NEC

NEAX® 2000 IVS

Small Platform System Manual

NEAX2000 IVS
Small Platform System Manual

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REGULATORY INFORMATION

1. Regulatory Requirements

The Federal Communications Commission (FCC) has established rules that permit the NEAX2000 IVS to be directly connected to the telephone network. A jack is provided on party lines or coin lines.

The telephone company may make changes in its technical operations and procedures. If such changes affect the compatibility or use of the NEAX2000 IVS, the telephone company must provide adequate notice of the changes.

This equipment complies with the requirements in Part 15 of FCC Rules for a Class A computing device. Operation of this equipment in a residential area may cause unacceptable interference to radio and TV reception requiring the operator to take whatever steps are necessary to correct this interference.

2. FCC Part 15 Requirements

In compliance with FCC Part 15 Rules, the following statement is provided:

WARNING

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

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3. FCC Part 68 Registration

3.1 Company Notification

Before installing the NEAX2000 IVS to the telephone network, the telephone company must be provided with the following:

- Your telephone number

- The FCC registration numbers:

	JAPAN	USA
PBX	AY5JPN-20542-PF-E	AY5USA-21582-PF-E
Hybrid	AY5JPN-20543-MF-E	AY5USA-21583-MF-E
Key system	AY5JPN-20586-KF-E	AY5USA-21584-KF-E

The Ringer Equivalence Number is 1.6B; the required USOC jacks are RJ21X, RJ2EX, and RJ2GX.

Note : *Limitations on features exist if the system is registered as a KF system. Refer to Features and Specifications for details.*

3.2 Service Requirements

In the event of equipment malfunction, all repairs will be performed by NEC or an authorized distributor of NEC. It is the responsibility of users requiring service to report the need for service to NEC or to one of their authorized distributors.

If the equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. If advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations, or procedures that affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications in order to maintain uninterrupted service.

If trouble is experienced with this equipment, please contact NEC America, Inc.'s Oregon plant at (503) 648-5000 for repair and/or warranty information. If the trouble is causing harm to the telephone network, the telephone company may request that you remove the equipment from the network until the problem is resolved.

NO REPAIRS CAN BE DONE BY THE CUSTOMER.

3.3 Location of FCC Compliance Labels

Labels stating the NEAX2000 IVS FCC registration number and compliance with FCC Parts 15 and 68 are attached to the Base Unit. If the unit is in a table-top configuration, the labels are located on the side of the enclosure. Example of the labels are as follows:

"This equipment complies with the requirements in Part 15 of FCC Rules for a Class A computing device. Operation of this equipment in a residential area may cause unacceptable interference to radio and TV reception requiring the operator to take whatever steps are necessary to correct the interference."	NEAX2000 IVS Complies With Part 68 FCC Rules FCC Registration Numbers : AY5USA-21582-PF-E AY5USA-21583-MF-E AY5USA-21584-KF-E Ringer Equivalence : 1.6B **NEC** NEC America, Inc. MADE IN USA

4. Direct-Inward Dialing (DID) Calls

Allowing this equipment to be operated in such a manner as to not provide for proper answer supervision is a violation of Part 68 of the FCC's rules.

PROPER ANSWER SUPERVISION IS WHEN:

   (a)   This equipment returns answer supervision to the PSTN when DID calls are:
   - Answered by the called station
   - Answered by the attendant
   - Routed to a recorded announcement that can be administered by the CPE user
   - Routed to a dial prompt

(b) This equipment returns answer supervision on all DID calls forwarded to the PSTN. Permissible exceptions are:

- A call is unanswered
- A busy tone is received
- A reorder tone is received.

EQUAL ACCESS REQUIREMENTS

This equipment is capable of providing users access to interstate providers of operator services through the use of access codes. Modification of this equipment by call aggregators to block access dialing codes is a violation of the TElephone Operator Consumers Act of 1990.

5. Regulatory Information on Single-Line Analog Telephones

NEC single-line telephones comply with Part 68 of FCC Rules. On the bottom of the equipment is a label that states, among other information, the FCC registration number and ringer equivalence number (REN) for the equipment. If requested, this information should be provided to the telephone company.

The equipment uses the following USOC jacks: RJ11C.

The equipment should be used only behind a PBX or KTS. The REN is used to determine the quality of device that may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all, areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to the line as determined by the total RENs, contact the telephone company to determine the maximum REN for the calling area.

6. Hearing Aid Compatibility

The D^{term} terminals provided for the NEAX2000 IVS are hearing aid compatible. FCC rules prohibit the use of non-hearing aid compatible telephones.

NEC-type single-line telephone sets used in conjunction with the NEAX2000 IVS are hearing aid compatible. If other than NEC-type single-line telephone sets are to be used with this system, ensure that these are hearing aid compatible.

7. Industry Canada CS-03

Certification number: 140 5976A

Load Number of the equipment: 21

NOTICE: The Industry Canada label identifies certified equipment. The certification means that the equipment meets certain telecommunications network protective operational and safety requirements. The department does not guarantee the equipment will operate to the user's satisfaction.

Before installing the equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or installations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request that the user disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This protection may be particularly important in rural areas.

CAUTION: **Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.**

CAUTION: **The act of monitoring or recording telephone conversations under certain circumstances may violate federal or state statutes. Consultation with your legal counsel prior to engaging in such practices would be advisable.**

NOTICE: The Load Number assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirement that the total of the load numbers of all the devices does not exceed 100.

8. Safety Certifications

This equipment has been listed by Underwriters Laboratories and found to comply with all the applicable requirements of the standard for telephone equipment U.L. 1459. This equipment complies with CSA standard C 22.2 No. 225.

8.1 Safety Considerations

When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury, including the following:

(1) Never install telephone wiring during a lightning storm.

(2) Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.

(3) Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.

(4) Use caution when installing or modifying telephone lines.

(5) Read and understand all instructions.

(6) Follow all warnings and instructions marked on the product.

(7) Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

(8) Do not use this product near water; for example, under water pipes near a bath tub, sink, or laundry tub, in a wet basement, or near a swimming pool.

(9) Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.

(10) Slots and openings in the cabinet and the back or bottom are provided for ventilation, to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register. This product should not be placed in a built-in installation unless proper ventilation is provided.

(11) This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power source available, consult with your local power company.

(12) This product normally connected with a three wire grounding type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding type plug.

(13) Do not allow anything to rest on the power cord. Do not locate this product where the cord will be abused by persons walking on it.

(14) Do not overload wall outlets and extension cords as this can result in the risk of fire or electric shock.

(15) Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock. Never spill liquid of any kind on the product.

(16) To reduce the risk of electric shock, do not disassemble this product, but take it to a qualified serviceman when some service or repair work is required. Opening or removing covers may expose you to dangerous voltages or other risks. Incorrect reassembly can cause electric shock when the appliance is subsequently used.

(17) Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

   (a)   When the power supply cord or plug is damaged or frayed.

   (b)   If liquid has been spilled into the product.

   (c)   If the product has been exposed to rain or water.

   (d)   If the product does not operate normally by following the operating instructions. Adjust only those controls, that are covered by the operating instructions because improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.

   (e)   If the product has been dropped or the cabinet has been damaged.

   (f)   If the product exhibits a distinct change in performance.

(18) Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.

(19) Do not use the telephone to report a gas leak in the vicinity of the leak.

CHAPTER 1 INTRODUCTION

1. PURPOSE

This manual explains the installation procedure for the NEAX2000 IVS (PBX) Small Platform System.

2. REFERENCE MANUAL

During installation, refer also to the NEAX2000 IVS manuals below:

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REFERENCE MANUALS                          DESCRIPTION

┌──────────────────────────┐
│   MAINTENANCE MANUAL      │──────────────▶  MAINTENANCE PROCEDURE
└──────────────────────────┘

┌──────────────────────────┐
│   COMMAND MANUAL          │──────────────▶  COMMAND DESCRIPTION
└──────────────────────────┘

┌──────────────────────────┐
│   CIRCUIT CARD MANUAL     │──────────────▶  CIRCUIT CARD DESCRIPTION
└──────────────────────────┘
                           ├──────────────▶  CIRCUIT CARD MOUNTING CONDITIONS
                           └──────────────▶  SWITCH SETTING OF CIRCUIT CARD
```
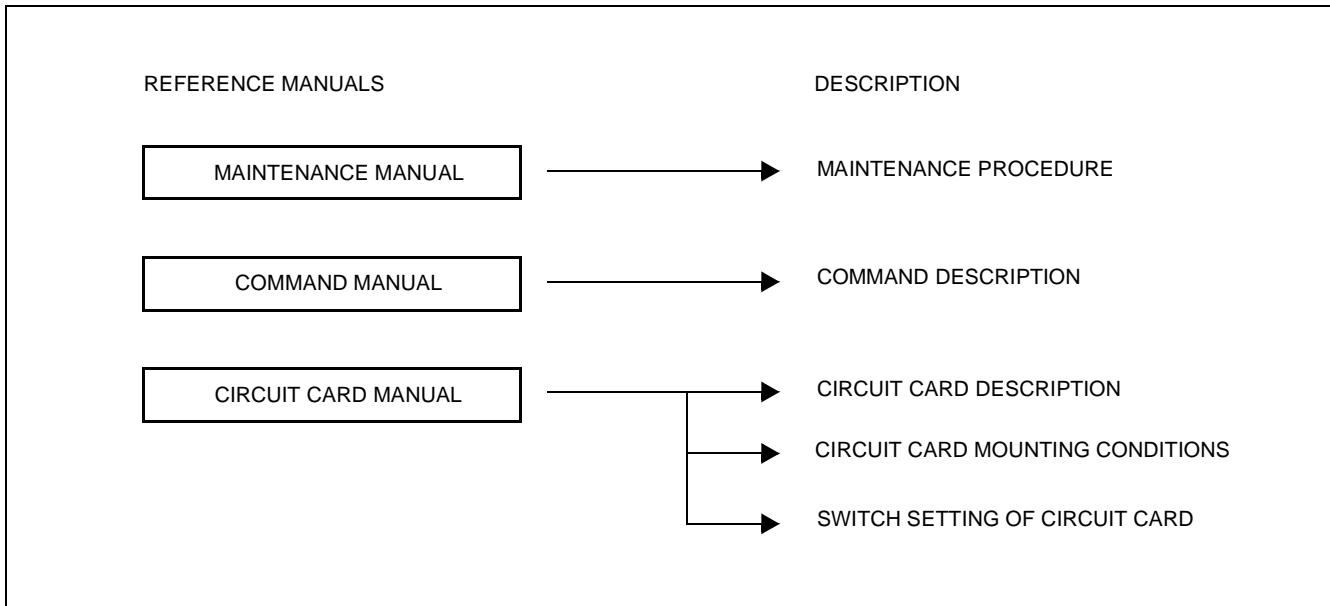
Figure 1-1   Reference Manuals for Installation

3. HOW TO FOLLOW THIS MANUAL

The Installation Procedure is shown by means of flowcharts with an NAP (NEC Action Procedure) Number. The detail of the work for each step is described in corresponding NAP.

4. SCOPE OF INSTALLATION PROCEDURES

This manual covers the installation shown in Figure 1-2.

NAP-200-003:
 INSTALLATION OF MAIN EQUIPMENT
NAP-200-007:
 SWITCH SETTING OF CIRCUIT CARDS
NAP-200-008:
 MOUNTING OF CIRCUIT CARDS

NAP-200-006-1:
 INSTALLATION OF
 SN716 DESKCON

MDF

SN716
DESKCON

SN610
ATTCON

Multiline Terminal

MDF CABLE

NAP-200-004:
 CONNECTION OF
 BATTERY

BATTERY

NAP-200-005:
 CABLE RUNNING
 TO MDF

NAP-200-006:
 TERMINATION OF
 CABLES ON MDF

SINGLE LINE TELEPHONE

TO TAS INDICATOR, ALM
INDICATOR

Figure 1-2   Scope of Installation Procedures

CHAPTER 2   GENERAL INFORMATION

1.   TRUNKING DIAGRAM

Figure 2-1 shows a typical trunking diagram for the PBX.
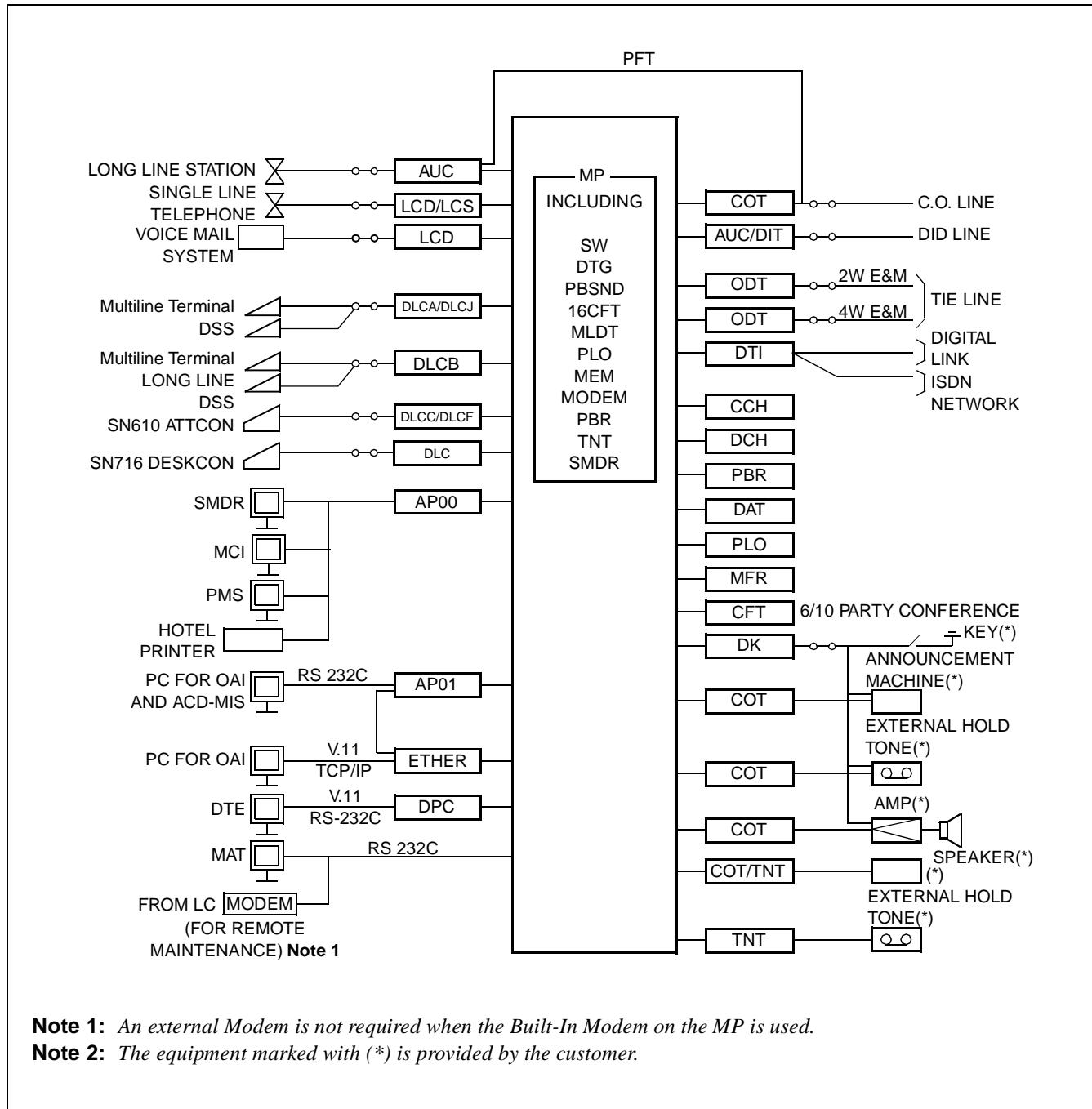
Note 1: *An external Modem is not required when the Built-In Modem on the MP is used.*
Note 2: *The equipment marked with (*) is provided by the customer.*

Figure 2-1   PBX Trunking Diagram

Table 2-1 Symbols in Trunking Diagram Description

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
AMP	Amplifier for External Speaker	KEY	External Key
AP00	SMDR/MCI/PMS/Hotel Application Card	LCD/LCS	Line Circuit Card (for Single Line Telephone)
AP01	OAI Interface Card	MAT	Maintenance Administration Terminal
AUC	Analog Universal Circuit Card (Long Line Circuit, DID Trunk)	MDF	Main Distribution Frame
BGM	External Music Source for Multiline Terminal Back Ground Music Service	MEM	Main Memory
CCH	Common Channel Handler Card	MFR	MF Receiver Trunk Card
CFT	6/10 party Conference Trunk Card	MLDT	Melody Trunk Card
COT	C.O. Trunk Card	MODEM	Modem
DAT	Digital Announcement Trunk Card	MP	Main Processor Card
DCH	D-Channel Handler Card	PFT	Power Failure Transfer
DIT	DID Trunk Card	PMS	Property Management System
DK	External Relay/Key Interface Card	ODT	OD Trunk Card (2/4 wire E&M)
DLC	Digital Line Circuit Card (for Multiline Terminal/SN716 DESKCON)	PBR	PB Receiver Card
DLCB	Digital Line Circuit Card (for Multiline Terminal Long Line/SN716 DESKCON)	PBSND	PB Sender
DLCC/DLCF	Digital Line Circuit Card (for SN610 ATTCON)	PLO	Phase Lock Oscillator
DPC	Data Port Controller Card	SMDR	Station Message Detail Recording
DSS	DSS Console	SW	Time Division Switch
DTI	Digital Trunk Interface Card	TNT	Tone/Music Source Interface Card
DTG	Digital Tone Generator	16CFT	16 Circuit Three/Four Party Conference Trunk
ETHER	Ethernet Control Card		
FP	Firmware Processor Card	PW00	Power card for two Zone Transceivers or one Attendant Deskcon

Note : *Refer to NAP-200-008 and the Circuit Card Manual for details of circuit cards.*

2. SYSTEM CONFIGURATIONS

The PBX system provides four installation methods as follows:
- Floor Standing Installation

- Wall-Mounting Installation

- 19-Inch Rack-Mounting Installation

- Desk Top Installation

This equipment can only be serviced by a qualified service person.
Examples of system configurations for each installation method are shown in Figure 2-2 through Figure 2-5.
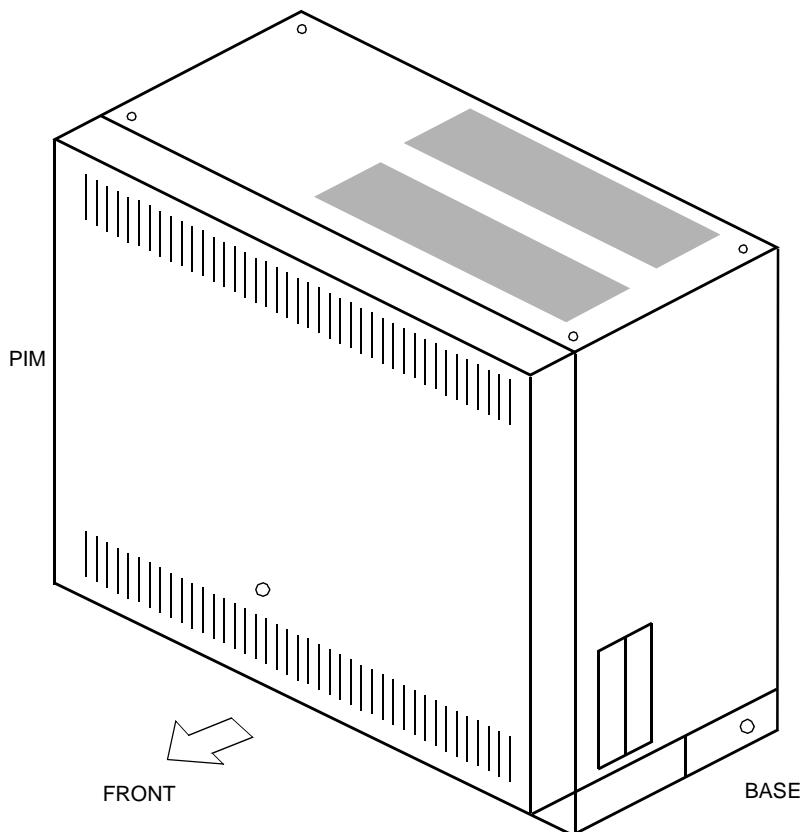
Figure 2-2   Floor Standing Installation
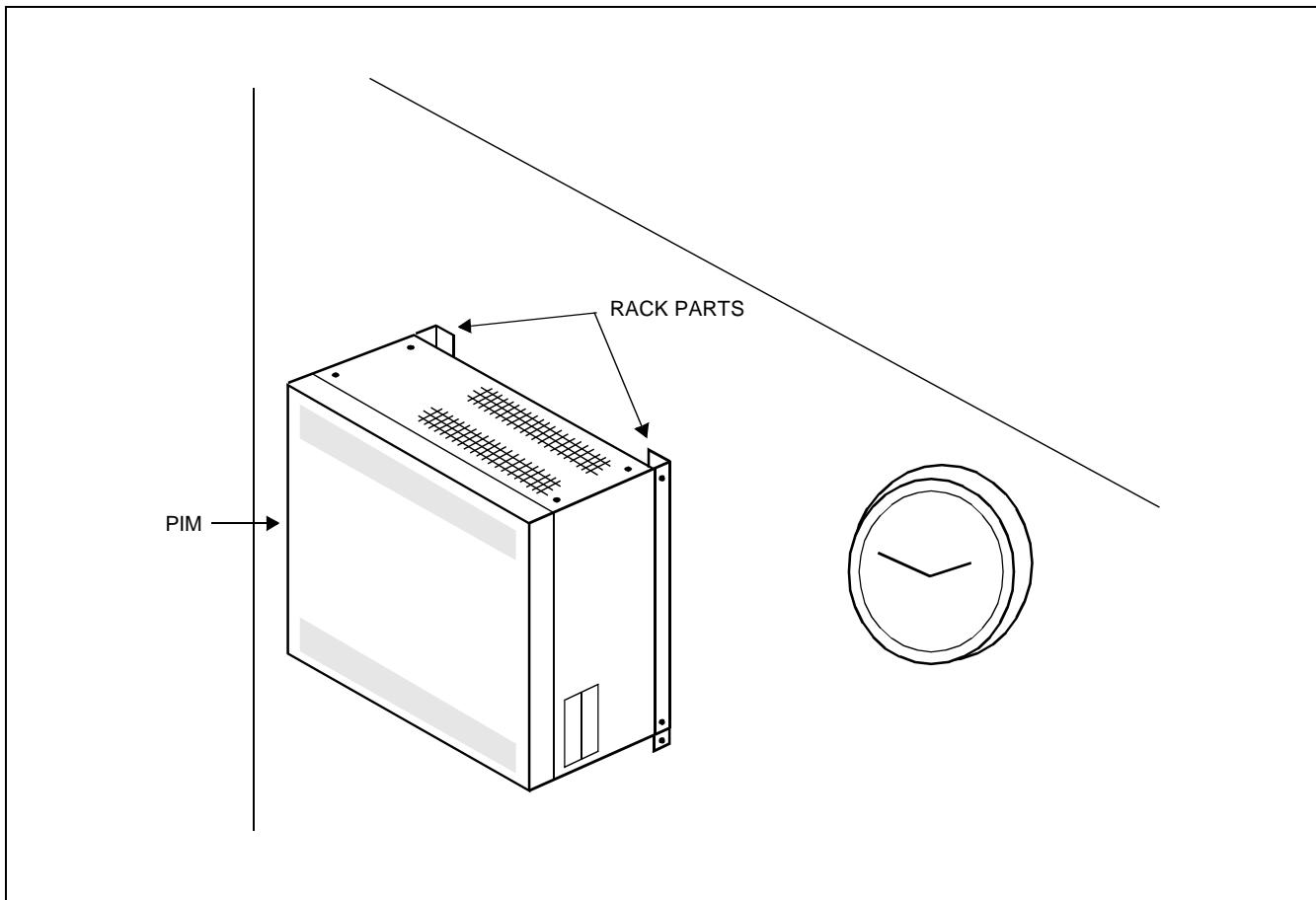
Figure 2-3   Wall-Mounting Installation
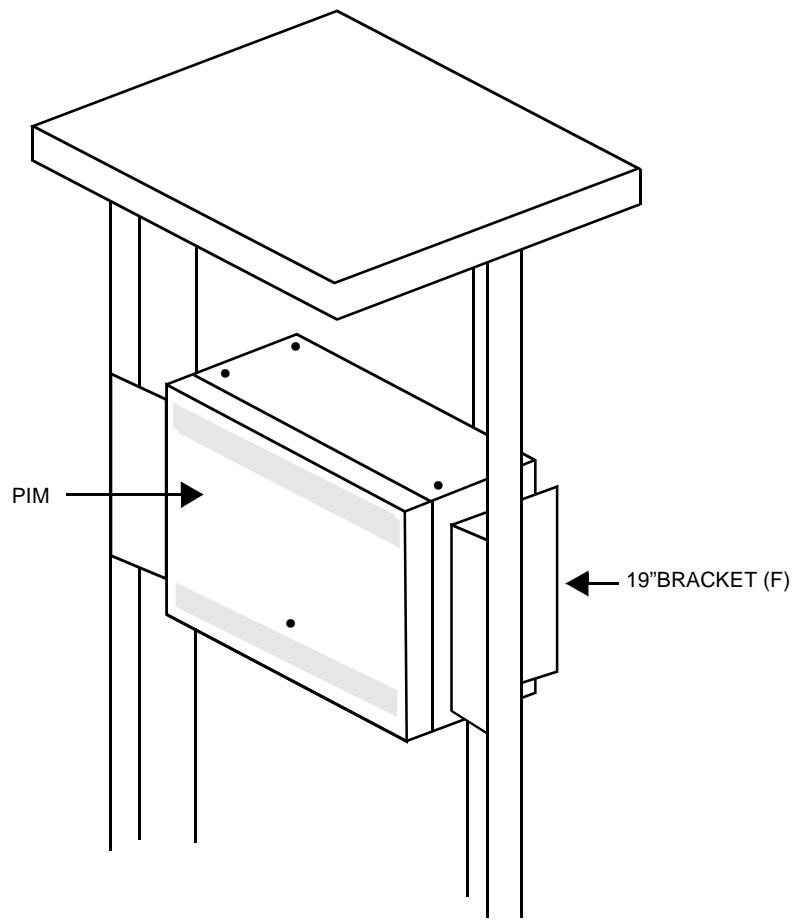
Figure 2-4   19-Inch Rack-Mounting Installation
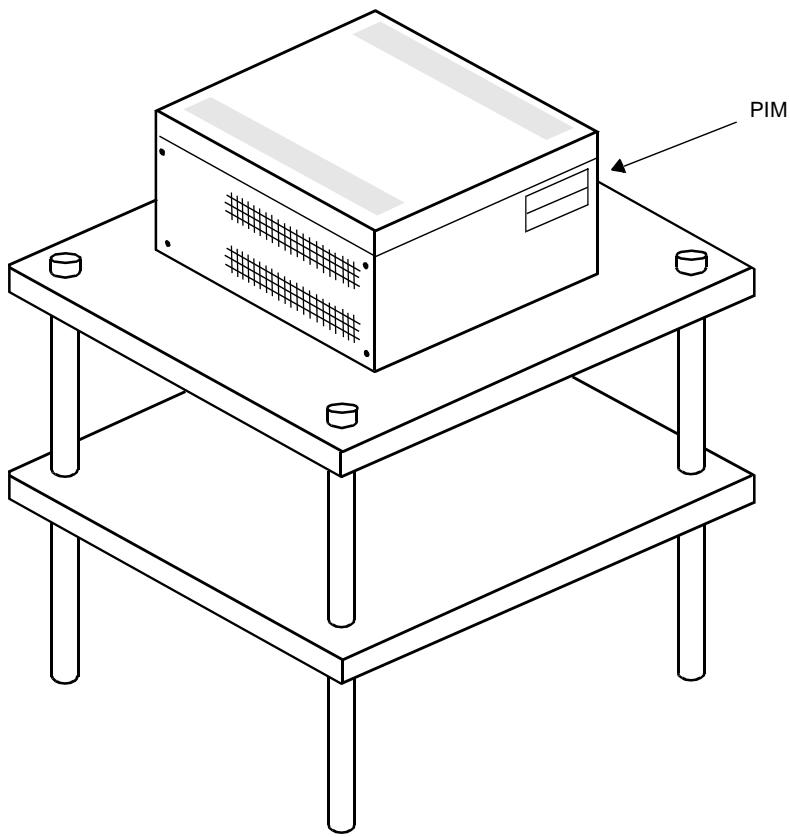
Figure 2-5   Desk Top Installation

3. FUNCTIONAL OUTLINE OF EQUIPMENT

This section explains the functional outline of the equipment (modules, installation hardware, circuit cards) used in the PBX.

3.1 Functional Outline of Modules

Table 2-2 shows the functional outline of the modules.

Table 2-2 Functional Outline of Modules

MODULES	FUNCTIONAL NAME	FUNCTIONAL OUTLINE
SN1308 PIMQ-UA	PIM	Port Interface Module (PIM) A PIM provides 13 card slot for common control, Line/Trunk, and Application Processor (AP) cards. It also houses a AC/DC Power Supply and optional batteries for protection from short-term power interruption (standard). Three champ connectors for line/trunk (LTC0 to 2) and a connector for Power (PWR) are located at the lower front side of the PIM. A PIM provides a maximum of 11 card slots for line/trunk (LT) cards. At maximum configuration, the system is comprised of 1 PIM and it provides 72 ports.
SN1228 MDFM-A	MDFM	Main Distribution Frame Module (MDFM) The MDFM is available for floor standing or IEC standard 19 inch rack mounting. (When the system is Wall Mounting or Desk Top configuration, the MDFM can not install with PIM.)
SN1177 BATTM-A	BATTM	The BATTM is an optional module for installing optional long-term back-up batteries. The BATTM is available for floor standing or IEC standard 19-inch rack mounting. (When the system is Wall Mounting or Desk Top configuration, the BATTM can not install with PIM.) Requirements for batteries installed in the BATTM are as follows: • Battery Type : Lead-Acid • Battery Capacity : 24V/24AH (2 sets maximum) • Battery Weight : 19.8lb. (9kg) maximum

3.2 Functional Outline of Installation Hardware

Table 2-3 shows the functional outline of installation hardware.

Table 2-3 Functional Outline of Installation Hardware

INSTALLATION HARDWARE	FUNCTIONAL NAME	FUNCTIONAL OUTLINE
SN1225 BASE-A	BASE	Base Unit (includes Top Cover) The Base Unit and Top Cover is required for PIM.
RACK PARTS	RACK PARTS	Mounting Brackets (RACK PARTS) The RACK PARTS are sets of hardware for floor standing and wall mount, which will be installed at the rear side of PIM. The RACK PARTS must be installed, when the system is 3 modules.
COVER PARTS (B)	TOP BOTTOM COVER	Bottom Cover (includes Top Cover) The Bottom Cover and Top Cover is used when using 19-inch Rack mounting and Desk Top installation. One sets of Bottom Cover and 4-Rubber Foots are required for Desk Top installation with PIM.
19" BRACKET (F)	19" BRACKET(F)	19-inch Bracket The 19-inch Bracket is sets of hardware to mount the PIM, MDFM and/or BATTM in the IEC standard 19-inch rack. One set of 19-inch Bracket is required for the PIM.

3.3 Functional Outline of Circuit Cards

3.3.1 Control Circuit Card

Table 2-4 shows the functional outline of each control circuit card.

Table 2-4 Functional Outline of Control Circuit Cards

CARD NAME	FUNCTIONAL NAME	FUNCTIONAL OUTLINE
PN-CP03	MP	Main Processor card. This card is equipped with Memory, TDSW (1024CH × 1024CH), 16-Line CFT, DTMF Sender, Clock, PLO (receiver mode 2 ports), RS-232C Ports (2 ports) for MAT/Built-in SMDR, Modem for remote maintenance, and Music-On-Hold tone source (Melody IC/TNT), 4-circuit PBR (for PB calling or DID). This card is used on the basis of one per system.

PZ-PW86	PWR	Main power supply card.
		    Input: AC 120 V/240 V (50 Hz/60 Hz) [with 110 V option]
		    Output: –27 V (4.5 A), +5 V (7.5 A), +90 V (110 mA), CR (30 mA)
		One card is mounted in PIM.
		
		Note : *This card does not provide Ring Generator or Message Wait voltage.*

3.3.2 Application Circuit Cards

Table 2-5 shows the functional outline of each application circuit card.

Table 2-5 Functional Outline of Application Circuit Cards

CARD NAME	FUNCTIONAL NAME	FUNCTIONAL OUTLINE
PN-AP00-A	AP00	Application Processor card. This card is equipped with four RS-232C ports, and is used for SMDR, H/M Printer, PMS functions and MCI. This card is used on the basis of one per system.
PN-AP01	AP01	Application Processor card. This card is equipped with one RS-232C port and one Ethernet interface port, and is used for OAI function. Also, this card is used to expand authorization code and ACD. This card is used on the basis of one per system.
PN-BRTA	BRI	Basic Rate (2B+D) Interface Trunk card. (S/T Interface) This card has one circuit of Basic Rate interface and provides one 2-channel PCM digital line.
PN-ME00	EXTMEM	Memory Expansion card. This card is used with PN-AP00-A card for providing expansion memory. This card can be equipped with an expansions SRAM card (1MB) as SMDR data memory.
PN-CC00	ETHER	Ethernet Control card. This card is used with the PN-AP01 card to accommodate the Ethernet, transmitting/receiving a signal of TCP/IP protocol.
PN-CK00	PLO	Phase Locked Oscillator card. This card is a phase locked oscillator for providing a synchronized clock signal with the network. This card is used when the PBX is a master office or when the PBX requires two clock supply routes and those frequencies differ.
PN-24DTA/ PN-24DTA-A	DTI	Digital Trunk Interface (23B+D, 1.5 Mbps) card. This card accommodates 24-channel, PCM digital lines.
PN-4RSTB	MFR	4-line MF Receiver Trunk card. This card is used for MF Signaling on Digital DID trunks. A maximum of four cards can be provided per one system, including the PN-4RSTC card.
PN-4RSTC	CIR	4-line CALLER ID Receiver Trunk card. This card is used for CALLER ID (CLASS SM) on analog trunks. A maximum of four cards can be provided per one system, including the PN-4RSTB card.
PN-SC00	CCH	Common Channel Handler card. This card transmits/receives signals on the common signaling channel of No. 7 CCIS.
PN-SC01	DCH	D-channel Handler card. This card transmits/receives signals on the D channel of ISDN Primary Rate (23B+D).
PN-SC02	ICH	ISDN-channel Handler card. This card provides the D channel signaling interface and controls an ILC (Layer 2 and 3).

3.3.3 Line/Trunk Circuit Cards

Table 2-6 shows the functional outline of each line/trunk circuit card.

Table 2-6 Functional Outline of Line/Trunk Circuit Cards

CARD NAME	FUNCTIONAL NAME	FUNCTIONAL OUTLINE
PN-2AMPA	AMP	2-line Amplifier Trunk card. This card equipped with the functions of Echo Canceller (EC), Automatic Gain Controller (AGC) and Tone Disabler (TD).
PN-AUCA	AUC	2-line Long-Line circuit card provided with the Power Failure Transfer (PFT) function. Line resistance in the case of a long-line circuit: Max. 2500 ohms (inclusive of the internal resistance of the distant office equipment) This card is internally equipped with a –48 V DC On-Board Power Supply. This card can also be used as a 2-line Direct Inward Dialling trunk card.
PN-CFTA	CFT	Conference Trunk card Use of one card:Can control a conference of up to six participants. Use of two cards:Can control a conference of up to ten participants.
PN-4COTB	COT	4-line Central Office Trunk card (Ground Start/Loop Start trunk) equipped with the functions for loop detection, sending/detecting ground on Ring/Tip wire.
PN-4COTG	COT	4-line Central Office Trunk card (Loop Start trunk) equipped with the functions for loop detection, receiving/sending the CALLER ID (CLASS SM) signal.
PN-2DATA	DAT	2-line Digital Announcement Trunk card. Duration: Max. 60 seconds.
PN-DK00	DK	Circuit card for External Relay Control/External Key Scan. This card is provided with eight circuits, and can provide the above-mentioned control functions on a per circuit basis.
PN-4DITB	DIT	4-line Direct In Dialing Trunk card. This card is equipped with the function for loop detection, sending reverse signal and PB to DP signal conversion. This card is internally equipped with –48 V DC On-Board Power supply.
PN-2DLCB	DLC	2-line Digital Line Circuit card for Multiline Terminal Series E/Series III/DSS Console/SN716 Desk Console. (–48V Version, 2-wire type) **Note** This card is equipped with quick diagnostics to detect short line conditions and the normality (Synchronous/Asynchronous) of the terminal. This card is internally equipped with a –48 V DC On-Board Power Supply.
PN-2DLCC	DLC	2-line Digital Line Circuit card for Multiline Terminal Series II/SN610 Attendant Console. (–48 V Version, 4-wire type) **Note** This card is equipped with quick diagnostics to detect short line conditions and the normality (Synchronous/Asynchronous) of the terminal. This card is internally equipped with –48 V On-Board Power Supply.
PN-4DLCA/ PN-4DLCM	DLC	4-line Digital Line Circuit card for Multiline Terminal Series E/Elite/Series III/Electra-Pro/DSS Console/SN716 Desk Console. (–27 V Version, 2-wire type) **Note** This card is equipped with quick diagnostics to detect short line conditions and the normality (Synchronous/Asynchronous) of the terminal.

Table 2-6 Functional Outline of Line/Trunk Circuit Cards (Continued)

CARD NAME	FUNCTIONAL NAME	FUNCTIONAL OUTLINE
PN-4DLCD/ PN-4DLCQ	DLC	4-line Digital Line Circuit card exclusively used for Multiline Terminal Series E/Series III/DSS Console/SN716 Desk Console. (–27 V Version, 2-wire type) **Note** This card is equippedwith quick diagnostics to detect short line conditions and the normality (Synchronous/Asynchronous) of the terminal.
PN-4DLCF	DLC	4-line Digital Line Circuit card for Multiline Terminal Series II/SN610 Attendant Console. (–27 V Version, 4-wire type) **Note** This card is equipped with quick diagnostics to detect short line conditions.
PN-8DLCJ/ PN-8DLCP	DLC	8-line Digital Line Circuit card for Multiline Terminal Series E/Series III/DSS Console/SN716 Desk Console. (–27 V Version, 2-wire type) **Note**
PN-2DPCB	DPC	2-line Data Port Controller card. This card is used for the intra-office or inter-office digital data transmission on fixed path connection. And this card can accommodate a maximum of two DTE with V.11 (X.21) interface or V.24/V.28 (RS-232C) interface.
PN-2ILCA	ILC	2-line ISDN Line Circuit card. This card provides a physical interface to ISDN Terminals.
PN-4LCD-A	LC	4-line Analog Line Circuit card for single line telephones. Loop resistance: Max. 600 ohms. This card is equipped with the function for controlling Message Waiting Lamp. Each 4 circuits are equipped with momentary open function. This card is equipped with quick diagnostics to detect short and open line conditions. This card is internally equipped with a +80 V DC-DC Power Supply circuit.
PN-8LCS	LC	8-line Analog Line Circuit card for single-line telephones. Loop resistance: Max. 600 Ω This card is equipped with a controller for Message Waiting Lamps and momentary open function. A +80 V power supply is performed via PZ-PW86(C) card.
PN-M03	M03	V.35 DTE interface card. This card is used together with the PN-2DPCB card to provide the V.35 interface.
PN-2ODTA	ODT	2-line OD Trunk card. This card can be used as either a 2-wire E&M trunk or a 4-wire E&M trunk, and is internally equipped with a –48 V DC On-Board Power Supply. Both No. 0 and No. 1 circuits must be set to same purpose (2-wire or 4-wire) in one card.
PN-8RSTA	PBR	8-line PB Receiver card. This card can be used for a PB station line, DID or tie line.
PN-TNTA	TNT	2-line Tone/Music Source interface card. This card is used for BGM or Music on Hold, and is equipped with two interface for an external tone/music source.
PN-PW00	PWR	Provides -48V power for one DESKCON or two zone transceivers; maximum is three per system; uses two card slots.

Note : *The cable length between the DLC and terminal varies depending on the type of terminal. For the line conditions each terminal, refer to Table 2-7.*

Table 2-7 Line Condition of Each Terminals

TERMINAL TYPE	CARD TYPE	CABLE LENGTH (Cable 24AWG)	REMARKS
DTP-8-1	PN-8DLCJ/8DLCP (STANDARD)	984ft. (300m)	**Note 1**
	PN-4DLCD/4DLCQ (STANDARD)	984ft. (300m) [3937ft. (1200m)]	
	PN-2DLCB/2DLCN (LONG)	2788ft. (850m) [3937ft. (1200m)]	
DTP-8D-1	PN-8DLCJ/8DLCP (STANDARD)	984ft. (300m)	**Note 1**
	PN-4DLCD/4DLCQ (STANDARD)	984ft. (300m) [3937ft. (1200m)]	
	PN-2DLCB/2DLCN (LONG)	2788ft. (850m) [3937ft. (1200m)]	
DTP-16-1	PN-8DLCJ/8DLCP (STANDARD)	656ft. (200m)	**Note 1**
	PN-4DLCD/4DLCQ (STANDARD)	656ft. (200m) [3937ft. (1200m)]	
	PN-2DLCB/2DLCN (LONG)	2788ft. (850m) [3937ft. (1200m)]	
DTP-16D-1	PN-8DLCJ/8DLCP (STANDARD)	656ft. (200m)	**Note 1**
	PN-4DLCD/4DLCQ (STANDARD)	656ft. (200m) [3937ft. (1200m)]	
	PN-2DLCB/2DLCN (LONG)	2788ft. (850m) [3937ft. (1200m)]	
DTP-32-1	PN-8DLCJ/8DLCP (STANDARD)	656ft. (200m)	**Note 1**
	PN-4DLCD/4DLCQ (STANDARD)	656ft. (200m) [3937ft. (1200m)]	
	PN-2DLCB/2DLCN (LONG)	2788ft. (850m) [3937ft. (1200m)]	
DTP-32D-1	PN-8DLCJ/8DLCP (STANDARD)	656ft. (200m)	**Note 1**
	PN-4DLCD/4DLCQ (STANDARD)	656ft. (200m) [3937ft. (1200m)]	
	PN-2DLCB/2DLCN (LONG)	2788ft. (850m) [3937ft. (1200m)]	
DSS/BLF Console **Note 2**	PN-8DLCJ/8DLCP (STANDARD)	984ft. (300m)	**Note 1**
	PN-4DLCD/4DLCQ (STANDARD)	984ft. (300m)	
	PN-2DLCB/2DLCN (LONG)	2788ft. (850m)	

Table 2-7 Line Condition of Each Terminals (Continued)

TERMINAL TYPE	CARD TYPE	CABLE LENGTH (Cable 24AWG)	REMARKS
ETJ-8-1	PN-8DLCJ/8DLCP (STANDARD)	984ft. (300m)	**Note 1**
	PN-4DLCD/4DLCQ (STANDARD)	984ft. (300m) [3937ft. (1200m)]	
	PN-2DLCB/2DLCN (LONG)	2788ft. (850m) [3937ft. (1200m)]	
ETJ-16DC-1	PN-8DLCJ/8DLCP (STANDARD)	656ft. (200m)	**Note 1**
	PN-4DLCD/4DLCQ (STANDARD)	656ft. (200m) [3937ft. (1200m)]	
	PN-2DLCB/2DLCN (LONG)	2788ft. (850m) [3937ft. (1200m)]	
ETJ-16DD-1	PN-8DLCJ/8DLCP (STANDARD)	656ft. (200m)	**Note 1**
	PN-4DLCD/4DLCQ (STANDARD)	656ft. (200m) [3937ft. (1200m)]	
	PN-2DLCB/2DLCN (LONG)	2788ft. (850m) [3937ft. (1200m)]	
ETJ-24DS-1	PN-8DLCJ/8DLCP (STANDARD)	492ft. (150m)	**Note 1**
	PN-4DLCD/4DLCQ (STANDARD)	492ft. (150m) [3937ft. (1200m)]	
	PN-2DLCB/2DLCN (LONG)	2788ft. (850m) [3937ft. (1200m)]	
SN610 ATTCON	PN-2DLCC (LONG)	3937ft. (1200m)	
	PN-4DLCF (STANDARD)	984ft. (300m)	
SN716 DESKCON	PN-8DLCJ/8DLCP	984ft. (300m)	
	PN-4DLCD/4DLCQ	1148ft. (350m) [3937ft. (1200m)]	**Note 3**
	PN-2DLCB/2DLCN	1148ft. (350m) [3937ft. (1200m)]	

* The value in the [   ] shows the cable length when using the long line function.

Note 1: *When using PN-8DLCJ/8DLCP card, it is not available long line function.*

Note 2: *The DSS/BLF Console requires local AC/DC power supply.*

Note 3: *With AC/DC power at DESKCON 3000ft. (914m) with 4DLCD.*

4. CIRCUIT CARD INSTALLATION CONDITIONS

4.1 Circuit Card Mounting Slots

Figure 2-6 below shows circuit card mounting slots allocated in the PIM, on the basis of circuit card type.
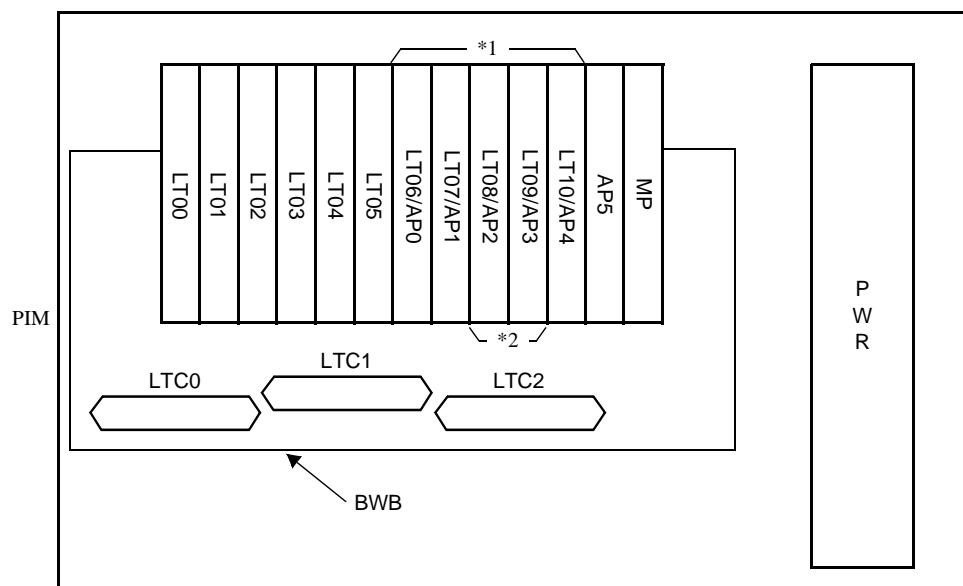
LT00 - LT10 : Line/trunk circuit card mounting slots
- • LT00 - LT08 : All of line/trunk circuit card can be mounted in these slots
- • LT09 : All of line/trunk circuit card can be mounted in this slot
  (But a maximum of 4 circuits can be assigned for the circuit card with cabling.)
- • LT10 : Line/trunk circuit card with cabling can not be mounted in this slot, since this slot has no connection to the MDF via the backplane.

AP0 - AP5 : Application circuit card mounting slots
MP : PN-CP03 mounting slot
PWR : PZ-PW86 mounting slot

*1 *Either line/trunk circuit cards or application circuit cards can be mounted in these slots.*
*2 *When mounting the circuit card with cabling in LT08 slot and LT09 slot, the circuit card must be mounted with the following conditions.*
  (1) When mounting PN-8LC/PN-8DLC card in LT08 slot, the circuit card with cabling can not be mounted in LT09 slot.
  (2) When mounting line/trunk circuit card in LT09 slot, a maximum of 4 circuits can be assigned for the circuit card.

Figure 2-6   Circuit Card Mounting Slots

4.2   Installation Conditions

(1)   The application circuit cards PN-BRTA and PN-24DTA-A cannot be mounted in slots AP4 or AP5, since neither of these slots has a connection to the MDF via the backplane.

(2)   The application circuit card type PN-CC00 can be mounted in any LT/AP slot, but it occupies two slot positions; i.e. the slot immediately to its right must be vacant.

(3)   The PN-PW00 can be mounted in any LT/AP slot, but it occupies two slot positions; i.e. the slot immediately to it's left must be vacant.

Note :   *The PN-CC00 must be mounted adjacent to its related PN-AP01 card, in order to allow the connection of cable type 48-TW-0.3 CONN CA between these cards.*

CHAPTER 3   INSTALLATION PROCEDURE

1.   PRECAUTIONS

1.1   Grounding Requirements

The system grounding must have a specific ground resistance and AC noise level, and is to be connected to a pre-determined terminal in the PBX. Standard grounding requirements are as follows:

- Communication grounding: Less than 10 ohm

- Protective ground for PIM: Less than 10 ohm

Note :   *The AC ripple on these various grounds should be less than 0.5 Vp-p.*

CAUTION: Grounding circuit continuity is vital for safe operation of telecommunication equipment. Never operate this equipment with the grounding conductor disconnected.

1.2   Static Electricity Guard

The installer must wear a grounded wrist strap to protect circuit cards from static electricity.
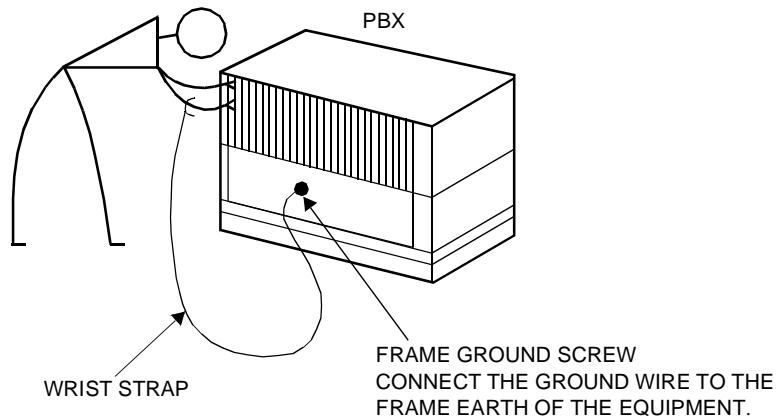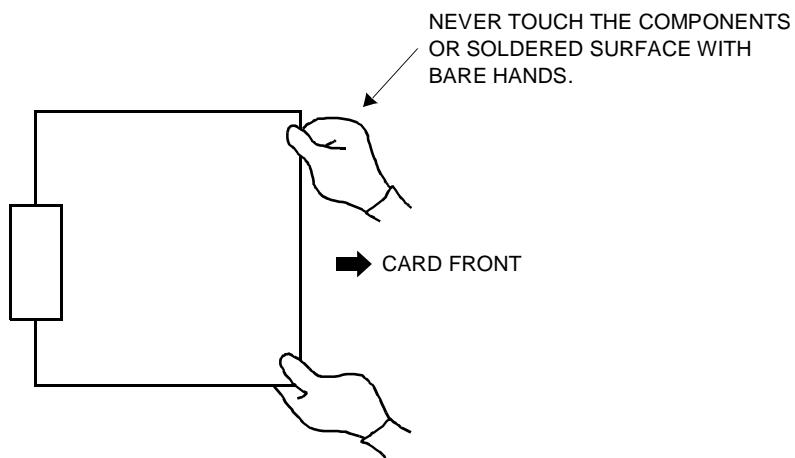
Figure 3-1   Static Electricity Guard

• WHEN MAKING A SWITCH SETTING ON A CIRCUIT CARD

CIRCUIT
CARD

WEAR A WRIST STRAP AND PERFORM
THE WORK ON A GROUNDED
CONDUCTIVE WORK SURFACE.

• WHEN CARRYING A CIRCUIT CARD

CIRCUIT
CARD

CONDUCTIVE
POLYETHYLENE
BAG

WHEN CARRYING A CIRCUIT
CARD AROUND, KEEP THE
CARD IN A CONDUCTIVE
POLYETHYLENE BAG.
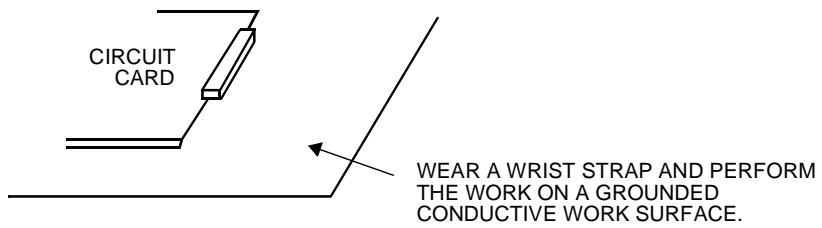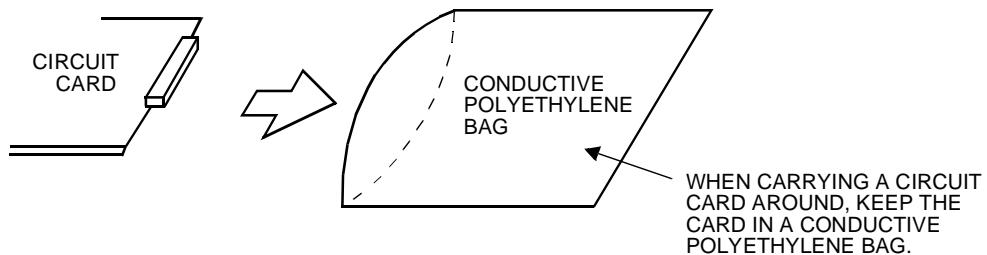
Figure 3-1 Static Electricity Guard (Continued)

1.3   Removing/Inserting Circuit Cards

When removing a circuit card from the PIM or when inserting a circuit card in the PIM, follow the procedure in
Table 3-1.

Table 3-1 Removing/Inserting Circuit Cards Procedure

CIRCUIT CARD	PROCEDURE		CONDITION
	INSERT	**REMOVE**	
• PN-CP03 (MP) • PZ-PW86 (PWR) • PN-PW00 (EXTPWR)	Power off ↓ Insert ↓ Power on	Power off ↓ Remove ↓ Power on	Always insert or remove these circuit cards with power off to prevent damage to the card or other system circuitry.
• PN-AP00 (AP00) • PN-ME00 (EXTMEM) • PN-BRTA (BRT) • PN-24DTA-A (DTI) • PN-SC00 (CCH) • PN-SC01 (DCH) • PN-SC02 (ICH) • PN-CK00 (PLO) • PN-4RSTB (MFR) • PN-4RSTC (CIR)	Power off or MB switch on ↓ Insert ↓ Power on or MB switch off	Power off or MB switch on ↓ Remove ↓ Power on	Always insert or remove these circuit cards under Make Busy condition or power off to prevent damage to the card or other system circuitry.
• PN-AP01 (AP01) • PN-CC00 (ETHER) • PN-CC01 (ETHER)	Refer to the OAI System Manual.		

CAUTION: **Always hold the card name label area when inserting or removing a circuit card. Touching another area may result in exposure to hazard voltages.**

PBX

NEVER TOUCH THE COMPONENTS OR SOLDERED SURFACE WITH BARE HANDS.

CARD FRONT
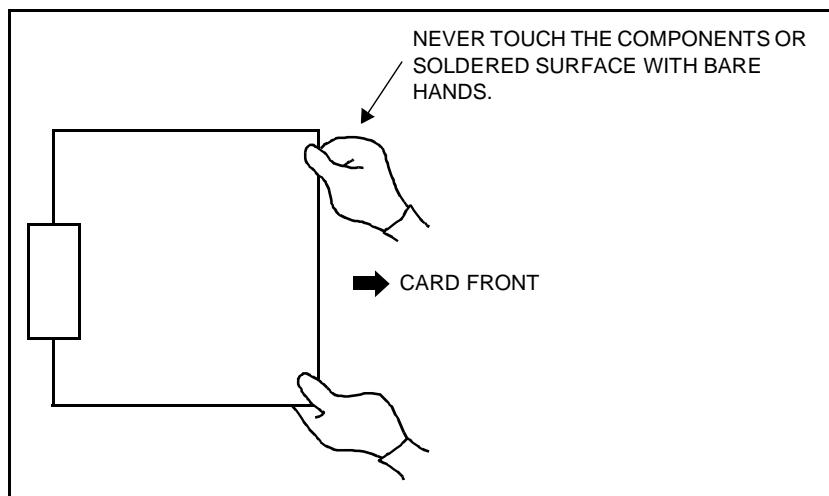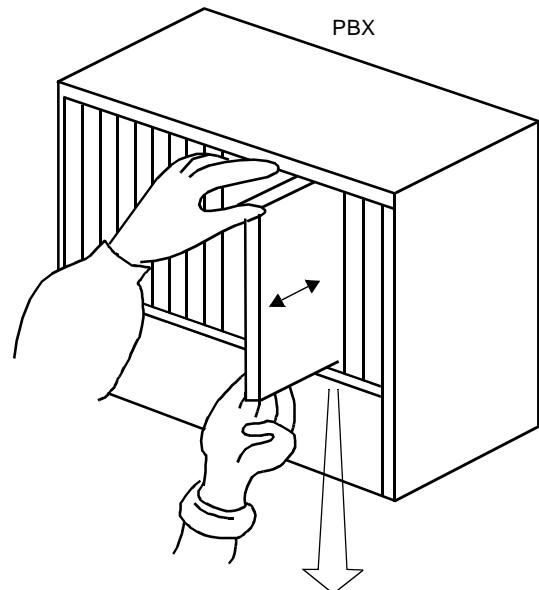
2. PROCEDURE

This section explains the procedures for installing the PBX system. The installer should follow the procedure shown in the following flowchart. In the flowchart, an NAP (NEC Action Procedure) Number is denoted to the right side of each step. The NAP Number refers to the details for each procedure.

