NEC

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ISSUE 1.0.1

NEAX7400 ICS

Model 120
Installation Procedure Manual

OCTOBER, 1995

NEC Australia Pty. Ltd.

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IMPORTANT SAFETY CONSIDERATIONS

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 moving telephone lines.

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. Read and understand all instructions.

2. Follow all warnings and instructions marked on the product.

3. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

4. 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. 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.

5. 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.

6. 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.

7. Do not allow anything to rest on the power cord. Do not locate this product where the cord will be damaged by persons walking on it.

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

9. 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.

10. To reduce the risk of electric shock, do not disassemble this product, but refer all repairs to qualified service personnel. 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.

11. 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.

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

13 Do not use the telephone to report a gas leak in the vicinity of the leak.

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CHAPTER

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CHAPTER 1 INTRODUCTION

1. PURPOSE

This manual explains the installation procedure for the NEAX7400 ICS Model 120 PABX. Before engaging in installation , the installer is required to confirm materials to be prepared and the site conditions. Thereafter, the installer should perform each installation step according to the procedures described in Section 2 of Chapter 3.

2. REFERENCE MANUALS

During installation, refer also to the manuals below:

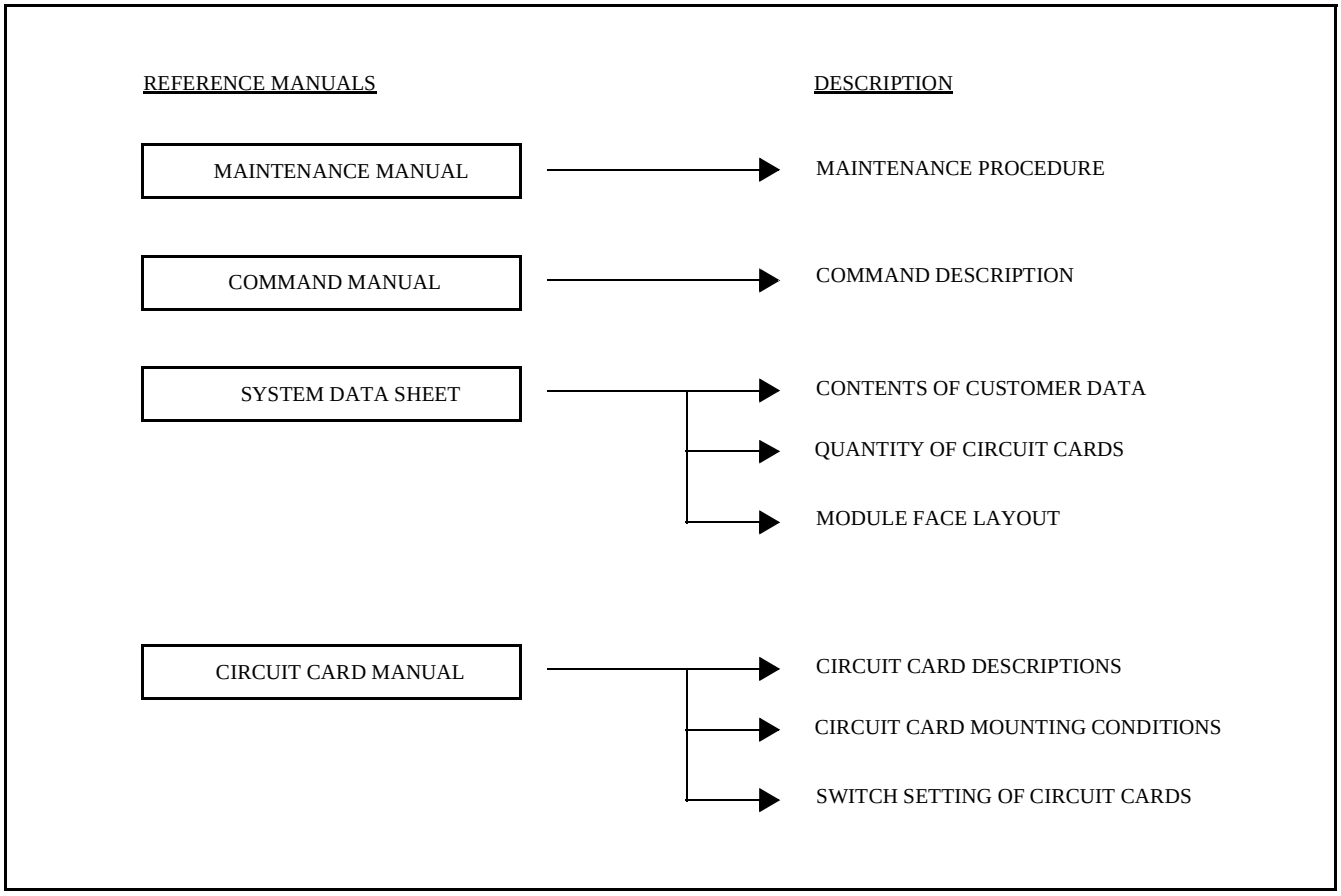


Figure 1-1 Reference Manuals for Installation

3. HOW TO FOLLOW THE MANUAL

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

4. SCOPE OF INSTALLATION WORKS

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

Note: *A Battery Module (BATTM) and a TPF/MDF Module (MDFM) are also available as options. These units have identical dimensions to a PIM.*

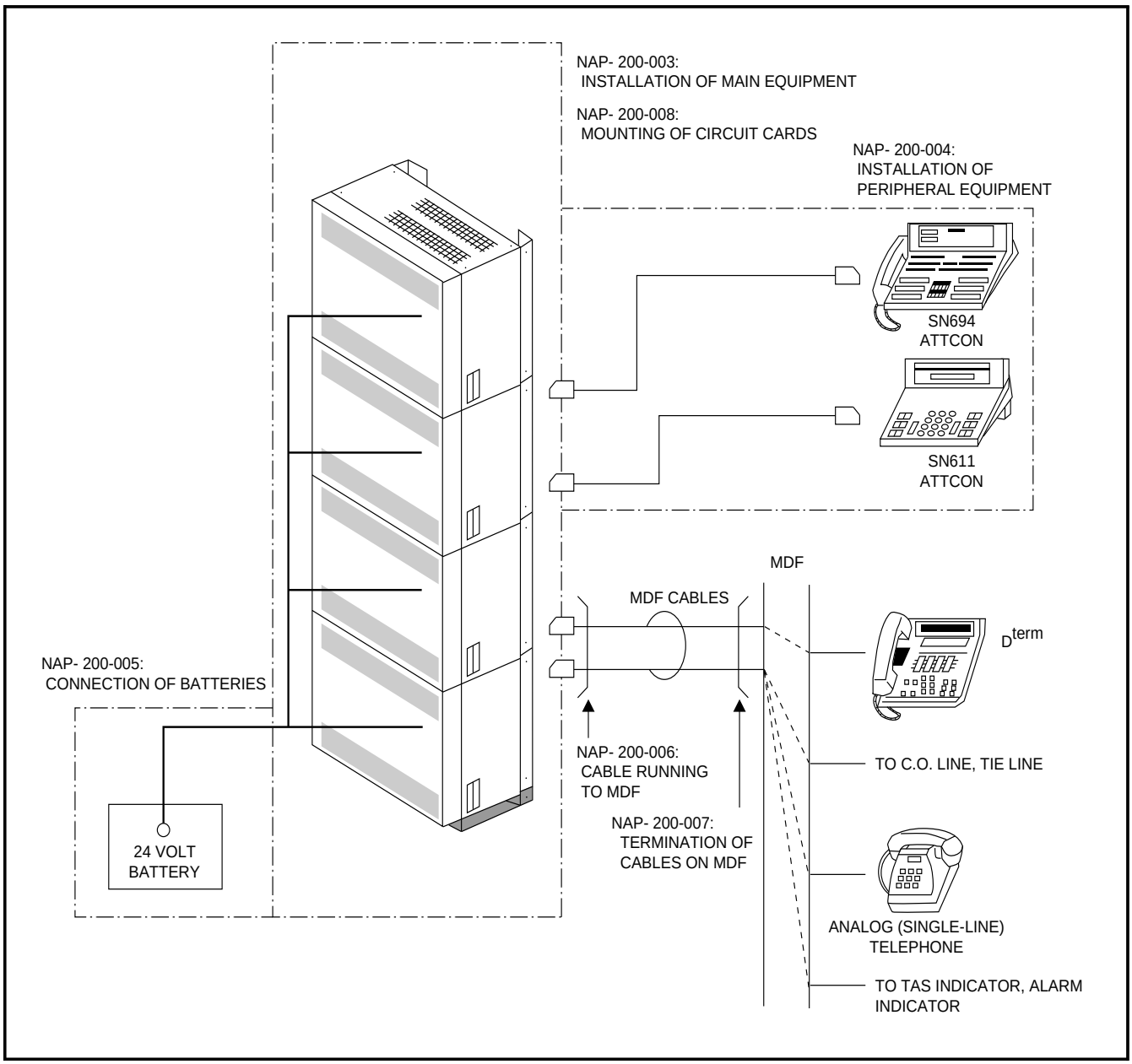
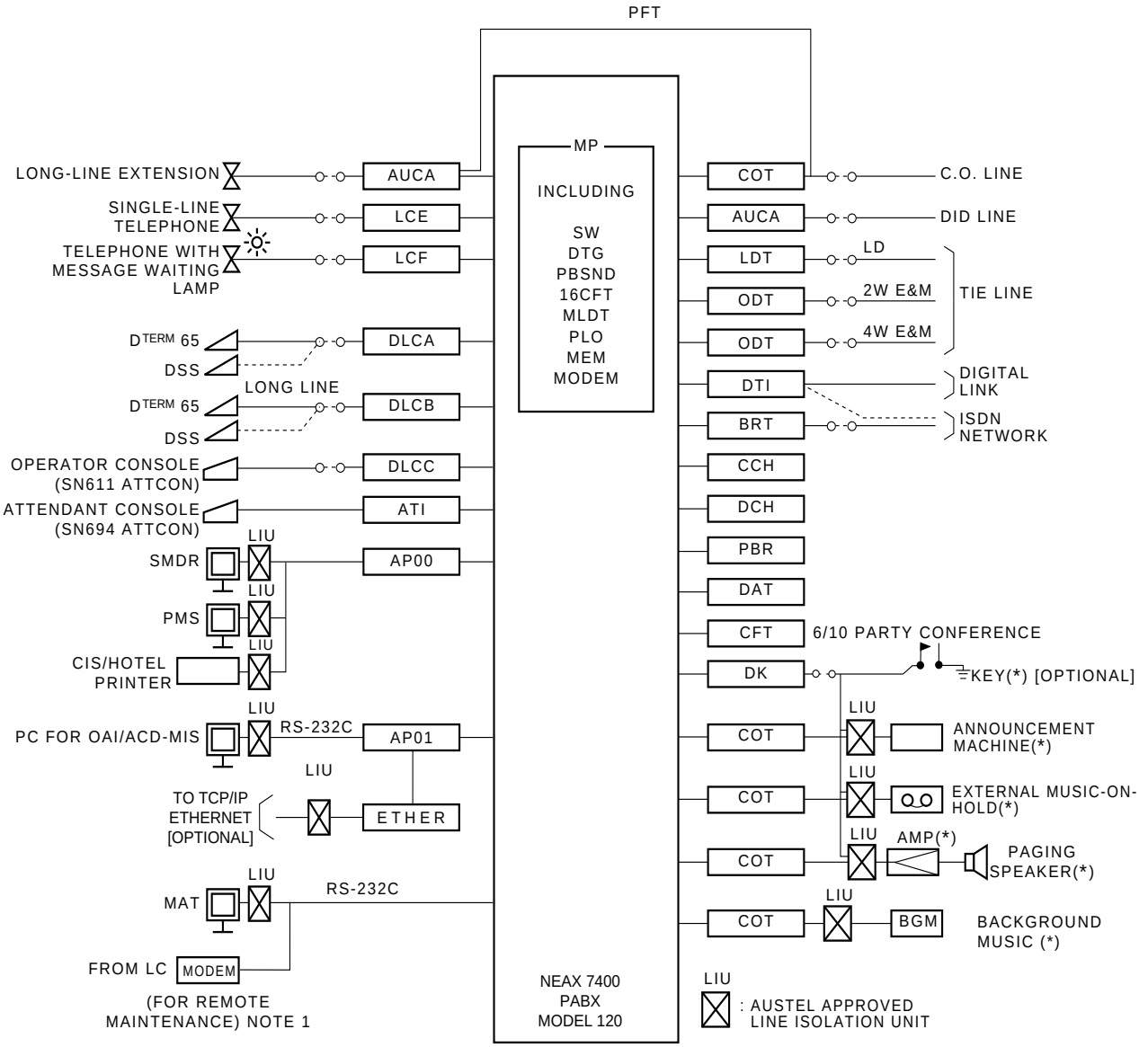


Figure 1-2: Scope of Installation Procedures

CHAPTER 2 GENERAL INFORMATION

1. TRUNKING DIAGRAM

A typical trunking diagram for the PABX is shown in Figure 2-1.



Note 1: *The 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 PABX Trunking Diagram

Table 2-1: Description of Symbols in Trunking Diagram

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
AMP	Amplifier for External Speaker	ETHER	Enternet Controller, for use with AP01
AP00	SMDR/Hotel Application Card	FP	Firmware Processor Card
AP01	OAI Interface Card	KEY	External Key
ATI	SN694 ATTCON Interface Card	LCE	Line Circuit Card (for Single Line Telephone)
AUCA	Analog Universal Circuit Card (Long Line Circuit, DID Trunk, PFT Circuit)	LCF	Line Circuit Card (for Single Line Telephone, with MW Lamp)
BGM	External Music Source for D^{term} Background Music Service	LDT	Loop Dial Trunk Card
BRT	Basic Rate Interface Trunk Card	MAT	Maintenance Administration Terminal
CCH	Common Channel Handler Card	MDF	Main Distribution Frame
CFT	6/10 party Conference Trunk Card	MEM	Main Memory
CIS	Call Information System	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
DK	External Relay/Key Interface Card	PMS	Property Management System
DLCA	Digital Line Circuit Card (for D^{term})	ODT	OD Trunk Card (2/4 wire E&M)
DLCB	Digital Line Circuit Card (for D^{term} Long Line)	PBR	PB Receiver Card
DLCC	Digital Line Circuit Card (for SN611 ATTCON and D^{term} 6D/16D).	PBSND	PB Sender
DSS	DSS Console	PLO	Phase Lock Oscillator
DTI	Digital Trunk Interface Card	SMDR	Station Message Detail Recording
DTG	Digital Tone Generator	SW	Time Division Switch
		16CFT	16 Circuit Three Party Conference Trunk

Note: *For details of circuit cards, refer to the Circuit Card Manual.*

2. SYSTEM CONFIGURATIONS

The PABX system provides three kinds of installation methods as follows:

- Floor Standing Installation
- Wall-Mounting Installation
- 19-Inch Rack-Mounting Installation

Examples of system configurations for each installation method are shown in Figures 2-2 to 2-6.

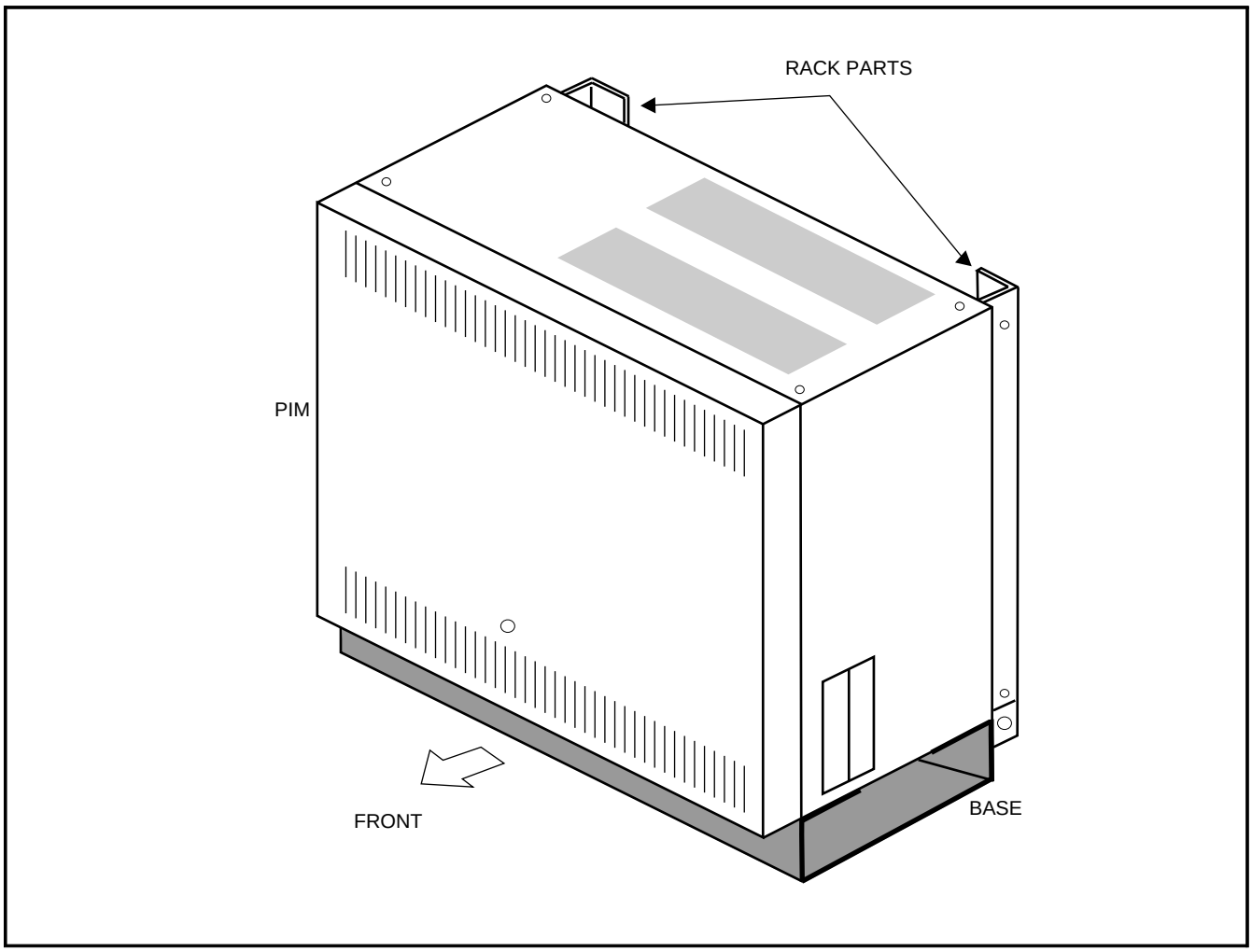


Figure 2-2 1-PIM Configuration for Floor Standing Installation

Note: *The configuration shown applies only to installations which connect to an existing MDF. If the MDFM and/or BATTM are to be used, only wall-mounting or rack mounting configurations are permitted. Refer to Figures 002-2 and 003-5 to 003-13.*

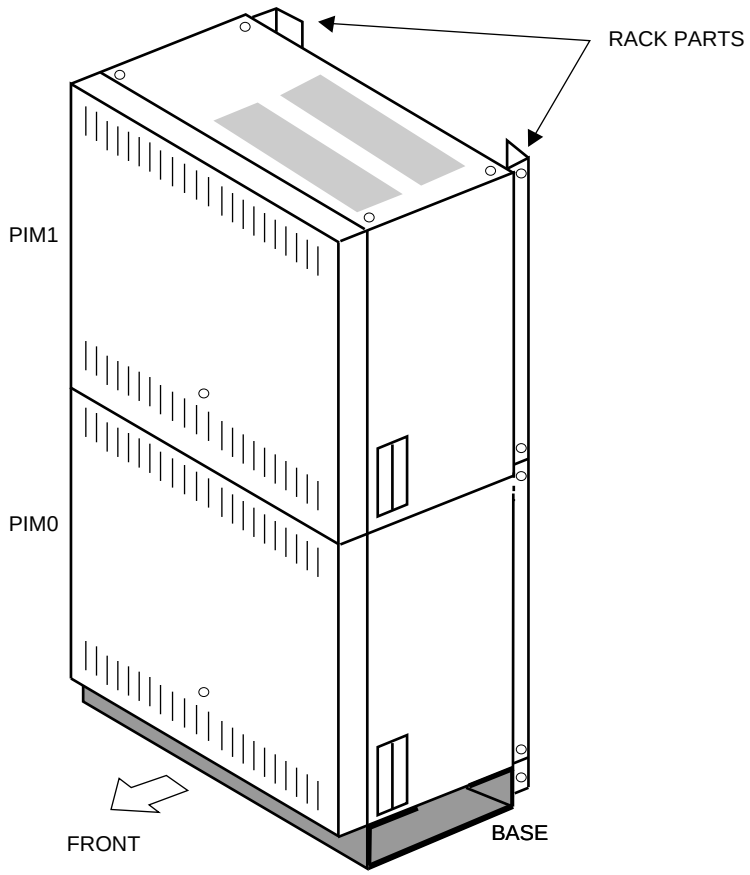


Figure 2-3 2-PIM Configuration for Floor Standing Installation

Note: *The configuration shown applies only to installations which connect to an existing MDF. If the MDFM and/or BATTM are to be used, only wall-mounting or rack mounting configurations are permitted. Refer to Figures 002-2 and 003-5 to 003-13.*

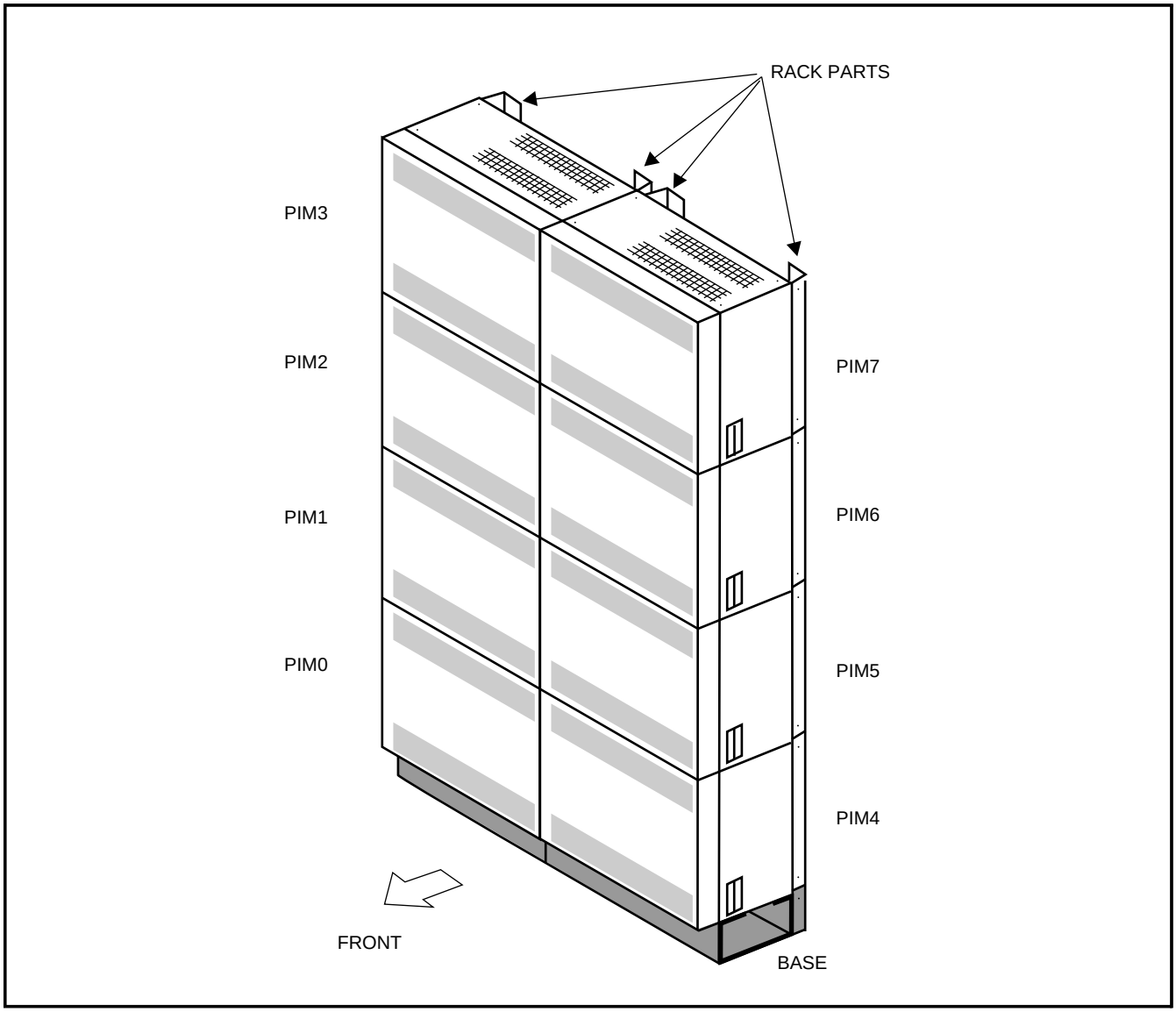


Figure 2-4 8-PIM Configuration for Floor Standing Installation

Note: *The configuration shown applies only to installations which connect to an existing MDF. If the MDFM and/or BATTM are to be used, only wall-mounting or rack mounting configurations are permitted. Refer to Figures 002-2 and 003-5 to 003-13*

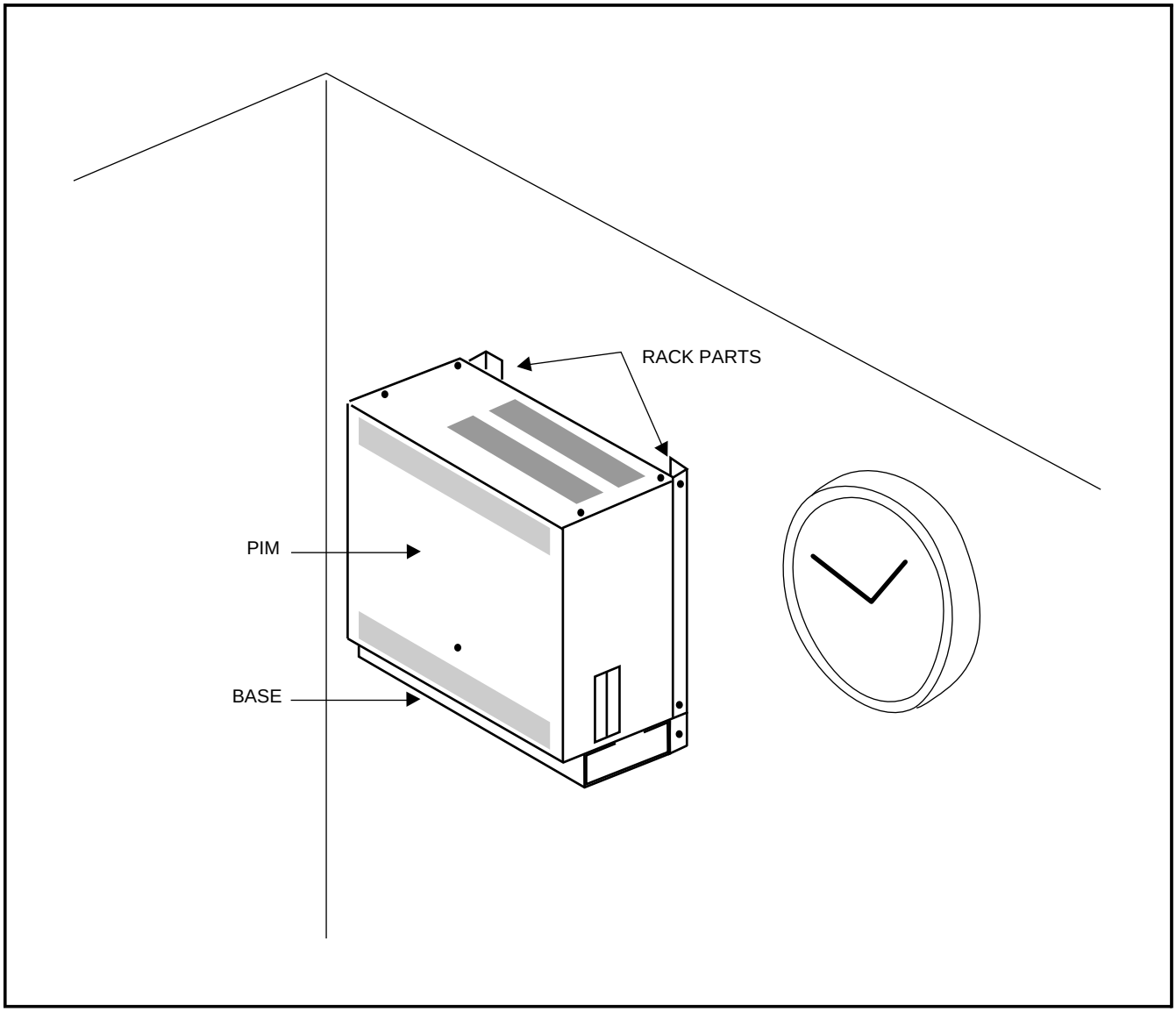


Figure 2-5 1-PIM Configuration for Wall-Mounting Installation

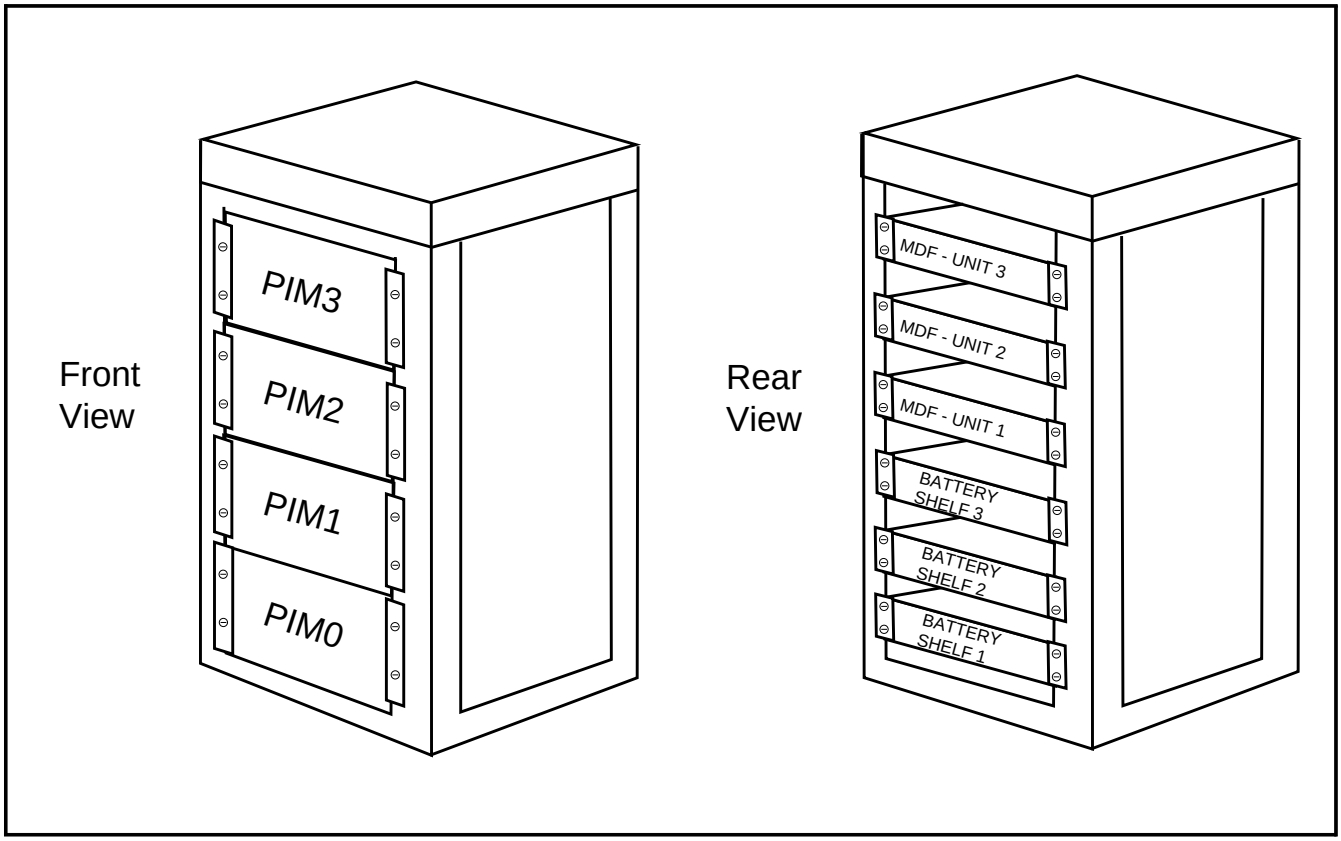


Figure 2-6: 4-PIM Configuration for 19-Inch Rack-Mounting Installation

CHAPTER 3 INSTALLATION PROCEDURE

1. PRECAUTIONS

1.1 Power, Ground Cabling and LIU (for Australia)

(a) The power and ground cabling is to be installed only by an AUSTEL Licensed Contractor.
(b) The G.P.O. which provides the AC power should be on a dedicated circuit, and must be installed near the PABX in an easily accessible position.
(c) An appropriate AUSTEL Approved Line Isolation Unit (LIU) is to be installed at I/O ports, as indicated in Figure 2-1.

1.2 Grounding Requirements

The system protective grounding must have a specific resistance and AC noise level, and is to be connected to a pre-determined terminal in the PABX, by use of a custom-built AC power cord. The TRC Earth connects to the "GND" terminal on the PZ-PW86 power unit in <u>every</u> PIM.

Standard grounding requirements are as shown below:

- Communication grounding: Less than 1 ohm. See figure 3-1 below.
- Protective ground for PIM: Less than 1 ohm. [Provided in the AC power cord(s)].
- Grounding to the Line Protection units on the MDF: Less than 0.1 ohm

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

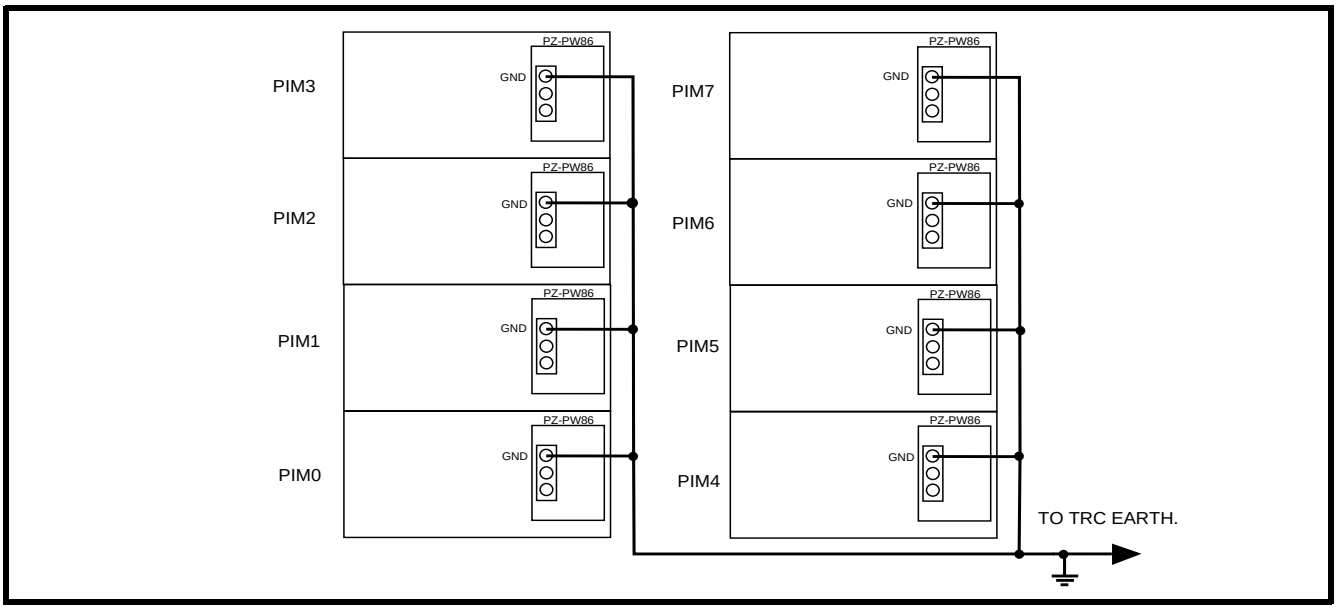


Figure 3-1 TRC Earth Wiring

CAUTION

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

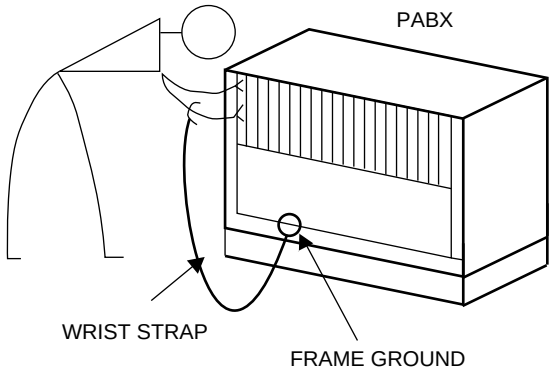
1.3 Static Electricity Guard

The installer must wear a grounded wrist strap to protect circuit cards from static electricity.

CAUTION

The installer must hold the card name label area, when plugging or unplugging the circuit card,. If you touch another area, you may be exposed to hazardous voltages.

- WHEN PLUGGING/UNPLUGGING A CIRCUIT CARD



- WHEN HOLDING A CIRCUIT CARD

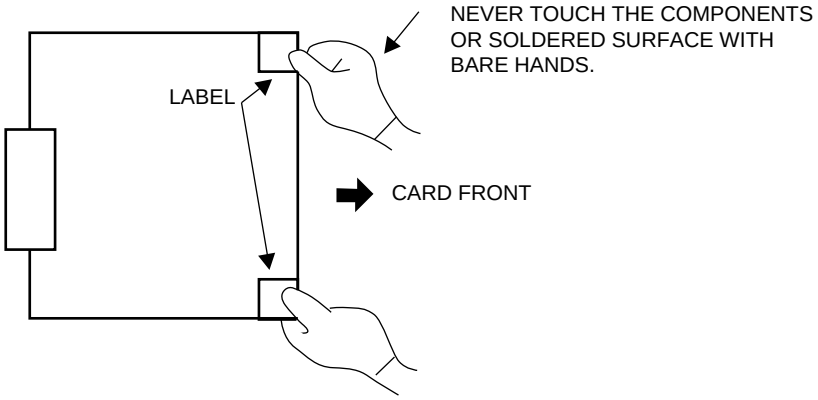
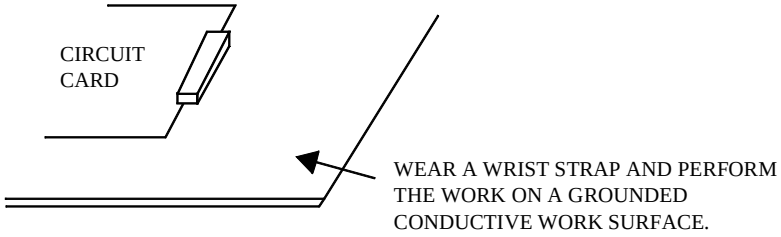


Figure 3-2 Static Electricity Guard

• WHEN MAKING A SWITCH SETTING ON A CIRCUIT CARD



• WHEN CARRYING A CIRCUIT CARD

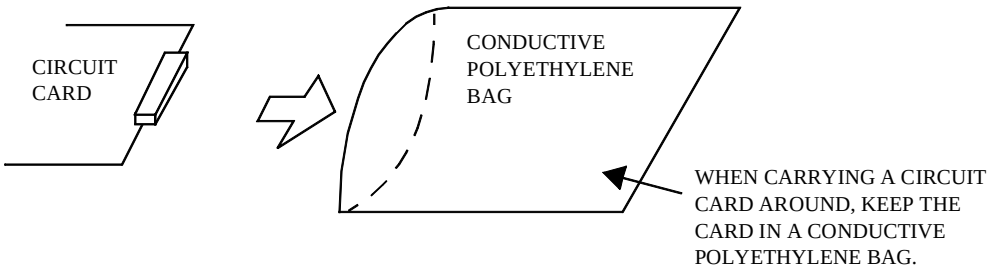


Figure 3-2 Static Electricity Guard (Continued)

1.4 Procedure for Unplugging/Plugging Circuit Cards

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

Table 3-1 Procedure for Unplugging/Plugging Circuit Cards

CIRCUIT CARD	PROCEDURE		CONDITION
	PLUG IN	UNPLUG	
• PN-CP00 (MP) • PZ-PW86/PW86(A) (PWR)	Power off ↓ Plug in ↓ Power on	Power off ↓ Unplug ↓ Power on	These circuit cards must be plugged in or unplugged only with power off, to prevent damage to the card or other system circuitry.
• PN-BS00 (BS00) • PN-BS01 (BS01) • PN-CP01 (FP) • PN-AP00 (AP00) • PN-ME00 (EXTMEM) • PN-BRTA (BRT) • PN-CS00 (ATI) • PN-30DTC (DTI) • PN-SC00 (CCH) • PN-SC01 (DCH)	Power off or MB switch on ↓ Plug in ↓ Power on or MB switch off	Power off or MB switch on ↓ Unplug ↓ Power on	These circuit cards must be plugged in or unplugged under Make Busy condition (or power off) to prevent damage to the card or other system circuitry.

1.5 Connecting Consoles' Cables

If possible, the ATI card (PN-CS00) should be unplugged when connecting/disconnecting the SN694 ATTCON to/from the system. This is because there is some possibility that the console may be damaged.

Ensure that the Make Busy switch of the ATI card is on (Up) during removal/insertion.

2. PROCEDURE

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

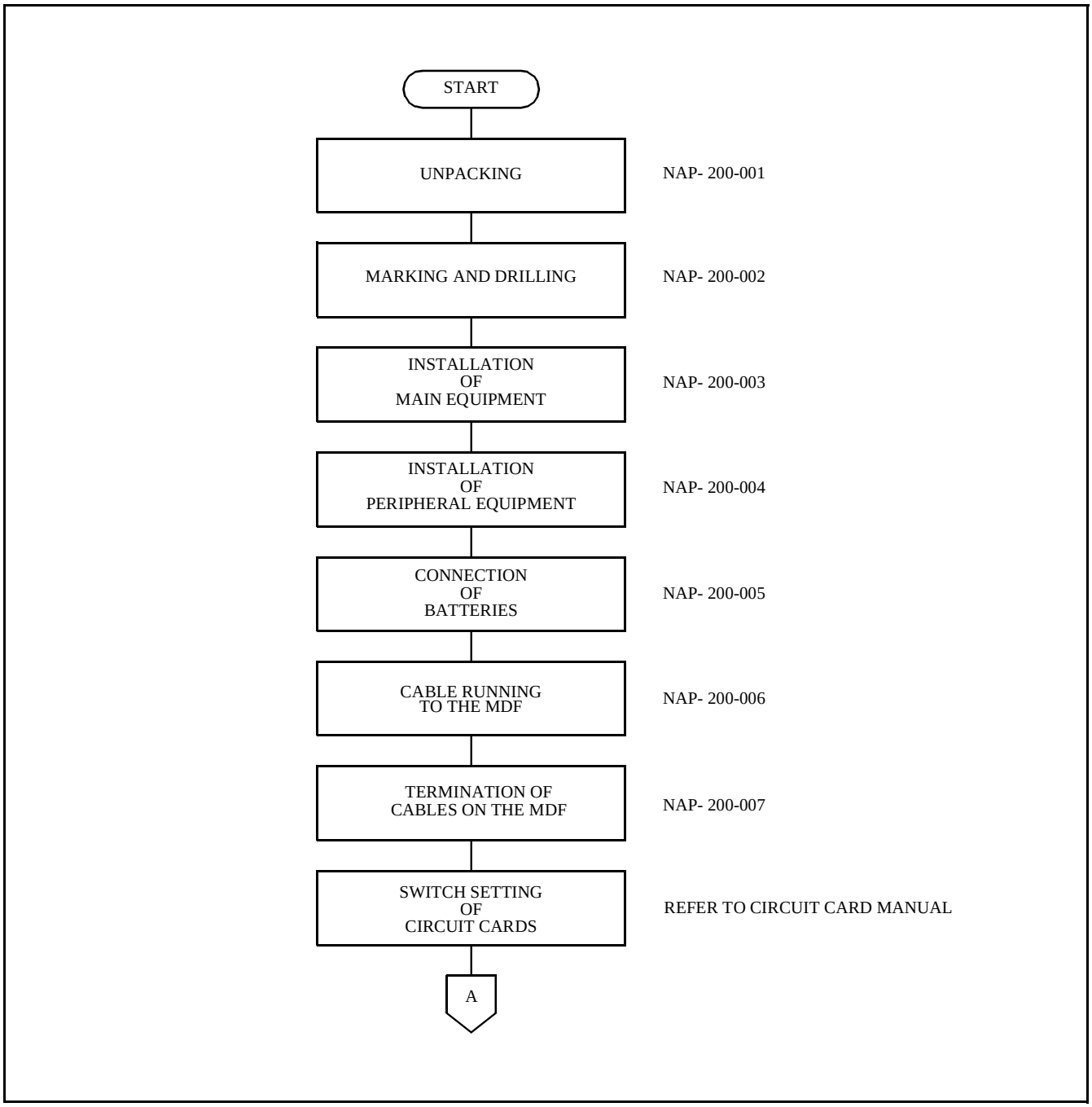


Figure 3-3 Procedure Flowchart

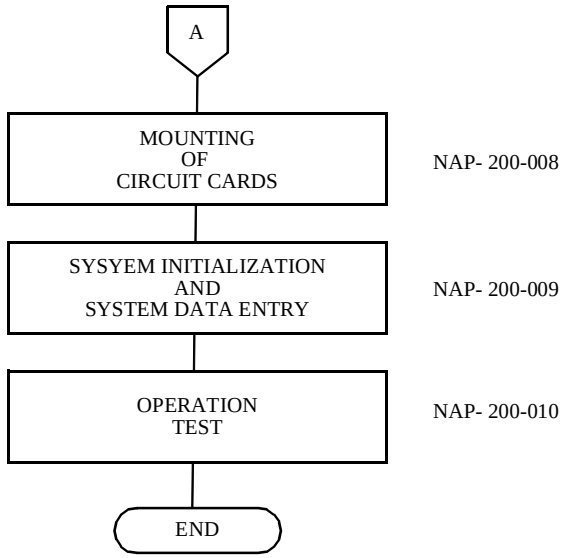


Figure 3-3 Procedure Flowchart (Continued)

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 exercise caution, to prevent damage caused by static electricity (See paragraph 1.3 in this chapter).

NAP- 200-001
Sheet 1/1
Unpacking

1. Unpacking Procedure

(1) Check the received quantity of packages containing the PABX 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 modules.

CAUTION

- For unpacking circuit cards, a grounded wrist strap should be worn.

(4) Check the quantity of equipment and materials 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

NAP- 200-002
Sheet 1/2
Marking and Drilling

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 and Drilling

2.1 Floor Standing

- By referring to Figure 002-1, mark and drill the installation holes for the main equipment.
- Mark and drill the installation holes for the external BATTM and MDFM, if required.

Refer to Figure 003-1 for details.

