area code in which the system is operating. A home area code is also used to analyze dialed numbers which do not contain an area code. Data entered here will appear in the Toll Restriction Data Block (**DTOL Program**, PAR table, HAC prompt).  
Enter: Area Code (N0/1X).

**SVT (Supervision Time)**—Defines the time allowed for a call to be connected before the First Billing Interval begins. This timer will start when the system accesses a trunk during an outgoing local call.

Enter: 1 ~ 120 (time in seconds).

0 - 120

**TN1 (Rate Table #1)**—This prompt requires no user entry. It will be followed by prompts which request parameters for the operation of the Message Registration features.

**FBI (First Billing Interval)**—Defines the interval time for the first billing interval.  
Enter: 1 ~ 180 (time in seconds).

**FBU (First Billing Unit)**—Defines the number of billing units per first billing interval.  
Enter: 1 ~ 100.

0 - 100

**IBI (Incremental Billing Interval)**—Defines the interval time for each incremental billing interval.  
Enter: 1 ~ 180 (time in seconds).

**IBU (Incremental Billing Units)**—Defines the number of billing units per incremental billing interval.  
Enter: 1 ~ 100.

0 - 100

**CST (Unit Cost)**—Defines the cost per each billing unit.  
Enter: 1 ~ 500 (cost in cents).

**OCA (Office Codes-Add)**—Indicates the office codes that are to be added to the office code table and defines the calls that are to be billed according to one of the five Rate Tables. Office codes may be added either by using single 3-digit codes or by using 4-digit range codes.  
Enter: NXXX NXX NXXX etc.

**OCD (Office Codes-Delete)**—Indicates the office codes that are to be deleted from the office code table. Office codes may be deleted either by using single 3-digit codes or by using 4-digit range codes.  
Enter: NXXX NXX NXXX etc.

**NOTE:**

N = 2 ~ 9, X = 0 ~ 9.



RANGES EXAMPLE:	
4-digit Format	Office Codes
2209	220 ~ 229
2316	231 ~ 236
2478	247 ~ 248

**TABLE 13-3**

**Procedure — Message Registration Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	DMRD	
- DISK LOADING -			
<b>PARAMETERS</b>	REQ	CHG, OUT	
Interchangeable Code?	ICC	Y or N	
DDD Prefix	DDP	1 ~ 3 digits or NONE	
Home Area Code	HAC	N0/1X 714	1
Supervision Time	SVT	0 ~ 120 (time in seconds) RING time	
Rate Table #1	TN1		2
First Billing Interval	FBI	1 ~ 180 (time in seconds)	
First Billing Unit	FBU	0 ~ 100	
Incremental Billing Interval	IBI	1 ~ 180 (time in seconds)	
Incremental Billing Units	IBU	0 ~ 100	
Unit Cost	CST	1 ~ 500 (cost in cents)	
Office Codes — Add	OCA	NXX or NXXX	3
Office Codes — Delete	OCD	NXX or NXXX	3 & 4

**NOTES:**

1. N = 2 ~ 9, X = 0 ~ 9.
2. This Rate Table will be followed by four other Rate Tables with the same prompts (FBI ~ OCD).
3. A maximum of 800 3-digit numbers (in the format NXX [N = 2 ~ 9, X = 0 ~ 9]) is permitted. Ranges are possible (7309 = 730 ~ 739). 10 parameters
4. Rate Table 5 contains all office codes. As office codes are **added** to any Rate Table 1 ~ 4, they are automatically **deleted** from Rate Table 5. If an office code is **deleted** from any Rate Table 1 ~ 4, it is automatically **returned** to Rate Table 5.
5. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

**TABLE 13-3 (continued)**  
**Error Codes**

<b>Program Name: Message Registration Data Block (DMRD)</b>	
<b>Error Code</b>	<b>Meaning</b>
ERM RD 00	Numeric error (0 ~ 9).
ERM RD 01	Area Code (N0/1X) is out of range (N = 2 ~ 9, X = 0 ~ 9).
ERM RD 02	Supervision Time is out of range (0 ~ 120).
ERM RD 03	Billing Interval is out of range (1 ~ 180).
ERM RD 04	Billing Unit is beyond time (0 ~ 100).
ERM RD 05	Unit Cost is beyond limit (1 ~ 500).
ERM RD 06	Office Code (NXX) is out of range (N = 2 ~ 9, X = 0 ~ 9).
ERM RD 07	The number of Office Codes exceeds the maximum (800).
ERM RD 08	The input data was erased because the program was aborted during a NEW entry.
ERM RD 10	MRD data does not exist (REQ = CHG, OUT).

**4. Print Message Registration Data Block (Table 13-4)**

**4.01 To use the Message Registration Data Block (PMRD Program):**

- Perform the Authorization Procedure (Level 1, 2, or 3).  
 Enter: PMRD (in response to the OK prompt).
- When an REQ prompt is received after the program is loaded:  
 Enter: One of the following commands:

**MRDALL**—All Message Registration Data will be output. There may be a delay in the output after the OCA prompt.

**MRDPAR**—The system will output a partial list of the Message Registration Data Block (ICC, DDP, HAC, and SVT).

**RTNPAR**—The system will output a partial list of the Message Registration Data Block (FBI, FBU, IBI, IBU, and CST for Rate Tables 1 ~ 5).

**RTNALL**—The system will output all the data from the Rate Tables 1 ~ 5 (FBI, FBU, IBI, IBU, CST, and OCA). There may be a delay in the output after the OCA prompt.

**TABLE 13-4**

**Procedure — Print Message Registration Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows.

ITEM	PROMPT	USER ENTRY	NOTE
	OK	PMRD	
-- DISK LOADING --			
	REQ		1
-- EXECUTE --			
	REQ		1

**NOTES:**

1. The following responses are possible:

- MRDALL** = Outputs all Message Registration Data. There may be a delay in the output after the OCA prompt.
- MRDPAR** = Outputs a partial list of the Message Registration Data Block (ICC, DDP, HAC, and SVT).
- RTNPAR** = Outputs a partial list of the Message Registration Data Block (FBI, FBU, IBI, IBU, and CST for Rate Tables 1 ~ 5).
- RTNALL** = Outputs all the data from Rate Tables 1 ~ 5 (FBI, FBU, IBI, IBU, CST, and OCA). There may be a delay in the output after the OCA prompt.

- 2. **CTRL X** = Ignore line entered.
- CTRL H** = Backspace.
- DEL** = Stop printing and return to REQ.
- DEL DEL** = Exit program.



## CHAPTER 14

### SPEED DIAL LIST DATA

#### 1. Speed Dial List Data Block (Table 14-1)

1.01 The Speed Dial List Data Block (**DSDL Program**) contains all numbers stored on the 90-number Speed Dial - System list and the 50 10-number Speed Dial - Station lists.

1.02 The **DSDL Program** allows initial storage or changes to any speed dial list from the maintenance terminal. Data is entered as follows:

**REQ (Request)**—Indicates that the program has loaded. Two responses are possible:

CHG—To alter an existing or to enter a new Data Block.

OUT—To delete an existing Data Block.

**LNO (List Number)**—The number of the list to be changed or deleted.

Enter: 00 (for System List) or  
01 ~ 50 (for Station List).

**NOTE:**

*If the OUT command was entered in response to REQ above, then no other data is required.*

**STR (Store Number)**—This prompt requests the number to be stored.

Enter: Address code, space, and number in the following format:

Example: 0 9\*NPANNXXXXX  
1 9\*NPANNXXXXX

**NOTE:**

*In these examples, 9 is a trunk access code. Therefore, a "" is entered to cause a 3-second pause for dial tone delay. The "" is counted as one of the 16 allowable digits.*

**TABLE 14-1**

**Procedure — Speed Dial List Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows.

ITEM	PROMPT	USER ENTRY	NOTE
	OK	DSDL	
- DISK LOADING -			
	REQ	CHG, OUT	
List Number	LNO	XX	1
Store Number	STR	0 9* NPANN XXXXX	2 & 3
	STR	1 9* NPANN XXXXX	
	STR	2 9* NPANN XXXXX	
		<b>DEL</b>	4
	REQ	Repeat program, if necessary.	

**NOTES:**

1. *XX = List number.*  
*00 = System List (90 numbers maximum: 10 ~ 99).*  
*01 ~ 50 = Station Lists (10 numbers each maximum: 0 ~9).*
2. *Input procedure is: Address Code + [space] + Access Code + Pause + DN. For example: 1 9\*NPANNXXXX.*
3. *Stored numbers may be any length between 1 and 16 digits; \* enters a 3-second pause and is counted as one of the 16 digits.*
4. *No further prompt will be given until **DEL** is entered.*
5. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

**Error Codes**

Program Name: Standard Telephone Data Block (DSTT)	
Error Code	Meaning
ERSDL 00	The input list number is out of range (0 ~ 50 are allowed).
ERSDL 01	The address code of the system list is out or range (10 ~ 99 are allowed).
ERSDL 02	The address code of the station list is out of range (0 ~ 9 are allowed).
ERSDL 03	Invalid DN (1 ~ 16 digits are allowed).

**2. Print Speed Dial List Data Block (Table 14-2)**

**2.01** To use the Print Speed Dial List Data Block (PSDL Program):

- Perform the Authorization Procedure (Level 1, 2, or 3).  
 Enter: PSDL (in response to the OK prompt).
- When the REQ prompt is received after the program is loaded:  
 Enter one of the following commands:

**ALL**—All of the Speed Dial lists will be output.

**SYST**—System Speed Dial list will be output.

**LSTXX**—Station Speed Dial list XX will be output.

**NOTE:**

*There are 50 station speed dial lists (LST01 ~ LST50), which may each have up to ten numbers (0 ~ 9).*

The output format is as follows:

```

REQ      LST06
LNO      06
SDC      L002
SDU      L003 L010
STR      00 9*7147305000
          01 9*9142731750
          02 NONE
          03 "
          ~
          09 "
    
```

**TABLE 14-2**

**Procedure — Print Speed Dial List Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows.

ITEM	PROMPT	USER ENTRY	NOTE
	OK	PSDL	
- DISK LOADING -			
	REQ		1
- EXECUTE -			
	REQ		1

**NOTES:**

1. The following responses are possible:
  - ALL** = Outputs all Speed Dial List Data Blocks.
  - SYST** = Outputs System Speed Dial List Data Block.
  - LSTXX** = Outputs Station Speed Dial List XX Data Blocks.
2. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

**Error Codes**

Program Name: Print Speed Dial List (PSDL)	
Error Code	Meaning
ERPST 00	The list number is out of range (0 ~ 50 is available).





## CHAPTER 15

### TRAFFIC MEASUREMENT DATA

#### 1. Traffic Measurement Data Block (Table 15-1)

1.01 The Traffic Measurement Data Block (**DTRF Program**) defines the parameters that control the Traffic Measurement feature. Data is entered as follows:

**REQ (Request)**—Indicates that the program has loaded. Four responses are possible:

**STT (Start Command)**—Starts the record-keeping and reporting activity when SCH = CMD. (STT must be entered after each RPT request.)

**RPT (Report Command)**—A report will follow if record-keeping has been started with the STT command (see Table 15-1a for report format).

**OUT (Out Command)**—Deletes record-keeping and reports.

**CHG (Change Command)**—Establishes or alters the reporting parameters.

The next prompt for CHG input will be:

**SYST. DATE MMDDYY (System Date)**—Reports the date that is currently in memory and gives an opportunity for a change.

Enter: New date: MMDDYY or  
**CR** (no change).

**DOW (Day of Week)**—Identifies the current day of the week for the system clock.

Enter: SUN, MON, TUE, WED, THU, FRI, SAT,  
or  
**CR** (no change).

**SYST. TIME HHMMSS (System Time)**—Reports the time that is currently in memory and gives an opportunity for a change.

Enter: New time: HHMMSS (24 hour clock) or  
**CR** (no change).

**SCHXXX (Schedule of Reports)**—Defines the schedule for reports; outputs the current data; and gives an opportunity for a change.

Enter: CMD—Report will occur only when the RPT command is given in response to REQ above.

30—Report will occur every 30 minutes, beginning at the time listed as STR (next prompt).

60—Same as above, but at 60-minute intervals.

**NOTE:**

*Reports will continually be output at the specified time intervals unless TTY is disabled (OFF). Record-keeping will continue, but only the last time interval will be saved and re-reported when the TTY is enabled.*

**STR.DATE MMDDYY (Start Date)**—Defines the start date for record-keeping and reporting, outputs current data, and gives an opportunity for a change.

Enter: Start Date: MMDDYY or  
**CR** (no change).

**STR.TIME HHMM (Start Time)**—Defines the start time for record-keeping and reporting, outputs current data, and gives an opportunity for a change.

Enter: Start Time: HHMM or  
**CR** (no change).

**RPT (Report Parameters):**

SYST	(System Data)
ATT0	(Attendant 0)
ATT1	(Attendant 1)
TGP00	(Trunk Group 00)
~	~
TGP15	(Trunk Group 15)

Selects those parameters that are to be recorded (see Table 15-1b). The current data (Y or N) is output for each parameter and an opportunity is given for a change.

Enter: Y or N (followed by a **CR** for each parameter).

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**TABLE 15-1**

**Procedure — Traffic Measurement Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows.

ITEM	PROMPT	USER ENTRY	NOTE
	OK	DTRF	
<b>— DISK LOADING —</b>			
	REQ	STT, RPT, OUT, CHG	1
System Date	SYST. DATE MMDDYY	MMDDYY or <b>CR</b>	2
Day of Week	DOW	SUN, MON, TUE, WED, THU, FRI, SAT	3
System Time	SYST. TIME HHMMSS	HHMMSS or <b>CR</b>	4
Schedule	SCH -XXX-	30, 60, or CMD	5
Start Date	STR. DATE MMDDYY	MMDDYY or <b>CR</b>	6
Start Time	STR. TIME HHMM	HHMM or <b>CR</b>	7
Report	RPT		
	SYST	Y or N	8
	ATT0	Y or N	
	ATT1	Y or N	
	TGP00~TGP15	Y or N	

**NOTES:**

1. STT = Start Command — used to initialize the program and to start the record-keeping reporting activity.  
RPT = Report Command — if the program had been started previously, a report would follow. See Table 15-1a for format.  
OUT = Out Command — used to stop reports.  
CHG = Change Command — used to alter reporting parameters.
2. The system will output the date in its memory (Month, Day, Year). Any entry (MMDDYY) will overwrite the existing data. A **CR** = no change.
3. Enter the day of the week: SUN, MON, TUE, WED, THU, FRI, or SAT. A **CR** = no change.
4. The system will output the time in its memory (Hour, Minute, Second). An entry (HHMMSS) will overwrite the existing data. A **CR** = no change.
5. Schedule of Reports:  
30 = Report every 30 minutes beginning at the time listed as STR.DATE (Note 6) and STR.TIME (Note 7).  
60 = Report every 60 minutes beginning at the time listed as STR.DATE (Note 6) and STR.TIME (Note 7).
6. Date that record-keeping and reporting should start. The system will output the date in its memory (Month, Day, Year). An entry (MMDDYY) will overwrite the existing data. A **CR** = no change.
7. The time that record-keeping and reporting should start. The system will output the time in its memory (Hour and Minute). An entry (HHMM) will overwrite the existing data. A **CR** = no change.
8. Enter Y or N, followed by a **CR** to select the parameters to be reported (see Table 15-1b).
9. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

**TABLE 15-1a  
TRAFFIC MEASUREMENT REPORT FORMAT**

ITEM	PROMPT	USER ENTRY
Authorization Procedure	OK	DTRF
<b>DISK LOADING -</b>		
	REQ	RPT
	RPT FROM	MM DD YY
		HH MM SS
	TO	MM DD YY
		HH MM SS
	SYST	RCVR DLY 0000
	ATT 0	IN SVC 0000
		WK TIM 0000
		INC TRK 0000
		INC TIM 0000
		O CALL 0000
		LPS BSY 0000
		TTA 0000
		OVFL 0000
	ATT 1	(SAME AS ATT 0)
	TRUNKS	TGP 00*
		INC USE 0000
		INC CALL 0000
		O.G. USE 0000
		O.G. CALL 0000
		ATB 0000

\*Trunk Groups 01 ~ 15 are reported in the same way as Group 00.

**TABLE 15-1b**  
**TRAFFIC MEASUREMENT PARAMETERS**

GROUP	ITEM RECEIVED	TYPE OF MEASUREMENT
System	DTMF Receiver Delay (3 sec.)	Peg Count
Attendant #0	Time in Service <b>DAY MODE</b>	CCS
	Work Time <b>CONSOLE</b>	<b>36ccs = 100%</b> CCS
	Incoming Trunk Calls	Peg Count
	Time Servicing Incoming Calls	CCS
	Dial <input type="checkbox"/> Calls	Peg Count
	* All Loops Busy	Peg Count
	Average Time to Answer	SEC.
	Overflow	Peg Count
Attendant #1	(Same as Attendant #0)	
Trunks	Group 00* Incoming Usage	CCS
	Incoming Calls	Peg Count
	Outgoing Usage	CCS
	Outgoing Calls	Peg Count
	* All Trunks Busy	Peg Count

\*Trunk Groups 01 ~ 15 are reported in the same way as Group 00.

**Error Codes**

Program Name: Traffic Management (DTRF)	
Error Code	Meaning
ERTRF 01	The program has already been started. Either the start time has been reached or STT was entered previously (REQ = STT).
ERTRF 02	Invalid response. STT or RPS was entered in response to REQ, but the SCH entry is 30, 60, or NONE.
ERTRF 03	RPT was entered in response to REQ, but the program has not been started (to correct start time and date, enter STT).

CCS  
 36ccs = 100%  
 18ccs = 50%

CHAPTER 16

ALPHANUMERIC MESSAGING DATA

1. Alphanumeric Message Data Block (Table 16-1)

1.01 The Alphanumeric Message Data Block (DMSG Program) changes system messages that can be left on 6000-series LCD electronic telephones (five messages are initialized).

Initialized Messages:

Message Number	Message
0	OUT TO LUNCH
1	IN A MEETING
2	CALL
3	BACK AT
4	RETURN ON

**REQ (Request)**—Indicates that the program has loaded. The only response possible is CHG.

**MSG (Message)**—Assigns the ten system alphanumeric messages.

Enter:

- 1) The number of the message to be defined. The system will automatically enter a space after the number. Messages are numbered 0 ~ 9. Following the message number and space, any existing message will be output. Type the new message (the existing message will be replaced). NONE deletes any existing message but does not add a new one.
- 2) The available message characters are: 0 ~ 9, A ~ Z, [space], :, -, +, /. Messages can be up to 16 characters in length.

**TABLE 16-1**

**Procedure — Alphanumeric Message Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows.

ITEM	PROMPT	USER ENTRY	NOTE
	OK	DMSG	
- DISK LOADING -			
	REQ	CHG	
Message	REQ	Message Number (0 ~ 9) + [space] + Message or NONE	1 & 2

**NOTES:**

1. The system will output a space after the MSG number is entered, followed by an existing message (if no message exists, then this will remain blank) and another space. Enter the new message or NONE (to delete the message).
2. The characters available for messages are 0 ~ 9, A ~ Z, [space], :, -, +, /.
3. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

**Error Codes**

Program Name: Alphanumeric Message Data Block (DMSG)	
Error Code	Meaning
ERMSG 00	Message is too long (maximum: 16).
ERMSG 01	Message can only use: 0 ~ 9, A ~ Z, [space], :, -, +, /.

**2. Print Alphanumeric Data Block (Table 16-2)**

**ALL**—The system will output all messages in the system (0 ~ 9).

**2.01 To use the Print Alphanumeric Data Block (PMSG Program):**

**MSGX**—Message X will be output.

- Perform the Authorization Procedure (Level 1, 2, or 3).  
 Enter: PMSG (in response to the OK prompt).
- When the REQ prompt is received after the program is loaded:  
 Enter: One of the following commands:

**TABLE 16-2**

**Procedure — Print Message Center Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows.

ITEM	PROMPT	USER ENTRY	NOTE
	OK	PMSG	
- DISK LOADING -			
	REQ		1

**NOTES:**

1. The following responses are possible:
  - ALL = Outputs all messages.
  - MSG X = Outputs message X.
2. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.





**CHAPTER 17**

**MAINTENANCE PROCEDURES**

**1. General**

**1.01** The Maintenance Procedures assist with the administration and maintenance of the system.

**1.02** Four programs are provided:

- Back-up Memory Entry Procedure—**DMYC**
- Data Dump—**DDMP**
- Electronic Telephone/Attendant Console Test—**TTRM**
- Peripheral Equipment Test—**TPER**.

**1.03** The **DDMP** and **TTRM Programs** are available to users of Levels 1, 2, and 3, while the **DMYC** and **TPER Programs** require Level 1 or 2 authorization.

**2. Backup Memory Check Entry Procedure (Table 17-1)**

**2.01** The **DMYC Program** checks the system's memory. To use the **DMYC Program**:

- Perform the Authorization Procedure (Level 1 or 2).  
Enter: **DMYC** (in response to the OK prompt).
- When an **REQ** prompt is received after the program is loaded:  
Enter: **CHK**.
- The system will respond with **MYR CHK** and the process will begin.

*NOTE:*

*The memory check will delete all data relating to Lodging/Health Care telephones (i.e., Room Status, Message Waiting, and Message Registration).*

- The system will print **DONE** when the memory check is complete.
- If the memory check fails, the system will respond with:  
**ERROR**  
**ADRS = XXXH**  
**COL = XXH.**

**TABLE 17-1**

**Procedure — Backup Memory Check Entry Procedure**

Authorization Procedure must be completed. If an OK response is received, proceed as follows.

ITEM	PROMPT	USER ENTRY	NOTE
	OK	DMYC	
- DISK LOADING -			
	REQ	CHK	1
Memory Check	MYR CHK		2
Memory Checked out OK	DONE		
Memory Check Failed	ERROR		
	ADRS = XXXH		
	COL = XXH		

**NOTES:**

1. *Caution: Responding to this prompt will start the memory check and will delete all data relating to Lodging/Health Care telephones, (i.e., Room Status, Message Waiting, and Message Registration).*
2. *The system is performing a memory check. Wait for the next prompt before pressing any buttons.*
3. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

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**3. Data Dump Program (Table 17-2)**

**3.01** The **DDMP Program** transfers the contents of the system data memory to the disk for permanent storage.

**3.02** Using this program has the same effect as responding "Y" to the SAV prompt that is given when a data input program is exited. The current data that is then residing in system memory will be written on the disk, thereby replacing any previously-recorded data.

**3.03** It is possible, via the System Data Block, to specify the **DDMP Program** as a daily routine and to cause the data to be recorded daily. This en-

ables the speed dialing information that has been entered by the attendant console or station user to be captured on the disk.

**3.04** This program is also useful for updating a spare disk. To use the **DDMP Program** manually (refer to Table 17-2):

- Perform the Authorization Procedure (Level 1, 2, or 3).  
Enter: DDMP (in response to the OK prompt).
- The system will respond with DPG and then the dumping process will begin.
- The system will print DUN when the data transfer is complete.
- No other input is required.

**TABLE 17-2**

**Procedure — Data Dump Program**

Authorization Procedure must be completed. If an OK response is received, proceed as follows.

ITEM	PROMPT	USER ENTRY	NOTE
	OK	DDMP	
	DPG (Y/N)	Y or N	1
	DUN		2 & 3

**NOTES:**

1. Enter Y to perform data dump. Enter N to abort.
2. Data dump is complete.
3. The system will automatically exit the program.
4. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

*Insert [unclear] [unclear]*

#### **4. Electronic Telephone/Attendant Console Test (Tables 17-3 ~ 17-4)**

**4.01** When the **TTRM Program** has been loaded, a test sequence can be performed at the Attendant Consoles and electronic telephones. The test is designed to check all functions of the terminals in a time-efficient manner.

**4.02** To use the **TTRM Program** (refer to Tables 17-3 and 17-4):

- Perform the Authorization Procedure (Level 1, 2, or 3).  
Enter: TTRM (in response to the OK prompt).
- REQ will be printed when the program has loaded.

**4.03** Proceed to the electronic telephone or console that is to be tested. The test is performed as follows:

a) **Electronic Telephone:**

- Press the **DN** button to obtain dial tone.
- Dial **\*TEK (\*835)** on the dialpad.
- The system will respond by lighting all electronic telephone LEDs.
- Operate the buttons and observe the responses in the sequence shown in Table 17-3.

b) **Attendant Console:**

- Press the **LPK** button in order to obtain dial tone.
- Dial **\*TAT (\*828)** on the dialpad.
- The system will respond by lighting all BLF LEDs.
- Operate the buttons and observe the responses in the sequence shown in Table 17-4.

c) **When all electronic telephones and console(s) have been tested, exit the program:**

Enter: **DEL DEL**.

**TABLE 17-3**

**Procedure — Electronic Telephone Test Procedure**

Authorization Procedure must be completed. If an OK response is received, proceed as follows.

ITEM	PROMPT	USER ENTRY	NOTE
	OK	TTRM	
- DISK LOADING -			
	REQ		1

**NOTE:**

The program is now active. Proceed to the Electronic Telephone to be tested, go off-hook, and enter **\*TEK (\*835)** via the dialpad. Enter the following commands in sequence:

ENTRY	ELECTRONIC TELEPHONE RESPONSE	ENTRY	ELECTRONIC TELEPHONE RESPONSE
<b>*TEK</b>	All LEDs = On	Button 2	LED 2 = On (1 = Off)
Handset off-hook	All LEDs = Flash (60 Hz)	Button 3	LED 3 = On (2 = Off)
Handset on-hook	All LEDs = Wink (120 Hz)	Button 4	LED 4 = On (3 = Off)
<b>SPKR</b> button on	All LEDs = Off	Button 5	LED 5 = On (4 = Off)
<b>SPKR</b> button off	All LEDs = I-hold	Button 6	LED 6 = On (5 = Off)
<b>MIC</b> button on <sup>1</sup>	All LEDs = Off	Button 7	LED 7 = On (6 = Off)
<b>MIC</b> button on <sup>1</sup>	All LEDs = I-use	Button 8	LED 8 = On (7 = Off)
<b>CONF</b> button on	All LEDs = Off	Button 9	LED 9 = On (8 = Off)
<b>CONF</b> button off	SPKR LED = On	Button 10	LED 10 = On (9 = Off)
<b>HOLD</b> button on/off	SPKR LED = Off	Button 11	LED 11 = On (10 = Off)
Dial <b>1</b>	LED 0 = On	Button 12	LED 12 = On (11 = Off)
Dial <b>2</b>	LED 1 = On (0 = Off)	Button 13	LED 13 = On (12 = Off)
Dial <b>3</b>	LED 2 = On (1 = Off)	Button 14	LED 14 = On (13 = Off)
Dial <b>4</b>	LED 3 = On (2 = Off)	Button 15	LED 15 = On (14 = Off)
Dial <b>5</b>	LED 4 = On (3 = Off)	Button 16	LED 16 = On (15 = Off)
Dial <b>6</b>	LED 5 = On (4 = Off)	Button 17	LED 17 = On (16 = Off)
Dial <b>7</b>	LED 6 = On (5 = Off)	Button 18	LED 18 = On (17 = Off)
Dial <b>8</b>	LED 7 = On (6 = Off)	Button 19	LED 19 = On (18 = Off)
Dial <b>9</b>	LED 8 = On (7 = Off)	Handset off-hook	Dial tone on handset (19 = Off)
Dial <b>0</b>	LED 9 = On (8 = Off)	Handset on-hook	Dial tone through speaker <sup>2</sup>
Dial <b>*</b>	All LEDs = On	<b>SPKR</b> button	Ringing through speaker <sup>3</sup>
Dial <b>#</b>	All LEDs = Off	<b>SPKR</b> button	Override tone through speaker
Button 0 <sup>1</sup>	LED 0 = On	<b>SPKR</b> button	End of test, electronic telephone idle
Button 1	LED 1 = On (0 = Off)		

(continued)

TABLE 17-3 (continued)

NOTES:

1. The button strip test begins with the bottom button.
2. Check the bottom right-hand volume control on speakerphone electronic telephones.
3. Check the upper right-hand volume control on speakerphone electronic telephones.
4. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

**TABLE 17-4**

**Procedure — Attendant Console Test Procedure**

Authorization Procedure must be completed. If an OK response is received, proceed as follows.

ITEM	PROMPT	USER ENTRY	NOTE
	OK	TTRM	
- DISK LOADING -			
	REQ		1

		ENTRY	CONSOLE RESPONSE				
<b>I T A T</b>	All BLF LEDs = On	<b>EXCL SRC*</b>	Associated LED = On, Others = Off				
<b>BLF</b> button	All BLF LEDs = Off	<b>EXCL DEST*</b>	Associated LED = On, Others = Off				
Dial <b>1</b>	ICI TIE & STAT RING = On	<b>VER/CRG*</b>	Associated LED = On, Others = Off				
Dial <b>2</b>	ICI CO & STAT BSY = On, Others = Off	<b>OVERFLOW*</b>	Associated LED = On, Others = Off				
Dial <b>3</b>	ICI WAT & STAT FWD = On, Others = Off	<b>CONF*</b>	Associated LED = On, Others = Off				
Dial <b>4</b>	ICI FX & STAT DND = On, Others = Off	<b>BUZZ*</b>	Associated LED = On, Others = Off				
Dial <b>5</b>	ICI INT & STAT RST = On, Others = Off	<b>SPARE*</b>	Associated LED = On, Others = Off				
Dial <b>6</b>	ICI RCL & STAT HNT = On, Others = Off	<b>POS BSY*</b>	Associated LED = On, Others = Off				
Dial <b>7</b>	ICI OPR & STAT VCT = On, Others = Off	<b>NITE*</b>	Associated LED = On, Others = Off				
Dial <b>8</b>	ICI TIM & STAT TLK = On, Others = Off	Dial <b>1</b>	TGB 0 = On	SRC	COS	DEST = 1	**1
Dial <b>9</b>	ICI SER = On, Others = Off	Dial <b>2</b>	TGB 1 = On	—	—	12	**2
Dial <b>0</b>	ICI HLD = On, Others = Off	Dial <b>3</b>	TGB 2 = On	—	—	123	**3
Dial <b>1</b>	ICI LN1 = On, Others = Off	Dial <b>4</b>	TGB 3 = On	—	1	234	**4
Dial <b>2</b>	ICI LN2 = On, Others = Off	Dial <b>5</b>	TGB 4 = On	—	12	345	**5
<b>RLS*</b>	Associated LED = On, Others = Off	Dial <b>6</b>	TGB 5 = On	1	23	456	**6
<b>LPK1*</b>	Associated LED = On, Others = Off	Dial <b>7</b>	TGB 6 = On	12	34	567	**7
<b>LPK2*</b>	Associated LED = On, Others = Off	Dial <b>8</b>	TGB 7 = On	123	45	678	**8
<b>LPK3*</b>	Associated LED = On, Others = Off	Dial <b>9</b>	TGB 8 = On	888	88	888	**9
<b>LPK4*</b>	Associated LED = On, Others = Off	Dial <b>0</b>	TGB 9 = On	Off	Off	Off	**0
<b>PAGE*</b>	Associated LED = On, Others = Off	Dial <b>1</b>	All LEDs = Off, busy tone via handset				
<b>JOIN*</b>	Associated LED = On, Others = Off	Dial <b>2</b>	Buzzer via speaker (check volume control)				
<b>SP DIAL*</b>	Associated LED = On, Others = Off	<b>RLS SRC*</b>	MIN ALM = On, Others = Off				
<b>SER CALL*</b>	Associated LED = On, Others = Off	<b>RLS DEST*</b>	MDR LED = On, Others = Off				
<b>MSG*</b>	Associated LED = On, Others = Off	<b>DIS TOD*</b>	CW LED = On, Others = Off				
<b>HOLD*</b>	All LEDs = Off	<b>RLS*</b>	End of test, console = Night				

\* = Button    \*\* = BLF Indication

TABLE 17-4 (continued)

NOTES:

1. The program is now active. Proceed to the Attendant Console to be tested, press an **LPK** button, and enter **\*TAT (\*828)** via the dialpad. Enter the following commands in sequence:
2. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

**5. Peripheral Equipment Test (Table 17-5)**

**5.01** The **TPER Program** is designed to aid in fault location by disabling and enabling various PCBs and circuits. When a faulty circuit or PCB has been located, it is left disabled until it can be replaced in order to prevent it from interfering with normal system operation.

**5.02** It is also possible, with the **TPER Program**, to determine the busy/idle status of any station, trunk, or DTMF receiver port. To use the **TPER Program** (refer to Table 17-5):

- Perform the Authorization Procedure (Level 1 or 2).  
Enter: TPER (in response to the OK prompt).
- REQ will be printed when the program has loaded.  
Enter: One of the following commands:

**DSCDXXX**—Disables PCB XXX regardless of busy/idle status (XXX = TXX, LXX, CXX, or RXX); lights PCB FALT LEDs, and returns the REQ prompt.

**DSTKNNX**—Disables trunk NNX if it is idle (NN = trunk PCB number, i.e., T01 = 01; X = circuit number on that PCB, i.e., 1 ~ 4), lights the FALT LED relating to that circuit (FALT #1 for circuits 1 & 2; FALT #2 for circuits 3 & 4), and returns the REQ prompt.

**DSLCCNX**—Disables station circuit NNX if it is idle (NN = station PCB number, i.e., L04 = 04; X = circuit number on that PCB, i.e., 1 ~ 8), lights the FALT LED relating to that circuit (FALT #1 for circuits 1 ~ 4; FALT #2 for circuits 5 ~ 8), and returns the REQ prompt.

**ENCDXXX**—Enables PCB XXX (XXX = TXX, LXX, CXX, or RXX), turns FALT LEDs off, and returns the REQ prompt.

**ENTKNNX**—Enables trunk NNX (NN = trunk PCB number; X = circuit number on that PCB), turns FALT LEDs off unless other circuit is still disabled, and returns the REQ prompt.

**ENLCNNX**—Enables station line circuit NNX (NN = trunk PCB number; X = circuit number on that

PCB), turns FALT LEDs off unless the other circuits are still disabled, and returns the REQ prompt.

**DSDSNNX**—Disables DSS console circuit NNX (NN = PCB number; X = circuit number), lights the FALT LED relating to that circuit, and returns the REQ prompt.

**ENDSNNX**—Enables DSS console circuit NNX (NN = PCB number; X = circuit number), turns FALT LEDs off if all circuits are enabled, and returns the REQ prompt.

**DSRCNNX**—Disables DTMF receiver circuit 00X/01X if it is idle (R00 = basic cabinet /R01 = expansion cabinet; X = DTMF Receiver circuit in that cabinet, 1 ~ 8), lights the FALT LED on the NPRU PCB relating to that circuit (FALT #1 for circuits 1 & 2; FALT #2 for circuits 3 & 4; FALT #3 for circuits 5 & 6; and FALT #4 for circuits 7 & 8), and returns the REQ prompt.

**ENRCNNX**—Enables DTMF receiver 00X/01X (00/01 = PCB number R00; X = circuit number in that cabinet, 1 ~ 8), turns the FALT LED off unless the other circuit is still disabled, and returns the REQ prompt.

**DSCIXXX**—Disables each circuit on the PCB as it becomes idle, lights the appropriate FALT LED as circuits are disabled, and returns the REQ prompt.

**LIPS**—Prints out a list of all system ports (DTMF receivers, DSS consoles, stations, and trunks) that are idle at the time that the command is entered, and returns the REQ prompt when the printout is complete.

**LBPS**—Prints out a list of all system ports (DTMF receivers, DSS consoles, stations, and trunks) that are busy at the time that the command is entered, and returns the REQ prompt when the printout is complete.

**LDPS**—Prints out a list of all system ports (DTMF receivers, DSS consoles, stations, and trunks) that are in a disabled state at the time that the command is entered, and returns the REQ prompt



when the printout is complete.

**STLCNNX**—Gives the status of station line circuit NNX (NN = station line PCB number; X = circuit number on that PCB). The output format will be a combination of two items. (See Notes 1 and 2.)

Station Type <sup>1</sup>	Status <sup>2</sup>
EKT	BSY
ATT	DIS TTY
UNEQ	DIS CBL
UNAS	DIS TLD
Example: REQ	STLC002 CKT 2 EKT IDL

- Returns the REQ prompt when the printout is complete.

**STTKNNX**—Gives the status of trunk circuit NNX (NN = trunk PCB number; X = circuit number on that PCB). The output format will be a combination of two items. (See Notes 1 and 2.)

Trunk Type <sup>1</sup>	Status <sup>2</sup>
CO	IDL
FX	BSY
WAT	DIS TTY
TIE	DIS TLD
CCSA	
UNEQ	
UNAS	
Example: REQ	STTK001 CKT 1 TIE IDL

- Returns the REQ prompt when the printout is complete.

**STDSNNX**—Gives the status of DSS circuit NNX (NN = PCB number; X = circuit number). The output format will be IDL, BSY, DIS TTY, DIS CBL, DIS TLD. (See Notes 1 and 2.)

Example:

```
REQ   DSSC001
      CKT 1 IDL
```

- Returns the REQ prompt when the printout is complete.

**STRCNNX**—Gives the status of DTMF receiver

00X/01X (00/01 = receiver PCB number R00/R01; X = circuit number in that cabinet). The output format will be IDL, BSY, DIS TTY, DIS TLD, UNEQ, UNAS. (See Notes 1 and 2.)

Example:

```
REQ   STRC001
      CKT 1 IDL
```

- Returns the REQ prompt when the printout is complete.

**NOTES:**

1. Type: *UNEQ = No PCB in that position.*  
*UNAS = PCB is equipped but no data is assigned.*
2. Status: *IDL = Idle.*  
*BSY = Busy.*  
*DIS TTY = Manually disabled via TTY.*  
*DIS CBL = Electronic telephone port disabled by software, due to open cable.*  
*DIS TLD = Software disabled due to traffic load (indicates faulty PCB).*

**STCDXXX**—Gives the status of all circuits on PCB XXX (XXX = PCB location LXX, CXX, TXX, or R00/01). Printout formats will be the same as for STLC, STTK, and STRC commands, but will list all circuits on that PCB in order of circuit number.

- Returns the REQ prompt when the printout is complete.

**CALL TNNX**—(Sets up a monitor link from Trunk NNX to the remote test center):

- This command is used at a remote test center to establish an audio link between the system and the test center. The object is to command the system to select a particular trunk (A) and to dial the number of a telephone at the test center. When the call is answered, a 440 Hz tone will be heard.
- Once a monitor link has been established, other trunks can be tested. The trunk to be tested (B) is seized by the keyboard terminal command and then the test number (for example: time, weather, tone, etc.) to be dialed is entered via the terminal. The audio responses are monitored at the test center.

## PROGRAMMING PROCEDURES

### SECTION 200-255-300

AUGUST 1989

- The set-up sequence includes several steps that are led by system prompts. Following the entry CALL TNNX, the system prompts will be as follows:

**WAIT**—Indicates that the first command was received. A carriage return must be entered in order to advance the program.

Enter: **CR**.

**STS TLK, WAIT, or OVR (Status)**—Gives the status of the requested trunk.

- STS TLK will be output if the trunk was idle and has now been seized. The program will automatically advance to the next prompt (DN).
- STS WAIT indicates that the requested trunk is busy. The program will automatically return to the WAIT prompt.

Enter: **CR** to access the same trunk again or **DEL CR** to return to the REQ prompt.

- STS OVR indicates that the requested trunk does not exist in the system.

Enter: **DEL CR** to return to the REQ prompt.

**DN (Directory Number)**—The system is requesting the number of the telephone to be called at the test center.

Enter: DN followed by a **CR**.

**STS TLK, DDL, or RLSA (Status)**—Gives the status of the connection.

- STS TLK will be output if the dialing is complete, and the program will automatically advance to the next prompt (TRK).
  - STS DDL indicates that the trunk was still dialing when **CR** was entered.
- Enter: **CR** to advance the program.
- STS RLSA indicates that Trunk A was disconnected due to a malfunction or some outside influence, such as the distant end going on-hook on a ground start trunk. After printing STS RLSA, the program will automatically return to the REQ prompt.

**TRK (Trunk)**—At this point, the monitor link to the test center (using Trunk A) has been established (a 440 Hz tone is heard when Trunk A is answered at the remote test center), and the sys-

tem is requesting the identity of a trunk to be tested.

Enter: CALL TNNX (TNNX = port number of the trunk to be tested; 440 Hz tone removed).

**WAIT**—Indicates that the command was received. A carriage return must be entered to advance the program.

Enter: **CR**.

**STS TLK, BSY, OVR, or RLSA (Status)**—Gives the status of the connection.

- STS TLK will be output if the requested trunk was idle and has now been seized. The program will automatically advance to the next prompt (DN).
- STS BSY indicates that the requested trunk is busy. The program will automatically return to the TRK prompt above in order to allow another trunk to be selected.
- STS OVR indicates that the requested trunk does not exist in the system. The program will automatically return to the TRK prompt above to allow another trunk to be selected.
- STS RLSA is output if the monitor link trunk (A) was disconnected due to a malfunction or some outside influence, such as the distant end going on-hook. After printing STS RLSA, the program will automatically return to the REQ prompt.

**DN (Directory Number)**—The trunk under test (B) has been seized and the system is requesting the number to be dialed (time, weather, tone, etc.).

Enter: DN followed by a **CR**.

**DDL (Dialing)**—The system is dialing via Trunk B. When dialing is complete, progress tones (ringing, etc.) will be heard over Trunk B via the monitor link (Trunk A). When the test is complete, enter **CR** to release Trunk B and to return to the TRK prompt.

Enter: **CR**.

**STS TLK, DDL, RLSA, or RLSB (Status)**—Gives the status of the connection.

- STS TLK will be printed in response to a **CR** entered following the above dialing prompt.

The **CR** released the trunk under test (B), therefore the output indicates the status of the monitor link (A). The program will automatically return to the TRK prompt in order to allow another trunk to be selected.

- STS DDL will be printed if a **CR** was entered before dialing was complete. This state is the same as DDL above.
- STS RLSA will be printed if the monitor link (A) is released due to a malfunction or some outside influence. The trunk under test (B) will also be released and the program will automatically return to the REQ prompt .
- STS RLSB will be printed if the trunk under test (Trunk B) is released due to a malfunction or some outside influence. The program will automatically return to the TRK prompt in order to allow another trunk to be selected.

Example: Monitor link trunk (A) = T014  
 Test center DN = 730-5000  
 Test DN = 730-0002  
 Trunk under test (B) = T012.

PROMPT	USER ENTRY
OK	TPER
-DISK LOADING-	
REQ	CALL T014
WAIT	<b>CR</b>
STS TLK	
DN	7305000
DDL	<b>CR</b>
STS TLK	(440 Hz tone heard)
TRK	CALL T021
WAIT	<b>CR</b>
STS TLK	
DN	7300002
DDL	<b>CR</b>
STS TLK	(Time, Weather, Tone)
TRK	CALL TNNX(new test)
	...or...
	<b>CR</b> (end of test)

**TABLE 17-5**

**Procedure — Peripheral Equipment Diagnostic Procedure**

Authorization Procedure must be completed. If an OK response is received, proceed as follows.

ITEM	PROMPT	USER ENTRY	NOTE
	OK	TPER	
- DISK LOADING -			
	REQ		1

**NOTE:**

See Table 17-5a for possible entries. The REQ prompt will repeat following each test. Enter as many separate entries as required.

**TABLE 17-5a**  
**TRUNK STATUS ENTRIES**

ENTRY	DESCRIPTION	RESPONSE	
DSCDXXX	Disable PCB XXX immediately	PCB disabled, FAULT LEDs on	
DSTKNNX	Disable Trunk NNX*	TRK disabled, FALT LED on, REQ prompted	
DSLNNX	Disable Line Circuit NNX*	Line disabled, FALT LED on, REQ prompted	
ENCDXXX	Enable PCB XXX	PCB enabled, FALT LEDs off, REQ prompted	
ENTKNNX	Enable Trunk NNX*	Trunk enabled, FALT LED off if all circuits are enabled, REQ prompted	
ENLNNX	Enable Line NNX*	Station line enabled, FALT LED off if all circuits are enabled, REQ prompted	
DSDSNNX	Disable DSS Circuit NNX*	DSS disabled, FALT LED ON, REQ prompted	
ENDSNNX	Enable DSS Circuit NNX*	DSS enabled, FALT LED off if all circuits are enabled, REQ prompted	
DSRCNNX	Disable RCVR NNX*	RCVR disabled, FALT LED ON, REQ prompted	
ENRCNNX	Enable RCVR Circuit NNX*	RCVR enabled, FALT LED off if all circuits are enabled, REQ prompted	
DSCIXXX	Disable PCB XXX when idle	Each port disabled when idle, FALT LEDs on	
LIPS	List all idle ports	Idle ports = LNNX, TNNX, etc., REQ prompted	
LBPS	List all busy ports	Busy ports = LNNX, TNX, etc., REQ prompted	
LDPS	List all disabled ports	Disabled ports = LNNX, TNNX, etc., REQ prompted	
STLCNNX	Status of Line Circuit NNX*	<b>Type (Note 1)</b> 500/2500 Electronic Telephone UNEQUIPMENT UNASSIGNED	<b>Status (Note 2)</b> IDL, BSY DIS CBL DIS TTY DIS TLD REQ prompted
STTKNNX	Status of TRK NNX*	<b>Type (Note 1)</b> WAT FX TIE CO CCSA UNEQ UNAS	<b>Status (Note 2)</b> IDL BSY DIS TTY DIS TLD REQ prompted
STDSNNX	Status of DSS NNX*	<b>Type (Note 1)</b>	<b>Status (Note 2)</b> IDL, BSY DIS CBL DIS TTY DIS TLD
STRCNNX	Status of RCVR 00X*	Status = IDL, BSY, DIS TTY, DIS TLD, UNEQ, UNAS, REQ prompted	
STCDXXX	Status of PCB XXX	Circuit #1 = Same as STLC, STTK, STRC	
		Circuit #2 = Same as STLC, STTK, STRC	
		Circuit #3 = Same as STLC, STTK, STRC	
		Circuit #4 = Same as STLC, STTK, STRC, REQ prompted	

\*NN - PCB number    X = Circuit number

**TABLE 17-5a (continued)**

ENTRY	DESCRIPTION	RESPONSE		
		SYSTEM	USER ENTRY	NOTE
CALL TNNX	Sets up monitor link using TNNX	WAIT	<b>CR</b>	4
		STS TLK...or...	Automatic Advance to DN Prompt	
		STS WAIT...or...	<b>CR</b>	5
		STS OVR	<b>DEL CR</b>	6
		DN	<b>DN CR</b>	7
		DDL	<b>CR</b>	8
		STS TLK...or...	Automatic advance to TRK prompt	9
		STS RLSA...or...	Automatic return to REQ prompt	10
		STS DDL	<b>CR</b>	11
		TRK	Call TNNX	12
		WAIT	<b>CR</b>	4
		STS TLK...or...	Automatic advance to DN prompt	13
		STS RLSA...or...	Automatic return to REQ prompt	10
		STS BSY...or...	Automatic return to TRK prompt	14
		STS OVR	Automatic return to TRK prompt	15
		DN	<b>DN CR</b>	16
		DDL	<b>CR</b> when test is complete	17
		STS TLK...or...	Automatic return to TRK prompt	18
		STS RLSA...or...	Automatic return to REQ prompt	10
		STS RLSB...or...	Automatic return to TRK prompt	19
STS DDL	<b>CR</b>	20		

**NOTES:**

1. Type: *UNEQ = No PCB in that position.*  
*UNAS = PCB equipped but no data is assigned.*
2. Status: *IDL = Idle.*  
*BSY = Busy.*  
*DIS TTY = Manually disabled via TTY.*  
*DIS CBL = Electronic telephone port disabled by software due to open cable.*  
*DIS TLD = Software disabled due to traffic load (indicates faulty PCB).*
3. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.
4. **CR** is required to advance program.
5. Requested trunk (A) is busy. Enter **CR** to try again.
6. Requested trunk (A) does not exist in the system. Enter **DEL CR** to return to the REQ prompt.
7. Enter the test center DN followed by **CR**.
8. Allow time for completion of dialing and then enter **CR**.
9. Dialing is complete; program advances to TRK prompt.
10. Trunk A (monitor link) has been released due to a malfunction or an outside influence, such as the distant end going on-hook (ground start).

**TABLE 17-5a (continued)**

11. Dialing was not complete when **CR** was entered. A second **CR** is required.
12. Enter the port number (TNNX) of the trunk (B) to be tested.
13. Requested trunk was idle and has been seized.
14. Requested trunk (B) is busy.
15. Requested trunk (B) does not exist in the system.
16. Enter the DN that should be dialed by the trunk under test, followed by a **CR**.
17. After the dialing is complete, the audio from the trunk under test will be heard via the monitor link. Enter **CR** when the test is complete.
18. The test has ended. The program will automatically return to the TRK prompt to allow another trunk to be selected.
19. The trunk under test (B) was released due to a malfunction or outside influence, such as the distant end going on-hook (ground start).
20. **CR** was entered while Trunk B was still dialing. (See note 17.)

**Error Codes**

Program Name: Peripheral Diagnostic Data Block (TPER)	
Error Code	Meaning
ERTPE 00	The PCB type conflicts with customer data.
ERTPE 01	A PCB is not equipped in that location (enable).
ERTPE 02	The cable is open or the port is inhibited by heavy traffic (enable).
ERTPE 03	The entered port is a maintenance terminal (enable).
ERTPE 04	No PCB is equipped in that location (disable).
ERTPE 05	The port is busy.
ERTPE 06	The PCB number or electronic telephone number is out of range.
ERTPE 07	The PCB type is not an NSTU or NEKU.
ERTPE 08	The PCB type is not a Trunk.
ERTPE 09	The PCB type is not a DTMF receiver.
ERTPE 11	No PCB is equipped in that location (inhibit).
ERTPE 13	No PCB is equipped in that location (REQ = CALL TNNX).

**TABLE 17-6**  
**DISK DRIVE OPERATION ERROR CODES**  
**Error Codes**

<b>Program Name: Floppy Disk Drive Error</b>	
<b>Error Code</b>	<b>Meaning</b>
ERFD 01	File is closed.
ERFD 02	Read error.
ERFD 03	Write error.
ERFD 04	Directory is full.
ERFD 05	Disk is full.
ERFD 06	End-of-file error.
ERFD 07	Disk drive is not ready.
ERFD 08	Incorrect version number.
ERFD 09	File is write-protected.
ERFD 10	File not found.
ERFD 11	Volume not initialized.
ERFD 12	File already exists.
ERFD FF	Other hardware is causing the error.





# ***Perception<sup>®</sup>e & ex***

## **OPERATING PROCEDURES**



**PERCEPTION<sub>e&ex</sub>  
OPERATING PROCEDURES  
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Digital Hybrid/PBX

User Guide

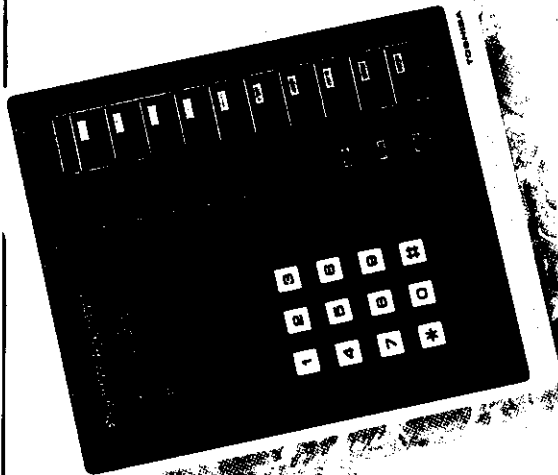
Digital Interface Unit-MA

## GENERAL INFORMATION

The Digital Data Interface Unit-MA (DDIU-MA) has been designed to provide Integrated Data Switching while maintaining easy access to the wide range of features offered by your Toshiba telephone system. The DDIU features manual dialing via the push-button dial pad and automatic answering (controlled by the intelligent interface).

The DDIU-MA provides the user with the capability to interface with Data Terminal and Data Communications Equipment. The DDIU uses a local AC power adapter (included). A power switch located on the bottom of the unit should be turned on at all times.

The DDIU-MA is a stand alone unit that provides "data only" interfacing, when simultaneous voice and data transmission is not needed. It is connected to the Perception system via a 2-conductor modular line cord.



## DDIU-MA DISPLAYS

## LED Displays:

**TERMINAL READY:** Indicates that the terminal is ready to transmit.

**DIAL:** Lights when dialing is in progress.

**RING:** Lights when DDIU is ringing another terminal.

**CONNECT:** Indicates that the DDIU is connected to another data station. The LED will remain on until the **RLS** key is activated.

**BUSY:** Indicates that the DDIU has reached a busy terminal.

**DIAL ERROR:** Indicates that there has been a dialing error.

## LED/Key Displays:

**TRANSFER:** Not used.

**HOLD:** Not used.

**RLS:** Releases the DDIU from any connection.

DDIU-MA OPERATION  
AUTOMATIC CALLBACK

If you attempt to call another DDIU and the BUSY LED lights, you can request to be signalled when the desired data station is idle. You may continue to use your DDIU in the usual manner while awaiting a callback.

**TO ACTIVATE AUTOMATIC CALLBACK:**

- 1) Press the **ACB** key.
  - The DIAL LED will light.
  - The ACB LED will light.
- 2) Press the **RLS** key to release the connection, and wait for the callback.
  - The DIAL LED will go off.

**TO ANSWER AUTOMATIC CALLBACK:**

- 1) When the desired connection becomes idle:
  - The DDIU will signal once.
  - The ACB LED will flash.
  - The DN LED will flash.
- 2) You must pick up the call within six seconds or your request will be cancelled.
  - 3) Press the data DN.
    - The called DDIU will be signalled.
    - The DIAL LED will light on your DDIU.
- 4) If your DDIU's BUSY LED lights, this indicates that the DDIU you called has been previously called. Press the **RLS** key and wait to be called again.

**TO CANCEL AUTOMATIC CALLBACK:**

- Press the **ACB** key.
- The ACB LED will go out.
  - Callback will be cancelled.



## AUTOMATIC DIALING

The Automatic Dialing **ADL** button allows you to automatically dial any DDIU number (up to 16 digits) by pressing a single button. Digital Interface units with Flexible Automatic Dialing may also store and change DDIU numbers. Units with Fixed Automatic Dialing have fixed DDIU numbers which can only be changed in programming.

### TO DIAL A STORED DDIU NUMBER:

- 1) Press the data DN.
  - The DIAL LED will light.
- 2) Press the **ADL** key.
  - The DIAL LED will go out.
  - The RING LED will light.
  - The DDIU number will be dialed.

### TO STORE A DDIU NUMBER:

(For units with Flexible Automatic Dialing)

- 1) Press the **ADL** key.
  - The ADL LED will flash.
- 2) Dial the DDIU number to be stored.
- 3) Press the **ADL** key.
  - The ADL LED will go out and the DDIU number will now be stored.

## DO NOT DISTURB

This feature allows a DDIU to give a busy indication whenever the user does not want to be disturbed.

### TO ACTIVATE DND:

- Press the **DND** key.
- The DND LED will light.

### TO CANCEL DND:

- Press the **DND** key.
- The DND LED will go out.
  - The Do Not Disturb feature will no longer be active.

## MAKING A DATA STATION CALL

### TO CALL ANOTHER DDIU:

- 1) Press the data Directory Number (DN)
  - The DIAL LED will light.
- 2) Dial the data station's number.
  - The DIAL LED will go out.
  - The RING LED will light.
- 3) When the data station is connected:
  - The RING LED will go out.
  - The CONNECT LED will light.
- 4) Data will now be transmitted.
- 5) Press the **RLS** key when the data transfer is completed.
  - The CONNECT LED will go out.
  - The DDIU-MA will automatically disconnect if no data is transferred for 18 minutes.

## REPEAT LAST NUMBER DIALED

The system will automatically store the last number that you dialed. This allows you to redial a busy DDIU by simply pressing the RND button.

### TO REDIAL THE LAST NUMBER:

- 1) Press the data DN.
  - The DIAL LED will light.
- 2) Press the **RND** key.
  - The DIAL LED will go out.
  - The RING LED will light.
  - The system will automatically redial the number.



**Digital Hybrid/PBX****User Guide****DSS Console &****Attendant-Position****Electronic Telephone**

# TOSHIBA

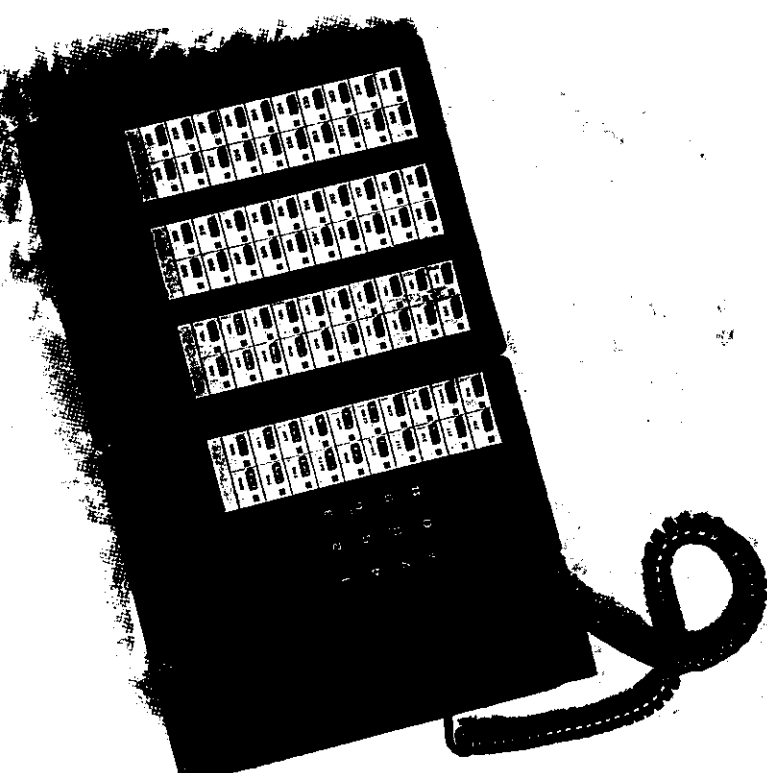
## Direct Station Selection Console and Attendant-Position Electronic Telephone User Guide

The PERCEPTION<sup>®</sup> & ex Direct Station Selection Console and Attendant Telephone allow a station user to perform many functions that are normally performed by an attendant console.

A DSS console allows calls to be received and directed to specific stations, and provides immediate information about station status. Each console's 60 programmable buttons can be assigned to access either specific calling features or fixed or switched directory numbers. If two consoles are assigned to a telephone set, 120 buttons are available for programmed use.

An electronic telephone that is an assigned Attendant-Position Electronic Telephone has access to several important attendant console features, including the assignment and cancellation of a Meet-Me Page, the assignment of a Remote Access Code, the system-wide cancellation of registered Call Forwards, and the ability to alternate day and night system operation.

This user's guide outlines the information that you will need to know to perform all of these various operations from your electronic telephone.



## DIRECT STATION SELECTION (DSS) BUTTON OPERATION

All DSS console buttons are assigned in programming. Buttons can be assigned to access either switched or fixed directory numbers (DNs) or calling features.

### BUTTONS ASSIGNED TO FEATURES:

A list of features that are available for DSS button assignment is shown below. The operation of each of these features is identical to its operation on an electronic telephone without a DSS console connection. Refer to the PERCEPTION<sup>ex</sup> Electronic Telephone User Guide for procedures regarding the operation of each of these features.

Account Number	Manual Signaling
Alphanumeric Message	Message Waiting
Automatic Callback	Override
Automatic Dialing, Fixed or Flexible	Paging, External
Call Forward-All Calls	Paging, Internal
Call Forward-Busy	Privacy Release
Call Forward-Busy/No Answer	Release
Call Forward-No Answer	Repeat Last Number
Call Forward-Busy (System/DID)	Dialed
Call Forward-Busy/No Answer (System/DID)	Speaker Cut-off
Call Park	Speed Dial - System
Call Pickup Directed	Speed Dial - Station
Call Pickup Group	Station-to-Station
Do Not Disturb	Message
Flash	Universal Night Answer
	VCP

### BUTTONS ASSIGNED FOR DIRECT STATION SELECTION:

DSS buttons can be assigned as either fixed or switched. Calling procedures for both DSS types are identical except for the difference explained in the following paragraphs.

## BUTTON OPERATION (continued)

### Buttons Assigned as Fixed Directory Numbers:

Fixed DSS console buttons are permanently-assigned to a single extension directory number (1-4 digits). These buttons can be used either to perform a direct voice announcement or to transfer calls to a station user. The LEDs that are associated with each of these buttons also provide a busy lamp field, which indicates, at a glance, which directory numbers are busy or idle.

### Buttons Assigned as Switched Directory Numbers:

Switched DSS console buttons are each assigned to the last two digits of a directory number (e.g., 00~09). Entire directory numbers are formed through the use of an assigned Hundreds Group button, which, when selected, supplies the remaining first digit of a directory number. For example, when a Hundreds Group button of 2 is pressed, switched DN buttons 00~09 become buttons 200~209. When a Hundreds Group button of 3 is pressed, these same buttons become buttons 300~309. Up to nine Hundreds Group buttons may be assigned to either your electronic telephone or your DSS console. If your electronic telephone is connected to two switched DN DSS consoles, then these buttons control operation on both consoles.

Once the desired Hundreds Group Button has been selected, these buttons can be used either to make a direct voice announcement or to transfer calls to a station user, in exactly the same manner as fixed DSS buttons.

### To call another station:

- 1) Press the button which corresponds to the desired directory number.
  - The DSS LED that is associated with that DN button

## BUTTON OPERATION (continued)

will light.

- 2) To drop the connection, press the **SPKR** button on your electronic telephone.

### To transfer a call to an idle station:

- 1) Press the **DSS** button which corresponds to the station to be called.
  - The original call will automatically be placed on hold.
  - The electronic telephone LED corresponding to the line on which the call originally arrived, will flash at twice the On-hold rate.
  - The DSS LED corresponding to the station being called will flash.
- 2) Hang up (or announce the call and then hang up).
  - The electronic telephone LED corresponding to the line on which the call originally arrived, will go out.
  - The transferred call will ring the called station.
  - The DSS LED corresponding to the station being called will light steadily when the called station connects with the transferred call.

### To transfer a call to a busy station:

- 1) If a station is busy, and that station's directory number appears on a **DSS** button, then that button will be steadily lit. A call can still be transferred to the station, but it will be camped-on (or will go into a Call Waiting State) until either the busy station hangs up or the Camp-on timeout period elapses.
- 2) Press the **DSS** button which corresponds to the station to be called.
  - You will hear a busy tone.
  - The call will automatically be placed on hold.

## BUTTON OPERATION (continued)

- The electronic telephone LED corresponding to the line on which the call originally arrived will flash at twice the On-hold rate.
- 3) Hang up.
    - The electronic telephone LED corresponding to the line on which the call originally arrived will go out.
    - The call will be camped-on to the called station.
    - The DSS LED corresponding to the called station will remain steadily lit.

### NOTES:

1. If the called station does not pick up the camped-on (or Call Waiting) call before the Camp-on timeout period elapses, then the call will recall to your station.
2. You may reconnect to a call at any time before the called party answers (and before releasing the transfer), by pressing the **DN** button corresponding to the line on which the call is being held.
3. If you attempt to transfer a call to a station that is either making or receiving an internal page, you will hear a busy tone and the transfer will be prevented. There will be no LED indication on your DSS console to indicate that this station is busy.

## ATTENDANT-POSITION ELECTRONIC TELEPHONE FEATURE OPERATION

Up to eight electronic telephones per system can be assigned as Attendant-Position Electronic Telephones. This designation allows these telephones to perform several operations that are normally associated exclusively with attendant consoles. It is strongly recommended that only LCD telephones be

## FEATURE OPERATION (continued)

installed as Attendant-Position Electronic Telephones. The procedures for these operations are detailed in the following paragraphs.

### REGISTRATION OF A MEET-ME PAGE:

Attendant-Position Electronic Telephones may perform a Meet-Me Page so that a specific individual can be notified of an incoming call.

#### NOTE:

Recommend LCD

#### To Park a Call:

- 1) While connected to a call. Press **CONF** and dial the Meet-Me Page access code, (or press the DSS button programmed as a Fixed auto dial). The call will automatically extend to the zone displayed on the LCD when the Meet-Me Page code is dialed. (**110 ~ 125**).
- 2) Dial the page access code. Make your announcement, giving the page zone displayed above, indicating the code to retrieve the page.

#### Meet-Me Page Recall:

- 1) To return the call to the Meet-Me Page zone and repage the party:
  - From an active call hang up or press **SPKR** button while in the speaker mode to hang up. The call will automatically return to the original zone.
  - Obtain dial tone and dial the desired page zone to repage the party.

#### Meet-Me Page Cancel:

- 1) To cancel the Meet-Me Page dial the Meet-Me Page cancel code (**150**) while connected to the active call. Do not press the **CONF** button.

## FEATURE OPERATION (continued)

#### NOTE:

There will be a break in the connection while the digits are dialed.

- You can now transfer the call to another station or take a message for the caller.

#### NOTE:

If the parked call is not picked up by the paged party before the Meet-Me Page timer expires (COT timer), the call will recall to your station. You can either re-park the call or cancel the Meet-Me Page and transfer the call to another station. An LCD Electronic Telephone will indicate the call as a Meet-Me Page Recall: MMP RCL TK XXXX

#### ASSIGNMENT OF A REMOTE ACCESS CODE:

An Attendant-Position Electronic Telephone can change the system's remote access code by dialing a special change code, followed by the new remote access code. The remote access code is used by outside callers to access PERCEPTION<sub>e</sub> features.

#### To alter a remote access code:

- 1) Go off-hook (or press DN).
- 2) Dial the remote access change code (**#12**).
  - You will hear recall dial tone.
- 3) Dial the new remote access code.
  - You will then hear recall dial tone.
- 4) Hang up your handset (or press **SPKR** in speaker mode).
- 5) The new code will be registered in the system.

#### SYSTEM-WIDE CALL FORWARD CANCELLATION:

All call forwards that are currently registered in a system may be simultaneously canceled by an Attendant-Position Electronic Telephone.

**FEATURE OPERATION** (continued)**To cancel all system call forwards:**

- 1) Go off-hook.
- 2) Dial the Call Forward - All Clear access code (#18).
- You will hear recall dial tone.
- 3) Hang up.
- 4) All call forwards in the system will be canceled.

**NOTE:**

*Call Forwards that are set to the electronic telephone will not be canceled.*

**SYSTEM NIGHT OPERATION BUTTON:**

A System Night Operation button can be assigned to one Attendant-Position Electronic Telephone (or its connected DSS console) per system. (System Night Operation buttons are available only in systems which do not have an attendant console.) The use of this button will alternate the system between day and night operational modes. The ringing assignment of trunks will also be affected whenever this mode change is made. The alteration of modes allows you to tailor system operation to periods of greater/lesser call traffic, as well as to particular times of the day.

**To change system operational mode:**

- 1) Press the assigned System Night Operation (SYS) button.
- 2) The system will now change over to its alternate mode (day or night).
- 3) When the system is in night mode, the System Night Operation button's LED will light.
- 4) To alternate the system operational mode back to its original mode, press the System Night Operation button again. By subsequently pressing this button, the system will alternate between day and night operation.





Digital Hybrid/PBX

User Guide

Standard Telephone

## TOSHIBA INTRODUCTION

This user guide applies to any standard rotary or DTMF telephone that is used in a Toshiba PERCEPTION<sub>e</sub> or PERCEPTION<sub>ex</sub> system. Available features include six different types of Call Forward, Internal and External Paging access, and Voice Mail access (specific feature access depends upon each telephone's assigned Class of Service). Most features are accessed via convenient feature access codes. While standard codes for each operation are noted in this user guide, these codes can be altered in system programming. Verify your system's specific codes with your System Manager.

**GENERAL INFORMATION**

Dial tone must be heard before dialing a particular feature. If you have just lifted the handset, you will hear a dial tone. If you are engaged in a conversation, you must obtain "Recall Dial Tone" before activating another feature (transfer, etc.).

During a conversation, Recall Dial Tone is obtained by "flashing" the hookswitch, located in the cradle that holds your handset. To flash, momentarily press the hookswitch (for about 1/2 second). In response, you will hear Recall Dial Tone.

**CALL PROGRESS TONES:**

**Dial:** Standard tone—continuous tone; indicates that you can proceed to dial.

**Recall Dial:** Standard Tone—three short pulses followed by continuous tone; indicates that you can proceed with feature execution.

**Busy:** Standard tone—60 impulses per minute (IPM); indicates that the connection or trunk line you have dialed is busy.

**Overflow:** Same as busy tone—120 IPM; indicates that your call has been blocked, due to dialing error or service restrictions.

**Ringing:** Standard tone—1 second on, 3 seconds off; indicates that your call is ringing.

**GENERAL INFORMATION (continued)****SPECIAL SIGNAL TONES (while the telephone is in use):**

**Camp-on:** A single muted warning tone indicates that a call is waiting.

**Call Waiting:** Two short warning tones during a conversation indicates that a call is waiting.

**Attendant Verification/Executive Override:** A short tone burst (repeated every 15 seconds) is applied whenever the attendant enters the conversation, and when a station user enters your conversation by using the Executive Override feature.

**RINGING SIGNALS:**

**Internal Call:** A single ring every four seconds.

**External or Attendant Call:** A double ring at four-second intervals.

## BUTTON OPERATION (continued)

- will light.
- 2) To drop the connection, press the **SPKR** button on your electronic telephone.

### To transfer a call to an idle station:

- 1) Press the **DSS** button which corresponds to the station to be called.
  - The original call will automatically be placed on hold.
  - The electronic telephone LED corresponding to the line on which the call originally arrived, will flash at twice the On-hold rate.
  - The DSS LED corresponding to the station being called will flash.
- 2) Hang up (or announce the call and then hang up).
  - The electronic telephone LED corresponding to the line on which the call originally arrived, will go out.
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- 2) Press the **DSS** button which corresponds to the station to be called.
  - You will hear a busy tone.
  - The call will automatically be placed on hold.

## BUTTON OPERATION (continued)

- The electronic telephone LED corresponding to the line on which the call originally arrived will flash at twice the On-hold rate.
- 3) Hang up.
    - The electronic telephone LED corresponding to the line on which the call originally arrived will go out.
    - The call will be camped-on to the called station.
    - The DSS LED corresponding to the called station will remain steadily lit.

### NOTES:

1. If the called station does not pick up the camped-on (or Call Waiting) call before the Camp-on timeout period elapses, then the call will recall to your station.
2. You may reconnect to a call at any time before the called party answers (and before releasing the transfer), by pressing the **DN** button corresponding to the line on which the call is being held.
3. If you attempt to transfer a call to a station that is either making or receiving an internal page, you will hear a busy tone and the transfer will be prevented. There will be no LED indication on your DSS console to indicate that this station is busy.

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## FEATURE OPERATION (continued)

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Attendant-Position Electronic Telephones may perform a Meet-Me Page so that a specific individual can be notified of an incoming call.

#### NOTE:

Recommend LCD

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#### Meet-Me Page Recall:

- 1) To return the call to the Meet-Me Page zone and repage the party:
  - From an active call hang up or press **SPKR** button while in the speaker mode to hang up. The call will automatically return to the original zone.
  - Obtain dial tone and dial the desired page zone to repage the party.

#### Meet-Me Page Cancel:

- 1) To cancel the Meet-Me Page dial the Meet-Me Page cancel code (**150**) while connected to the active call. Do not press the **CONF** button.

## FEATURE OPERATION (continued)

#### NOTE:

There will be a break in the connection while the digits are dialed.

- You can now transfer the call to another station or take a message for the caller.

#### NOTE:

If the parked call is not picked up by the paged party before the Meet-Me Page timer expires (COT timer), the call will recall to your station. You can either re-park the call or cancel the Meet-Me Page and transfer the call to another station. An LCD Electronic Telephone will indicate the call as a Meet-Me Page Recall: MMP RCL TK XXXX

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An Attendant-Position Electronic Telephone can change the system's remote access code by dialing a special change code, followed by the new remote access code. The remote access code is used by outside callers to access PERCEPTION<sub>e</sub> features.

#### To alter a remote access code:

- 1) Go off-hook (or press DN).
- 2) Dial the remote access change code (**#12**).
  - You will hear recall dial tone.
- 3) Dial the new remote access code.
  - You will then hear recall dial tone.
- 4) Hang up your handset (or press **SPKR** in speaker mode).
- 5) The new code will be registered in the system.

#### SYSTEM-WIDE CALL FORWARD CANCELLATION:

All call forwards that are currently registered in a system may be simultaneously canceled by an Attendant-Position Electronic Telephone.

**FEATURE OPERATION** (continued)

To cancel all system call forwards:

- 1) Go off-hook.
- 2) Dial the Call Forward - All Clear access code (#18).
- You will hear recall dial tone.
- 3) Hang up.
- 4) All call forwards in the system will be canceled.

**NOTE:**

*Call Forwards that are set to the electronic telephone will not be canceled.*

**SYSTEM NIGHT OPERATION BUTTON:**

A System Night Operation button can be assigned to one Attendant-Position Electronic Telephone (or its connected DSS console) per system. (System Night Operation buttons are available only in systems which do not have an attendant console.) The use of this button will alternate the system between day and night operational modes. The ringing assignment of trunks will also be affected whenever this mode change is made. The alteration of modes allows you to tailor system operation to periods of greater/lesser call traffic, as well as to particular times of the day.

**To change system operational mode:**

- 1) Press the assigned System Night Operation (SYS) button.
- 2) The system will now change over to its alternate mode (day or night).
- 3) When the system is in night mode, the System Night Operation button's LED will light.
- 4) To alternate the system operational mode back to its original mode, press the System Night Operation button again. By subsequently pressing this button, the system will alternate between day and night operation.



## CAMP-ON CALLS

If you are involved in a call and the attendant parks another incoming call at your station, you will be alerted of the parked (camped-on) call by a short warning tone.

**TO ACCEPT A CAMP-ON CALL:**

- 1) Complete the original call.
- 2) Hang up.
  - Your telephone will ring.
- 3) Answer the new call.

**NOTE:**

*Camp-on and Call Waiting are mutually exclusive.*

## CONFERENCING

It is possible to create a three-party conference by adding another station or trunk party to an existing two-party conversation. Any of the three parties may disconnect at any time, leaving the remaining two parties connected. (The system will refuse to connect certain types of trunks.)

**TO INITIATE A CONFERENCE:**

- 1) Flash the hookswitch.
  - The original connection will be placed on hold.
  - You will hear recall dial tone.
- 2) Dial the desired number.\*
- 3) Flash the hookswitch when the new party answers.
  - A three-party conference will now be established.

**TO RETURN TO THE ORIGINAL CONNECTION:**

- 1) Flash the hookswitch.
  - The third party will be released and the original connection will remain.

**NOTES:**

1. *If you hear a busy tone after dialing the station number or trunk access code, flash the hookswitch **once** to return to the original call.*
2. *To return to the original call after accessing a trunk, flash the hookswitch **twice**.*

## CONSULTATION CALL

This feature enables you to consult with an inside or outside party while you hold another call.

**TO CONSULT WITH ANOTHER PARTY:**

- 1) Flash the hookswitch.
  - The original connection will be placed on hold.
  - You will hear recall dial tone.
- 2) Dial the desired number.\*

**TO RETURN TO THE ORIGINAL CONNECTION:**

- 1) Flash the hookswitch **twice**.
  - The first flash will conference all three lines.
- 2) Resume your conversation.

**\*NOTES:**

1. *If you hear a busy tone after dialing the station number or trunk access code, flash the hookswitch **once** to return to the original call.*
2. *To return to the original call after accessing a trunk, flash the hookswitch **twice**.*

## DO NOT DISTURB

This feature allows a station to give a busy indication to callers whenever the user does not want to be disturbed.

**TO ACTIVATE DND:**

- 1) Lift the handset.
  - You will hear dial tone.
- 2) Dial **#2**.
- 3) Hang up.

**NOTE:**

*Outgoing calls and features will still function while a telephone is in the DND mode. The telephone will appear to be busy to all incoming calls.*

**DO NOT DISTURB (continued)****TO CANCEL DND:**

- 1) Lift the handset.
  - You will hear dial tone.
- 2) Dial **#02**.
- 3) Hang up.
  - The Do Not Disturb feature will no longer be active.

**EXECUTIVE OVERRIDE**

Executive Override allows you to enter an established conversation. The conversing parties will receive a warning tone before you are conferenced into the connection.

**TO OVERRIDE A BUSY STATION:**

- 1) Flash the hookswitch.
  - Busy tone will change to recall dial tone.
- 2) Dial **0**.
  - A warning tone will be given to the existing connection.
  - A 3-way conference will now exist (any one of the parties can leave the conference and the other two will remain connected).

**NOTE:**

*A short tone will be heard every 15 seconds by all parties during the override condition.*

**MAID-IN-ROOM STATUS\***

This feature allows an attendant console to keep an up-to-date register of rooms currently being serviced by a maid. By using the guest-room telephone, the maid can inform the attendant that he/she is currently in the room.

**TO SET MAID-IN ROOM STATUS;**

- 1) Lift the handset.
  - You will hear dial tone.
- 2) Dial **#00**.
  - You will hear recall dial tone.
- 3) Dial **#01**.
  - You will hear recall dial tone.
  - Maid-in-Room status will be set.

**TO CANCEL MAID-IN-ROOM STATUS:**

- 1) Lift the handset.
  - You will hear dial tone.
- 2) Dial **#00**.
  - You will hear recall dial tone.
- 3) Dial **#02**.
  - You will hear recall dial tone.
  - Maid-in-Room status will now be canceled.

**TO CANCEL MAID-IN-ROOM STATUS AND SET ROOM CLEAN STATUS:**

- 1) Lift the handset.
  - You will hear dial tone.
- 2) Dial **#00**.
  - You will hear recall dial tone.
- 3) Dial **#03**.
  - You will hear recall dial tone.
  - Maid-in-Room status will now be canceled and room clean status will be set.

*\* Available in Lodging/Health Care systems only.*



## MEET-ME PAGE

This feature will automatically connect you to a call that has been "parked" for you by the operator. If you are away from your telephone, the operator may park the call and direct you, via the page system, to dial an access code.

**TO ANSWER A MEET-ME PAGE:**

- 1) Lift the handset (at any telephone).
  - You will hear dial tone.
- 2) Dial the access code.
  - You will be immediately connected to the caller.

**MESSAGE WAITING**

This feature allows the attendant or other Message Center to inform a station user that there is a message waiting. There are two signaling possibilities:

1. If your station is equipped with a Message Waiting light, it will flash on and off.
2. If your station is not equipped with a Message Waiting light, then it will receive a double ring every 20 minutes (when Message Waiting has been set by either the attendant console or an electronic telephone). You will automatically be connected to the Message Center when you go off-hook.

**TO CANCEL MESSAGE WAITING:**

- 1A) Lift the handset.
  - You will hear dial tone.
- 2A) Dial the Message Center.
- 3A) Collect your message(s).
- 4A) Hang up.
 

... or ...
- 1B) Lift the handset.
  - You will hear dial tone.
- 2B) Dial **5**.
  - Message Waiting will be canceled.
- 3B) Hang up.

## OUTGOING CALLS

**Least Cost Routing**

The system will automatically select the least-costly route (trunk group) for the call that you want to make. If the route is busy, the next best route will be selected (if permitted by your Class of Service).

**TO USE LEAST COST ROUTING:**

- 1) Lift the handset.
  - You will hear dial tone.
- 2) Dial the LCR access code \_\_\_\_\_.\*
- 3) Dial the number that you want to call.
- 4A) If a trunk allowed by your Class of Service is available:
  - Your call will be dialed automatically over the proper trunk.
  - You will hear call progress tones.
- 5A) Proceed with your conversation.
 

... or ...
- 4B) If no trunks are available:
  - You will hear busy tone.
- 5B) Activate the Automatic Callback feature.

**\*NOTE:**

*At this point, you will hear dial tone if your system has been programmed to supply it in this situation.*

**OUTGOING CALLS (continued)****Direct Trunk Access**

Direct Trunk Access allows you to use a specific trunk to make an outgoing call.

**TO MAKE AN OUTGOING CALL:**

- 1) Lift the handset.
  - You will hear dial tone.
- 2) Dial the required trunk access code.

Trunk Access Codes:


- You will hear outside dial tone.
- 3) Dial the desired telephone number.

**PAGING****External Zone Paging****TO PAGE A SINGLE EXTERNAL ZONE:**

- 1) Obtain dial tone.
- 2) Dial the External Paging Access Code **153**.
- 3) Dial the desired paging zone number (0 ~ 4).
- 4) Announce your page. Speak slowly and distinctly and repeat your message.
- 5) Hang up when your page is complete.

**TO PAGE ALL EXTERNAL ZONES:**

- 1) Obtain dial tone.
- 2A) Dial the External All-Zone Paging access code **154**.  
... or ...
- 2B) To page the Expanded Internal Paging Group in addition to all External Paging Zones, dial **160**.
- 3) Announce your page. Speak slowly and distinctly and repeat your message.
- 4) Hang up when your page is complete.

**Internal Group Paging****TO PAGE A SINGLE INTERNAL PAGING GROUP:**

- 1) Obtain dial tone.
- 2) Dial the Internal Paging access code **151**.
- 3) Dial the desired paging group number (2 ~ 17).
- 4) Announce your page.
- 5) Hang up when your page is complete.