```
                    ┌──────────────┐
                    (    START     )
                    └──────────────┘
                           │
                ┌────────────────────┐
                │     UNPACKING      │        NAP- 200-001
                └────────────────────┘
                           │
                ┌────────────────────┐
                │ MARKING AND DRILLING│       NAP- 200-002
                └────────────────────┘
                           │
                ┌────────────────────┐
                │    INSTALLATION    │
                │         OF         │        NAP- 200-003
                │   MAIN EQUIPMENT   │
                └────────────────────┘
                           │
                ┌────────────────────┐
                │    CONNECTION      │
                │         OF         │        NAP- 200-004
                │      BATTERY       │
                └────────────────────┘
                           │
                ┌────────────────────┐
                │   CABLE RUNNING    │
                │    TO THE MDF      │        NAP- 200-005
                └────────────────────┘
                           │
                ┌────────────────────┐
                │  TERMINATION OF    │
                │ CABLES ON THE MDF  │        NAP- 200-006
                └────────────────────┘
                           │
                ┌────────────────────┐
                │   INSTALLATION     │
                │        OF          │        NAP- 200-007
                │ SN716 DESK CONSOLE │
                └────────────────────┘
                           │
                ┌────────────────────┐
                │  SWITCH SETTING    │
                │        OF          │        NAP- 200-008
                │   CIRCUIT CARDS    │
                └────────────────────┘
                           │
                        ┌─────┐
                        │  A  │
                        └──┬──┘
                           ▽
```

Figure 3-2   Procedure Flowchart