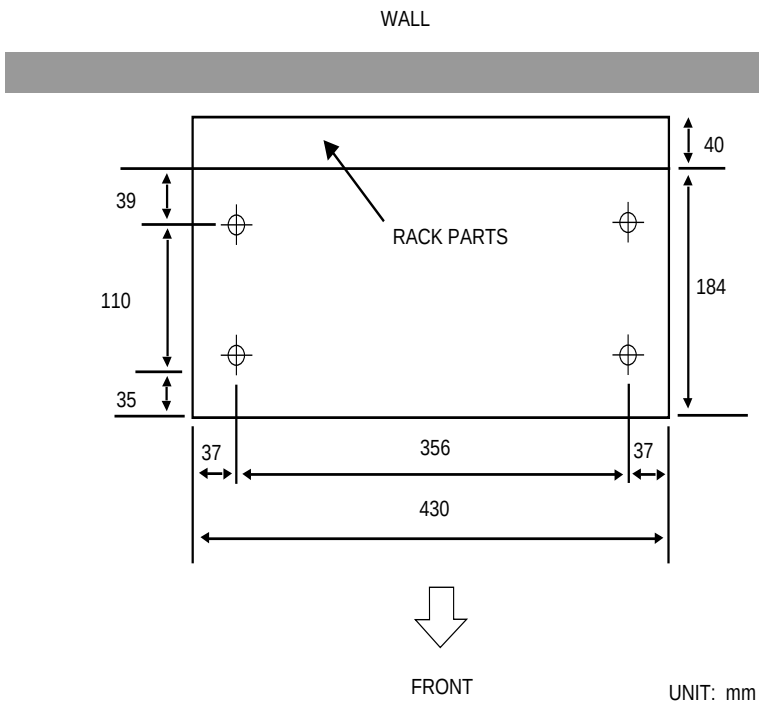


Figure 002-1 Floor Marking for Main Equipment

2.2 Wall-Mounting

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

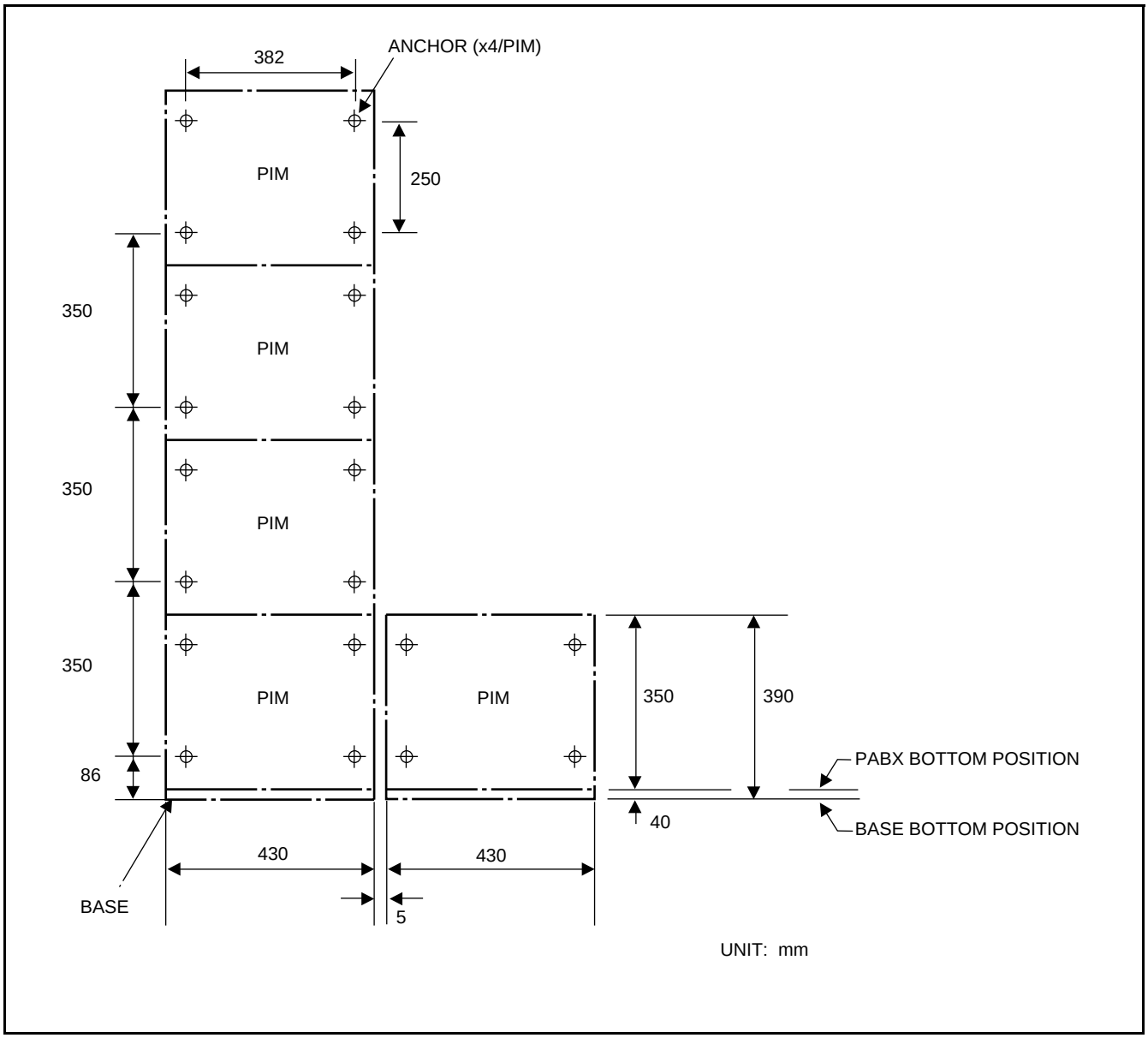


Figure 002-2 Wall Mounting Points

Note: *The BATTM and MDFM have the same dimensions as a PIM.*

1. Installation of Modules

Install modules according to the installation procedures for Floor Standing, Wall-Mounting or 19-Inch Rack Mounting installation.

1.1 Installation of the BATTM and MDFM

- Due to weight considerations, it is preferable to Floor-mount the BATTM.
- Always mount the MDF on the wall, at a minimum height of 300mm, in order to comply with AUSTEL Regulations.
- Refer to Figures 006-1 and 006-2 for cable routing options, and Figures 003-11 to 003-21 for the preferred modular layouts.

Notes: 1. *In all cases, the RACK and BASE parts are to be used, as shown in Figures 2-2 to 2-5.*
2. *Where the battery and MDF cables pass through a bulkhead, the grommet strip provided must be added to the aperture, to protect the insulation.*
3. *For details of internal cabling for the batteries, see NAP-200-005.*
4. *The modular layouts shown are based on the use of ribbon-type LT cables, which terminate on a connectorised 100-pair Krone block. Standard 10-way disconnect-modules are used for the MDF jumpers.*

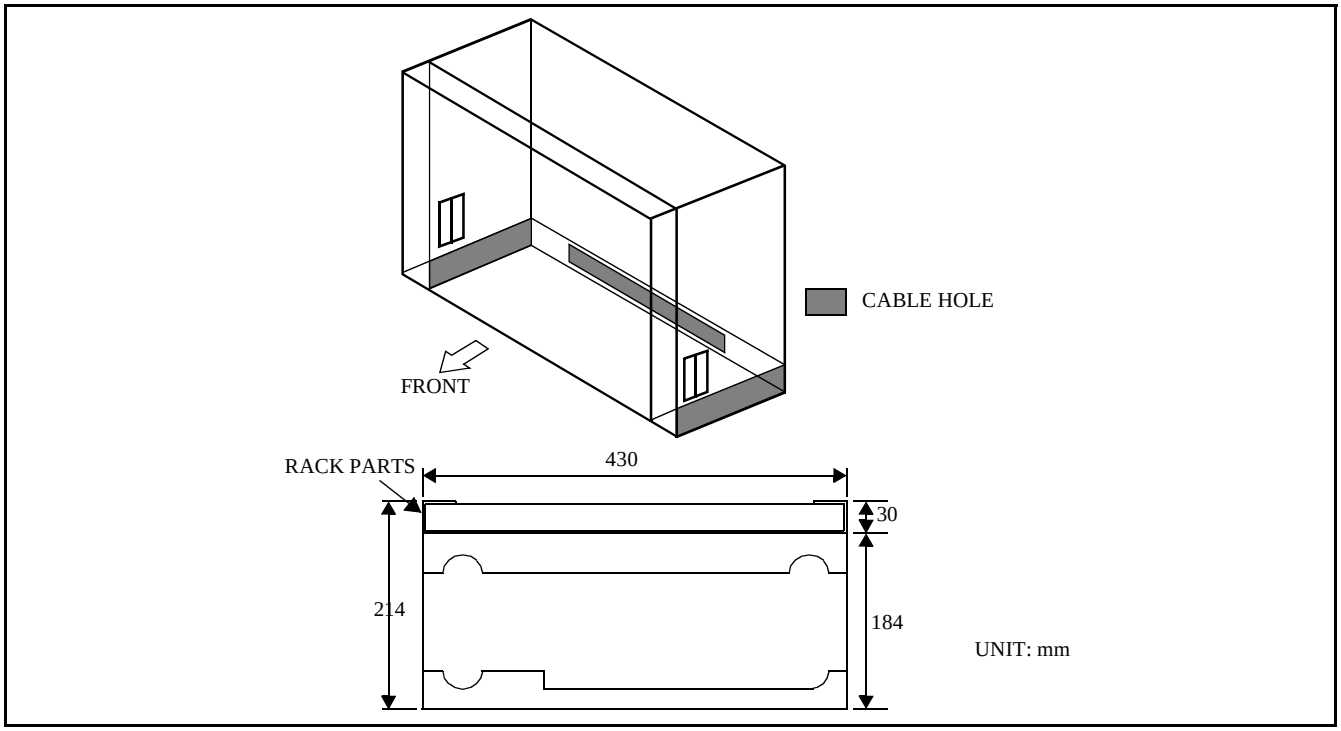


Figure 003-1 Location of the Cable Holes

1.2 Floor Standing Installation

(1) Connect the RACK PARTS to the rear of the BASE.

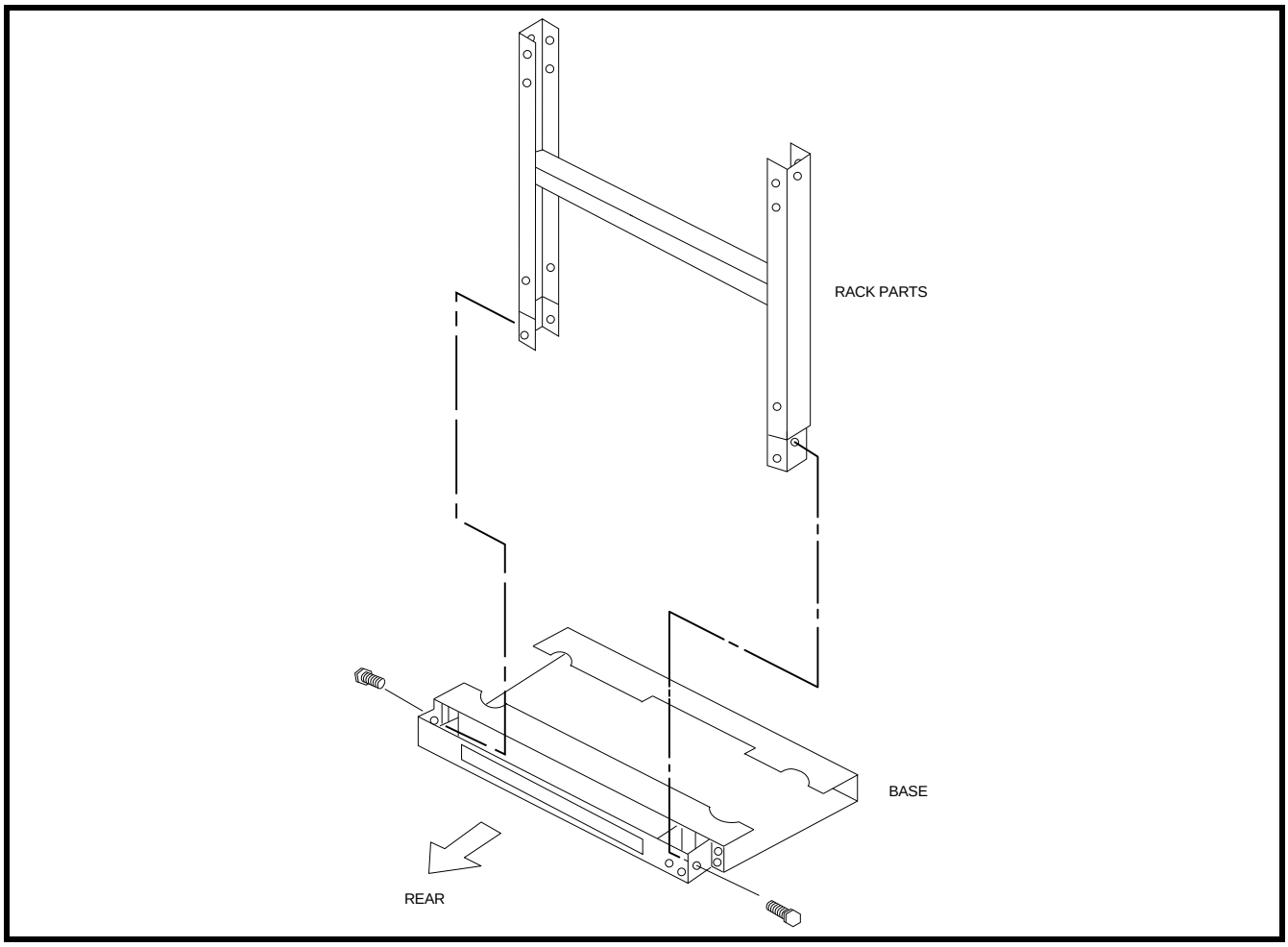


Figure 003-2 Connection of RACK PARTS and BASE

(2) When the system is a multiple-PIM configuration, connect the RACK PARTS to each other as shown in Figure 003-3. Position the BASE over the holes drilled as per Figure 002-1, and secure the BASE to the floor, using anchor bolts.

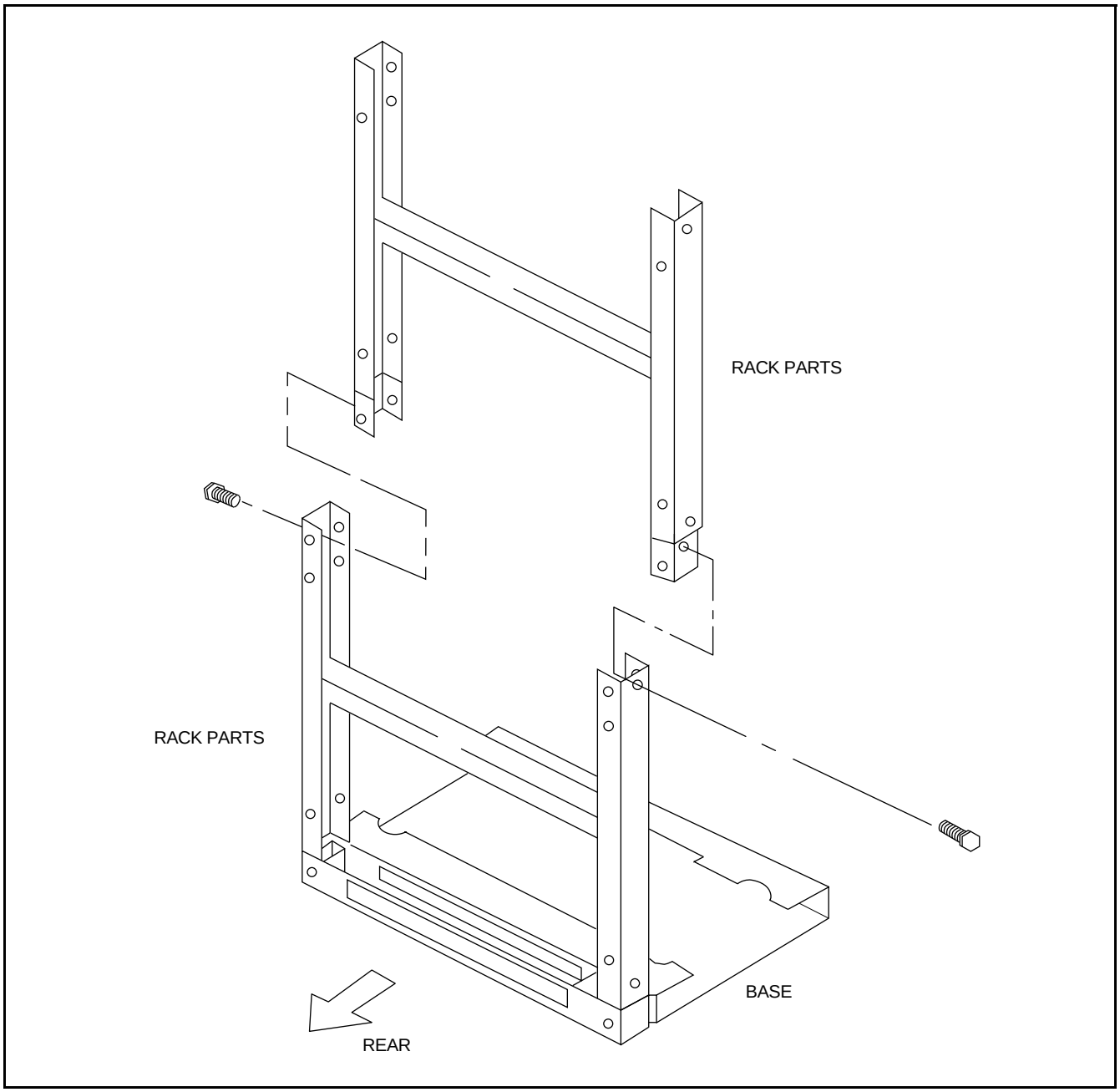
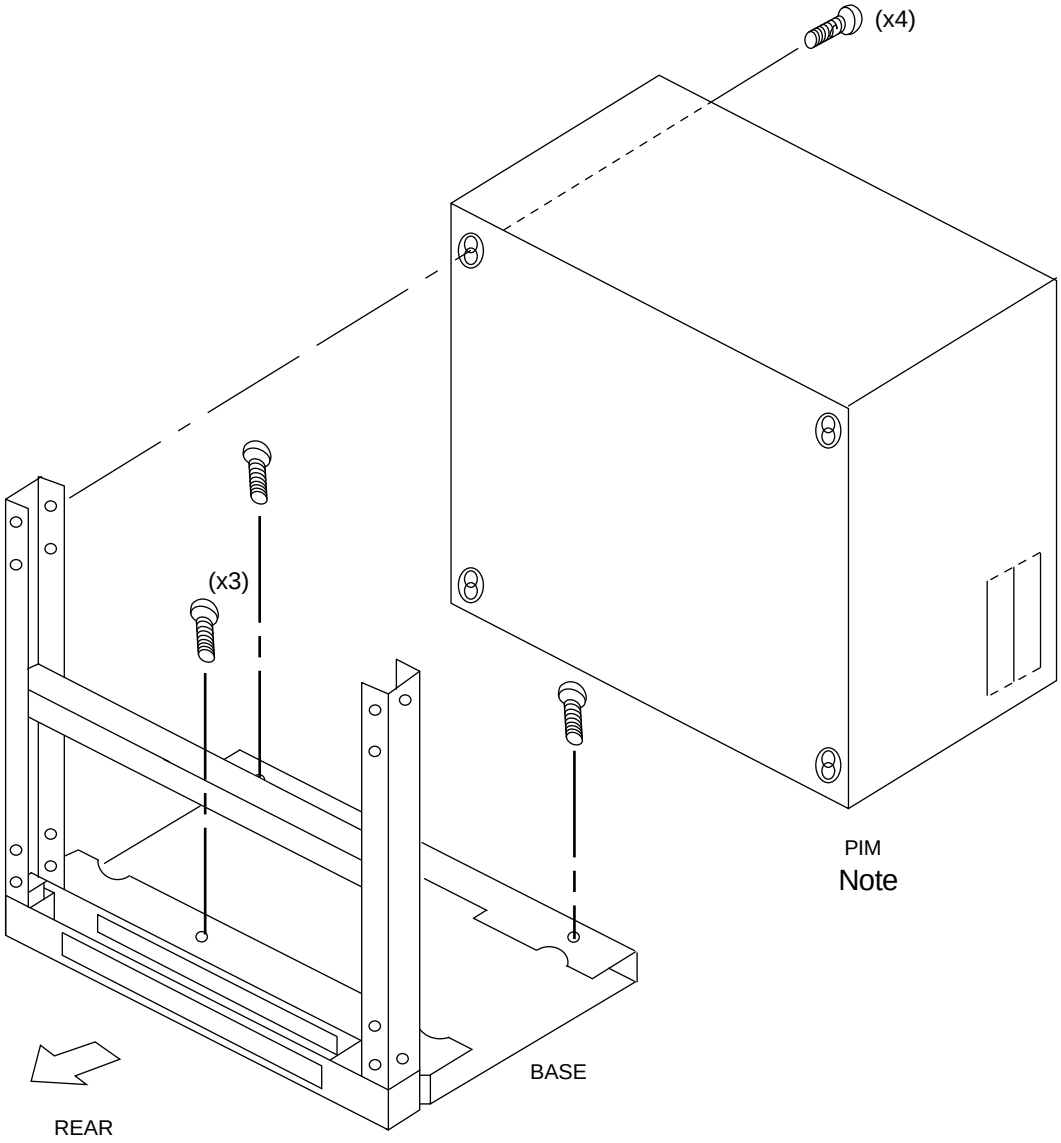


Figure 003-3 Connection of RACK PARTS

(3) Connect the PIM to the RACK PARTS as shown in Figure 003-4 using the 4 screws provided with the RACK PARTS.

When the system is a multiple-PIM configuration, connect all PIM and RACK PARTS.

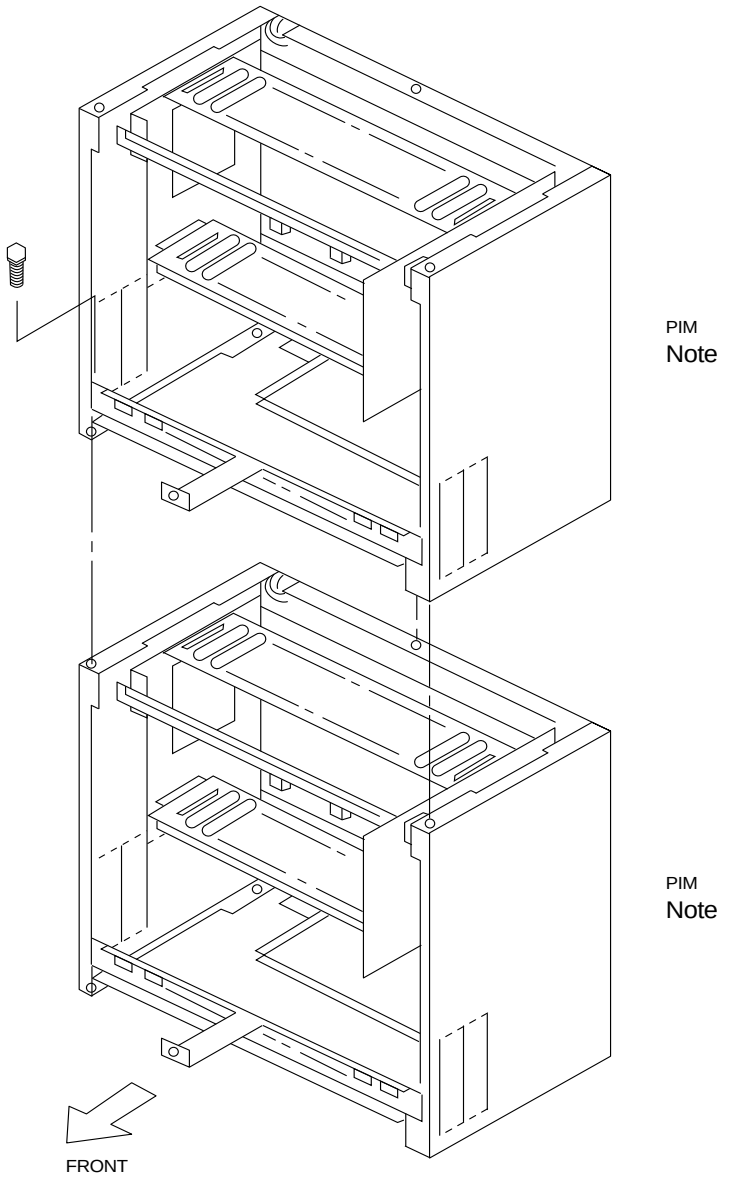
Ensure that the PIM's are bolted together as shown in Figure 003-5.



Note: *The BATTM and/or the MDFM can be installed the same as the PIM.*

Figure 003-4 Connection of the PIM and the RACK PARTS

(4) When the system is a multiple-PIM configuration, connect PIMs to each other as shown in Figure 003-5, using the 3 hex-bolts supplied.



Note 1 : *The BATTM and/or the MDFM can be installed the same as the PIM.*

Note 2 : *For simplicity, the BASE and RACK PARTS are not shown.*

Figure 003-5 Connection of PIMs

1.3 Wall-Mounting Installation

(1) Locate the four mounting points using the template as shown by Figure 003-6.

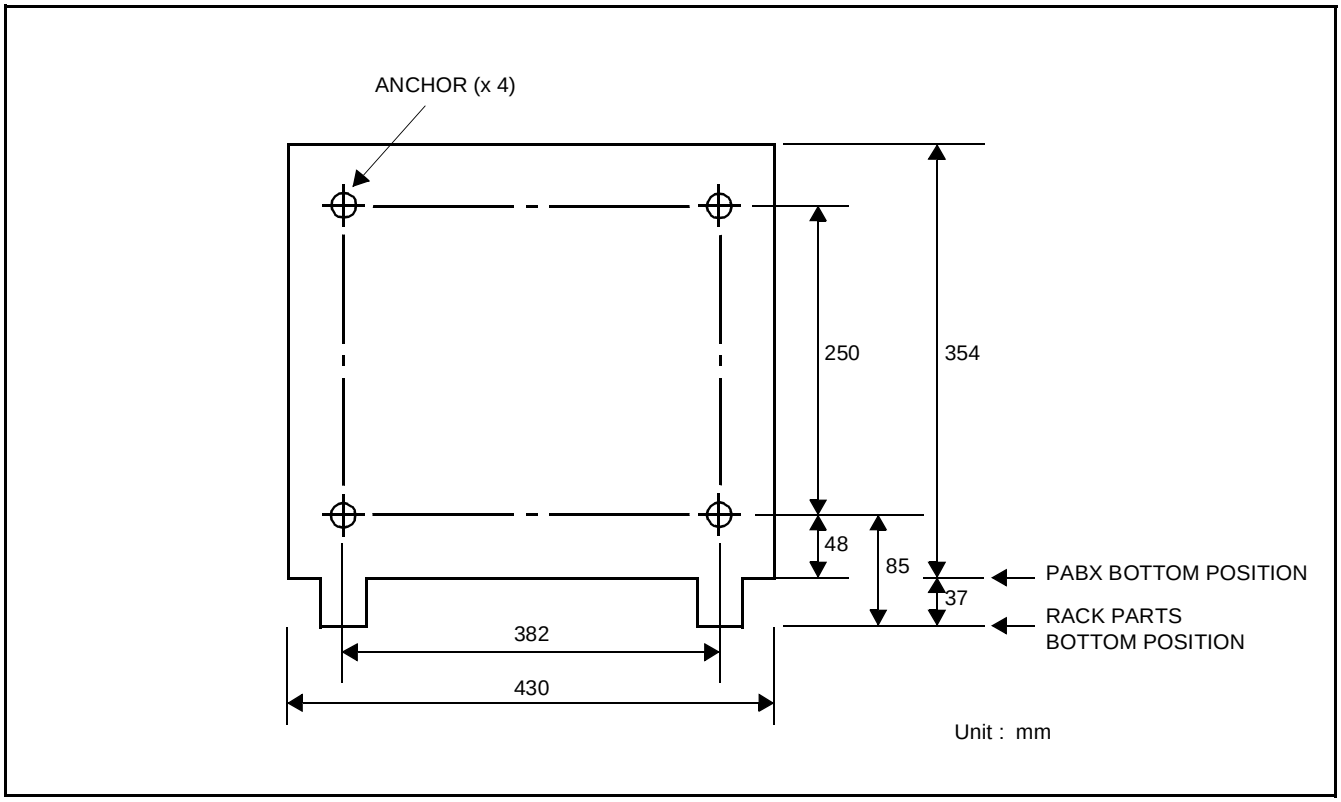


Figure 003-6 Wall Mounting Points

(2) Using four appropriate fasteners for the type of wall construction (locally provided; see Table 003-1), secure the RACK PARTS as shown by Figure 003-7.

Table 003-1 Recommended Fasteners

WALL TYPE	RECOMMENDED FASTENER	
PLASTER BOARD (THICKNESS Min. 9.6 mm)	"BUTTERFLY" TYPE	Min. 3.5 mm DIA. Max. 4.5 mm DIA
WOOD	WOOD - SCREWS	Min. 3.5 mm DIA Max. 4.5 mm DIA
CONCRETE	ANCHOR BOLTS	Recommended 4 mm by 25 mm

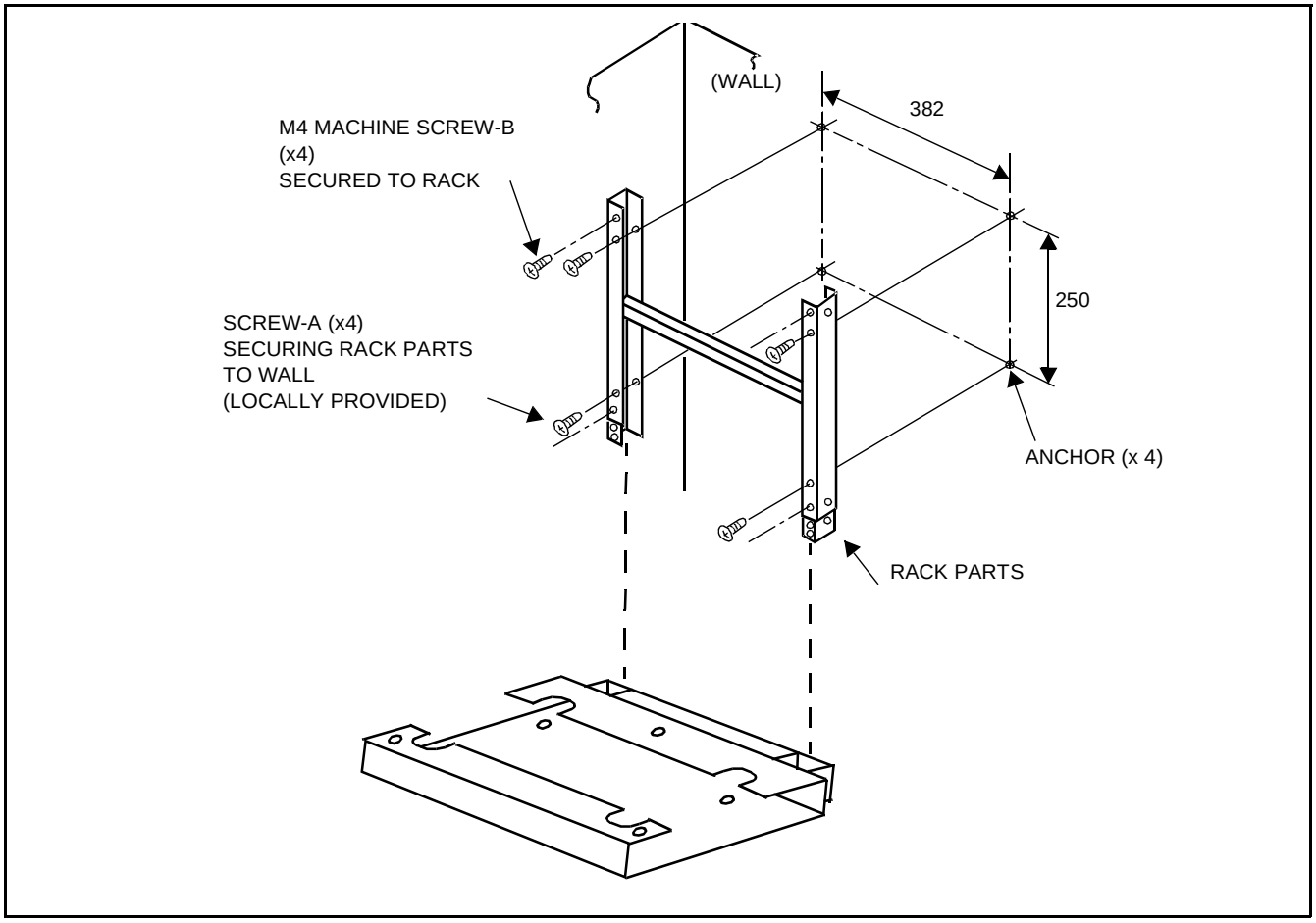


Figure 003-7 Screwing RACK PARTS to Wall

(3) Attach four M4 machine screws (provided) to the RACK PARTS at the location as shown by Figure 003-7. For easy attachment of the PABX, approx. 4 mm spacing should be provided between the inner face of the M4 machine screw and the RACK PARTS front channel. See Figure 003-8.

(4) Align and insert the key hole-slots of the rear cover of the PABX to the machine screws attached in step (3). See Figure 003-8.

(5) Screw the PIM onto the BASE, and tighten the screws at the rear.

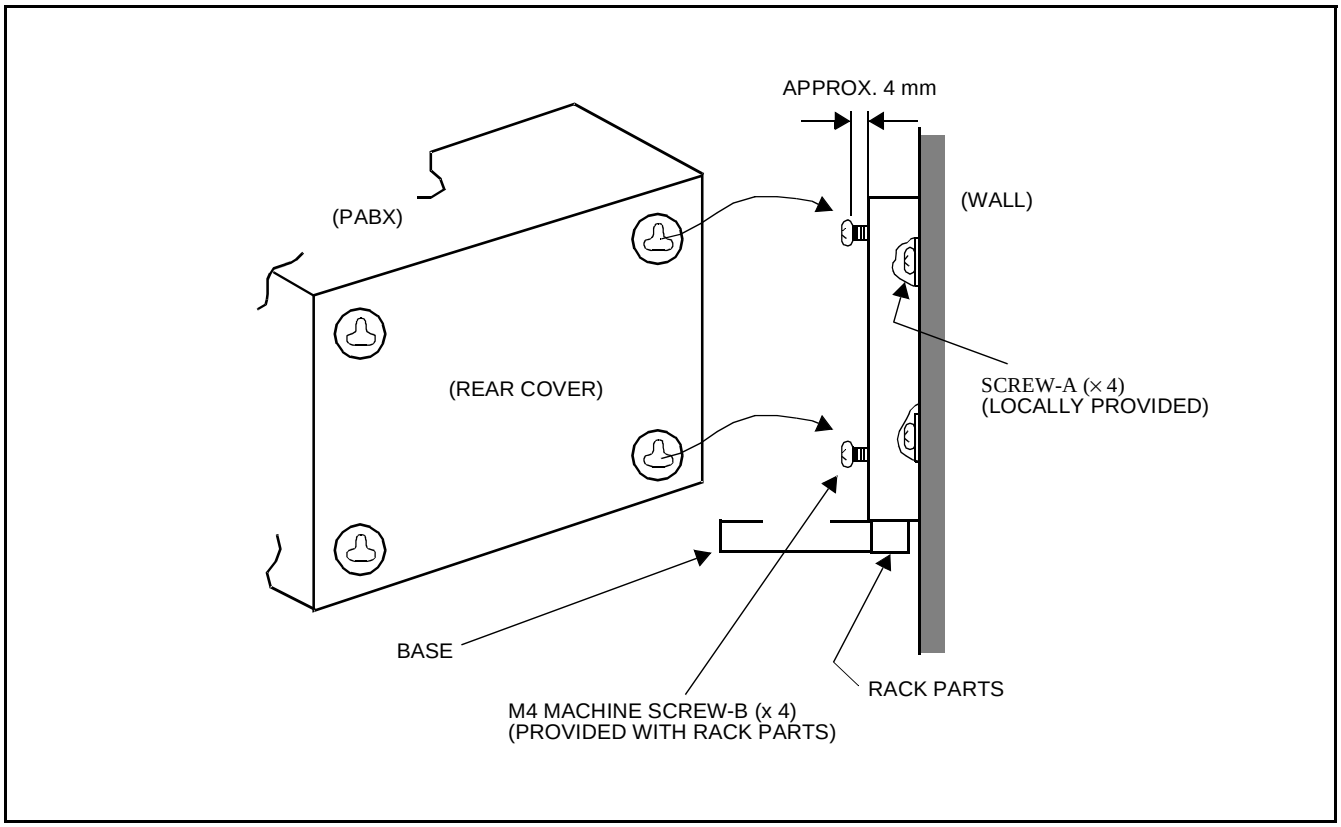


Figure 003-8 Mounting PABX to RACK PARTS

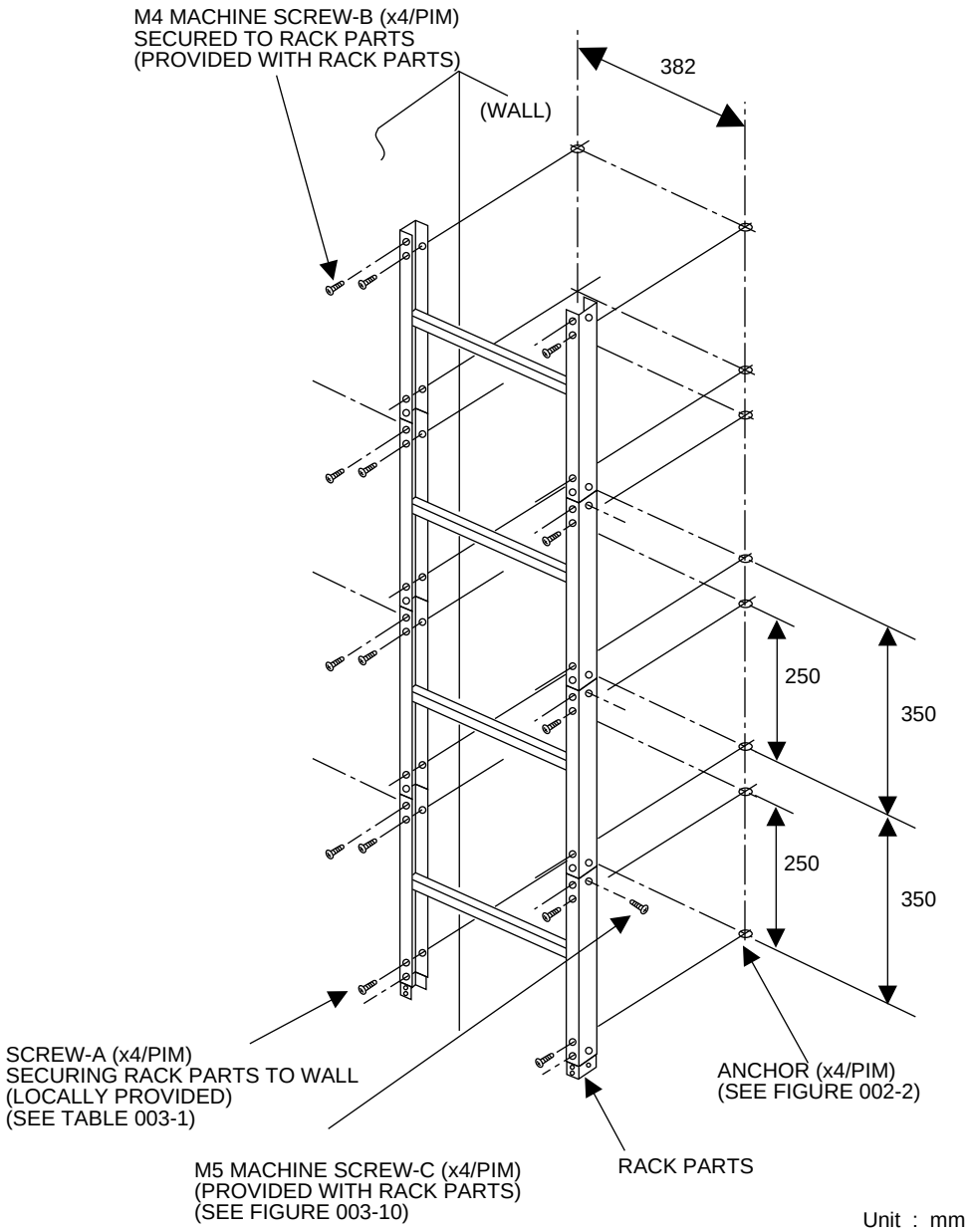


Figure 003-9 Screwing the RACK PARTS to a Wall

(6) When mounting the RACK PARTS to a wall, connect all the RACK PARTS to each other, and connect the BASE to the bottom RACK PARTS using the M5 Machine screws (provided), as shown in Figure 003-10.

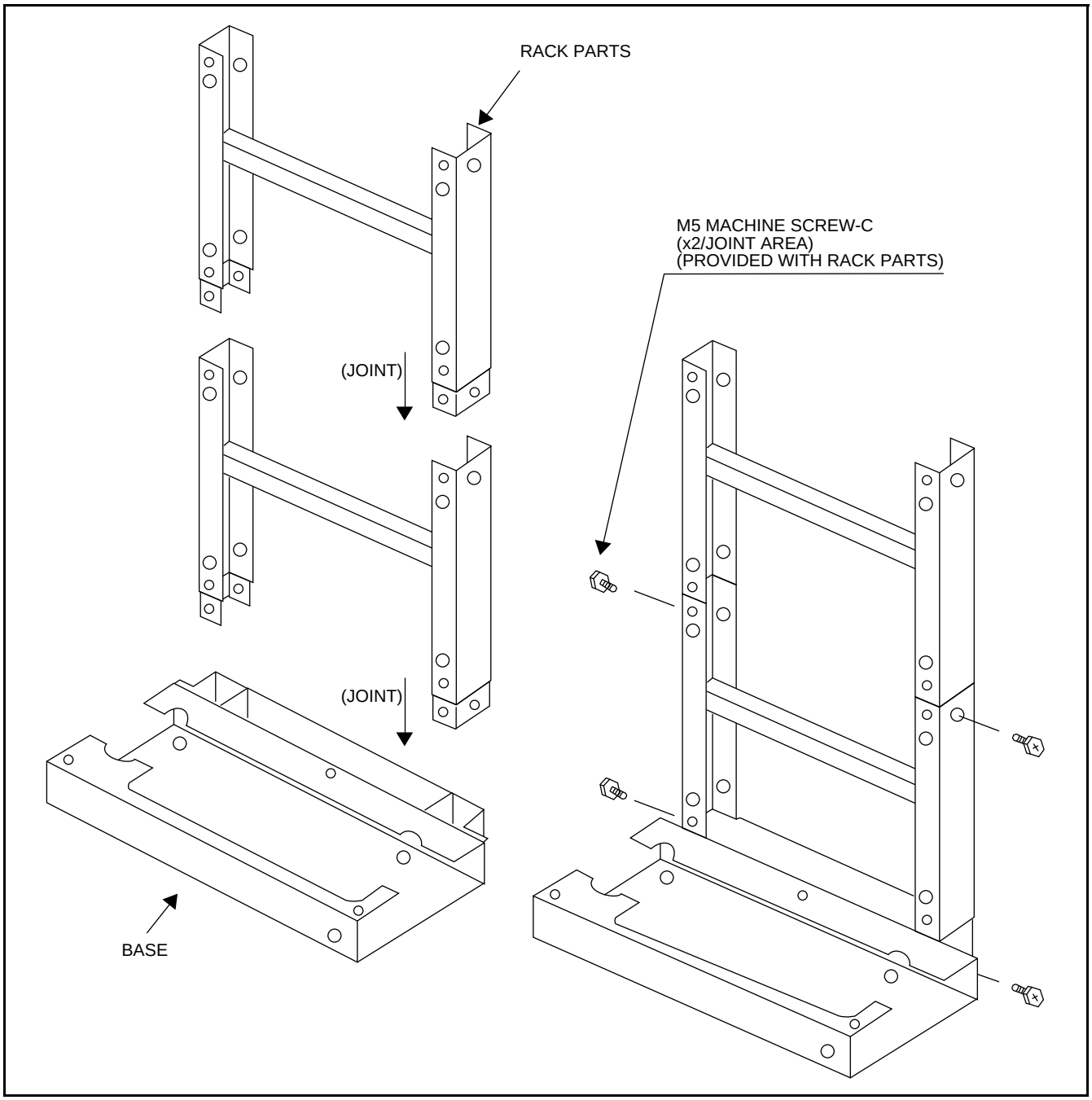


Figure 003-10 Screwing the RACK PARTS and the BASE

(7) For floor and wall-mounted installations, refer to Figures 003-11 to 003-18 for the recommended layout of the modules.

