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ISSUE 1

NEAX[®] 1400 IMS

Troubleshooting Guide

NEC America, Inc.

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NEAX1400 IMS
Troubleshooting Guide

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CHAPTER 1 INTRODUCTION

1. PURPOSE

This manual provides NEAX1400 IMS troubleshooting information for maintenance personnel. This troubleshooting guide consists of two additional chapters, outlined below.

CHAPTER 2 (GENERAL INFORMATION)

This chapter describes the alarm indication, alarm meaning, and precautions to be taken.

CHAPTER 3 (TROUBLESHOOTING PROCEDURE)

This chapter describes flow chart troubleshooting procedures. Troubleshooting procedure scope covers main and peripheral equipment (stations, trunks, Attendant Consoles and Multiline Terminals). It also describes system diagnosis and configuration report.

2. REFERENCE MANUALS

Required manuals other than the Troubleshooting Guide are shown below.

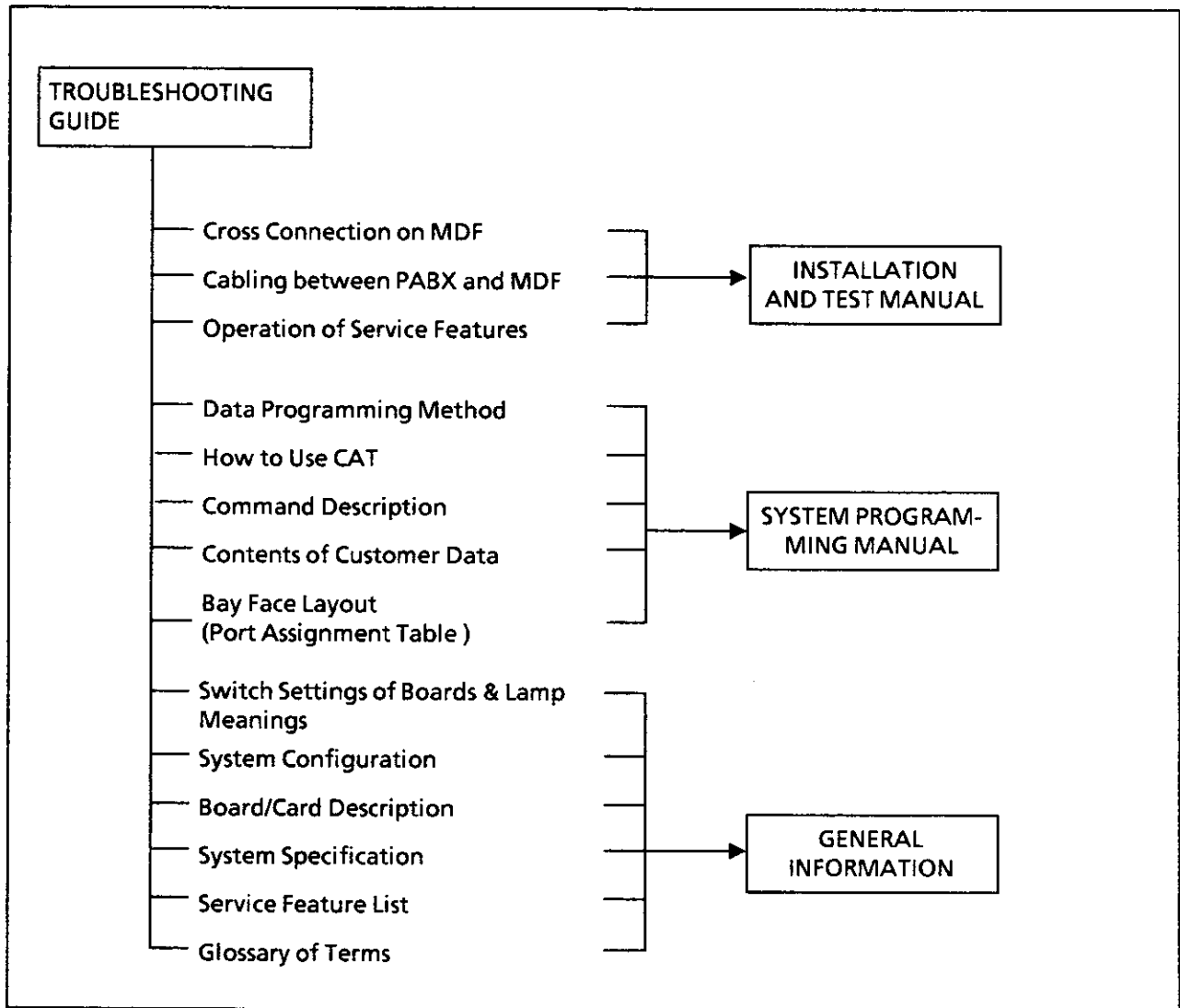


Figure 1-1 Reference Manuals for Troubleshooting

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3. HOW TO USE THE MANUAL

3.1 Explanation of Symbols

In this Manual, various devices and equipment composing the system are referred to by abbreviated names. These abbreviations are listed in Table 1-1.

The instruction marks used in CHAPTER 3 are :

CHECK : Perform a check or required work on the item to the right of this symbol. If an abnormality is found, take the required remedial action such as repair, replacement, etc.

REPLACE : Replace the equipment or device considered to be faulty indicated at the right side of the mark with a spare. Confirm the fault has been eliminated.

PWR ON / PWR OFF: Turn on/off the AC switch on the PWR Panel before performing the steps indicated.

MB ON: Set the MB switch on the board to "ON" before unplugging. After plugging the board, the MB switch should be set to "OFF".

3.2 How to Follow the "Tree"

Troubleshooting Procedures are presented in "Tree" form. The troubleshooter can perform accurate and efficient troubleshooting following available fault information and the related "Tree". How to use the "Tree" is in step-by-step form.

Step 1: The troubleshooter gathers fault information and selects the tree from the Troubleshooting Procedure Index.

Step 2: Search for the symptom in the selected tree by following the tree from the "START" point. If the symptom is not found, gather more detailed fault information.

Step 3: The items to the right of **CHECK** indicate elements which are possibly responsible for the fault. Check each of these items. If an abnormality has been found, perform necessary remedial action such as repair, replacement, etc.

Step 4: If the fault has not been eliminated after the **CHECK** items have been performed, replace the items to the right of the **REPLACE** symbol. In this case, every time hardware is replaced with a spare, check to see if the fault has been eliminated.

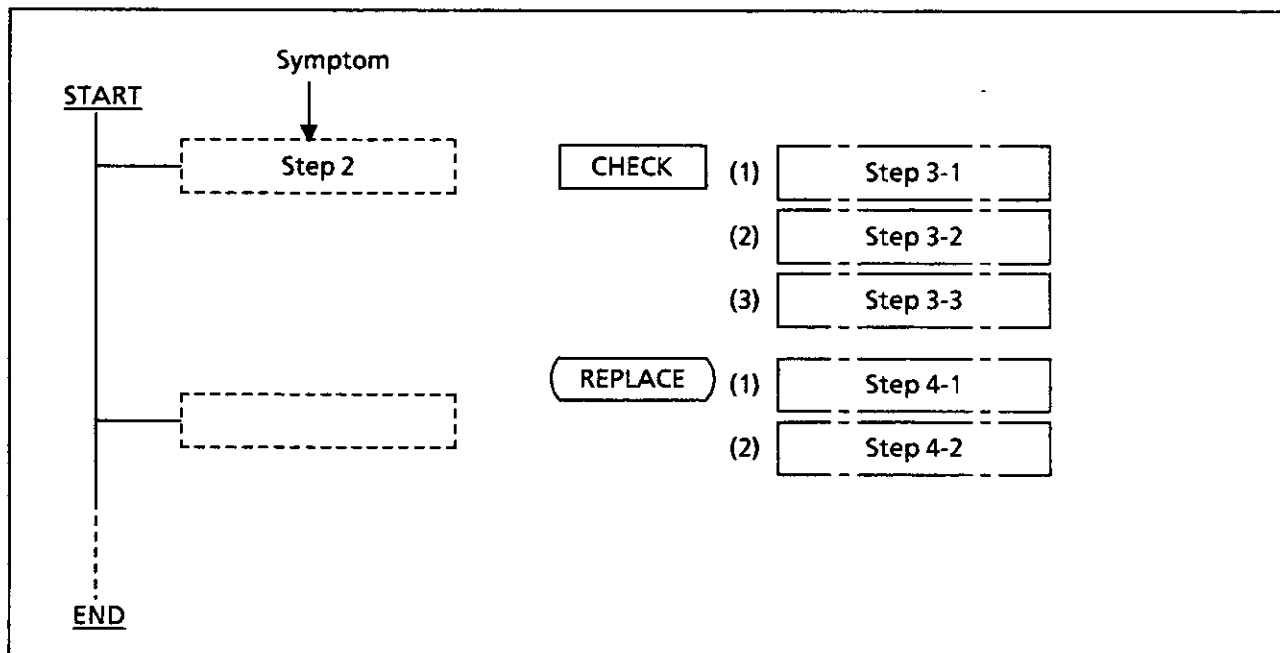
Table 1-1 Explanation of Symbols

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
MP	Main Processor	PWRM	Power Module
FP	Firmware Processor	PWRU	Power Unit
MEM	Memory	PIM	Port Interface Module
AP	Application Processor	LC	Line Circuit
SPI	Speech Path Interface	DLC	Multiline Terminal Line Circuit
ATI Note	HA-610Z Attendant Console Interface	COT	Central Office Trunk
PWRA	DC-DC Power A (+ 5 V, - 5 V)	DIT	Direct In Trunk
PWRB	DC-DC Power B (- 48V, CR)	ODT	4W E + M Tie-line
		PBR	DTMF Receiver

Note: The ATI Board location is designated "CS" in bayface diagrams.

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If the trouble remains after following the above steps, contact NEC for additional fault information.



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Figure 1-2 How to Follow the "Tree"

3.3 Example for Troubleshooting with Tree

Step 1: Fault Information

- (1) The system does not start after turning AC switch on.
- (2) All lamps on the MP Board are out, but "PWR" Lamp on TOPU is lit.