```
                          ┌───┐
                          │ A │
                          └─┬─┘
                            │
          ┌─────────────────────────────┐
          │          MOUNTING           │       NAP- 200-009
          │            OF               │
          │       CIRCUIT CARDS         │
          └──────────────┬──────────────┘
                         │
          ┌─────────────────────────────┐
          │     SYSYEM INITIALIZATION    │       NAP- 200-010
          │            AND              │
          │      SYSTEM DATA ENTRY       │
          └──────────────┬──────────────┘
                         │
          ┌─────────────────────────────┐
          │         OPERATION           │       NAP- 200-011
          │           TEST              │
          └──────────────┬──────────────┘
                         │
          ┌─────────────────────────────┐
          │         CLEANING            │       NAP- 200-012
          │            AND              │
          │       VISUAL CHECK          │
          └──────────────┬──────────────┘
                         │
          ┌─────────────────────────────┐
          │  MOUNTING OF THE FRONT COVER │      NAP- 200-013
          └──────────────┬──────────────┘
                         │
                    ╭──────────╮
                    │   END    │
                    ╰──────────╯
```

Figure 3-2 Procedure Flowchart (Continued)

The mark shown below is attached to the NAP sheet for each procedure in which circuit cards are handled. When doing such a procedure, the installer must perform the procedure with caution, to prevent damage caused by static electricity (See Section 1.2 Static Electricity Guard in this chapter).

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

1. UNPACKING PROCEDURE

   (1) Check the received quantity of packages containing the PBX system with the description on the shipping document.

   (2) Check the packaging for external damage done by transportation and record it as necessary.

   (3) Unpack the packaging.

   • For unpacking the packages containing circuit cards, a grounded wrist strap should be worn.

   (4) Check the quantity of equipment and materials unpacked with the shipping document.

   (5) Perform visual inspection, checking for the following items.

   • Modules ──────────── Overall distortion.

   Scratches and dents on the surface.

   Scratches and cracks on the PIM Backplane.

   Broken or bent pins on the PIM Backplane.

   • Covers ──────────── Scratches and dents.

   • Circuit Cards ──────────── Overall distortion

   Scratches and cracks

   Loss, or damage of parts on the circuit cards.

   • Attendant Console ──────────── Scratches and cracks on the keyboard

   Overall distortion

   Damage to keys and lamps.
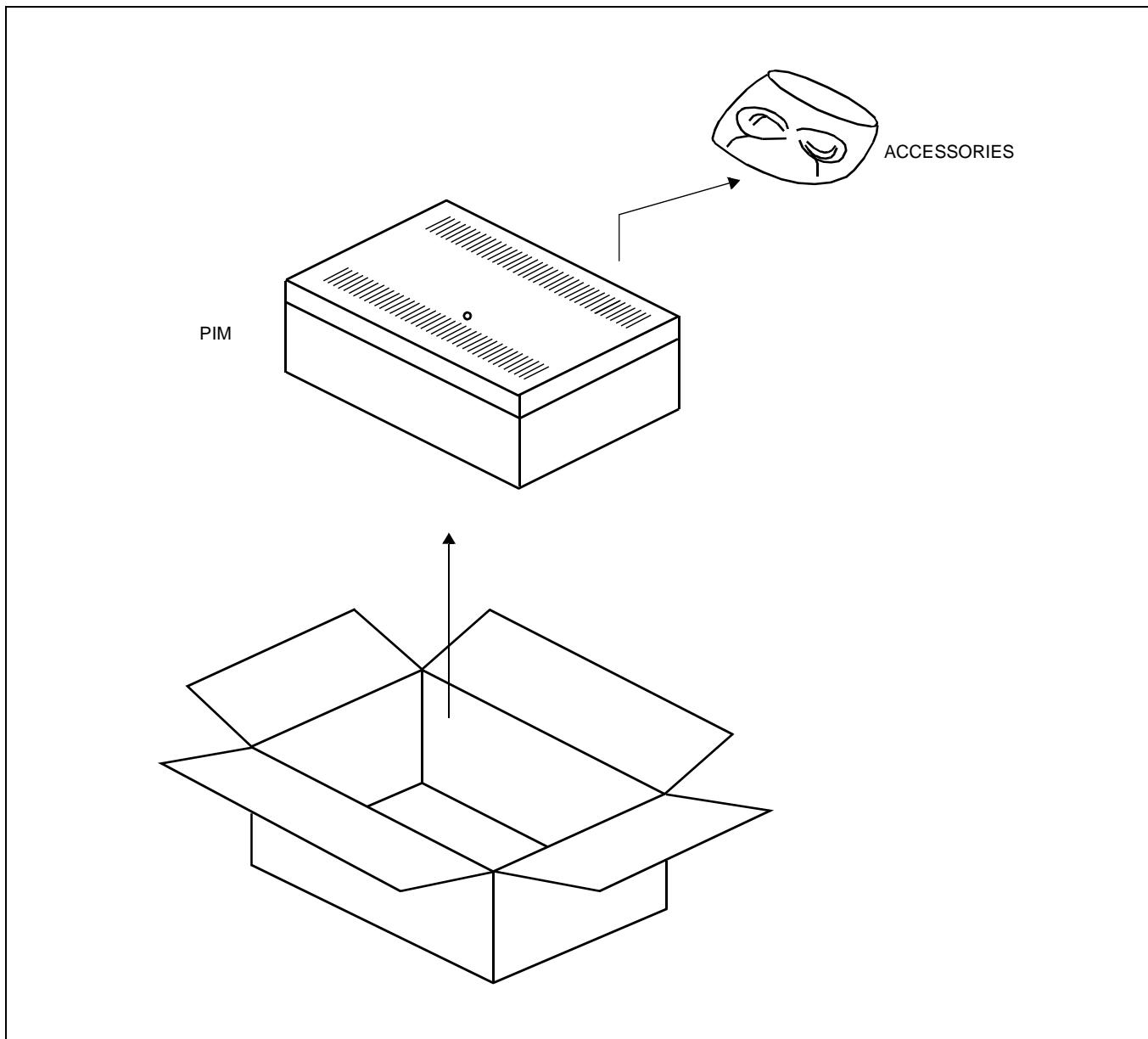
Figure 001-1   Unpacking of Main Equipment

1. CONFIRMATION OF THE EQUIPMENT LAYOUT

Install the equipment in an area which provides adequate ventilation and is easily accessible to service personnel.

2. MARKING

2.1 Floor Standing

- By referring to Figure 002-1, mark the installation holes for the main equipment.

- Mark the installation holes for the external MDF, if required.

WALL

40 mm (1.6 inch)

39 mm (1.5 inch)

RACK PARTS

110 mm (4.3 inch)

184 mm (7.2 inch)

35 mm (1.4 inch)

356 mm (14.0 inch)

37 mm (1.6 inch)

430 mm (16.9 inch)

37 mm (1.6 inch)

FRONT
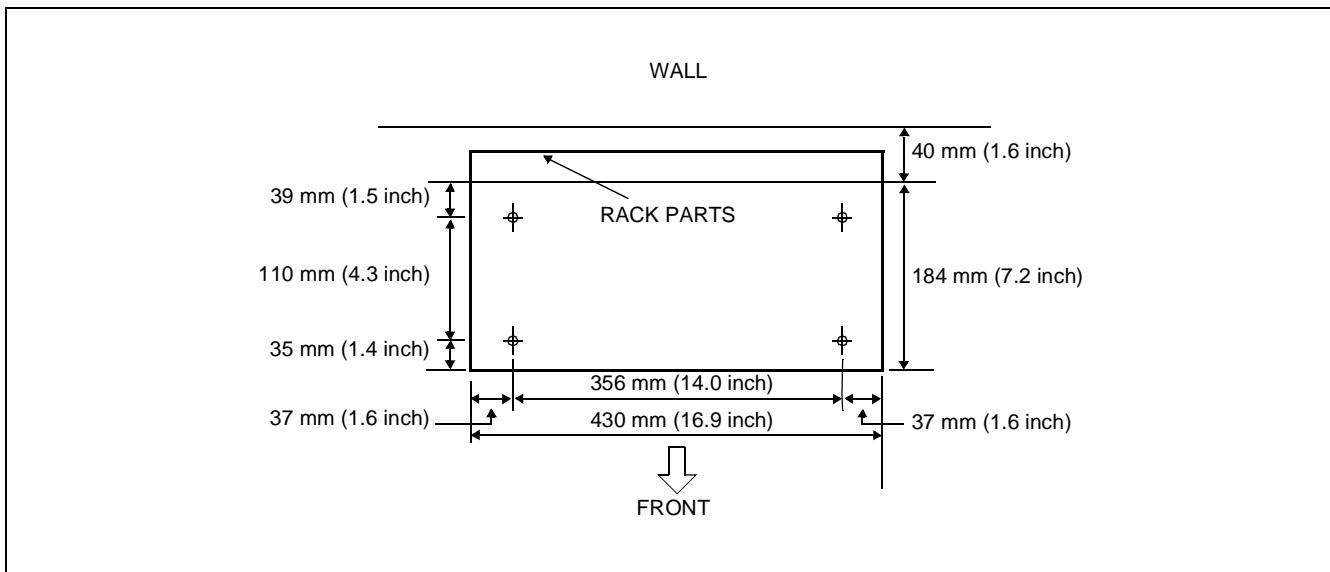
Figure 002-1 Floor Marking for Main Equipment

2.2 Wall-Mounting

- Locate and mark the wall mounting points as shown in Figure 002-2.
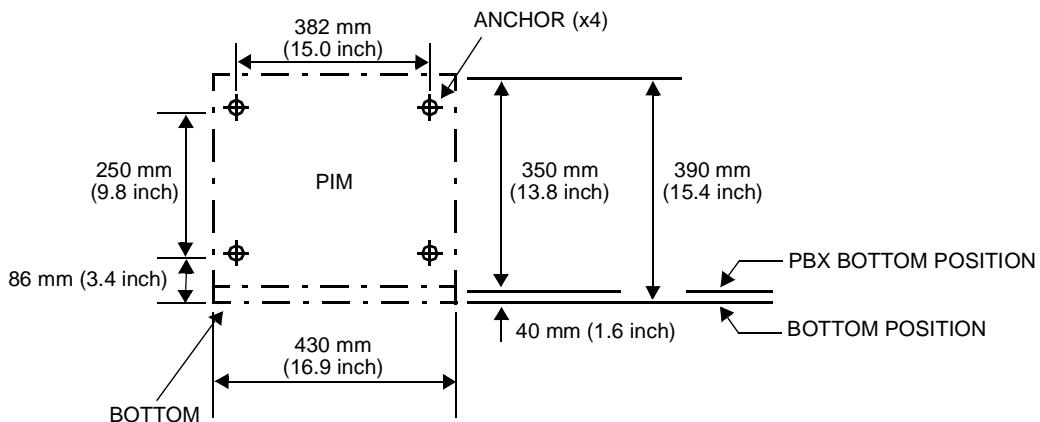
Figure 002-2 Wall Mounting Points

3. DRILLING

- Drilling and installing anchor bolts

(1) DRILL A HOLE IN THE CONCRETE WITH A DRILL SUITABLE FOR A PLUG BOLT A LITTLE DEEPER THAN THE PLUG BOLT LENGTH.

(2) INSERT THE ANCHOR BOLT INTO THE HOLE.

(3) PUSH ANCHOR BOLT UNTIL THE BOLT STAYS PERMANENTLY IN PLACE.

(4) TURN BOLT COUNTERCLOCKWISE AND REMOVE.
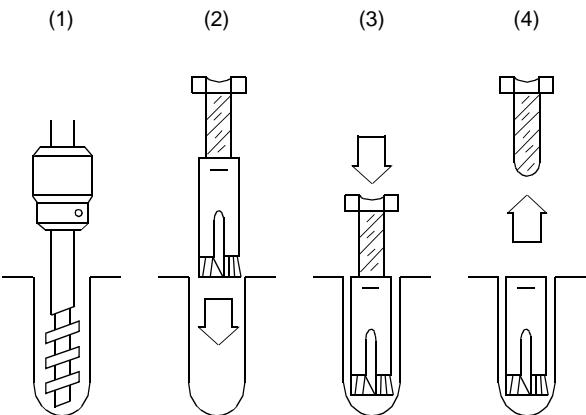
Figure 002-3 Instruction for Anchor Bolt

Install the main equipment according to the desired procedure for either Floor Standing, Wall-Mounting, 19-Inch Rack-Mounting or Desk Top installation.

1. FLOOR STANDING INSTALLATION

(1) Attaching the BASE to the floor.

- Position the BASE over the holes drilled as shown in the figure below.

- Secure the BASE to the floor using anchor bolts.
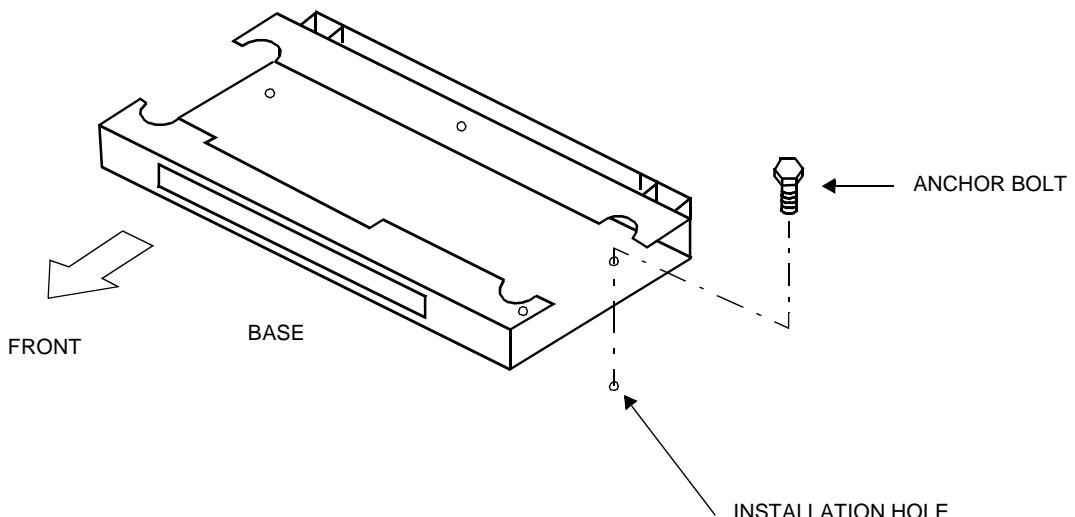
Figure 003-1 Securing of the BASE

(2) Mount the PIM on the BASE, and connect them together using 3 bolts (provided).

PIM

BASE

FRONT
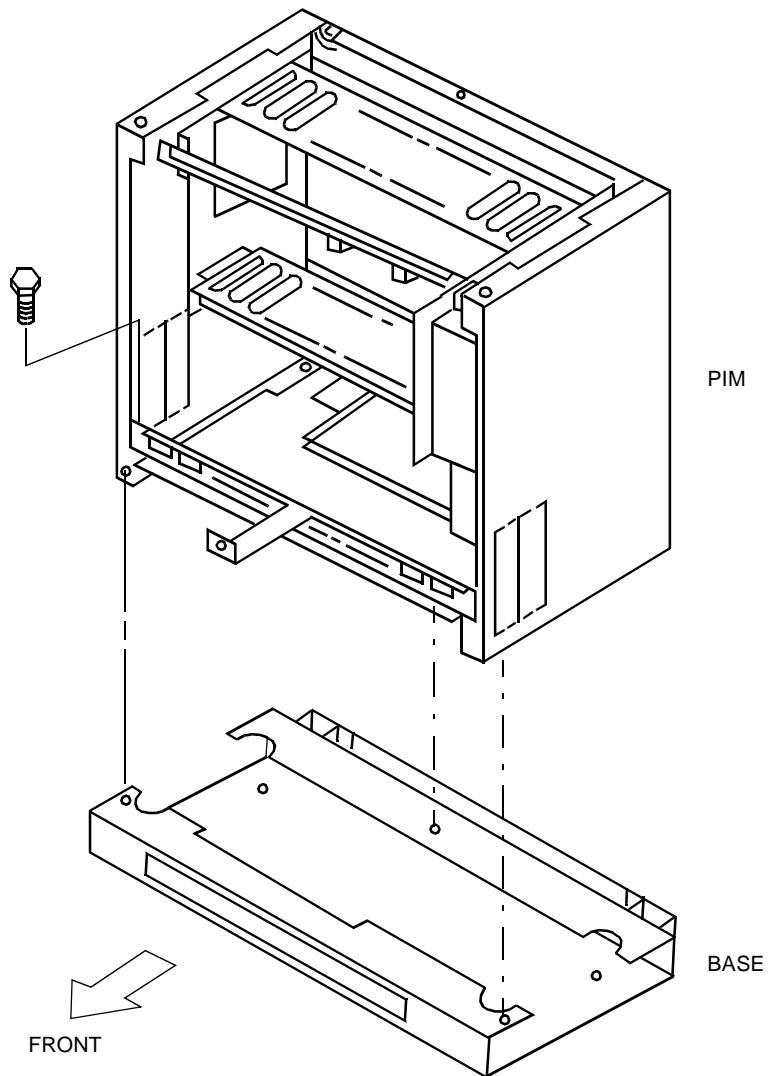
Figure 003-2 Mounting of the PIM

(3) Position the TOP COVER on the PIM, and connect them together with 4 screws (provided).

TOP COVER

PIM

FRONT
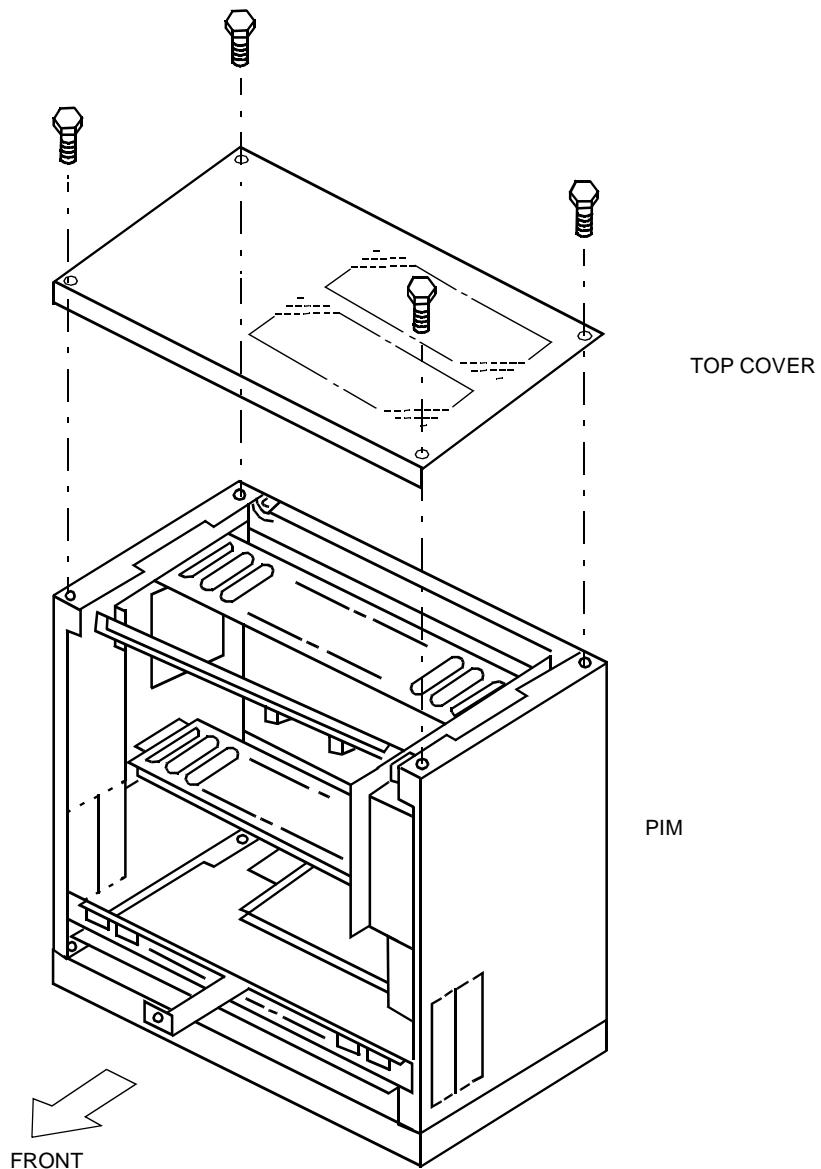
Figure 003-3 Mounting of the TOP COVER

2. WALL-MOUNTING INSTALLATION

(1) Using four appropriate fasteners (locally provided; see Table 003-1) for the type of wall constructions, secure the RACK PARTS as shown in Figure 003-4. For the wall mounting points, refer to Figure 002-2 in NAP-200-002.

Table 003-1   Recommended Fasteners

WALL TYPE	RECOMMENDED FASTENER
PLASTER BOARD [THICKNESS Min. 9.6 mm (0.38 inch)]	MOLLY ANCHOR TYPE Min. 3.5 mm (0.14 inch) DIA. Max. 4.5 mm (0.17 inch) DIA
WOOD	WOOD TYPE SCREWS Min. 3.5 mm (0.14 inch) DIA Max. 4.5 mm (0.17 inch) DIA
CONCRETE	ANCHOR BOLT TYPE Recommended 4 mm (0.16 inch) by 25 mm (0.98 inch)

Note :   *The wall types are listed in recommendation order. Concrete is the most secure and plaster board is the least secure.*

(2) Attach four M4 machine screws (provided) to the RACK PARTS.
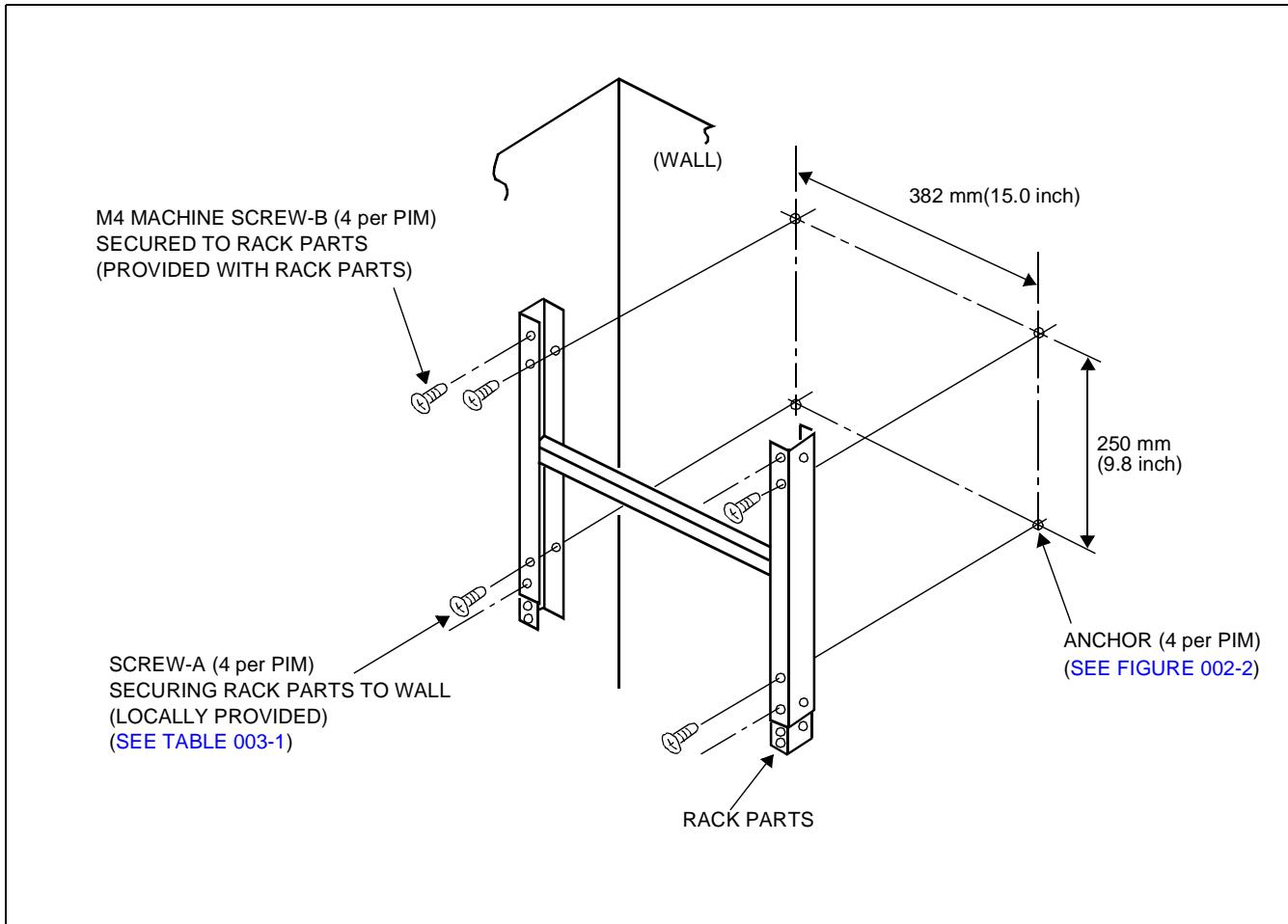
Figure 003-4 Screwing the RACK PARTS to a Wall

(3) For proper mounting of PIM, approx. 4 mm (0.2 inch) spacing should be provided between the inner face of the M4 machine screw and the RACK PARTS front channel as shown in Figure 003-5.

Align and insert the key hole slots of the rear cover of PIM to the machine screws secured.
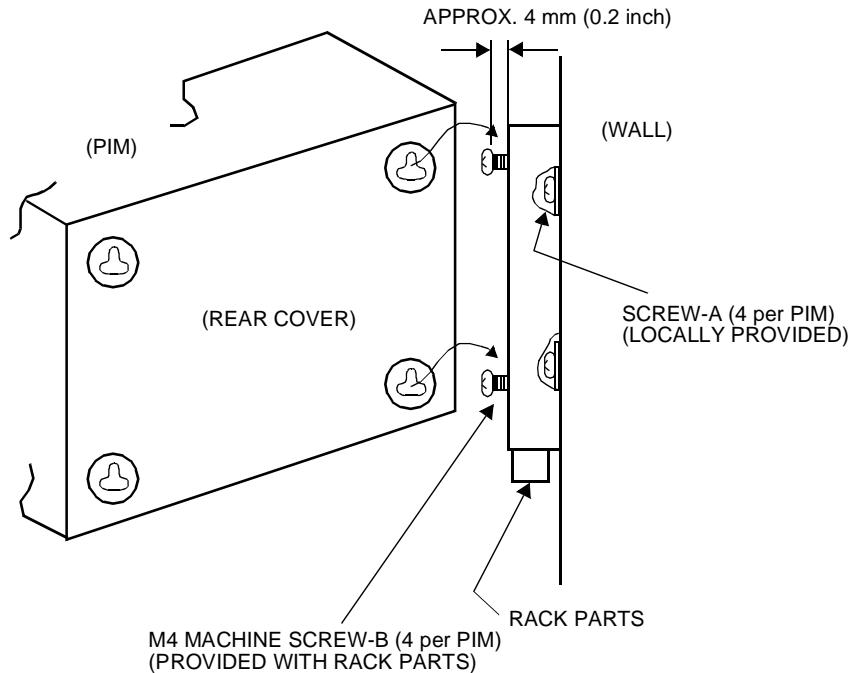
Figure 003-5 Mounting the PIM to the RACK PARTS

(4)　After hanging PIM onto the RACK PARTS, tighten each M4 machine screw using a phillips screw driver.
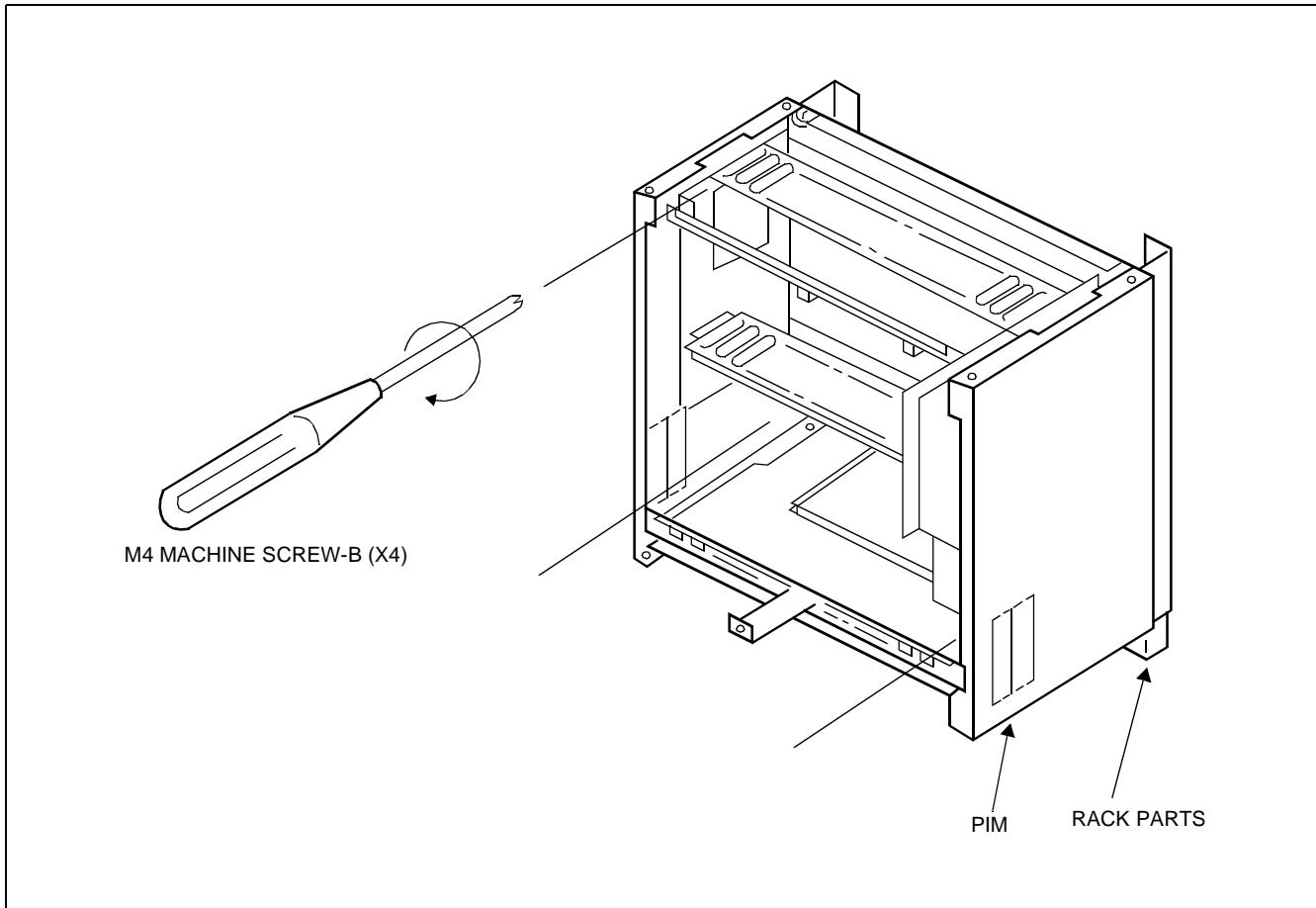
Figure 003-6　Screwing the PIM to the RACK PARTS

(5) Connect the TOP COVER, BOTTOM COVER and AC CORD-A-U to the PIM. The AC CORD-A-U is pre-installed with the BOTTOM COVER.
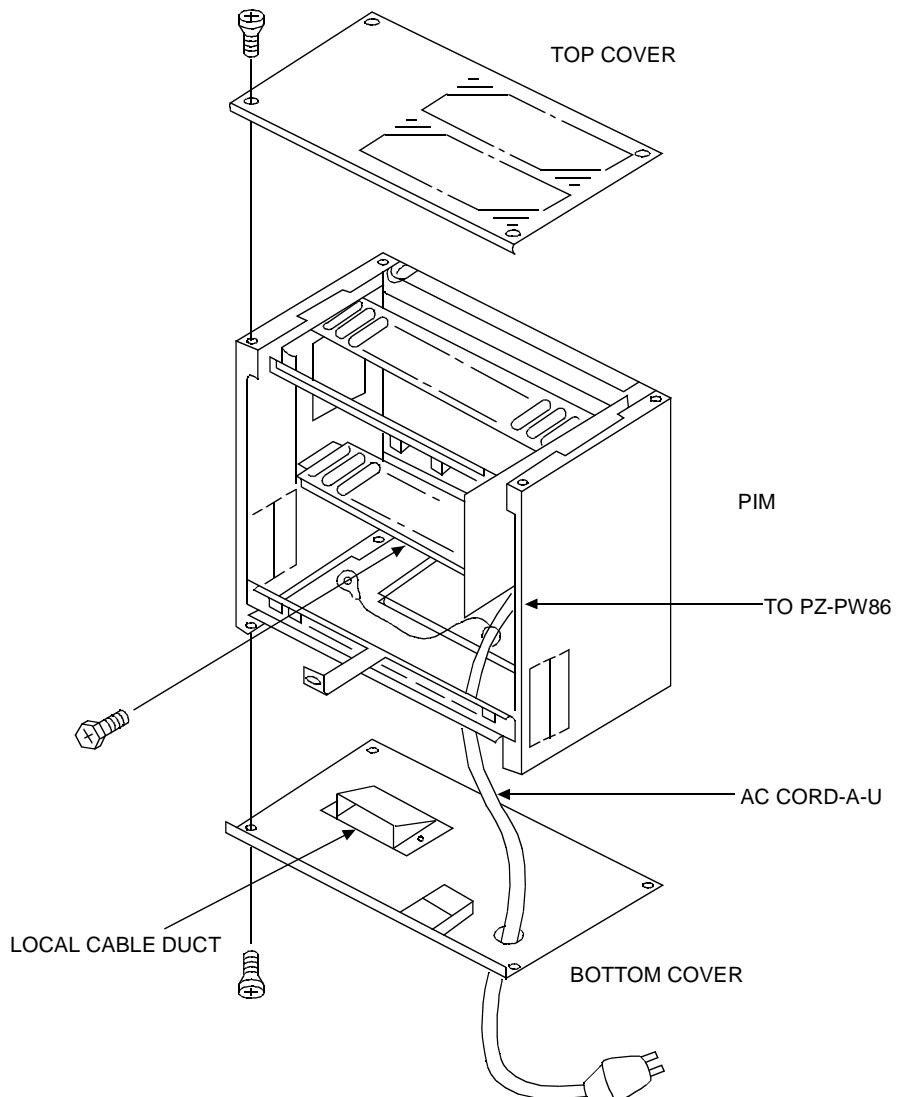
Figure 003-7 Connecting the Covers and AC CORD to the PIM

3. 19-INCH RACK-MOUNTING INSTALLATION

(1) Before mounting the PIM, connect the TOP COVER, BOTTOM COVER and AC CORD-A-U to the PIM. The AC CORD-A-U is pre-installed with the BOTTOM COVER.
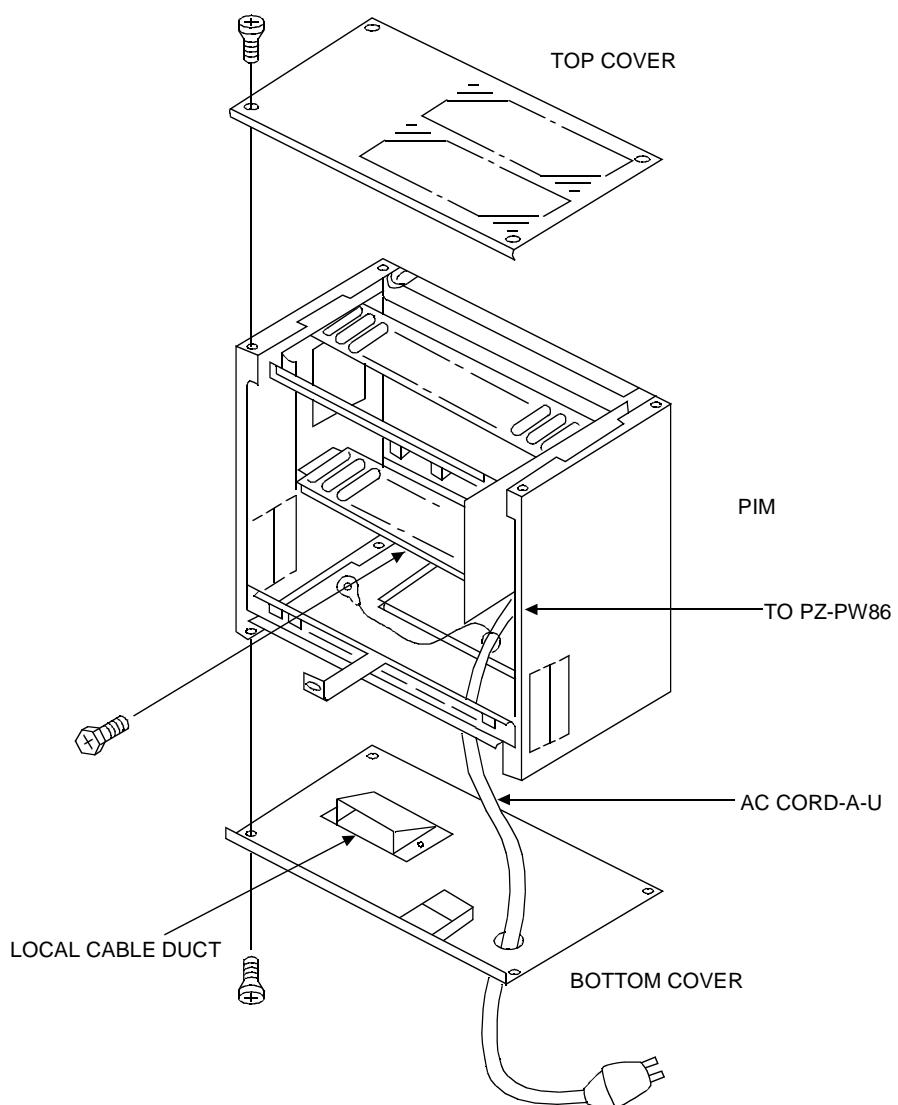
Figure 003-8 Connecting the Covers and AC CORD to the PIM

(2) Secure the 19" BRACKET (F) to the 19-inch Rack as shown in Figure 003-9 (A).

(3) Mount the PIM on the 19" BRACKET (F) as shown in Figure 003-9 (B).
Then, secure the PIM to the 19" BRACKET (F) as shown in Figure 003-9 (C).

19-INCH RACK

19" BRACKET(F)

19" BRACKET(F)

PIM

BOTTOM COVER

B

A

C

PIM

FRONT
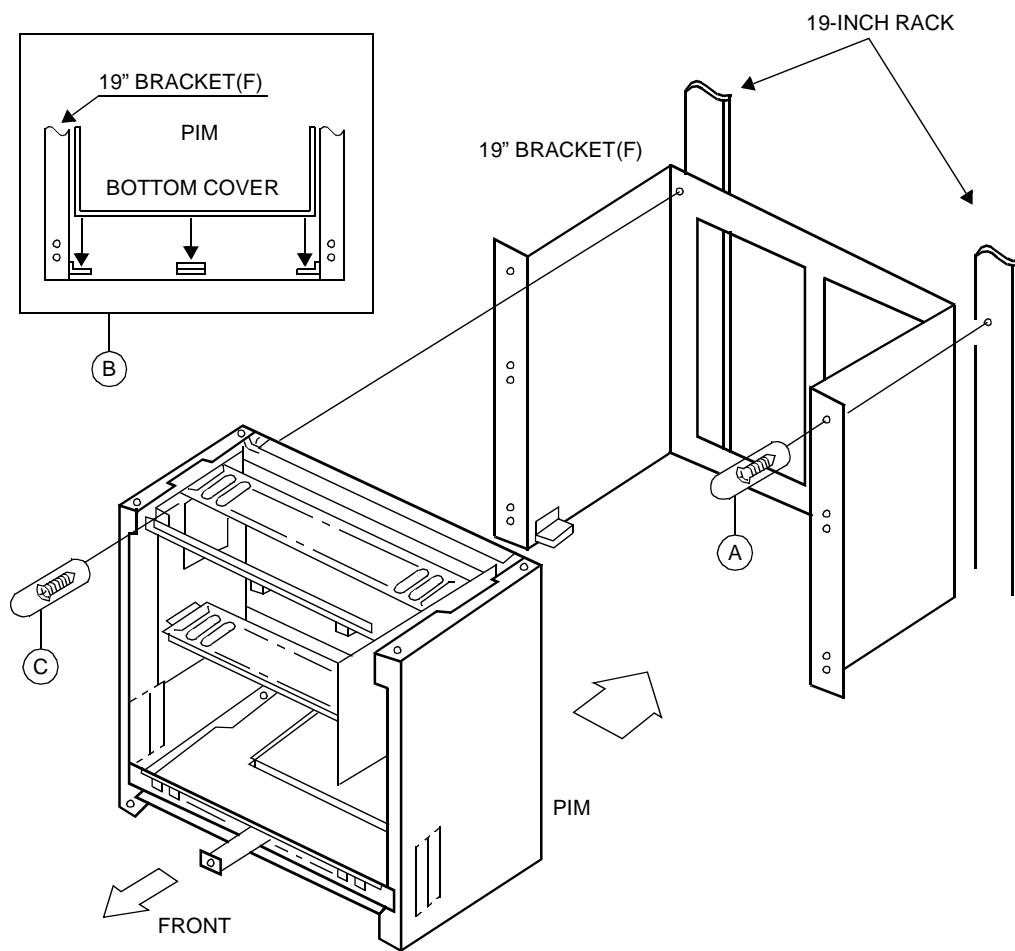
Note : *The MDFM can be installed in the same manner as the PIM.*

Figure 003-9 Mounting the PIM to the 19-Inch Rack

4. DESK TOP INSTALLATION

(1) Connect the TOP COVER, BOTTOM COVER and AC CORD-A-U to the PIM. The AC CORD-A-U is pre-installed with the BOTTOM COVER.
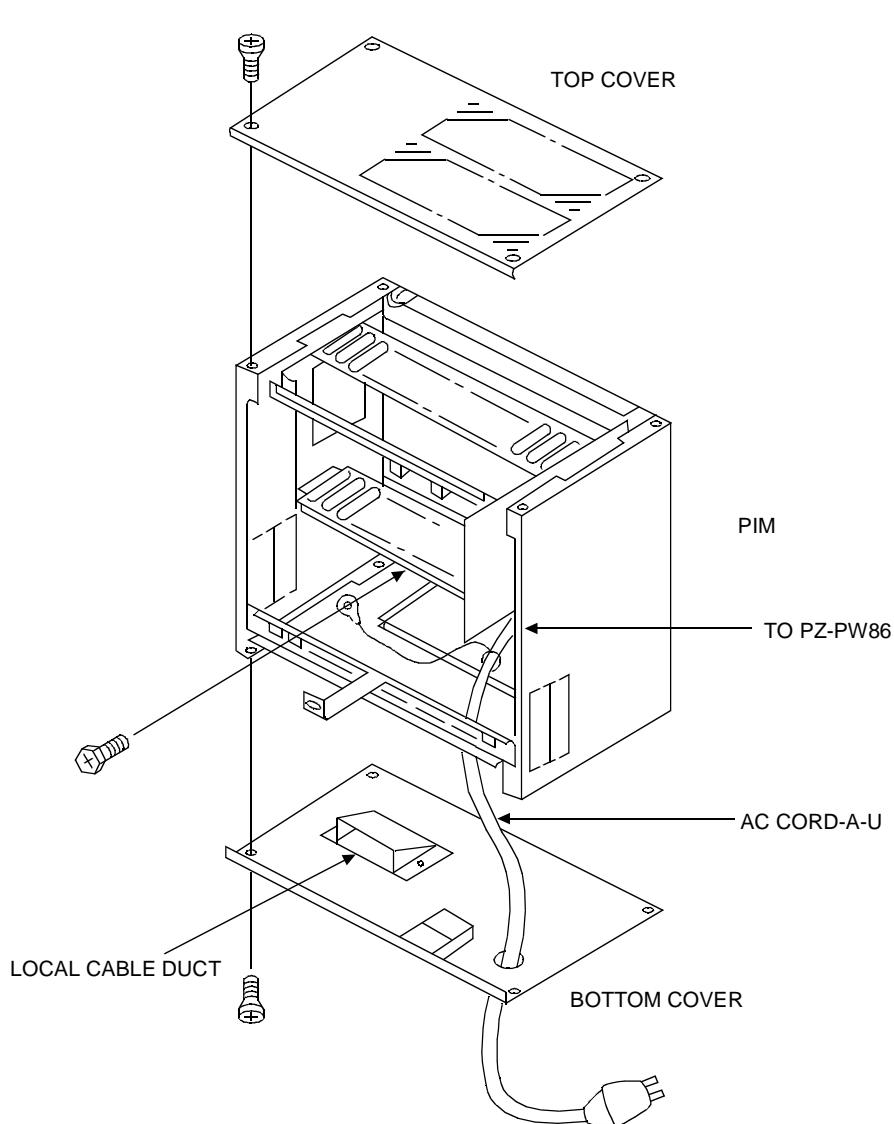
Figure 003-10 Connecting the Covers and AC CORD to the PIM

(2)   Connect the RUBBER FOOT to the PIM.
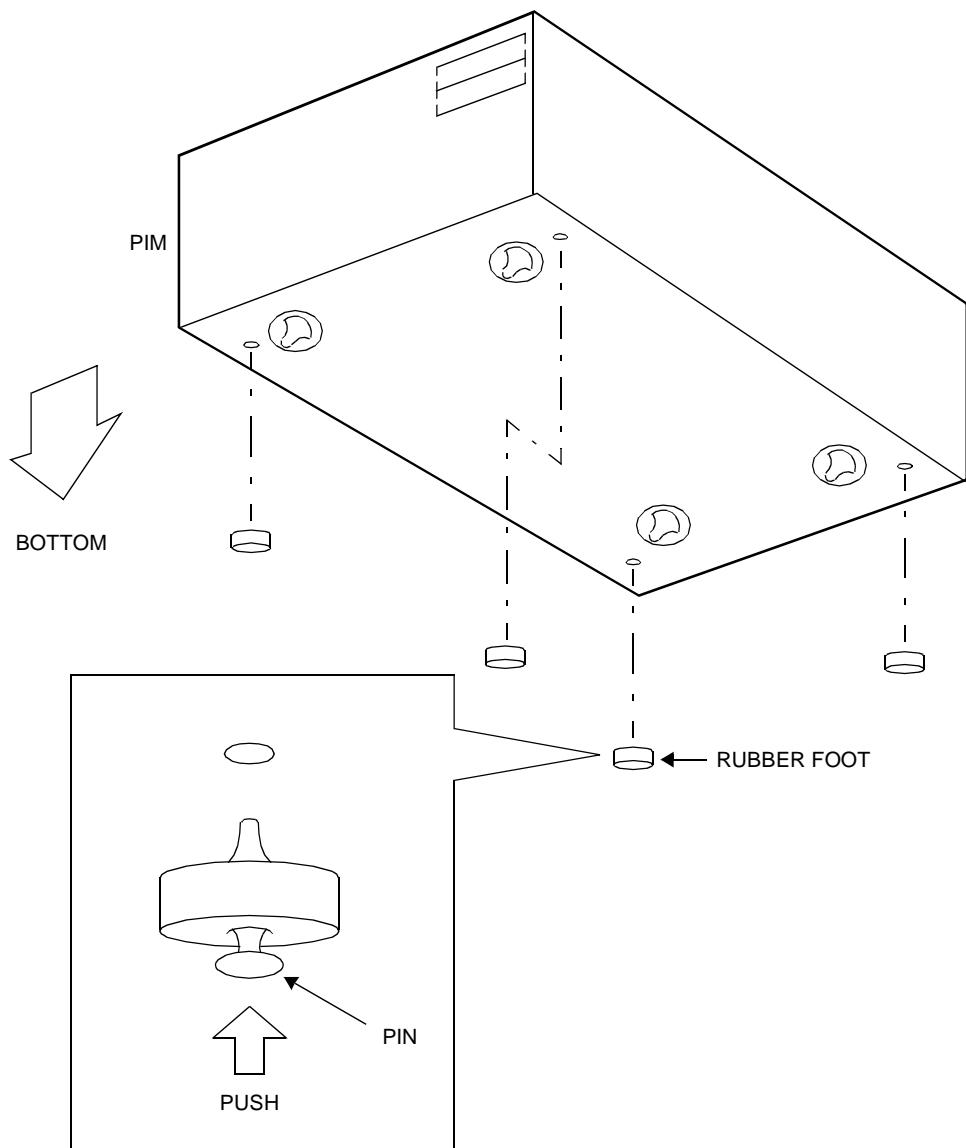
Figure 003-11   Connecting the RUBBER FOOT to the PIM

5. AC POWER CABLING

(1) The cable connections on the PZ-PW86 card are shown below.
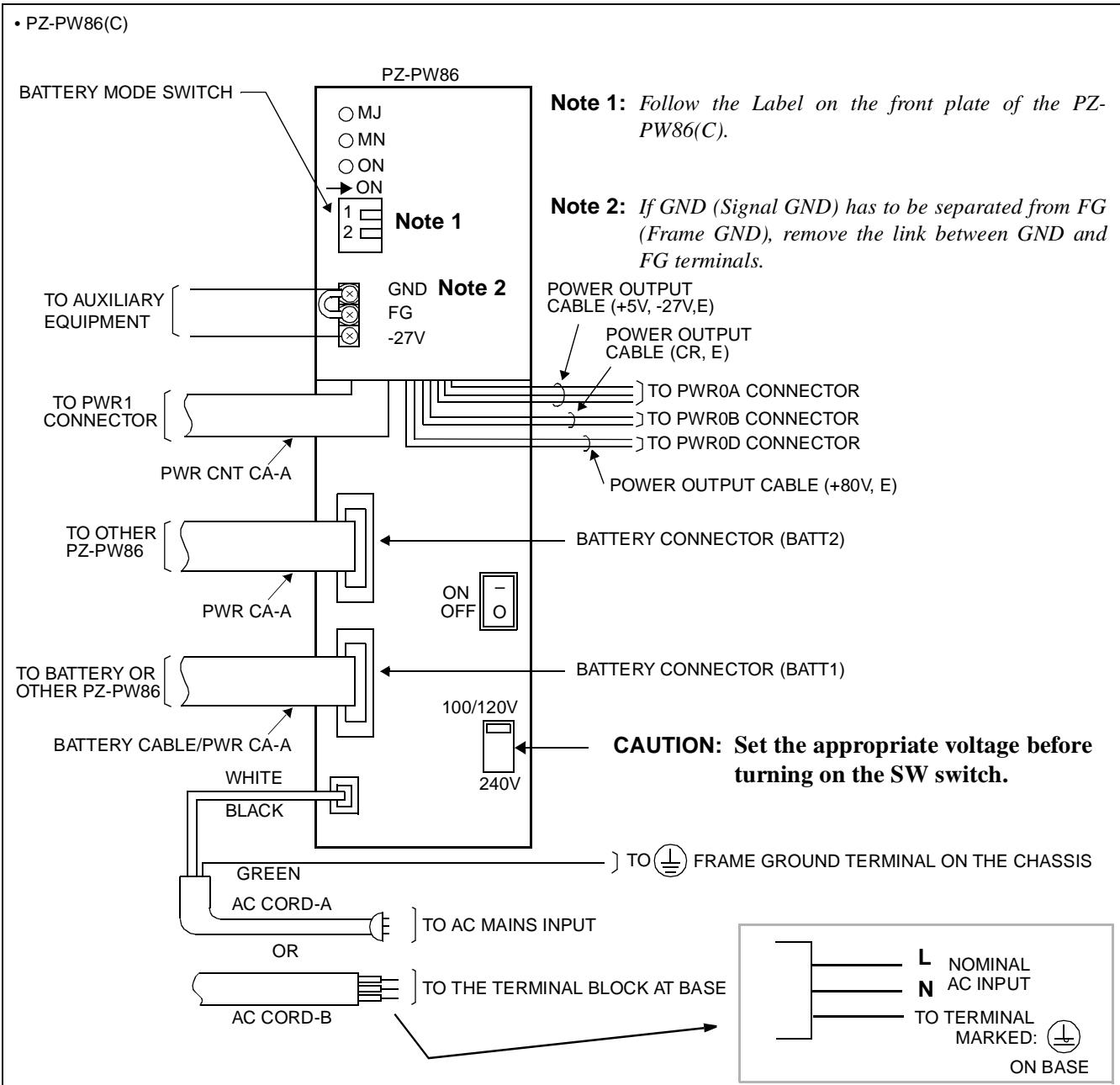
Figure 003-12 Cable Connection on the PZ-PW86

• PZ-PW86(D)

PZ-PW86(D)

○ MJ
○ MN
○ ON
→ ON

Note 1

BATTERY MODE SWITCH →
1: NO CONNECTION
2: ON-EQ./FLOAT 2
   OFF-FL./FLOAT 1

Note 1: *Follow the Label on Front Plate of PZ-PW86(D).*

Note 2: *If GND (Signal GND) has to be separated from FG (Frame GND), remove the link between GND and FG terminal.*

TO AUXILIARY
EQUIPMENT

GND **Note 2**
FG
–27V

POWER OUTPUT
CABLE (+5V, –27V,E)

POWER OUTPUT
CABLE (CR, E)

] TO PWR0A CONNECTOR
] TO PWR0B CONNECTOR
] TO PWR0D CONNECTOR

POWER OUTPUT CABLE (+90V,E)

TO PWR1
CONNECTOR

TO OTHER PZ-PW86

PWR CNT CA-A

PWR CA-A
BATTERY CONNECTOR (BATT2)

CAUTION: Set the appropriate voltage before turning on the SW switch.

100/120V

240V

TO BATTERY OR
OTHER PZ-PW86
BATTERY CABLE/PWR CA-A
BATTERY CONNECTOR (BATT1)

WHITE

BLACK

ON —
OFF O

] TO ⏚ FRAME GROUND
TERMINAL ON THE
CHASSIS (FOR 1-PIM SYSTEMS)

GREEN

AC CORD-A

] TO AC MAINS INPUT
(FOR 1-PIM SYSTEMS)

OR

] TO THE TERMINAL BLOCK AT BASE
(FOR MULTIPLE PIM SYSTEMS)
(See Figure 003-12)

AC CORD-B

L NOMINAL
N AC INPUT
TO TERMINAL
MARKED: ⏚
ON BASE

Figure 003-12   Cable Connection on the PZ-PW86 (Continued)

(2) Confirm the connection of the PWR CNT CA-A and power output cables (These cables are pre-installed).
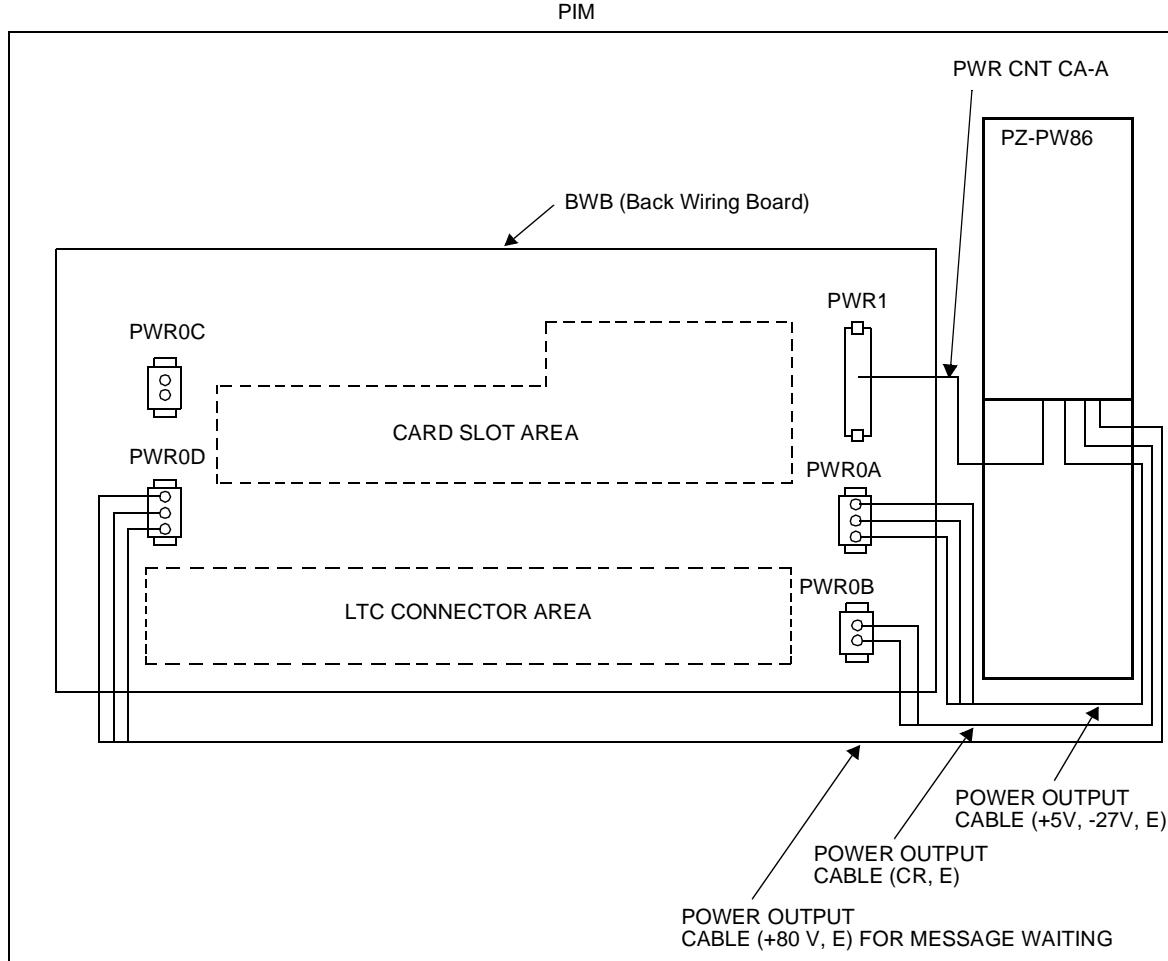
Figure 003-13 Cable Connection between the PZ-PW86 and the BWB

(3)   AC Power Cable Wiring

