NEC

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NEAX® 2000 IVS²
INTEGRATED VOICE SERVER

WCS System Manual (PCS)

APRIL, 2000

NEC America, Inc.

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INTRODUCTION

PURPOSE

This manual explains the system description, the hardware installation, and programming procedure for the Wireless Communication System (WCS) on the NEAX2000 IVS ^{2}.

OUTLINE OF THIS MANUAL

This manual contains the following chapters.

CHAPTER 1 GENERAL INFORMATION
This chapter explains the WCS system outline, the equipment name and function, system specifications, system capacity and conditions.

CHAPTER 2 INSTALLATION
This chapter explains the hardware installation procedure to provide WCS interface with the PBX.

CHAPTER 3 SYSTEM DATA PROGRAMMING
This chapter explains the programming procedure to provide the WCS feature to the PBX.

CHAPTER 4 CIRCUIT CARD INFORMATION
This chapter explains the mounting location, the meaning of lamp indications, and the method of switch settings of each circuit card for the WCS.

REFERENCE MANUALS

Refer to the following manuals during installation:

Command Manual	Describes Customer Administration Terminal (CAT) operation, command function and setting data required for programming the system, and Resident System Program
Office Data Programming Manual	Contains the Customer Specification Sheets and Office Data Programming Sheets
Maintenance Manual	Describes the maintenance service features and the recommended troubleshooting procedure
Installation Procedure Manual	Describes the installation procedure for the PBX system
CCIS System Manual	Describes the system description, the hardware installation, and programming procedure for the CCIS system
WCS Features And Specifications	Contains the WCS Features and Specifications, which explains the general description, operating procedure, and service conditions for each WCS feature

CHAPTER 1

GENERAL INFORMATION

This chapter explains the WCS system outline, the equipment name and function, system specifications, system capacity and conditions.

SYSTEM OUTLINE

The Wireless Communication System (WCS) interfaces with a Personal Station (PS) via a Zone Transceiver (ZT).

Three types of system configurations are available:

(1) Integrated Type
The system provides both PBX and WCS functions.

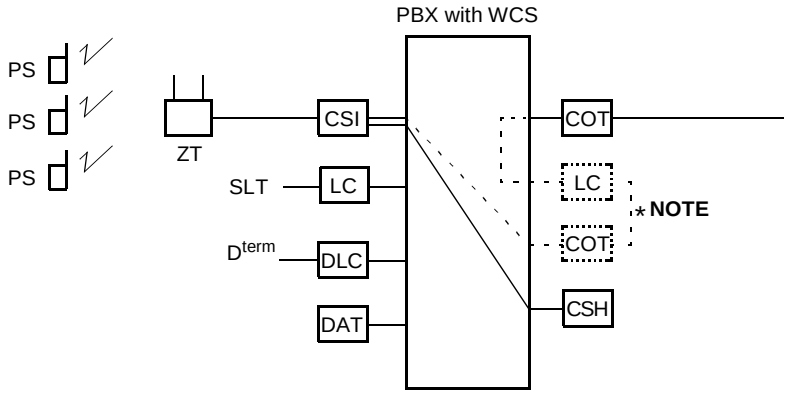
(2) Adjunct Type (Analog Interface)
The WCS is an adjunct system to the PBX linked by LC-COT connection.

(3) Adjunct Type (CCIS Interface)
The WCS is an adjunct system to the PBX linked by CCIS interface.

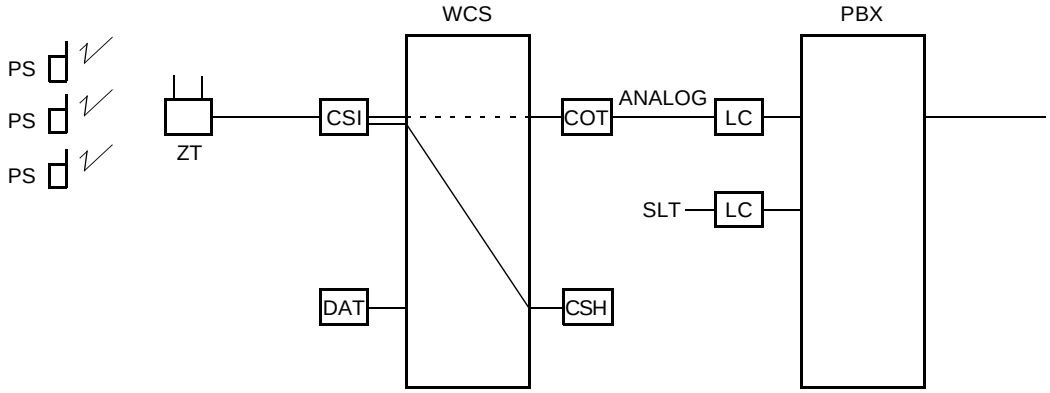
Figure 1-1 shows the system outline of the WCS.

Figure 1-1 WCS System Outline

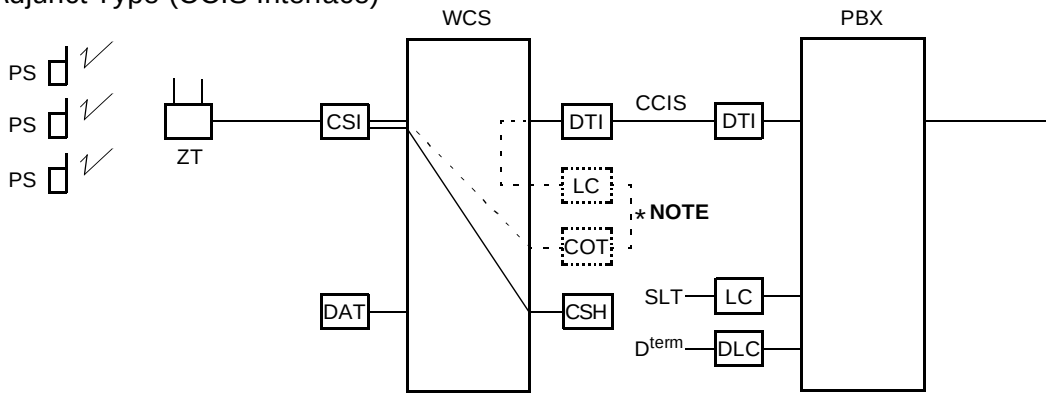
(1) Integrated Type



(2) Adjunct Type (Analog Interface)



(3) Adjunct Type (CCIS Interface)



COT : Central Office Trunk
ZT : Zone Transceiver
CSH : CSI Handler
CSI : ZT Interface
DAT : Digital Announcement Trunk
DLC : Digital Line Circuit
LC : Line Circuit
PS : Personal Station
* : Virtual LC-COT Connection (**NOTE**)

NOTE: For the Integrated Type and Adjust Type (CCIS Interface), virtual LC-COT Connection data assignment is required to each PS station.