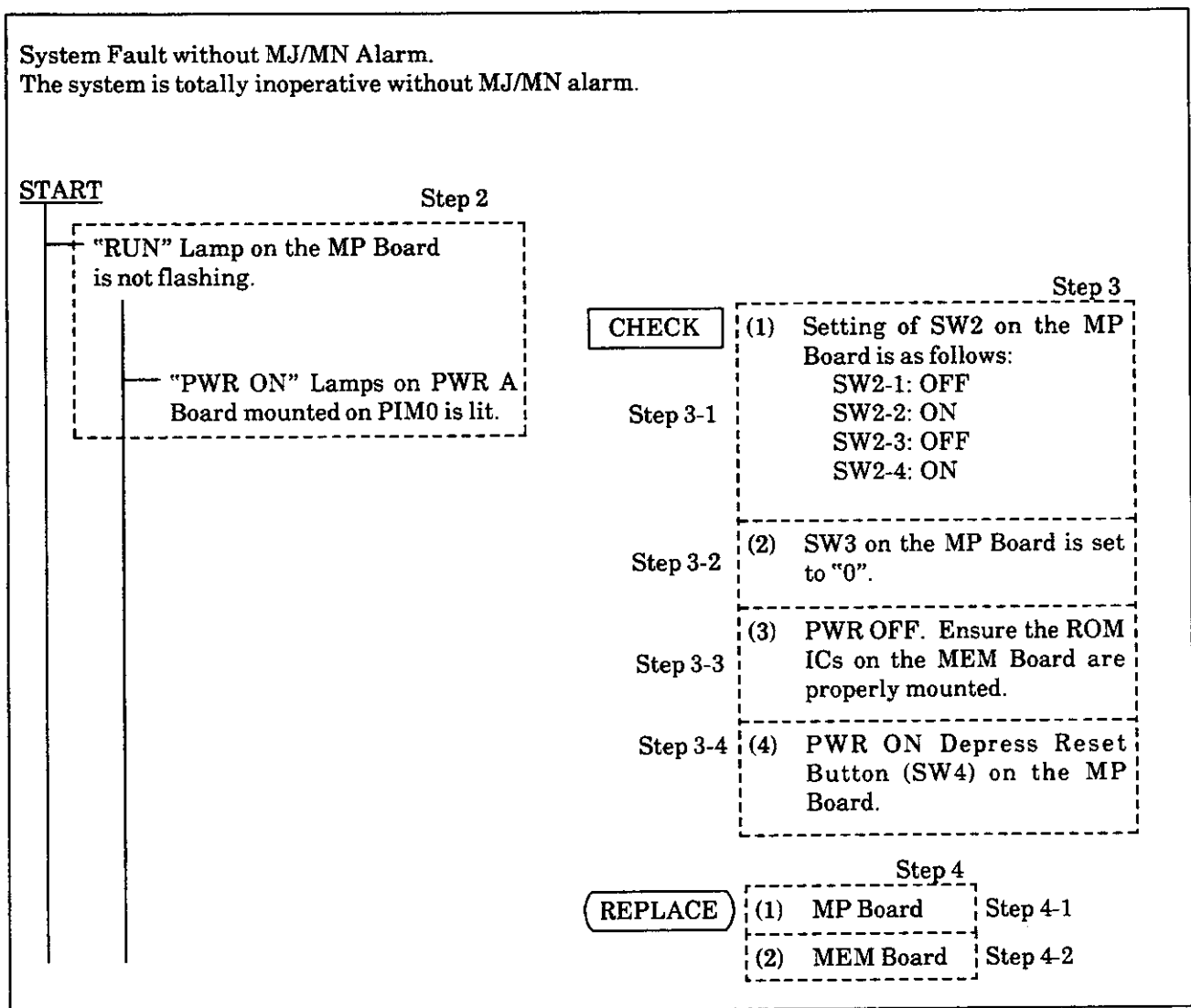
Step 2: Perform the following Troubleshooting Procedure for fault above.

Step 3: Check the setting of SW2 on the MP Board (Step 3-1). If SW2 is correct, check the SW3 setting on the MP Board (Step 3-2).

If SW3 is correct, turn the AC switch off. Remove the MEM Board and check the ROM ICs for proper mounting (Step 3-3).

If there is no problem, replace the MEM Board. Turn the AC switch on and depress the Reset Button on the MP Board to check MP function (Step 3-4).

Step 4: If the MP is not functioning, turn off the AC switch and replace the MP Board. Turn the AC switch on and check the MP function (Step 4-1). If the MP does not function, turn off the AC switch and replace the MEM Board. Check the MP function.



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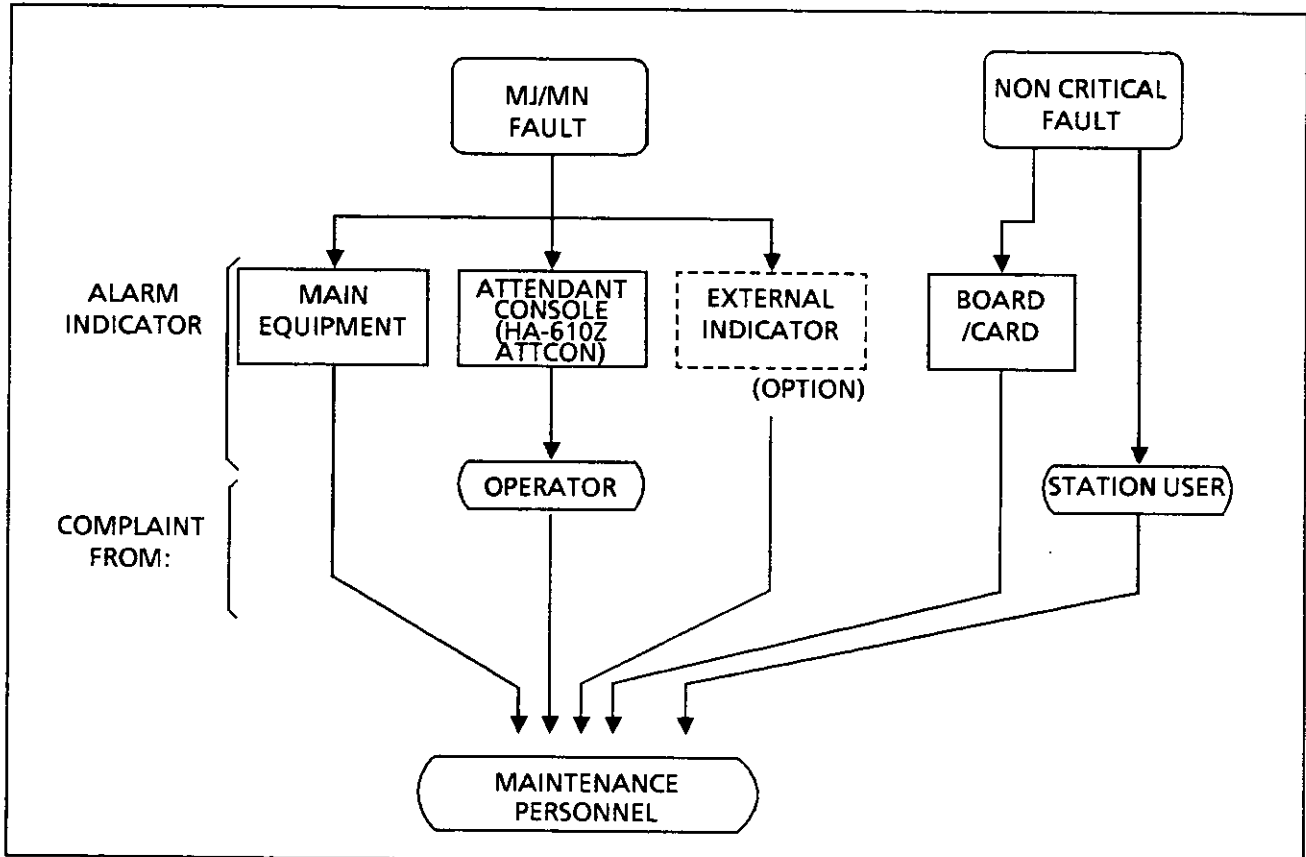
CHAPTER 2 GENERAL INFORMATION

1. OUTLINE OF ALARM SYSTEM

This section describes how alarm indications are given. If a fault has occurred in the system, maintenance personnel receive indication through the routes shown in Figure 2-1.

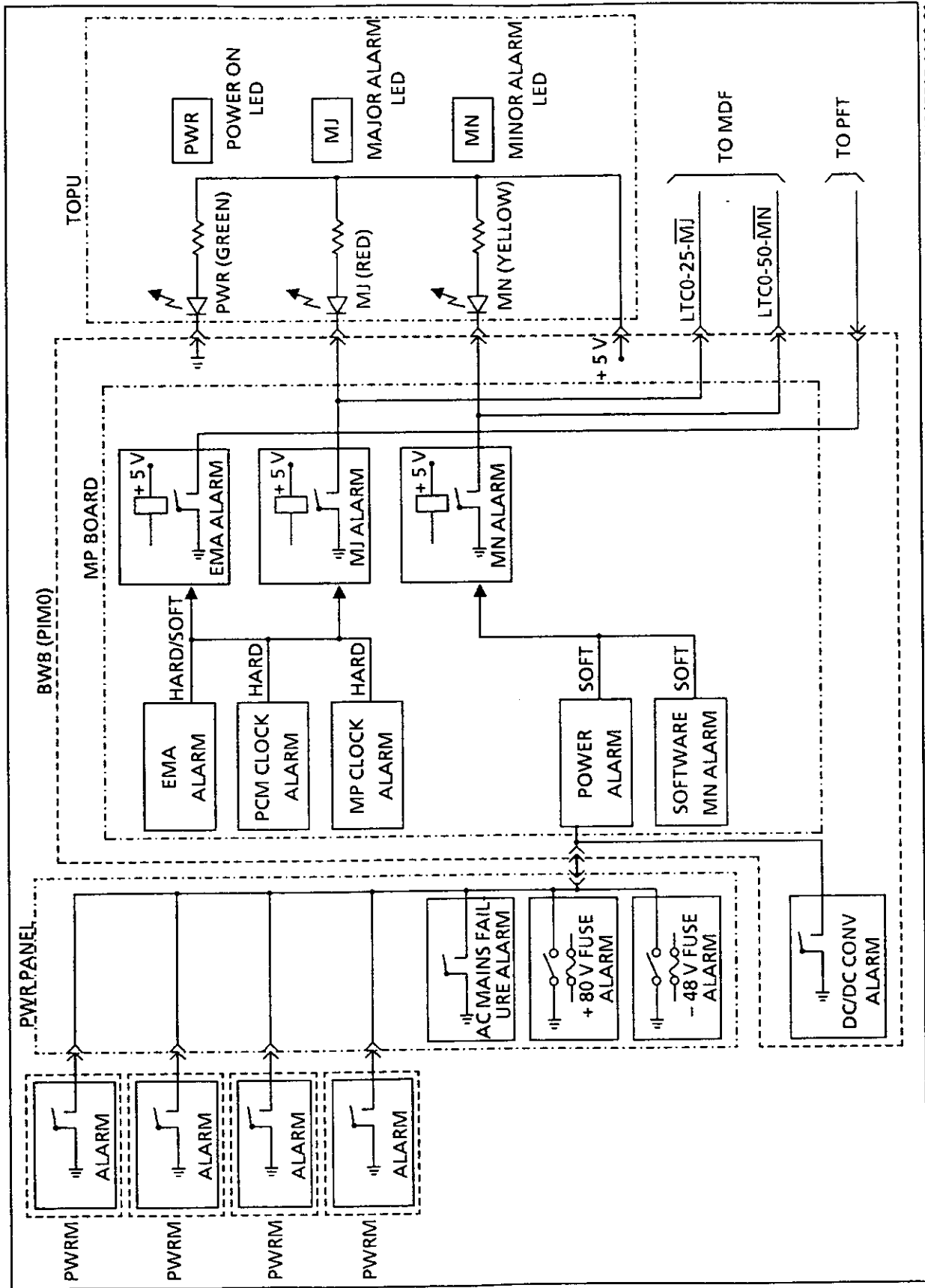
The faults or states indicated by Major (MJ) or Minor (MN) alarms are under constant MP (Main Processor) supervision.