    (a)   The AC CORD-B and the AC Power Cable Wiring to the FG, NEUTRAL and LINE terminals inside the BASE are shown in Figure 003-15.
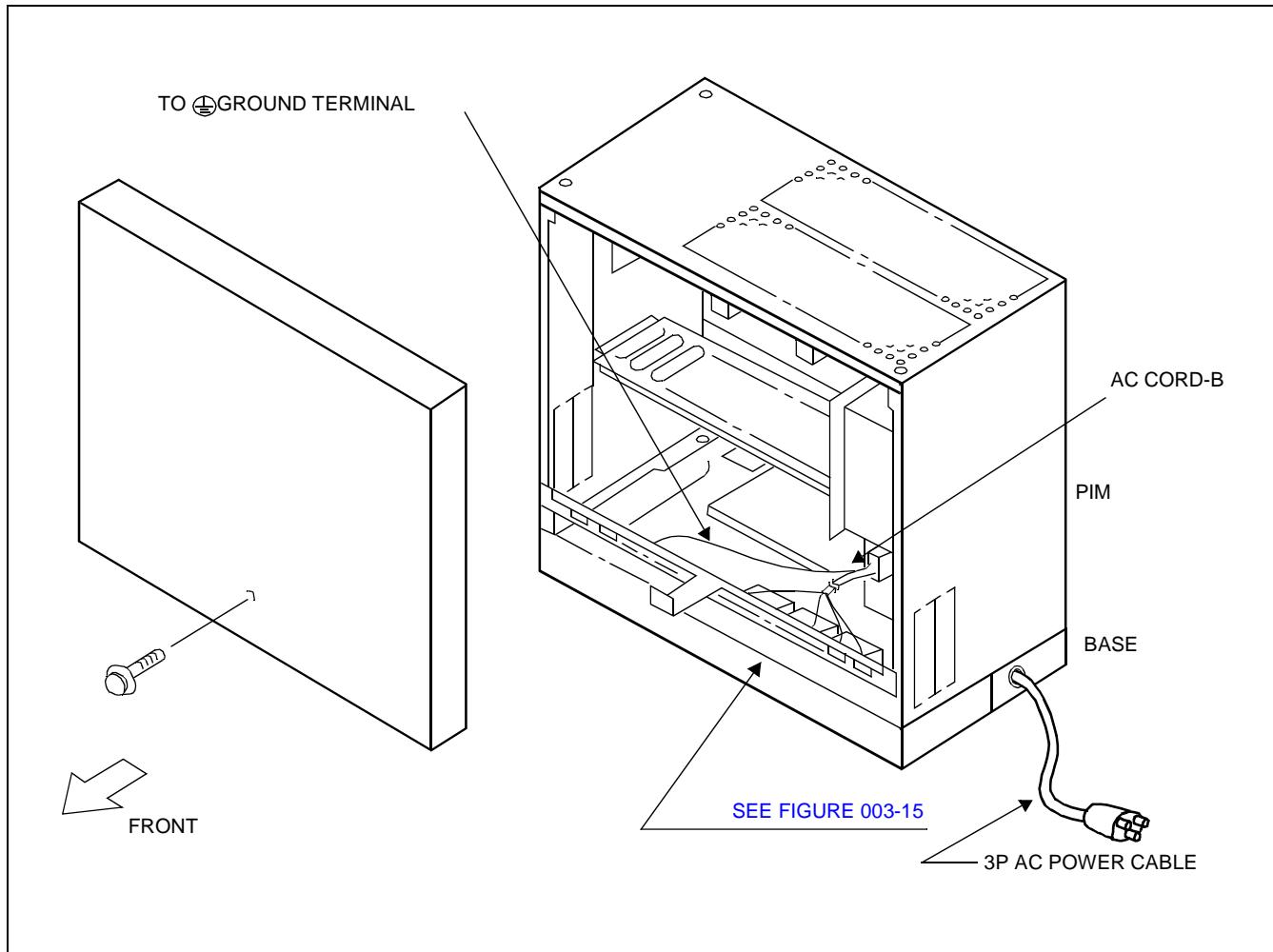
Figure 003-14   AC Power Cable Wiring

(b)   Secure the AC CORD-B cables to the FG, NEUTRAL and LINE terminals. The 3P AC Power Cable and the FG Cable are pre-installed with the BASE.

PUSH: INSERT THE AC CORD
PULL : FIXED THE AC CORD

CORD BUSH
(PROVIDED WITH BASE)

AC CORD-B
TO PZ-PW86 IN PIM
(PROVIDED WITH PIM)

PIM

FG

BASE

NEUTRAL

LINE

FG CABLE
(PROVIDED WITH BASE)

AC POWER
KNOCK OUT HOLE

TO 120/240 V AC
SOURCE POWER

SUPPLEMENTARY GROUND
(TO COLD WATER PIPE, ETC.)

3P AC POWER CABLE
(PROVIDED WITH BASE)
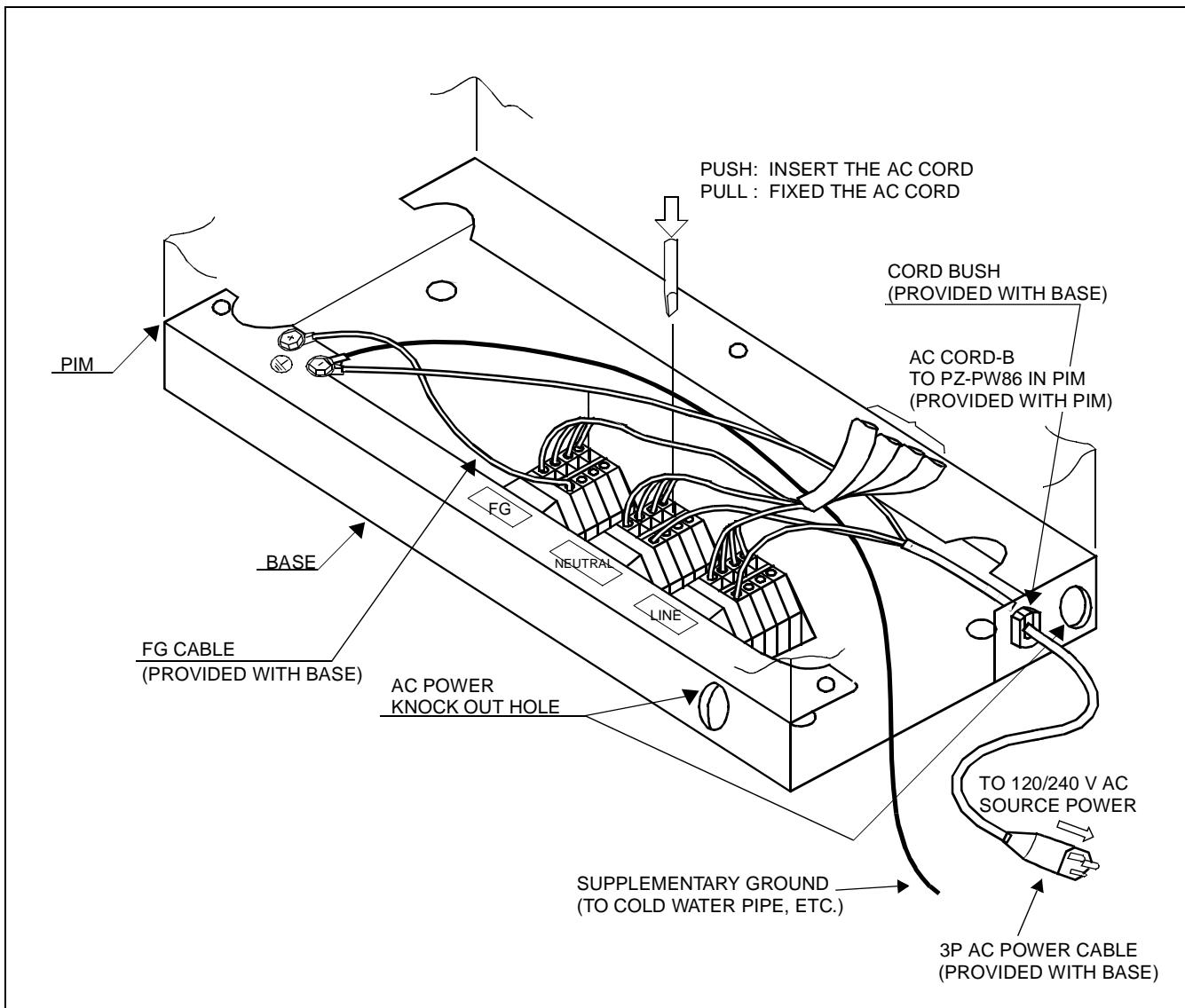
Figure 003-15   Screwing the AC CORD-B to the Terminals

6. MDFM/BATTM INSTALLATION

When installing the MDFM and BATTM, follow the installation below.

(1) Connect the RACK PARTS to the rear side of the BASE using the M5 Machine screws (provided).

Note : *This installation procedure is required when the system is 3 modules (PIM + MDFM + BATTM).*

RACK PARTS

M5 MACHINE SCREW-C
(X2/JOINT AREA)
(PROVIDED WITH RACK PARTS)

BASE

REAR
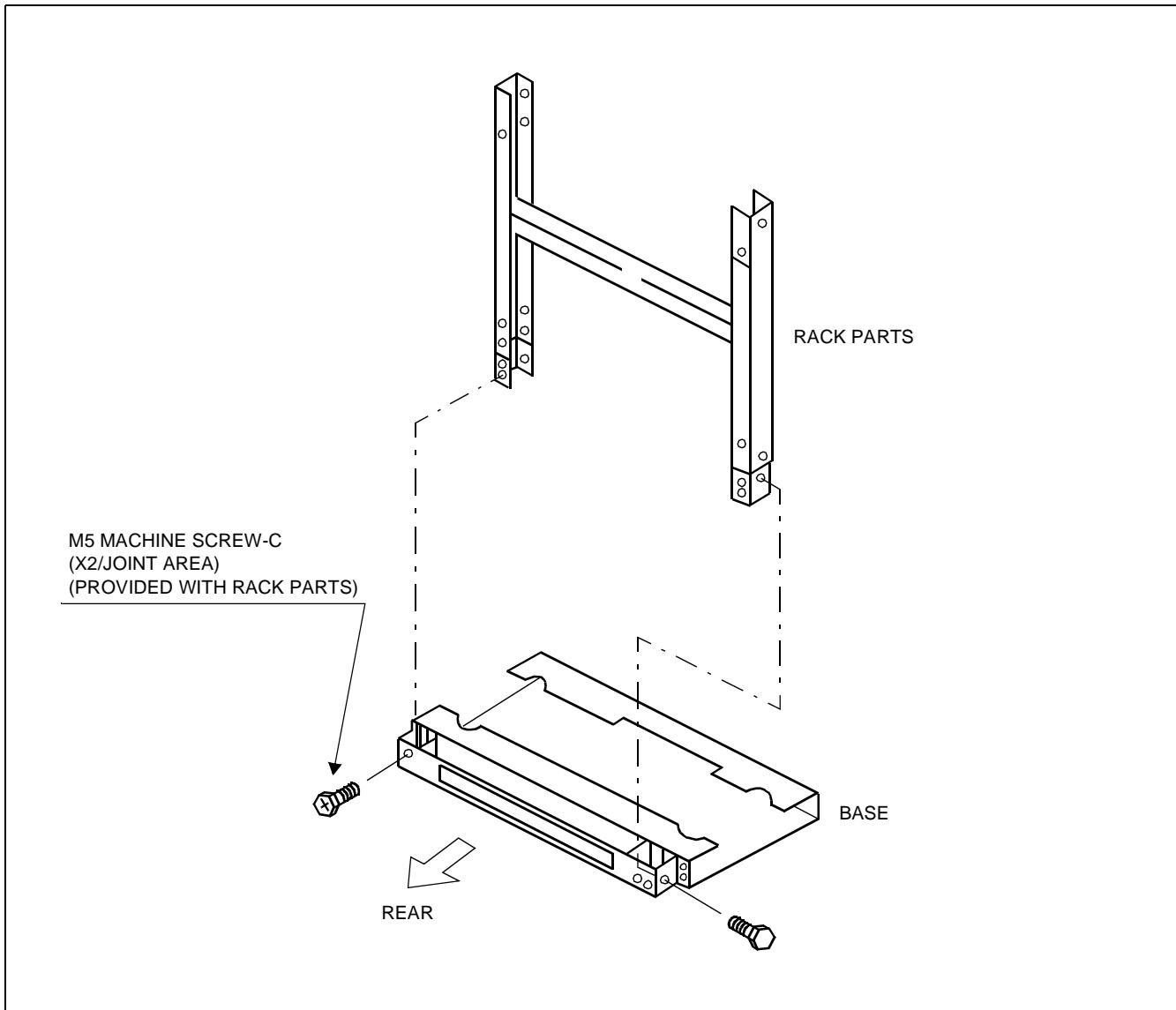
Figure 003-16   Connection of RACK PARTS and BASE

(2) Connect the RACK PARTS to each other.

Note : *This installation procedure is required when the system is 3 modules (PIM + MDFM + BATTM).*
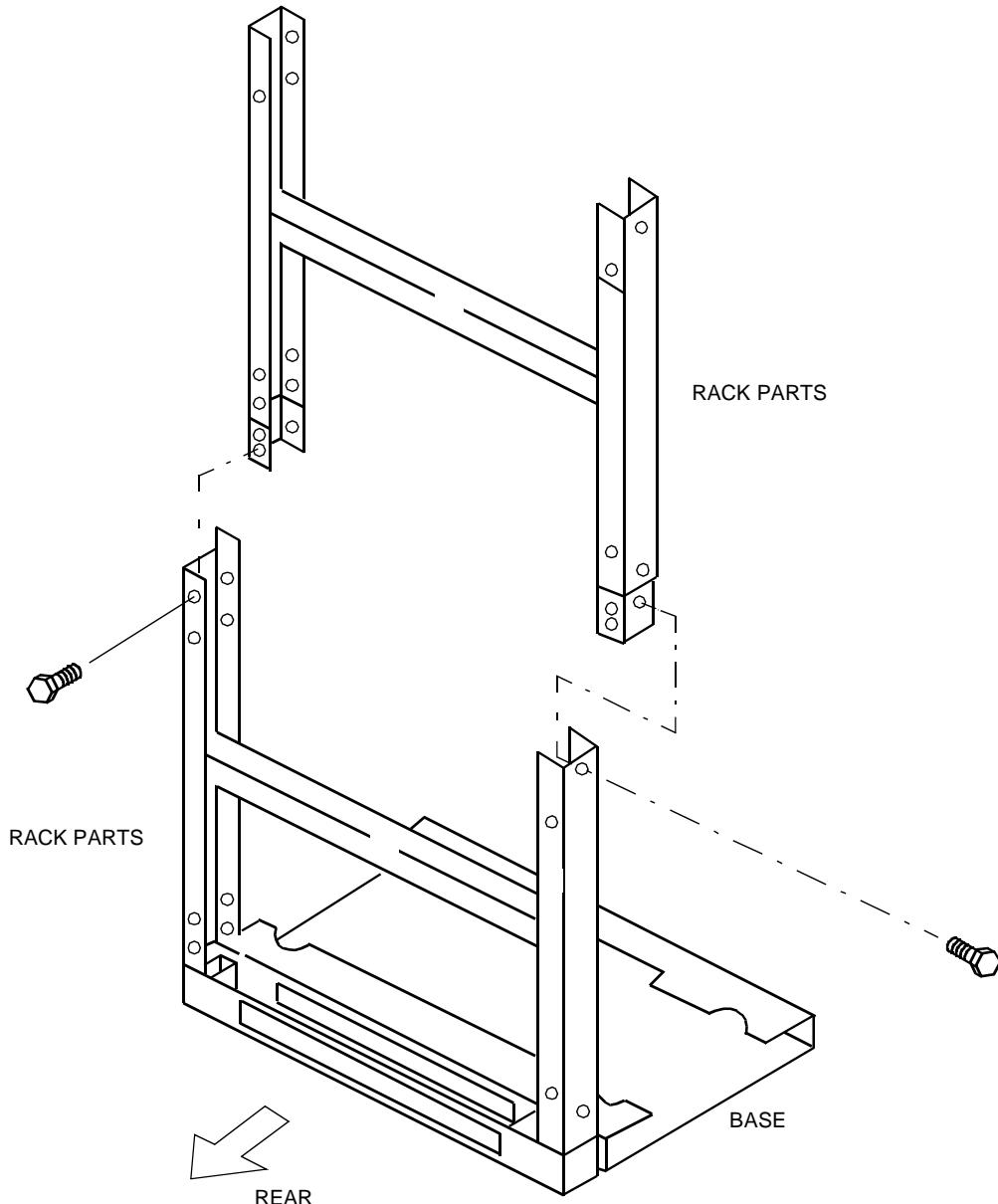
Figure 003-17 Connection of RACK PARTS

(3)   Connect the PIM to the RACK PARTS using the 4 screws provided with the RACK PARTS.

Note :   *This installation procedure is required when the system is 3 modules (PIM + MDFM + BATTM).*

PIM **Note**

BASE

REAR
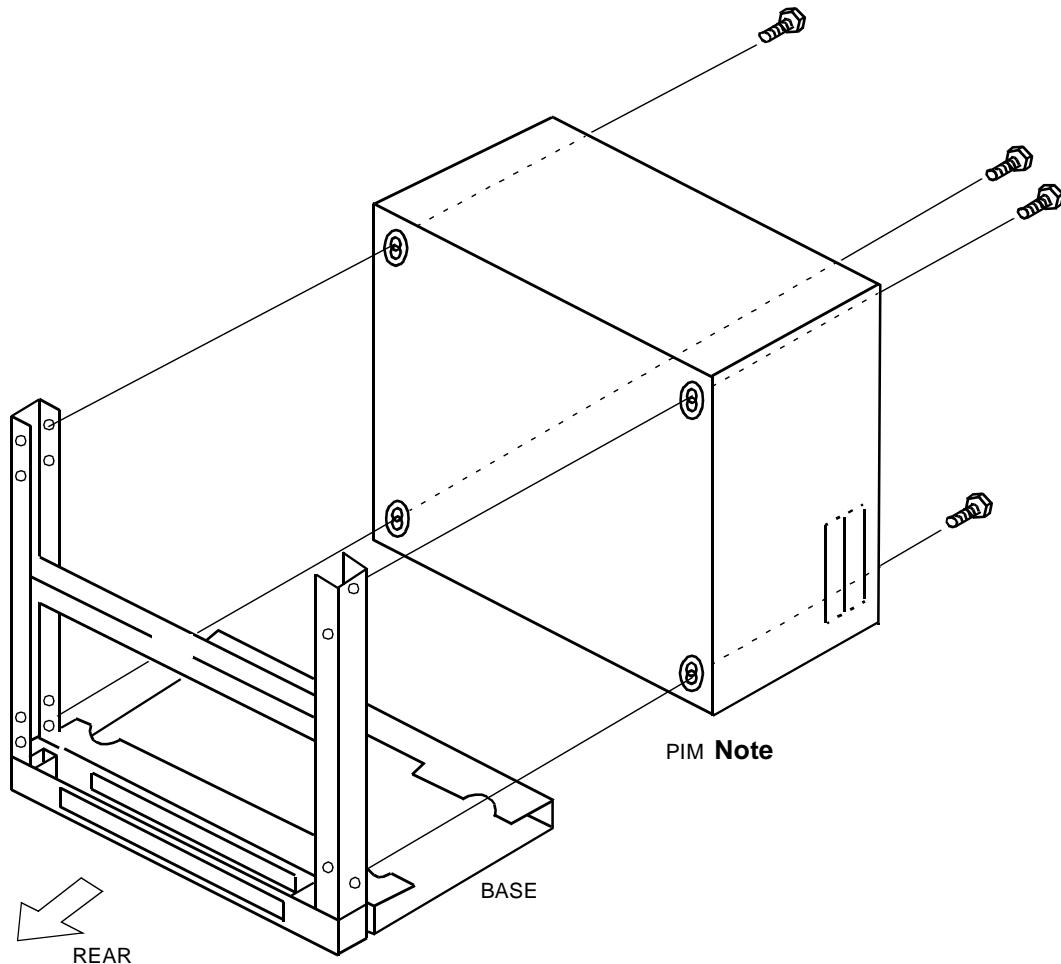
Note :   *The BATTM and the MDFM can be installed in the same manner as the PIM.*

Figure 003-18   Connection of the PIM and the RACK PARTS

(4) Connect the PIM to the MDFM/BATTM as shown in Figure 003-19. Then, connect the TOP COVER to the PIM as shown in Figure 003-3.

PIM

MDFM **Note**

FRONT
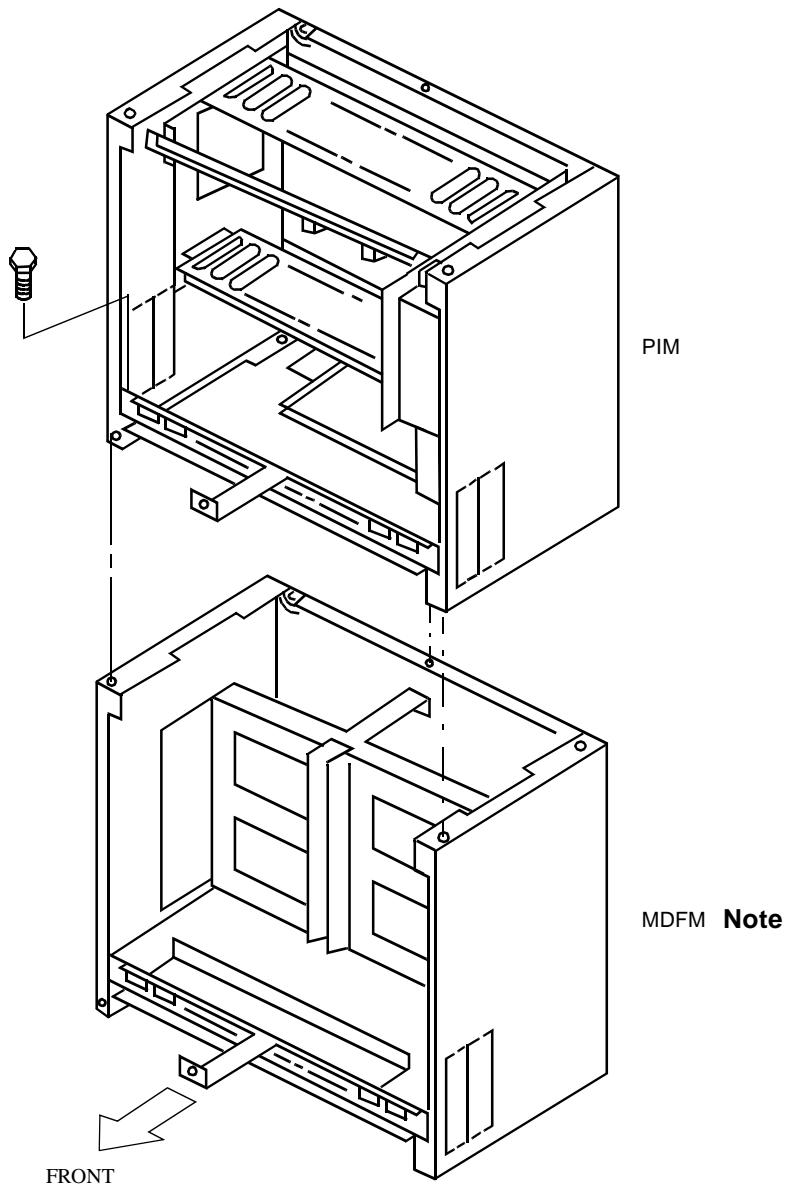
Note : *The Battery Module (BATTM) can be installed in the same manner as MDFM.*

Figure 003-19   Connection of PIM and MDFM/BATTM

1. BATTERY CONNECTION

CAUTION 1: 24V batteries must be used in this system.

CAUTION 2: If battery terminals (+, –) contact with the module under connecting the battery cable to the PZ-PW86 card, the PZ-PW86 card or the BWB may be broken. Therefore, the installer must perform work in accordance with the following steps when mounting or removing the batteries.

- When mounting batteries:

(1) Connect the battery cable to the batteries.

(2) Mount the batteries into the appointed position of the PIM or the BATTM.

(3) Connect the battery cable to the PZ-PW86 card.

- When removing batteries:

(1) Disconnect the battery cable from the PZ-PW86 card.

(2) Remove the batteries from the PIM or the BATTM.

<table>
<tr><td colspan="4" align="center">Recommended Battery</td></tr>
<tr><td>Internal Battery</td><td>:</td><td>YUASA
MATUSHITA</td><td>type NPH-3.2-12
type LCR-12V-3.4NE</td></tr>
<tr><td>External Battery</td><td>:</td><td>YUASA
MATUSHITA</td><td>type NP-24-12B
type LCL-12V-24</td></tr>
</table>

CAUTION 3: Battery Replacement Table and Battery Warnings
The label, which shows battery replacement table and battery warnings, is attached to the reverse side of Front Cover for PIM and BATTM.
During the battery installation process, always observe the warning statements. When replacing batteries, adhere to the battery replacement table to increase battery life and to insure safe operation.

PIM/BATTM

LABEL

FRONT COVER
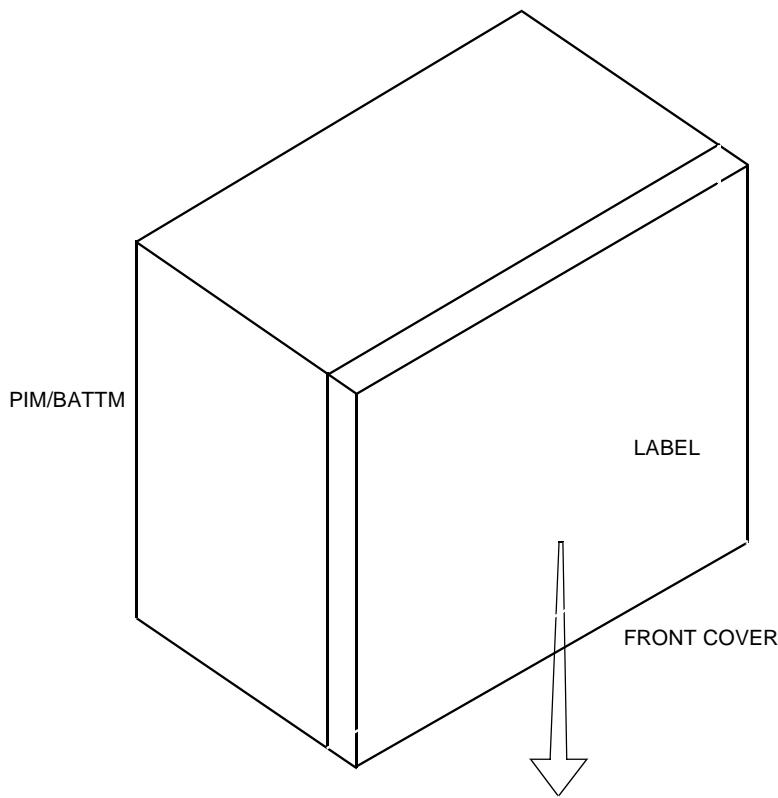
BATTERY REPLACEMENT TABLE
INSTALLATION DATE:

AMBIENT TEMPERATURE	25° C (77° F)	25° C ~ 30° C (77° C ~ 86° F)	30° C ~ 40° C (86° C ~ 104° F)
REPLACEMENT INTERVAL	2.5 ~ 3.0 YEARS	2.0 ~ 2.5 YEARS	1.5 ~ 2.0 YEARS

o ELECTROLYTE LEAKAGE OR OTHER HAZARDS MAY RESULT IF THE BATTERY IS NOT REPLACED IN ACCORDANCE WITH THE SPECIFIED INTERVALS.

CAUTION TO PREVENT INJURY AND SKIN BURN, PAY ATTENTION TO THE FOLLOWING.

o DO NOT STRIKE A MATCH OR CAUSE A SPARK IN VICINITY OF BATTERY.
o PLACE THE EQUIPMENT WELL VENTILATED AREA.
o DO NOT SHORT.
o REPLACE BATTERY ONLY AFTER BATTERY GASES HAVE BEEN DISPERSED.

1.1 Internal Battery Connection

    (1)   Mount the battery unit (24 V DC, 3.4 AH) into the PIM.
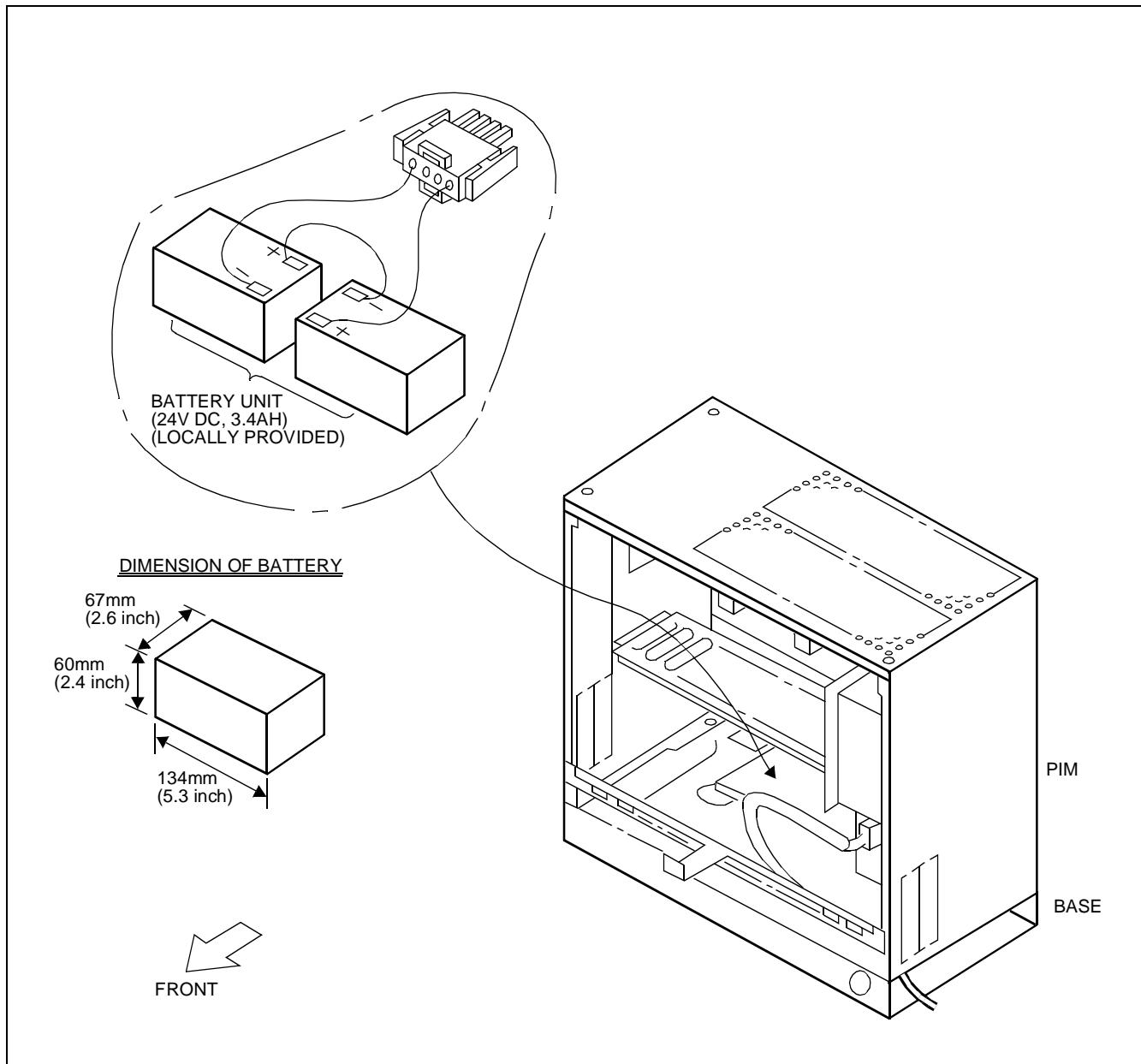
Figure 004-1   Internal Battery Mounting

(2) Plug the battery cable connector into the BATT1 connector on the PZ-PW86 as shown in Figure 004-2.

(3) Secure the batteries and battery cable using tie wraps.

PLUG IN TO BATT 1
CONNECTOR ON PZ-PW86

PIM

BASE

FRONT

TIE WRAP
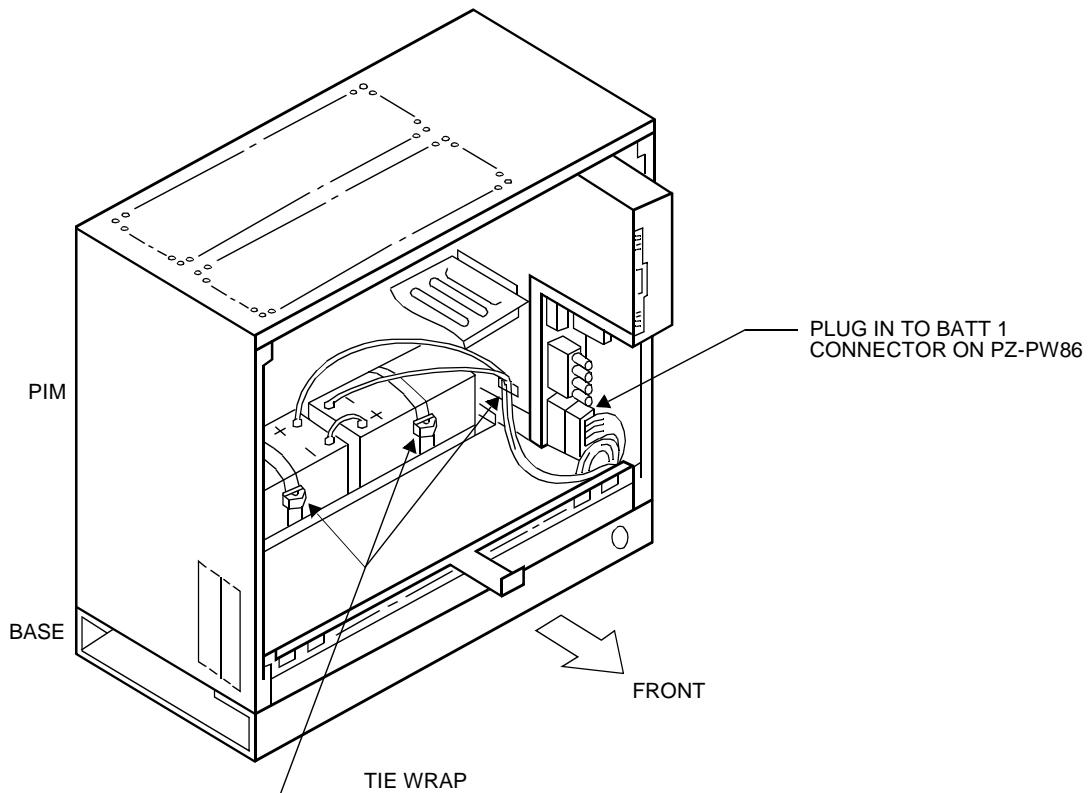
Figure 004-2 Internal Battery Connection

1.2 Battery Connection in the BATTM

(1) Connect the battery cables to the batteries, and mount the battery units (24 V DC, 24AH per unit) into the Battery Module (BATTM). See Figure 004-3.
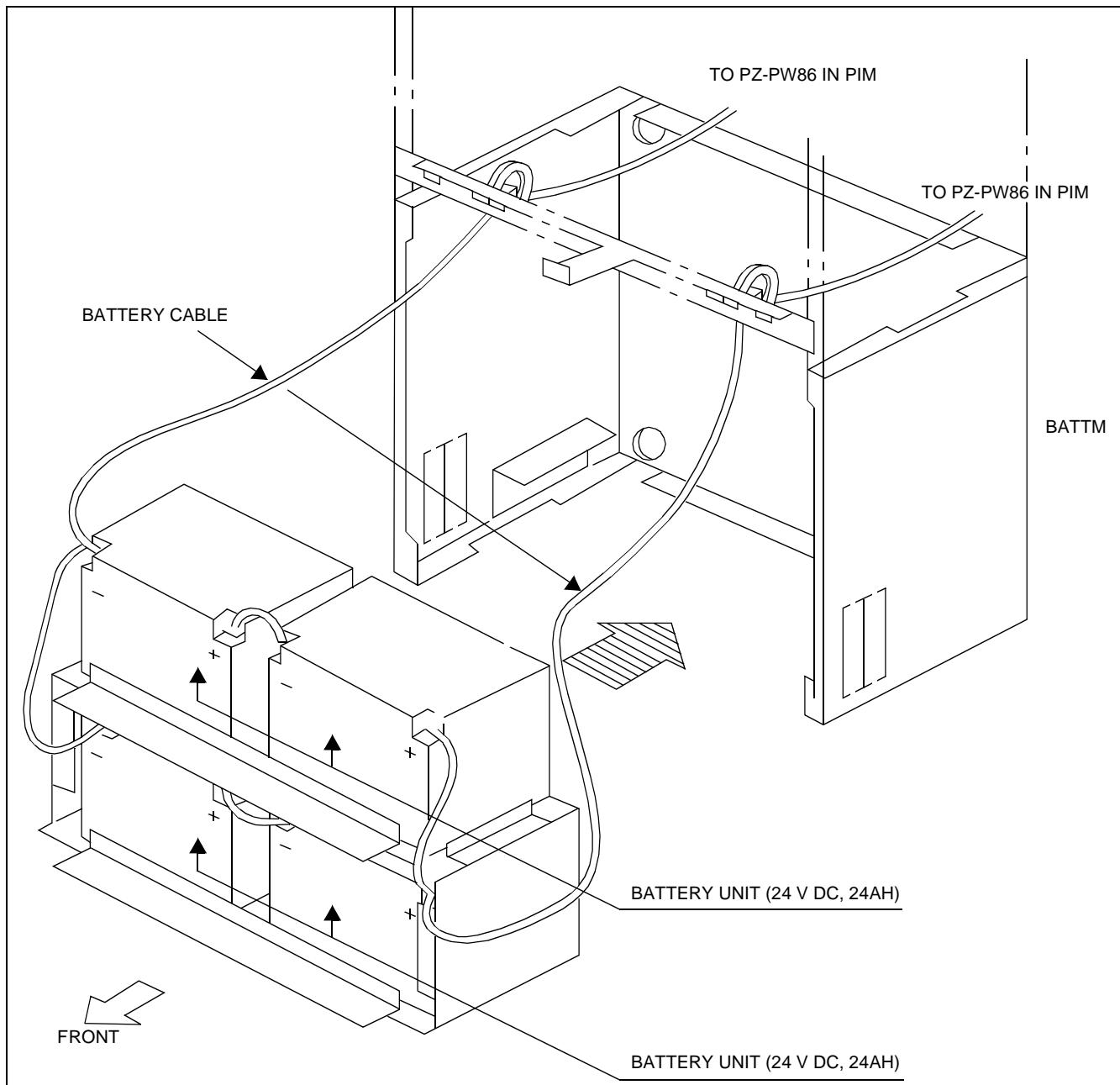
Figure 004-3   Battery Mounting into the BATTM

1. MDF CABLE

To facilitate the termination of the 25 pair cables (MDF cables) from the system to the MDF, the length of each cable to be used should be predetermined according to the distance between the MDF and the system. Each cable should be labeled at both ends using a cable number or cable designation as shown in Figure 005-1.

CHAMP CONNECTOR

TO PIM

TWISTED 25 PAIR CABLES

TO MDF
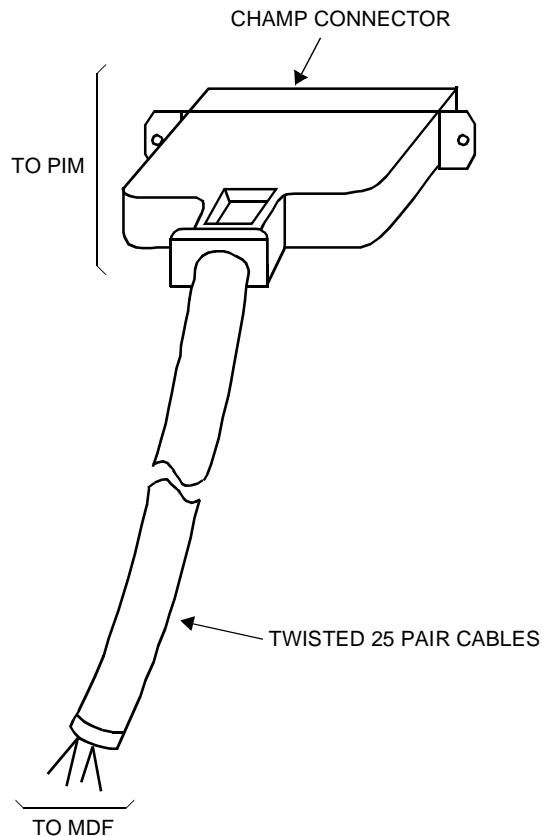
FROM		CABLE NUMBER	TO	CABLE DESTINATION
MODULE	CONNECTION			
PIM0	LTC0	1	MDF	0 LTC0
	LTC1	2		0 LTC1
	LTC2	3		0 LTC2

Figure 005-1   MDF Cable

2. INSTALLATION OF EXTERNAL MDF

- Secure the external MDF onto the floor or mount the MDF onto the wall.

- Mount the required MDF components.

- If required, install the cable ducts for the cables to be laid between the MDF and the Main Equipment. In this case, confirm the locations of the cable holes for the Main Equipment. See Figure 005-2.

CABLE HOLE

FRONT

RACK PARTS

430 mm (16.9 inch)

30 mm (1.2 inch)

214 mm (8.4 inch)

184 mm (7.2 inch)
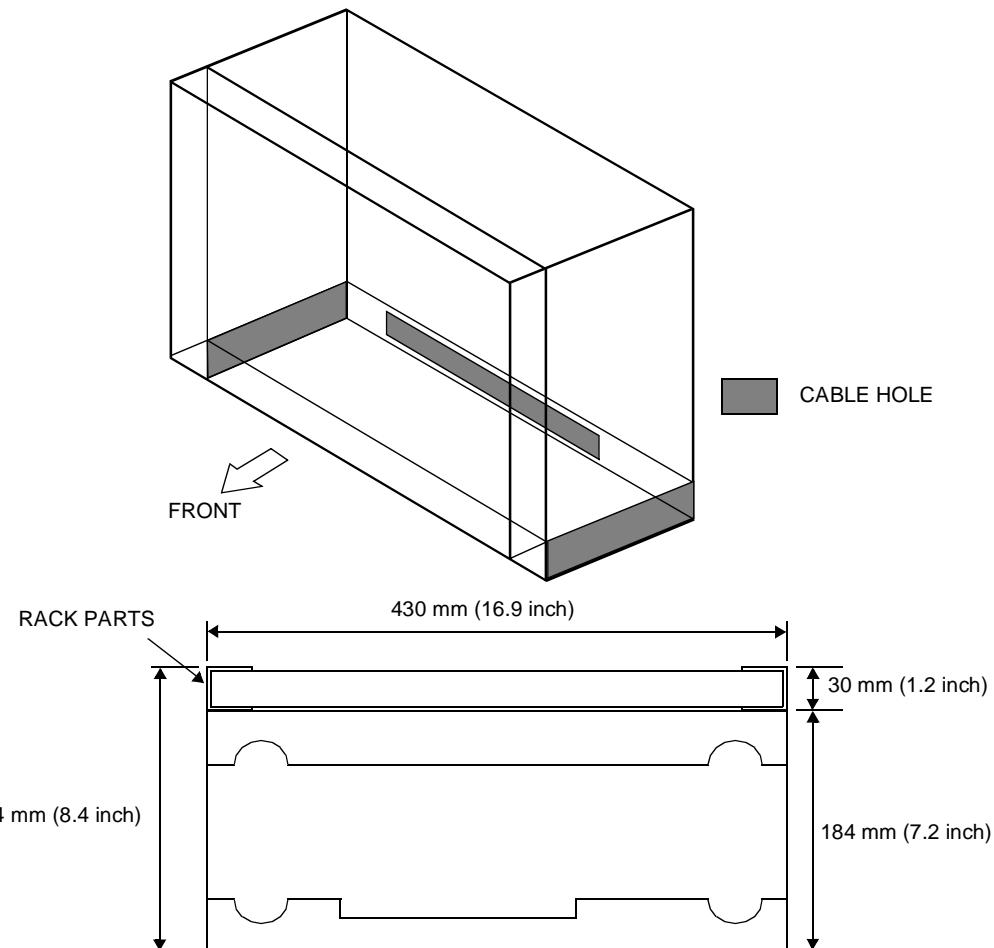
Figure 005-2   Cable Hole Location

3.   CABLE RUNNING TO THE EXTERNAL MDF

(1)   Bring the MDF cable up to the Main Equipment through the cable hole(s) of the BASE.

(2)   Connect the champ connector of each MDF cable to an LTC connector located on a PIM using the screws provided, as shown in Figure 005-3.

(3)   Pare the sheath of each MDF cable and secure the shield to the front bracket on the PIM using tie wraps, as shown in Figure 005-3.
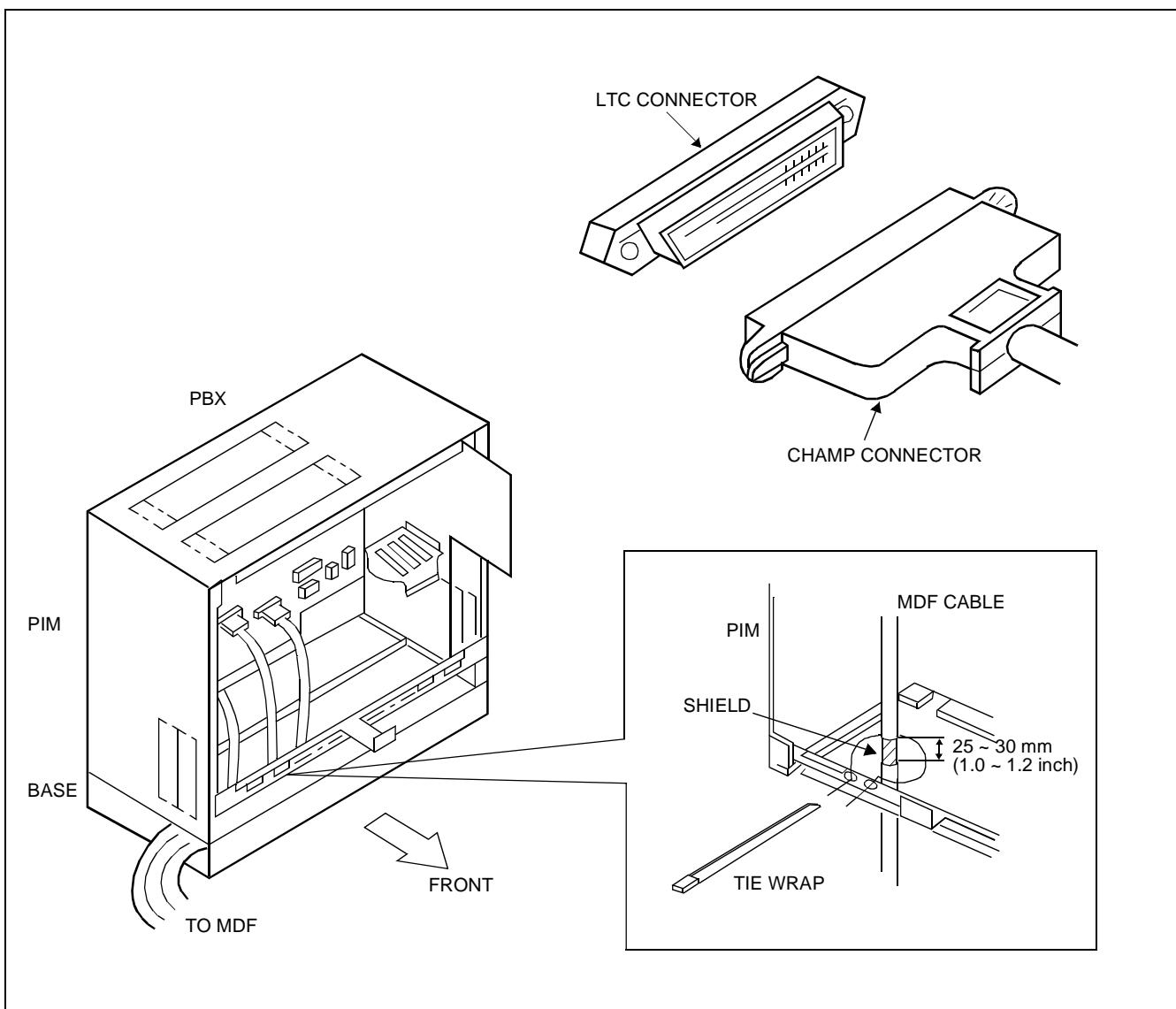
Figure 005-3   Cable Running to External MDF

4. CABLE RUNNING TO THE MDFM

(1) Connect the champ connector of each MDF cable to an LTC connector located on a PIM using the screws provided, as shown in Figure 005-4.

(2) Pare the sheath of each MDF cable and secure the shield to the front bracket on the PIM using tie wraps, as shown in Figure 005-4.
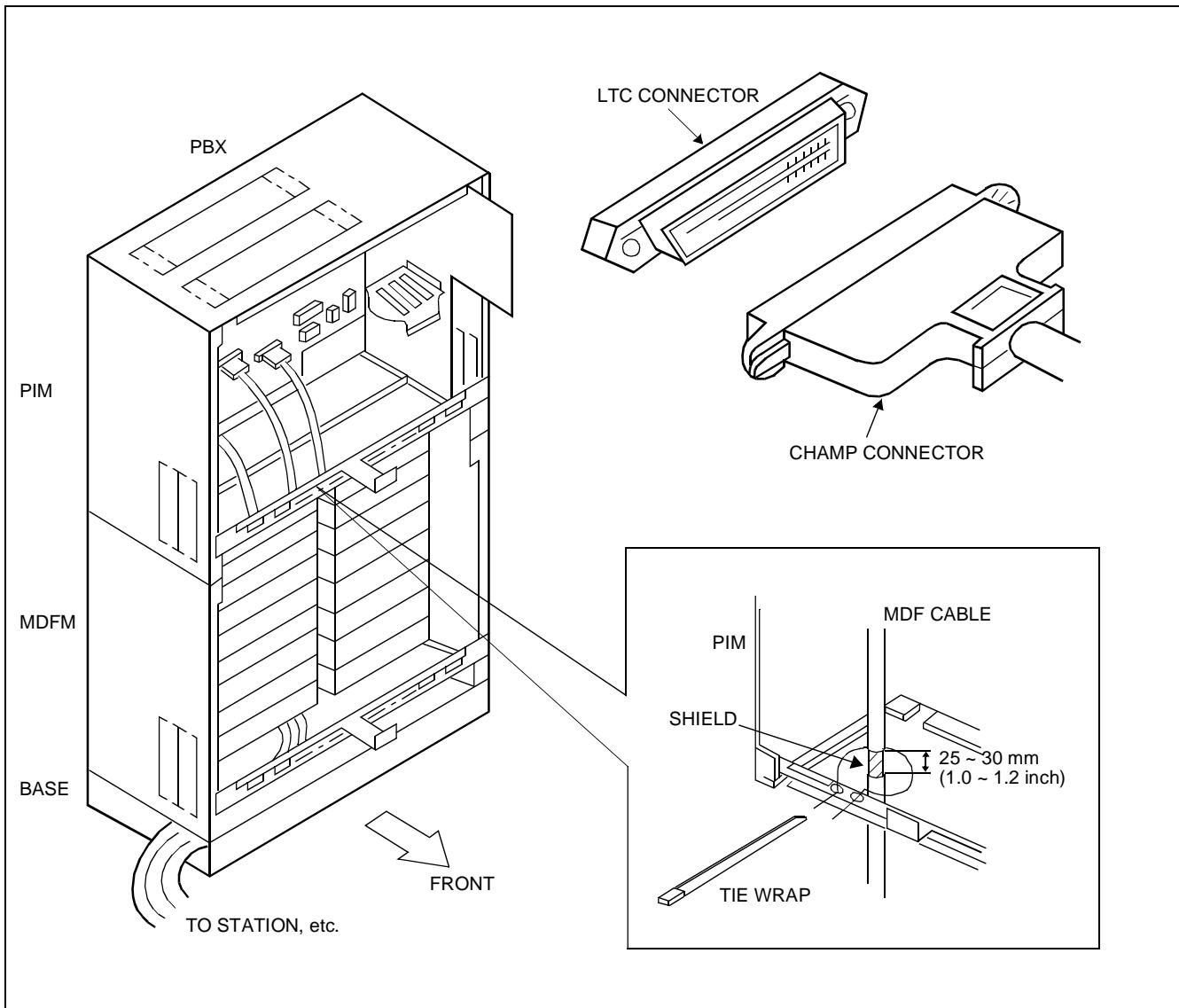
Figure 005-4 Cable Running to MDFM

(3) Connect the MDF cables to the MDF connectors in the MDFM.
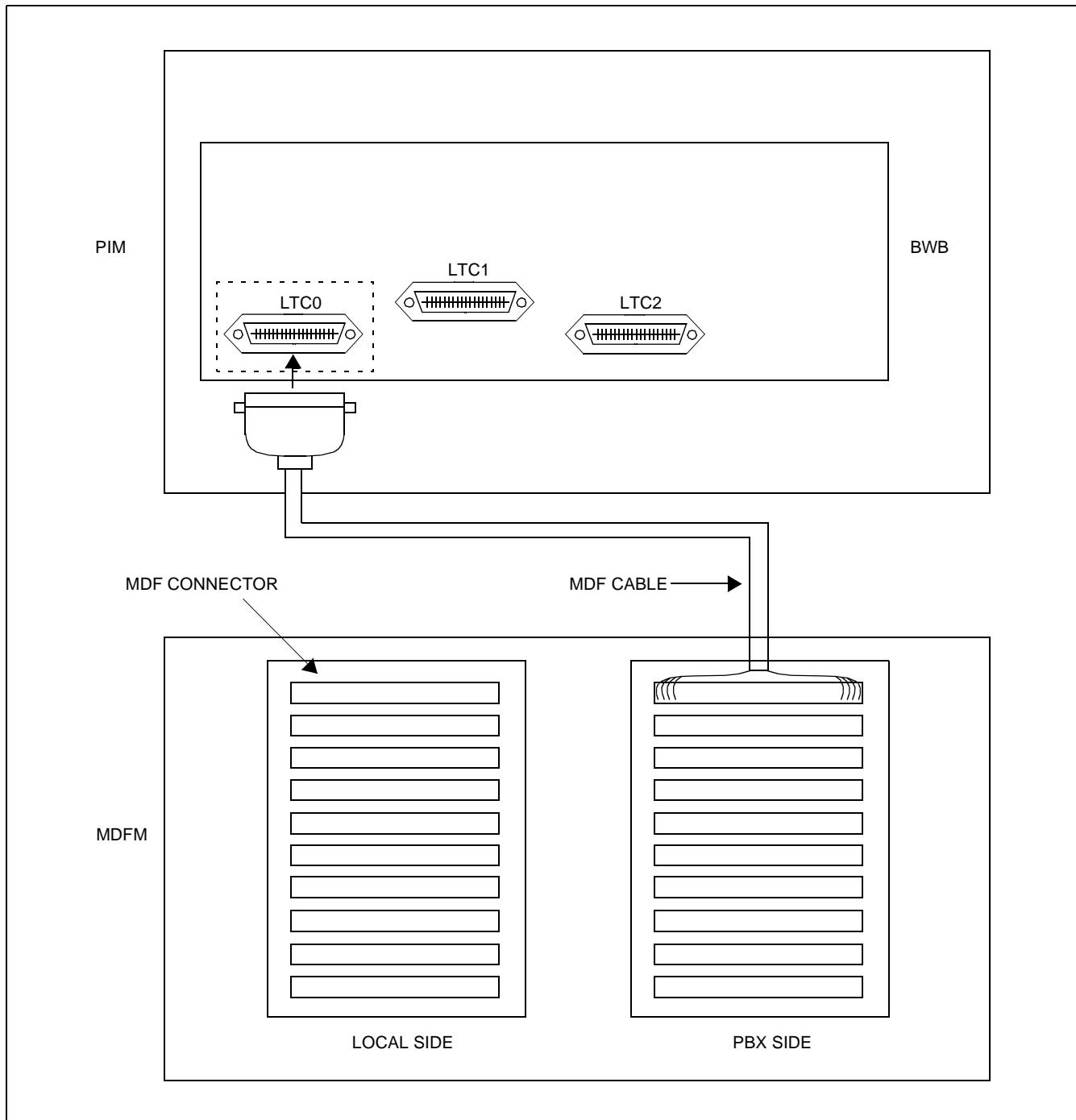
Figure 005-5 MDF Cable Connection to MDFM Example

1. CABLE CONNECTION TO THE MDF

(1) Connect the cables to the MDF referring to Figure 006-1 and Table 006-1.
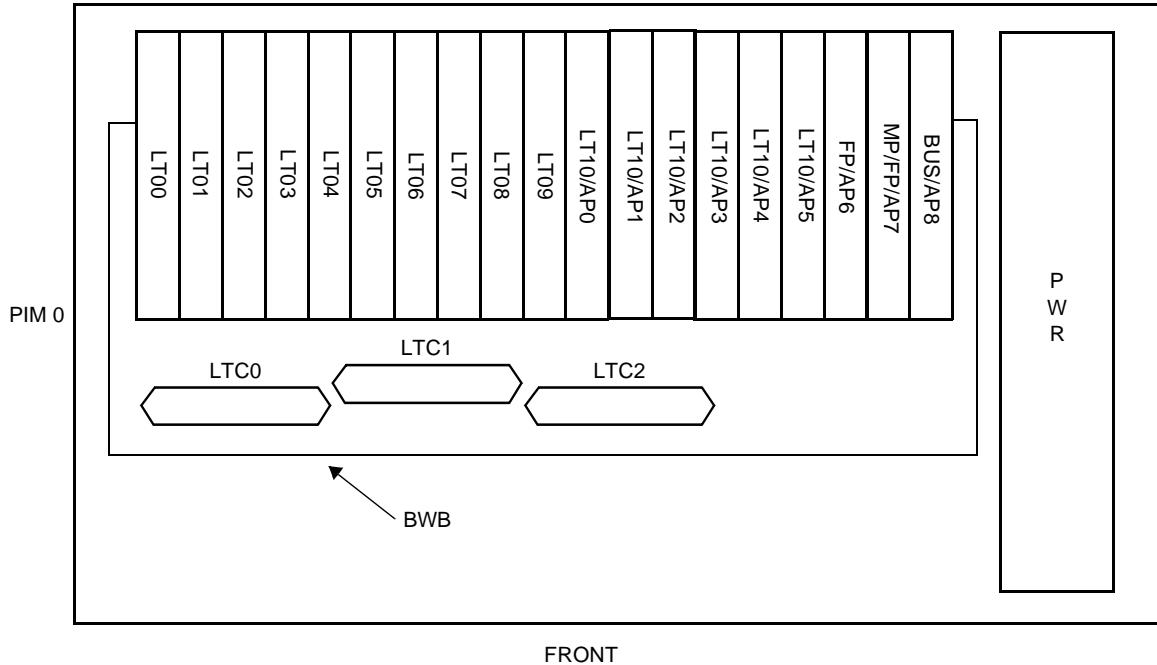
Figure 006-1 Card Slots and LTC Connectors Location (PIM0)

Table 006-1 LTC Connector Accommodation

LTC CONNECTOR	CARD SLOT NUMBER	REMARKS
LTC0	LT00 ~ LT05	
LTC1	LT06 ~ LT09, LT10/AP0, LT11/AP1	
LTC2	LT12/AP2 ~ LT15/AP5, AP6	

Note :   *When using the internal DTMF Receiver on the MP card, assign the Card No. E200 to the LEN No. 0124.*

(2) Connect the cables to the MDF referring to Figure 006-2 and Table 006-2.
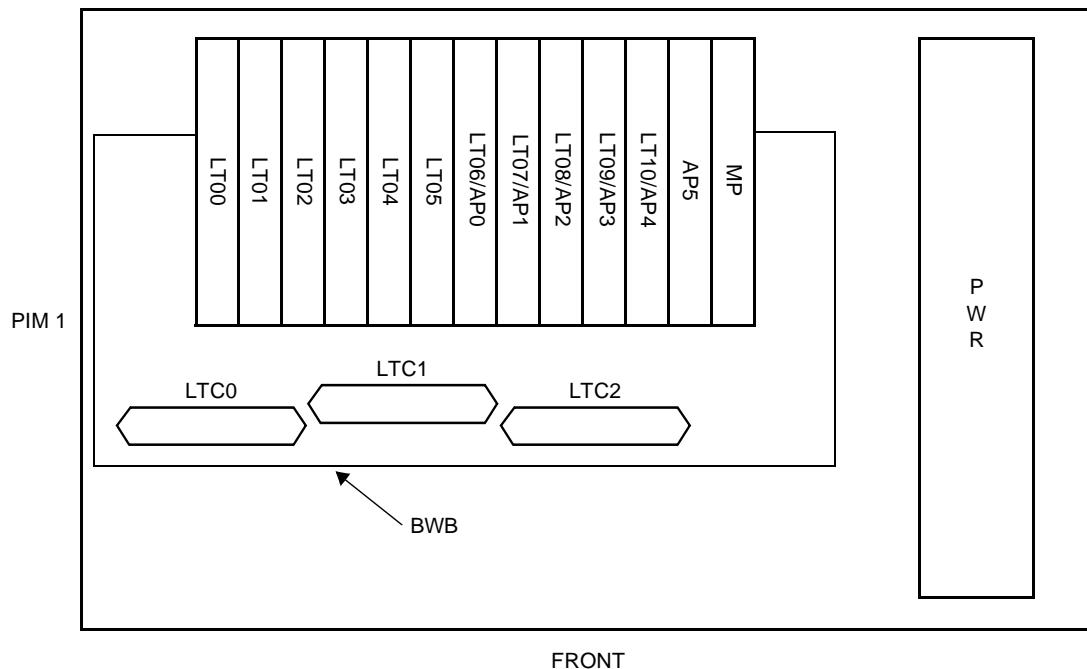
Figure 006-2 Card Slots and LTC Connectors Location (PIM1)

Table 006-2 LTC Connector Accommodation

LTC CONNECTOR	CARD SLOT NUMBER	REMARKS
LTC0	LT00 ~ LT02	
LTC1	LT03 ~ LT05	
LTC2	LT06/AP0 ~ LT09/AP3	

Note : *When using the internal DTMF Receiver on the MP card, assign the Card No. E200 to the LEN No. 0124.*

(3) The figure below shows the relationship between each Line Equipment Number (LEN) and each Card Slot Number (LT Number).

    (a)   LEN 0000 ~ 0143

Note 1

(LT00)	(LT01)	(LT02)	(LT03)	(LT04)	(LT05)	(LT06)	(LT07)	(LT08)	(LT09)	(LT10)
0071	0079	0087	0095	0103	0111	0119	0127	0135	—	—
0070	0078	0086	0094	0102	0110	0118	0126	0134	—	—
0069	0077	0085	0093	0101	0109	0117	0125	0133	—	—
0068	0076	0084	0092	0100	0108	0116	0124	0132	—	—
0067	0075	0083	0091	0099	0107	0115	0123	0131	0139	0143
0066	0074	0082	0090	0098	0106	0114	0122	0130	0138	0142
0065	0073	0081	0089	0097	0105	0113	0121	0129	0137	0141
0064	0072	0080	0088	0096	0104	0112	0120	0128	0136	0140

| (LT00)	(LT01)	(LT02)	(LT03)	(LT04)	(LT05)	(LT06)	(LT07)	(LT08)	(LT09)	(LT10)	(LT11)	(LT12)	(LT13)	(LT14)	(LT15)
0003	0007	0011	0015	0019	0023	0027	0031	0035	0039	0043	0047	0051	0055	0059	0063
0002	0006	0010	0014	0018	0022	0026	0030	0034	0038	0042	0046	0050	0054	0058	0062
0001	0005	0009	0013	0017	0021	0025	0029	0033	0037	0041	0045	0049	0053	0057	0061
0000	0004	0008	0012	0016	0020	0024	0028	0032	0036	0040	0044	0048	0052	0056	0060