**TO PAGE THE EXPANDED INTERNAL PAGING GROUP:**

- 1) Obtain dial tone.
- 2A) Dial the Expanded Internal Paging access code **152**.  
... or ...
- 2B) To page all External Paging Zones in addition to the Expanded Internal Paging Group, dial **161**.
- 3) Announce your page.
- 4) Hang up when your page is complete.

**REPEAT LAST NUMBER DIALED**

The system will automatically store the last number that you have dialed and will redial it when requested to do so. This is convenient when you have reached a busy or unanswered number and want to try the call again.

**TO REDIAL THE LAST NUMBER:**

- 1) Lift the handset.
  - You will hear dial tone.
- 2) Dial **#7**.
  - The system will automatically redial the number.

**SPEED DIAL-STATION**

If your telephone is equipped with Speed Dial-Station, you can establish a personal directory of up to 10 telephone numbers.

**TO USE SPEED DIAL-STATION**

- 1) Lift the handset.
  - You will hear dial tone.
- 2) Dial **#3**.
- 3) Dial the Speed Dial-Station address code (0 ~ 9).
  - The system will dial the stored number.

**TO STORE OR CHANGE CODE NUMBERS:**

- 1) Lift the handset.
  - You will hear dial tone.
- 2) Dial **#73**.
  - You will hear recall dial tone.
- 3) Dial the assigned single-digit code (0 ~ 9).
- 4) Dial the number to be stored (16 digits maximum).
  - It may be necessary to insert a pause to allow for dial tone delay. Press the **■** button after the trunk access code.
- 5) Dial **#**.
  - You will hear recall dial tone.
  - The number will be stored.

**NOTES:**

1. A Speed Dial – Station directory may be shared by several stations. However, only one station (designated as the controller) can store or change numbers.
2. Record each speed dial code and its corresponding telephone number for future reference.

**SPEED DIAL – SYSTEM**

As many as 90 telephone numbers can be stored in your Speed Dial – System directory.

**TO USE SPEED DIAL – SYSTEM:**

- 1) Lift the handset.
  - You will hear dial tone.
- 2) Dial **#6**.
- 3) Dial the Speed Dial – System address code (10 ~ 99).
  - The system will dial the stored number.

**TO STORE OR CHANGE A TELEPHONE NUMBER:**

Notify the attendant of your request. The Speed Dial – System directory is controlled by the attendant console.

**STATION-TO-STATION CALLING****TO CALL ANOTHER STATION:**

- 1) Lift the handset.
  - You will hear dial tone.
- 2) Dial the station telephone number.
  - You will hear the call progress tones.
- 3) Hang up when the call is complete.

**UNIVERSAL NIGHT ANSWER**

TO ANSWER AN INCOMING CALL WHEN THE NIGHT BELL IS HEARD:

- 1) Lift the handset.
  - You will hear dial tone.
- 2) Dial **#1**.
  - You will be connected to the incoming call.
- 3) Speak to the caller.
- 4) Use Call Transfer to connect the call with the desired station.

**VOICE MAIL**

If your system is equipped with a Toshiba INTOUCH Digital Voice Messaging System, then refer to the INTOUCH User Guide for voice mail operating instructions. If your system uses a voice messaging system other than INTOUCH, refer to its specific manufacturer's literature for correct operating instructions. General Call Forwarding instructions, which apply to most voice mail systems, are as follows:

**TO CALL FORWARD TO VOICE MAIL:**

- 1) Dial the access code for the desired Call Forward type, followed by the system's voice mail access number and your mailbox number.
- 2) Dial **#**.

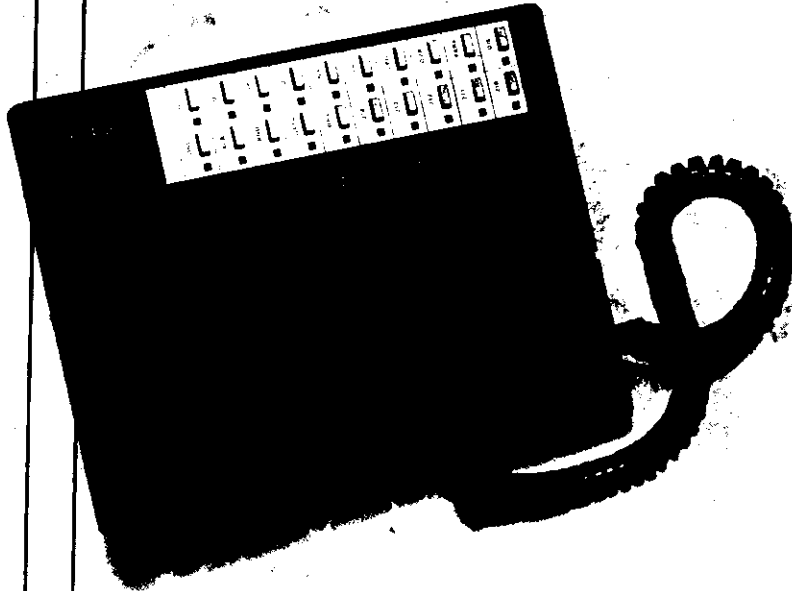
**TO CANCEL CALL FORWARD TO VOICE MAIL:**

- 1) Dial **#1#**.

Digital Hybrid/PBX

User Guide

Electronic Telephone



## GENERAL INFORMATION

Your Electronic Telephone has been designed to provide easy access to the wide range of features offered by your telephone system. Each telephone is equipped with a dial pad, 14 or 24 feature buttons, a speaker with volume control, and a handset. (A second modular connector can be used for a headset or other external device.)

## SINGLE-LINE ELECTRONIC TELEPHONE INFORMATION:

Your Single-line Electronic Telephone is equipped with a blank button/LED that functions as your Directory Number (DN) button.

Features are activated through the use of access codes listed in this guide. To access the features on a Single-line Electronic Telephone, an access code must be used instead of a feature button.

The Single-line Electronic Telephone is a non-speakerphone model that allows handsfree monitoring but not handsfree answerback. Also, a second modular connector is not available for handset or external interface operation.

## CALL PROGRESS TONES:

Dial: Standard tone – continuous; proceed to dial.

Recall Dial: Standard tone – three short pulses followed by continuous tone; proceed with feature execution.

Busy: Standard tone – 60 impulses per minute (IPM); the station or trunk you have dialed is busy.

Overflow: Same as busy tone – 120 IPM; your call has been blocked due to dialing error or service restrictions.

Ringing: Standard tone – 1-second on, 3-seconds off; your call is ringing.

**SPECIAL SIGNAL TONES:**  
(while telephone is in use)

**Camp-on:** A single muted warning tone indicates that a call is waiting.

**Call Waiting:** Two short warning tones via the speaker, accompanied by a flashing Call Waiting LED indicates that a call is waiting.

**Attendant Verification/Executive Override:**

A short tone burst via the handset (repeated every 15 seconds) is applied whenever the attendant enters the conversation, and when a station user enters your conversation using the Executive Override feature.

**RINGING SIGNALS:**

**Internal Call:** A ringing signal via the speaker every 4 seconds.

**External or Attendant Call:**

A double ringing signal via the speaker at 4-second intervals.

**DN LED INDICATIONS:**

Several LED illumination states are used to indicate the status of a DN.

**Flash:** 1/2-second on, 1/2-second off—indicates an incoming call.

**In-use:** 2-seconds on, 1/8-second off, 1/8-second on—indicates that a DN is in use at your telephone.

**On:** Steady on—indicates that a DN is in use at another telephone.

**On-hold:** 1/20-second on, 1/20-second off—indicates that a call is on hold at your telephone.

**Wink:** 3/8-second on, 1/8-second off—indicates that a call is on hold at another station.

**Off:** DN is idle.

**AUTOMATIC DIALING****Automatic Dialing**

An Automatic Dialing (AD) button allows you to store and automatically dial any telephone number (up to 16 digits) by pressing a single button. The stored number can be a station number, access code, or outside number. If you telephone has Flexible Automatic Dialing, then you can store numbers directly from your telephone. If, however, your telephone has Fixed Automatic Dialing, stored numbers are fixed and can only be altered via programming.

**TO DIAL A STORED TELEPHONE NUMBER:**

- 1) Obtain dial tone.
- 2) Press the appropriate AD button.
  - The telephone number will be dialed.

**TO STORE A TELEPHONE NUMBER:**

(for telephones with Flexible Automatic Dialing.)

- 1) Leave the handset on-hook.
- 2) Press the desired AD button.
  - The AD LED will flash.
- 3) Dial the telephone number to be stored (16 digits maximum).

**NOTE:**

*It may be necessary to insert a pause to allow for dial tone delay. To enter a pause, press the button after the trunk access code.*

- 4) Press the AD button again.
  - The AD LED will go out.
  - The telephone number will be stored.

### Repeat Last Number Dialed

The system automatically stores the last number that you dialed. This enables you to quickly redial when the number that you have dialed is either busy or is not answered.

#### TO REDIAL THE LAST NUMBER:

- 1) Obtain dial tone.
- 2) Press the **RND** button or dial **#7**.
  - The system will automatically redial the number.

### Speed Dial-Station

If your telephone is equipped with Speed Dial-Station button(s), you can establish a personal directory of up to 10 telephone numbers per list.

#### TO USE SPEED DIAL-STATION:

- 1) Obtain dial tone.
- 2) Press the appropriate **SDC** or **SDU** button or dial **#3** or **#8**.
- 3) Dial the Speed Dial-Station address code (0 ~ 9).
  - The system will dial the stored number.

A Speed Dial-Station directory may be shared by several stations. However, only one of these stations, designated as the controller, can store or change numbers.

#### TO STORE NUMBERS OR CHANGE ADDRESS CODES:

- 1) Leave the handset on-hook.
- 2) Press the **SDC** button.
  - The SDC LED will flash.
- 3) Dial the assigned single-digit code (0 ~ 9).
- 4) Dial the number to be stored (16 digits maximum).

#### NOTE:

*It may be necessary to insert a pause to allow for dial tone delay. To enter a pause, press the **PAUSE** button after the trunk access code.*

- 5) Press the **SDC** button.
  - The SDC LED will go out.
  - The number will be stored.

### Speed Dial-Station (continued)

- 6) Record the Speed Dial-Station address code and telephone number for future reference.

### Speed Dial-System

As many as 90 telephone numbers can be stored in your Speed Dial-System directory.

#### TO USE SPEED DIAL-SYSTEM:

- 1) Obtain dial tone.
- 2) Press the **SDS** button or dial **#6**.
- 3) Dial the Speed Dial-System address code (10 ~ 99).
  - The system will dial the stored number.

#### TO STORE OR CHANGE A TELEPHONE NUMBER

- 1) Notify the attendant (the Speed Dial-System directory is controlled by the attendant console).

#### NOTE:

*In a consoleless operation the Speed Dial System is set and changed via programming terminal (TTY connection).*

## CALL FUNCTIONS

## Automatic Callback

If you attempt to call another station or access a trunk and receive a busy tone, you can request to be signaled when the desired station or trunk is idle. You may continue to use your telephone in the usual manner while awaiting a callback.

**TO ACTIVATE AUTOMATIC CALLBACK:**

- 1) Press the **ACB** button or press the **CONF** button and dial **7**
  - You will hear recall dial tone.
  - The ABC LED will light (if equipped).
- 2) Hang up and wait for the callback, or dial another call.

**TO ANSWER AUTOMATIC CALLBACK:**

- 1) When the desired connection becomes idle, your telephone will signal once.
  - The ABC LED will flash.
  - The DN LED will flash.
- 2) You must pick up the call within six seconds (this time period is programmable) or your request will be canceled.
- 3) Lift the handset or press the Prime **DN** button.
- 4A) If the called party is a trunk:
  - You will hear outside dial tone.
  - Proceed to dial.

**NOTE:**

*If the call was made using Least Cost Routing, then, at this point, the called number will be dialed automatically.*

- 4B) If the called party is a station:
  - The called station will ring.
  - You will hear ringback tone.
- 4C) If you hear overflow tone this indicates that another station had already either camped onto or registered an Automatic Callback to that station before you originally called. Hang up and wait to be called again.

## Automatic Callback (continued)

**TO CANCEL AUTOMATIC CALLBACK:**

- 1) Press the **ACB** button **117**.
  - The ACB LED will go out.
  - The callback will be canceled.

## Call Forwarding

Call Forwarding enables you to direct your station's incoming calls to another station. There are four types of call forwarding available:

- Call Forward All Calls
- Call Forward Busy
- Call Forward No Answer
- Call Forward Busy/No Answer

In addition, there are two types of Call Forwarding System that apply to calls from DID, TIE, and CCSA trunks. These types of Call Forwarding can only be directed to an attendant:

- Call Forward Busy
- Call Forward Busy/No Answer

**NOTE:**

*Only one type of Station Call Forwarding can be in use at a time.*

**TO CALL FORWARD ALL CALLS:**

- 1A) Press the **CFD** button.
  - The CFD LED will flash.
- 2A) Dial the number to which calls are to be forwarded.
- 3A) Press the **CFD** button.
  - The CFD LED will light steadily.
    - ...or (if a **CFD** button is not provided)...
- 1B) Obtain dial tone.
- 2B) Dial **19**.
  - You will hear recall dial tone.
- 3B) Dial the number to which calls are to be forwarded.
- 4B) Dial **#**.
  - You will hear recall dial tone.
  - The number is stored.



## Call Forwarding (continued)

**TO USE CALL FORWARD BUSY:**

- 1A) Press the **CFBY** button.
  - The **CFBY** LED will flash.
- 2A) Dial the number to which calls are to be forwarded.
- 3A) Press the **CFBY** button.
  - The **CFBY** LED will light steadily.
    - ...or (if a **CFBY** button is not provided)...
- 1B) Obtain dial tone.
- 2B) Dial **#10**.
  - You will hear dial tone.
- 3B) Dial the number to which calls are to be forwarded.
- 4B) Dial **#**.
  - You will hear recall dial tone.
  - The number is stored.

**TO USE CALL FORWARD NO ANSWER:**

- 1A) Press the **CFNA** button.
  - The **CFNA** LED will flash.
- 2A) Dial the number to which calls are to be forwarded.
- 3A) Press the **CFNA** button.
  - The **CFNA** will light steadily.
    - ...or (if the **CFNA** button is not provided)...
- 1B) Obtain dial tone.
- 2B) Dial **#11**.
  - You will hear recall dial tone.
- 3B) Dial the number to which calls are to be forwarded.
- 4B) Dial **#**.
  - You will hear recall dial tone.
  - The number will be stored.

**TO USE CALL FORWARD BUSY/NO ANSWER:**

- 1A) Press the **CFBD** button.
  - The **CFBD** LED will flash.
- 2A) Dial the number to which calls are to be forwarded.
- 3A) Press the **CFBD** button.
  - The **CFBD** LED will light steadily.
    - ...or (if the **CFBD** button is not provided)...
- 1B) Obtain dial tone.
- 2B) Dial **#12**.
  - You will hear recall dial tone.

## Call Forwarding (continued)

- 3B) Dial the number to which calls are to be forwarded.
- 4B) Dial **#**.
  - You will hear recall dial tone.
  - The number will be stored.

**TO USE CALL FORWARD BUSY (SYSTEM/DID):****CFSB Key Operation**

- 1) Obtain dial tone.
- 2) Dial **#13**.
  - You will hear recall dial tone.
- 3) Dial **0**.
- 4) Dial **#**.
  - You will hear recall dial tone.
  - The number will be stored.

**TO USE CALL FORWARD BUSY/NO ANSWER (SYSTEM/DID):****CFSN Key Operation**

- 1) Obtain dial tone.
- 2) Dial **#14**.
  - You will hear recall dial tone.
- 3) Dial **0**.
- 4) Dial **#**.
  - You will hear recall dial tone.
  - The number will be stored.

**NOTE:**

*You may continue to place outgoing calls from your telephone while Call Forwarding is in effect.*

**TO CANCEL ALL TYPES OF CALL FORWARDING:**

- 1A) Press the appropriate Call Forward button.
  - The LED will go out.
  - Call Forwarding will be canceled.
    - ... or (if a Call Forward button is not provided) ...
- 1B) Obtain dial tone.
- 2B) Dial **#19**.
  - Call Forwarding will be canceled.
  - You will hear recall dial tone.

## Call Pickup Directed

Call Pickup Directed allows you to answer a call that is ringing or on hold at a station other than your own. The call can be answered via either a **CPD** button or a Call Pickup Directed access code.

### TO USE CALL PICKUP DIRECTED:

- 1) Obtain dial tone.
- 2) Press the **CPD** button or dial **16**.
  - You will hear recall dial tone.
- 3) Dial the station number that is ringing/on hold.
  - You will be connected to that call.

### NOTE:

*A call which rings on a secondary DN can be picked up by dialing the secondary DN, but only when the primary DN is idle.*

## Call Pickup Group

Call Pickup Group allows you to answer a call that is ringing at a station within your designated group without knowing exactly which station number is ringing. The call can be answered via either a **CPG** button or a Call Pickup Group access code.

### TO USE CALL PICKUP GROUP:

- 1) Obtain dial tone.
- 2) Press the **CPG** button or dial **14**.
  - You will be connected to any call that is ringing at any station in your group.

### NOTE:

*Calls can only be picked up from an idle station. Calls cannot be picked up on a secondary DN, if the primary DN is busy.*

## Conferencing

By using the **CONF** button, it is possible to add a third party to an existing two-party conversation. The added party can be either a station or an outside party. It is possible for any of the three parties to disconnect at any time, leaving the remaining two parties connected. (The system will refuse to connect certain types of trunk lines.)

### TO INITIATE A CONFERENCE:

- 1) Press the **CONF** button.
  - The original connection will be placed on hold.
  - You will hear recall dial tone.
  - The DN LED indication will change from In-use to On-hold status.
- 2) Dial the desired number.
- 3) Press the **CONF** button when the new party answers.
  - The DN LED indication will change from On-hold to In-use status.
  - A 3-party conference will be established.

### TO RETURN TO YOUR ORIGINAL CONNECTION:

- 1) Press the appropriate **DN** button.
  - The third connection will be released and the original connection will remain.

## Consultation Call

This feature enables you to consult with either an inside or outside party while you simultaneously have another call on hold.

### TO CONSULT:

- 1) Press the **CONF** button.
  - The original connection will be placed on hold.
  - You will hear recall dial tone.
  - The DN LED indication will change from In-use to On-hold status.
- 2) Dial the desired number.

### Consultation Call (continued)

#### TO RETURN TO THE ORIGINAL CONNECTION:

- 1) Press the appropriate **DN** button.
  - The DN LED indication will change from On-hold to In-use status.
  - The Third party will be disconnected.
- 2) Resume your conversation.

### Do Not Disturb

Do Not Disturb allows a station to give a busy indication whenever the user does not want to be disturbed. DND can only be applied to a station's primary DN.

#### TO ACTIVATE DND:

- 1A) Press the **DND** button.
    - The DND LED will light.
  - 1B) Obtain dial tone.
  - 2B) Dial **#2**.
  - 3B) Hang up.
- ...or (if a **DND** button is not provided)...

#### TO CANCEL DND:

- 1A) Press the **DND** button.
  - The DND LED will go out.
  - Do Not Disturb will be canceled.
- 1B) Obtain dial tone.
- 2B) Dial **#2**.
- 3B) Hang up.
  - Do Not Disturb will be canceled.

#### NOTES:

1. *Outgoing calls and features will still function while the telephone is in the DND mode; however, the telephone will appear to be busy to any incoming calls.*
2. *The activation of Do Not Disturb will not interfere with Internal Paging.*

### Handsfree Answerback/Speaker Cut-off

This feature allows you to reply handsfree on voice page calls and (optionally) on the following types of calls:

- Station-to-Station calls on standard **DN** buttons.
- Calls from the attendant console.

#### NOTE:

*If the Speaker Cut-off (SCO) feature is activated (SCO LED on), the Handsfree Answerback feature will be disabled and all calls will ring your telephone in the usual manner.*

#### TO ANSWER A CALL HANDSFREE:

- 1) You will hear a single tone.
  - The DN LED will indicate In-use status.
  - The SCO LED will flash.
  - The SPKR LED will light.
- 2) Speak in the direction of the telephone.
- 3) Lift the handset to speak privately.

#### NOTE:

*If the attendant, Attendant-Position Electronic Telephone or another station is announcing an outside call and you do not pick up the handset, the handsfree connection will be broken when the attendant releases and the outside call will ring the **DN** button in the usual manner.*

#### TO ACTIVATE SPEAKER CUT-OFF:

- 1) Press the **SCO** button.
  - The SCO LED will light.
  - The call will now ring your telephone.

#### TO RELEASE SPEAKER CUT-OFF:

- 1) Press the SCO button.
  - The SCO LED will go out.
  - Handsfree Answerback will now be active.

**Outgoing Calls****VOICE****TO MAKE AN OUTGOING CALL:**

- 1) Obtain dial tone.
- 2) Dial the required trunk access code.  
Trunk Access Codes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- You will hear outside dial tone.
- 3) Dial the desired telephone number.

**DATA****TO MAKE AN OUTGOING CALL USING MODEM POOLING:**

- 1) Obtain dial tone (on a voice DN).
- 2A) Make an outgoing call (see TO MAKE AN OUTGOING CALL, above).  
... or ...
- 2B) Use the Least Cost Routing feature to make an outgoing call.
- 3) Press the data **DN** button when you hear modem tone from the called party.
  - The voice DN LED will go out.
  - The data DN LED will light.
  - If desired, a simultaneous voice call can now be established by using normal procedures.
- 4) Press the **DRS** button to disconnect data terminals.

**Least Cost Routing**

Your system will automatically select the least costly route (trunk group) for the call that you want to make. If that route is busy, the next best route will be selected (if permitted by your Class of Service).

**TO USE LEAST COST ROUTING:**

- 1) Obtain dial tone.
- 2) Dial the LCR access code \_\_\_\_\_.
- 3) Dial the number that you want to call.
- 4A) If a trunk that is allowed by your Class of Service is available:
  - Your call will be automatically dialed over the proper trunk.
  - You will hear call progress tones.
- 5A) When the party answers, you can begin your conversation.

**NOTE:**

*If your system has been programmed to do so, you will receive a 1-second warning tone before the system advances to the last choice routing.*

... or ...

- 4B) If no trunks are available, you will hear busy tone.
- 5B) Activate the Automatic Callback feature.

**\*NOTE:**

*You may hear dial tone at this point if your system is programmed to do so.*

## Station-to-Station Calling

## VOICE

**TO CALL ANOTHER STATION:**

- 1) Obtain dial tone in one of the following ways:
  - a) Lift the handset. If your primary DN line is idle, then it will be automatically selected.  
... or ...
  - b) Lift the handset and press a **DN** button.  
... or ...
  - c) For on-hook dialing, press a **DN** button. Dial tone will be heard via the speaker. It is not necessary to lift the handset unless you wish to use it.
- 2) Dial the station's number.
  - You will hear the call progress tones.
- 3) Hang up when the call is completed.

## DATA

**TO CALL ANOTHER DATA PORT (DDIU):**

- 1) Press the Data **DN** on your telephone.
  - You will hear dial tone.
- 2) Dial the data station's number.
- 3) The called DDIU will automatically answer.
  - A data connection between data terminals will be established.
  - If desired, a simultaneous voice call can now be established by using normal procedures.
- 4) Press the **DRS** button to disconnect data terminals.

**TO CONNECT DATA PORTS (DDIU-MATS):**

- (after a voice connection has been established)
- 1) Press the Data **DN** button.
    - A data connection between data terminals will be established.
    - A voice connection will be retained along with the data connection.
  - 2) Press the **DRS** button to disconnect data terminals.

## CALL HOLD and TRANSFER

Call Park and Call Hold are two methods of holding calls. The Call Park (**PARK**) button allows you to originate and receive calls on the **DN** button once the call was parked (on hold). If you do not return to the parked call within a designated time period, your telephone will ring to recall you. The Call Hold (**HOLD**) button causes the **DN** button to become busy, but a held call will not recall you.

**TO PARK A CALL:**

- 1) Press the **PARK** button (or press the **CONF** button and dial **13**).
  - The **PARK** LED will light (only if the **PARK** button was used).
  - The **DN** LED will indicate the In-use status (unchanged).
  - The Park connection will be placed on hold.
  - You will hear dial tone.
- 2) Hang up or dial another call.

**TO RECONNECT A PARKED CALL:**

- 1A) Lift the handset.
  - The primary **DN** LED will indicate the In-use status.
  - You will hear dial tone.
- 2A) Press the **DN** button (this is necessary only for calls which are parked on a **DN** other than the primary **DN**).
  - The **DN** LED will indicate the In-use status.
  - You will hear dial tone.
- 3A) Press the **PARK** button (or dial **13**).
  - The **PARK** LED will go out.
  - You will no longer hear dial tone and will be reconnected.
  - The primary **DN** LED will indicate the In-use status (unchanged).  
... or ...
- 1B) Press the **DN** button.
  - The **DN** LED will indicate the In-use status.
  - You will hear dial tone.

### Call Holding (continued)

- 2B) Press the **PARK** button (or dial **13**).
- You will no longer hear dial tone and will be reconnected.
  - The DN LED will indicate the In-use status (unchanged).

#### TO HOLD A CALL:

- 1) Press the **HOLD** button.
  - The DN LED will change from In-use to On-hold status.
  - The connection will be placed on hold.
- 2) Hang up.

#### TO RECONNECT A HELD CALL:

- 1) Lift the handset.
  - If the on-hold call was on your primary **DN** button, you will be reconnected immediately.
  - The DN LED will change from On-hold to In-use status.
- 2) Press the **DN** button (this is necessary only for calls being held on a DN other than your primary DN).
  - The DN LED will change from On-hold to In-use status.

### Call Transfer

#### TO TRANSFER A CALL:

- 1) Request the party to wait.
- 2) Press the **CONF** button.
  - The original connection will be placed on hold.
  - You will hear recall dial tone.
  - The DN LED will change from In-use to On-hold status.
- 3) Dial the desired number.\*
- 4) When the called party answers, announce the call.
- 5) Hang up to transfer the call.

\*If you hear busy tone, return to the original party by pressing the **DN** button.

### Call Waiting

Two short warning tones from your telephone's speaker and a flashing CWT LED advise you that your attendant has an outside call waiting for you. When this occurs, you have three choices:

- 1) Ignore the call. The call will return to the attendant.
- 2) Terminate your existing call, and accept the new call.
- 3) Hold the existing call and accept the new call. In this mode, it is possible to alternate between the two calls until the conversation(s) are terminated.

#### TO ACCEPT THE WAITING CALL AND TERMINATE THE EXISTING CALL:

- 1) Hang up.
  - The CWT LED will go off, and the new call will ring your telephone in the usual manner.

#### TO ACCEPT THE WAITING CALL WHILE HOLDING THE EXISTING CALL:

- 1) Press the **CWT** button or press the **CONF** button and dial **#4**.
  - The CWT LED will light steadily.
  - The DN LED will indicate the On-hold status.
  - You will be connected to the waiting call.

#### TO RETURN TO THE ORIGINAL CALL:

- 1) Press the appropriate **DN** button.
  - The CWT LED will flash.
  - The DN LED will indicate the In-use status.

#### NOTE:

It is possible to alternate between the two calls indefinitely by selecting either the **CWT** button or the **DN** button. If there is no **CWT** button, alternate between the calls by selection either the **CONF** button or the **DN** button.

### Call Waiting (continued)

#### TO DISCONNECT ONE CALL AND REMAIN CONNECTED TO THE OTHER CALL:

- 1) Hang up while connected to the call that you want to terminate.
  - The remaining call will appear in the hold condition at the **DN** button.
- 2) Press the **DN** button.
  - You will be connected to the remaining call.

#### NOTE:

*Camp-on and Call Waiting are mutually exclusive.*

### Camp-on Calls

A short warning tone from your telephone's speaker (while you are talking with someone) advises you that an incoming call has been parked at your station by the attendant.

#### TO ACCEPT A CAMP-ON CALL:

- 1) Complete the original call and hang up.
  - Your telephone will ring.
  - The DN LED will flash.
- 2) Answer the new call.

#### NOTE:

*Camp-on and Call Waiting are mutually exclusive.*

## MESSAGES

### Meet-Me Page

This feature will automatically connect you to a call that has been "parked" for you by the operator. If you are away from your telephone, the operator may park the call and direct you via the page system to dial an access code.

#### TO ANSWER A MEET-ME PAGE:

- 1) Obtain dial tone at any telephone.
- 2) Dial the access code given by the operator.
  - You will be immediately connected to the caller.

### Message Center Operation

The following applies only if your telephone is designated as the Message Center.

#### TO LEAVE A MESSAGE WAITING SIGNAL:

- 1) Dial the appropriate station number.
- 2) If you receive either busy or no answer, press the **MSG** button.
  - The MSG LEDs on both stations will light.
  - The Message Center's MSG LED will go out when the connection is broken.

#### TO CANCEL MESSAGE WAITING BY MESSAGE CENTER:

- 1A) Dial the appropriate station number.
  - 2A) Press the **MSG** button.
    - The MSG LED will go out (at both stations).
  - 1B) Dial **# 5**.
    - All Message Waiting indications will clear.
- ... or ...

## Message Waiting

Message Waiting allows the attendant or alternative Message Center to inform a station user that a message is waiting. When you have a message waiting, the Message Waiting LED on your telephone will light or your telephone will receive a double ring every 20 minutes.

### TO OBTAIN A MESSAGE AND CANCEL MESSAGE WAITING AT THE STATION:

- 1) Obtain dial tone.
- 2A) Press the **MSG** button.
  - The Message Center will ring automatically.
- ... or ...
- 2B) Dial Message Center number.
- The Message Center will ring.
- 3) Collect your message(s).
- 4) Hang up.

### TO CANCEL MESSAGE WAITING AT THE STATION:

- 1A) While the telephone is idle, press the **MSG** button.
  - The MSG LED will go out.
  - Message Waiting will be canceled.
- ... or ...
- 1B) Obtain dial tone.
- 2B) Dial **#5**.
  - Message Waiting will be canceled.
- 3B) Hang up.

#### NOTE:

*If you go off-hook while your station is being signaled by the Message Waiting feature, you will be automatically connected to the Message Center.*

## Paging, External Zones

### TO PAGE A SINGLE EXTERNAL ZONE:

- 1) Obtain dial tone.
- 2) Press the **PEXT** button or dial the External Paging Access Code **(153)**.
- 3) Dial the desired paging zone number (0 ~ 4).

### Paging Access Codes

Zone	Code	Location
ZONE 1	_____	_____
ZONE 2	_____	_____
ZONE 3	_____	_____
ZONE 4	_____	_____
ZONE 5	_____	_____

- 4) Announce your page.

### TO PAGE ALL EXTERNAL ZONES:

- 1) Obtain dial tone.
- 2A) Dial the External All-Zone Paging access code **(154)**.
- ... or ...
- 2B) To page the Expanded Internal Paging Group in addition to all External Paging Zones, dial \_\_\_\_\_.
- 3) Announce your page.



## Paging, Internal Groups

### TO PAGE A SINGLE INTERNAL GROUP:

- 1) Obtain a dial tone.
- 2) Press the **PAGE** button or dial the Internal Paging access code **159**.
- 3) Dial the desired paging group number (2 ~ 17).
- 4) Announce your page.

### TO PAGE ALL INTERNAL GROUPS:

- 1) Obtain dial tone.
- 2A) Press the **PAGE** button and dial **0** (the Internal All Paging Group number).
- 2B) Dial the Internal All Paging access code **152**.  
... or ...
- 2C) To page all External Paging Zones in addition to the Expanded Internal Paging Group, dial \_\_\_\_.  
... or ...
- 3) Announce your page.

## Station-to-Station Message Waiting with LCD

### TO SET A MESSAGE:

- 1) Obtain dial tone.
- 2) Dial the desired station number.
- 3) If you receive either no answer, busy tone, or DND, press the **SSM** button.
  - The SSM LED will light at the called station.
  - The LCD at the called station will display both "CALL" and the calling station's DN.
  - The LCD at the calling station will display both "SENT" and the called station's DN.

### TO CLEAR A STATION-TO-STATION MESSAGE FROM THE CALLED STATION:

- 1) While on-hook, press the **SSM** button.
  - The SSM LED will go out.
  - The "CALL" LCD display at the called station will clear.
  - The "SENT" LCD display at the calling station will clear.

## Station-to-Station (continued)

### TO RETURN A STATION-TO-STATION MESSAGE CALL:

- 1) Obtain dial tone.
- 2) Press the **SSM** button.
  - The calling station will ring.
  - When the station answers, the SSM LED will go out unless there are additional SSMs set to your station.
  - The "CALL" LCD display at the called station will clear.
  - The "SENT" LCD display at the calling station will clear.

### TO CLEAR A STATION-TO-STATION MESSAGE FROM THE CALLING STATION:

- 1) Obtain dial tone.
- 2) Dial the called station number where SSM is set.
- 3) Press the **SSM** button twice.
  - The SSM LED will go out at the called station.
  - The "CALL" LCD display at the called station will clear.
  - The "SENT" LCD display at the calling station will clear.

### NOTE:

Up to six Message Waiting displays may be stored on the LCD (only three 3-digit numbers can be displayed at one time). The station number in the left-most position will be called when the **SSM** button is pressed. To rotate the station numbers, press the **PAGE** button once, then press the **SCRL** button located next to the LCD.

## Voice Page

This feature allows you to be automatically connected to the speaker of a specific electronic telephone.

### TO MAKE A VOICE PAGE:

- 1) Obtain dial tone.
- 2) Press the appropriate Voice Page (VCP) button.
  - You will hear one ring tone.
  - The VCP LED will light.
- 3) Make your announcement.

### NOTE:

*If the paged person is either busy on another DN or has SCO engaged, you will hear ring tone until the call is answered. If that DN is busy, you will hear busy tone.*

## Voice Mail

The following instructions provide general operating information for voice mail systems. Refer to your voice mail system's user guide for additional operating information.

### TO CALL FORWARD TO VOICE MAIL:

- 1) Press the **CFD** button or access code (see Call Forward).
- 2) Dial your Voice Mail number.
- 3) Dial your mailbox number.
- 4) Press the **CFD** button (or **#** if access code is used).

### TO CANCEL CALL FORWARD TO VOICE MAIL:

- 1) Press the **CFD** button or **##**.

You can set the **MSG** button to automatically retrieve your messages (on-hook).

### TO PROGRAM YOUR MESSAGE BUTTON TO RETRIEVE MESSAGES AUTOMATICALLY:

- 1) Press the **MSG** button.
- 2) Dial your Voice Mail number.
- 3) Dial your mailbox number and pass code.
- 4) Press the **MSG** button.
- 5) To respond, press the **MSG** button.

## MISCELLANEOUS FEATURES

### Account Number Recording

Your system may automatically record the details of the calls you make to, or receive from outside the system. If desired, these calls may be assigned account numbers for billing purposes (\_\_\_\_\_ digits).

### TO RECORD AN ACCOUNT NUMBER BEFORE DIALING A CALL:

- 1) Obtain dial tone.
- 2) Press the **CRG** button or dial **#9**.
- 3) Dial the account number of the dial pad (\_\_\_\_\_ digits).
  - When the number is completed, you will receive recall dial tone.
- 4) Dial the telephone number in the usual manner.

### TO RECORD AN ACCOUNT NUMBER DURING A CALL (INCOMING OR OUTGOING) WITHOUT A **CRG** BUTTON:

At any time before disconnect . . .

- 1) Ask your party to wait.
- 2) Press the **CONF** button.
  - Your connection will be placed on hold.
  - You will hear recall dial tone.
- 3) Dial **#9**.
  - You will hear recall dial tone.
- 4) Dial the account number (\_\_\_\_\_ digits).
  - When the number is completed, you will hear recall dial tone again.
- 5) Press the appropriate **DN** button.
- 6) Resume your conversation.

### TO RECORD AN ACCOUNT NUMBER DURING A CALL (INCOMING OR OUTGOING) WITH A **CRG** BUTTON:

At any time before disconnect . . .

- 1) Ask your party to wait.
- 2) Press the **CRG** button.
  - The connection will be placed on hold.
  - The DN LED indicates the On-hold status.
  - The CRG LED will light.

### Account Number Recording (continued)

- 3) Dial the account number ( \_\_\_\_\_ digits).
  - When the number is completed, the call will be automatically reconnected.
- 4) Resume your conversation.

### Automatic Wake-up/Timed Reminder

Automatic Wake-up/Timed Reminder allows the station user to set an alarm that will ring the station at a prearranged time. After answering a wake-up call, the station will receive either a digitized voice-message, music, or silence. If the call is not answered within six rings, or if the station is busy, a second (and, if necessary, a third) attempt will be made at 5-minute intervals.

#### TO SET AUTOMATIC WAKE-UP/TIMED REMINDER:

- 1) Obtain dial tone.
- 2) Dial **#80**.
  - You will hear recall dial tone.
- 3) Dial the 4-digit time (via the dial pad) in the following format:
  - HHMM
  - For example: for 9:30 AM, enter 0930.
  - You will hear dial tone.
  - The time will be stored.

#### TO CANCEL AUTOMATIC WAKE-UP/TIMED REMINDER:

- 1) Obtain dial tone.
- 2) Dial **#30**.
  - You will hear recall dial tone.
- 3) Dial the 4-digit time 0000.
  - You will hear dial tone.
  - The callback time will be canceled.

### Executive Override

Executive Override allows you to enter an established conversation. The original connection will receive a warning tone before you actually join the established connection.

#### TO OVERRIDE A BUSY CONDITION:

- 1) Press the Override (**OVR**) button.
  - The OVR LED will flash.
  - A warning tone will be given to the existing connection.
- 2) A 3-way conference will now exist (any one of the parties can leave the conference and the other two will remain connected).

#### NOTE:

*During the override condition, a short tone will be heard every 15 seconds by all parties.*

### Maid-in-Room Status\*

By using the guest room telephone, a maid can indicate to the attendant console that a maid is in a particular room. The attendant can then change the room's status.

#### TO SET MAID-IN-ROOM STATUS:

- 1) Obtain dial tone.
- 2) Dial **#00**.
  - You will hear recall dial tone.
- 3) Dial **#01**.
  - You will hear recall dial tone.
  - Maid-in-Room Status will now be set.

#### TO CANCEL MAID-IN-ROOM STATUS:

- 1) Obtain dial tone.
- 2) Dial **#00**.
  - You will hear recall dial tone.
- 3) Dial **#02**.
  - You will hear recall dial tone.
  - Maid-in-Room Status will now be canceled.

### Maid-in-Room Status\* (continued)

#### TO CANCEL MAID-IN-ROOM STATUS AND SET CLEAN ROOM STATUS:

- 1) Obtain dial tone.
- 2) Dial #00.
  - You will hear recall dial tone.
- 3) Dial #03.
  - You will hear recall dial tone.
  - Maid-in-Room Status will now be canceled and Clean Room Status will be set.

\*Lodging/Health Care only.

### Manual Signaling

This feature allows you to signal a specific station.

#### TO SIGNAL THE STATION:

- 1) Press the SIG button.
  - The SIG LED will flash once.
  - A single tone will be heard via the speaker of the called telephone.

### Privacy Release

By operating the Privacy Release (PRS) button, you can allow another station user who shares your DN appearance to join an established conversation. A maximum of five parties (station or trunk), including your own station, can be included in the conversation.

#### TO RELEASE PRIVACY:

- 1) Press the PRS button.
  - The LED of the DN which has Privacy established will flash.
- 2) The second station user should now press the appropriate DN button.
  - The DN LED will change to the In-use status rate at both stations.
  - The conference will now begin.

### Privacy Release (continued)

- 3) Repeat the sequence to add other stations.

#### NOTES:

1. Anytime you release privacy, you can reengage it immediately by pressing the DN button.
2. Any station that is a party involved in the conversation can release the privacy.

### Private Line

A Private Line allows incoming calls to bypass the attendant and arrive directly at your telephone. Unless a Private Line is assigned an Outgoing Call Restriction, outgoing calls can also be made.

#### TO MAKE A CALL ON A PRIVATE LINE: (for Private Lines without Outgoing Call Restriction)

- 1) Press the Private Line (PL) button.
  - The PL LED will light.
  - You will hear outside dial tone.
- 2) Proceed to dial.

#### TO RECEIVE A CALL ON A PRIVATE LINE:

- 1) The line will ring your telephone.
  - The PL LED will flash.
- 2) Press the PL button.
  - You will be connected to call.

#### NOTE:

Overflow tone will be given to a station attempting to make an outgoing call on a PL they are restricted from. (Transfers are operable.)

## Speakerphone (Optional)

### TO MAKE AN OUTSIDE CALL WITH SPEAKERPHONE (ON-HOOK DIALING):

- 1) Leave the handset on-hook.
- 2) Press your **DN** button or a **PL** button (if available).
  - The DN or PL LED will indicate the In-use status.
  - You will hear dial tone.
- 3) Dial the desired telephone number.
- 4) Speak at a normal voice level in the direction of the telephone.
- 5) Press the **SPKR** button when the call is completed.

### TO RECEIVE AN INCOMING CALL (ON SPEAKERPHONE):

- 1) You will hear a ringing tone.
- 2) Leave the handset on-hook.
- 3) Press the button corresponding to the DN or private line with the flashing LED.
  - The DN or PL LED will indicate the In-use status.
- 4) Speak at a normal voice level in the direction of the telephone.
- 5) Press the **SPKR** button when the call is completed.

### MICROPHONE CONTROL:

The **MIC** button cuts off the speakerphone's microphone for private conversations for as long as the button is pressed. When the button is released, the microphone once again becomes active. The MIC LED indicates the status of the microphone:

LED	MICROPHONE
ON	ON
OFF	OFF

### NOTES:

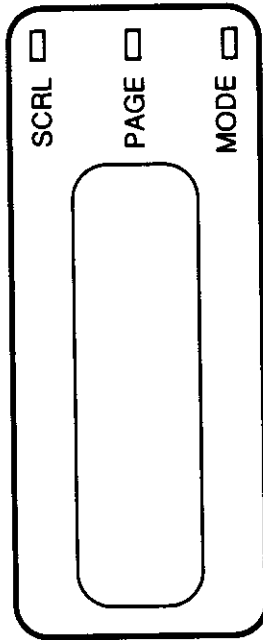
1. To change from Speakerphone to handset, lift the handset.
2. To change from handset to Speakerphone:
  - Press and hold the **SPKR** button.
  - Return the handset to on-hook.
  - Release the **SPKR** button.

## Universal Night Answer

### TO ANSWER AN INCOMING CALL WHEN THE NIGHT BELL IS HEARD:

- 1) Obtain dial tone.
- 2) Press the **UNA** button or dial **1**.
  - You will be connected to the incoming call.
- 3) Speak to the caller.
- 4) Use Call Transfer to connect the call with the desired station.

LIQUID CRYSTAL DISPLAY



The Liquid Crystal Display (LCD) Electronic Telephone is a 20-button speakerphone with the LCD as an additional feature. All feature and functions of the LCD telephone, exclusive of the display itself, perform exactly like the non-LCD 20-button telephone.

In its idle state, the 32-digit LCD feature on your telephone gives you an accurate desk clock and calendar combination. When you have an outside call in progress, an Elapsed Time display will give a constant reminder of the call duration. In addition, a variety of information displays and feature prompts provide more efficient call handling. Alphanumeric messaging capability is also provided.

Display operations occur automatically as calls are continually processed. The only display operation that is controlled manually is the shifting between Date/Time and Elapsed Time, which is achieved by pressing the PAGE button during an active outside call. Station-to-Station Messages that have been previously set on the LCD can be scrolled by pressing the SCRL button.

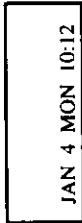
**NOTE:**  
The MODE button, to the right of the display, is reserved for future use.

SUMMARY OF LCD FUNCTIONS

Type When Displayed

Idle Telephone

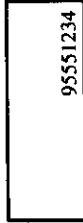
A) Date/Time



**NOTE:**  
The Date/Time is adjusted on a system-wide basis by the Attendant Console or DTRF Program.

B) Dialed Number

1. Trunk



Digits will be displayed as a number is dialed on a trunk call or on a station-to-station call which uses either:

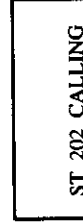
- Manual Dialing
- Automatic Dialing
- Repeat Last Number Dialed
- Speed Dial (Station and System)
- Least Cost Routing

2. Station

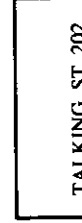


C) Calling Number

1. Station

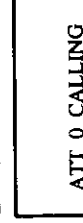


When you receive a call, the calling station's directory number will be displayed.



When you have obtained a voice connection between the calling station and your station, the LCD will indicate talking status.

2. Attendant



When you are being called by the attendant, the LCD will indicate the calling attendant number.

SUMMARY OF LCD FUNCTION (continued)

When you have obtained a voice connection between your station and the calling attendant, the LCD will indicate talking status.

TALKING ATT 0

D) Trunk Number

When you are being called from an outside trunk, the number of the calling trunk will be displayed.

TK 901 CALLING

When you have obtained a voice connection between the outside trunk and your station, the LCD will indicate talking status.

TALKING TK 901

E) Elapsed Time

While you are on a trunk call, the elapsed time of the call will be displayed. Elapsed Time will automatically replace the dialed number on the display after a programmed period of time has elapsed.

00:13:23

F) Do Not Disturb

When you are in the Do Not Disturb Mode, the LCD will indicate Do Not Disturb at your station.

DO NOT DISTURB  
JAN 5 MON 10:15

G) Message Waiting (SSM)

When you hang up after setting Message Waiting (SSM) at another station, a reminder will be shown on the top row of your display panel.

SENT 200  
JAN 5 MON 10:15

Your display panel will show the numbers of stations that have left SSM messages at your station. Up to three numbers can be displayed at one time.

CALL 301 302 303  
JAN 5 MON 10:15

SUMMARY OF LCD FUNCTION (continued)

NOTE:

Your LCD panel will display the numbers of up to six stations that have left messages at your station. The additional three messages can be viewed via the Scroll **SCRL** button.

H) Automatic Callback

When you set ACB on a busy station or trunk, the LCD will indicate that ACB is set.

ACB SET

I) Call Pickup

When you use Call Pickup Directed or Call Pickup Group to obtain a call, the LCD will indicate the DN at which the call is picked up.

PICKUP 205

When you obtain a voice connection using Call Pickup Directed or Call Pickup Group, the LCD will now indicate the calling DN.

901 CALLED 205

J) Automatic Wake-up/  
Timed Reminder

1. Business  
When you register an Automatic Wake-up/ Timed Reminder, the LCD will indicate the desired time.

REMINDER 10:00 AM  
JAN 5 MON 9:05

2. Lodging/Health Care

When you register an Automatic Wake-up/ Timed Reminder, the LCD will indicate the desired time.

WAKE UP 8:00 AM  
JAN 5 MON 7:00

K) Automatic Dialing

When you program a number on an **ADL** button, your telephone will display the number as you program it.

ADL\_551234

**SUMMARY OF LCD FUNCTION (continued)**

L) Speed Dial  
 1. Station  
 ST. SPEED DIAL  
 When you use a Speed Dial Station number, the LCD will indicate the use of this feature.

2. System  
 SYS SPEED DIAL  
 When you use a Speed Dial System number, the LCD will indicate the use of this feature.

M) Call Holding/Park  
 1. Call Holding  
 HOLD 354  
 JAN 5 MON 3:05  
 When you place your directory number **DN** on Hold, the LCD will display your DN.

2. Park  
 PARK 354  
 JAN 5 MON 3:05  
 When you Park a call on your DN, the LCD will display your DN.

N) Conferencing  
 CONFERENCE  
 When you set up a conference call from your telephone, the LCD will indicate the use of this feature.

O) Account Number Recording  
 C-HOLD 203  
 CRG 12345  
 When you use the Account Number Recording **CRG** feature, the LCD will indicate your DN and the specified account number.

P) Paging  
 1. Internal Paging  
 PINT XX  
 When you access Page Zone #, the LCD will indicate the desired zone number.

**SUMMARY OF LCD FUNCTION (continued)**

2. Internal All Paging  
 PINT ALL of  
 PINT 0  
 When you access Paging All Zones, the LCD will indicate "ALL."

3. External Paging  
 PEXT XX

4. External All Paging  
 PEXT ALL

5. All Paging  
 PAGE ALL

Q) Call Forward  
 1. Call Forward All Calls  
 CF-AC TO-ST 203  
 JAN 5 MON 11:00  
 When you Call Forward All Calls to an extension, the LCD will indicate the DN to which calls are forwarded.

2. Call Forward Busy  
 CF-B TO-ST 203  
 JAN 5 MON 11:00  
 When you Call Forward Busy to an extension, the LCD will indicate the DN to which calls are forwarded.

3. Call Forward No Answer  
 CF-NA TO-ST 203  
 JAN 5 MON 11:00  
 When you Call Forward No Answer to an extension, the LCD will indicate the DN to which calls are forwarded.



### SUMMARY OF LCD FUNCTION (continued)

4. Call Forward Busy/  
No Answer

CF-BN TO-ST 203  
JAN 5 MON 11:00

When you Call Forward Busy/No Answer to an extension, the LCD will indicate the DN to which calls are forwarded.

5. Call Forward Busy  
(System/DID)

CF-SB TO-ATT  
JAN 5 MON 11:00

When you Call Forward Busy (System/DID) to the attendant console, the LCD will indicate a Call Forward to "ATT."

6. Call Forward Busy/  
No Answer (System/  
DID)

CF-SN TO-ATT  
JAN 5 MON 11:00

When you Call Forward Busy/No Answer (System/DID) to the attendant console, the LCD will indicate a Call Forward to "ATT."

R) Override

OVR 202 200

When you Override an existing station-to-station conversation, the LCD will indicate your DN and the DN that you are overriding.

• Meet-Me Page (Attendant-Position Electronic Telephone, MMP)

C-HOLD XXXX  
10

• Meet-Me Page Recall (Attendant-Position Electronic Telephone)

MMP RCL TKXXXX

• Remote Access Code (when assigned by Attendant-Position Electronic Telephone)

RAC-XXXX

### Alphanumeric Display

The Alphanumeric Messaging feature on your LCD telephone enables you to set a short text message (up to 16 characters) at your station to ensure that you do not miss important calls. Any station may record a message; however, only stations with an LCD are able to display messages.

Your system has up to 10 preprogrammed messages (listed below) that can be displayed at any LCD telephone calling your station. You can add to or change any of these messages to leave a personalized message at your station. Any text that you program for message 9 will be saved and can be used again. However, any text that you program for messages 0 ~ 8 will be lost when you cancel the message.

### Preprogrammed Messages

- 0) \_\_\_\_\_
- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_
- 4) \_\_\_\_\_
- 5) \_\_\_\_\_
- 6) \_\_\_\_\_
- 7) \_\_\_\_\_
- 8) \_\_\_\_\_
- 9) \_\_\_\_\_

## Alphanumeric Display (continued)

**TO LEAVE A MESSAGE ON YOUR LCD TELEPHONE:**

- 1) Press the **MES** button (handset on-hook) or obtain dial tone and dial the access code \_\_\_\_\_
  - The MES LED will flash (if equipped).
  - "MES NO.?" will be displayed.
- 2) Dial the number of the message that you want to appear, via the dial pad. (See the above preprogrammed messages.)
  - The selected message will be displayed.
- 3) Press the **MES** button (if equipped) or hang up.
  - The MES LED will light steadily.

**TO LEAVE A MESSAGE ON A NON-LCD TELEPHONE:**

- 1) Press the **MES** button (handset on-hook) or dial the access code (handset off-hook) \_\_\_\_\_.
  - The MES LED will flash (if equipped).
- 2) Dial the number of the message that you want to appear, via the dial pad. (See the above preprogrammed messages.)
- 3) Press the **MES** button (if equipped) or hang up.
  - The MES LED will light steadily.

**TO CANCEL A MESSAGE ON YOUR TELEPHONE:**

- 1A) Press the **MES** button.
  - The message will clear from the LCD.
- ... or ...
- 1B) Obtain dial tone.
- 2B) Dial access code \_\_\_\_\_.
- 3B) Hang up.
  - The message will be canceled.

**TO ADD TO A PREPROGRAMMED MESSAGE:**

When you select a message, it will appear on your station display. A cursor (—) will also appear immediately to the far right side of the display. You can now input additional information (up to a total of 16 digits for each message). Some system messages may expect you to add more information. For example:

- 1) Call \_\_\_\_\_
  - Add a station or outside telephone number.

## Alphanumeric Display (continued)

- 2) Back at \_\_\_\_\_
  - Add the time you will return.
- 3) Return at \_\_\_\_\_
  - Add the date you will return.

**TO LEAVE A NEW MESSAGE:**

You can leave a completely new, personalized message by overwriting any of the existing preprogrammed messages. To do this, simply call up one of the preprogrammed messages as instructed above. When the cursor appears to the right of the message, shift it to the left margin and write your new message over the programmed one. The new message will remain at your station until canceled. It will then be erased and the original programmed message will be restored.

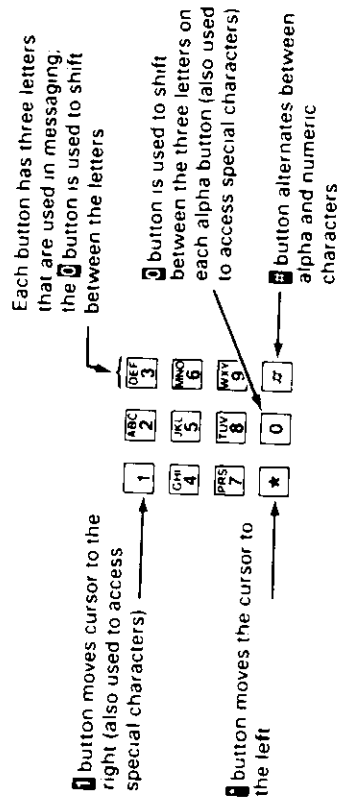
Use the following procedure when adding to a preprogrammed message or when leaving a new message:

**TO RECORD A MESSAGE:**

- 1) Call up the message that you want to add to or change (See **TO LEAVE A MESSAGE**).
- 2) Press the **MES** button to access alpha characters (refer to the figure on the following page for an explanation of the dial pad buttons).
- 3) Press the **MES** button to move the cursor (—) to the desired position (the left edge of the display to program a new message, or two spaces to the right of the preprogrammed message to add information).
- 4) Press the button corresponding to the letter which you want to enter. Use the **MES** button to shift from letter to letter on that button. For example:
  - If you press **MES**, a D will be displayed. By pressing **MES**, the D will change to E. By pressing **MES** again, the E will change to F. Press **MES** again and the F will change to D.
  - To enter spaces, press **MES**.

**Alphanumeric Display (continued)**

- 5) If you want to enter a number, press the # button to change to numeric characters. Numbers are also entered on the dial pad. Press the # button again to return to alpha characters.
- 6) The following special characters may be set by pressing 1 and then pressing 0 to step through the available characters:  
Q, Z, ;, -, +, /.
- 7) When the message is complete, press the **MES** button, or if you do not have a **MES** button, press the **SPKR** button.
  - Your message is now stored on your station.



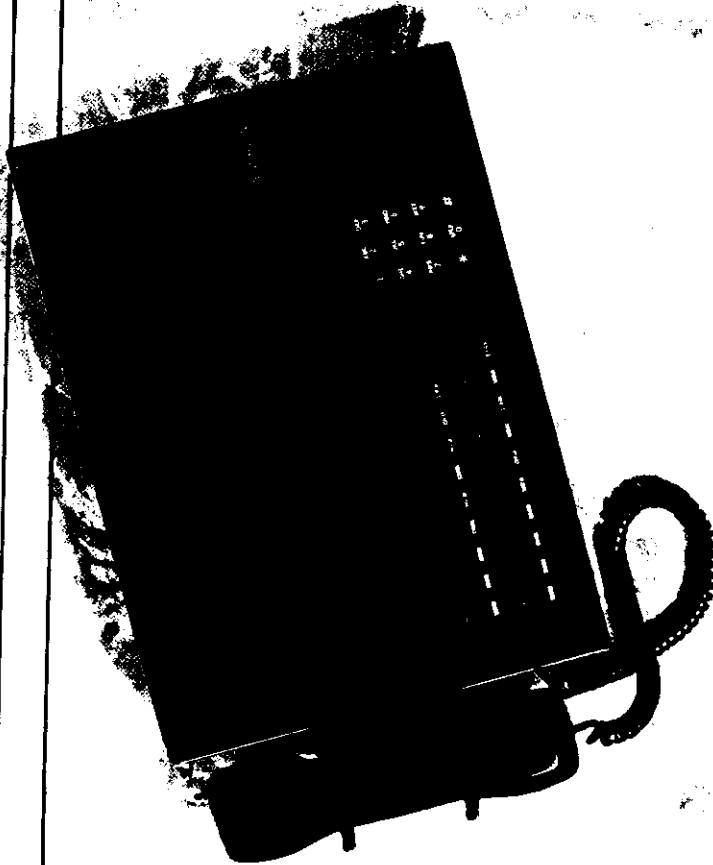


Digital Hybrid/PBX

User Guide

Attendant Console

Business



## INTRODUCTION

Your PERCEPTION<sup>e&ex</sup> attendant console has been designed to provide easy access to the wide range of features offered by your telephone system. The console is equipped with a Display Panel, Keyboard, Volume Control, and either a handset or headset. A detailed description of the console features and operations is found within this guide.

This user guide describes attendant console operations used in business systems that have been programmed for calls to ring audibly at stations. These operations also apply to consoles in systems containing stations with handsfree operation, although there are minor variations in console tones and indications between the two system types.

## CONSOLE DISPLAY PANEL

The console display panel includes a Busy Lamp Field and the following displays: Incoming Call Identification, Calling Source Number, Class of Service, Call Destination Number, and Call Destination Status.

### BUSY LAMP FIELD

The Busy Lamp Field (BLF) displays 100 2-digit numbers (00 ~ 99), and is equipped with a "hundreds group" identifier that shows which group is currently being displayed. You can alternate the display between hundreds groups by pressing the **BLF** button.

## CONSOLE DISPLAY PANEL (cont.)

### INCOMING CALL IDENTIFICATION

The Incoming Call Identification (ICI) display is a back-lighted panel that indicates the type of call that is currently connected to a console Loop (LPK) button. Twelve different displays are possible:

<b>TIE</b>	—	TIE trunk
<b>CO</b>	—	CO trunk
<b>WAT</b>	—	WATS trunk
<b>FX</b>	—	Foreign exchange trunk
<b>INT</b>	—	Intercept
<b>RCL</b>	—	Recall
<b>OPR</b>	—	Dial "O" call
<b>TIM</b>	—	Timed reminder (Camp-on, RNA, etc.)
<b>SER</b>	—	Serial call
<b>HLD</b>	—	Held call recall
<b>LN1</b>	—	DID call to listed directory number 1
<b>LN2</b>	—	DID call to listed directory number 2

### CALLING SOURCE NUMBER

The Source (SRC) display is a 3-character, 7-segment LED display, that gives the attendant the number of the calling station or trunk.

### CLASS OF SERVICE

Class of Service (COS) is displayed as a 2-character, 7-segment LED display, which gives the attendant the Class of Service of the calling station.

### CALL DESTINATION NUMBER

The Destination (DEST) display is a 3-character, 7-segment LED display which shows the station or trunk called by the attendant.

## CONSOLE DISPLAY PANEL (cont.)

### CALL DESTINATION STATUS

The status (STATUS) display is a backlighted panel that indicates the status of the called trunk or station. Eight different displays are possible:

<b>RING</b>	—	Called station is ringing.
<b>BSY</b>	—	Called station is busy.
<b>FWD</b>	—	Called station is forwarded to the number now displayed as DEST.
<b>DND</b>	—	Called station is in Do Not Disturb mode.
<b>RST</b>	—	Attempted connection is not allowed.
<b>HNT</b>	—	Called station was busy and hunting has occurred to the number now displayed as DEST.
<b>VCT</b>	—	Called number does not exist or is disabled.
<b>TLK</b>	—	Attendant has a voice connection with the called party.

## CONSOLE KEYBOARD

The Business console keyboard design includes a display window, two horizontal rows of 10 buttons each, a 12-button dial pad, and a vertical row of four buttons. The faceplate display window houses the following displays:

**TRUNK GROUP BUSY (TGB):** Provides 10 numbered LEDs to indicate the status of trunk groups 0 ~ 9.

### ALARM LEDs for MAJOR, MINOR and MDR:

**MAJOR:** Alarm occurs when the system is not functional, and is accompanied by an emergency transfer.

**MINOR:** Alarm indicates that either the system clock is not set or that a ringing generator power failure has occurred.

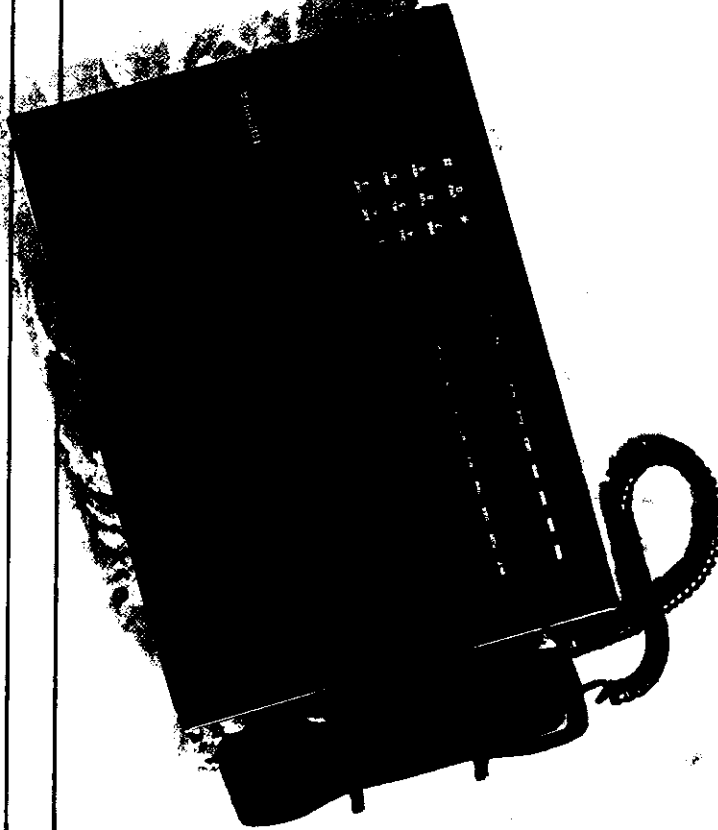
**MDR:** Alarm indicates a problem with the external SMDR equipment.

Digital Hybrid/PBX

User Guide

Attendant Console

Business



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## CONSOLE KEYBOARD (cont.)

**CALL WAITING (CW) LED:** Indicates that an unanswered call is waiting for the attendant.

The buttons located on the lower part of the console are equipped with LEDs, which are labeled as follows (from left to right):

**MSG:** Activates the Message Waiting feature if the console is designated as the system Message Center.

**GST RM:** Displays and changes Guest Room functions (see Room Status feature).

**RS/JOIN:** Displays the total status of all Guest Rooms (see Room Status Audit Display feature). This button also connects two parties which have reached the attendant on two different **LPK** buttons.

**SP**

**DIAL:** Activates the Speed Dial-System feature.

**PAGE:** Provides the attendant with direct, push-to-talk access to one external paging zone, all external paging zones, the Expanded Internal Paging Group, or the Expanded Internal Paging Group and all external paging zones.

**LPK 1 ~ 4** The four **LPK** buttons are used for answering and originating calls.

**RLS:** Releases the console from any connection.

The upper horizontal row of buttons, with the exception of the **HOLD** button, are all equipped with LEDs and (reading from left to right) are labeled as follows:

**NITE:** Activates/deactivates night service.

**POS BSY:** Used to "busy out" one position of a 2-console system.

**DIS TOD:** Displays the time and date from the system clock. The clock can be corrected while this display is active.

(continued)

## CONSOLE KEYBOARD (cont.)

**BUZZ:** Allows the attendant to select whether or not a signal tone will be heard during a Call Waiting condition.

**CONF:** Activates an attendant conference of up to six parties, including the attendant console.

**OVER-FLOW:** Transfers waiting calls to an alternate answering point.

**VER/CRG:** Overrides a busy station or trunk. This button is also used to record an account number when extending a call.

**EXCL DEST:** Excludes the destination party from a 3-way conversation.

**EXCL SRC:** Excludes the source party from a 3-way conversation.

**HOLD:** Holds calls that are connected to **LPK** buttons.

The dial pad consists of 12 alphanumeric buttons and is used to dial both internal and outgoing calls from the console.

The three buttons in the vertical row on the right of the console are not equipped with LEDs, and are labeled as follows (from top to bottom):

**BLF:** Used with the dial pad to change the "hundreds groups" displayed on the console.

**RLS**

**SRC:** Disconnects the source party from an **LPK** button.

**RLS DEST:** Disconnects the destination party from an **LPK** button.

## VOLUME CONTROL

A volume control for the console tone signal is located on the rear of the console below the Busy Lamp Field housing.

## HANDSET/HEADSET

Your console may be used with either a handset or headset (whichever is the most comfortable and convenient for you to use), which may be plugged in on either side of the unit. Also, the handset cradle may be mounted on either side of the console.

## EMERGENCY SWITCHES

Two switches are located on the underside of the console. These switches are for emergency use only and are labeled as follows:

- EMT:** The Emergency Transfer switch allows the attendant to manually set the EMT circuits in the event of a system malfunction.
- INT:** The initialize switch is used to reset the system logic in the event of a system malfunction.

## CONSOLE OPERATION

### ACCOUNT NUMBER RECORDING

Your system may automatically record the details of the calls you make to or receive from outside the system. If you wish, these calls may be assigned to specific account numbers for billing purposes (\_\_\_\_ digits). Perform the following steps before extending the call:

**TO RECORD AN ACCOUNT NUMBER:**

- 1) Start from a usual voice connection.
  - The LPK LED will light.
  - The ICI and SRC displays will turn on.
  - If the call originated at the console, press the LPK button again and dial before pressing the VER/CRG button.

(continued)

### ACCOUNT NUMBER RECORDING (cont.)

- 2) Press the VER/CRG button.
  - The connection will be placed on hold.
  - The VER/CRG LED will light.
- 3) Dial the account number on the dial pad (\_\_\_\_ digits). When the number is complete:
  - The VER/CRG LED will go out.
  - The talking connection will be re-established.
- 4) Continue the call in the usual manner.

### ACTIVATING NIGHT SERVICE

All LPK buttons must be idle before activating this feature. To activate Night Service, use single or multiple console instructions (depending upon your system's design).

#### SINGLE CONSOLE

**TO ACTIVATE NIGHT SERVICE:**

- Press either the NITE or POS BSY button or unplug the handset/headset.
- The NITE and POS BSY LEDs will light.
  - All existing Night Service selections will be activated.
  - The RLS LED will go out.

**TO CANCEL NIGHT SERVICE:**

- Press either the NITE or POS BSY button or plug in the handset/headset.
- The NITE and POS BSY LEDs will go out.
  - The RLS LED will light.

(continued)

## ACTIVATING NIGHT SERVICE (cont.)

### MULTIPLE CONSOLES

#### TO ACTIVATE NIGHT SERVICE:

- 1) Press either the **NITE** or **POS BSY** button or unplug the handset/headset.
  - a) If the other console is still active:
    - The POS BSY LED will light.
    - The console will be removed from service.
  - b) If the other console is already in POS BSY:
    - The NITE and POS BSY LEDs will light.
    - The system will now be in Night Service and all existing Night Service selections will be activated.

#### TO CANCEL NIGHT SERVICE:

Press either the **NITE** or **POS BSY** button or plug in the handset/headset.

- The NITE and POS BSY LEDs will go out.
- The RLS LED will light.

## ANSWERING AN INCOMING CALL

- 1) You will hear an incoming call signal.
  - The ICI and SRC will be displayed.
  - The LPK LED will flash.
- 2) Press the appropriate **LPK** button.
  - The LPK LED will light.
  - Signaling will stop.
- 3) You will now be connected to the call.
  - Make an appropriate response.

## ATTENDANT CONFERENCE

You can set up a conference call for as many as five people plus yourself, at the request of either a station user or an outside caller. The starting point for a conference can be any of the following conditions:

- a) The console has answered an incoming call from a station or trunk and that party is to be the first member of the conference.
- b) The console dials the first conference member on an **LPK** button in the usual manner.
- c) Due to an Attendant Recall, the console has a 3-way connection on an **LPK** button. The attendant must establish a 3-way voice connection through a second operation of the **LPK** button prior to proceeding to Step 1.

#### TO CONFERENCE:

- 1) Press the **CONF** button.
  - The CONF LED will flash.
  - The voice connection between the console and the existing connection(s) will continue.
  - The COS display will indicate the number of conferees.
- 2) Dial the next conference member.
  - The console voice connection will be split when the first digit is dialed, but the voice connection between any existing conference members will continue.
  - The CONF LED will now light steadily.
  - The dialed number will appear in the DEST display area.
  - STATUS will display RNG (unless you have dialed out over a trunk).
- 3) You will hear ringing tone.
  - The called party answers.

The console now has a voice connection with the called party.
- 4) Press the **CONF** button.
  - The CONF LED will now flash.
  - The console and the new party will now be conferenced with the original existing connection(s).
  - COS will display the number of conferees, not including the console.
- 5) Repeat Steps 2 through 4 to add another party.

(continued)

## ATTENDANT CONFERENCE (cont.)

### TO RELEASE FROM CONFERENCE:

Press the **RLS** button.

- The CONF LED indication will now light steadily.
- The LPK LED will go out.
- The RLS LED will light.
- The console will now be idle.
- The conference will continue.

### TO RECALL THE CONSOLE BY A CONFeree

(station user):

- 1) The station user flashes the hookswitch, or presses the **CONF** button.
  - The console will signal.
  - The LPK and CONF LEDs will flash.
- 2) Press the appropriate **LPK** button.
  - Console signaling will stop.
  - The LPK and CONF LEDs will now light steadily.
  - The console and the recalling party will now have a separate voice connection.
- 3) The remaining conferees will continue to conference. Proceed from Step 4 (To Conference).

### TO RE-ENTER THE CONFERENCE:

You can re-enter the existing conference, if required. A warning tone will be inserted into the conference before you are connected.

- 1) Press an idle **LPK** button.
  - The RLS LED will go out.
  - The LPK LED will light.
- 2) Proceed from Step 1 (To Conference).

#### NOTE:

*The conference can only be entered by the console that set it up.*

## ATTENDANT RECALL

A station user, while talking to another party, may recall the console and return the call to the attendant for further handling.

- 1) You will hear an incoming call signal.
  - ICI will display RCL.
  - The SRC and DEST will be displayed.
  - COS will be displayed if the station originated the call.
  - The LPK LED will flash.
- 2) Press the appropriate **LPK** button.
  - The LPK LED will light steadily.
  - The EXCL SRC LED will light.
  - The call signal will stop.
  - STATUS will display TLK.
  - You will now have a voice connection with the DEST party.
  - The SRC party will be separated from the conversation.
- 3) Press the **RLS DEST** button.
  - The DEST party (recalling party) will be disconnected.
  - You will have a voice connection with the SRC party.
- 4) Process the call in the same manner as a newly answered call.

## AUTOMATIC WAKE-UP

You can set a time for the system to call a directory number and send a voice message to that telephone once it is answered.

### TO DISPLAY AUTOMATIC WAKE-UP TIME:

- 1) Press the **GST RM** button.
  - The GST RM LED will light.
  - The LPK LED will light.
- 2) Dial the directory number of the Guest Room.
  - The DEST directory number will be displayed as the digits are dialed.

(continued)

## CALLING A DIRECTORY NUMBER

- 1) Press an idle **LPK** button.
  - The RLS LED will go out.
  - The LPK LED will light.
- 2) Dial the directory number.
  - The DEST directory number will be displayed as the digits are dialed.
- 3A) If the directory number is busy:
  - STATUS will display BSY.
  - You will hear busy tone.
- 3B) If the directory number is idle:
  - STATUS will display RNG.
  - You will hear ringing tone.
- 3C) When the party answers, STATUS will change to TLK.
  - You will now have a voice connection with the called party.
- 4) Press the **RLS** button to extend the call.
  - The LPK LED and all displays will go out.
  - The RLS LED will light.
  - The console will become idle.

### NOTE:

*Camp-on and Call Waiting cannot be used when the console calls a busy station. When the station becomes idle, you must redial its directory number.*

## CALLING AN OUTSIDE NUMBER

- 1) Press an idle **LPK** button.
  - The RLS LED will go out.
  - The LPK LED will light.
- 2) Dial the desired trunk access code.
  - DEST will display the trunk number.
  - STATUS will display TLK.
  - You will hear trunk dial tone.
- 3) Dial the desired number.

## CALLING AN OUTSIDE NUMBER

(cont.)

- 4) Press the **RLS** button to terminate the call.
  - The LPK LED and all displays will go out.
  - The RLS LED will light.
  - The console will become idle.

### NOTE:

*To extend the call to a station, dial the station DN in the usual way and then press the **RLS** button.*

## DIRECT-IN LINE CONNECTIONS

Direct-in Line (DIL) assignments are stored in system memory. Set-up is required only during initial installation or when changes are required. Flexible DIL allows any number of trunks to be assigned to the same station.

### TO ASSIGN FLEXIBLE DIRECT-IN LINE (DIL):

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Dial the DIL destination change access code (  ).
  - The access code will be displayed as DEST.
  - The NITE LED will flash.
  - You will hear dial tone.
- 3) Dial the trunk access code followed by its member number.
  - Dial tone will stop when the first digit is dialed.
  - The first two digits will be displayed as DEST, but will shift to SRC when the number is completed.
  - The LPK LED will go out and dial tone will return when the number is completed.

### NOTE:

*If a nonexistent access code or trunk number is dialed, you will hear overflow tone. Press the **RLS SRC** button and return to Step 3.*

## DIRECT-IN LINE CONNECTIONS (cont.)

- 4) Dial the directory number (DN).
  - Dial tone will stop after the first digit is dialed.
  - The DEST directory number will be displayed as the digits are dialed.
  - The LPK LED will light.
  - You will hear dial tone.
- 5) Repeat Steps 3 and 4 to make additional assignments.
- 6) Press the **RLS** button.
  - The RLS LED will light.
  - The NITE and LPK LEDs and all displays will go out.

**NOTE:** If a nonexistent directory number is dialed, you will hear overflow tone. Press the **RLS DEST** button and return to Step 4.

## DISPLAY AND SET DATE/TIME

Your telephone system has an internal clock that must be set to the correct date, day, and time in order for features such as Traffic Measurement and Station Message Detail Recording to be effective.

### TO DISPLAY DATE:

- Press the **DIS TOD** button.
- The date will be displayed:

SRC	COS	DEST
Month	Day	Year/Day-of-Week

## DISPLAY AND SET DATE/TIME (cont.)

### TO SET DATE:

Enter the 7-digit date (via the dial pad) in the following format:

MMDDYYD

Example: For January 2, 1989, enter 0102892.

- The new date will appear on the display.
- The last digit assigns the day of the week (1 ~ 7: Sunday ~ Saturday).

### TO DISPLAY TIME:

Press the **DIS TOD** button a second time.

- The time will be displayed.

SRC	COS	DEST
Hours	Minutes	Seconds

### TO SET TIME:

Enter the 6-digit time (via the dial pad) in the following format:

HHMMSS

Example: For 9:30 AM, enter 093000.

- The new time will appear on the display.

### NOTE:

The time is displayed and entered in the 24-hour clock form (for any hour after 12 noon, add 12).

e.g., 9:30 AM is 0930      9:30 PM is 2130

### TO START THE CLOCK AND CLEAR THE DISPLAY:

Press the **DIS TOD** button a third time.

- The display will clear.

### NOTE:

The display will automatically clear if an **LPK** button is pressed.

## EMERGENCY TRANSFER

If the system goes completely out of service and the MAJOR ALARM LED is not on, the Emergency Transfer switch (located on the underside of the console on the side nearest the dial pad) can be used to manually set the system into Emergency Transfer operation. Operating the switch will connect the designated stations directly to the outside lines.

### TO OPERATE THE EMERGENCY TRANSFER:

Press the EMT switch.

- The MAJ Alarm LED will light.

### TO RESTORE NORMAL OPERATION:

Press the EMT switch.

- The MAJ Alarm LED will go out.

## EXCLUSION BUTTONS (SPLITTING)

Use of the Exclusion (**EXCL SRC** and **EXCL DEST**) buttons enables you to split a three-way connection and allows you to converse privately with either the "source" or "destination" party. When you are involved in a 3-way connection, it is possible to:

- 1) Talk privately with the called party (DEST).
- 2) Talk privately with the calling party (SRC).
- 3) Form a 3-way voice connection consisting of yourself and both the calling and called parties.

### TO TALK TO THE CALLED PARTY PRIVATELY:

Press the **EXCL SRC** (Exclude Source) button.

- The EXCL SRC LED will light.
- You may now talk to the **called** party privately. The **calling** party will not be able to hear you.

#### NOTE:

*The Exclude Source condition will automatically activate when you start dialing to extend a call.*

## EXCLUSION BUTTONS (SPLITTING) (cont.)

### TO TALK TO THE CALLING PARTY PRIVATELY:

Press the **EXCL DEST** (Exclude Destination) button.

- The EXCL DEST LED will light.
- You may now talk to the **calling** party privately. The **called** party will not be able to hear you.

### TO FORM A 3-WAY CONVERSATION FROM EITHER AN EXCL SRC OR EXCL DEST CONDITION:

Press the appropriate **LPK** button.

- The EXCL SRC or EXCL DEST LED will go out.
- You and the other two parties may now converse freely.

### TO RELEASE A CALL WHILE IN ANY OF THE ABOVE CONDITIONS:

- 1) Press the **RLS SRC** button.
  - The SRC and COS displays will go out.
  - The calling party will be dropped.
  - You will still be connected to the called party (DEST) and may converse as required.
- 2) Press the **RLS** button.
  - The DEST display and the LPK LED will go out.
  - The RLS LED will light.
  - The called party will be dropped.
  - The console will become idle.

#### NOTES:

1. You can drop the called party and maintain your connection with the calling party by pressing the **RLS DEST** button.
2. Pressing the **RLS** button while both the calling and called parties are connected to the console, will drop the console out of the conversation (making it idle), but will leave the two parties connected.

## EXTENDING A CALL TO AN IDLE DIRECTORY NUMBER

- 1) Dial the directory number.
  - The EXCL SRC LED will light steadily when the first digit is dialed.
  - The voice path to the caller will be broken.
  - The DEST directory number will be displayed as the digits are dialed.
  - STATUS will display RNG.
  - You will hear ringing tone.
- 2) Press the **RLS** button.
  - The LPK LED and all displays will go out.
  - The RLS LED will light.
  - The console will become idle.
  - The caller will hear ringing tone.

### NOTES:

1. If you want to announce the call, wait for the called party to answer before pressing the **RLS** button.
2. If the call remains unanswered for (\_\_\_\_) seconds, the call will be returned to your console as a Timed Recall. (TIM LED will be displayed as ICl.)

## EXTENDING A CALL TO A BUSY DIRECTORY NUMBER

(With Camp-on/Call Waiting)

- 1) Dial the directory number.
  - The EXCL SRC LED will light steadily when the first digit is dialed.
  - The voice path to the caller will be broken.
  - The DEST directory number will be displayed as digits are dialed.
  - STATUS will display BSY.
- a) If you hear nothing (Camp-on), go to Step 2.
- b) If you hear ringing tone (Call Waiting), go to Step 4A.

## EXTENDING A CALL TO A BUSY DIRECTORY NUMBER (cont.)

- c) If you hear busy tone, go to Step 3B (busy tone indicates that Camp-on/Call Waiting is not possible for one of the following reasons):
  - Camp-on/Call Waiting is not permitted due to System restrictions.
  - The called station is dialing or is involved in a conference call.
- 2) Press the **EXCL DEST** button.
  - The EXCL DEST LED will light.
  - The EXCL SRC LED will go out.
  - You will now have a voice connection with the caller.
- 3A) If the caller wants to wait:
- 4A) Press the **RLS** button.
  - The LPK LED and all displays will go out.
  - The RLS LED will light.
  - The console will become idle.

**NOTE:** If the call remains unanswered for (\_\_\_\_) seconds, the call will be returned to your console as a Timed Recall.

- 3B) If the caller does not want to wait or if Camp-on is not allowed:
- 4B) Press the **RLS DEST** button.
  - The called station will be released from console.
  - The DEST display will be cleared.
  - Another DN can be dialed if requested.
- 5B) Press the **RLS** button.
  - The LPK LED and all displays will go out.
  - The RLS LED will light.
  - The console will become idle.



## HOLDING A CALL ON LPK BUTTON

In some cases you may want to hold a call on an **LPK** button while you gather more information or page someone.

### TO HOLD A CALL:

Press the **HOLD** button.

- The LPK LED will flash.
- The RLS LED will light.
- All displays will go out.
- The calling/called party on hold will hear MOH, if equipped.
- You can now originate or answer calls on other **LPK** buttons.

### TO RECONNECT:

Press the appropriate **LPK** button.

- The LPK LED will light.
- The RLS LED will go out.
- The ICI/STATUS, SRC/DEST, and STATUS displays will light.
- You will now have a voice connection with the SRC (DEST) party.

## INTERPOSITION CALL/TRANSFER

If your system is equipped with more than one console serving the same customer, it is possible for the consoles to call each other and to transfer calls from one console to the other.