The MP Board is equipped with alarm indication LEDs and indicates detailed faulty conditions as well as MJ and MN faults. The LEDs aid maintenance personnel to recognize the contents of the fault. Figure 2-2 shows the flow of MJ and MN alarm information. Table 2-1 shows faults indicated as MJ and MN alarms and system fault processing methods.



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Figure 2-1 Alarm Indication Routes



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Figure 2-2 Alarm System Block Diagram

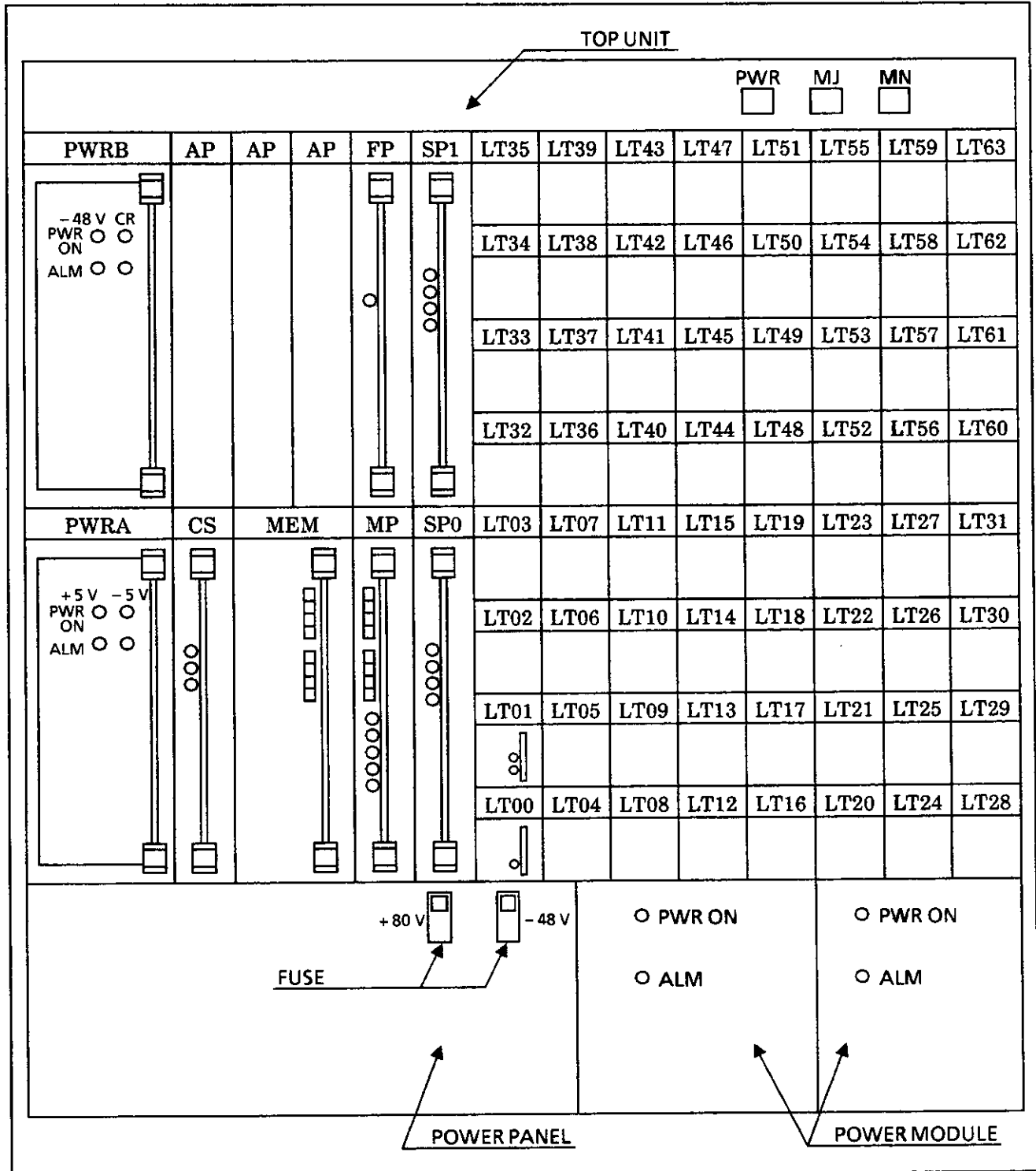
Table 2-1 Fault Detection Items

FAULT DETECTION		PROCESSING		ALARM INDICATION			REMARKS
EQUIPMENT NAME	CONTENT OF FAULT	INITIALIZE	PFT OPERATION	TOP UNIT		ATT	
				MJ	MN		
DC-DC Board (PWRA, PWRB)	DC Output Down	-	-	-	×	×	
	RGU Down (CR)	-	-	-	×	×	
Power Unit	Fuse Blown (+ 80, - 48)	-	-	-	×	×	
	DC Output Down	-	×	-	×	×	
MP Board	COP (C-Level Infinite Loop) Alarm	×	-	-	-	-	
	EMA (Emergency Alarm)	-	×	×	-	×	
	Clock Down (MP)	-			-	×	
	Clock Down (PCM)	-			-	×	
	Lockout station lines number has exceeded a predetermined value	-	-	-	×	×	
FP Board	Firmware Infinite Loop	×	-	-	-	-	

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2. ALARM INDICATION ON THE SYSTEM

Figure 2-3 shows the system Alarm Indicators and fuses.

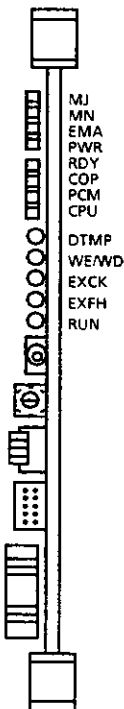


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Figure 2-3 Position of Lamps and Fuses

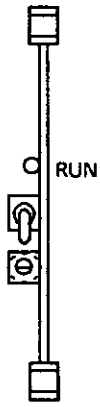
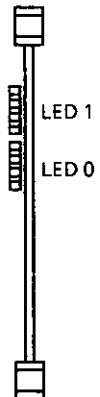
Table 2-2 shows the alarm indication meaning on each board. Lamp indications show board normal/abnormal operation.

Table 2-2 Lamp Indications on Boards

BOARD NAME	LAMP NAME	COLOR	INDICATION		MEANING
			NORMAL	ABNORMAL	
 <p>MP Board</p> <p>Front View</p>	MJ	Red	OFF	ON	Lights when C-Level infinite loop, MP clock-down or PCM clock-down fault has occurred.
	MN	Red	OFF	ON	Lights when power fault has occurred or the number of lockout station lines has exceeded the predetermined number.
	EMA	Red	OFF	ON	COP Alarm has occurred 8 times within 8 minutes.
	PWR	Red	OFF	ON	Lights when power fault has occurred.
	RDY	Red	OFF	ON	Lights when "READY" signal from MEM Board is not returned.
	COP	Red	OFF	ON	Lights when C-level infinite loop has occurred.
	PCM	Red	OFF	ON	Lights when PCM Clock fault has occurred.
	CPU	Red	OFF	ON	Lights when MP Clock fault has occurred.
	DTMP	Red	-	-	Momentarily lights when Memory all clear is performed.
	WE/WD	Red	-	-	Lights when customer's data is able to write into memory area.
	EXCK	Green	-	-	Lights when the external clock signal is being received.
	EXFH	Green	-	-	Lights when the external Frame Head signal is being received.
	RUN	Green	120 IPM flashing	ON or OFF	On-line operations in progress.

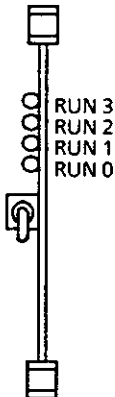
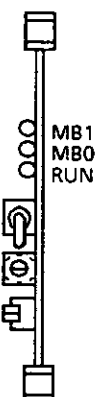
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Table 2-2 Lamp Indications on Boards (Continued)

BOARD NAME	LAMP NAME	COLOR	INDICATION		MEANING
			NORMAL	ABNORMAL	
FP Board  Front View	RUN	Green	120 IPM flashing	ON or OFF	On-line operations in progress.
MEM Board  Front View	LED 0	Green	-	-	Flickering in operation.
	LED 1	Green	-	-	Flickering in operation.

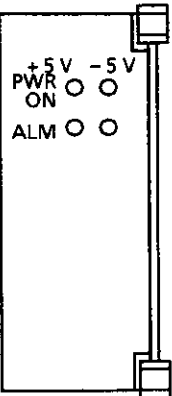
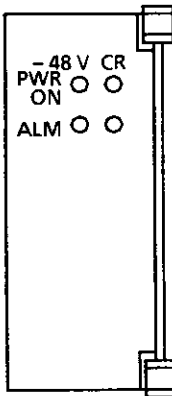
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Table 2-2 Lamp Indications on Boards (Continued)

BOARD NAME	LAMP NAME	COLOR	INDICATION		MEANING
			NORMAL	ABNORMAL	
<p>64 SPI Board</p>  <p>Front View</p>	RUN 0	Green	-	-	For card group 0/4: Lights in on-line mode when cards occupying PCM channel are plugged in.
	RUN 1	Green	-	-	For card group 1/5: Lights in on-line mode when cards occupying PCM channel are plugged in.
	RUN 2	Green	-	-	For card group 2/6: Lights in on-line mode when cards occupying PCM channel are plugged in.
	RUN 3	Green	-	-	For card group 3/7: Lights in on-line mode when cards occupying PCM channel are plugged in.
<p>ATI Board</p>  <p>Front View</p>	MB 0	Red	-	-	Lights when circuit 0 is in Make Busy Status.
	MB 1	Red	-	-	Lights when circuit 1 is in Make Busy Status.
	RUN	Green	120 IPM flashing	ON or OFF	On-line operations in progress.

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Table 2-2 Lamp Indications on Boards (Continued)

BOARD NAME	LAMP NAME	COLOR	INDICATION		MEANING
			NORMAL	ABNORMAL	
DC-DC Board (PWRA)  Front View	+5 V PWR ON	Green	ON	OFF	Lights when board +5 V output is normal.
	-5 V PWR ON	Green	ON	OFF	Lights when board -5 V output is normal.
	+5 V ALM	Red	OFF	ON	Lights when board +5 V output is abnormal.
	-5 V ALM	Red	OFF	ON	Lights when board -5 V output is abnormal.
DC-DC Board (PWRB)  Front View	-48 V PWR ON	Green	ON	OFF	Lights when board -48 V output is normal.
	CR PWR ON	Green	ON	OFF	Lights when board CR output is normal.
	-48 V ALM	Red	OFF	ON	Lights when board -48 V output is abnormal.
	CR ALM	Red	OFF	ON	Lights when board CR output is abnormal.