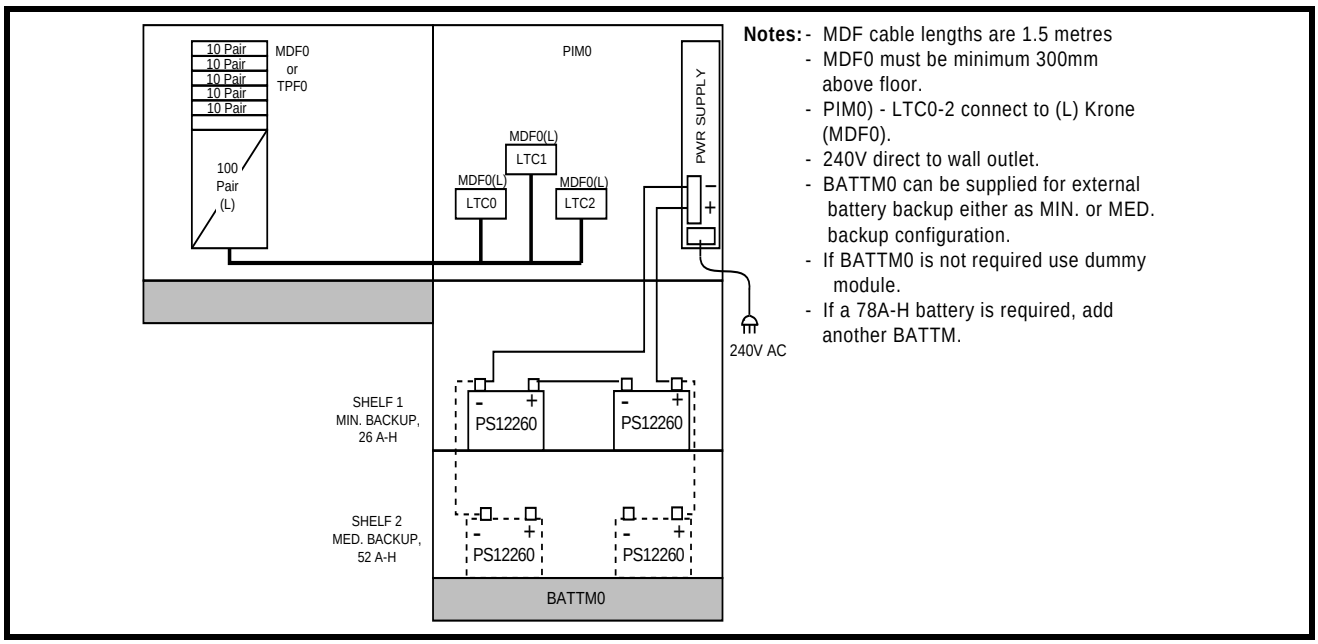


Figure 003-11 Modular Layout for 1 PIM Configuration

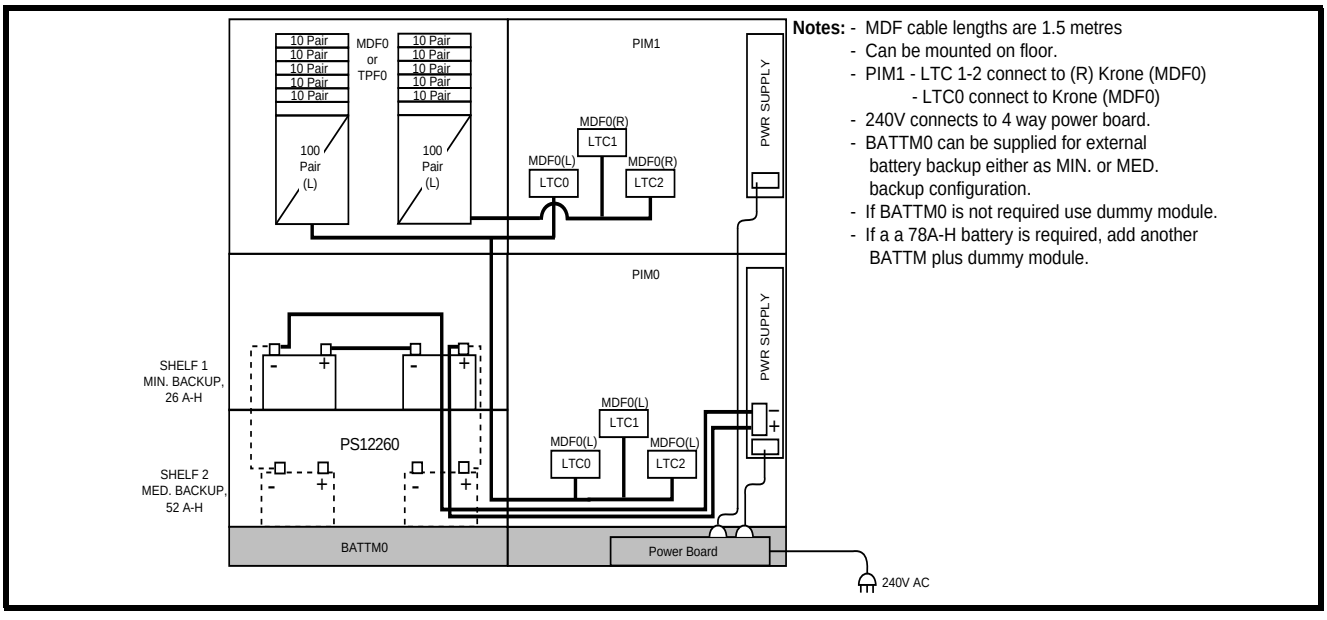
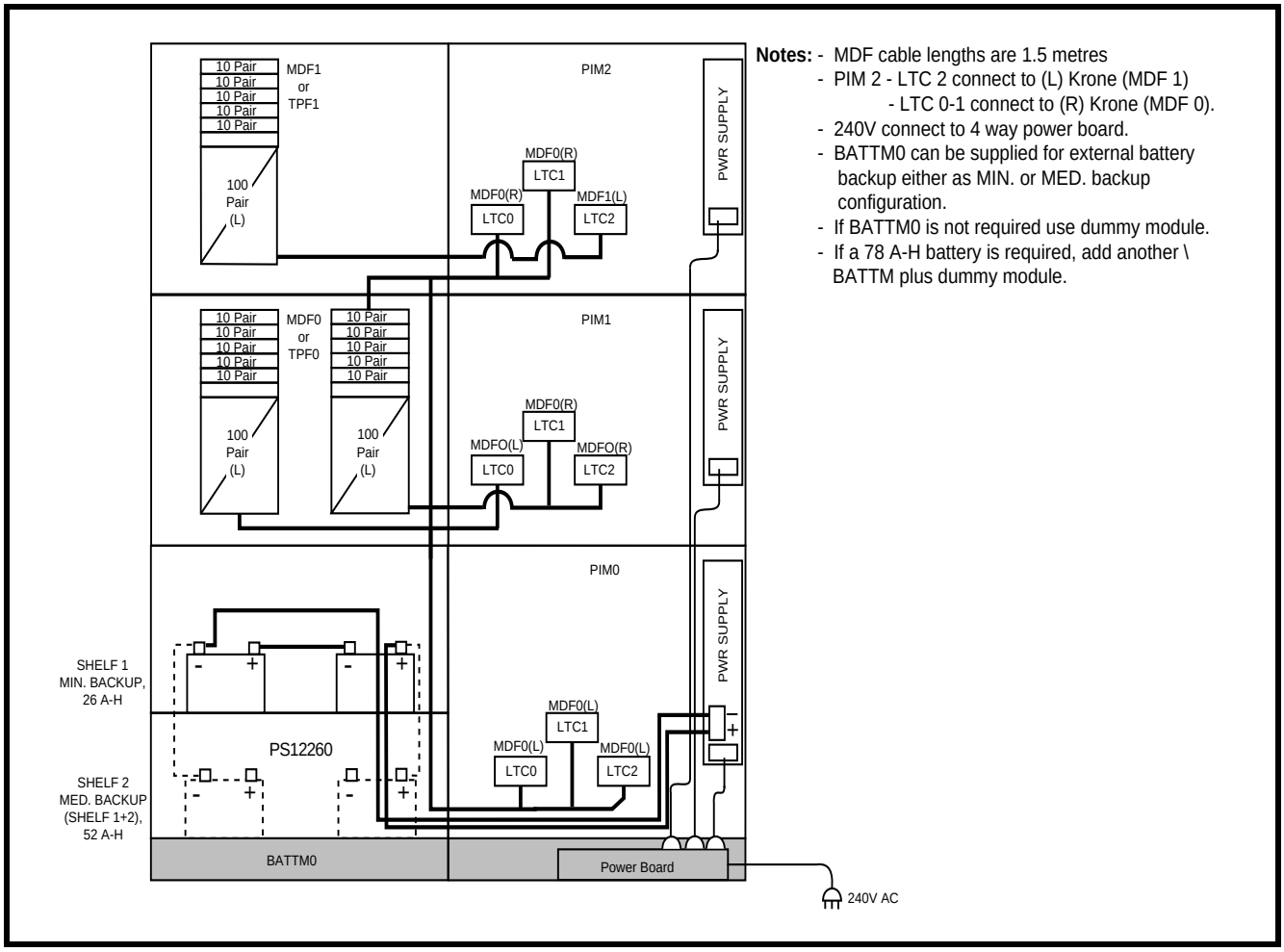


Figure 003-12 Modular Layout for 2 PIM Configuration



Notes: - MDF cable lengths are 1.5 metres
- PIM 2 - LTC 2 connect to (L) Krone (MDF 1)
- LTC 0-1 connect to (R) Krone (MDF 0).
- 240V connect to 4 way power board.
- BATTM0 can be supplied for external battery backup either as MIN. or MED. backup configuration.
- If BATTM0 is not required use dummy module.
- If a 78 A-H battery is required, add another \ BATTM plus dummy module.

Figure 003-13 Modular Layout for 3 PIM Configuration

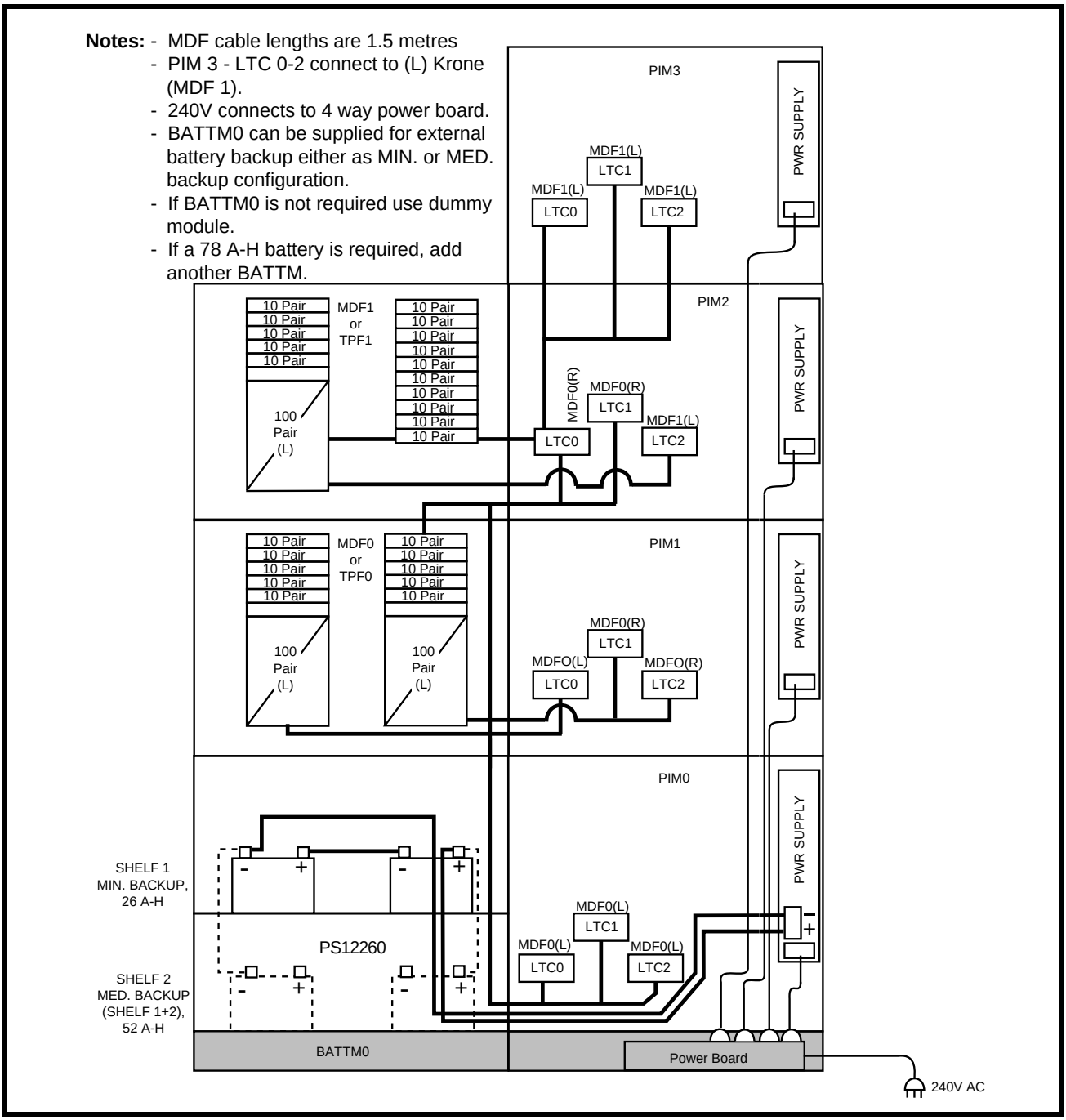


Figure 003-14 Modular Layout for 4 PIM Configuration

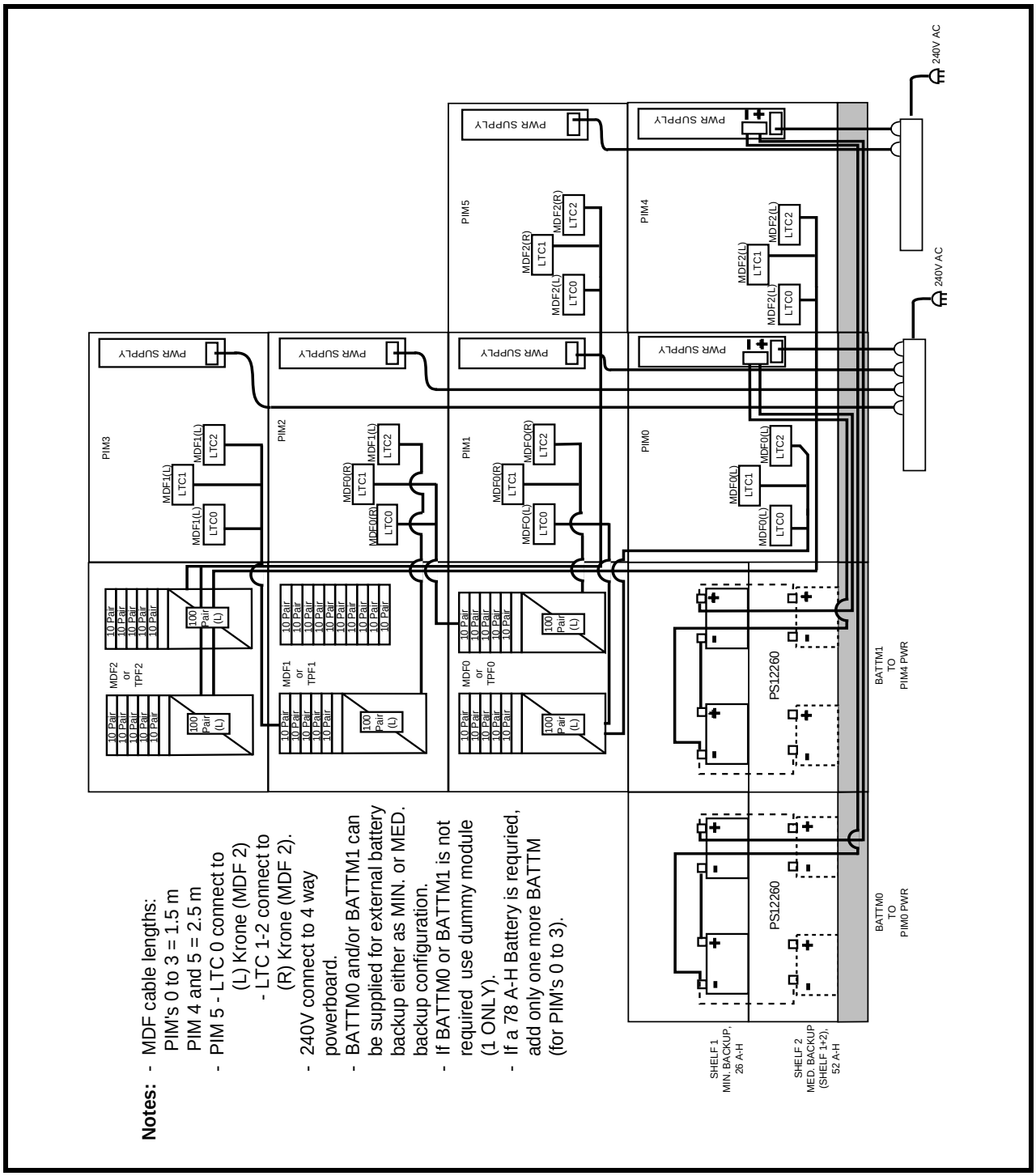


Figure 003-15 Modular Layout for 5 PIM Configuration

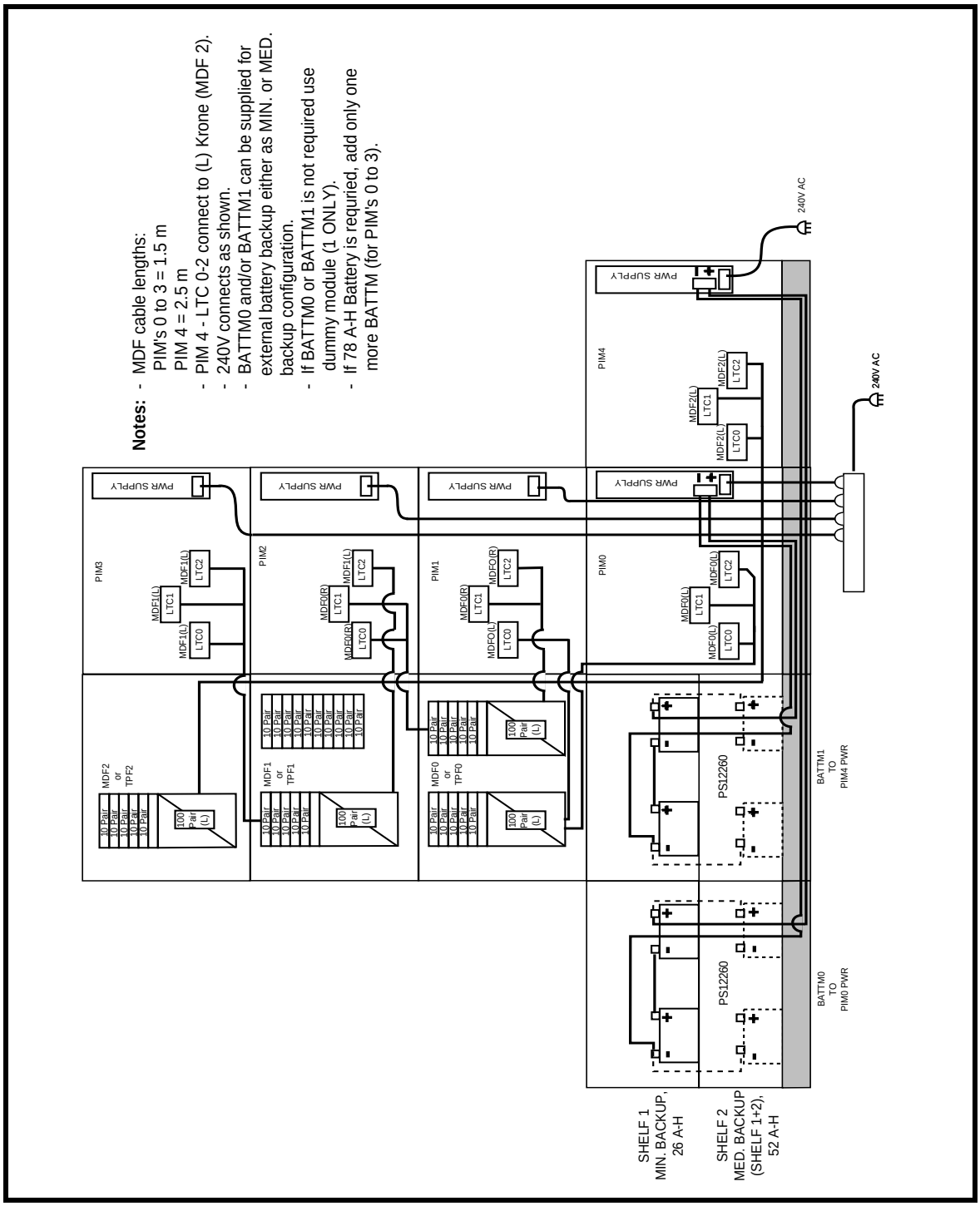


Figure 003-16 Modular Layout for 6 PIM Configuration

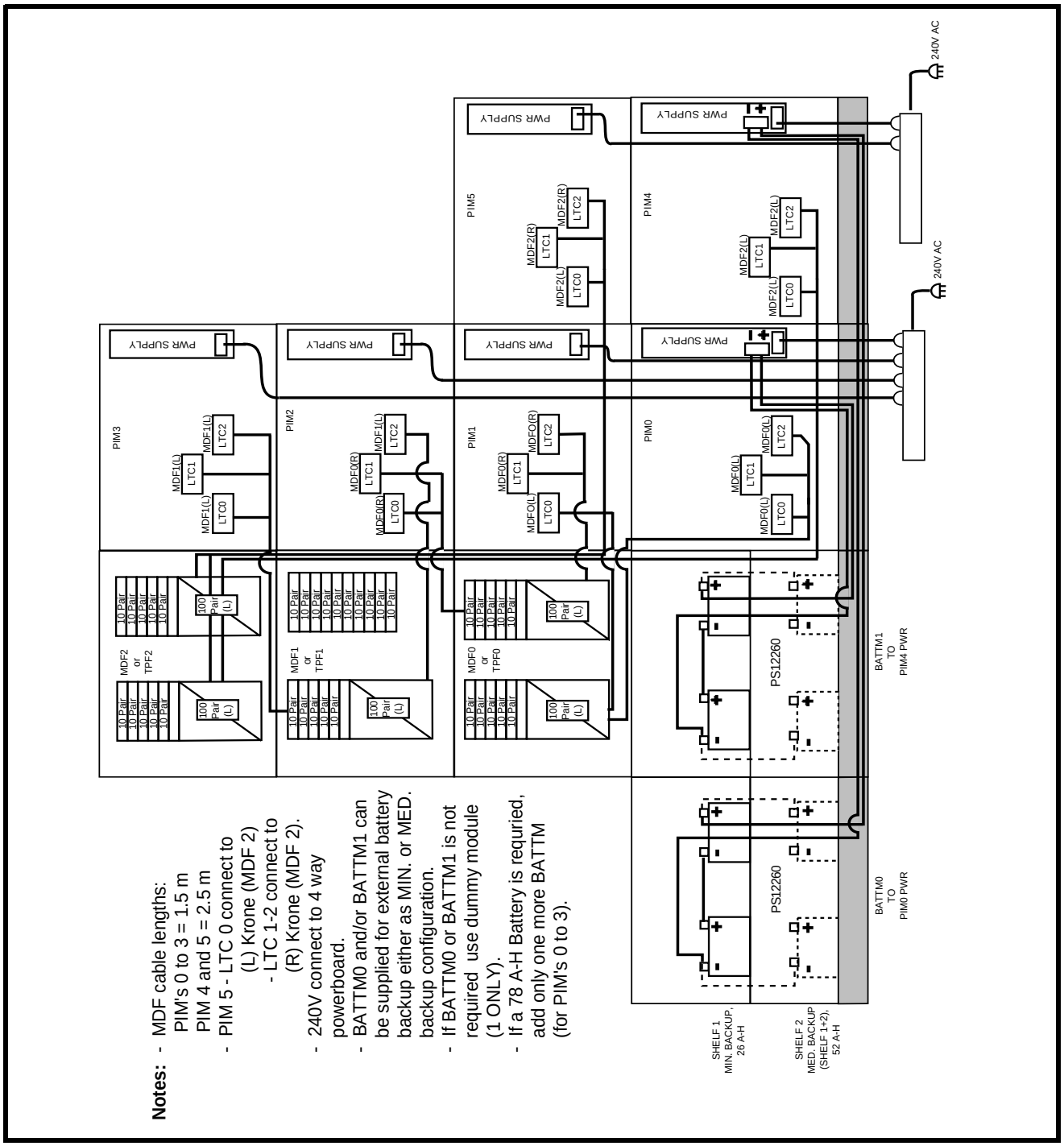


Figure 003-17 Modular Layout for 7 PIM Configuration

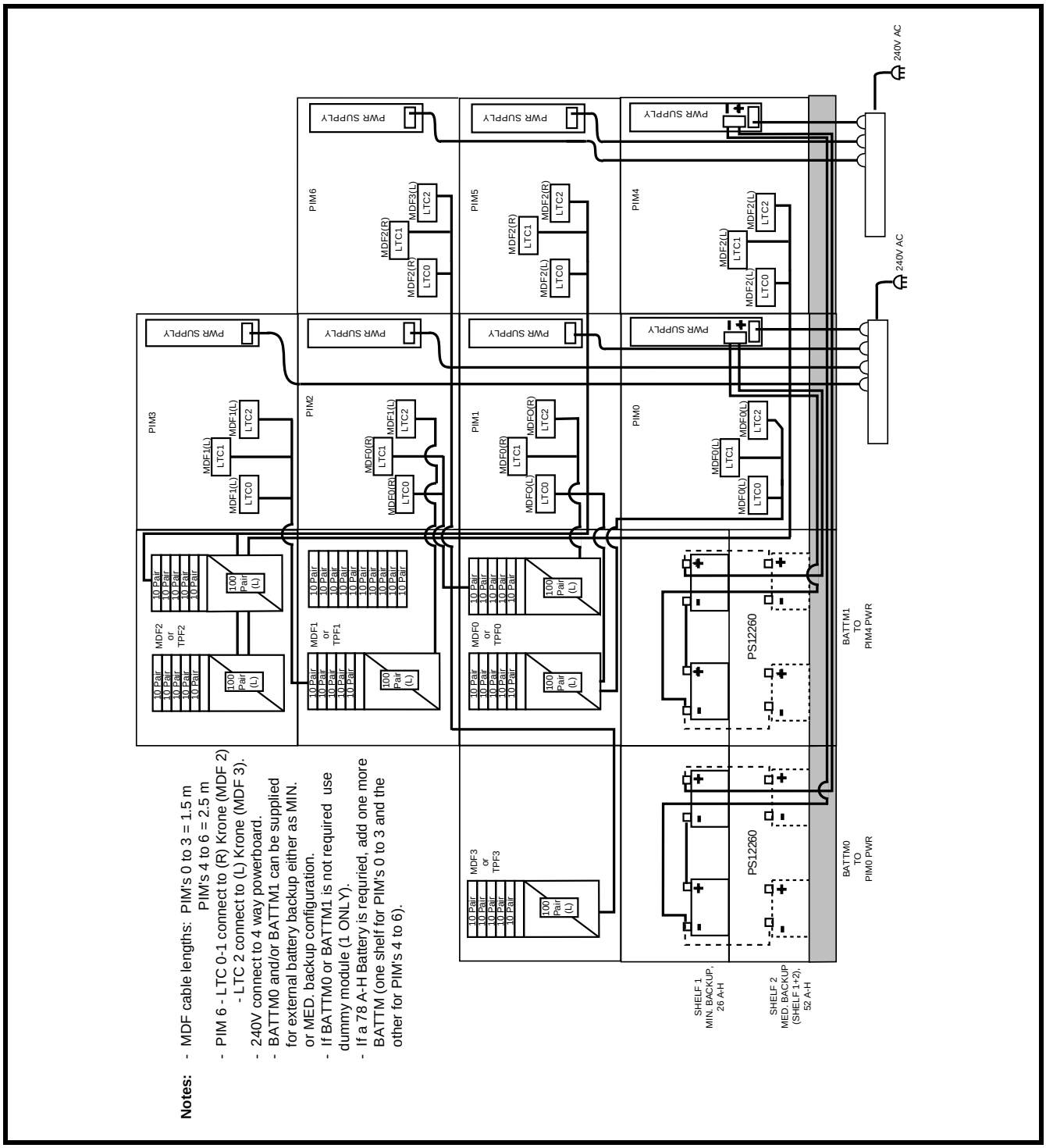


Figure 003-18 Modular Layout for 8 PIM Configuration

1.4 19-Inch Rack-Mounting Installation

1.3.1 NEC Australia can provide a rack assembly, which can be configured as follows:

(a) Up to four PIM's at the front, and the requisite number of MDF units and/or sealed batteries at the rear. Refer to Figure 2-6 for a typical example.

(b) Up to eight PIM's, mounted back-to-back in one rack, for sites where the MDF and batteries are mounted elsewhere.

1.3.2 For a customer-supplied rack installation, NEC Australia can provide the following mounting hardware:-

ITEM	STOCK NUMBER
19" Rack Insert for PIM	4392029
19" Battery Shelf	4392032
Krone MDF 19" back-mount	4392078

1.3.3 For typical rack-mounted layouts, see Figures 003-10 to 003-13. The 19"rack configurations shown herein are based on the use of ribbon-type LT cables, which terminate on a connectorised 100-pair Krone block, and standard 10-way disconnect modules for the MDF jumpers. For installations using an existing MDF, standard 50-pair cables can be used, provided that the LT CHAMP connectors are the centre-loaded type.

1.3.4 The 19" Battery shelves are based on the use of 26 A-H batteries. The Manufacturer's limitation is three battery modules in parallel, so capacities greater than 78 A-H must be installed external to the rack.

2. Precautions

(i) Where the battery and MDF cables pass through a bulkhead, the grommet strip provided must be added to the aperture, to protect the insulation.

(ii) The protective Earth must be extended to the Krone MDF back-mounts. Note that the MDF is isolated from the rack, to avoid current-loops in the Earthing System. (AUSTEL Regulations apply).

(iii) Ensure that the rack and the PIM's have reliable bonding to the Protective Earth of the AC power cord(s). It is advisable to use Shakeproof washers on the PIM mounting bolts, to ensure metal-to-metal contact on painted surfaces.

(iv) For PABX's which are powered from a DC source only, a separate Protective Earth must be connected to the rack and PIM's.

(v) For a 4-PIM configuration, the capacity of the internal battery option equals that of the minimum external option, so cost should be the only deciding factor as to the preferred type.

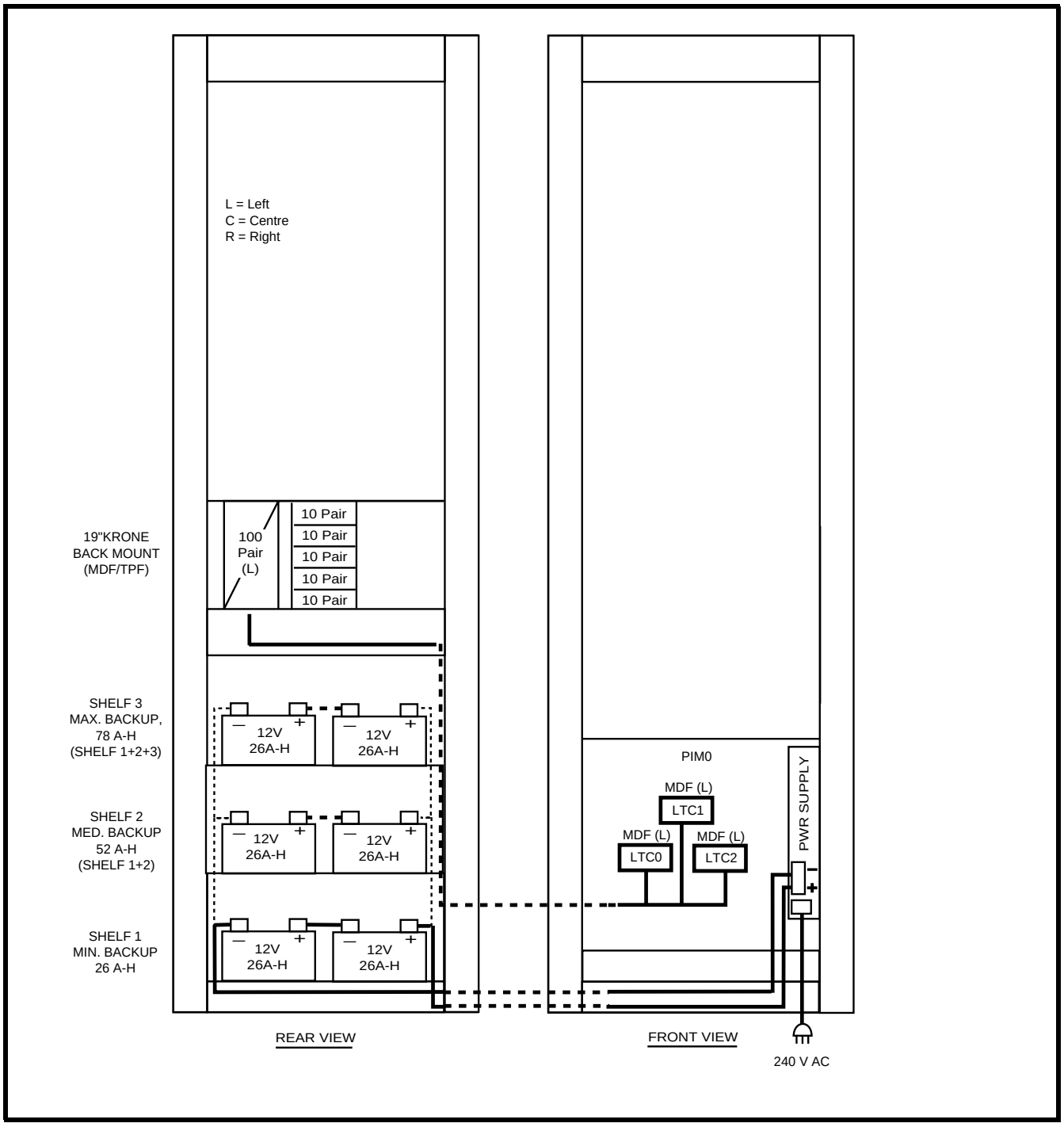
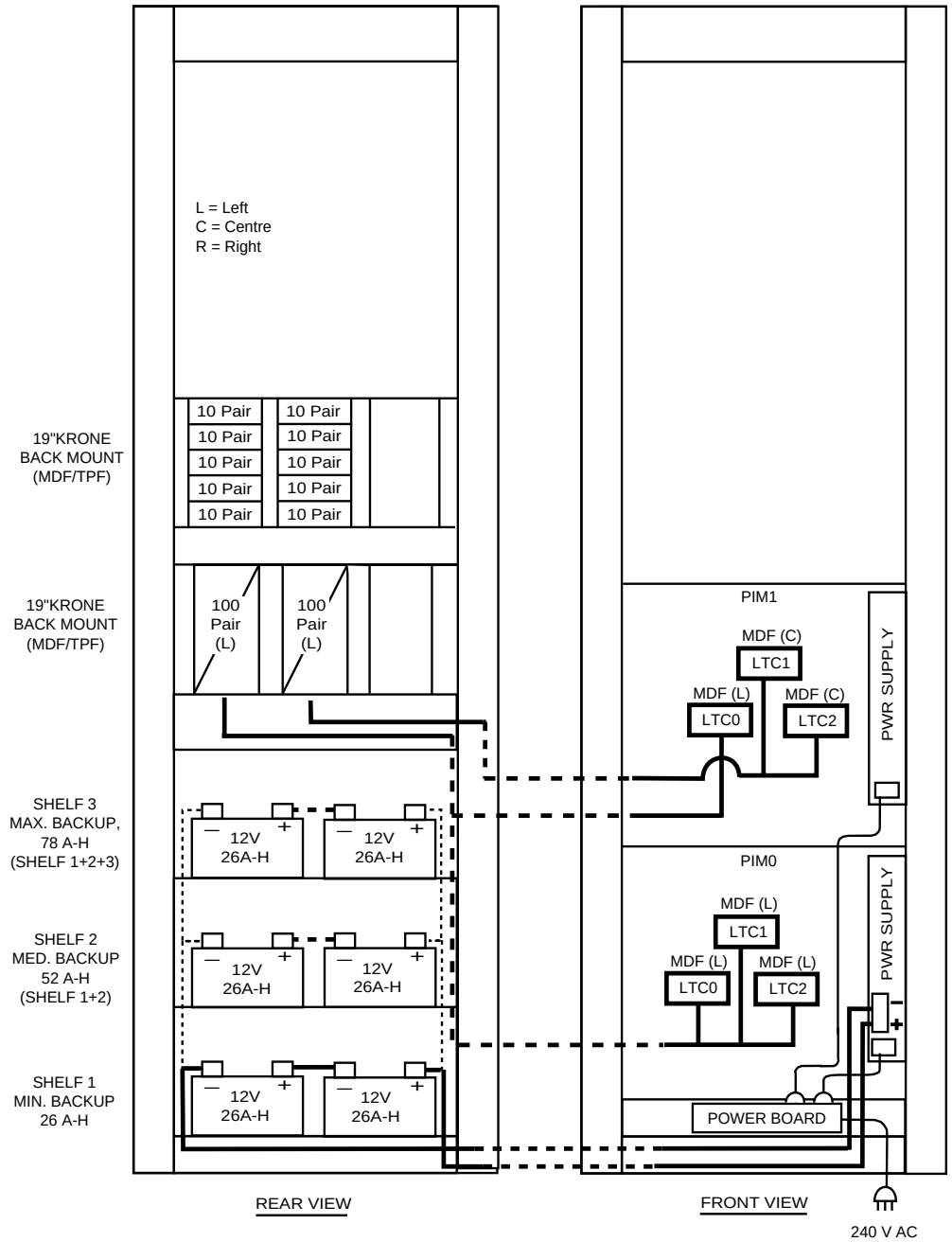
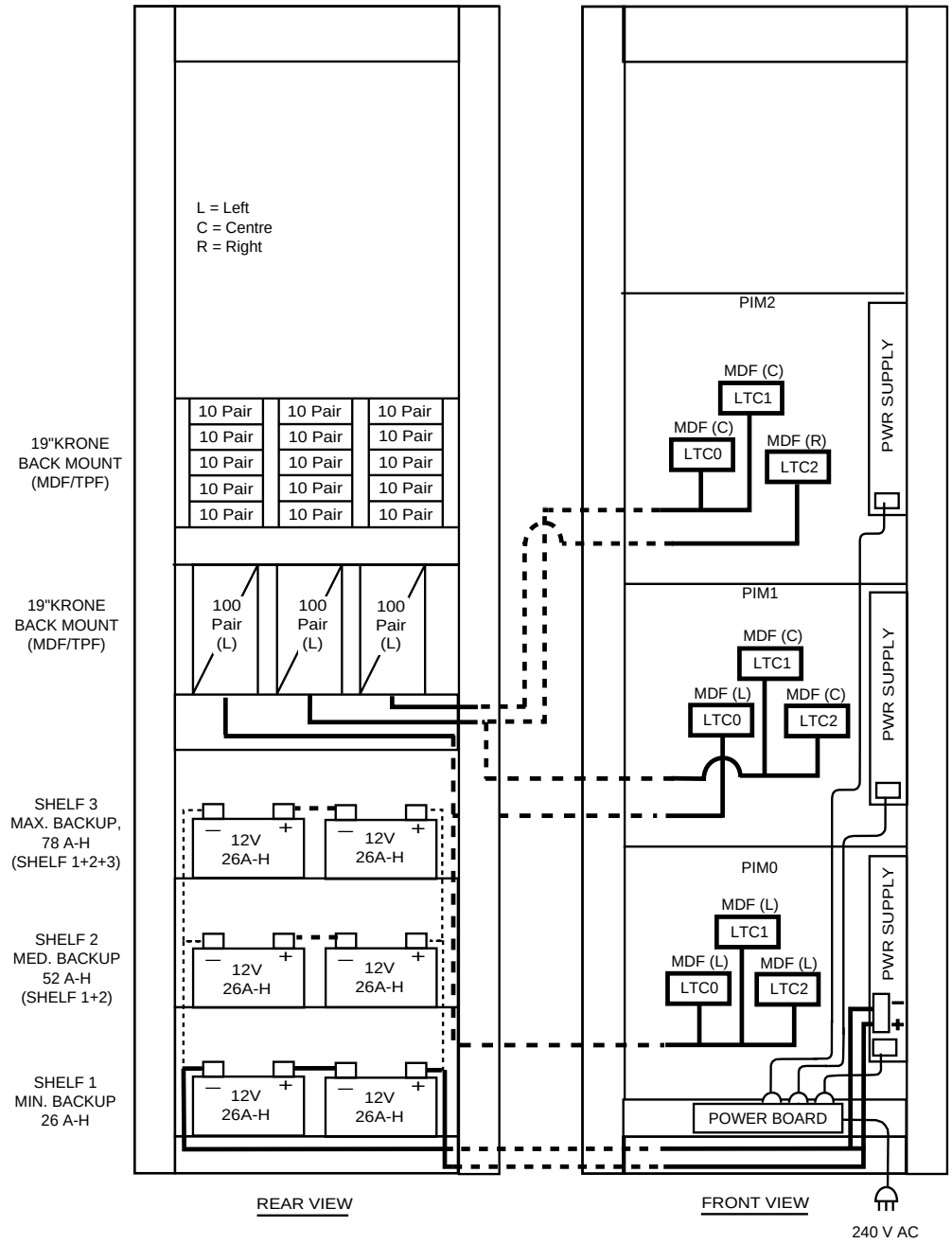


Figure 003-19 1 PIM Configuration (19"Rack Mount)



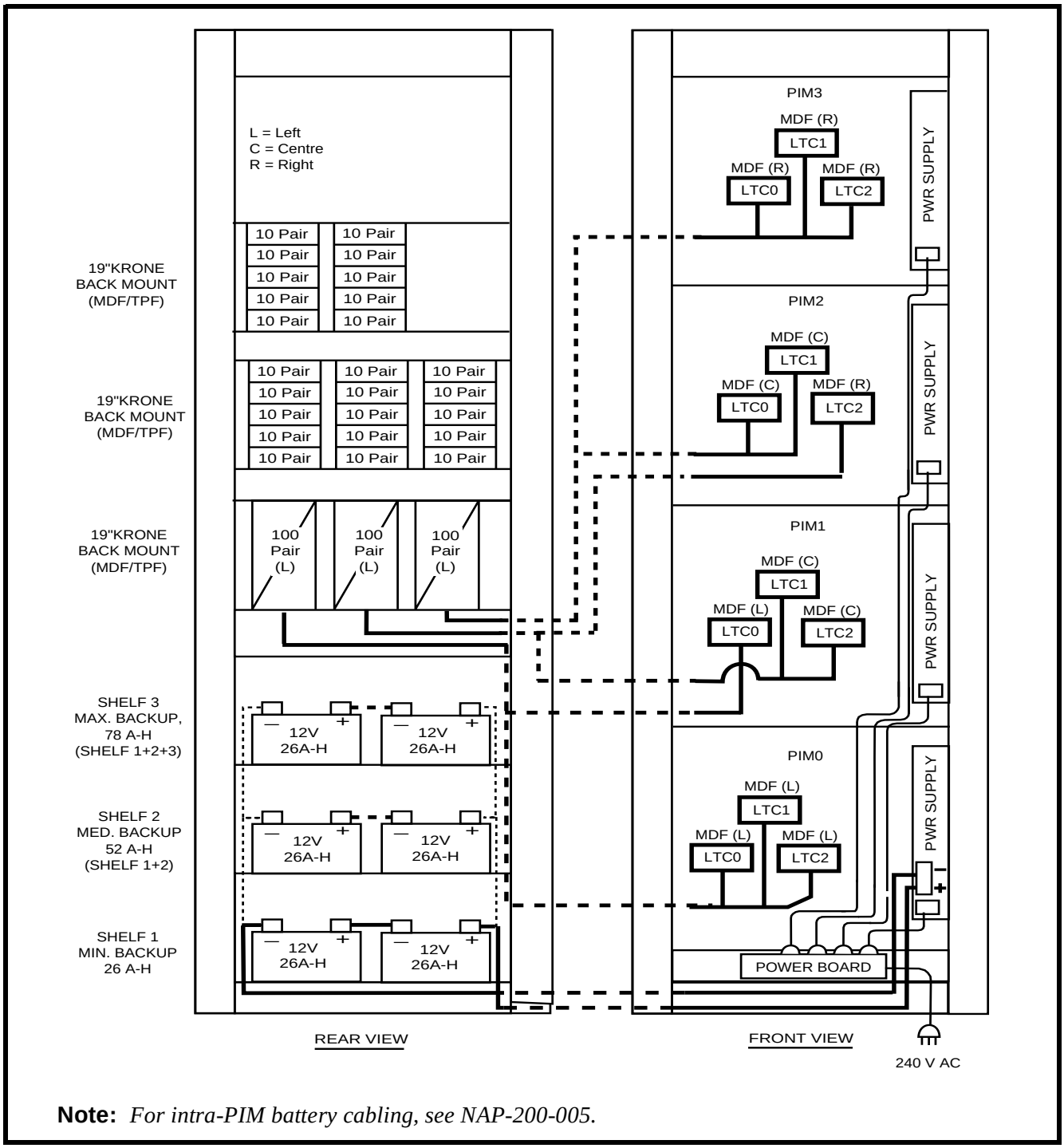
Note: *For intra-PIM battery cabling, see NAP-200-005.*

Figure 003-20 2 PIM Configuration (19”Rack Mount)



Note: *For intra-PIM battery cabling, see NAP-200-005.*

Figure 003-21 3 PIM Configuration (19”Rack Mount)



Note: *For intra-PIM battery cabling, see NAP-200-005.*

Figure 003-22 4 PIM Configuration (19”Rack Mount)

2.1 Cable Connections and Switch Settings on PZ-PW86

Note: *This version is now obsolete.*

WARNINGS, RE MODE SWITCH:

1. SEGMENT 1: Set to ON.
2. SEGMENT 2: Set to ON (left) only, which is 27 volts (FLOAT). The OFF setting is 28 volts (EQUALIZE), to be used **only** for periodic boost-charging of **EXTERNAL VENTED** batteries.
3. This unit is best suited to sealed batteries; the preferred item for vented batteries is PZ-PW86(A).