CARD NAME AND FUNCTION

Table 1-1 shows the circuit card name and function for WCS.

Table 1-1 WCS Card Name and Function

CARD NAME	FUNCTIONAL NAME	FUNCTION OUTLINE
PZ-PW122	DC/DC PWR	Power Supply Card for Cell Station (Zone Transceiver) Input: DC –24 V Output: DC –48 V (1.7 A) One card per PIM. Max. 16 CS (ZT)s backed up by one card.
PN-AP00-A [For North America/Latin America only]	DBM	Data Base Module Card for WCS Roaming function One card per WCS system.
PN-SC00	CCH	Common Channel Handler Card Transmits/receives signals on the common signalling channel of No. 7 CCIS. Used for WCS Adjunct Type (CCIS Interface).
PN-SC01	DCH	D-channel Handler Card Transmits/receives signals on the D-channel of ISDN Primary Rate (23B + D) interface or WCS Roaming interface.
PN-SC03-A	CSH	CS (ZT) Handler Card Provides the D-channel signaling interface and controls max. four CSI cards, eight CS (ZT)s.
PN-2CSIA [For North America/ Latin America]	CSI	2-line Zone Transceiver Interface Card Used to interface with the ZT, based on ISDN S-interface. Max. two ZTs can be connected per CSI card.

Table 1-1 WCS Card Name and Function (Continued)

CARD NAME	FUNCTIONAL NAME	FUNCTION OUTLINE
PN-2DATA	DAT	2-line Digital Announcement Trunk Card This card is used for Announcement Service on WCS. Recording duration: Max. 60 seconds
PN-4DATC	DAT	4-line Digital Announcement Trunk Card This card is used for Announcement Service on WCS. Recording duration: Max. 120 seconds
PN-24DTA-C	DTI	Digital Trunk Interface (23B + D, 1.5 Mbps) Card Accommodates 24-channel PCM digital lines. Used for WCS Adjunct (CCIS Interface) or for WCS Roaming Interface.
PN-30DTC-A	DTI	Digital Trunk Interface (2 Mbps) Card Accommodates 30-channel PCM digital lines. Used for WCS Adjunct (CCIS Interface) or for WCS Roaming Interface.
PZ-M537	EXPMEM	Memory Expansion Card for MP Card The following expansions are available when mounted on PN-CP14 (MP) card: Basic / Memory expanded Number of D^{term} : 384 / 512 Number of PS : 128 / 256 Number of ISDN terminal : 64 / 128 Number of Speed Calling-Station (Station Speed Dial) set : 4000 / 10000

SYSTEM SPECIFICATIONS

Table 1-2 System Specifications

<table>
<tr><th>DESCRIPTION</th><th>SPECIFICATIONS</th><th>REMARKS</th></tr>
<tr><td>Wireless Protocol</td><td>Based on second generation wireless telephone system standard RCR-STD-28 FCC Sub part D, UTAM complied</td><td></td></tr>
<tr><td>Distance between PBX and ZT</td><td>
<table>
<tr><th>WIRE DIAMETER</th><th colspan="2">26 AWG</th><th colspan="2">24 AWG</th><th colspan="2">22 AWG</th></tr>
<tr><td>POWER SUPPLY</td><td>WCS</td><td>LOCAL</td><td>WCS</td><td>LOCAL</td><td>WCS</td><td>LOCAL</td></tr>
<tr><td>DISTANCE</td><td>1500 ft. (457 m)</td><td>2000 ft. (609 m)</td><td>2000 ft. (609 m)</td><td>3000 ft. (914 m)</td><td>3000 ft. (914 m)</td><td>3300 ft. (1000 m)</td></tr>
</table>
NOTE: At Nominal Voltage of –48 V.
</td><td></td></tr>
<tr><td rowspan="2">Interface with a PBX</td><td>Analog station line interface</td><td>Adjunct Type (Analog Interface)</td></tr>
<tr><td>T1 or E1 interface with CCIS</td><td>Adjunct Type (CCIS Interface)</td></tr>
</table>

SYSTEM CAPACITY

Table 1-3 WCS System Capacity

Description		CAPACITY		
		Integrated	**Adjunct (Analog)**	**Adjunct (CCIS)**
PS **NOTE 1**	with PZ-M537	256		
	without PZ-M537	128		
ZT		128		
CSI		64		
CSH		16		
PS Simultaneous Connections **NOTE 1**	with PZ-M537	216		
	without PZ-M537	128		
Calling Area		32		
ZT per Calling Area		128		

NOTE 1: When using a PZ-M537 card, the capacity of PSs can be expanded to 256.