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3. PRECAUTIONS WHEN TROUBLESHOOTING

Maintenance personnel must strictly adhere to the following procedures when handling boards and cards in the course of troubleshooting.

3.1 Static Charge Prevention

Wear a grounded wrist strap to prevent board or card damage by static discharge. When handling boards and cards, work on a grounded conductive surface. The conductive work surface can be grounded to the Main Equipment frame.

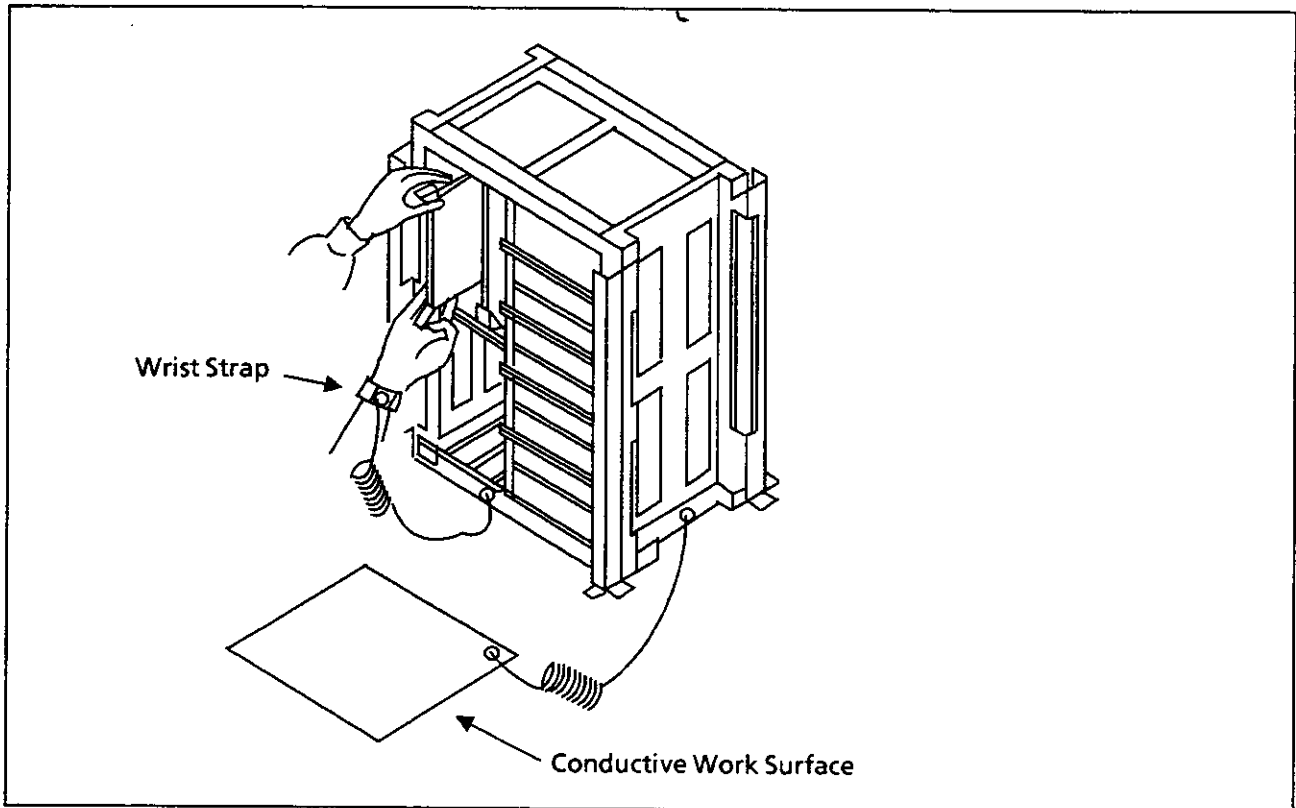


Figure 2-4 Static Charge Prevention

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3.2 Procedure for Removing/Replacing a Board

When removing or mounting a PIM board, follow the procedure in Table 2-3. Never touch the contact part of the board with bare hands. Cards (LC Card, Trunk Card) can be removed or replaced from the port regardless of the system state.

3.3 Handling of Faulty Board/Card

Any board or card identified and removed by troubleshooting must be sent to NEC, or its agent, for repair as soon as possible. When sending the board or card, observe the following procedures:

- (1) The packing must be sufficiently sturdy and contain proper material (use of air caps, etc.) to prevent shock and vibration. It is recommended that the original packing materials be reused.

- (2) The following information concerning the faulty board or card should be contained in the packing.

- Customer Name
- System Manufacturing Number and Date on the Name plate.
- Detailed information on the fault (i.e., symptoms, alarm indication, troubleshooting method).
- Site Condition (i.e. temperature, humidity).
- Whether the system was in service or not when the fault occurred.
- Date the faulty board or card was packed and returned.

Table 2-3 Procedure for unplugging/Plugging Board

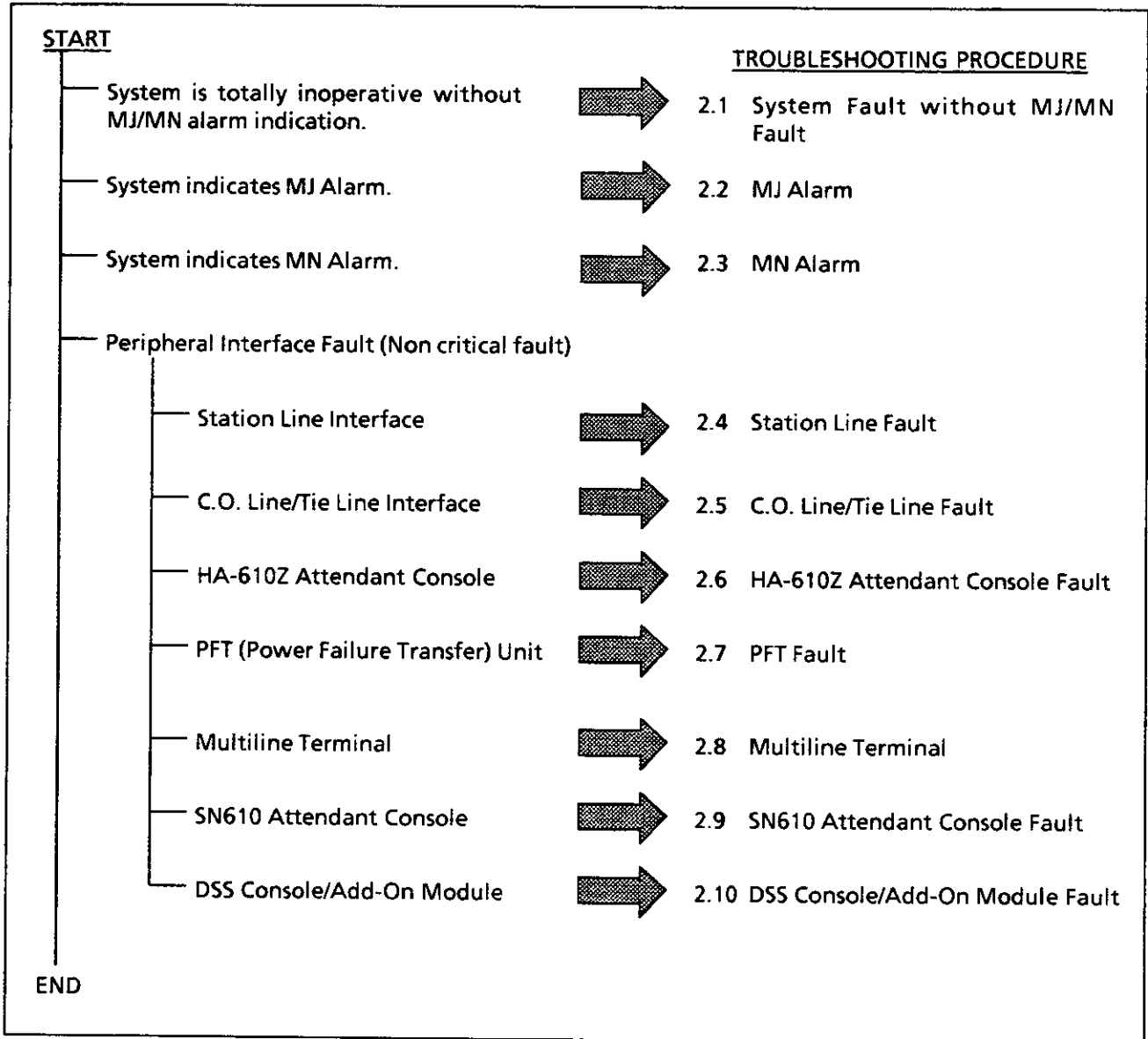
BOARD	PROCEDURE		CONDITION
	PLUG	UNPLUG	
<ul style="list-style-type: none"> • MP Board • MEM Board • PWR A Board • PWR B Board 	Power OFF ↓ Plug in ↓ Power ON	Power OFF ↓ Unplug ↓ Power ON	These boards should be removed or replaced only with power off.
<ul style="list-style-type: none"> • FP Board • SPI Board • ATI Board • AP Board 	Power OFF or MB switch ON ↓ Plug in ↓ Power ON or MB switch OFF	Power OFF or MB switch ON ↓ Unplug ↓ Power ON	These boards may be removed or replaced under Make Busy condition or with power off.

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CHAPTER 3 TROUBLESHOOTING PROCEDURE

1. TROUBLESHOOTING PROCEDURE INDEX TREE

The following tree shows the appropriate troubleshooting procedure for each fault condition. Collect detailed information on the fault before starting.



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2. TROUBLESHOOTING PROCEDURE

2.1 System Fault without MJ/MN Alarm

The system is totally inoperative without MJ/MN alarm.

START

"RUN" Lamp on the MP Board is not flashing

"PWR ON" Lamps on PWR A Board mounted in PIM0 is lit.

CHECK

- (1) Setting of SW2 on the MP Board for:
SW2-1: OFF
SW2-2: ON
SW2-3: OFF
SW2-4: ON
- (2) SW3 on the MP Board is set to "0".
- (3) PWR OFF. Check the ROM ICs on the MEM Board for proper mounting.
- (4) PWR ON. Depress Reset Button (SW4) on the MP Board.

REPLACE

- (1) MP Board
- (2) MEM Board

"ALM" Lamp on PWR A Board mounted in PIM0 is lit.

CHECK

- (1) PWR OFF. Remove all boards and cards mounted in PIM0.
- (2) PWR ON. If the lamp goes out, replace the boards and cards one by one to identify the faulty equipment.