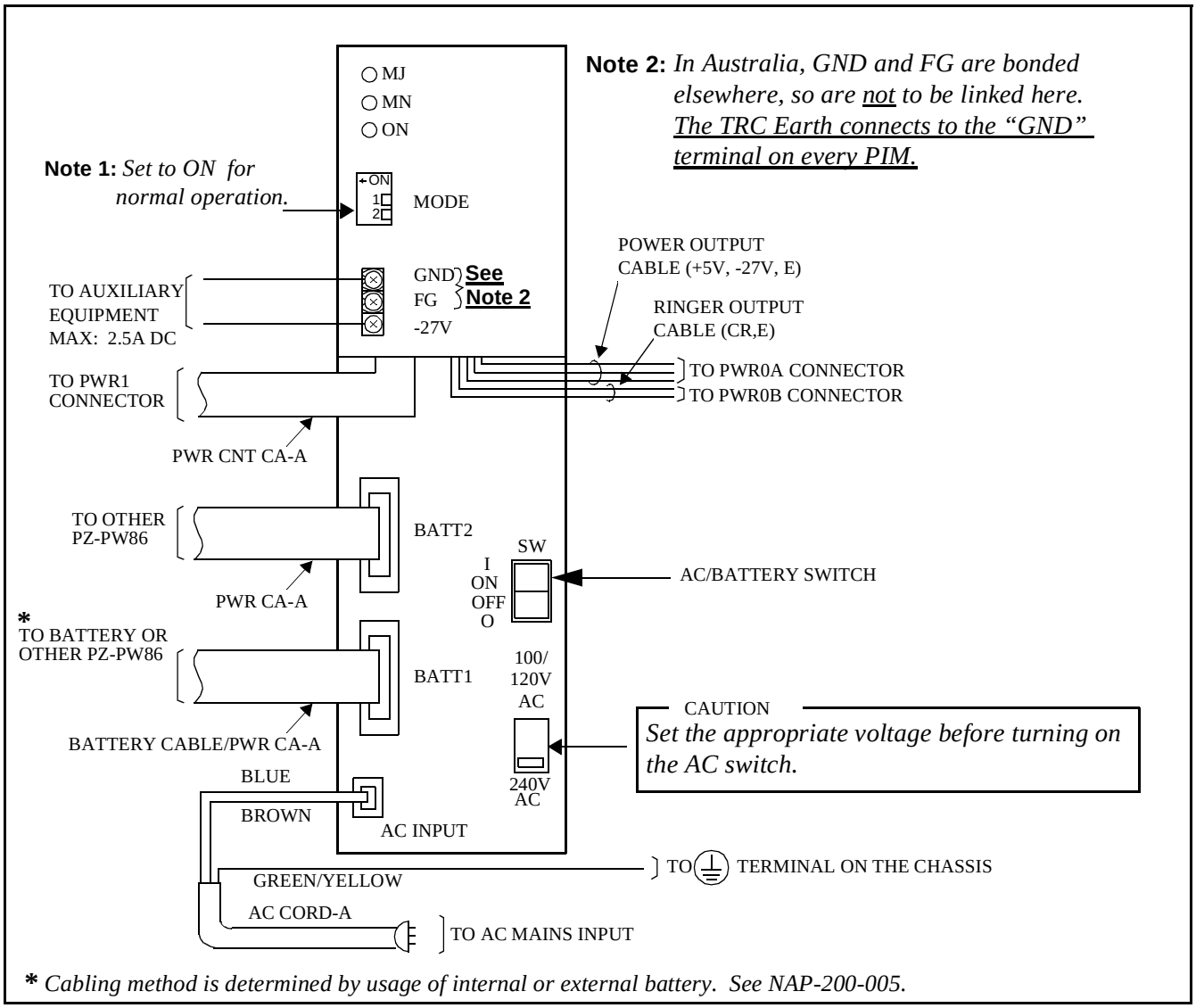


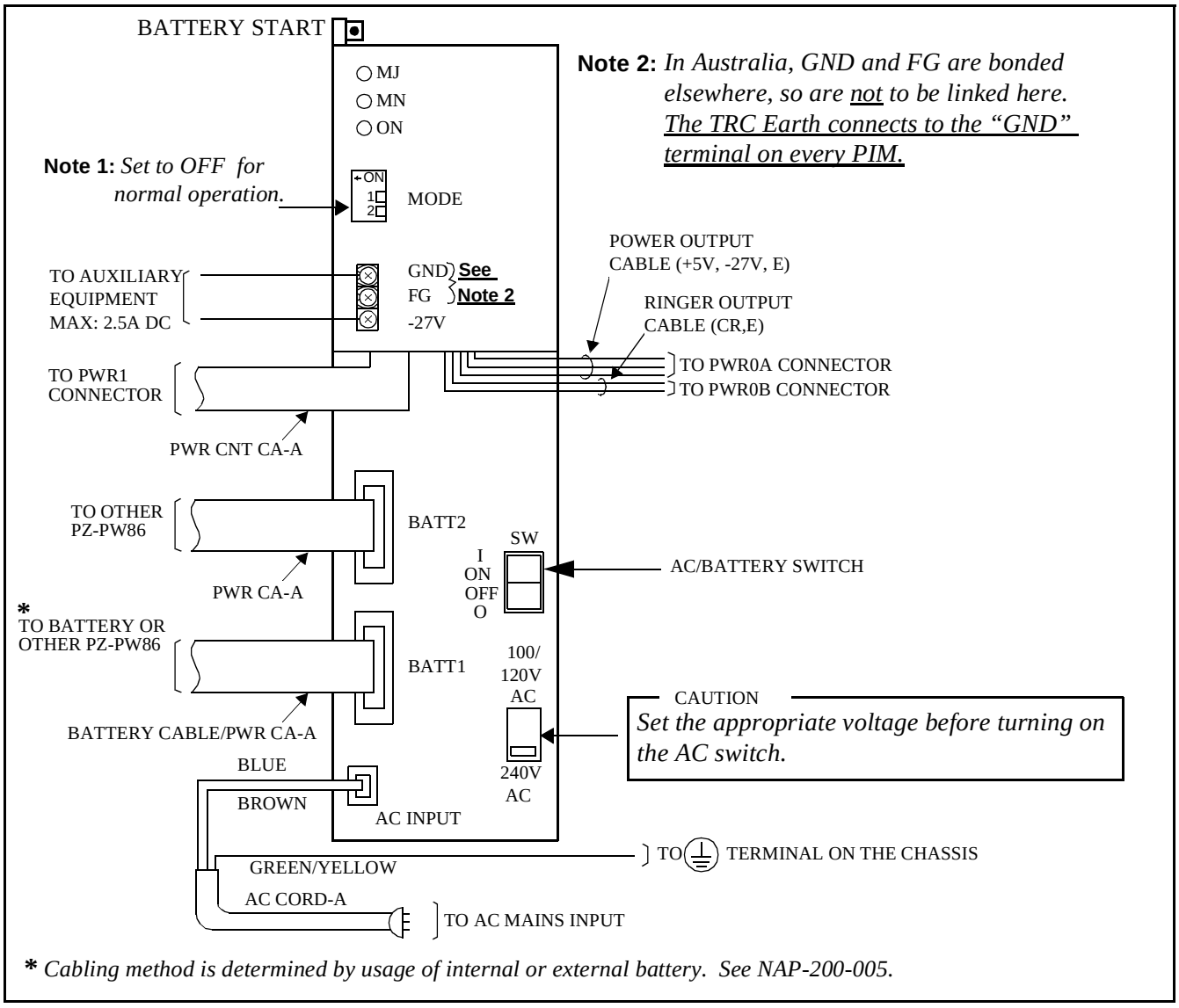
Figure 003-23 Cable Connections and Switch Settings on PZ-PW86

2.2 Cable Connections and Switch Settings on PZ-PW86(A)

Note: *This is now the standard version.*

WARNINGS, RE MODE SWITCH:

1. SEGMENT 1: Set to OFF.
2. SEGMENT 2: Set to "OFF" for 27 volts float, which is optimum for sealed batteries. This setting is also to be used for periodic boost-charging of **EXTERNAL VENTED** batteries.
3. SEGMENT 3: Set to "ON" for 26 volts float, which is the optimum for external vented batteries only.



***** *Cabling method is determined by usage of internal or external battery. See NAP-200-005.*

Figure 003-24 Cable Connections and Switch Settings on PZ-PW86(A)

(1) Confirm the connection of the PWR CNT CA-A and power/ringer cables as shown in Figure 003-25 (These cables are pre-installed).

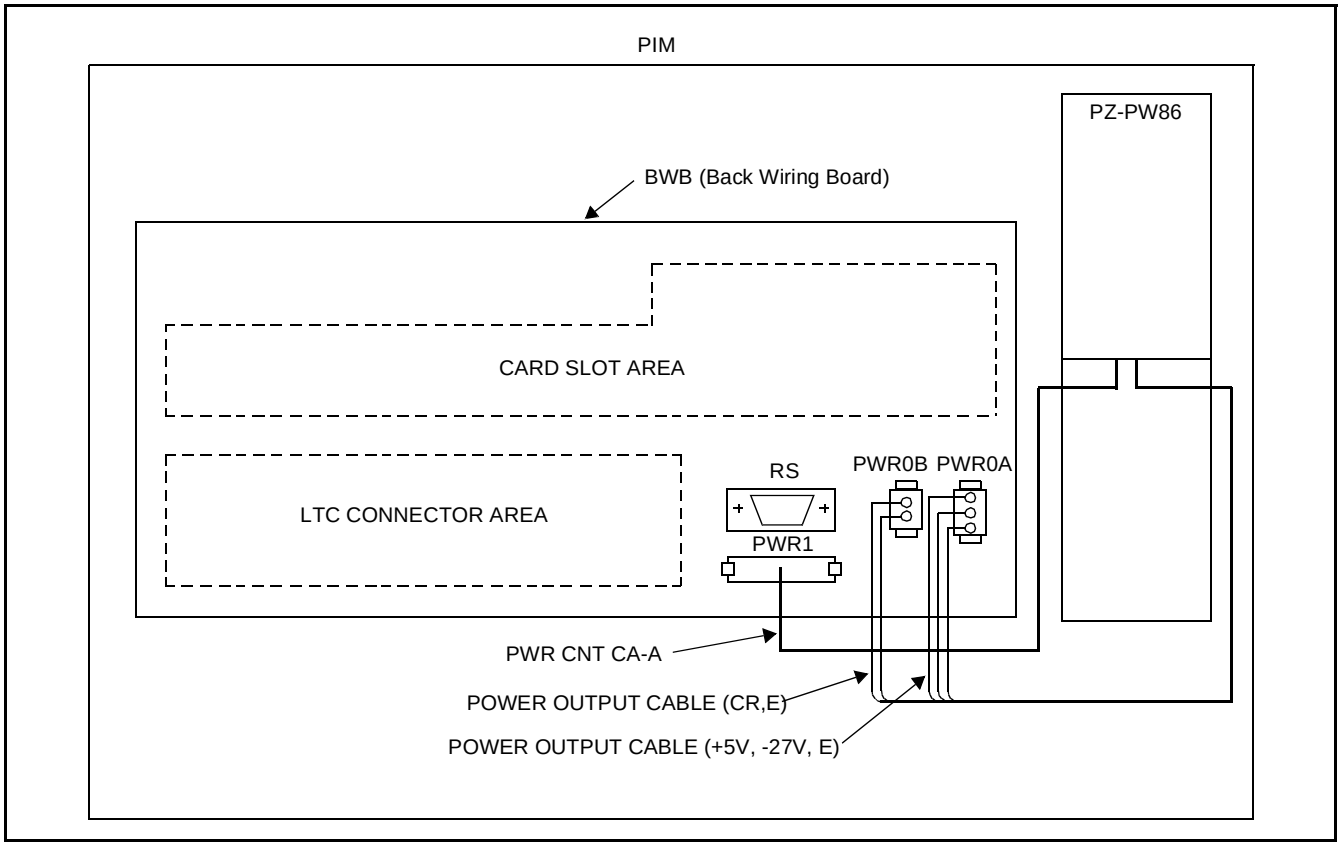


Figure 003-25 Cable Connection between the PZ-PW86 and the BWB

(2) The AC CORD-A (AC Power Cable) wiring to the PZ-PW86 power unit(s) is shown below for a 2-PIM system.

Notes: *1. The multi-way AC outlet is **not** provided on a single-PIM system.*
2. In order to comply with AUSTEL TS001, all AC cords must have additional strain-relief, as shown in the detail below.

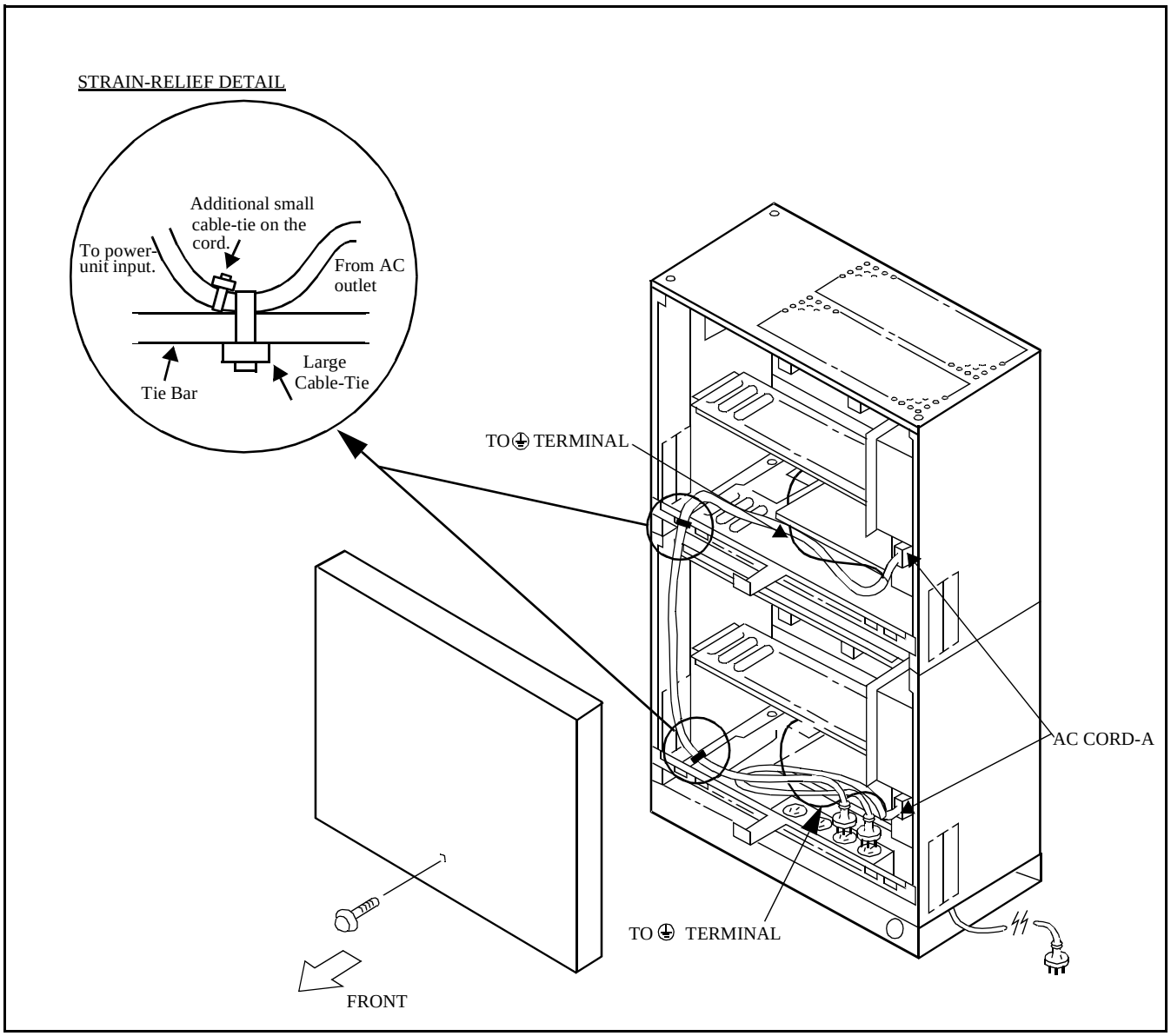


Figure 003-26 AC CORD-A Wiring to BASE

(3) When the system is a multiple-PIM configuration, mount the BS00 Card in the BUS slot of PIM0. Also, mount the BS01 Card in each BUS slot of PIM1 to PIM7.
When the system is a single PIM configuration, neither the BS00 nor BS01 is needed.

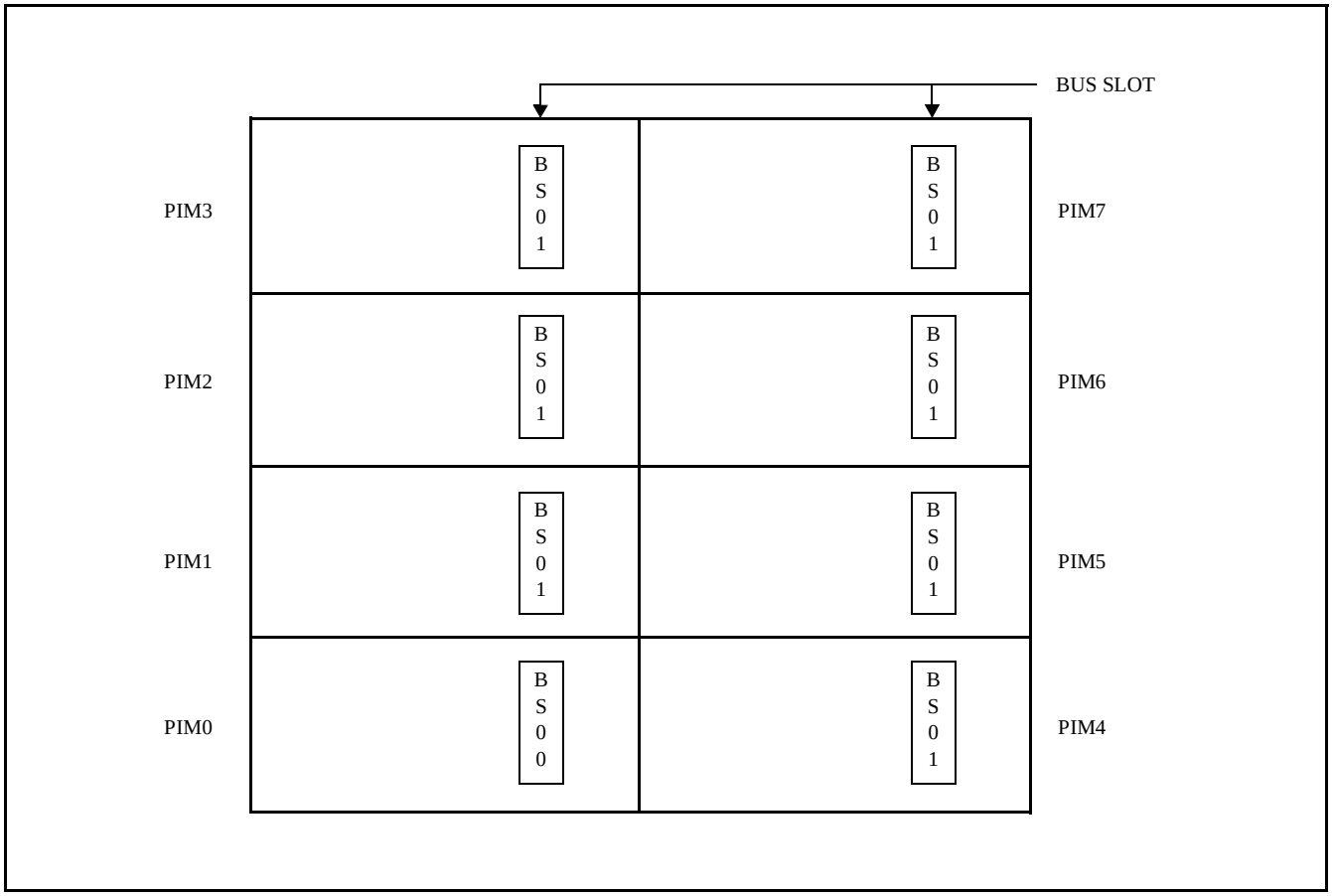


Figure 003-27 Mounting of the BUS Cards

(4) When the system is a multiple-PIM configuration, connect all the BUS Cards (BS00/BS01) to each other using BUS cables, as shown in Figure 003-29.

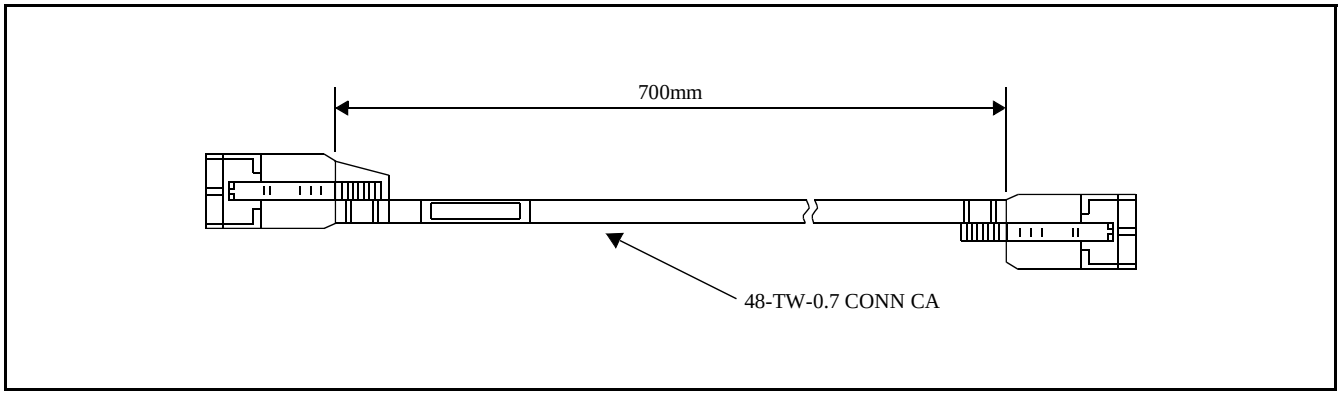


Figure 003-28 BUS Cable

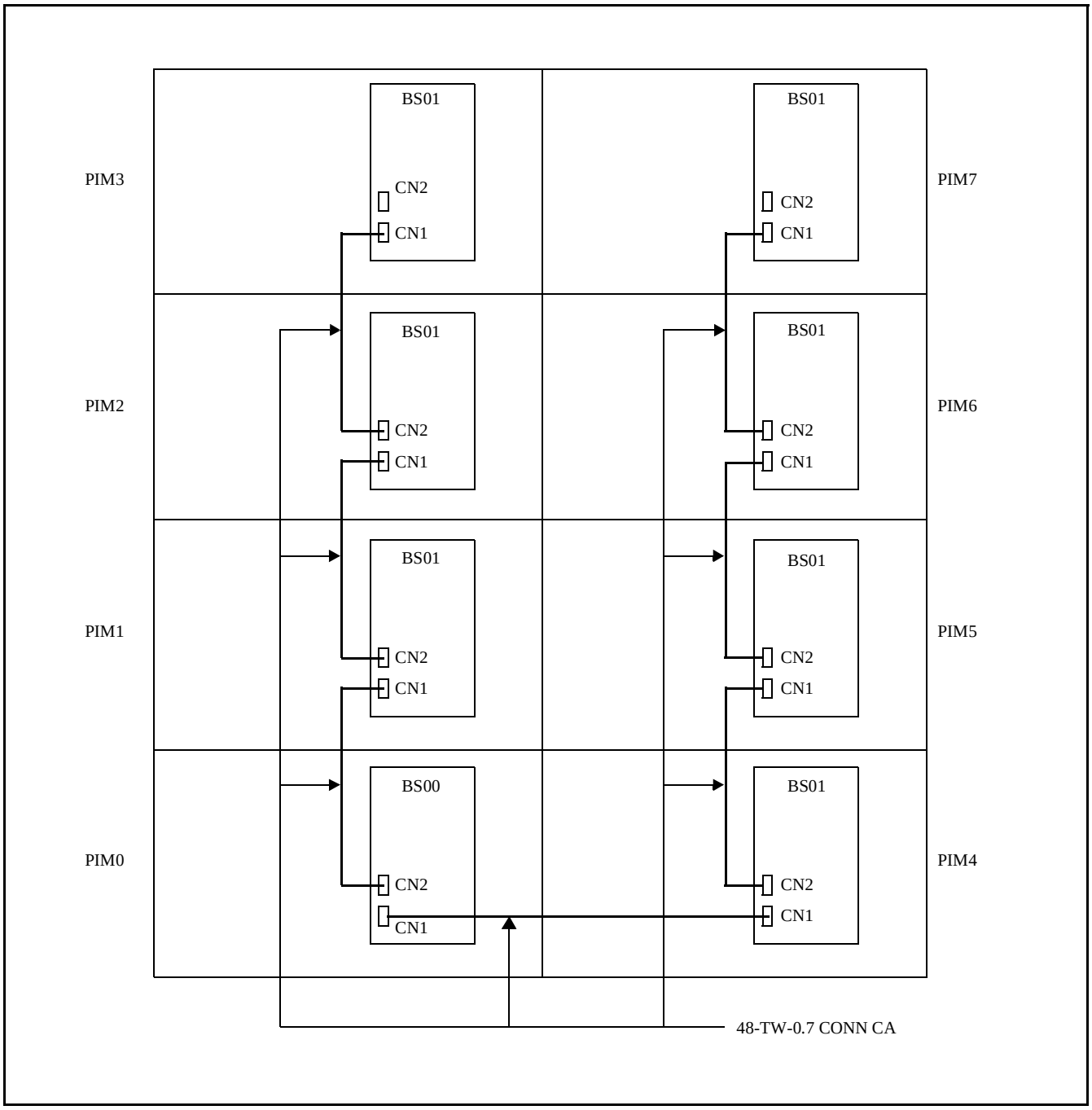


Figure 003-29 Connection of the BUS Cables

1. Installation of SN694 ATTCON

(1) Screw the handset support onto the bottom of the console as shown in Figure 004-1.

Note: *The handset support can be mounted at either the right side or left side of the console body.*

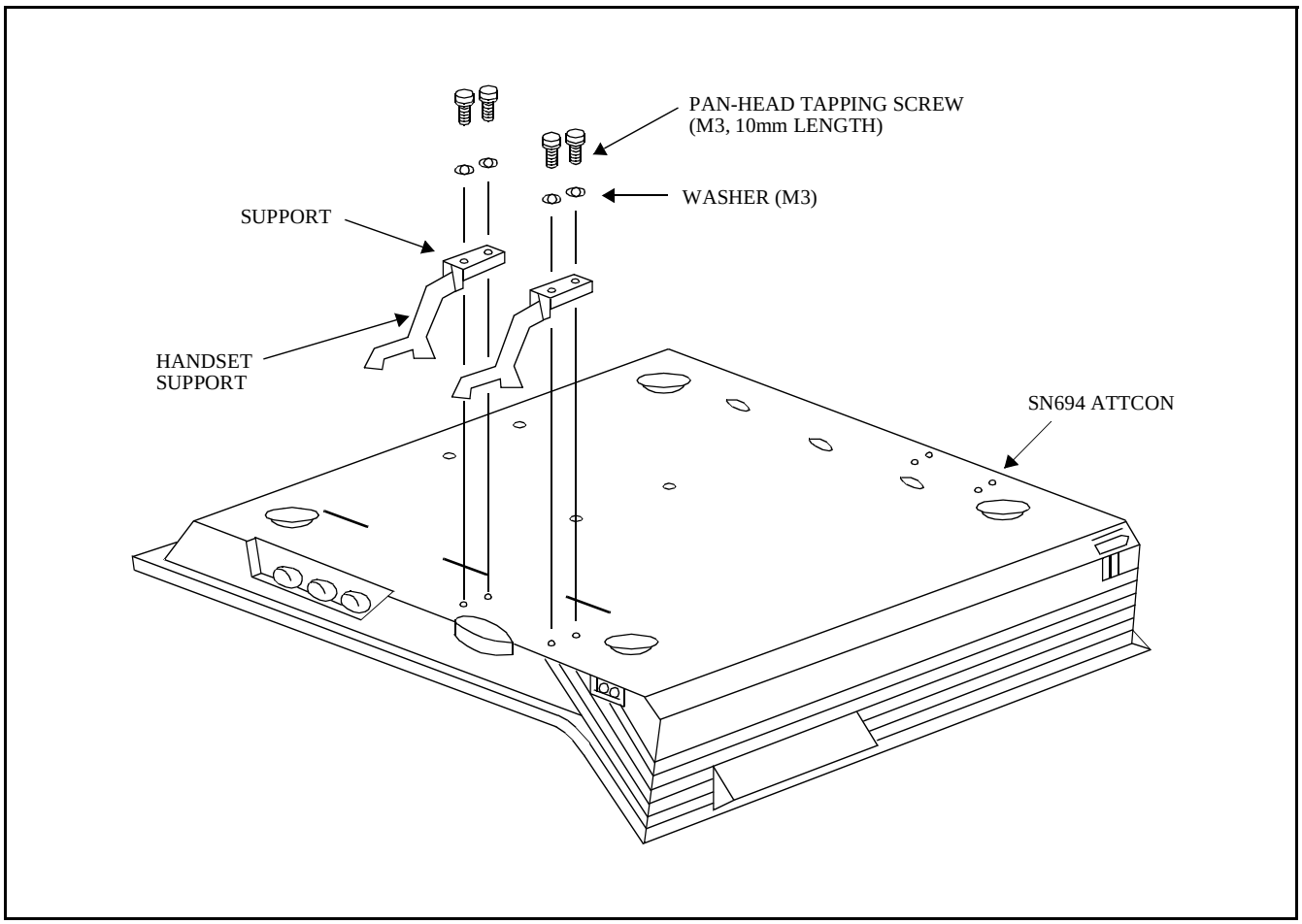
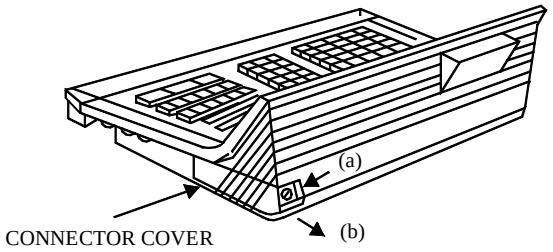


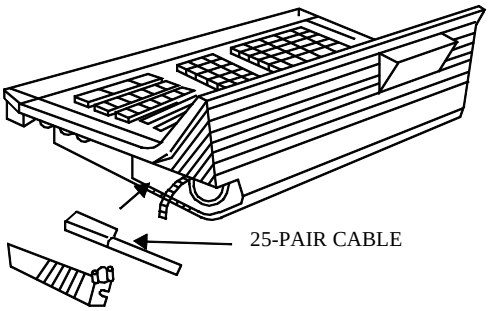
Figure 004-1: Mounting of Handset Support

(2) Connect an ATT cable to the SN694 ATTCON according to the steps below.

- Remove the screw from the connector cover.
- Press the retaining clip in the direction of (a) and slide the cover in the direction of (b). The cover will come off.



- Plug the cable into the connector inside the Console, and screw on to the connector. Then tighten the cable onto the console by the retaining band.



- Place the connector cover back onto its position and slide it in the direction of (a).
- Ensure that the retaining clip is seated.
- Replace the screw in the connector cover.

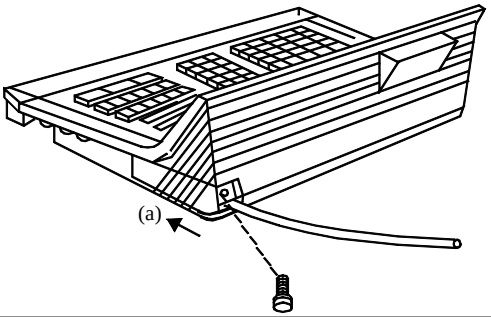
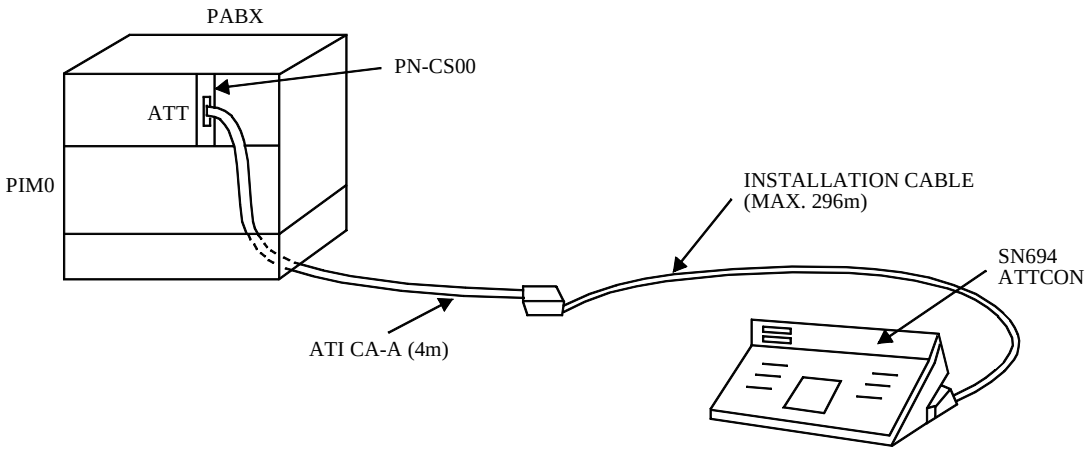


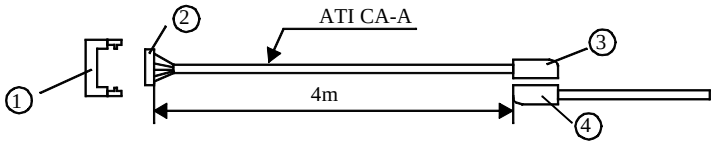
Figure 004-2: ATT Cable Connection to SN694 ATTCON

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

(3) Connect the ATT cable to Main Equipment as shown in Figure 004-3.



(a) ATI CA-A



① : ATT CONNECTOR (J)

1A	E	7A	NITE
1B		7B	JACK
1C		7C	KA
1D		7D	KB
2A		8A	LMPY
2B		8B	LMPZ
2C		8C	LMJ
2D		8D	M48V
3A		9A	
3B		9B	
3C		9C	
3D		9D	
4A		10A	
4B		10B	
4C		10C	
4D		10D	
5A		11A	
5B		11B	
5C		11C	
5D	E	11D	
6A	OVRA	12A	
6B	OVRB	12B	
6C	A	12C	
6D	B	12D	M48V

② : HOUSING CONNECTOR (P)

7A	NITE	1A	E
7B	JACK	1B	
7C	KA	1C	
7D	KB	1D	
8A	LMPY	2A	
8B	LMPZ	2B	
8C	LMJ	2C	
8D	M48V	2D	
9A		3A	
9B		3B	
9C		3C	
9D		3D	
10A		4A	
10B		4B	
10C		4C	
10D		4D	
11A		5A	
11B		5B	
11C		5C	
11D		5D	E
12A		6A	OVRA
12B		6B	OVRB
12C		6C	A
12D	M48V	6D	B

③ : CHAMP CONNECTOR (J)

26	OVRA	1	OVRB
27	BN48	2	BN48
28		3	≀
29		4	BN48
30		5	G
31		6	
32		7	
33		8	
34		9	
35		10	
36		11	
37		12	
38		13	
39		14	
40	BN48	15	
41	G	16	
42	≀	17	G
43	G	18	ALM
44	NC	19	G
45	A	20	B
46	NC	21	G
47	JACK	22	≀
48	NITE	23	G
49	AKEYA	24	AKEYB
50	ALMPY	25	ALMPZ

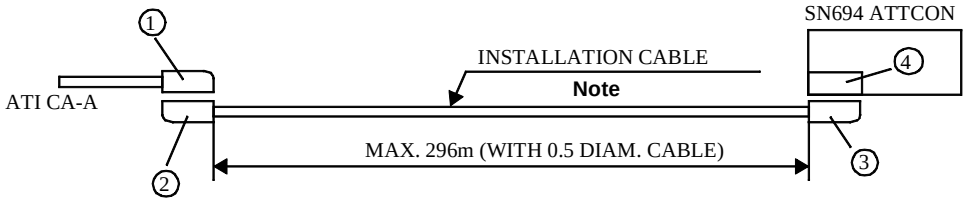
④ : CHAMP CONNECTOR (P)

1	OVRA	26	OVRB
2	BN48	27	BN48
3	≀	28	
4	BN48	29	
5	G	30	
6		31	
7		32	
8		33	
9		34	
10		35	
11		36	
12		37	
13		38	
14		39	
15		40	BN48
16		41	G
17	G	42	≀
18	ALM	43	G
19	G	44	NC
20	B	45	A
21	G	46	NC
22	≀	47	JACK
23	G	48	NITE
24	AKEYB	49	AKEYA
25	ALMPZ	50	ALMPY

Figure 004-3: ATT Cable Connection to Main Equipment

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

(b) INSTALLATION CABLE



① : CHAMP CONNECTOR (J)

26		1	
27	BN48	2	BN48
28		3	≀
29		4	BN48
30		5	G
31		6	
32		7	
33		8	
34		9	
35		10	
36		11	
37		12	
38		13	
39		14	
40	BN48	15	
41	G	16	
42	≀	17	G
43	G	18	ALM
44		19	G
45	A	20	B
46		21	G
47	JACK	22	≀
48	NITE	23	G
49	AKEYA	24	AKEYB
50	ALMPY	25	ALMPZ

② : CHAMP CONNECTOR (P)

1		26	
2	BN48	27	BN48
3	≀	28	
4	BN48	29	
5	G	30	
6		31	
7		32	
8		33	
9		34	
10		35	
11		36	
12		37	
13		38	
14		39	
15		40	BN48
16		41	G
17	G	42	≀
18	ALM	43	G
19	G	44	
20	B	45	A
21	G	46	
22	≀	47	JACK
23	G	48	NITE
24	AKEYB	49	AKEYA
25	ALMPZ	50	ALMPY

③ : CHAMP CONNECTOR (J)

26	OVRA	1	OVRB
27	BN48	2	BN48
28		3	≀
29		4	BN48
30		5	G
31		6	
32		7	
33		8	
34		9	
35		10	
36		11	
37		12	
38		13	
39		14	
40	BN48	15	
41	G	16	
42	≀	17	G
43	G	18	ALM
44		19	G
45	A	20	B
46		21	G
47	JACK	22	≀
48	NITE	23	G
49	AKEYA	24	AKEYB
50	ALMPY	25	ALMPZ

④ : ATT (P)

1	OVRA	26	OVRB
2	BN48	27	BN48
3	≀	28	
4	BN48	29	
5	G	30	
6		31	
7		32	
8		33	
9		34	
10		35	
11		36	
12		37	
13		38	
14		39	
15		40	BN48
16		41	G
17	G	42	≀
18	ALM	43	G
19	G	44	
20	B	45	A
21	G	46	
22	≀	47	JACK
23	G	48	NITE
24	AKEYB	49	AKEYA
25	ALMPZ	50	ALMPY

Note 1: *The total length of the installation cable plus ATI CA-A must be maximum 300 m.*

Note 2: *If possible, the ATI card (PN-CS00) should be unplugged, when connecting/disconnecting the SN694 ATTCON to/from the system. This is because there is some possibility that the console may be damaged. Ensure that the Make Busy switch of the ATI card is ON (UP) during removal/insertion.*

Figure 004-3: ATT Cable Connection to Main Equipment (Continued)

2. Installation of SN611 ATTCON

(1) Screw the handset support onto the bottom of the console as shown in Figure 004-4.

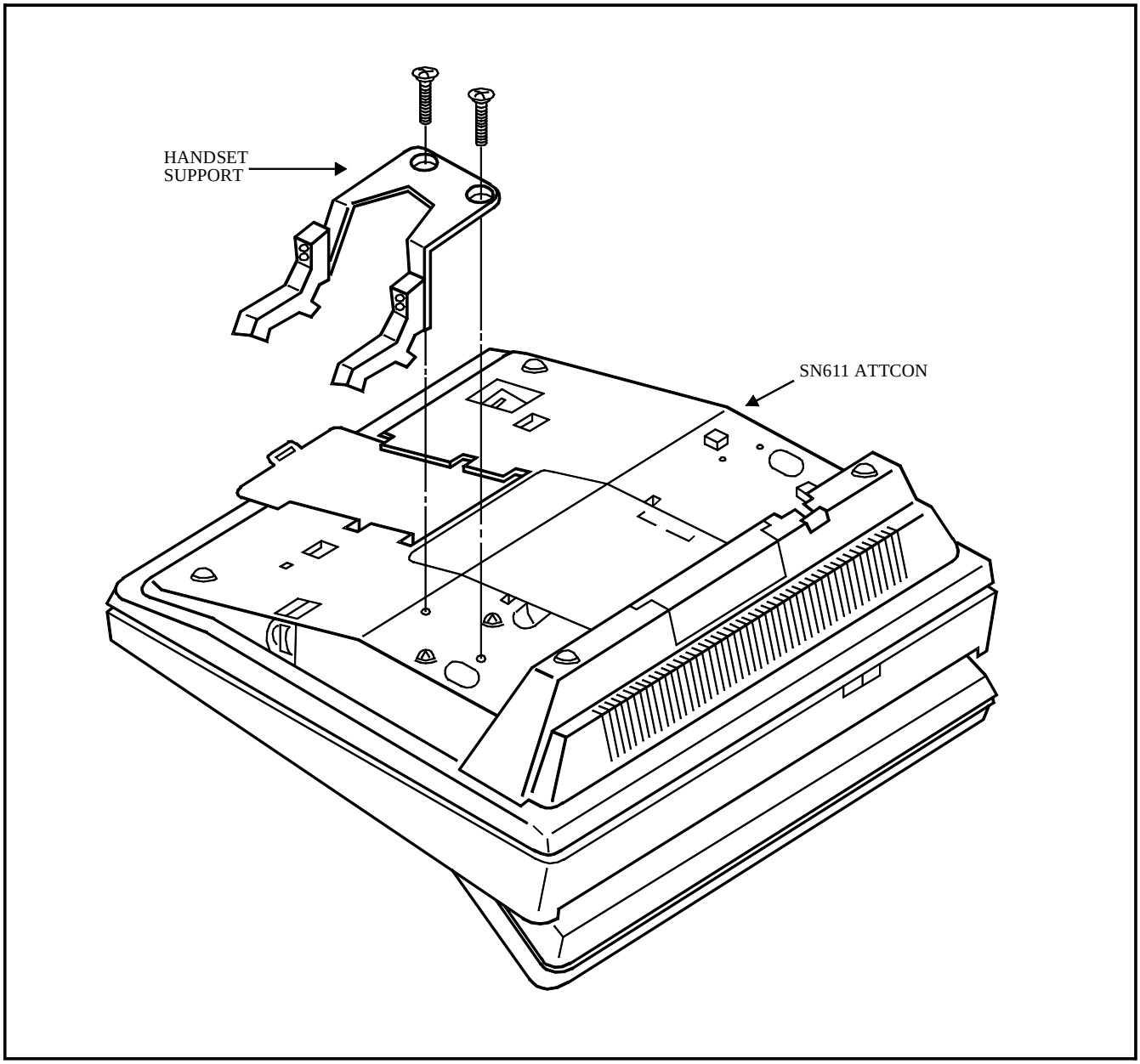


Figure 004-4: Mounting of Handset Support to SN611 ATTCON

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

(2) To provide the console with the headset in place of the handset, unplug the modular cord from the handset and then plug the modular cord to the Jack Set.

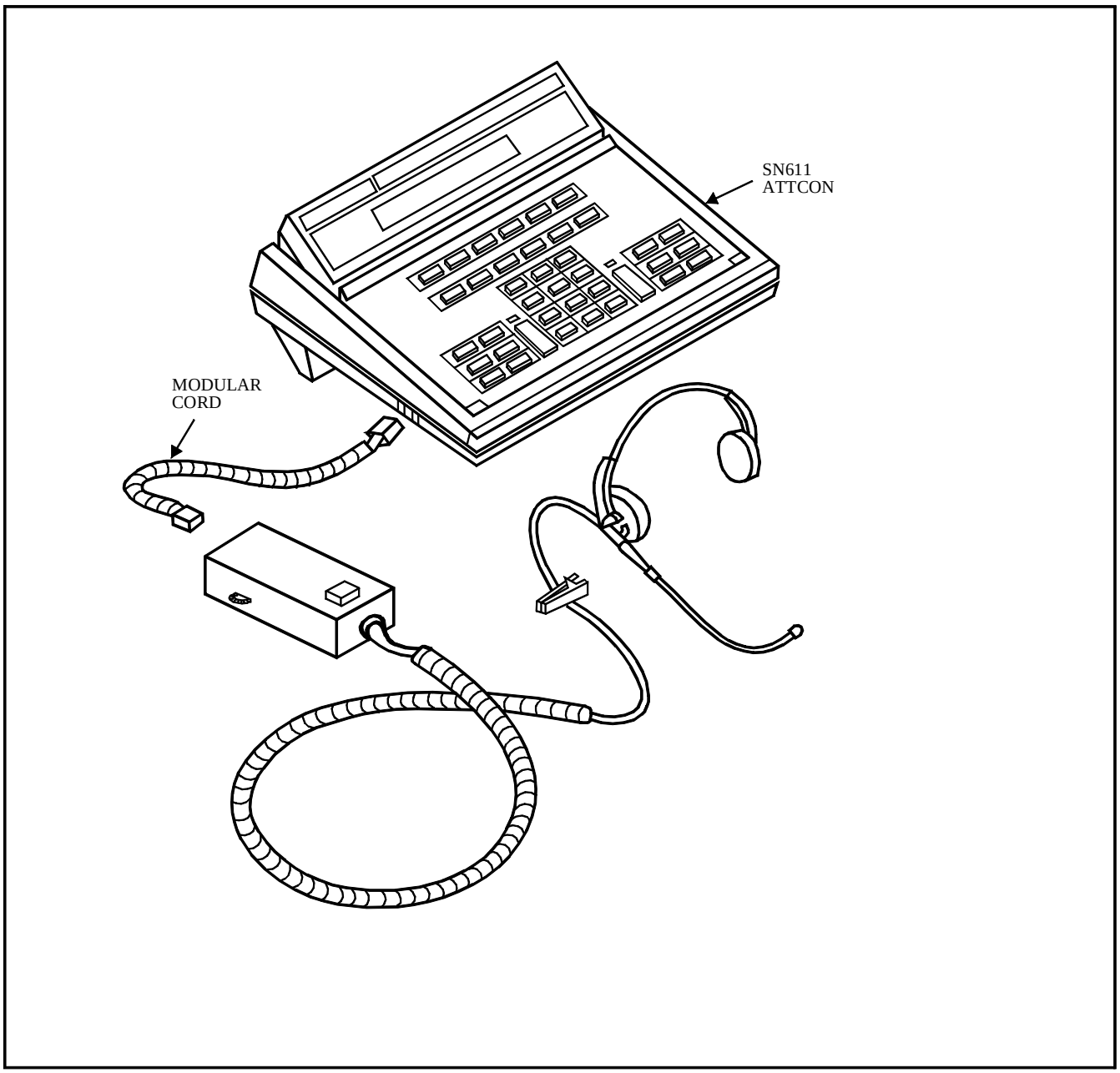


Figure 004-5: Jack Set Installation for SN611 ATTCON

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

(3) Set the switch located inside the console according to type of headset/handset connected.

- 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.

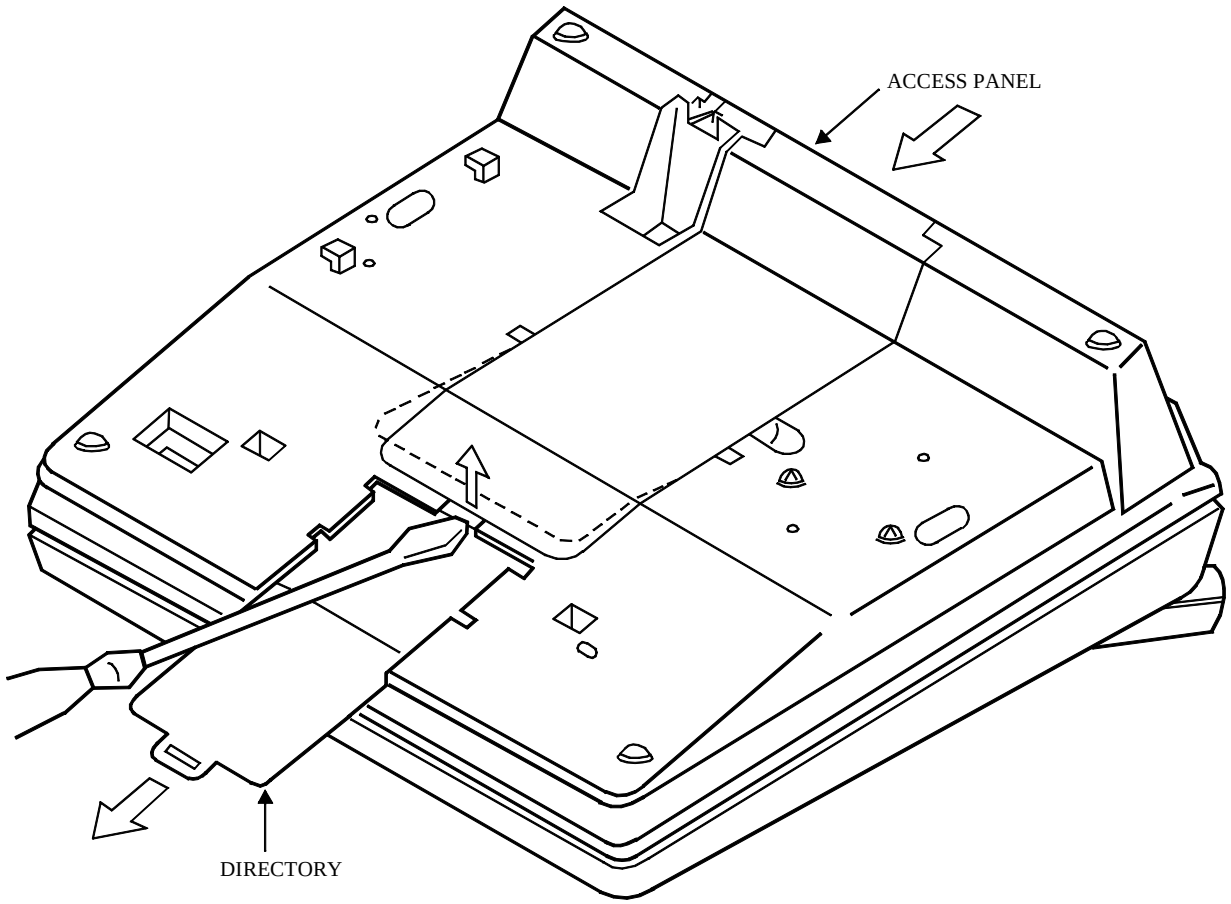


Figure 004-6: Access to Switch on SN611 ATTCON

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

- Set the switch according to the type of headset/handset connected.
  C: Carbon Type Handset/Headset
  S: Electret type Headset (e.g. “Supra”)
  D: D^{term} Type Handset (Dynamic)

- Replace the directory and access panel.