### TO CALL CONSOLE-TO-CONSOLE:

- 1) Press an idle **LPK** button on the **calling** console.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Dial **0**
  - DEST will display 0.
  - STATUS will display RING.
  - You will hear ringing tone.

## INTERPOSITION CALL/TRANSFER (cont.)

### 3) When the **called** console answers:

- ICI will display OPR.
- STATUS will change to TLK.
- You will now have a voice connection between the two consoles.

### TO TRANSFER A CALL CONSOLE-TO-CONSOLE:

- 1) Dial **0**
  - The EXCL SRC LED will light.
  - The voice path to the caller will be broken.
  - DEST will display 0.
  - STATUS will display RING.
  - You will hear ringing tone.
  - Either release or stay on the line to announce the call.

**NOTE:** At this point, it is possible to return to the original calling party without transferring the call, by pressing the **RLS DEST** button.

### 2) When the **called** console answers:

- STATUS will change to TLK.
- You will now have a voice connection between the two consoles.
- ICI will display OPR.

### 3) Press the **RLS** button.

- The RLS LED will light.
- The LPK and EXCL SRC LEDs and all displays will go out.
- A voice connection will be established between the second console and the original calling party.
- ICI will change to reflect the type of call.
- Your console will become idle.

## JOIN BUTTON

The **JOIN** button allows you to connect one LPK line with another LPK line. A typical operation that utilizes this button is when a call has returned to your console unanswered on LPK1, and the called party must be paged.

- 1) Press the **PAGE** button.
  - The party on the **LPK** button will be automatically placed on hold.
  - The LPK1 LED will flash.
  - The RLS LED will light.
- 2) Page the called party.
- 3) When the called party calls the attendant:
  - The LPK2 LED will flash.
  - ICI, SRC, and COS will be displayed.
- 4) Press the **LPK2** button to answer the call.
  - The LPK2 LED will light.
  - The RLS LED will go out.
- 5) Inform party #2 of the call on **LPK1**.
- 6) Press the **JOIN** button.
  - The ICI, SRC, and COS displays will go out.
  - LPK2 will be placed on hold.
- 7) Press the **LPK1** button.
  - The LPK2 LED will go out.
  - The LPK1 LED will light steadily.
  - The ICI, SRC and COS LEDs will light to identify the original call on LPK1.
  - DEST will display the DN from LPK2.
  - STATUS will display TLK.
  - A 3-way conversation will now be established.
- 8) Press the **RLS** button.
  - LPK1 LED and all displays will go out.
  - The RLS LED will light.
  - The two parties will remain connected.

## MEET-ME PAGE

This feature will allow you to "park" a call while you page the called party. The called party can then pick up the call automatically by dialing the access code from any station in the system.

### MAKE A MEET-ME-PAGE:

- 1) Dial the Meet-Me Page access code (\_\_\_\_).
  - The EXCL SRC LED will light steadily when the first digit is dialed.
  - The voice path to the caller will be broken.
  - DEST will be displayed as digits are dialed.
- 2) Press and hold the **PAGE** button.
  - The PAGE LED will light.
  - DEST will display the access code that is necessary to pick up the parked call.
  - STATUS will display TLK.
- 3) Make your announcement, giving the access code that is displayed in DEST.
- 4) Release the **PAGE** button.
  - The PAGE, LPK, and EXCL SRC LEDs will go out.
  - All displays will go out.
  - The RLS LED will light.
  - The console will become idle.
- 5) Press the **RLS** button.

*NOTE: If the parked call is not picked up before a programmed time-out occurs, the call will recall to the attendant. DEST will display the code used by the attendant to park the call.*

### TO CANCEL A MEET-ME PAGE:

- 1) Press the **RLS/DEST** button.
  - The DEST display will go out.

*NOTE: You may now either take a message and press the **RLS** button to hang up, or extend the call to another directory number (see Extending a Call).*

## MESSAGE WAITING

If your console is designated as the Message Center, you may indicate to a called station that a message is waiting.

### TO LEAVE A MESSAGE WAITING SIGNAL:

- 1) When you have called a station that is either busy or does not answer.
- 2) Press the **MSG** button.
  - The MSG LED will light.
  - The MW indication will be set.
- 3) Press the **RLS** button.
  - The DEST and STATUS displays will go out.
  - The MW/FL LED will light at the called station.

### TO DISPLAY MESSAGE WAITING:

The attendant console's busy lamp field can display all the stations that have Message Waiting set.

- 1) Press the **MSG** button.
- 2) Dial the hundreds group to be displayed.
  - The hundreds group identifier will display the dialed hundreds group.
  - The busy lamp field will display all stations that have Message Waiting set.
- 3) If necessary, dial another hundreds group to display additional stations that have Message Waiting set.
- 4) Press the **MSG** button.
  - The busy lamp field will again indicate stations' busy/idle status.

#### NOTE:

*In order to change a hundreds group, you must press the **BLF** button (if it has been previously pressed), prior to performing Step 1.*

## MESSAGE WAITING (cont.)

### TO CANCEL MESSAGE WAITING:

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Dial the station's directory number.
  - The DEST directory number will be displayed as the digits are dialed.
  - The MSG LED will show the status of the MW LED at the called station (i.e., if Message Waiting is active on that station, the LED will be on).
- 3) Press the **MSG** button.
  - The MSG LED will go out (if it was on).
  - The MW condition will be cleared at the called station.
- 4) Press the **RLS** button.

#### NOTE:

*After you dial the station's directory number, your call will ring through at that station. If answered, simply explain that you are clearing the MW lamp at that station.*

### TO CANCEL ALL MESSAGE WAITING SIGNALS:

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Dial the "all clear" access code (\_\_\_\_).
  - All MW conditions in the system will be canceled.
  - DEST will display the dialed digits.
- 3) Press the **RLS** button.
  - The LPK LED will go out.
  - The RLS LED will light.
  - The console will become idle.

## NIGHT ANSWERING CONNECTIONS

Night connection assignments are stored in system memory. Set-up is required only during initial installation or when changes are required. Flexible Night Answering allows any number of trunks to be assigned to the same station. Any trunks that are not assigned to a night station will activate the Universal Night Answer (UNA) signal. The Universal Night Answer procedure assigns specific trunks to activate the UNA signal.

### TO ASSIGN FLEXIBLE NIGHT ANSWER:

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Press the **NITE** button.
  - The NITE LED will flash.
  - You will hear dial tone.
- 3) Dial the trunk access code, followed by the trunk number.
  - The first two digits will be displayed as DEST, but will shift to SRC when the number is completed.
  - The LPK LED will go out and dial tone will return when the number is completed.

**NOTE:** If a nonexistent access code or trunk number is dialed, you will hear overflow tone. Press the **RLS SRC** button and return to Step 3.

- 4) Dial the directory number (DN).
  - Dial tone will stop when the first digit is dialed.
  - The DEST directory number will be displayed as the digits are dialed.
  - The LPK LED will light.
  - You will hear dial tone.
- 5) Repeat Steps 3 and 4 to make additional assignments.
- 6) Press the **RLS** button.
  - The RLS LED will light.
  - The NITE and LPK LEDs and all displays will go out.

**NOTE:**  
If a nonexistent DN is dialed, you will hear overflow tone. Press the **RLS DEST** button and return to Step 4.

## NIGHT ANSWERING CONNECTIONS (cont.)

### TO ASSIGN UNIVERSAL NIGHT ANSWER:

If a trunk is currently assigned to ring at a specific station in night operation, you can change its assignment to activate the UNA signal with the following procedure.

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Press the **NITE** button.
  - The NITE LED will flash.
  - You will hear dial tone.
- 3) Dial the trunk access code, followed by its member number.
  - Dial tone will stop when the first digit is dialed.
  - The first two digits will be displayed as DEST, but will shift to SRC when the number is completed.
  - The LPK LED will go out and dial tone will return when the number is completed.

### NOTE:

If a nonexistent access code or trunk number is dialed, you will hear overflow tone. Press the **RLS SRC** button and return to Step 3.

- 4) Press the **RLS** button.
  - The RLS LED will light.
  - The NITE and LPK LEDs and all displays will go out.

### NOTE:

Repeat the above steps to make additional assignments.

## OVERFLOW

When your console becomes busy, it is possible to divert calls that have been waiting unanswered for over (\_\_\_\_\_) seconds, to a station acting as an alternate answering point. An alternate answering point is designated by following the steps in "Night Answering Connections," and substituting "0" for trunk access code and trunk number.

### NOTE:

*Overflow will not operate if the console is idle.*

### TO ENGAGE OVERFLOW:

- Press the **OVERFLOW** button.
- Overflow LED will light.
  - The Overflow will now be engaged.

### TO RELEASE OVERFLOW:

- Press the **OVERFLOW** button.
- The Overflow LED will go out.
  - Overflow will be released.

## PAGING

Your console's **PAGE** button provides direct push-to-talk access to one external paging zone or internal paging group, all external zones, the Expanded Internal Paging Group, or both the Expanded Internal Paging Group and all external zones. Specific external zones or external groups that are not assigned to a **PAGE** button, can be accessed by pressing an idle **LPK** button and dialing the proper access code.

The **PAGE** LED will light steadily when paging a zone or group (or all zones/groups) is/are being used. Your **PAGE** button gives you preemption capability. If you operate the **PAGE** button when a page is in progress, the page will be cut off and you will be connected. In situations when you cannot hear a page in progress, it is important to observe the status of the **PAGE** LED in order to prevent unwanted disconnections.

### TO PAGE FROM AN IDLE CONSOLE:

- 1) Press the **PAGE** button or dial the proper access code for the desired zone/group.
  - The **PAGE** LED will light.
  - The **RLS** LED will go out.
  - An idle **LPK** LED will light.
  - The paging access code will be displayed as **DEST**.
  - **STATUS** will display **TLK**.
- 2) Make your announcement
- 3) Press the **RLS** button.
  - The **PAGE** and **LPK** LEDs will go out.
  - The **RLS** LED will light.
  - The **DEST** and **STATUS** displays will go out.

### TO PAGE FROM AN ACTIVE **LPK** BUTTON:

- 1) Press the **PAGE** button or dial the proper access code for the desired zone/group.
  - The **PAGE** LED will light.
  - The **EXCL SRC** LED will light.
  - The party on the **LPK** button will be automatically placed on hold.
- 2) Make your announcement, asking the paged party to call the attendant.

### PAGING (cont.)

- 3) Press the **RLS** button.
  - The PAGE LED will go out.
  - The EXCL SRC LED will go out.
  - The LPK LED will flash.
  - The RLS LED will light.
- 4) The party on the **LPK** button will remain on hold. The paged party can now call the attendant and will be answered on an idle **LPK** button.
- 5) Press the **JOIN** button.
- 6) Press the original (held) **LPK** button.
  - The console and the two parties will now be connected on a single **LPK** button.
- 7) Press the **RLS** button.
  - The LPK LED will go out.
  - The RLS LED will light.
  - The console will become idle.

The paging assignments in your system are:

EXTERNAL ZONE	ACCESS CODE	LOCATION
All External Zone Paging	_____	_____
Zone Paging	_____	_____
1	_____	_____
2	_____	_____
3	_____	_____
4	_____	_____
5	_____	_____
Expanded Internal Group Paging and All External	_____	_____
INTERNAL ZONE	ACCESS CODE	LOCATION
Internal Group Paging	_____	_____
Expanded Internal Group Paging	_____	_____
Expanded Internal Group Paging and All External	_____	_____

### POSITION BUSY

The **POS BSY** button allows you to make your console "busy," in order to prevent additional incoming calls from being assigned to your console. While your console is "busy," calls will be diverted to the second console in the system.

**NOTE:**

*If your system is equipped with just one console, the **POS BSY** button will have the same effect as the **NITE** button.*

**TO USE POSITION BUSY:**

Press the **POS BSY** button.

- The RLS LED will go out.
- If there is only one console in the system (or if the other console is in POS BSY), the POS BSY and NITE LEDs will light (the system will be in Night Service).
- If the other console is active in the system, the POS BSY LED will light.

**TO PUT YOUR CONSOLE BACK IN SERVICE:**

Press the **POS BSY** button again.

- The POS BSY LED will go out.
- The RLS LED will light.

### REMOTE ACCESS TO SYSTEM SERVICES

This feature allows a user outside of your system to access system services via an exchange network connection. To use Remote Access, the user dials a preselected exchange number to connect to the system and then dials a 3-digit authorization code. The user may then make a call, just as if calling within the system.

The authorization code that is used by the outside user is controlled by the Attendant Console and may be changed at any time.

## REMOTE ACCESS TO SYSTEM SERVICES (cont.)

The trunk(s) used for this service (and, therefore, the exchange number dialed by the outside user), may be permanently fixed or may be assigned by your console each time it is needed (this is a programmable option). In addition, the trunks may be arranged to operate in the Remote Access mode during both DAY and NITE Service or during NITE Service only.

### TO ASSIGN OR CHANGE THE AUTHORIZATION CODE:

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go off.
- 2) Dial the access code (  ).
- 3) Dial the authorization code (  ).
- 4) Press the **RLS** button.
  - The RLS LED will light.
  - The LPK LED will go out.
  - The console will become idle.

### TO SELECT TRUNK(S) TO BE USED WITH REMOTE ACCESS TO SYSTEM (In NITE Service only):

Trunks are assigned to a night station via the steps noted in "Night Answering Connections." To select a trunk to be used for Remote Access, perform these steps, substituting the Remote Access number for the night station directory number. All trunks that are assigned to this number will function when Remote Access to System is utilized. System programming will determine whether Remote Access is functional during both DAY and NITE Service, or during NITE Service only.

## SERIAL CALL

For an incoming call that requests two or more stations:

- 1) Press the **SER CALL** button.
- 2) Dial the first station number and extend the call, using standard procedures.

When the call is completed and the station user hangs up, the call will be returned to your console with an ICI display of SER. Repeat the above steps if a third station is required; otherwise process the call as a standard call.

## SPEED DIAL-SYSTEM

Speed dialing allows you and other station users to use a 2-digit code in place of a full telephone number when making calls. The Speed Dial-System list of telephone numbers must be stored via the attendant console, but, once stored, all numbers are accessible to all stations. A maximum of 90 telephone numbers may be stored.

### TO MAKE A CALL WITH SPEED DIAL-SYSTEM:

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Press the **SP DIAL** button.
- 3) Dial the 2-digit address code for the telephone number that you want to call (10 ~ 99).
  - The system will dial the number for you.
  - DEST will display the trunk number.
  - STATUS will display TLK.

## SPEED DIAL-SYSTEM (cont.)

### TO STORE A NUMBER:

- 1) Press the **SP DIAL** button (do not press an **LPK** button).
  - The SP DIAL LED will flash.
- 2) Dial:
  - a) The 2-digit address code (10 ~ 99) that you want to represent the telephone number.
  - b) The trunk access code.
  - c) The **■** button (this inserts a 3-second pause to allow time for trunk dial tone to appear).
  - d) The telephone number.
- 3) Press the **SP DIAL** button again.
  - The SP DIAL LED will go out.
  - The code and telephone number will now be stored.

## SYSTEM INITIALIZE

The Initialize INT switch, located on the underside of the console, is used to reset system logic in the event of a system malfunction. This switch should be used before resorting to the Emergency Transfer switch.

### WARNING!

*This switch should be used only in extreme situations, since it will cause all calls in the system to be dropped.*

### TO INITIALIZE THE SYSTEM:

- 1) Press the INT switch.
  - The MAJ LED will light momentarily.
  - The RLS LED will go out.
  - The NITE and POS BSY LEDs will light.
  - The MIN LED will light.
- 2) Press the **NITE** button.
  - The system will switch to DAY operation.
- 3) Check the system time and date. Set if necessary.
  - The MIN LED will go out.
- 4) Proceed with normal system operations.

## THROUGH DIALING

Requests may be received from restricted stations or TIE line users, for dialing access to numbers or trunks.

- 1) You will hear an incoming call signal.
  - ICI will display OPR.
  - SRC and COS will be displayed.
  - The LPK LED will flash.
- 2) Press the appropriate **LPK** button.
  - The LPK LED will light steadily.
  - Console signaling will stop.
  - You will now have a voice connection with the calling (SRC) party.
- 3) Dial the desired trunk access code.
  - The EXCL SRC LED will light steadily.
  - DEST will display the trunk and member number.
  - STATUS will display TLK.
  - The voice connection with the calling party will be broken.
  - You will hear trunk dial tone.
- 4) Press the **RLS** button to transfer trunk dial tone to the station.
  - The RLS LED will light.
  - The calling (SRC) station may now dial out on the selected trunk.

*NOTE: Restriction will still be in effect at the station.*



## TIMED RECALL

If an extended call remains unanswered for ( ) seconds, the call will be returned to your console.

- 1) You will hear an incoming call signal.
  - ICI will display TIM.
  - SRC and DEST will be displayed.
  - The LPK LED will flash.
  - RNG will be displayed if station status is ring-no-answer.
- 2) Press the appropriate **LPK** button.
  - The LPK LED will light.
  - BSY will be displayed if station status is busy.
- 3) You will now be connected to the call.
  - Make an appropriate response.

### NOTE:

*The called station will continue to ring. If the called station goes off-hook, it will be connected into a 3-way conference with yourself and the calling party. You can use the **EXCL DEST** and **EXCL SRC** buttons to exclude either the calling or called parties from the conversation, or you can use the **RLS** button to drop the console out of the conversation.*

- 4A) If the calling party (SRC) wants to wait:
  - 5A) Press the **RLS** button.
    - The LPK LED and all displays will go out.
    - The RLS LED will light.
    - The console will become idle.
  - 4B) If the calling party (SRC) does not want to wait:
    - 5B) Press the **RLS DEST** button.
      - The DEST and STATUS displays will go out.
      - The called station will be released.
      - Another directory number may now be dialed, if requested.
    - 6B) Press the **RLS** button.
      - The LPK LED and all displays will go out.
      - The RLS LED will light.
      - The console will become idle.

## TRUNK CONTROL

Your console allows you to control access to any trunk group for the purpose of allocating special facilities. When you have taken control of a trunk group, a station user who is trying to access that group will be routed to your console (ICI will display OPR). (In some systems, a few executive stations will be allowed to override your control.) The caller's name should be noted so that he/she can be called when a trunk is available.

### TO TAKE CONTROL OF A TRUNK GROUP:

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Dial **\*\*\***, followed by the trunk access code.
  - The TGB (trunk group busy) LED will light.
  - Trunk control will be in effect.
- 3) Press the **RLS** button.
  - The RLS LED will light.
  - The LPK LED and all displays will go out.

### IF A STATION USER CALLS A CONTROLLED TRUNK:

- 1) The station user dials the trunk access code.
  - The console will signal or will receive overflow tone.
  - The LPK LED will flash.
  - ICI will light.
  - SRC and COS will display.
- 2) Press the appropriate **LPK** button.
  - The LPK LED will light.
  - A voice connection will now be established with the caller.

### NOTE:

*If a trunk is available, proceed as in "Through Dialing." If no trunk is available, take the caller's name and station number for a callback, and then release.*

## TRUNK CONTROL (cont.)

### TO PASS A TRUNK TO A STATION:

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Dial the station number.
  - DEST will display the station number.
  - STATUS will display RNG.
- 3) When the station answers,
  - STATUS will change to TLK.
- 4) Dial the trunk access code.
  - SRC will display the station number.
  - COS will display the station's COS.
  - DEST will display the trunk access code and number.
  - The EXCL SRC will light.
  - You will hear trunk dial tone.
- 5) Press the **RLS** button.
  - The RLS LED will light.
  - LPK and EXCL SRC LEDs will go out.
  - All displays will go out.
  - The station may now dial out on the trunk.

### TO RELEASE TRUNK CONTROL (TGB LED is on):

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Dial **#7**, followed by the trunk access code.
  - The TGB (trunk group busy) LED will go out.
  - Trunk control will be released.
- 3) Press the **RLS** button.
  - The RLS LED will light.
  - The LPK LED will go out.

## TRUNK-TO-TRUNK CALL

A call from outside the system that has been answered at your console can be connected to an outgoing line.

- 1) Dial the desired trunk access code.
  - The EXCL SRC LED will light.
  - The outgoing trunk number will be displayed as DEST.
  - STATUS will display TLK.
  - You will hear trunk dial tone.
- 2) Proceed to dial the outgoing number.
- 3) Press the **RLS** button.
  - The RLS LED will light.
  - All displays will go out.
  - The LPK LED will go out or will flash (if the LPK is on hold), depending on the type of trunk involved in the connection.

### NOTE:

Some types of trunk lines give no signal when the distant party disconnects. This prevents the automatic release of a trunk-to-trunk connection. If you attempt to establish a connection between two such trunks, the connection will be made, but the call will remain on the **LPK** in a "hold" condition. You will be required to enter the call periodically in order to verify its status and, ultimately, to disconnect it. If the trunk-to-trunk call is not held on an **LPK** button (if the LPK LED is not flashing), you will not be able to re-enter the call.

## TRUNK-TO-TRUNK CALL (cont.)

### TO RE-ENTER A TRUNK-TO-TRUNK CALL:

- 1) Press the **LPK** button.
  - The LPK LED will light steadily.
  - The ICI, SRC, COS, DEST, and STATUS displays will go on.
- 2A) If a 3-way conversation will be established.
- 2B) If the conversation is still in progress:
- 3A) Press the **RLS** button.
  - The RLS LED will light.
  - All displays will go out.
  - The LPK LED will flash (indicating that the LPK is on hold).
- 3B) Press the **RLS DEST** button.
  - The DEST will be disconnected.
  - The DEST and STATUS displays will go out.
- 4B) Press the **RLS** button to terminate the call.
  - The LPK LED and all displays will go out.
  - The RLS LED will light.
  - The console will become idle.

## VERIFY

The Verify feature enables you to determine the status of a station or trunk in order to see if a problem exists, or to interrupt a call in an emergency situation.

### TO VERIFY STATION STATUS:

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
- 2) Press the **VER/CRG** button.
  - The VER/CRG LED will light.
- 3) Dial the station number.
  - DEST will display the station number.
  - SRC will display the other party (trunk or station) in the conversation whether or not the party initiated the call.
  - STATUS will display TLK.
  - If station is "warning tone protected," then the console will receive busy tone and STATUS will display RST.
- 4A) If the station is busy:
  - A 2-second warning tone will be inserted into the conversation on the called station side.
  - A 3-way conversation will be established at the end of the warning tone.
  - A 1/2-second warning tone will be repeated every 15 seconds for the duration of the 3-way connection.

### NOTE:

At this point, it is possible to release either party from the conversation by pressing either the **RLS DEST** or **RLS SRC** button.

### 5A) Press the **RLS** button.

- The VER/CRG and LPK LEDs and all displays will go out.
- The RLS LED will light.
- The console will become idle.
- The existing conversation will continue.

### 4B) If the station is idle:

- The station will ring.
- The VER/CRG LED will go out.
- STATUS will display RNG.

5B) Proceed as in a normal call.

**VERIFY (cont.)****TO VERIFY A TRUNK:**

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
- 2) Press the **VER/CRG** button.
  - The VER/CRG LED will light.
- 3) Dial the trunk access code, followed by the trunk member number.
  - DEST will display the trunk code and number.
- 4A) If the trunk is busy:
  - A 2-second warning tone will be inserted into the conversation.
  - A 3-way conversation will be established at the end of the warning tone.
  - A 1/2-second warning tone will be repeated every 15 seconds for the duration of the 3-way connection.

**NOTE:**

*At this point, it is possible to release either party from the conversation by pressing either the **RLS DEST** or the **RLS SRC** button.*

- 5A) Press the **RLS** button.
  - The VER/CRG and LPK LEDs and all displays will go out.
  - The RLS LED will light.
  - The console will become idle.
  - The existing conversation will continue.
- 4B) If the trunk is idle:
  - The trunk will be seized.
  - The VER/CRG LED will go out.
  - STATUS will display TLK.
  - You will hear trunk dial tone.
- 5B) Proceed as with a normal call.

Digital Hybrid/PBX

User Guide

Attendant Console

Lodging/Health Care

## INTRODUCTION

Your PERCEPTION<sup>e&ex</sup> attendant console has been designed to provide easy access to the wide range of features offered by your telephone system. The console is equipped with a Display Panel, Keyboard, Volume Control, and either a handset or headset. A detailed description of the console features and operations is found in the following text.

This user guide describes system operations that are programmed for use on station calls. While there are some minor differences in console tones and telephone indications in systems which use handsfree calling, console procedures are the same for all systems.

## CONSOLE DISPLAY PANEL

The console display panel includes a Busy Lamp Field and the following displays: Incoming Call Identification, Calling Source Number, Class of Service, Call Destination Number, and Call Destination Status. Additionally, in the Lodging/Health Care mode, the console will monitor, display, and change various Guest Room functions.

### BUSY LAMP FIELD

The Busy Lamp Field (BLF) displays 100 2-digit numbers (00 ~ 99), and is equipped with a hundreds group identifier that shows which group is currently being displayed. You can alter the display between hundreds groups by pressing the **BLF** button and then dialing the first digit of the hundreds group to be displayed.

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## CONSOLE DISPLAY PANEL (cont.)

### INCOMING CALL IDENTIFICATION

The Incoming Call Identification (IC) display is a backlighted panel that indicates the type of call that is currently connected to a console Loop (LPK) button. Eleven different displays are possible:

TIE	—	TIE trunk
CO	—	CO trunk
WAT	—	WATS trunk
FX	—	Foreign exchange trunk
INT	—	Intercept
RCL	—	Recall
OPR	—	Dial "O" call
TIM	—	Timed reminder (Camp-on, RNA, etc.)
SER	—	Not used
HLD	—	Held call recall
LN1	—	DID call to listed directory number 1
LN2	—	DID call to listed directory number 2

### CALLING SOURCE NUMBER

The Source (SRC) display is a 3-character, 7-segment LED display, that gives the attendant the number of the calling station or trunk. It also provides Maid-in-Room and Deposit Paid information during Lodging/Health Care operation.

### CLASS OF SERVICE

Class of Service (COS) is displayed as a 2-character, 7-segment LED display, which indicates the Class of Service of the calling station. It will also provide DND and Room Status information during Lodging/Health Care operation.

### CALL DESTINATION NUMBER

The Destination (DEST) display is a 3-character, 7-segment LED display which shows the station or trunk called by the attendant.

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## CONSOLE DISPLAY PANEL (cont.)

### CALL DESTINATION STATUS

The status (STATUS) display is a backlighted panel which indicates the status of the called station or trunk. Eight different displays are possible:

RNG	—	Called station is ringing.
BSY	—	Called station is busy.
FWD	—	Called station is forwarded to the number now displayed as DEST.
DND	—	Called station is in Do Not Disturb mode.
RST	—	Attempted connection is not allowed.
HNT	—	Called station was busy and hunting has occurred to the number now displayed as DEST.
VCT	—	Called number does not exist or is disabled.
TLK	—	Attendant is in a voice connection with the called party.

## CONSOLE KEYBOARD

The Lodging/Health Care console keyboard design includes a display window, two horizontal rows of 10 buttons, a 12-button dialpad, and a vertical row of three buttons. The faceplate display window houses the following displays:

**TRUNK GROUP BUSY (TGB):** Provides 10 numbered LEDs to indicate the status of trunk groups 0 ~ 9.

### ALARM LEDs FOR MAJOR, MINOR AND MDR:

**MAJOR:** Alarm occurs when the system is not functional, and is accompanied by an emergency transfer.

**MINOR:** Alarm indicates either that the system clock is not set or that there has been a ringing power failure.

**MDR:** Alarm indicates a problem with the external SMDR equipment.

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## CONSOLE KEYBOARD (cont.)

**CALL WAITING (CW) LED:** Indicates that an unanswered call is waiting for the attendant.

Each button in the console's lower horizontal button row is equipped with an LED. LEDs are labeled as follows (from left to right):

**MSG:** Activates the Message Waiting feature if the console is designated as the system's Message Center.

**SER CALL:** Activates the Serial Call feature.

**SP DIAL:** Activates the Speed Dial-System feature.

**JOIN:** Connects two parties which have reached the attendant on two different **LPK** buttons.

**PAGE:** Provides the attendant with direct, push-to-talk access to one external paging zone, all external paging zones, the Expanded Internal Paging Group, or the Expanded Internal Paging Group and all external paging zones.

**LPK 1 ~ 4:** The four **LPK** buttons are used for answering and originating calls.

**RLS:** Releases the console from any connection.

Each button in the console's upper horizontal button row with the exception of the **HOLD** button, is equipped with an LED. LEDs are labeled as follows (from left to right):

**NITE:** Activates the Fixed, Flexible, and Universal Night Answering features.

**POS BSY:** Used to "busy out" one position of a 2-console system.

**SPARE:** Reserved for future use.

**BUZZ:** Allows the attendant to select whether or not a signal tone will be heard during a Call Waiting condition.

## CONSOLE KEYBOARD (cont.)

**CONF:** Activates an attendant conference of up to six parties, including the attendant console.

**OVERFLOW:** Transfers waiting calls to an alternate answering point.

**VER/CRG:** Overrides a busy station or trunk. It is also used to record an account number when extending a call.

**EXCLDEST:** Excludes the destination party from a 3-way conversation.

**EXCL SRC:** Excludes the source party from a 3-way conversation.

**HOLD:** Holds calls that are connected to **LPK** buttons.

The 12-button alphanumeric dial pad is used to dial both internal and outgoing calls from the console.

The four buttons in the vertical row on the right of the console are not equipped with LEDs, and are labeled as follows (from top to bottom):

**DIS TOD:** Displays the time and date from the system clock. The clock setting can be altered while the display is active.

**BLF:** Changes the "hundreds groups" that is displayed on the console.

**RLS SRC:** Disconnects the source party from a **LPK** button.

**RLS DEST:** Disconnects the destination party from a **LPK** button.

## VOLUME CONTROL

A volume control for the console tone signal is located on the rear of the console below the Busy Lamp Field housing.

## HANDSET/HEADSET

Your console may be used with either a handset or headset (whichever is the most comfortable and convenient for you to use), which may be plugged in on either side of the unit. Also, the handset cradle may be mounted on either side of the console. Disconnecting the handset/headset will cause the system to go into night service if only one console is used.

## EMERGENCY SWITCHES

Two switches are located on the underside of the console. These switches are for emergency use only and are labeled as follows:

- EMT:** The Emergency Transfer switch allows the attendant to manually set the EMT circuits in the event of a system malfunction.
- INT:** The initialize switch is used to reset the system logic in the event of a system malfunction.

## CONSOLE OPERATION ACCOUNT NUMBER RECORDING

Your system may automatically record the details of the calls you make to or receive from outside the system. If you wish, these calls may be assigned account numbers for billing purposes (\_\_\_\_ digits). Perform the following steps before extending the call:

### TO RECORD AN ACCOUNT NUMBER:

- 1) Start from a usual voice connection.
  - The LPK LED will light.
  - The ICI and SRC displays will light.
  - If the call originated at the console, press the **LPK** button again and dial **1** before pressing the **VER CRG** button.

## ACCOUNT NUMBER RECORDING (cont.)

- 2) Press the **VER CRG** button.
  - The connection will be placed on hold.
  - The VER/CRG LED will light.
- 3) Dial the account number on the dial pad (\_\_\_\_ digits). When the number is complete:
  - The VER/CRG LED will go out.
  - The talking connection will be re-established when the last digit is dialed.
- 4) Process the call in the usual manner.

## ACTIVATING NIGHT SERVICE

All LPK buttons must be idle before activating this feature. Use single or multiple console instructions (depending upon your system's design).

### SINGLE CONSOLE

#### TO ACTIVATE NIGHT SERVICE:

- Press either the **NITE** or **POS BSY** button or unplug the handset/headset.
- The NITE and POS BSY LEDs will light.
  - All existing Night Service selections will be activated.
  - The RLS LED will go out.

#### TO CANCEL NIGHT SERVICE:

- Press either the **NITE** or **POS BSY** button or plug in the handset/headset.
- The NITE and POS BSY LEDs will go out.
  - The PLS LED will light.



## ACTIVATING NIGHT SERVICE (cont.)

### MULTIPLE CONSOLES

#### TO ACTIVATE NIGHT SERVICE:

- 1) Press either the **NITE** or **POS BSY** button or unplug the handset/headset.
  - a) If the other console is still active:
    - The POS BSY LED will light.
    - The console will be removed from service.
  - b) If the other console is already in POS BSY:
    - The NITE and POS BSY LEDs will light.
    - The system will now be in Night Service, and all existing Night Service selections will be activated.

#### TO CANCEL NIGHT SERVICE:

Press either the **NITE** or **POS BSY** button, or plug in the handset/headset.

- The NITE and POS BSY LEDs will go out.
- The RLS LED will light.

## ANSWERING AN INCOMING CALL

- 1) You will hear an incoming call signal.
  - ICI and SRC will be displayed.
  - The LPK LED will flash.
- 2) Press the appropriate **LPK** button.
  - LPK LED will light.
  - Console signaling will stop.
- 3) You will now be connected to the call.

## ATTENDANT CONFERENCE

You can set up a conference call for as many as five people (including a maximum of two trunk lines) plus yourself, at the request of either a station user or an outside caller. The starting point for a conference can be any of the following conditions:

- a) The console has answered an incoming call from a station or trunk and that party is to be the first member of the conference.
- b) The console dials the first conference member on an **LPK** button in the usual manner.
- c) Due to an Attendant Recall, the console has a 3-way connection on an **LPK** button. The attendant must establish a 3-way voice connection through a second operation of the **LPK** button, prior to proceeding to Step 1.

#### TO CONFERENCE:

- 1) Press the **CONF** button.
  - The CONF LED will flash.
  - The voice connection between the console and the existing connection(s) will continue.
  - COS will display the number of conferees.
- 2) Dial the next conference member.
  - The console voice connection will be split when the first digit is dialed, but the voice connection between any existing conference members will continue.
  - The CONF LED will light steadily.
  - The dialed number will appear as DEST.
  - STATUS will display RNG (unless you have dialed out over a trunk).
  - You will hear ringing tone.
- 3) When the called party answers, the console will have a voice connection with the called party.
- 4) Press the **CONF** button.
  - The CONF LED will flash.
  - The console and the new party will now be conferenced with the existing connection(s).
  - COS will display the number of conferees, not including the console.
- 5) Repeat Steps 2 through 4 to add another party.

## ATTENDANT CONFERENCE (cont)

### TO RELEASE FROM CONFERENCE:

Press the **RLS** button.

- The CONF LED indication will light steadily.
- The LPK LED will go out.
- The RLS LED will light.
- The console will become idle.
- The conference will continue.

### TO RECALL THE CONSOLE BY A CONFEREE (station user):

1) The station user flashes the hookswitch, or presses the **CONF** button.

- The console will signal.
- The LPK and CONF LEDs will flash.

2) Press the appropriate **LPK** button

- The console signal will stop.
- The LPK and CONF LEDs will light steadily.
- The console and the recalling party will now have a separate voice connection.
- The remaining conferees will continue to conference.

3) Proceed from Step 4 (**To Conference**).

### TO RE-ENTER THE CONFERENCE:

You can re-enter the existing conference, if required. A warning tone will be inserted into the conference before you are connected.

- 1) Press an idle **LPK** button.
  - The RLS LED will go out.
  - The LPK LED will light.
- 2) Proceed from Step 1 (**To Conference**).

#### NOTE:

*The conference can only be reentered by the console that set it up.*

## ATTENDANT RECALL

A station user who is talking to another party may recall the console and return the call to the attendant for further handling.

- 1) You will hear an incoming call signal.
  - IC1 will display RCL.
  - SRC and DEST will be displayed.
  - COS will be displayed if the station originated the call.
  - The LPK LED will flash.
- 2) Press the appropriate **LPK** button.
  - The LPK LED will light steadily.
  - The EXCL SRC LED will light.
  - The console signal will stop.
  - STATUS will display TLK.
  - You will now have a voice connection with the DEST party.
  - The SRC party will be separated from the conversation.
- 3) Press the **RLS DEST** button.
  - The DEST party (recalling party) will be disconnected.
  - You will now have a voice connection with the SRC party.
- 4) Process the call in the same manner as a newly answered call.

## CANCELING ALL CALL FORWARDING

It is possible for the Attendant Console to cancel all Call Forwarding arrangements set up by station users.

### TO CANCEL ALL CALL FORWARDING:

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Dial the call forwarding cancel code (  ).
  - All Call Forwarding arrangements will be canceled.
- 3) Press the **RLS** button.
  - The LPK LED will go out.
  - The RLS LED will light.
  - The console will become idle.

## AUTOMATIC WAKE-UP (cont.)

- 3) Press the **DIS TOD** button.
  - The Automatic Wake-up time will be displayed:

SRC	COS
Hours	Minutes

  - DEST will display the Guest Room's directory number.

### TO SET AN AUTOMATIC WAKE-UP CALL:

- 1) Display Automatic Wake-up Time (see previous instructions).
- 2) Enter the 4-digit time (via the dial pad) in the following format. Time is entered in the 24-hour clock form (see Note below).  
HHMM

For example, for 9:30 AM, enter 0930.

- The new time will appear on the display.
- 3) Press the **RLS** button.
  - All displays will clear.
  - The RLS LED will light.
  - The wake-up call will now be registered.

### NOTE:

*Automatic Wake-up time is entered and displayed in the 24-hour clock form (for any hour after 12 noon, add 12).*

e.g., 9:30 AM is 0930  
 9:30 PM is 2130  
 12: Noon is 1200  
 12:00 Midnight is 2400

### TO CANCEL AN AUTOMATIC WAKE-UP CALL:

- 1) Display Automatic Wake-Up Time (see previous instructions).
- 2) Enter the 4-digit time as 0000.
  - 0000 will appear on the display.
- 3) Press the **RLS** button.
  - The RLS LED will light.
  - All displays will go out.
  - The wake-up call will be canceled.

## CANCELING ALL CALL FORWARDING

It is possible for the Attendant Console to cancel all Call Forwarding arrangements that have been set up by station users.

### TO CANCEL ALL CALL FORWARDING:

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Dial the call forwarding cancel code (\_\_\_\_).
- All CFD arrangements will be canceled.
- 3) Press the **RLS** button.
  - The LPK LED will go out.
  - The RLS LED will light.
  - The console will become idle.

## CALLING A DIRECTORY NUMBER

- 1) Press an idle **LPK** button.
  - The RLS LED will go out.
  - The LPK LED will light.
- 2) Dial the directory number.
  - The DEST directory number will be displayed as the digits are dialed.
- 3A) If the directory number is busy:
  - STATUS will display BSY.
  - You will hear busy tone.
- 3B) If the directory number is idle:
  - STATUS will display RNG.
  - You will hear ringing tone.
  - When the party answers, STATUS will change to TLK.
  - You will now have a voice connection with the called party.

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## CALLING A DIRECTORY NUMBER (cont.)

- 4) Press the **RLS** button to terminate the call.
  - The LPK LED and all displays will go out.
  - The RLS LED will light.
  - The console will become idle.

### NOTE:

*Camp-on and Call Waiting cannot be used when the console calls a busy station. When the station becomes idle, you must redial its directory number.*

## CALLING AN OUTSIDE NUMBER

- 1) Press an idle **LPK** button.
  - The RLS LED will go out.
  - The LPK LED will light.
- 2) Dial the desired trunk access code.
  - DEST will display the corresponding trunk number.
  - STATUS will display TLK.
  - You will hear trunk dial tone.
- 3) Dial the desired number.
- 4) Press the **RLS** button to terminate the call.
  - The LPK LED and all displays will go out.
  - The RLS LED will light.
  - The console will become idle.

### NOTE:

*To extend the call to a station, dial the station DN in the usual way and then press the **RLS** button.*

## DEPOSIT PAID

You can set the STATUS display of each directory number to indicate whether or not a deposit has been paid for that room.

### TO DISPLAY THE TOTAL NUMBER OF DEPOSITS PAID:

- 1) Press the **RS JOIN** button.
  - The RS/JOIN LED will light.
  - A LPK LED will light.
- 2) Dial the "Display Deposit Paid" access code (  ).
  - DEST will display the access code.
  - SRC will display the total number of rooms that have paid a deposit.
- 3) Press the **RLS** button.
  - The RLS LED will light.
  - All displays will go out.

### TO DISPLAY THE DEPOSIT PAID STATUS OF AN INDIVIDUAL ROOM:

- 1) Press the **GST RM** button.
  - The GST RM LED will light.
  - The LPK LED will light.
- 2) Dial the directory number of the Guest Room.
  - The DEST directory number will be displayed as the digits are dialed.
  - If Deposit Paid has been set, SRC will display a 1 (on the right of the display area).

### NOTE:

*All of the initialized displays will be blank when the DN is assigned.*

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## DEPOSIT PAID (cont.)

## TO SET DEPOSIT PAID FOR AN INDIVIDUAL GUEST ROOM

- 1) Press the **GSTRM** button.
  - The GST RM LED will light.
  - A LPK LED will light.
- 2) Dial the directory number of the Guest Room.
  - The DEST directory number will be displayed as the digits are dialed.
- 3) Dial the "Set Deposit Paid" access code (\_\_\_\_).
  - DEST will display the access code.
  - SRC will display a 1 on the right of the display area (indicating deposit paid).
- 4) Press the **RLS** button.
  - All displays will clear.
  - The GST RM and LPK LEDs will go out.
  - The RLS LED will light.

## TO CLEAR DEPOSIT PAID FOR AN INDIVIDUAL GUEST ROOM

- 1) Press the **GSTRM** button.
  - The GST RM LED will light.
  - A LPK LED will light.
- 2) Dial the directory number of the Guest Room.
  - The DEST DN will be displayed as the digits are dialed.
- 3) Dial the "Clear Deposit Paid" access code (\_\_\_\_).
  - DEST will display the access code.
  - The SRC display will be blank on the right side of the display area (indicating no deposit paid).
- 4) Press the **RLS** button.
  - All displays will clear.
  - The GST RM and LPK LEDs will go out.
  - The RLS LED will light.

## DIRECT-IN LINE CONNECTIONS

Direct-in Line (DIL) assignments are stored in system memory. Set-up is required only during initial installation or when changes are required. Flexible DIL allows any number of trunks to be assigned to the same station.

## TO ASSIGN A FLEXIBLE DIRECT-IN LINE (DIL):

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Dial the DIL destination change access code (\_\_\_\_).
  - The access code will be displayed as DEST.
  - The NITE LED will flash.
  - You will hear dial tone.
- 3) Dial the trunk access code followed by its member number.
  - Dial tone will stop when the first digit is dialed.
  - The first two digits will be displayed as DEST, but will move to SRC once dialing of the number is completed.
  - The LPK LED will go out and dial tone will return once dialing of the number is completed.

## NOTE:

If a nonexistent access code or trunk number is dialed, you will hear overflow tone. Press the **SRC** button and return to Step 3.

- 4) Dial the directory number (DN).
  - Dial tone will stop after the first digit is dialed.
  - The DN will be displayed as DEST.
  - The LPK LED will light.
  - You will hear dial tone.
- 5) Repeat Steps 3 and 4 to make additional assignments.
- 6) Press the **RLS** button.
  - The RLS LED will light.
  - The NITE and LPK LEDs and all displays will go out.

## NOTE:

If a nonexistent directory number is dialed, you will hear overflow tone. Press the **RLS DEST** button and return to Step 4.

## DISPLAY AND SET DATE/TIME

Your telephone system has an internal clock that must be set to the correct date, day, and time in order for features such as Traffic Measurement and Station Message Detail Recording to be effective.

### TO DISPLAY DATE:

Press the **DIS TOD** button.

- The date will be displayed:

SRC	COS	DEST
Month	Day	Year/Day-of-Week

### TO SET DATE:

Enter the 7-digit date (via the dial pad) in the following format:

MMDDYYD

Example: For January 2, 1989, enter 0102891.

- The new date will appear on the display.
- The last digit assigns the day of the week (1 ~ 7: Sunday ~ Saturday).

### TO DISPLAY TIME:

Press the **DIS TOD** button a second time.

- The time will be displayed:

SRC	COS	DEST
Hours	Minutes	Seconds

### TO SET TIME:

Enter the 6-digit time (via the dial pad) in the following format:

HHMMSS

Example: For 9:30 AM, enter 093000.

- The new time will appear on the display.

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## DISPLAY AND SET DATE/TIME (cont.)

### NOTE:

The time is displayed and entered in the 24-hour clock form (for any hour after 12 noon, add 12).

e.g., 9:30 AM is 0930  
9:30 PM is 2130

### TO START THE CLOCK AND CLEAR THE DISPLAY:

Press the **DIS TOD** button a third time.

- The display will clear.

### NOTE:

The display will automatically clear if an **LPK** button is pressed.

## EMERGENCY TRANSFER

If the system goes completely out of service and the MAJOR ALARM LED is not on, the Emergency Transfer switch (located on the underside of the console on the side nearest to the dial pad) can be used to manually set the system into Emergency Transfer operation. Operating the switch will connect the designated stations directly to the outside lines.

### TO OPERATE THE EMERGENCY TRANSFER:

Press the **EMT** switch.

- The MAJ Alarm LED will light.

### TO RESTORE NORMAL OPERATION:

Press the **EMT** switch.

- The MAJ Alarm LED will go out.

## EXCLUSION BUTTONS (SPLITTING)

The use of the Exclusion (**EXCL SRC** and **EXCL DEST**) buttons enables you to split a three-way connection, and allows you to converse privately with either the "source" or "destination" party. When you are involved in a 3-way connection, it is possible to:

- 1) Talk privately with the called party (DEST).
- 2) Talk privately with the calling party (SRC).
- 3) Form a 3-way voice connection consisting of yourself, and both the calling and called parties.

### TO TALK TO THE CALLED PARTY PRIVATELY:

Press the **EXCL SRC** (Exclude Source) button.

- The EXCL SRC LED will light.
- You may now talk to the called party privately. The calling party will not be able to hear you.

### NOTE:

The Exclude Source condition will automatically activate when you start dialing to extend a call.

### TO TALK TO THE CALLING PARTY PRIVATELY:

Press the **EXCL DEST** (Exclude Destination) button.

- The EXCL DEST LED will light.
- You may now talk to the calling party privately. The called party will not be able to hear you.

### TO FORM A 3-WAY CONVERSATION FROM EITHER AN EXCL SRC OR EXCL DEST CONDITION:

Press the appropriate **LPK** button.

- The EXCL SRC or EXCL DEST LED will go out.
- You and the other two parties may now converse freely.

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## EXCLUSION BUTTONS (SPLITTING) (cont.)

### TO RELEASE A CALL WHILE IN ANY OF THE ABOVE CONDITIONS:

- 1) Press the RLS/SRC button.
  - The SRC and COS displays will go out.
  - The calling party will be dropped.
  - You will still be connected to the called party (DEST) and may converse freely.
- 2) Press the RLS button.
  - The DEST display and the LPK LED will go out.
  - The RLS LED will light.
  - The called party will be dropped.
  - The console will become idle.

### NOTES:

1. You can drop the called party and maintain your connection with the calling party by pressing the **RLS DEST** button.
2. Pressing the **RLS** button while both the calling and called parties are connected to the console will drop the console out of the conversation (making it idle), but will leave the two parties connected.

## EXTENDING A CALL TO AN IDLE DIRECTORY NUMBER

- 1) Dial the directory number.
  - The EXCL SRC LED will light steadily when the first digit is dialed.
  - The voice path to the caller will be broken.
  - The DEST directory number will be displayed as digits are dialed.
  - STATUS will display RNG.
  - You will hear ringing tone.
- 2) Press the RLS button.
  - The LPK LED and all displays will go out.
  - The RLS LED will light.

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## EXTENDING A CALL TO AN IDLE DIRECTORY NUMBER (cont.)

- The console will become idle.
- The caller will hear ringing tone.

### NOTES:

1. If you want to announce the call, wait for the called party to answer before pressing the **RLS** button.
2. If the call remains unanswered for ( ) seconds, the call will be returned to your console as a Timed Recall. (The TIM LED will display in the ICI display area.)

## EXTENDING A CALL TO A BUSY DIRECTORY NUMBER (With Camp-on/Call Waiting)

- 1) Dial the directory number.
  - The EXCL SRC LED will light steadily when the first digit is dialed.
  - The voice path to the caller will be broken.
  - The DEST directory number will be displayed as digits are dialed.
  - STATUS will display BSY.
    - a) If you hear nothing (Camp-on), go to Step 2.
    - b) If you hear ringing tone (Call Waiting), go to Step 4A.
    - c) If you hear busy tone, go to Step 3B (busy tone indicates that Camp-on/Call Waiting is not possible for one of the following reasons):
      - Camp-on/Call Waiting is not permitted due to System restrictions.
      - The called station is either dialing or involved in a conference call.
- 2) Press the **EXCL DEST** button.
  - The EXCL DEST LED will light.
  - The EXCL SRC LED will go out.
  - You will now have a voice connection with the caller.

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## EXTENDING A CALL TO A BUSY DIRECTORY NUMBER (With Camp-on/Call Waiting) (cont.)

- 3A) If the caller wants to wait:
- 4A) Press the **RLS** button.
  - The LPK LED and all displays will go out.
  - The RLS LED will light.
  - The console will become idle.

### NOTE:

If the call remains unanswered for ( ) seconds, the call will be returned to your console as a Timed Recall.

- 3B) If the caller does not want to wait or if Camp-on is not allowed:
- 4B) Press the **RLS DEST** button.
  - The called station will be released from the console.
  - The DEST display will clear.
  - If requested, another DN can now be dialed.
- 5B) Press the **RLS** button.
  - The LPK LED and all displays will go out.
  - The RLS LED will light.
  - The console will become idle.

## HOLDING A CALL ON AN **LPK** BUTTON

In some cases you may want to hold a call on an **LPK** button while you gather more information or page someone.

### TO HOLD A CALL:

Press the **HOLD** button.

- The LPK LED will flash.
- The RLS LED will light.
- All displays will go out.
- The calling/called party on hold will hear MOH, if equipped.
- You can now originate or answer calls on other **LPK** buttons.

(continued)



## HOLDING A CALL ON AN LPK BUTTON (cont.)

### TO RECONNECT:

Press the appropriate **LPK** button.

- The LPK LED will light.
- The RLS LED will go out.
- The ICI/STATUS, SRC/DEST, and STATUS displays will light.
- You will now have a voice connection with the SRC (DEST) party.

## INTERPOSITION CALL/ TRANSFER

If your system is equipped with more than one console serving the same customer, it is possible for the consoles to call each other and to transfer calls from one console to the other.

### TO CALL CONSOLE-TO-CONSOLE:

- 1) Press an idle **LPK** button on the **calling** console.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Dial 0
  - DEST will display 0.
  - STATUS will display RING.
  - You will hear ringing tone.
- 3) When the **called** console answers:
  - ICI will display OPR.
  - STATUS will change to TLK.
  - You will now have a voice connection between the two consoles.

(continued)

## INTERPOSITION CALL/ TRANSFER (cont.)

### TO TRANSFER A CALL CONSOLE-TO-CONSOLE:

- 1) Dial 0
  - The EXCL SRC LED will light.
  - The voice path to the caller will be broken.
  - DEST will display 0.
  - STATUS will display RING.
  - You will hear ringing tone.

### NOTE:

*At this point, it is possible to return to the original calling party without transferring the call, by pressing the **RLS DEST** button.*

- 2) When the **called** console answers:
  - STATUS will change to TLK.
  - You will have a voice connection between the two consoles.
- 3) Press the **RLS** button.
  - ICI will display OPR.
  - Press the **RLS** button.
  - The RLS LED will light.
  - The LPK and EXCL SRC LEDs and all displays will go out.
  - A voice connection will be established between the second console and the original calling party.
  - ICI will change to reflect the type of call.
  - Your console will become idle.

## JOIN BUTTON

The **RS JOIN** button allows you to connect one LPK line with another LPK line. A typical operation which uses this button, is when a call has returned to your console unanswered on LPK1, and the called party must be paged.

- 1) Press the **PAGE** button.
  - The party on the **LPK** button will be automatically placed on hold.
  - The LPK1 LED will flash.
  - The RLS LED will light.
- 2) Page the **called** party.
- 3) When the called party calls the attendant:
  - The LPK2 LED will flash.
  - ICI, SRC, and COS will be displayed.
- 4) Press the second **LPK** button to answer the call
  - The LPK2 LED will light.
  - The RLS LED will go out.
- 5) Inform party #2 of the call on LPK1.
- 6) Press the **RS JOIN** button.
  - The ICI, SRC, and COS displays will go out.
  - LPK2 will be placed on hold.
- 7) Press the first **LPK** button.
  - The LPK2 LED will go out.
  - The LPK1 LED will light steadily.
  - The ICI, SRC and COS LEDs will light to identify the original call on LPK1.
  - The DEST directory number from LPK2 will display.
  - STATUS will display TLK.
  - A 3-way conversation will be established.
- 8) Press the **RLS** button.
  - The LPK1 LED and all displays will go out.
  - The RLS LED will light.
  - The two parties will remain connected.

## MEET-ME PAGE

This feature will allow you to "park" a call while you page the called party. The called party can then pick up the call automatically by dialing the access code from any station in the system.

## TO PARK A CALL:

- 1) Dial the Meet-Me Page access code (\_\_\_\_).
- The EXCL SRC LED will light steadily when the first digit is dialed.
- The voice path to the caller will be broken.
- DEST will be displayed as digits are dialed.
- 2) Press the **PAGE** button.
  - The PAGE LED will light.
  - DEST will display the access code that is necessary to pick-up the parked call.
  - STATUS will display TLK.
- 3) Make your announcement, giving the access code that is displayed in DEST.
- 4) Press the **RLS** button.
  - The PAGE, LPK, and EXCL SRC LEDs will go out.
  - All displays will go out.
  - The RLS LED will light.
  - The console will become idle.

## NOTE:

*If the parked call is not picked up before a programmed time-out occurs, the call will recall to the attendant. DEST will display the code that was used by the attendant to park the call.*

## MESSAGE REGISTRATION

Your system can automatically price and record local calls that are made from each directory number. A cumulative total is recorded for each directory number.

### TO DISPLAY MESSAGE REGISTRATION TOTAL FOR AN INDIVIDUAL GUEST ROOM:

- 1) Press the **GST RM** button.
  - The GST RM LED will light.
  - The LPK LED will light.
- 2) Dial the directory number of the Guest Room.
  - The DEST directory number will be displayed as the digits are dialed.
- 3) Press the **VER CRG** button.
  - The STATUS display will go out.
  - The DEST directory number will be displayed.
  - The cumulative total of all local calls made by that directory number will be displayed:

SRC	COS
Dollars	Cents

### TO CLEAR MESSAGE REGISTRATION TOTAL FOR AN INDIVIDUAL GUEST ROOM:

- 1) Press the **GST RM** button.
  - The GST RM LED will light.
  - A LPK LED will light.
- 2) Dial the directory number of the Guest Room.
  - The DEST directory number will be displayed as the digits are dialed.
- 3) Press the **VER CRG** button.
  - SRC will display dollars and COS will display cents.
- 4) Dial **#** on the dial pad.
  - SRC and COS will display 000 00.
- 5) Press the **RLS** button.
  - RLS LED will light.
  - All displays will go out.

(continued)

## MESSAGE REGISTRATION (cont.)

### TO PRINT REGISTRATION TOTAL FOR AN INDIVIDUAL GUEST ROOM:

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Dial the "Message Registration Print-Directed" access code (\_\_\_\_).
  - DEST will display the access code.
- 3) Dial the directory number.
  - The DEST directory number will be displayed as the digits are dialed.
- 4) Press the **RLS** button.
  - The RLS LED will light.
  - All displays will go out.

### TO PRINT MESSAGE REGISTRATION FOR ALL DIRECTORY NUMBERS:

- 1) Press the **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Dial the "Message Registration Print-All" access code (\_\_\_\_).
  - DEST will display the access code.
  - The console will automatically release the **LPK** button and the RLS LED will light.

### TO STOP PRINTING:

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Dial the "Message Registration Print-Stop" access code (\_\_\_\_).
  - DEST will display the access code.
- 3) Press the **RLS** button.
  - The RLS LED will light.
  - All displays will go out.

## MESSAGE WAITING

If your console is designated as the Message Center, you may indicate to a called station that a message is waiting.

### TO LEAVE A MESSAGE WAITING SIGNAL:

- 1) When you have called a station that is either busy or does not answer:
  - Press the **MSG** button.
  - The **MSG** LED will light.
  - The **MW** indication will be set.
- 3) Press the **RLS** button.
  - The **DEST** and **STATUS** displays will go out.
  - The **MW/FL** LED will light at the called station.

### TO DISPLAY MESSAGE WAITING:

The attendant console's busy lamp field can display all the stations that have Message Waiting set.

- 1) Press the **MSG** button.
- 2) Dial the hundreds group to be displayed.
  - The hundreds group identifier will display the dialed hundreds group.
- The busy lamp field will display all the stations that have Message Waiting set.
- 3) If necessary, dial another hundreds group to display additional stations that have Message Waiting set.
- 4) Press the **MSG** button.
  - The busy lamp field will return to the busy station's display.

#### NOTE:

*In order to change the busy lamp field hundreds group, the previously-selected **BLF** button must be pressed prior to Step 1.*

(continued)

## MESSAGE WAITING (cont.)

### TO CANCEL MESSAGE WAITING:

- 1) Press an idle **LPK** button.
  - The **LPK** LED will light.
  - The **RLS** LED will go out.
- 2) Dial the station's directory number.
  - The **DEST** directory number will be displayed as the digits are dialed.
  - The **MSG** LED will show the status of the **MW** LED at the called station (i.e., if Message Waiting is active on that station, the LED will be on).
- 3) Press the **MSG** button.
  - The **MSG** LED will go out (if it was on).
  - The **MW** condition will be cleared at the called station.
- 4) Press the **RLS** button.

#### NOTE:

*After you dial the station's directory number, your call will ring through at that station. If answered, simply explain that you are clearing the **MW** lamp at that station.*

### TO CANCEL ALL MESSAGE WAITING SIGNALS:

- 1) Press an idle **LPK** button.
  - The **LPK** LED will light.
  - The **RLS** LED will go out.
- 2) Dial the "all clear" access code (\_\_\_\_).
  - All **MW** conditions in the system will be canceled.
  - The **DEST** directory number will be displayed as the digits are dialed.
- 3) Press the **RLS** button.
  - The **LPK** LED will go out.
  - The **RLS** LED will light.
  - The console will become idle.

## NIGHT ANSWERING CONNECTIONS

Night connection assignments are stored in system memory. Set-up is required only during initial installation or when changes are required. Flexible Night Answering allows any number of trunks to be assigned to the same station. Calls to any trunks that are not assigned a specific night station will activate the Universal Night Answer (UNA) signal. The Universal Night Answer procedure assigns specific trunks to activate the UNA signal.

### TO ASSIGN FLEXIBLE NIGHT ANSWER:

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Press the **NITE** button.
  - The NITE LED will flash.
  - You will hear dial tone.
- 3) Dial the trunk access code, followed by its trunk number.
  - The first two digits will be displayed as DEST, but will shift to SRC once the number is completed.
  - The LPK LED will go out and dial tone will return when the number is completed.

#### NOTE:

*If a nonexistent access code or trunk number is dialed, you will hear overflow tone. Press the **RLS SRC** button and return to Step 3.*

- 4) Dial the directory number (DN).
  - Dial tone will stop when the first digit is dialed.
  - The DN will be displayed as DEST.
  - The LPK LED will light.
  - You will hear dial tone.
- 5) Repeat Steps 3 and 4 to make additional assignments.
- 6) Press the **RLS** button.
  - The RLS LED will light.
  - The NITE and LPK LEDs, and all displays will go out.

(continued)

## NIGHT ANSWERING CONNECTIONS (cont.)

#### NOTE:

*If a nonexistent DN is dialed, you will hear overflow tone. Press the **RLS DEST** button and return to Step 4.*

### TO ASSIGN UNIVERSAL NIGHT ANSWER:

If a trunk is currently assigned to ring at a specific station in night operation, you can change its assignment to activate the UNA signal with the following procedure.

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Press the **NITE** button.
  - The NITE LED will flash.
  - You will hear dial tone.
- 3) Dial the trunk access code, followed by its member number.
  - Dial tone will stop when the first digit is dialed.
  - The first two digits will be displayed as DEST, but will shift to SRC once the number is completed.
  - The LPK LED will go out and dial tone will return when the number is completed.

#### NOTE:

*If a nonexistent access code or trunk number is dialed, you will hear overflow tone. Press the **RLS SRC** button and return to Step 3.*

- 4) Press the **RLS** button.
  - The RLS LED will light.
  - The NITE and LPK LEDs, and all displays will go out.

#### NOTE:

*Repeat the above steps to make any additional assignments.*

## OUTGOING RESTRICTION

Each directory number can be restricted from making an outside call by denying access to any trunk group.

### TO DISPLAY OUTGOING RESTRICTION:

- 1) Press the **GSTRM** button.
  - The GST RM LED will light.
  - The LPK LED will light.
- 2) Dial the directory number of the Guest Room.
  - The DEST directory number will be displayed as the digits are dialed.
  - If the directory number is restricted from making outside calls, STATUS will display RST.

### TO SET OUTGOING RESTRICTION:

- 1) Display Outgoing Restriction as per the above instructions.
- 2) Dial the "Outgoing Restriction-Set" access code (\_\_\_\_).
- STATUS will display RST.
- 3) Press the **RLS** button.
  - The RLS LED will light.
  - All displays will go out.
  - All outgoing calls from this Guest Room will be routed to the attendant console.

### TO CANCEL OUTGOING RESTRICTION:

- 1) Display Outgoing Restriction as per the above instructions.
- 2) Dial the "Outgoing Restriction-Cancel" access code (\_\_\_\_).
- The STATUS display will go out.
- 3) Press the **RLS** button
  - The RLS LED will light.
  - All displays will go out.

## OVERFLOW

When your console becomes busy, it is possible to divert calls that have been waiting unanswered for over (\_\_\_\_) seconds, to a station acting as an alternate answering point. By substituting "0" for trunk access code and trunk number, you can designate the alternate answering point by following the "Night Answering Connections" instructions.

### NOTE:

*Overflow will not operate if the console is idle.*

### TO ENGAGE OVERFLOW:

- Press the **OVERFLOW** button.
- The Overflow LED will light.
  - Overflow will be engaged.

### TO RELEASE OVERFLOW:

- Press the **OVERFLOW** button.
- The Overflow LED will go out.
  - Overflow will be released.

## PAGING

Your console provides direct push-to-talk paging access via the **PAGE** button. Paging can be applied to one external paging zone, all external paging zones, the Expanded Internal Paging Group, or the Expanded Internal Paging Group and all external paging zones. Options which are not assigned directly to the **PAGE** button, can be accessed by pressing an idle **LPK** button and dialing a designated paging access code.

(continued)

## PAGING (cont.)

## NOTE:

The PAGE LED will light steadily when a paging group and/or zone is being used by you or a station user. Your PAGE button gives you preemption capability. Any page that is in progress when you operate the PAGE button will be cut off and you will be connected. It is therefore important to observe the LED status when you cannot hear that paging is in progress.

## TO PAGE FROM AN IDLE CONSOLE:

- 1) Press the **PAGE** button.
  - The PAGE LED will light.
  - The RLS LED will go out.
  - An idle LPK LED will light.
  - The page access code will be displayed as DEST.
  - STATUS will display TLK.
- 2) Make your announcement.
- 3) Press the **RLS** button.
  - The PAGE and LPK LEDs will go out.
  - The RLS LED will light.
  - The DEST and STATUS displays will go out.

## TO PAGE FROM AN ACTIVE LPK BUTTON:

- 1) Press the **PAGE** button.
  - The PAGE LED will light.
  - The EXCL SRC LED will light.
  - The party on the **LPK** button will be automatically put on hold.
- 2) Make your announcement, asking the paged party to call the attendant.
- 3) Press the **RLS** button.
  - The PAGE LED will go out.
  - The EXCL SRC LED will go out.
  - The LPK LED will flash.
  - The RLS LED will light.
  - The party on the **LPK** button will remain on hold.
- 4) The paged party calls the attendant and is answered on an idle **LPK** button.

(continued)

## PAGING (cont.)

- 5) Press the **JOIN** button.
- 6) Press the original (held) **LPK** button.
  - The console and the two parties will now be connected on a single **LPK** button.
- 7) Press the **RLS** button.
  - The LPK LED will go out.
  - The RLS LED will light.
  - The console will be idle.

The paging assignments in your system are:

ZONE	ACCESS CODE	LOCATION
1	_____	_____
2	_____	_____
3	_____	_____
4	_____	_____
5	_____	_____

All External Zone  
Paging

Internal Group Paging  
Expanded Internal  
Group Paging  
Expanded Internal  
Group Paging and  
All External Zone  
Paging

## POSITION BUSY

The **POS BSY** button allows you to make your console "busy," in order to prevent additional incoming calls from being assigned to your console. While your console is "busy," calls will be diverted to the second console in the system.

## NOTE:

If your system is equipped with just one console, the **POS BSY** button will have the same effect as the **RLS** button.

(continued)

## POSITION BUSY (cont.)

### TO USE POSITION BUSY:

- Press the **POS BSY** button.
- The RLS LED will go out.
  - If only one console is in the system (or the other console is in POS BSY), the POS BSY and NITE LEDs will light (the system will be in Night Service).
  - If the other console is active in the system, the POS BSY LED will light.

### TO PUT YOUR CONSOLE BACK IN SERVICE:

- Press the **POS BSY** button again.
- The POS BSY LED will go out.
  - The RLS LED will light.

## REMOTE ACCESS TO SYSTEM SERVICES

This feature allows a user outside of your system to access system services via an exchange network connection. The user dials a preselected exchange number to connect to your system and then dials a 3-digit authorization code. The user may then make a call, just as if the call was being made from inside the system.

The authorization code used by the outside user is controlled by the Attendant Console and may be changed at any time.

The trunk(s) used for this service (and, therefore, the exchange number dialed by the outside user), may be permanently fixed or may be assigned by your console each time it is needed (this is a programmable option). In addition, the trunks may be arranged to operate in the Remote Access mode during both DAY and NITE Service or during NITE Service only.

(continued)

## REMOTE ACCESS TO SYSTEM SERVICES (cont.)

### TO ASSIGN OR CHANGE THE AUTHORIZATION CODE:

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Dial the access code (\_\_\_\_).
- 3) Dial the authorization code (\_\_\_\_).
- 4) Press the **RLS** button.
  - The RLS LED will light.
  - The LPK LED will go out.
  - The console will become idle.

### TO SELECT TRUNK(S) TO BE USED WITH REMOTE ACCESS TO SYSTEM (NITE Service only):

Process as in "Night Answer Connections," using the number \_\_\_\_\_ as the directory number. All trunks assigned to this number will function in the Remote Access to System mode. System programming will determine if Remote Access is functional during both DAY and NITE Service, or during NITE Service only.

## ROOM STATUS

The "Room Status" of a Lodging/Health care telephone can be displayed at the attendant console. Four different conditions are possible.

### TO DISPLAY ROOM STATUS:

- 1) Press the **GSTRM** button.
  - The GST RM LED will light.
  - A LPK LED will light.
- 2) Dial the directory number of the Guest Room.
  - The DEST directory number will be displayed as the digits are dialed.
  - Room status will be displayed as shown below.

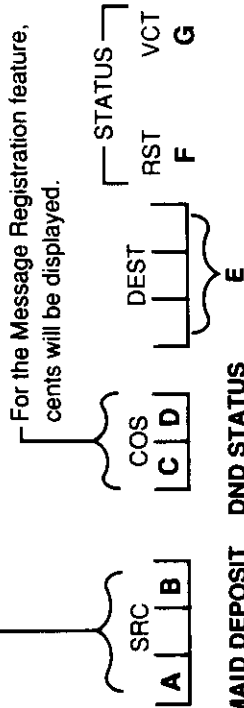
(continued)



**ROOM STATUS (cont.)**

- 3) Press the **RLS** button to clear the display and return to call processing.
  - The RLS LED will light.
  - All displays will go out.

For the Message Registration feature, dollars will be displayed.



**MAID DEPOSIT DND STATUS**

- A 1 indicates that Maid-in-Room status has been set at the Guest Room phone.
- A 1 indicates that Deposit Paid status has been set for this Guest Room.
- A 1 indicates that Do Not Disturb is registered for that Guest Room.
- Room Status Code
  - 1 = Vacant and clean
  - 2 = Occupied and clean
  - 3 = Vacant and needs cleaning
  - 4 = Occupied and needs cleaning
- Guest Room phone directory number.
- Indicates that this Guest Room phone has been restricted from making outside calls. (This indication will also go on when buttons are pressed, following the completion of an operation.)
- Indicates that this station is not registered as a Guest Room phone. (Room Status cannot be assigned.)

**NOTE:**

*Changing Room Status from occupied to vacant will automatically clear the Deposit Paid indication and will restrict the phone in that room.*

(continued)

**ROOM STATUS (cont.)**

**TO SET ROOM STATUS:**

- 1) Press the **GST RM** button.
  - The GST RM LED will light.
  - A LPK LED will light.
- 2) Dial the directory number of the Guest Room.
  - The DEST directory number will be displayed as the digits are dialed.
  - COS will display the current room status.
- 3) Dial the status access code (see below).
  - The status assignments in your system are:

**STATUS ACCESS CODES**

- Status 1 \_\_\_\_\_
- Status 2 \_\_\_\_\_
- Status 3 \_\_\_\_\_
- Status 4 \_\_\_\_\_

- COS will display the new room status.
  - STATUS will display RST for Statuses 1 and 3.
- 4) Press the **RLS** button.
    - The RLS LED will light.
    - All displays will go out.
    - The LPK LED will go out.
    - The GST RM LED will go out.

**TO CHANGE ROOM STATUS 2 TO STATUS 4 ON ALL DNs IN THE SYSTEM:**

- 1) Press the **RS JOIN** button.
  - The RS/JOIN LED will light.
  - The LPK LED will light.
- 2) Dial Room Status 2 to Status 4 access code (\_\_\_\_).
  - DEST will display the access code.
- 3) Press the **RLS** button.
  - The RLS LED will light.
  - All displays will go out.

## ROOM STATUS (cont.)

### TO CHANGE ROOM STATUS 4 TO STATUS 2 ON ALL DNS IN THE SYSTEM:

- 1) Press the **RS JOIN** button.
  - The RS/JOIN LED will light.
  - The LPK LED will light.
- 2) Dial Room Status 4 to Status 2 access code (  ).
  - DEST will display the access code.
- 3) Press the **RLS** button.
  - The RLS LED will light.
  - All displays will go out.

### TO PRINT THE DN AND ROOM STATUS OF EVERY LODGING/HEALTH CARE TELEPHONE IN THE SYSTEM:

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Dial the "Room Status Audit-Print-All" access code (  ).
  - DEST will display the access code.
  - The printout will begin.
  - The console will automatically drop the LPK.
  - The RLS LED will light.

### TO PRINT THE DN AND ROOM STATUS OF AN INDIVIDUAL LODGING/HEALTH CARE TELEPHONE:

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Dial the "Room Status Audit-Directed" access code (  ).
  - DEST will display the access code.
- 3) Dial the room number
  - DEST will display the access code.
  - The printout will begin.
- 4) Press the **RLS** button.
  - The RLS LED will light.
  - All displays will go out.

(continued)

## ROOM STATUS (cont.)

### TO STOP PRINT:

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Dial the "Room Status Audit-Stop Print" access code (  ).
  - DEST will display the access code.
- 3) Press the **RLS** button.
  - The RLS LED will light.
  - All displays will go out.

## ROOM-TO-ROOM BLOCKING

You can restrict all Lodging/Health Care telephones from calling any other Lodging/Health Care telephone.

### TO SET ROOM-TO-ROOM BLOCKING:

- 1) Press an idle LPK button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Dial the "Room-to-room Block Set" access code (  ).
  - DEST will display the access code.
- 3) Press the **RLS** button.
  - The RLS LED will light.
  - All displays will go out.
  - All room-to-room calls will now be routed to the attendant console.

### TO CANCEL ROOM-TO-ROOM BLOCKING:

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Dial the "Room-to-Room Block Cancel" access code (  ).
  - DEST will display the access code.
- 3) Press the **RLS** button.
  - The RLS LED will light.
  - All displays will go out.

## SPEED DIAL-SYSTEM

Speed dialing allows you and other station users to use a 2-digit code in place of a full telephone number when making calls. The Speed Dial-System list of telephone numbers must be stored via the attendant console, but, once stored, all numbers are accessible to all stations. A maximum of 90 telephone numbers may be stored.

### TO MAKE A CALL WITH SPEED DIAL-SYSTEM:

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Press the **SP DIAL** button.
- 3) Dial the 2-digit address code for the telephone number that you want to call (10 ~ 90).
  - The system will dial the number for you.
  - DEST will display the trunk number of the trunk used.
  - STATUS will display TLK.

### TO STORE A NUMBER:

- 1) Press the **SP DIAL** button (do not press an **LPK** button).
  - The SP DIAL LED will flash.
- 2) Dial:
  - a) The 2-digit address code (10 ~ 99) that is to represent the telephone number.
  - b) The trunk access code.
  - c) The **\*** button (this inserts a 3-second pause to allow time to obtain trunk dial tone).
  - d) The telephone number.
- 3) Press the **SP DIAL** button again.
  - The SP DIAL LED will go out.
  - The code and telephone number will now be stored.

## SYSTEM INITIALIZE

The Initialize INT switch, located on the underside of the console, is used to reset system logic in the event of a system malfunction. This switch should be used before resorting to the Emergency Transfer switch.

### WARNING!

*This switch should be used only in extreme situations, since it will cause all calls in the system to be dropped.*

### TO INITIALIZE THE SYSTEM:

- 1) Press the **INT** switch.
  - The MAJ LED will light momentarily.
  - The RLS LED will go out.
  - The NITE and POS BSY LEDs will light.
  - The MIN LED will light.
- 2) Press the **NITE** button.
  - The system will switch to DAY operation.
- 3) Set the system time and date.
  - The MIN LED will go out.
- 4) Proceed with normal system operations.

## THROUGH DIALING

Requests may be received from restricted stations or TIE line users for dialing access to numbers or trunks.

- 1) You will hear an incoming call signal.
  - ICI will display OPR.
  - SRC and COS will be displayed.
  - The LPK LED will flash.
- 2) Press the appropriate **LPK** button.
  - The LPK LED will light steadily.
  - The console signal will stop.
  - You will now have a voice connection with the calling (SRC) party.
- 3) Dial the desired trunk access code.
  - The EXCL SRC LED will light steadily.

(continued)

## THROUGH DIALING (cont.)

- DEST will display the trunk and member number.
  - STATUS will display TLK.
  - The voice connection with the calling party will be broken.
  - You will hear trunk dial tone.
- 4) Press the **RLS** button to transfer trunk dial tone to the station.
- The RLS LED will light.
  - The calling (SRC) station may now dial out on the selected trunk.

**NOTE:**

*Restriction will still be in effect at the station.*

## TIMED RECALL

If an extended call remains unanswered for ( ) seconds, the call will be returned to your console.

- 1) You will hear an incoming call signal.
  - ICI will display TIM.
  - SRC and DEST will be displayed.
  - The LPK LED will flash.
  - RNG will be displayed if station status is ring-no-answer.
- 2) Press the appropriate **LPK** button.
  - The LPK LED will light.
  - BSY will be displayed if station status is busy.
- 3) You will now be connected to the call.
  - Make an appropriate response.

**NOTE:**

*The called station will continue to ring. If the called station goes off-hook, it will be connected into a 3-way conference with the calling party and you. You can use the **EXCL DEST** and **EXCL SRC** buttons to exclude either the calling or called parties from the conversation, or you can use the **RLS** button to drop the console out of the conversation.*

(continued)

## TIMED RECALL (cont.)

- 4A) If the calling party (SRC) wants to wait:
  - 5A) Press the **RLS** button.
    - The LPK LED and all displays will go out.
    - The RLS LED will light.
    - The console will become idle.
  - 4B) If the calling party (SRC) does not want to wait:
    - 5B) Press the **RLS DEST** button.
      - The DEST and STATUS displays will go out.
      - The called station will be released.
      - Another directory number may be dialed, if requested.
    - 6B) Press the **RLS** button.
      - The LPK LED and all displays will go out.
      - The RLS LED will light.
      - The console will become idle.

## TRUNK CONTROL

Your console allows you to control access to any trunk group for the purpose of allocating special facilities. When you have taken control of a trunk group, a station user who is trying to access that group will be routed to your console (ICI will display OPR). (In some systems, a few executive stations will be allowed to override your control.) You should note the caller's name so that he/she can be called when a trunk becomes available.

## TO TAKE CONTROL OF A TRUNK GROUP:

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Dial **1 1**, followed by the trunk access code.
  - The TGB (trunk group busy) LED will light.
  - Trunk control will be in effect.
- 3) Press the **RLS** button.
  - The RLS LED will light.
  - The LPK LED and all displays will go out.

(continued)

## TRUNK CONTROL (cont.)

**IF A STATION USER CALLS A CONTROLLED TRUNK:**

- 1) The station user dials the trunk access code.
  - The console will then signal or receive overflow tone.
  - The LPK LED will flash.
  - ICI will light.
  - SRC and COS will be displayed.
- 2) Press the appropriate **LPK** button.
  - The LPK LED will light.
  - A voice connection will now be established with the caller.

**NOTE:**

*If a trunk is available, proceed as in "Through Dialing." If no trunk is available, take the caller's name and station number for a callback, and then release.*

**TO PASS A TRUNK TO A STATION:**

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Dial the station number.
  - DEST will display the station number.
  - STATUS will display RNG.
- 3) When the station answers:
  - STATUS will change to TLK.
- 4) Dial the trunk access code.
  - SRC will display the station number.
  - COS will display the station's COS.
  - DEST will display the trunk access code and number.
  - EXCL SRC will light.
  - You will hear trunk dial tone.
- 5) Press the **RLS** button.
  - The RLS LED will light.
  - The LPK and EXCL SRC LEDs will go out.
  - All displays will go out.
  - The station may now dial over the trunk.

(continued)

## TRUNK CONTROL (cont.)

**TO RELEASE TRUNK CONTROL (TGB LED is on):**

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
  - The RLS LED will go out.
- 2) Dial **#\*#**, followed by the trunk access code.
  - The TGB (trunk group busy) LED will go out.
  - Trunk control will be released.
- 3) Press the **RLS** button.
  - The RLS LED will light.
  - The LPK LED will go out.

## TRUNK-TO-TRUNK CALL

A call from outside the system that has been answered at your console can be connected to an outgoing line.

- 1) Dial the desired trunk access code.
  - The EXCL SRC LED will light.
  - The outgoing trunk number will be displayed as DEST.
  - STATUS will display TLK.
  - You will hear trunk dial tone.
- 2) Proceed to dial the desired number.
- 3) Press the **RLS** button.
  - The RLS LED will light.
  - All displays will go out.
  - The LPK LED will go out or will flash (LPK will be on hold), depending on the type of trunk involved in the connection.

**NOTE:**

*Some types of trunk lines give no signal when the distant party disconnects, and this makes automatic release of a trunk-to-trunk connection impossible. If you attempt to establish a connection between two such trunks, the connection will be made, but the call will remain on the **LPK** in a "hold" condition. You will be required to enter the call periodically in order to verify its status and, ultimately, to disconnect it. If the trunk-to-trunk call is not held on an **LPK** button (the LPK LED is not flashing) you will not be able to re-enter the call.*

(continued)

## TRUNK-TO-TRUNK CALL (cont.)

### TO RE-ENTER A TRUNK-TO-TRUNK CALL:

- 1) Press the **LPK** button.
  - The LPK LED will light steadily.
  - The ICI, SRC, COS, DEST, and STATUS displays will go on.
  - A 3-way conversation will be established.
- 2A) If the conversation is still in progress:
- 3A) Press the **RLS** button.
  - The RLS LED will light.
  - All displays will go out.
  - The LPK LED will flash (the LPK will be placed on hold).
- 2B) If the call has been completed:
- 3B) Press the **RLS DEST** button.
  - DEST will be disconnected.
  - The DEST and STATUS displays will go out.
- 4B) Press the **RLS** button to terminate the call.
  - The LPK LED and all displays will go out.
  - The RLS LED will light.
  - The console will become idle.

## VERIFY

The Verify feature enables you to determine the status of a station or trunk in order to determine if a problem exists, or to interrupt a call in an emergency situation.

### TO VERIFY STATION STATUS:

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
- 2) Press the **VER/CRG** button.
  - The VER/CRG LED will light.
- 3) Dial the station number.
  - DEST will display the station number.
  - SRC will display the other party (trunk or station) in the conversation, whether or not they initiated the call.
  - STATUS will display TLK.
  - If the station is "warning tone protected," then the console will receive busy tone and STATUS will display RST.
- 4A) If the station is busy:
  - A 2-second warning tone will interrupt the conversation on the called station.
  - A 3-way conversation will be established at the end of the warning tone.
  - A 1/2-second warning tone will be repeated every 15 seconds for the duration of the 3-way connection.

### NOTE:

At this point, it is possible to release either party from the conversation by pressing either the **RLS DEST** or **RLS SRC** button.

- 5A) Press the **RLS** button.
  - The VER/CRG and LPK LEDs, and all displays will go out.
  - The RLS LED will light.
  - The console will become idle.
  - The existing conversation will continue.
- 4B) If the station is idle:
  - The station will ring.
  - The VER/CRG LED will go out.
  - STATUS will display RNG.
- 5B) Proceed as in a normal call.