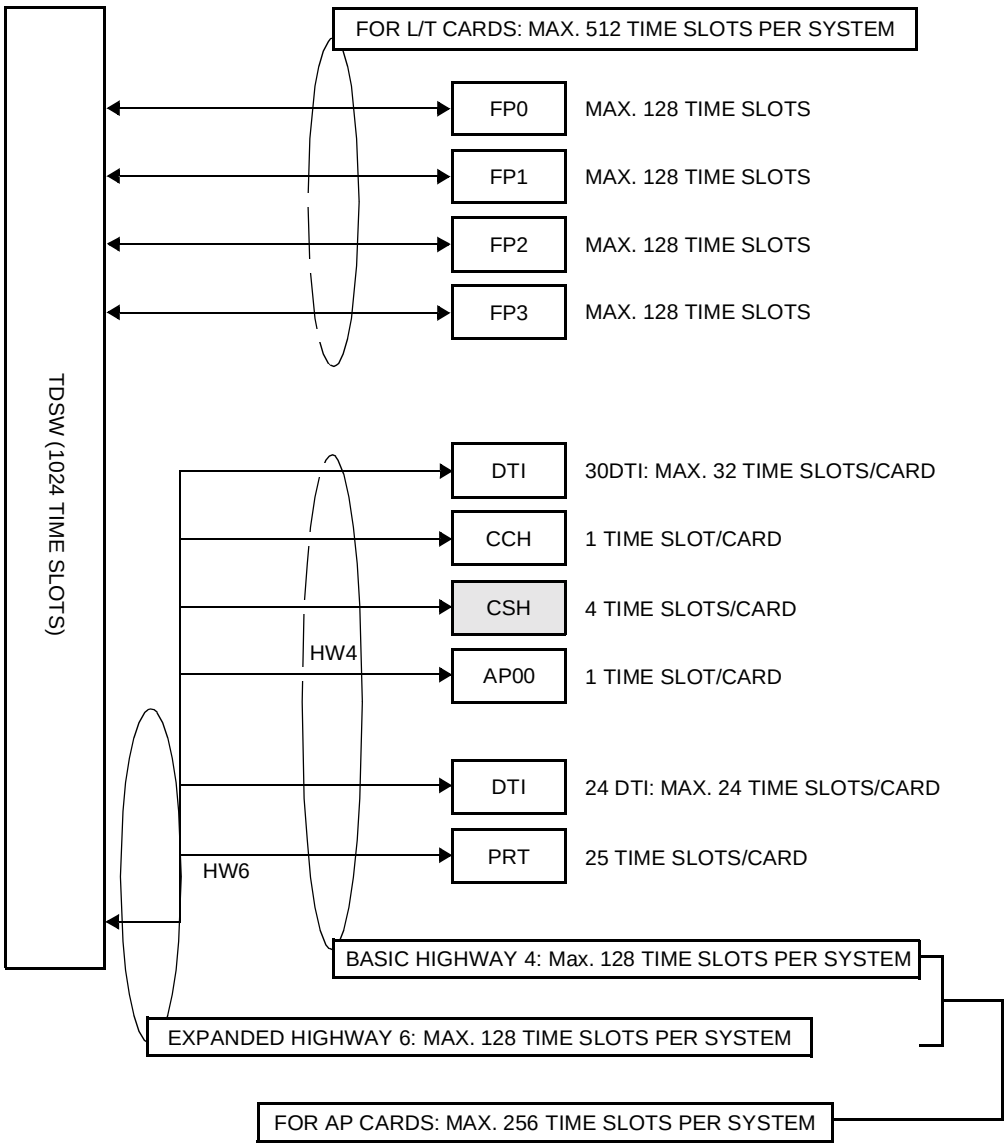
NOTE 2: Calling Area is a registered area to search first for a PS location. The calling signal is sent to the ZTs that belong to the Calling Area.

TIME SLOT ALLOCATION

CSH

As shown in Figure 1-2, the CSH (PN-2CSIA) card uses the time slot on the basic memory Highway 4. Therefore, the total number of time slots for all CSH card must be 128 time slots or less including all other application processor cards, which use the Highway 4.

Figure 1-2 Accommodation of CSH into TDSW



CSI

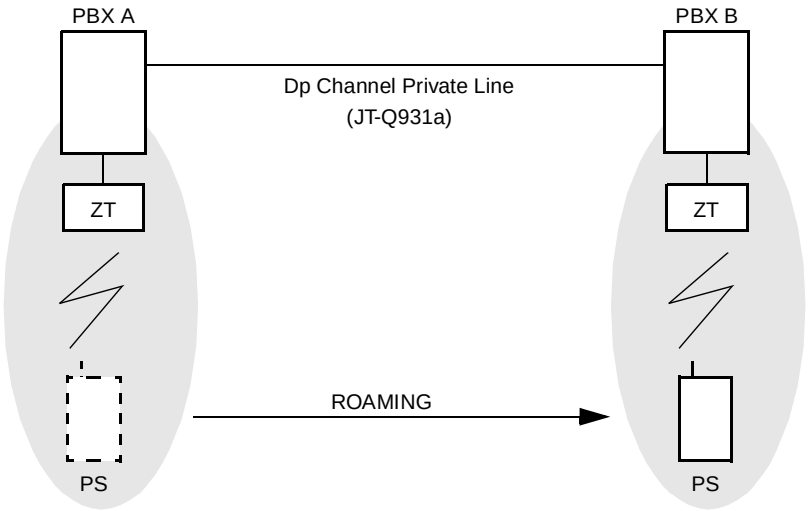
The CSI (PN-2CSIA) card uses eight L/T time slots per card.

OUTLINE OF MULTI-SITE ROAMING

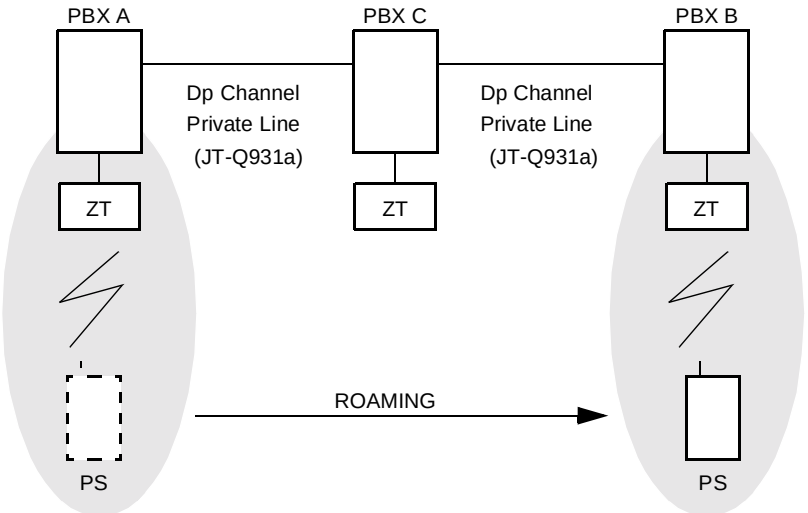
The PBX supports the JT-Q931a protocol and JT-11582 for signaling at Q-reference point between PBXs on the private network. By supporting this protocol, the PSs can be used in any Calling Area on the private network.