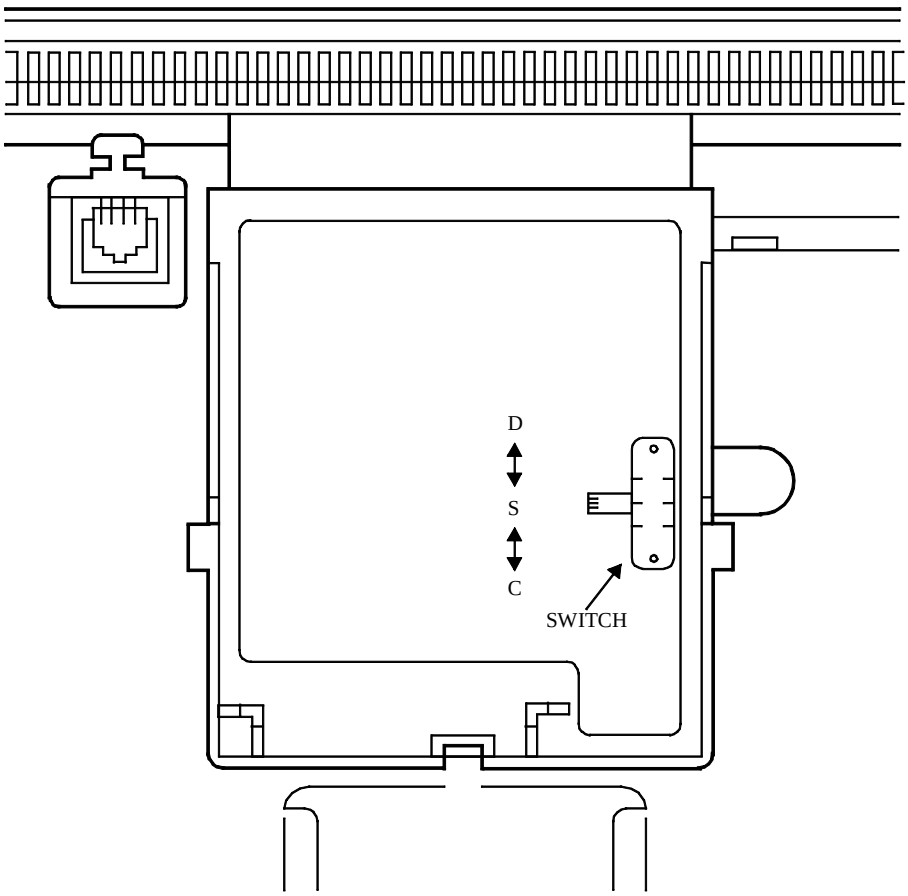


Figure 004-7: Switch Setting on SN611 ATTCON

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

(4) Plug the line cord into the modular jack located at the bottom of the console. For the MDF cross connection for SN611 ATTCON, refer to NAP- 200-007 (Figure 007-13).

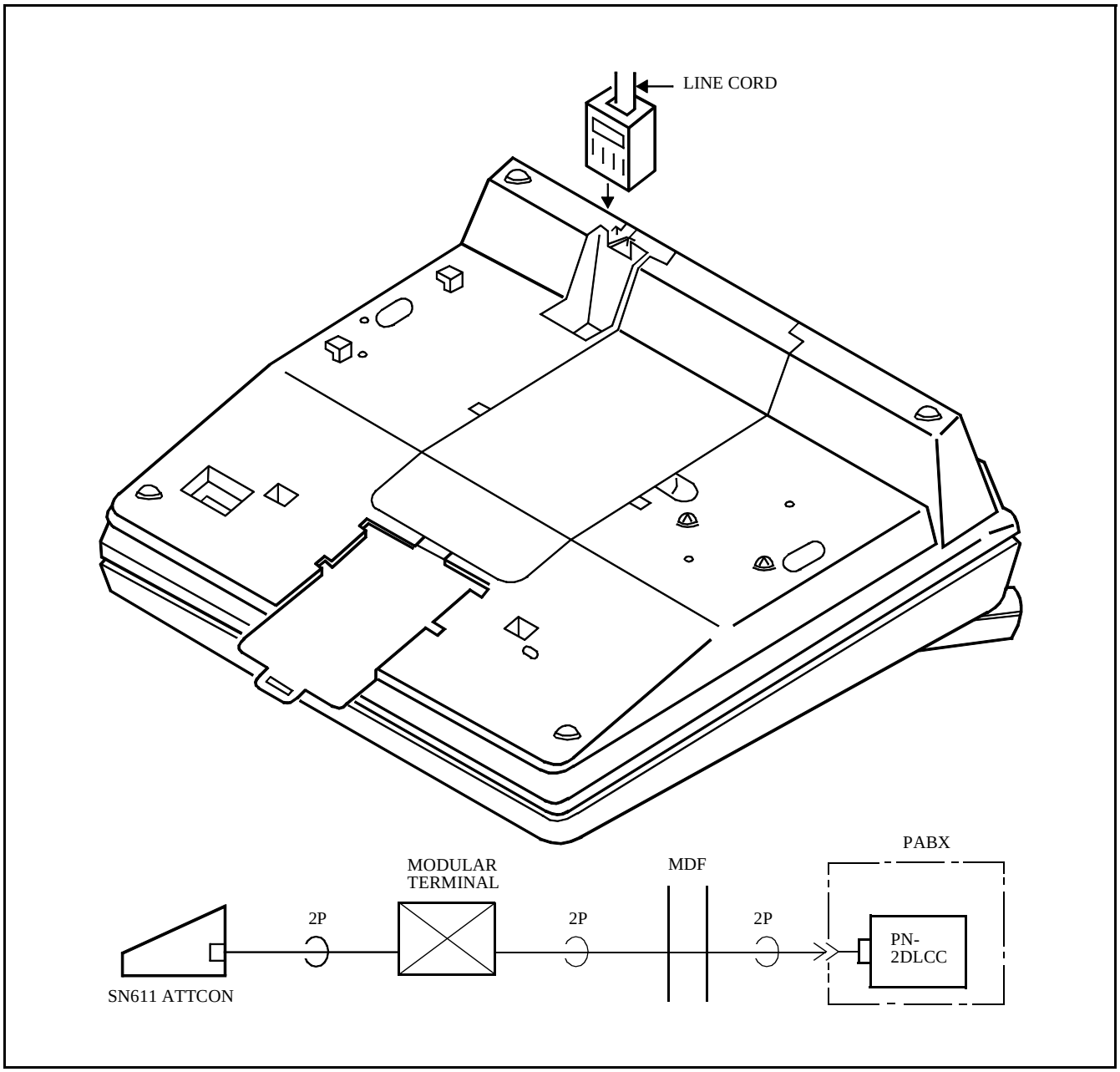


Figure 004-8: Cable Connection to SN611 ATTCON

NAP- 200-005
Sheet 1/4
Connection of Battery

1. Internal Battery Connection

(1) Mount a battery unit (24V, 3.4 AH) into each PIM as shown in Figure 005-1.
(2) Set the “MODE” Switch on the PZ-PW86/PZ-PW86(A) power unit(s) to the correct Float Voltage, as shown in NAP-200-003.

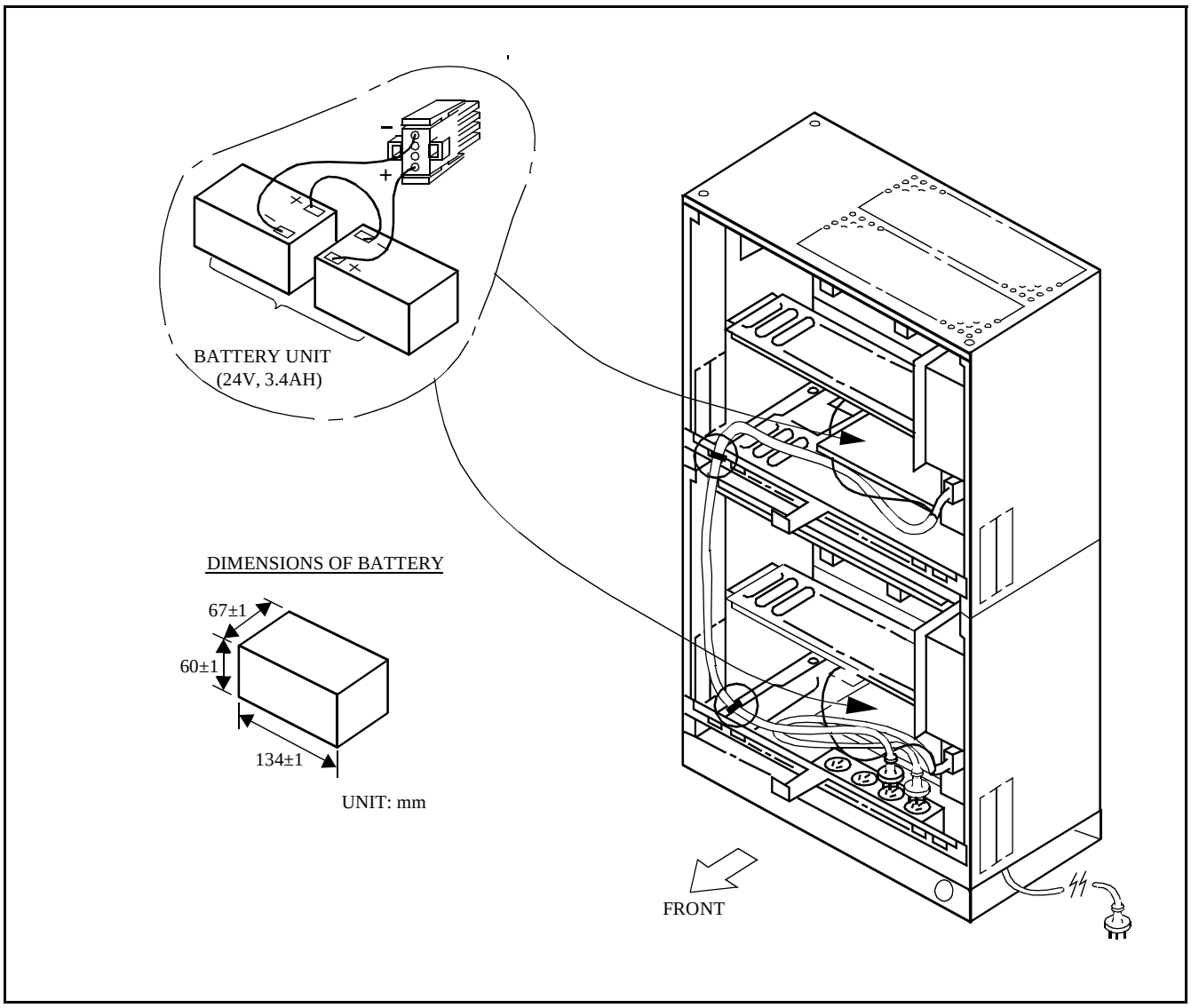


Figure 005-1: Internal Battery Mounting

(3) Plug the battery-cable connector into the BATT1 connector on the PZ-PW86 as shown in Figure 005-2.

(4) Secure the batteries and battery-cable using tie-wraps as shown in Figure 005-2.

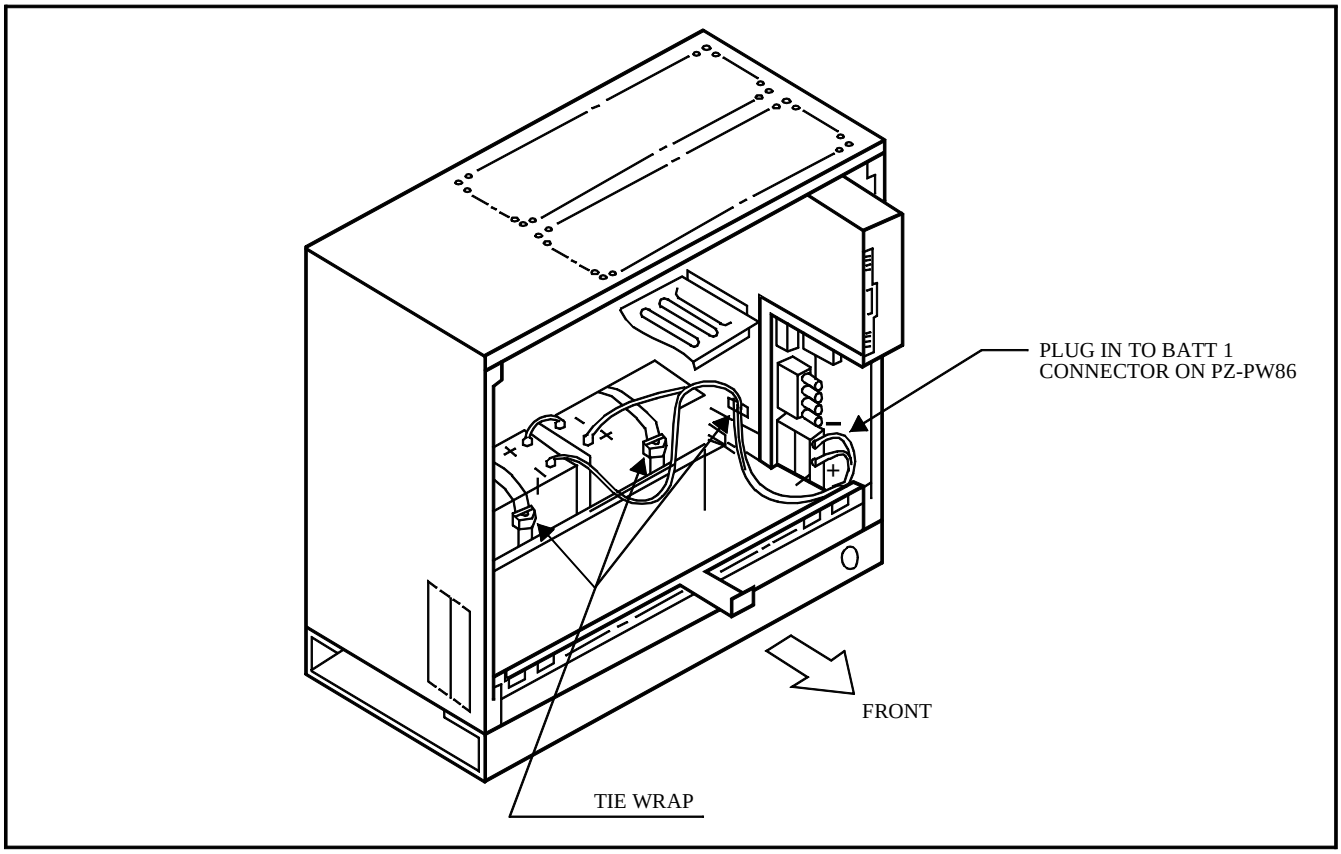


Figure 005-2: Internal Battery Connection

(5) When the system is a multiple-PIM configuration, connect the PZ-PW86 Cards to each other using PWR CA-A cables, as shown in and Figures 005-4 or 005-5.

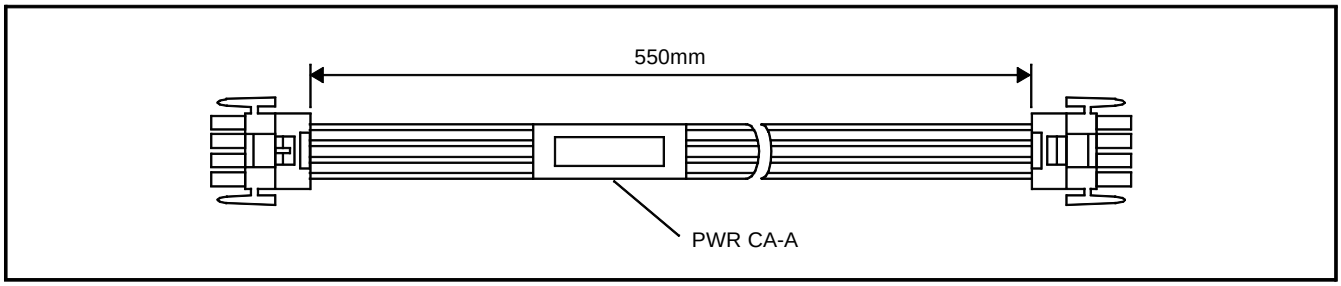


Figure 005-3 PWR CA-A

NAP- 200-005
Sheet 3/4
Connection of Battery

(6) When the system is a multiple PIM configuration, provide the following connections to the internal batteries.

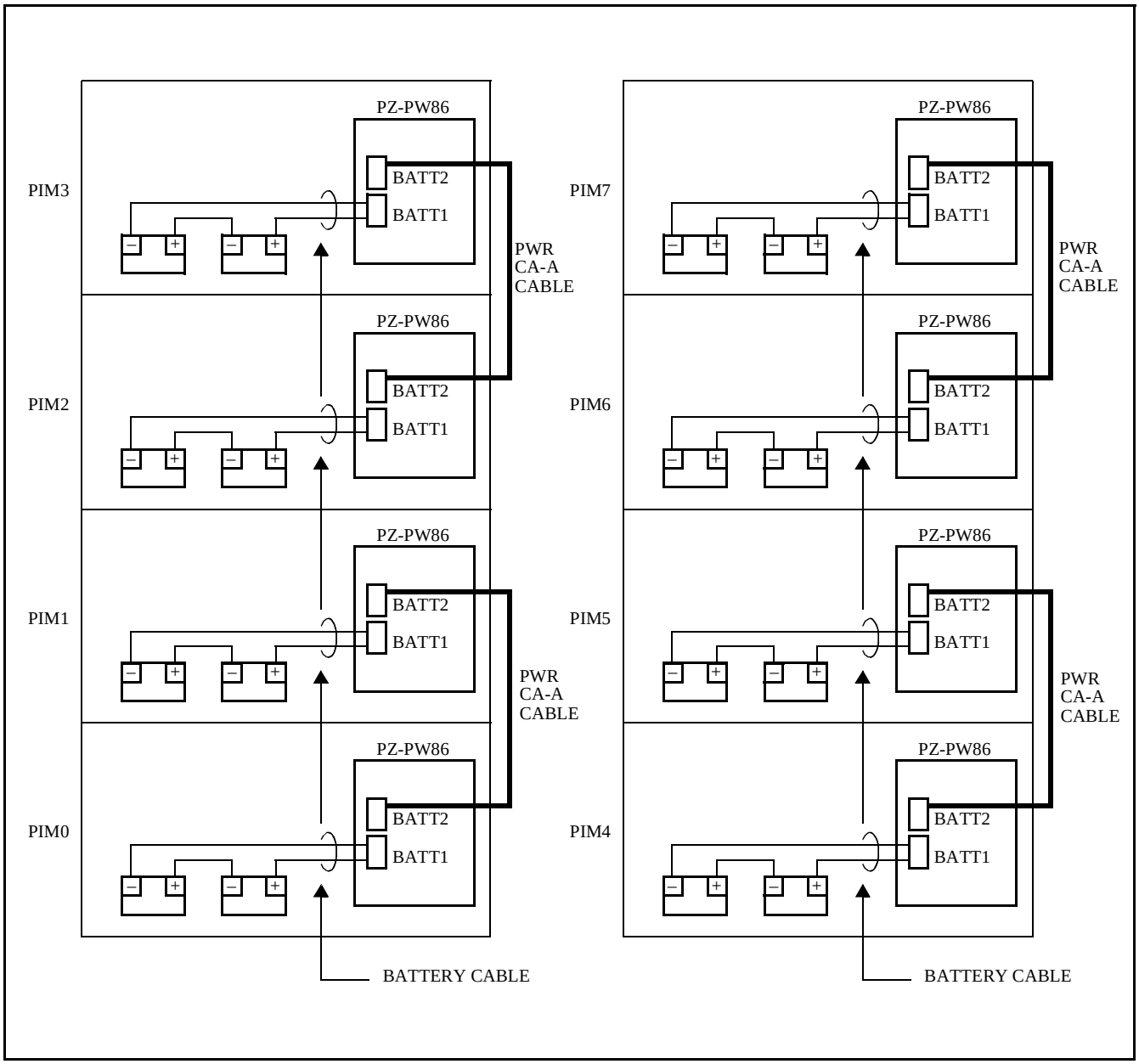


Figure 005-4: Internal Battery Connection for 8 PIMs Configuration

NAP- 200-005
Sheet 4/4
Connection of Battery

2. External Battery Connection

When using an external battery, provide the following connections.

Notes: *1. One battery pack is required for each 4-PIM stack, to ensure that sufficient recharge current is available.*

2. The capacity of each external battery is determined by the customers' back-up requirements.

*3. **CAUTION**: For both sealed and vented batteries, set the "mode" switch on the PZ-PW86/PZ-PW86(A) unit(s) to the correct Float Voltage. The "Equalize" option applies **ONLY** to external **vented** batteries for periodic equalize (BOOST) charging, which can be done on-line. When the BATTM is used, the battery capacity is in multiples of 26 A-H, up to a maximum of three sets in parallel for each PIM stack.*

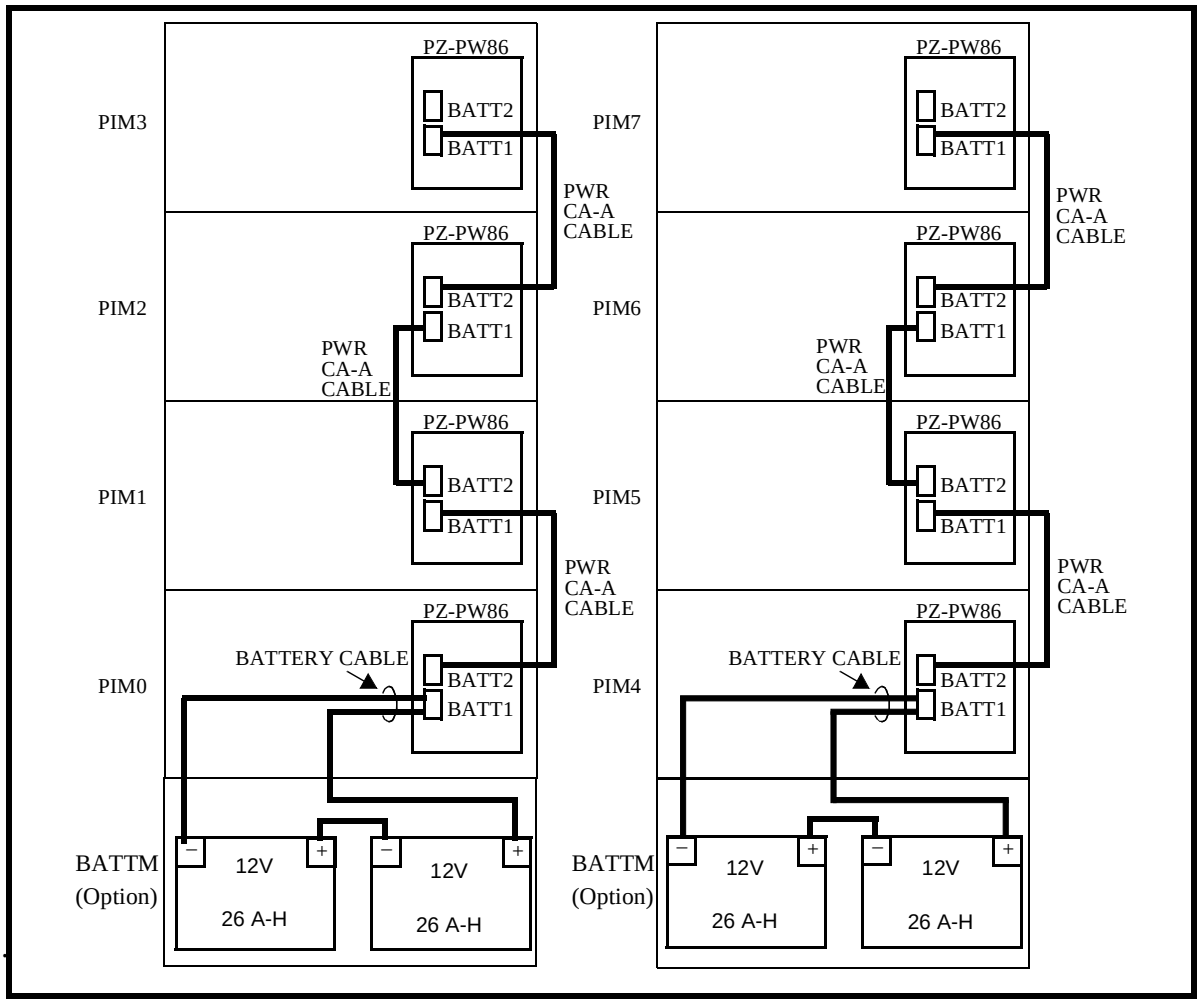


Figure 005-5: External Battery Connection for 8 PIMs Configuration

NAP- 200-006
Sheet 1/3
Cable Running to MDF

1. Cable Running to MDF

(1) Usually a pre-wired MDF is provided ex-factory for new installations. In this case, 50-wire ribbon cables are used between the PABX and the MDF, as shown in NAP-200-003.

(2) In order to facilitate the termination of standard 25-pair cables which are shown in Figure 006-2 from the system to an existing MDF, the length of each cable to be used should be determined according to the distance between the MDF and the system, and each cable should be labelled at both ends using cable number or cable designation as shown in Table 006-1.

Note: *Only centre-loaded CHAMP connectors (as illustrated) are suitable for use with existing 25-pair cables.*

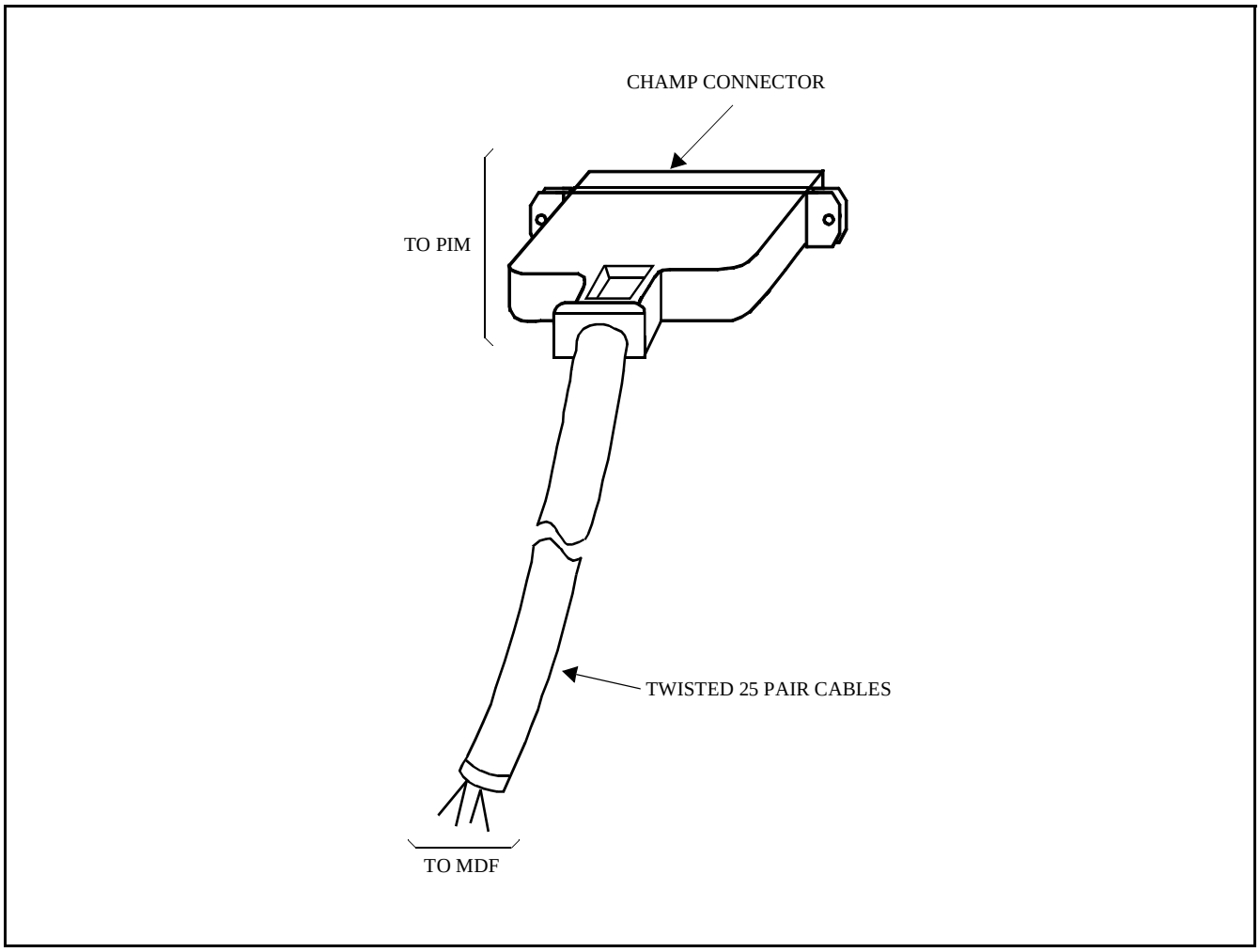


Figure 006-1: Cable for Existing MDF

NAP- 200-006
Sheet 2/3
Cable Running to MDF

Table 006-1: MDF Cables for PIM

FROM		CABLE NUMBER	TO	CABLE DESIGNATION
MODULE	CONNECTION			
PIM0	LTC0	1	MDF	0 LTC0
	LTC1	2		0 LTC1
	LTC2	3		0 LTC2
PIM1	LTC0	4	MDF	1 LTC0
	LTC1	5		1 LTC1
	LTC2	6		1 LTC2
PIM2	LTC0	7	MDF	2 LTC0
	LTC1	8		2 LTC1
	LTC2	9		2 LTC2
PIM3	LTC0	10	MDF	3 LTC0
	LTC1	11		3 LTC1
	LTC2	12		3 LTC2
PIM4	LTC0	13	MDF	4 LTC0
	LTC1	14		4 LTC1
	LTC2	15		4 LTC2
PIM5	LTC0	16	MDF	5 LTC0
	LTC1	17		5 LTC1
	LTC2	18		5 LTC2
PIM6	LTC0	19	MDF	6 LTC0
	LTC1	20		6 LTC1
	LTC2	21		6 LTC2
PIM7	LTC0	22	MDF	7 LTC0
	LTC1	23		7 LTC1
	LTC2	24		7 LTC2

NAP- 200-006
Sheet 3/3
Cable Running to MDF

(3) For connection to an existing MDF, bring the MDF cables into the Main Equipment through the cable hole(s) of the BASE as shown in Figure 006-2.

(4) Plug the CHAMP connector of each cable to its LTC connector located on the PIM, and screw them together.

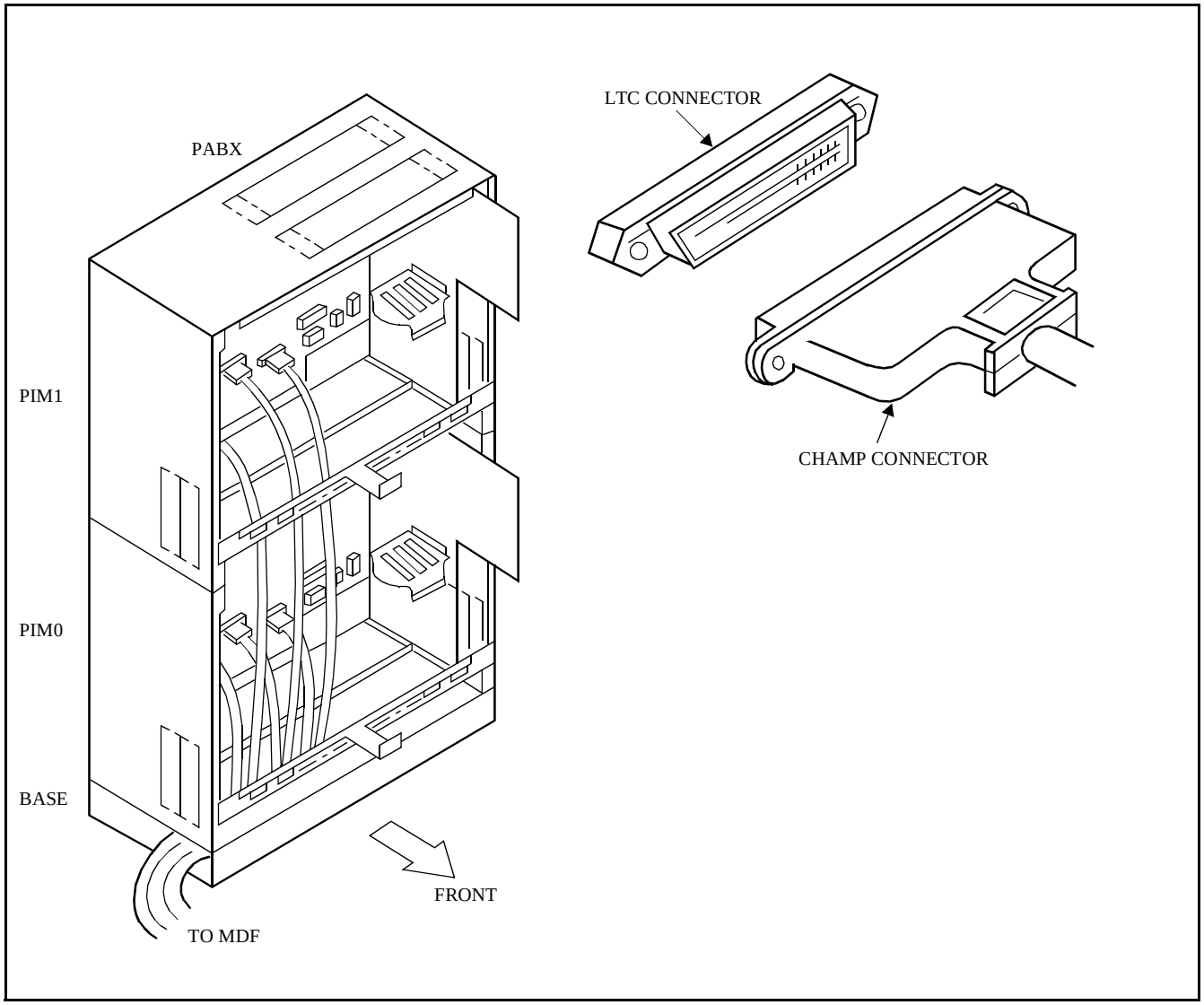


Figure 006-2: Example of Existing MDF Cable Running

NAP- 200-007
Sheet 1/42
Termination of Cables on MDF

1. Cable Connection to MDF

(1) Connect the cables to the MDF referring to Figure 007-1 and Table 007-1.

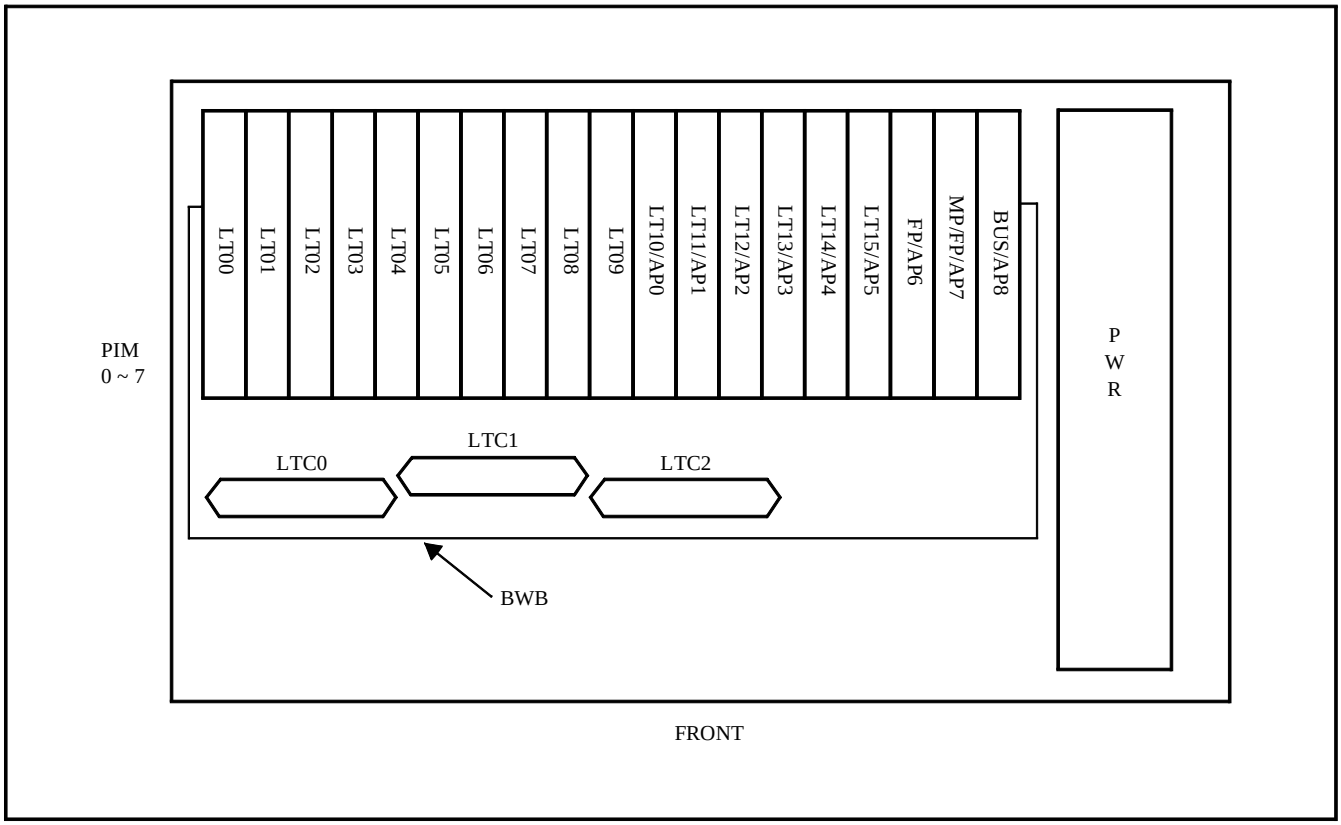


Figure 007-1: Location of Card Slot and LTC Connector

Table 007-1: 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	

(2) Figure 007-2 shows the relationship between Line Equipment Number (LEN) and Card Slot Number (LT Number).

(a) LEN 0000 ~ 0255

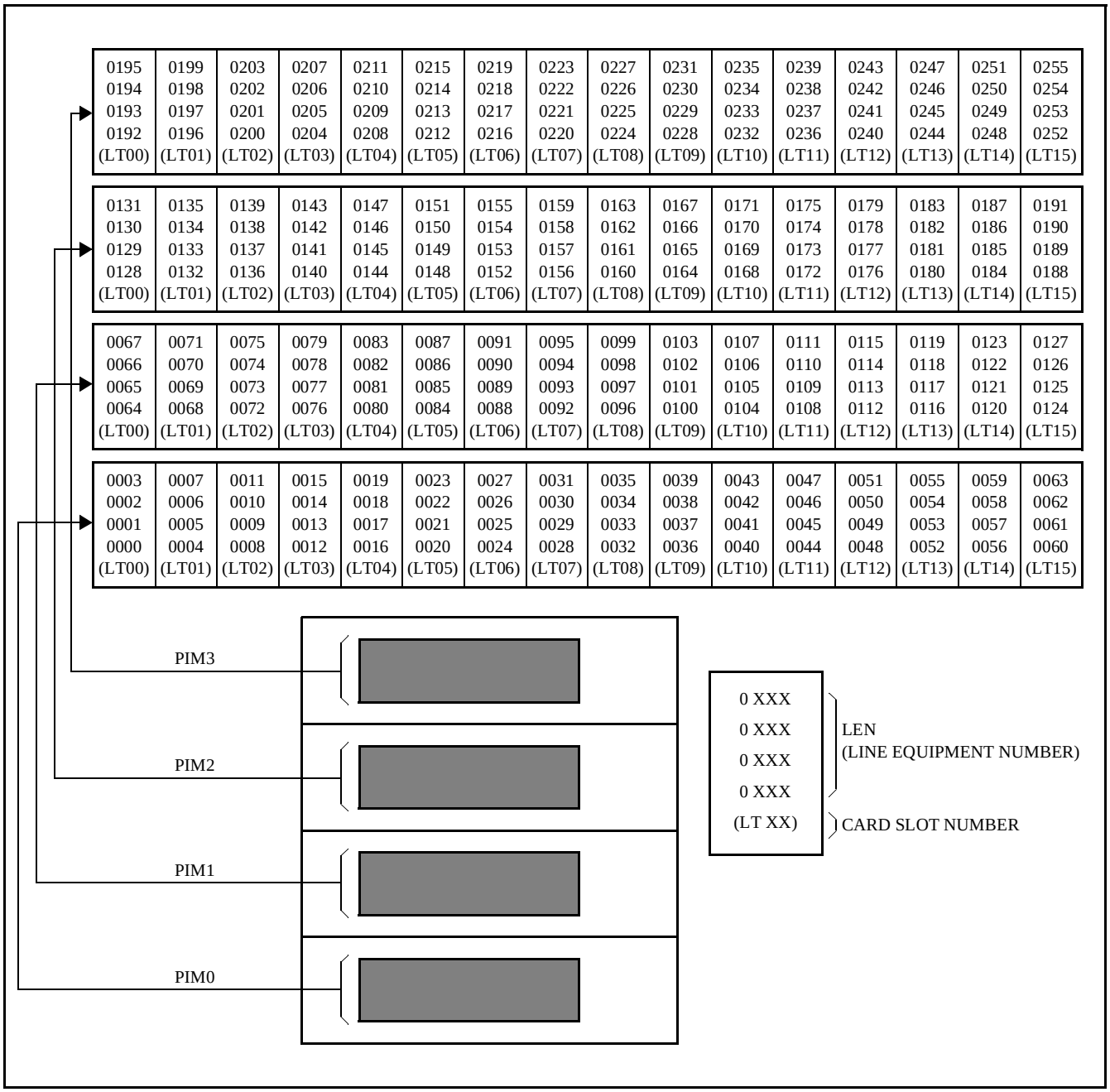


Figure 007-2: Location of LEN

(b) LEN 0256 ~ 0511

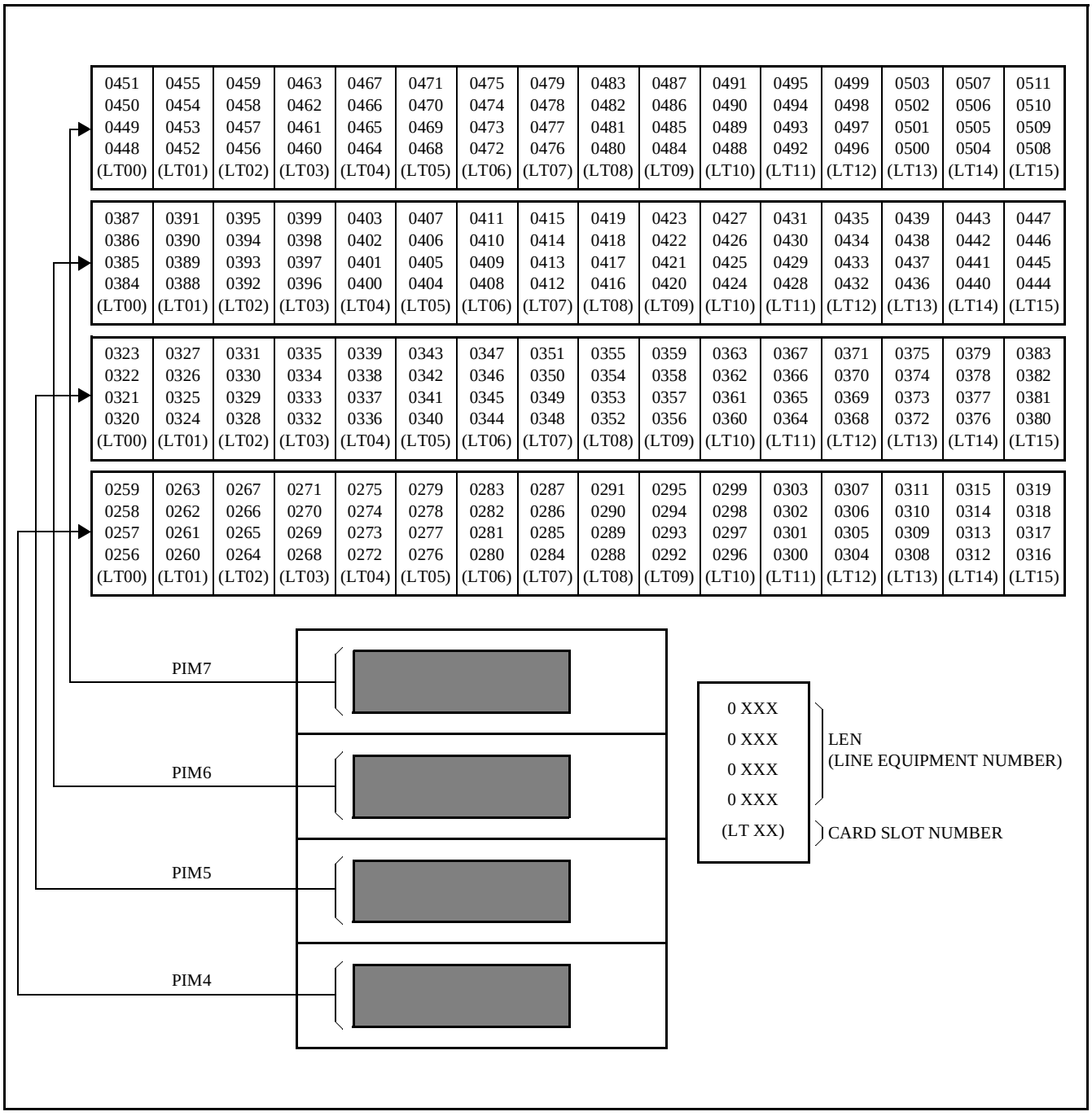


Figure 007-2: Location of LEN (Continued)

(3) Figure 007-3 shows the LTC Connector Pin Arrangement.