(continued)

**VERIFY (cont.)****TO VERIFY A TRUNK:**

- 1) Press an idle **LPK** button.
  - The LPK LED will light.
- 2) Press the **VER CRG** button.
  - The VER/CRG LED will light.
- 3) Dial the trunk access code followed by the trunk member number.
  - DEST will display the trunk code and number.
- 4A) If the trunk is busy:
  - A 2-second warning tone will interrupt the conversation.
  - A 3-way conversation will be established at the end of the warning tone.
  - A 1/2-second warning tone will be repeated every 15 seconds for the duration of the 3-way connection.

**NOTE:**

*At this point, it is possible to release either party from the conversation by pressing either the **RLS DEST** or the **RLS SRC** button.*

- 5A) Press the **RLS** button.
  - The VER/CRG and LPK LEDs and all displays will go out.
  - The RLS LED will light.
  - The console will become idle.
  - The existing conversation will continue.
- 4B) If the trunk is idle:
  - The trunk will be seized.
  - The VER/CRG LED will go out.
  - STATUS will display TLK.
  - You will hear trunk dial tone.
- 5B) Proceed as with a normal call.





# ***Perception<sup>®</sup>e & ex***

## **FAULT FINDING PROCEDURES**



**PERCEPTION<sub>e&ex</sub>  
FAULT FINDING  
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## 1. GENERAL

1.01 This section describes the maintenance procedures that are used for the diagnosis of faults in the PERCEPTION<sub>e</sub> and PERCEPTION<sub>ex</sub> Digital Hybrid/PBX systems. To eliminate system faults, faults must first be classified and then cleared by replacing the defective apparatus. Operational tests can then be performed to verify correct apparatus operation. To perform operational tests, follow the fault-clearing flowcharts and the steps noted in section 5.

## 2. FAULT CLASSIFICATION

2.01 To ensure that fault clearing is pursued in a logical sequence, a Fault Classification Flowchart is provided in Chart No. 1.

2.02 Each Fault Finding flowchart denotes the steps necessary to clear specific types of faults (power faults, specific PCB faults, etc.). Most of the provided flowcharts are based on an assumption that the system fault was discovered and reported by a station user. Therefore, all faults are classified according to the way they would appear at an electronic telephone, standard telephone, DDIU, data terminal/computer, DSS console, attendant console, or equipment cabinet.

2.03 Faults and their associated flowcharts are organized into the following categories:

<b>TABLE A—FLOWCHARTS</b>	
Flowchart	Title
1	Fault Classification
2	Loading Faults
3	Power Faults
4	Ringing Power Faults
5	Time Switch Clock Faults
6	NPRU Faults
7	NRCU Faults
8	NCOU/NEMU/NLSU Faults
9	NEKU/NSTU/NDSU Faults
10	SMDR, TTY, or MODEM Faults
11	Voice Communication Station Faults
12	INIT/LOAD Key Faults
13	MAJOR ALARM Faults
14	CO/DID/TIE Faults
15	Attendant Console Faults
16	Common Station Feature Faults

<b>TABLE A—FLOWCHARTS (continued)</b>	
Flowchart	Title
17	Speech Path or Dial Tone Faults
18	Data/Speech Path or Dial Tone Faults
19	Dialing Faults
20	Ringing/Ringback Tone Faults
21	Miscellaneous Faults
22	NMDU/NDCU Faults
23	Data Communication Station Faults
24	Data Communication Trunk Faults

## 3. FAULT CLEARING PROCEDURES

3.01 Before attempting to clear any fault, ensure that the fault exists in the system and is not being caused by any associated external equipment, such as wiring, a Music-on-Hold source, etc.

### **IMPORTANT!**

**Many PERCEPTION<sub>e&ex</sub> features are assigned, enabled, or disabled by using software entries described in the Programming Procedures manual. Before troubleshooting system hardware, it is important to verify that system programming is correct and functional.**

3.02 Faults occurring in PERCEPTION<sub>e&ex</sub> systems are cleared by replacing PCBs, electronic telephones, standard telephones, DIUs, attendant consoles, or power supply(ies), according to instructions in the provided flowcharts.

3.03 Five different symbols are used in the flowcharts. Each is identified in Figure 1.

3.04 The flowcharts are arranged sequentially to permit rapid fault localization within the system. All fault clearing must begin with the Fault Classification Flowchart (Flowchart 1), which denotes the correct sequence to be followed in fault localization.

3.05 If more than one station has a fault classified as a station fault (see flowcharts), then only one station can be corrected at a time.

3.06 An alarm or fault indicator is used as an aid in locating a particular fault. However, if a fault occurs and its corresponding indicator does not function,



**TABLE B—ELECTRONIC TELEPHONE  
CABLE CONTINUITY READINGS**

(Using a voltmeter)

FROM			TO			VOLTAGE*
Pair	Wire	Color	Pair	Wire	Color	
1	T	Green	2	T	Black	24
1	R	Red	2	T	Black	24
1	T	Green	2	R	Yellow	24
1	R	Red	2	R	Yellow	24
1	T	Green	1	R	Red	0
2	T	Black	2	R	Yellow	0

*\*Nominal voltage— within the power supply limits of 23.2 ~ 28.2 VDC, while under AC power.*

- 3) An improper reading indicates an open, crossed, or shorted wire.
- 4) For the MDF-to-electronic telephone/DSS console cable, a more precise check can be made by using an ohmmeter (See 5.03).

**5.03** Check electronic telephone and DSS console cable continuity by using an ohmmeter, as follows:

- 1) Disconnect the electronic telephone or DSS console.
- 2) At the MDF, remove the bridging clips.
- 3) Using an ohmmeter, measure the resistance between all combinations of the four wires at the modular block. All measurements should exceed 1 MOhm.
- 4) At the modular block, measure the resistance between all wire combinations. The proper readings are shown in Table C.

**NOTES:**

1. The green-red and black-yellow measurements should be within 10% of each other.
2. The maximum reading is 55 ohms.

**5.04** Check single line telephone (STT) cable continuity as follows:

- 1) Check all DDIU cables at the modular block,

**TABLE C—ELECTRONIC TELEPHONE  
CABLE CONTINUITY READINGS**

(Using an ohmmeter)

FROM			TO			VOLTAGE*
Pair	Wire	Color	Pair	Wire	Color	
1	T	Green	2	T	Black	1 MOhm
1	R	Red	2	T	Black	1 MOhm
1	T	Green	2	R	Yellow	1 MOhm
1	R	Red	2	R	Yellow	1 MOhm
1	T	Green	1	R	Red	≤ 55 Ohms*
2	T	Black	2	R	Yellow	≤ 55 Ohms*

and check all cables from NSTU PCBs to the MDF, at the MDF.

- 2) Disconnect the STT at the wall.
- 3) At the MDF, remove the bridging clips.
- 4) Using an ohmmeter, measure the resistance between the two wires at the modular block. All measurements should exceed 1 MOhm.
- 5) At the MDF, place shorting jumper wires between the two wires (T and R).
- 6) At the modular block, measure the resistance between T and R. Verify the maximum of 300 ohms.

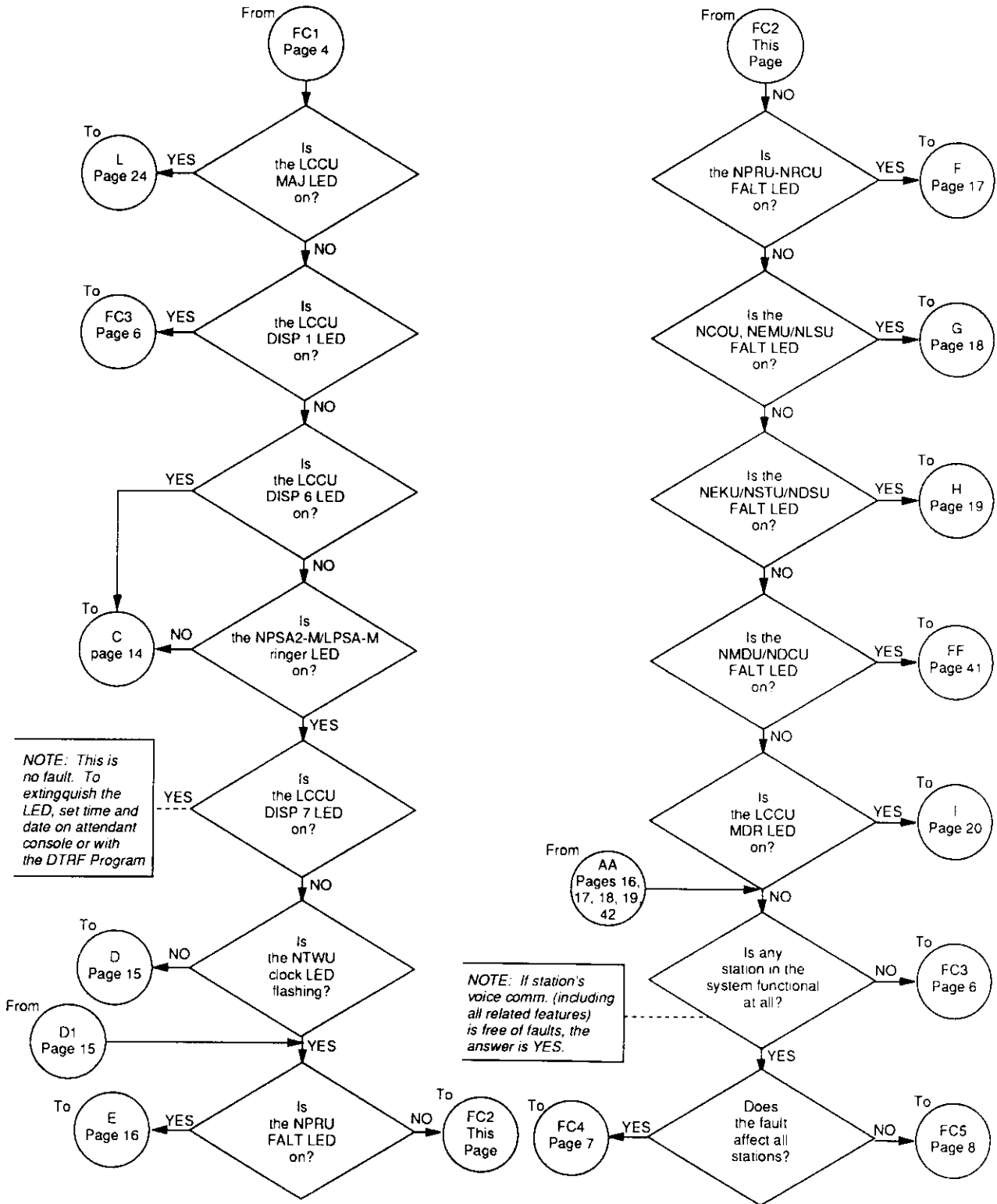
**5.05** Check DDIU cable continuity as follows:

- 1) Check all DDIU cables at the modular block, and check all cables from NDCU/NMDU PCB to the MDF, at the MDF.
- 2) At the MDF, remove the bridging clips.
- 3) Using an ohmmeter, measure the resistance between the two wires at the modular block. All measurements should exceed 1 MOhm .
- 4) At the MDF, place shorting jumper wires between the two wires (T and R).
- 5) At the modular block, measure the resistance between T and R. Verify the maximum of 300 ohms.



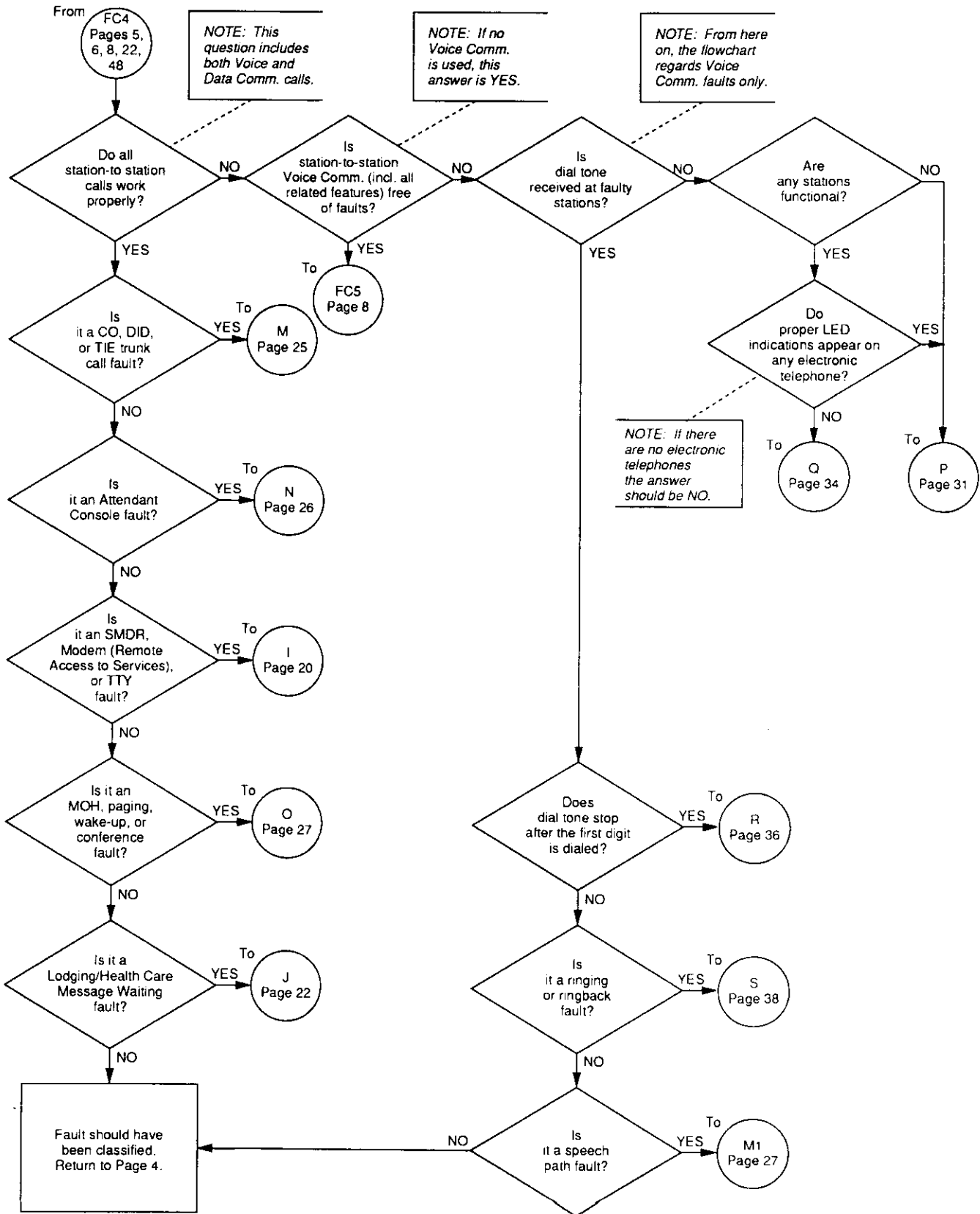


CHART NO. 1  
FAULT CLASSIFICATION (continued)





**CHART NO. 1  
FAULT CLASSIFICATION (continued)**





**CHART NO. 2  
LOADING FAULTS**

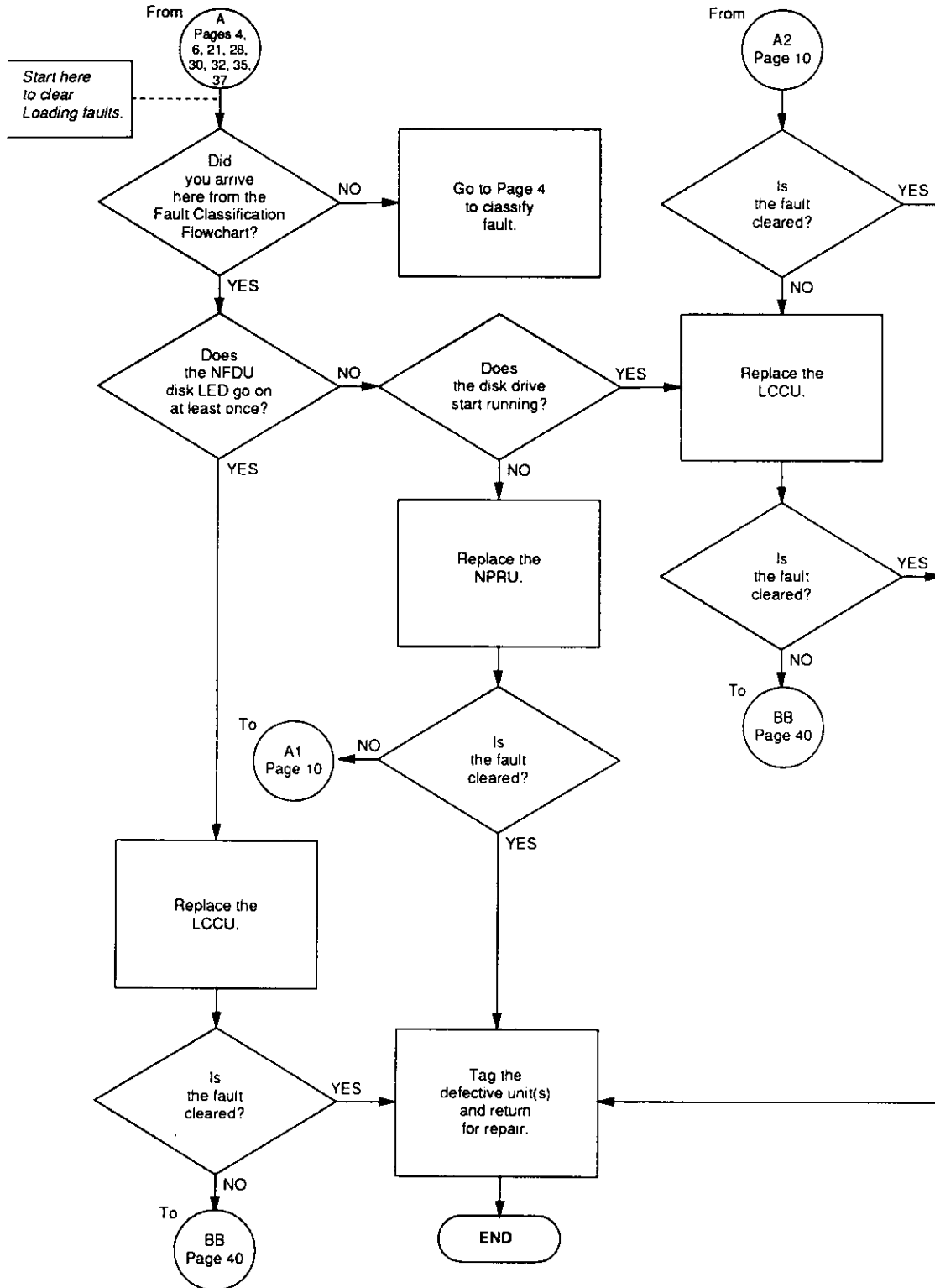




CHART NO. 2  
LOADING FAULTS (continued)

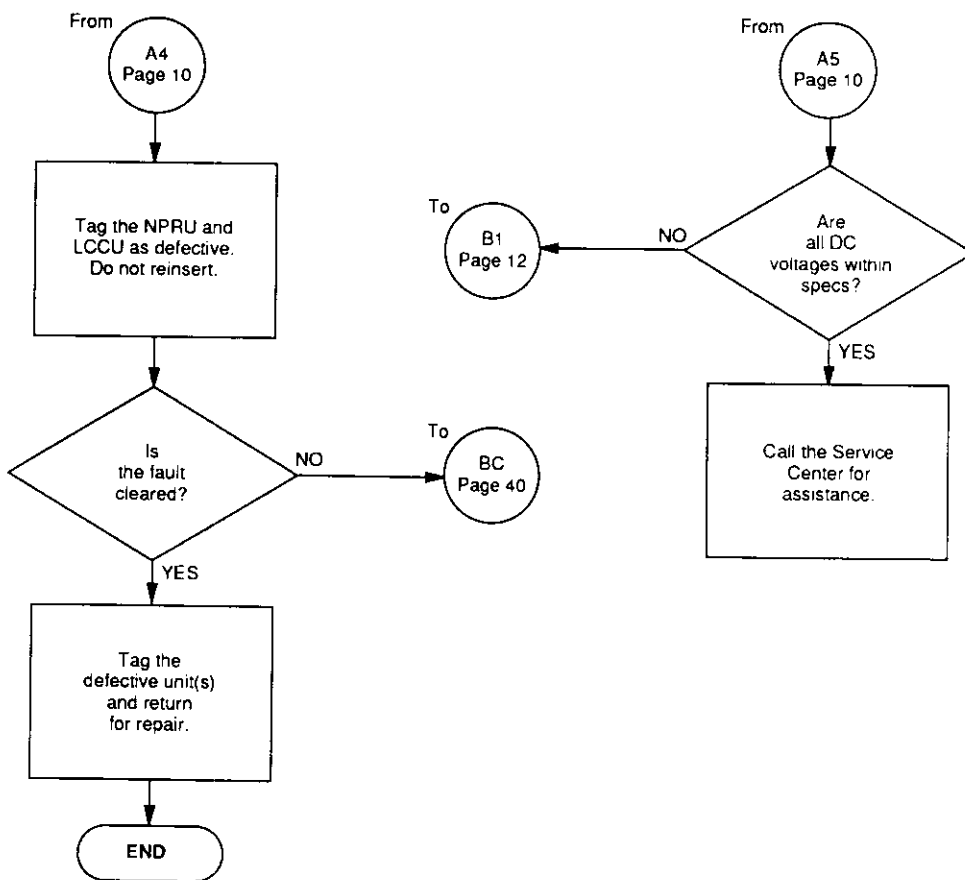
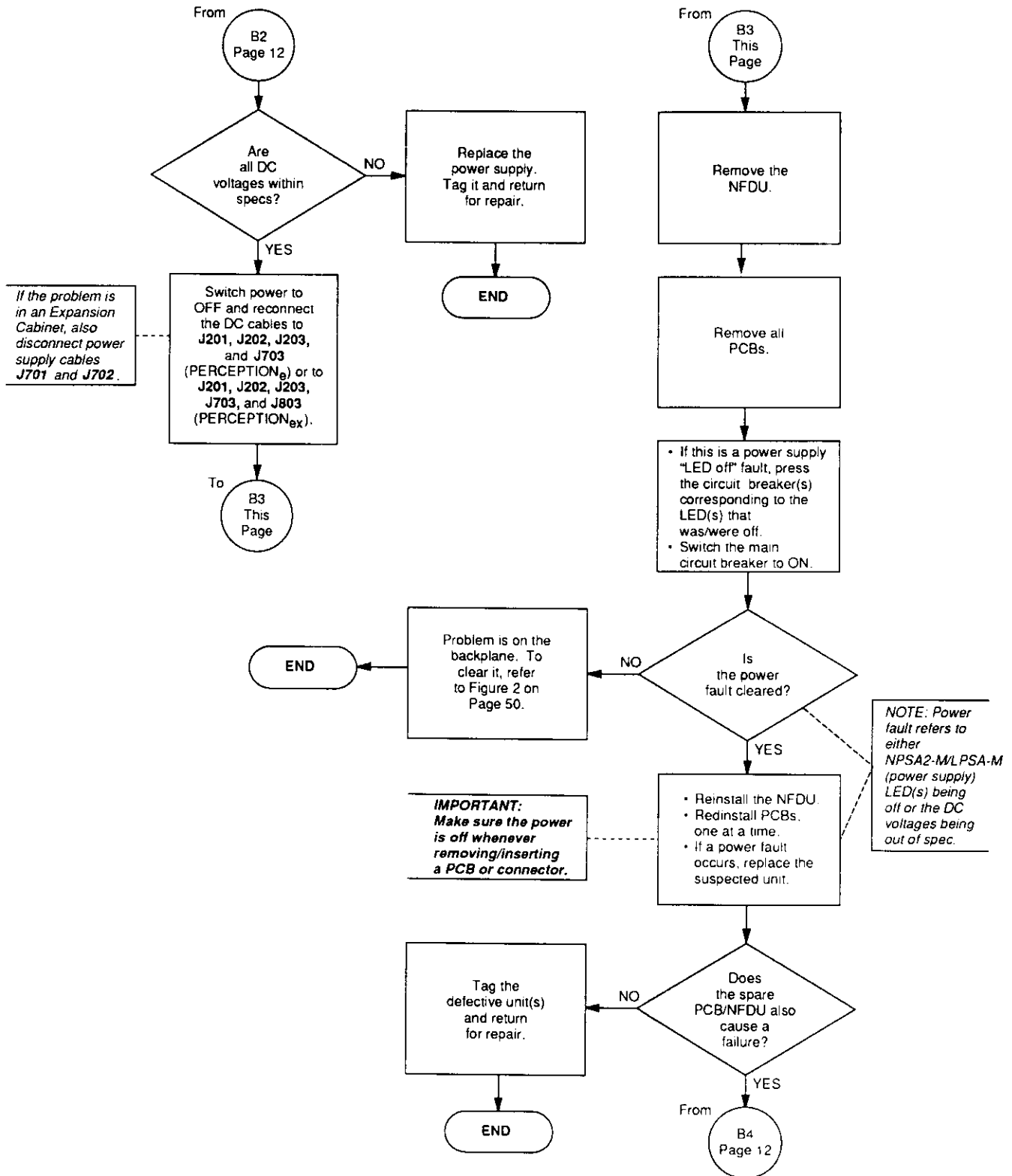






CHART NO. 3  
POWER FAULTS (continued)





### CHART NO. 5 TIME SWITCH CLOCK FAULTS

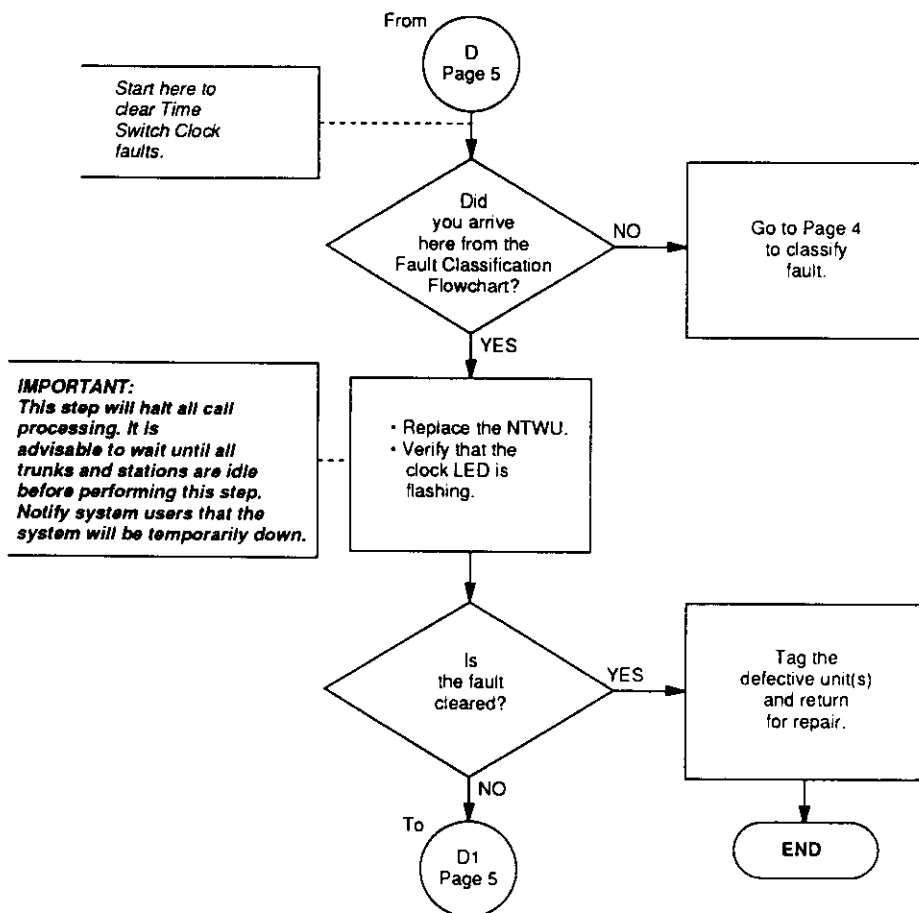
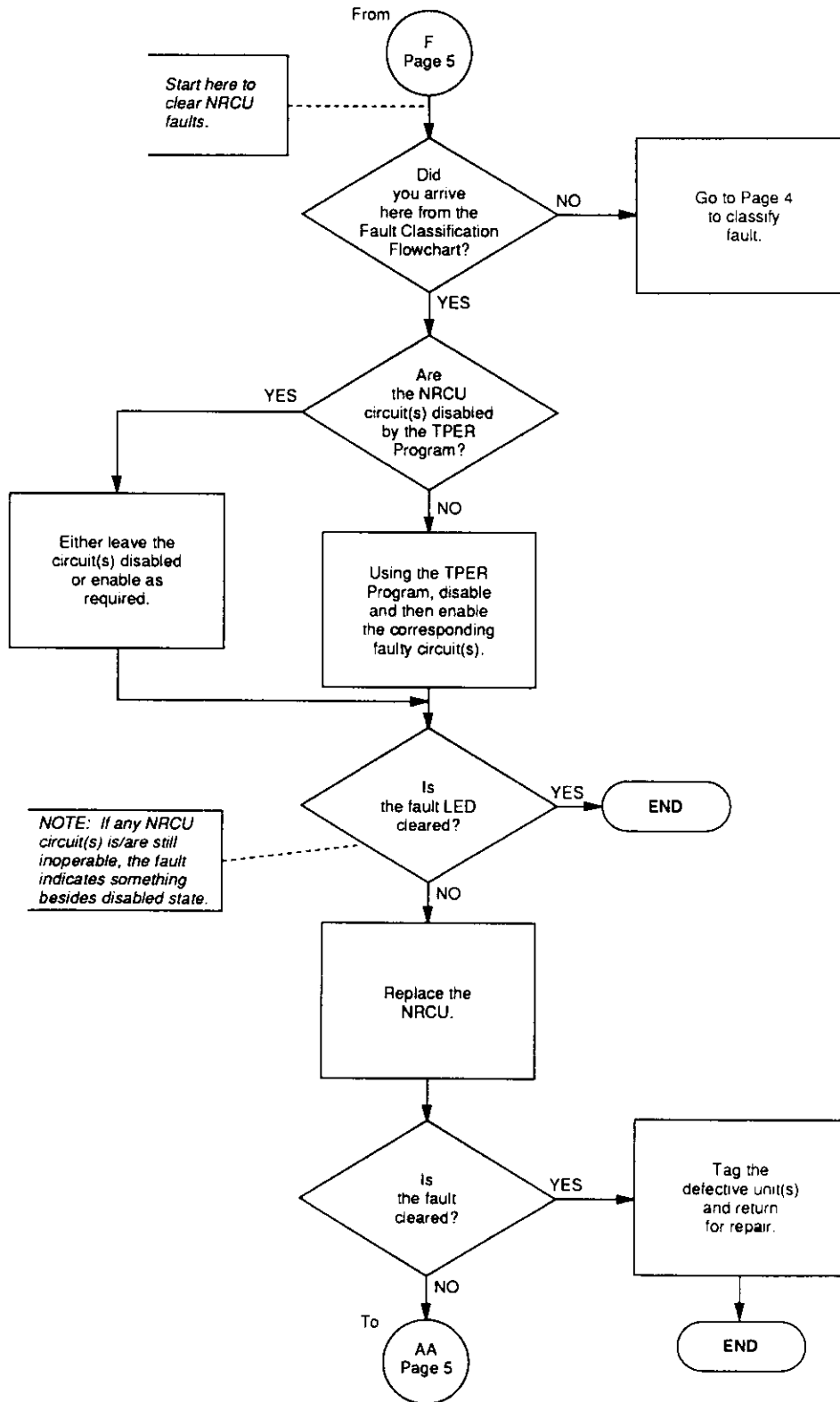




CHART NO. 7  
NRCU FAULTS





**CHART NO. 9  
NEKU/NSTU/NDSU FAULTS**

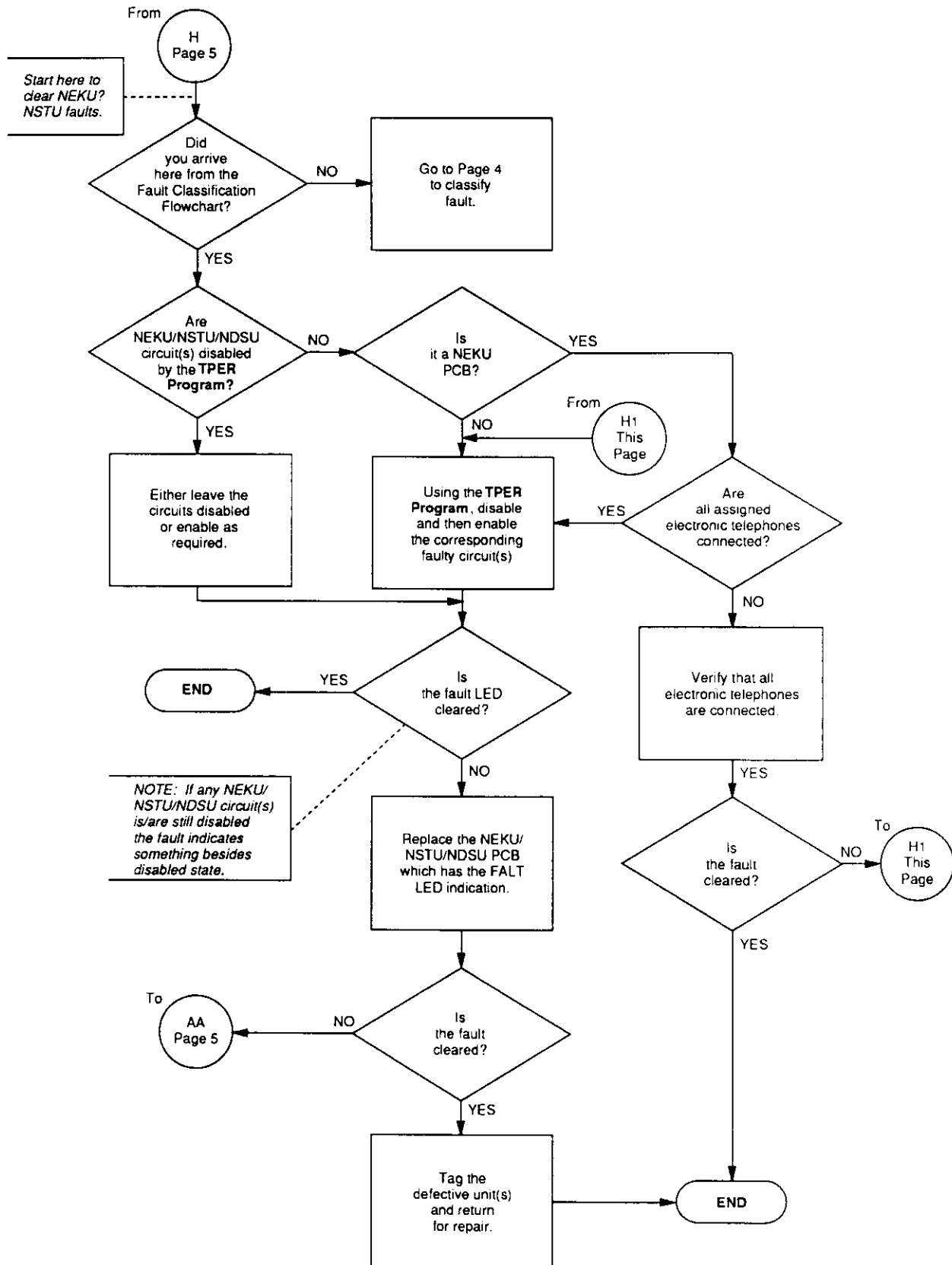
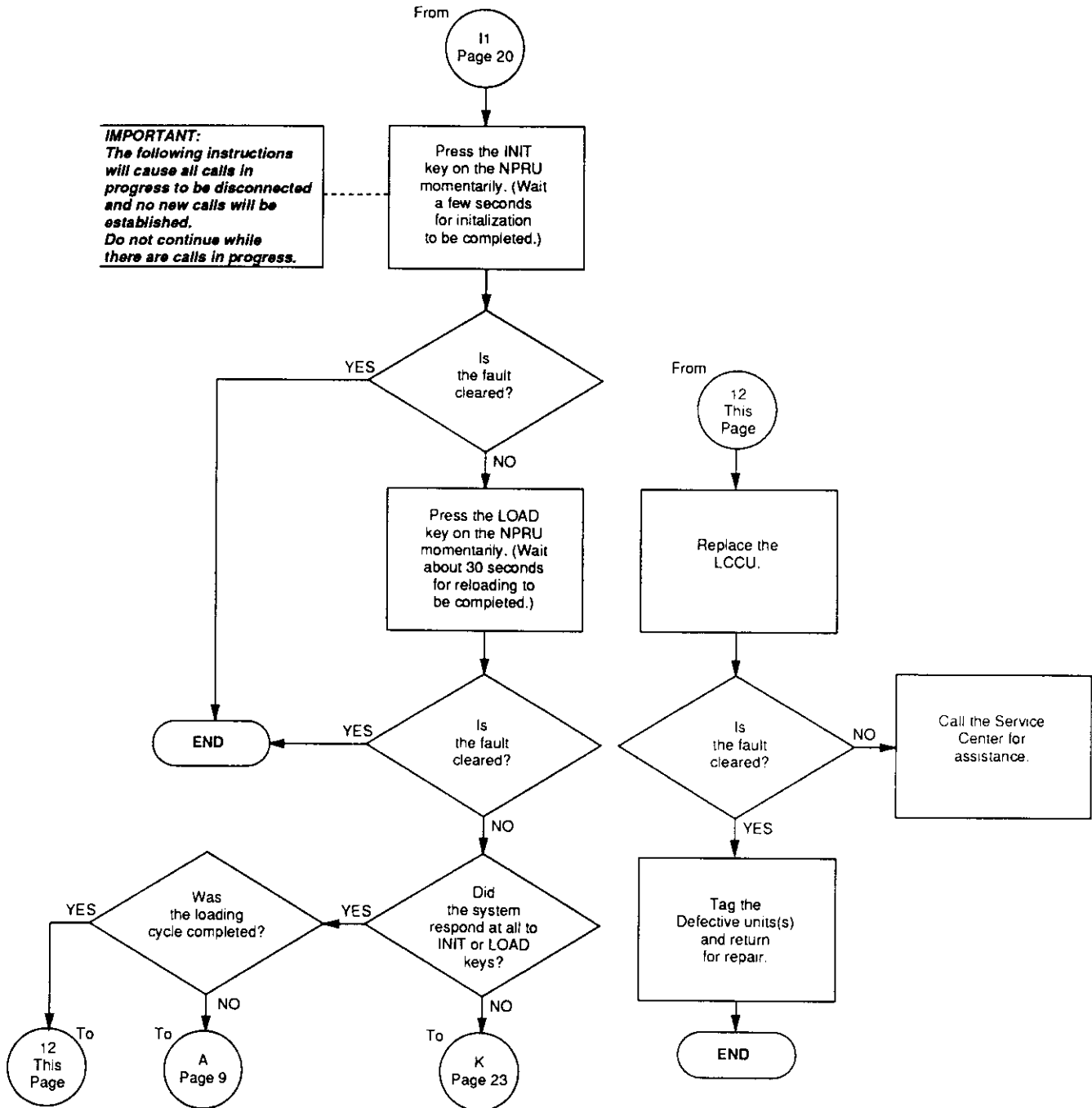




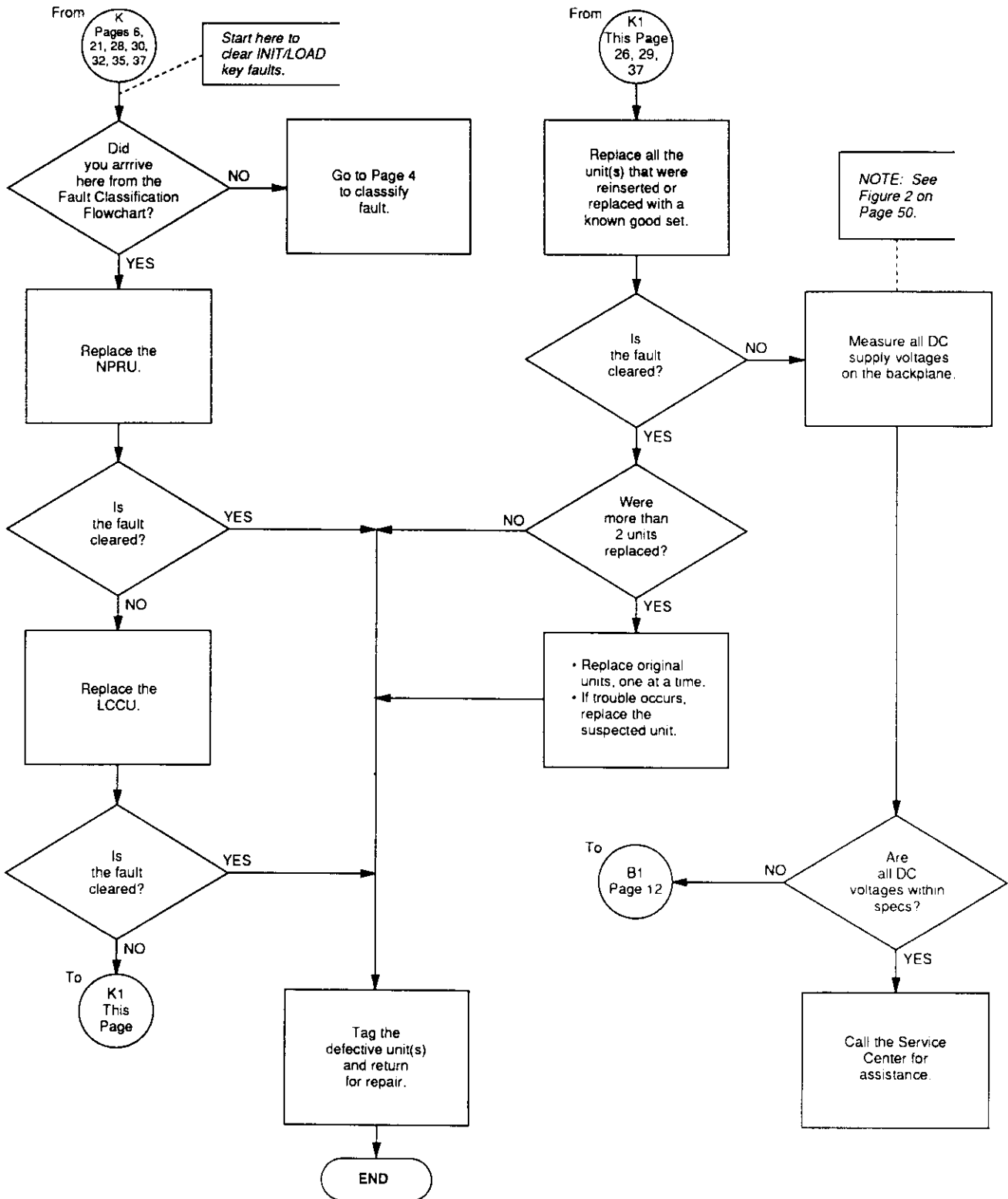


CHART NO. 10  
SMDR, TTY, OR MODEM FAULTS (continued)



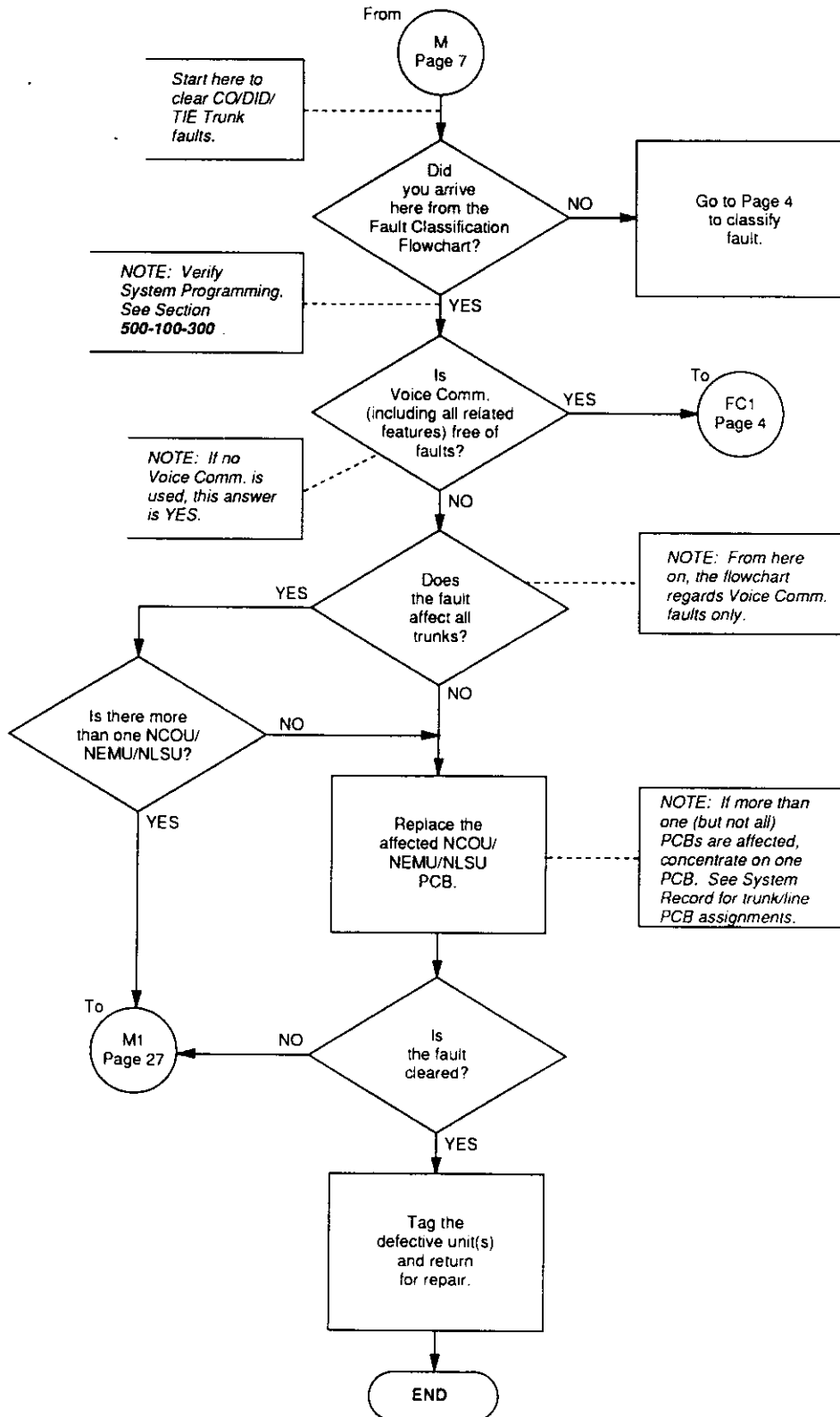


**CHART NO. 12  
INIT/LOAD KEY FAULTS**





**CHART NO. 14  
CO/DID/TIE TRUNK FAULTS**





**CHART NO. 16  
COMMON STATION FEATURE FAULTS**

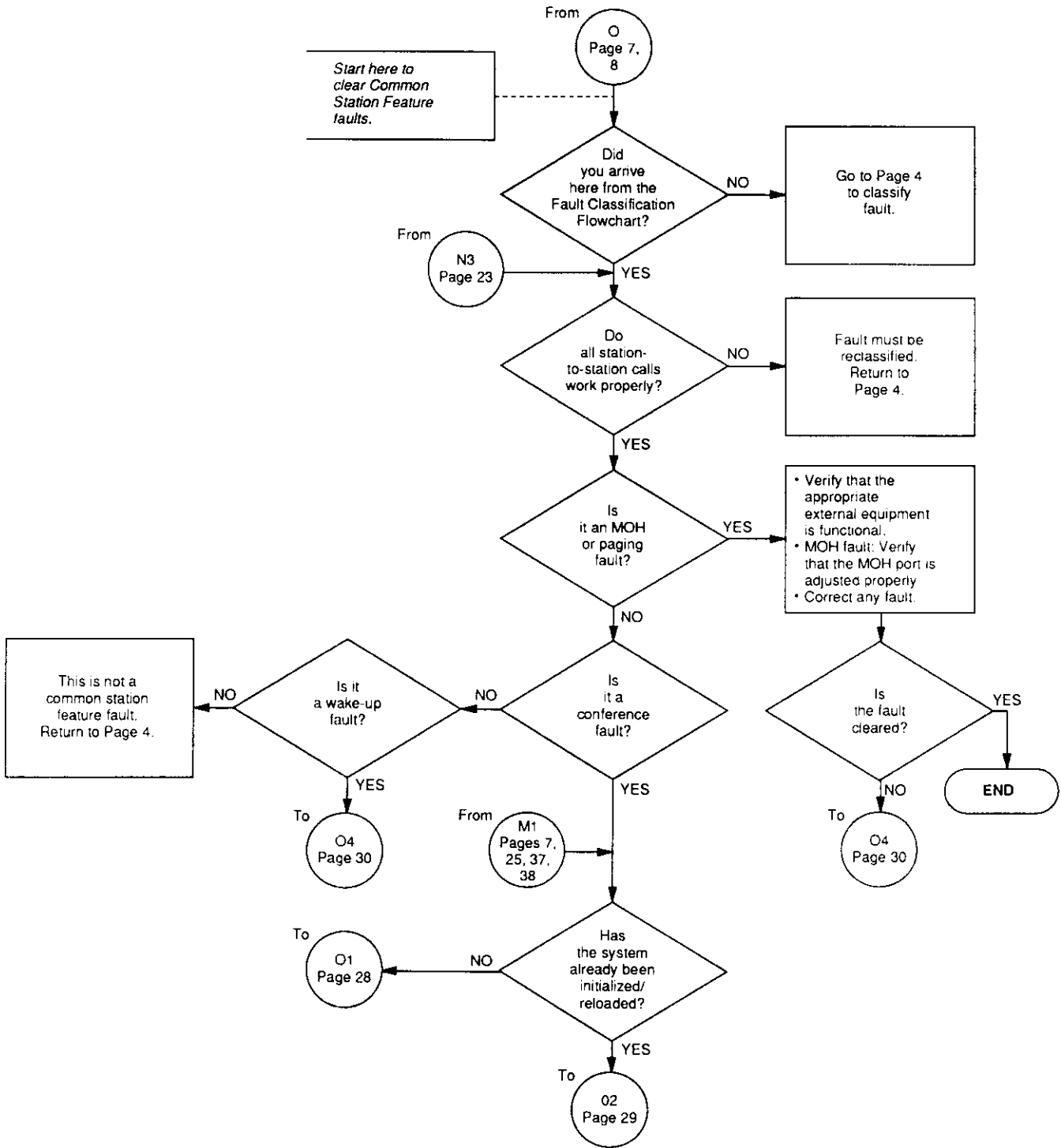






CHART NO. 16  
COMMON STATION FEATURE FAULTS (continued)

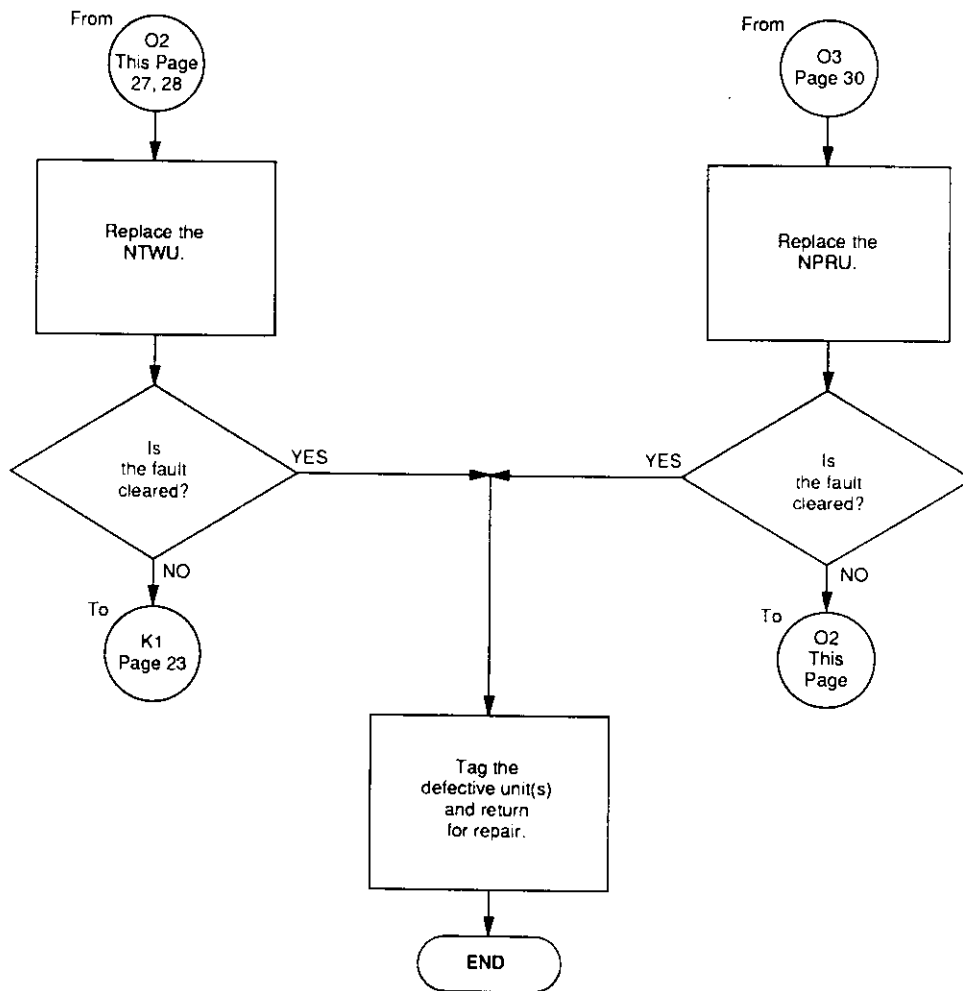




CHART NO. 17  
SPEECH PATH OR DIAL TONE FAULTS

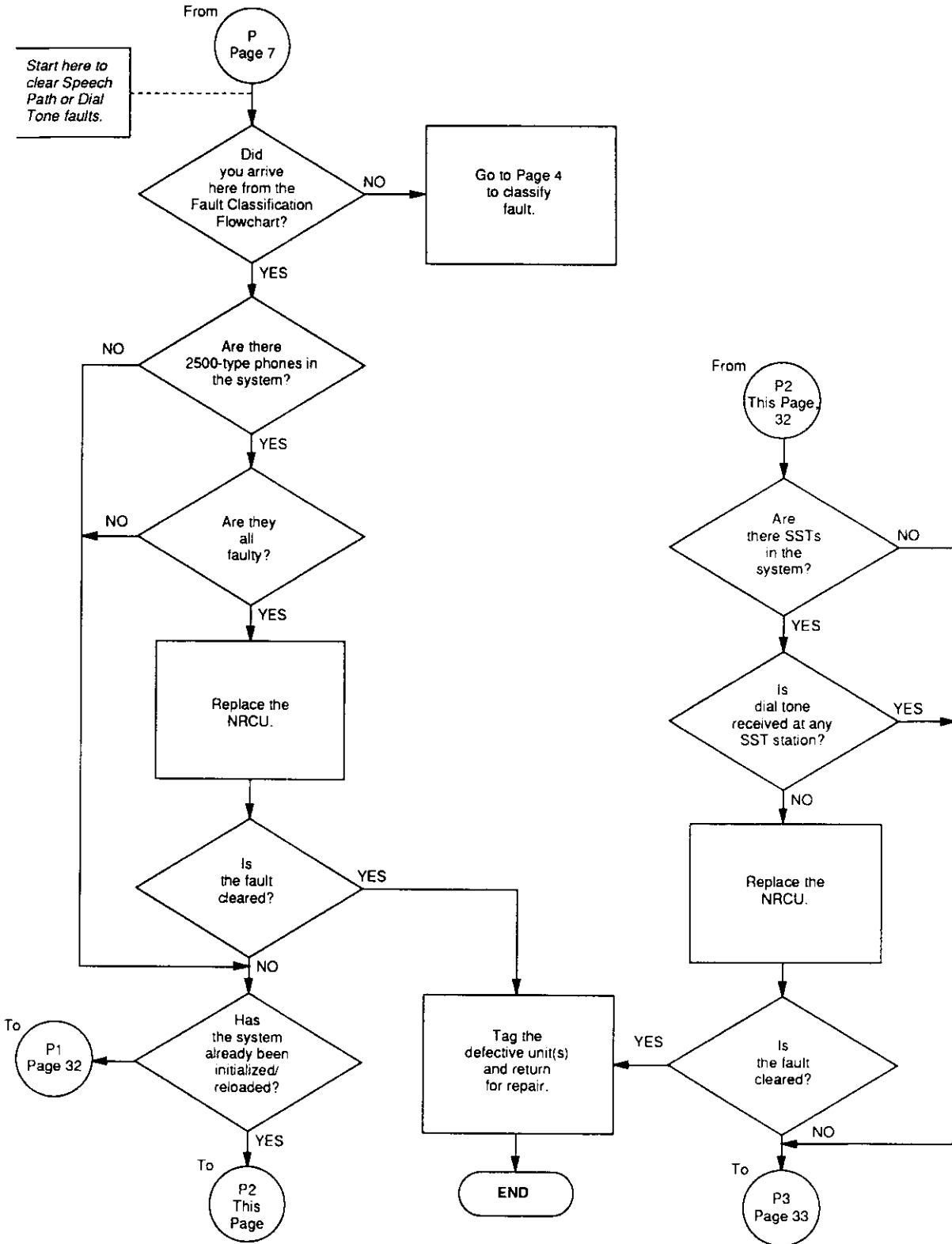




CHART NO. 17  
SPEECH PATH OR DIAL TONE FAULTS (continued)

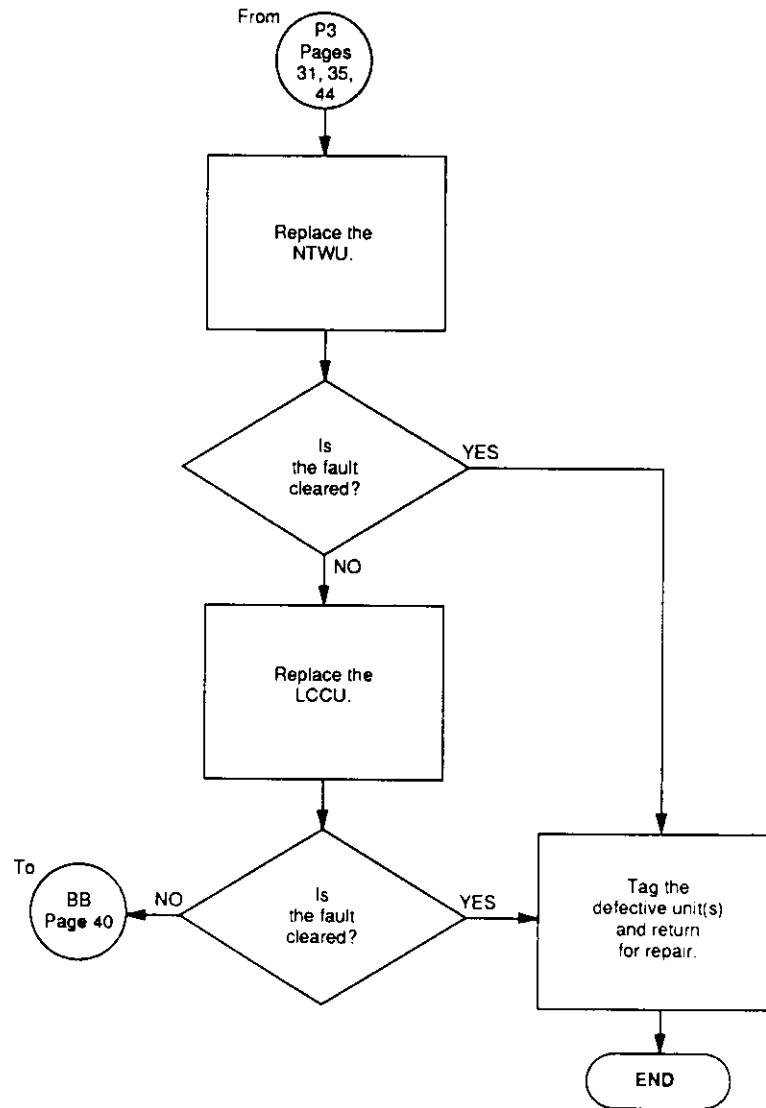




CHART NO. 18  
DATA/SPEECH PATH OR DIAL TONE FAULTS (continued)

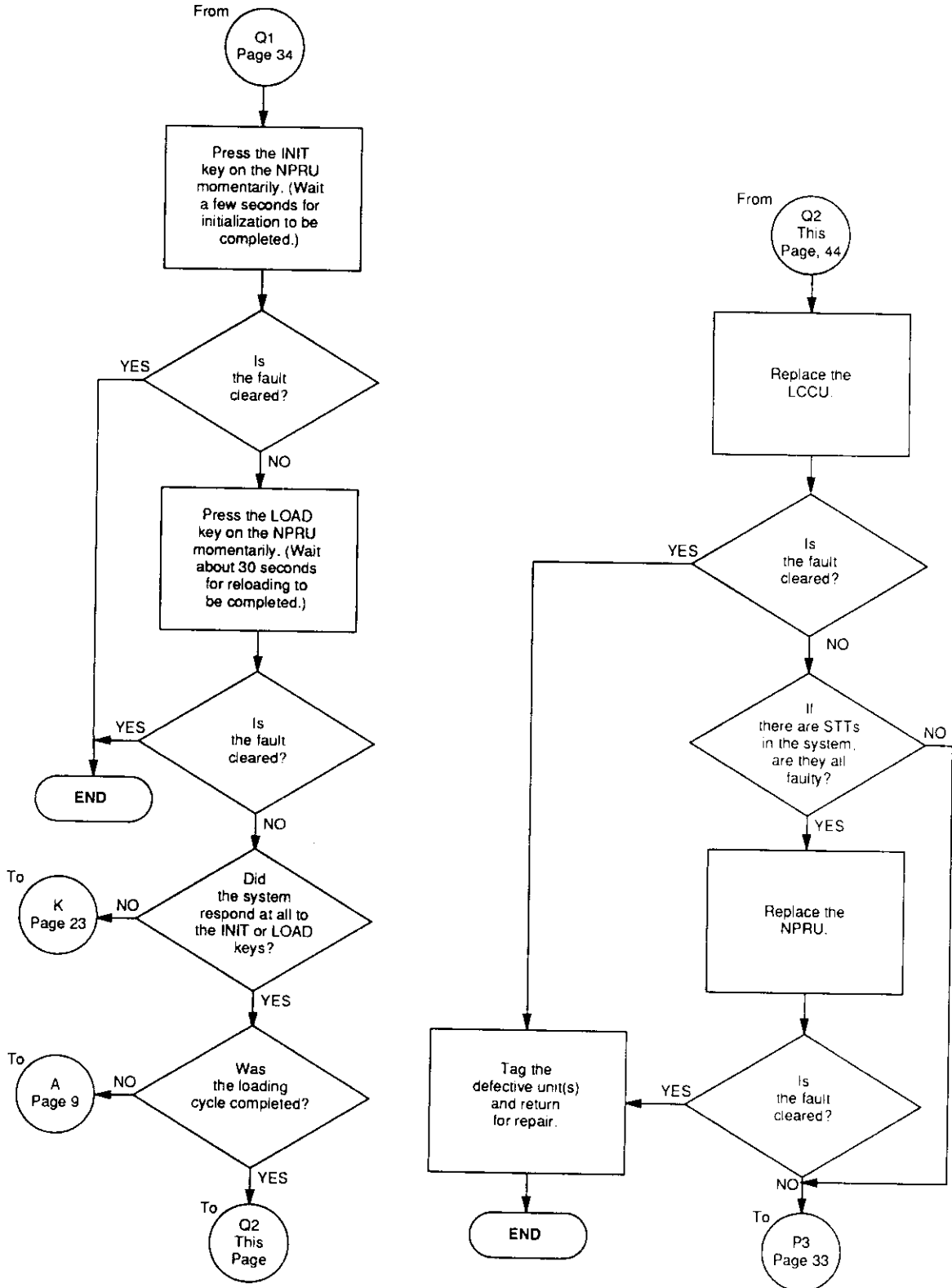






CHART NO. 19  
DIALING FAULTS (continued)

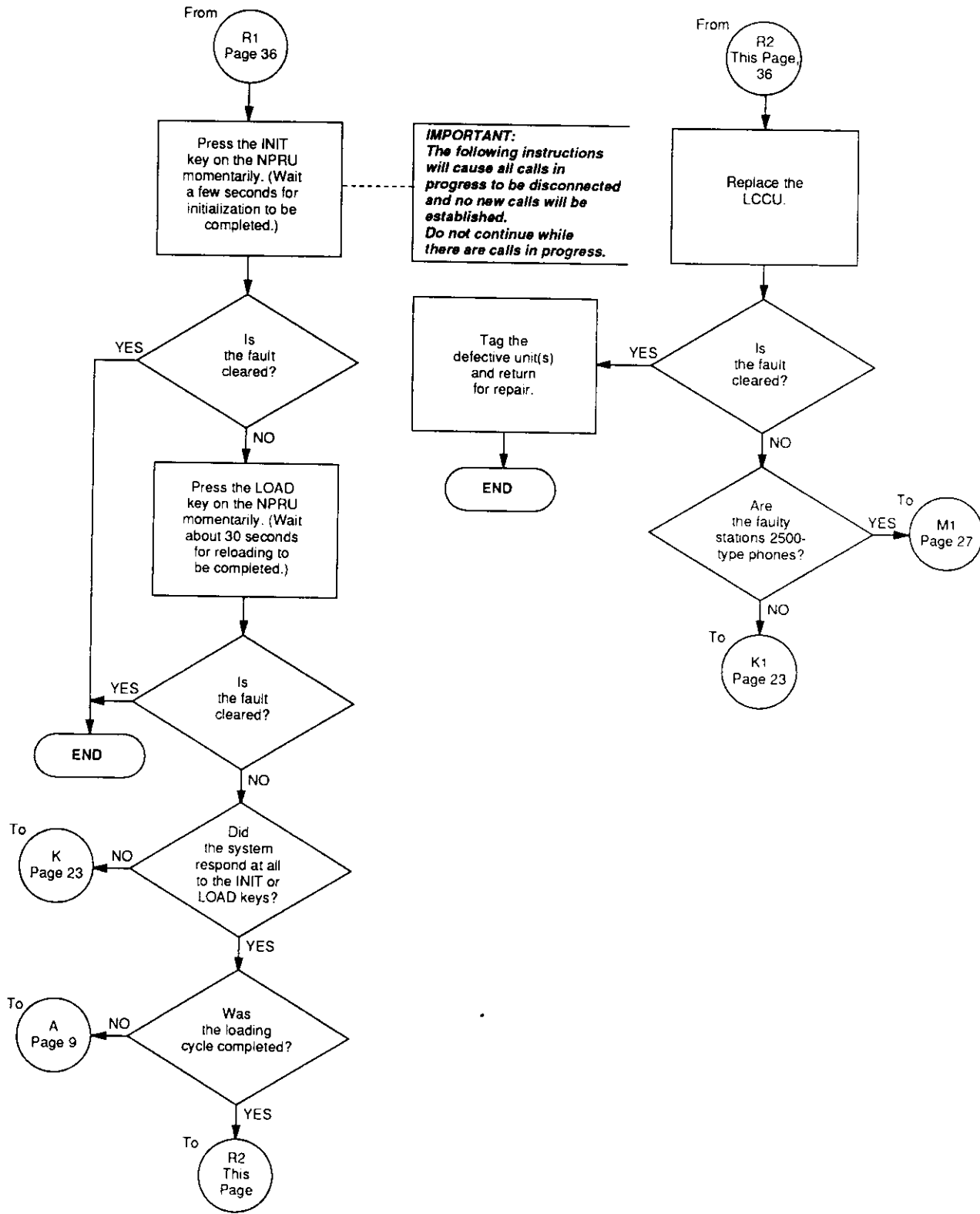




CHART NO. 20  
RINGING/RINGBACK TONE FAULTS (continued)

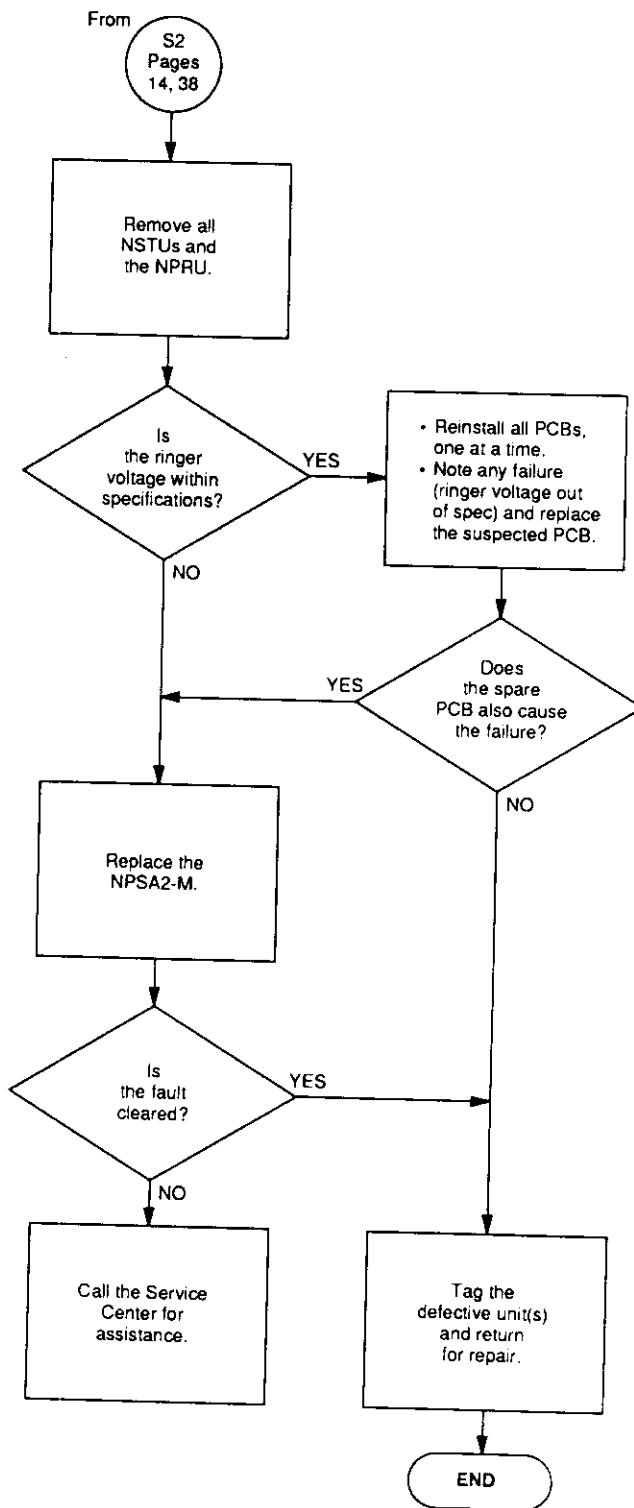




CHART NO. 22  
NMDU/NDCU FAULTS

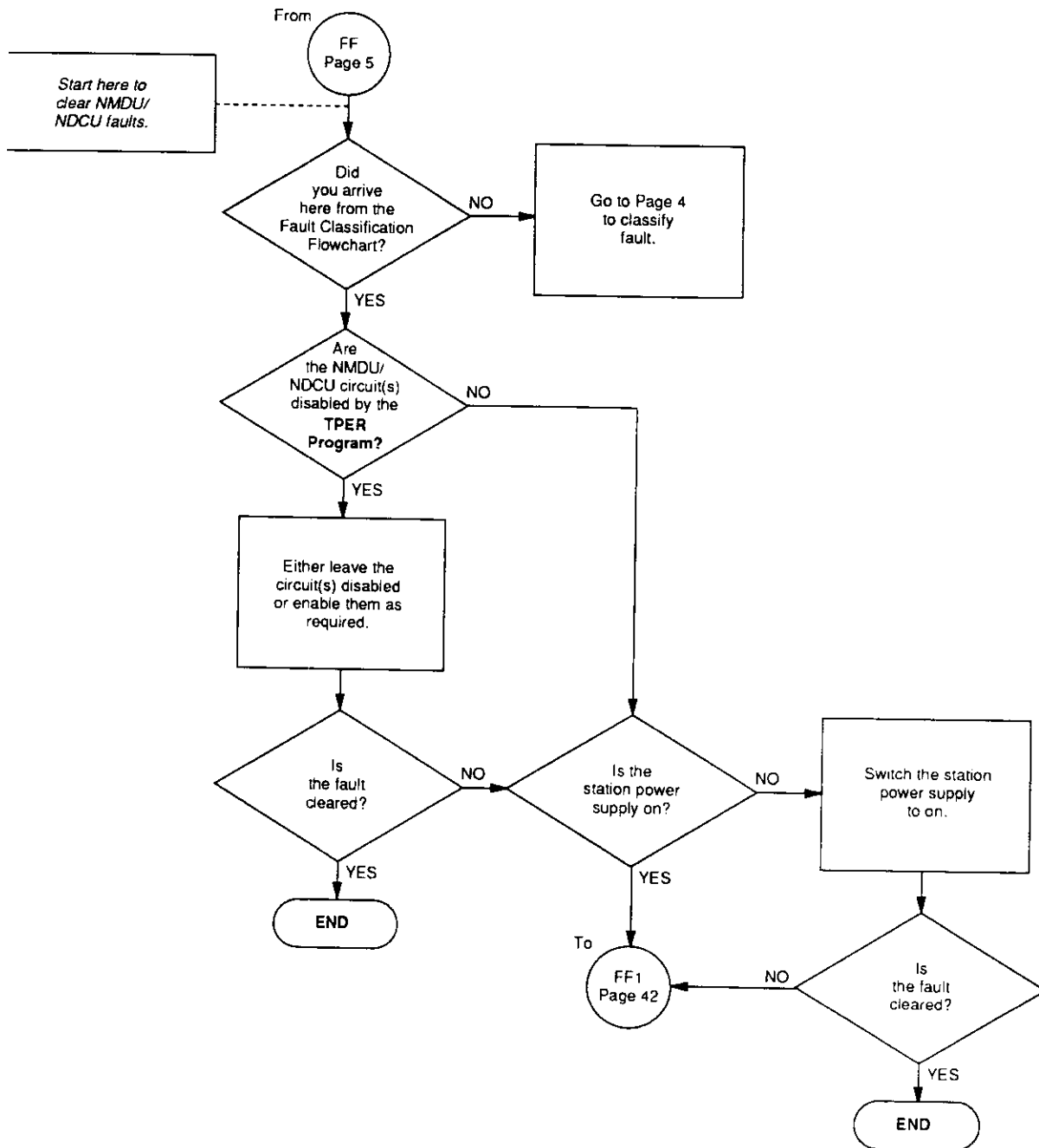
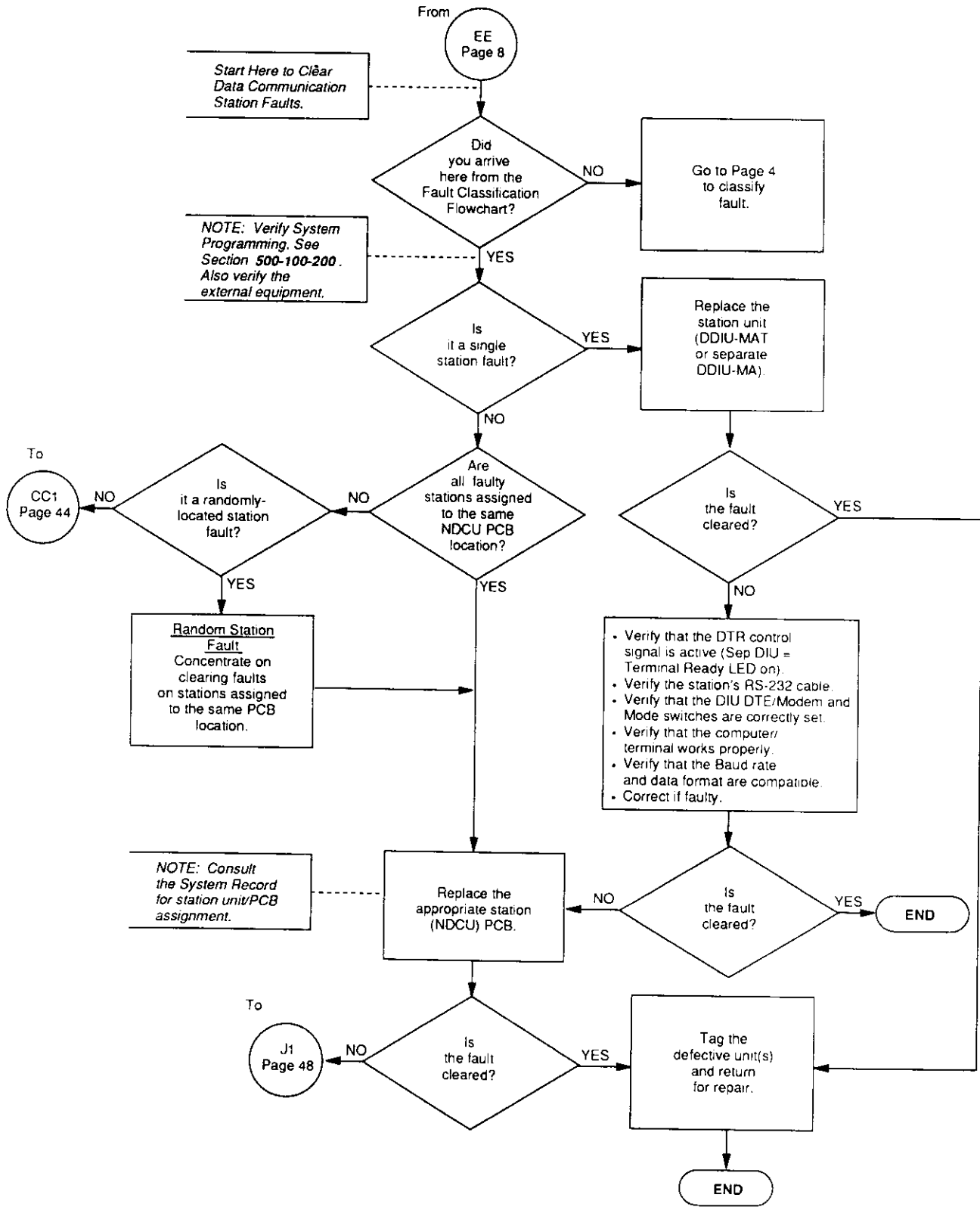




CHART NO. 23  
DATA COMMUNICATION STATION FAULTS







**CHART NO. 24  
DATA COMMUNICATION TRUNK FAULTS**

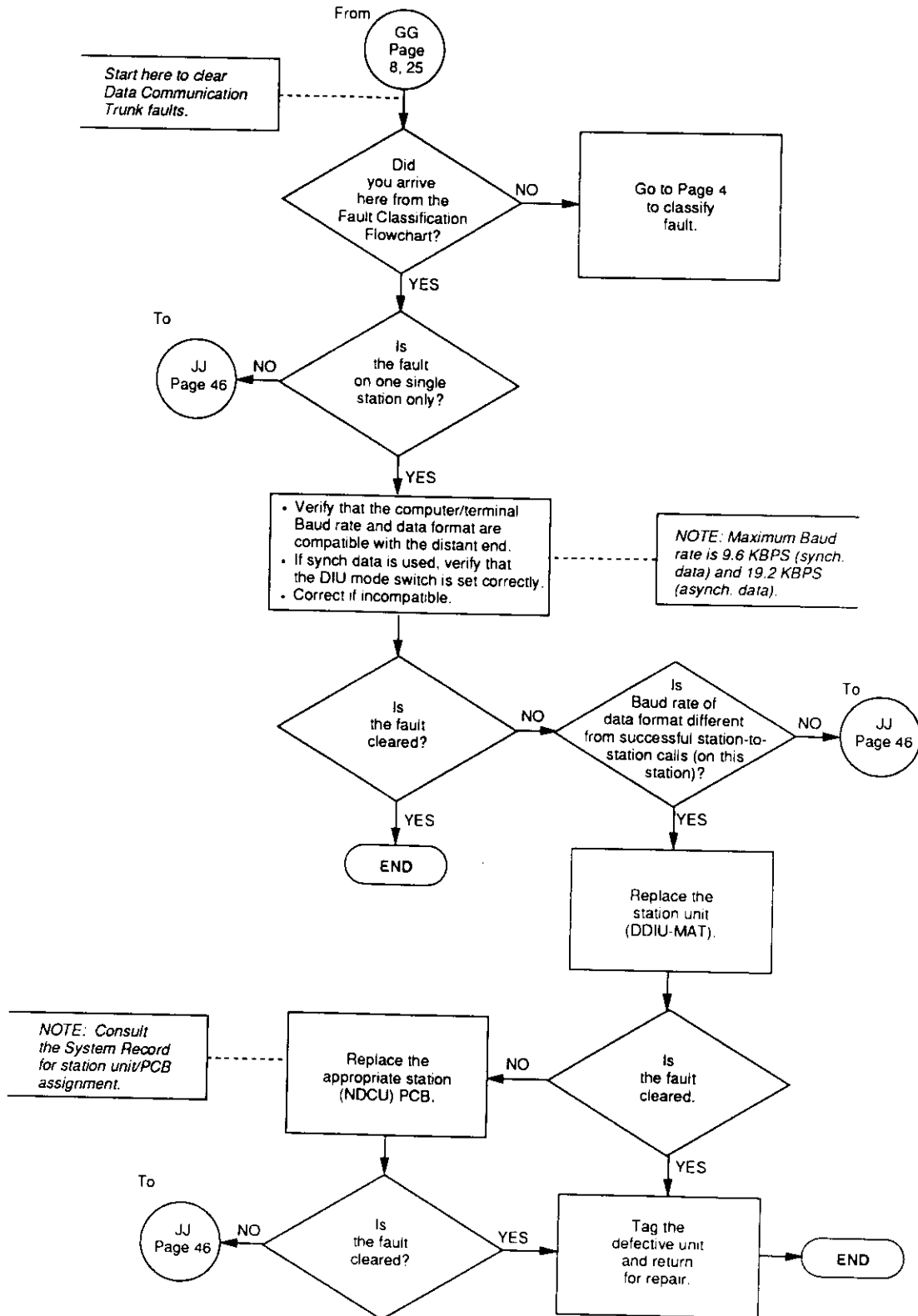




CHART NO. 24  
DATA COMMUNICATION TRUNK FAULTS (continued)

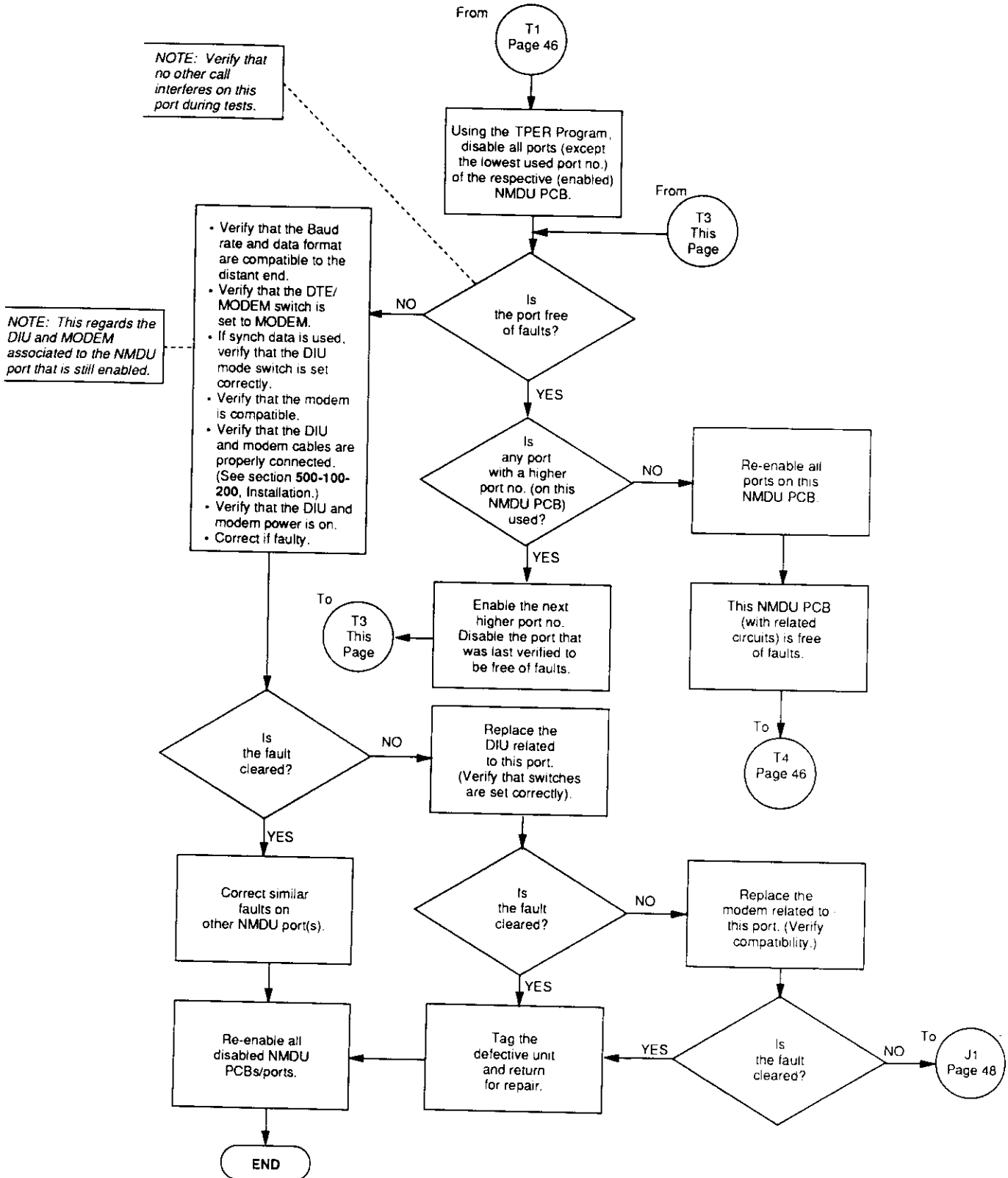
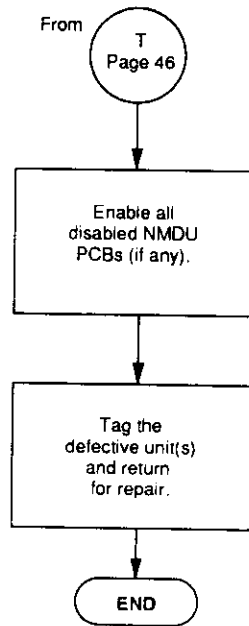


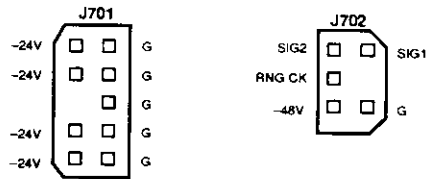


CHART NO. 24  
DATA COMMUNICATION TRUNK FAULTS (continued)





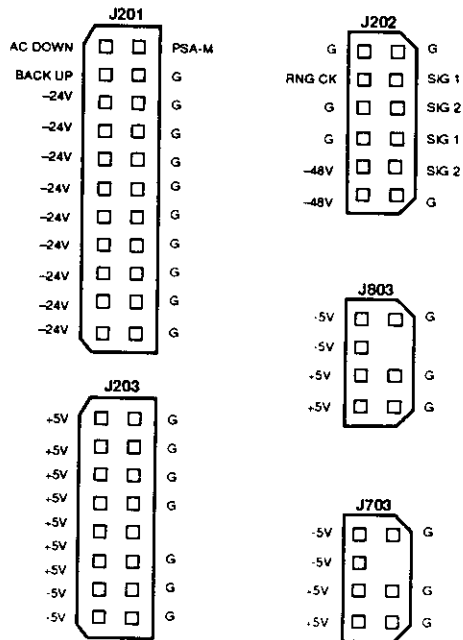
**EXPANSION CABINET**



**EXPANSION CABINET**



**BASIC CABINET**



FPSA ACCEPTABLE VOLTAGE RANGES	
NOMINAL (VDC)	RANGE (VDC)
-48	-47.52 ~ -48.96
-24	-26.75 ~ -28.12
+12	+11.76 ~ +12.48
-12	-11.76 ~ -12.48
+5	+5.0 ~ +5.4
-5	-5.0 ~ -5.4

FIGURE 3 – PECEPTION<sub>ex</sub> POWER SUPPLY VOLTAGE CHECKS





# ***Perception<sup>®</sup>e & ex***

**APPENDIX #1**

**SYSTEM RECORD**

**Version D-03**



SYSTEM DATA BLOCK (DSYS Program)

ITEM	PROMPT	ENTRY
	REQ	CHG
Expansion Cabinet Installed	EXP	
Number of Drives	NOD	1
Time of Daily Routine	TOR	
Daily Routine Tasks	DRT	
Tenant Service?	TEN	
Intercept #1	ICP1	
Intercept #2	ICP2	
Intercept #3	ICP3	
Least Cost Routing	LCR	
All Page Access Code	APG	
Not Used	AAT	"CR"
Not Used	APX	"CR"
Listed Directory Number #1	LN1	
Listed Directory Number #2	LN2	
LDN #1 Night Number	NT1	
LDN #2 Night Number	NT2	
Busy Lamp Field #1	BLF1	
Busy Lamp Field #2	BLF2	
Overflow DN – Attendant Console #0	OFL1	
Overflow DN – Attendant Console #1	OFL2	
Message Center – Tenant #0*	MC0	
Message Center – Tenant #1*	MC1	
Meet-Me Page DN	MMP	
Remote Access DN	REM	
Remote Access Change Code	RAC	
"" Access Code	ACC*	
"#" Access Code	ACC#	
Camp-on (or CWT) Timeout	COT	
Ring-No-Answer Timeout	RNA	
Attendant Overflow Timeout	AOF	
Call Forward No-Answer Timeout	CFD	
2500 Hold/Electronic Telephone Park Timeout	HLD	
Dial Pulse Timeout	DPT	
Pushbutton Timeout	PBT	
Line Lockout Timeout	LLO	
Automatic Callback Reserve Time	ACB	
Delay Ring Timer	DLY	
Handsfree Answerback – Station	HFS	
Handsfree Answerback – Attendant	HFA	
SMDR Equipped	MDR	
Universal Night Answer Zone 0	UNA0	
Universal Night Answer Zone 1	UNA1	

\*To assign a Message Center, see the Message Center Data Block.