Figure 1-3 System Outline of Multi-Site Roaming

When a PS roams over the adjoining PBX's Calling Area



When a PS roams over other Calling Area through the relaying office

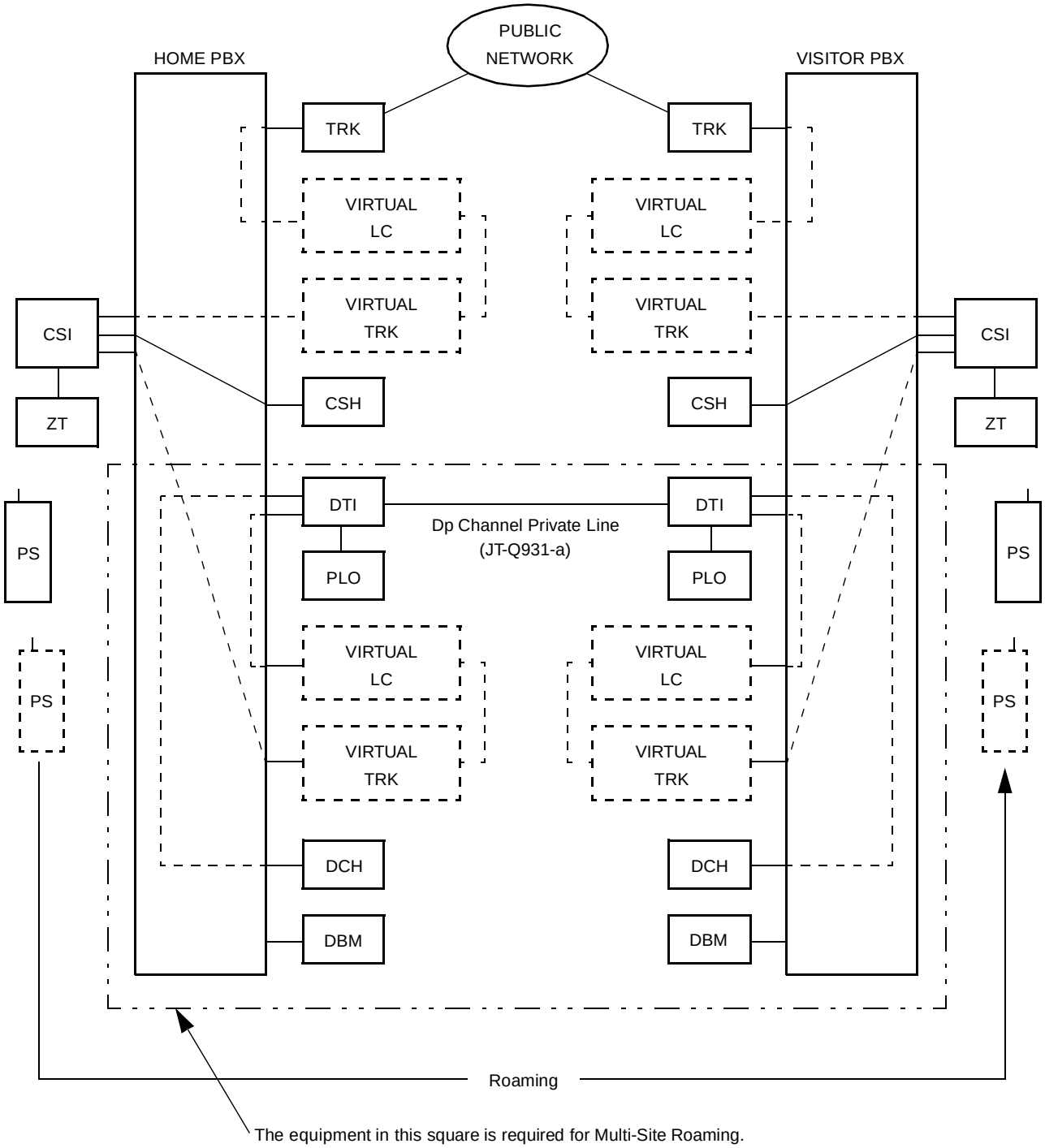


NOTE: Also to the relaying office (PBX C), the installation and the data assignment for Multi-Site Roaming are required.

System Configuration

Figure 1-4 shows the system configuration for Multi-Site Roaming.

Figure 1-4 System Configuration of Multi-Site Roaming



Word Definition

Virtual LC: Virtual LC exists only on the system data, provided via non-hardware supported LENs. The Virtual LC must be assigned by the system data programming for operating Home PSs and Visitor PSs used for Multi-Site Roaming, together with the Virtual TRK.

Virtual TRK: Virtual TRK (trunk) exists only on the system data, provided via non-hardware supported LENs. The Virtual TRK must be assigned by the system data programming for operating Home PSs and Visitor PSs used for Multi-Site Roaming, together with the Virtual LC.

Individual PS number: Individual PS number is assigned to a PS to identify the PS on the Roaming network. It must be an unique number in the network.

Network ID method: Network ID method is one method to operate Multi-Site Roaming. A Roaming PS must have two SYS-ID on the Network ID method. One is main SYS-ID for Home PBX, and another is Network ID for Roaming network. The Network ID is used to define whether the PS can operate under the control of PBXs on the Roaming network. The Network ID must be the same for all PBXs within the same network.

Visitor PBX: When a PS leaves control of a PBX to which it belongs originally, and is operating in a zone of another PBX, the PBX is called Visitor PBX.

Visitor PS: When a PS leaves control of a PBX to which it belongs originally, and is operating in a zone of another PBX, the PS is called Visitor PS.

Home PBX: Home PBX is a PBX to which a PS ordinarily belongs.

Home PBX ID: Home PBX ID is a unique number to identify the PBX on the Roaming network.

Home PS: When a PS operates under control of a PBX to which the PS originally belongs, the PS is called Home PS.

Roaming number: Roaming number is assigned to a Visitor PS temporarily, when the PS is roaming to a Visitor PBX. The actual Roaming number is Virtual LC station number assigned as a pilot station of Station Hunting group on the Visitor PBX.

HLR: Home Location Register. A database to store the location registration data of the Home PS.

VLR: Visitor Location Register. A database to store the location registration data of the Visitor PS temporarily, when the Visitor PS is in the zone of another PBX.

System Operation Summary

- PS Location Registration

  (1) In the zone of the Visitor PBX, the Visitor PS requests the Visitor PBX for location registration of its own.

  (2) The Visitor PBX analyzes the number sent from the Visitor PS and detects the Home PBX of Visitor PS.

  (3) The Visitor PBX inquires of the Home PBX about the profiles; various data which is assigned to the PS for the operation as a Visitor PS.

  (4) The Home PBX analyzes the number included with the inquiry and detects whether the Visitor PS is one of the Home PS of its own.
  If the Visitor PS is detected as a PS which belongs to another PBX, the PBX forwards the inquiry to the corresponding route.

  (5) If the Visitor PS is detected as a Home PS, the Home PBX sends the Visitor PS profiles to the Visitor PBX.