(a) PIM0 (LTC0 ~ LTC2)

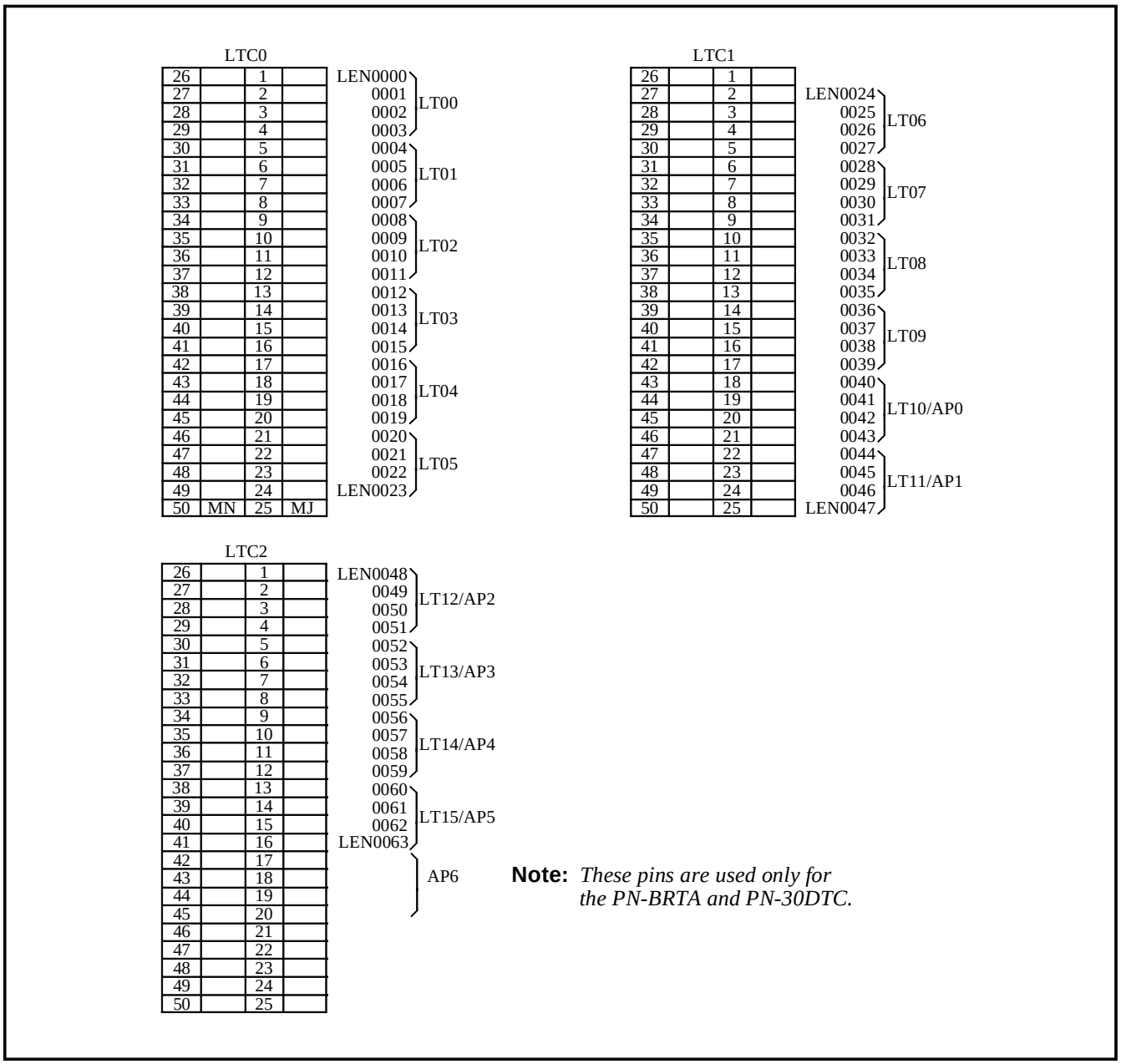


Figure 007-3: LTC Connector Pin Arrangement

(b) PIM1 (LTC0 ~ LTC2)

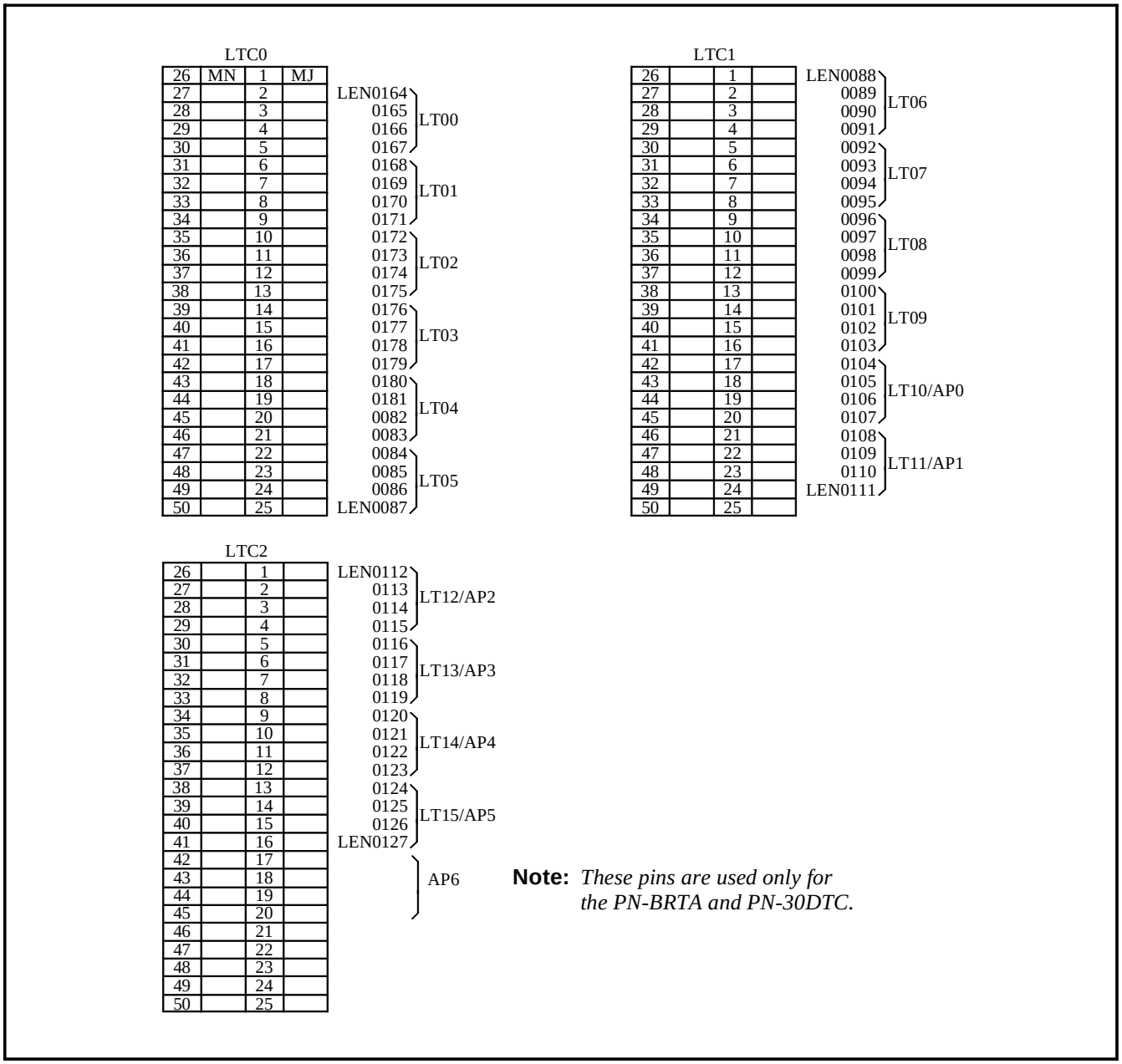


Figure 007-3: LTC Connector Pin Arrangement (Continued)

(c) PIM2 (LTC0 ~ LTC2)

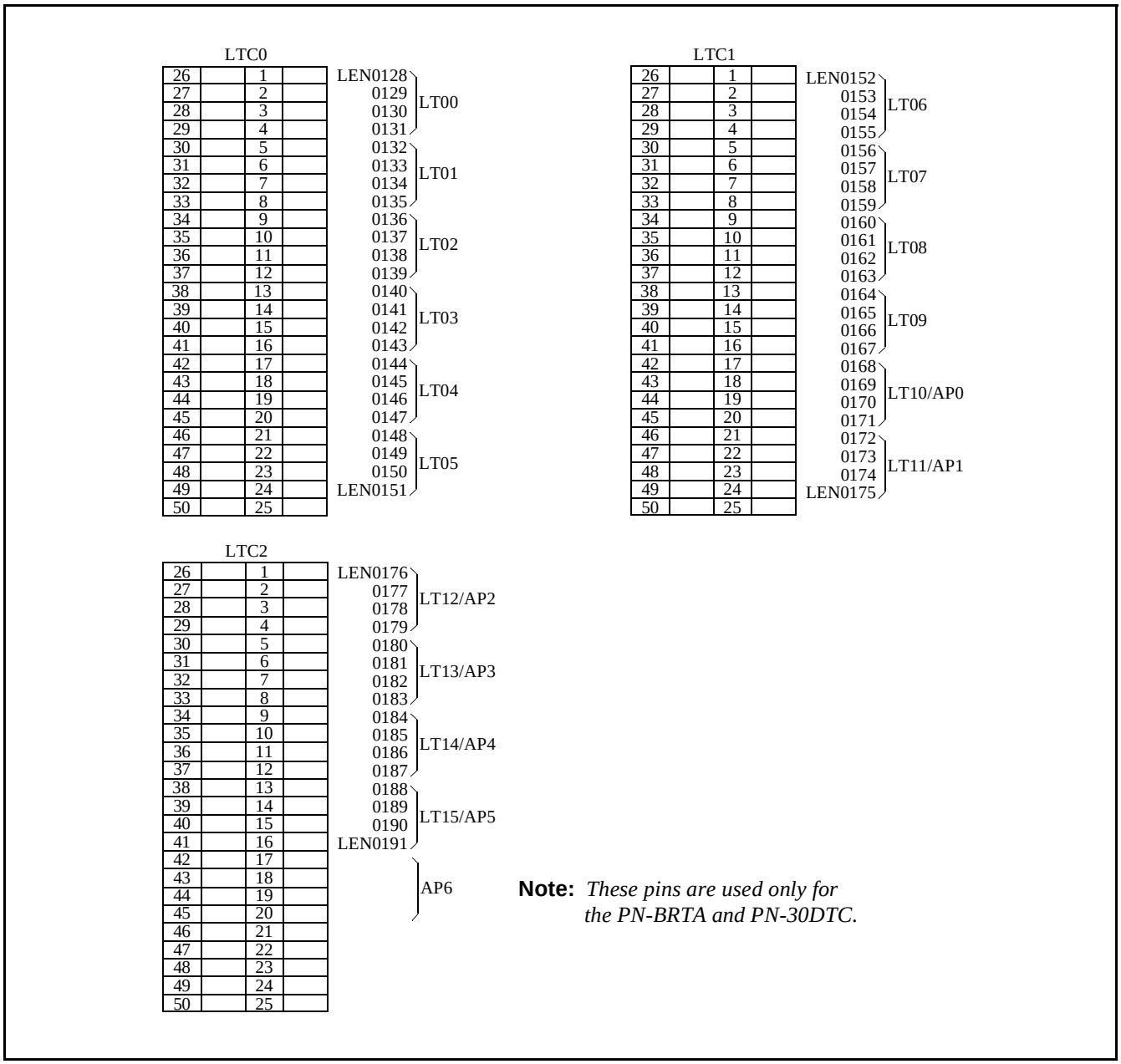


Figure 007-3: LTC Connector Pin Arrangement (Continued)

(d) PIM3 (LTC0 ~ LTC2)

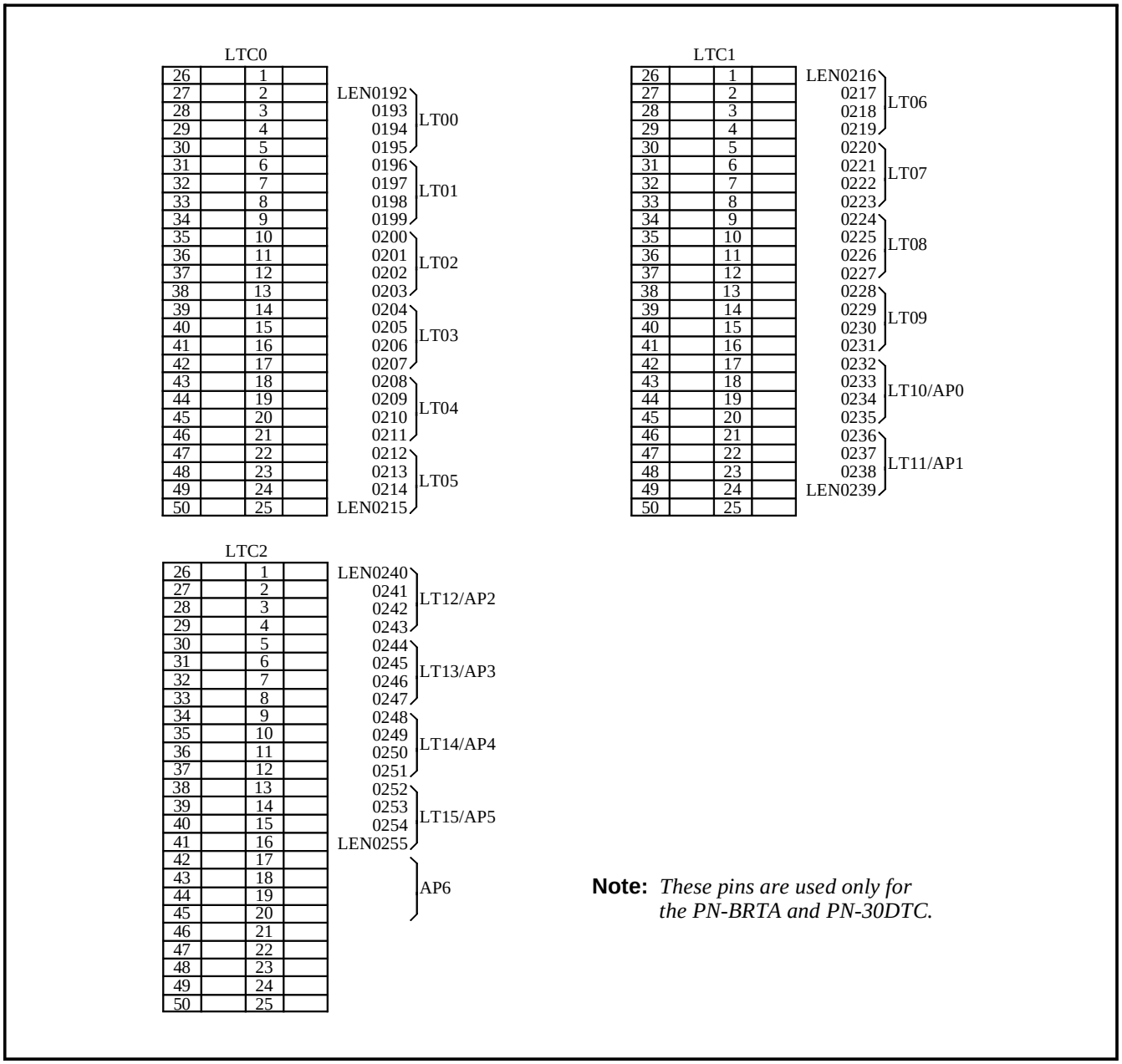


Figure 007-3: LTC Connector Pin Arrangement (Continued)

(e) PIM4 (LTC0 ~ LTC2)

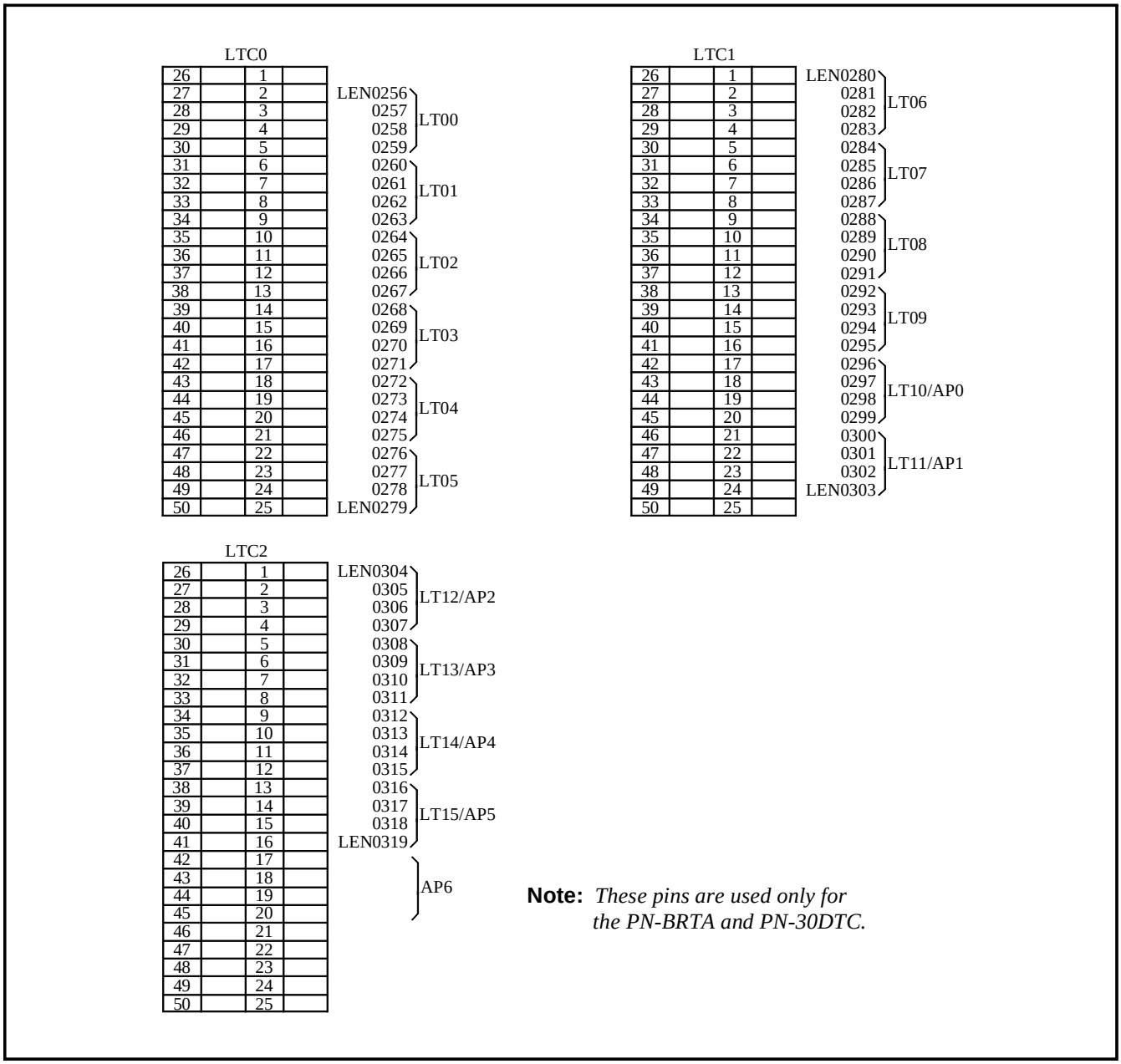


Figure 007-3: LTC Connector Pin Arrangement (Continued)

(f) PIM5 (LTC0 ~ LTC2)

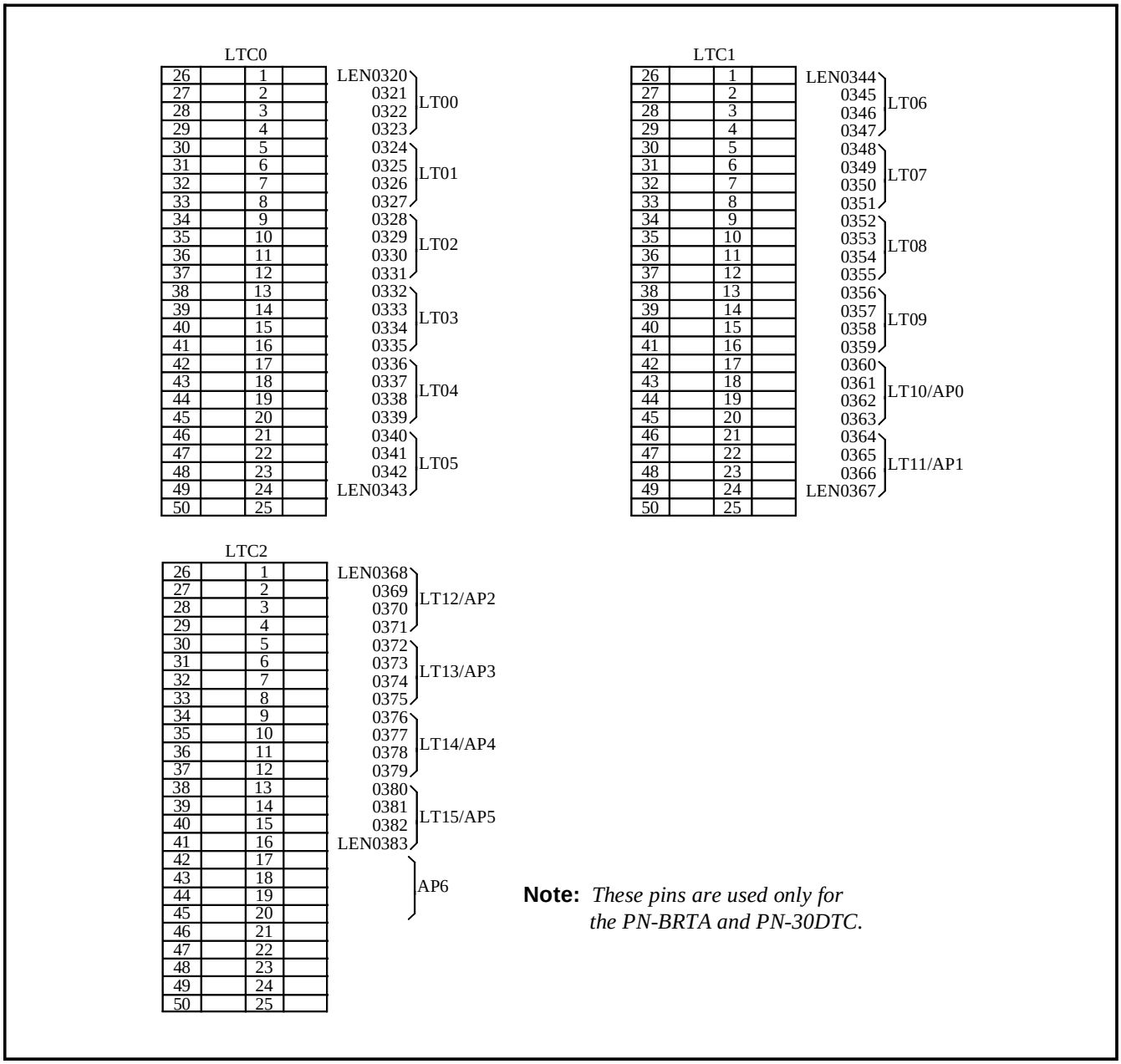


Figure 007-3: LTC Connector Pin Arrangement (Continued)

(g) PIM6 (LTC0 ~ LTC2)

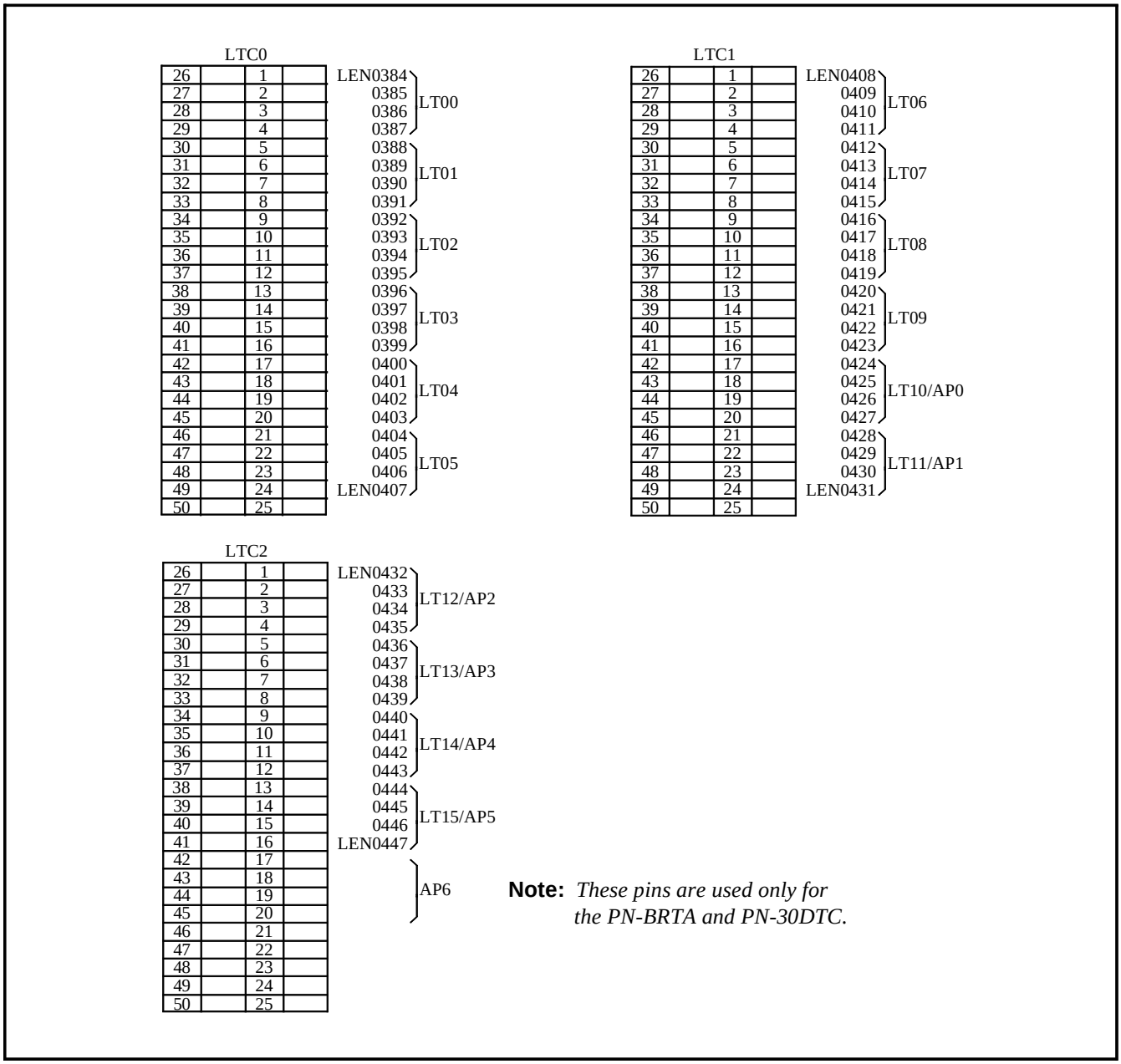


Figure 007-3: LTC Connector Pin Arrangement (Continued)

(h) PIM7 (LTC0 ~ LTC2)

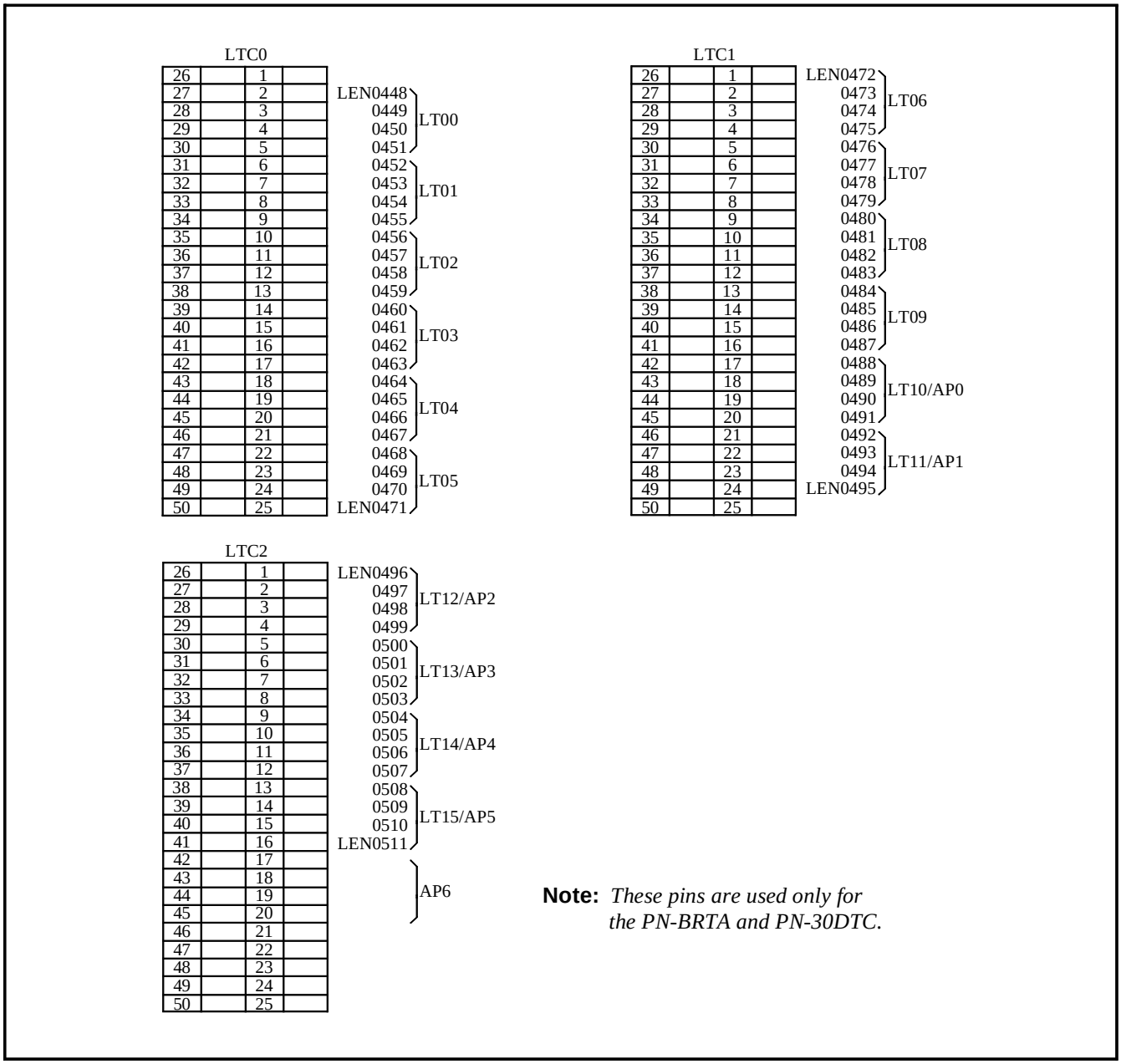


Figure 007-3: LTC Connector Pin Arrangement (Continued)

2. MDF Cross Connections

Cross connections on the MDF for each 25-pair cable in LTC0 to LTC2 are shown in Table 007-2.

Table 007-2 LTC0-LTC2 MDF Cross Connection Information

PIN	CARD SLOTS	TYPE OF INTERFACE							
		CO (4 COT)	CO (2COT)	LD (2LDT)	2-WIRE E&M TIE LINE (2ODT)	4-WIRE E&M TIE LINE (2ODT)	DID (AUC)	SLT (4LC)	SLT (AUC)
26 1	1	T0 R0	T0 R0	T0 R0	T0 R0	TxT0 TxR0	T0 R0	T0 R0	T0 R0
27 2		T1 R1	T1 R1	T1 R1	T1 R1	RxT0 RxR0	T1 R1	T1 R1	T1 R1
28 3		T2 R2			T2 R2	TxT1 TxR1		T2 R2	
29 4		T3 R3			T3 R3	RxT1 RxR1		T3 R3	
30 5	2	T0 R0	T0 R0	T0 R0	T0 R0	TxT0 TxR0	T0 R0	T0 R0	T0 R0
31 6		T1 R1	T1 R1	T1 R1	T1 R1	RxT0 RxR0	T1 R1	T1 R1	T1 R1
32 7		T2 R2			T2 R2	TxT1 TxR1		T2 R2	
33 8		T3 R3			T3 R3	RxT1 RxR1		T3 R3	
34 9	3	T0 R0	T0 R0	T0 R0	T0 R0	TxT0 TxR0	T0 R0	T0 R0	T0 R0
35 10		T1 R1	T1 R1	T1 R1	T1 R1	RxT0 RxR0	T1 R1	T1 R1	T1 R1
36 11		T2 R2			T2 R2	TxT1 TxR1		T2 R2	
37 12		T3 R3			T3 R3	RxT1 RxR1		T3 R3	

Table 007-2 LTC0-LTC2 MDF Cross Connection Information (Continued)

PIN	CARD SLOTS	TYPE OF INTERFACE							
		CO (4 COT)	CO (2COT)	LD (2LDT)	2-WIRE E&M TIE LINE (2ODT)	4-WIRE E&M TIE LINE (2ODT)	DID (AUC)	SLT (4LC)	SLT (AUC)
38 13	4	T0 R0	T0 R0	T0 R0	T0 R0	TxT0 TxR0	T0 R0	T0 R0	T0 R0
39 14		T1 R1	T1 R1	T1 R1	T1 R1	RxT0 RxR0	T1 R1	T1 R1	T1 R1
40 15		T2 R2			T2 R2	TxT1 TxR1		T2 R2	
41 16		T3 R3			T3 R3	RxT1 RxR1		T3 R3	
42 17	5	T0 R0	T0 R0	T0 R0	T0 R0	TxT0 TxR0	T0 R0	T0 R0	T0 R0
43 18		T1 R1	T1 R1	T1 R1	T1 R1	RxT0 RxR0	T1 R1	T1 R1	T1 R1
44 19		T2 R2			T2 R2	TxT1 TxR1		T2 R2	
45 20		T3 R3			T3 R3	RxT1 RxR1		T3 R3	
46 21	6	T0 R0	T0 R0	T0 R0	T0 R0	TxT0 TxR0	T0 R0	T0 R0	T0 R0
47 22		T1 R1	T1 R1	T1 R1	T1 R1	RxT0 RxR0	T1 R1	T1 R1	T1 R1
48 23		T2 R2			T2 R2	TxT1 TxR1		T2 R2	
49 24		T3 R3			T3 R3	RxT1 RxR1		T3 R3	
50 25	MN* MJ*								

***Note:** *Major and minor alarm connections for external indicators are located on LTC0 of PIM0 only.*

Table 007-2 LTC0-LTC2 MDF Cross Connection Information (Continued)

PIN	CARD SLOTS	TYPE OF INTERFACE					
		Dterm 65 (4DLCA)	Dterm 65 (2DLCB)	SN611 ATTCON/ Dterm 6D/16D (2DLCC)	EXT. KEY (DK00)	EXT. RELAY (DK00)	EXT. PAGE/ MOH/BGM (COT)
26 1	1	T0 R0	T0 R0	RA0 TA0	K1 K0	K1 K0	T R
27 2		T1 R1	T1 R1	RB0 TB0	K3 K2	K3 K2	T R
28 3		T2 R2		RA1 TA1	K5 K4	K5 K4	T R
29 4		T3 R3		RB0 RB1	K7 K6	K7 K6	T R
30 5	2	T0 R0	T0 R0	RA0 TA0	K1 K0	K1 K0	T R
31 6		T1 R1	T1 R1	RB0 TB0	K3 K2	K3 K2	T R
32 7		T2 R2		RA1 TA1	K5 K4	K5 K4	T R
33 8		T3 R3		RB0 RB1	K7 K6	K7 K6	T R
34 9	3	T0 R0	T0 R0	RA0 TA0	K1 K0	K1 K0	T R
35 10		T1 R1	T1 R1	RB0 TB0	K3 K2	K3 K2	T R
36 11		T2 R2		RA1 TA1	K5 K4	K5 K4	T R
37 12		T3 R3		RB0 RB1	K7 K6	K7 K6	T R

Note: *The DSS Console is included.*

Table 007-2 LTC0-LTC2 MDF Cross Connection Information (Continued)

PIN	CARD SLOTS	TYPE OF INTERFACE					
		Dterm 65 (4DLCA) Note 2	Dterm 65 (2DLCB) Note 2	SN611 ATTCON/ Dterm 6D/16D (2DLCC)	EXT. KEY (DK00)	EXT. RELAY (DK00)	EXT. PAGE/ MOH/BGM (COT)
38 13	1	T0 R0	T0 R0	RA0 TA0	K1 K0	K1 K0	T R
39 14		T1 R1	T1 R1	RB0 TB0	K3 K2	K3 K2	T R
40 15		T2 R2		RA1 TA1	K5 K4	K5 K4	T R
41 16		T3 R3		RB0 RB1	K7 K6	K7 K6	T R
42 17	2	T0 R0	T0 R0	RA0 TA0	K1 K0	K1 K0	T R
43 18		T1 R1	T1 R1	RB0 TB0	K3 K2	K3 K2	T R
44 19		T2 R2		RA1 TA1	K5 K4	K5 K4	T R
45 20		T3 R3		RB0 RB1	K7 K6	K7 K6	T R
46 21	3	T0 R0	T0 R0	RA0 TA0	K1 K0	K1 K0	T R
47 22		T1 R1	T1 R1	RB0 TB0	K3 K2	K3 K2	T R
48 23		T2 R2		RA1 TA1	K5 K4	K5 K4	T R
49 24		T3 R3		RB0 RB1	K7 K6	K7 K6	T R
50 25	MN* MJ*						

***Note 1:** *Major and minor alarm connections for external indicators are located on LTC0 of PIM0 only.*
Note 2: *The DSS Console is included.*

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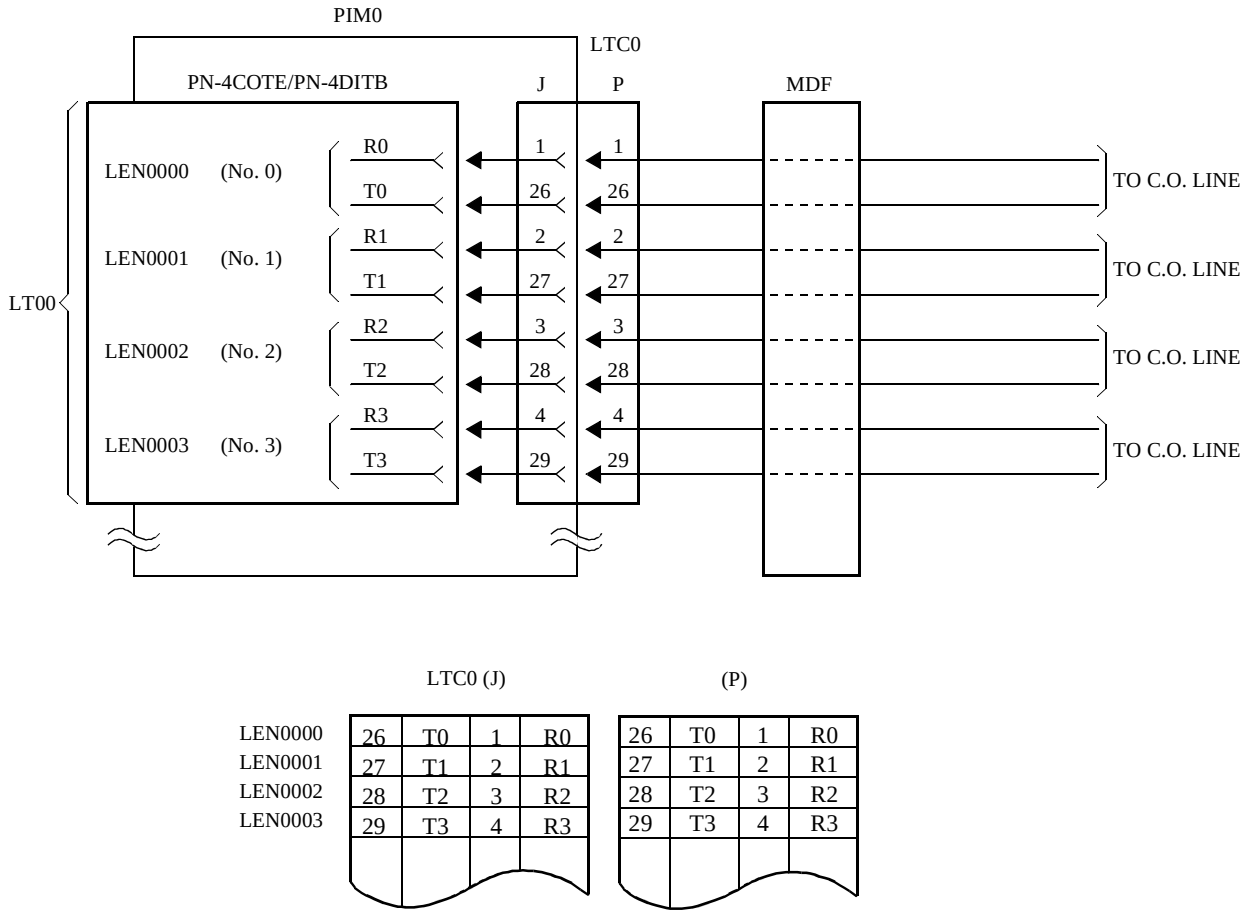
Termination of Cables on MDF

(1) C.O./D.I.D. Trunks

(a) 4 Line C.O. Trunks (PN-4COTE and PN-4DITB).