ATTENDANT DATA BLOCK (DATT Program)

ITEM	PROMPT	ENTRY				
		ATT 0			ATT 1	
	REQ					
Attendant Number	ANO	0			1	
Port Number	POR	L001			L151, L011	
Lockout Allowed?	LKO					
Page Key	PAG					
Incoming Call Priority	PRI					
Priority 1	PR1					
Priority 2	PR2					
Priority 3	PR3					
Priority 4	PR4					
Priority 5	PR5					

NOTE: Use a second sheet if Tenant Service is activated.

ELECTRONIC TELEPHONE BLOCK (DEKT Program) PCB Location (L )

ITEM	PROMPT	ENTRY	ENTRY	ENTRY	ENTRY	ENTRY	ENTRY	ENTRY	ENTRY
	REQ								
Port Number	POR								
Number of Button Strips	KS								
Class of Service Group	COS								
Tenant Number	TEN								
Call Pickup Group	PUG								
Warning Tone Allowed?	WTA								
Call Forward to Trunk	CFT								
Toll Restriction Class	TOL								
Not Used	MTA	N	N	N	N	N	N	N	N
Handsfree Answerback Equipped?	HFA								
Display Electronic Telephone	DIS								
Paging Group	PAG								
Emergency Ringdown Station	RDS								
Button Assignments: Primary DN Only!	KEY 0								
	KEY 1								
	KEY 2								
	KEY 3								
	KEY 4								
	KEY 5								
	KEY 6								
	KEY 7								
	KEY 8								
	KEY 9								
	KEY 10								
	KEY 11								
	KEY 12								
	KEY 13								
	KEY 14								
	KEY 15								
	KEY 16								
	KEY 17								
	KEY 18								
	KEY 19								

NOTE: Use multiple sheets as required.

Sheet \_\_\_\_ of \_\_\_\_

**PERCEPTION<sup>e&ex</sup>  
SYSTEM RECORD  
AUGUST 1989**

**STANDARD TELEPHONE DATA BLOCK (DSTT Program) PCB Location (L )**

ITEM	PROMPT	ENTRY	ENTRY	ENTRY	ENTRY	ENTRY	ENTRY	ENTRY	ENTRY
	REQ								
Port Number	POR								
Directory Number	DN								
Station Set Mix	SMX								
Class of Service	COS								
Tenant Number	TEN								
Call Pickup Group	PUG								
Hunt Number	HNT								
Dialing Type	DLG								
Speed Dial List	SDL								
Warning Tone Allowed?	WTA								
Call Forward to Trunk	CFT								
Toll Restriction Class	TOL								
Message Waiting Lamp	MWL								
Emergency Ringdown Station	RDS								

**STANDARD TELEPHONE DATA BLOCK (DSTT Program) PCB Location (L )**

ITEM	PROMPT	ENTRY	ENTRY	ENTRY	ENTRY	ENTRY	ENTRY	ENTRY	ENTRY
	REQ								
Port Number	POR								
Directory Number	DN								
Station Set Mix	SMX								
Class of Service	COS								
Tenant Number	TEN								
Call Pickup Group	PUG								
Hunt Number	HNT								
Dialing Type	DLG								
Speed Dial List	SDL								
Warning Tone Allowed?	WTA								
Call Forward to Trunk	CFT								
Toll Restriction Class	TOL								
Message Waiting Lamp	MWL								
Emergency Ringdown Station	RDS								

**STANDARD TELEPHONE DATA BLOCK (DSTT Program) PCB Location (L )**

ITEM	PROMPT	ENTRY	ENTRY	ENTRY	ENTRY	ENTRY	ENTRY	ENTRY	ENTRY
	REQ								
Port Number	POR								
Directory Number	DN								
Station Set Mix	SMX								
Class of Service	COS								
Tenant Number	TEN								
Call Pickup Group	PUG								
Hunt Number	HNT								
Dialing Type	DLG								
Speed Dial List	SDL								
Warning Tone Allowed?	WTA								
Call Forward to Trunk	CFT								
Toll Restriction Class	TOL								
Message Waiting Lamp	MWL								
Emergency Ringdown Station	RDS								

NOTE: Use multiple sheets as required.

Sheet \_\_\_ of \_\_\_



DSS CONSOLE DATA BLOCK (DDSS Program)

ITEM	PROMPT	ENTRY	ITEM	PROMPT	ENTRY
DSS Number	NBR		Button Assignment	KEY 28	
Port Number	POR			KEY 29	
Station Port	SPT			KEY 30	
Fixed or Switched	F/S			KEY 31	
Button Assignment	KEY 0			KEY 32	
	KEY 1			KEY 33	
	KEY 2			KEY 34	
	KEY 3			KEY 35	
	KEY 4			KEY 36	
	KEY 5			KEY 37	
	KEY 6			KEY 38	
	KEY 7			KEY 39	
	KEY 8			KEY 40	
	KEY 9			KEY 41	
	KEY 10			KEY 42	
	KEY 11			KEY 43	
	KEY 12			KEY 44	
	KEY 13			KEY 45	
	KEY 14			KEY 46	
	KEY 15			KEY 47	
	KEY 16			KEY 48	
	KEY 17			KEY 49	
	KEY 18			KEY 50	
	KEY 19			KEY 51	
	KEY 20			KEY 52	
	KEY 21			KEY 53	
	KEY 22			KEY 54	
	KEY 23			KEY 55	
	KEY 24			KEY 56	
	KEY 25			KEY 57	
	KEY 26			KEY 58	
	KEY 27			KEY 59	

MESSAGE CENTER DATA BLOCK (DMCD Program)

ITEM	PROMPT	ENTRY
	REQ	
Message/Voice Mail	MWC0	
Message/Voice Mail	MWC1	
DN of MC0	MDN0	
DN of MC1	MDN1	
Disconnect Code	DSC0	
Disconnect Code	DSC1	
Toshiba Voice Messaging #0	TVM0	
Toshiba Voice Messaging #1	TVM1	

**TRUNK GROUP DATA BLOCK (DTGP Program)**

TRUNK TYPE: CO/FX									
ITEM	PROMPT	ENTRY							
	REQ								
Trunk Group Number	GRP								
Tenant Number	TEN								
Trunk Type	TKT								
Incoming/Outgoing	IAO								
Advance Step	STP								
Access Code	COD								
Transmission	TRN								
Start Arrangement	STR								
Warning Tone Allowed?	WTA								
Outgoing Absorb Digits	OAB								
Flash-Hook Timing	FLT								

**TRUNK GROUP DATA BLOCK (DTGP Program)**

TRUNK TYPE: CO/FX									
ITEM	PROMPT	ENTRY							
	REQ								
Trunk Group Number	GRP								
Tenant Number	TEN								
Trunk Type	TKT								
Incoming/Outgoing	IAO								
Advance Step	STP								
Access Code	COD								
Transmission	TRN								
Start Arrangement	STR								
Warning Tone Allowed?	WTA								
Outgoing Absorb Digits	OAB								
Flash-Hook Timing	FLT								

**TRUNK GROUP DATA BLOCK (DTGP Program)**

TRUNK TYPE: WATS									
ITEM	PROMPT	ENTRY							
	REQ								
Trunk Group Number	GRP								
Tenant Number	TEN								
Trunk Type	TKT								
Incoming/Outgoing	IAO								
Advance Step	STP								
Access Code	COD								
Transmission	TRN								
Start Arrangement	STR								
Warning Tone Allowed?	WTA								
Flash-Hook Timing	FLT								

NOTE: Use multiple sheets as required.

Sheet \_\_\_\_ of \_\_\_\_

**TRUNK GROUP DATA BLOCK (DTGP Program)**

TRUNK TYPE: TIE/CCSA									
ITEM	PROMPT	ENTRY							
	REQ								
Trunk Group Number	GRP								
Tenant Number	TEN								
Trunk Type	TKT								
Incoming/Outgoing	IAO								
Advance Step	STP								
Access Code	COD								
Class of Service	COS								
Transmission	TRN								
Start Arrangement	STR								
Warning Tone Allowed?	WTA								
Incoming Absorb Digits	IAB								
Translated Number 1	TRN1								
Translated Number 2	TRN2								
Toll Restriction Class	TOL								

**TRUNK GROUP DATA BLOCK (DTGP Program)**

TRUNK TYPE: PVL (Private Line)									
ITEM	PROMPT	ENTRY							
	REQ								
Trunk Group Number	GRP								
Tenant Number	TEN								
Incoming/Outgoing	IAO								
Transmission	TRN								
Start Arrangement	STR								
Warning Tone Allowed?	WTA								
Flash-Hook Timing	FLT								

**TRUNK GROUP DATA BLOCK (DTGP Program)**

TRUNK TYPE: DID									
ITEM	PROMPT	ENTRY							
	REQ								
Trunk Group Number	GRP								
Tenant Number	TEN								
Trunk Type	TKT								
Incoming/Outgoing	IAO								
Advance Step	STP								
Access Code	COD								
Class of Service	COS								
Transmission	TRN								
Start Arrangement	STR								
Warning Tone Allowed?	WTA								
Outgoing Absorb Digits	OAB								
Incoming Absorb Digits	IAB								
Translated Number 1	TRN1								
Translated Number 2	TRN2								

NOTE: Use multiple sheets as required.

Sheet \_\_\_\_ of \_\_\_\_

**TRUNK DATA BLOCK (DTRK Program)**

TRUNK TYPE: CO/FX/WATS		PCB (T )				PCB (T )			
ITEM	PROMPT	ENTRY				ENTRY			
	REQ								
Port Number	POR								
Universal Port Number	UPN								
Group/Member Number	GMN								
Remote Access Day/Night	RAD								
Night Number	NIT								
Day Number	DAY								
Destination for Transfer Recall Termination	TRCL								
Signaling	SIG								
Disconnect Supervision	DIS								
Outgoing Dialing	DOT								

**TRUNK DATA BLOCK (DTRK Program)**

TRUNK TYPE: CO/FX/WATS		PCB (T )				PCB (T )			
ITEM	PROMPT	ENTRY				ENTRY			
	REQ								
Port Number	POR								
Universal Port Number	UPN								
Group/Member Number	GMN								
Remote Access Day/Night	RAD								
Night Number	NIT								
Day Number	DAY								
Destination for Transfer Recall Termination	TRCL								
Signaling	SIG								
Disconnect Supervision	DIS								
Outgoing Dialing	DOT								

NOTE: Use multiple sheets as required.

**TRUNK DATA BLOCK (DTRK Program)**

TRUNK TYPE: CO/FX/WATS		PCB (T )				PCB (T )			
ITEM	PROMPT	ENTRY				ENTRY			
	REQ								
Port Number	POR								
Universal Port Number	UPN								
Group/Member Number	GMN								
Remote Access Day/Night	RAD								
Night Number	NIT								
Day Number	DAY								
Destination for Transfer Recall Termination	TRCL								
Signaling	SIG								
Disconnect Supervision	DIS								
Outgoing Dialing	DOT								

**TRUNK DATA BLOCK (DTRK Program)**

TRUNK TYPE: TIE/CCSA		PCB (T )				PCB (T )			
ITEM	PROMPT	ENTRY				ENTRY			
	REQ								
Port Number	POR								
Universal Port Number	UPN								
Group/Member Number	GMN								
Signaling	SIG								
Disconnect Supervision	DIS								
Control of Disconnect	CTL								
Incoming Dialing	DIN								
Outgoing Dialing	DOT								
Answer Supervision	ANS								

*NOTE: Use multiple sheets as required.*

TRUNK DATA BLOCK (DTRK Program)

TRUNK TYPE: PVL (Private Line)		PCB (T )				PCB (T )			
ITEM	PROMPT	ENTRY				ENTRY			
	REQ								
Port Number	POR								
Universal Port Number	UPN								
Group/Member Number	GMN								
Trunk DN	TDN								
Destination for Transfer Recall Termination	TRCL								
Signaling	SIG								
Disconnect Supervision	DIS								
Outgoing Dialing	DOT								
Private Line Outgoing Call Restriction	OTR								

TRUNK DATA BLOCK (DTRK Program)

TRUNK TYPE: DID		PCB (T )				PCB (T )			
ITEM	PROMPT	ENTRY				ENTRY			
	REQ								
Port Number	POR								
Universal Port Number	UPN								
Group/Member Number	GMN								
Destination for Transfer Recall Termination	TRCL								
Signaling	SIG								
Disconnect Supervision	DIS								
Control of Disconnect	CTL								
Incoming Dialing	DIN								
Outgoing Dialing	DOT								
Answer Supervision	ANS								

SMDR DATA BLOCK (DMDR Program)

ITEM	PROMPT	ENTRY
	REQ	
Trunk Port Number	TPN	
Account Code Length	ACL	
Special Common Carrier #1	SPCC1	
Special Common Carrier #2	SPCC2	
Trunk Group	TGP	
Trunk Group	TGP	
Trunk Group	TGP	
Trunk Group	TGP	
Trunk Group	TGP	
Trunk Group	TGP	
Trunk Group	TGP	
Trunk Group	TGP	
Trunk Group	TGP	
Trunk Group	TGP	
Trunk Group	TGP	
Trunk Group	TGP	
Trunk Group	TGP	
Trunk Group	TGP	
Trunk Group	TGP	
Trunk Group	TGP	
Trunk Group	TGP	
Trunk Group	TGP	
Trunk Group	TGP	
Trunk Group	TGP	
Trunk Group	TGP	



**TOLL RESTRICTION DATA BLOCK (DTOL Program)  
 Miscellaneous Parameters (PAR Sub-program)**

ITEM	PROMPT	ENTRY
	REQ	CHG
Sub-program Type	TYPE	PAR
Home Area Code	HAC	
Interchangeable Codes	ICC	
Specialized Common Carrier #1DN	SPCC1	
Specialized Common Carrier #2DN	SPCC2	
DDD Prefix	DDP	
Authorization Code 1 Digit Length	AUTH1	
Authorization Code 2 Digit Length	AUTH2	





DDIU DATA BLOCK (DDIU Program)

ITEM	PROMPT	ENTRY
	REQ	
Port Number	POR	
Type of DDIU	TYP	
Directory Number	DN	
Hunt Directory Number	HNT	
Class of Service Group	COS	
Group of DDIU	GOD	
Tenant Number Button Assignments:	TEN	
Data DN only!	KEY 0	
	KEY 1	
	KEY 2	
	KEY 3	
	KEY 4	
	KEY 5	
	KEY 6	
	KEY 7	
	KEY 8	
	KEY 9	
	KEY 10	
	KEY 11	
	KEY 12	
	KEY 13	
	KEY 14	
	KEY 15	
	KEY 16	
	KEY 17	
	KEY 18	
	KEY 19	

MODEM POOLING DATA BLOCK (DMDM Program) PCB Location (L )

ITEM	PROMPT	ENTRY	ENTRY	ENTRY	ENTRY
	REQ				
Port Number	POR				

**LEAST COST ROUTING DATA BLOCK (DLC1 Program)  
Miscellaneous Parameters (PAR Sub-program)**

ITEM	PROMPT	ENTRY				
	REQ					
Sub-program Type	TYPE					
Interchangeable Codes	ICC					
Operator Call Timeout	OTO					
Return Dial Tone	RTD					
Warning Tone Allowed?	WTA					
Home Area Code	HAC					
Toll Free (800) Calls	TFC					
Local Call Route	LCR					
Service Code Table	SVC					
Directory Assistance Calls Allowed	DAC					
Long Distance Information Route	LDI					
DDD Prefix	DDP					

NOTE: Use multiple sheets as required.

Sheet \_\_\_\_ of \_\_\_\_

LEAST COST ROUTING DATA BLOCK (DLC1 Program)  
 Area Code Table (ACT Sub-program)

ITEM			PROMPT			ENTRY		
			REQ			CHG		
Sub-program Type			TYPE			ACT		
Route Table Number			RNO					
<b>Area Codes (Added with ACA/Deleted with ACD)</b>								

**LEAST COST ROUTING DATA BLOCK (DLC1 Program)**  
**Area/Office Code Table (AOC Sub-program)**

ITEM			PROMPT	ENTRY					
			REQ	CHG					
Sub-program Type			TYPE	AOC					
Table Number			TNO						
Area Code			ARC						
Route Table Number			RNO						
<b>Office Codes (Added with OCA/Deleted with OCD)</b>									

*NOTE: Use a separate sheet for each Area/Office Code.* Sheet \_\_\_\_ of \_\_\_\_



**LODGING/HEALTH CARE FEATURES DATA BLOCK (DHMF Program)**

ITEM	PROMPT	ENTRY
	REQ	
Automatic Wake-up Source	AWU SRC	
Automatic Wake-up	AWU POR	
Message Waiting	MW POR	
Message Registration	MR POR	
Room Status Audit	RMS	



**SPEED DIAL DATA BLOCK (DSDL Program)**

ITEM	PROMPT	ENTRY	ENTRY	ENTRY
	REQ			
List Number	LNO			
Store Number	STR			

**SPEED DIAL DATA BLOCK (DSDL Program)**

ITEM	PROMPT	ENTRY	ENTRY	ENTRY
	REQ			
List Number	LNO			
Store Number	STR			

**SPEED DIAL DATA BLOCK (DSDL Program)**

ITEM	PROMPT	ENTRY	ENTRY	ENTRY
	REQ			
List Number	LNO			
Store Number	STR			

**NOTES:**

1. Use multiple sheets as required.
2. Use one column for each station list.
3. Use multiple columns for system list.

Sheet \_\_\_\_ of \_\_\_\_

TRAFFIC MEASUREMENT DATA BLOCK (DTRF Program)

ITEM	PROMPT	ENTRY
System Date	REQ	
Day of Week	SYST. DATE MMDDYY	
System Time	DOW	
Schedule	SYS. TIME HHMMSS	
Start Date	SCH -XXX-	
State Time	STR. DATE MMDDYY	
Report	STR. TIME HHMM	
	RPT	
	SYST	
	ATT0	
	ATT1	
	TGP00	
	TGP01	
	TGP02	
	TGP03	
	TGP04	
	TGP05	
	TGP06	
	TGP07	
	TGP08	
	TGP09	
	TGP10	
	TGP11	
	TGP12	
	TGP13	
	TGP14	
	TGP15	

ALPHANUMERIC MESSAGE DATA BLOCK (DMSG Program)

ITEM	PROMPT	ENTRY
	REQ	CHG*
Message 0	MSG	
Message 1	MSG	
Message 2	MSG	
Message 3	MSG	
Message 4	MSG	
Message 5	MSG	
Message 6	MSG	
Message 7	MSG	
Message 8	MSG	
Message 9	MSG	

*\*Enter the message number and message in this column.*



LEAST COST ROUTING DATA BLOCK (DLC2 Program)  
 Route Table (RTB Sub-program)

ITEM	PROMPT	ENTRY		COMMENTS
		TGN	MDT	
	REQ	CHG		
Sub-program Type	TYPE	RTB		
Route Table Number	RNO			
		TGN	MDT	
Route #1 Definition	RT1			
Route #2 Definition	RT2			
Route #3 Definition	RT3			
Route #4 Definition	RT4			
Route #5 Definition	RT5			
Route #6 Definition	RT6			
Route Schedule A	SCHA	~		
Class 3 Routing Priority	LC3			
Class 2 Routing Priority	LC2			
Class 1 Routing Priority	LC1			
Route Schedule B	SCHB	~		
Class 3 Routing Priority	LC3			
Class 2 Routing Priority	LC2			
Class 1 Routing Priority	LC1			
Route Schedule C	SCHC	"CR"		
Class 3 Routing Priority	LC3			
Class 2 Routing Priority	LC2			
Class 1 Routing Priority	LC1			

NOTES:

1. Use a separate sheet for each Route Table.
2. Use multiple sheets as required.

Sheet \_\_\_\_ of \_\_\_\_

LEAST COST ROUTING DATA BLOCK (DLC2 Program)  
 Modify Digits Table (MDT Sub-program)

ITEM	PROMPT	ENTRY
	REQ	CHG
Sub-program Type	TYPE	MDT
Table Number	TNO	
Number of Digits to be Deleted	DLT	
Digits to be Added (Prefixed)	ADD	

LEAST COST ROUTING DATA BLOCK (DLC2 Program)  
 Modify Digits Table (MDT Sub-program)

ITEM	PROMPT	ENTRY
	REQ	CHG
Sub-program Type	TYPE	MDT
Table Number	TNO	
Number of Digits to be Deleted	DLT	
Digits to be Added (Prefixed)	ADD	

LEAST COST ROUTING DATA BLOCK (DLC2 Program)  
 Modify Digits Table (MDT Sub-program)

ITEM	PROMPT	ENTRY
	REQ	CHG
Sub-program Type	TYPE	MDT
Table Number	TNO	
Number of Digits to be Deleted	DLT	
Digits to be Added (Prefixed)	ADD	

LEAST COST ROUTING DATA BLOCK (DLC2 Program)  
 Modify Digits Table (MDT Sub-program)

ITEM	PROMPT	ENTRY
	REQ	CHG
Sub-program Type	TYPE	MDT
Table Number	TNO	
Number of Digits to be Deleted	DLT	
Digits to be Added (Prefixed)	ADD	

LEAST COST ROUTING DATA BLOCK (DLC2 Program)  
 Modify Digits Table (MDT Sub-program)

ITEM	PROMPT	ENTRY
	REQ	CHG
Sub-program Type	TYPE	MDT
Table Number	TNO	
Number of Digits to be Deleted	DLT	
Digits to be Added (Prefixed)	ADD	

NOTE: Use multiple sheets as required.

Sheet \_\_\_ of \_\_\_



# ***Perception<sup>®</sup>e & ex***

**DIGITAL HYBRID PBX**

**APPENDIX #2**

**LEAST COST ROUTING (LCR)**

**and**

**TOLL RESTRICTION (TR)**

**PROGRAMMING GUIDE**



## PERCEPTION<sub>e&ex</sub> LCR/TR PROGRAMMING GUIDE TABLE OF CONTENTS

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## 1. INTRODUCTION

**1.01** This document has two main purposes: a) to describe the Least Cost Routing (LCR) and Toll Restriction (TR) features, and b) to serve as a supplement to Section **200-255-300**, *System Programming*, in order to guide the service technician in LCR/TR programming. Various examples, tables, and flowcharts are provided to clarify feature explanations.

**1.02** This document assumes that the reader is familiar with PERCEPTION<sub>e&ex</sub> programming procedures and the mnemonics used with the LCR and TR data entry utility programs.

## 2. GENERAL DESCRIPTION

### 2.00 Least Cost Routing (LCR)

**2.01** Least Cost Routing causes the system to select the least expensive trunk available for that particular time of day. The station user simply dials an LCR access code and the required telephone number. LCR will then select the optimally-priced route and automatically delete and/or insert any necessary digits (for MCI, Sprint, etc.) by analyzing the dialed telephone number (including area code and, in some cases, office code).

**2.02** The three variable time schedules per 24-hour clock allow the end-user to take advantage of rate variations during these hours. The various routing combinations for the three time schedules are contained in 15 Route Tables. Each table is selected as a function of the dialed telephone number.

**2.03** The LCR feature is compatible with and transparent to all other PERCEPTION<sub>e&ex</sub> features. It is designed so that it is completely disabled until a simple parameter (LCR) is enabled in the System Data Block (**DSYS Program**).

**2.04** If a Direct Trunk Access code (not the LCR access code) is dialed, the outgoing call is handled as a normal direct trunk access call without using LCR.

**2.05** LCR Data Blocks are separated from all

other Data Blocks. It is unnecessary to change a completed Data Block when adding the LCR feature to a system already in use, except to assign the LCR access code (**DACD Program**) or to enable LCR (**DSYS Program**).

**2.06** There are three LCR classes (LC1, LC2, and LC3), which allow specific stations to be denied access to the most expensive routes. LC3 is the lowest class; LC1 is the highest. LC3 routes are always selected first, no matter what class the station is allowed. If all LC3 routes are busy, and the calling station is allowed LC2, the system will try to select an LC2 route in the order programmed. If LC1 is allowed, and all LC2 routes are busy, the system will try to select an LC1 route.

- The Class of Service Data Block indicates the LCR class of that particular Class of Service.
- A warning tone is received by the station user if the last choice route is selected (if the WTA prompt, PAR table, **DLC1 Program**, is programmed to Y).
- If all the routes are busy, busy tone is received by the station user, who may then activate the Automatic Callback feature. The station will then be called when the first trunk in that station's LCR class is idle. When the station answers the callback, the idle trunk will be seized and the telephone number will be automatically dialed out to the distant end.

**2.07** All of the above logic and the remainder of the Least Cost Routing and Toll Restriction features are described, and can be followed step-by-step, in the Detailed Logic Flowchart. This flowchart can be used as a fault finding procedure for customer data programming, and to answer questions regarding what will happen when certain parameters are programmed in a certain way.

### 2.10 Toll Restriction (TR)

**2.11** The Toll Restriction (TR) program causes the system to restrict (or not restrict) specific stations from calling certain area codes and/or office codes.

**2.12** Toll Restriction can be used for long distance toll restriction, for restriction in the local area (home area), or both. The TR class also decides whether to restrict calls to the local central office operator,

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international calls, and/or long distance directory assistance.

**2.13** Eight different TR classes (CLS 0 ~ 7) can be programmed in the previously-described manner. Also, CLS 8 restricts all **0** + and **1** + calls.

**2.14** All stations programmed for TOL = NONE will have no restrictions. The TOL parameter (TR class number) is located in the **DEKT**, **DSTT**, and **DTGP** (TIE/CCSA Trunks) **Programs**.

**2.15** Before a call via Least Cost Routing or Direct Trunk Access (DTA) is completed, the **DTOL Program** will decide whether or not the number being dialed is allowed. If not allowed, the originating station will receive overflow tone. If allowed, the call will be processed further.

**2.16** All of the above logic and the remainder of the TOL parameter are described, and can be followed step-by-step, in the Detailed Logic Flowchart.

*Example:*

*Follow a call through the Logic Flowchart according to what is programmed in Example #2.*

**3. NUMBERING PLAN (NORTH AMERICA)**

**3.00 Description**

**3.01** All telephone systems in the USA and Canada use the North American Numbering Plan. All PERCEPTION<sub>e&ex</sub> LCR/TR features are based on this plan.

**3.02** The routing codes for Direct Distant Dialing (DDD) within the North American Numbering Plan consist of two basic parts:

- 1) A 3-digit area code or Numbering Plan Area (NPA) code.
- 2) A 7-digit telephone number made up of a 3-digit central office (CO) code and a 4-digit station number.

**NOTE:**

*When used together, these ten digits comprise the network "address" or destination code for each telephone.*

- The first digit of the area code must be a number between 2 and 9. The second digit must be a 1 or 0. The third digit may be any number between 0 and 9.
- The first two digits in the CO code must be any numbers between 2 and 9, except when interchangeable codes are used (then the second digit can be any number between 0 and 9). The third digit of the CO code on all four subscriber numbers may be any number between 0 ~ 9 (Table A).

**TABLE A**  
**NORTH AMERICAN NUMBERING PLAN**

Area Code	Office Code	Subscriber No.
N0/1X	NNX	XXXX
X = any number from 0 ~ 9		
N = any number from 2 ~ 9		
0/1 = number 0 or 1		

**3.03** The following are exceptions to the rule:

- 1) Service Code (N11): This is used for various special local services and, when programmed properly, is recognized only as a service code. In this case, the system will act immediately after this 3-digit number is completed.
- 2) Interchangeable Codes (ICC): In some areas, the second digit of the office code is allowed to be any number from 0 ~ 9. In this case, the office code may look like an area code (if the second digit is 0 or 1). If so, the PERCEPTION<sub>e</sub> or PERCEPTION<sub>ex</sub> looks for a DD prefix (1) to identify whether or not the next 3-digit number is an area code. When ICC is used, **1** + a 3-digit number is always an area code. When ICC is not used, the system identifies the area code by looking at the second digit of the first 3-digit number (if this digit is 0 or 1, the number is an area code; if not, the number is an office code).
- 3) Inward WATS: This is a form of long distance service without a charge to the originating party.
  - The area code is always 800.
  - In PERCEPTION<sub>e&ex</sub> LCR, this type of call can be programmed (in the PAR table) as either a regular DDD call with an area code of **800**, or as a toll free **800** call, routed via the local call route table (LCR).
- 4) Long distance directory assistance (555): This

is a call using any area code (or no area code) plus 555-1212. If allowed, this type of call is routed via the LDI route table, as indicated in the PAR table, or via the route table (DAC = N) to which this area code is assigned.

**NOTE:**

*When a DDD call is dialed, a prefix of **1** is usually needed before the area code. A **0** prefix will cause the local operator to be connected.*

## **4. SPECIAL COMMON CARRIER**

### **4.00 Description**

**4.01** Dialing extra digits to access the Special Common Carrier (SPCC) trunks is not necessary if the LCR feature has been activated. The selection of SPCC trunks (like all other trunks) and the outpulsing of the extra digits (access code, authorization code, etc.), is accomplished automatically by the PERCEPTION<sub>e&ex</sub> LCR feature. This function is completely transparent to the station user.

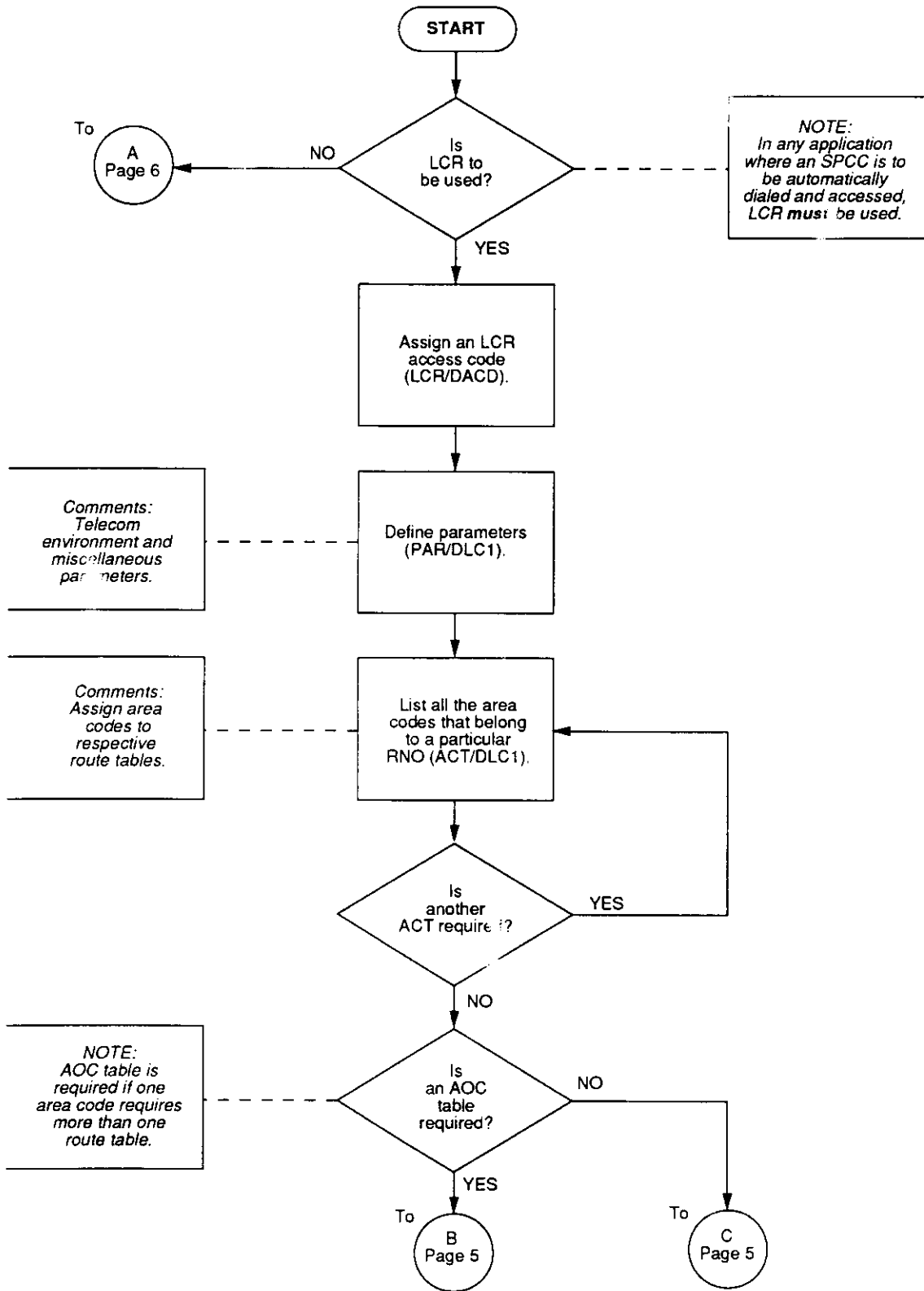
## **5. PROGRAMMING**

### **5.00 General**

**5.01** Customer data programming can be done in many different ways with the same results. The starting point and the particular order may differ according to personal preferences. As an example, one logical sequence for programming customer data is shown in the Customer Data Programming Flowchart.

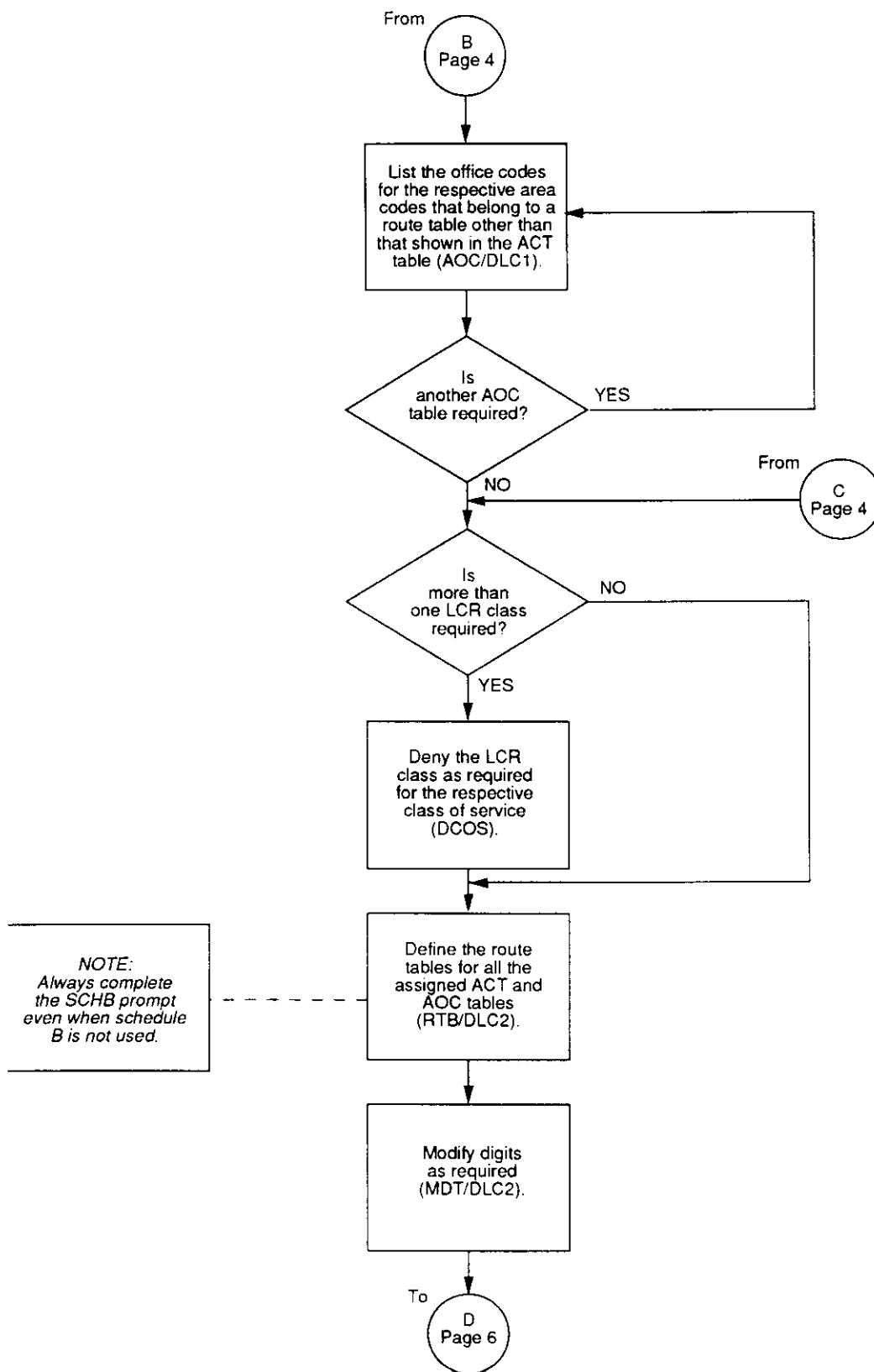
**5.02** For detailed information, see *Programming Procedures*, Section **200-255-300**, in the PERCEPTION<sub>e&ex</sub> *Installation and Maintenance* manual, and the Logic paragraph in this LCR/TR programming guide (Paragraph 7).

**CUSTOMER DATA PROGRAMMING FLOWCHART**

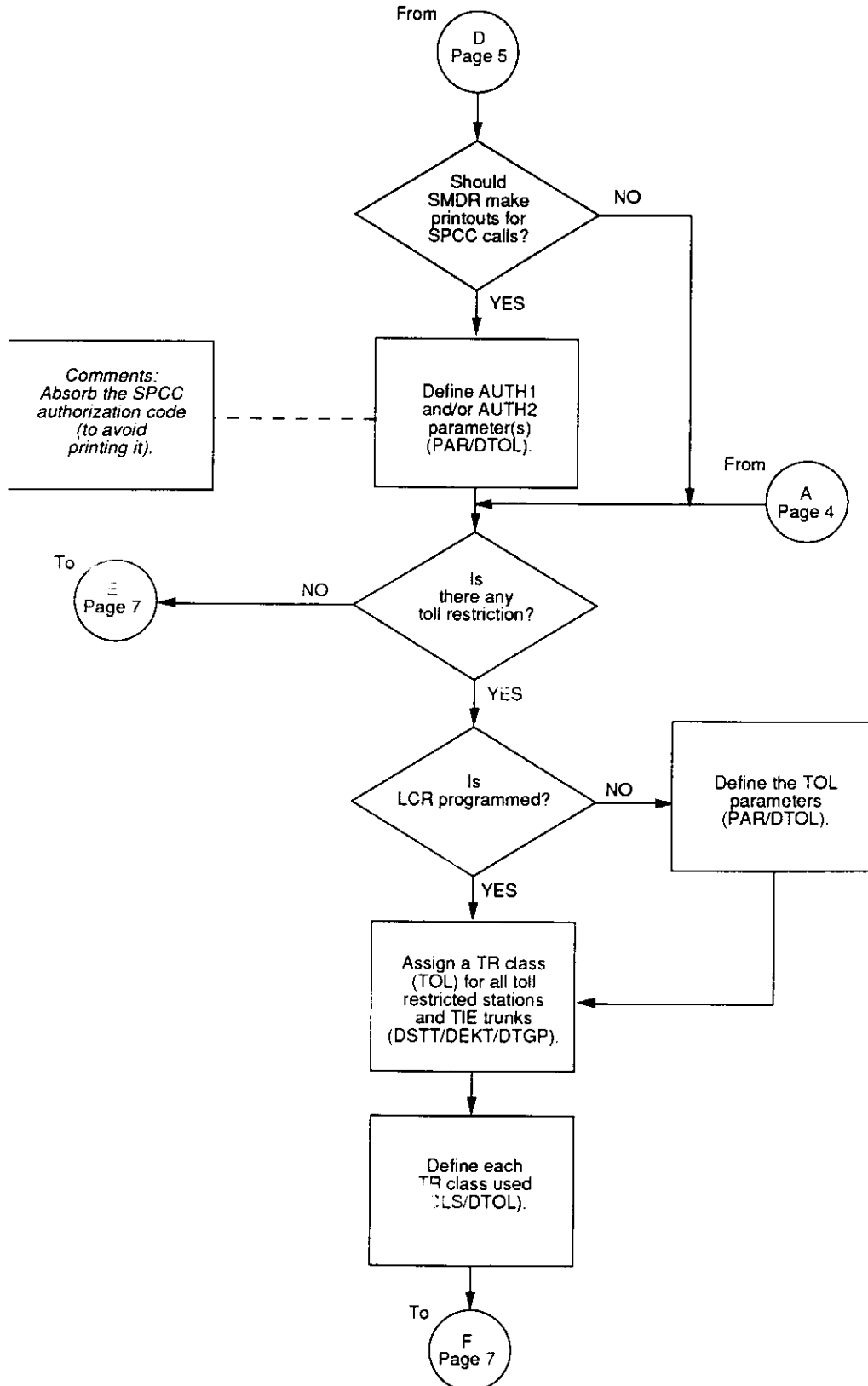




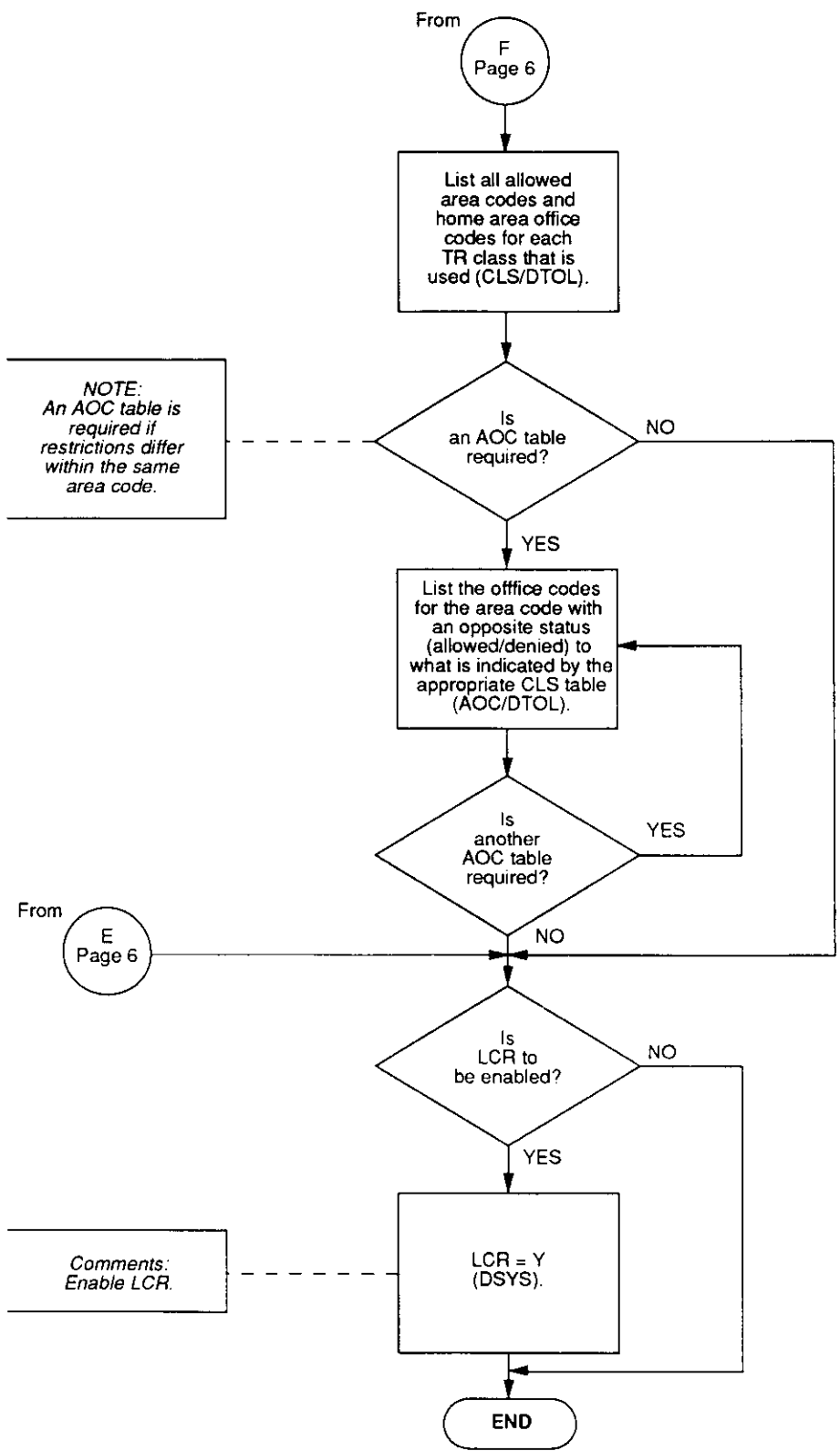
CUSTOMER DATA PROGRAMMING FLOWCHART (continued)



CUSTOMER DATA PROGRAMMING FLOWCHART (continued)



**CUSTOMER DATA PROGRAMMING FLOWCHART (continued)**



## 6. PROGRAMMING EXAMPLES

### 6.00 General

**6.01** Examples are given here to show how PERCEPTION<sub>e&ex</sub> systems can be programmed for various system applications. It is assumed that your system has been programmed in all areas, except LCR and TR. Comments are shown on the right side of the TTY printouts. These comments are shown only once for the same prompt and are not repeated for every Data Block in the same programming example.

**6.02** The two examples show printouts using the Data Output mode (see equivalent Data Blocks for Data Input).

#### **IMPORTANT!**

*These are examples only and may not be realistic applications for the area under discussion.*

### 6.10 Programming Example #1

**6.11** This is a very simple case, where only two trunk groups are used. In this case, there is no Least Cost Routing in the true sense, as this application has only one routing choice for the particular area code dialed. However, LCR recognizes the area code, selects the correct trunk group, and when required, automatically outpulses the codes for SPCC access and authorization.

### 6.12 Least Cost Routing

- a) In this case, the system is located in Orange County, California (NPA=714).
- b) For Least Cost Routing purposes, the outgoing trunk calls are divided into three different areas.
  - 1) Route Table #1 = Local area (NPA = 714).
  - 2) Route Table #2 = Los Angeles area (NPA = 213).
  - 3) Route Table #15 = Remainder of North America.
- c) One Special Common Carrier (SPCC) is used. An access code (730 0000) and an authorization code (87654) are used to access SPCC.

d) No routing priority is used (i.e., the only LCR class is LC1). This is defined in the DCOS Program, by not denying any LCR class. The LCR access code is "9."

e) The telecommunications environment is defined in the **DLC1 Program** (TYPE = PAR).

f) The selection of the Route Table number is accomplished in the Area Code Table. The Modify Digits Table number is selected in the Route Table.

#### **NOTE:**

*Even when only one time schedule is used (ie., SCHA), Schedule B (SCHB prompt) must also be completed in the **DLC2 Program**.*

**6.13** Toll Restriction: Toll restrictions or home area restrictions are not programmed in the example (TOL = NONE). However, the AUTH1 parameter is programmed to "05" on the PAR table, **DTOL Program**. This causes the 5-digit authorization code to be absorbed (not printed) when the SMDR prints the called number.

COD	MMMMMM
OK	PSYS
REQ	PRT
TOR	0000
DRT	NONE
TEN	Y
ICP1	OFL
ICP2	OFL
ICP3	OFL
LCR	Y
APG	14
AAT	NONE
APX	NONE
LN1	NONE
LN2	NONE
NT1	UNA
NT2	UNA
BLF1	3
BLF2	2
OFL1	NONE
OFL2	NONE
MC0	ATT0
MC1	NONE
MMP	10
REM	NONE
RAC	*2
ACC *	NONE
ACC #	NONE
COT	50
RNA	31
AOF	30
CFD	10
HLD	50
DPT	15
PBT	4
LLO	15
ACB	4
HFS	Y
HFA	Y
MDR	Y
CFS	Y
REQ	

LCR enabled

PSYS Printout

>	
COD	MMMMMM
OK	PACD
REQ	PRT
ACB	*7
CBR	**7
CFD	*9
CFR	**9
PUD	*6
PUG	*4
HLD	*3
MMP1	11
MMP2	12
OVR	*0
RND	#7
CWT	#4
SDU	#3
SDC	##3
SDS	#6
UNA	*1
CRG	#9
FLH	*5
PAG0	15
PAG1	16
PAG2	17
PAG3	18
PAG4	19
RTV	**3
MAL	##5
MCC	#5
DND	#2
DNC	##2
RAC	
LCR	9
REQ	

LCR Access Code = 9

PACD Printout

COD	MMMMMM	
OK	PCOS	
REQ	PRT	
COS	0	NONE
COS	1	NONE
COS	2	T00
COS	3	NONE
COS	4	NONE
COS	5	NONE
COS	6	NONE
COS	7	NONE
COS	8	NONE
COS	9	NONE
COS	10	NONE
COS	11	NONE
COS	12	NONE
COS	13	NONE
COS	14	NONE
COS	15	NONE
REQ		

*LCR class #1 is allowed for COS 0 through COS 15  
 (since it is not specifically denied).*

**PCOS Printout**

>		
COD	MMMMMM	
OK	PLCR	
REQ	PAR	
ICC	N	
OTO	04	
RTD	N	
WTA	N	
HAC	714	
TFC	Y	
LCR	01	
SVC	411 611 911	
DAC	Y	
LDI	01	
DDP	1	
REQ		

*For detailed information, refer to the  
 PERCEPTION<sup>e&ex</sup> Programming Procedures  
 manual, Section 200-255-300, Chapter 12.*

**PLCR (PAR) Printout**

REQ	PLCR	
	ACTALL	
RNO01	714	←----- Home Area Code (Local Calls) are routed according to Route Table #1.
RNO02	213	←----- Calls to Area Code 213 are routed according to Route Table #2.
RNO03	NONE	
RNO04	NONE	
RNO05	NONE	
RNO06	NONE	
RNO07	NONE	
RNO08	NONE	
RNO09	NONE	
RNO10	NONE	
RNO11	NONE	
RNO12	NONE	
RNO13	NONE	All calls to these Area Codes are routed according to Route Table #15.
RNO14	NONE	
RNO15	NONE	
	200	201
	202	203
	204	205
	206	207
	208	209
	210	211
	212	214
	215	216
	217	218
	219	300
	301	302
	303	304
	305	306
	307	308
	309	310
	311	312
	313	314
	315	316
	317	318
	319	400
	401	402
	403	404
	405	406
	407	408
	409	410
	411	412
	413	414
	415	416
	417	418
	419	500
	501	502
	503	504
	505	506
	507	508
	509	510
	511	512
	513	514
	515	516
	517	518
	519	600
	601	602
	603	604
	605	606
	607	608
	609	610
	611	612
	613	614
	615	616
	617	618
	619	700
	701	702
	703	704
	705	706
	708	708
	709	710
	711	712
	713	715
	716	717
	718	719
	800	801
	802	803
	804	805
	806	807
	808	809
	810	811
	812	813
	814	815
	816	817
	818	819
	900	901
	902	903
	904	905
	906	907
	908	909
	910	911
	912	913
	914	915
	916	917
	918	919
REQ		

PLCR (ACTALL) Printout

RNO01		RT01	
RT1	00	01	←----- <i>Trunk Group 00, Modify Digits Table 01.</i>
RT2	NONE	NONE	
RT3	NONE	NONE	
RT4	NONE	NONE	
RT5	NONE	NONE	
RT6	NONE	NONE	
SCHA	0000	2400	←----- <i>Schedule A used only in this application.</i>
LC3	RT1		
LC2	NONE		
LC1	NONE		
SCHB	2400	0000	←----- <i>SCHB prompt must be completed.</i>
LC3	NONE		
LC2	NONE		
LC1	NONE		
SCHC	0000	0000	
LC3	NONE		
LC2	NONE		
LC1	NONE		
REQ			

**Route Table #1 Printout  
 PLCR (RT01)**

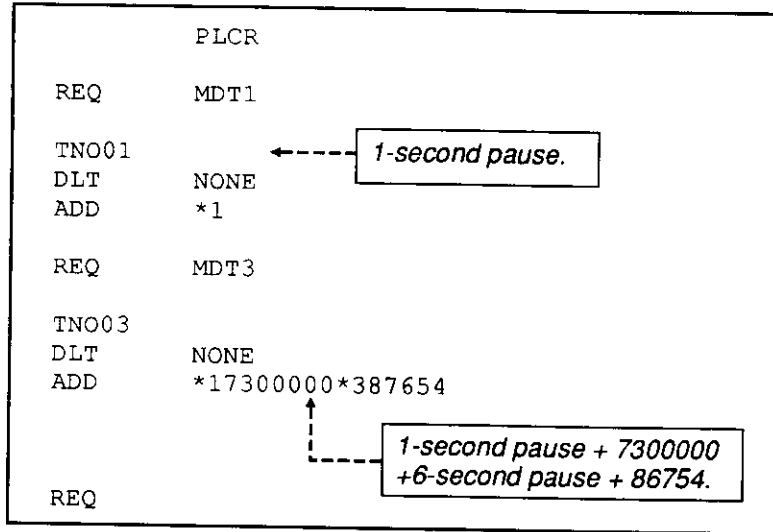
RNO02		RT02	
RT1	01	01	
RT2	NONE	NONE	
RT3	NONE	NONE	
RT4	NONE	NONE	
RT5	NONE	NONE	
RT6	NONE	NONE	
SCHA	0000	2400	
LC3	RT1		
LC2	NONE		
LC1	NONE		
SCHB	2400	0000	
LC3	NONE		
LC2	NONE		
LC1	NONE		
SCHC	0000	0000	
LC3	NONE		
LC2	NONE		
LC1	NONE		
REQ			

**Route Table #2 Printout  
 PLCR (RT02)**

RNO15		RT15	
RT1	00	03	
RT2	NONE	NONE	
RT3	NONE	NONE	
RT4	NONE	NONE	
RT5	NONE	NONE	
RT6	NONE	NONE	
SCHA	0000	2400	
LC3	RT1		
LC2	NONE		
LC1	NONE		
SCHB	2400	0000	
LC3	NONE		
LC2	NONE		
LC1	NONE		
SCHC	0000	0000	
LC3	NONE		
LC2	NONE		
LC1	NONE		
REQ			

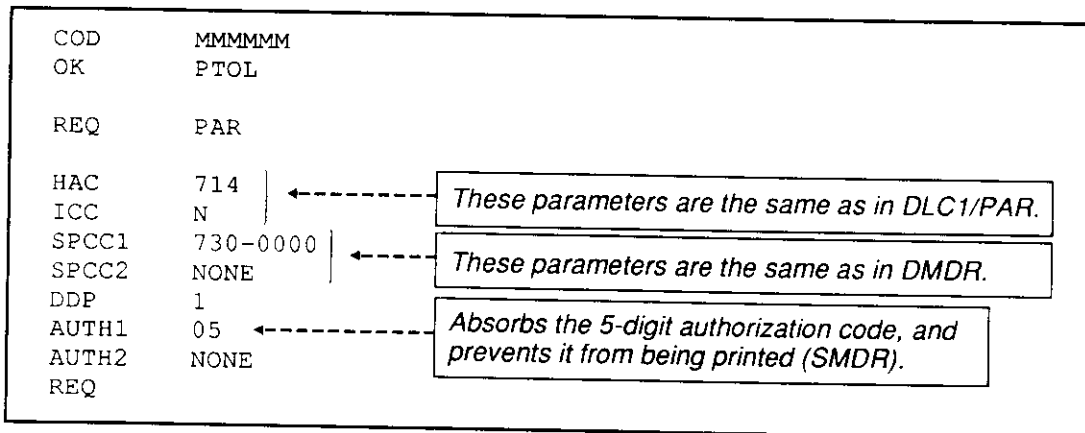
**Route Table #15 Printout  
 PLCR (RT15)**





**Modify Digits Table Printout  
 PLCR (MDT1 AND MDT3)**

**NOTE:**  
 A 1-second pause is usually required when using Loop Start trunks, to allow the CO line enough time to attach a receiving register. This is usually not required for Ground Start trunks.



**PTOL (PAR) Printout**

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**6.20 Programming Example #2**

**6.21 Least Cost Routing**

- a) In this case, the system is located in the Chicago area (NPA = 312).
- b) For Least Cost Routing purposes, the outgoing trunk calls are divided into four different areas.
  - 1) Route Table #1 = Local area (NPA = 312).
  - 2) Route Table #2 = Metro area (NPA = 312).
  - 3) Route Table #3 = Illinois.
  - 4) Route Table #15 = Rest of North America.
- c) There are five trunk groups:
  - 1) Trunk Group #0 = Local lines.
  - 2) Trunk Group #1 = Metro lines.
  - 3) Trunk Group #2 = Illinois WATS lines.
  - 4) Trunk Group #3 = Local lines. Available to LCR class 1 only.
  - 5) Trunk Group #4 = WATS lines to all North America.
- d) One Special Common Carrier (SPCC) is used. An access code (730 0000) and an authorization code (65432) are used to access SPCC.
- e) Three LCR classes (routing priorities) are used in this application.
  - 1) COS 0 = LCR class #1.
  - 2) COS 1 = LCR class #2.
  - 3) COS 2 = LCR class #3.
- f) Local calls are routed according to Route Table #1. This is defined by the Area Office Code Table #1(TNO01).
- g) Other Route Tables are addressed (pointed to) in the Area Code Tables 0 ~ 15.

**NOTE:**

*No numbering relationship exists between the Area Code Tables and Area Office Code Tables, unless defined as such in the Area Office Code Table.*

**6.22 Toll Restriction:** For toll restriction purposes, there are, in this case, four Restriction Class Tables used:

- 1) CLS 0 = Internal calls only.
- 2) CLS 1 = 312 Area Code (local and metro) calls only, with one exception—(714)730-XXXX, which is allowed to be dialed.

- 3) CLS 2 = Local/Metro, Illinois, Wisconsin, and Indiana calls allowed only, with one exception—(714)730-XXXX (also allowed).
- 4) CLS 3 = No restriction at all.  
Time = 7 p.m. (= 1900).  
Number dialed = (618)NNX-XXXX.  
Station Class of Service = CCS 1.  
Station Toll Restriction (TR) Class = CLS 2.

**6.23 Sequence of events:**

- 1) User pushes DN button.
  - Dial tone is received.
- 2) LCR access code 5 is dialed.
  - Dial tone is still received.
- 3) Digit **1** is dialed.
  - Dial tone is removed.
- 4) Area Code and Office Code are dialed, which in this case = (618)NNX (non-555 call).
  - No overflow tone received (this number is not restricted).
- 5) Station number (XXXX) is dialed.
- 6) Route Table #3 is selected.
- 7) At this time, all trunks in Trunk Group #2 are busy. Trunks in Trunk Group #0 are idle.
- 8) Route 3 (RT3) is selected and the SPCC signals sent out on Trunk Group #00 are: 1-second pause, 730 0000, 6-second pause, 654321618 NNX XXXX.
- 9) If an SMDR is connected, the printout for the called number = 1-618-NNX-XXXX.

**NOTE:**

*This sequence can be followed step-by-step in the Detailed Logic Flowchart.*

PSYS	
REQ	PRT
TOR	2300
DRT	DDMP
TEN	N
ICP1	ATT
ICP2	ATT
ICP3	ATT
LCR	Y
APG	14
AAT	NONE
APX	NONE
LN1	NONE
LN2	NONE
NT1	UNA
NT2	UNA
BLF1	2
BLF2	?
OFL1	NONE
MC0	NONE
MMP	299
REM	NONE
RAC	*2
ACC*	NONE
ACC#	NONE
COT	40
RNA	30
AOF	6
CFD	20
HLD	60
DPT	7
PBT	4
LLO	15
ACB	6
HFS	Y
HFA	Y
MDR	Y
CFS	Y
REQ	

**PSYS Printout**

LCR enabled

PACD	
REQ	PRT
ACB	*7
CBR	**7
CFD	*9
CFR	**9
PUD	*6
PUG	*4
HLD	*3
MMP1	11
MMP2	12
OVR	*0
RND	#7
CWT	#4
SDU	#3
SDC	##3
SDS	#6
UNA	*1
CRG	*2
FLH	*5
PAG0	15
PAG1	16
PAG2	17
PAG3	18
PAG4	19
RTV	**3
MAL	#5
MCC	##5
DND	#2
DNC	##2
RAC	**5
LCR	5
REQ	

**PACD Printout**

LCR Access Code = 5

**NOTE:**  
 The LCR Program was not designed for tenant service; therefore, if both LCR and tenant service are desired, one of the following two choices must be made:  
 a. LCR is shared by both tenants.  
 b. LCR is used for one tenant, and Direct Trunk Access is used for the other tenant.

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COD	MMMMMM	
OK	PCOS	
REQ	PRT	
COS	0 NONE	← LCR 1, 2, and 3 allowed.
COS	1 LC1	← LCR 2, and 3 allowed.
COS	2 LC1 LC2	← LCR 3 allowed.
COS	3 NONE	
COS	4 NONE	
COS	5 NONE	
COS	6 NONE	
COS	7 NONE	
COS	8 NONE	
COS	9 NONE	
COS	10 NONE	
COS	11 NONE	
COS	12 NONE	
COS	13 NONE	
COS	14 NONE	
COS	15 NONE	
REQ		

*NOTE:  
DCOS is a deny list.*

**PCOS Printout**

>		
COD	MMMMMM	
OK	PLCR	
REQ	PAR	
ICC	Y	} For detailed information, see the PERCEPTION <sup>e&amp;ex</sup> Programming Procedures manual, Section 200-255-300, Chapter 12.
OTO	06	
RTD	Y	
WTA	Y	
HAC	312	
TFC	Y	
LCR	01	
SVC	411 911 611	
DAC	Y	
LDI	01	
DDP	1	
REQ		

**PLCR (PAR) Printout**

RNO01	ACTALL	<i>Local calls are routed according to Route Table #1 (see AOCN001).</i>									
RNO02	NONE										
RNO03	312	<i>Metro area calls are routed according to Route Table #2.</i>									
RNO04	217 309 618 815	<i>Calls to Illinois are routed according to Route Table #3.</i>									
RNO05	NONE										
RNO06	NONE										
RNO07	NONE										
RNO08	NONE										
RNO09	NONE										
RNO10	NONE										
RNO11	NONE										
RNO12	NONE										
RNO13	NONE										
RNO14	NONE	<i>All calls to these Area Codes are routed according to Route Table #15.</i>									
RNO15	NONE										
		200	201	202	203	204	205	206	207	208	209
		210	211	212	213	214	215	216	218	219	300
		301	302	303	304	305	306	307	308	310	311
		313	314	315	316	317	318	319	400	401	402
		403	404	405	406	407	408	409	410	411	412
		413	414	415	416	417	418	419	500	501	502
		503	504	505	506	507	508	509	510	511	512
		513	514	515	516	517	518	519	600	601	602
		603	604	605	606	607	608	609	610	611	612
		613	614	615	616	617	619	700	701	702	703
		704	705	706	707	708	709	710	711	712	713
		714	715	716	717	718	719	800	801	802	803
		804	805	806	807	808	809	810	811	812	813
		814	816	817	818	819	900	901	902	903	904
		905	906	907	908	909	910	911	912	913	914
		915	916	917	918	919					
REQ											

**PLCR (ACTALL) Printout**

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	AOCN001								
TNO01									
AC	312								
RNO	01		←----- <i>Local calls (Office Codes below, are routed according to Route Table #1</i>						
OC									
	223	232	244	245	258	289	331	333	336
	356	362	367	377	381	382	426	428	433
	458	464	466	479	526	534	540	546	552
	554	556	557	563	584	587	594	623	634
	658	662	669	672	680	683	689	695	697
	741	742	746	830	837	840	844	851	859
	879	888	892	896	946	972			
REQ									

**PLCR (AOCN001) Printout**

	RT01		
RNO01			
RT1	00	01	←----- <i>Trunk Group 00, Modify Digits Table 01.</i>
RT2	03	01	←----- <i>Trunk Group 03, Modify Digits Table 01.</i>
RT3	NONE	NONE	
RT4	NONE	NONE	
RT5	NONE	NONE	
RT6	NONE	NONE	
SCHA	0000	2400	←----- <i>Schedule A only used in this application.</i>
LC3	RT1		
LC2	NONE		
LC1	RT2		
SCHB	2400	2400	
LC3	NONE		
LC2	NONE		←----- <i>Route 2 can only be used by LCR class #1.</i>
LC1	NONE		
SCHC	2400	0000	←----- <i>SCHB prompt must be completed.</i>
LC3	NONE		
LC2	NONE		
LC1	NONE		
REQ			

**ROUTE TABLE #1 PRINTOUT  
PLCR (RT01)**

RT02		
RNO02		
RT1	01	01
RT2	03	01
RT3	NONE	NONE
RT4	NONE	NONE
RT5	NONE	NONE
RT6	NONE	NONE
SCHA	0000	2400
LC3	RT1	
LC2	NONE	
LC1	RT2	
SCHB	2400	2400
LC3	NONE	
LC2	NONE	
LC1	NONE	
SCHC	2400	0000
LC3	NONE	
LC2	NONE	
LC1	NONE	
REQ		

**Route Table #2 Printout  
 PLCR (RT02)**

RT03		
RNO03		
RT1	02	01
RT2	04	01
RT3	00	02
RT4	03	02
RT5	NONE	NONE
RT6	NONE	NONE
SCHA	0800	1800
LC3	RT1	
LC2	RT2 RT3	
LC1	RT4	
SCHB	1800	0800
LC3	RT1	
LC2	RT3 RT2	
LC1	RT4	
SCHC	0800	0800
LC3	NONE	
LC2	NONE	
LC1	NONE	
REQ		

Schedule A = 8 a.m. to 6 p.m.

Schedule B = 6 p.m. to 8 a.m.

**Route Table #3 Printout  
 PLCR (RT03)**

RT15		
RNO15		
RT1	00	02
RT2	04	01
RT3	03	02
RT4	NONE	NONE
RT5	NONE	NONE
RT6	NONE	NONE
SCHA	0000	2400
LC3	RT1	
LC2	RT2	
LC1	RT3	
SCHB	2400	2400
LC3	NONE	
LC2	NONE	
LC1	NONE	
SCHC	2400	0000
LC3	NONE	
LC2	NONE	
LC1	NONE	
REQ		

**Route Table #15 Printout  
 PLCR (RT15)**

REQ	MDT1	
TNO01		
DLT	NONE	
ADD	*1	← 1-second pause.
REQ	MDT2	
TNO02		
DLT	NONE	
ADD	*17300000*365432	← 1-second pause + 7300000 = 6-seconds pause + 65432.
REQ		

**Modify Digits Table Printout  
 PLCR (MDT1 and MDT2)**

**NOTE:**  
 A 1-second pause is usually required when using Loop Start trunks, to allow the CO line enough time to attach a receiving register. This is usually not required for Ground Start trunks.

COD	MMMMMM	
OK	PTOL	
REQ	PAR	
HAC	312	← These parameters are the same as in DLC1/PAR.
ICC	Y	
SPCC1	730-0000	← These parameters are the same as in DMDR.
SPCC2	NONE	
DDP	1	← Absorbs the 5-digit authorization code, and prevents it from being printed (SMDR).
AUTH1	05	
AUTH2	NONE	
REQ		

**PTOL (PAR) Printout**



	CHG		
TYPE	CLS		
CNO	0		
OPR	N	←	Operator calls not allowed.
INT	N	←	International calls not allowed.
LDA	N	←	555 calls not allowed.
ACT	D		
ACD			
OCT	D		
OCD			
TYPE			
SAV	N		
REQ			
>			
COD	MMMMMM		
OK	PTOL		
REQ	CLSCNO		
ARC A	NONE	←	No Area Codes allowed.
OFC A	NONE	←	No Office Codes (local) allowed.
REQ			

(Internal calls only)

**DTOL (CLS) – PTOL (CLSCNO) Restriction Class #0 Printout**

**NOTE:**

Stations can be programmed for internal calls only by denying LC3 and DTA in the Class of Service Data Block (DCOS). However, this will not deny Operator/International/555 calls. To specifically allow/deny these calls, use the DTOL Data Block.

**PERCEPTION<sup>e&ex</sup>  
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>										
COD		MMMMMM								
OK		DTOL								
REQ		CHG								
TYPE		CLS								
CNO		1								
OPR		Y								
INT		N								
LDA		N								
ACT		D								
ACD										
OCT		A								
OCD										
TYPE										
SAV		N								
>										
COD		MMMMMM								
OK		PTOL								
REQ		CLSCN1								
ARC	A									
		NONE								
OFC	A	2009	2109	2209	2309	2409	2509	2609	2709	2809
		2909	3009	3109	3209	3309	3409	3509	3609	3709
		3809	3909	4009	4109	4209	4309	4409	4509	4609
		4709	4809	4909	5009	5109	5209	5309	5409	5509
		5609	5709	5809	5909	6009	6109	6209	6309	6409
		6509	6609	6709	6809	6909	7009	7109	7209	7309
		7409	7509	7609	7709	7809	7909	8009	8109	8209
		8309	8409	8509	8609	8709	8809	8909	9009	9109
		9209	9309	9409	9509	9609	9709	9809	9909	
TNO		02								
ARC		714								
CNO		1								
OFC		7300								
REQ										

*No Area Codes allowed.  
All local Office Codes allowed  
(local and metro calls only).*

*Exception:  
Area Code 714 and Office Code 730,  
so (714)730-XXXX is allowed.*

**DTOL (CLS) – PTOL (CLSCN1) Restriction Class #1 Printout**

CNO	CLS										
OPR	2										
INT	Y										
LDA	N										
ACT	Y										
ACD	D										
OCT	A										
OCD											
TYPE										(See Note)	
SAV	N										
>											
COD	MMMMMM										
OK	PTOL										
REQ	CLSCN2										
ARC A											
		217	219	309	312	317	414	608	618	715	812
OFC A		815									
		2009	2109	2209	2309	2409	2509	2609	2709	2809	
		2909	3009	3109	3209	3309	3409	3509	3609	3709	
		3809	3909	4009	4109	4209	4309	4409	4509	4609	
		4709	4809	4909	5009	5109	5209	5309	5409	5509	
		5609	5709	5809	5909	6009	6109	6209	6309	6409	
		6509	6609	6709	6809	6909	7009	7109	7209	7309	
		7409	7509	7609	7709	7809	7909	8009	8109	8209	
		8309	8409	8509	8609	8709	8809	8909	9009	9109	
		9209	9309	9409	9509	9609	9709	9809	9909		
TNO	01										
ARC	714										
CNO	2										
OFC											
		7300									
REQ											

*Allows all calls to Illinois, Wisconsin, and Indiana, including local and metro calls. No other calls allowed, except (714)730-XXXX.*

**DTOL (CLS) – PTOL (CLSCN2) Restriction Class #2 Printout**

*Note:  
 The add/delete list is not shown here. Instead, the result of the programming is shown by using the **PTOL Program**.*

**PERCEPTION<sup>e&ex</sup>  
LCR/TR PROGRAMMING GUIDE  
AUGUST 1989**

COD	MMMMMM										
OK	DTOL										
REQ	CHG										
TYPE	CLS										
CNO	3										
OPR	Y										
INT	Y										
LDA	Y										
ACT	A										
ACD											
OCT	A										
OCD											
TYPE											
SAV	N										
>											
COD	MMMMMM										
OK	PTOL										
REQ	CLSCN3										
ARC	A										
		200	201	202	203	204	205	206	207	208	209
		210	211	212	213	214	215	216	217	218	219
		300	301	302	303	304	305	306	307	308	309
		310	311	312	313	314	315	316	317	318	319
		400	401	402	403	404	405	406	407	408	409
		410	411	412	413	414	415	416	417	418	419
		500	501	502	503	504	505	506	507	508	509
		510	511	512	513	514	515	516	517	518	519
		600	601	602	603	604	605	606	607	608	609
		610	611	612	613	614	615	616	617	618	619
		700	701	702	703	704	705	706	707	708	709
		710	711	712	713	714	715	716	717	718	719
		800	801	802	803	804	805	806	807	808	809
		810	811	812	813	814	815	816	817	818	819
		900	901	902	903	904	905	906	907	908	909
		910	911	912	913	914	915	916	917	918	919
OFC	A										
		2009	2109	2209	2309	2409	2509	2609	2709	2809	
		2909	3009	3109	3209	3309	3409	3509	3609	3709	
		3809	3909	4009	4109	4209	4309	4409	4509	4609	
		4709	4809	4909	5009	5109	5209	5309	5409	5509	
		5609	5709	5809	5909	6009	6109	6209	6309	6409	
		6509	6609	6709	6809	6909	7009	7109	7209	7309	
		7409	7509	7609	7709	7809	7909	8009	8109	8209	
		8309	8409	8509	8609	8709	8809	8909	9009	9109	
		9209	9309	9409	9509	9609	9709	9809	9909		
REQ											

There are no restrictions—treated as if  
TOL = NONE.