```
                                           0×××
                                           0×××
                                           0×××
                                           0×××   LEN
                                           0×××   (LINE EQUIPMENT NUMBER)
                                           0×××
                                           0×××
                                           0×××
         PIM1                              (LT××)  ) CARD SLOT NUMBER


         PIM0                              0×××
                                           0×××    LEN
                                           0×××    (LINE EQUIPMENT NUMBER)
                                           0×××
                                           (LT××)
                                                   ) CARD SLOT NUMBER
```

Note 1: *Do not mount line/trunk circuit card with cabling in this slot; this slot has no connection to the MDF via the backplane, except M03.*

Note 2: *When using the internal DTMF Receiver on the MP card, assign the Card No. E200 to the LEN No. 0124.*

Figure 006-3 Location of Each LEN

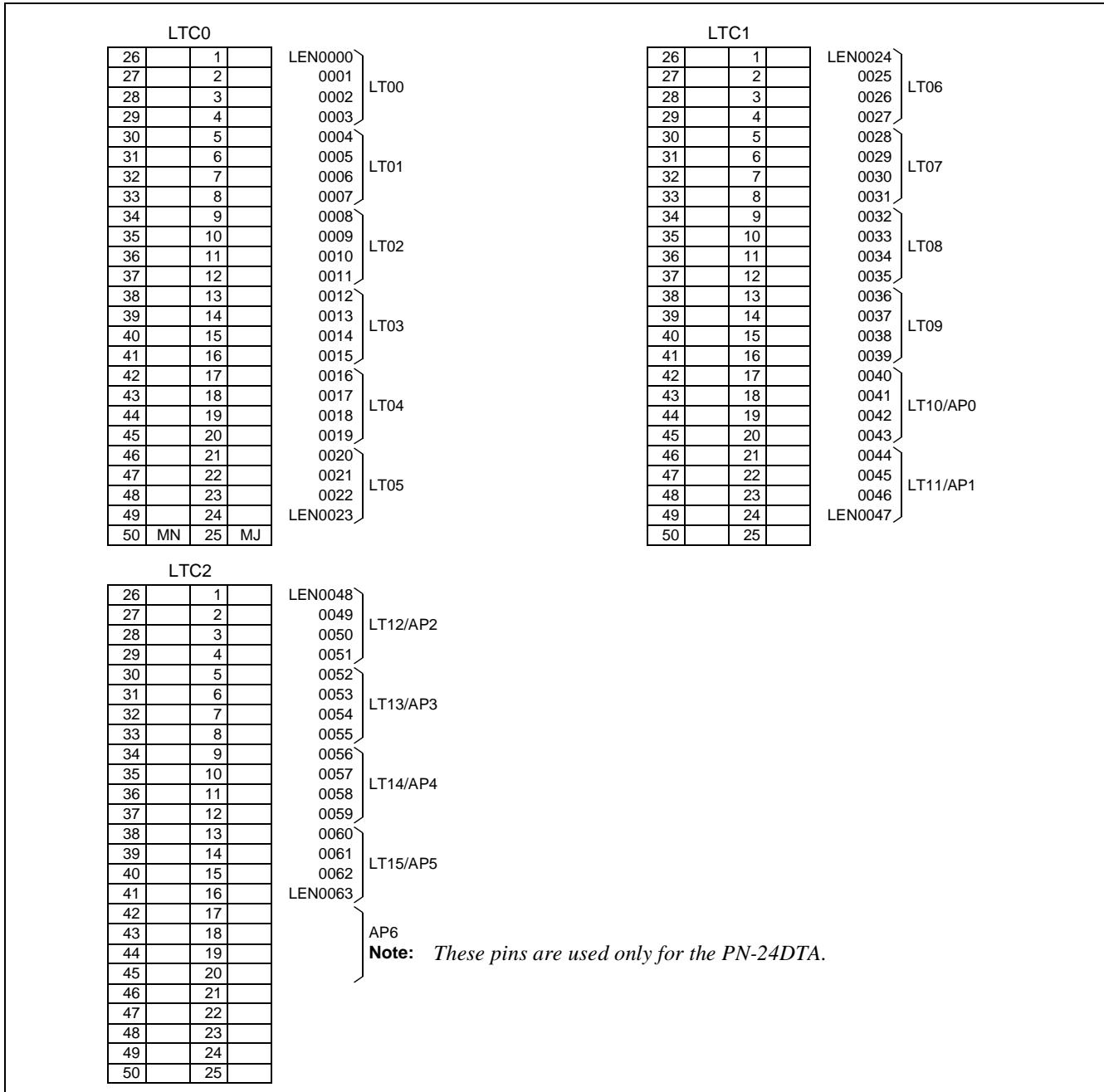(4) The figure below shows the LTC Connector Pin Arrangement.

    (a) PIM0 (LTC0 ~ LTC2)

LTC0

26		1		LEN0000	
27		2		0001	LT00
28		3		0002	
29		4		0003	
30		5		0004	LT01
31		6		0005	
32		7		0006	
33		8		0007	
34		9		0008	LT02
35		10		0009	
36		11		0010	
37		12		0011	
38		13		0012	LT03
39		14		0013	
40		15		0014	
41		16		0015	
42		17		0016	LT04
43		18		0017	
44		19		0018	
45		20		0019	
46		21		0020	LT05
47		22		0021	
48		23		0022	
49		24		LEN0023	
50	MN	25	MJ		

LTC1

26		1		LEN0024	
27		2		0025	LT06
28		3		0026	
29		4		0027	
30		5		0028	LT07
31		6		0029	
32		7		0030	
33		8		0031	
34		9		0032	LT08
35		10		0033	
36		11		0034	
37		12		0035	
38		13		0036	LT09
39		14		0037	
40		15		0038	
41		16		0039	
42		17		0040	LT10/AP0
43		18		0041	
44		19		0042	
45		20		0043	
46		21		0044	LT11/AP1
47		22		0045	
48		23		0046	
49		24		LEN0047	
50		25			

LTC2

26		1		LEN0048	
27		2		0049	LT12/AP2
28		3		0050	
29		4		0051	
30		5		0052	LT13/AP3
31		6		0053	
32		7		0054	
33		8		0055	
34		9		0056	LT14/AP4
35		10		0057	
36		11		0058	
37		12		0059	
38		13		0060	LT15/AP5
39		14		0061	
40		15		0062	
41		16		LEN0063	
42		17			
43		18		AP6	
44		19		**Note:** *These pins are used only for the PN-24DTA.*	
45		20			
46		21			
47		22			
48		23			
49		24			
50		25			

Figure 006-4   LTC Connector Pin Arrangement (PIM0)

2. MDF CROSS CONNECTIONS

(1) Cross connections on the MDF for LTC0 through LTC2 are shown in Table 006-3 and Table 006-4.

Table 006-3 LTC0-LTC2 MDF Cross Connection Information

PIN	RUNNING CABLE	STATION CABLE	SLOTS	TYPE OF INTERFACE						
				CO (4COT)	CO (2COT)	2-WIRE E&M TIE LINE (2ODT)	4-WIRE E&M TIE LINE (2ODT)	DID (AUC)	SLT (4LC)	SLT (AUC)
26	WH-BL	GN	1	T0	T0	T0	TxT0	T0	T0	T0
1	BL-WH	RD		R0	R0	R0	TxR0	R0	R0	R0
27	WH-OR	BK		T1	T1	T1	RcvT0	T1	T1	T1
2	OR-WH	YL		R1	R1	R1	RcvR0	R1	R1	R1
28	WH-GN	GN		T2		T2	TxT1		T2	
3	GN-WH	RD		R2		R2	TxR1		R2	
29	WH-BR	BK		T3		T3	RcvT1		T3	
4	BR-WH	YL		R3		R3	RcvR1		R3	
30	WH-SL	GN	2	T0	T0	T0	TxT0	T0	T0	T0
5	SL-WH	RD		R0	R0	R0	TxR0	R0	R0	R0
31	RD-BL	BK		T1	T1	T1	RcvT0	T1	T1	T1
6	BL-RD	YL		R1	R1	R1	RcvR0	R1	R1	R1
32	RD-OR	GN		T2		T2	TxT1		T2	
7	OR-RD	RD		R2		R2	TxR1		R2	
33	RD-GN	BK		T3		T3	RcvT1		T3	
8	GN-RD	YL		R3		R3	RcvR1		R3	
34	RD-BR	GN	3	T0	T0	T0	TxT0	T0	T0	T0
9	BR-RD	RD		R0	R0	R0	TxR0	R0	R0	R0
35	RD-SL	BK		T1	T1	T1	RcvT0	T1	T1	T1
10	SL-RD	YL		R1	R1	R1	RcvR0	R1	R1	R1
36	BK-BL	GN		T2		T2	TxT1		T2	
11	BL-BK	RD		R2		R2	TxR1		R2	
37	BK-OR	BK		T3		T3	RcvT1		T3	
12	OR-BK	YL		R3		R3	RcvR1		R3	

Table 006-3 LTC0-LTC2 MDF Cross Connection Information (Continued)

PIN	RUNNING CABLE	STATION CABLE	SLOTS	TYPE OF INTERFACE						
				COT (4COT)	COT (2COT)	2-WIRE E&M TIE LINE (2ODT)	4-WIRE E&M TIE LINE (2ODT)	DID (AUC)	SLT (4LC)	SLT (AUC)
38	BK-GN	GN	4	T0	T0	T0	TxT0	T0	T0	T0
13	GN-BK	RD		R0	R0	R0	TxR0	R0	R0	R0
39	BK-BR	BK		T1	T1	T1	RcvT0	T1	T1	T1
14	BR-BK	YL		R1	R1	R1	RcvR0	R1	R1	R1
40	BK-SL	GN		T2		T2	TxT1		T2	
15	SL-BK	RD		R2		R2	TxR1		R2	
41	YL-BL	BK		T3		T3	RcvT1		T3	
16	BL-YL	YL		R3		R3	RcvR1		R3	
42	YL-OR	GN	5	T0	T0	T0	TxT0	T0	T0	T0
17	OR-YL	RD		R0	R0	R0	TxR0	R0	R0	R0
43	YL-GN	BK		T1	T1	T1	RcvT0	T1	T1	T1
18	GN-YL	YL		R1	R1	R1	RcvR0	R1	R1	R1
44	YL-BR	GN		T2		T2	TxT1		T2	
19	BR-YL	RD		R2		R2	TxR1		R2	
45	YL-SL	BK		T3		T3	RcvT1		T3	
20	SL-YL	YL		R3		R3	RcvR1		R3	
46	VI-BL	GN	6	T0	T0	T0	TxT0	T0	T0	T0
21	BL-VI	RD		R0	R0	R0	TxR0	R0	R0	R0
47	VI-OR	BK		T1	T1	T1	RcvT0	T1	T1	T1
22	OR-VI	YL		R1	R1	R1	RcvR0	R1	R1	R1
48	VI-GN	GN		T2		T2	TxT1		T2	
23	GN-VI	RD		R2		R2	TxR1		R2	
49	VI-BR	BK		T3		T3	RcvT1		T3	
24	BR-VI	YL		R3		R3	RcvR1		R3	
50	VI-SL	MN *								
25	SL-VI	MJ *								

* Major and minor alarm connections for external indications are located on LTC0 of PIM0, only.

Table 006-3 LTC0-LTC2 MDF Cross Connection Information (Continued)

PIN	RUNNING CABLE	STATION CABLE	SLOTS	TYPE OF INTERFACE					
				D^{term}/ SN716 DESKCON (4DLC) Note 1	D^{term}/ SN716 DESKCON (2DLC) Note 1	D^{term} (4DLC) Note 2	SN610 ATTCON (2DLC) Note 2	EXT. KEY/ EXT. RELAY (DK00)	EXT. PAGE/MOH/ BGM (4COT)
26	WH-BL	GN	1	T0	T0	RA0	RA0	K1	T
1	BL-WH	RD		R0	R0	TA0	TA0	K0	R
27	WH-OR	BK		T1	T1	RB0	RB0	K3	T
2	OR-WH	YL		R1	R1	TB0	TB0	K2	R
28	WH-GN	GN		T2		RA1	RA1	K5	T
3	GN-WH	RD		R2		TA1	TA1	K4	R
29	WH-BR	BK		T3		RB1	RB1	K7	T
4	BR-WH	YL		R3		TB1	TB1	K6	R
30	WH-SL	GN	2	T0	T0	RA0	RA0	K1	T
5	SL-WH	RD		R0	R0	TA0	TA0	K0	R
31	RD-BL	BK		T1	T1	RB0	RB0	K3	T
6	BL-RD	YL		R1	R1	TB0	TB0	K2	R
32	RD-OR	GN		T2		RA1	RA1	K5	T
7	OR-RD	RD		R2		TA1	TA1	K4	R
33	RD-GN	BK		T3		RB1	RB1	K7	T
8	GN-RD	YL		R3		TB1	TB1	K6	R
34	RD-BR	GN	3	T0	T0	RA0	RA0	K1	T
9	BR-RD	RD		R0	R0	TA0	TA0	K0	R
35	RD-SL	BK		T1	T1	RB0	RB0	K3	T
10	SL-RD	YL		R1	R1	TB0	TB0	K2	R
36	BK-BL	GN		T2		RA1	RA1	K5	T
11	BL-BK	RD		R2		TA1	TA1	K4	R
37	BK-OR	BK		T3		RB1	RB1	K7	T
12	OR-BK	YL		R3		TB1	TB1	K6	R

Note 1: *2-wire type for Multiline Terminal/DSS Console/SN716 DESKCON.*

Note 2: *4-wire type for Multiline Terminal/SN610 ATTCON.*

Table 006-3 LTC0-LTC2 MDF Cross Connection Information (Continued)

PIN	RUNNING CABLE	STATION CABLE	SLOTS	TYPE OF INTERFACE					
				D^{term}/ SN716 DESKCON (4DLC) Note 1	D^{term}/ SN716 DESKCON (2DLC) Note 1	D^{term} (4DLC) Note 2	SN610 ATTCON (2DLC) Note 2	EXT. KEY/ EXT. RELAY (DK00)	EXT. PAGE/MOH/ BGM (4COT)
38	BK-GN	GN		T0	T0	RA0	RA0	K1	T
13	GN-BK	RD		R0	R0	TA0	TA0	K0	R
39	BK-BR	BK		T1	T1	RB0	RB0	K3	T
14	BR-BK	YL	4	R1	R1	TB0	TB0	K2	R
40	BK-SL	GN		T2		RA1	RA1	K5	T
15	SL-BK	RD		R2		TA1	TA1	K4	R
41	YL-BL	BK		T3		RB1	RB1	K7	T
16	BL-YL	YL		R3		TB1	TB1	K6	R
42	YL-OR	GN		T0	T0	RA0	RA0	K1	T
17	OR-YL	RD		R0	R0	TA0	TA0	K0	R
43	YL-GN	BK		T1	T1	RB0	RB0	K3	T
18	GN-YL	YL	5	R1	R1	TB0	TB0	K2	R
44	YL-BR	GN		T2		RA1	RA1	K5	T
19	BR-YL	RD		R2		TA1	TA1	K4	R
45	YL-SL	BK		T3		RB1	RB1	K7	T
20	SL-YL	YL		R3		TB1	TB1	K6	R
46	VI-BL	GN		T0	T0	RA0	RA0	K1	T
21	BL-VI	RD		R0	R0	TA0	TA0	K0	R
47	VI-OR	BK		T1	T1	RB0	RB0	K3	T
22	OR-VI	YL	6	R1	R1	TB0	TB0	K2	R
48	VI-GN	GN		T2		RA1	RA1	K5	T
23	GN-VI	RD		R2		TA1	TA1	K4	R
49	VI-BR	BK		T3		RB1	RB1	K7	T
24	BR-VI	YL		R3		TB1	TB1	K6	R
50	VI-SL	MN*							
25	SL-VI	MJ*							

Major and minor alarm connections are used for external indications.

Note 1: *2-wire type for Multiline Terminal/DSS Console/SN716 DESKCON.*

Note 2: *4-wire type for Multiline Terminal/SN610 ATTCON.*

(2) The figure below shows the LTC Connector Pin Arrangement.

   (a) PIM1 (LTC0 ~ LTC2)

LTC0

26		1		LEN0000	
27		2		0001	
28		3		0002	
29		4		0003	LT00
30		5		0004	
31		6		0005	
32		7		0006	
33		8		0007	
34		9		0008	
35		10		0009	
36		11		0010	
37		12		0011	LT01
38		13		0012	
39		14		0013	
40		15		0014	
41		16		0015	
42		17		0016	
43		18		0017	
44		19		0018	
45		20		0019	LT02
46		21		0020	
47		22		0021	
48		23		0022	
49		24		LEN0023	
50	MN	25	MJ		

LTC1

26		1		LEN0024	
27		2		0025	
28		3		0026	
29		4		0027	LT03
30		5		0028	
31		6		0029	
32		7		0030	
33		8		0031	
34		9		0032	
35		10		0033	
36		11		0034	
37		12		0035	LT04
38		13		0036	
39		14		0037	
40		15		0038	
41		16		0039	
42		17		0040	
43		18		0041	
44		19		0042	
45		20		0043	LT05
46		21		0044	
47		22		0045	
48		23		0046	
49		24		LEN0047	
50		25			

LTC2

26		1		LEN0048	
27		2		0049	
28		3		0050	
29		4		0051	LT06/AP0
30		5		0052	
31		6		0053	
32		7		0054	
33		8		0055	
34		9		0056	
35		10		0057	
36		11		0058	
37		12		0059	LT07/AP1
38		13		0060	
39		14		0061	
40		15		0062	
41		16		0063	
42		17		0064	
43		18		0065	
44		19		0066	
45		20		0067	LT08/AP2
46		21		0068	
47		22		0069	
48		23		0070	
49		24		LEN0071	
50		25			

or

0072	
0073	LT09/AP3
0074	
LEN0075	

Figure 006-5 LTC Connector Pin Arrangement (PIM1)

Table 006-4 LTC0-LTC2 MDF Cross Connection Information

PIN	RUNNING CABLE	STATION CABLE	SLOTS	CO (4COT)	2-WIRE E&M TIE LINE (2ODT)	4-WIRE E&M TIE LINE (2ODT)	DID (AUC)	DID (4DIT)	SLT (8LC)	SLT (4LC)	SLT (AUC)
				TYPE OF INTERFACE							
26	WH-BL	GN		T0	T0	TxT0	T0	T0	T0	T0	T0
1	BL-WH	RD		R0	R0	TxR0	R0	R0	R0	R0	R0
27	WH-OR	BK		T1		RcvT0	T1	T1	T1	T1	T1
2	OR-WH	YL		R1		RcvR0	R1	R1	R1	R1	R1
28	WH-GN	GN		T2	T1	TxT1		T2	T2	T2	
3	GN-WH	RD		R2	R1	TxR1		R2	R2	R2	
29	WH-BR	BK		T3		RcvT1		T3	T3	T3	
4	BR-WH	YL	1	R3		RcvR1		R3	R3	R3	
30	WH-SL	GN							T4		
5	SL-WH	RD							R4		
31	RD-BL	BK							T5		
6	BL-RD	YL							R5		
32	RD-OR	GN							T6		
7	OR-RD	RD							R6		
33	RD-GN	BK							T7		
8	GN-RD	YL							R7		
34	RD-BR	GN		T0	T0	TxT0	T0	T0	T0	T0	T0
9	BR-RD	RD		R0	R0	TxR0	R0	R0	R0	R0	R0
35	RD-SL	BK		T1	T1	RcvT0	T1	T1	T1	T1	T1
10	SL-RD	YL		R1	R1	RcvR0	R1	R1	R1	R1	R1
36	BK-BL	GN		T2		TxT1		T2	T2	T2	
11	BL-BK	RD		R2		TxR1		R2	R2	R2	
37	BK-OR	BK		T3		RcvT1		T3	T3	T3	
12	OR-BK	YL	2	R3		RcvR1		R3	R3	R3	
38	BK-GN	GN							T4		
13	GN-BK	RD							R4		
39	BK-BR	BK							T5		
14	BR-BK	YL							R5		
40	BK-SL	GN							T6		
15	SL-BK	RD							R6		
41	YL-BL	BK							T7		
16	BL-YL	YL							R7		

Table 006-4 LTC0-LTC2 MDF Cross Information (Continued)

PIN	RUNNING CABLE	STATION CABLE	SLOTS	TYPE OF INTERFACE							
				CO (4COT)	2-WIRE E&M TIE LINE (2ODT)	4-WIRE E&M TIE LINE (2ODT)	DID (AUC)	DID (4DIT)	SLT (8LC)	SLT (4LC)	SLT (AUC)
42	YL-OR	GN	3	T0	T0	TxT0	T0	T0	T0	T0	T0
17	OR-YL	RD		R0	R0	TxR0	R0	R0	R0	R0	R0
43	YL-GN	BK		T1		RcvT0	T1	T1	T1	T1	T1
18	GN-YL	YL		R1		RcvR0	R1	R1	R1	R1	R1
44	YL-BR	GN		T2	T1	TxT1		T2	T2	T2	
19	BR-YL	RD		R2	R1	TxR1		R2	R2	R2	
45	YL-SL	BK		T3		RcvT1		T3	T3	T3	
20	SL-YL	YL		R3		RcvR1		R3	R3	R3	
46	VI-BL	GN	Note	T0	T0	TxT0	T0	T0	T4	T0	T0
21	BL-VI	RD		R0	R0	TxR0	R0	R0	R4	R0	R0
47	VI-OR	BK		T1		RcvT0	T1	T1	T5	T1	T1
22	OR-VI	YL		R1		RcvR0	R1	R1	R5	R1	R1
48	VI-GN	GN		T2	T1	TxT1		T2	T6	T2	
23	GN-VI	RD		R2	R1	TxR1		R2	R6	R2	
49	VI-BR	BK		T3		RcvT1		T3	T7	T3	
24	BR-VI	YL		R3		RcvR1		R3	R7	R3	
50	VI-SL	MN*									
25	SL-VI	MJ*									

Major and minor alarm connections are used for external indications.

Note : *When mounting the circuit card with cabling in LT09 slot, these pins must be used.*
When mounting the circuit card with cabling (except for PN-8LC/PN-8DLC) in LT02 slot, LT05 slot or LT08 slot, these pins can not be used.

Table 006-4 LTC0-LTC2 MDF Cross Connection Information (Continued)

PIN	RUNNING CABLE	STATION CABLE	SLOTS	TYPE OF INTERFACE						
				Multiline Terminal/ SN716 DESKCON (8DLC) Note 1	Multiline Terminal/ SN716 DESKCON (4DLC) Note 1	Multiline Terminal/ SN716 DESKCON (2DLC) Note 1	Multiline Terminal (4DLC) Note 2	SN610 ATTCON (2DLC) Note 2	EXT. KEY/ EXT. RELAY (DK00)	EXT. PAGE/ MOH/BGM (4COT)
26 1	WH-BL BL-WH	GN RD		T0 R0	T0 R0	T0 R0	RA0 TA0	RA0 TA0	K1 K0	T R
27 2	WH-OR OR-WH	BK YL		T1 R1	T1 R1	T1 R1	RB0 TB0	RB0 TB0	K3 K2	T R
28 3	WH-GN GN-WH	GN RD		T2 R2	T2 R2		RA1 TA1	RA1 TA1	K5 K4	T R
29 4	WH-BR BR-WH	BK YL	1	T3 R3	T3 R3		RB1 TB1	RB1 TB1	K7 K6	T R
30 5	WH-SL SL-WH	GN RD		T4 R4			RA0 TA0			
31 6	RD-BL BL-RD	BK YL		T5 R5			RB0 TB0			
32 7	RD-OR OR-RD	GN RD		T6 R6			RA1 TA1			
33 8	RD-GN GN-RD	BK YL		T7 R7			RB1 TB1			
34 9	RD-BR BR-RD	GN RD		T0 R0	T0 R0	T0 R0	RA0 TA0	RA0 TA0	K1 K0	T R
35 10	RD-SL SL-RD	BK YL		T1 R1	T1 R1	T1 R1	RB0 TB0	RB0 TB0	K3 K2	T R
36 11	BK-BL BL-BK	GN RD		T2 R2	T2 R2		RA1 TA1	RA1 TA1	K5 K4	T R
37 12	BK-OR OR-BK	BK YL	2	T3 R3	T3 R3		RB1 TB1	RB1 TB1	K7 K6	T R
38 13	BK-GN GN-BK	GN RD		T4 R4			RA0 TA0			
39 14	BK-BR BR-BK	BK YL		T5 R5			RB0 TB0			
40 15	BK-SL SL-BK	GN RD		T6 R6			RA1 TA1			
41 16	YL-BL BL-YL	BK YL		T7 R7			RB1 TB1			

Note 1: *2-wire type for Multiline Terminal/DSS Console/SN716 DESKCON.*