LTC0 (J)

LEN0000	26	T0	1	R0
LEN0001	27	T1	2	R1
LEN0002	28	T2	3	R2
LEN0003	29	T3	4	R3

(P)

26	T0	1	R0
27	T1	2	R1
28	T2	3	R2
29	T3	4	R3

Note: *PN-4COTE is used on Ring-in/Loop-out lines, and PN-4DITB is used for Direct Inward Dialling (decadic and MFC).*

Figure 007-4: MDF Cross Connection for 4 Line C.O. Trunk (PN-4COTE)

(b) 2 Line C.O. Trunk (PN-2COTD)

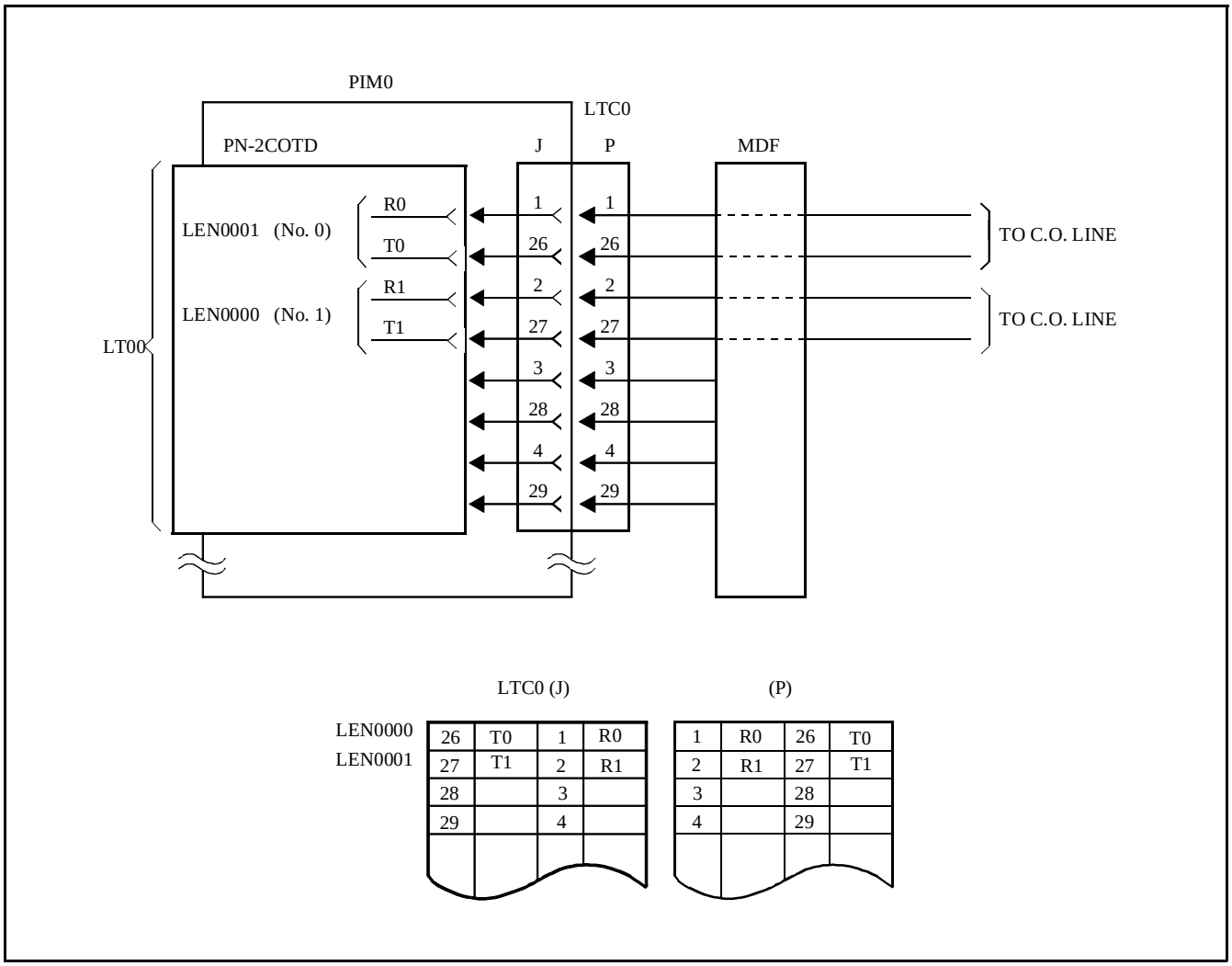


Figure 007-5: MDF Cross Connection for 2 Line C.O. Trunk (PN-2COTD)

(2) Tie Line Trunk

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

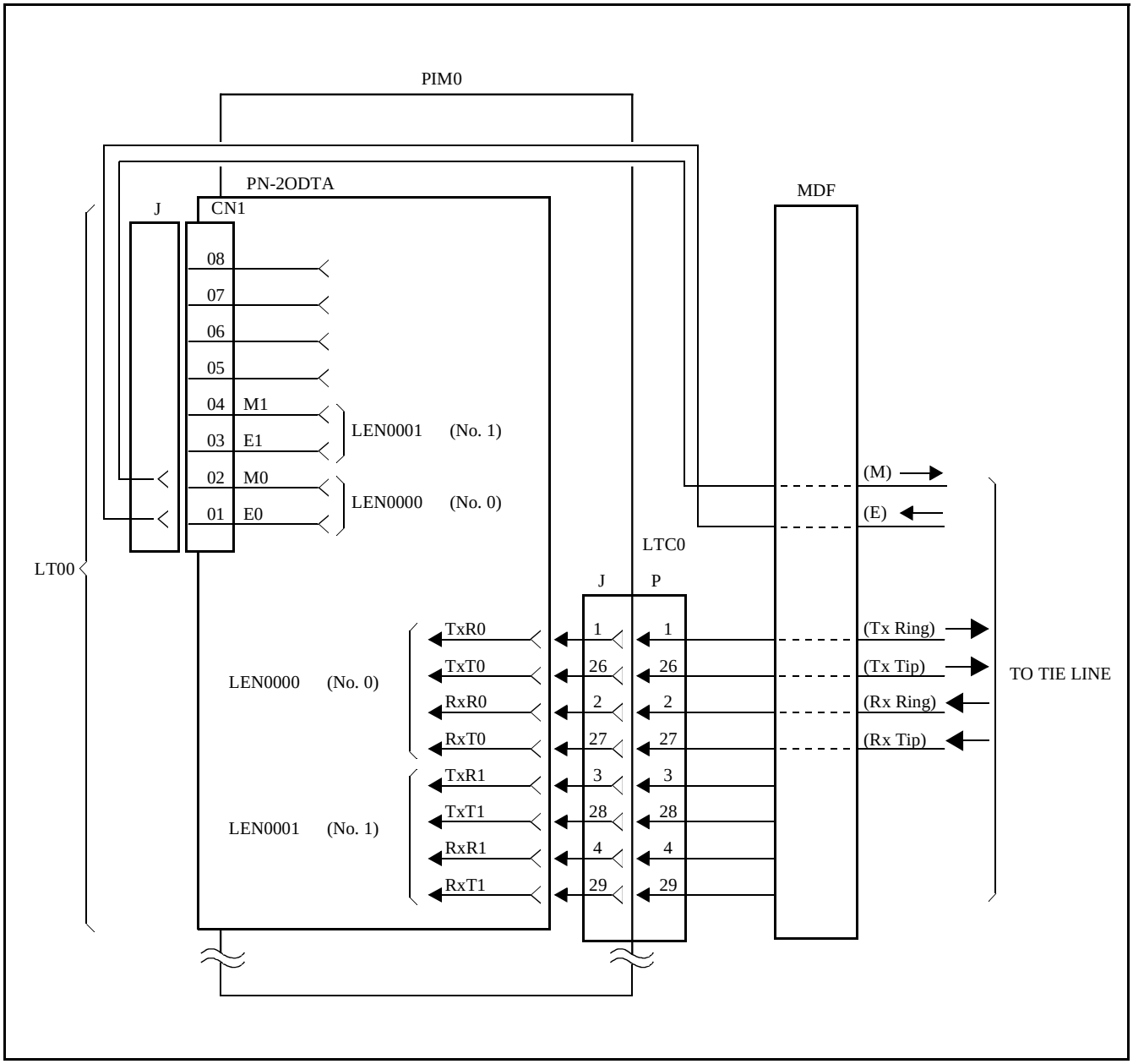


Figure 007-6 MDF Cross Connection for a 4W E&M Trunk Card (PN-2ODTA)

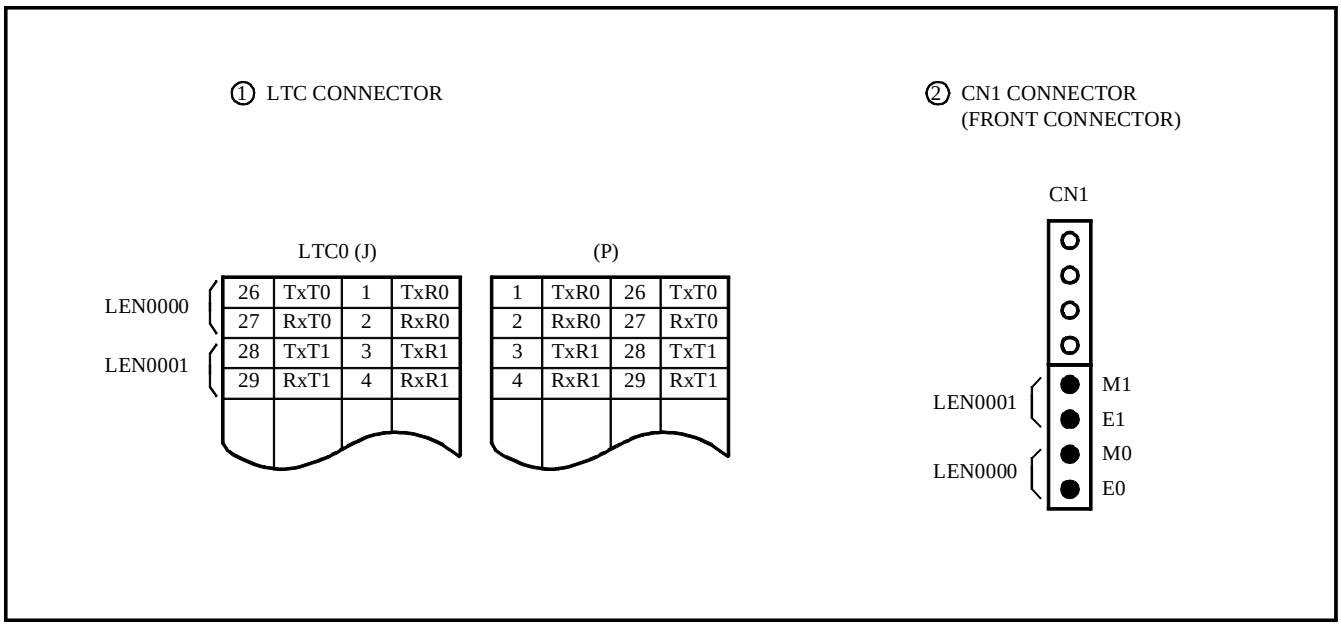


Figure 007-6 MDF Cross Connection for a 4W E&M Trunk Card (PN-2ODTA) (Continued)

(b) LD Trunk (PN-2LDTA)

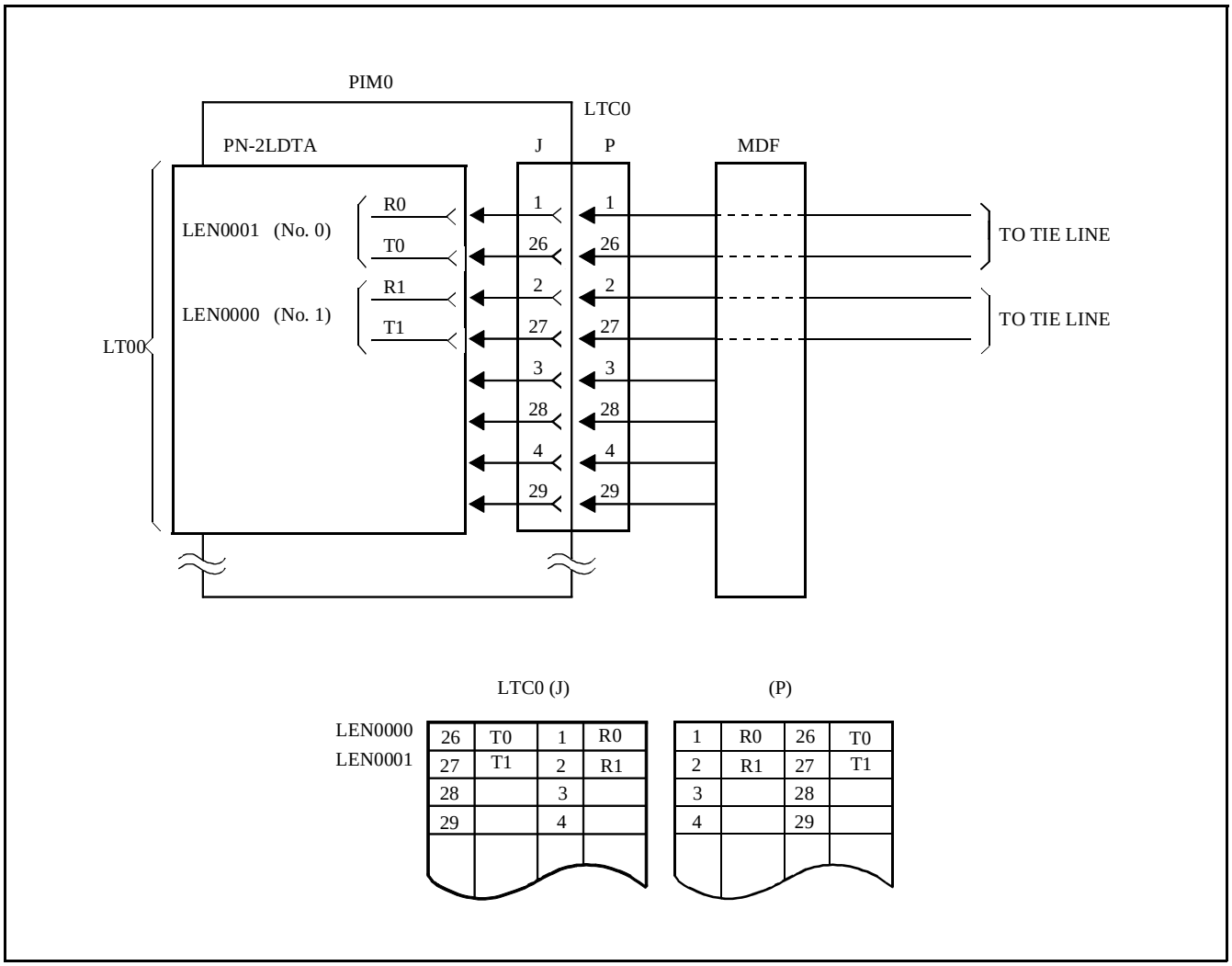
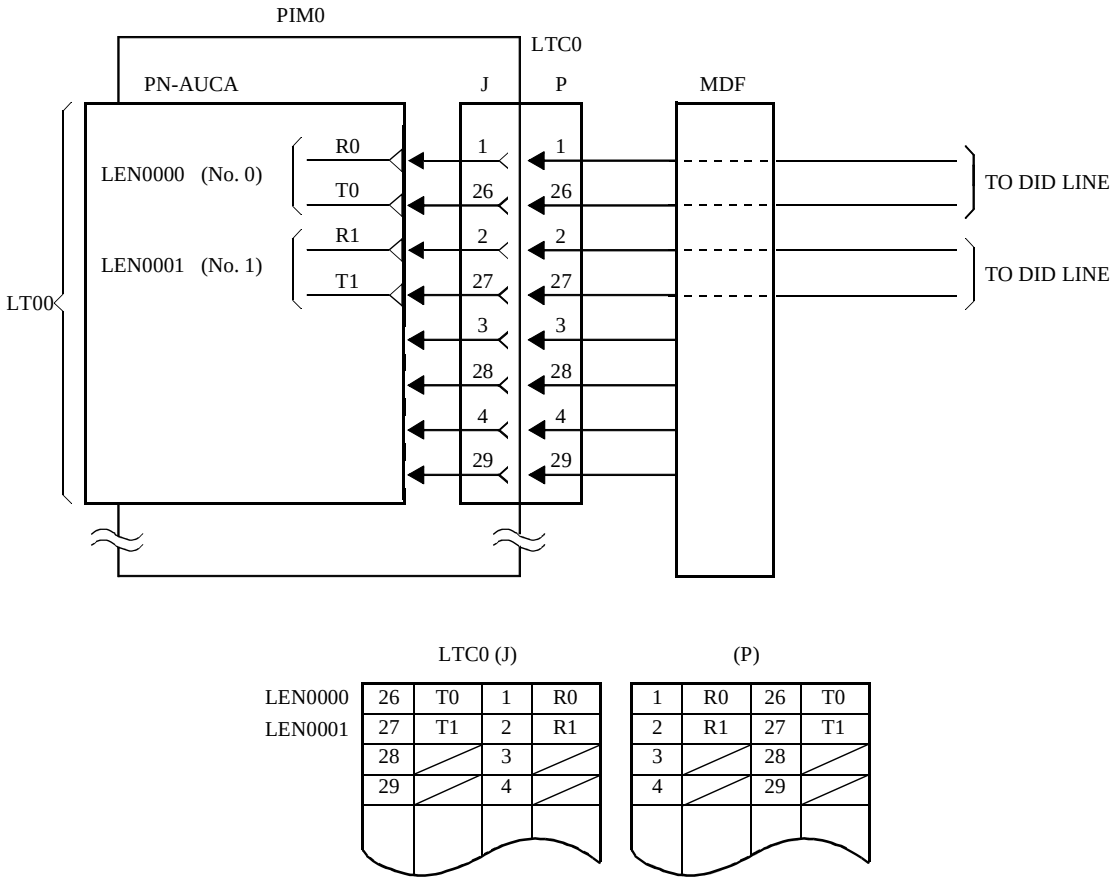


Figure 007-7: MDF Cross Connection for an LD Trunk (PN-2LDTA)

(3) 2 Line DID Trunk (PN-AUCA)



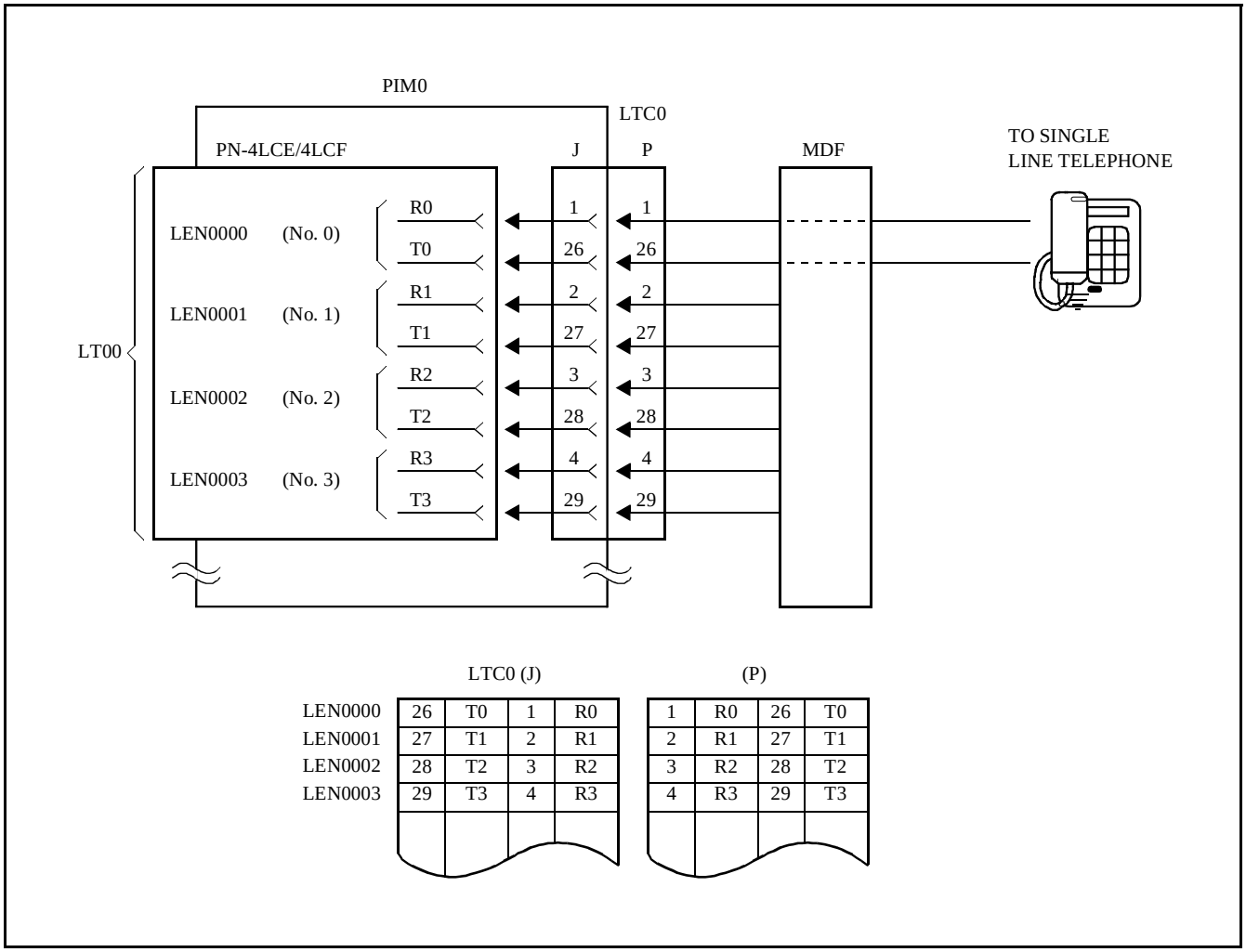
Notes: 1. *The PN-AUCA card can also be used as a long-line extension circuit and also for the Power Failure Transfer (PFT) function.*

2. The preferred card for Direct Inward Dialling is now PN-4DITB.

Figure 007-8 MDF Cross Connection for a DID Trunk Card (PN-AUCA)

(4) Single Line Telephone (SLT)

(a) Standard Line (PN-4LCE/4LCF)

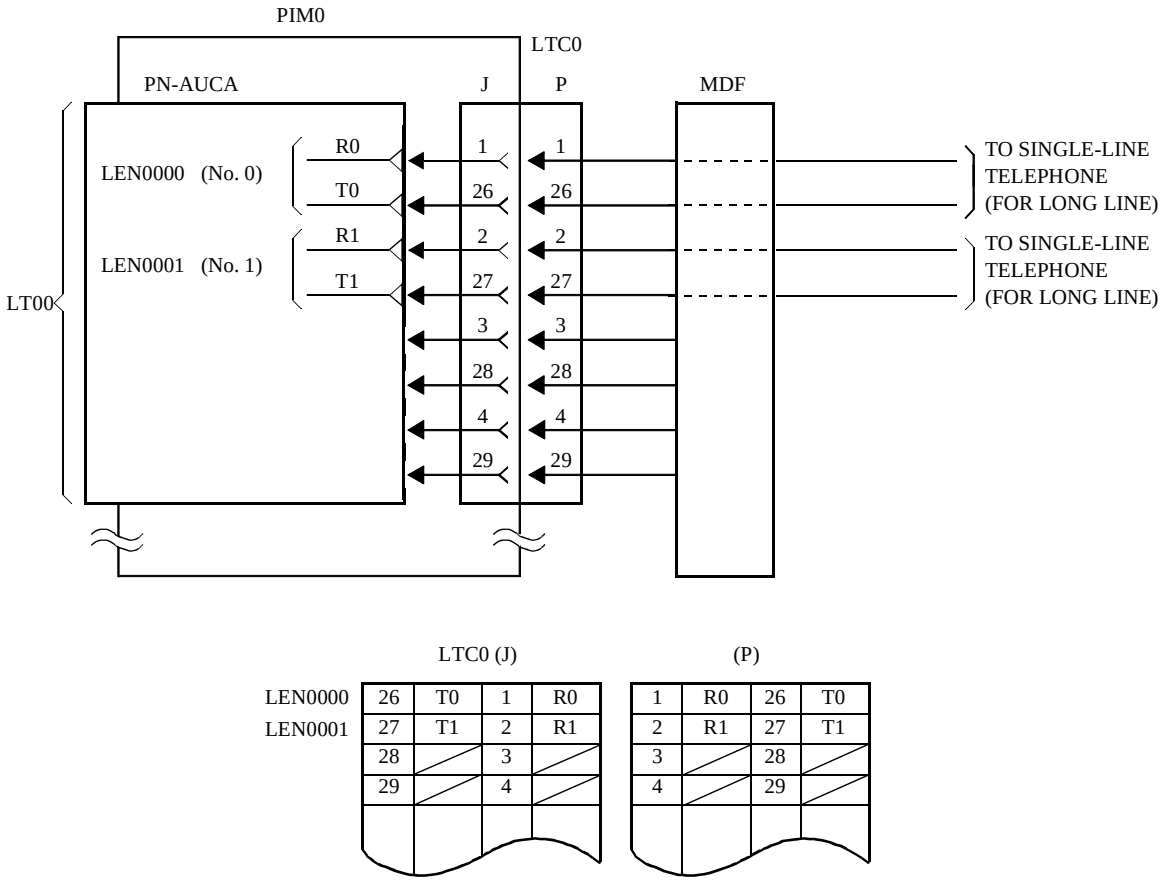


LTC0 (J) (P)

LEN0000	26	T0	1	R0	1	R0	26	T0
LEN0001	27	T1	2	R1	2	R1	27	T1
LEN0002	28	T2	3	R2	3	R2	28	T2
LEN0003	29	T3	4	R3	4	R3	29	T3

Figure 007-9 MDF Cross Connection for a Single Line Telephone (Standard Line)

(b) Long Line (PN-AUCA)



LTC0 (J) (P)

LEN0000	26	T0	1	R0	1	R0	26	T0
LEN0001	27	T1	2	R1	2	R1	27	T1
	28		3		3		28	
	29		4		4		29	

Note 1: *The PN-AUCA card can also be used as a DID Trunk card, but the preferred option for that application is PN-4DITB.*

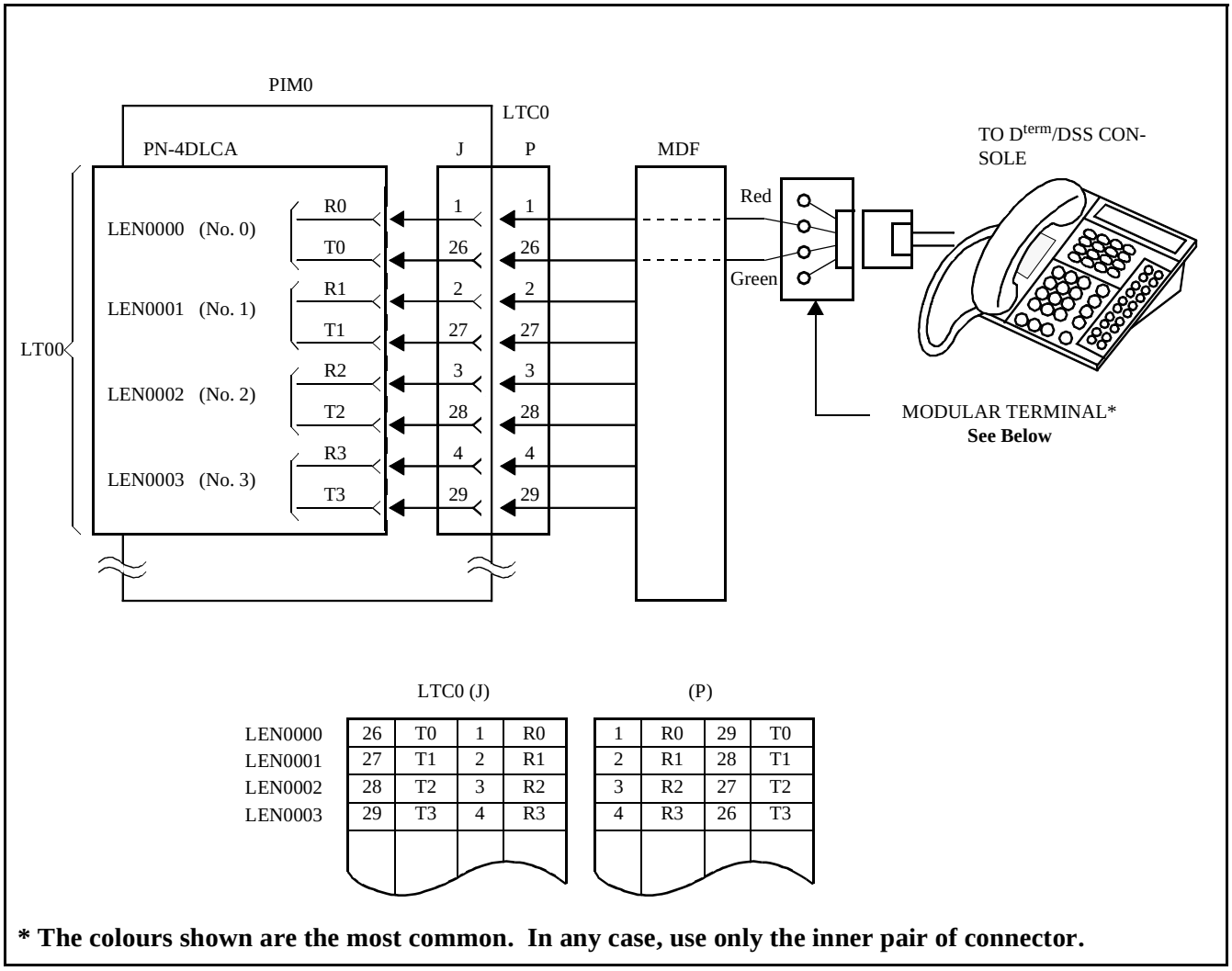
Note 2: *For the cross connection of the Power Failure Transfer (PFT), see item (12) in this NAP.*

Figure 007-10 MDF Cross Connection for a Single Line Telephone (Long Line)

(5) D^{term} /DSS Console

(a) Standard Line (PN-4DLCA)

Note: *Applies only to Dterm 65 series.*



LTC0 (J) / (P)

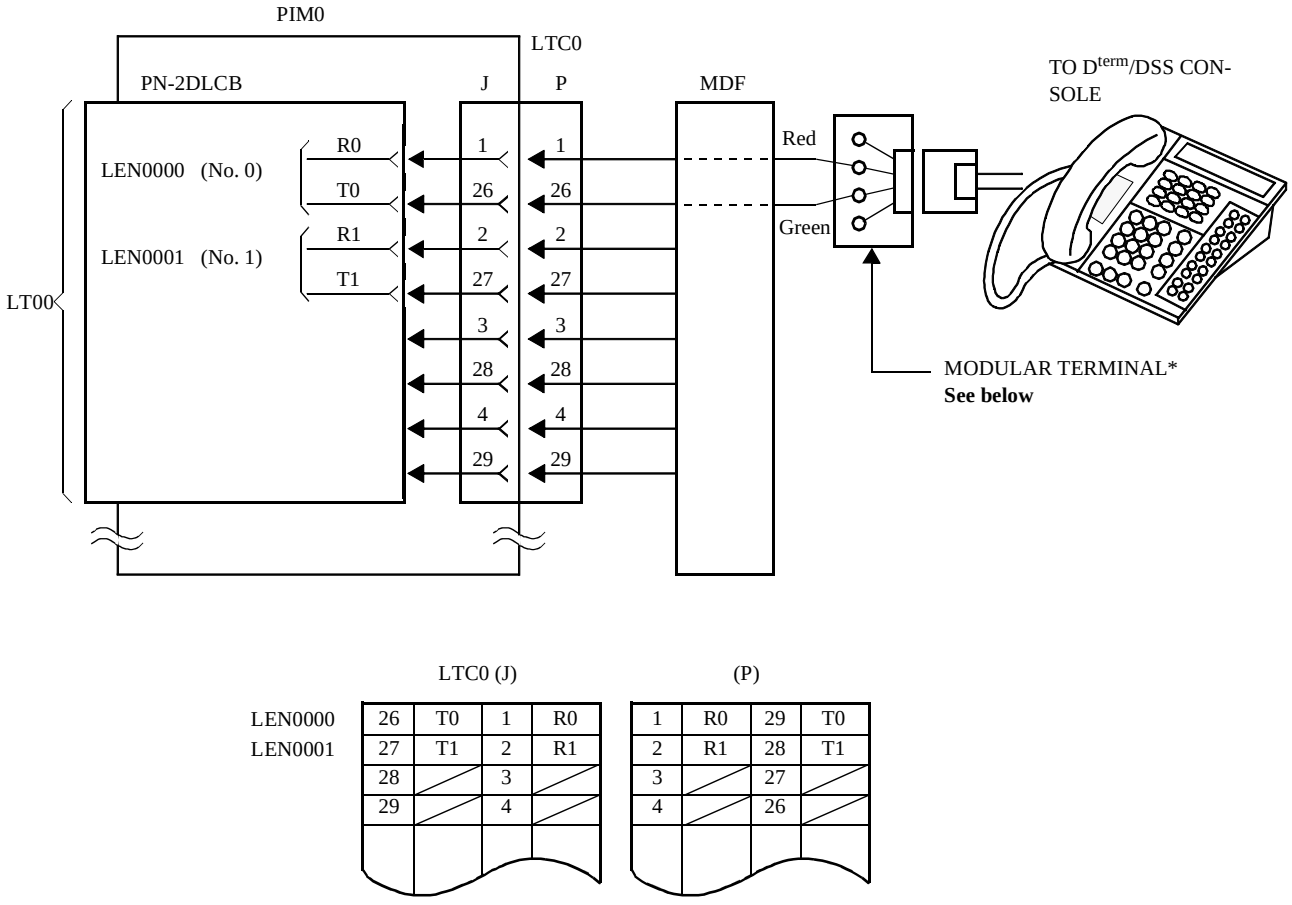
LEN0000	26	T0	1	R0	1	R0	29	T0
LEN0001	27	T1	2	R1	2	R1	28	T1
LEN0002	28	T2	3	R2	3	R2	27	T2
LEN0003	29	T3	4	R3	4	R3	26	T3

*** The colours shown are the most common. In any case, use only the inner pair of connector.**

Figure 007-11 MDF Cross Connection for a D^{term}/DSS Console (Standard Line)

(b) Long Line (PN-2DLCB)

Note: *Applies only to Dterm 65 series.*



LTC0 (J)

LEN0000	26	T0	1	R0
LEN0001	27	T1	2	R1
	28		3	
	29		4	

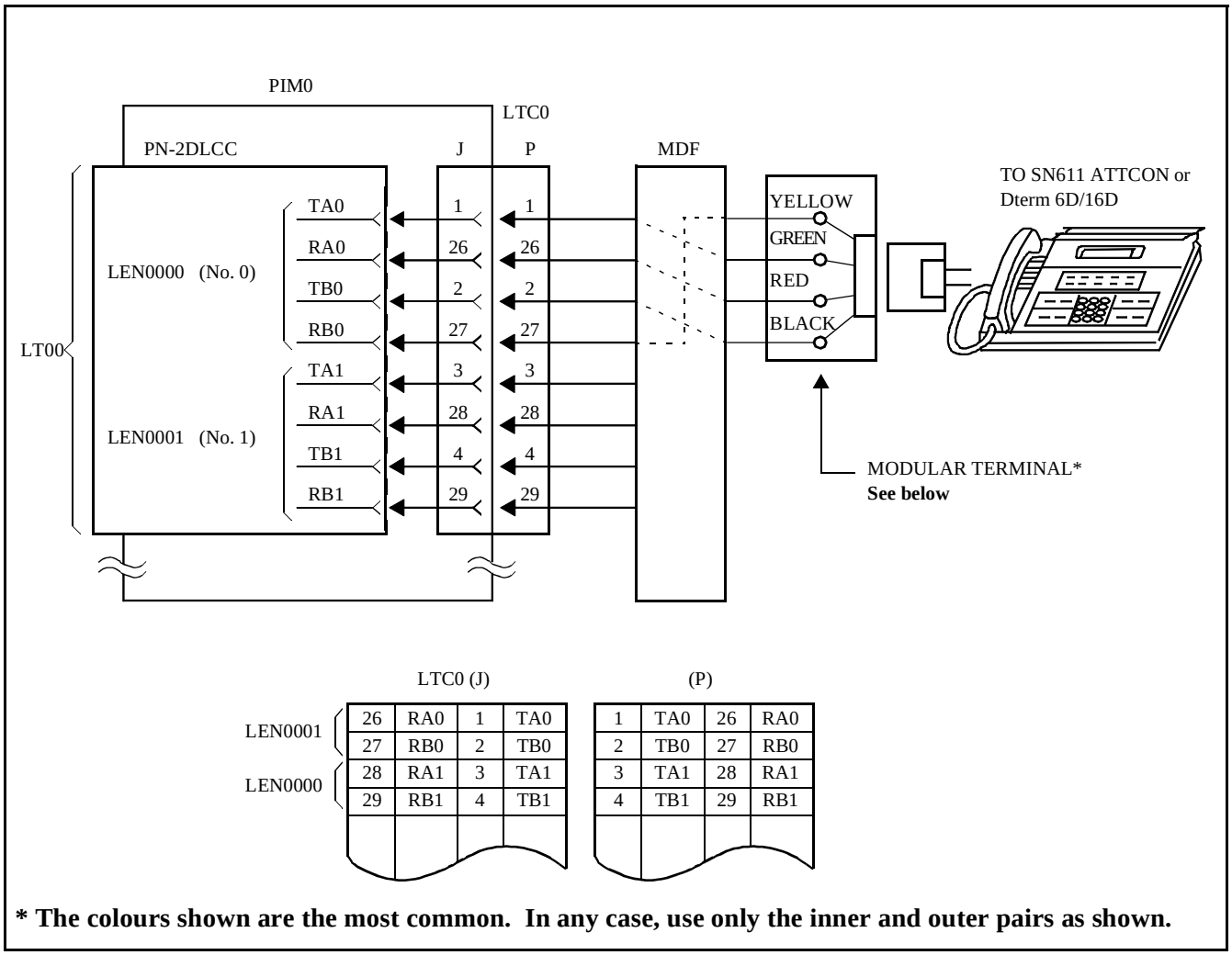
(P)

1	R0	29	T0	
2	R1	28	T1	
3		27		
4		26		

*** The colours shown are the most common. In any case, use only the inner pair of connector.**

Figure 007-12 MDF Cross Connection for a Dterm/DSS Console (Long Line)

(6) SN611 ATTCON and Dterm 6D/16D series telephones.



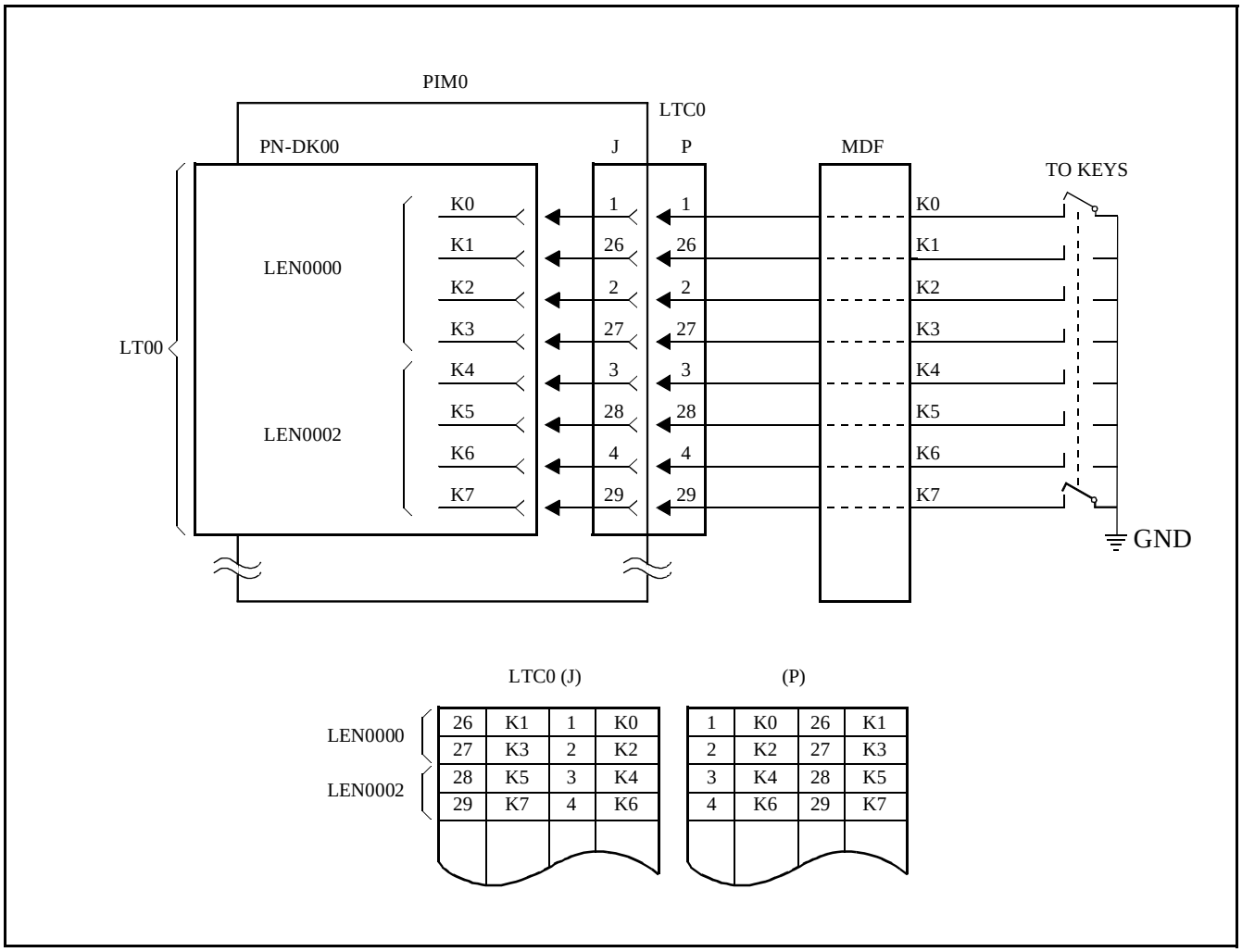
LEN0001	26	RA0	1	TA0	1	TA0	26	RA0
	27	RB0	2	TB0	2	TB0	27	RB0
LEN0000	28	RA1	3	TA1	3	TA1	28	RA1
	29	RB1	4	TB1	4	TB1	29	RB1

*** The colours shown are the most common. In any case, use only the inner and outer pairs as shown.**

Figure 007-13 MDF Cross Connection for an SN611 ATTCON and Dterm 6D/16D.

(7) Day/Night Mode Change by External Key

Note: *Refer to the Command Manual to set the PN-DK00 in the Key Scan mode.*



LEN0000	26	K1	1	K0	1	K0	26	K1
	27	K3	2	K2	2	K2	27	K3
LEN0002	28	K5	3	K4	3	K4	28	K5
	29	K7	4	K6	4	K6	29	K7

Figure 007-14 MDF Cross Connection for Day/Night Mode Change by External Key

(8) External TAS Indicator

(a) Outline of the Connections

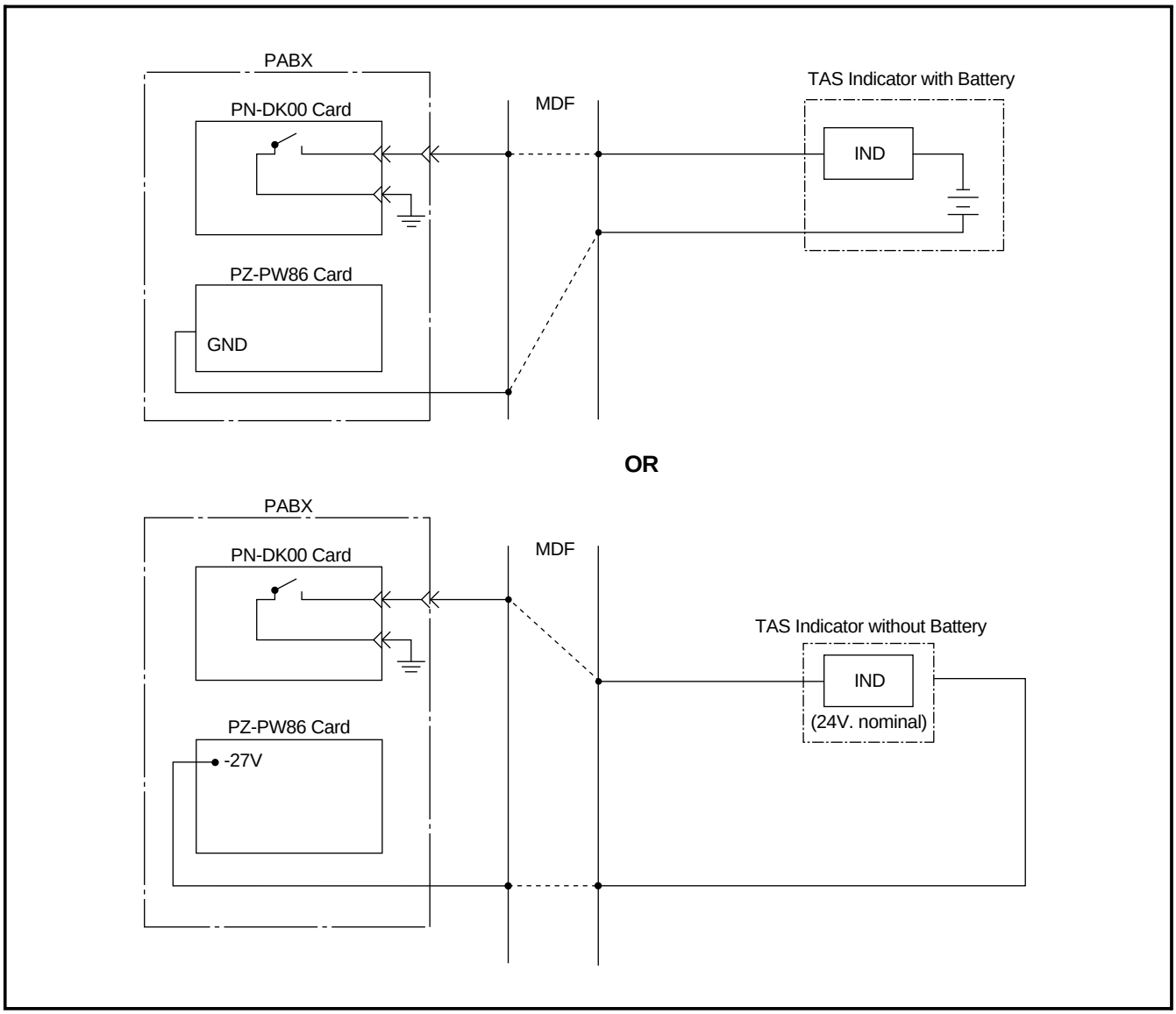


Figure 007-15 Outline of the External TAS Indicator Connection

(b) MDF Cross Connection

- When using a TAS Indicator with a Battery

Note: *Refer to the Command Manual to set the PN-DK00 in the Relay-Drive mode.*

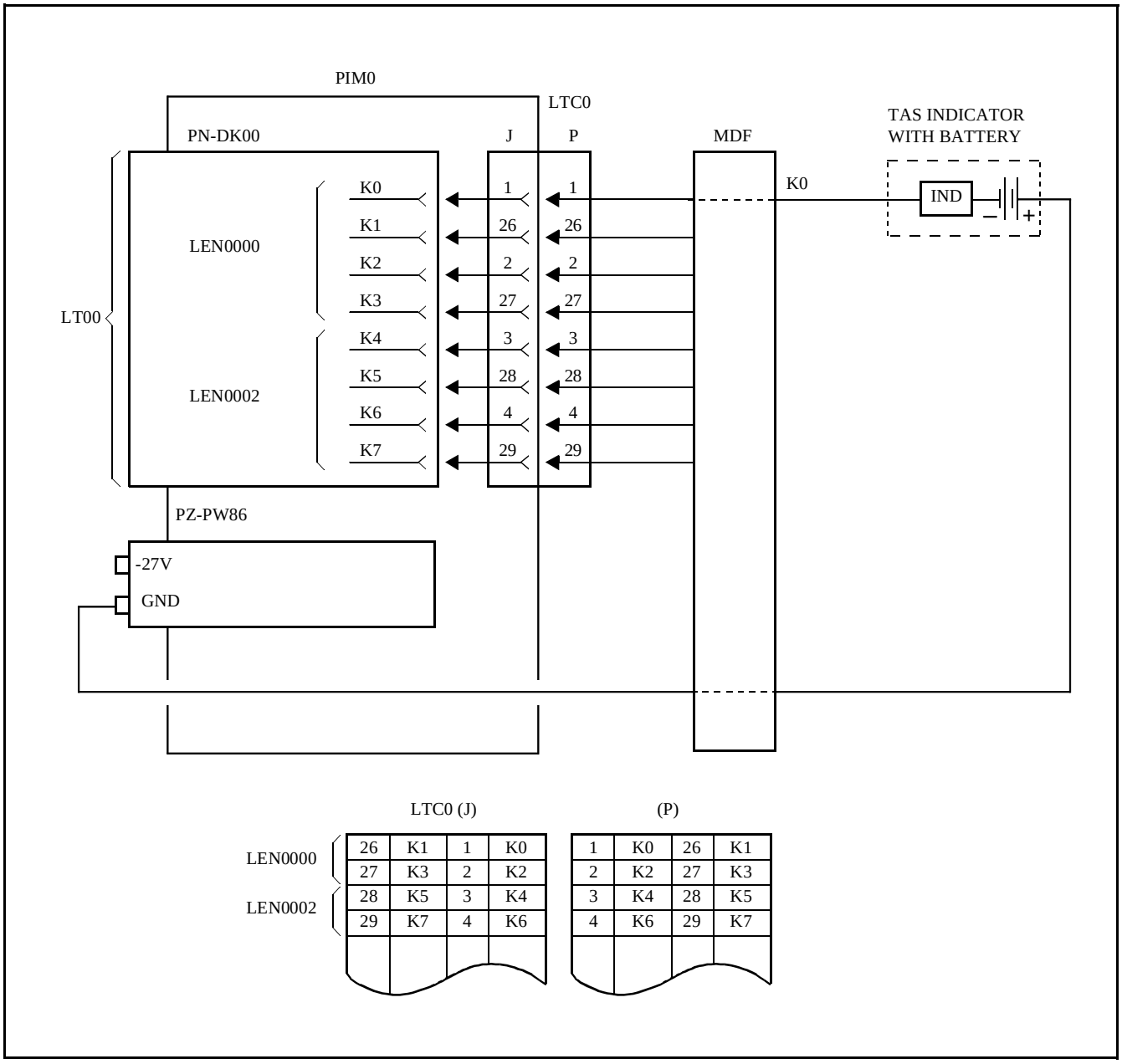


Figure 007-16 MDF Cross Connection for a TAS Indicator with a Battery

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(c) MDF Cross Connection

- When using a TAS Indicator without a Battery

Note: *Refer to the Command Manual to set the PN-DK00 in the Relay-Drive mode.*

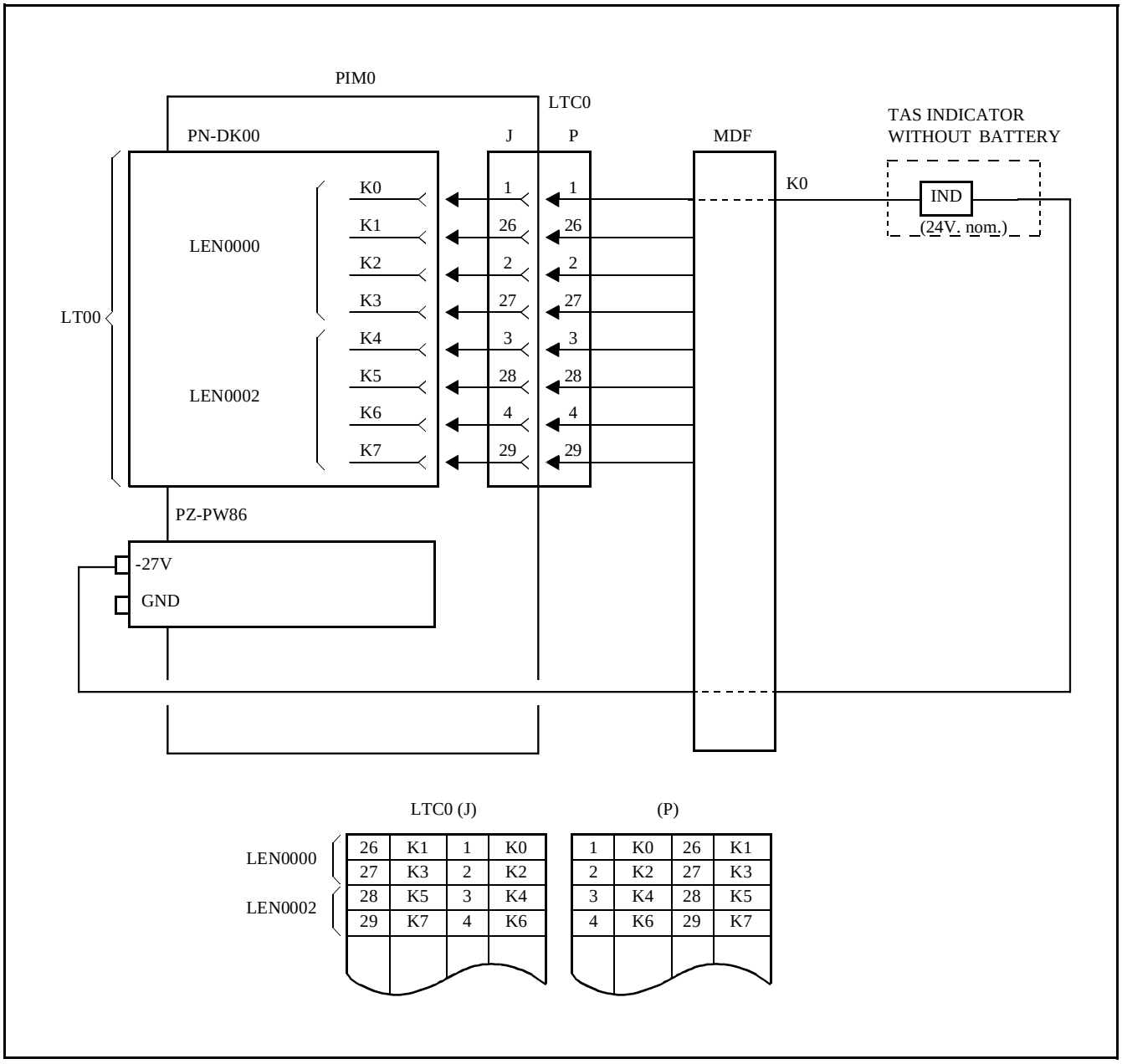

Figure 007-17 MDF Cross Connection for a TAS Indicator without a Battery

(9) Paging Equipment

The cross connection for customer-owned paging equipment is shown in Figure 007-18 and Figure 007-19, as an example.