**DTOL (CLS) – PTOL (CLSCN3) Restriction Class #3 Printout**

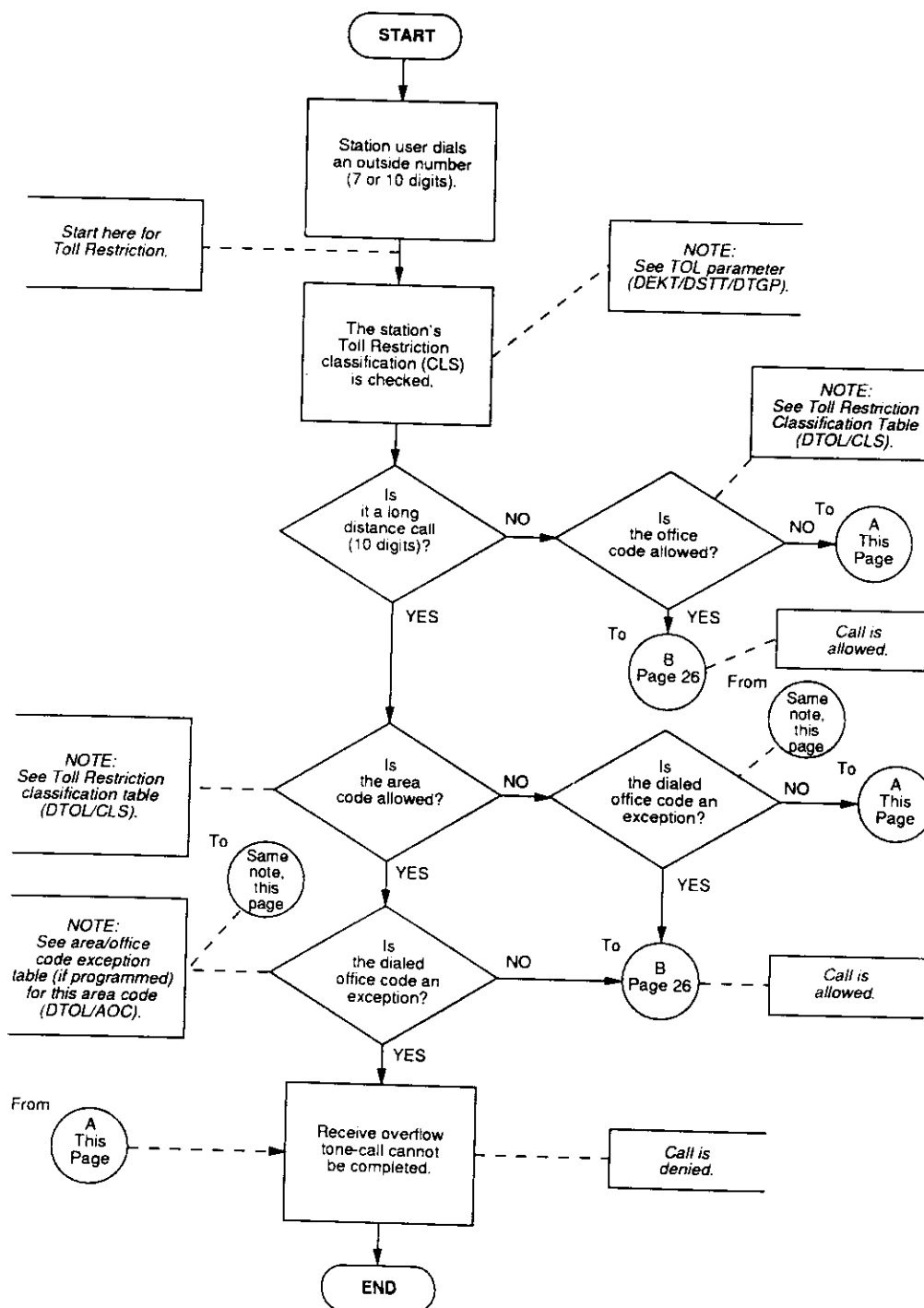
## 7. LOGIC

### 7.00 General

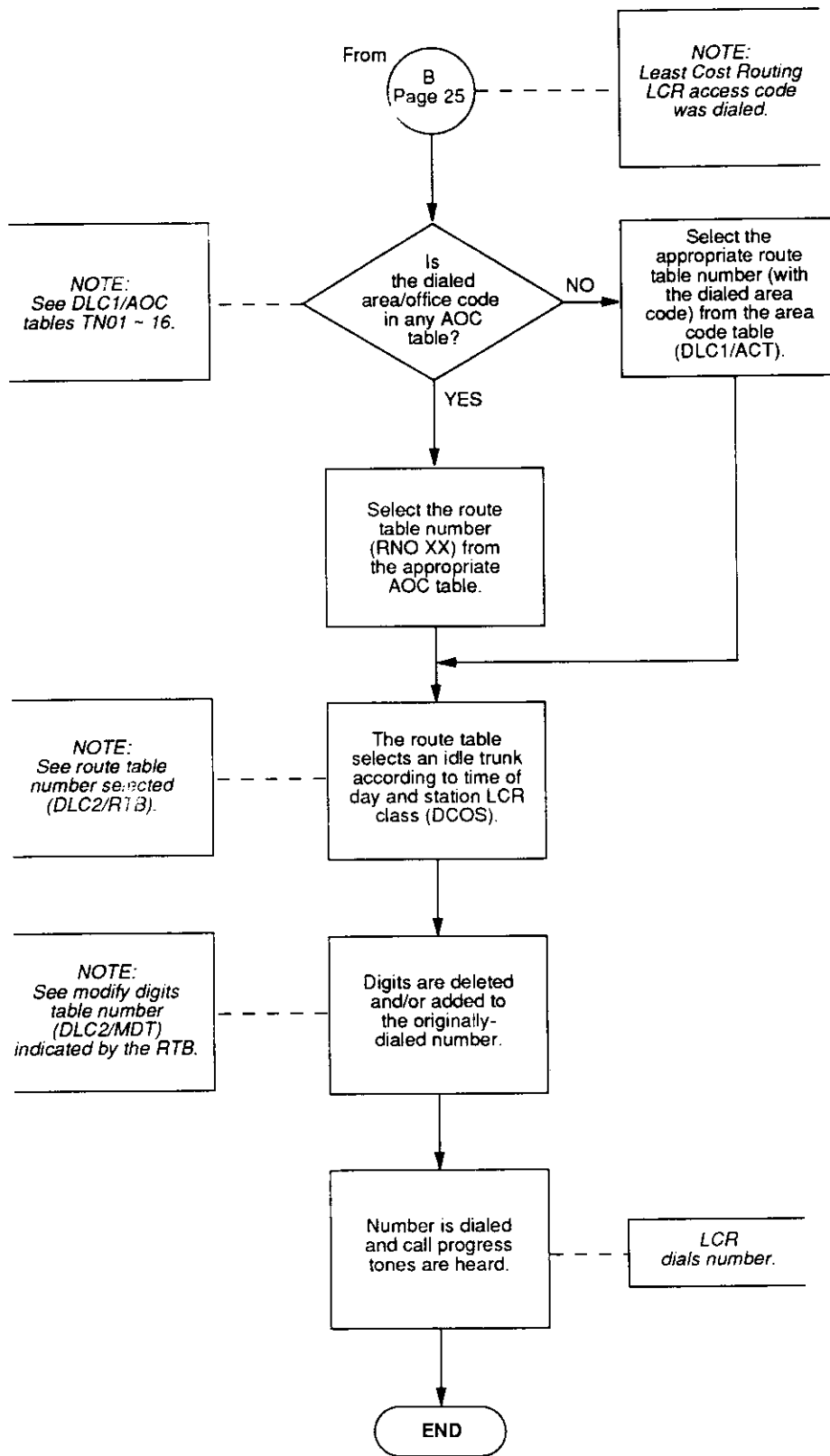
7.01 The purpose of the General Logic Flowchart (which begins below) is to show the general flow for a typical LCR phone call, but without the details.

7.02 All of the LCR/TR logic, and the sequence in which the logic is processed by the CPU, are summarized in the Detailed Logic Flowchart. Use this flowchart to answer questions about how the system will act when programmed in a certain way. The flowchart may also be used as a fault finding aid for customer data.

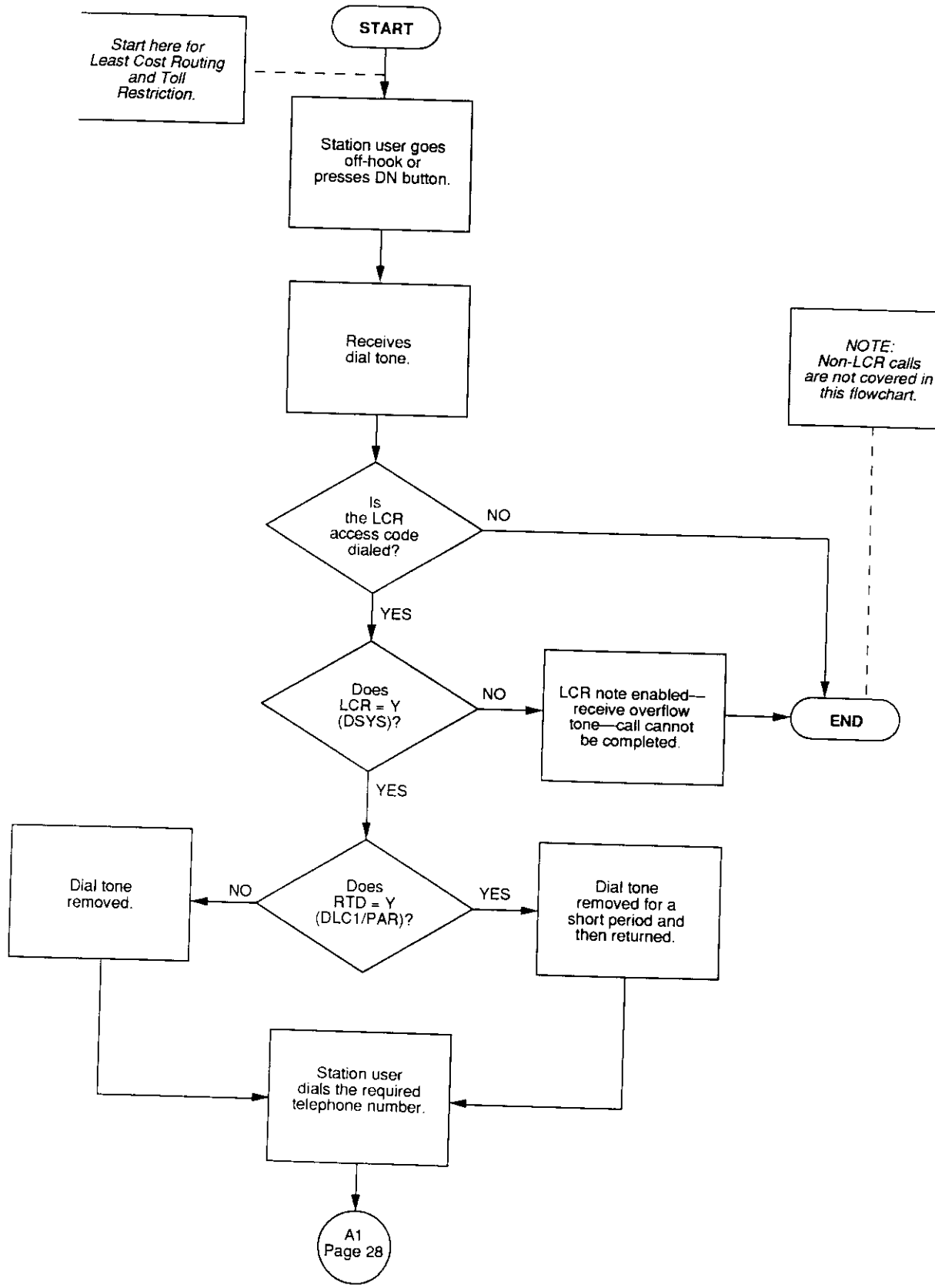
### GENERAL LOGIC FLOWCHART



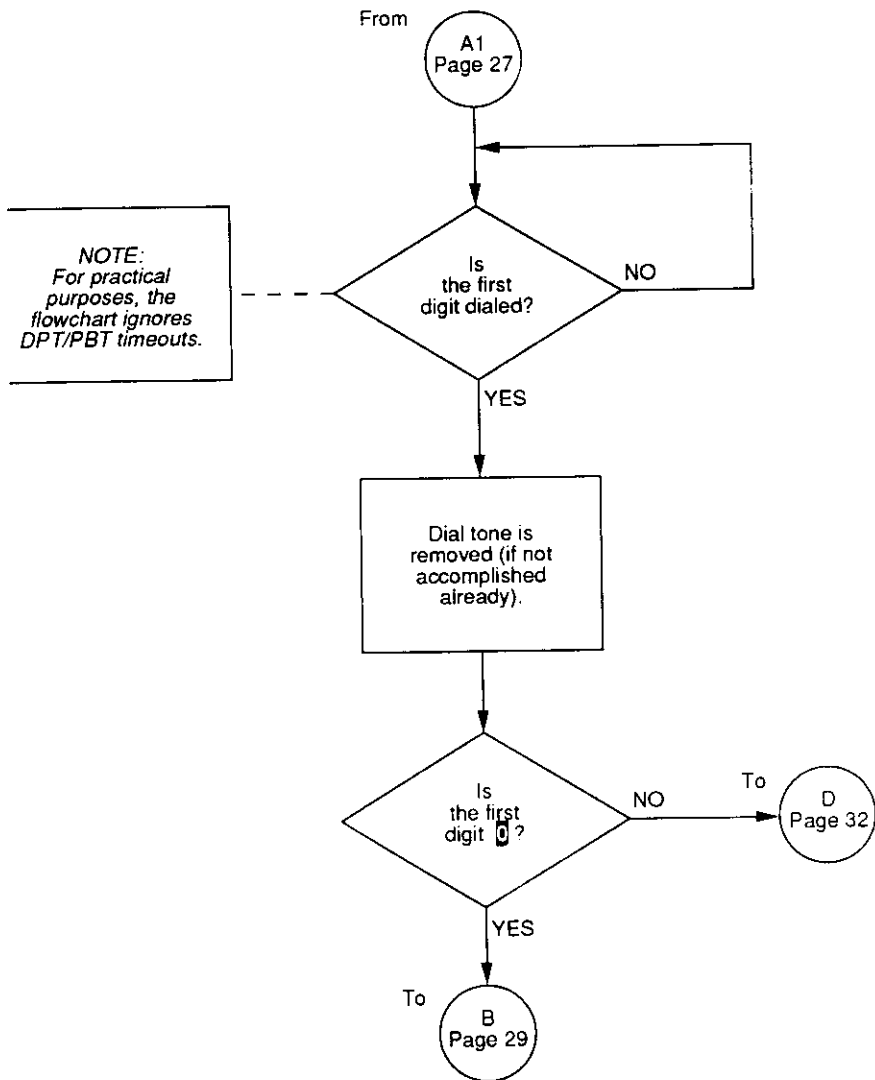
GENERAL LOGIC FLOWCHART (continued)



DETAILED LOGIC FLOWCHART

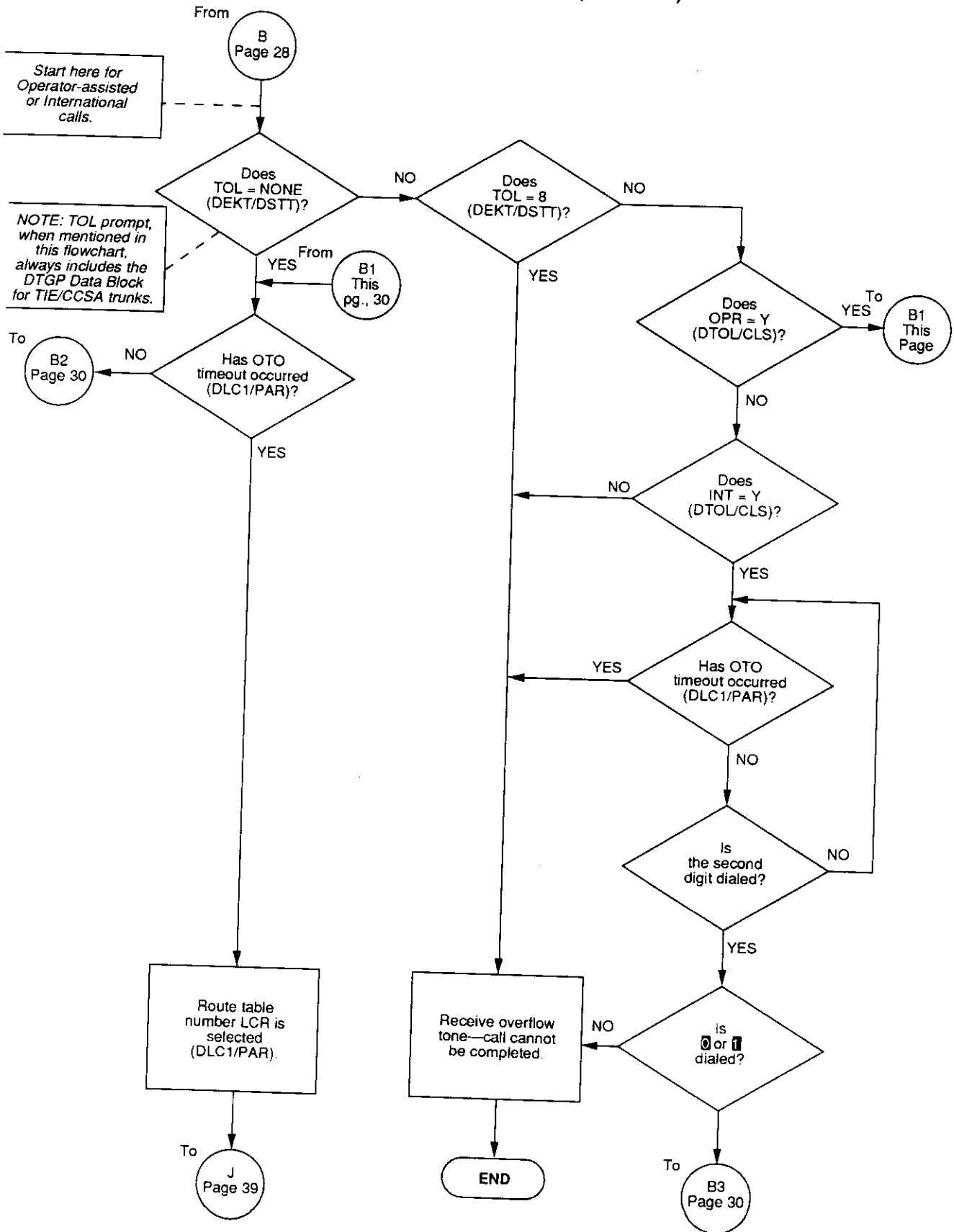


DETAILED LOGIC FLOWCHART (continued)

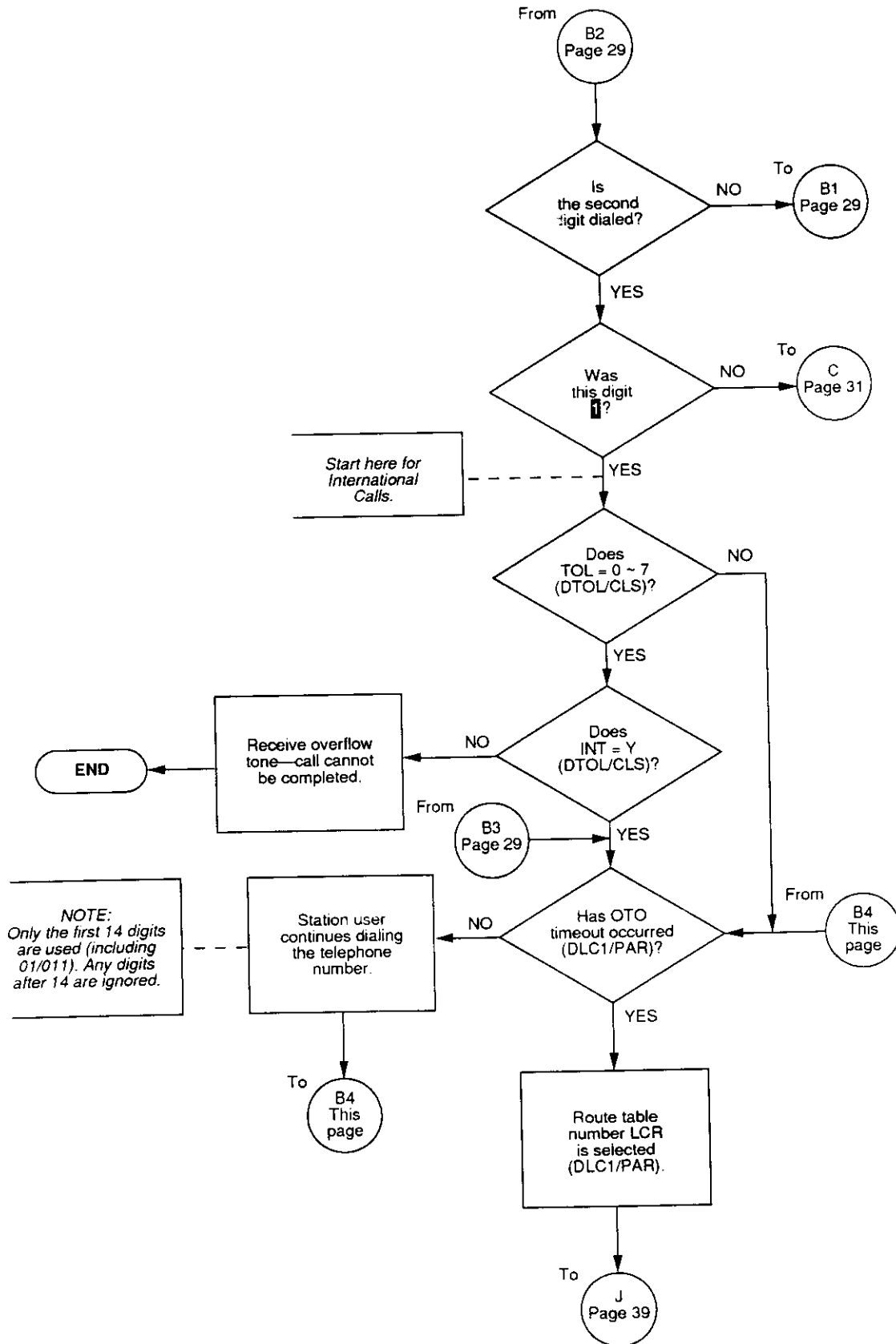




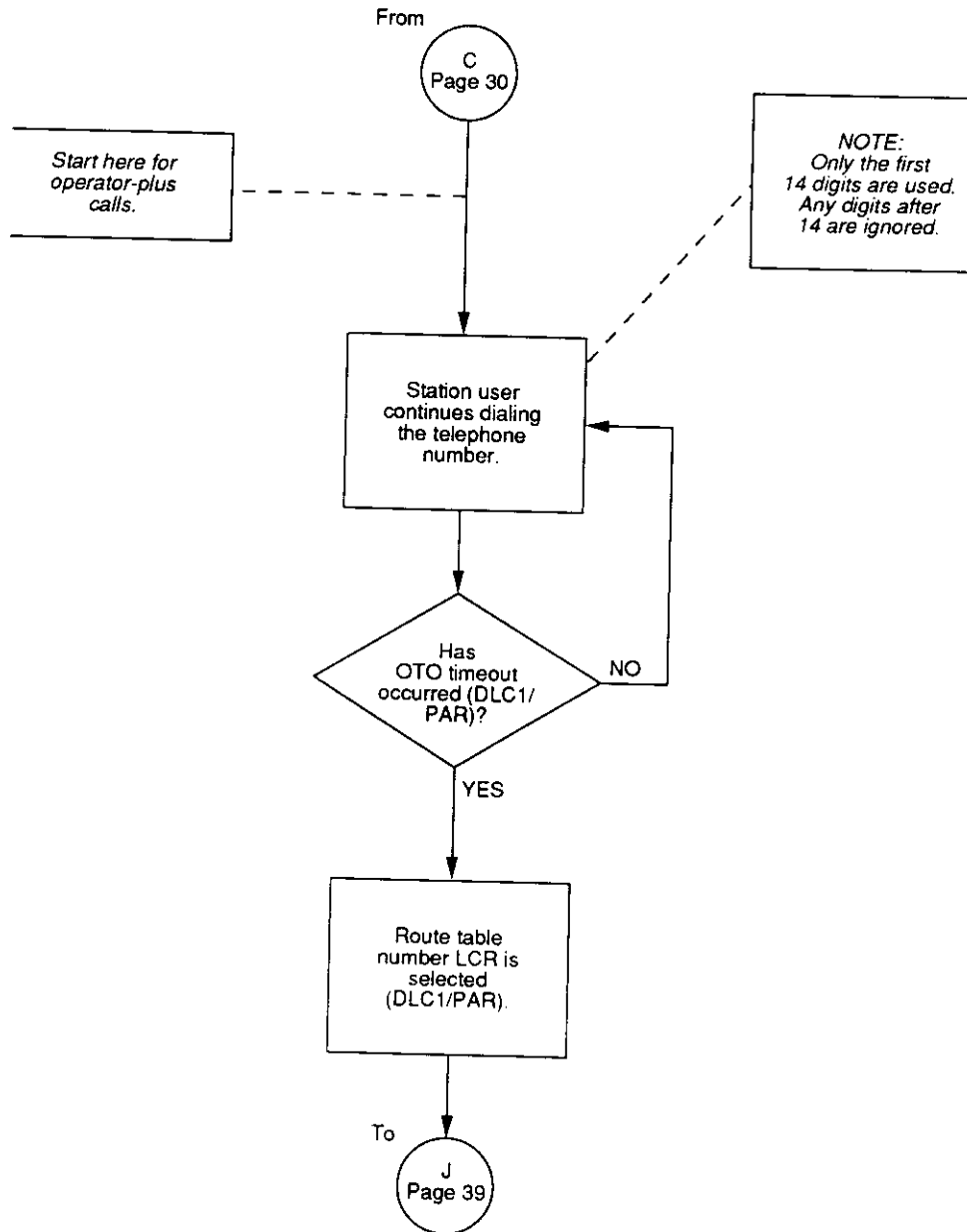
DETAILED LOGIC FLOWCHART (continued)



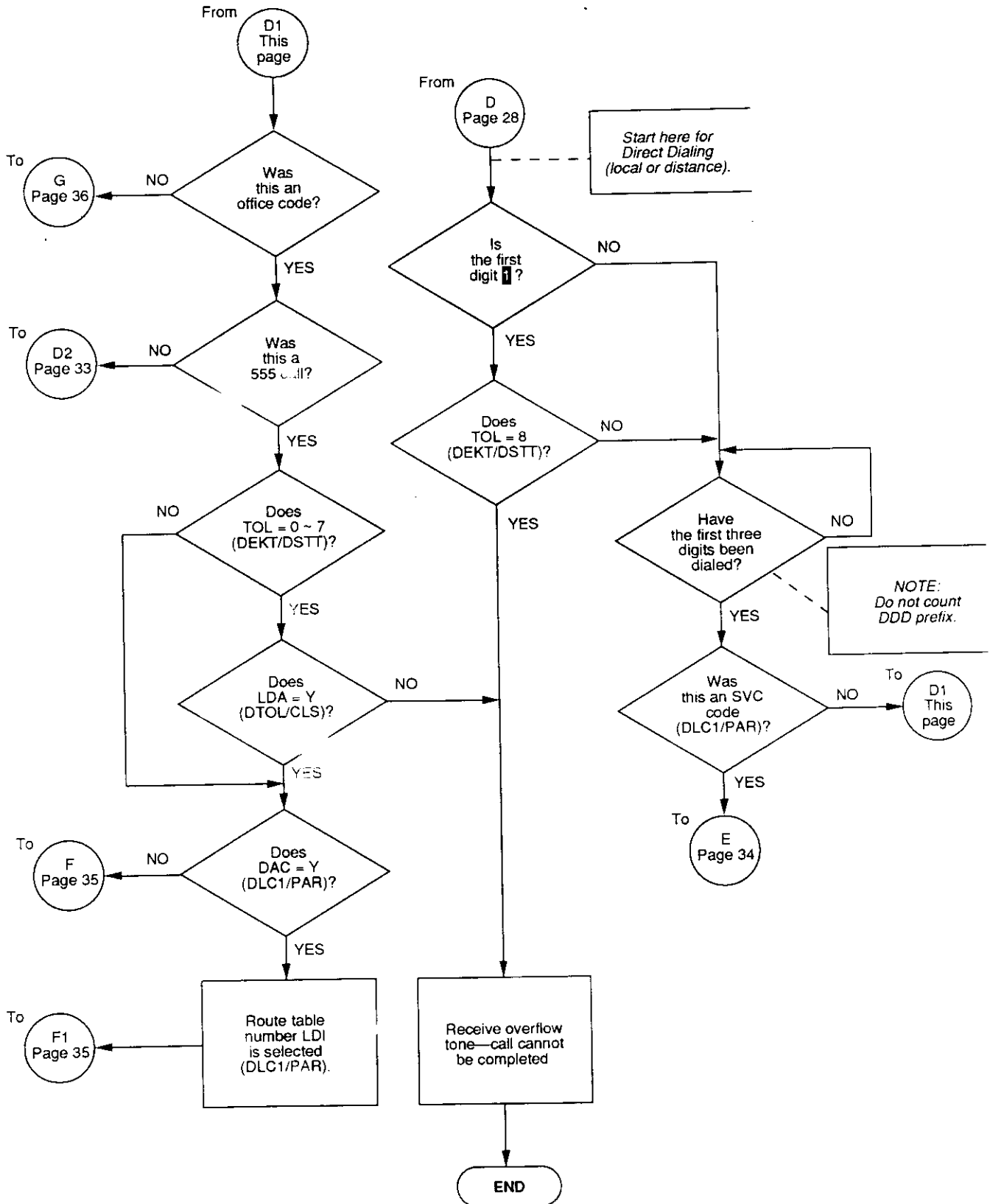
DETAILED LOGIC FLOWCHART (continued)



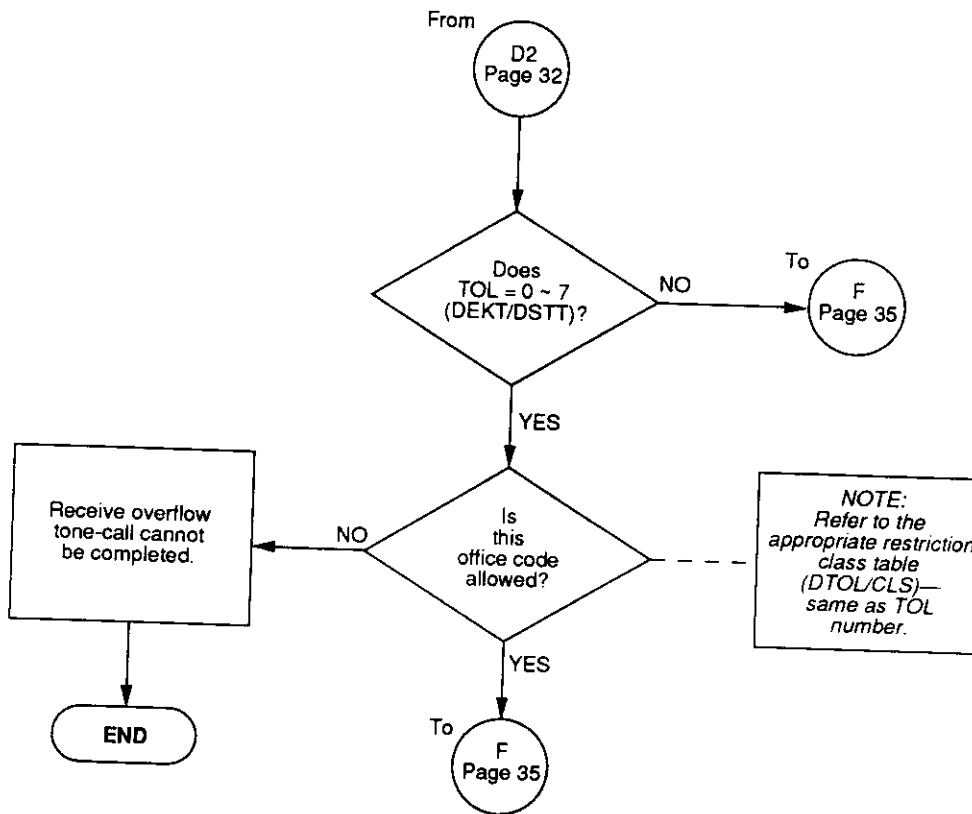
DETAILED LOGIC FLOWCHART (continued)



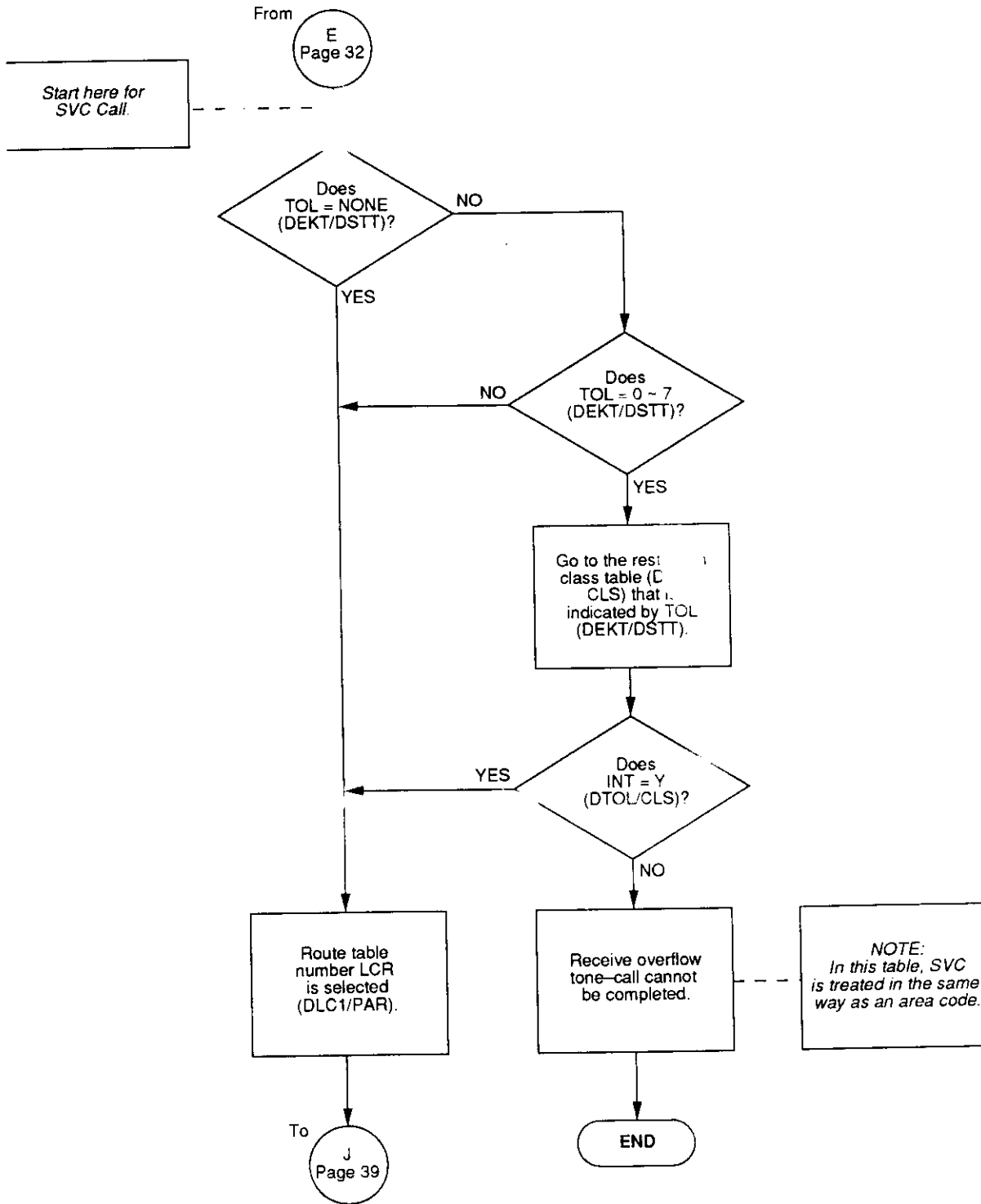
DETAILED LOGIC FLOWCHART (continued)



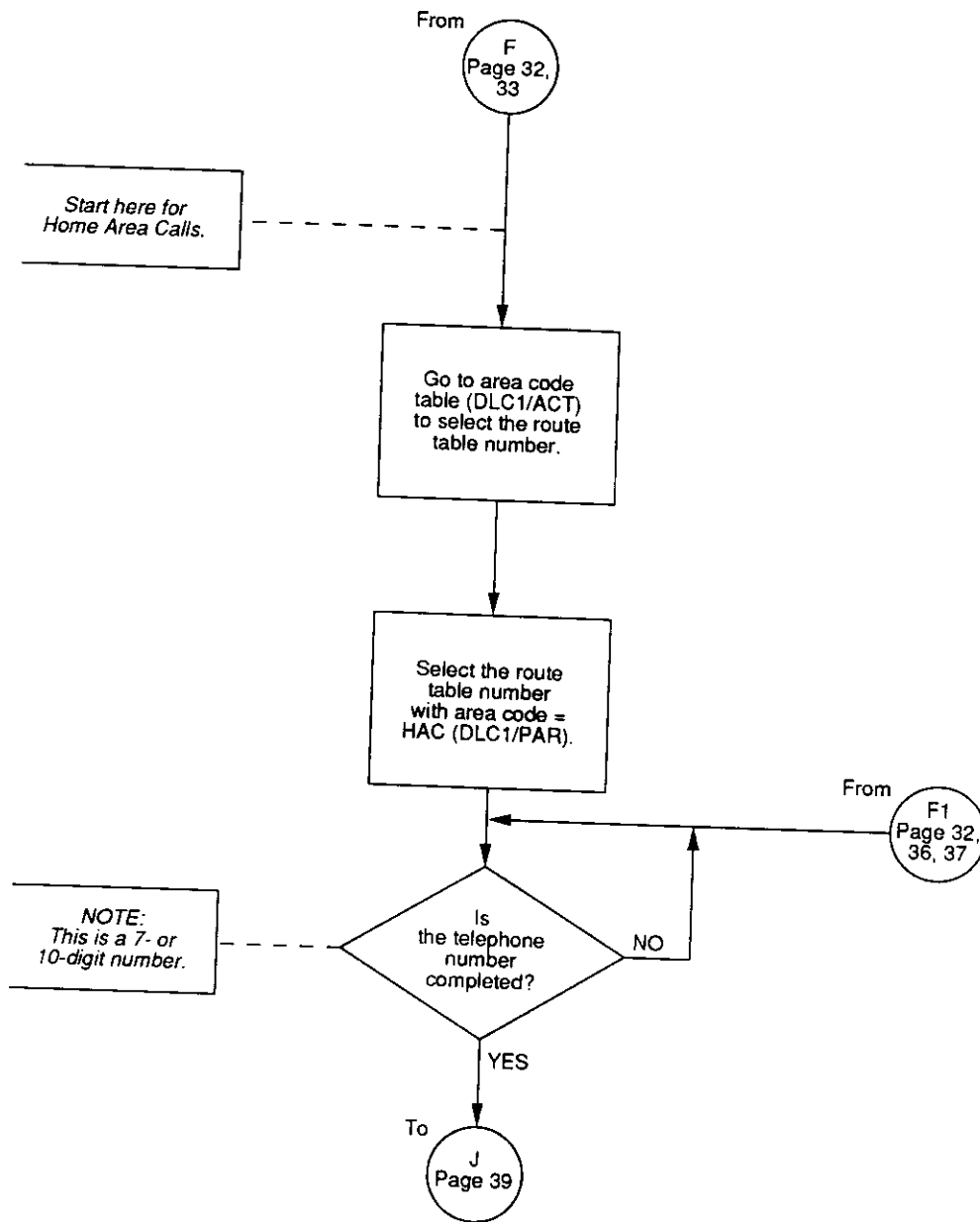
DETAILED LOGIC FLOWCHART (continued)



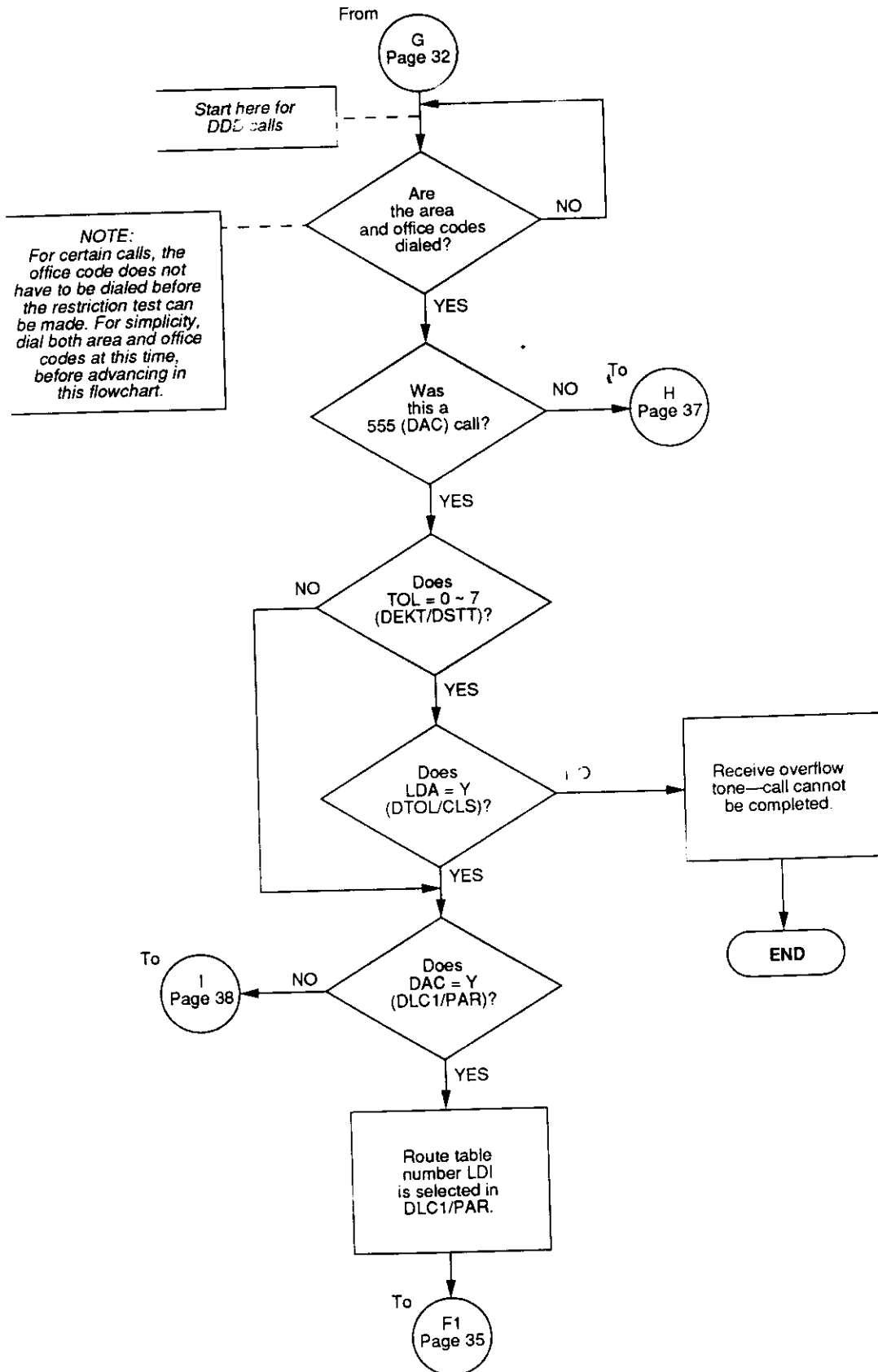
DETAILED LOGIC FLOWCHART (continued)



DETAILED LOGIC FLOWCHART (continued)

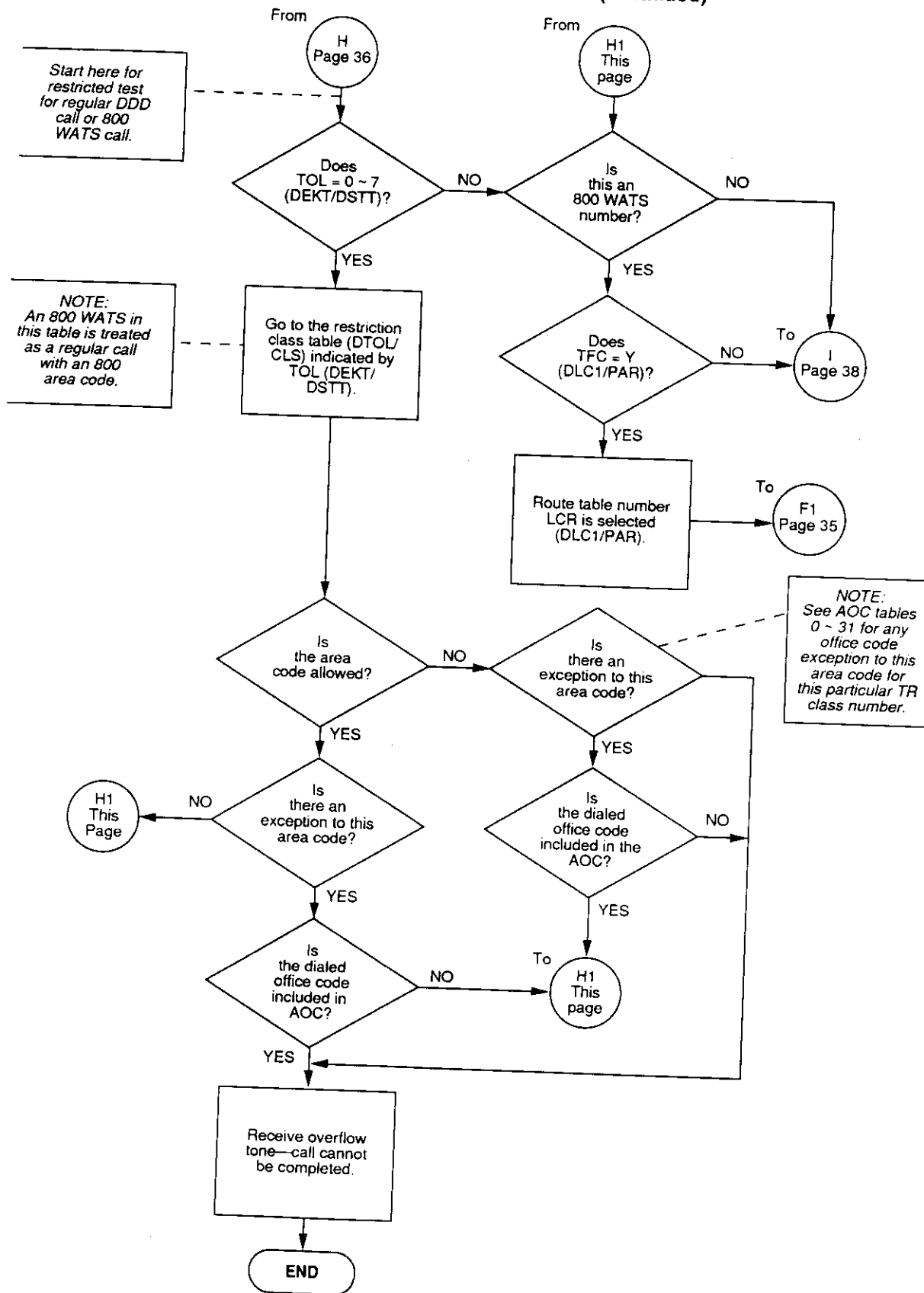


DETAILED LOGIC FLOWCHART (continued)

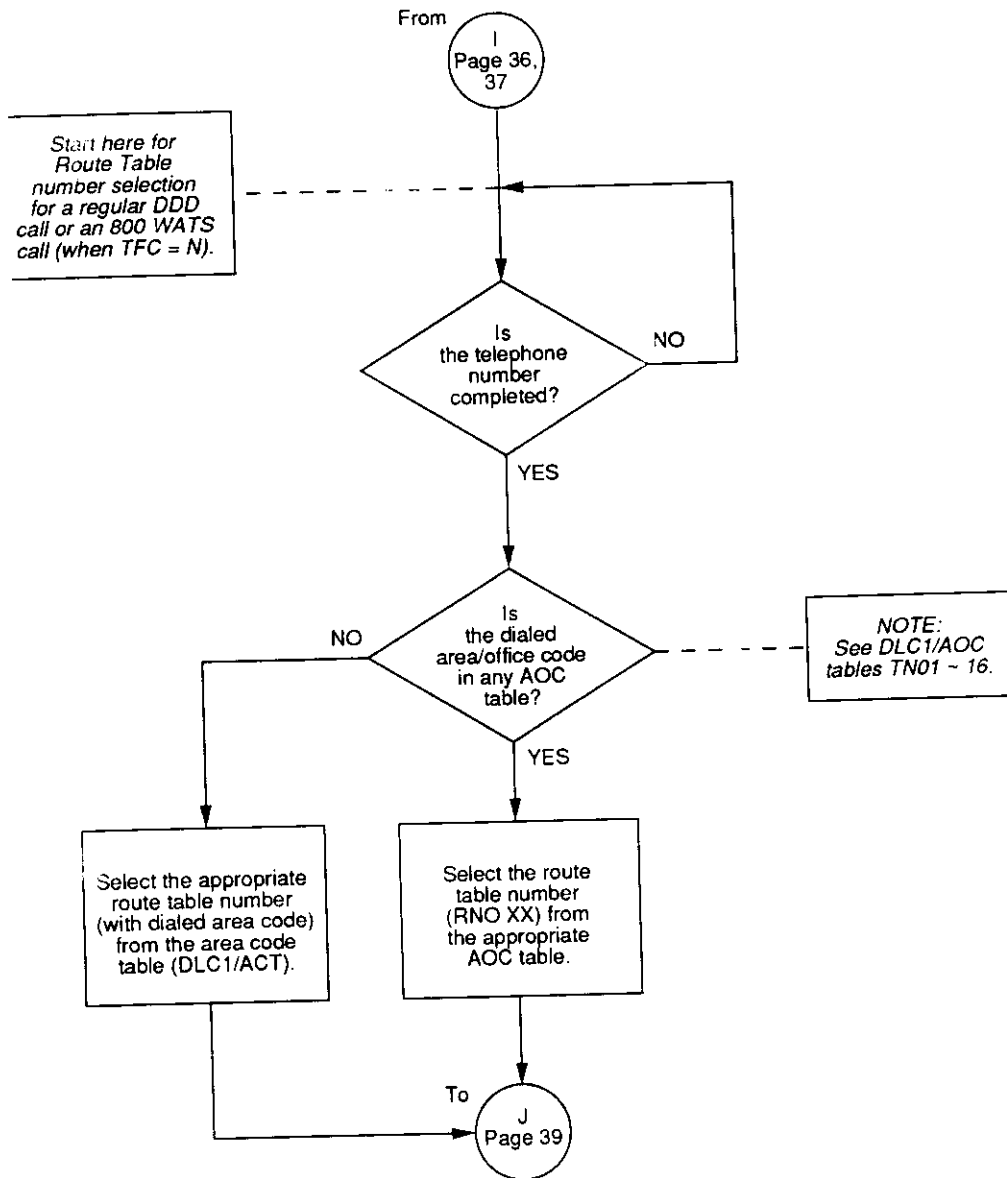




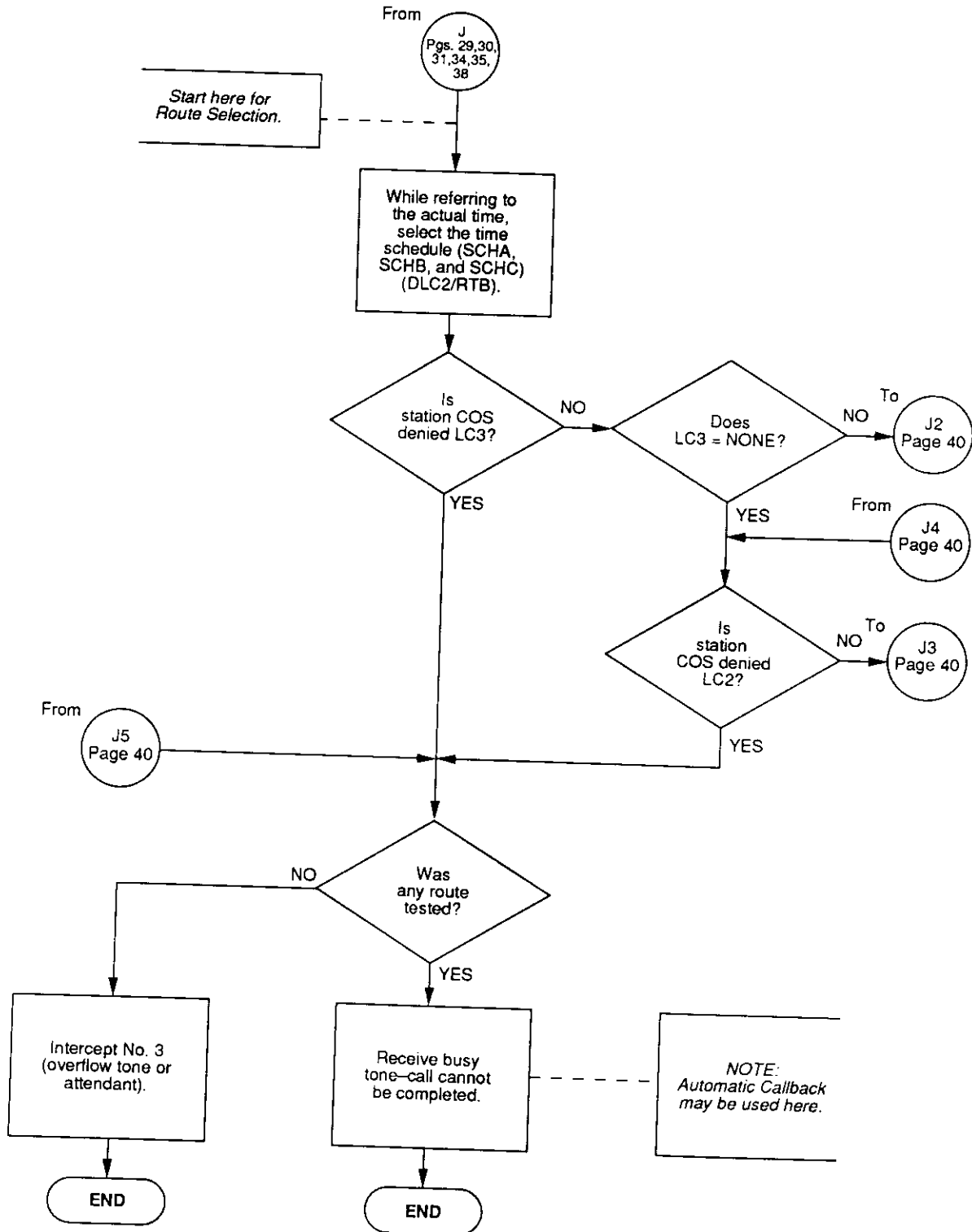
DETAILED LOGIC FLOWCHART (continued)



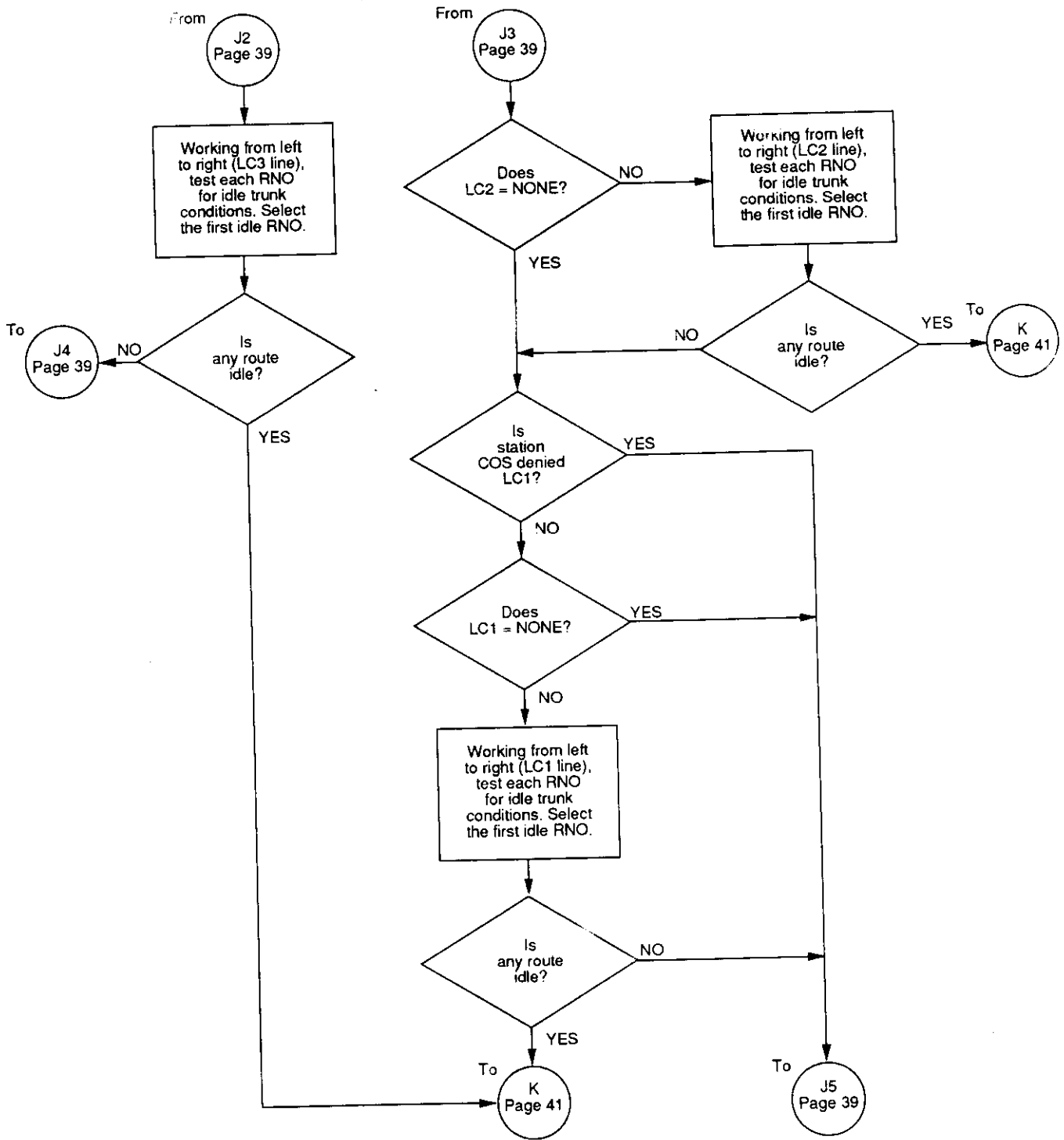
DETAILED LOGIC FLOWCHART (continued)



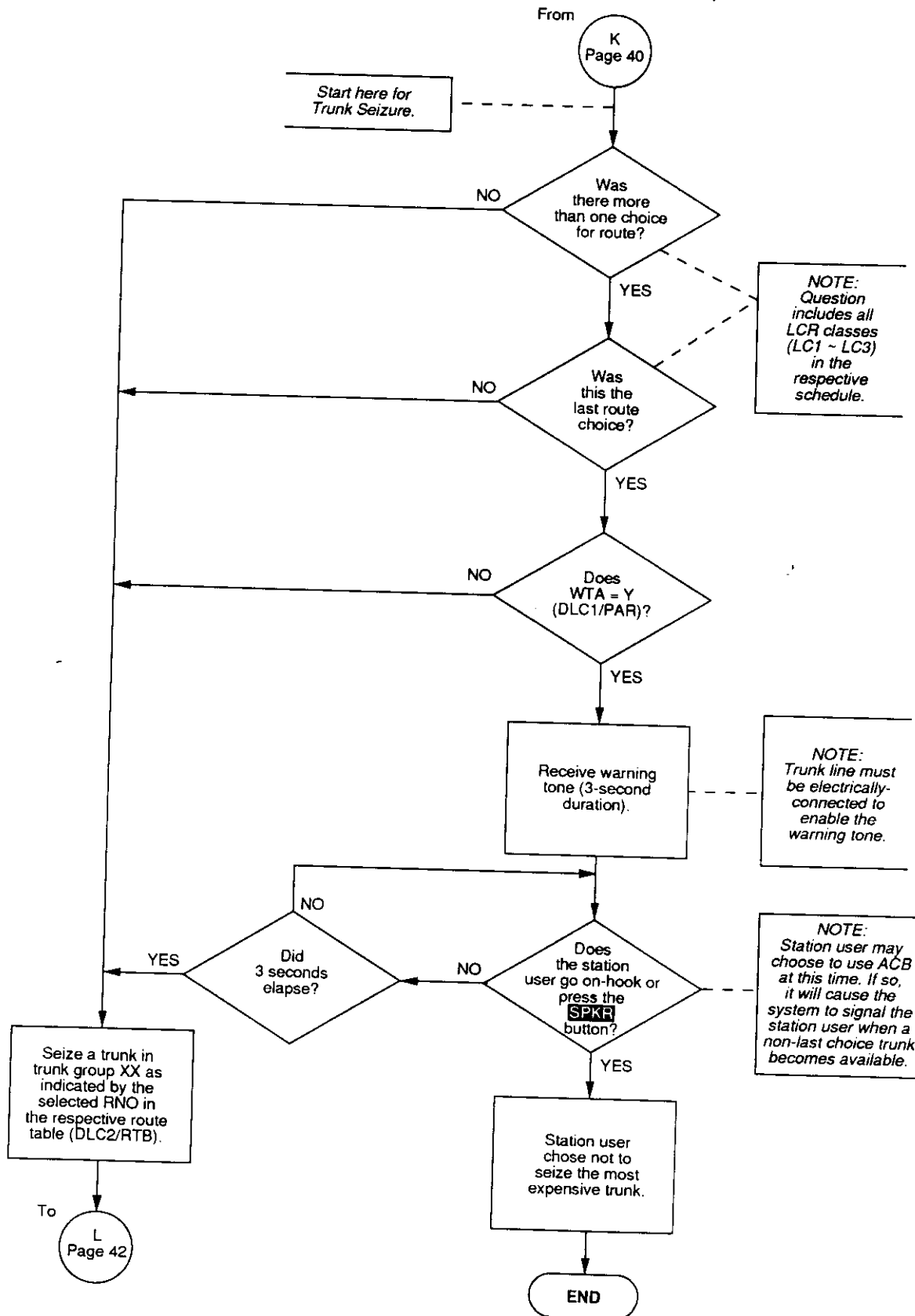
DETAILED LOGIC FLOWCHART (continued)



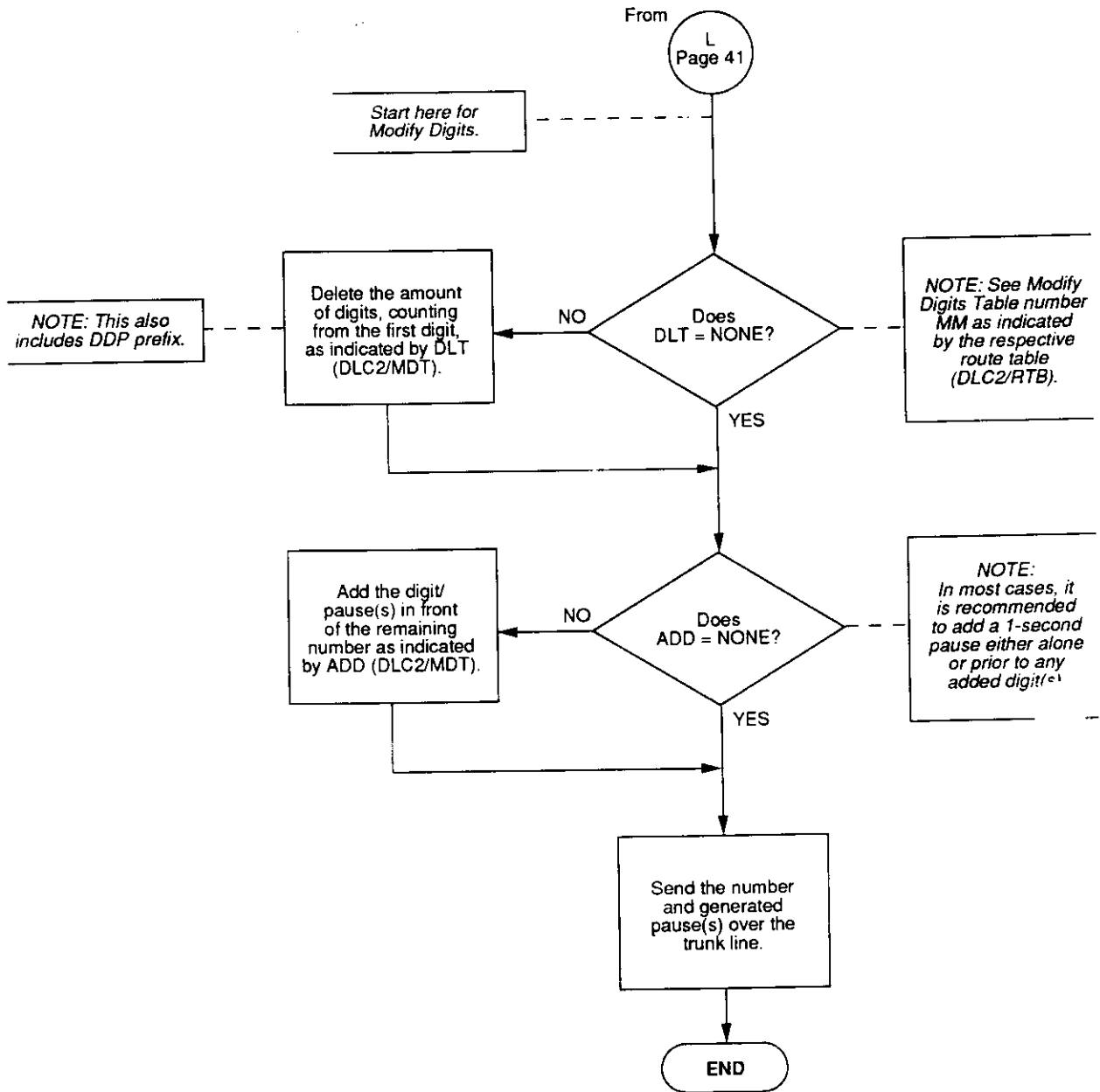
DETAILED LOGIC FLOWCHART (continued)



DETAILED LOGIC FLOWCHART (continued)



DETAILED LOGIC FLOWCHART (continued)



## PERCEPTION<sup>e&ex</sup> PROGRAMMING PROCEDURES

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## CHAPTER 1 INTRODUCTION

### 1. General

**1.01** PERCEPTION<sub>e</sub> and PERCEPTION<sub>ex</sub> are both stored program-controlled systems which utilize a 16-bit microprocessor as the central processing unit (CPU). The system memory is made up of Read Only Memory (ROM), Dynamic Random Access Memory (DRAM), and Static Random Access Memory (SRAM). The small amount of ROM that is provided contains the "Loader" program for the 3.5-inch disk drive (NFDU card). When the system is initially powered up or is reset manually, the remainder of the Operating System programs and Customer Data will be loaded into RAM from the disk, under the control of the Loader program.

**01.02** Since Dynamic RAM is volatile (its contents are lost when power is removed), the disk remains in the system as backup. If a reload is required, the entire system program and customer database will reload in approximately 45 seconds. In Lodging/Health Care operation, some customer data is stored in Static RAM in order to protect it in case of a power failure.

### 2. Dual Disk Operation

**2.01** PERCEPTION<sub>e</sub> systems with **D.02** software and PERCEPTION<sub>ex</sub> systems (which all use **D.03** software) utilize two floppy disks (FDs) for the storage of operating and maintenance data. One of these disks (the System FD) is used specifically for the system program, customer data, and the **DSYS**, **DTRF**, and **TPER** maintenance programs, while the other disk (the Maintenance FD) is used exclusively for all other maintenance programs. A separate disk drive for each disk is required for remote maintenance. Systems with a single disk drive must interchange disks manually in order to perform the various system programming functions. The System FD is inserted for system program loading, data saving, and system operation, while the Maintenance FD is inserted for system programming or the performance of maintenance operations. Dual-drive systems require the inser-

tion of the System FD in FDD0, followed by the insertion of the Maintenance FD in FDD1. The various steps involved in floppy disk installation for both single- and dual-disk systems are noted in Table 1-1.

### 3. Customer Data

**3.01** All PERCEPTION<sub>e&ex</sub> options are controlled by entries made in the Customer Database. Tables are provided for defining System Parameters and Trunks, as well as individual station features. The Customer Data is unique to each system and is usually entered by using a keyboard terminal. After the data has been entered into system memory, a simple keyboard command causes it to be copied onto the System FD, where it remains as a permanent record.

### 4. Utility Programs

**4.01** In addition to the Operating System Programs and Customer Data, the System FD also contains many Utility Programs, which are used to program and maintain customer data. The Utility Programs are divided into three main groups:

- 1) Data Input Procedures
- 2) Data Output Procedures
- 3) Maintenance Procedures

**4.02** When required, a Utility Program can be called up by entering a command via the keyboard terminal. The system will respond by locating the proper Utility Program on the proper floppy disk and then loading it into the memory overlay area. When the loading is completed, a prompt will be output to the terminal. The overlay area can accommodate only one Utility Program at a time. When a program is called up, the previous program will be taken out of the overlay.

**NOTE:**

*Any disk failure will cause an error code to be output to the terminal. See Table 17-6 for the list of error codes.*

**TABLE 1-1**  
**FLOPPY DISK INSTALLATION PROCEDURES**

Operation	Disk That Performs Operation		
	One-Disk Systems	Two-Disk Systems	Note
1. Turn power on (Boot Loading).	Sys-FD	Sys-FD in FDD0	1
2. For two-drive systems: After the system initializes, change the NOD entry in the DSYS Program from 1 to 2.	Sys-FD	Sys-FD in FDD0	1
3. Set up customer data for all maintenance programs except DSYS, DTRF, and TPER.	Mnt-FD	Mnt-FD in FDD1	2 & 3
4. Save and dump data.	Sys-FD	Sys-FD in FDD0	4

**NOTES:**

1. If the System-FD is not inserted in FDD0, then the D0 and D3 LEDs on the LCCU will light.
2. The **DSYS**, **DTRF**, and **TPER Programs** are stored on the System-FD. If this disk is not inserted in FDD0, then the system will respond with the following message:  
"CURRENT FD IS NOT SYSTEM FD. CHANGE IT TO SYSTEM FD."
3. If the Maintenance-FD is not installed either in FDD0 of a one-drive system, or in FDD1 of a two-drive system, then the following message will be generated:  
"CURRENT FD IS NOT MAINT. FD. CHANGE IT TO MAINT. FD."
4. If the System-FD is not installed in FDD0, then the system will request a change by generating the same message as in note 2.
5. In single drive systems, the Maintenance FD can be left in FDD0 up until performing a SAVE. Before a SAVE can actually be performed, the System FD must be installed.

## CHAPTER 2

### SET UP KEYBOARD/REMOTE MAINTENANCE

#### 1. Keyboard Terminal

**1.01** PERCEPTION<sub>e</sub> and PERCEPTION<sub>ex</sub> systems are designed to interface with a standard asynchronous keyboard/printer data terminal (a Texas Instruments Model 743 or 745, or equivalent) or a personal computer configured as a dumb terminal. The terminal is connected to the system via a female-type RS-232C connector (labeled TTY), which is located on the connector panel on the lower rear of the basic cabinet. The TTY port can operate at a speed of either 300 or 1200 bps, which is designated by a switch on the front of the LCCU PCB. The selected bps setting must match the setting on the connected modem or TTY. TTY and modem port pin assignments for PERCEPTION<sub>e</sub> systems are shown in Table 2-1, while assignments for PERCEPTION<sub>ex</sub> systems are shown in Table 2-2.

#### 2. Remote Administration

**2.01** PERCEPTION<sub>e</sub> and PERCEPTION<sub>ex</sub> systems can be programmed and tested from a remote location via a locally-provided 300 or 1200 bps modem. Utility Programs can be called up via a telephone line and then the desired data change or test can be performed. On the PERCEPTION<sub>e</sub>, the modem connects to the TTY RS-232C connector on the rear of the basic cabinet via a Null Modem cable (see Table 2-1 for PERCEPTION<sub>e</sub> pin assignments). On the PERCEPTION<sub>ex</sub>, the modem connects directly to the modem connector on the rear of the basic cabinet (see Table 2-2 for PERCEPTION<sub>ex</sub> pin assignments).

#### 3. Data Format

**3.01** The PERCEPTION<sub>e</sub> and PERCEPTION<sub>ex</sub> systems communicate on the TTY and modem ports via the standard 7-bit ASCII code, using one start bit, one stop bit, and one parity bit. Both systems transmit even parity and ignore parity on the receive side.

**3.02** Prior to switching on the PERCEPTION<sub>e</sub> or PERCEPTION<sub>ex</sub> system, data terminal, or modem power, all speed settings should be made and data terminals and modems should be set for full duplex operation.

**TABLE 2-1**  
**PERCEPTION<sub>e</sub> TTY and MODEM CONNECTIONS**

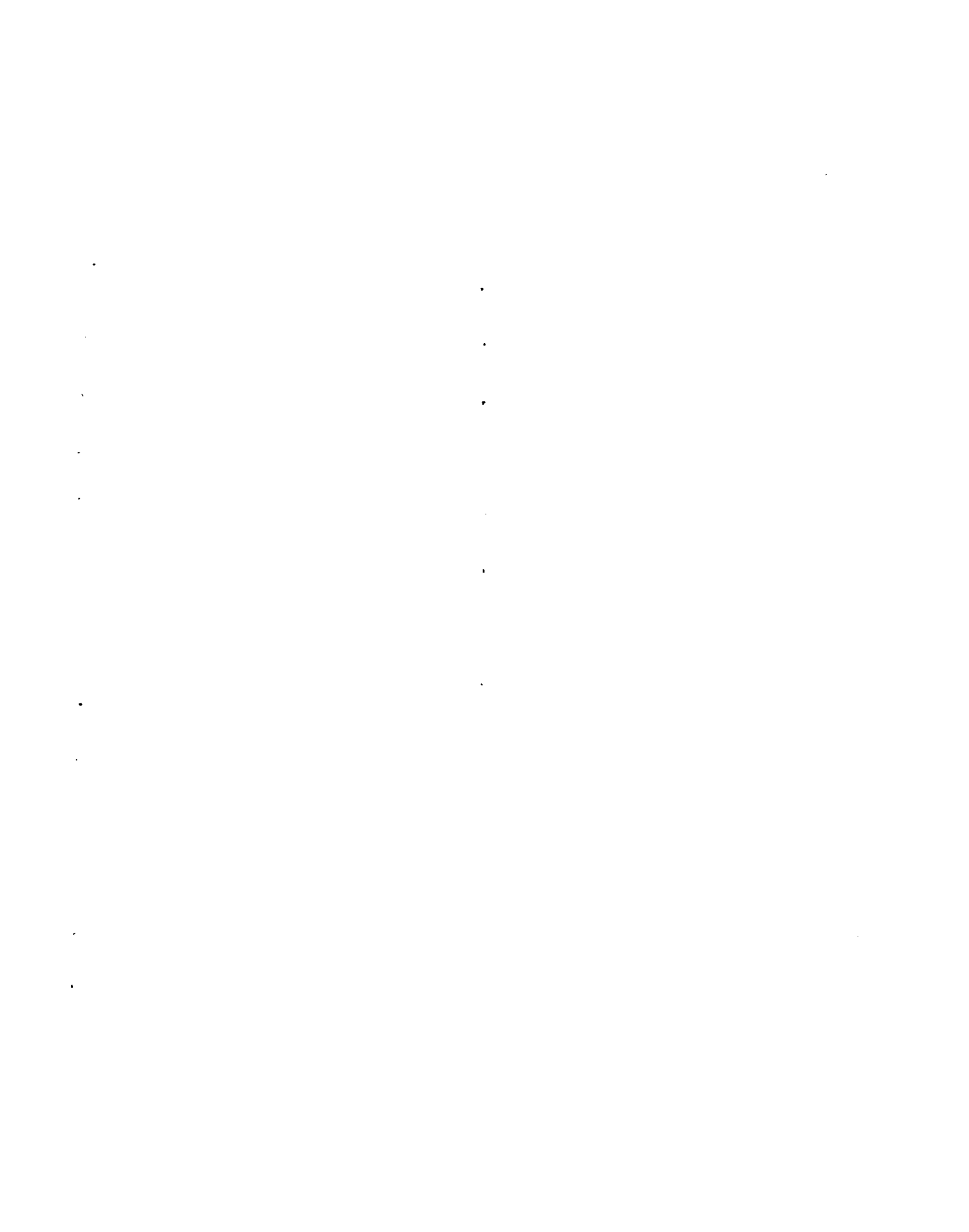
TTY PORT		TTY	
PIN	SIGNAL	PIN	SIGNAL
2	Receive Data	2	Transmit Data
3	Transmit Data	3	Receive Data
4	Ready to Send	4	Ready to Send
5	Clear to Send	5	Clear to Send
6	Data Set Ready	6	Data Set Ready
7	Signal Ground	7	Signal Ground
8	Data Carrier Detect	8	Data Carrier Detect
20	Data Terminal Ready	20	Data Terminal Ready

TTY PORT		MODEM	
PIN	SIGNAL	PIN	SIGNAL
2	Receive Data	3	Transmit Data
3	Transmit Data	2	Receive Data
4	Ready to Send	5	Clear to Send
5	Clear to Send	4	Ready to Send
6	Data Set Ready	20	Data Terminal Ready
7	Signal Ground	7	Signal Ground
20	Data Terminal Ready	6	Data Set Ready

**TABLE 2-2**  
**PERCEPTION<sub>ex</sub> TTY and MODEM CONNECTIONS**

TTY PORT		TTY	
PIN	SIGNAL	PIN	SIGNAL
2	Receive Data	2	Transmit Data
3	Transmit Data	3	Receive Data
4	Ready to Send	4	Ready to Send
5	Clear to Send	5	Clear to Send
6	Data Set Ready	6	Data Set Ready
7	Signal Ground	7	Signal Ground
8	Data Carrier Detect	8	Data Carrier Detect
20	Data Terminal Ready	20	Data Terminal Ready

TTY PORT		MODEM	
PIN	SIGNAL	PIN	SIGNAL
2	Transmit Data	2	Receive Data
3	Receive Data	3	Transmit Data
4	Ready to Send	4	Clear to Send
5	Clear to Send	5	Ready to Send
6	Data Set Ready	6	Data Set Ready
7	Signal Ground	7	Signal Ground
20	Data Terminal Ready	20	Data Terminal Ready





## CHAPTER 3

### DATA INPUT/OUTPUT PROCEDURES

#### 1. General

1.01 Prior to actual system programming, customer data is recorded on special System Record Sheets which correspond with the prompts outlined in the data block tables contained in this manual (see Appendix 1). After these sheets are completed and after the PERCEPTION<sub>e</sub> or PERCEPTION<sub>ex</sub> system is connected to the data terminal (see Chapter 2), data can be entered into the system via the Data Input Utility Programs. Once the information is input, it can be printed out via Data Output Procedures and tested via special Maintenance Procedures. The Utility Programs used to program and maintain customer data are summarized as follows:

- 1) Data Input Procedures—used when entering or making changes to Customer Data.
- 2) Data Output Procedures—used for obtaining printouts of the contents of the Customer Data memory.
- 3) Maintenance Procedures—used when testing the system. The System FD contains only the **DSYS**, **DTRF**, and **TPER** maintenance programs, while the maintenance FD contains all other maintenance programs.

1.02 Within this manual, tables dealing with Data Input and Data Output Procedures are presented collectively under each chapter category of data (e.g., System Data, Station Data, etc.). This provides a convenient reference to all information that deals with a specific type of data. Maintenance Procedures, consisting of the Data Dump and various test procedures, are grouped into their own chapter at the end of this manual. For convenient reference, each Utility Program's location within this manual is listed in Table 3-1.

1.03 Each Utility Program has a 4-letter mnemonic name that is used to identify it and to call it up from the disk on which it is contained. Each program's mnemonic name is included in the listing in Table 3-1. Before a Utility Program can be

called up, an Authorization Procedure must be performed.