REPLACE

- (1) PWR A Board

A

B

A

B

"ALM" Lamp on PWRM is lit. Note

CHECK

- (1) The power cable between PIMO and PWR Panel for proper connection.
- (2) DC Cable between PWR Panel and PWRM for proper connection.
- (3) PWR OFF. Remove all boards and cards in the system.
- (4) PWR ON. If the Lamp goes out, replace the boards and cards one by one to identify the faulty equipment.

REPLACE

- (1) PWRM
- (2) PWR Panel

The breaker (AC Switch) on PWR Panel is off. Note

CHECK

- (1) The A.C. main supply voltage.
- (2) Unplug PWRM AC Power Cable on PWR Panel. Turn AC Switch ON. If the breaker does not operate, plug PWRM AC Power Cables into connections on PWR Panel one by one to identify the faulty PWRM.

Note: If the system has battery backup, follow the procedures for troubleshooting the battery.

REPLACE

- (1) PWRM Panel

CHECK

- (1) BATT switch in on position.
- (2) Battery voltage is more than - 23V. If the battery voltage is normal, replace PWR Panel.
- (3) If not, repair the fault with PWRM or PWR Panel to charge the battery; or replace the battery with fully charged battery and depress "BATT START" Button on PWR Panel.

C

C

"RUN" Lamps on all FP Boards are not flashing.

CHECK

(1) System Data Programming for FP Boards: CMD05

(2) Setting of SW1 on each FP Board for:

<u>Location of FP</u>	<u>SW1</u>
PIM0	0
PIM1	1
PIM2	2
PIM3	3

(3) MB switches on FP Boards set to the down position (In Service).

(4) BUS Cable between PIMs for proper connection on the rear of each PIM.

(5) PZ-MI59 card (BUS Terminator) properly mounted on the last PIM.

REPLACE

(1) MP Board

(2) FP Board

END

2.2 Major (MJ) Alarm

The system indicates a MJ alarm when Main Processor (MP) fails with the following alarm indications.

- **PCM Clock Alarm** – The clock pulse used for digitizing voice signal in Speech Path Interface circuits is not generated.

- **MP clock Alarm** – The clock pulse used for Main Processor is not generated.
- **EMA Alarm** – MP is under halt condition.

START

— "PCM" or "CPU" Lamp on,
the MP Board is on.

CHECK

- (1) Depress SW4 on the MP Board. If the alarm is cleared, watch the system for a while.

REPLACE

- (1) MP Board

— "EMA" or "COP" Lamp on
the MP Board is on.

CHECK

- (1) PWR OFF. Check ROM ICs on the MEM Board for proper mounting.
- (2) PWR ON. Depress SW4 on the MP Board. If the alarm is cleared, watch the system for a while.

REPLACE

- (1) MP Board
- (2) MEM Board

END

2.3 Minor (MN) Alarm

The system indicates a MN alarm when power supply equipment fails, or when the number of lockout stations exceeds the predetermined value.

START

"PWR" Lamp on the MP Board is on.

In case of 1-PIM configuration.

"- 5 V ALM" Lamp on PWR A Board is on.

- CHECK**
- (1) Remove all cards and ATI Boards with MB ON.
 - (2) If the alarm is Cleared, replace the cards and ATI Boards one by one to identify the fault.

- REPLACE**
- (1) PWR A Board

"- 48 V ALM" Lamp on PWR B Board is on.

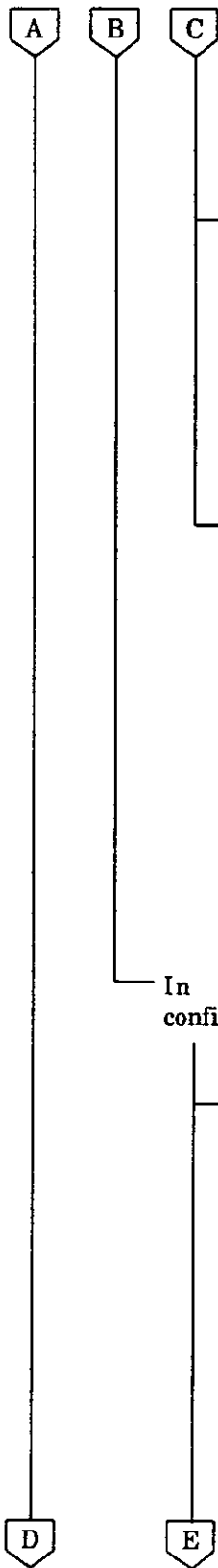
- CHECK**
- (1) Remove SPI, ATI Boards and cards with MB ON .
 - (2) If the alarm is cleared, replace the Boards and Cards one by one to identify the fault. If the alarm is caused by the ATI Board, replace the HA-610Z Attendant Console.

- REPLACE**
- (1) PWR B Board

"CR ALM" Lamp on PWR B Board is on.

- CHECK**
- (1) Remove all cards one by one to identify the fault.
 - (2) If the alarm is not cleared, remove SPI Boards (with MB ON) one by one to identify the fault.





+ 80 V Fuse on PWR Panel is blown.

REPLACE (1) PWR B Board

CHECK (1) Remove all LC cards, and replace the blown fuse.
 (2) Replace the LC cards one by one to identify the fault.

REPLACE (1) PWR Panel

- 48 V Fuse on PWR Panel is blown.

CHECK (1) Connection of external equipment with - 48 V terminal on PWR Panel for proper connection.

(2) The total external equipment power consumption for less than 3.2 (A)

REPLACE (1) External equipment

In case of 2~4-PIM configuration.

" + 5V ALM" Lamp on PWR A Board is on.

CHECK (1) Remove all boards and cards (with MB ON) within the PIM. (PIM 1 /PIM2/PIM3)

(2) If the alarm is cleared, replace the boards and the cards one by one to identify the fault.

REPLACE (1) PWR A Board

D

E

"-5 V ALM" Lamp on PWR A Board is on.

CHECK

- (1) Remove all cards and ATI Boards (MB ON) within the PIM. (PIM0/PIM1/PIM2/PIM3)
- (2) If the alarm is cleared, replace the boards and the cards one by one to identify the fault.

REPLACE

- (1) PWR A Board

"-48 V ALM" Lamp on PWR B Board is on.

CHECK

- (1) Remove SPI, ATI Boards (MB ON) and cards within the PIM. (PIM0/PIM1/PIM2/PIM3)
- (2) If the alarm is cleared, replace the boards and cards one by one to identify the fault.

REPLACE

- (1) If the alarm is caused by ATI Board, replace HA-610Z Attendant Console.
- (2) PWR B Board

"CR ALM" Lamp on PWR B Board is on.

CHECK

- (1) Remove all cards inside the PIM one by one to identify the fault.
- (2) If the alarm is not cleared, remove the SPI Boards (MB ON) inside the PIM one by one to identify the fault.

REPLACE

- (1) PWR B Board

F

G

F

G

+ 80 V Fuse on PWR Panel is blown.

CHECK

- (1) Remove all LC cards and replace the blown fuse.
- (2) Replace the LC Cards one by one to identify the fault.

- 48 V fuse on PWR Panel is blown.

REPLACE

- (1) PWR Panel

CHECK

- (1) Connection of external equipment with - 48 V terminal on PWR Panel.
- (2) The total external equipment power consumption for less than 3.2 (A)

REPLACE

- (1) External Equipment.

Preprogrammed number of stations are in Line Lockout condition.

CHECK

- (1) To confirm Lockout station numbers, display the status of all stations on the Busy Lamp Field of the HA-610Z Attendant Console.
- (2) The lockout station telephone is in the on-hook condition.
- (3) Cabling from MDF to Telephone set, and from MDF to PABX.

REPLACE

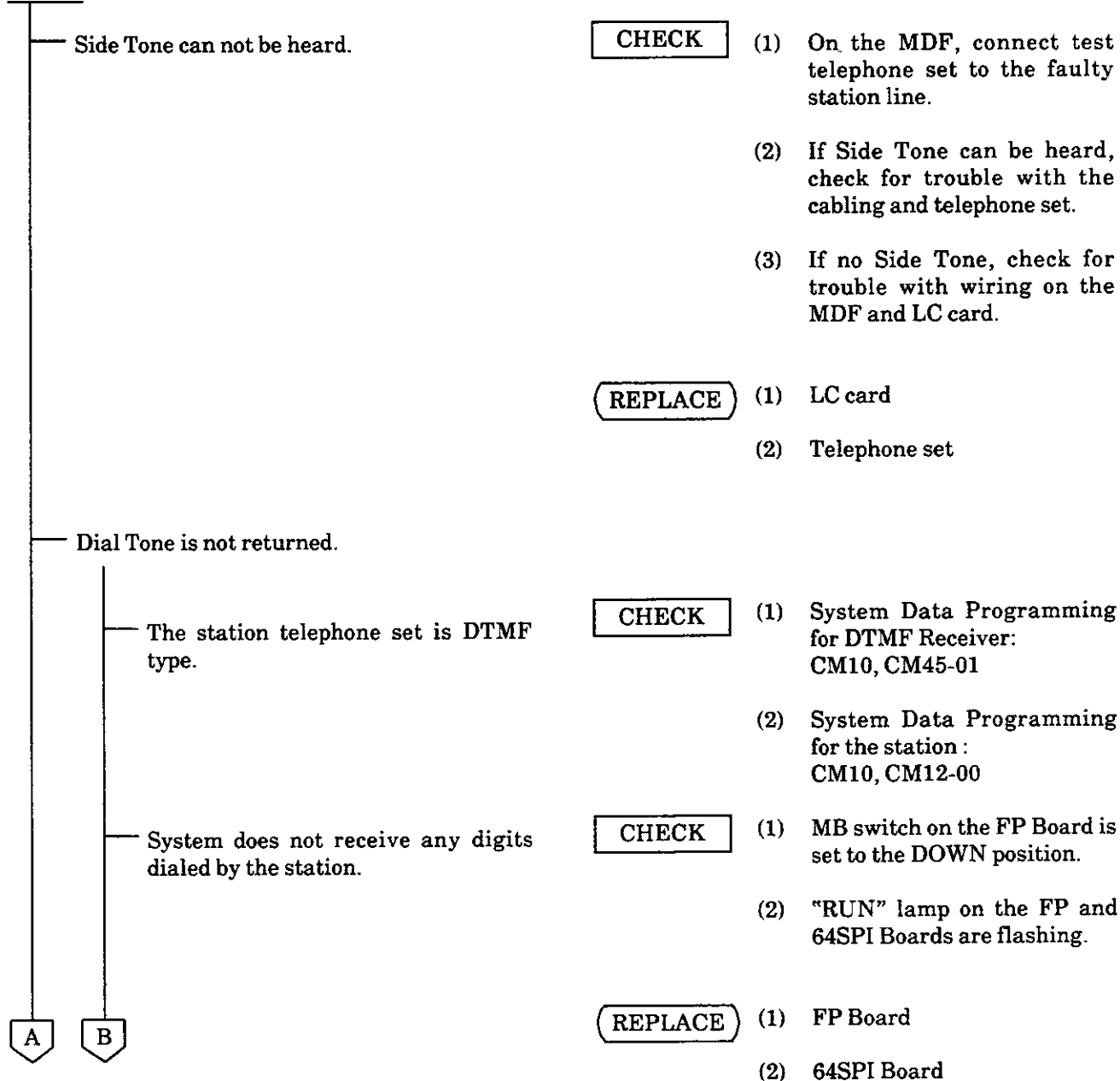
- (1) LC card
- (2) Telephone set

END

2.4 Station Line Fault

2.4.1 At Calling Station

START



A

B

System receives digits dialed from the station.