Requirement for the Paging Equipment

- Input Impedance : 600 ohm
- Control Method : Start - Ground ON
  : Stop - Ground Off (Open)

} Refer to the Command Manual to set the PN-DK00 in the Relay-Drive Mode.

(a) Outline of the Connection

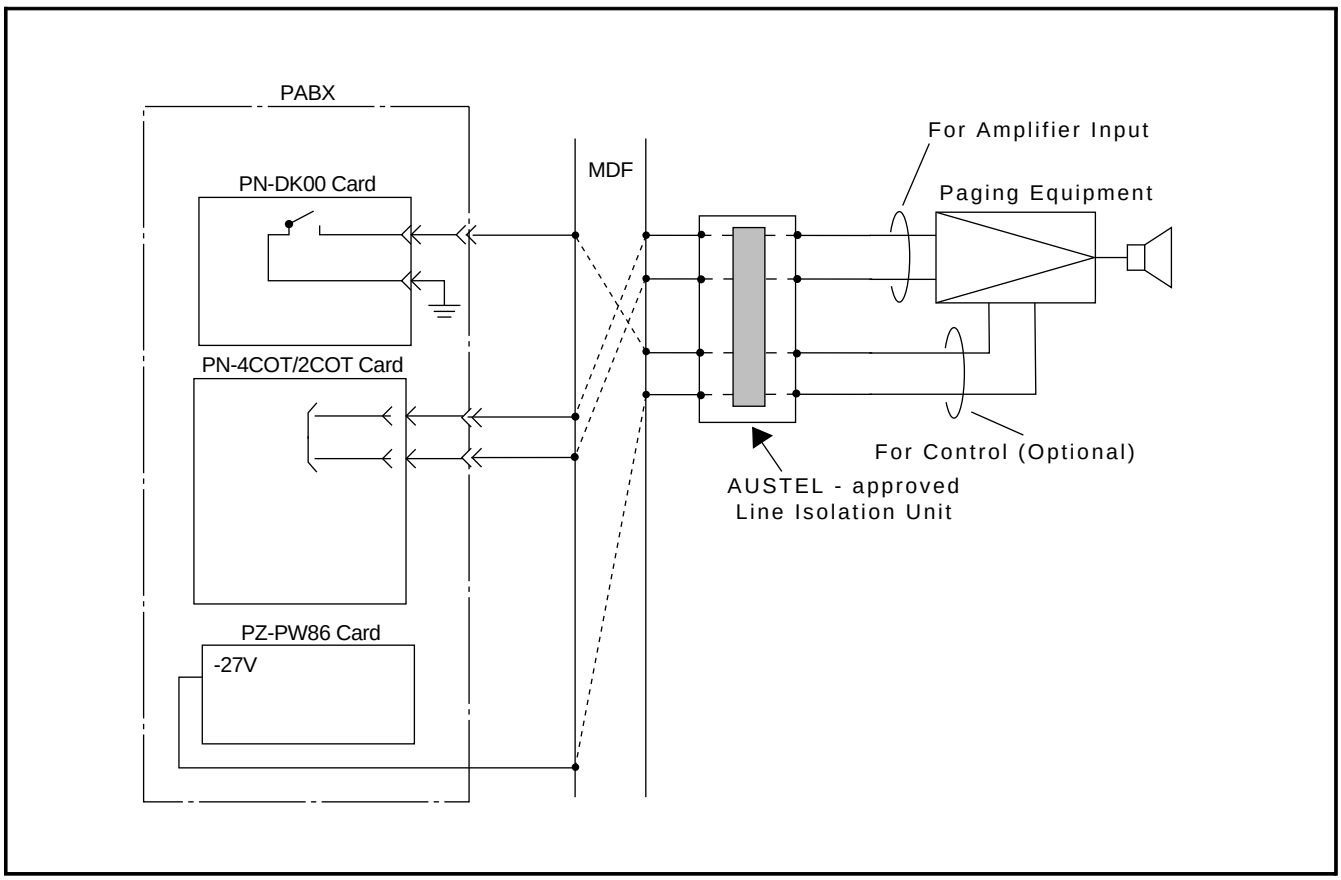

Figure 007-18 Outline of the Paging Equipment Connection

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(b) MDF Cross Connection

Notes: *1. The current capacity of the opto-coupler (PN-DK00 card) is 125 mA.*

2. The isolator's relay must be compatible with nominal 24 Volt circuits, and the suppression diode shown is mandatory.

3. The audio path in the isolator must be capacitor-coupled as shown.

4. The Line-fault detection in the C.O.T. must be disabled. Refer to the Command Manual for details.

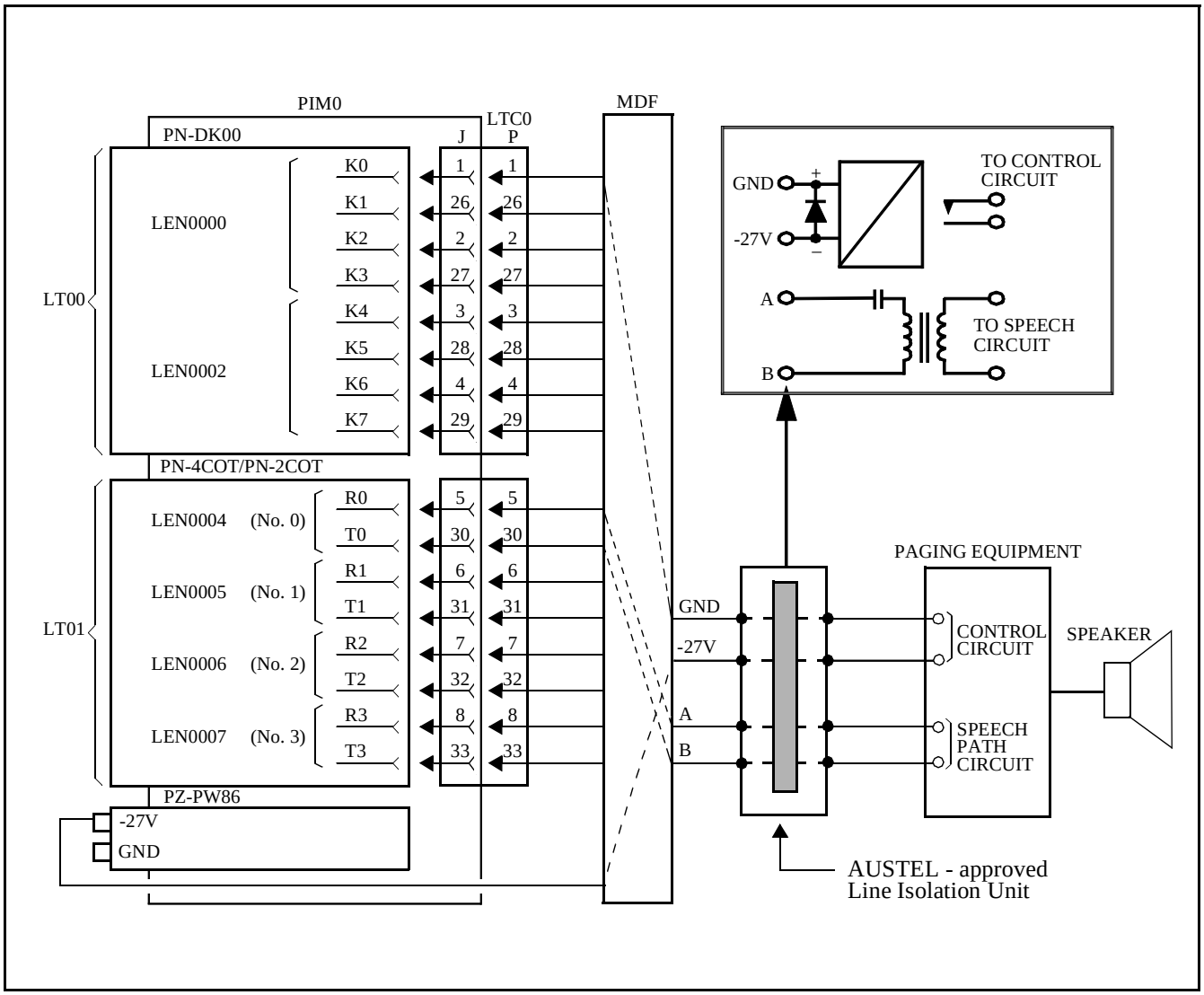

Figure 007-19 MDF Cross Connection for Paging Equipment

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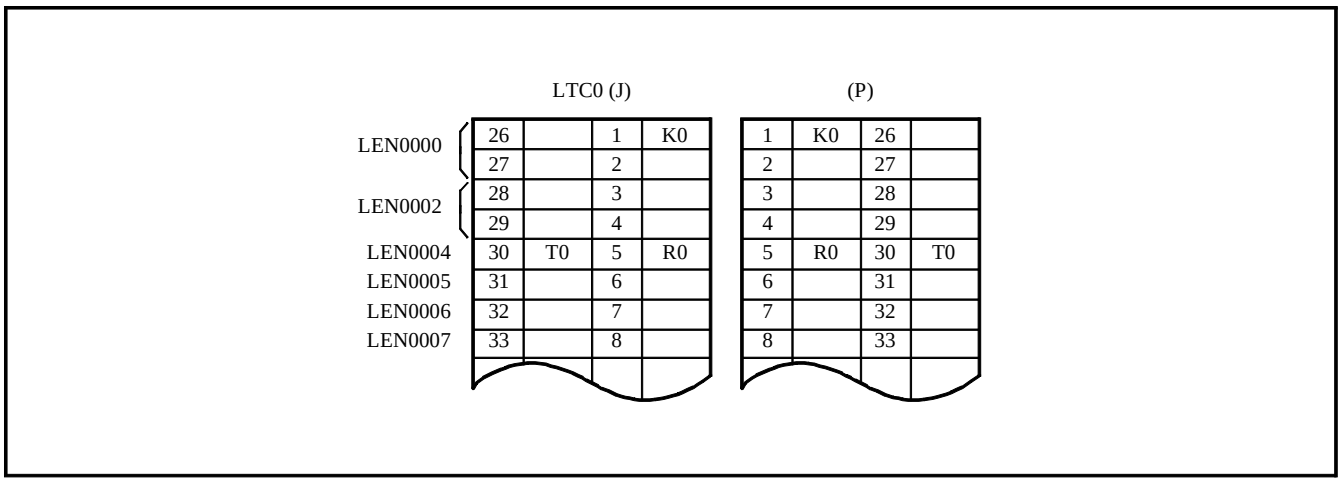


Figure 007-19 MDF Cross Connection for Paging Equipment (Continued)

(10) External Music Equipment

The cross connection for customer-owned external music equipment is shown in Figure 007-21 and Figure 007-22, as an example.

Requirement for the External Music Equipment

- Output level : Less than 0 dbm (Adjustable)
- Output impedance : Less than 1 KΩ
- Control Method : Start - Ground On
  : Stop - Ground Off (Open)

} On/Off control is optional. Refer to the Command Manual to set the PN-PK00 in the Relay-Drive mode.

(a) Outline of the Connection

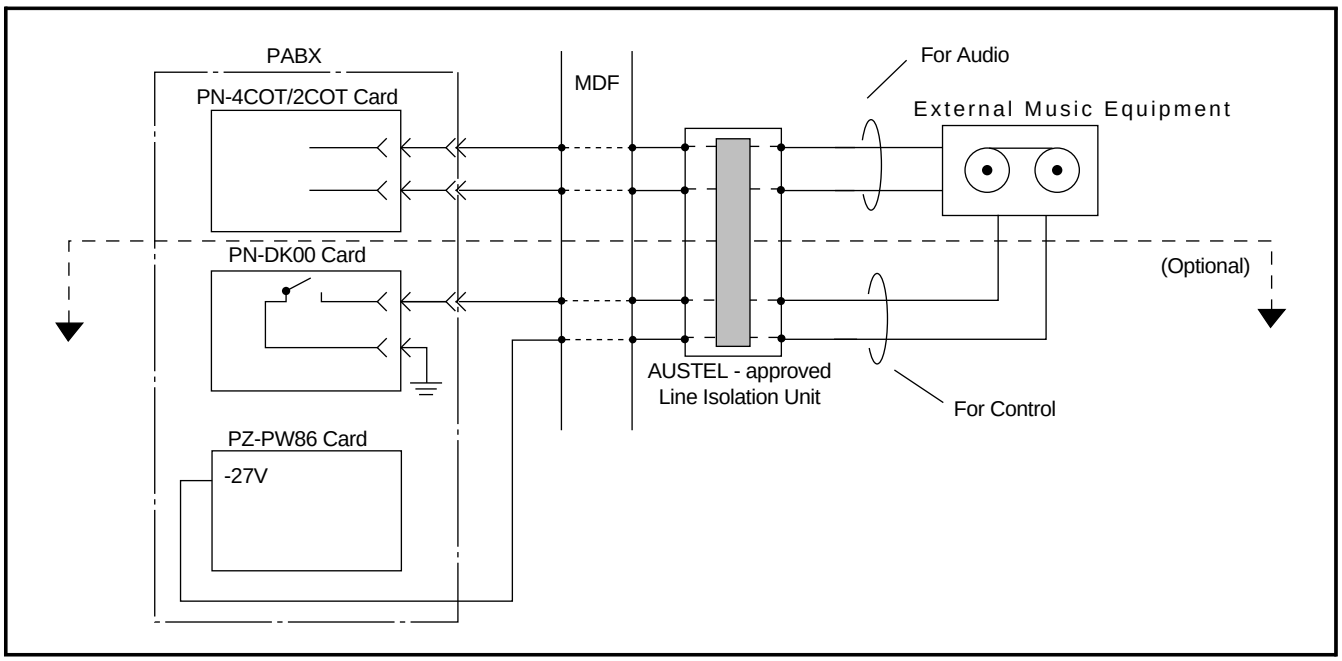


Figure 007-20 Outline of the External Music Connection

(b) MDF Cross Connection

Notes: *1. The current capacity of the opto-coupler (PN-DK00 card) is 125 mA.*
2. The isolator's relay must be compatible with nominal 24 Volt circuits, and the suppression diode shown is mandatory.
3. The audio path in the isolator must be capacitor-coupled as shown.
4. The Line-fault detection in the C.O.T. must be disabled. Refer to the Command Manual for details.

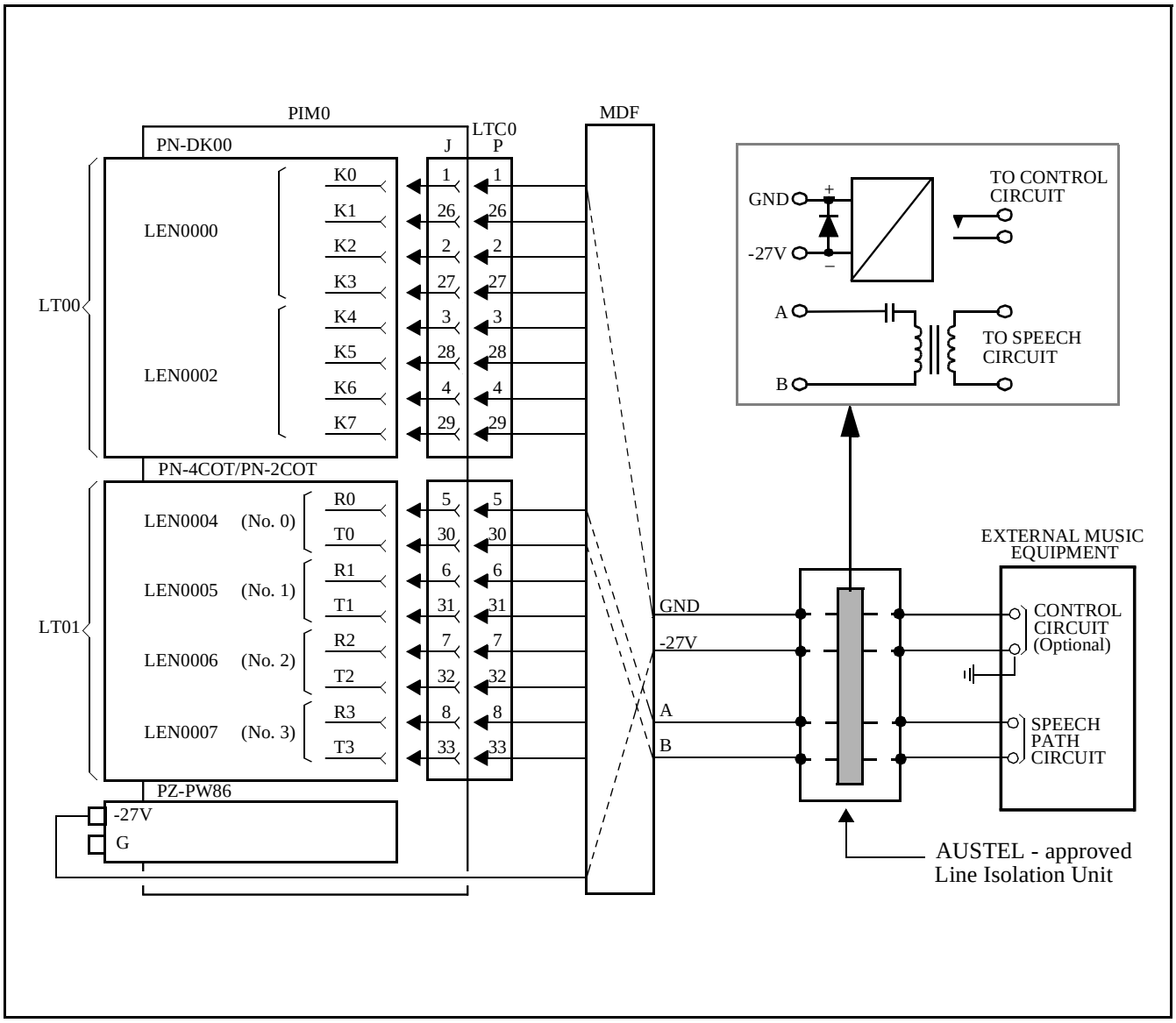


Figure 007-21 MDF Cross Connection for External Music Equipment

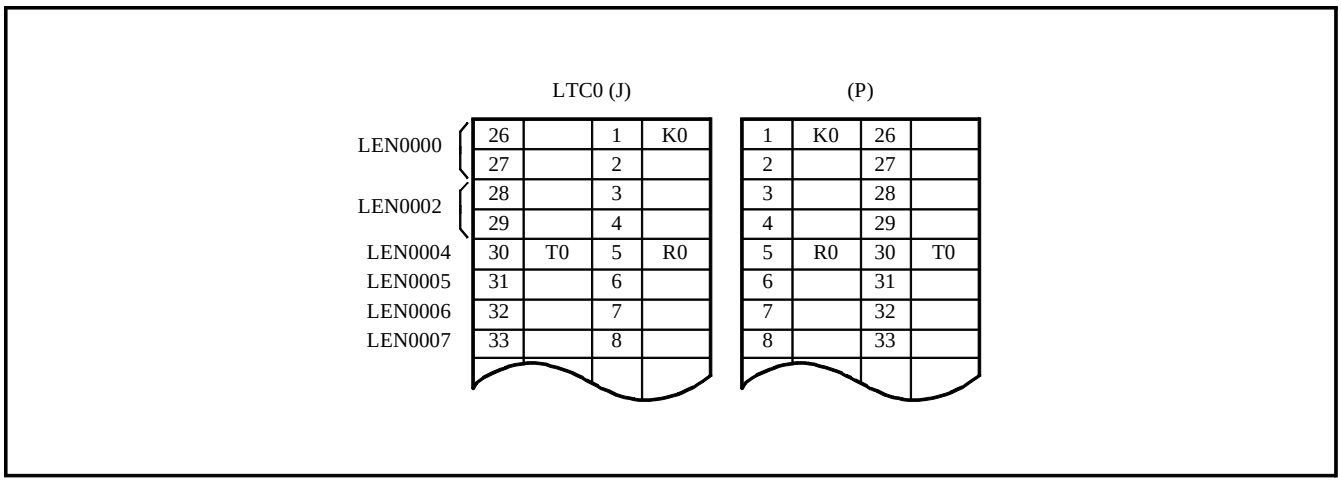


Figure 007-21 MDF Cross Connection for External Music Equipment (Continued)

External Music Equipment (continued)

- An AUSTEL-approved isolator must always be included between the Music Source and the PABX trunk.
- If a D.C. voltage is supplied together with the audio from the external music equipment, a coupling capacitor must be added as shown in Figure 007-22. It is <u>not</u> recommended to mount this capacitor on the MDF, so it should be added to the output cable of the music equipment.

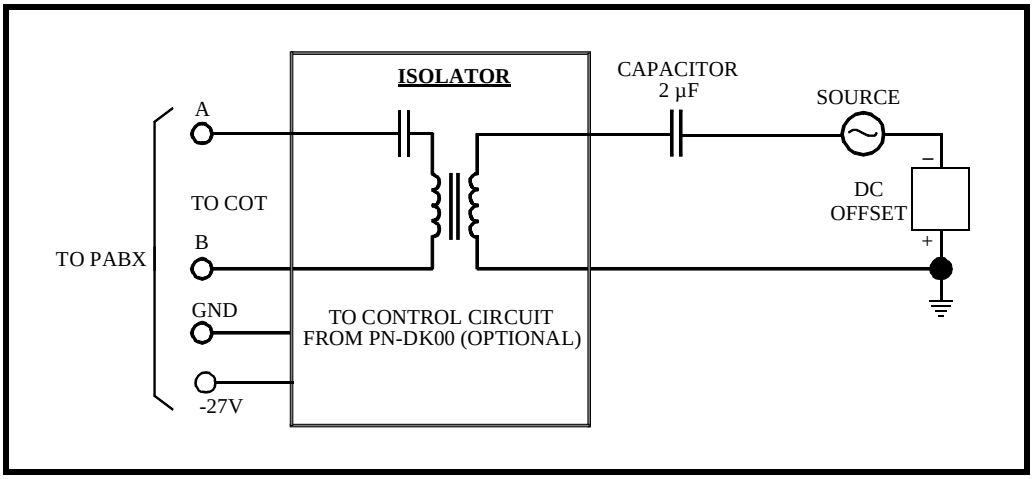
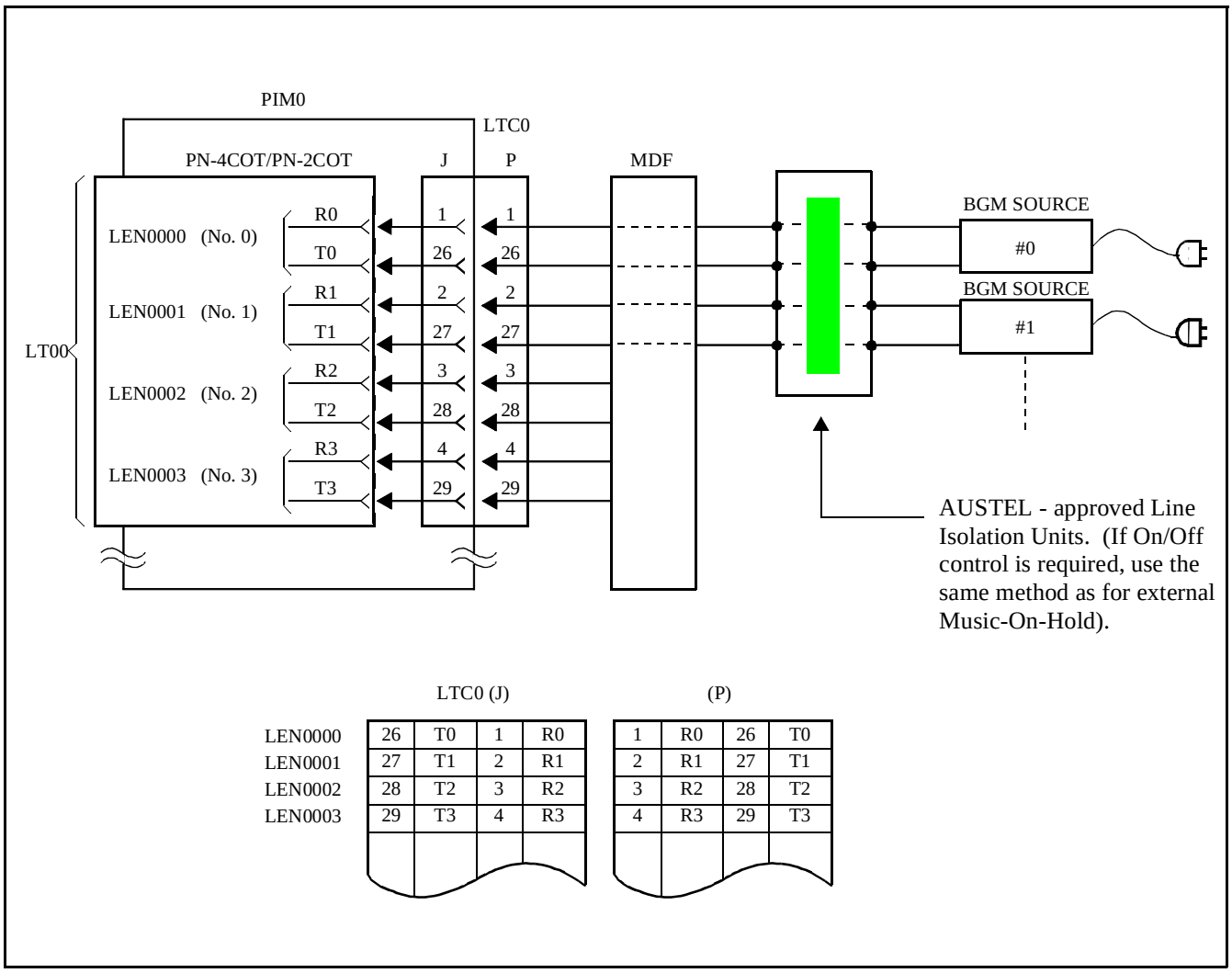


Figure 007-22: Connecting Method of Music Source with D.C. Offset

(11) External Background Music (BGM) Source

The cross connection for customer-owned external BGM sources is shown in Figure 007-23.

Note: *A maximum of 10 BGM sources can be provided in the system.*



LTC0 (J) / (P)

LEN0000	26	T0	1	R0	1	R0	26	T0
LEN0001	27	T1	2	R1	2	R1	27	T1
LEN0002	28	T2	3	R2	3	R2	28	T2
LEN0003	29	T3	4	R3	4	R3	29	T3

Figure 007-23 MDF Cross Connection for External BGM Sources

ADDITIONAL: The examples shown in Figures 007-18 to 007-20 also apply to other auxiliary equipment such as, Announcement Machines, etc. When On/Off control circuits are required, the isolator must also have a relay fitted.

(12) Power Failure Transfer (PFT)

The PFT function is included in the PN-AUCA Card.

(a) Outline of the Connection.

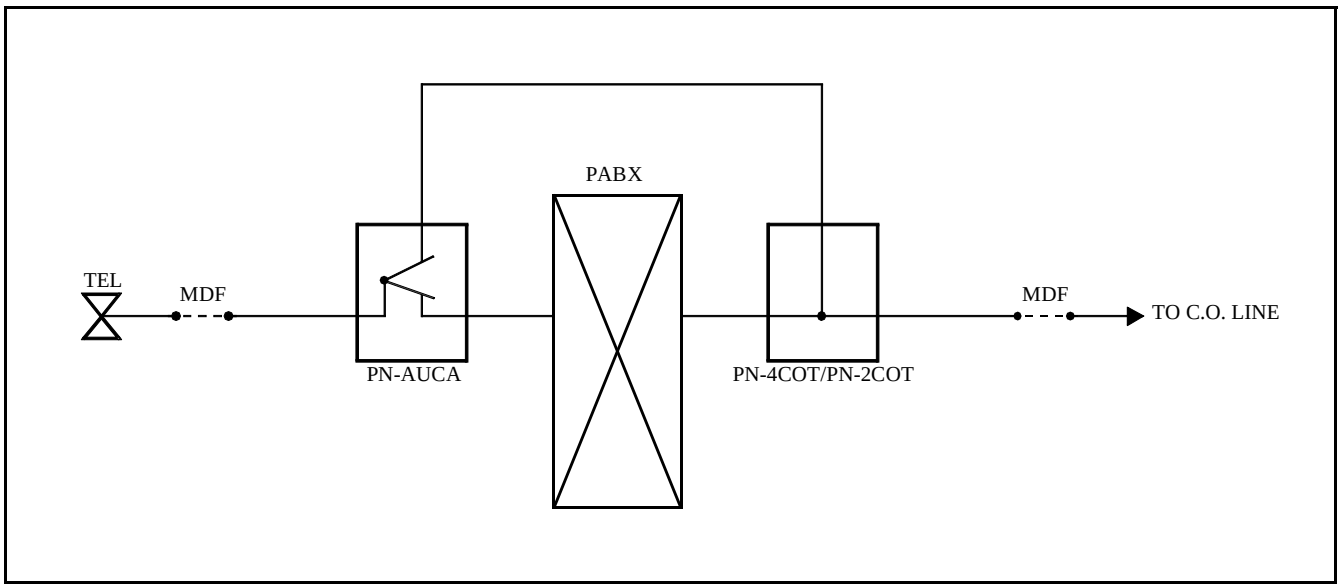


Figure 007-24 Outline of the PFT Connection

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(b) MDF Cross Connection

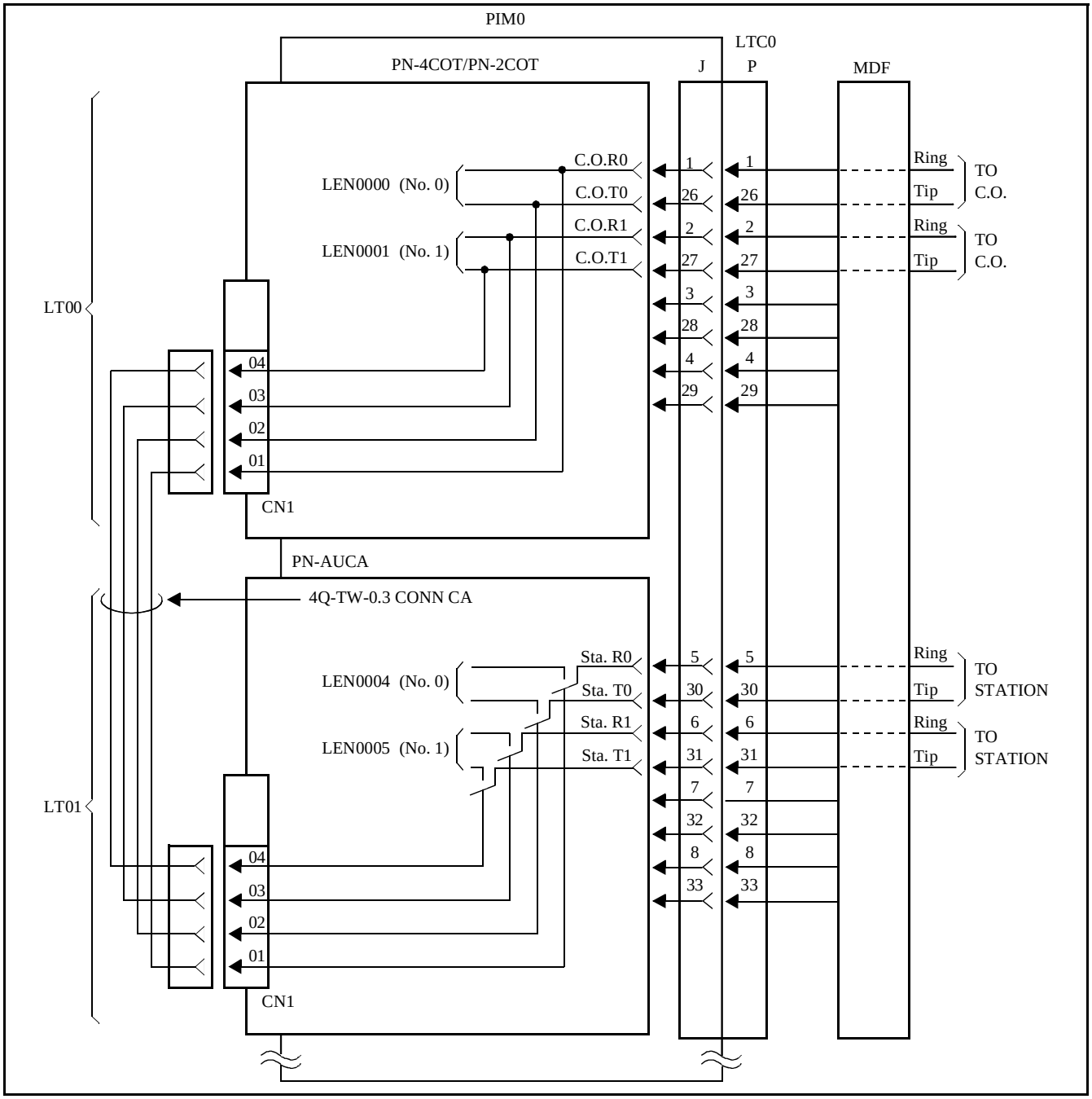

Figure 007-25 MDF Cross Connection for the PFT

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Termination of Cables on MDF

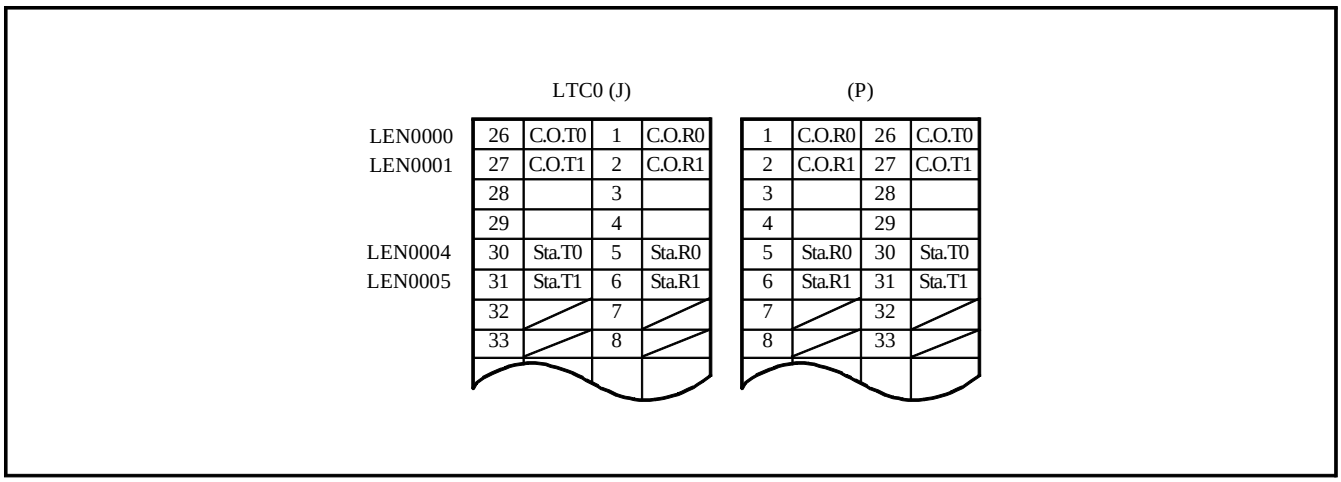

Figure 007-25 MDF Cross Connection for the PFT (Continued)

Note: *The third and fourth circuits in the PN-4COT card cannot be used for the PFT function.*

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Termination of Cables on MDF

(13) Alarm Display Panel (ALM DSPP).

Cross connection for the Alarm Display Panel is shown below.

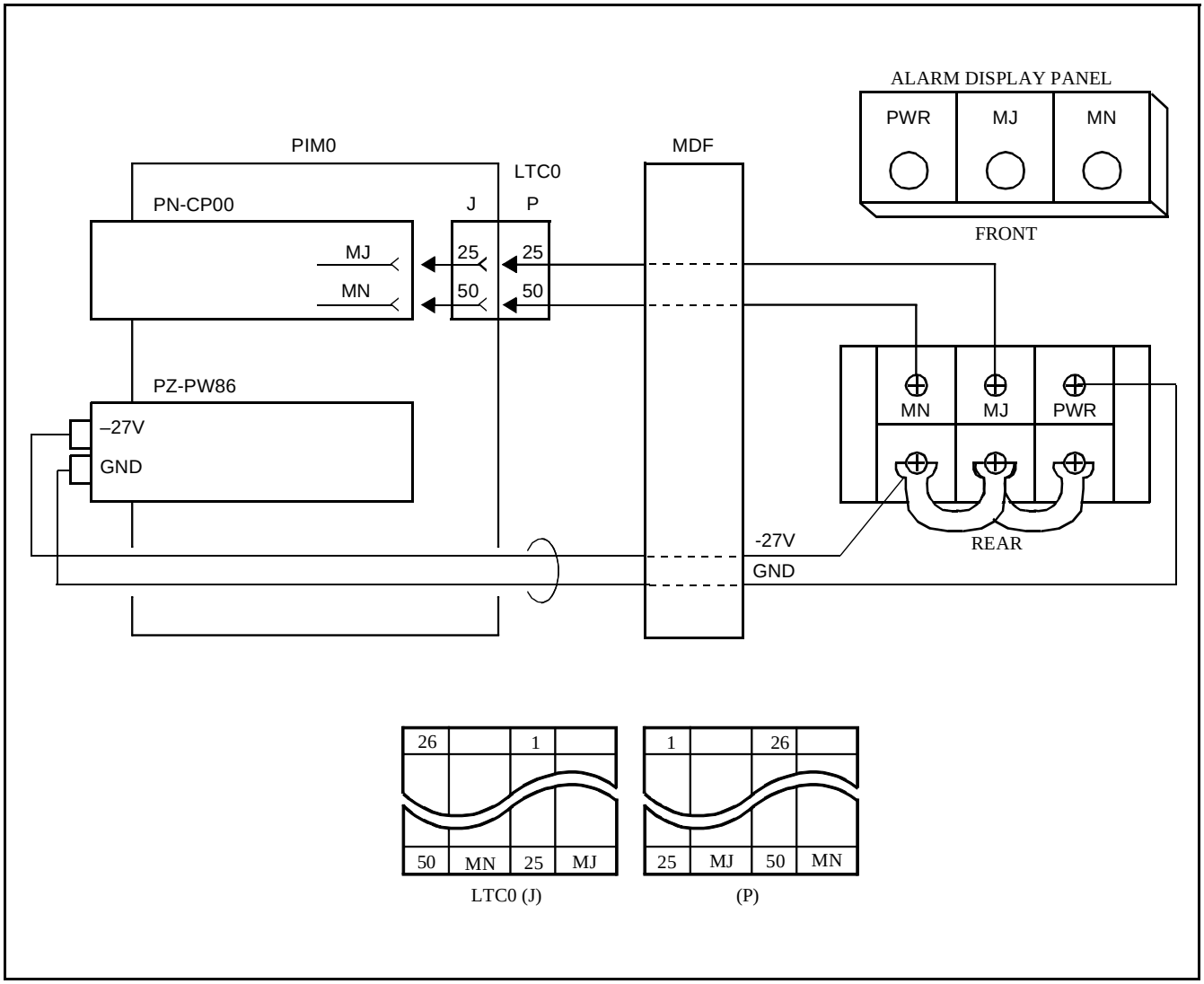

Figure 007-26: MDF Cross Connection for Alarm Display Panel

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Sheet 1/2
Mounting of Circuit Cards

1. Mounting Procedure

(1) For testing, turn on the “SW” switch on the PZ-PW86/PW86(A) Card(s). Make sure that each “ON” lamp (Green) is lit.

Note: *This switch also controls the battery feed.*

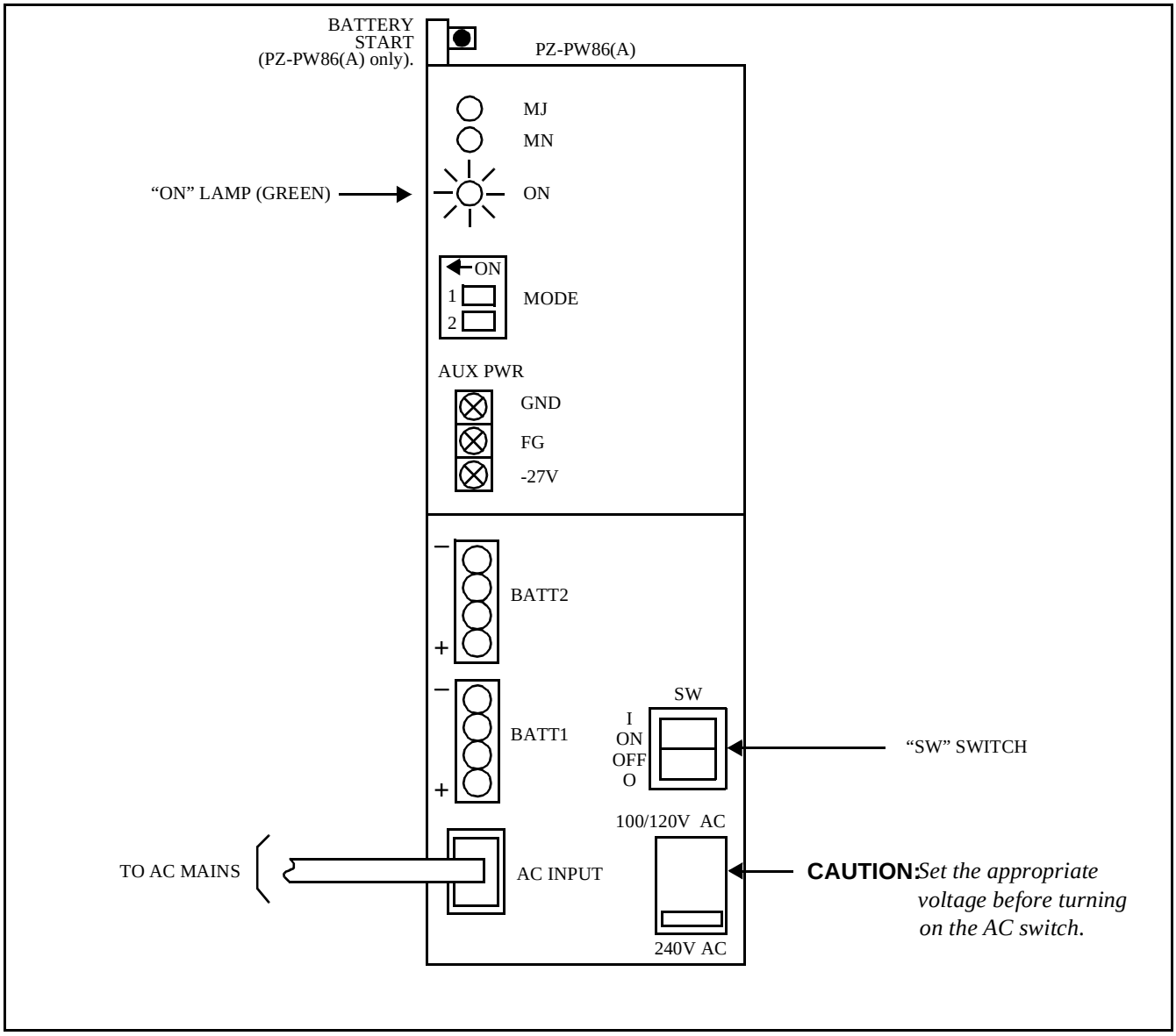

Figure 008-1: Lamp Indication on PZ-PW86(A) Card

(2) Before mounting circuit cards, confirm the folowing items.

- Wrist Strap and Conductive Work Surface are prepared.
- Switch setting of circuit cards is already completed (Refer to the Circuit Card Manual).
- The “SW” switches of all PZ-PW86 Cards are turned off.

(3) Mount circuit cards into their mouting positions according to the “Module Face Layout” and “Port Assignment Table” given in the System Data Sheet.

CAUTION: *Refer to Figure 3-2, regarding Static Electricity Guard.*

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Sheet 1/3
System Initialization and System Data Entry

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 "SW" switch on all the PZ-PW86 power units before initializing anything.

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

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 "0" and press SW1.

- Operating mode has been changed to ON LINE.

Note: *Refer to the Circuit Card Manual for information on switch settings.*

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 3 to 4 seconds, the "MN" lamp is lit.
- If the "MJ" lamp is lit, repeat the procedure of Step 2.
- The system has loaded the Resident System Program.

Step 3: Set SW3 to "0" and press SW1.

- Operating mode has been changed to ON LINE.

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).*

2. System Data Entry

- There are two methods for data entry, both of which employ a CAT or a MAT.

2.1 CAT (Customer Administration Terminal)

Any D^{term} can be assigned as a CAT terminal through programming. The D^{term} 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 D^{term} 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 LDC card must be installed in slot LT00).

To assign a D^{term} 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 LCD
7. Press [ST]
   - "COMMAND = -" is displayed on LCD

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

To reset CAT mode:

While “COMMAND = -” is displayed on LCD:

1. Lift the handset (off hook)
   - SPKR lamp is off.

2. Replace the handset (on hook)
   - CNF, ANS lamps are off.
   - LCD returns to clock.

2.2 MAT (Maintainance Administration Terminal)

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

Note: An AUSTEL-Approved Isolator must be connected between the MAT and the PABX’s I/O port; Refer to the trunking diagram on page 3.

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Operation Test

1. Operation Test

Confirm the system data accuracy and hardware configuration (including cable connections) by the following operation test:

- 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/Don’t Answer/Busy Line
  - Call Pickup
  - Station Hunting-Pilot/Circular
  - Speed Calling-System/Station
  - Paging Access
  - Announcement Service etc.
  - Music on Hold
  - Background Music
  - TAS/Night Service