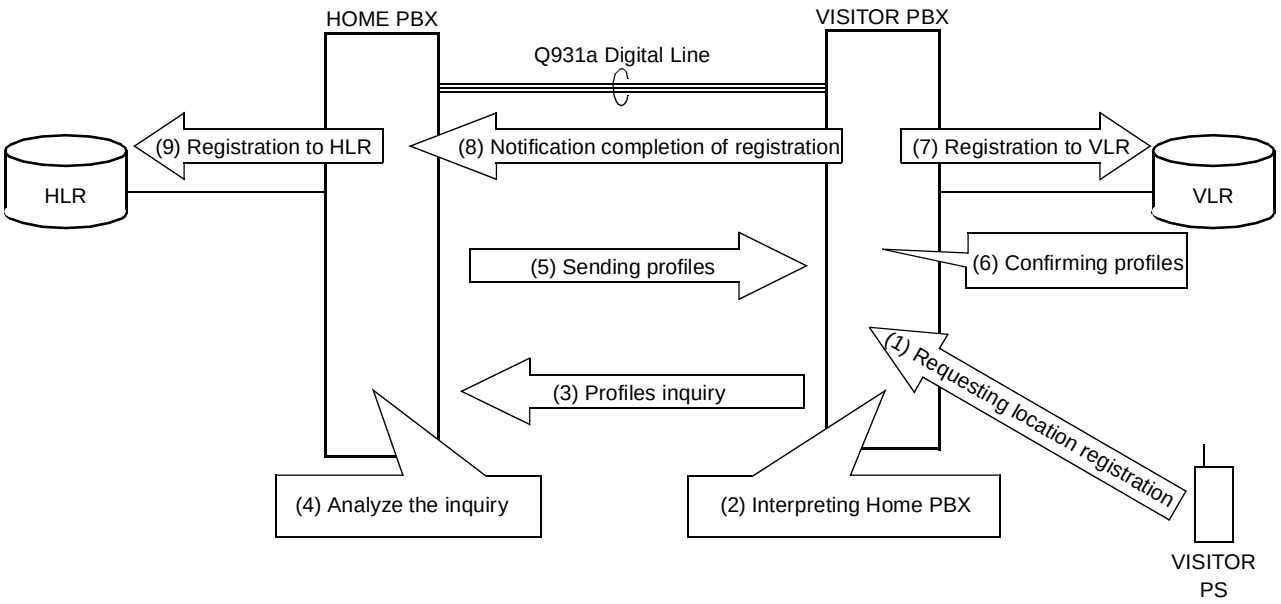
  (6) The Visitor PBX confirms the profiles sent from the Home PBX, and determines the Roaming number for the Visitor PS.
  The actual Roaming number is Virtual LC station number assigned as a pilot station of Station Hunting Group on the Visitor PBX.

  (7) The Visitor PBX registers the profile data of the Visitor PS to the VLR.

  (8) Then notifies the completion of registration to the Home PBX. The notification contains the Roaming number determined.

  (9) The Home PBX receives the notification and stores the Roaming number to the HLR.

Figure 1-5 Location Registration



- Call Termination to Visitor PS

(1) The Home PBX receives the call from another PBX and sends to a Home PS.

(2) The Home PBX refers the HLR information of the PS.

(3) From the Roaming number contained in the HLR information, the Home PBX detects whether the Home PS is roaming.

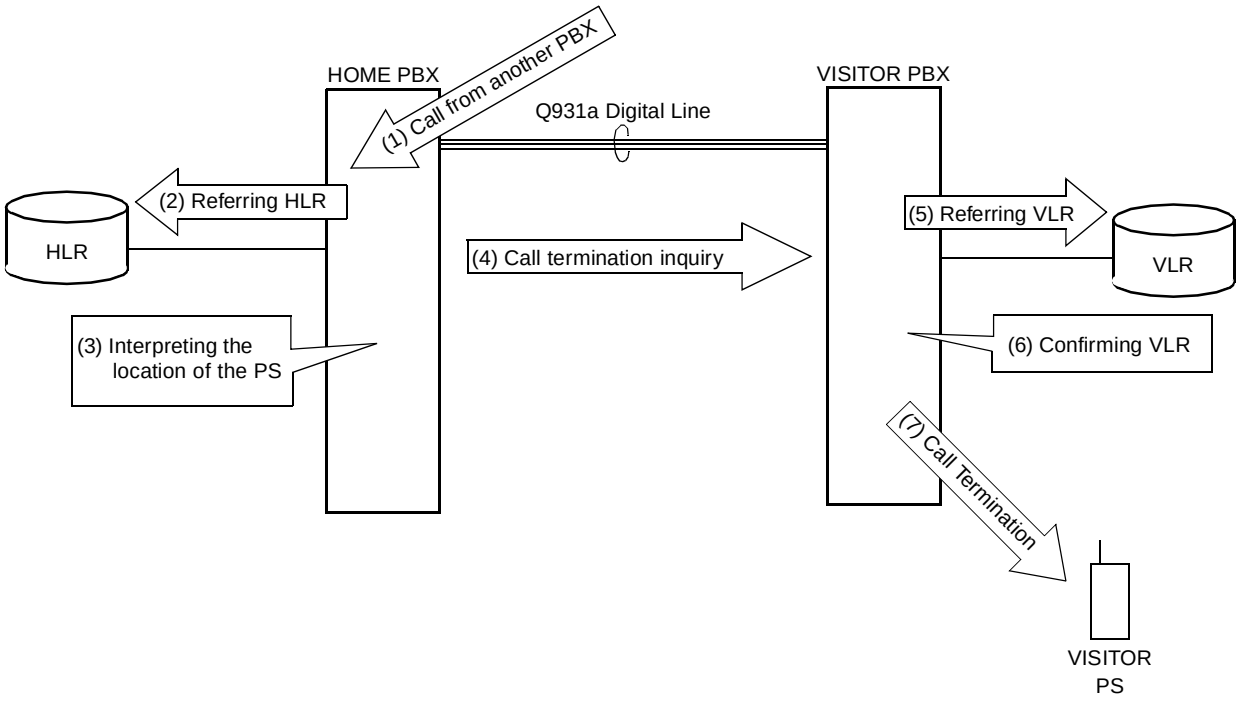
(4) The Home PBX inquires of the Visitor PBX about the call termination to the Visitor PS. The inquiry contains the roaming data of the Visitor PS, such as Roaming number and Individual PS number.