#### 2. Data Input

2.01 Before PERCEPTION<sub>e&ex</sub> system data can be input, option selections must be made and then listed on the System Record Sheets (see Appendix 1). The System Record will then serve as a programming guide and installation record.

2.02 The System Record contains a form for each Data Input Utility Program. Each form is identified by the Utility Program name and by the program's corresponding mnemonic that is requested by the system (for example: System Data Block = **DSYS Program**).

2.03 Data input via a Utility Program is accomplished by responding to the program's prompts. These prompts are listed in their proper order in the System Record Sheets. Space is provided to record a response to each prompt.

2.04 Refer to each Utility Program's specific instructions for an explanation of the possible responses to each prompt. Record each selected response on the program's corresponding System Record Sheet.

2.05 To input new customer data or to change an established database, perform the Authorization Procedure and then enter the mnemonic name of the desired Data Input Utility Program (see Chapter 4). Refer to the completed System Record Sheets and input the required information.

#### 3. Data Output

3.01 To print out data that is contained in the various data blocks of the customer database, perform the Authorization Procedure and then enter the mnemonic name of the desired Data Output Utility Program. Within this manual, Data Output programs are grouped next to their related Data Input Program. For detailed instructions on how to print out data, refer to each specific program and program table.

**TABLE 3-1  
UTILITY PROGRAM REFERENCE GUIDE  
DATA INPUT AND OUTPUT PROCEDURES**

TABLE	NAME	MNEM.	PAGE
5-1	Authorization Code Change	DCHG	5-1
5-2	System Data Block (DB)	DSYS	5-2
5-3	Print System Data Block (DB)	PSYS	5-8
5-4	System DB 2	DSD2	5-9
5-5	Print System DB 2	PSY2	5-12
6-1	Access Code DB	DACD	6-1
6-2	Print Access Code DB	PACD	6-5
6-3	Class of Service DB	DCOS	6-6
6-4	Print Class of Service DB	PCOS	6-9
7-1	Attendant DB <small>(CR) thru PROC</small>	DATT	7-1
7-2	Electronic Telephone DB	DEKT	7-4
7-3	Standard Telephone DB	DSTT	7-12
7-4	Print Station DB	PSDB	7-16
7-5	Print Call Pickup Groups	PCPG	7-18
7-6	Print Hunting Arrangement	PHNT	7-19
7-7	Print Paging Group Data	PPAG	7-20
7-8	DSS Console DB	DDSS	7-21
7-9	Print DSS Console DB	PDSS	7-28
8-1	Message Center DB	DMCD	8-1
8-2	Print Message Center DB	PMCD	8-4
9-1	Trunk Group DB	DTGP	9-1
9-2	Print Trunk Group DB	PTGP	9-6
9-3	Trunk DB	DTRK	9-8
9-4	Print Trunk DB	PTRK	9-14
9-5	SMDR DB	DMDR	9-16
9-6	Print SMDR DB	PMDR	9-18
10-1 ~ 4	Toll Restriction DB	DTOL	10-1

TABLE	NAME	MNEM.	PAGE
10-5	Print Toll Restriction DB	PTOL	10-9
11-1	DDIU DB	DDIU	11-1
11-2	Print DDIU DB	PDIU	11-6
11-3	Modem Pooling DB	DMDM	11-7
11-4	Print Modem Pooling DB	PMDM	11-9
12-1	Least Cost Routing DB	DLC	12-1
12-2 ~ 4	Least Cost Routing DB 1	DLC1	12-2
12-5 ~ 6	Least Cost Routing DB 2	DLC2	12-6
12-7	Print Least Cost Routing DB	PLCR	12-12
13-1	Lodging/Health Care DB	DHMF	13-1
13-2	Print Lodging/Health Care DB	PHMF	13-3
13-3	Message Registration DB	DMRD	13-4
13-4	Print Message Registration DB	PMRD	13-7
14-1	Speed Dial List DB	DSDL	14-1
14-2	Print Speed Dial List DB	PSDL	14-3
15-1	Traffic Measurement DB	DTRF	15-1
16-1	Alphanumeric Message DB	DMSG	16-1
16-2	Print Alphanumeric Message DB	PMSG	16-3

**MAINTENANCE PROCEDURES**

TABLE	NAME	MNEM.	PAGE
17-1	Backup Memory Check Proc.	DMYC	17-1
17-2	Data Dump Program	DDMP	17-2
17-3 ~ 4	Electronic Telephone/ Attendant Console Test	TTRM	17-3
17-5	Peripheral Equipment Test	TPER	17-8

**NOTE:**

*Error codes associated with each data block are listed after each data block table.*

## CHAPTER 4

### AUTHORIZATION PROCEDURES/UTILITY PROGRAM USE

#### 1. Authorization Procedure

1.01 Before any Utility Program can be called up, PERCEPTION<sub>e</sub> and PERCEPTION<sub>ex</sub> systems require an authorization code to be entered. This prevents unauthorized tampering with the Customer Database.

1.02 There are three levels of authorization (each of which has a unique 4-digit code that is assigned in the system memory). Each authorization level allows certain input, output, and maintenance procedures to be performed. When shipped from the factory, all levels are assigned 0000. Codes are changed with the Authorization Code Change procedure (DCHG).

#### 2. Authorization Level Allowances—Data Input Procedures

2.01 The data input activities that are allowed to each of the three authorization levels are as follows:

Level 1: Can do all activities of Levels 2 and 3.  
Can change the 4-digit codes of Levels 1, 2, and 3.

Level 2: Can do all Level 1 activities except change or read out codes for Level 1.  
Can change Level 2 and 3 codes.

Level 3: Normally assigned for end user use.  
Can change:  
System Data Block 2  
Class of Service Data Block  
Station Data Block  
Attendant Data Block  
DSS Console Data Block  
Station Message Detail Recording Data Block  
Speed Dial List Data  
Digital Data Interface Unit Data Block  
Modem Pooling Data Block  
Alphanumeric Message Data Block

#### 3. Authorization Level Allowances—Data Output Procedures

3.01 The entrance of the different authorization codes permits specific customer data to be printed. The data output activities that are allowed to each of the three authorization levels are as follows:

Levels 1, 2, or 3: Print System Data Block  
Print System Data Block 2  
Print Class Service Data Block  
Print Station Data Block  
Print DSS Console Data Block  
Print SMDR Data Block  
Print Digital Data Interface Data Block  
Print Modem Pooling Data Block  
Print Speed Dial List Data Block  
Print Call Pickup Groups  
Print Hunting Arrangements  
Print Alphanumeric Message Data Block

Levels <sup>1 or 2</sup> 2 or 3 only: Print System Data Block  
Print Access Code Data Block  
Print Message Center Data Block  
Print Trunk Group Data Block  
Print Trunk Data Block  
Print Toll Restriction Data Block  
Print Least Cost Routing Data Block  
Print Lodging/Health Care Features Data Block  
Print Message Registration Data Block  
Print Paging Group Data

#### 4. Authorization Level Allowances—Maintenance Procedures:

4.01 The maintenance activities that are allowed to each of the three authorization levels are as follows:

Levels 1, 2, or 3: Data Dump Program  
Electronic Telephone/Attendant Console Test

Levels 1 or 2 only: Backup Memory Check Entry Procedure  
Peripheral Equipment Test

#### 5. Execution of Authorization Procedure

5.01 To perform the Authorization Procedure:

**PROGRAMMING PROCEDURES**  
**SECTION 200-255-300**  
**AUGUST 1989**

- 1) Plug in and power up the data terminal.
- 2) The system will respond with a greater than sign (>).
- 3) Press the carriage return **CR** key.
  - The system will respond by printing COD and will print several characters in the spaces to be occupied by your next entry (this is done to mask the authorization code).

**IMPORTANT!**

*This masking measure is not effective when a CRT is used. Be careful not to leave the authorization code displayed on the screen.*

- 4) Enter the 4-digit authorization code, followed by a **CR**.
  - The system will print:
    - ERROR if an invalid code is entered (return to Step 2).
    - OK if a valid code is entered (proceed to request Utility Program).

## 6. Utility Program Use

**6.01** After performing the Authorization Procedure and receiving an OK response, enter the mnemonic of the required Utility Program.

**6.02** After the Utility Program name is entered, the program will be loaded from the disk. When the loading is complete, the system will prompt REQ for Request.

**6.03** Entering data via a Utility Program is a matter of responding to the prompts given by the system via the data terminal. The prompts and the required responses are mnemonics that are usually abbreviations of the actual English word required.

**6.04** If an improper response is made to a prompt, the system will respond with an error message. The error message will be a "?" when the error is obvious, but in most cases it will be an alphanumeric code. The alphanumeric code consists of five letters (identifying the program) and two numbers (identifying the error). Error code lists are provided in this manual to explain each error code.

**6.05** Boxes are used to indicate control code keys

on the programming terminal. The **CTRL** (control) key must be held down while simultaneously pressing either the **X** or the **H** key. Press the carriage return key whenever **CR** appears. The following control codes are available when using Utility Programs (press the **CR** key after each code):

**CTRL X**—Ignore line entered—the same prompt will be repeated.

**CTRL H**—Backspace will allow you to overwrite the previous character(s).

**DEL**—May be entered at anytime—the system will stop execution and return to the REQ prompt.

**DEL DEL**—Exits the program—ends the use of one utility. The system will respond with SAVE. A "Y" entry will cause the system to copy all present data onto the disk. If more changes are to be made, enter "N."

**NOTE:**

*The above control key indications are for Texas Instruments Silent 700 series terminals. Other terminal types have a **RUB OUT** key instead of **DEL** and a **BACKSPACE** key, to be used instead of **CTRL H**.*

**6.06** When data already exists for a given prompt and a change is not required, entering a **CR** will advance the system to the next prompt without changing existing data.

**6.07** Tables 5-1 through 17-5 show the format of each Utility Program. Programs are grouped into general categorical areas (e.g., System Data, Feature Data, etc.). Each Data Output program is grouped with its related Data Input program(s). If applicable, each data table is followed by a list explaining the error codes which pertain to that program. Using the appropriate tables as guides, enter data that has been previously recorded in the System Record Sheets.

**CHAPTER 5**

**SYSTEM DATA**

**1. Authorization Code Change (Table 5-1)**

**1.01** The **DCHG Program** changes the authorization codes which are used in the Authorization Procedure.

**1.02** To use the **DCHG Program**:

- Complete the Authorization Procedure (Level 1 or 2).  
Enter: DCHG **CR** (in response to the OK prompt).
- The next prompt will be: L1XXXX (Level 1 authorization code).  
(XXXX = present code).

**NOTES:**

1. If a Level 2 authorization code was given above, L1 will not be output. Go to the next prompt (L2).
2. If a Level 3 authorization code was entered above, an error message will be given, Level 3 cannot change the authorization codes.  
Enter: New L1 code (4 digits) **CR**.  
L2XXXX (Level 2 authorization code).  
(XXXX = present code).  
Enter: New L2 code (4 digits) **CR**.  
L2XXXX (Level 3 authorization code).  
(XXXX = present code).  
Enter: New L3 code (4 digits) **CR**.  
L1 or L2 (program repeats).  
Enter: **DEL DEL** (to exit the program).

**TABLE 5-1**

**Procedure — Authorization Code Change**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

SYSTEM	USER	NOTE NO.
OK	DCHG	
L1 = XXXX		1 & 2
L2 = XXXX		2
L3 = XXXX		2
OK		3

**NOTES:**

1. a. An error message will be received if Level 3 was given in the Authorization Procedure.  
b. If Level 2 was given in the Authorization Procedure, L1 will be omitted and the response to CHG will be  
L2 = XXXX.  
c. XXXX = Present code of the designated level 1 ~ 3.
2. The possible responses are:  
YYYY = This new access code will replace the existing XXXX.  
**CR** = Carriage Return — the code will not be changed and the system will issue the next prompt.  
**CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.
3. The program will repeat.

## **2. System Data Block (Table 5-2)**

**2.01 The System Data Block (DSYS Program)** contains miscellaneous data entries that apply to the system as a whole rather than to any individual station or trunk. Data is entered as follows:

**REQ (Request)**—Indicates that the program has loaded. Since data is always present, only the CHG response is possible.

**EXP (Expansion Cabinet)**—Indicates whether or not an expansion cabinet is installed.

Enter: Y: if an expansion cabinet is installed.

N: if only the basic cabinet is installed.

### **NOTES:**

1. *Y must be entered to enable the system to provide up to 20 simultaneous conferences in a cabinet using a second NPRU PCB.*

2. *If N is entered, then only ten simultaneous conferences will be supported.*

**NOD (Number of Drives)**—Indicates whether one or two disk drives are being used. (Two drives are used only with **D.02** or later software versions.)

Enter: 1: if only a single drive (FDD0) is used.

2: if two drives (FDD0 and FDD1) are used. (The system will not access maintenance programs in FDD1 if 1 is entered, unless the Maintenance FD is used in place of the System FD.)

**TOR (Time of Daily Routine)**—Specifies the time of day that the daily routine task (System Dump) will run (listed after the next prompt).

Enter: 24-hour clock time.

(For example: 1315 = 1:15 pm).

**DRT (Daily Routine Task)**—Specifies whether or not a System Data Dump is to be performed at the time specified in response to TOR.

Enter: DDMP (Data Dump) or NONE.

**TEN (Tenant Service)**—Specifies whether or not tenant service is to be used. If "Y" is entered, incoming trunk calls, dial calls, attendant recalls, intercepts, etc. will be routed to the proper atten-

dant console (Att. #0 for Tenant #0, and Att. #1 for Tenant #1). Tenant designation for each telephone and trunk is selected in response to the TEN prompt in the following Data Blocks: Electronic Telephone (**DEKT Program**), Standard Telephone (**DSTT Program**), and Trunk Group (**DTGP Program**). If "**N**" is entered, then the attendant consoles will operate in the load sharing mode.

Enter: Y or N.

**ICP1 (Intercept #1)**—If the attendant takes control of a trunk group by using the trunk group access control feature, then stations that place calls to that trunk group will be routed to Intercept #1. This entry defines ICP1 as being either overflow tone (OFL) or the attendant (ATT).

Enter: ATT or OFL.

**ICP2 (Intercept #2)**—An incoming call from a DID, TIE, or CCSA trunk to a non-existing DN will be routed to Intercept #2 when the system is in day service and to overflow tone when night service is active. This entry defines ICP2 as being either overflow tone (OFL), the attendant (ATT), a station, or an answering device connected to a trunk or station port (TNNX, LNNX).

Enter: ATT, OFL, TNNX, or LNNX.

**ICP3 (Intercept #3)**—A call that is violating trunk access restrictions will be routed to Intercept #3 when the system is in day service and to overflow tone when night service is active. This entry defines ICP3 as being either overflow tone or the attendant.

Enter: ATT or OFL.

**LCR (Least Cost Routing)**—A "Y" response enables Least Cost Routing in the system. Refer to the Least Cost Routing Data Block **DLC1** and **DLC2 Programs**.

Enter: Y or N.

**APG (All Page Access Code)**—Defines the All Page access code. The use of this code will simultaneously access Internal Group 0 Paging and External All Paging (paging zones 0 ~ 4)—(maximum: 3 digits).

Enter: 1, 2, or 3 digits.

**AAT (Not Used):**

Enter: **CR**

**APX (Not Used):**

Enter: **CR**

**LN1 (Listed Directory Number #1)**—Defines the LDN #1, which is used with the DID feature when routing a call to the attendant console (maximum: 4 digits).

Enter: 1, 2, 3, or 4 digits or NONE.

**LN2 (Listed Directory Number #2)**—Defines the LDN #2, which is used with the DID feature when routing a call to the attendant console (maximum: 4 digits).

Enter: 1, 2, 3, or 4 digits or NONE.

**NT1 (LDN #1 Night Number)**—Defines the destination to which LDN #1 calls will be routed when the system is in night service (DN or Universal Night Answer).

Enter: 1, 2, 3, or 4 digits or UNA.

**NT2 (LDN #2 Night Number)**—The response to this prompt defines the destination to which LDN #2 calls will be routed when the system is in night service (DN or UNA).

Enter: 1, 2, 3, or 4 digits or UNA.

**BLF1 (Busy Lamp Field #1)**—Defines one of the hundreds groups that is to be displayed by the console BLF.

Enter: 1 digit (1 ~ 9)

**BLF2 (Busy Lamp Field #2)**—Defines one of the hundreds groups that is to be displayed by the console BLF.

Enter: 1 digit (1 ~ 9).

**OFL1 (Overflow DN-Attendant Console #0)**—Defines the destination for calls that are re-routed from attendant console #0 during an overflow condition.

Enter: 1, 2, 3, or 4 digits or NONE (UNA).

**NOTE:**

*This data may also be changed via the attendant console.*

**OFL2 (Overflow DN-Attendant Console #1)**—

Defines the destination for calls that are re-routed from attendant console #1 during an overflow condition.

Enter: 1, 2, 3, or 4 digits, or NONE (UNA).

**NOTES:**

1. *The overflow destination can also be changed at the attendant console.*
2. *OFL 2 applies to tenant 1 and will not print out when the system is not in tenant service.*

**MMP (Meet-me Page Access Code)**—Defines the access code that is used by the attendant or attendant-position electronic telephone to “park” a call for the Meet-me Page feature (maximum: 3 digits; the system default is 10).

Enter: 1, 2, or 3 digits.

**REM (Remote Access DN)**—Defines the DN that is used to assign a trunk for “Remote Access to Services” operation (maximum: 4 digits). The DN must be the same as an assigned station DN. Refer to the note at the NIT prompt in the **DTRK Program**.

Enter: 1, 2, 3, or 4 digits, or NONE.

**RAC (Remote Access to Services Change Code)**—Defines the access code that must be entered before the system’s remote access code can be changed. The remote access code can be changed from either an attendant console or an attendant-position electronic telephone after entering the change code. The remote access code is used by outside callers who want to access the system’s remote access feature.

Enter: 1, 2, or 3 digits.


**ACC\* (\* Access Code)**—Defines the digit that is to be used by a rotary dial telephone in place of the **█** button.

Enter: 1 digit or NONE.

**NOTE:**

*AAC \* must not conflict with either the DN or other access codes—it is not checked by software.*

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**ACC# (# Access Code)**—Defines the digit that is to be used by a rotary dial telephone in place of the  button.  
Enter: 1 digit or NONE.

**NOTE:**

*AAC# must not conflict with either the DN or other access codes—it is not checked by software.*

**COT (Camp-on or Call Waiting Timeout)**—Defines the Camp-on and Call Waiting feature timeout period.  
Enter: Time in seconds.  
For example: 30.

**RNA (Ring No-Answer Timeout)**—Defines the Ring No-Answer timeout period for attendant-handled calls.  
Enter: Time in seconds.

**AOF (Attendant Overflow Timeout)**—Defines the timeout period for the attendant overflow facility.  
Enter: Time in seconds.

**CFD (Call Forward No Answer Timeout)**—Defines the Call Forward No-Answer timeout period.  
Enter: Time in seconds.


**NOTE:**

*The CFD timeout period must be less than RNA time or else RNA time will be in effect.*

**HLD (2500 Hold/Electronic Telephone Park Timeout)**—Defines the timeout period for the recall of a held call to a single line telephone or of a parked call to an electronic telephone.  
Enter: Time in seconds or NONE.

**DPT (Dial Pause Timeout)**—Defines the maximum pause that is allowed before the first digit is dialed or between other digits that are dialed from an electronic telephone. Stations that are released due to the DPT timer will hear overflow tone. This timeout is used with the line lockout feature.  
Enter: Time in seconds.

**NOTE:**

*The Dial Pause Timeout also controls the release of an idle attendant console  button.*

**PBT (Pushbutton Timeout)**—Defines the maximum pause that is allowed between digits that are dialed on a trunk from a DTMF telephone. The transmit voice path from a DTMF telephone to a trunk is broken during dialing. The PBT timer determines how quickly the path is restored and therefore, should be set as short as possible.  
Enter: Time in seconds.

**LLO (Line Lockout Time)**—Defines the length of time that overflow tone is applied to a station after having been released due to the DPT timer. After this timeout occurs, the station will hear silence. When Emergency Ringdown is used, a transfer to the Emergency Ringdown destination will not occur until the LLO timeout period has elapsed.  
Enter: Time in seconds.

**ACB (Automatic Callback Reserve Time)**—Defines the length of time that the called station or trunk in an ACB call is reserved for the caller.  
Enter: Time in seconds.

**DLY (Delay Ring Timer)**—Defines the time period between the ringing of Direct-in Line day answering stations programmed to ring immediately, and stations set for delayed ringing. For example, if stations 200 and 201 are set for immediate ringing, and station 202 is set for delayed ringing, then when a call rings in, the delayed ring time period must elapse before station 202 will ring.  
Enter: Time in seconds (0 ~ 99).

**HFS (Handsfree Answerback Station)**—A "Y" response allows calls from any station to voice-announce to an electronic telephone that is equipped with Handsfree Answerback.  
Enter: Y or N.

**HFA (Handsfree Answerback Attendant)**—A "Y" response allows calls from the attendant to



voice-announce to an electronic telephone that is equipped with Handsfree Answerback.  
Enter: Y or N.

**MDR (SMDR Equipped)**—A "Y" response enables SMDR and activates the MDR alarm on the console.  
Enter: Y or N.

**UNA0 (Universal Night Answer Zone 0)**—A response of 0 assigns UNA Zone 0 to Tenant 0. A response of 1 assigns UNA Zone 0 to Tenant 1. (This prompt will only appear if **TEN** was answered **Y**.)  
Enter: TEN0 or TEN1.

**UNA1 (Universal Night Answer Zone 1)**—A response of 0 assigns UNA Zone 1 to Tenant 0. A response of 1 assigns UNA Zone 1 to Tenant 1. (This prompt will only appear if **TEN** was answered **Y**.)  
Enter: TEN0 or TEN1.

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**TABLE 5-2**

**Procedure — System Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	DSYS	
<b>- DISK LOADING -</b>			
	REQ	CHG	
Expansion Cabinet	EXP	Y or N (N)	
Number of Disk Drives	NOD	1 or 2 (1)	1
Time of Daily Routine <i>to DDMP ATT</i>	TOR	XXXX (0000)	
Daily Routine Tasks <i>↓</i>	DRT	DDMP or NONE (NONE)	
Tenant Service?	TEN	Y or N (N)	
Intercept #1	ICP1	ATT or OFL (OFL)	
Intercept #2	ICP2	ATT, OFL, TNNX, or LNNX (OFL)	
Intercept #3	ICP3	ATT or OFL (OFL)	
Least Cost Routing	LCR	Y or N (N)	
All Page Access Code <i>UNASSIGNED 5206-46 MEMBER 160 *</i>	APG	1 ~ 3 digits (NONE)	2
Not Used	AAT	<b>CR</b>	
Not Used	APX	<b>CR</b>	
Listed Directory Number #1 <i>ATT</i>	LN1	1 ~ 4 digits (NONE)	
Listed Directory Number #2	LN2	1 ~ 4 digits (NONE)	
LDN #1 Night Number	NT1	1 ~ 4 digits or UNA	
LDN #2 Night Number	NT2	1 ~ 4 digits or UNA	
Busy Lamp Field #1	BLF1	1 ~ 9	
Busy Lamp Field #2	BLF2	1 ~ 9	
Overflow DN Attendant Console #0	OFL1	1 ~ 4 digits or NONE = UNA (NONE)	
Overflow DN Attendant Console #1	OFL2	1 ~ 4 digits or NONE = UNA (NONE)	3
Meet-me Page Access Code	MMP	1 ~ 3 digits (10)	
Remote Access DN	REM	1 ~ 4 digits or NONE	
Remote Access to Services Change Code	RAC	1 ~ 3 digits (#2) <i>to change DISH ACCESS CODE</i>	
"*" Access Code <i>FOR</i>	ACC*	1 digit or NONE	4 & 5
"#" Access Code	ACC#	1 digit or NONE	4 & 5
Camp-on (or CWT) Timeout	COT	0 ~ 255 seconds (50)	
Ring No-Answer Timeout	RNA	0 ~ 255 seconds (31)	

Default values are noted in parentheses ( ).

(continued)

OLD  
OPTIONS

\* 12 slots per page

**TABLE 5-2 (continued)**

ITEM	PROMPT	USER ENTRY	NOTE
Attendant Overflow Timeout	AOF	0 ~ 255 seconds (30)	
Call Forward No-Answer Timeout	CFD	0 ~ 255 seconds (10)	6
2500 Hold/Electronic Telephone Park Timeout	HLD	0 ~ 255 seconds or NONE (50)	
Dial Pause Timeout	DPT	0 ~ 255 seconds (15)	7
Pushbutton Timeout	PBT	0 ~ 255 seconds (4) <i>FOR HEARING IMPAIRED/PAUSES</i>	
Line Lockout Timeout	LLO	0 ~ 255 seconds (15)	8
Automatic Callback Reserve Time <i>RINGING TIME</i>	ACB	0 ~ 255 seconds (4)	
Delay Ring Timer <i>X TAKE</i>	DLY	0 ~ 99 seconds (15)	
Handsfree Answerback – Station	HFS	Y or N (N)	9
Handsfree Answerback – Attendant	HFA	Y or N (N)	10
SMDR Equipped	MDR	Y or N (N)	
Universal Night Answer <i>Y</i>	UNA0	TEN0 TEN1	
Universal Night Answer <i>Y</i>	UNA1	TEN0 TEN 1	

Default values are noted in parentheses ( ).

**NOTES:**

1. **D.02** and later software versions can use two disk drives. If two drives are used, enter 2; otherwise, enter 1.
2. The All Page access code can be 1, 2, or 3 digits.
3. Not printed if tenant service is not used (TEN = N).
4. An entered digit indicates that a number can be dialed in place of "" or "#."
5. Beware of conflicts with the numbering plan and access codes — the system will not always check.
6. CFD time must be less than RNA or else RNA will prevail.
7. The DPT timer also controls attendant LPK release.
8. The LLO timer also controls emergency ringdown time, since a transfer to an emergency ringdown destination will not occur until LLO times out.
9. A "Y" response allows calls from **any station** to a Handsfree Answerback-equipped electronic telephone to be answered handsfree.
10. A "Y" response allows calls from **the attendant** to a Handsfree Answerback-equipped electronic telephone to be answered handsfree.
11. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

**Error Codes**

Program Name: System Data Block (DSYS Program)	
Error Code	Meaning
ERSYS 00	The directory number or access code conflicts with an existing directory number, access code, or room prefix.
ERSYS 01	The entered DN does not exist in the system.
ERSYS 02	The entered DN is a trunk DN.
ERSYS 05	The station DN has not been assigned as a remote access DN.

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**3. Print System Data Block (Table 5-3)**

**3.01** To use the Print System Data Block (**PSYS Program**):

- Perform the Authorization Procedure (Level 1 or 2).  
 Enter: PSYS (in response to the OK prompt).
- When the REQ prompt is received after the program is loaded:  
 Enter: PRT
- The System Data Block will be output in the same format as it was input in the **DSYS Program**.

Example:

```

REQ  PRT
TOR  2359
DRT  DDMP
TEN  Y
ICP1 OFL
ICP2 OFL
ICP3 OFL
APG  NONE
etc.

```

- REQ will be prompted again once the printout is complete.  
 Enter: **DEL DEL CR** (to exit the program).

**TABLE 5-3**

**Procedure — Print System Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	PSYS	
- DISK LOADING -			
	REQ		1
- EXECUTE -			
	REQ		1

**NOTES:**

1. The only response possible is: PRT = Outputs System Data Block.
2. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

#### 4. System Data Block 2 (Table 5-4)

**4.01 The System Data Block (DSD2 Program)** contains miscellaneous data entries that apply to the system as a whole rather than to any individual station or trunk. Data is entered as follows:

**REQ (Request)**—Indicates that the program has loaded. Since data is always present, only the CHG response is possible.

**MD0 (ACD Master DN0)**—Assigns a "master number" to Distributed Hunt Group 0. Whenever this number is dialed, the calls will be distributed among the stations in the group.  
Enter: 1 ~ 4-digit number.

**MD1 (ACD Master DN1)**—Assigns a "master number" to Distributed Hunt Group 1. Whenever this number is dialed, the calls will be distributed among the stations in the group.  
Enter: 1 ~ 4-digit number.

**MD2 (ACD Master DN2)**—Assigns a "master number" to Distributed Hunt Group 2. Whenever this number is dialed, the calls will be distributed among the stations in the group.  
Enter: 1 ~ 4-digit number.

**MD3 (ACD Master DN3)**—Assigns a "master number" to Distributed Hunt Group 3. Whenever this number is dialed, the calls will be distributed among the stations in the group.  
Enter: 1 ~ 4-digit number.

**AHM (Lodging/Health Care)**—Identifies the system's mode of operation.  
Enter: Y (Lodging/Health Care).  
N (Business).

**NOS (Night Operator Station)**—Assigns the Night Mode answering destination for calls to an attendant console. Calls can be routed either directly to a designated station or voice directory number (1 ~ 4 digits), or to a UNA device.  
Enter: XXXX (Station or voice directory number [1 ~ 4 digits]).  
NONE (UNA).

**RTO (Transfer Recall Timeout)**—Assigns the length of time that the system will wait before

performing a transfer recall. A transfer recall occurs when a station transfers a call to another station which is not answered. This station will ring until the Ring No-Answer timeout period elapses (or, if the station is busy, until the Camp-on/Call Waiting timeout period elapses). After this time, the transferred call will return to the transferring station, where it will ring for the period designated by the Transfer Recall Timer, before it is directed to another destination (an attendant console, system UNA device, voice mail system, or alternative station). This final destination is assigned for each trunk, in response to the TRCL prompt in the **DTRK Program**.  
Enter: 1 ~ 255 seconds.

**NOTE:**

*If the system is to utilize a voice mail system, then it is recommended that the Transfer Recall Timer be set rather short so that voice mail will be activated promptly.*

**AEKT (Attendant-Position Electronic Telephone)**—Assigns an electronic telephone as an attendant position (up to eight per system). This assignment enables the electronic telephone to access several features that are normally associated only with attendant console access (e.g., Meet-me Page assignment and cancellation, system-wide call forward cancellation, and Remote Access Code assignment). Following the AEKT prompt, the system will prompt "D." Any port numbers that are entered, will be deleted. To add an entry, press the carriage return (CR) key. The system will then prompt "A" and any port numbers that are entered will be added.

Enter: D LNNX LNNX.

A LNNX LNNX.

(LNNX denotes the station port number of the electronic telephone that is to be assigned as an attendant position. Up to eight port numbers may be entered in any one line.)

**PEX (PERCEPTION<sub>ex</sub> Indication)**—Designates whether the system being utilized is a PERCEPTION<sub>ex</sub>.  
Enter: Y or N.

**TABLE 5-4**

**Procedure — System Data Block 2**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	DSD2	
<b>- DISK LOADING -</b>			
	REQ	CHG	
UCD ACD Master DN0 8 MEMBERS	MD0	1 ~ 4 Digits	1
" ACD Master DN1 "	MD1	1 ~ 4 Digits	1
" ACD Master DN2 "	MD2	1 ~ 4 Digits	1
" ACD Master DN3 "	MD3	1 ~ 4 Digits	1
" Lodging/Health Care ENDED	AHM	Y or N (N)	2
Night Operator Station	NOS	XXXX or NONE	3
Transfer Recall Timeout	RTO	1 ~ 255 seconds (30)	4
Attendant-Position Electronic Telephone VOICE MAIL APPLICATION	AEKT	LNNX, LNNX...	5 & 6
	D	LNNX, LNNX...	5 & 7
	A	LNNX, LNNX...	5, 8, & 9
PERCEPTION <sub>ex</sub>	PEX	Y or N	10

Default values are noted in parentheses ( ).

**NOTES:**

- XXXX = 1-, 2-, 3-, or 4-digit number.
- Y = Lodging/Health Care mode. N = Business mode.
- XXXX = The directory number to which dial 0 calls will go when the system is in night service.  
NONE = UNA.
- If a system utilizes a voice mail system, it is recommended that this timer be set rather short so that voice mail can be activated promptly.
- LNNX denotes the station port number of the electronic telephone that is to be assigned (or is to be added or deleted) as an attendant-position electronic telephone.
- Data which appears represents old entries. If no old data exists, then the system will respond with "NONE."
- "D" represents a deletion. Any port number that is entered in response to this prompt will be deleted as an attendant-position electronic telephone.
- "A" represents an addition. Any port number that is added in response to this prompt will be added as an attendant-position electronic telephone.
- Up to eight port numbers (eight electronic telephones) may be added or deleted in any one line. There is a maximum of eight attendant-position electronic telephones per system.
- Designates whether or not the system is a PERCEPTION<sub>ex</sub>.  
Y = PERCEPTION<sub>ex</sub>. N = PERCEPTION<sub>e</sub>.
- CTRL X** = Ignore line entered. **DEL** = Stop printing and return to REQ.  
**CTRL H** = Backspace. **DEL DEL** = Exit program.

TABLE 5-4 (continued)

Error Codes

Program Name: System Data Block 2 (DSD2)	
Error Code	Meaning
ERSY2 00	ACD Master DN conflicts with existing ACD Master DN.
ERSY2 03	The port that you are trying to delete does not exist.
ERSY2 04	The number of ports which have been entered exceeds the maximum amount of eight.
ERSY2 05	The entered port is already assigned as an attendant-position electronic telephone port.
ERSY2 06	The entered port is not an assigned electronic telephone port.
ERSY2 08	ATT#1 is assigned.

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**5. Print System Data Block 2 (Table 5-5)**

5.01 To use the Print System Data Block 2 (PSY2 Program):

- Perform the Authorization Procedure (Level 1, 2, or 3).  
 Enter: PSY2 (in response to the OK prompt).
- When the REQ prompt is received after the program is loaded:  
 Enter: PRT.

- The System Data Block 2 will be output in the same format as it was input in the **DSD2 Program**.
- REQ will be prompted again once the printout is complete.  
 Enter: **DEL DEL CR** (to exit the program).

**TABLE 5-5**

**Procedure — Print System Data Block 2**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	PSY2	
- DISK LOADING -			
	REQ		1
- EXECUTE -			
	REQ		1

**NOTES:**

1. The only response possible is: PRT = Outputs System Data Block 2.
2. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.



**CHAPTER 6**  
**FEATURE DATA**

**1. Access Code Data Block (Table 6-1)**

**1.01** The Access Code Data Block (**DACD Program**) assigns the dial access codes for feature execution. Data is entered as follows:

**REQ (Request)**—Indicates that the program has loaded. Since data is always present, only the CHG response is possible.

**FTR (Feature)**—

Enter: The 3- or 4-character feature abbreviation (see Table 6-1a), a space, and then the desired 1 ~ 3 digit access code. (See Table 6-1a for feature names and standard code assignments.)

**NOTE:**

*Default access codes are shown in Table 6-1a. Any feature that does not require a change, does not need to be entered. Features may be entered in any order.*

**TABLE 6-1**

**Procedure — Access Code Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	DACD	
— DISK LOADING —			
	REQ	CHG	
Feature?	FTR	Feature + [space] + 1 ~ 3 digits	1

**NOTES:**

1. a. In response to FTR, enter the feature abbreviation, followed by a space and its access code.  
 b. Features may be entered in any order, and any new access code will overwrite the existing one.  
 c. Any feature code which does not need to be changed, does not need to be entered.  
 d. The feature abbreviations and factory-assigned codes are listed in Table 6-1a.
2. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

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**TABLE 6-1a  
FEATURE ABBREVIATION AND CODE LIST**

FEATURE	ABB.	STD. CODE
Automatic Callback	ACB	*7
Automatic Callback Cancel	CBR	**7
Call Forward All Call (Station)	CFD	*9
Call Forward Busy (Station)	CFBY	#10
Call Forward No Answer (Station)	CFNA	#11
Call Forward Busy/No Answer (Station)	CFBD	#12
Call Forward Busy (System/DID)	CFSB	#13
Call Forward Busy/No Answer (System/DID)	CFSN	#14
Call Forward Cancel (Station)	CFR	**9
Call Forward – All Clear	CFAR	#18
Call Pickup Directed	PUD	*6
Call Pickup Group	PUG	*4
Hold-All Calls/Electronic Telephone Park	HLD	*3
Meet-me Page Zone #0	MMP0	110
Meet-me Page Zone #1	MMP1	111
Meet-me Page Zone #2	MMP2	112
Meet-me Page Zone #3	MMP3	113
Meet-me Page Zone #4	MMP4	114
Meet-me Page Zone #5	MMP5	115
Meet-me Page Zone #6	MMP6	116
Meet-me Page Zone #7	MMP7	117
Meet-me Page Zone #8	MMP8	118
Meet-me Page Zone #9	MMP9	119
Meet-me Page Zone #10	MMP10	120
Meet-me Page Zone #11	MMP11	121
Meet-me Page Zone #12	MMP12	122
Meet-me Page Zone #13	MMP13	123
Meet-me Page Zone #14	MMP14	124
Meet-me Page Zone #15	MMP15	125
Meet-me Page Cancel	MPC	150
Override	OVR	*0
Repeat Last Number Dialed	RND	#7
Call Waiting	CWT	#4

(continued)

**TABLE 6-1a (continued)**

FEATURE	ABB.	STD. CODE
Speed Dial-Station – Call	SDU	#3
Speed Dial-Station – Program	SDC	##3
Speed Dial-System – Call	SDS	#6
Universal Night Answer	UNA	*1
Charge Account	CRG	#9
Flash	FLH	*5
Internal Group Paging (selected group 1, 2 ~ 17)	PINT	151
Expanded Internal Group Paging (group 0)	PINA	152
External Paging (selected zone 0 ~ 4)	PEXT	153
External All Paging (zones 0 ~ 4)	PEXA	154
Hold – All Calls Retrieve	RTV	**3
Message Waiting All Clear	MAL	##5
Message Waiting Cancel	MCC	#5
Do Not Disturb	DND	#2
Do Not Disturb Cancel	DNC	##2
Remote Access to Services Authorization Code	RAC	**5
Least Cost Routing Access Code	LCR	##6 <small>DISC 2</small>
Day Destination Change Code	DIL	#*3
Automatic Wake-up Time Set/Cancel	AWU	#80
Message Registration Print – All	MRAA	#81
Message Registration Print – Directed	MRAN	#82
Message Registration Print – Stop	MRST	#83
Controlled Outgoing Restriction Set	CRS	#84
Controlled Outgoing Restriction Cancel	CRC	#85
Room Status Print – All	RSAA	#86
Room Status Print – Directed	RSAN	#87
Room Status Print – Stop	RSST	#88
Room Status Change	MIR	#00
Room Status – Maid-in-Room Set	MIRS	#01
Room Status – Maid-in-Room Cancel	MIRC	#02
Room Status – Maid-in-Room Cancel and Set Room Clean	RCLN	#03
Room-to-Room Block Set	RRS	#04
Room-to-Room Block Cancel	RRC	#05

*(continued)*

**TABLE 6-1a (continued)**

<b>FEATURE</b>	<b>ABB.</b>	<b>STD. CODE</b>
Room Status – Status 1 Set (Vacant/Clean)	<b>RSS1</b>	<b>*#1</b>
Room Status – Status 2 Set (Occupied/Clean)	<b>RSS2</b>	<b>*#2</b>
Room Status – Status 3 Set (Vacant/Needs Cleaning)	<b>RSS3</b>	<b>*#3</b>
Room Status – Status 4 Set (Occupied/Needs Cleaning)	<b>RSS4</b>	<b>*#4</b>
Room Status Set From 2 to 4	<b>RS24</b>	<b>*#5</b>
Room Status Set From 4 to 2	<b>RS42</b>	<b>*#6</b>
Display Deposit Paid	<b>DPP</b>	<b>*#7</b>
Set Deposit Paid	<b>SDPP</b>	<b>*#8</b>
Clear Deposit Paid	<b>CDPP</b>	<b>*#9</b>
Voice Message Set	<b>VMS</b>	<b>#15</b>
Voice Message Cancel	<b>VMN</b>	<b>#16</b>
Alphanumeric Message	<b>ANM</b>	<b>#17</b>
Night Operator Station	<b>NOS</b>	<b>*#4</b>

**Error Codes**

<b>Program Name: Access Code Data Block (DACD)</b>	
<b>Error Code</b>	<b>Meaning</b>
ERACC 00	The input access code conflicts with an existing access code.
ERACC 01	Invalid response (1 ~ 3 digits are allowed).
ERACC 02	Invalid response (7*5, 8#, etc. are not allowed).

**2. Print Access Code Data Block (Table 6-2)**

Example: REQ PRT  
 ACB \*7  
 CBR \*\*7  
 CFD \*9  
 CFR \*\*9  
 PUD \*6  
 etc.

**2.01 To use the Print Access Code Data Block (PACD Program):**

- Perform the Authorization Procedure (Level 1 or 2).  
 Enter: PACD (in response to the OK prompt).
- When the REQ prompt is received after the program is loaded:  
 Enter: PRT
- The Access Code Data Block will be output in the same format as it was input in the **DACD Program**.

- REQ will be prompted again once the printout is complete.  
 Enter: **DEL DEL CR** (to exit the program).

**TABLE 6-2**

**Procedure — Print Access Code Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	PACD	
- DISK LOADING -			
	REQ		1
- EXECUTE -			
	REQ		1

**NOTES:**

1. The only response possible is: PRT = Outputs Access Code Data Block.
2. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

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**3. Class of Service Data Block (Table 6-3)**

**3.01** The Class of Service Data Block (**DCOS Program**) defines the 16 Classes of Service that are available in the system. All features that are controlled by the COS are allowed to all stations unless they are restricted in this Data Block.

**3.02** The **DCOS Program** assigns a number (0 ~ 15) to each group of restrictions to be used. The number defined here is then entered in response to the COS prompt in the **DSTT**, **DEKT**, and **DTGP Programs**. Any numbers that are not entered or are otherwise defined will have no COS restrictions. Data is entered as follows:

**REQ (Request)**—Indicates that the program has loaded. The only response possible is CHG.

**COS (Class of Service)**—Defines the COS num-

ber (0 ~ 15) and the restrictions to be associated with it. The possible restrictions are listed in Table 6-3a.

Enter: COS number, followed by the restriction(s), in the following format: 3 T00 OVR ACO.

**NOTES:**

1. In this example, COS 3 will not allow access to Trunk Group 00, the Override feature, or the Attendant Control Override feature.
2. If Lodging/Health Care features are to be allowed in the COS, the code HRM must be entered. The result of this entry is the opposite of all other COS entries, since it allows rather than denies feature operation.

**COS**—Repeat for all COS entries.

**TABLE 6-3**

**Procedure — Class of Service Data Block DELETE TABLE**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	DCOS	
- DISK LOADING -			
	REQ	CHG	
	COS	0 AAA BBB etc.	1, 2, & 3
	COS	1 AAA BBB etc.	4
	COS	<b>DEL</b>	5
	REQ	Repeat program if necessary	

**NOTES:**

1. Enter a list of all features which are not allowed to this group. See Table 6-3a for a list of features and codes.
2. Default = All features allowed.
3. If Lodging/Health Care features are to be allowed in this COS, the code **HRM** must be entered. This entry enables rather than denies these features.
4. A maximum of 16 COS groups (0 ~ 15) is allowed.
5. The COS prompt will be repeated until **DEL** is entered, and then an **REQ** prompt will be given.
6. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to **REQ**.  
**DEL DEL** = Exit program.

**TABLE 6-3a**  
**CLASS OF SERVICE FEATURES AND CODES**

FEATURE	CODE
Trunk Group 0	T00
Trunk Group 1	T01
Trunk Group 2	T02
Trunk Group 3	T03
Trunk Group 4	T04
Trunk Group 5	T05
Trunk Group 6	T06
Trunk Group 7	T07
Trunk Group 8	T08
Trunk Group 9	T09
Trunk Group 10	T10
Trunk Group 11	T11
Trunk Group 12	T12
Trunk Group 13	T13
Trunk Group 14	T14
Trunk Group 15	T15
DDIU Group 0	D00
DDIU Group 1	D01
DDIU Group 2	D02
DDIU Group 3	D03
DDIU Group 4	D04
DDIU Group 5	D05
DDIU Group 6	D06
DDIU Group 7	D07
DDIU Group 8	D08
DDIU Group 9	D09
DDIU Group 10	D10
DDIU Group 11	D11
DDIU Group 12	D12
DDIU Group 13	D13
DDIU Group 14	D14
DDIU Group 15	D15

FEATURE	CODE
Automatic Callback	ACB
Call Forward (All Calls/Station)	CFD
Call Forward/Busy (Station)	CFBY
Call Forward/No Answer (Station)	CFNA
Call Forward Busy/No Answer (Station)	CFBD
Call Forward - Busy (DID)	CFSB
Call Forward - Busy/No Answer (DID)	CFSN
Call Pickup - Directed	PUD
Call Pickup - Group	PUG
Call Waiting	CWT
Override	OVR
Speed Dialing - System	SDS
Attendant Control Override	ACO
Internal Group Paging (Group 00)	PI00
Internal Group Paging (Group 02)	PI02
Internal Group Paging (Group 03)	PI03
Internal Group Paging (Group 04)	PI04
Internal Group Paging (Group 05)	PI05
Internal Group Paging (Group 06)	PI06
Internal Group Paging (Group 07)	PI07
Internal Group Paging (Group 08)	PI08
Internal Group Paging (Group 09)	PI09
Internal Group Paging (Group 10)	PI10
Internal Group Paging (Group 11)	PI11
Internal Group Paging (Group 12)	PI12
Internal Group Paging (Group 13)	PI13
Internal Group Paging (Group 14)	PI14
Internal Group Paging (Group 15)	PI15
Internal Group Paging (Group 16)	PI16
Internal Group Paging (Group 17)	PI17
Internal Group Paging (Groups 02 ~ 17)	PIA
External Zone Paging (Zone 0)	PE0

**REMEMBER to DELETE!**  
**(FROM C.O.S.)**

Lodging Feature Code ENABLE (continued)  
**(HRM)** enter to add.

**TABLE 6-3a (continued)**

FEATURE	CODE
External Zone Paging (Zone 1)	PE1
External Zone Paging (Zone 2)	PE2
External Zone Paging (Zone 3)	PE3
External Zone Paging (Zone 4)	PE4
External All Paging (Zones 0 ~ 4)	PEA

FEATURE	CODE
All Paging (Group 00, Zones 0 ~ 4)	PAL
Direct Trunk Access	DTA
LCR Class 1	LC1
LCR Class 2	LC2
LCR Class 3	LC3

~~DELETE ODE~~

**Error Codes**

Program Name: Class of Service Data Block (DCOS)	
Error Code	Meaning
ERCOS 01	Invalid Response (0 ~ 15 is allowed).



**4. Print Class of Service Data Block (Table 6-4)**

**4.01 To use the Print Class of Service Data Block (PCOS Program):**

- Perform the Authorization Procedure (Level 1, 2, or 3).  
 Enter: PCOS (in response to the OK prompt).
- When an REQ prompt is received after the program is loaded:  
 Enter: PRT.

- The COS Data Block will print out in the following format (see Table 6-3a for an explanation of feature codes):  
 COS NO.  
 COS0 AAA BBB CCC DDD EEE FFF GGG  
 HHH III JJJ KKK LLL  
 COS 1 (etc., up to 15)  
 REQ (this prompt will be given at the end of printout).  
 Enter: **DEL DEL CR** (to exit program).

**TABLE 6-4**

**Procedure — Print Class of Service Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	PCOS	
- DISK LOADING -			
	REQ		1
- EXECUTE -			
	REQ		1

**NOTES:**

1. The only response possible is: PRT = Outputs Class of Service Data Block.
2. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.



## CHAPTER 7

### ATTENDANT/STATION/DSS DATA

#### 1. Attendant Data Block (Table 7-1)

**1.01 The Attendant Data Block (DATT Program)** defines one or two attendant consoles in the system and selects the attendant options. Data is entered as follows:

**REQ (Request)**—Indicates that the program has loaded. Three responses are possible:

- NEW—To create a new Data Block.
- CHG—To alter an existing Data Block.
- OUT—To delete an existing Data Block.

**ANO (Attendant Number)**—Selects the console that is to be assigned.

Enter: 0 or 1.

**POR (Port Number)**—Selects the port that is to be occupied by the console.

- Enter: For PERCEPTION<sub>e</sub>—L001 for Attendant Console #0  
L151 for Attendant Console #1.  
For PERCEPTION<sub>ex</sub>—L001 for Attendant Console #0.  
L011 for Attendant Console #1.

**LKO (Lockout Allowed?)**—A "Y" response will enable the lockout feature, and will not allow the attendant to re-enter a held **LPK** button conference.

Enter: Y or N.

**PAG (Page Button)**—Assigns the console **PAGE** button to access either the Expanded Internal Paging Group (Group 0), one or all external paging zones, or the Expanded Internal Paging Group and all external paging zones. Options that are not assigned to the feature access button may still be accessed by dialing a paging access code.

Enter one of the following:

- INT—Expanded Internal Group Paging (Group 0).
- EXT—External All Paging (Zones 0 ~ 4).
- N—External Paging to Zone N (0 ~ 4).
- ALL—Expanded Internal Group Paging and

External All Paging.  
NONE—No Internal or External Paging Access.

**PRI (Incoming Call Priority)**—A "Y" response will direct all calls to the attendant console according to the priority defined by the PR1 ~ PR5 prompts. An "N" response will direct all calls to the attendant console on a first-in/first-out priority basis.

Enter: Y or N.

**PR1 ~ 5 (Priority 1 ~ 5, Current)**—A "Y" response to the PRI prompt will print the current priority tables.

**PR1 ~ 5 (Priority 1 ~ 5, Set)**—Defines the incoming call priority. The possible types of calls are: CO, FX, TIE, WAT, OPR, RCL, HLD, TIM, LN1, LN2, INT, SER (Business mode only).

Enter: NN or NNN (type of call).

**NOTE:**

*There is no program provided to print out the Attendant Data Block.*

**TABLE 7-1**

**Procedure — Attendant Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	DATT	
<b>— DISK LOADING —</b>			
	REQ	NEW, CHG, OUT	
Attendant Number	ANO	0 or 1	
Port Number	POR	PERCEPTION <sub>e</sub> : L001 (ATT0) or L151 (ATT1) PERCEPTION <sub>ex</sub> : L001 (ATT0) or L011 (ATT1)	
Lockout Allowed?	LKO	Y or N	
Page Button	PAG	INT, EXT, N, ALL, or NONE	1
Incoming Call Priority	PRI	Y or N	2
Priority Group 1 (Current)	PR1	Printout of Current Priority Group	3
Priority Group 2 (Current)	PR2	Printout of Current Priority Group	3
Priority Group 3 (Current)	PR3	Printout of Current Priority Group	3
Priority Group 4 (Current)	PR4	Printout of Current Priority Group	3
Priority Group 5 (Current)	PR5	Printout of Current Priority Group	3
Priority Group 1 (Set)	PR1	NNN NNN NNN NNN NNN	4
Priority Group 2 (Set)	PR2	NNN NNN NNN NNN NNN	4
Priority Group 3 (Set)	PR3	NNN NNN NNN NNN NNN	4
Priority Group 4 (Set)	PR4	NNN NNN NNN NNN NNN	4
Priority Group 5 (Set)	PR5	NNN NNN NNN NNN NNN	4

**NOTES:**

NO PRINTOUT FOR ATT. DATA BLK.

- Designates the specific kind of paging accessed by the **PAGE** button.
  - INT = Expanded Internal Group Paging (Group 0).
  - EXT = External All Paging (Zones 0 ~ 4).
  - N = External Paging to Zone N (0 ~ 4).
  - ALL = Expanded Internal Group Paging and External All Paging.
  - NONE = No Internal or External Paging Access.
- If "Y" (yes) is entered, all calls will be directed to the attendant console according to the priority defined by the PR1 ~ PR5 prompts. If "N" (no) is entered, all calls will be directed to the attendant console on a first in/first out priority basis.
- If "Incoming Call Priority" is selected (PRI = Y), the current priority table (PR1 ~ PR5) will be called up and printed.
- Used to change the "Incoming Call Priority" tables (PR1 ~ PR5). NNN = Type of call (CO, FX, TIE, WAT, OPR, RCL, HLD, TIM, LN1, LN2, INT, SER [Business mode only]).
- CTRL X** = Ignore line entered.
  - CTRL H** = Backspace.
  - DEL** = Stop printing and return to REQ.
  - DEL DEL** = Exit program.

**TABLE 7-1 (continued)**  
**Error Codes**

<b>Program Name: Attendant Data Block (DATT)</b>	
<b>Error Code</b>	<b>Meaning</b>
ERATT 00	A PCB is not equipped in that location.
ERATT 01	The PCB is not an NEKU type.
ERATT 02	The port is busy.
ERATT 03	The port is already assigned to a station or DDIU (REQ = NEW).
ERATT 04	The port is not yet assigned (REQ = CHG, OUT).
ERATT 05	Invalid port number.
ERATT 06	The entered access code is not assigned to a paging zone or group.
ERATT 08	Input data was erased because the program was aborted during NEW data entry.
ERATT 09	Attendant data is not assigned to the input port (REQ = CHG, OUT).
ERATT 10	The trunk group is already in this priority group.
ERATT 11	This is not a valid entry.
ERATT 12	The port is already assigned to a DSS console.
ERATT 13	The port is already assigned to a trunk.

**NOTE:**  
*There is no program to print out the Attendant Data Block.*

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**2. Electronic Telephone Data Block (Table 7-2)**

**2.01** The Electronic Telephone Data Block (**DEKT Program**) defines all parameters for each electronic telephone. A separate Electronic Telephone Data Block must be completed for each electronic telephone in the system. Data is entered as follows:

**REQ (Request)**—Indicates that the program has loaded. Three responses are possible:  
**NEW**—To create a new Data Block.  
**CHG**—To alter an existing Data Block.  
**OUT**—To delete an existing Data Block.

**POR (Port Number)**—Identifies the hardware location of the electronic telephone circuit that is to be defined. The port number has two parts:

1) NEKU PCB location:  
**PERCEPTION<sub>e</sub>**—L00 ~ L11/L15 ~ L26 (NN).  
**PERCEPTION<sub>ex</sub>**—L00 ~ L31 (NN).

2) Circuit number on that PCB: 1 ~ 8 (X).  
Example: The port number of the 4th circuit on the NEKU in position L01 is L014.

Enter: Port number of the electronic telephone (LNNX).

**NOTES:**

1. If the **OUT** command was given above, the port just defined will be deleted and the next prompt will be **REQ**.
2. Port L318 cannot be assigned.

**KS (Number of Button Strips)**—Informs the system of the number of feature buttons (groups of ten) that the electronic telephone will have.  
Enter: 1 (for 10-button) or 2 (for 20-button).

**COS (Class of Service)**—Assigns one of the 16 Classes of Service to the electronic telephone. (Classes of Service are defined in the **DCOS Program**.)  
Enter: COS Number (0 ~ 15).

**TEN (Tenant Number)**—Assigns the electronic telephone to one of two possible tenants in the system.  
Enter: 0 if tenant service is not selected in the

**DSYS Program** (TEN = N).  
0 or 1 to indicate the specific tenant if tenant service is selected in the **DSYS Program** (TEN = Y).

**PUG (Call Pickup Group)**—Assigns the electronic telephone to one of the 32 possible Call Pickup groups.  
Enter: Group number (0 ~ 31) or NONE.

**WTA (Warning Tone Allowed?)**—Defines an interruption-protected station. An "N" response will prevent warning tones from being applied to the station. (CWT cannot be assigned if N is entered.)  
Enter: Y or N.

**CFT (Call Forward to Trunk)**—Permits calls to this station to be forwarded over a trunk to an outside directory number (maximum: 16 digits).  
Enter: Y or N.

**TOL (Toll Restricted Class)**—Assigns one of the ten classes of Toll Restriction to the electronic telephone. Classes 0 ~ 7 are defined in the Toll Restriction Data Block (**DTOL Program**). Class 8 is simple toll restriction, restricting when 0 or 1 is dialed as the first digit. NONE defines the electronic telephone as unrestricted.  
Enter: 0 ~ 8 or NONE.

**MTA (Not Used):**  
Enter: N.

**HFA (Handsfree Answerback Equipped)**—A "Y" response activates the Handsfree Answerback and voice-announce capability of this electronic telephone.  
Enter: Y or N.

**DIS (Display Electronic Telephone)**—A "1" or "2" response activates the LCD display on the electronic telephone (maximum display electronic telephones in the system may equal the total number of allowable stations).  
Enter: 1, 2, or NONE.  
1 = 2000 series LCD Electronic Telephone  
2 = 6000 series LCD Electronic Telephone

NONE = Not an LCD Electronic Telephone.)

**PAG (Paging Group)**—Assigns the station to up to four internal paging groups (L, M, N, O, where L, M, N, and O represent separate paging group numbers 0, 2 ~ 17) or to no paging groups (NONE).

Enter: 0, 2 ~ 17 or NONE.

**RDS (Emergency Ringdown Station)**—Indicates the destination for an emergency signal (continuous ringing) when a station goes off-hook, but does not complete dialing a valid number before the Line Lockout Timeout period elapses. The destination can be programmed as either a specific station, an attendant, or the system UNA device. The designation of an Emergency Ringdown Station is particularly important in Lodging/Health Care applications.

Enter: XXXX = 1 ~ 4-digit station number.

ATT0 = Attendant 0.

ATT1 = Attendant 1.

UNA = System UNA.

NONE = No designation of Emergency Ringdown Station.

**KEY (Button Assignments)**—Assigns a DN or feature to one of the flexible buttons.

Enter:

1) The number of the button to be defined, followed by a space bar. Buttons are numbered 0 ~ 9 (or 19 for a 20-button electronic telephone), starting from the bottom of the vertical button strip (the four buttons below the dialpad have fixed assignments). Following the button number and space, any existing button data will be output.

2) Feature or DN assignments. The possible assignments are as follows:

Directory (Station) Number (1, 2, 3, or 4 digits):

SCR NNNN XXXX—Single Call Ring

- Incoming calls will audibly ring this station.
- NNNN = Directory (Station) Number.
- XXXX = Hunt number. Enter either the DN to which this DN will hunt or the code for distributed hunt (see below).

SCN NNNN XXXX—Single Call, No Ring

- Incoming calls will not audibly ring this station (LED flash only).
- NNNN = Directory Number.
- XXXX = Hunt number. Enter either the DN to which this DN will hunt or the code for distributed hunt (see below).

Station Hunt—Distributed:

- #X is entered in place of the hunt number above. For example: SCR NNN #X.  
X = Distributed Hunt Group Number (0 ~ 3). Maximum: 8 stations per group.

Data Directory Number Button Assignment:

- DIU LNNX—Data Port Assignment.
- Incoming data calls will audibly ring the electronic telephone.
- NN = PCB location for NDCU or NMDU PCB.
- X = circuit number.
- An electronic telephone/DDIU-MAT combination will use two station ports—one DEKU port and one NDCU or NMDU port. This Data (DN) button entry assigns a data port to an electronic telephone port.

**NOTE:**

*The Data DN is assigned when the data port is assigned (see DDIU Data Block). This must be done before assigning a data port number to an electronic telephone.*

DRS Data Release—Private CO Lines:

PVR XXX—Private Line Ring

- Incoming calls will audibly ring this station.
- XXX = Trunk Directory Number assigned in Trunk Data Block.

**NOTE:**

**DRS** buttons are used to cause the DDIU-MAT to go back on-hook.

PVN XXX—Private Line No Ring

- Incoming calls will not audibly ring this station (LED flash only).
- XXX = TDN assigned in Trunk Data Block.

Features:

CRG—Account Number (SMDR)

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MES—Alphanumeric Message  
ACB—Automatic Callback  
ADL—Automatic Dialing  
FAD XXX—Fixed Automatic Dialing  
CFD—Call Forward  
CFBY—Call Forward - Busy  
CFBD—Call Forward - Busy/No Answer  
CFNA—Call Forward - No Answer  
CFSB—Call Forward - Busy (System/DID)  
CFSN—Call Forward - Busy/No Answer (System/DID)  
PUD—Call Pickup - Directed  
PUG—Call Pickup Group  
CWT—Call Waiting  
DND—Do Not Disturb  
DIS—Display Date & Time/Elapsed Time  
FLH—Flash (a 500 ms or 1 second flash on a CO trunk)  
HNG XX—Hundreds Group  
SIG LNNX—Manual Signaling (LNNX = port number of electronic telephone to be signaled).  
MSG—Message Waiting  
OVR—Override

PEXT—External Paging  
PINT—Internal Paging  
PARK—Call Park  
PRS—Privacy Release  
RLS—Release  
RND—Repeat Last Number Dialed  
SCF—Speaker Cut-off  
SDS—Speed Dial - System  
SDC XX—Speed Dial - Station (controller of list XX; XX = 1 ~ 50).  
SDU XX—Speed Dial - Station (user of list XX; XX = 1 ~ 50).  
SSM—Station-to-Station Message  
SYS—System Night Operation (an **SYS** button can be assigned to one attendant-position electronic telephone or DSS console per tenant if an attendant console is not assigned to that tenant).  
UNA—Universal Night Answer  
VCP XXXX—Voice Page (XXXX = DN to be paged).

**KEY**—The prompt will be repeated until all entries have been made and the **DEL** key is pressed.



TABLE 7-2

**Procedure — Electronic Telephone Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	DEKT	
- DISK LOADING -			
	REQ	NEW, CHG, OUT	
Port Number	POR	LNNX	1 & 2
Number of Button Strips	KS	1 or 2	3
Class of Service Group	COS	0 ~ 15	4
Tenant Number	TEN	0 or 1	
Call Pickup Group	PUG	0 ~ 31 or NONE	5
Warning Tone Allowed?	WTA	Y or N	
Call Forward to Trunk	CFT	Y or N	
Toll Restricted Class	TOL	0 ~ 8 or NONE	6
Not Used	MTA	N	
Handsfree Answerback Equipped?	HFA	Y or N	
Display Electronic Telephone	DIS	1, 2, or NONE	7
Paging Group	PAG	L, M, N, O, or NONE	8
Emergency Ringdown Station	RDS	1 ~ 4 digits, ATT0, ATT1, UNA, or NONE (NONE)	
Button Assignments (10-button)	KEY	0 ~ 9 [space] Feature	9 ~ 11
Button Assignments (20-button)	KEY	0 ~ 19 [space] Feature	9 ~ 11

**NOTES:**

1. NN = PCB location.
2. X = circuit number.
3. 1 = 10-button electronic telephone. 2 = 20-button electronic telephone.
4. There are 16 different COS groups, which are defined in the Class of Service Data Block.
5. There is a maximum of 32 Call Pickup Groups.
6. Classes 0 ~ 7 are defined in the Toll Restriction Data Block (DTOL Program). Class 8 = Dial 0 or 1 restriction. NONE = No Toll Restriction.
7. 1 = 2000 series LCD. 2 = 6000 series LCD. NONE = Not an LCD.
8. X, M, N, and O represent the four possible paging groups to which an electronic telephone can belong (0, 2 ~ 17). NONE indicates that an electronic telephone does not belong to any paging group. There is a maximum of 32 electronic telephone members for groups 2 ~ 17 and a maximum of 96 for group 0.
9. Enter button number followed by a space and then the entry. Button 0 must be the station's primary DN. See Table 7-2a for possible entries.
10. Button numbers may be entered in any order. The KEY prompt will be repeated until DEL is entered.
11. If KS was 1, 0 ~ 9 will be allowed. If KS was 2, 0 ~ 19 will be allowed.
12. CTRL X = Ignore line entered.  
CTRL H = Backspace.  
DEL = Stop printing and return to REQ.  
DEL DEL = Exit program.

**TABLE 7-2a  
ELECTRONIC TELEPHONE BUTTON ASSIGNMENTS**

DIRECTORY NUMBER	ENTRY	NOTE
Single Call Ring	SCR NNNN XXXX	1
Single Call No Ring	SCN NNNN XXXX	1
Station Hunt Distributed	#X	2

DATA DIRECTORY NUMBER	ENTRY	NOTE
Data Port Number	DIU LNNX	3
Data Release	DRS	

PRIVATE CO LINE	ENTRY	NOTE
Private Line Ring	PVR XXX	4
Private Line No Ring	PVN XXX	4

FEATURE	ENTRY	NOTE
Account Number (SMDR)	CRG	
Alphanumeric Message	MES	
Automatic Callback	ACB	
Automatic Dialing	ADL	5
Automatic Dialing (Fixed)	FAD XXX	6
Call Forward – All Calls	CFD	
Call Forward – Busy	CFBY	
Call Forward – Busy/No Answer	CFBD	
Call Forward – No Answer	CFNA	
Call Forward – Busy (System/DID)	CFSB	
Call Forward – Busy/No Answer (System/DID)	CFSN	
Call Pickup Directed	PUD	
Call Pickup Group	PUG	
Call Waiting	CWT	
Display Date and Time/Elapsed Time	DIS	7
Do Not Disturb	DND	
Flash	FLH	8
Hundreds Group	HNG XX	9
Manual Signaling	SIG LNNX	10
Message Waiting	MSG	

(continued)

TABLE 7-2a (continued)

FEATURE	ENTRY	NOTE
Override	OVR	
Paging, External	PEXT	11
Paging, Internal	PINT	12
Call Park	PARK	
Privacy Release	PRS	
Release	RLS	
Repeat Last Number Dialed	RND	
Speaker Cut-off	SCF	
Speed Dial – System	SDS	
Speed Dial – Station (Controller)	SDC XX	13
Speed Dial – Station (User)	SDU XX	13
Station-to-Station Message	SSM	
System Night Operation	SYS	14
Universal Night Answer	UNA	
Voice Page	VCP XXXX	15

**NOTES:**

1. NNNN = Directory Number: 1-, 2-, 3-, or 4-digit DNs are allowed if there is no conflict (e.g, 30X cannot be used if 30 is already being used).  
XXXX = Hunt DN to remove the present DN. Enter NONE. (Also see Station Hunt-Distributed.)
2. Following electronic telephone DN assignment, enter # in place of the usual hunt DN.  
X = Distributed Hunt Group Number (0 ~ 3).
3. NN = PCB location for the NDCU or NDMU PCB.  
X = Circuit Number.
4. XXX = Trunk Directory Number (assigned in Trunk Data Block).
5. There is a maximum of 500 Autodial (ADU) buttons per system.
6. XXX = Fixed digits to be dialed (maximum: 16 digits/\* = pause).
7. This feature can only be assigned to 2000-series LCD electronic telephones.
8. The Flash button causes a 500 ms or a 1-second flash to a CO trunk.
9. XX = Leading one or two digits (1 ~ 9) designating the Hundreds Group to be activated on an associated DSS console (switched operation only).
10. LNNX = The port number of the electronic telephone to be signaled.
11. External Paging is used to access External Paging Zones (0 ~ 4).
12. Internal Paging is used to access Internal Paging Groups (0, 2 ~ 17).
13. SDC XX makes the station a controller of Station Speed Dial list XX (XX = 01 ~ 50).  
SDU XX makes the station a user of Station Speed Dial list XX (XX = 01 ~ 50).
14. A System Night Button (SYS) can be assigned to one attendant-position electronic telephone per tenant if an attendant console is not assigned to that tenant.
15. XXXX = The DN of the station that is to receive a Voice Page.
16. CTRL X = Ignore line entered.  
CTRL H = Backspace.  
DEL = Stop printing and return to REQ.  
DEL DEL = Exit program.

**TABLE 7-2 (continued)**  
**Error Codes**

<b>Program Name: Electronic Telephone Data Block (DEKT)</b>	
<b>Error Code</b>	<b>Meaning</b>
EREKT 00	A PCB is not equipped in that location.
EREKT 01	The PCB is an NSTU type (not NEKU).
EREKT 02	The port is busy (REQ = CHG or OUT).
EREKT 03	The port is already assigned to a station, DSS console, or DDIU (REQ = NEW).
EREKT 04	1 was entered, but tenant service was not enabled in the System Data Block.
EREKT 05	1 was entered, but Attendant 1 was not programmed (no Attendant Data Block).
EREKT 06	Wrong button number (over permitted button strip number).
EREKT 07	Assigned port LNNX is not assigned as a station port (Manual Signaling).
EREKT 08	The maximum number of <b>ADL</b> buttons is already assigned (maximum: 500).
EREKT 09	PUG was entered, but a Call Pickup Group number is not assigned.
EREKT 10	The DN conflicts with existing DN.
EREKT 11	512 DNs are already assigned in the system.
EREKT 12	The DN is already assigned to its maximum number of appearances (Primary is 1, Secondary is 95).
EREKT 13	"Call Pickup Group number = NONE" was entered, but <b>PUG</b> button is already assigned.
EREKT 14	The next hunt DN is not assigned.
EREKT 16	A DN has already been assigned to the port.
EREKT 17	The input data was erased because the program was aborted during a NEW data entry.
EREKT 18	The port is not assigned.
EREKT 19	The port is assigned to an NSTU PCB.
EREKT 20	The SDC is already assigned to this Speed Dial.
EREKT 21	The input port is not an NEKU port (SIG LNNX).
EREKT 22	PVR NNN/PVN NNN is entered, but trunk DN NNN has not been assigned.
EREKT 23	The input DN is a trunk DN (VCP NNN Hunt DN).
EREKT 24	Eight DNs have already been assigned to the Distributed Hunt Group.
EREKT 26	The input port conflicts with the electronic telephone's port (KEY x DIU LNNX).
EREKT 28	Autodial (ADL) digits exceed the maximum of 16.
EREKT 30	The input port is not an NDCU port (KEY x DIU LNNX).
EREKT 31	The <b>DIU</b> button is already assigned to another button.

(continued)

**TABLE 7-2 (continued)  
Error Codes**

<b>Program Name: Electronic Telephone Data Block (DEKT)</b>	
<b>Error Code</b>	<b>Meaning</b>
EREKT 32	The associated DIU is busy.
EREKT 33	MES is set but the station is not DIS = 2.
EREKT 34	DIS was entered, but DIS does not equal 1.
EREKT 40	The SYS button is already assigned in this tenant.
EREKT 41	More than two digits were entered as station HNG XX.
EREKT 42	The Paging Group number is out of range. It should be 0 or 2 ~ 17.
EREKT 43	The group to be assigned is already full (maximum member number of each Group 2 ~ 17 is 32; maximum member number of Group 0 is 96).
EREKT 44	The same Group number was entered twice.
EREKT 45	More than 4 (maximum) Paging Groups have been entered.
EREKT 47	The electronic telephone's assigned DSS console must be deleted before the telephone can be deleted.
EREKT 48	The SYS button cannot be set because the station is not an attendant-position electronic telephone (DSD2 Data Block).
EREKT 49	The port is already assigned to a trunk.

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**3. Standard Telephone Data Block (Table 7-3)**

**3.01** The Standard Telephone Data Block (**DSTT Program**) defines all parameters for a given standard telephone. One Data Block must be completed for each standard telephone in the system. Data is entered as follows:

**REQ (Request)**—Indicates that the program has loaded. Three responses are possible:  
NEW—To create a new Data Block.  
CHG—To alter an existing Data Block.  
OUT—To delete an existing Data Block.

**NOTE:**  
*If OUT is entered, then only the port number (POR) needs to be entered below. No other entry is necessary.*

**POR (Port Number)**—Identifies the hardware location of the STT circuit that is to be defined. The port number has two parts:

- 1) NSTU PCB location:  
PERCEPTION<sub>e</sub>—L00 ~ L11/L15 ~ L26 (NN).  
PERCEPTION<sub>ex</sub>—L00 ~ L31 (NN).
- 2) Circuit number on that PCB: 1 ~ 8 (X).  
For example: The port number of the fifth circuit on the NSTU in position L02 is L025.  
Enter: Port Number of station (LNNX).

- NOTES:**
1. *If the OUT command was given above, the port just defined will be deleted and the next prompt will be REQ.*
  2. *Port L318 cannot be assigned.*

**DN (Directory Number)**—Defines the directory number (station number) of the station.  
Enter: DN (1, 2, 3, or 4 digits).

**SMX (Station Set Mix)**—When the DN that was entered after the DN prompt is also programmed on an electronic telephone, bridging is possible between the two telephones.  
Enter: Y (bridging is automatically established without a warning tone—i.e., no privacy.) or...  
N (bridging is not allowed—privacy exists with an LED indication).

**NOTE:**  
*If the DN does not have Station Set Mix, enter "N."*

**COS (Class of Group Services)**—Assigns one of the 16 available Classes of Service to the telephone. (The Classes of Services are defined in the **DCOS Program**.)  
Enter: COS Number 0 ~ 15).

**TEN (Tenant Number)**—Assigns the station to one of the two possible tenants in the system.  
Enter: 0 if tenant service is not selected in the System Data Block.  
(TEN= N).  
0 or 1 to specify tenant, if tenant service is selected in the System Data Block.  
(TEN = Y).

**PUG (Call Pickup Group)**—Assigns the station to one of the 32 possible pickup groups.  
Enter: Group number (0 ~ 31) or NONE.

**HNT (Hunt Number)**—Defines the station to which this DN hunts.  
Enter: Next DN in hunt group (1 ~ 4 digits).  
For Station Hunt-Distributed: #X.  
(X = Distributed hunt group number, [0 ~ 3]; Maximum: 8 stations per group).  
NONE: No hunt group assignment.

**DLG (Dialing Type)**—Defines the type of dialing, if any, to be used by the station.  
Enter: DIP for dial pulse.  
TON for DTMF.  
MNL XXXX for Manual Line to attendant or a DN.  
(XXXX = ATT0, ATT1, or DN [1 ~ 4 digits]).

**SDL (Speed Dial List)**—Assigns one of the 50, 10-number speed dial lists for use at this station.  
Enter: SDC XX—Makes the station a controller of list number XX  
(XX = 1 ~ 50).  
SDU XX—Makes the station a user of list number XX  
(XX = 1 ~ 50).  
NONE—No list assigned.

**WTA (Warning Tone Allowed?)**—Defines an interruption-protected station. An "N" response will prevent warning tones from being applied to the station.

Enter: Y or N.

**CFT (Call Forward to Trunk)**—Permits calls to this station to be forwarded over a trunk to an outside directory number (maximum: 16 digits).

Enter: Y or N.

**TOL (Toll Restriction Class)**—Assigns one of the ten Toll Restriction classes to the station. Classes 0 ~ 7 are defined in the Toll Restriction Data Block (**DTOL Program**). Class 8 is simple toll restriction; restricting either 0 or 1 as the first digit. NONE defines the station as unrestricted.

Enter: 0 ~ 8 or NONE.

**MWL (Message Waiting Lamp)**—Defines a station that is equipped with a Message Waiting Lamp.

Enter: Y or N.

**RDS (Emergency Ringdown Station)**—Indicates the destination for an emergency signal (continuous ringing) when a station goes off-hook, but does not complete dialing a valid number before the Line Lockout Timeout period elapses. The destination can be programmed as either a specific station, an attendant, or the system UNA device. The designation of an Emergency Ringdown Station is particularly important in Lodging/Health Care applications.

Enter: XXXX = 1 ~ 4-digit station number.

ATT0 = Attendant 0.

ATT1 = Attendant 1.

UNA = System UNA.

NONE = No designation of Emergency Ringdown Station.

**TABLE 7-3**

**Procedure — Standard Telephone Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	DSTT	
- DISK LOADING -			
	REQ	NEW, CHG, OUT	
Port Number	POR	LNNX	1 & 2
Directory Number	DN	1 ~ 4 digits	3
Station Mix <small>MONITOR FEAT</small>	SMX	Y or N	
Class of Service	COS	0 ~ 15	4
Tenant Number	TEN	0 or 1	
Call Pickup Group	PUG	0 ~ 31 or NONE	5
Hunt number	HNT	1 ~ 4 digits, #X, or NONE	6
Dialing Type	DLG	DIP, TON, MNL XXXX	7
Speed Dial List	SDL	SDC XX, SDU XX, or NONE	8
Warning Tone Allowed?	WTA	Y or N	9
Call Forward to Trunk	CFT	Y or N	
Toll Restriction Class	TOL	0 ~ 8 or NONE	10
Message Waiting Lamp	MWL	Y or N	
Emergency Ringdown Station	RDS	1 ~ 4 digits, ATT0, ATT1, UNA, or NONE (NONE)	
	REQ	Repeat program, if necessary	

Default values are noted in parentheses ( ).

**NOTES:**

1. NN = PCB location.
2. X = Circuit number.
3. 4-, 3-, 2-, or 1- digit DNs are allowed if there is no conflict; (e.g., 30X is not allowed if 30 is used).
4. There are 16 different COS groups which are defined in the DCOS Data Block.
5. There is a maximum of 32 Call Pickup Groups.
6. The number to which this DN hunts.  
#X = Station Hunt-Distributed.  
X = Distributed hunt group number (0 ~ 3). Maximum 8 members per group.  
NONE = No hunt.
7. DIP = Dial Pulse. TON = DTMF. MNL XXXX = Manual Line Direct to DN (1 ~ 4 digits), ATT 0, or ATT1.
8. SDC XX makes the station a controller of Station Speed Dial List XX (XX = 01 ~ 50).  
SDU XX makes the station a user of Station Speed Dial List XX (XX = 01 ~ 50).
9. Y = Warning tones applied (Call Waiting feature activated). #4  
N = No Warning tones applied (Camp-on feature activated). USE FOR DATA
10. Classes 0 ~ 7 are defined in the Toll Restriction Data Block (DTOL Program).  
Class 8 = Dial 0 or 1 restriction.  
NONE = No Toll Restriction.
12. CTRL X = Ignore line entered.  
CTRL H = Backspace.  
DEL = Stop printing and return to REQ.  
DEL DEL = Exit program.



**TABLE 7-3 (continued)**

**Error Codes**

<b>Program Name: Standard Telephone Data block (DSTT)</b>	
<b>Error Code</b>	<b>Meaning</b>
ERSTA 00	No PCB is equipped at that location.
ERSTA 01	The PCB is an NEKU type (not an NSTU).
ERSTA 02	Port is busy (REQ = CHG, OUT).
ERSTA 03	Port is already assigned to a station, DSS console, or DDIU.
ERSTA 05	1 was entered, but tenant service was not enabled in the System Data Block.
ERSTA 06	1 was entered, but ATT #1 was not programmed (no Attendant Data Block).
ERSTA 09	Unknown input.
ERSTA 10	DN conflicts with existing DN.
ERSTA 11	512 DNs are already assigned in the system.
ERSTA 12	DN is already assigned to the maximum number of appearances (96).
ERSTA 13	Hot Line DN does not exist.
ERSTA 14	Next Hunt DN does not exist.
ERSTA 17	MNL 0 was entered, but ATT0 is not equipped.
ERSTA 18	MNL 1 was entered, but ATT1 is not equipped.
ERSTA 19	MNL 0 was entered, but this station is in tenant group #1.
ERSTA 20	MNL 0 was entered, but this station is in tenant group #2.
ERSTA 21	Input data was erased because the program was aborted during NEW data entry.
ERSTA 22	The port is not assigned.
ERSTA 23	Another type of data (electronic telephone, etc.) is assigned to the input port.
ERSTA 24	SDC is already assigned to the input list.
ERSTA 25	The next input hunt DN is a trunk DN.
ERSTA 26	The Distributed Hunt Group is already assigned its maximum member number (8).
ERSTA 27	Invalid Toll Class Number (0 ~ 8).
ERSTA 28	The first digit does not match with RM PFX or the second digit conflicts with another DN or access code.
ERSTA 29	The port is already assigned to a trunk.

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**4. Print Station Data Block (Table 7-4)**

**4.01 To use the Print Station Data Block (PSDB Program):**

- Perform the Authorization Procedure (Level 1, 2, or 3).  
 Enter: PSDB (in response to the OK prompt).
- After the program is loaded and the REQ prompt is received, enter one of the following commands:

**PORALL**—All electronic telephone and station Data Blocks will be output in numerical order of port numbers (lowest number first).

**PORNNX**—The Data Block for port NNX will be output (NNX = port number without L).

**PORVAC**—A list of all unassigned ports will be output.

**DNALL**—All electronic telephone and station Data Blocks will be output in numerical order of DN (lowest to highest). For electronic telephones, the prime DN will be used.

**DNXXXX**—The Data Block for DN XXXX will be output. If it is a multiple appearance DN, then all Data Blocks in which it appears will be output.

**EKTALL**—All electronic telephone Data Blocks will be output in order of prime DN (lowest first).

**STTALL**—All STT Data blocks will be output in order of DN (lowest first). The output format will be the same as the input format in the DEKT and DSTT data input programs.

**TABLE 7-4**

**Procedure — Print Station Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	PSDB	
- DISK LOADING -			
	REQ		1
- EXECUTE -			
	REQ		1

**NOTES:**

1. The following responses are possible:

- PORALL** = Outputs all Station Data Blocks in numerical order of ports (lowest first).
- PORNNX** = Outputs port NNX data.
- PORVAC** = Outputs a list of all unassigned ports.
- DNALL** = Outputs all Station Data Blocks in numerical order (lowest first) by DN (prime DN for electronic telephones).
- DNXXXX** = Outputs DNXXXX data. If it is a multiple appearance DN, then all Data Blocks in which it appears will be output.
- EKTALL** = Outputs all electronic telephone Data Blocks in order of prime DN (lowest first).
- STTALL** = Outputs all Standard Telephone Data Blocks in order of DN (lowest first).

- 2. **CTRL X** = Ignore line entered.
- CTRL H** = Backspace.
- DEL** = Stop printing and return to REQ.
- DEL DEL** = Exit program.