Note 2: *4-wire type for Multiline Terminal/SN610 ATTCON.*

Table 006-4 LTC0-LTC2 MDF Cross Information (Continued)

PIN	RUNNING CABLE	STATION CABLE	SLOTS	TYPE OF INTERFACE						
				Multiline Terminal/ SN716 DESKCON (8DLC) Note 2	Multiline Terminal/ SN716 DESKCON (4DLC) Note 2	Multiline Terminal/ SN716 DESKCON (2DLC) Note 2	Multiline Terminal (4DLC) Note 3	SN610 ATTCON (2DLC) Note 3	EXT. KEY/ EXT. RELAY (DK00)	EXT. PAGE/MOH/ BGM (4COT)
42	YL-OR	GN	3	T0	T0	T0	RA0	RA0	K1	T
17	OR-YL	RD		R0	R0	R0	TA0	TA0	K0	R
43	YL-GN	BK		T1	T1	T1	RB0	RB0	K3	T
18	GN-YL	YL		R1	R1	R1	TB0	TB0	K2	R
44	YL-BR	GN		T2	T2		RA1	RA1	K5	T
19	BR-YL	RD		R2	R2		TA1	TA1	K4	R
45	YL-SL	BK		T3	T3		RB1	RB1	K7	T
20	SL-YL	YL		R3	R3		TB1	TB1	K6	R
46	VI-BL	GN	Note 1	T4	T0	T0	RA0	RA0	K1	T
21	BL-VI	RD		R4	R0	R0	TA0	TA0	K0	R
47	VI-OR	BK		T5	T1	T1	RB0	RB0	K3	T
22	OR-VI	YL		R5	R1	R1	TB0	TB0	K2	R
48	VI-GN	GN		T6	T2		RA1	RA1	K5	T
23	GN-VI	RD		R6	R2		TA1	TA1	K4	R
49	VI-BR	BK		T7	T3		RB1	RB1	K7	T
24	BR-VI	YL		R7	R3		TB1	TB1	K6	R
50	VI-SL	MN*								
25	SL-VI	MJ*								

Major and minor alarm connections are used for external indications.

Note 1: *When mounting the circuit card with cabling in LT09 slot, these pins must be used.*
When mounting the circuit card with cabling (except for PN-8LC/PN-8DLC) in LT02 slot, LT05 slot or LT08 slot, these pins can not be used.

Note 2: *2-wire type for Multiline Terminal/DSS Console/SN716 DESKCON.*

Note 3: *4-wire type for Multiline Terminal/SN610 ATTCON.*

(1) C.O. Trunk

    (a) 4 Line C.O. Trunk (PN-4COT)
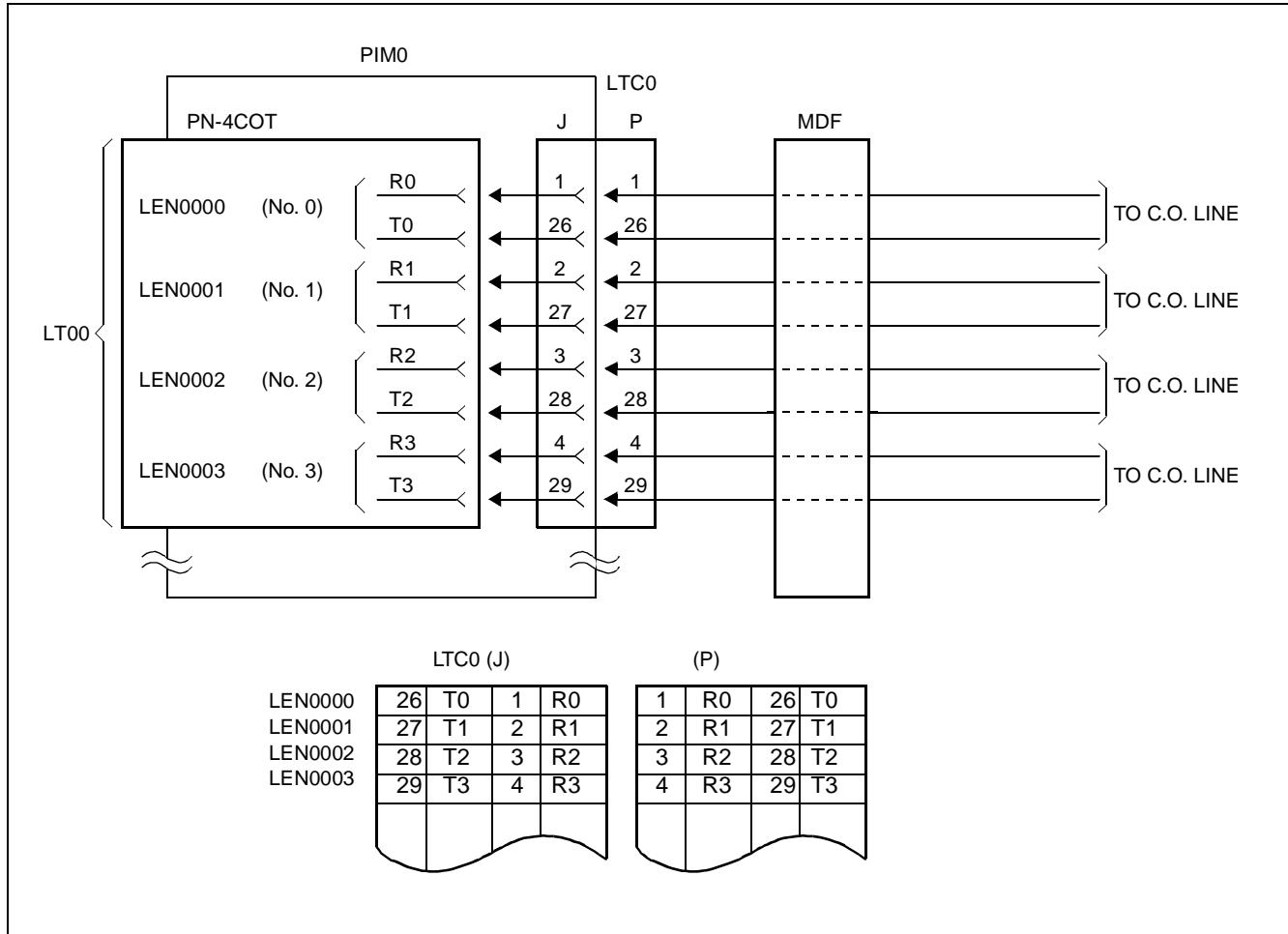
Figure 006-6 MDF Cross Connection for a 4Line C.O. Trunk Card (PN-4COT)

(2) Tie Line Trunk

    (a)   4W E&M Trunk (PN-2ODT)

Note 1: *Both No. 0 and No. 1 circuits must be set to same purpose (2-wire or 4-wire) in one PN-2ODT card.*

Note 2: *When connecting the E and M, make the installation cable by using the connector attached with the PN-2ODT card.*
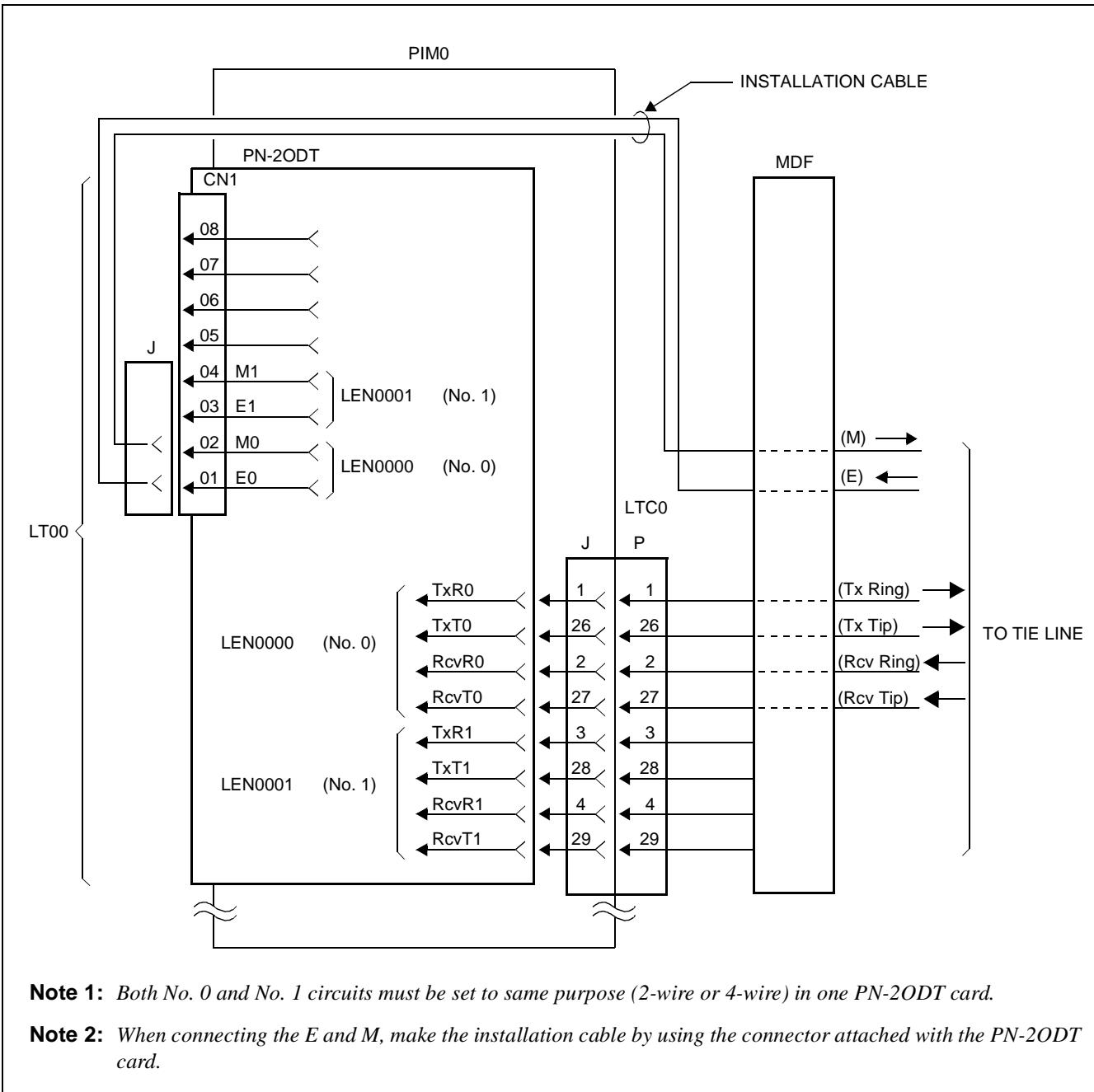
Figure 006-7 MDF Cross Connection for a 4W E&M Trunk Card (PN-2ODT)
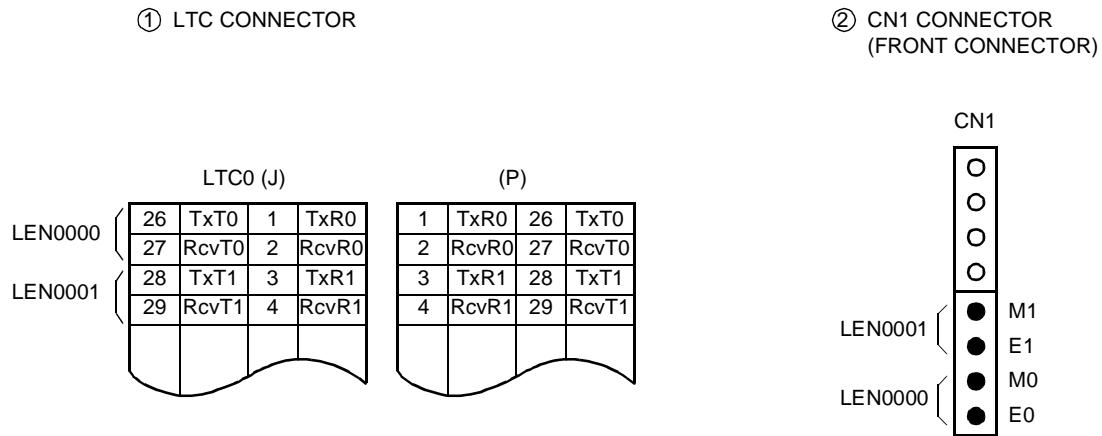
Figure 006-7 MDF Cross Connection for a 4W E&M Trunk Card (PN-2ODT) (Continued)

(b) 2W E&M (PN-2ODT)

Figure 006-8 MDF Cross Connection for a 2W E&M Trunk Card (PN-2ODT)

Note 1: *Both No. 0 and No. 1 circuits must be set to same purpose (2-wire or 4-wire) in one PN-2ODT card.*

Note 2: *When connecting the E and M, make the installation cable by using the connector attached with the PN-2ODT card.*

① LTC CONNECTOR

② CN1 CONNECTOR
(FRONT CONNECTOR)

CN1

LTC0 (J)

26	T0	1	R0
27	/	2	
28	T2	3	R2
29	/	4	

(P)

1	R0	26	T0
2		27	/
3	R2	28	T2
4		29	/

LEN0000
LEN0001

○
○
○
○
● M1
● E1 LEN0001
● M0
● E0 LEN0000

LEN0001
LEN0000

Figure 006-8 MDF Cross Connection for a 2W E&M Trunk Card (PN-2ODT) (Continued)

(3) DID Trunk

    (a) 2 Line DID Trunk (PN-AUCA)

Figure 006-9 MDF Cross Connection for a 2 Line DID Trunk Card (PN-AUCA)

(b) 4 Line DID Trunk (PN-4DITB)
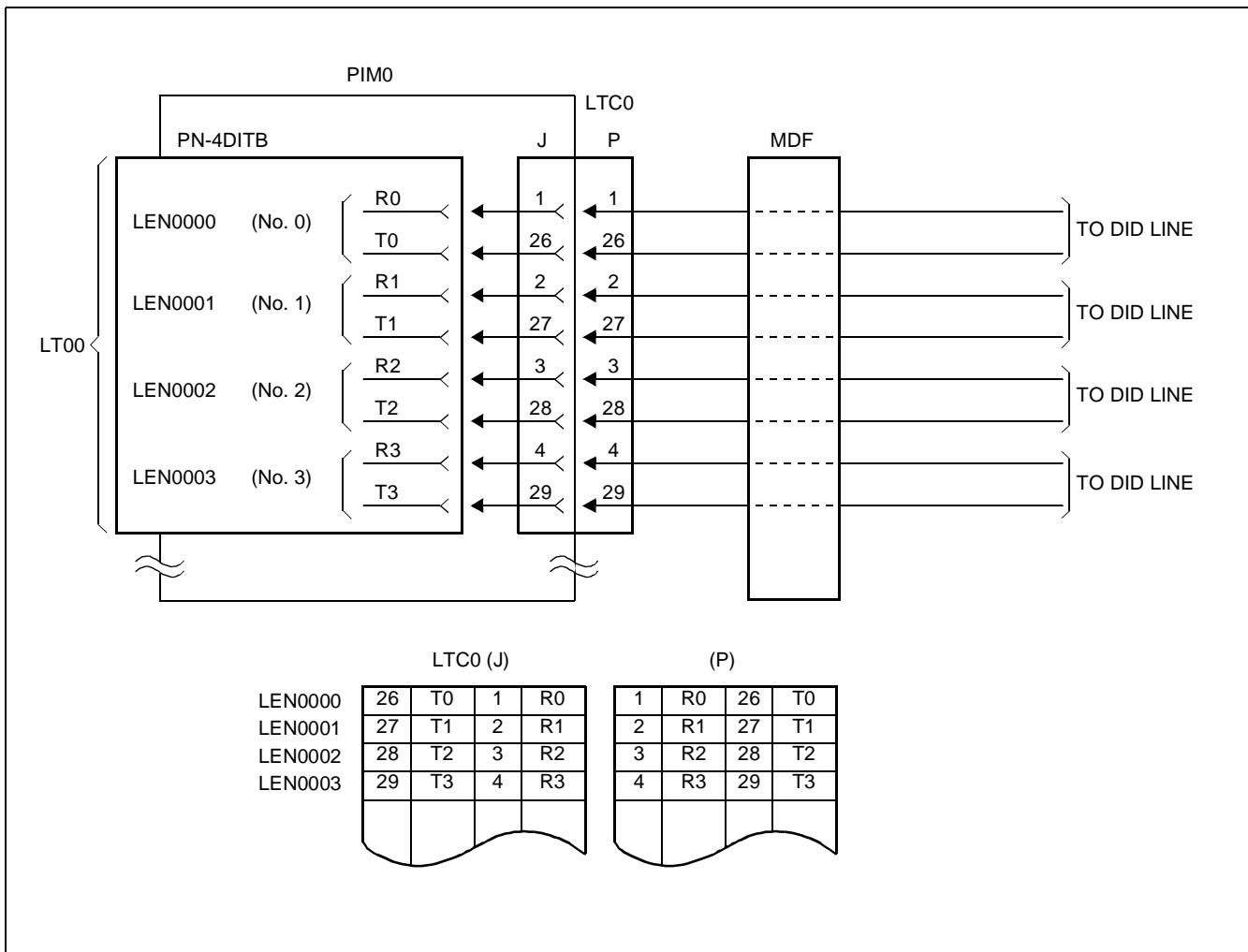
Figure 006-10 MDF Cross Connection for a 4 Line DID Trunk Card (PN-4DITB)

(4) Single Line Telephone

    (a) Standard Line (PN-8LC)

PIM0

LTC0

PN-8LC   J   P   MDF   TO SINGLE LINE TELEPHONE

	R0	1	1
LEN0000 (No. 0)	T0	26	26
LEN0001 (No. 1)	R1	2	2
	T1	27	27
LEN0006 (No. 6)	R6	7	7
	T6	32	32
LEN0007 (No. 7)	R7	8	8
	T7	33	33

LT00

LTC0 (J)

LEN0000	26	T0	1	R0
LEN0001	27	T1	2	R1
LEN0006	32	T6	7	R6
LEN0007	33	T7	8	R7

(P)

1	R0	26	T0
2	R1	27	T1
7	R6	32	T6
8	R7	33	T7
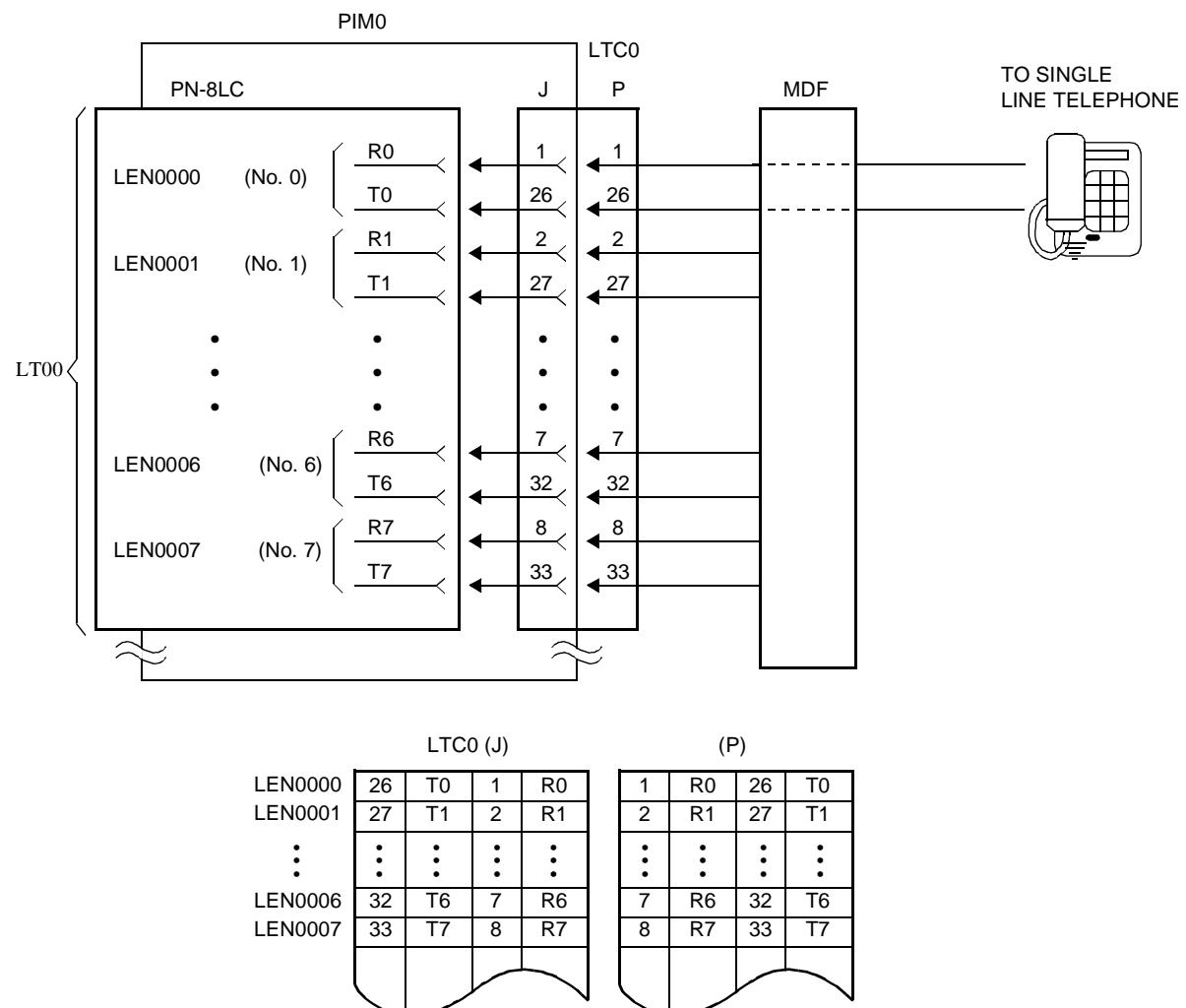
Note : *The same connection is required when using PN-4LC.*

Figure 006-11 MDF Cross Connection for a Single Line Telephone (Standard Line)

(b) Long Line (PN-AUCA)
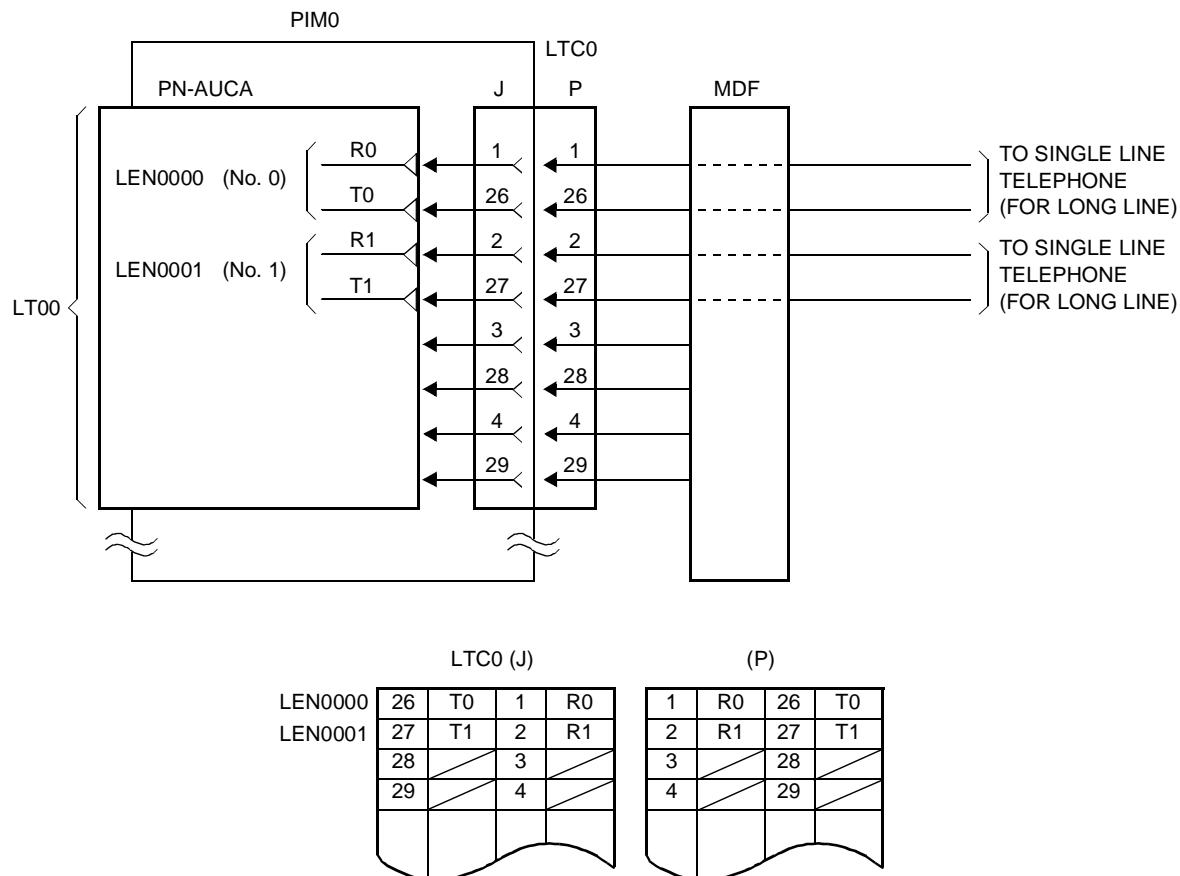
Note 1: *The PN-AUCA card can also be used as a DID Trunk card.*

Note 2: *For the cross connection for the Power Failure Transfer (PFT), see item (12) in this NAP.*

Figure 006-12 MDF Cross Connection for a Single Line Telephone (Long Line)

(5) Multiline Terminal/DSS Console

    (a) Standard Line (PN-8DLCJ/8DLCP)
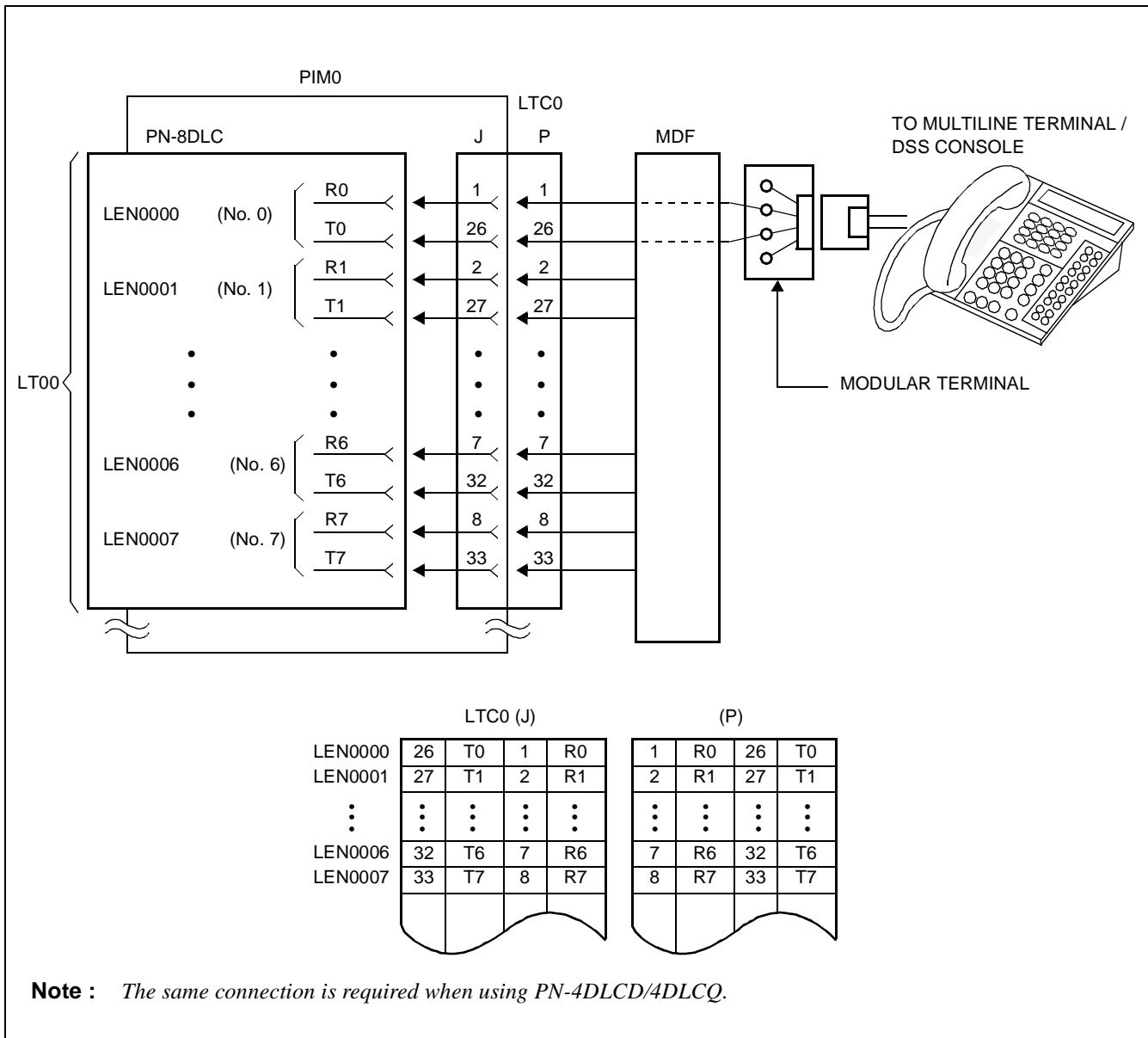
Figure 006-13 MDF Cross Connection for a Multiline Terminal/DSS Console (Standard Line)

(b) Long Line (PN-2DLCB)
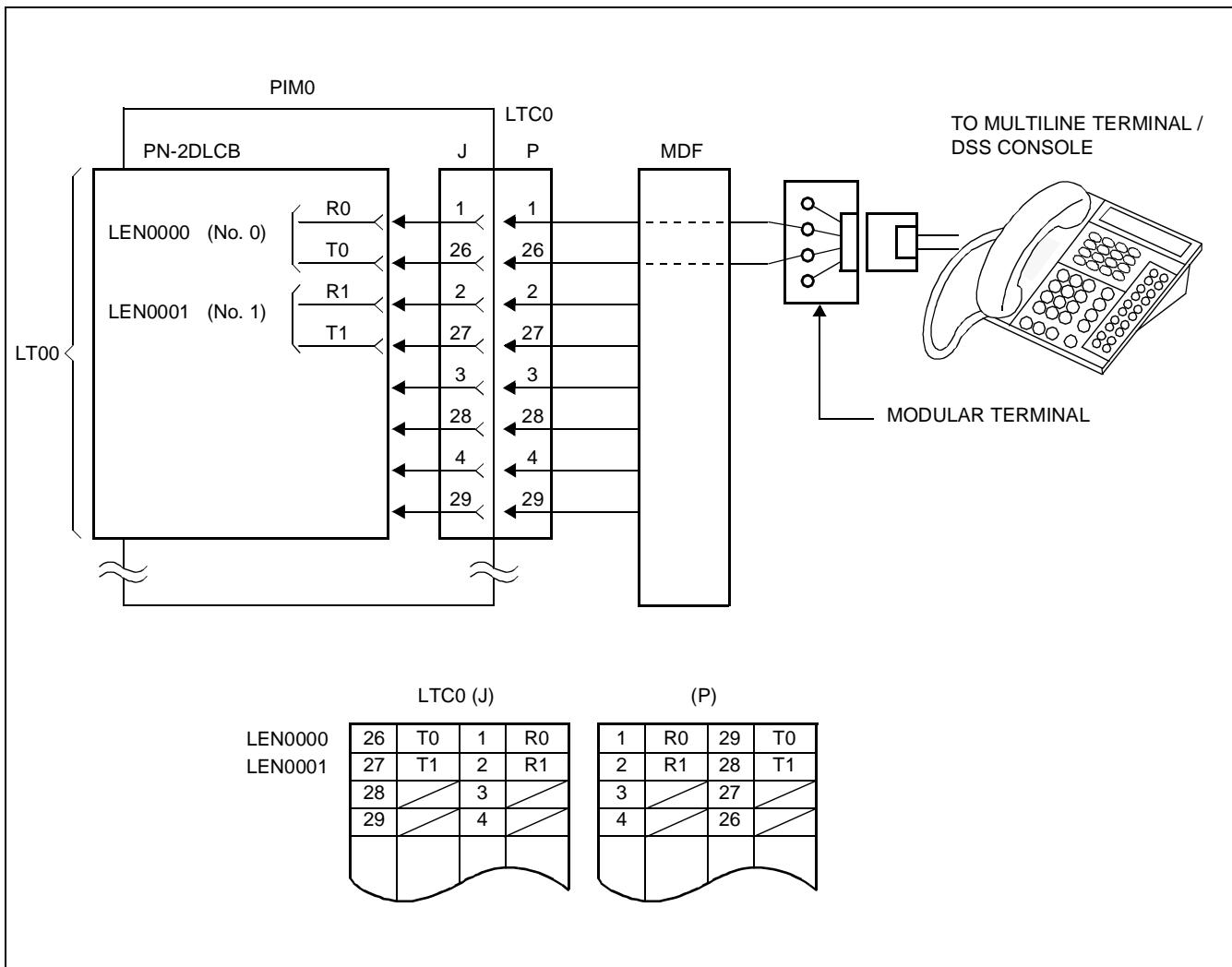
Figure 006-14 MDF Cross Connection for a Multiline Terminal/DSS Console (Long Line)

(6) SN610- ATTCON

    (a) Installation of SN610 ATTCON

STEP 1: Screw the handset support onto the bottom of the console as shown in Figure 006-15.

HANDSET
SUPPORT
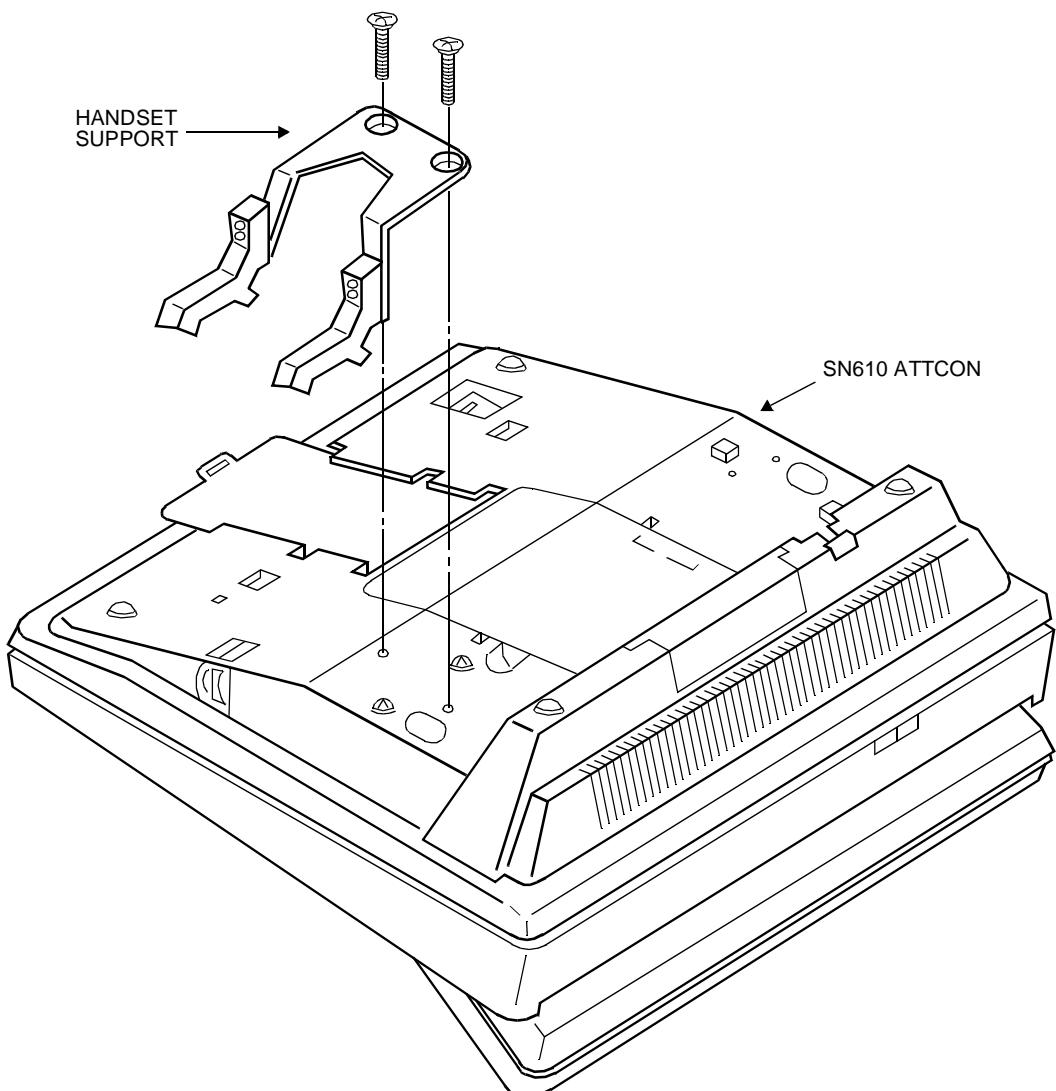
SN610 ATTCON

Figure 006-15 Mounting Handset Support to SN610 ATTCON

STEP 2: To provide the console with the headset in place of the handset, unplug the modular cord from the hand-set and then plug the modular cord to the Jack Set.
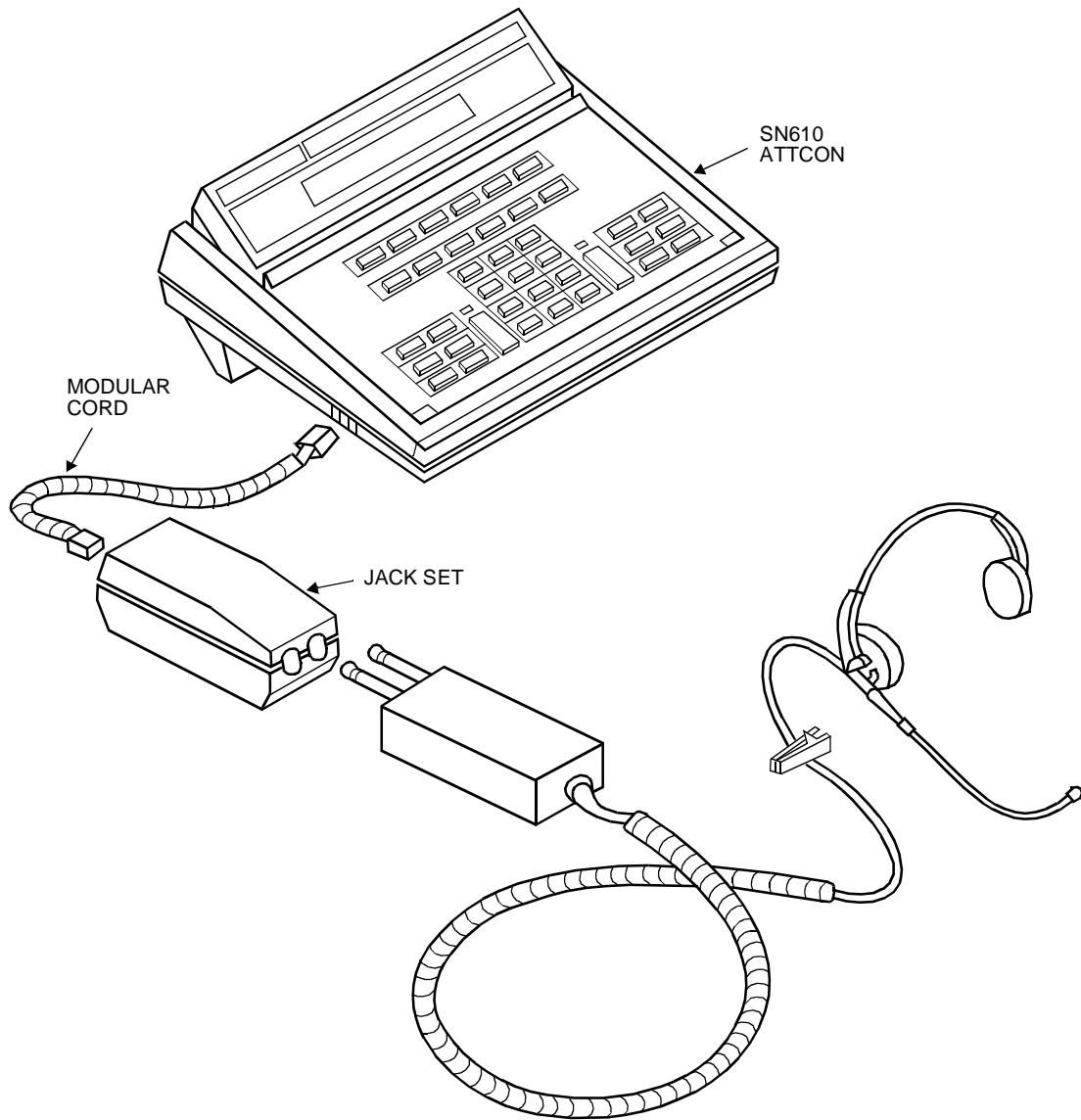
Figure 006-16 Jack Set Installation for SN610 ATTCON

STEP 3: Set the switch located inside the console according to the type of headset/handset connected. Refer to Figure 006-17.

- Slide the directory out of the way.

  Then insert a flat screw driver's blade into the notched opening and apply light upward pressure until the access panel is clear of the front lip. At the same time apply pressure (toward you) at the rear of the pedestal to move the access panel.

  ACCESS PANEL
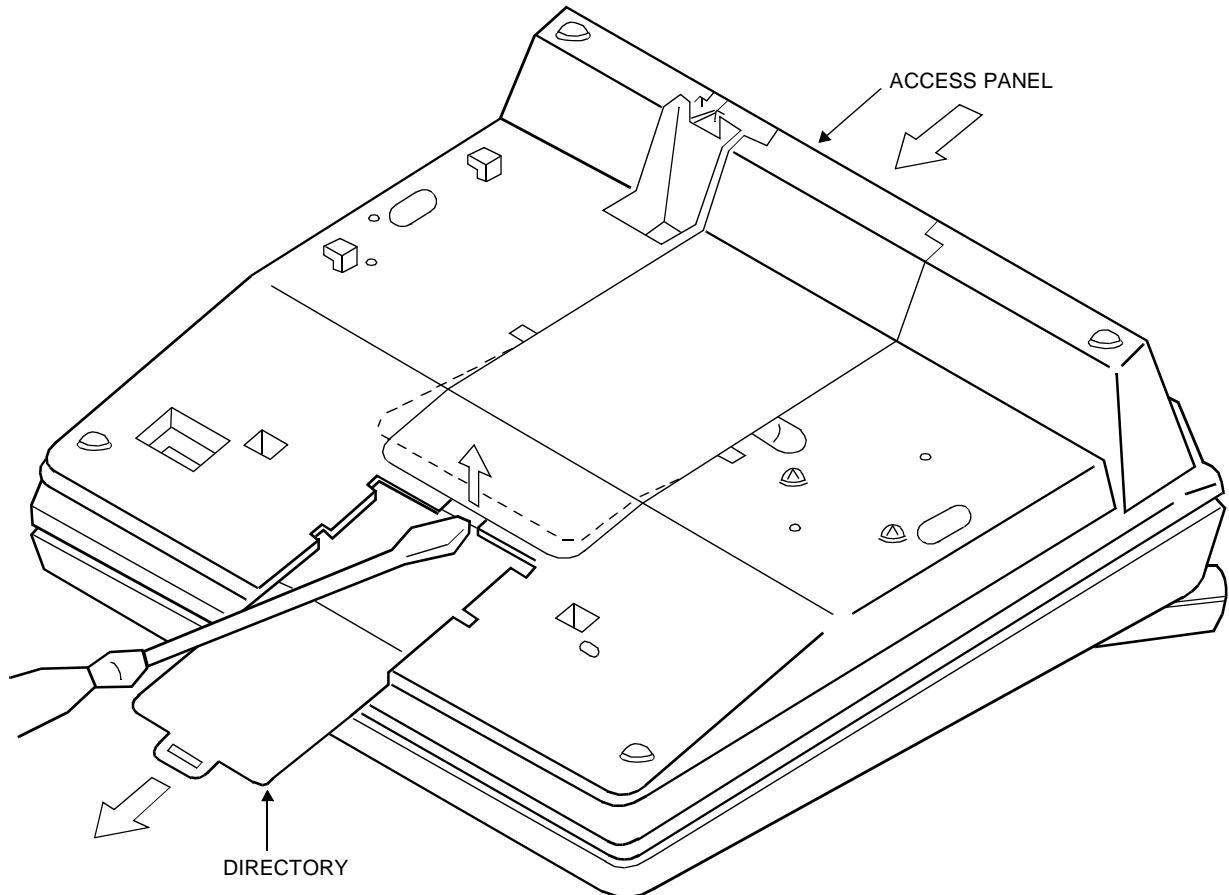
  DIRECTORY

Figure 006-17   SN610 ATTCON Switch Setting

- Set the switch according to the type of headset/handset connected.

    C: Carbon Type Handset/Headset
    S: SUPRA Headset
    D: D^{term} Type Handset
- Replace the directory and access panel.

SWITCH

D
S
C
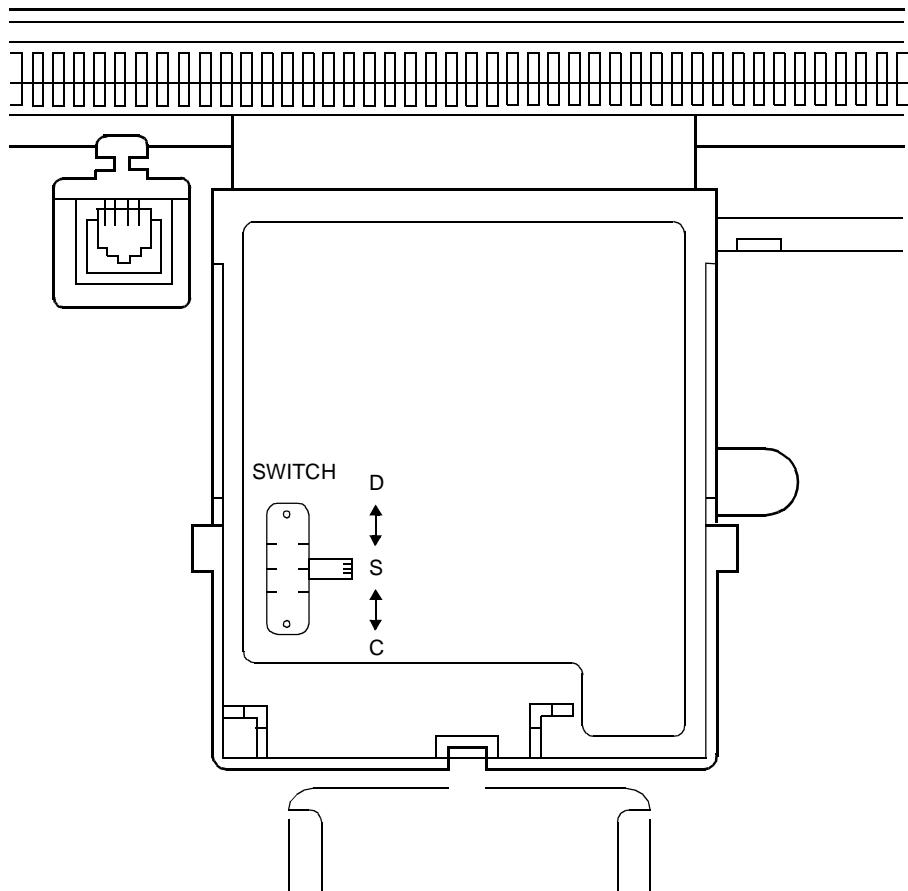
Figure 006-17 SN610 ATTCON Switch Setting (Continued)

STEP 4: Plug the line cord into the modular jack located at the bottom of the console as shown in Figure 006-18. For the MDF cross connection for the SN610 ATTCON, refer to Figure 006-19.

LINE CORD

MODULAR TERMINAL

2P   2P   MDF   2P

SN610 ATTCON

PBX

PN-2DLCC/4DLCF
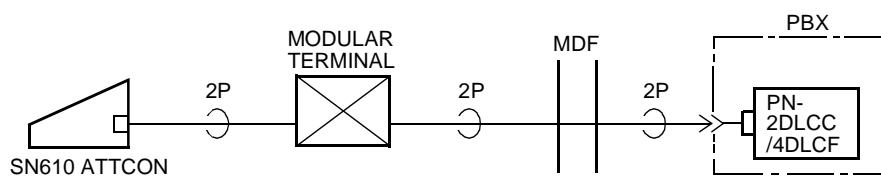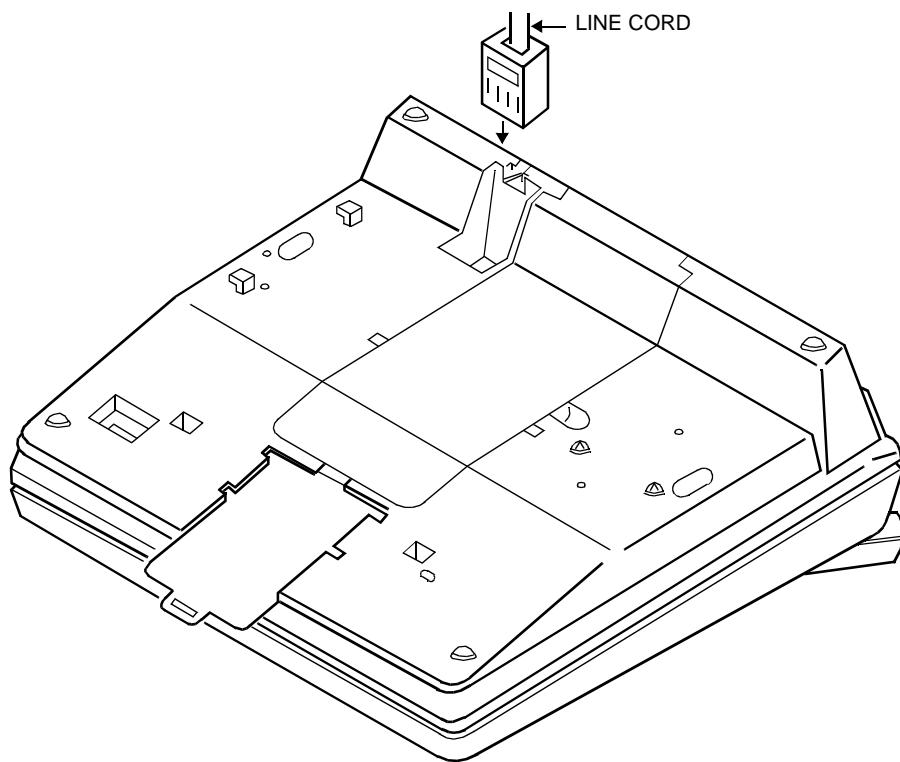
Figure 006-18   Cable Connection to SN610 ATTCON

(b) MDF Cross Connection
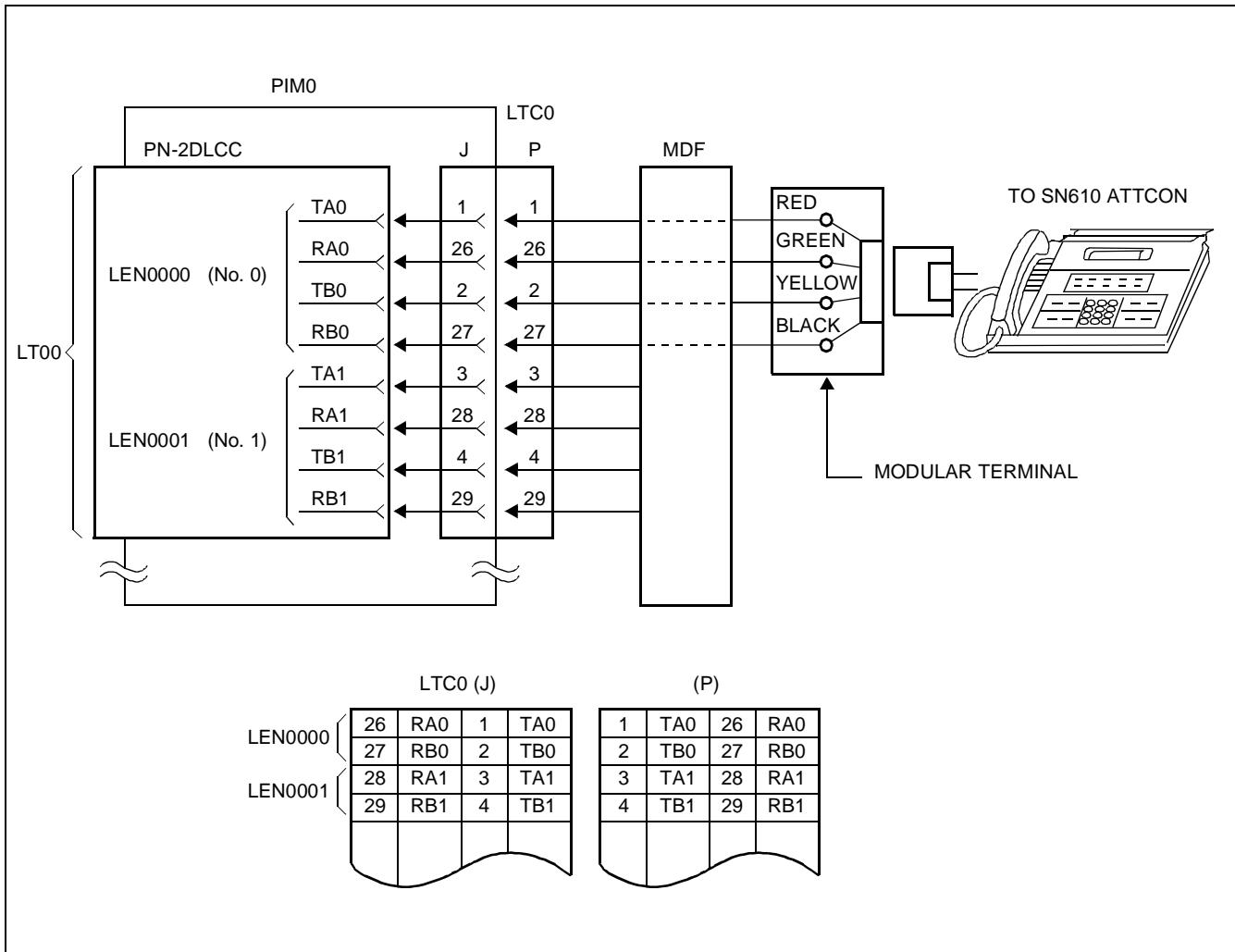
Figure 006-19 MDF Cross Connection for SN610 ATTCON

(7)   Day/Night Mode Change by External Key
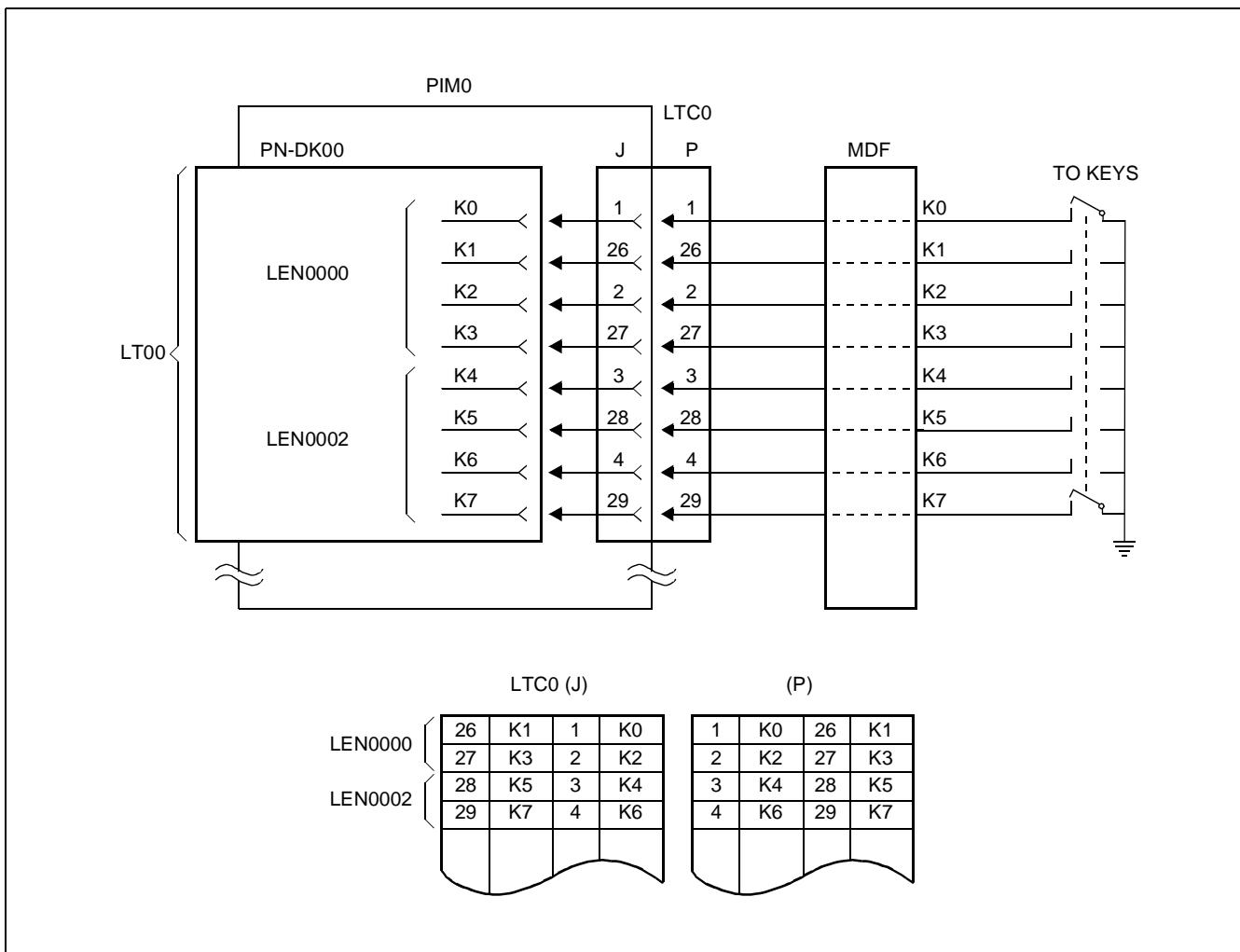
Figure 006-20   MDF Cross Connection for Day/Night Mode Change by External Key

(8)   External TAS Indicator

   (a)   Outline of the Connection
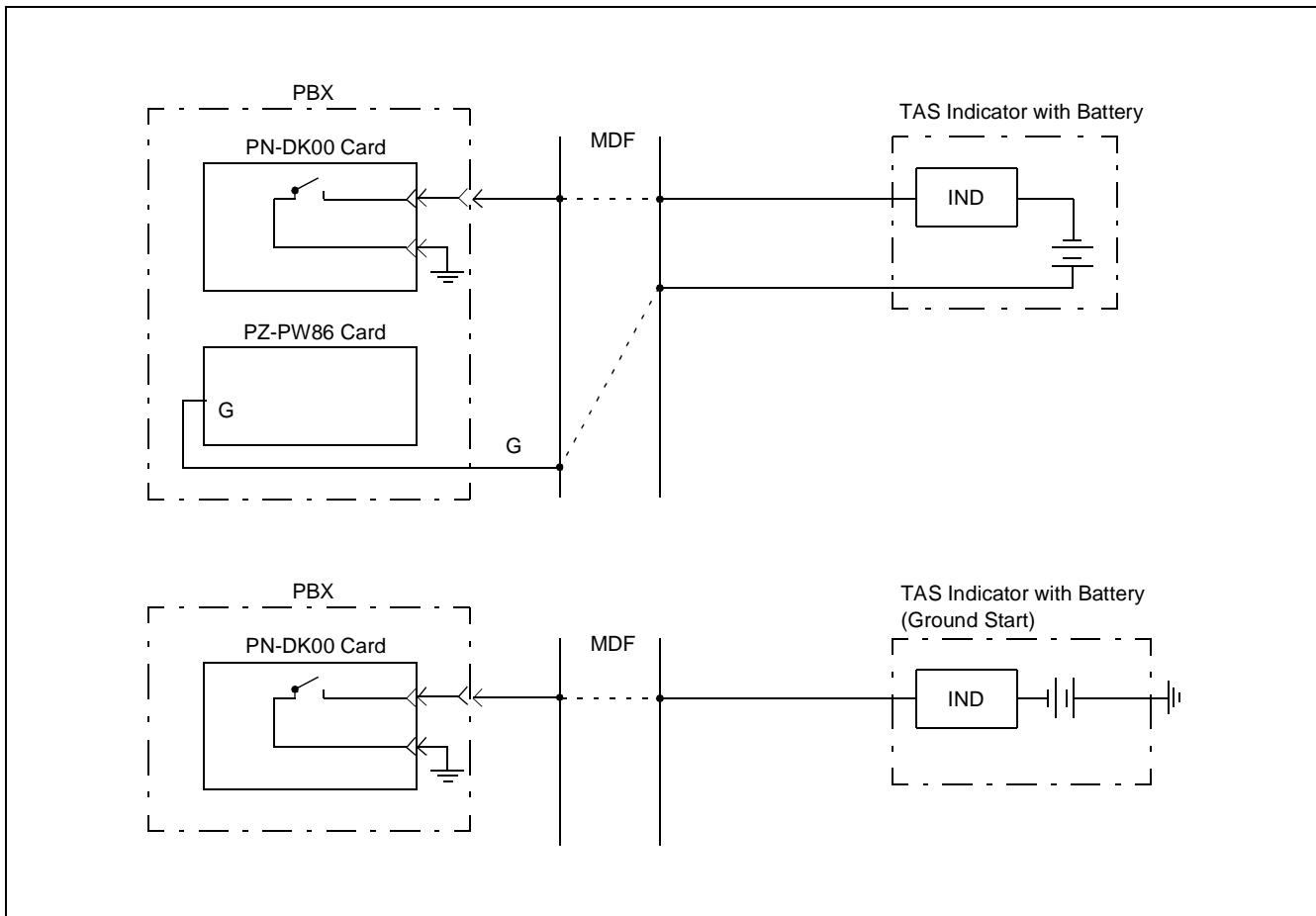
Figure 006-21   External TAS Indicator Connection Outline

(b) MDF Cross Connection

• When using a TAS Indicator with a Battery
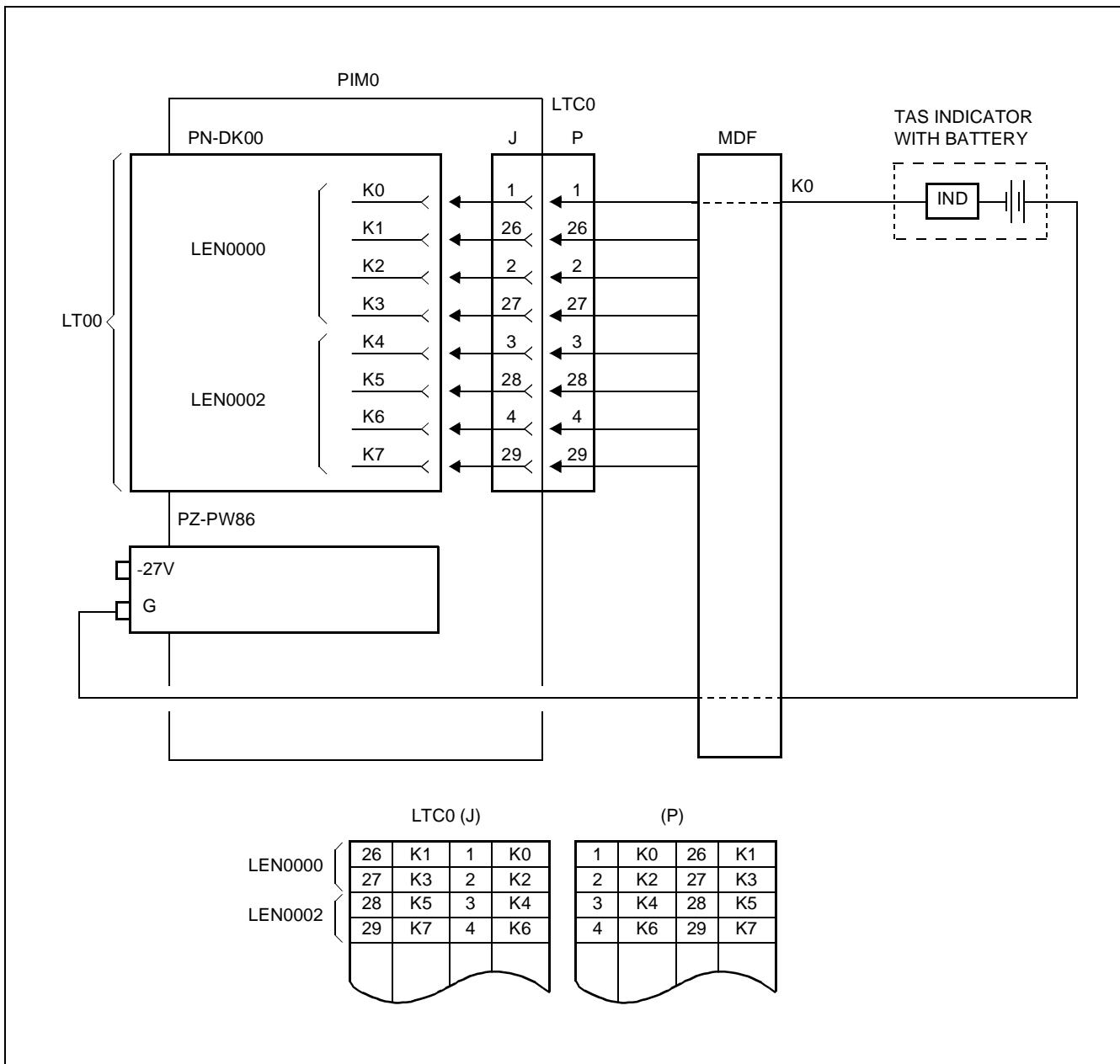
Figure 006-22 MDF Cross Connection for a TAS Indicator with a Battery

• When using a TAS Indicator with a Battery (Ground Start)
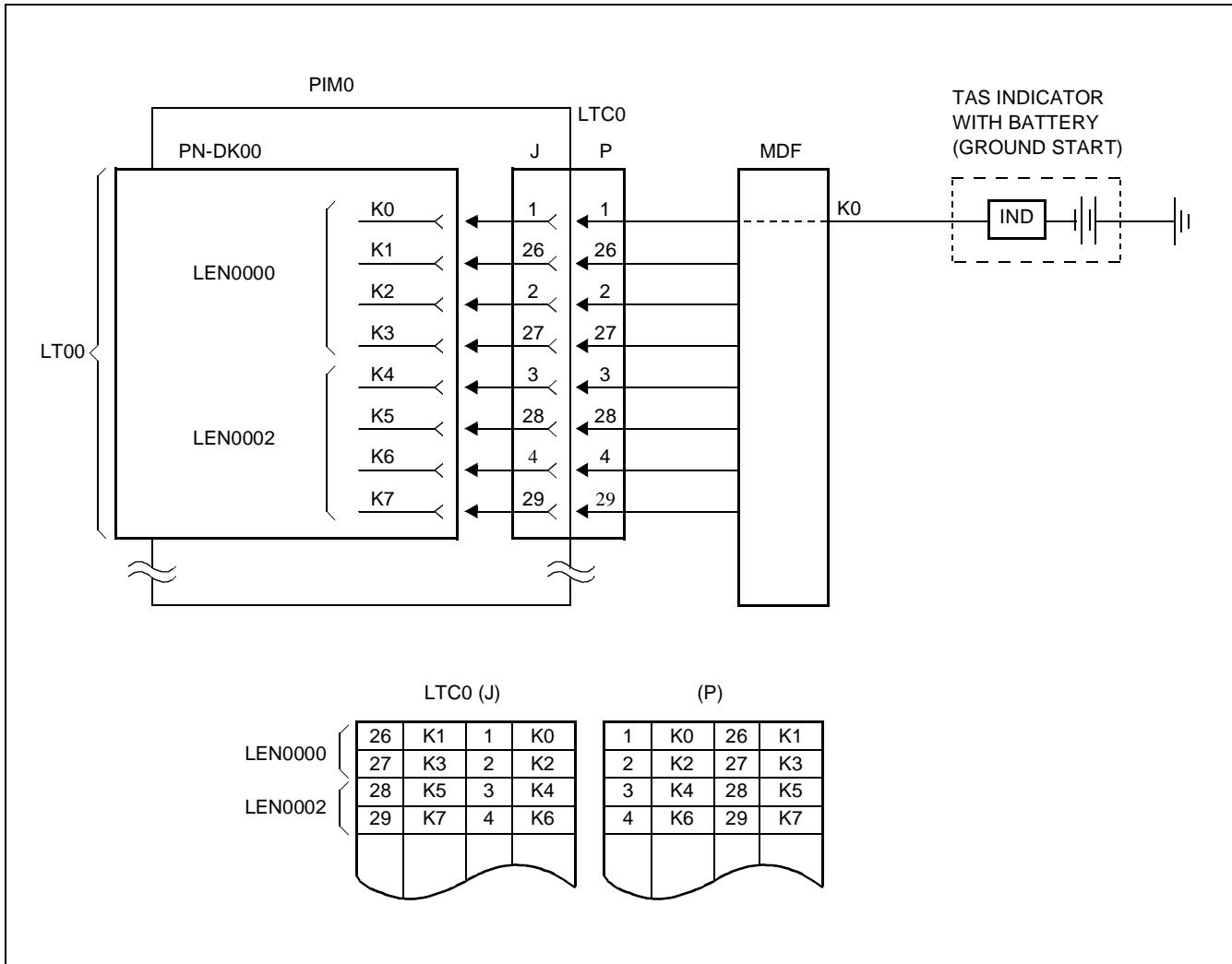
Figure 006-23   MDF Cross Connection for a TAS Indicator with a Battery (Ground Start)

(9) Paging Equipment

Figure 006-24 and Figure 006-25 show an example of the cross connection for a customer owned paging equipment.

Requirement for the Paging Equipment
• Input Impedance   : 600 ohm

• Control Method   : Start - Ground Start **Note**
                     : Stop - Ground Off (Open)

Note : *The current capacity of relay contact (PN-DK00 card) is 0.125 A.*

(a) Outline of the Connection
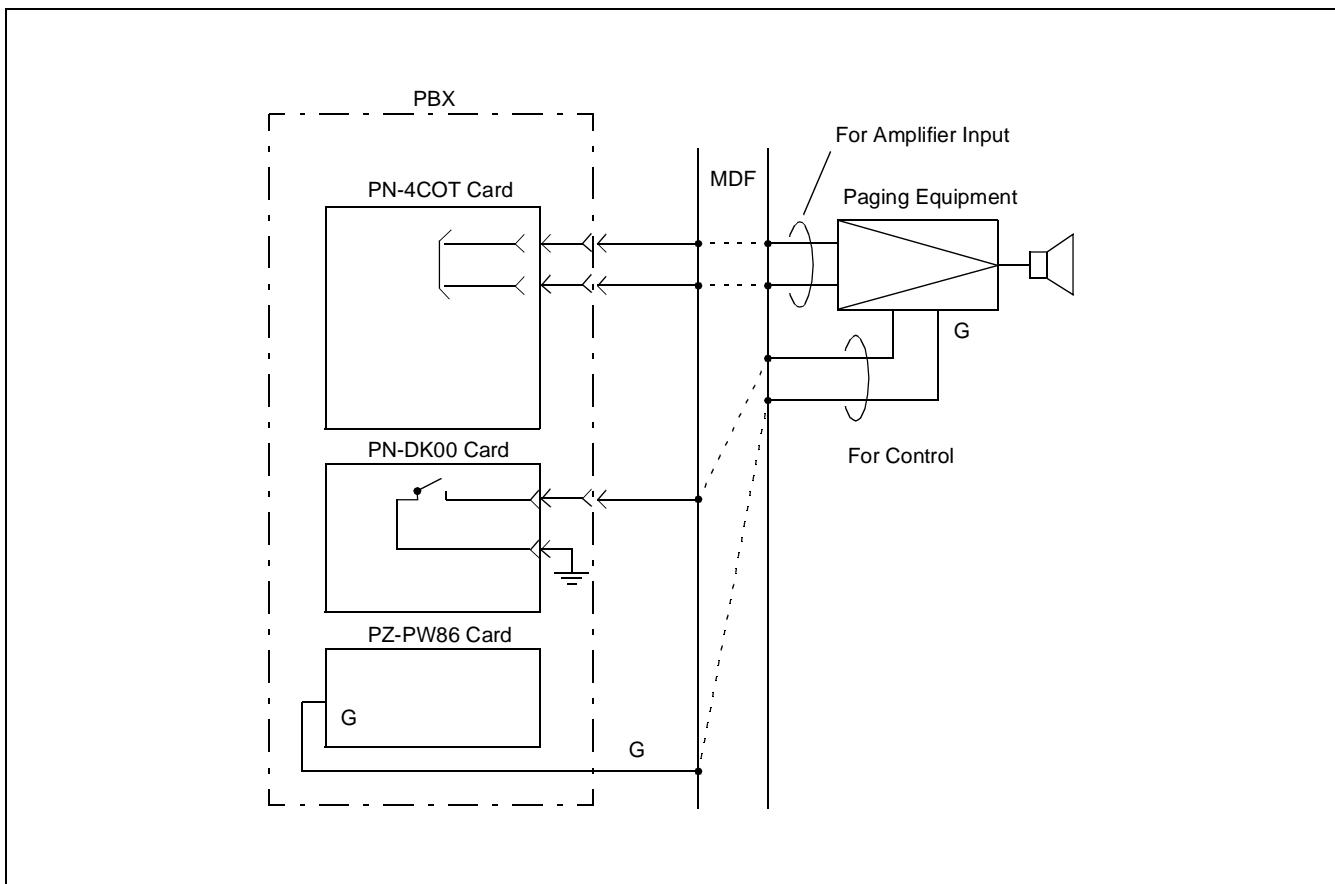
Figure 006-24 Paging Equipment Connection Outline

(b)   MDF Cross Connection

Figure 006-25   MDF Cross Connection for Paging Equipment

LTC0 (J)				(P)			
26		1	K0	1	K0	26	
27		2		2		27	
28		3		3		28	
29		4		4		29	
30	T0	5	R0	5	R0	30	T0
31		6		6		31	
32		7		7		32	
33		8		8		33	

LEN0000 — 26, 27
LEN0002 — 28, 29
LEN0004 — 30
LEN0005 — 31
LEN0006 — 32
LEN0007 — 33
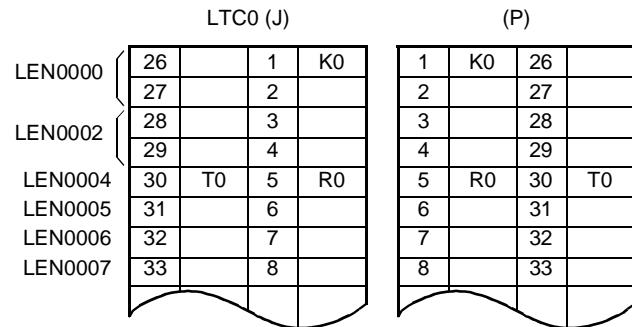
Figure 006-25 MDF Cross Connection for Paging Equipment (Continued)

(10) External Tone Source Equipment

The cross connection for a customer owned external tone source equipment is shown in Figure 006-26 and Figure 006-27, as an example.

Requirement for the External Tone Source Equipment
- Output level   : Less than 0 dbm (Adjustable)

- Output impedance   : Less than 1 kΩ (When using PN-4COT and PN-DK00)
                        : Less than 10 kΩ (When using Pin Jacks on PN-TNTA)

- Control Method   : Start - Ground Start **Note 1**
                        : Stop - Ground Off (Open)

Note 1: *The current capacity of relay contact (PN-DK00 card) is 0.125 A.*

Note 2: *When connecting the external tone source equipment using the PN-4COT and PN-DK00 cards, an appropriate diode must be installed on the MDF, as shown in Figure 006-26.*

(a) Outline of the Connection

• When using PN-4COT and PN-DK00

PBX

MDF

PN-4COT Card

External Tone Source Equipment

Diode *

PN-DK00 Card

* Rating for the Diode
• V_R Less than–50 V
• I_O More than 20 mA
• V_F Less than 1.0 V

• When using Pin Jacks on PN-TNTA

PBX

PN-TNTA Card

External Tone Source Equipment

JACK0

External Tone Source Equipment

JACK1
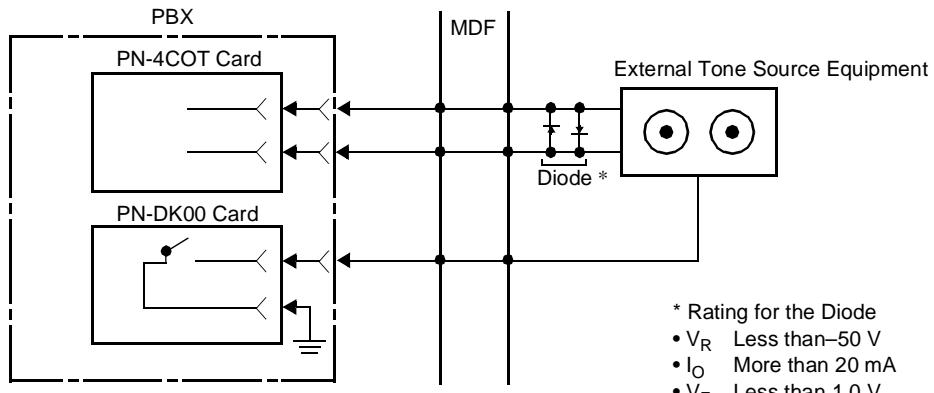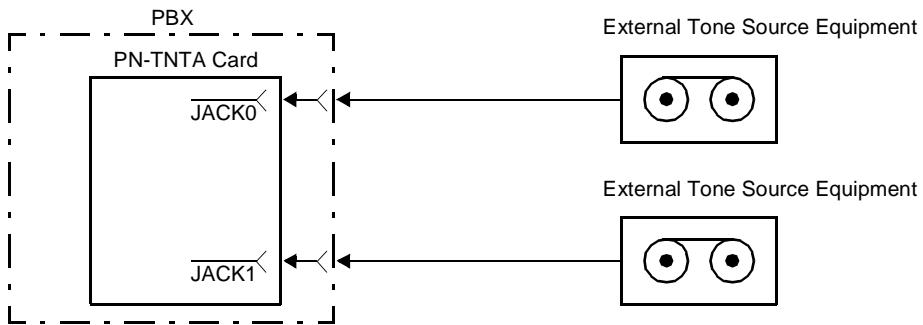
• When using Pin Jack on PN-CP03

PBX

PN-CP03 Card

External Tone Source Equipment

JACK
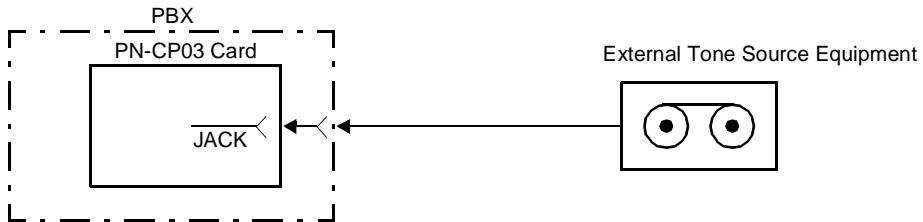
Figure 006-26 External Tone Source Connection Outline
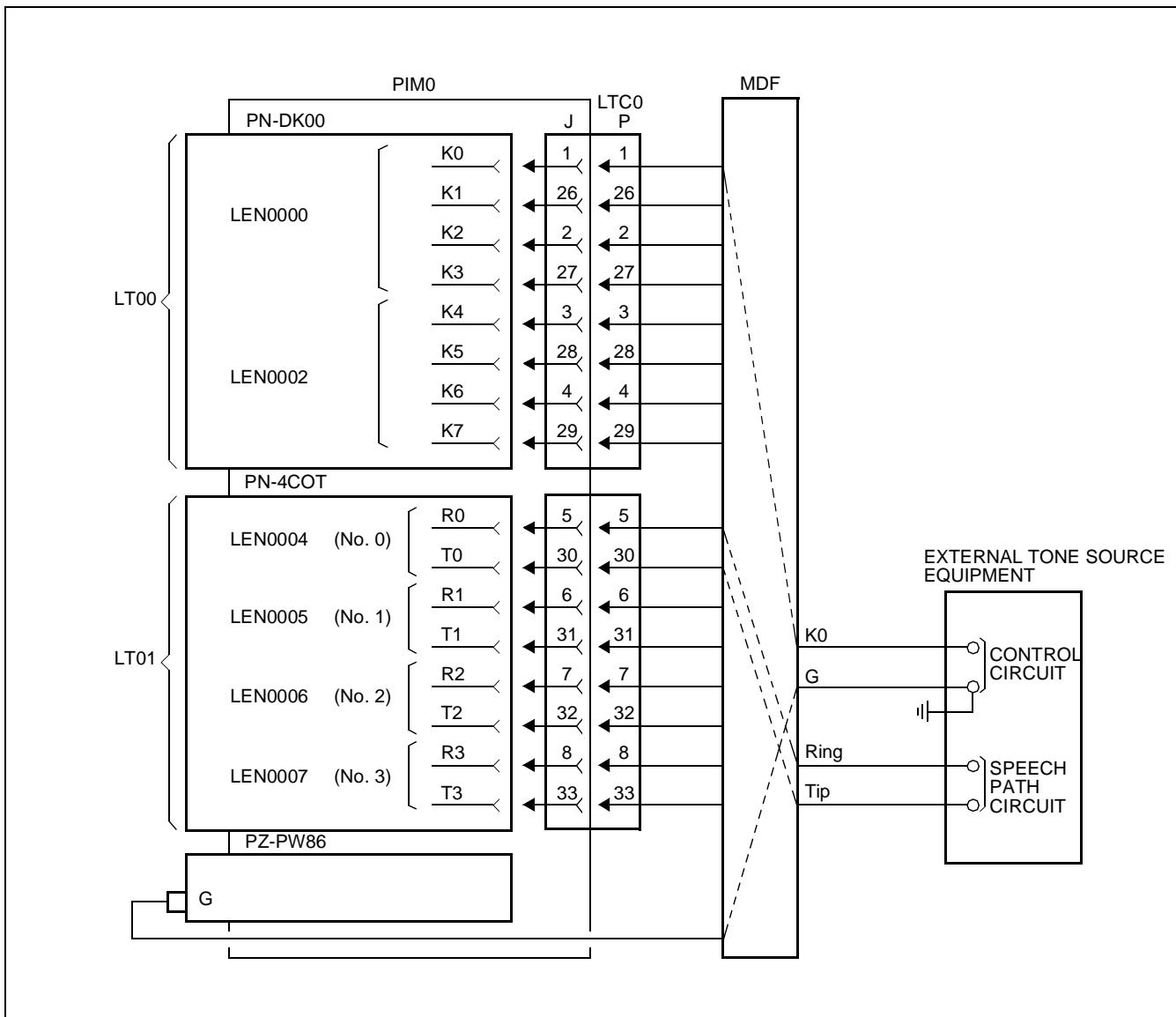
(b) MDF Cross Connection

Figure 006-27 MDF Cross Connection for an External Tone Source Equipment

	LTC0 (J)				(P)		
LEN0000	26		1	K0	1	K0	26	
	27		2		2		27	
LEN0002	28		3		3		28	
	29		4		4		29	
LEN0004	30	T0	5	R0	5	R0	30	T0
LEN0005	31		6		6		31	
LEN0006	32		7		7		32	
LEN0007	33		8		8		33	
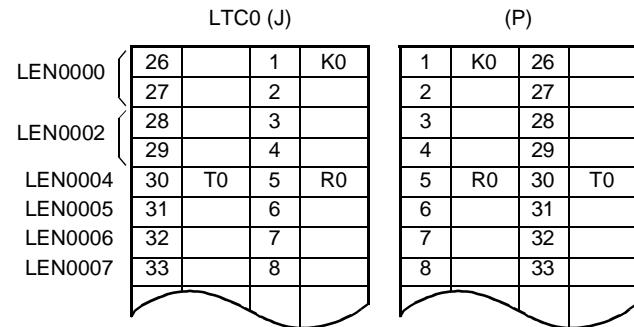
Figure 006-27   MDF Cross Connection for an External Tone Source Equipment (Continued)

- If a D.C. voltage is supplied with the tone from the external tone source equipment, a transformer or coupling capacitor should be used as shown in Figure 006-28.
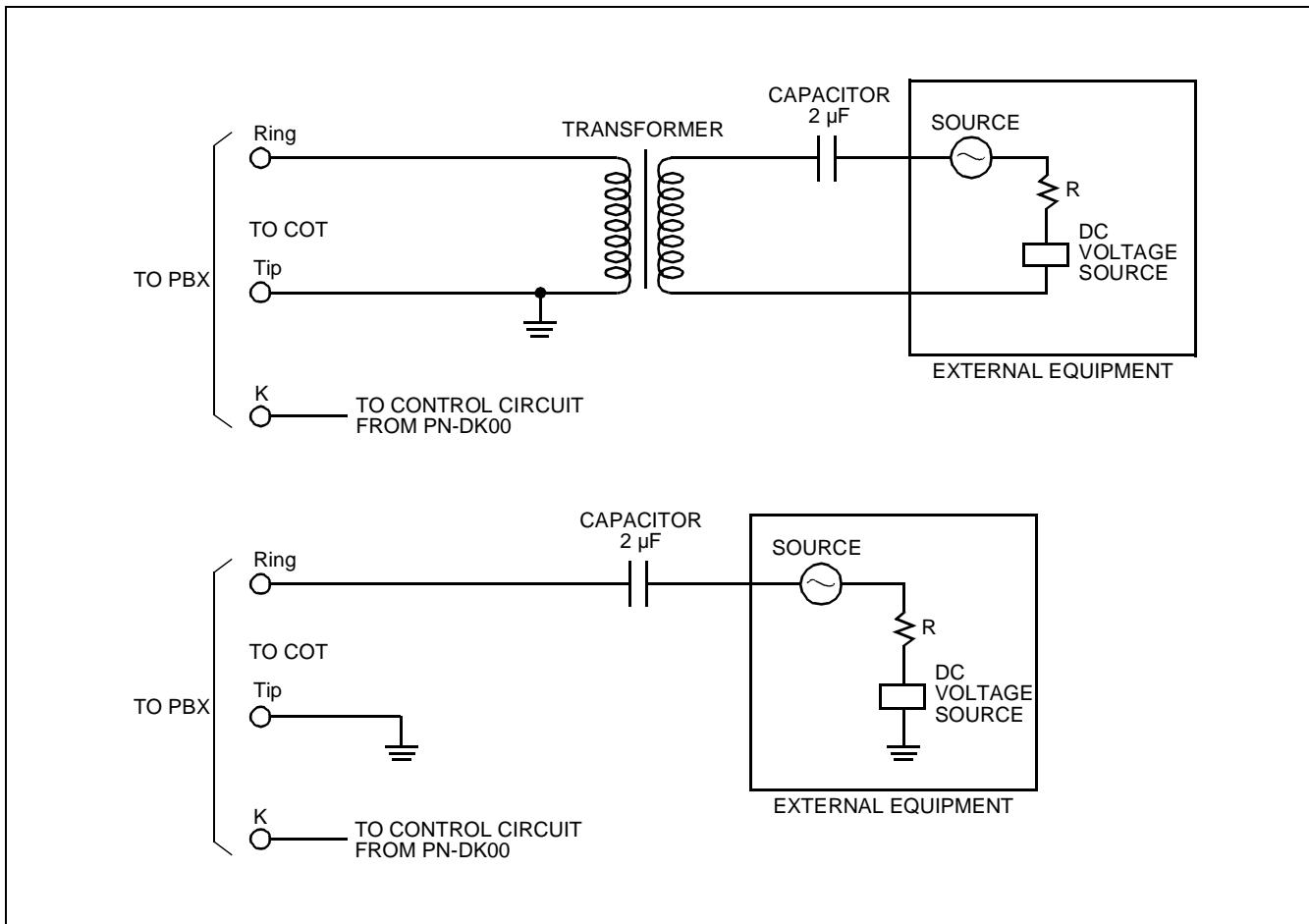
Figure 006-28 Connecting a Tone Source Supplied with D.C.

(11) External BGM Source

Figure 006-29 and Figure 006-30 show the cross connection for customer-owned external BGM sources. The system provides a maximum of 10 BGM sources.

(a) When using PN-4COT
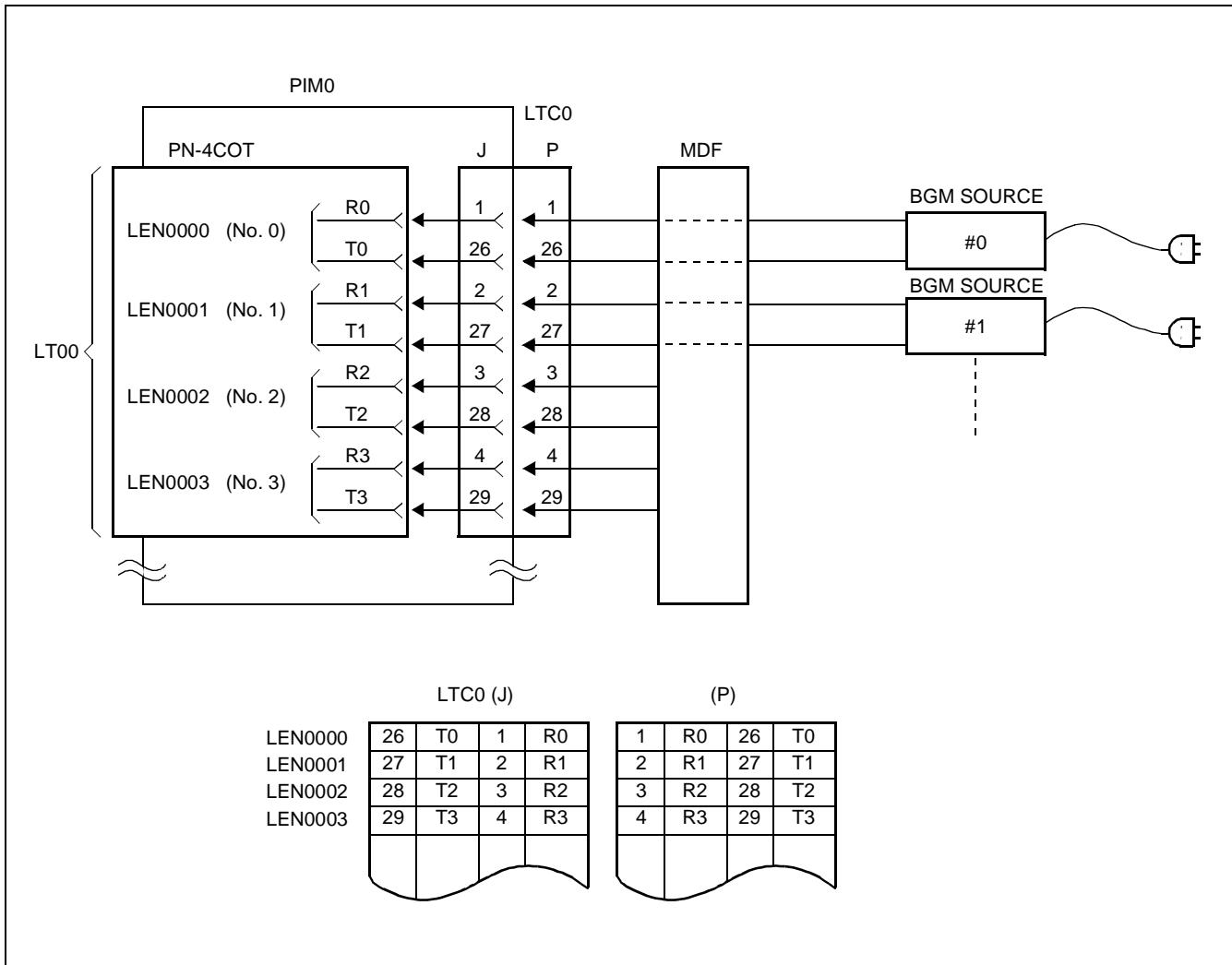
Figure 006-29 MDF Cross Connection for External BGM Sources

(b) When using Pin Jacks on PN-TNTA
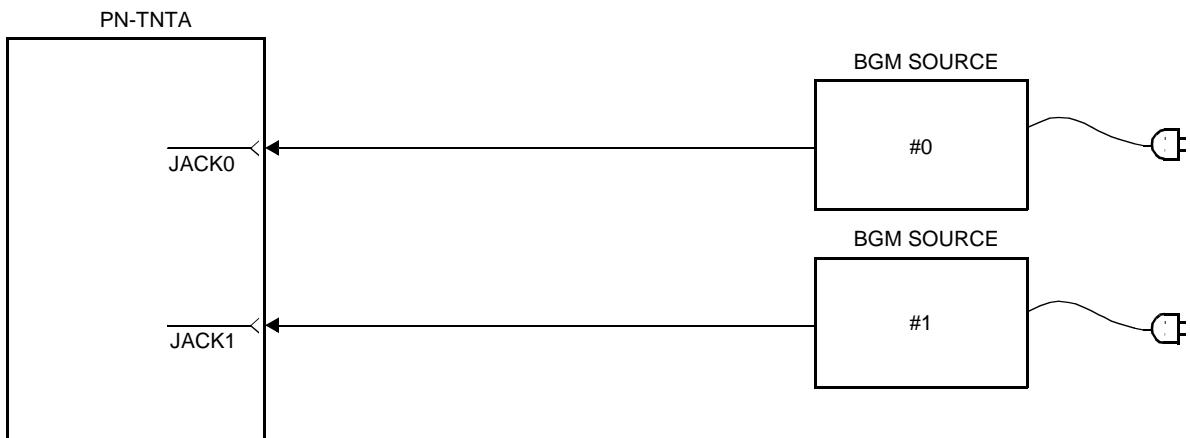
Figure 006-30 Cable Connection Between PN-TNTA and External BGM Sources

(12) Power Failure Transfer (PFT)

The PN-AUCA card or the PZ-8PFTA card can be used as the PFT card.

(a) When using PN-AUCA card
  • Figure 006-30 shows an outline of a PFT (PN-AUCA) connection.
  • Figure 006-31 shows the MDF cross connection for a PFT (PN-AUCA).
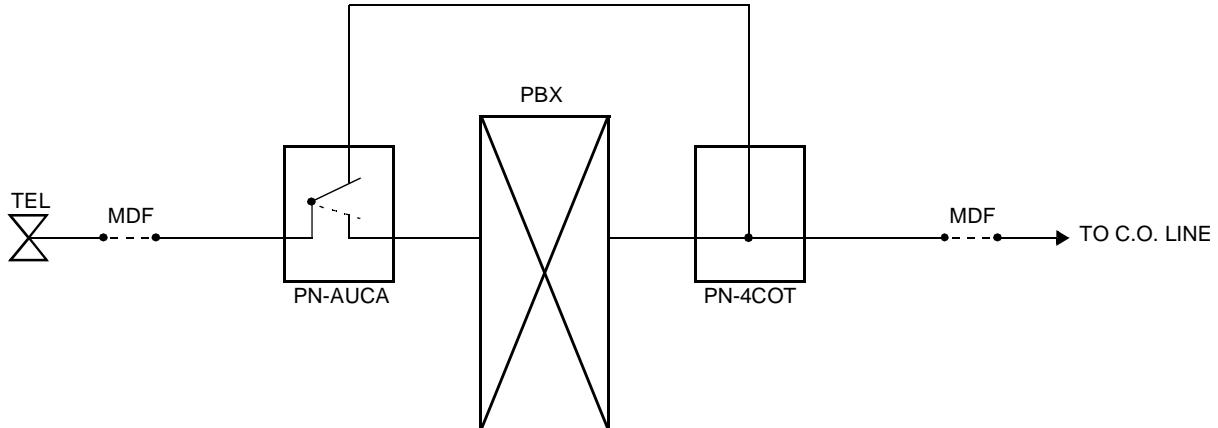
Figure 006-31 PFT Connection Outline
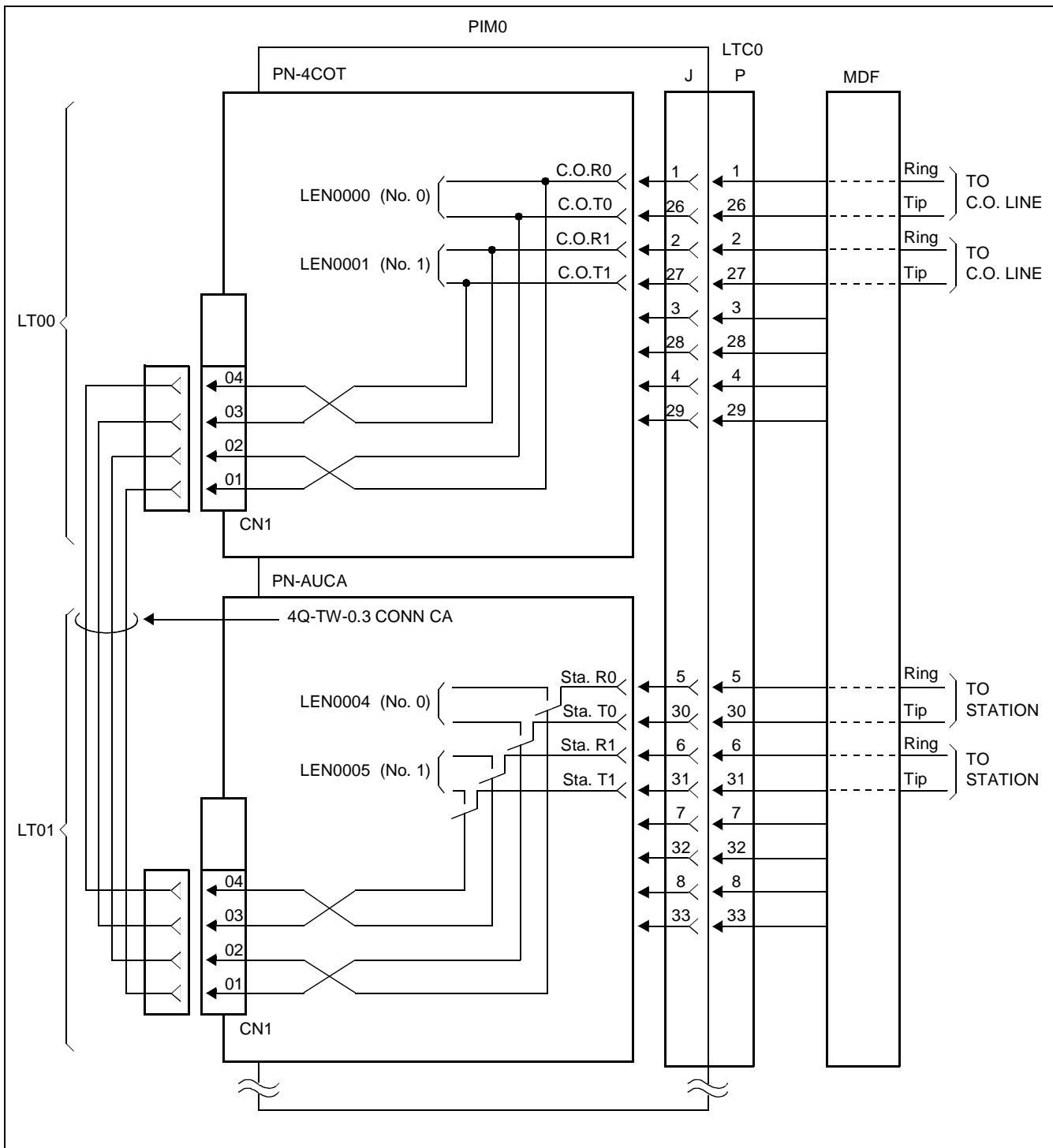
Figure 006-32 MDF Cross Connection for the PFT (PN-AUCA)

LTC0 (J)				(P)			
LEN0000	26	C.O.T0	1	C.O.R0	1	C.O.R0	26	C.O.T0
LEN0001	27	C.O.T1	2	C.O.R1	2	C.O.R1	27	C.O.T1
	28		3		3		28	
	29		4		4		29	
LEN0004	30	Sta.T0	5	Sta.R0	5	Sta.R0	30	Sta.T0
LEN0005	31	Sta.T1	6	Sta.R1	6	Sta.R1	31	Sta.T1
	32		7		7		32	
	33		8		8		33	
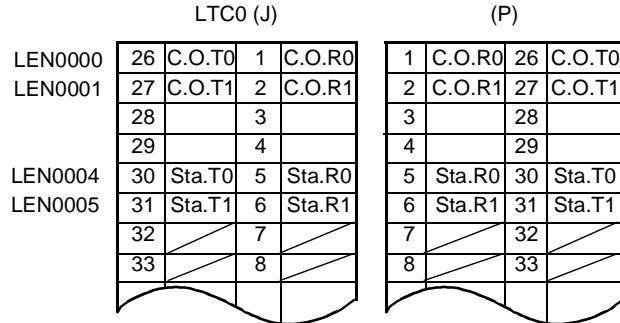
Figure 006-32 MDF Cross Connection for the PFT (PN-AUCA) (Continued)

Note 1: *The No. 2 and No. 3 circuit in the PN-4COT card can not be used with the PFT function.*

Note 2: *When using Ground Start trunks with the PFT function, the single line stations must have a ground sending button and a ground lead must be run to the station.*

(b)   When using PZ-8PFTA card

• Figure 006-33 shows an outline of a PFT (PZ-8PFTA) connection.
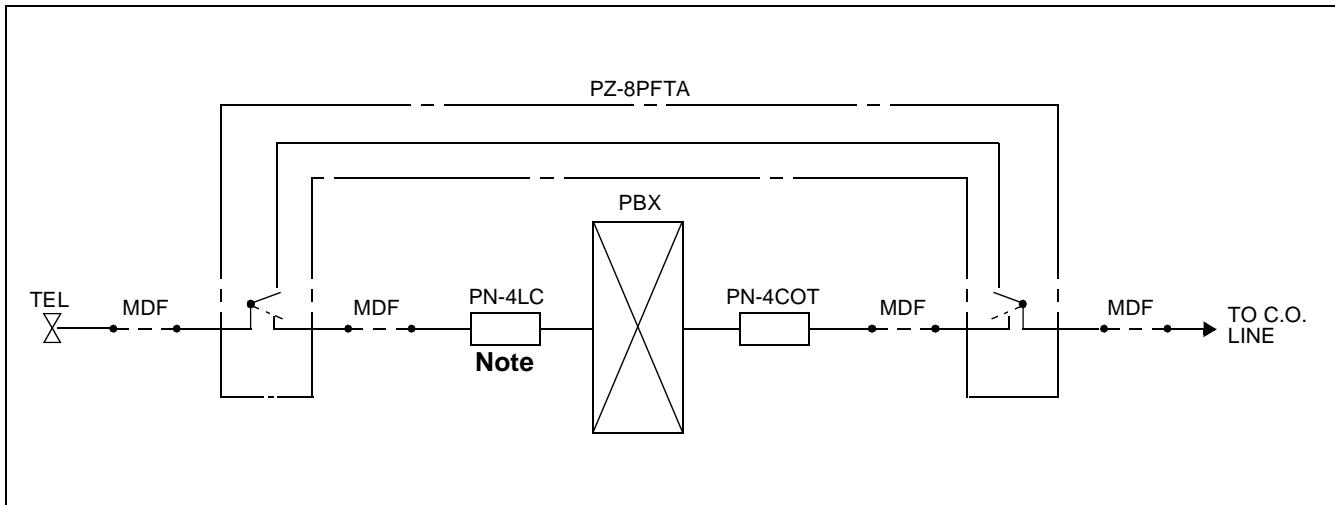
Figure 006-33   PFT (PZ-8PFTA) Connection Outline

Note :   *Using the PN-AUCA card (long line card) instead of the PN-4LC card is not recommended due to the variations from Central Office to the PBX; line quality cannot be assured.*

• Install the PZ-8PFTA card to the PIM according to the following steps.

STEP 1: Connect the champ connectors of 25-pair cables to the PFT0 and PFT1 connectors on the PZ-8PFTA card as shown in Figure 006-34. Then, secure them to each other using screws and tie wraps.

PFT0 CONNECTOR

TO MDF
(SEE STEP 3)

PFT1 CONNECTOR

PZ-8PFTA

25-PAIR CABLE

CHAMP CONNECTOR (PROVIDED WITH PZ-8PFTA)
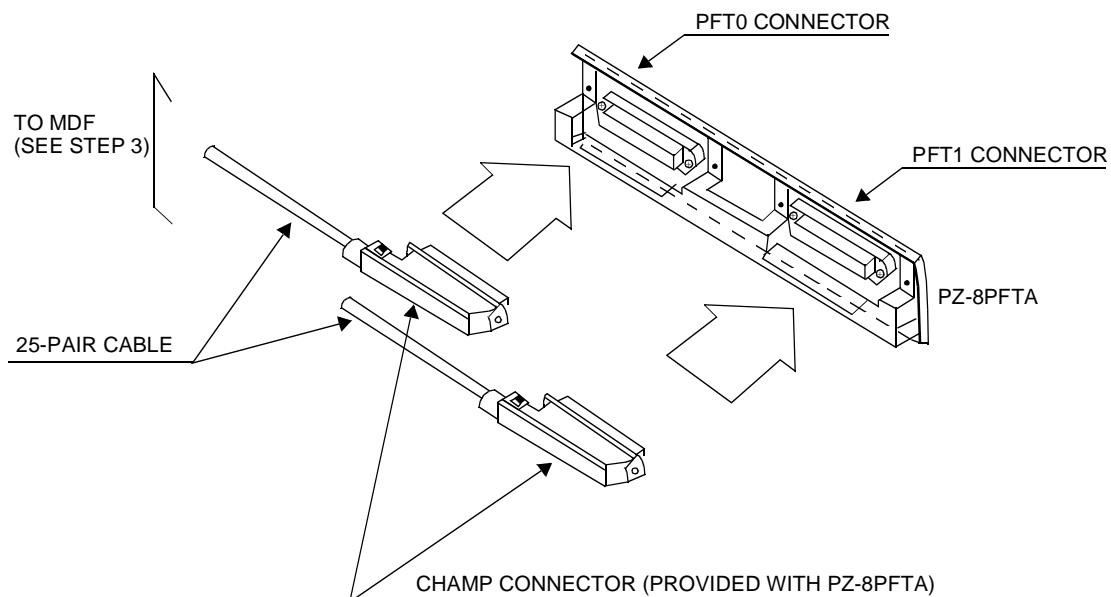