(5) he Visitor PBX analyzes the Roaming number and refers to the VLR information of the Visitor PS in accordance with the Individual PS number.

(6) The Visitor PBX confirms the VLR information.

(7) The Visitor PBX terminates the call to the Visitor PS.

Figure 1-6 Call Termination



Service Conditions

(1) Trunk

- Multi-Site Roaming can be executed only on trunk connection between PBXs based on JT-Q931a protocol.
- To each trunk route of JT-Q931a trunks, it can be specified whether Multi-Site Roaming is provided or not.
- The JT-Q931a trunks can be used by single line telephone stations and D^{term} stations for originating or receiving calls in the same manner as common trunks.

(2) Data Base Module

- The Data Base Module (DBM) card (PN-AP00-A) is required per PBX.
- The DBM card cannot be used as billing application processor (for SMDR, MCI, PMS, or Hotel printer).
- System data stored in the memory of the DBM card can be saved, loaded, and verified from a MAT. (Memory Area No.:A, Memory Address: 00900-10870, File Extension: DMA)
- A Roaming network consists of maximum 512 PBXs.
- Visitor Location Register (VLR) information for maximum 512 Visitor PSs can be recorded to a system.
  VLR information is the various information of Visitor PS and is made in the memory of DBM on the Visitor PBX when the PS is roaming.
  When the VLR information exceeds for more than 512 PSs, DBM overwrites the oldest VLR information.

(3) Home PS/Visitor PS
To use the PSs for Multi-Site Roaming, the following items must be assigned to the PSs:
- SYS-ID; SYS-ID of Home PBX.
- PS-ID; A unique number for identifying the PS.
- Individual PS number; The same number with the Home PBX ID.
- Extension number; The same number with the Individual PS number.
- Network ID; It must be assigned when the Roaming network adopts Network ID methods.
- Home PBX ID; A unique number for identifying the PBX on the Roaming network.

This page is for your notes.

CHAPTER 2

INSTALLATION

This chapter explains the hardware installation procedure to provide WCS interface to the PBX.

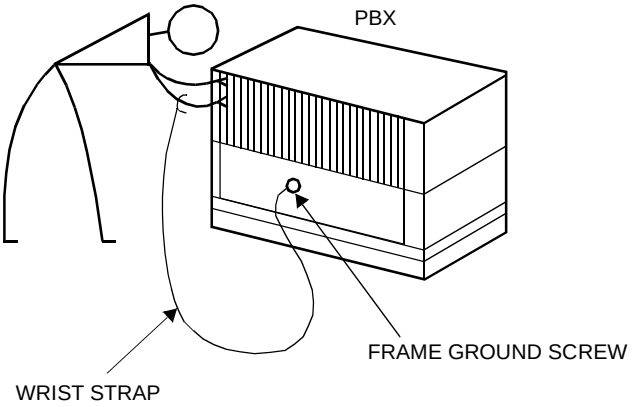
PRECAUTIONS

Static Electricity Guard

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

Figure 2-1 Static Electricity Guard (1 of 2)

- WHEN PLUGGING/UNPLUGGING A CIRCUIT CARD



- WHEN HOLDING A CIRCUIT CARD

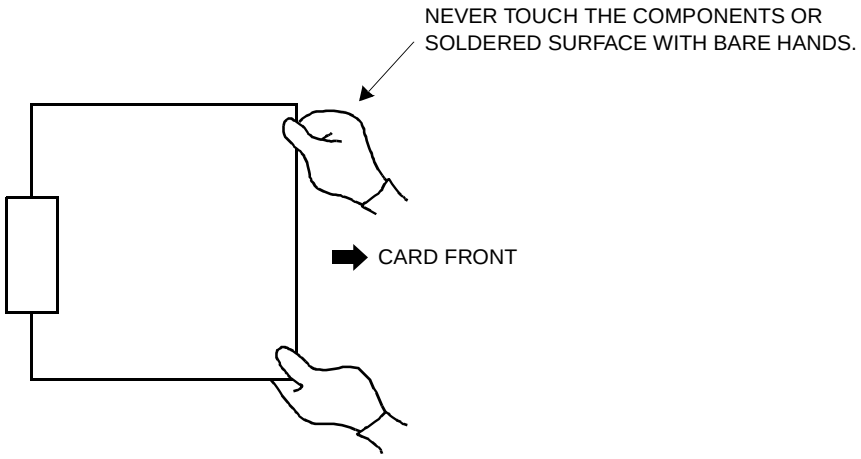
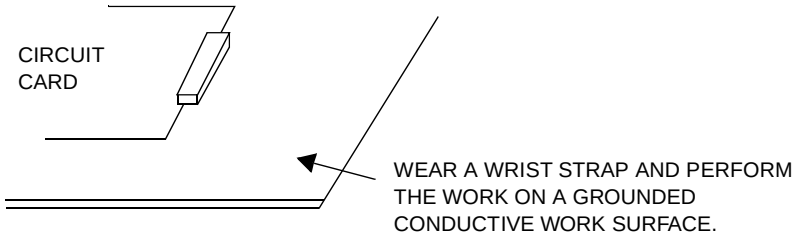
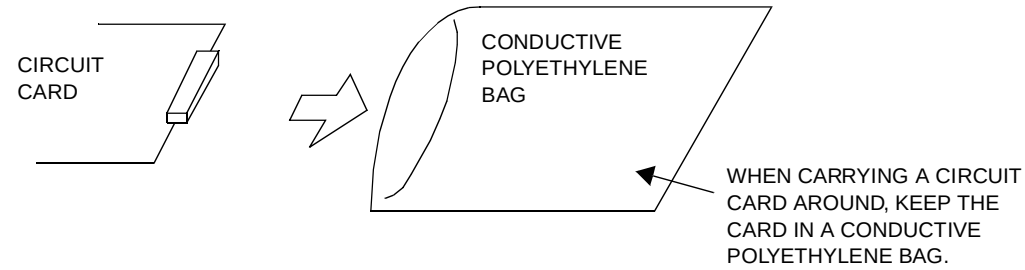


Figure 2-1 Static Electricity Guard (2 of 2)