**TABLE 7-4  
Error Codes**

<b>Program Name: Print Station Data Block (PSDB)</b>	
<b>Error Code</b>	<b>Meaning</b>
ERPST 00	The input PCB number or circuit number is out of range.
ERPST 01	The input DN does not exist.
ERPST 02	The input port is not assigned to an electronic or a 500/2500 type telephone.
ERPST 03	A manual signaling port does not exist.
ERPST 04	The input DN is not assigned to an electronic telephone or to a 500/2500-type telephone.

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**5. Print Call Pickup Groups (Table 7-5)**

**DNXXXX**—The number of the Call Pickup group containing DNXXXX will be output.

**5.01 To use the Print Call Pickup Groups (PCPG Program):**

- Perform the Authorization Procedure (Level 1, 2, or 3).  
Enter: PCPG (in response to the OK prompt).
- After the program is loaded and an REQ prompt is received, enter one of the following commands:

**ALL**—All Call Pickup groups will be output.

Example:

```
#1   REQ  DN205
      GRP00
#2   REQ  ALL
GRP00   XXX  XXX  XXX XXX
        XXX  XXX  XXX XXX
        XXX  XXX  XXX XXX
        XXX  etc.
GRP01   XXX  XXX  XXX
GRP02   XXX  XXX  XXX
```

**TABLE 7-5**

**Procedure — Print Call Pickup Groups**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	PCPG	
- DISK LOADING -			
	REQ		1
- EXECUTE -			
	REQ		1

**NOTES:**

1. The following responses are possible:  
**ALL** = Outputs all Call Pickup Groups (listed by DN).  
**DNXXXX** = Lists the numbers of all Call Pickup Groups containing DNXXXX.
2. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

**Error Codes**

Program Name: Print Call Pickup Groups (PCPG)	
Error Code	Meaning
ERPCP 00	Invalid response.
ERPCP 01	The input DN does not exist.

**6. Print Hunting Arrangements (Table 7-6)**

**ALL**—All hunting sequences will be output.

**6.01 To use the Print Hunting Arrangements (PHNT Program):**

- Perform the Authorization Procedure (Level 1, 2, or 3).  
 Enter: PHNT (in response to the OK prompt).
- When an REQ prompt is received after the program is loaded, enter one of the following commands:

- The output format will be as in the following examples:

```
REQ  ALL
HNT  223-224-225
HNT  242-243
HNT  250-251-252
etc.
```

**TABLE 7-6**

**Procedure — Print Hunting Arrangements**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	PHNT	
- DISK LOADING -			
	REQ		1
- EXECUTE -			
	REQ		1

**NOTES:**

1. The following responses are possible:
  - ALL = Outputs all hunting sequences (listed by DN).
2. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

**Error Codes**

Program Name: Print Hunting List (PHNT)	
Error Code	Meaning
ERPHT 00	The input DN does not exist.

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**7. Print Paging Group Data Block (Table 7-7)**

**7.01** To use the Print Paging Group Data Block (**PPAG Program**):

- Perform the Authorization Procedure (Level 1 or 2).  
 Enter: PPAG (in response to the OK prompt).
- After the program has loaded and the REQ prompt has been received, enter one of the following commands:

**PAG N**—All electronic telephones belonging to the indicated paging group N will be output in the order in which they were programmed, in the format shown below (for paging group 00):  
 PAGING GROUP 00 LNNX LNNX LNNX

**PAGALL**—All assigned paging groups and their electronic telephone members will be output in the order in which they were programmed.

**TABLE 7-7**

**Procedure — Print Paging Group Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	PPAG	
- DISK LOADING -			
	REQ		1
- EXECUTE -			
	REQ		1

**NOTES:**

1. The following responses are possible:  
*PAG N* = Outputs all electronic telephones belonging to the indicated paging group N in the order in which they were programmed.  
*PAGALL* = Outputs all electronic telephones belonging to the assigned paging groups in the order in which they were programmed.
2. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

## 8. DSS Console Data Block (Table 7-8)

**8.01** The DSS Console Data Block (**DDSS Program**) is used to assign a DSS console. A maximum of eight DSS consoles can be assigned. Each DSS console must be assigned to an electronic telephone and up to two consoles may be assigned to each electronic telephone. Each console has 60 programmable buttons, which may be programmed as either fixed or switched direct station select (DN) buttons or as feature access buttons. Any electronic telephone feature, except those requiring a speech path, can be programmed onto a DSS console button (see Table 7-8a). Data for this program is entered as follows:

**REQ (Request)**—Indicates that the program has loaded. Three responses are possible:  
NEW—To create a new Data Block.  
CHG—To alter an existing Data Block.  
OUT—To delete an existing Data Block.

**NOTE:**

*If OUT is entered, then only the port number (POR) needs to be entered below. No other entry is necessary.*

**NBR (Port Number)**—Defines the number of the DSS console in the system. There is a maximum of eight consoles per system.  
Enter: DSS Number (0 ~ 7).

**POR (Port Number)**—Identifies the hardware location of the DSS circuit that is to be defined (CNNX/LNNX). The port number has two parts, which are each noted as follows:

- 1) NN designates the location of the PCB on which the DSS console circuit is installed:  
PERCEPTION<sub>e</sub>: C00 ~ C01 or L00 ~ L11/  
L15 ~ L26.  
CNNX: X = 1 ~ 4; LNNX: X = 1, 3, 5, 7.  
PERCEPTION<sub>ex</sub>: L00 ~ L31.  
LNNX: X = 1, 3, 5, 7.
- 2) X designates the DSS console's associated circuit number.  
Enter: Port Number of the DSS console (CNNX/LNNX).

**SPT (Station Port)**—Designates the electronic telephone station that is to be associated with the DSS console.

Enter: Port Number of station (LNNX).

**F/S (Fixed or Switched Operation)**—Defines the operation of DSS button assignment on the console. Fixed assignment (F) means that each DSS button is permanently associated with a single station DN. Switched assignment (S) means that each DSS button is variably-assigned and can be changed by a Hundreds Group button. For example, when a Hundreds Group button of **2** is pressed, switched DN buttons 00 ~ 09 become buttons 200 ~ 209. When a Hundreds Group button of **3** is pressed, these same buttons become buttons 300 ~ 309. When an electronic telephone has two associated DSS consoles, one may be assigned as switched and one may be assigned as fixed. However, there can be no mixture of switched/fixed functions on the same console.

Enter: F or S.

**NOTE:**

*This prompt will only appear when NEW is entered in response to REQ. To change a programmed DSS console from Fixed/Switched, the console must be deleted and then reprogrammed.*

**KEY (DSS Button)**—Defines the various buttons on the DSS console. Each button is assigned either to a specific DN (for fixed operation), to a two-digit number (for switched operation), or to a specific feature. (See Figure 1 for the numerical arrangement of DSS console buttons.) When assigning or deleting data from DSS console buttons, data can be assigned/deleted in groups. Additionally, data that is assigned to one DSS console may be duplicated either entirely or partially (either specific buttons or columns of buttons) onto another DSS console by using range programming functions. To program a DSS console button, perform one of the following operations:

- 1) Assign a DN: For a **fixed** button, enter the number of the button being defined (m = 0 ~

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59 [see Figure 1]), followed by a space, \*, and the station DN (N, NN, NNN, or NNNN). For a **switched** button, enter the number of the button being defined, a space, #, and the last two digits of the station DN (NN). The digit preceding these lower digits will be determined by Hundreds Group buttons.

Enter: m \*N (NN, NNN, or NNNN) (for Fixed operation).

m #NN (for Switched operation).

**NOTE:**

*There cannot be a mixture of switched/fixed buttons on the same console.*

- 2) **Assign a Feature:** Enter the number of the button being defined, followed by a space and the mnemonic of the feature. All electronic telephone features are available to a DSS console arrangement, except those requiring a speech path (DIU, DRS, SCR, SCN, PVR, and PVN). Features that are available for DSS assignment are listed in Table 7-8a.  
Enter: m Feature.  
(m = button number [0 ~ 59]).
- 3) **Range Assignment:** This entry allows a consecutive range of directory numbers to be simultaneously assigned to DSS buttons. Ranges are entered by using a format which indicates the starting point (L) and the ending point (M) of the button range (L must be less than M), and the starting station DN to be programmed (XX, XXX, XXXX [2 ~ 4 digit DNs]). The programmed stations will include the starting station number that is entered, and each subsequent station within the indicated range. The operation of these assignments will depend on whether the DSS console is programmed as fixed or as switched. For example, in **switched** DN assignment, a data input of 10 19 30 will assign DNs 30 ~ 39 to DSS buttons 10 ~ 19. In **fixed** DN assignment, a data input of 00 59 200 will assign DNs 200 ~ 259 to DSS buttons 0 ~ 59.  
Enter: AUT L M XX or XXX.
- 4) **Duplicate a Complete DSS Button Arrangement:** This option will duplicate the entire DSS button arrangement of one DSS console onto another DSS console.  
Enter: DUP M.  
(M = The number [0 ~ 7] of the console that is to be duplicated entirely.)
- 5) **Duplicate a Column of DSS Buttons:** This option will duplicate a complete column of assigned DSS buttons (X) onto another DSS console (Y). Console button columns are numbered 0 ~ 5, from left to right on the DSS console.  
Enter: DUP MX Y.  
(M = The number of the console being copied.  
X = The column of the DSS console being copied.  
Y = The column of the DSS console to which the copy will be applied.)
- 6) **Duplicate Selected Buttons:** This option will duplicate a series of buttons (YY thru ZZ) from one console (M) to the console being programmed.  
Enter: DUP MXX YY ZZ.  
(M = Number of the console being copied.  
XX = The first button on the console that is to be programmed.  
YY = Starting range button of the console being copied.  
ZZ = Ending range button of the console being copied.)



**TABLE 7-8**

**Procedure — DSS Console Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	DDSS	
<b>– DISK LOADING –</b>			
	REQ	NEW, CHG, OUT	
DSS Number	NBR	N	1
Port Number	POR	CNNX OR LNNX	2
Station Port	SPT	LNNX	3
Fixed or Switched	F/S	F or S	4
Button Assignment	KEY	m *N (NN, NNN, NNNN)	5
		m #NN	6
		m Feature	7
		AUT L M XX (XXX, XXXX)	8
		DUP M	9
		DUP MX Y	10
		DUP MXX YY ZZ	11

**NOTES:**

1. A maximum of eight DSS consoles may be assigned to each system. Up to two consoles may be assigned to a single electronic telephone. N = 0 ~ 7.
2. CNNX/LNNX represents the port assigned to the DSS console.  
 PERCEPTION<sub>e</sub>: C00X/C01X or L00X ~ L11X/L15X ~ L26X.  
 CNNX: X = 1 ~ 4; LNNX: X = 1, 3, 5, 7.  
 PERCEPTION<sub>ex</sub>: L00X ~ L31X.  
 LNNX: X = 1, 3, 5, 7.
3. LNNX represents the port of the station associated with the DSS console.  
 PERCEPTION<sub>e</sub>: L00X ~ L11X/L15X ~ L26X.  
 PERCEPTION<sub>ex</sub>: L00X ~ L31X.
4. When an electronic telephone is assigned to two consoles, both may be switched/fixed or one may be switched and one may be fixed. However, there cannot be a mixture of switched/fixed functions on the same console.
5. Used to assign a fixed DN to a DSS button (m = Button number; N = Station DN).
6. Used to assign a switched DN to a DSS button (m = Button number; NN = Last two digits of station DN).
7. Used to assign a feature to a DSS button. See Table 7-8a for a list of available features.
8. Used to assign a range of numbers to a single console.  
 L = Starting button of range. (L must be less than M.)  
 M = Ending button of range.  
 XX, XXX = Starting DN to be programmed.
9. Used to duplicate an entire DSS console button arrangement. M = Number of the DSS console to be copied (0 ~ 7).

**TABLE 7-8 (continued)**

- 10. *Used to duplicate a row of DSS buttons to another console.*
  - M* = Number of the DSS console being copied.
  - X* = Row of the DSS console being copied.
  - Y* = Row of the DSS console to which the copy will be applied.
- 11. *Used to duplicate specific buttons from one console to another.*
  - M* = Number of the DSS console being copied.
  - XX* = Starting button on the DSS console being programmed.
  - YY* = Starting button of the range to be copied.
  - ZZ* = Ending button of the range to be copied.
- 12. **CTRL R** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

**TABLE 7-8a**  
**AVAILABLE FEATURES FOR DSS BUTTON ASSIGNMENT**

FEATURE	ENTRY	NOTE
Account Number (SMDR)	CRG	
Alphanumeric Message	MES	
Automatic Callback	ACB	
Automatic Dialing, Flexible	ADL	1
Automatic Dialing, Fixed	<sup>DONE</sup> FAD XXX	1
Call Forward – All Calls	CFD	
Call Forward – Busy	CFBY	
Call Forward – Busy/No Answer	CFBD	
Call Forward – No Answer	CFNA	
Call Forward – Busy (System/DID)	CFSN	
Call Pickup Directed	PUD	
Call Pickup Group	PUG	
Display Date and Time/Elapsed Time	DIS	2
Do Not Disturb	DND	
External Zone Paging	PEXT	
Flash	FLH	3
Hundreds Group	HNG XX	4
Internal Group Paging	PINT	
Manual Signaling	SIG LNNX	5
Message Waiting	MSG	
Override	OVR	
Call Park	PARK	
Privacy Release	PRS	
Release	RLS	
Repeat Last Number Dialed	RND	
Speaker Cut-off	SCF	
Speed Dial – System	SDS	
Speed Dial – Station (Controller)	SDC XX	6
Speed Dial – Station (User)	SDU XX	6
Station-to-Station Message	SSM	
System Night Operation	SYS	7
Universal Night Answer	UNA	

**TABLE 7-8a (continued)**

**NOTES:**

1. There is a maximum of 500 Autodial buttons per system.
2. This feature can only be assigned to 2000-series LCD electronic telephones.
3. The Flash button causes a 500 ms or a 1-second flash to a CO trunk.
4. XX = The higher two digits of the station DN (00 ~ 99).
5. LNNX = The port number of the electronic telephone to be signaled.
6. SDC XX makes the station a controller of list #XX. SDU XX makes the station a user of list #XX. Maximum: 50, 10-number Speed Dial-Station lists (XX = 1 ~ 50).
7. Only one **SYS** button can be assigned per tenant when the tenant does not have an attendant console assigned. The **SYS** button can only be assigned to an attendant-position electronic telephone or to a DSS console assigned to an attendant-position electronic telephone.

**Error Codes**

Program Name: DSS Console Data Block (DDSS)	
Error Code	Meaning
ERDSS 00	A PCB is not equipped in that location.
ERDSS 01	The port is already assigned (REQ = NEW).
ERDSS 02	The wrong button number was entered.
ERDSS 03	The input DSS console or feature button conflicts with the existing button.
ERDSS 04	The PCB is not an NDSU.
ERDSS 05	The port is not assigned (REQ = CHG, OUT).
ERDSS 06	The port is busy (REQ = CHG, OUT).
ERDSS 07	An electronic telephone is already assigned to the PCB.
ERDSS 08	Two DSS are already assigned to the electronic telephone.
ERDSS 09	The start button number is larger than the end button number (DUP).
ERDSS 10	The <b>DSS</b> button or feature button conflicts with an existing button (DUP).
ERDSS 11	The <b>SYS</b> button is already assigned in this tenant.
ERDSS 12	The input port cannot be disabled.
ERDSS 13	The wrong button parameter was entered.
ERDSS 14	The input port is not an electronic telephone port (SIG LNNX).
ERDSS 15	A station port (SPT) was entered, but the DSS console is already assigned to the PCB.
ERDSS 16	The start button number is larger than the end button number (AUT).
ERDSS 17	The button data does not exist.
ERDSS 18	The type of button assignment (Fixed/Switched) is different from the master DSS console.

TABLE 7-8 (continued)

Error Codes

Program Name: DSS Console Data Block (DDSS)	
Error Code	Meaning
ERDSS 19	<b>DIS</b> button is set, but station is not set (DIS = 1).
ERDSS 20	<b>MES</b> button is set, but station is not set (DIS = 2).
ERDSS 22	The input DN is a trunk DN (VCP NNN).
ERDSS 23	This SDC is already assigned.
ERDSS 24	A <b>PUG</b> button has been entered, but a Call Pickup Group has not been assigned.
ERDSS 25	The maximum number of <b>ADL</b> buttons (500) is already assigned.
ERDSS 26	Too many digits have been assigned to ADL (maximum = 16).
ERDSS 27	Fixed dialing digits cannot be assigned to <b>ADL</b> buttons. Assign these digits to <b>FAD</b> buttons.
ERDSS 28	The <b>ADL</b> button is set, but the station is not an attendant-position electronic telephone.

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**9. Print DSS Console Data Block (Table 7-9)**

**9.01** To use the Print DSS Console Data Block (PDSS Program):

- Perform the Authorization Procedure (Level 1, 2, or 3).  
 Enter: PDSS (in response to the OK prompt).
- After the program has loaded and the REQ prompt is received:  
 Enter one of the following commands:

**PORALL**—All DSS console Data Blocks will be output in numerical order of ports (lowest first).

**PORCNNX (or PORLNNX)**—All CNNX (or LNNX) data will be output.

**PORVAC**—A list of all unassigned ports will be output.

**STACNNX (or STALNNX)**—All data regarding the station that is associated with the DSS console (installed at either CNNX or LNNX) will be output.

**DSSNN**—All DSS console switched DN assignments (#NN = the last two digits of station numbers) will be output.

**TABLE 7-9**

**Procedure — Print DSS Console Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	PDSS	
- DISK LOADING -			
	REQ		1
- EXECUTE -			
	REQ		1

**NOTES:**

1. The following responses are possible:

*PORALL = Outputs all DSS console Data Blocks in numerical order of ports (lowest first).*

*PORCNNX (or PORLNNX) = Outputs all CNNX (or LNNX) data.*

*PORVAC = Outputs a list of all unassigned ports (C00/C01 slots only).*

*STACNNX (or STALNNX) = Outputs all station data that is associated with CNNX DSS consoles (or LNNX DSS consoles).*

*DSSNN = Outputs all DSS console switched DN assignments (#NN = lower two digits of station numbers).*

2. **CTRL X** = Ignore line entered.

**CTRL H** = Backspace.

**DEL** = Stop printing and return to REQ.

**DEL DEL** = Exit program.

## CHAPTER 8

### MESSAGE CENTER DATA

#### 1. Message Center Data Block (Table 8-1)

**1.01** The Message Center Data Block (**DMCD Program**) identifies the type of Message Center and its location.

**REQ (Request)**—Indicates that the program has loaded. Two responses are possible:

- NEW—To create a new Data Block.
- CHG—To alter an existing Data Block.

**MWC0 (Message Center #0)**—Identifies the type of Message Center.

Enter: MC (Message Center) or VM (Voice Mail).

**MWC1 (Message Center #1)**—Identifies the type of Message Center. (This prompt will only appear if TEN = Y in the DSYS Data Block.)

Enter: MC (Message Center) or VM (Voice Mail).

**MDN0 (Message Center #0 DN)**—Identifies directory numbers of Message Center #0. An "A" will follow the MDN0 prompt and any entries made will be added. To delete a port, press the carriage return (**CR**) key. The system will then prompt "D" and any entries made will be deleted.

Enter: 1 ~ 4 digits for each DN, or ATT0.

(ATT0 or electronic telephone DN is valid only if MWC0 = MC. If MWC0 = VM, then up to 32 standard telephone [NSTU] port DNs can be entered. This will allow internal DTMF signaling to these ports.)

**MDN1 (Message Center #1 DN)**—Identifies directory numbers of Message Center #1. This prompt will appear only in tenant systems. An "A" will follow the MDN1 prompt and any entries made will be added. To delete a port, press the carriage return (**CR**) key. The system will then prompt "D" and any entries made will be deleted.

Enter: 1 ~ 4 digits for each DN, or ATT1.

(ATT1 or electronic telephone DN is valid only if MWC1 = MC. If MWC1 = VM, then up to 32 standard telephone

[NSTU] port DNs can be entered. This will allow internal DTMF signaling to these ports.)

**NOTE:**

*If using a Toshiba INTOUCH Digital Voice Messaging System, do not make any entries for the MDN0 and MDN1 prompts. Press the **CR** key.*

**DSC0 (Disconnect Code)**—Defines the disconnect code of the voice mail equipment for Message Center #0. (This prompt will only appear when MWC0 = VM.) This disconnect code is sent to voice mail equipment for disconnect before the voice mail timeout occurs and must match the code that is programmed in the voice mail system.

Enter: XXXX or NONE.

**DSC1 (Disconnect Code)**—Defines the disconnect code of the voice mail equipment for Message Center #1. (This prompt will only appear when MWC1 = VM.) This disconnect code is sent to voice mail equipment before the voice mail timeout occurs and must match the code that is programmed in the voice mail system.

Enter: XXXX or NONE.

**TVM0 (Toshiba Voice Messaging #0)**—If using a Toshiba INTOUCH Digital Voice Messaging System, enter up to 32 directory numbers (NSTU ports) that will be connected to the INTOUCH system. This provides enhanced integration of the PERCEPTION<sub>e&ex</sub> and INTOUCH systems. Following the TVM0 prompt, the PERCEPTION<sub>e</sub> or PERCEPTION<sub>ex</sub> system will prompt an "A." Any entries made will be added. To delete a port, press the carriage return (**CR**) key. The system will then prompt a "D" and any entries made will be deleted.

Enter: A XXXX XXXX...

D XXXX XXXX...

**TVM1 (Toshiba Voice Messaging #1)**—This prompt will only appear in tenant systems. If using a Toshiba INTOUCH Digital Voice Messaging System, enter up to 32 directory numbers (NSTU ports) that will be connected to the INTOUCH system. This provides enhanced in-

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tegration of the PERCEPTION<sub>e&ex</sub> and INTOUCH systems. Following the TVM0 prompt, the PERCEPTION<sub>e</sub> or PERCEPTION<sub>ex</sub> system will prompt an "A." Any entries made will be added. To delete a port, press the carriage

return **(CR)** key. The system will then prompt a "D" and any entries made will be deleted.

Enter: A XXXX XXXX...  
 D XXXX XXXX...

**TABLE 8-1**

**Procedure — Message Center Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	DMCD	
<b>– DISK LOADING –</b>			
	REQ	NEW, CHG	
Message/Voice Mail	MWC0	MC or VM	
Message/Voice Mail	MWC1	MC or VM	1
DN of MC 0	MDN0	A 1 ~ 4 digits or ATT0 (maximum: 32 DNs) D 1 ~ 4 digits or ATT0 (maximum: 32 DNs)	2 ~ 5
DN of MC 1	MDN1	A 1 ~ 4 digits or ATT1 D 1 ~ 4 digits or ATT1	1 ~ 5
Disconnect Code	DSC0	XXXX or NONE	6
Disconnect Code	DSC1	XXXX or NONE	1 & 6
Toshiba Voice Messaging #0	TVM0	A 1 ~ 4 digits (maximum: 32 DNs) D 1 ~ 4 digits (maximum: 32 DNs)	7
Toshiba Voice Messaging #1	TVM1	A 1 ~ 4 digits (maximum: 32 DNs) D 1 ~ 4 digits (maximum: 32 DNs)	1 & 7

**NOTES:**

1. This entry will appear when TEN = Y.
2. If MWC0 or MWC1 = VM, then the user will be able to enter a maximum of 32 directory numbers in MDNO.  
 If MWC0 or MWC1 = MC, then the user can only enter one directory in MDN1 (electronic telephone DN or attendant console).  
 XXXX = Station directory number.
3. An "A" will appear after the MDN0 (MDN1) prompt and any entries made will be added. After pressing the return key, a "D" will appear and any entries made will be deleted.
4. If MWC0 = MC, enter ATT0 or electronic telephone DN.  
 If MWC1 = MC, enter ATT1 or electronic telephone DN. (This prompt will only appear in tenant systems.)
5. If MWC0 = VM, enter up to 32 directory numbers (NSTU ports) that will be connected to the voice mail system.  
 If MWC1 = VM, enter up to 32 directory numbers (NSTU ports) that will be connected to the voice mail system for Tenant 1 (TEN = Y).

**NOTE: Do not make any entries for these two prompts if using the Toshiba INTOUCH Digital Voice Messaging System. Press the **(CR)** key.**



**TABLE 8-1 (continued)**

- 6. *This entry will appear when MWC0 or MWC1 = VM*
- 7. *If MWC0 = VM and a Toshiba INTOUCH Digital Voice Messaging System is being used, enter up to 32 directory numbers (NSTU ports) that will be connected to the INTOUCH system.*  
*If MWC1 = VM and a Toshiba INTOUCH Digital Voice Messaging System is being used, enter up to 32 directory numbers (NSTU ports) that will be connected to the INTOUCH system for Tenant #1 (TEN = Y).*
- 8. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

**Error Codes**

<b>Program Name: Message Center Data Block (DMCD)</b>	
<b>Error Code</b>	<b>Meaning</b>
ERMCD 00	All MDNs are assigned.
ERMCD 01	The DN you are trying to delete does not exist.
ERMCD 02	The MDN is already assigned.
ERMCD 03	The DN does not exist in the system.
ERMCD 04	Data is already assigned (REQ = NEW).
ERMCD 05	Data is not assigned (REQ = CHG).
ERMCD 06	MWC0 or MWC1 = VM, therefore ATT0 or ATT1 cannot be entered. You cannot enter ATT0 at the MDN1 prompt, or ATT1 at the MDN0 prompt.

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**2. Print Message Center Data Block (Table 8-2)**

**2.01 To use the Print Message Center Data Block (PMCD Program):**

- Perform the Authorization Procedure (Level 1 or 2).  
Enter: PMCD (in response to the OK prompt).

- When the REQ prompt is received after the program is loaded:  
Enter: PRT.
- The Message Center Data Block will output data in the same format as it was input in the **DMCD Program**.

**TABLE 8-2**

**Procedure — Print Message Center Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	PMCD	
- DISK LOADING -			
	REQ		1

**NOTES:**

1. The only response possible is: PRT = Outputs Message Center Data Block.
2. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

## CHAPTER 9

### TRUNK DATA

#### 1. Trunk Group Data Block (Table 9-1)

**1.01** The Trunk Group Data Block (**DTGP Program**) defines the parameters for each of the 16 possible trunk groups in the system. A Data Block must be completed for each trunk group in the system. Not all of the prompts listed below are used for all trunk types. The response given to the TKT (trunk type) prompt will determine which prompts will be given. Table 9-1a shows the prompts that can be expected for each trunk type. (Use the proper system record form for the type of trunk being defined.) Data is entered as follows:

**REQ (Request)**—Indicates that the program has loaded. Three responses are possible:  
NEW — To create a new trunk group.  
CHG — To alter an existing Data Block.  
OUT — To delete an existing Data Block.

**NOTES:**

1. Before the OUT command will be accepted, all trunks must be deleted from the group by using the **DTRK Program**.
2. If OUT is entered, only the Trunk Group Number (GRP) needs to be entered. No other entries are necessary.

**GRP (Trunk Group Number)**—Identifies the trunk group number. Sixteen groups are available (00 ~ 15). If private lines are to be used, they all occupy one trunk group called PVL. The PVL group replaces group 15.  
Enter: 00 ~ 15 (Trunk Group Number) or PVL.

**TEN (Tenant Number)**—Identifies the tenant to which the trunk group belongs.  
Enter: 0 or 1 (Tenant Number).

**TKT (Trunk Type)**—Identifies the type of trunk to be used in the group.

**NOTE:**

*It is not possible to enter a change (CHG) for Trunk Type (TKT). The Data Block must be*

*deleted (OUT) and a new (NEW) Data Block must be entered.*

Enter: COT—Local CO trunk  
FEX—Foreign Exchange line  
DID—Direct Inward Dialing trunk  
CSA—CCSA line  
TIE—TIE trunk  
WAT—WATS line.

**IAO (Incoming/Outgoing)**—Determines whether the trunks will give 2-way or 1-way service.

Enter: ICT—Incoming only  
OGT—Outgoing only  
IAO—2-way

**STP (Advance Step)**—Identifies the next trunk group in a route advance sequence. If a station user attempts to access a trunk in this group and all trunks are busy, then a trunk from the group identified in response to STP will be selected.  
Enter: 00 ~ 15 (Next Trunk Group Number) or NONE.

**COD (Access Code)**—Defines the access code for the trunk group. Access codes can consist of 1-, 2-, or 3-digits as long as there is no conflict in the system. For example: 3 cannot be used if 30 or 300 is used as an access code or DN.  
Enter: 1 ~ 3 digits.

**COS (Class of Service)**—Defines the feature access level of each inward dialing trunk (TIE, DID, or CCSA trunk). Use one of the 16 Classes of Service that has been defined via the **DCOS Program**.  
Enter: 0 ~ 15 (COS number).

**TRN (Transmission)**—Defines the transmission arrangement that is required for the trunks in the group. The entry made here will determine the type of PAD switching that is performed on trunk connections (see Table 9-1b for loss plan).  
Enter: NTC—Non-transmission Compensated (2-wire circuit with less than 2dB loss).  
TRC—Transmission Compensated (4-wire circuit or 2-wire circuit with greater than 2dB loss).  
VNL—Via Net Loss (4-wire VNL circuit).

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**STR (Start Arrangement)**—Defines the start arrangement that is to be used by the trunks in the group.

Enter: IMM—Immediate start.  
 WNK—Wink start.  
 DDL—Delay dial.

**WTA (Warning Tone Allowed?)**—Defines an interruption-protected trunk group (e.g., a data line). An "N" response will prevent warning tones from being applied to this trunk group.

Enter: Y or N.

**OAB (Outgoing Absorb Digits)**—Identifies the digits which are to be ignored by the Toll Restriction program. These digits will be outpulsed, but will not be counted as the first digit.

Enter: Digits to be absorbed (for example: 1; maximum: 2 digits) or NONE.

**IAB (Incoming Absorb Digits)**—Defines the number of digits that are to be stripped from an incoming dialed number from a TIE, CCSA, or DID trunk.

Enter: Number of digits (maximum: 2) or NONE.

**TRN1 (Translated Number 1)**—Defines the absorbed digit (IAB) that is to be translated from one digit to another digit or digits (see example following TRN2).

Enter: X # Y, X # YY, or NONE.  
 (X = The digit that is to be translated. When two digits are absorbed, only the second digit will be translated.  
 Y or YY = The translated digit (Y) or digits (YY) that will be inserted.)

**TRN2 (Translated Number 2)**—Defines the digit that is to be translated from one digit to another digit or digits. (The same as TRN1; used when over 100 digits are to be translated — see examples.)

Enter: X # Y, X # YY, or NONE.

EXAMPLE A: IAB = 1

TRN1 = 9#2  
 TRN2 = 8#3

3 Digits Received from CO	To Ring 3-digit DN
900 ~ 999	200 ~ 299
800 ~ 819	300 ~ 319

EXAMPLE B: IAB = 2

TRN1 = 9#2  
 TRN2 = 8#3

4 Digits Received from CO	To Ring 3-digit DN
5900 ~ 5999	200 ~ 299
5800 ~ 5819	300 ~ 319

EXAMPLE C: IAB = 2

TRN1 = 9#21  
 TRN2 = 8#32

3 Digits Received from CO	To Ring 3-digit DN
590 ~ 599	210 ~ 299
580 ~ 589	320 ~ 329

EXAMPLE D: IAB = 2

TRN1 = 9#21  
 TRN2 = 8#32

3 Digits Received from CO	To Ring 4-digit DN
590 ~ 599	2100 ~ 2199
580 ~ 589	3200 ~ 3299

**TOL (Toll Restriction Class)**—Assigns one of the 10 classes of Toll Restriction to each outgoing TIE, CCSA, and DID trunk. Classes 0 ~ 7 are defined in the Toll Restriction Data Block (**DTOL Program**). Class 8 is simple Toll Restriction and restricts when either **0** or **1** is dialed as the first digit. NONE defines the trunk as unrestricted.  
 Enter: 0 ~ 8 or NONE.

**FLT (Flash-hook Timing)**—Defines the length of time of a flash-hook (line open) while connected to a CO trunk. On an electronic telephone, the flash-hook will occur whenever the **FLH** button is pressed.

Enter: 1 = 500 milliseconds.  
 2 = 1 second.

**TABLE 9-1**

**Procedure — Trunk Group Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	DTGP	
— DISK LOADING —			
	REQ	NEW, CHG, OUT	
Trunk Group Number	GRP	00 ~ 15 or PVL	1
Tenant Number	TEN	0 or 1 <i>CONTROL RINGING</i>	
Trunk Type	TKT	COT, FEX, DID, CSA, TIE, WAT	2
Incoming/Outgoing	IAO	ICT, OGT, or IAO	
Advance Step	STP	XX or NONE <i>00-15</i>	3
Access Code	COD	1 ~ 3 digits	
Class of Service	COS	0 ~ 15 <i>TIE, DID, ...</i>	4
Transmission	TRN	<b>NTC</b> , TRC, or VNL	
Start Arrangement	STR	IMM, WNK, or DDL <i>DID TRK</i>	
Warning Tone Allowed?	WTA	Y or N	
Outgoing Absorb Digits	OAB	X, XX, or NONE	5
Incoming Absorb Digits	IAB	X, XX, or NONE	6
Translated Number 1	TRN1	X # Y, X # YY, or NONE	7
Translated Number 2	TRN2	X # Y, X # YY, or NONE	7
Toll Restriction Class	TOL	0 ~ 8 or NONE	8
Flash-hook Timing	FLT	1 or 2 <i>500</i>	9

**NOTES:**

1. A maximum of 16 Trunk Groups (normally 00 ~ 15) is possible. If private lines are to be equipped, the code PVL is used in place of 15.
2. TKT cannot be changed. The Data Block must be removed (OUT) and NEW data must be entered.
3. The Trunk Group that is to be stepped to if this group is busy (00 ~ 15).
4. COS is meaningful only for TIE/CCSA/DID Trunks. Sixteen COS groups are provided and are defined in the Class of Service Data Block.
5. List the digits which are to be ignored for the purpose of Toll Restriction. These digits will be outputted, but not counted as the first digit.
6. Enter the number of digits which are to be stripped from an incoming dialed DN (TIE, DID, or CCSA Trunk).  
 Example: IAB = 1. Incoming DN = 8249. Recognized DN = 249.
7. Enter the absorbed digit (IAB) to be translated.  
 X = the absorbed digit (IAB) to be translated. Y or YY = the translated digits to be inserted.  
 Example: IAB = 1. TRN = 9#2. Incoming DN = 949. Recognized DN = 249.  
 TRN2 = 8#3 Incoming DN = 849. Recognized DN = 349.
8. Classes 0 ~ 7 are defined in the Toll Restriction Data Block (DTOL Program).  
 Class 8 = 0 and 1 restriction. NONE = no restriction.
9. 1 = 500 ms. 2 = 1 second.
10. **CTRL X** = Ignore line entered. **DEL** = Stop printing and return to REQ.  
**CTRL H** = Backspace. **DEL DEL** = Exit program.

**TABLE 9-1a**  
**TRUNK GROUP DATA BLOCK ENTRIES**  
**TRUNK TYPES**

	COT	FEX	WAT	PVL	DID	CSA	TIE
GRP	X	X	X	X	X	X	X
TEN	X	X	X	X	X	X	X
TKT	X	X	X	X	X	X	X
IAO	X	X	X	X	X	X	X
STP	X	X	X	O	X	X	X
COD	X	X	X	O	X	X	X
COS	O	O	O	O	X	X	X
TRN	X	X	X	X	X	X	X
STR	X	X	X	X	X	X	X
WTA	X	X	X	X	X	X	X
OAB	X	X	O	O	X	O	O
IAB	O	O	O	O	X	X	X
TRN1	O	O	O	O	X	X	X
TRN2	O	O	O	O	X	X	X
TOL	O	O	O	O	O	X	X
FLT	X	X	X	X	O	O	O

Legend: X = Used      O = Not Used

**Error Codes**

<b>Program Name: Trunk Group Data Block (DTGP)</b>	
<b>Error Code</b>	<b>Meaning</b>
ERTRG 01	The group still has a trunk assigned (REQ = OUT).
ERTRG 02	The entered group number is already assigned (REQ = NEW).
ERTRG 03	One or more trunks are busy (REQ = CHG).
ERTRG 04	The entered group number does not exist (REQ = CHG).
ERTRG 05	The entered advance step group is the same as this group number.
ERTRG 08	#1 entered, but tenant service is not enabled in System Data Block.
ERTRG 09	#1 entered, but Attendant Console #1 does not exist.
ERTRG 10	The start arrangement conflicts with trunk type.
ERTRG 13	The entered group number does not exist (REQ = OUT).
ERTRG 14	The Access Code conflicts with an existing number.
ERTRG 15	Input data was erased because the program was aborted during a NEW mode.

**TABLE 9-1b**  
**PERCEPTION<sub>o</sub> LOSS PLAN**

THROUGH CONNECTION		TERMINAL BALANCE			THROUGH BALANCE	
<b>TO</b>          <b>FROM</b>		Station Lines/ Attendant Lines	NON-VNL		VNL	
			Non-transmission Compensated (2-wire facility <2dB loss and not impedance compensated)	Transmission Compensated (2-wire facility >2dB loss or impedance compensated or 4-wire facility)	4 wire	
<b>TERMINAL BALANCE</b>	Station Lines/ Attendant Lines	5	1	1	3	
	<b>NON-VNL</b>	Non-transmission Compensated (2-wire facility <2dB loss and not impedance compensated)	1	3	1	3
		Transmission Compensated (2-wire facility >2dB loss or impedance compensated or 4-wire facility)	1	1	1	1
<b>THROUGH BALANCE</b>	<b>VNL</b>	4 wire	3	3	1	1

**NOTE:**

*The numbers in the boxes represent actual through connection loss in dB.*

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**2. Print Trunk Group Data Block (Table 9-2)**

**2.01** To use the Print Trunk Group Data Block (PTGP Program):

- Perform the Authorization Procedure (Level 1 or 2).  
Enter: PTGP (in response to the OK prompt).
- When an REQ prompt is received after the program is loaded:  
Enter one of the following commands:

**ALL**—All Trunk Group Data Blocks will be output.

**GRPXX**—Trunk Group XX Data Block will be output.

**COT**—All CO Trunk Group Data Blocks will be output.

**FEX**—All FX Trunk Group Data Blocks will be output.

**WAT**—All WATS Trunk Group Data Blocks will be output.

**TIE**—All TIE Trunk Group Data Blocks will be output.

**DID**—All DID Trunk Group Data Blocks will be output.

**CSA**—All CCSA Trunk Group Data Blocks will be output.

**PVL**—All Private Line Trunk Group Data Blocks will be output.

**NOTE:**

*The output format will be the same as the input format that is used in the DTGP Program.*

- REQ will be prompted when the printout is complete.  
Enter: **DEL DEL CR** (to exit the program).



**TABLE 9-2**

**Procedure — Print Trunk Group Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	PTGP	
- DISK LOADING -			
	REQ		1
- EXECUTE -			
	REQ		1

**NOTES:**

1. The following responses are possible:
  - ALL = Outputs all Trunk Group Data Blocks.
  - GRPXX = Outputs Trunk Group XX Data Blocks.
  - COT = Outputs all CO Trunk Group Data Blocks.
  - FEX = Outputs all FX Trunk Group Data Blocks.
  - WAT = Outputs all WATS Trunk Group Data Blocks.
  - TIE = Outputs all TIE Trunk Group Data Blocks.
  - DID = Outputs all DID Trunk Group Data Blocks.
  - CSA = Outputs all CCSA Trunk Group Data Blocks.
  - PVL = Outputs all PVL Trunk Group Data Blocks.
2. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

**Error Codes**

Program Name: Print Trunk Group Data Block (PTGP)	
Error Code	Meaning
ERPTG 00	Invalid response.
ERPTG 01	The input trunk group number is out of range (REQ = GRPXX).

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**3. Trunk Data Block (Table 9-3)**

**3.01** The Trunk Data Block (**DTRK Program**) defines the parameters for each of the trunk circuits in the system. A separate Data Block must be completed for each trunk circuit in the system.

**3.02** The trunk type (TKT) defined for the group (in the **DTPG Program**) will determine which entries must be made. Not all prompts are meaningful for all trunk types. Table 9-3a shows the prompts to which responses should be made. (Use the proper system record form for the type of trunk being defined.) Data is entered as follows:

**REQ (Request)**—Indicates that the program has loaded. Three responses are possible:  
NEW—To create a new Data Block.  
CHG—To alter an existing Data Block.  
OUT—To delete an existing Data Block.

**NOTE:**

*If OUT is entered, then only the port (POR) needs be specified. No other data entries are necessary.*

**POR (Port Number)**—Identifies the hardware location of the trunk circuit that is to be defined in a PERCEPTION<sub>e</sub> or PERCEPTION<sub>ex</sub> system. The port number has two parts:

- 1) PERCEPTION<sub>e</sub>: T00 ~ T15 (Trunk PCB location).  
PERCEPTION<sub>ex</sub>: T00 ~ T15; T16 ~ T31 for the assignment of additional trunk ports, exceeding T15. When T16 ~ T31 are used, an entry must also be made in response to the UPN prompt. While T00 ~ T15 are fixed trunk slots, T16 ~ T31 are flexible and may be assigned to any Universal Port slot (00 ~ 31). A maximum of 16 Universal Port slots can be used for trunks.
- 2) 1 ~ 4 (Circuit number on the trunk PCB).  
For example: The port number of the third circuit on the PCB in position T02 is T023.  
Enter: PERCEPTION<sub>e</sub>: TNNX (Port number of trunk).  
PERCEPTION<sub>ex</sub>: See UPN prompt.

**NOTE:**

*NN = Trunk PCB Number*

*X = Circuit Number*

**UPN (Universal Port Number)**—Identifies the hardware location of the trunk circuit that is to be defined in a PERCEPTION<sub>ex</sub> system which has trunks assigned above T15. The universal port number's trunk PCB location is T00 ~ T31.  
Enter: NN (NN = 00 ~ 31).

**GMN (Group/Member Number)**—The Group Member Number identifies the trunk position in the system. The GMN is composed of two parts:

- 1) Group Number (defined in the **DTGP Program**): Identifies the trunk as being a member of that group (00 ~ 15).
- 2) Member Number: A unique number is given to each trunk in a group. The numerical order of the number will determine the order in which the trunks will be selected upon dial access. The highest member number will be selected first (PERCEPTION<sub>e</sub>: 00 ~ 63; PERCEPTION<sub>ex</sub>: 00 ~ 63).  
Enter: GGMM (Group and Member Number).

**NOTES:**

1. GMN cannot be altered by CHG procedure. The GMN prompt will be followed by the existing GMN.
2. To change the GMN, the Data Block must be deleted (OUT) and a new Data Block (NEW) must be entered.

**TDN (Trunk Directory Number)**—For private lines only (Trunk Group 15—PVL). TDN defines a directory number that will be used to assign private lines to a station.  
Enter: 1 ~ 3-digit directory number.

**RAD (Remote Access Day)**—A "Y" response enables the Remote Access to Services trunk for both day and night service. An "N" response enables Remote Access only during night service.  
Enter: Y or N.

**NIT (Night Number)**—Assigns the night station for the trunk. Incoming calls on the trunk will ring the night station whenever the system is in night service. If NONE is entered, then the call will

activate the UNA signal. This parameter can also be entered and changed by the attendant console.

Enter: Night station number (maximum: 4-digits) or NONE (UNA).

**NOTE:**

*To assign a ground-start trunk to Remote Access to Services, enter the same DN that was used for the REM entry in the System Data Block (DSYS Program) for NIT (Night Number).*

**DAY (Day Number)**—Assigns the day station(s) for the trunk. Incoming calls on the trunk will ring the day station(s) when the system is not in night service. Up to eight stations can be entered as day stations, to have either immediate or delayed ringing. Delayed ringing is achieved by entering a space and by pressing **█** after each station number that is to ring after the immediate-ring station(s). This will delay the ringing of these stations for the period set by the Delay Ring Timer in the **DSYS Program** (0 ~ 99 seconds). After this time period elapses, the delayed station(s) will ring. All day stations will receive an immediate visual LED indication with each incoming call. A day station can also be assigned to an attendant console. If NONE is entered, then calls will alternate between Attendant 0 and Attendant 1. The DAY parameter can also be entered and changed by the attendant console.

Enter: Day station number (up to 8 numbers may be entered; maximum: 4-digits each).

After each station number that is to have delayed ringing, enter a space and press **█**. Designate ATT0 or ATT1 (Attendant Console 0 or 1), or NONE.

**TRCL (Destination for Transfer Recall Termination)**—Assigns the destination to which a transfer recall terminates. When a transfer recall is not answered at the originally-transferring station, the call can be routed to either an attendant, the system UNA device, or an alternative DN.

Enter: ATT0, ATT1—Attendant Console 0 or 1.  
UNA—System UNA device.

DN—Alternative station (either a station user DN or a master hunt DN).

NONE—No termination destination (the call will continue to ring at the originally-transferring station).

**SIG (Signaling)**—Identifies the type of signaling to be used on the trunk circuit:

Enter: GRD—Ground Start

LOP—Loop Start

EAM—E & M

LDR—Loop Dial Repeating (for DID trunks).

**DIS (Disconnect Supervision)**—Informs the system whether or not supervision can be expected when the distant end disconnects. Disconnect Supervision controls trunk-to-trunk connections for ground start trunks.

Enter: Y or N.

**CTL (Control of Disconnect)**—Defines the release control of TIE, DID, or CCSA connection.

Enter: OPC (Originating Party Control)—The circuit will not be released until the trunk that originated the call disconnects.

FPR (First Party Release)—The trunk at either end of the connection can release.

**DIN (Incoming Dialing)**—Informs the system of what type of dialing to expect on an incoming call. (This prompt is for TIE, CCSA, and DID trunks only.)

Enter: DIP—Dial Pulse

TON—DTMF.

**DOT (Outgoing Dialing)**—Informs the system of what type of dialing to expect on an outgoing call.

Enter: P10 = Rotary Dial 10 PPS

P20 = Rotary Dial 20 PPS

TON = DTMF.

**OTR (Private Line Outgoing Call Restriction)**—

This prompt will only appear if the trunk is a member of the private line trunk group (Group 15). The OTR prompt is used to exclude selected stations from making outgoing calls over the private line. Consequently, these lines can be used only for answering incoming calls. If a private line appears on more than one station, then each station can be individually restricted

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from using the line for outgoing calls by entering the port number of each DN that is to be restricted (LNNX). Following the OTR prompt, the system will prompt "D" and any entries made will be deleted. To add entries, press the carriage return (CR) key. An "A" prompt will appear and any entries made will be added.  
 Enter: D LNNX LNNX—To delete a station port.

A LNNX LNNX—To add a station port.

**ANS (Answer Supervision)**—Determines whether or not answer supervision will be provided to the distant trunk on incoming calls. (This prompt is for TIE, CCSA, and DID trunks only.) If "N" is entered, then the system will not return answer supervision.  
 Enter: Y or N.

**TABLE 9-3**

**Procedure — Trunk Data Block**

Authorization Procedure must be completed. If OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	DTRK	
- DISK LOADING -			
	REQ	NEW, CHG, OUT	
Port Number	POR	TNNX	1
Universal Port Number	UPN	00 ~ 31	2
Group/Member Number	GMN	GGMM	3 & 4
Trunk DN	TDN	1 ~ 3 digits <b>PVL ONLY!</b>	5
Remote Access for Day/Night	RAD	<del>Y or N</del> <b>DISA-</b>	
Night Number	NIT	1 ~ 4 digits or NONE (UNA)	6
Day Number	DAY	1 ~ 4 digits, ATT0, ATT1, or NONE	7 & 8
Destination for Transfer Recall Termination	TRCL	ATT0, ATT1, UNA, 1 ~ 4 DIGITS, or NONE	9
Signaling	SIG	GRD, LOP, EAM, or (LDR 515)	
Disconnect Supervision	DIS	Y or N	
Control of Disconnect	CTL	OPC or FPR	10
Incoming Dialing	DIN	DIP or TON	11
Outgoing Dialing	DOT	P10, P20, or TON	12
Private Line Outgoing Call Restriction	OTR	LNNX, LNNX ...	13
Answer Supervision	ANS	Y or N	14

**NOTES:**

1. NN = Trunk PCB number, X = circuit number 1~4.
2. Used only for PERCEPTION<sub>ex</sub> systems, for trunks assigned above T15.
3. GG = Trunk Group Number (00 ~ 15).  
 MM = Unique trunk number within group (00 ~ 63).
4. GMN cannot be changed. The Data Block must be removed (OUT) and NEW data must be entered.

TABLE 9-3 (continued)

5. This prompt only appears for Trunk Group 15 (PVL). TDN is the DN assigned to a private trunk line (1 ~ 3 digits).
6. Enter Trunk's Night Directory Number (1 ~ 4 digits). This number can also be changed by the Attendant when making night assignments (no meaning for TIE/CCSA/DID/PVL trunks). This number must match the REM entry in the **DSYS Program** in order to activate Remote Access to Services.
7. Enter Trunk's Day Directory Number (1 ~ 4 digits). Up to 8 numbers may be entered, for either immediate or delayed ringing. Indicate delayed ringing for a specific station by entering a space and by pressing **■** after the station number. Day number(s) can also be changed by the Attendant.
8. ATT0 = Calls will only ring at Attendant 0.    ATT1 = Calls will only ring at Attendant 1.  
    NONE = Calls will alternate between Attendant 0 and Attendant 1.  
    If TEN = N in the DSYS Data Block, ATT0 will alternate between ATT0 and ATT1.
9. This entry assigns the destination of a Transfer Recall on this trunk.
10. OPC = Originating Party Control.    FPR = First Party Release.
11. This prompt only appears for TIE/CCSA/DID Trunks.
12. Outgoing dialing method:    P10 = Rotary Dial 10 PPS.    P20 = Rotary Dial 20 PPS.  
    TON = DTMF.
13. The OTR prompt appears only when a trunk is assigned to Trunk Group 15 (PVL). Following the OTR prompt, the system will prompt "D" and any entries made will be deleted. To add a station port, press the **CR** key. The system will then prompt "A" and any entries made will be added. Each private line can have up to 96 line appearances, each of which can be individually restricted by using OTR. When programming these station ports, up to ten ports may be entered in a single line.
14. Is Answer Supervision required to the calling party?    Y = Yes; N = No.
15. **CTRL X** = Ignore line entered.  
    **CTRL H** = Backspace.  
    **DEL** = Stop printing and return to REQ.  
    **DEL DEL** = Exit Program.

**TABLE 9-3a  
TRUNK DATA BLOCK ENTRIES  
TRUNK TYPES**

	COT	FEX	WAT	PVL	DID	CSA	TIE
POR	X	X	X	X	X	X	X
UPN	X	X	X	X	X	X	X
GMN	X	X	X	X	X	X	X
TDN	O	O	O	X	O	O	O
RAD	X	X	X	O	O	O	O
NIT	X	X	X	O	O	O	O
DAY	X	X	X	O	O	O	O
SIG	X	X	X	X	X	X	X
DIS	X	X	X	X	X	X	X
CTL	O	O	O	O	X	X	X
DIN	O	O	O	O	X	X	X
DOT	X	X	X	X	X	X	X
OTR	O	O	O	X	O	O	O
ANS	O	O	O	O	X	X	X
TRCL	X	X	X	X	X	O	O

**TABLE 9-3 (continued)**

**Error Codes**

<b>Program Name: Trunk Group Data Block (DTRK)</b>	
<b>Error Code</b>	<b>Meaning</b>
ERTRK 00	A PCB is not equipped in that location.
ERTRK 01	The PCB is not trunk type.
ERTRK 02	The port is busy (REQ = OUT).
ERTRK 03	The port is already assigned to a station, DSS console, or DDIU (REQ = NEW).
ERTRK 04	This Trunk Group Data Block does not exist.
ERTRK 05	Member number is already assigned.
ERTRK 06	The entry conflicts with an existing DN or TDN.
ERTRK 07	The night number that was entered does not yet exist.
ERTRK 09	The type of signaling entered conflicts with the trunk type.
ERTRK 11	The input data was erased because the program was aborted during a NEW mode.
ERTRK 12	The port is not assigned.
ERTRK 13	Another type of data is already assigned to the input port.
ERTRK 15	The entered DN is already assigned to a station (electronic or standard telephone).
ERTRK 16	The entered DN is already assigned to another trunk.
ERTRK 17	The input DN is a DIU DN.
ERTRK 20	The Transfer Recall Termination DN does not exist.
ERTRK 21	The input port has already been entered.
ERTRK 22	The maximum number of ports (96) has already been registered for this PVL.
ERTRK 23	The entered port does not exist.
ERTRK 24	The input port is not assigned as a universal port.
ERTRK 25	The port is already assigned to an attendant console.
ERTRK 27	The input data is not a DN.
ERTRK 28	The input data has already been entered.
ERTRK 29	The maximum number of DN's (8) has already been entered for this port.
ERTRK 30	The input data is ATT0, ATT1, UNA, or NONE.

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**4. Print Trunk Data Block (Table 9-4)**

**4.01 To use the Print Trunk Data Block (PTRK Program):**

- Perform the Authorization Procedure (Level 1 or 2).  
Enter: PTRK (in response to OK prompt).
- When the REQ prompt is received after the program is loaded:  
Enter one of the following commands:

**PORALL**—All Trunk Data Blocks will be output in order of Port Number (lowest first).

**PORNXX**—Trunk Data Block of Port NNX will be output.

**PORVAC**—All unassigned trunk ports will be listed.

**TGPNN**—All Trunk Data Blocks assigned to Trunk Group NN will be output.

**COT**—All CO Trunk Data Blocks will be output.

**FEX**—All FX Trunk Data Blocks will be output.

**TIE**—All TIE Trunk Data Blocks will be output.

**DID**—All DID Trunk Data Blocks will be output.

**WAT**—All WATS Trunk Data Blocks will be output.

**CSA**—All CCSA Trunk Data Blocks will be output.

**PVL**—All Private Line Trunk Data Blocks will be output.

**NIT**—Night Station assignments for all CO/FX/WATS trunks will be output.

**UPN**—Universal Port Number assignments for trunks above T15 will be output.

**NOTE:**

*The output format will be the same as that used for data input in the **DTRK Program**.*



**TABLE 9-4**

**Procedure — Print Trunk Data Block**

Authorization Procedure must be completed. If OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	PTRK	
- DISK LOADING -			
	REQ		1
- EXECUTE -			
	REQ	.	1

**NOTES:**

1. The following responses are possible:

*PORALL* = Outputs Trunk Data Blocks in numerical order of ports (lowest first).

*PORNNX* = Outputs Trunk Data Block of Port NNX.

*PORVAC* = Outputs all unassigned trunk ports.

*TGPNN* = Outputs all Trunk Data Blocks assigned to trunk group NN.

*COT* = Outputs all CO Trunk Data Blocks.

*FEX* = Outputs all FX Trunk Data Blocks.

*WAT* = Outputs all WATS Trunk Data Blocks.

*TIE* = Outputs all TIE Trunk Data Blocks.

*DID* = Outputs all DID Trunk Data Blocks.

*CSA* = Outputs all CCSA Trunk Data Blocks.

*PVL* = Outputs all PVL Trunk Data Blocks.

*NIT* = Outputs the Night Station Assignments for all CO, FX, and WATS trunks.

*UPN* = Outputs the Universal Port Number Assignments for trunks above T15.

2. **CTRL X** = Ignore line entered.

**CTRL H** = Backspace.

**DEL** = Stop printing and return to REQ.

**DEL DEL** = Exit program.

**Error Codes**

Program Name: Print Trunk Data Block (PTRK)	
Error Code	Meaning
ERPTR 00	Invalid response.
ERPTR 01	The PCB number or circuit number is out of range (REQ = PORNNX).
ERPTR 02	The input trunk group is out of range (REQ = TGPNN).
ERPTR 03	The input port is not assigned to a trunk (REQ = PORVAC).

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**5. Station Message Detail Recording Data Block**  
**(Table 9-5)**

**5.01** The Station Message Detail Recording Data Block (**DMDR Program**) defines the account code length and type of calls to be recorded for each trunk group for the SMDR feature. Data is entered as follows:

**REQ (Request)**—Indicates that the program has loaded. Three responses are possible:  
NEW—To create a new Data Block.  
CHG—To alter an existing Data Block.  
OUT—To delete an existing Data Block.

**TPN (Trunk Port Number)**—Allows Trunk Port Numbers to be printed in the SMDR report.  
Enter: Y to allow; N to deny.

**ACL (Account Code Length)**—Defines the length of the account code that is to be used or indicates that no account code is to be used.  
Enter: Number of digits to be used (1 ~ 12) or NONE.

**SPCC1 (Specialized Common Carrier #1)**—Informs the system of the DN that is used to access an SPCC (MCI, Sprint, etc.). The system will recognize the DN and enter a unique condition code in the SMDR output.  
Enter: SPCC Number NXXXXXX or Equal Access Number 10XXX or NONE.

**SPCC2 (Specialized Common Carrier #2)**—Same as SPCC1, but for a second carrier.  
Enter: SPCC Number NXXXXXX or Equal Access Number 10XXX or NONE.

**NOTE:**

*Data that is entered here will also appear at the SPCC1 and SPCC2 entries in the DTOL Data Block. SPCC1 and SPCC2 entries will not appear in the SMDR output.*

**TGP (Trunk Group)**—Defines the type of calls to be recorded by SMDR for a given trunk group.

Enter: XX YYY

(XX = Trunk group number)

(YYY = INC—Incoming only

OGT—Outgoing only

IAO—Incoming and outgoing

TOL—Toll calls only

INT—Incoming—all; Outgoing—toll only

NONE—No records).

Repeat for each trunk group that is used in the system.

**NOTE:**

*A call made by using an SPCC is **not** treated as a toll call for SMDR purposes.*

**TABLE 9-5**

**Procedure — Station Message Detail Recording (SMDR) Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	DMDR	
<b>— DISK LOADING —</b>			
	REQ	NEW, CHG, OUT	
Trunk Port Number	TPN	Y or N	1
Account Code Length	ACL	1 ~ 12 or NONE	
Special Common Carrier #1 DN	SPCC1	NXXXXXX or 10XXX or NONE	2
Special Common Carrier #2 DN	SPCC2	NXXXXXX or 10XXX or NONE	2
Trunk Group	TGP	XX YYY	3
	TGP		4

**NOTES:**

1. Y = Trunk Port Number will be printed in the SMDR report.  
N = Trunk Port Number will not be printed.
2. SPCC 1 & 2 entries are the DN of any Specialized Common Carrier (SPCC) used (MCI, Sprint, etc.) or Equal Access Number (10XXX). Data entered here will also appear in the PAR table in Toll Restriction (DTOL). (Data that is entered here will not appear in the SMDR output.)
3. Enter the trunk group number (XX) and the type of calls (YYY) to be recorded on this Trunk Group:  
 INC = Incoming only.  
 OGT = Outgoing.  
 IAO = Incoming and outgoing.  
 TOL = Toll only.  
 INT = Incoming — All.  
       Outgoing — Toll only.  
 NONE = No records.
4. TGP continues to be prompted until **DEL** is entered.
5. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

**Error Codes**

Program Name: SMDR Data Block (DMDR)	
Error Code	Meaning
ERMDR 00	SMDR customer data already exists (REQ = NEW).
ERMDR 01	SMDR customer data does not exist (REQ = CHG, OUT).

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**6. Print Station Message Detail Recording Data Block (Table 9-6)**

**6.01 To use the Print SMDR Data Block (PMDR Program):**

- Perform the Authorization Procedure (Level 1, 2, or 3):  
Enter: PMDR (in response to the OK prompt).
- When an REQ response is received after the program is loaded:  
Enter: PRT.

- The SMDR Data Block will be printed out in the following format:  
 REQ        PRT  
 ACL        XX (01 12)  
 SPCC1     NXXXXXX or 10XXX  
 SPCC2     NXXXXXX or 10XXX  
 TGP        XX XXX  
 TGP        XX XXX  
 etc.
- The REQ prompt will be given when the printout is complete.  
Enter: **DEL DEL CR** (to exit the program).

**TABLE 9-6**

**Procedure — Print Station Message Detail Recording (SMDR)**

Authorization Procedure must be completed. If an OK response is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	OK	PMDR	
- DISK LOADING -			
	REQ		i
- EXECUTE -			
	REQ		1

**NOTES:**

1. The only response possible is: PRT = Outputs SMDR Data Block.
2. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

**CHAPTER 10**

**TOLL RESTRICTION DATA**

**1. Toll Restriction Data Block (Table 10-1)**

**1.01** The Toll Restriction Data Block (**DTOL Program**) defines the office codes and area codes to be allowed or denied by the Toll Restriction feature.

**1.02** There are ten classes of Toll Restriction for defining a station's outward dialing privileges. Of these ten classes, eight may be customized (0 ~ 7), one restricts the dialing of numbers containing 0 or 1 as the first or second digit (8), and one applies no restrictions (**NONE**). The privileges of each station may be tailored to meet the customer's needs. Each class includes specific restrictions, one area code table, and one office code table. For convenience, the tables may be defined as either allow or deny tables.

**1.03** When specific office codes are to be allowed or denied within a specified area code, 32 area/office code tables are available as exceptions to the area code tables. Data is entered as follows:

**REQ (Request)**—Indicates that the program has loaded. The only response possible is **CHG**.

**TYPE (Sub-program Type)**—There are three sub-programs within the **DTOL Program**. Select one of the following three possible responses:

**PAR (Miscellaneous Parameters Table—Table 10-2)**—Defines system operating parameters.

**CLS (Restriction Class Table—Table 10-3)**—Defines each class of Toll Restriction that may be customized (classes 0 ~7).

**AOC (Area/Office Code Exception Table—Table 10-4)**—Defines exceptions to the dialing allowances that are defined in the **CLS** area code table.

**1.04** Each sub-program can be entered independently with one of the above responses to the **TYPE** prompt. After entering the desired sub-program; press the return key (**CR**). The prompts associated with each sub-program will then be issued sequentially.

**TABLE 10-1**

**Procedure — Toll Restriction Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows

ITEM	PROMPT	USER ENTRY	NOTE
	OK	DTOL	
- DISK LOADING -			
	REQ	CHG	
	TYPE	PAR, CLS, AOC	1

**NOTES:**

1. Possible entries are:  
*PAR = Miscellaneous Parameters Table (10-2).*  
*CLS = Restriction Class Table (10-3).*  
*AOC = Area/Office Code Exception Table (10-4).*
2. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

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**When entering PAR in response to TYPE (Table 10-2), the next prompt will be:**

**HAC (Home Area Code)**—Defines the area code in which the system is operating. Home area codes are also used to analyze a dialed number that does not contain an area code. Data that is entered here will appear in the Least Cost Routing Data Block (**DLC1 Program**, PAR table, HAC prompt).

Enter: Area Code N0/1X.

**NOTE:**

$N = 2 \sim 9$  0/1 = 0 or 1  $X = 0 \sim 9$ .

**ICC (Interchangeable Codes)**—A "Y" informs the system that interchangeable codes are used. Interchangeable codes are office codes that have 0 or 1 as the second digit (N0/1X format). Area codes will be identified as the three digits following the DDD prefix. Office codes will be identified as the first three digits when a DDD prefix is not dialed (see DDP prompt).

Enter: Y or N.

**SPCC1 (Specialized Common Carrier #1)**—Informs the system of the DN that is to be used to access an SPCC (MCI, Sprint, etc.) or equal access carrier (10XXX). The system will recognize the DN and ignore it for Toll Restriction purposes. Data that is entered here will also appear in the **DMDR Program**.

Enter: NXXXXXX (SPCC Number) or 10XXX (Equal Access Number) or NONE.

**SPCC2 (Specialized Common Carrier #2)**—Same as SPCC1, but for a second carrier.

Enter: NXXXXXX (SPCC Number) or 10XXX (Equal Access Number) or NONE.

**DDP (Direct Distance Dialing Prefix)**—Defines the Direct Distance Dialing (DDD) prefix in the Numbering Plan Area (NPA). If ICC is "Y," then N0/1X and NXX become interchangeable, enabling area codes and office codes to have 0 or 1 as their second digit. In this case, the DDP is used to differentiate between the two code types (see example). If the ICC response is "N," then

calls will be made using the normal NPA formula of N0/1X and NNX.

Enter: 1, 2, or 3 digits or NONE.

**Example:** If ICC is "Y" and the DDP is programmed as 1, then the dialed number 209-1234 is recognized as a call within the home area code, while the dialed number 1-209-555-1234 is recognized as a call outside the home area code. If ICC is "N," this dialing plan is not used.

**NOTE:**

*If a DDD prefix is used in the NPA, it must be entered here even if Toll Restriction is not used.*

**AUTH1 (Authorization Code #1)**—Indicates the number of digits in the authorization code to be used with SPCC1. These digits and the SPCC1 DN that is entered will be ignored for Toll Restriction purposes.

Enter: 1 ~ 12 or NONE.

**NOTE:**

*When using equal access (10XXX) for SPCC1 or SPCC2, do not enter an authorization code.*

**AUTH2 (Authorization Code #2)**—Same as AUTH1, but for SPCC2.

Enter: 1 ~ 12 or NONE.

**NOTE:**

*The SPCC and AUTH entries will not appear in the SMDR output.*

TABLE 10-2

**Miscellaneous Parameters Table**

Load the DTOL Utility Program. When the TYPE prompt is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	TYPE	PAR	
Home Area Code	HAC	NO/1X	1
Interchangeable Codes	ICC	Y or N	2
Specialized Common Carrier #1DN	SPCC1	NXXXXXX or 10XXX or NONE	3
Specialized Common Carrier #2DN	SPCC2	NXXXXXX or 10 XXX or NONE	3
DDD Prefix	DDP	XXX (1-, 2-, or 3-digits) or NONE	
Number of digits for SPCC1 Authorization Code	AUTH1	1 ~ 12 or NONE	4
Number of digits for SPCC2 Authorization Code	AUTH2	1 ~ 12 or NONE	4

**NOTES:**

1. This entry is coupled with the HAC entry in the PAR table in Least Cost Routing (DLC1). Data that is entered here will also appear in that table.
2. Informs the system if interchangeable codes are used (office codes with NO/1X format).
3. SPCC 1 & 2 entries are the DN of any specialized common carrier (SPCC) used (MCI, Sprint, etc.) or Equal Access Number (10XXX). Data that is entered here will also appear in the SMDR (DMDR Program), but **will not** appear in the SMDR output.
4. This represents the number of digits in the authorization codes that are used with SPCC1 or SPCC2. Data that is entered here will **not** appear in the SMDR output.
5. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

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When entering CLS in response to TYPE (Table 10-3), the next prompt will be:

**CN0 (Class Number)**—Indicates the number of the Toll Restriction class that is being defined. This number is used in response to the TOL prompt in the DEKT, DSTT, and DTGP Programs .

Enter: 0 ~ 7 (Class Number) or NOUT.

**NOTE:**

Enter OUT after the class number (N) in order to remove that class from service.

**OPR (Operator and Operator-Assisted Calls)**—

A “Y” response allows a station in this toll restriction class to make operator and operator-assisted calls.

Enter: Y or N.

**INT (International Calls)**—A “Y” response allows

a station in this toll restriction class to make international calls (011, 01).

Enter: Y or N.

**LDA (Long Distance Directory Assistance)**—A

“Y” response allows a station in this toll restriction class to call long distance directory assistance. Any area code + 555 + XXXX will be allowed.

Enter: Y or N.

**ACT (Area Code Table Type)**—Defines the Area

Code Table of this toll restriction class as either an Allow (A) or a Deny (D) type table.

- An “A” entry will allow all area codes except those deleted below, in response to the ACD prompt.
- A “D” entry will deny all area codes except those added below, in response to the ACD prompt.

Enter: A or D.

**ACD (Area Code Table)**—Indicates the area codes that are to be allowed or denied for this toll restriction class. Area codes may be either added or deleted, as described above.

Enter: A N0/1X N0/1X etc. to add area codes  
... or ...

D N0/1X N0/1X etc. to delete area codes.

**NOTES:**

1.  $N = 2 \sim 9$   $O/1 = 0$  or  $1$   $X = 0 \sim 9$ .
2. If “D” is entered in response to the ACT prompt, then “D” must also be entered in response to ACD (and vice versa). For no entries, press the return key (CR).
3. Following the ACD prompt, an “A” prompt will appear and any entered codes will be added. To delete, press the return key (CR). A “D” will appear and any entered codes will be deleted.

**OCT (Office Code Table Type)**—Defines the Of-

fice Code Table of this toll restriction class as either an Allow (A) or a Deny (D) type table. An “A” entry will allow all office codes within the Home Area Code (HAC), except those deleted in response to the OCD prompt. A “D” entry will deny all office codes within the Home Area Code, except those added in response to the OCD prompt.

Enter: A or D.

**OCD (Office Code Table)**—Indicates the office

codes to be allowed or denied for this toll restriction class. Office codes may be added or deleted either as single 3-digit codes, or as a “range” covering up to ten sequential 3-digit office codes. Ranges are entered by using a 4-digit format; where the first two digits are common to all codes in this range; the third digit represents the starting point of the range (from) for the last digit of the office code; and the fourth digit represents the end point of the range (to) for the last digit of the office code. See ranges example.

Enter: A NXXX NXX NXXX etc. to add office codes

... or ...

D NXXX NXX NXXX etc. to delete office codes.

**NOTES:**

1.  $N = 2 \sim 9$ ,  $X = 0 \sim 9$ .
2. If “D” is entered in response to the OCT prompt, then “D” must also be entered in response to OCD (and vice versa). For no entries, press the return key (CR).
3. Codes cannot be added and deleted in the same pass through the table. A separate pass is required for each step.
4. Following the OCD prompt, an “A” prompt



*will appear and any entered codes will be added. To delete, press the return key (CR). A "D" will appear and any entered codes will be deleted.*

<b>RANGES EXAMPLE:</b>	
<b>4-digit Format</b>	<b>Office Codes</b>
2209	220 ~ 229
2316	231 ~ 236
2478	247 ~ 248

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**TABLE 10-3**

**Restriction Class Table**

Load the DTOL Utility Program. When the TYPE prompt is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	TYPE	CLS	
Class Number	CNO	0 ~ 7 (NOUT-DEFAULT)	1 & 2
0 and 0 + Calls Allowed	OPR	Y or N (N)	
International Calls (011, 01) Allowed	INT	Y or N (N)	
L.D. Directory Assist. (NPA-555-1212) Allowed	LDA	Y or N (N)	
Area Code Table = Allow or Deny	ACT	A or D (A) <i>RECEPTION TRL</i>	3
Area Code List = Add or Delete	ACD	A NO/1X NO/1X etc. or D NO/1X NO/1X etc.	4
Office Code Table = Allow or Deny	OCT	A or D (A)	5
Office Code List = Add or Delete	OCD	A NXX NXXX etc. or D NXX NXXX etc.	6

Default values are noted in parentheses ().

**NOTES:**

1. Enter the number of the Toll Restriction class (0 ~ 7) that is being defined. This number will be used in the DEKT, DSTT, and DTGP Data Blocks in response to the TOL prompt.
2. Enter OUT after the class number (NOUT) to remove that class from service.
3. Defines the Area Code Table of this class as an allow (A) or deny (D) type.
  - a. If A is entered, the system **will allow** all area codes **except** those **deleted** in response to the ACD prompt (Note 4).
  - b. If D is entered, the system **will deny** all area codes **except** those **added** in response to the ACD prompt (Note 4).
4. Used to add or to delete area codes from the table (Note 3).
5. Defines the ~~Area Code~~ <sup>OFFICE CODE</sup> Table of this class as an allow (A) or deny (D) type.
  - a. If A is entered, the system **will allow** all area codes **except** those **deleted** in response to the OCD prompt (Note 6).
  - b. If D is entered, the system **will deny** all area codes **except** those **added** in response to the OCD prompt (Note 6).
6. Used to add or delete office codes from the table (Note 5). Ranges are possible (7309 = 730 ~ 739).
7. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

When entering AOC in response to TYPE (Table 10-4), the next prompt will be:

**TNO (Table Number)**—Selects one of 32 area/office code exception (AOC) tables.  
Enter: 0 ~ 31 (Table Number).

**ARC (Area Code)**—Identifies the area code to which this AOC table is assigned. A maximum of eight AOC tables can be assigned to any area code (the table numbers must be sequential).  
Enter: Area Code N0/1X or NONE.

**NOTE:**

$N = 2 \sim 9$   $0/1 = 0$  or  $1$   $X = 0 \sim 9$ .

**CNO (Class Number)**—Defines the toll restriction class numbers (0 ~ 7) that are subject to this exception table. Any number of classes, up to maximum of eight, may be entered. If a toll restriction class table is allowed to dial an area code, then all office codes within that specified area code will be allowed, except those specifically added in response to the OFC prompt. If a toll restriction class table is not allowed to dial an area code, all office codes within that specified area code will not be allowed, except those specifically added in response to the OFC prompt.  
Enter: Class Numbers 0 1 2 etc. or NONE.

**OFC (Office Codes)**—Indicates the office codes that are assigned to this area/office code exception table. Office codes may be added or deleted as single 3-digit codes or as a range covering up to ten sequential 3-digit office codes (the area/office code table is initially blank). Ranges are entered by using a 4-digit format; where the first two digits are common to all codes in this range; the third digit represents the starting point of the range (from) for the last digit of the office code; and the fourth digit represents the end point of the range (to) for the last digit of the office code. See RANGES example, CLS sub-program, OCD prompt.

Enter: A NXXX NXX NXXX, etc. to add office codes.

...or...

D NXXX NXX NXXX etc. to delete office codes.

**NOTES:**

1.  $N = 2 \sim 9$ ,  $X = 0 \sim 9$ .
2. Codes cannot be added and deleted in the same pass through the table. A separate pass is required for each step.
3. When entering office codes (OFC prompt), the system will prompt "A" and any entries made will be added. To delete office codes, press the return key (CR). A "D" will appear and any entries made will be deleted.

**TABLE 10-4**

**Area/Office Code Exception Table**

Load the **DTOL Utility Program**. When the **TYPE** prompt is received, proceed as follows:

ITEM	PROMPT	USER ENTRY	NOTE
	<b>TYPE</b>	AOC	
Table Number	<b>TNO</b>	0 ~ 31	
Area Code	<b>ARC</b>	N0/1X or NONE <i>ERASE</i>	1
Class Number	<b>CNO</b>	0 1 etc. or NONE	
Office Codes	<b>OFC</b>	A NXXX NXX etc. or D NXXX NXX etc.	2 & 3

**NOTES:**

- ONLY DELETE BY PRESSING INPUT*
1. **ARC** identifies the area code to which this AOC is assigned. Format is N0/1X (N = 2 ~ 9, X = 0 ~ 9). A maximum of eight AOC tables can be assigned to any one area code, but the table numbers (TNO) must be sequential.
  2. Following the **OFC** prompt, the system will prompt "A" and any office codes that are entered will be **added**. To delete an office code, press the return key. The system will then prompt "D" and any entries that are made will be **deleted**. Office codes entered will be an **exception** to the listed area code and class. Ranges are possible (7309 = 730 ~ 739).
  3. Codes cannot be added and deleted in the same pass through the table. A separate pass is required for each step.
  7. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.

**Error Codes**

Program Name: Toll Restriction Data Block (DTOL)	
Error Code	Meaning
ERTRD 00	Area code (N0/1X) is beyond range.
ERTRD 01	Numeric error (0 ~ 9).
ERTRD 02	Authorization code is out of range (0 ~ 12).
ERTRD 03	Class number is out of range (0 ~ 7).
ERTRD 05	Number of entries exceeds the maximum (20).
ERTRD 06	Table number is beyond range (0 ~ 31).
ERTRD 07	Class numbers exceed the maximum (8).
ERTRD 08	Office code does not exist.

**2. Print Toll Restriction Data Block (Table 10-5)**

**2.01** To use the Print Toll Restriction Data Block (PTOL Program):

- Perform the Authorization Procedure (Level 1, 2, or 3).  
 Enter: PTOL (in response to the OK prompt).
- When an REQ prompt is received after the program is loaded:  
 Enter one of the following commands:

**TRDALL**—All Toll Restriction Data Blocks will be output.

**PAR**—Miscellaneous Parameters Table will be output.

**CLSALL**—All code tables (area, office and area/office) will be output for all eight classes.

**CLSCNX**—All code tables (area, office, and area/office) will be output for class X.

**AOCALL**—All AOC tables will be output.

**AOCNOXX**—The area code and all office codes for AOC table number XX will be output.

**CODXXX**—The AOC table which relates to area code XXX will be output.

**TABLE 10-5**

**Procedure — Print Toll Restriction Data Block**

Authorization Procedure must be completed. If an OK response is received, proceed as follows

ITEM	PROMPT	USER ENTRY	NOTE
	OK	PTOL	
- DISK LOADING -			
	REQ		1
- EXECUTE -			
	REQ		1

**NOTES:**

1. **TRDALL** = Outputs all Toll Restriction Data Blocks.  
**PAR** = Outputs Miscellaneous Parameters Table.  
**CLSALL** = Outputs all Code Tables (Area, Office, and Area/Office) for all eight classes.  
**CLSCNX** = Outputs all Code Tables (Area, Office, and Area/Office) for class X.  
**AOCALL** = Outputs all Area/Office Code Tables.  
**AOCNOXX** = Outputs the Area Code and all Office Codes for Area/Office Code Table number XX.  
**CODXXX** = Outputs the Area/Office Code Table relating to Area Code XXX.
2. **CTRL X** = Ignore line entered.  
**CTRL H** = Backspace.  
**DEL** = Stop printing and return to REQ.  
**DEL DEL** = Exit program.



## CHAPTER 11

### DATA SWITCHING DATA

#### 1. Digital Data Interface Unit Data Block (Table 11-1)

**1.01** The DDIU Data Block (**DDIU Program**) defines all parameters of a given Digital Data Interface Unit. A DDIU Data Block must be completed for each DDIU in the system. Not all of the prompts listed below are used for both DDIUs (-MA or -MAT). The response given to the TYP (DDIU type) prompt will determine which prompts will be given. Refer to the notes found in Table 11-1 to determine which prompts can be expected for each DDIU type. Data is entered as follows:

**REQ (Request)**—Indicates that the program has loaded. Three responses are possible:  
NEW—To create a new Data Block.  
CHG—To alter an existing Data Block.  
OUT—To delete an existing Data Block.

**POR (Port Number)**—Identifies the hardware location of the DDIU circuit that is to be defined. The port number has two parts:

- 1) NDCU or NMDU PCB location:  
PERCEPTION<sub>e</sub>: L00 ~ L11; L15 ~ L26 (NN).  
PERCEPTION<sub>ex</sub>: L00 ~ L31.
- 2) Circuit number on that PCB: 1 ~ 8 (X) on the NDCU type or 1 ~ 4 (X) on the NMDU type.  
Enter: Port number of DDIU (LNNX).

**NOTES:**

1. There is a limit of four data PCBs per cabinet.
2. Port L318 cannot be assigned.

**TYP (Type)**—Identifies the type of hardware that is to be connected to this port.  
Enter: DIU1 (DDIU-MA) or DIU2 (DDIU-MAT).

**DN (Directory Number)**—Assigns the directory number (data number) of the DDIU.  
Enter: 1, 2, 3, or 4 digits.

**HNT (Hunt Directory Number)**—Defines the data station to which this DN hunts. (Used with the

Hunting feature.)

Enter: XXXX (1 ~ 4 digits) for the next DN in the hunt group or NONE.

**COS (Class of Service)**—Assigns one of the 16 Classes of Service to the data station. (The Classes of Service are defined in the **DCOS Program**.)

Enter: COS Number (0 ~ 15).

**GOD (Group of DDIUs)**—Assigns the DDIU to one of the 16 possible DDIU groups. Dial access into a group can be denied by Class of Service.  
Enter: 0 ~ 15.

**TEN (Tenant Number)**—Assigns the data station to one of the two possible tenants in the system.  
Enter: 0 if tenant service is not selected in the System Data Block (TEN = N).  
0 or 1 to specify tenant, if tenant service is selected in the System Data Block (TEN = Y).

**NOTE:**

The TEN entry for a DDIU-MAT should be the same as the TEN entry for the electronic telephone to which it is assigned.

**KEY (Button Assignment)**—Assigns a DN or feature to one of the flexible buttons.  
Enter:

- 1) The number of the button that is to be defined, followed by a space. Buttons are numbered 0 ~ 9, starting from the bottom of the vertical buttonstrip. The three buttons located next to the dialpad (**TRANSFER**, **HOLD**, and **RLS**) have fixed assignments. The **TRANSFER** and **HOLD** buttons are for future use and are non-functional.

- 2) Feature or DN assignments. The possible assignments are as follows:

Directory (Station) Number: (1, 2, 3, or 4 digits):

SCR NNNN XXXX—Single Call Ring.

- Incoming calls will audibly ring the DDIU.
- NNNN = Directory (station) Number.
- XXXX = Hunt number = Enter DN to which this DN will hunt.

SCN NNNN XXXX—Single Call No Ring.

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- Incoming calls will not audibly ring DDIU (LED flash only).
- NNNN = Directory (station) Number.
- XXXX = Hunt number = Enter DN to which this DN will hunt.

**Features:**

ACB—Automatic Callback

ADL/FAD—Automatic Dialing (Flexible/Fixed)

DND—Do Not Disturb

RND—Repeat Last Number Dialed

SDC/SDU—Station Speed Dial Controller/User

SDS—System Speed Dial.

**KEY**—The prompt will be repeated until all entries have been made and the **DEL** key is pressed.