CHECK

- (1) ROM ICs for DTG (Digital Tone Generator) for proper mounting on the MP.

REPLACE

- (1) MP Board.

After dialing the first digit, Dial Tone is not disconnected.

At DTMF Telephone set

CHECK

- (1) System Data Programming for the station: CM12-00

REPLACE

- (1) DTMF Receiver (PK-4RST)
- (2) LC card
- (3) Telephone set

At any type of telephone set.

CHECK

- (1) System Data Programming for the station: CM12-00

REPLACE

- (1) LC card
- (2) Telephone set

END

2.4.2 At called station

START

At the called station, the telephone does not ring.

CHECK

- (1) "CR PWR ON" lamp on the PWR B Board is on.
- (2) Volume Control of the telephone set.

REPLACE

- (1) LC card
- (2) Telephone set
- (3) PWRB Board (if all stations fail within the same PIM.)

The call is routed to different station from dialed number.

CHECK

- (1) System Data Programming for destination station number (CM10).
- (2) System Data Programming for FP: CM05
- (3) Call Forwarding-All Calls feature is activated in the destination station.

Ringling Signal is not disconnected after going off-hook.

REPLACE

- (1) LC Card
- (2) 64SPI Board
- (3) Telephone set

END

2.5 C.O. Line/Tie Line Fault

2.5.1 Outgoing Calls

START

After dialing the trunk access code, tone (NU Tone, Reorder Tone, Congestion Tone) is returned.

"BL" Lamp on the trunk card is flashing.

CHECK

- (1) Make Busy Data (CME5) for the trunk.

Note: *In case of DID Trunk card, "BL" Lamp is on by Make Busy.*

"BL" Lamp on the trunk card is on.

CHECK

- (1) Disconnect the trunk from the MDF line.
- (2) If the lamp goes out, trouble is with Central Office/ Distant Office or Cable.
- (3) If not, check for trouble with wiring on the MDF or the trunk card.

REPLACE

- (1) Trunk Card

No Lamp indication on the trunk card.

CHECK

- (1) System Data Programming for the station class: CM12-01

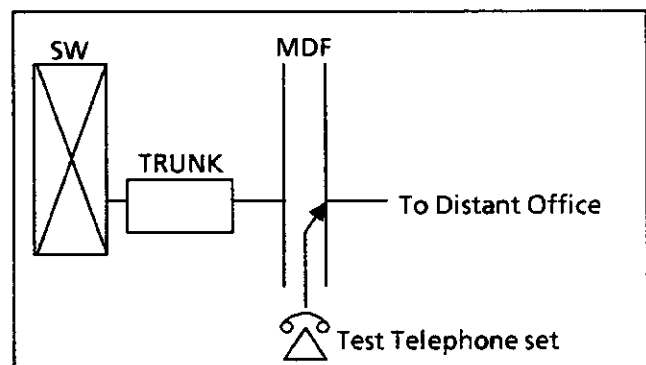
Dial Tone is not returned from distant office.

In case of COT Card

CHECK

- (1) Disconnect the trunk from the MDF line.
- (2) Connect test telephone set to the MDF line on the distant office side.

A B



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A B

In case of ODT Card

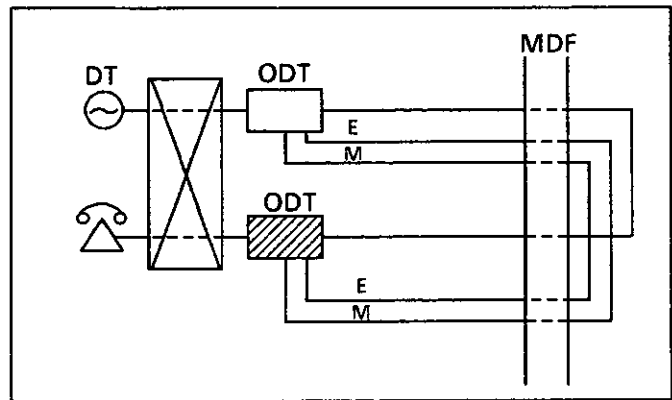
- (3) If Dial Tone is returned by going off-hook on the test telephone set, check for trouble with wiring on the MDF and the trunk card.
- (4) If not, trouble is with the distant office on the line.

REPLACE

- (1) Trunk Card.

CHECK

- (1) Disconnect the trunk from the MDF line.
- (2) To perform Loop Back Test, make back to back connection of the trunk card and another trunk within a system on the MDF.



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- (3) If Dial Tone is returned after seizing original trunk, trouble is with the distant office (including Carrier Equipment) or the line.
- (4) If not, check for trouble with wiring on the MDF and the trunk card.

C

C

Dialed digits are not transmitted to the distant office.

CHECK

- (1) System Data Programming for the trunk route.
: CM35-01, 35-08,
35-13, 35-20
If the Sender Start condition is set to Wink start or Delay Dial by CM35-20, check if answer signal is returned from distant office.

REPLACE

- (1) Trunk Card
- (2) 64SPI Board
- (3) MP Board.

After dialing the first digit, Dial Tone from distant office is not disconnected.

CHECK

- (1) Appropriate signal (Dial Pulse or DTMF) is transmitted to distant office.

– System Data Programming for DP signal
: CM35-01, 30-13,
35-23, 35-25,
35-45.

– System Data Programming for DTMF signal
: CM35-01, 30-13,
35-24, 35-26,
35-46.

REPLACE

- (2) System Data Programming for Numbering Plan
: CM20-100~163,
20-200~231,
22, 23, 24, 26.

- (1) Trunk Card
- (2) 64SPI Board
- (3) MP Board

END

2.5.2 Incoming Calls

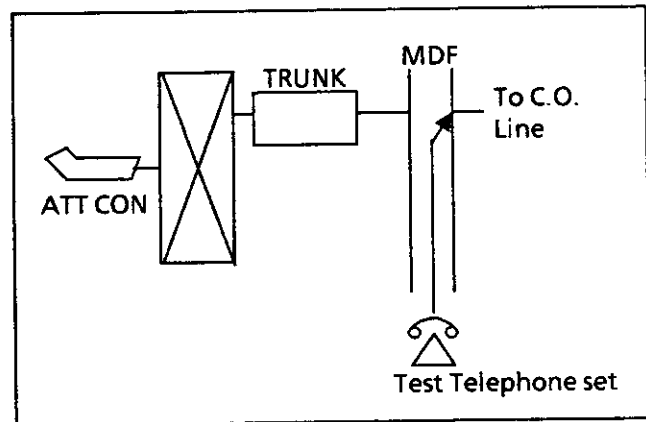
START

The incoming call from the C.O. is not terminated to Attendant Console, Station for DIT, or TAS Buzzer.

"BL" Lamp on the trunk card is not turned on.

CHECK

- (1) Disconnect the trunk from the MDF line.
- (2) Connect test telephone set to the MDF line.



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- (3) If telephone rings, check for trouble with wiring on the MDF and trunk card.
- (4) If not, trouble is with the distant office or the line.

REPLACE

- (1) Trunk Card

CHECK

- (1) System Data Programming for the trunk

The "BL" Lamp is turned on.

A

In case of termination to Attendant Console:
CM30-02, 30-03,
30-09, 30-19,
35-09, 35-15.

A

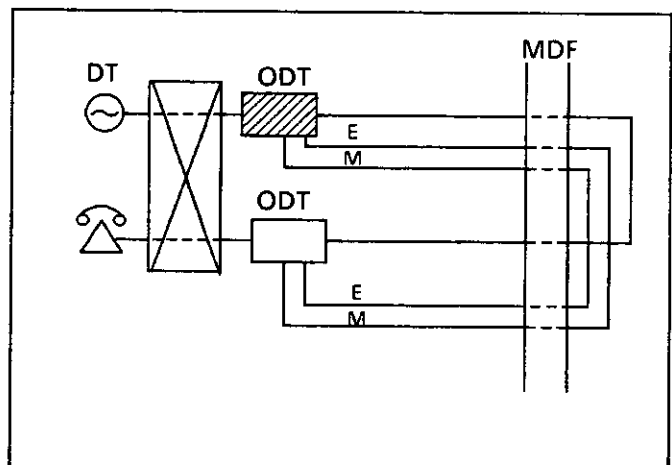
- In case of termination to DIT station :
CM30-02, 30-03,
30-04, 30-05,
30-13, 30-14,
30-17, 35-09.
- In case of ermination to TAS Buzzer :
CM30-02, 30-03.

No Dial Tone For Incoming Tie Line Call
(In case all Tie Line trunks fail, check if DTMF Receivers for Tie Line incoming call are complete.)

In case of ODT Card

CHECK

- (1) System Data Programming for the trunk:
CM35-00, 35-09,
35-10.
- (2) Disconnect trunk from the MDF line.
- (3) To perform Loop Back Test, make back-to-back connection between the trunk and another trunk within the system on the MDF.



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B

B



The Incoming Tie Line/DID Call is routed to different station from dialed station, or to NU Tone/Reorder Tone.

- (4) If Dial Tone is returned when call is terminated to original trunk, trouble is with the distant office (including Carrier Equipment) or the line.
- (5) If not, check for trouble with wiring on the MDF and the trunk card.

REPLACE

- (1) Trunk Card

CHECK

- (1) System Data Programming for the trunk:
CM35-01, 35-17,
35-61 - 68.