- WHEN MAKING A SWITCH SETTING ON A CIRCUIT CARD



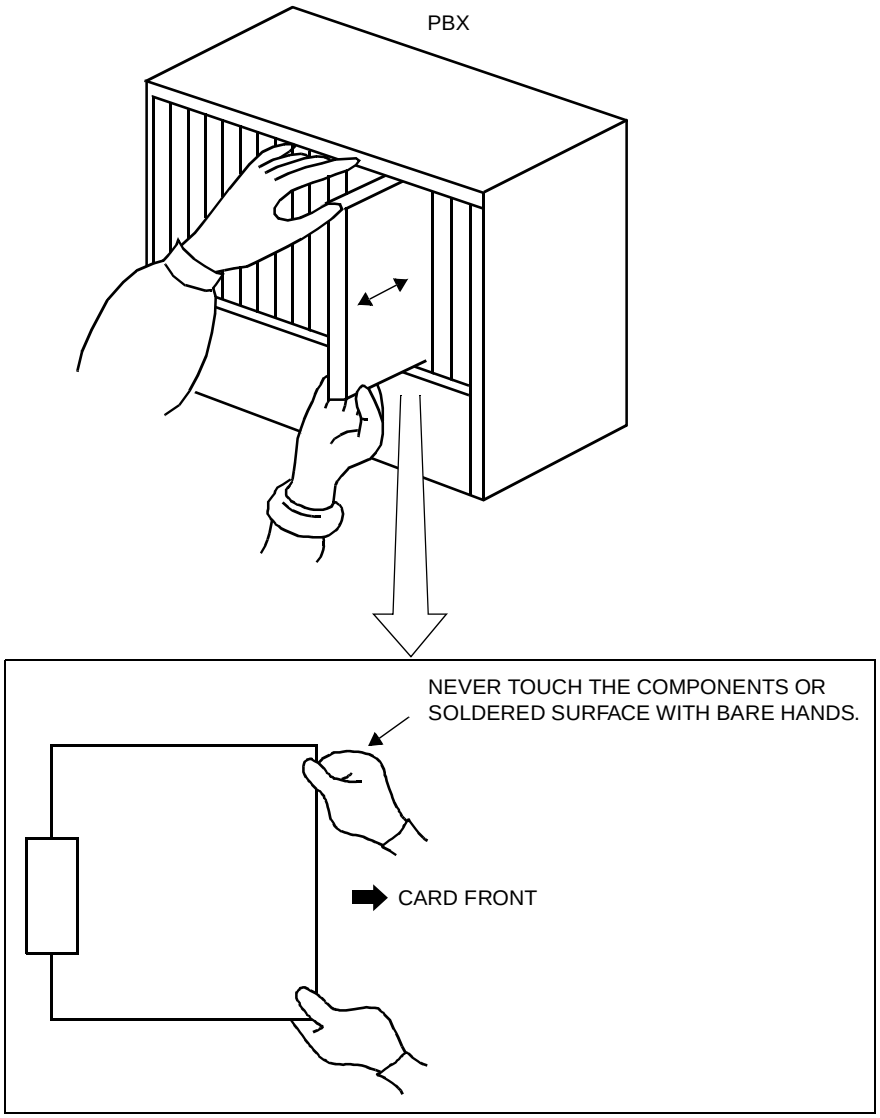
- WHEN CARRYING A CIRCUIT CARD



The mark shown below is attached to the sheet for the work in which circuit cards are handled. When engaging in such work, the installer must be careful not to cause damage by static electricity.

CAUTION

You must hold the edge of a circuit card when plugging or unplugging the circuit card. If you touch another area, you may be exposed to hazardous voltages.



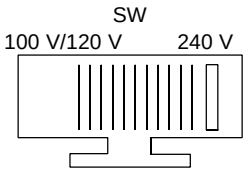
Turning Power ON

Caution

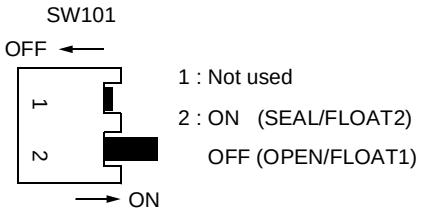
1. When the operating power is being supplied to the PZ-PW121 card, do not plug/unplug this circuit card into/from its mounting slot.
2. When the system is configured with two or more PIMs, the BUS cable is providing gang control for the PZ-PW121 card of PIM0 and other PIMs. Therefore, if the power of PIM0 is off, no power is supplied to the whole system even when the power switch(s) of other PIMs are left on. Note, however, that the battery continues to charge even under these circumstances.
3. Do not turn off the PZ-PW121 card on PIM1 to PIM7 when the system is operating.

(1) Check the switch position of each PZ-PW121 card before turning power on.

- Make sure that the AC120V/240V selector switch is positioned to appropriate voltage for each country (AC120V or AC240V).



- Make sure that the battery mode selector switch is positioned as shown below to meet the kind of battery:



(2) Turn the SW1 switches of all the PZ-PW121 cards to ON. First, turn ON PIM1 to PIM7. Then, turn ON PIM0 last of all.

Turning Power OFF

(1) Before turning power off ensure that all circuits are not in use.

(2) Turn the SW1 switches of all the PZ-PW121 cards to OFF. First, turn OFF PIM0. Then, turn OFF PIM1 to PIM7.

REQUIRED EQUIPMENT

Table 2-1 shows the equipment required to provide the WCS interface to the system.

Table 2-1 WCS Required Equipment

EQUIPMENT	DESCRIPTION	QUANTITY	REMARKS
PZ-PW122 (DC/DC PWR)	–48V Power supply card for ZT	1-8	One per PIM 16 ZT powered /card
PWR CNT CA-D	Power Control Cable-D (between PW121/PW122 and BWB)	1-7	For PIM1-7
PWR CNT CA-E	Power Control Cable-E (between PW121/PW122 and BWB)	1	For PIM0
PN-2CSIA (CSI)	ZT Interface card	1-64	2 ZT/card
PN-SC03-A (CSH)	ZT Handler card	1-16	4 CSI/card
PN-2DATA (DAT)	Digital Announcement Trunk	N	N: As required for Announcement Service
PN-4DATC (DAT)			
PZ-M537 (EXPMEM)	Memory Expansion card	1	For more than 128 PS
PN-4COT PN-8COT	Central Office Trunk Central Office Trunk	N N	For Adjunct Type (Analog Interface) 4COT: 4PS/card 8COT: 8PS/card
PN-24DTA-C (DTI)	24-channel DTI card	1-8	For Adjunct Type (CCIS Interface)
PN-30DTC-A (DTI)	30-channel DTI card	1-4	
PN-SC00 (CCH)	Common Channel Handler card	1-8	

Table 2-1 WCS Required Equipment (Continued)

EQUIPMENT	DESCRIPTION	QUANTITY	REMARKS
PN-24DTA-C (24DTI)	24-channel DTI card	1-8	For Roaming
PN-30DTC-A (30DTI)	30-channel DTI card	1-4	
PN-SC01 (DCH)	D-channel Handler card	1-8	
PN-AP00-A (DBM)	Roaming Data Base Module card	1	

INSTALLATION PROCEDURE

Install the equipment for WCS according to the procedure shown in Figure 2-2. Figure 2-3 shows the procedure for Multi-Site Roaming.