Figure 006-34 Connection of 25-Pair Cable and PZ-8PFTA

STEP 2:   Hook the PZ-8PFTA card at the front bracket on the PIM, and secure them to each other using screws and SPL washers, as shown in Figure 006-35.

PZ-8PFTA

PIM

SPL WASHER

SCREW
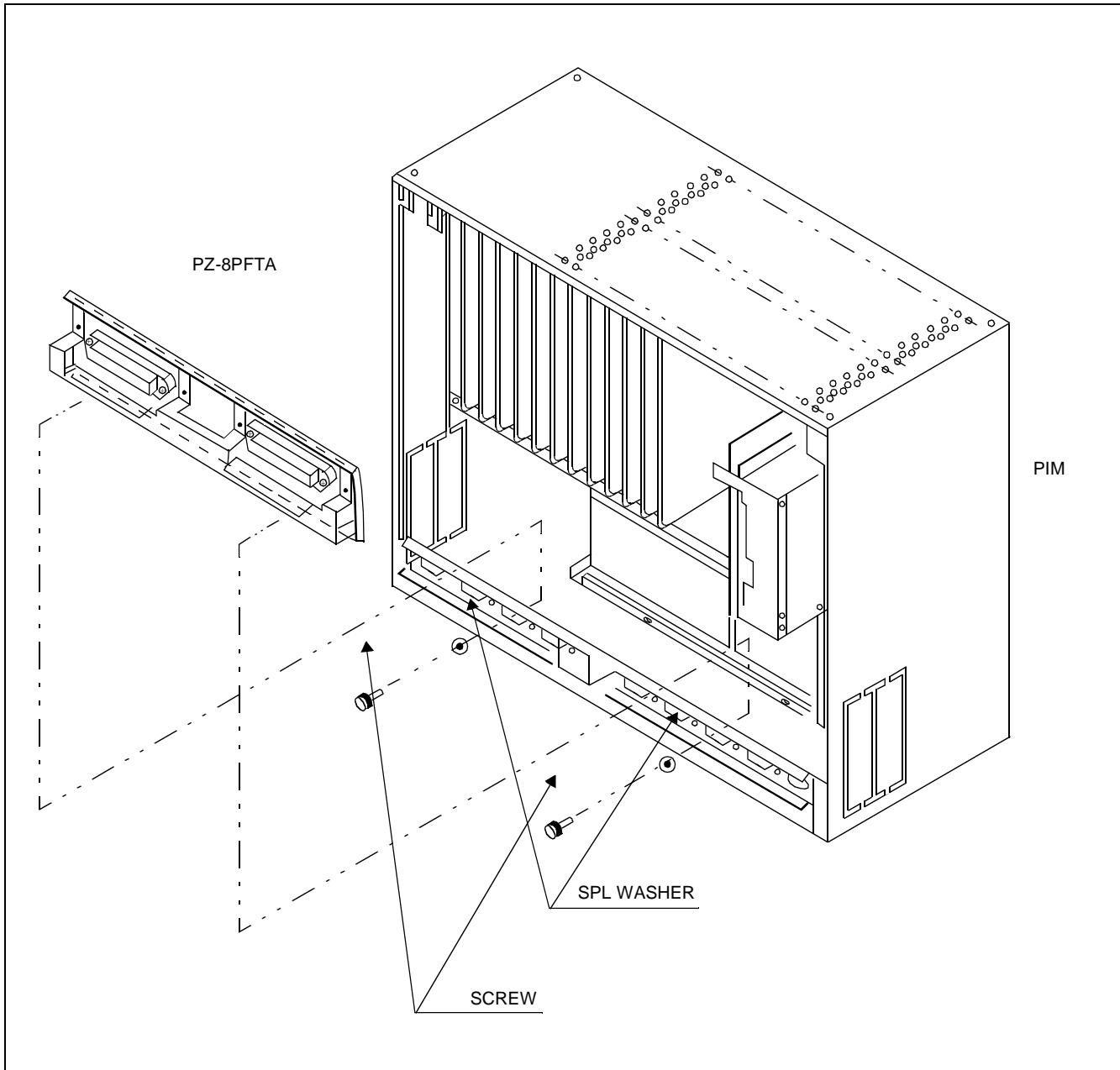
Figure 006-35   Mounting PZ-8PFTA Card to the PIM

STEP 3: Connect the 25-pair cables on the MDF referring Figure 006-36 and Figure 006-37.

- Figure 006-36 shows the PFT connector pin assignment for each PFT circuit number (No. 0 - No. 7).
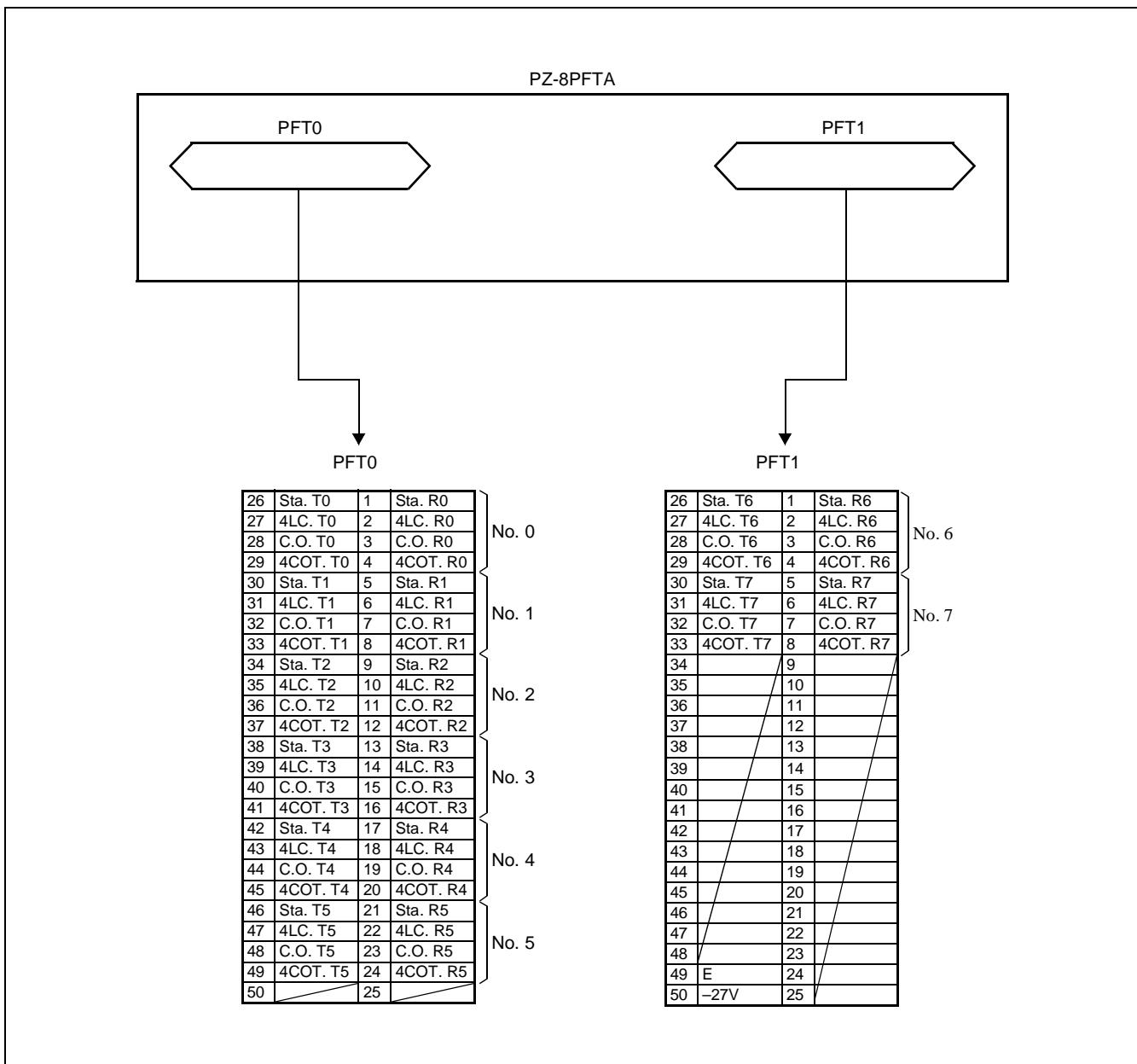
Figure 006-36 PFT Connector Pin Assignment

- Figure 006-37 shows the MDF cross connection for the No. 0 circuit on the PFT (PZ-8PFTA), as an example.
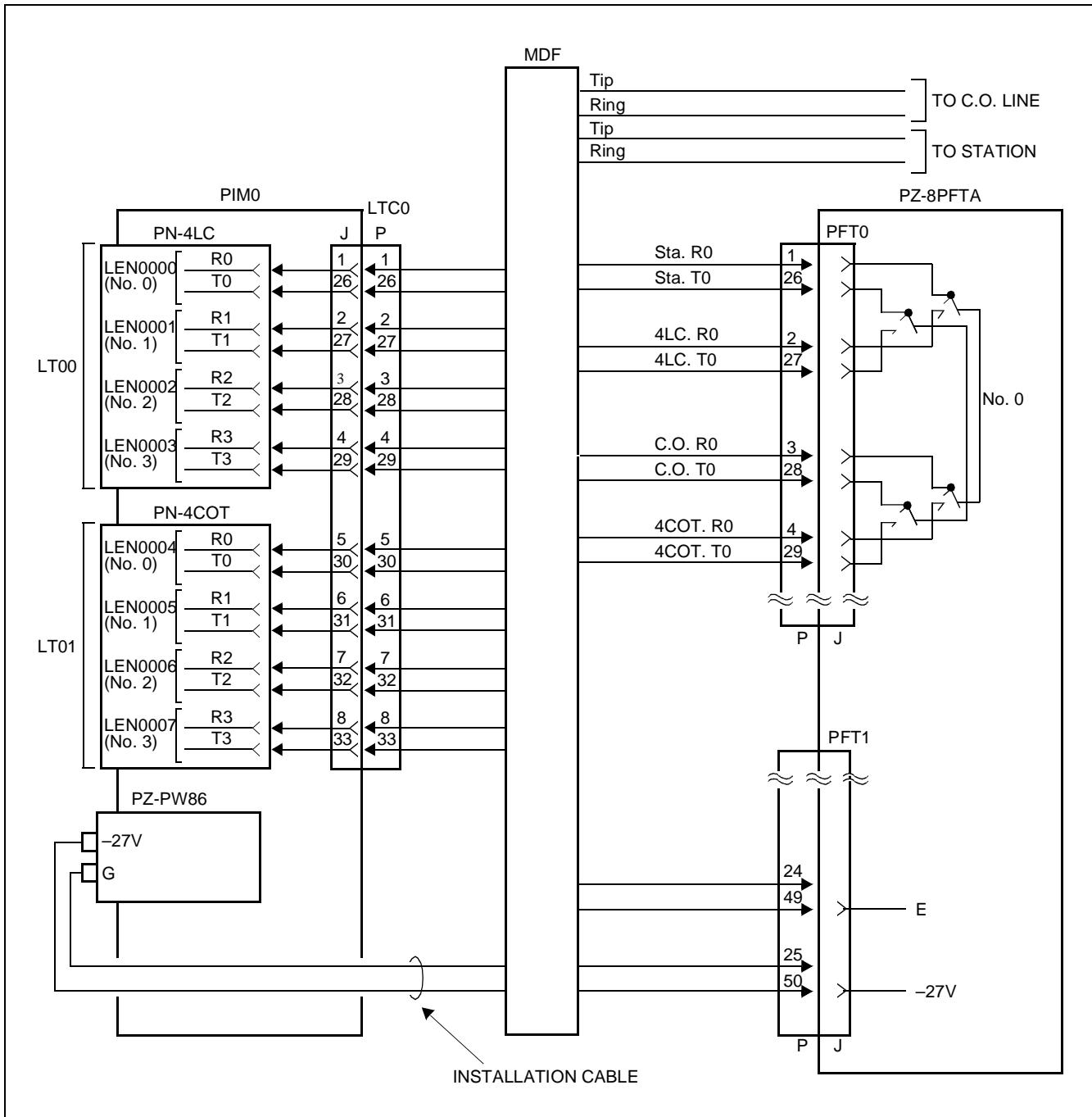
Figure 006-37   MDF Cross Connection for the PFT (PZ-8PFTA)

① PFT0 CONNECTOR

PFT0 (J)

26	Sta. T0	1	Sta. R0
27	4LC. T0	2	4LC. R0
28	C.O. T0	3	C.O. R0
29	4COT. T0	4	4COT. R0

(P)

1	Sta. R0	26	Sta. T0	TO STATION
2	4LC. R0	27	4LC. T0	TO PN-4LC
3	C.O. R0	28	C.O. T0	TO C.O. LINE
4	4COT. R0	29	4COT. T0	TO PN-4COT

② PFT1 CONNECTOR

PFT1 (J)

49	E	24	
50	−27V	25	

(P)

24		49	E	TO PZ-PW86
25		50	−27V	

③ LTC0 CONNECTOR

LTC0 (J)

LEN0000	26	T0	1	R0
	27		2	
	28		3	
	29		4	
LEN0004	30	T0	5	R0
	31		6	
	32		7	
	33		8	

(P)

1	R0	26	T0	TO PZ-8PFTA
2		27		
3		28		
4		29		
5	R0	30	T0	TO PZ-8PFTA
6		31		
7		32		
8		33		

Figure 006-37 MDF Cross Connection for the PFT (PZ-8PFTA) (Continued)

(13) Alarm Display Panel

Figure 006-38 shows the cross connection for an Alarm Display Panel.
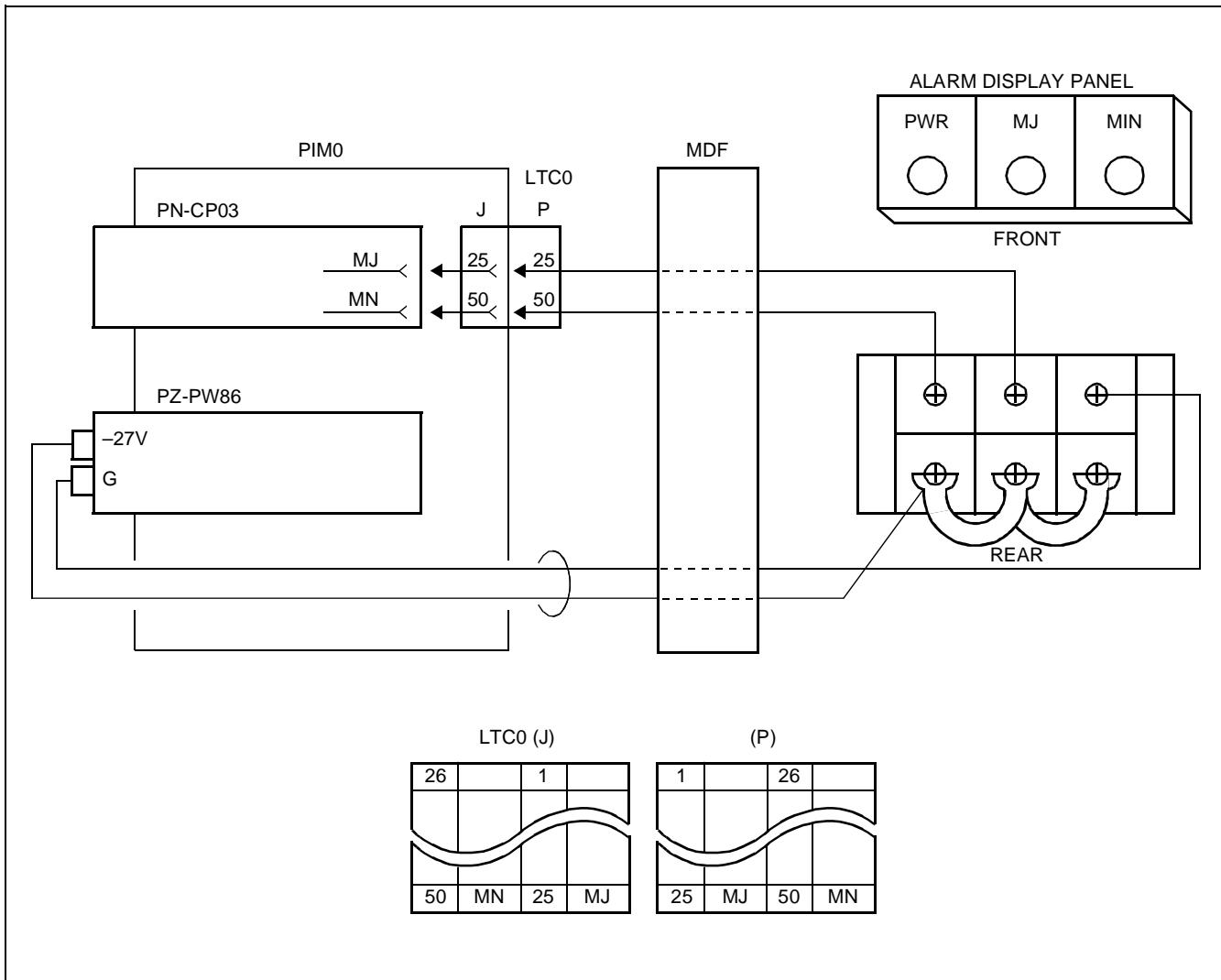
Figure 006-38 MDF Cross Connection for an Alarm Display Panel

1. SN716 - DESKCON

(a) Installation of SN716 DESKCON (see Figure 007-1)

STEP 1: Unpack and assemble SN716 DESKCON.
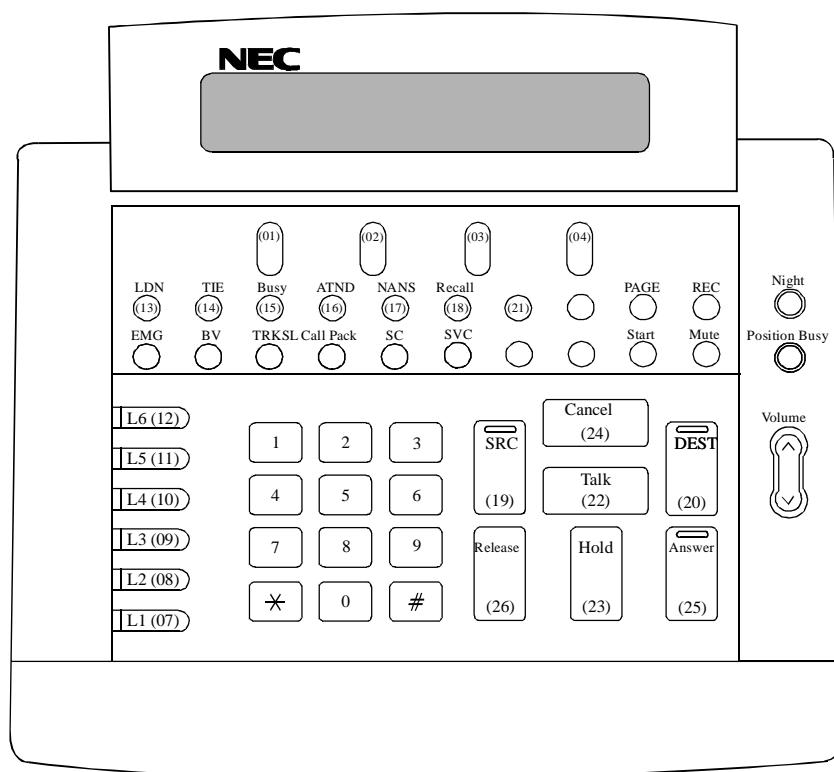
Figure 007-1 Assembly of SN716 DESKCON

STEP 2: Plug the line cord from the modular jack into the modular jack located on the bottom of the DESKCON, labeled "Line". This interface is a 6 conductor (3 pair), modular jack. The inner 1 pair is for signal and the outer 2 pairs are for power supply (when connected via PN-PW00). See Figure 007-2.
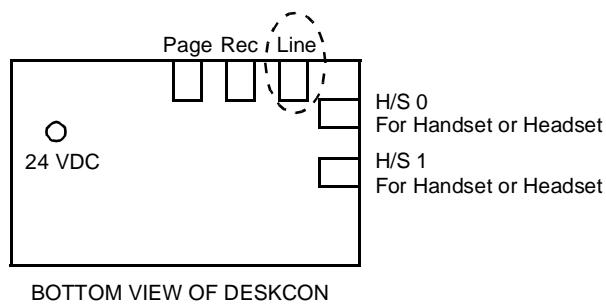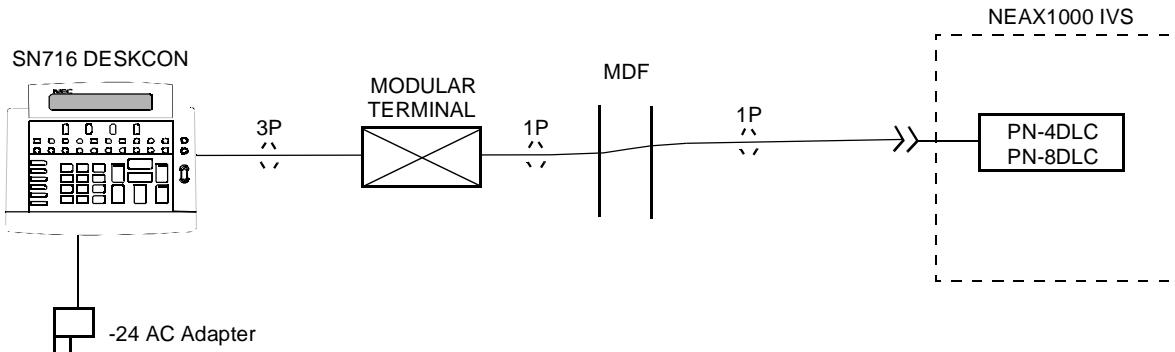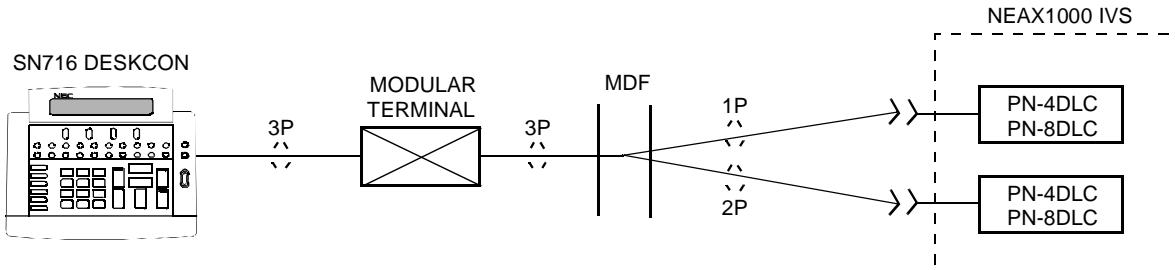
Figure 007-2   SN716 DESKCON Cable Connection

(b) MDF Cross Connection with AC Adapter Power Option (see Figure 007-3)
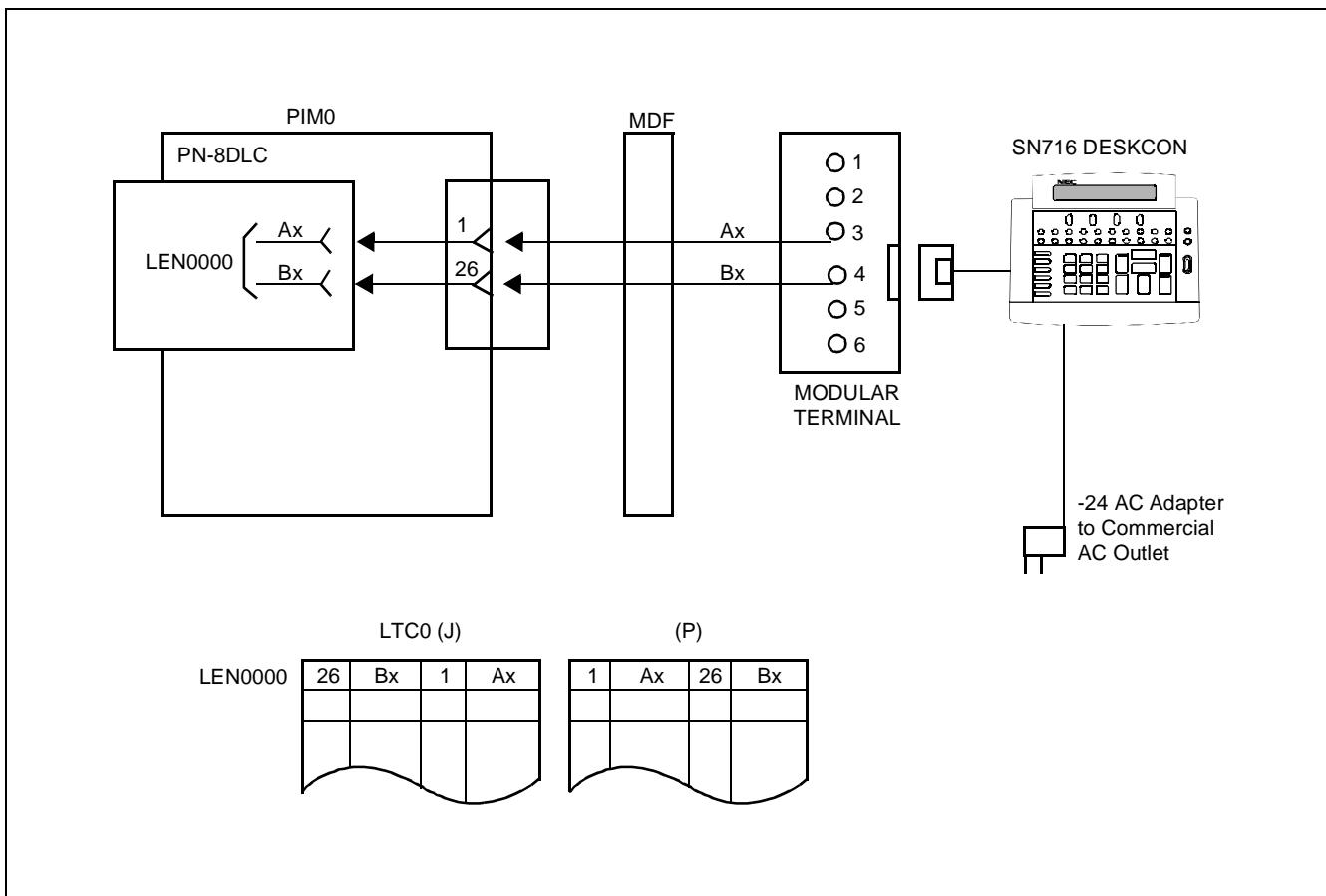
Figure 007-3 MDF Cross Connection With AC Adapter Power Option

(c) MDF Cross Connection via PN-PW00 Power Option (see Figure 007-4)
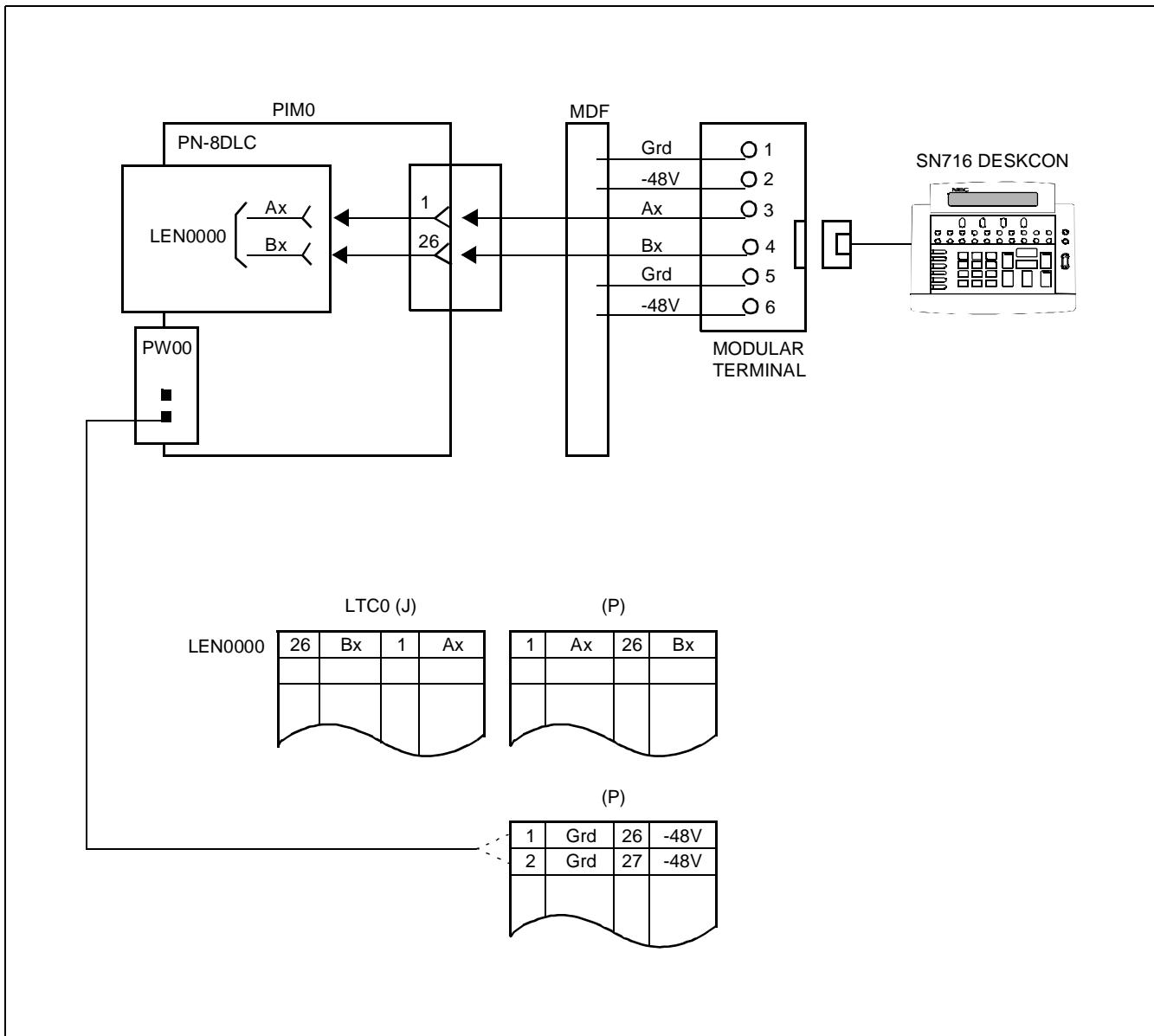
Figure 007-4 MDF Cross Connection via PN-PW00 Power Option

(1)   Handset Installation

Screw the handset support onto the bottom of the console.
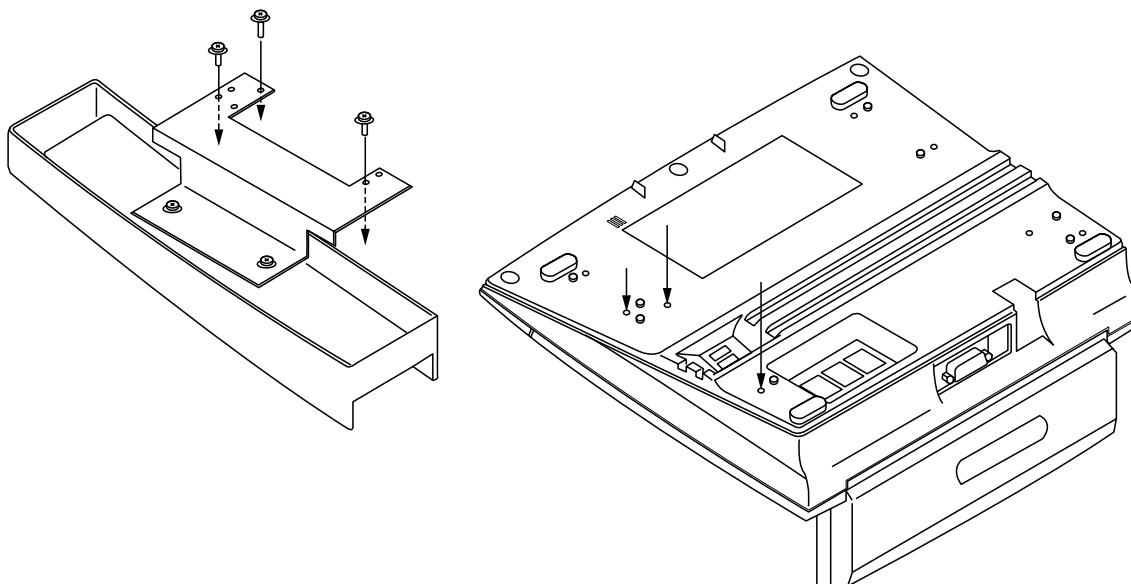
Figure 007-5   Mounting of Handset Support to SN716 DESKCON

(2) Headset Installation

    Plug the headset into the modular jack (H/S 0 or H/S 1) located at the bottom of the console.

HAND
H/S 0

H/S 1
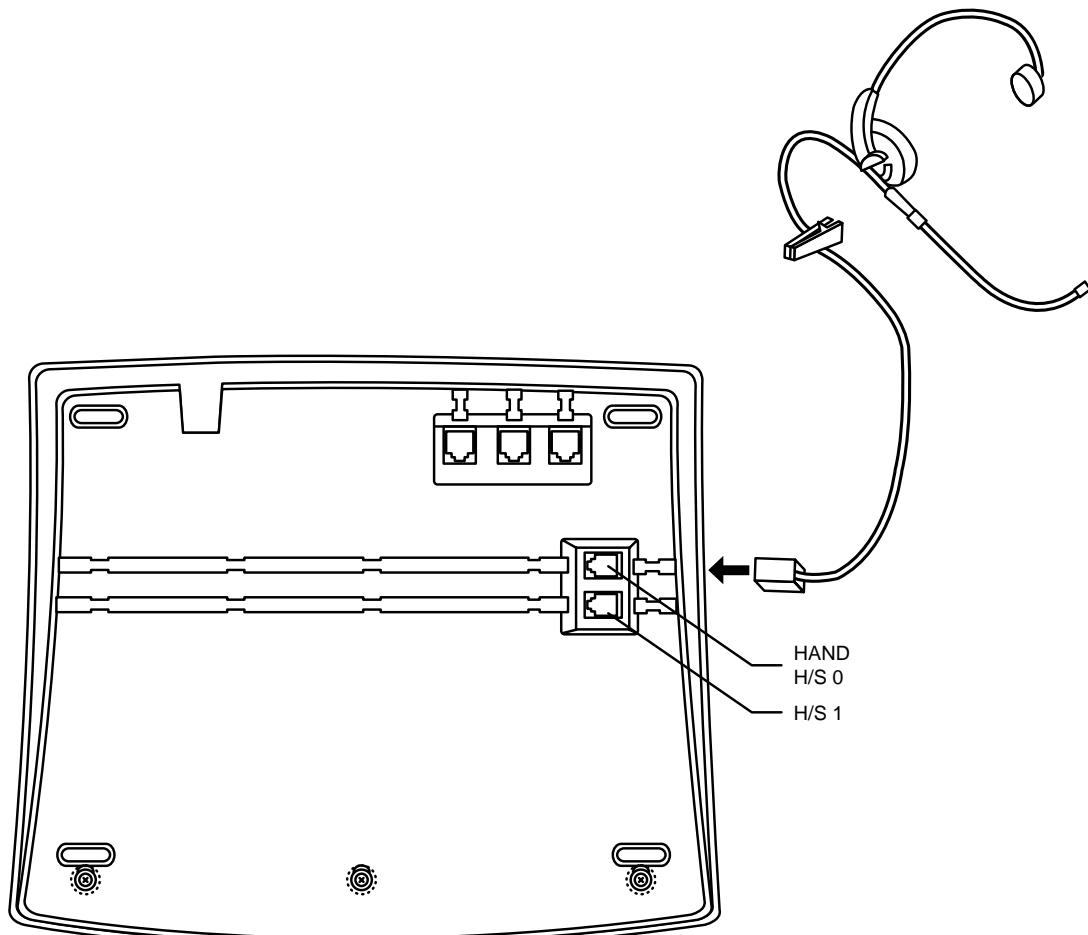
Figure 007-6   Headset Installation for SN716 DESKCON

(3) Line Cord Connection

Plug the line cord into the modular jack (LINE) located at the bottom of the console. For the MDF cross connection for the SN716 DESKCON, refer to Figure 007-7.
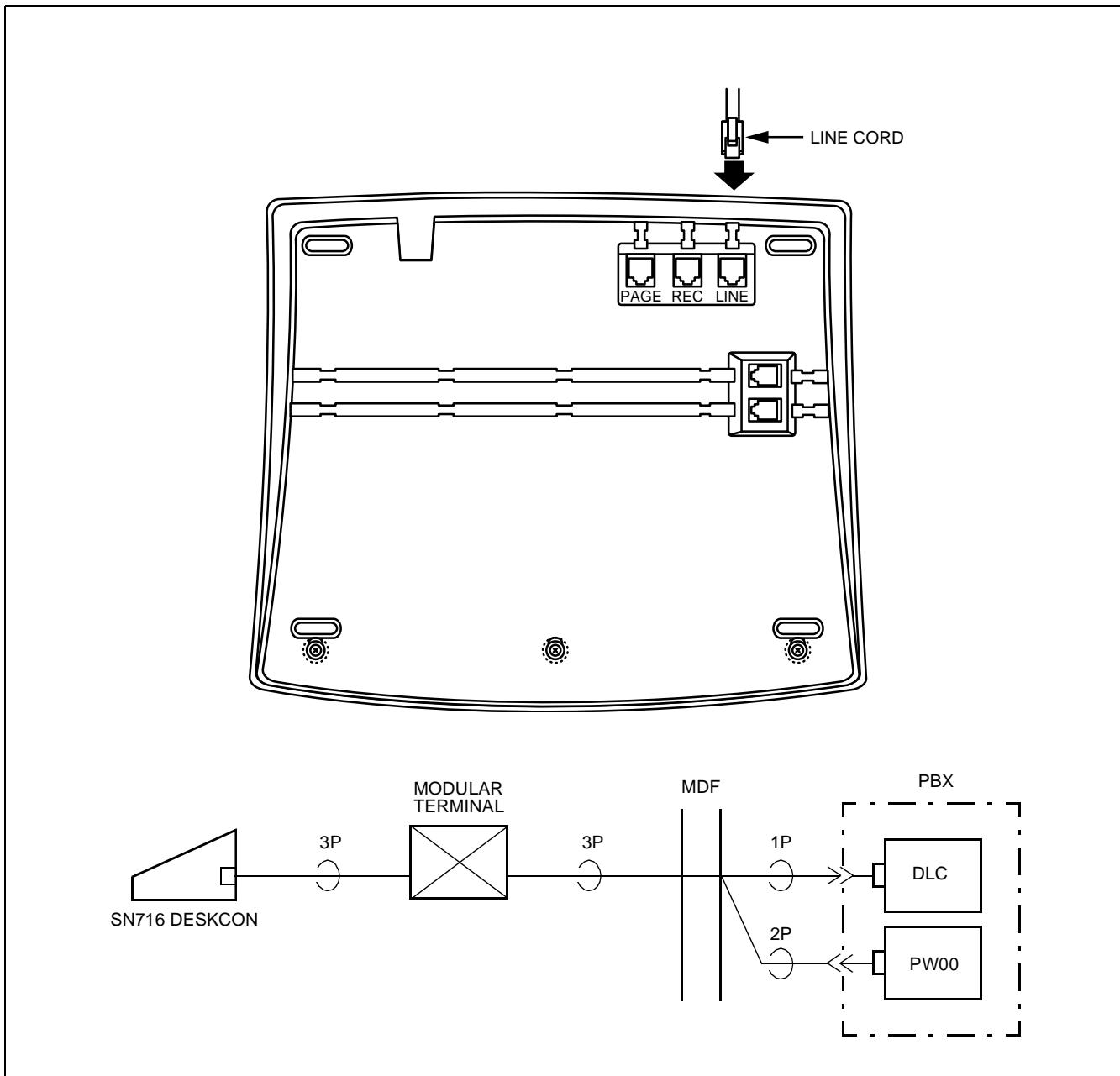
Figure 007-7   Cable Connection to SN716 DESKCON

(4) AC-DC ADAPTER Connection

When using an AC-DC ADAPTER for power supply, plug the AC-DC ADAPTER into the "12V~24VDC" terminal located at the rear of the console.
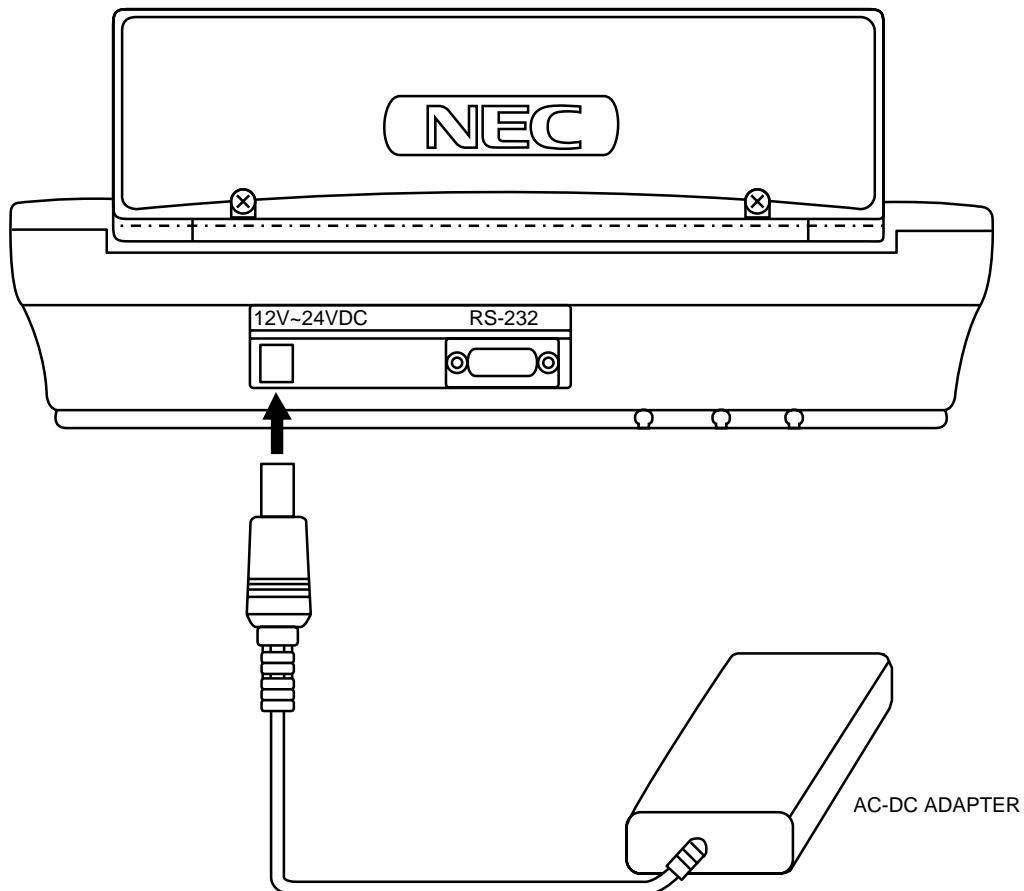
Figure 007-8 AC-DC ADAPTER Connection to SN716 DESKCON

(5) Using PW00 Card

When using the PW00 card for power supply, provide the PW00 card according to the following procedure.

(a) Mount the PW00 card into the LT01-LT10 slot or AP5 slot.

Note: The PW00 card occupies the adjoining left side (smaller number) slot because of its two-story structure.
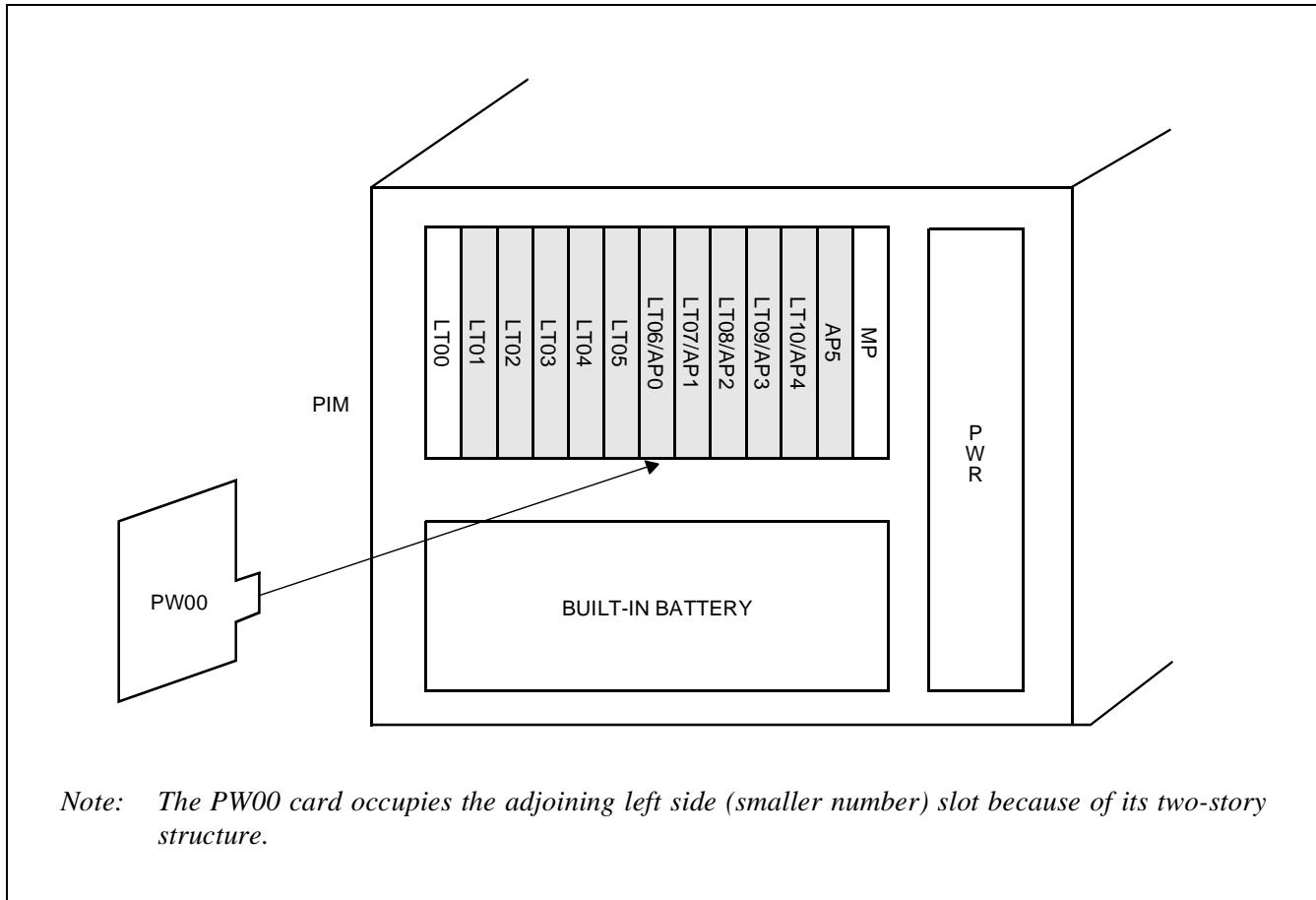
Figure 007-9 Mounting PW00 Card into PIM

(b) Connect the PW00 card and SN716 DESKCON by installation cable as shown in Figure 007-10 and Figure 007-11.
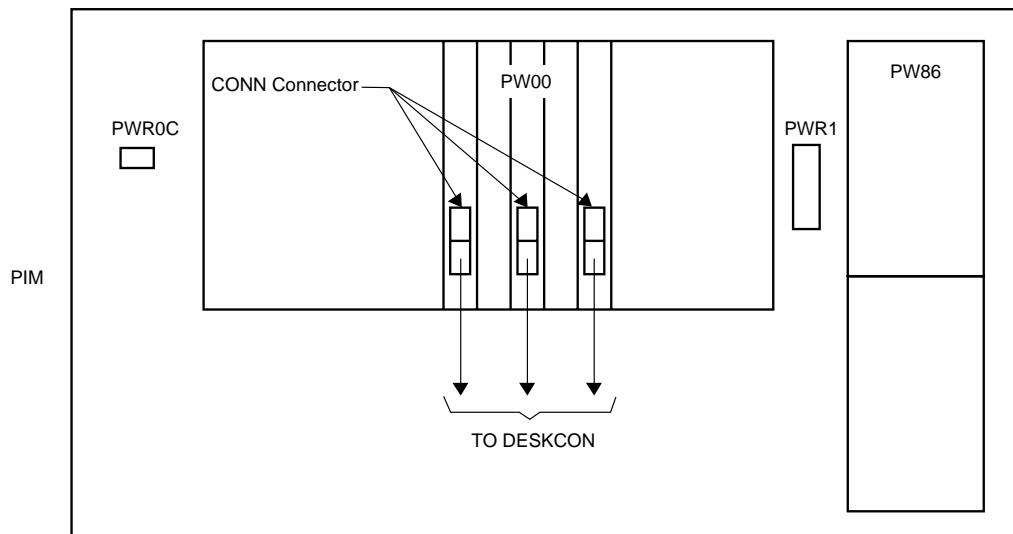
Figure 007-10   PW00 Card Connection to SN716 DESKCON

(6) 6.MDF Cross Connection

(a) When using PN-8DLC

Note 1: *When power is supplied by the AC-DC ADAPTER, this connection is not required.*

Note 2: *The same connection is required when using 4DLC/2DLC.*
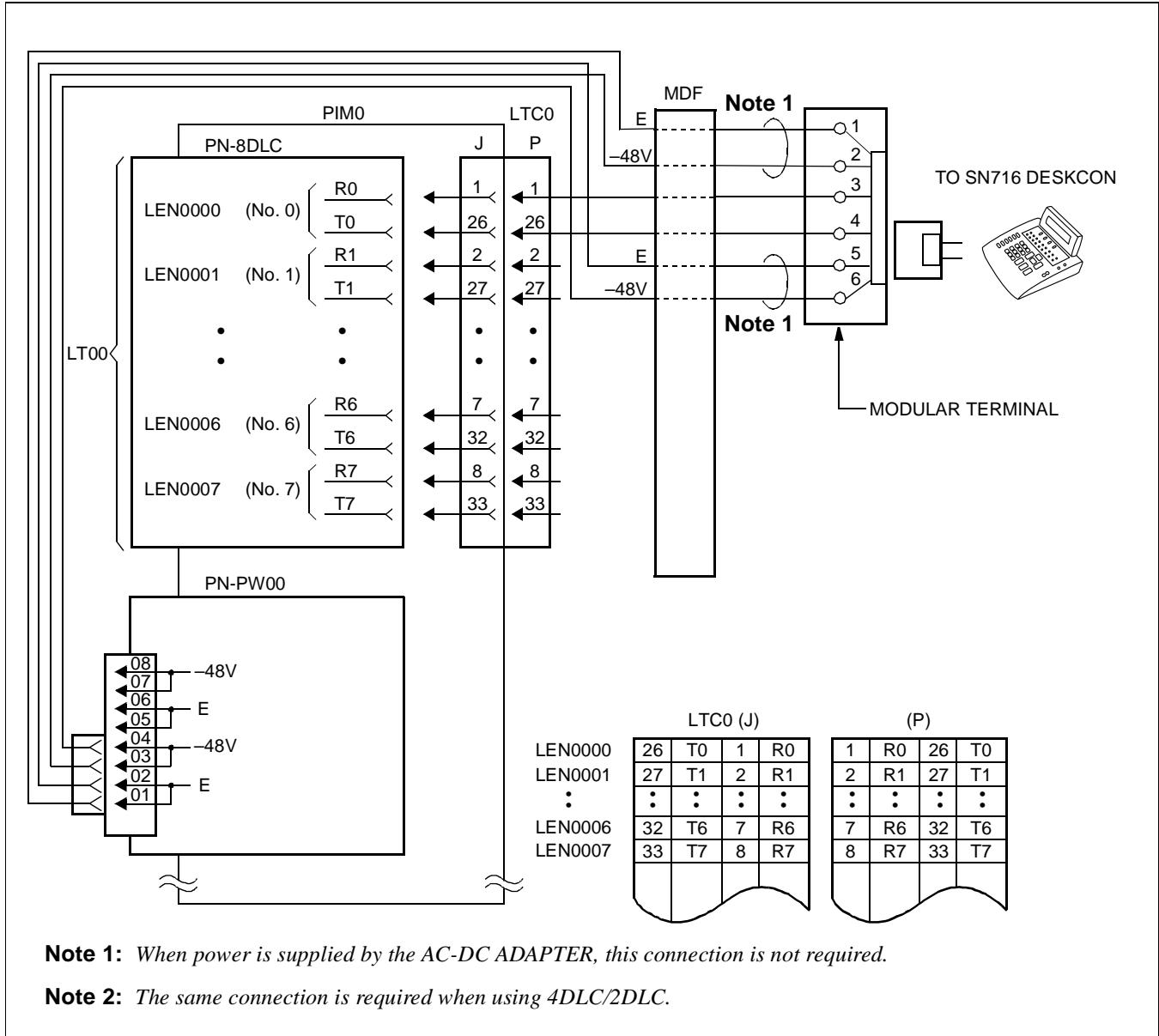
Figure 007-11 MDF Cross Connection for SN716 DESKCON

1.   CIRCUIT CARDS SWITCH SETTING

Table 008-1 shows the control circuit cards and Table 008-2 shows the line/trunk circuit cards to be explained in this NAP. As for the other circuit cards, refer to the Circuit Card Manual.

Table 008-1 Control Circuit Cards

NAME (FUNCTIONAL NAME)	EXISTENCE OF LAMPS X: PROVIDED —: NOT PROVIDED	EXISTENCE OF SWITCHES X: PROVIDED —: NOT PROVIDED	EXTRACTION/INSER-TION WITH POWER ON X: ALLOWED △: ALLOWED AFTER MB* —: NOT ALLOWED	REFERENCE PAGE
PN-CP03 (MP)	X	X	—	128
PZ-PW86(C) (PWR)	X	X	—	131
PZ-PW86(D) (PWR)	X	X	—	134
PN-PW00 (EXTPWR)	X	X	△	136

*MB=Make Busy

Table 008-2 Line/Trunk Circuit Cards

NAME (FUNCTIONAL NAME)	EXISTENCE OF LAMPS X: PROVIDED —: NOT PROVIDED	EXISTENCE OF SWITCHES X: PROVIDED —: NOT PROVIDED	EXTRACTION/INSER-TION WITH POWER ON X: ALLOWED —: NOT ALLOWED	REFERENCE PAGE
PN-8DLCJ/ 8DLCP (DLC)	X	—	X	138
PN-8LCS (LC)	X	—	X	139

2. PN-CP03 (MP)

(1) Locations of Lamps, Switches, and Connectors
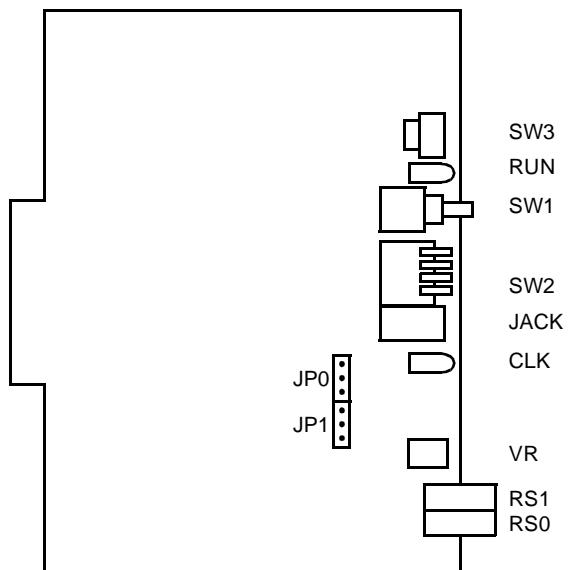
Figure 008-1   PN-CP03 (MP) Card

(2) Lamp Indications

Table 008-3   PN-CP03 (MP) Card Lamp Indications

LAMP NAME	COLOR	FUNCTION
RUN	Green	Flashes at 120 IPM while the circuit card is operating normally.
CLKIN	Green	Lights while receiving clock signals to the PLO oscillator.

(3)   Switch Setting

Table 008-4 PN-CP03 (MP) Card Switch Settings

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
SW3 (Rotary SW)	0 - F	⬭ 0	On Line (Call processing is in progress)	
		2	Off Line (Call processing is stopped) • I/O port : Depending on CM40 YY=08	
		3	Off Line (Call processing is stopped) • I/O port : 1200bps (Fixed)	
		B	For clearing the office data	
		C	For setting the resident system program	
		1, 4 - 9 A, D - F	Not used	
SW1 (Push SW)			For initializing the CPU	
SW2 (Piano Key SW)	1	ON	KF Mode	
		⬭ OFF	MF/PF Mode	
	2, 3	Selection of PLO (Phase Locked Oscillator) • When using the internal PLO of MP card:		

Selection of PLO (Phase Locked Oscillator)
• When using the internal PLO of MP card:

SWITCH NUMBER		FUNCTION
2	3	
OFF	OFF	1.5MHz clock [For PN-24DTA/PN-24DTA-A]
ON	OFF	192kHz clock [For PN-BRTA]
OFF	ON	2MHz clock [For PN-30DTC]
ON	ON	Not used

Table 008-4 PN-CP03 (MP) Card Switch Settings (Continued)

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
SW2 (Piano Key SW)	2, 3	• When using the PLO card (PN-CK00): $\underline{SW2\text{-}2}$ $\underline{SW2\text{-}3}$ OFF ON • When not using the internal PLO and the PLO card: $\underline{SW2\text{-}2}$ $\underline{SW2\text{-}3}$ OFF OFF		
	4	ON	When using RS1 port for built-in MODEM.	
		OFF	When using RS1 port for RS-232C.	
VR (Rotary SW)			Variable Resistor for External Hold Tone Source (0 - 20 KΩ : Clockwise)	
JP0 (Jumper pin)		UP	For normal operation	
		DOWN	Not used	
JP1 (Jumper pin)		UP	For normal operation	
		DOWN	For using External Tone Source	

The figure in the SWITCH NAME column and the position in ⬯ in the SETTING POSITION column indicate the standard setting of the switch. When the switch is not set as shown by the figure and ⬯ , the setting of the switch varies with the system concerned.

Note : *Set the groove on the switch knob to the desired switch position.*

CAUTION: **When the operating power is being supplied to this circuit card, <u>do not plug/unplug this circuit card into/from its mounting slot</u>.**

3. PZ-PW86 (PWR)

(1) Locations of Lamps, Switches, and Connectors
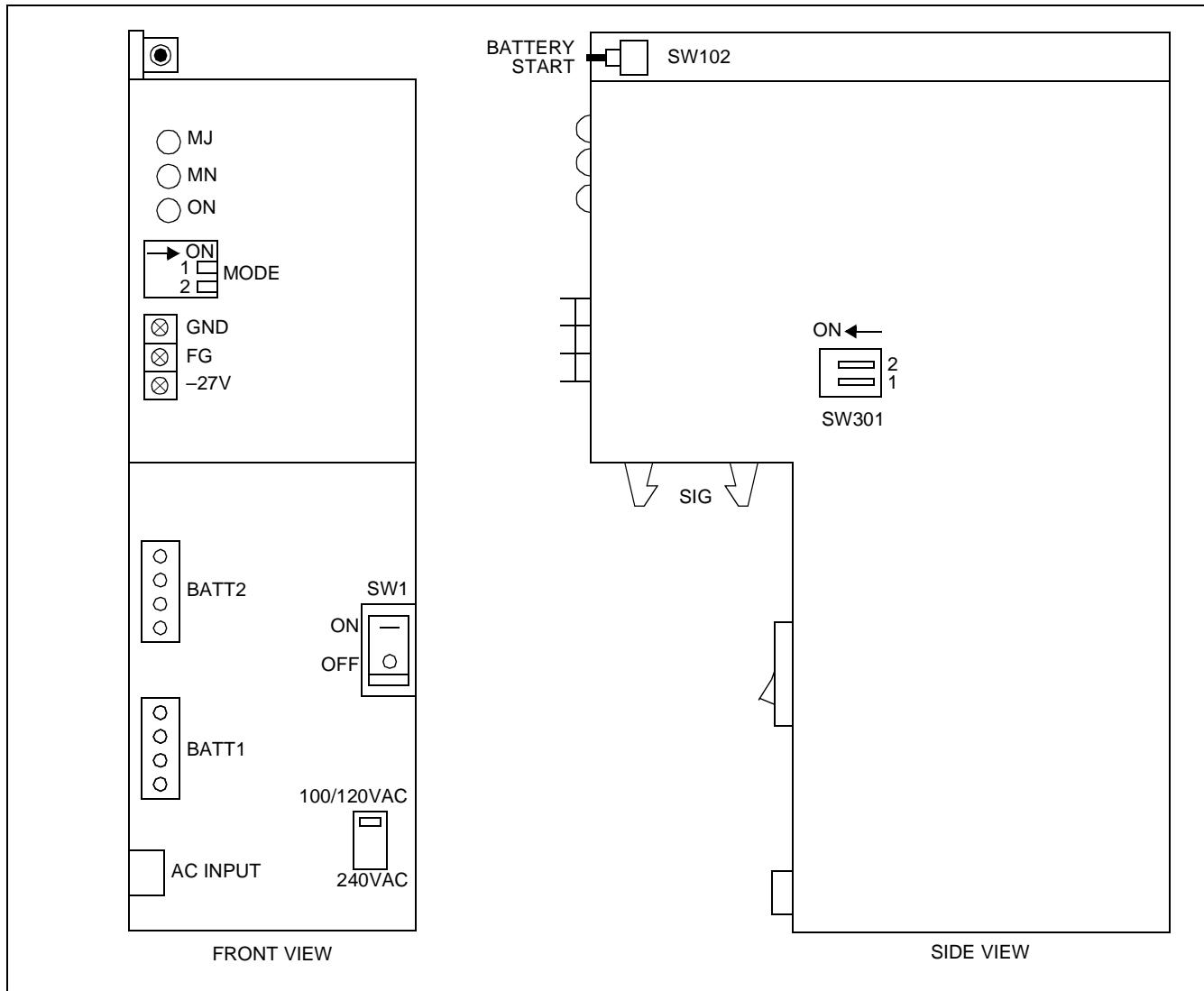
Figure 008-2 PZ-PW86 (PWR) Card

(2)   Lamp Indications

Table 008-5   PZ-PW86(C) (PWR) Card Lamp Indications

LAMP NAME	COLOR	FUNCTION
MJ	Red	Lights upon occurrence of a major fault.
MN	Orange	Lights upon occurrence of a minor fault.
ON	Green	Remains lit while the power is on.

(3) Switch Settings

Table 008-6 PZ-PW86(C) (PWR) Card Switch Settings

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
SW101 (Piano Key SW)	1	OFF	Always set to OFF	
	2	ON	Float charging for sealed batteries (Normal Setting). OPTION: Periodic equalize charging of external vented batteries. (set to equalize for Gel cell or no battery).	
		OFF	Float charging, for <u>vented</u> batteries only.	
SW		ON	For turning AC power and the battery on	
		OFF	For turning AC power and the battery off	
SW102 BATTERY START		PRESS MOMENTARILY	To start each PIM on battery power, when AC power is not provided (switch "SW" must be ON)	
100/120 VAC / 240 VAC		UP	AC INPUT: 90 V - 138 V	
		DOWN	AC INPUT: 180 V - 264 V	
SW301	1	ON	CR Voltage: 75 Vrms	
		OFF	CR Voltage: 90 Vrms	
	2	ON	Frequency: 20 Hz	
		OFF	Frequency: 25 Hz	

The figure in the SWITCH NAME column and the position in ⬭ in the SETTING POSITION column indicate the standard setting of the switch. When the switch is not set as shown by the figure and ⬭ , the setting of the switch varies with the system concerned.

4. PZ-PW86(D) (PWR)

(4) Locations of Lamps, Switches and Connectors
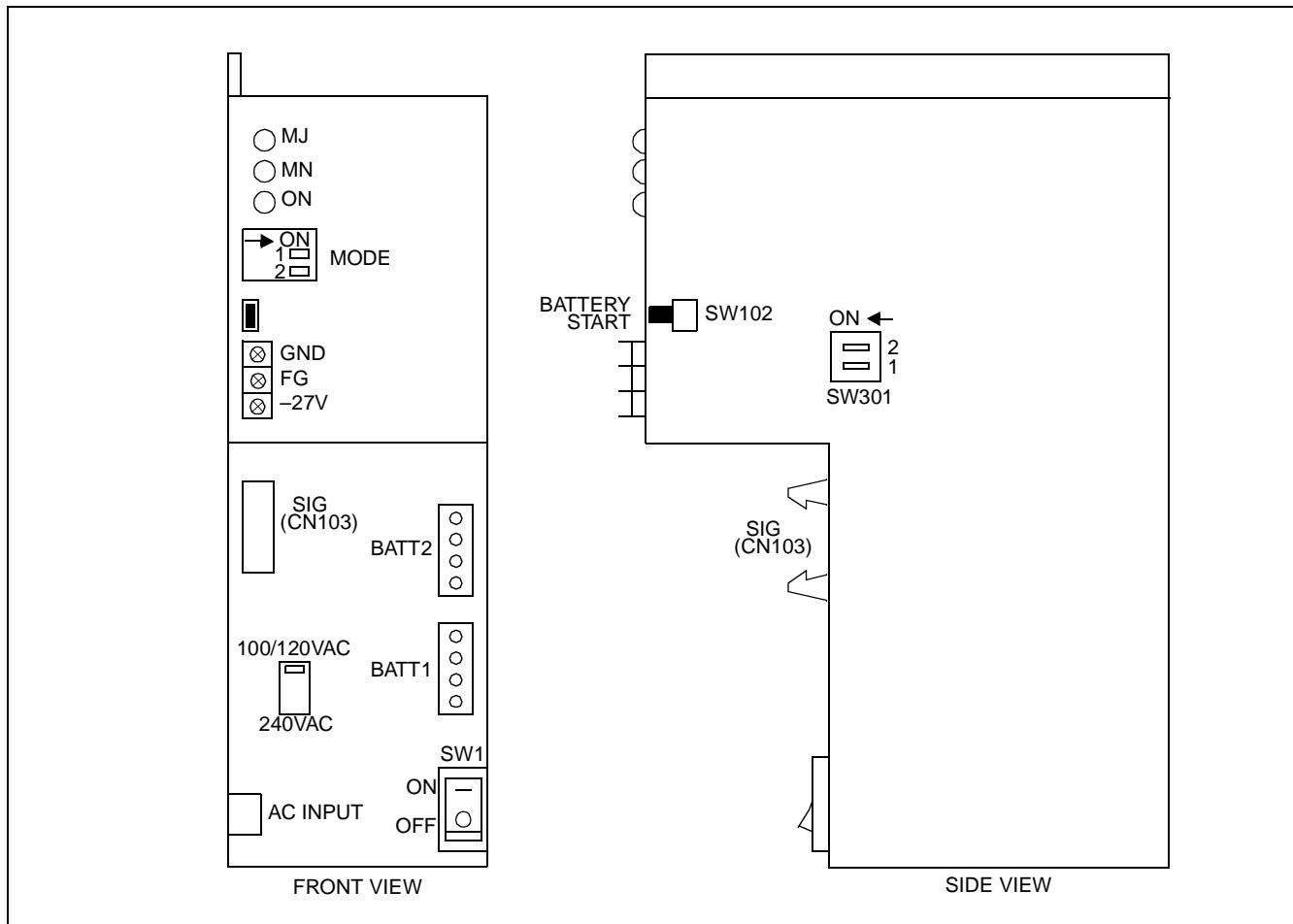
Figure 008-3   PZ-PW86(D) (PWR) Card

(2) Lamp Indications

Table 008-7   PZ-PW86(D) (PWR) Card Lamp Indications

LAMP NAME	COLOR	FUNCTION
MJ	Red	Lights upon occurrence of a major trouble
MN	Orange	Lights upon occurrence of a minor trouble
ON	Green	Remains lit while the operating power is being supplied

(3) Switch Settings

Table 008-8 PZ-PW86(D) (PWR) Card Switch Settings

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
MODE	1	⬭OFF	Always set to OFF	
	2	⬭ON	Float charging, for sealed batteries (Normal Setting). OPTION: Periodic Equalize charging of external vented batteries.	
		OFF	Float charging, for vented batteries only.	
SW1		⬭ON	For turning AC power and the battery on	
		OFF	For turning AC power and the battery off	
		⬭UP	AC INPUT: 90 V - 138 V	
		DOWN	AC INPUT: 180 V - 264 V	
SW102		PRESS MO-MENTARILY	To start each PIM on battery power, when AC power is not provided (switch "SW" must be ON)	
SW301	1	ON	CR Voltage: 75 Vrms	
		⬭OFF	CR Voltage: 90 Vrms	
	2	⬭ON	Frequency: 20 Hz	
		OFF	Frequency: 25 Hz	
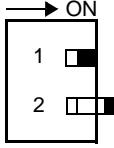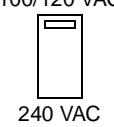
The figure in the SWITCH NAME column and the position in ⬭ in the SETTING POSITION column indicate the standard setting of the switch. When the switch is not set as shown by the figure and ⬭ , the setting of the switch varies with the system concerned.

5. PN-PW00 (EXTPWR)

(4) Locations of Lamps, Switches and Connectors
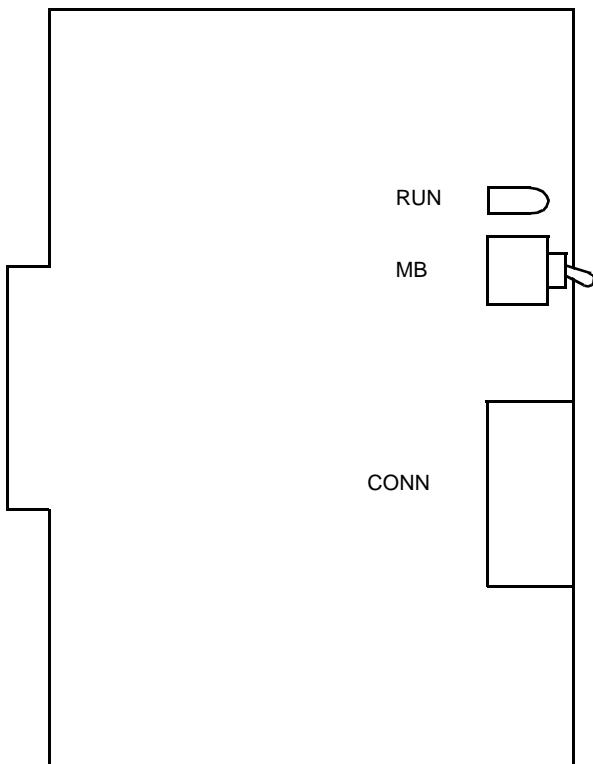
Figure 008-4 PN-PW00 (EXTPWR) Card

(2) Lamp Indications

Table 008-9 PN-PW00 (EXTPWR) Card Lamp Indications

LAMP NAME	COLOR	FUNCTION
RUN	Green	Remains lit while –48 V power is being supplied

Table 008-10 PN-PW00 (EXTPWR) Card Switch Settings

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
MB (Toggle SW) ON ↑ **Note**		UP	For make-busy (–48 V power off)	
		(DOWN)	For normal operation (–48 V power on)	
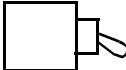
The figure in the SWITCH NAME column and the position in ⬭ in the SETTING POSITION column indicate the standard setting of the switch. When the switch is not set as shown by the figure and ⬭ , the setting of the switch varies with the system concerned.

Note : *When the power is on, flip the MB switch to ON (UP position) before plugging/unplugging the circuit card.*

6. PN-8DLCJ/8DLCP (DLC)

(1) Locations of Lamps, Switches and Connectors

BL7
BL6
BL5
BL4
BL3
BL2
BL1
BL0
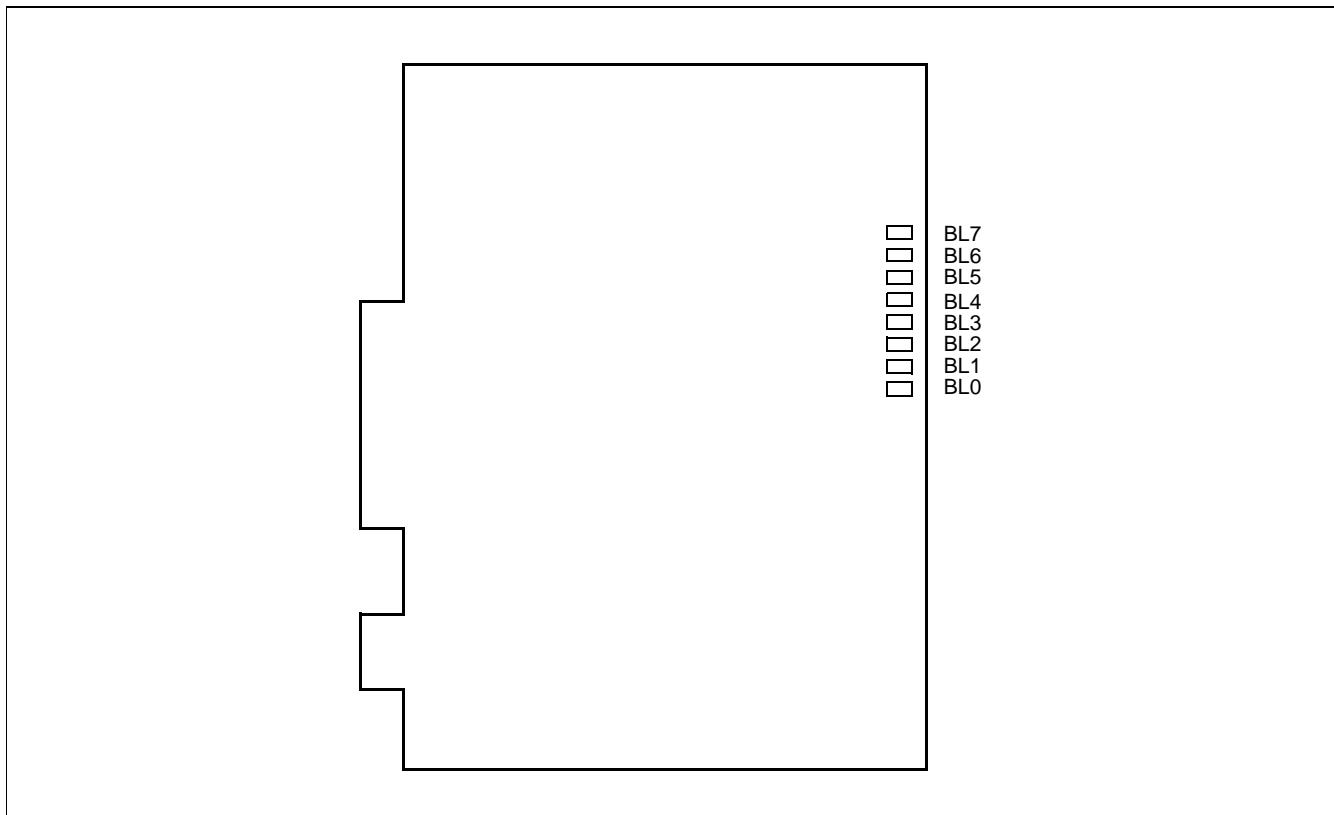
Figure 008-5   PN-8DLCJ/8DLCP (DLC) Card

(2) Lamp Indications

Table 008-11   PN-8DLCJ8DLCP (DLC) Card Lamp Indications

LAMP NAME	COLOR	FUNCTION
BL0 - 7	Red	• Remains lit when the corresponding circuit is in use. • Flashes at 60 IPM when the corresponding circuit is in the make-busy state or the system data for this card is not assigned.

• Switch Settings

This card has no switches.

7. PN-8LCS (LC)

(1) Locations of Lamps, Switches and Connectors