REPLACE

- (1) Trunk Card
- (2) DTMF Receiver (PK-4RST Card)
- (3) MP Board

END

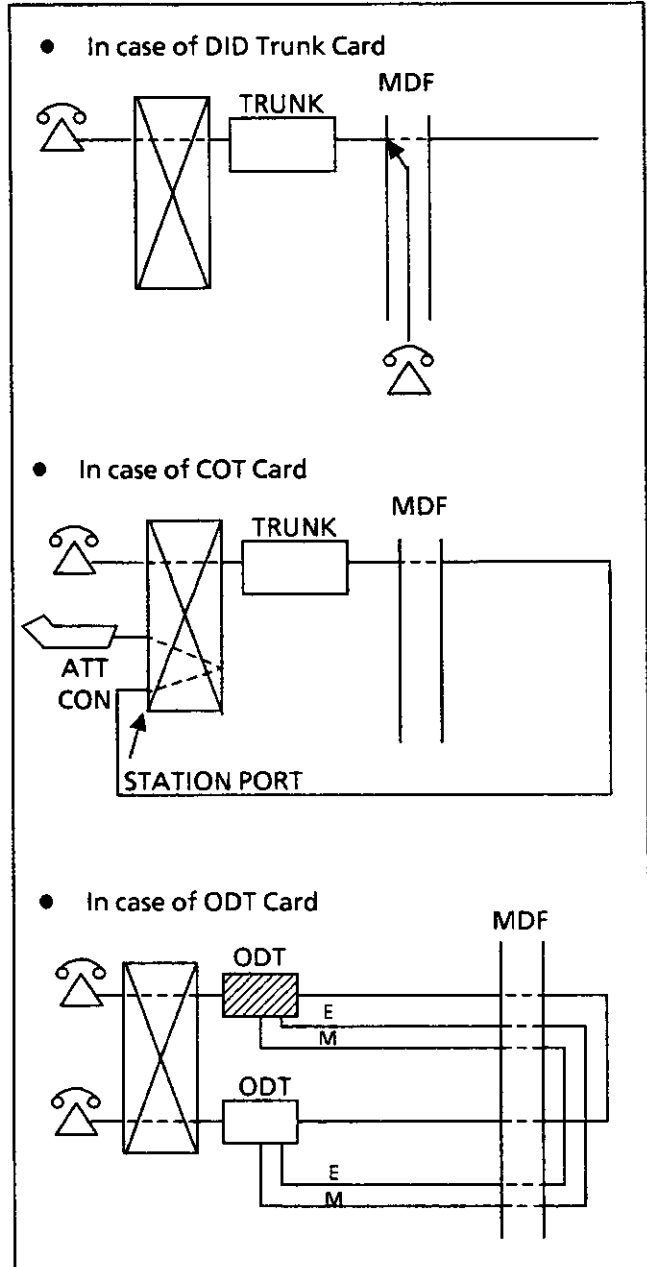
2.5.3 Answering the Call

START

Speech Path Trouble:
No connection/One way Connection

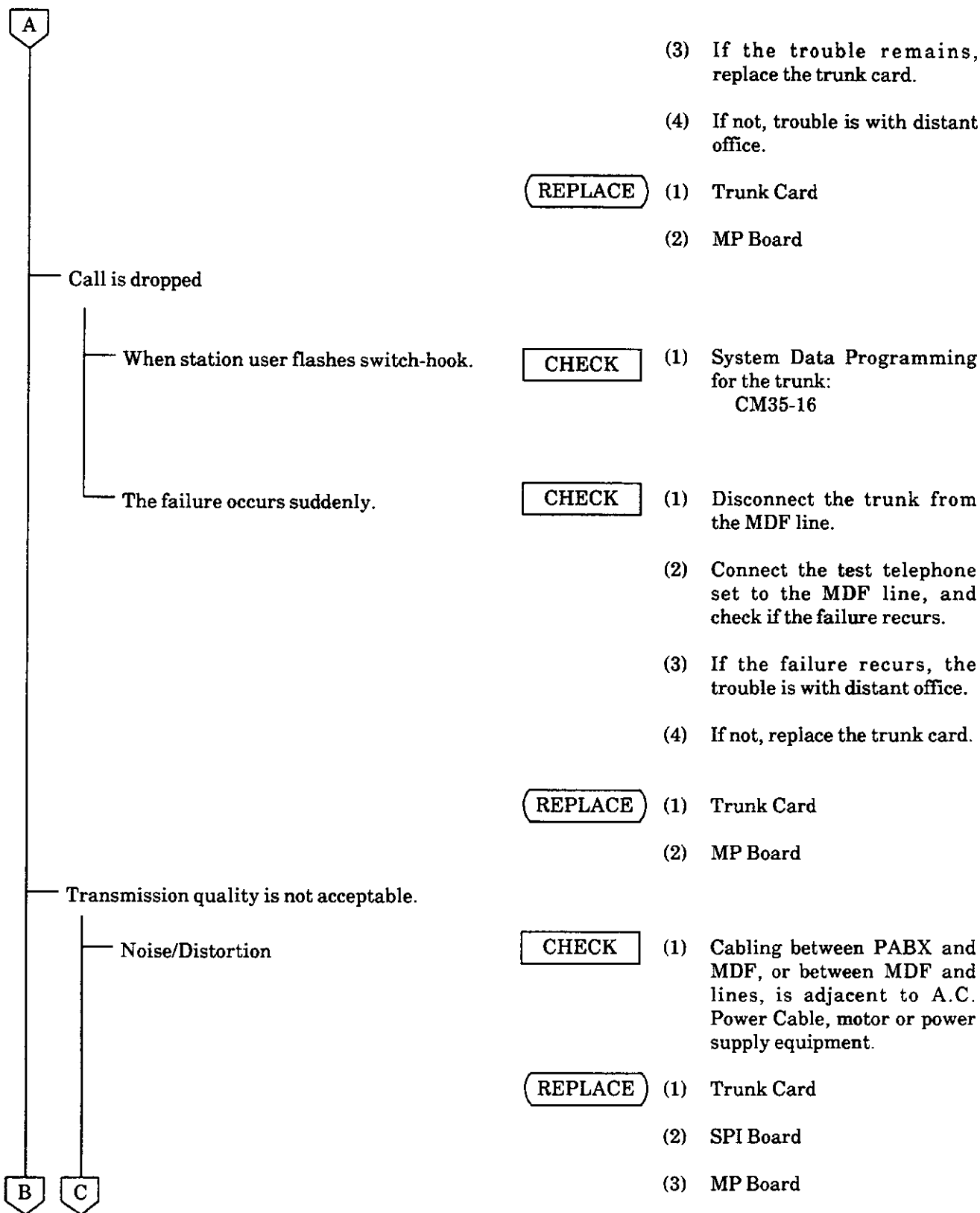
CHECK

- (1) Disconnect the trunk from the MDF line.
- (2) Perform the Speech Path Test internally by making the following MDF connection according to the type of card.



BCD-4317705-0004-01

A



B

C

Low Voice Level

Cross Talk

END

(4) PWR A Board

(5) PWR B Board

(6) PWRM

CHECK

(1) Loose connection of cables on MDF.

REPLACE

(1) Trunk Card

(2) SPI Board

(3) MP Board

CHECK

(1) Wiring on MDF is correct.

REPLACE

(1) Trunk Card

(2) SPI Board

(3) MP Board

(4) PWR B Board

(5) PWR Module

2.6 HA-610Z Attendant Console Fault

START

By depressing LCHK Button, all Lamps are not on.

CHECK

- (1) Attendant Interface Board (ATI) within PIM is properly mounted.
- (2) Cable connection between PABX and console is complete.
- (3) - 48 V alarm lamp on PWR B Board is off.
- (4) Cable length between PABX and console is less than 1,000 ft (300 m).

REPLACE

- (1) HA-610Z Attendant Console
- (2) ATI Board
- (3) PWR B Board.

By depressing RESET Button on the MP Board, "PA" Lamp on the Attendant Console is not on.

CHECK

- (1) System Data Programming for the Attendant Console:
CM05, 06.
- (2) "RUN" lamp on MP, FP and ATI Board is flashing.
- (3) Setting of switches on ATI Board for:
MB-1: OFF
MB-2: OFF
SW1 : 4 (For PIM0)
 : 5 (For PIM1)
 : 6 (For PIM2)
 : 7 (For PIM3)

REPLACE

- (1) HA-610Z Attendant Console
- (2) ATI Board
- (3) FP Board
- (4) MP Board

A

A

All keys on the Keyboard are ineffective.

CHECK

- (1) Headset or Handset is plugged into the console.
- (2) "NITE" and "PB" Buttons are restored. ("NITE" and "PB" Lamps are off.)
- (3) "RUN" Lamp on the ATI Board is flashing.

REPLACE

- (1) HA-610Z Attendant Console
- (2) ATI Board

Some keys on the Keyboard are ineffective.

CHECK

- (1) HA-610Z System Data Programming for function of the keys: CM35-15, 46, 47.

REPLACE

- (1) HA-610Z Attendant Console

Some Lamps or/Number Display Units do not illuminate.

CHECK

- (1) Perform Lamp Check with LCHK Button.
- (2) If these Lamps are on, check System Data Programming for function of key and lamp: CM35-11, 46, 47.
- (3) If not, replace the console.

Digital clock is not working properly.

REPLACE

- (1) HA-610Z Attendant Console

Speech Path Trouble:
No connection/One way
Connection

REPLACE

- (1) HA-610Z Attendant Console
- (2) ATI Board
- (3) Headset or Handset on Console

B

B

"NITE" Button is ineffective.
(Day/Night mode changeover is not available.)

CHECK

- (1) System Data Programming for function of "NITE" Button:
 CM60-01, 60-02,
 60-04, 60-06

REPLACE

- (1) HA-610Z Attendant Console
- (2) ATI Board

END

2.7 Power Failure Transfer (PFT) Fault

START

Preassigned stations are not connected to C.O. line when system alarm or power failure has occurred.

CHECK

- (1) Cross connection on MDF for proper connection.
- (2) Cables between PFT Board and MDF for proper mounting.

REPLACE

- (1) PFT Board

PFT operates without Power Failure or Emergency Alarm.

CHECK

- (1) PFT CA-C cables for proper mounting.

REPLACE

- (1) PFT Board
- (2) MP Board

END

2.8 Multiline Terminal Fault

This Troubleshooting Procedure covers faults with Multiline Terminal function only. For other faults, see 2.4 Station Fault.

START

All keys on the Multiline Terminal are ineffective.

CHECK

- (1) Perform the Multiline Terminal Self-Test. Refer to 3.2 Multiline Terminal Self-Test procedure.
- (2) Wiring on Modular Box (Rosette).
- (3) DLC Card is properly mounted.
- (4) System Data Programming for the Multiline Terminal station:
CM10, 11, 12, 13, 90, 93.
- (5) "RUN" Lamp on FP Board is flashing.

REPLACE

- (1) Multiline Terminal
- (2) DLC Card
- (3) FP Board

Speech Path Trouble:
No Connection/One Way Connection

REPLACE

- (1) Headset on the Multiline Terminal
- (2) Multiline Terminal
- (3) DLC Card

Hands Free Operation is not available.

CHECK

- (1) "MIC" Lamp is on.
- (2) Adjust Speaker Volume.
- (3) Built-in Hands Free Unit is properly mounted.

REPLACE

- (1) Hands Free Unit
- (2) Multiline Terminal

A

A

LCD does not display any information.
(ETE-16D-2/ETE-6D-2)

CHECK

- (1) Adjust Display Contrast.
- (2) To test the LCD, perform the Multiline Terminal Self-Test.
Refer to 3.2 Multiline Terminal Self-Test.

REPLACE

- (1) Multiline Terminal

No Tone Ringer

CHECK

- (1) System Data Programming for Multiline Terminal Tone Ringer:
CM90, YY=01
- (2) Adjust Ringer Volume on Multiline Terminal
- (3) To test the LCD, perform the Multiline Terminal Self-Test.
Refer to 3.2 Multiline Terminal Self-Test procedure.

REPLACE

- (1) Multiline Terminal

END

2.9 SN610 Attendant Console Fault

START

Any keys on the SN610 Attendant Console are ineffective.

CHECK

- (1) Attendant Console Lock-out has been set via the function key.
- (2) Perform the SN610 Attendant Console Self-Test. Refer to 3.1 SN610 ATTCON Self-Test Procedure.
- (3) Wiring on Modular Box (Rosette)
- (4) DLC Card is properly mounted.
- (5) System Data Programming for the console: CM10, 90.
- (6) "RUN" Lamp on FP Board is flashing.

REPLACE

- (1) SN610 Attendant Console
- (2) DLC Card
- (3) FP Board

CHECK

Speech Path Trouble
(No Connection/One-Way Connection)

- (1) Head set or Handset on the console.
- (2) SN610 Attendant Console
- (3) DLC Card

A

A

LCD does not display any information.

CHECK

- (1) Adjust Display Contrast.
- (2) To test the LCD, perform the SN610 Attendant Console Self-Test.
Refer to 3.1 SN610 ATTCON Self Test Procedure.

REPLACE

- (1) SN610 Attendant Console
- (2) DLC Card

No Tone Ringer

CHECK

- (1) System Data Programming for the console Tone Ringer:
CM08 – 395, CM60
YY = 27
CM60 YY = 16.
- (2) Adjust Ringer Volume on the console.
- (3) To test the tone ringer, perform the SN610 Attendant Console Self-Test.
Refer to 3.1 SN610 ATTCON Self Test Procedure.

REPLACE

- (1) SN610 Attendant Console.

END

**2.10 Add-On Module/DSS Console (EDE-30-2)
Fault**

START

Keys on the Add-On Module/DSS Console are ineffective.

CHECK

- (1) DLC Card for proper mounting.
- (2) System Data Programming
DSS Console: CM10, 96, 97
Add-On Module:
CM10, 90, 98

REPLACE

- (1) Add-On Module/DSS Console
- (2) DLC Card
- (3) FP Board

END

3. PERIPHERAL EQUIPMENT TEST PROCEDURE

The SN610 Attendant Console and Multiline Terminal (ETE6-2/ETE6D-2/ETE-16-2/ETE16D-2) have the self-test function performed on an off-line basis.

When the Attendant Console or Multiline Terminal fault has occurred, it is necessary to perform the self-test in accordance with the procedure described below to check the hardware.

3.1 SN610 Attendant Console Self-Test Procedure

START	OPERATION	LCD DISPLAY
	(1) Remove the modular cord.	
	(2) Reconnect the modular cord while depressing digit key 0.	** DIAL 0 ** ATT SELF TEST MODE
	(3) Depress function key 00. • The green lamp will light.	** FUNC 00 ** ATT SELF TEST MODE
	(4) Depress function key 00 again. • The green lamp will turn red.	
	(5) Depress function key 00 again. • The red lamp will go off.	
	(6) Repeat steps (3) – (5) for function keys 01 – 11.	** FUNC XX ** ATT SELF TEST MODE XX shows 01 – 11
	(7) Depress function key 20. • The red lamp will light. • Ringer will sound. (To stop the ringer, depress any key other than function keys 20 – 27)	** FUNC 20 ** ATT SELF TEST MODE
	(8) Depress function key 20 again. • The red lamp will go off. • Ringer will sound.	
	(9) Repeat steps (7) – (8) for function keys 21 – 23.	** FUNC XX ** ATT SELF TEST MODE XX shows 21 – 23

A

A

OPERATION

LCD DISPLAY

- (10) Depress function key 24.
 - The green lamp will light.
 - Ringer will sound.
- (11) Depress function key 24 again.
 - The green lamp will turn red.
- (12) Depress function key 24 again.
 - The red lamp will go off.
- (13) Repeat steps 10 – 12 for function keys 25 – 27.
- (14) Depress function key 28.
 - The red lamp will light.
 - Ringer will stop.
- (15) Depress function key 28.
 - The red lamp will go off.
- (16) Depress function key 29.
 - The red lamp will light.
- (17) Depress function key 29 again.
 - The red lamp will go off.
- (18) Depress function key 30.
 - The red lamp will light.
- (19) Depress function key 30 again.
 - The red lamp will go off.
- (20) Depress function key 31
All lamps will turn green, red and will go off each at an interval of 1 second.
- (21) Depress function key 32.
 - The red lamp will light.

**** FUNC 24 ****
ATT SELF TEST MODE

**** FUNC XX ****
ATT SELF TEST MODE

XX shows 25 – 27

012345	XYZ	■	■	■	■
012345	XYZ	■	■	■	■
012345	XYZ	■	■	■	■
012345	XYZ	■	■	■	■

■	■	■	■	■
■	■	■	■	■
■	■	■	■	■
■	■	■	■	■

**** FUNC 31 ****
ATT SELF TEST MODE

**** FUNC 32 ****
ATT SELF TEST MODE

B

A

OPERATION

LCD DISPLAY

- (22) Depress function key 32 again.
 - The red lamp will go off.

- (23) Depress function key 33.
 - The red lamp will light.

- (24) Depress digit key *.

- (25) Depress digit key #.

- (26) Depress digit keys 0 through 9.

**** FUNC 33 ****
ATT SELF TEST MODE

**** DIAL * ****
ATT SELF TEST MODE

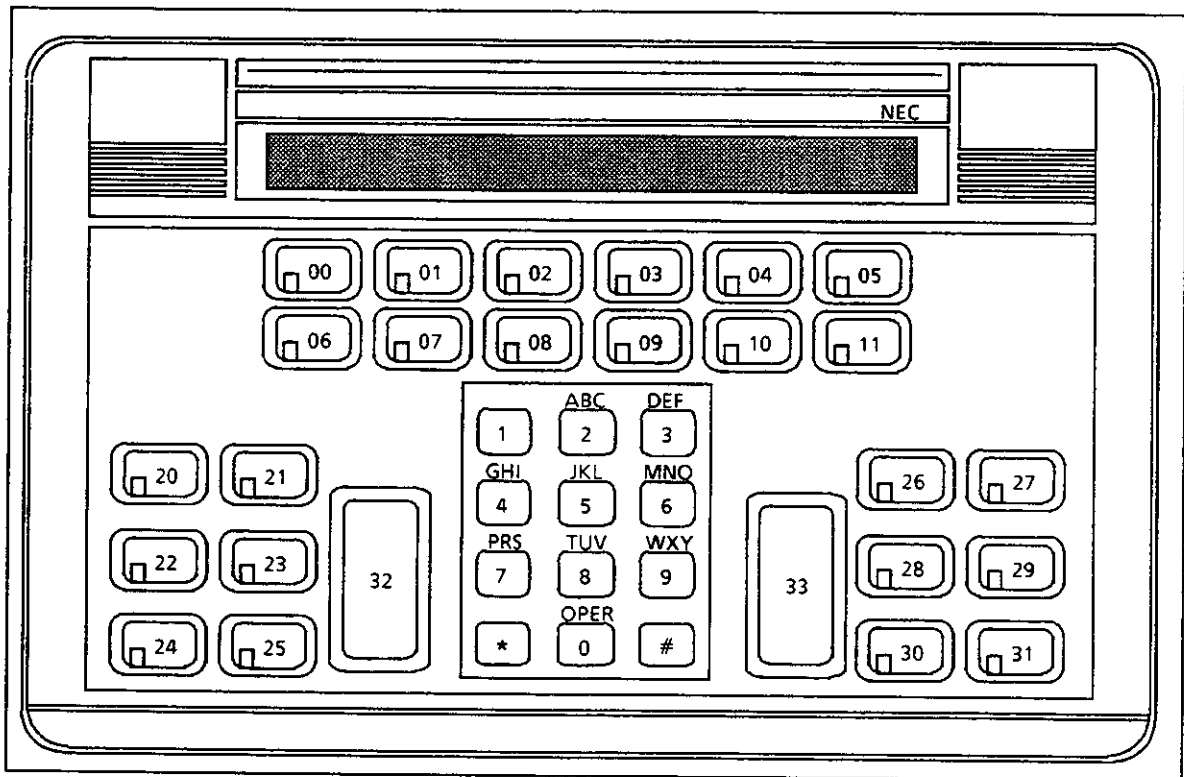
**** DIAL # ****
ATT SELF TEST MODE

**** DIAL X ****
ATT SELF TEST MODE

X shows 0-9

Note 1: To terminate the self-test mode, depress digit keys # and * simultaneously.

Note 2: To test the lamps, LCD and Tone Ringer, depress function keys 31, 28 and 20 through 27 respectively.



END

Figure 3-1 SN610 Attendant Console

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3.2 Multiline Terminal Self-Test Procedure (ETE-6-2/ETE-6D-2/ETE16-2/ETE-16D-2)

START	OPERATION	LCD DISPLAY
	(1) Leave the handset in the cradle.	
	(2) Remove the modular cord.	
	(3) Reconnect the modular cord while depressing the # key and the * key simultaneously. <ul style="list-style-type: none"> The red lamp will light on the MIC key. 	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> D * V1.0 </div>
	(4) Depress digit keys 0 through 9, *, #.	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> D X V1.0 </div> XX shows 0-9, *, #
	(5) Depress feature access keys 00 through 09. (ETE-6D-2)/00 through 19 (ETE-16D-2) <ul style="list-style-type: none"> The red lamp associated with the key will light. 	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> D XX V1.0 </div> XX shows 00-09/00-19
	(6) Depress the RECALL key. <ul style="list-style-type: none"> The chime will sound. 	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> ■ ■ ■ ■ ■ </div>
	(7) Depress the SPKR key. <ul style="list-style-type: none"> The red lamp will light. The chime will stop. 	
	(8) Depress the SPKR key again. <ul style="list-style-type: none"> The red lamp will go off. 	
	(9) Repeat steps (6)-(7) for the CNF key and the ANS key.	
	(10) Depress the HOLD key. <ul style="list-style-type: none"> The ringer will sound. 	<div style="border: 1px solid black; padding: 5px; display: inline-block; width: 150px;"> INITIALIZE </div>
	(11) Depress the TRF key. <ul style="list-style-type: none"> The ringer will sound. 	
	(12) Depress the MIC key. <ul style="list-style-type: none"> The lamp will go off. The ringer will stop. 	
<div style="border: 1px solid black; padding: 2px; display: inline-block;"> A </div>		

A

OPERATION

LCD DISPLAY

- (11) Depress line key 01.
 - The green lamp will light.
- (12) Depress line key 01 again.
 - The green lamp will turn red.
- (13) Depress line/trunk key 01 again.
 - The red lamp will go off.
- (14) Repeat steps (11) – (13) for line keys 02 through 06 (ETE-6-2/ETE-6D-2) or 02 through 16 (ETE-16-2/ETE-16D-2).

Note: *To terminate the self-test mode, lift the handset and then replace it.*

END