```
BL7
BL6
BL5
BL4
BL3
BL2
BL1
BL0
```
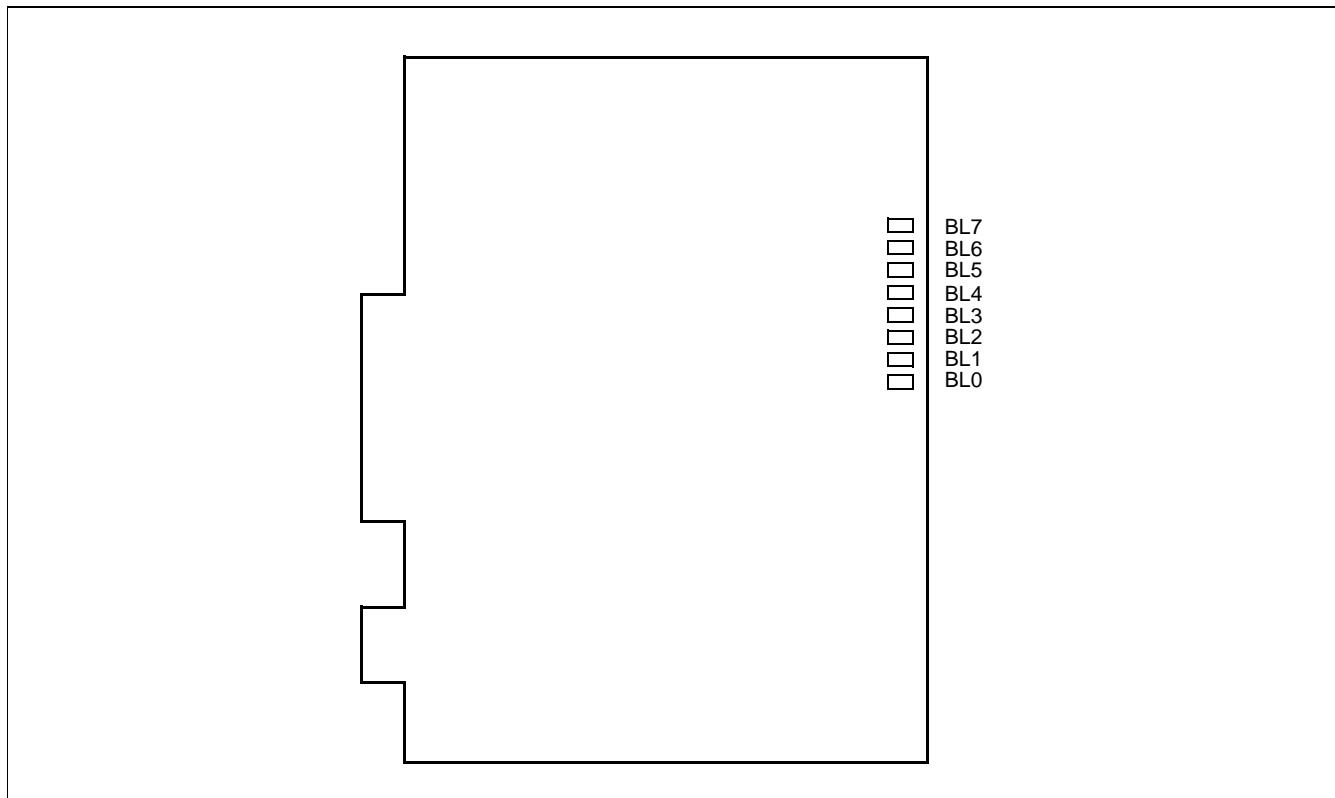
Figure 008-6 PN-8LCS (LC) Card

(2) Lamp Indications

Table 008-12 PN-8LCS (LC) Card Lamp Indications

LAMP NAME	COLOR	FUNCTION
BL0 - 7	Red	• Remains lit when the corresponding circuit is in use. • Flashes at 60 IPM when the corresponding circuit is in the make-busy state or the system data for this card is not assigned.

(3) Switch Settings

This card has no switches.

1. MOUNTING PROCEDURE

    (1)   For testing, turn on "SW1" switch on the PZ-PW86 Card. Make sure that "ON" lamp (Green) is lit.

    (2)   Turn off "SW1" switch.
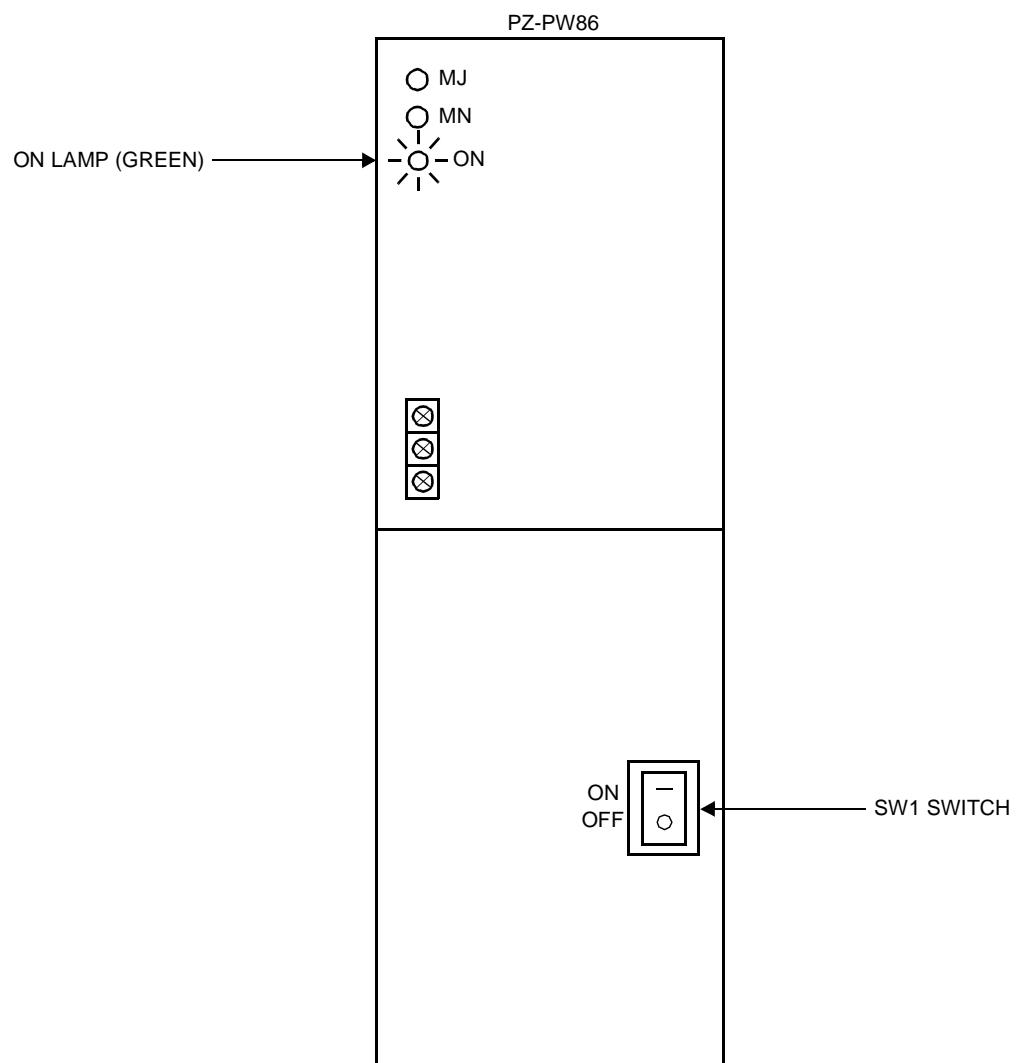
Figure 009-1 PZ-PW86(C) Card Lamp Indication

(3) Before mounting the circuit cards, confirm the following items.

- Wrist Strap is connected Frame Ground.

- Switch setting of circuit cards is already completed (Refer to the Circuit Card Manual).

- "SW1" switch of PZ-PW86 Card is turned off.

(4) Mount circuit cards into their mounting positions according to the "Bay Face Layout" and "Port Assignment Table" given in the System Data Sheet.

Figure 009-2 shows the mounting method of circuit cards.

TO FRAME GROUND CONNECTION
(SEE FIGURE 3-1)

WRIST STRAP

CARD CONTACT SIDE

CARD FRONT SIDE
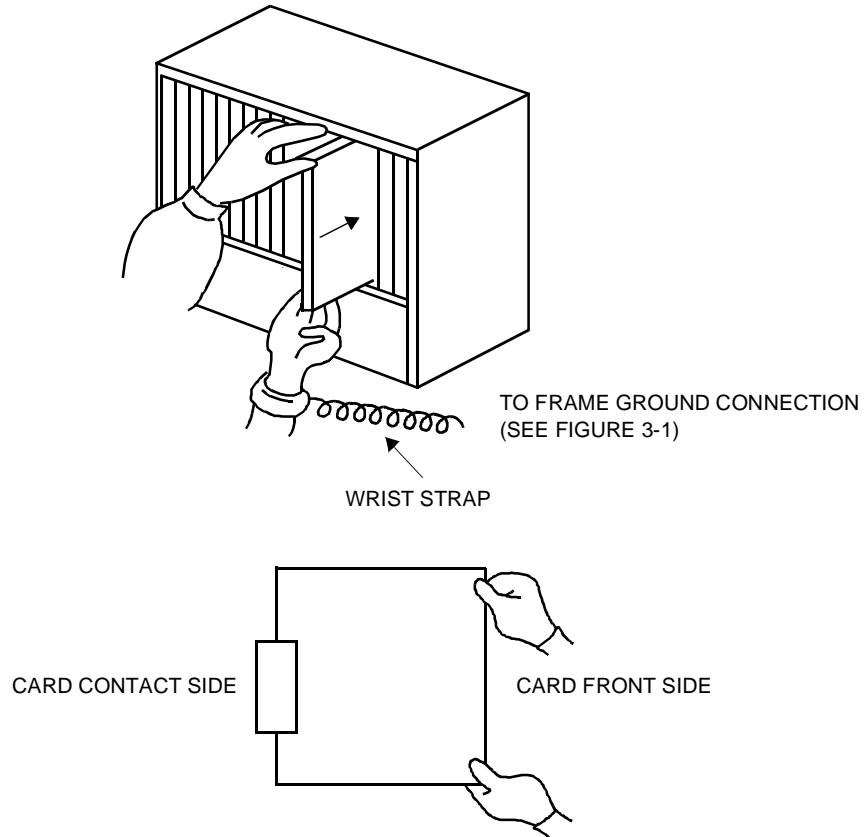
Figure 009-2 Mounting Circuit Cards

(5) Install the Card Stopper according to the following procedure:

    (a)   Insert the left side of the Card Stopper to the slot for the Card Stopper as shown in Fig.Ⓐ of Figure 009-3.

    (b)   Loosen the attached screw for the Card Stopper, and hang the right side of the Card Stopper onto the screw. Then, tighten the screw as shown in Fig.Ⓑ of Figure 009-3.
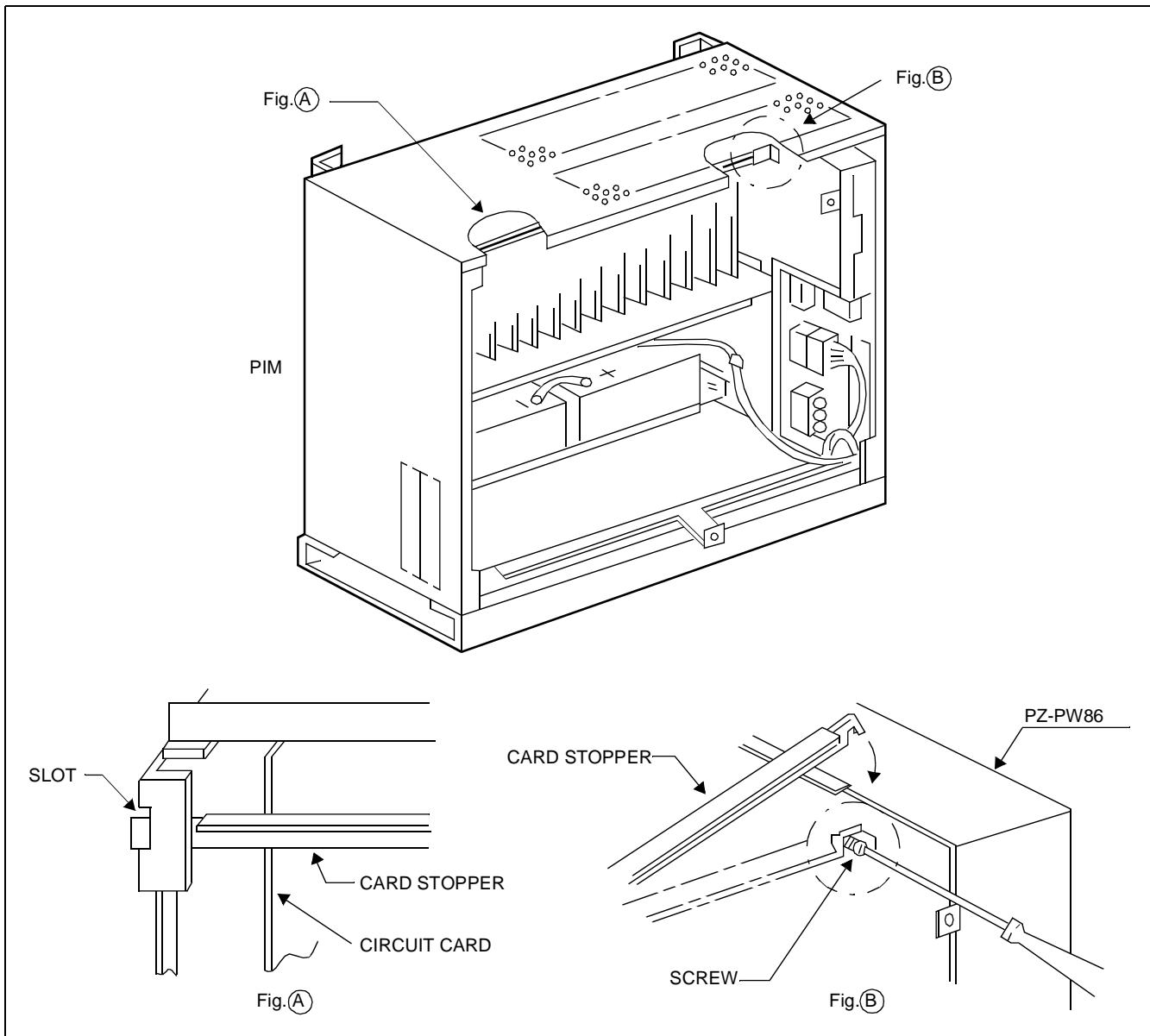
Figure 009-3   Installing Card Stopper

1. SYSTEM INITIALIZATION

- There are two methods for System Initialization. The first method is to Clear All Data, except LEN0000 as a CAT terminal, and then program the System Data. The second method is to use the Resident System Program, which causes the system to configure itself automatically to the default settings, wherever the line/trunk cards are installed. Refer to the System Data Sheet, for the default settings.

- Turn on the "SW1" switch on the PZ-PW86 card.

  - The "ON" lamp must be lit on the PZ-PW86 card.

1.1 All Clear, Except LEN0000 CAT

STEP 1: On the MP Card, set SW3 to "B" and press SW1.

STEP 2: When the "MN" lamp on the system is lit, set SW3 to the "0" position and press SW1.

  - The operating mode has been changed to the ON LINE mode.

1.2 Resident System Program

STEP 1: Mount the Line/Trunk cards into PIM.

STEP 2: On the MP Card, set SW3 to "C" and press SW1.

  - After 30 to 40 seconds, the "MN" lamp turns on.

  - The system has loaded the Resident System Program.

Note: *If the "MJ" lamp is lit, repeat Step 2.*

STEP 3: Set SW3 to the "0" position and press SW1.

  - The operating mode has been changed to the ON LINE mode.

Note: *Refer to the System Data Sheet for additional information on the Resident System Program and the initialization of the system without a MAT (enabling CAT mode).*

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2. SYSTEM DATA ENTRY

- There are two methods for data entry, both of which employ a Customer Administration Terminal (CAT) or a Maintenance Administration Terminal (MAT).

2.1 CAT

Any Multiline Terminal can be assigned as a CAT terminal through programming. The Multiline Terminal can still be used as a regular telephone when it is not in CAT mode. If the system is initialized by "C" (Resident System Program), every Multiline Terminal will be able to go into CAT mode. If the system is initialized by "B" (All Clear), only LEN0000 is assigned as a CAT port (the DLC card must be installed in slot LT00).

To use a Multiline Terminal as a CAT, follow the procedures shown below.

To set CAT mode:

(1) Press ☐ TRF

(2) Press ☐ CNF

    - CNF lamp flashes

(3) Press ☐ ∗

    - CNF lamp is off

(4) Press ☐ TRF

(5) Press ☐ CNF

    - CNF lamp flashes

(6) Press ☐ #

    - CNF, SPKR, ANS lamps are lit
    - "CAT MODE" is displayed on the LCD

(7) Press ☐ ST

    - "COMMAND = -" is displayed on the LCD

Note: *Steps 1 through 6 need to be completed within four (4) seconds.*

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Precautions Required

To reset CAT mode:

While "COMMAND = -" is displayed on the LCD:

(1) Lift the handset (off hook)

- SPKR lamp turns off.

(2) Restore the handset (on hook)

- CNF, ANS lamps turn off.
- LCD returns to clock.

2.2 MAT

In addition to the CAT mode programming, the MAT can also be used in the MAT mode. Refer to the MAT Operation Guide and the Command Manual.

2.3 Feature Programming

This section provides the feature programming (Music On Hold, Push Button Calling) related to the internal PB Receiver and internal TNT on the MP card. For the other feature programming, refer to the Feature Programming Manual.

In the programming procedure, the meaning of (1), (2) and marking are as follows:

(1) : 1st Data
(2) : 2nd Data
◀ : Initial Data
   With the system data clear command (CM00, CM01), the data with this marking (◀) is automatically assigned for each command.

(INITIAL) : System Initialization

After entering the data, system initialization is required (Depress SW1 of MP card).

(1)   Programming Procedure for Music On Hold

For providing Hold Tone Source on the MP card:

START	**DESCRIPTION**	**DATA**
CM08	Select the music to be provided.	(1) 183 (2) 0: Nocturne 1◄ : Minuet

CM48	Define the type of call to be provided with Hold Tone on the MP card.
	
	Note: *When using the MP card, set the JP1 switch to UP (Internal Hold Tone Source).*
		. Y = 0
		(1) 00: C.O. Line Call
		     01: Tie Line Call
		     02: Internal Call
		(2) 1400: Hold Tone Source on MP card

END		
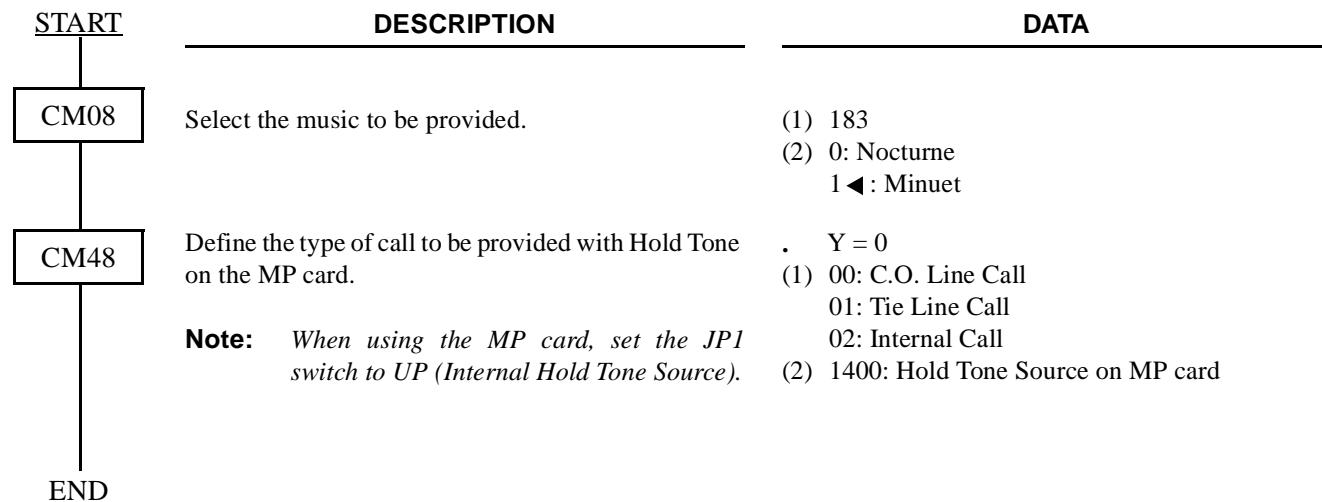
For providing External Hold Tone Source through the MP card:

START	**DESCRIPTION**	**DATA**

CM48	Define the type of call to be provided with Hold Tone.	. Y = 0
		(1) 00: C.O. Line Call
		     01: Tie Line Call
		     02: Internal Call
		(2) 1400: Hold Tone Source through MP card

END		
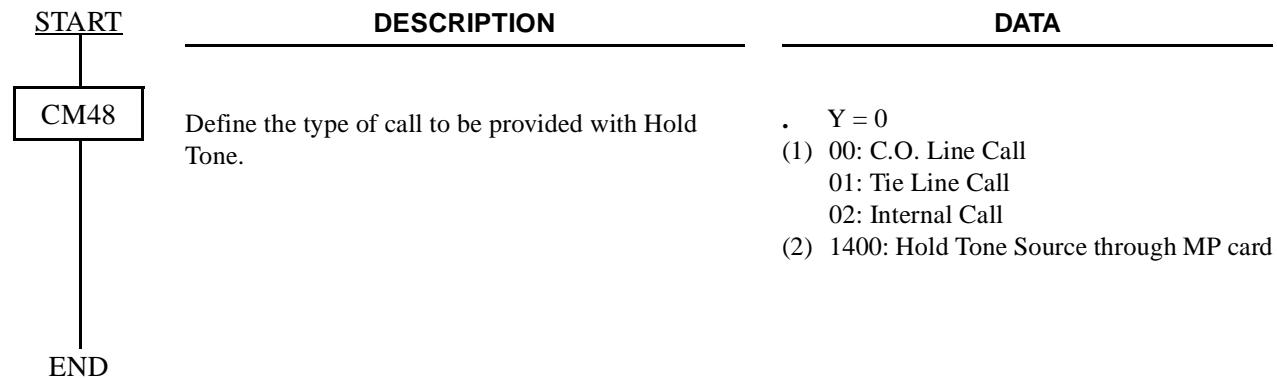
For providing External Hold Tone Source through MP card:

- External Hold Tone Source provided locally

    For connecting the External Hold Tone Source, plug the cable into JACK on the MP card.
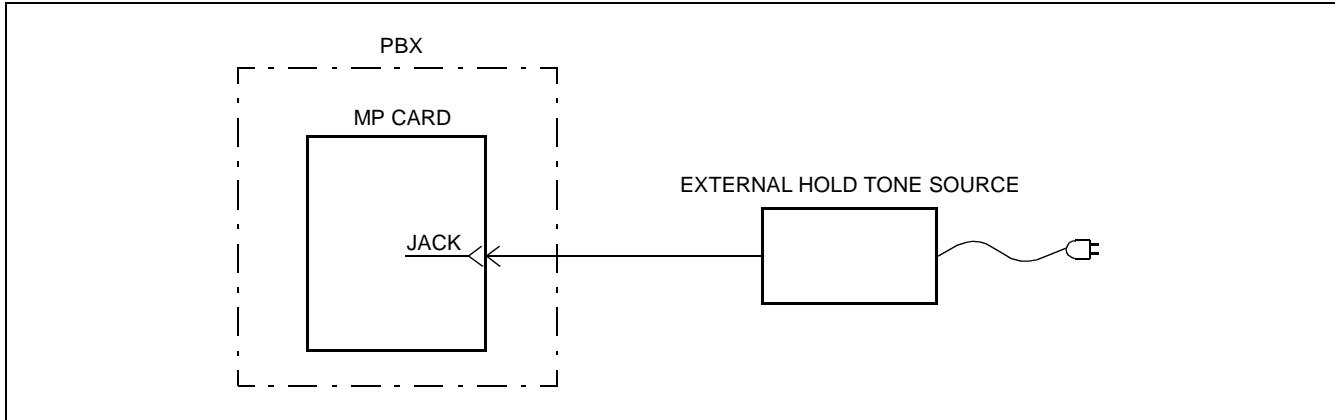
Set the switches on the MP card as follows:
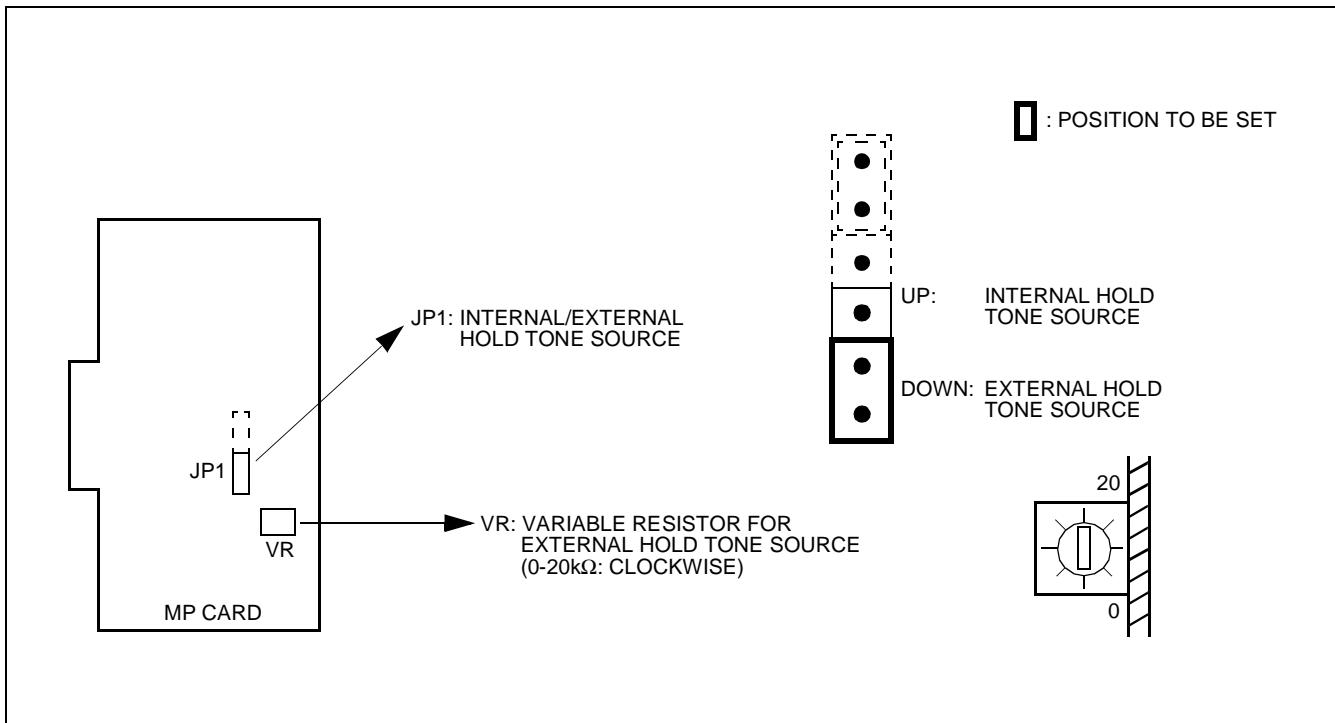
For providing Hold Tone Source on the MP card: Set the JP1 switch to UP.

(2)   Programming Procedure for Push button Calling

START	**DESCRIPTION**	**DATA**

CM10

Assign the Card Number of internal PB Receiver to the LEN No. 0124.   (INITIAL)

(1) LEN: 0124
(2) E200-E203 (PB Receiver No.)

Note: *When using the internal PB Receiver on the MP card, assign the Card No. E200-E203 to the LEN No. 0124.*

If resident load is used, PB Receiver ports (E200-LENS 0124) are automatically assigned.

CM12

Assign the type of telephone set (DTMF) to DTMF Stations.
This data assignment is not required for Multiline Terminal station.

. YY = 00
(1) X-XXXX (Station No.)
(2) 2 : DTMF Telephone set

CM45

Assign PB Receivers for use with DTMF Stations.

. Y = 0 (Make Busy)
(1) XX X
       └ Circuit No. 0-3
       ── Card No. 00-03 assigned by CM10(E200-E203)

(2) ◄ :Make Busy Cancel

. Y = 1 (Purpose)
(1) XXX (Ditto to Y = 0)
(2) 1 ◄ :For both DTMF station and Tie Line/DID

A

A	DESCRIPTION	DATA

CM35

Assign the type of signaling (DTMF) for Outgoing and Bothway Trunk Routes.

- . YY = 01
- (1) Trunk Route No. (00 - 63)
- (2) 7◀

Specify the DTMF Sender characteristics to match the distant office.

- . YY = 24 (DTMF Inter Digital Pause)
- (1) Trunk Route No. (00 - 63)
- (2)
  - 0 : 32ms
  - 1 : 64ms
  - 2 : 80ms
  - 3 : 96ms
  - 4 : 160ms
  - 5 : 192ms
  - 6 : 240ms
  - 7◀ : 128ms

- . YY = 26 (DTMF Sender Signal Width)
- (1) Trunk Route No. (00 - 63)
- (2) 0/1◀ : 64ms/128ms

- . YY = 46 (DTMF Sender Release Timing)
- (1) Trunk Route No. (00 - 63)
- (2)
  - 0 : 2sec.
  - 1 : 4sec.
  - 2 : 6sec.
  - 3 : 8sec.
  - 4 : 12sec.
  - 5 : 14sec.
  - 6 : 16sec.
  - 7◀ : 10sec.

CM08

Assign whether "*" or "#" from a DTMF Telephone is used as Switch Hook Flash while hearing Busy Tone.

- (1) 050 (* is used as Switch Hook Flash)
- (2) 0: Available
- (1) 052 (# is used as Switch Hook Flash)
- (2) 0: Available

END

1. OPERATION TEST

Confirm the entered system data and hardware, including cable connection, by completing the following operational tests.

- Basic Connection Test at MDF

    - Station Line Test (Operator Call from all stations)
    - Central Office Trunk Test (Incoming, Outgoing)
    - Tie Line Trunk Test (Incoming, Outgoing)

- Service Feature Test

    - Call Transfer
    - Step Call
    - Executive Right of Way
    - Call Hold
    - Call Back
    - Call Forwarding-All Calls/No Answer/Busy Line
    - Call Pickup
    - Station Hunting-Pilot/Circular
    - Speed Calling-System/Station
    - Paging Access
    - Announcement Service
    - etc.

1. CLEANING

Clean the following places:

- Inside of the main equipment, especially the bottom of the base.

- On the Top Cover.

- Around the Main Equipment and the MDF.

- Keyboard on the Attendant Console.

2. VISUAL CHECK

(1) Check to see if all circuit cards are in their positions correctly.

(2) Check that the cable connections in the PIM are correctly and completely connected, and the routing of the cables has been done smoothly and neatly.

(3) Check to see if the MAT is removed.

1. MOUNTING OF THE FRONT COVER

Mount the Front Cover onto PIM and attach them with screw provided.
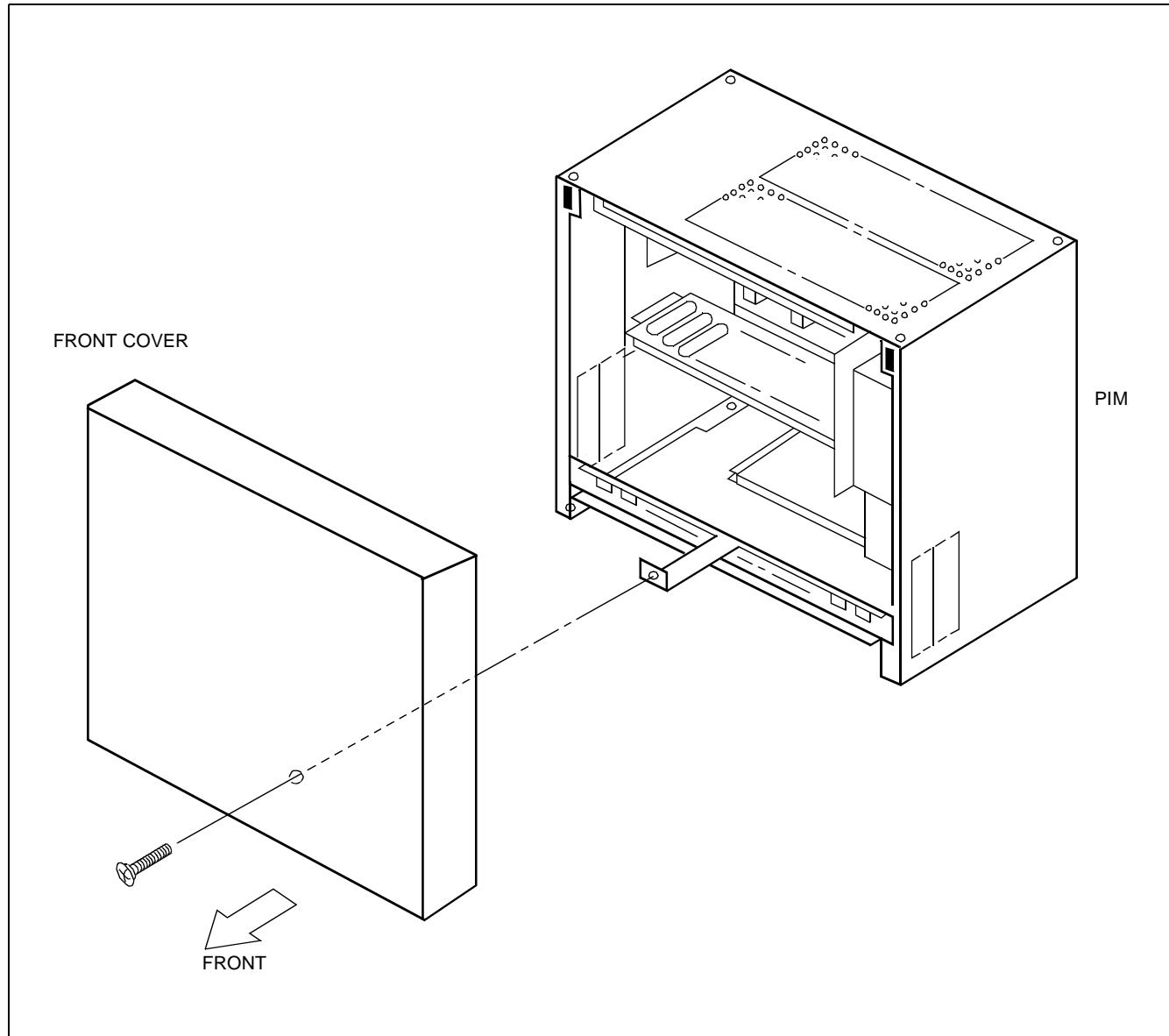
Figure 013-1 Mounting of the Front Cover

CHAPTER 4   OFFICE DATA PROGRAMMING

1.   CUSTOMIZING DATA

1.1   Data Programming Procedure

Table 4-1 shows the procedure and the outline of the work related data programming for the system.

The various data programmed in this Chapter are entered into the system through the CAT/MAT.

Table 4-1   Data Programming Procedure

STEP	WORK	REMARKS
1	Obtain the customer's requirements, and fill in the Customer Specification Sheets on Section 1.3.	
2	Allocate the LC, TRUNK and other interface cards to the Port Assignment Table on Section 1.2.7. Make a Bay Face Layout on Section 1.4.2 for accommodating cards required in the system.	
3	Fill in the data programming sheets on Section 2 with the Customer Specification Sheet, Port Assignment Table and Bay Face Layout completed as steps 1 and 2.	For the programming method and the detailed information on the Command, refer to the Command Manual.
4	Ensure that the data on all programming sheets are correct and consistent with customer specifications.	
5	Specify the switch setting on the boards with the Switch Setting Table in the Circuit Card Manual.	For the function of each switch on the cards, refer to the Circuit Card Manual.

1.2   General Information on Customizing Data

1.2.1   Numbering Plan

This table specifies the service feature access codes, trunk access code, station numbers and other special access codes. The service feature access codes and trunk access codes are given to each service feature and each trunk routes, respectively, with a maximum three-digit code. The station numbers are specified by a maximum of four digits.

For the numbering plan of the system the following conditions should be considered.

(1)   The same first digit code cannot be assigned to the other features within the Numbering Plan Group programmed. (This condition is not applicable to the system providing the Single Digit Timing Start Access.)

(2)   The feature access codes should be two or three digits because multiple access codes for each feature are required.

(3)   There are four types of station numbering (1 digit – 4 digits), and any combination of these types is available in one system.

(4)   The same station number cannot be assigned, even if the tenant service is applied.

1.2.2 Station Data

In this table, the following data are required.

- Station Number: Station numbers (up to four digits), specified in the Numbering Plan Table, are assigned. For the Multiline Terminal station, specify the Primary Extension Number.

- Type of Telephone

    The type of station telephone set is specified as shown below.

TYPE OF TEL	DESCRIPTION
DP...................................	Dial Pulse Telephone set
PB	DTMF Telephone set
Multiline Terminal..........	Multiline Terminal set

- SERVICE CLASS-A/B/C

    Specify the service class (1-15) programmed in the Service Restriction Data Table.

- RESTRICTION CLASS-DAY/NIGHT

    Specify the Trunk Restriction Class as shown below.

    1: Unrestricted
    2: Non-Restricted-1
    3: Non-Restricted-2
    4: Semi-Restricted 1
    5: Semi-Restricted 2
    6: Restricted 1
    7: Restricted 2
    8: Fully-Restricted

- DIT TRUNK NUMBER

    In the case of the DIT (Direct-In Termination) station, specify the trunk number connected.

1.2.3 Trunk Data

In this table, the following data are required:

- ACCESS NUMBER

    Specify the access code for the trunks.

- DESTINATION

    Specify the distant office such as Central Office (Public Exchange), Tie Line, etc.

- NUMBER OF LINE

   Specify the number of trunks to be provided with each route (IC-Incoming, OG-Outgoing, BW-Bothway).

- DP/PB

   Specify the type of address signal from/to distant office, as shown below.

TYPE OF TEL	DESCRIPTION
DP	Dial Pulse
PB	DTMF Signal

- KIND OF SIGNAL

   Specify the kind of signaling system such as Ring Down, Loop, E & M etc. at the line.

1.2.4 Station Hunting Group Data

   This data table requires the following data:

- KIND OF STATION HUNTING

   Specify the kind of the Station Hunting System (Pilot/Circular/Switch Back). In the case of the Pilot System, specify the Pilot Station Number.

- SECRETARY STATION

   Specify the Secretary Station Number, if provided.

- STATION NUMBER

   Specify the station numbers to be assigned to the station hunting group with the following conditions.

   (1) Up to 60 stations can be assigned per Station Hunting Group.

   (2) There is no limitation to the number of Station Hunting Groups.

   The same one station cannot be assigned to multiple Hunting Groups.

1.2.5 Call Pickup Group Data

The station number to be assigned to the Call Pickup Group with the following conditions.

   (1) Up to 60 station can be assigned per Call Pickup Group.

   (2) There is no limitation to the number of Call Pickup Groups.

   (3) The same one station cannot be assigned to multiple Call Pickup Groups.

1.2.6 Speed Calling-System Data

This data table requires the abbreviated code and the stored number to be sent out. A maximum stored number of 28 digits can be assigned.

1.2.7 Port Assignment Table

Specify the station number or trunk number corresponding to the LEN (Line Equipment Number) as shown in Table 4-2. The LEN means physical location number within the PIM.

Table 4-2 Port Assignment Method

CARD TO BE ASSIGNED	PORT ASSIGNMENT TABLE	REMARKS
PN-8LC PN-8DLC	LT00 LEVEL 7 — 207 / 0007 LEVEL 6 — 206 / 0006 LEVEL 5 — 205 / 0005 LEVEL 4 — 204 / 0004 LEVEL 3 — 203 / 0003 LEVEL 2 — 202 / 0002 LEVEL 1 — 201 / 0001 LEVEL 0 — 200 / 0000 Station No. /Trunk No. (D000-D255)	• For the PN-8DLC, specify the Primary Extension Numbers of Multiline Terminal as shown below. F<u>XXX</u> Primary Extension Number
PN-4LC PN-4DLC	LT00 LEVEL 7 — – / 0007 LEVEL 6 — – / 0006 LEVEL 5 — – / 0005 LEVEL 4 — – / 0004 LEVEL 3 — 203 / 0003 LEVEL 2 — 202 / 0002 LEVEL 1 — 201 / 0001 LEVEL 0 — 200 / 0000 Not to be used Station No.	• The station number must be assigned to the 1st LEN (LEVEL 0) through 4th LEN (LEVEL 3) of each LT slot. • For the PN-4DLC, specify the Primary Extension Numbers of Multiline Terminal as shown below. F<u>XXX</u> Primary Extension Number

Table 4-2 Port Assignment Method (Continued)

CARD TO BE ASSIGNED	PORT ASSIGNMENT TABLE	REMARKS
PN-AUC PN-2DLC	LT00 LEVEL 7 – / 0007 ← Not to be assigned LEVEL 6 – / 0006 ← LEVEL 5 – / 0005 ← LEVEL 4 – / 0004 ← LEVEL 3 – / 0003 ← LEVEL 2 – / 0002 ← LEVEL 1 201 / 0001 ← Station No. LEVEL 0 200 / 0000 ←	• The station number must be assigned to the 1st LEN (LEVEL 0) and/or 2nd LEN (LEVEL 1) of each LT slot. • For the PN-2DLC, specify the Primary Extension Numbers of Multiline Terminal as shown below. F<u>XXX</u> Primary Extension Number
PN-4COT PN-4DIT	LT00 LEVEL 7 – / 0007 ← Not to be assigned LEVEL 6 – / 0006 ← LEVEL 5 – / 0005 ← LEVEL 4 – / 0004 ← LEVEL 3 D003 / 0003 ← Trunk No. (D000-D255) LEVEL 2 D002 / 0002 ← LEVEL 1 D001 / 0001 ← LEVEL 0 D000 / 0000 ←	• The trunk number must be assigned to the 1st LEN (LEVEL 0) through 4th LEN (LEVEL 3) of each LT slot.
PN-AUC PN-2ODT	LT00 LEVEL 7 – / 0007 ← Not to be assigned LEVEL 6 – / 0006 ← LEVEL 5 – / 0005 ← LEVEL 4 – / 0004 ← LEVEL 3 D003 / 0003 ← LEVEL 2 D002 / 0002 ← LEVEL 1 D001 / 0001 ← Trunk No. (D000-D255) LEVEL 0 D000 / 0000 ←	• The trunk number must be assigned to the 1st LEN (LEVEL 0) and/or 2nd LEN (LEVEL 1) of each LT slot.

Table 4-2 Port Assignment Method (Continued)

CARD TO BE ASSIGNED	PORT ASSIGNMENT TABLE	REMARKS
PN-2DAT		• The card number must be assigned to the 1st LEN (LEVEL 0) and/or 3rd LEN (LEVEL 2) of each LT slot.
PN-8RST		• The card number must be assigned to the 1st LEN (LEVEL 0) and/or 3rd LEN (LEVEL 2) of each LT slot. **Note :** *When using the internal DTMF Receiver on the MP card, assign the Card No. E200 to the LEN No. 0124.*
PN-DK00		• The card number must be assigned to the 1st LEN (LEVEL 0) and/or 3rd LEN (LEVEL 2) of each LT slot. • The card numbers of External Equipment Interface are E800-E807. • The card numbers of External Key Interface are E900-E915.

Table 4-2 Port Assignment Method (Continued)

CARD TO BE ASSIGNED	PORT ASSIGNMENT TABLE	REMARKS
PN-CFT	LT00 LEVEL 7 — 0007 → Not to be assigned LEVEL 6 — 0006 LEVEL 5 — 0005 LEVEL 4 — 0004 LEVEL 3 — 0003 LEVEL 2 — 0002 LEVEL 1 — 0001 LEVEL 0 ED00 0000 ← Card No. (ED00-ED03)	• The card number must be assigned to the 1st LEN (LEVEL 0) of each LT slot.
PN-2DPC	LT00 LEVEL 7 — 0007 → Not to be assigned LEVEL 6 — 0006 LEVEL 5 — 0005 LEVEL 4 — 0004 LEVEL 3 — 0003 LEVEL 2 F201 0002 ← Primary Extension No. (FX-FXXXX) LEVEL 1 — 0001 LEVEL 0 F200 0000	• To assign the Data Station Number to the PN-2DPC by CM1A, specify the Primary Extension Number of Multiline Terminal as a dummy station number. • The Primary Extension Number must be assigned to the 1st LEN (LEVEL 0) and/or 3rd LEN (LEVEL 2) of each LT slot.
PN-TNT	LT00 LEVEL 7 — 0007 → Not to be assigned LEVEL 6 — 0006 LEVEL 5 — 0005 LEVEL 4 — 0004 LEVEL 3 — 0003 LEVEL 2 DA09 0002 ← Card No. (DA00-DA09) LEVEL 1 — 0001 LEVEL 0 DA00 0000	• The card number must be assigned to the 1st LEN (LEVEL 0) and/or 3rd LEN (LEVEL 2) of each LT slot.

Table 4-2 Port Assignment Method (Continued)

CARD TO BE ASSIGNED	PORT ASSIGNMENT TABLE	REMARKS
PN-2AMP		• The card number must be assigned to the 1st LEN (LEVEL 0) and/or 3rd LEN (LEVEL 2) of each LT slot.
PN-2ILC		• The ISDN circuit station number must be assigned to the 1st LEN (LEVEL 0) and/or 2nd LEN (LEVEL 1) of each LT slot.

1.3 Customer Specification Sheets

This section provides the various sheets for designing the customer specifications of the PBX.
The office data required for customizing the system are programmed with the customer specification.
The installer should complete the following sheets by referring the RESIDENT SYSTEM PROGRAM in the Command Manual and GENERAL INFORMATION ON CUSTOMIZING DATA in Section 1.2 of Chapter 4.

1.3.1 Numbering Plan

Table 4-3 Numbering Plan Data Table

Numbering Plan Group		PROGRAMMING: CM20, 21
ACCESS CODE	**FUNCTIONS**	**REMARKS**

Note :   *If space is insufficient, use copies.*

1.3.2 Station Data

Table 4-4 Station Data Table

Department or Section		Tenant		PROGRAMMING: CM10,11,12,13,15

STATION NUMBER	TYPE OF TEL	SERVICE CLASS		RESTRICTION CLASS		DID TRUNK NUMBER	REMARKS
		A	B	DAY	NIGHT		

Note : *If space is insufficient, use copies.*

1.3.3 Trunk Data

Table 4-5 Trunk Data Table

PROGRAMMING: CM10, 30, 35, 36

ACCESS NUMBER	DESTINA-TION	KIND OF TRUNK	TYPE OF TRUNK	NUMBER OF LINE	DP/PB	KIND OF SIGNAL	REMARKS
			IC				
			OG				
			BW				
			IC				
			OG				
			BW				
			IC				
			OG				
			BW				
			IC				
			OG				
			BW				
			IC				
			OG				
			BW				
			IC				
			OG				
			BW				
			IC				
			OG				
			BW				
			IC				
			OG				
			BW				
			IC				
			OG				
			BW				
			IC				
			OG				
			BW				

Note : *If space is insufficient, use copies.*

1.3.4   Station Hunting Group Data

Table 4-6 Station Hunting Group Data Table

PROGRAMMING: CM18

KIND OF STATION HUNTING	KIND OF STATION HUNTING	KIND OF STATION HUNTING	KIND OF STATION HUNTING
Pilot ( )	Pilot ( )	Pilot ( )	Pilot ( )
Circular	Circular	Circular	Circular
Switch Back	Switch Back	Switch Back	Switch Back

SECRETARY STATION	SECRETARY STATION	SECRETARY STATION	SECRETARY STATION

STATION NUMBER	STATION NUMBER	STATION NUMBER	STATION NUMBER

Note :   *If space is insufficient, use copies.*

1.3.5 Call Pickup Group Data

Table 4-7 Call Pickup Group Data Table

PROGRAMMING: CM16

STATION NUMBER	STATION NUMBER	STATION NUMBER	STATION NUMBER

Note :   *If space is insufficient, use copies.*

1.3.6   Speed Calling-System Data

Table 4-8 Speed Calling-System Data Table

PROGRAMMING: CM71, 72

ABBREVIATED CODE	SENDING NUMBER	REMARKS

Note :   *If space is insufficient, use copies.*

1.4 System Configuration

1.4.1 Port Assignment Table

Table 4-9 Port Assignment Table

PIM

	LT00	LT01	LT02	LT03	LT04	LT05	LT06	LT07	LT08	LT09	LT10
LT SLOT NO. →											
	0007	0015	0023	0031	0039	0047	0055	0063	0071	–	–
	0006	0014	0022	0030	0038	0046	0054	0062	0070	–	–
	0005	0013	0021	0029	0037	0045	0053	0061	0069	–	–
FILL THE BLANK WITH THE STATION/TRUNK NO. →	0004	0012	0020	0028	0036	0044	0052	0060	0068	–	–
	0003	0011	0019	0027	0035	0043	0051	0059	0067	0075	0083
	0002	0010	0018	0026	0034	0042	0050	0058	0066	0074	0082
	0001	0009	0017	0025	0033	0041	0049	0057	0065	0073	0081
LEN →	0000	0008	0016	0024	0032	0040	0048	0056	0064	0072	0080

Note : *When using the internal DTMF Receiver on the MP card, assign the Card No. E200 to the LEN No. 0124.*
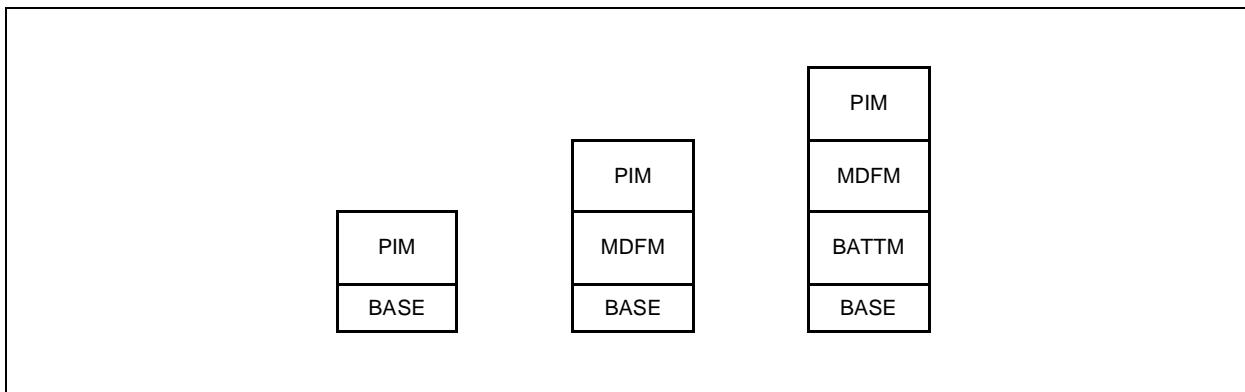
1.4.2 Bay Face Layout for Module

Figure 4-1 Module Configuration (Floor Standing)

Table 4-10 Quantity Table for Module

FUNCTIONAL NAME	MODULE	QUANTITY	REMARKS
PIM	SN1308 PIMQ-UA		
BASE	SN1357 BASEK-A /SN1356 BASEJ-A		
MDFM	SN1228 MDFM-A		
19" BRACKET (F)	19" BRACKET (F)		
RACK PARTS	RACK PARTS		
BOTTM COVER	COVER PARTS		

1.4.3 Quantity Table for Circuit Cards

Table 4-11 Quantity Table for Line/Trunk Circuit Cards

FUNCTIONAL NAME (CARD NAME)	QUANTITY	FUNCTIONAL NAME (CARD NAME)	QUANTITY
AMP (PN-2AMP)		DLC (PN-8DLC)	
AUC (PN-AUC)		DPC (PN-2DPC)	
CFT (PN-CFT)		ILC (PN-2ILC)	
COT (PN-4COT)		LC (PN-4LC)	
DAT (PN-2DAT)		LC (PN-8LC)	
DIT (PN-4DIT)		M03 (PN-M03)	
DK (PN-DK00)		ODT (PN-2ODT)	
DLC (PN-2DLC)		PBR (PN-8RST)	
DLC (PN-4DLC)		TNT (PN-TNT)	

Table 4-12 Quantity Table for Control Circuit Cards

FUNCTIONAL NAME (CARD NAME)	QUANTITY	FUNCTIONAL NAME (CARD NAME)	QUANTITY
MP (PN-CP03)	1	PWR (PZ-PW86)	1

Table 4-13 Quantity Table for Application Circuit Cards

FUNCTIONAL NAME (CARD NAME)	QUANTITY	FUNCTIONAL NAME (CARD NAME)	QUANTITY
AP00 (PN-AP00)		DTI (PN-24DTA)	
AP01 (PN-AP01)		ETHER (PN-CC00)	
BRI (PN-BRTA)		EXTMEM (PN-ME00)	
CCH (PN-SC00)		ICH (PN-SC02/SC03)	
CIR (PN-4RSTC)		MFR (PN-4RST)	
DCH (PN-SC01)		PLO (PN-CK00)	