Figure 2-2 Installation Procedure

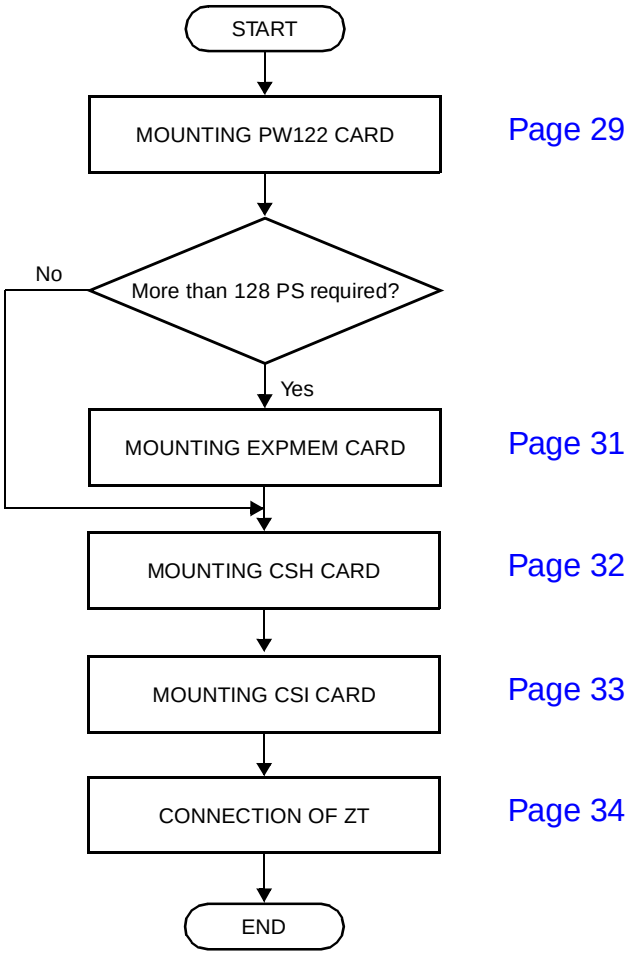
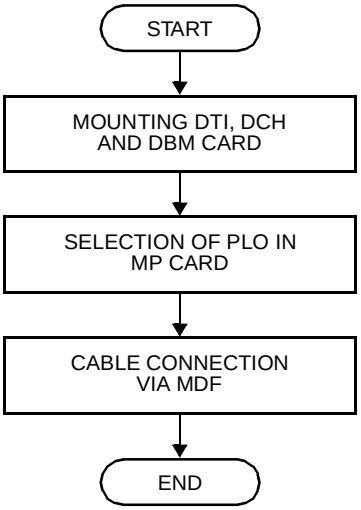


Figure 2-3 Installation Procedure for Multi-Site Roaming



MOUNTING PW122 CARD

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

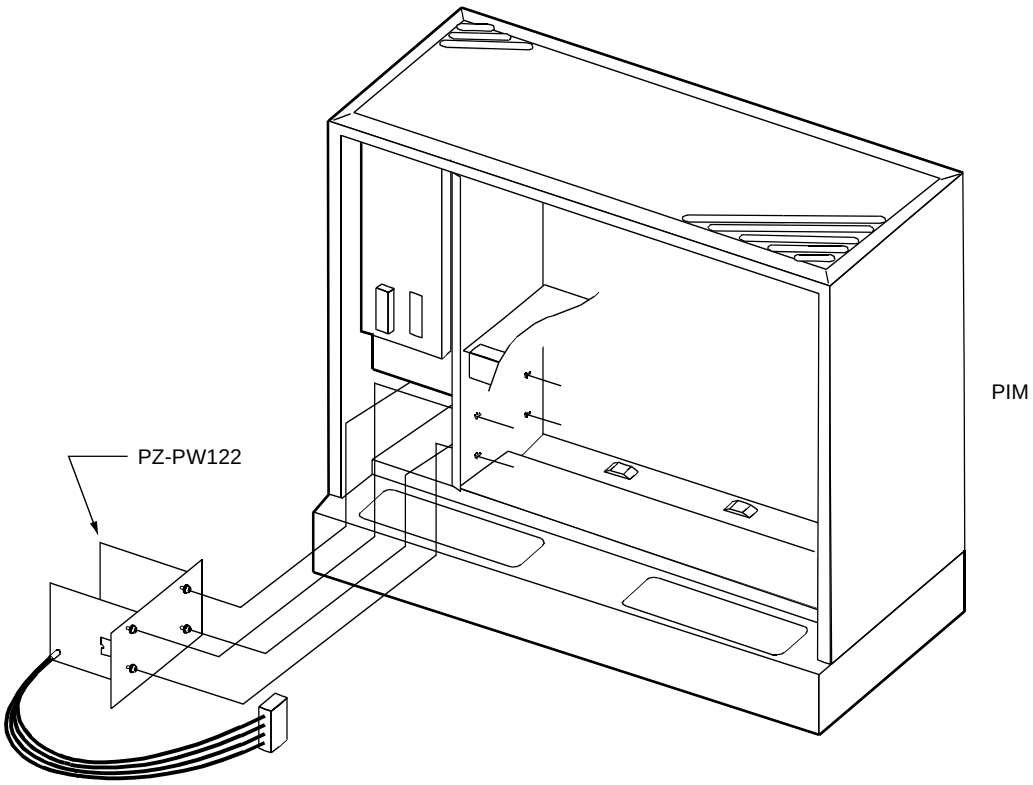
Mount the PW122 card into the PIM as shown in Figure 2-4.

(1) Attach four screws preliminary to the PZ-PW122 card.

(2) Mount the PZ-PW122 card into the PIM which accommodates the CSI cards, and fasten the screws.

NOTE: Screws are attached to the PZ-PW122 card.

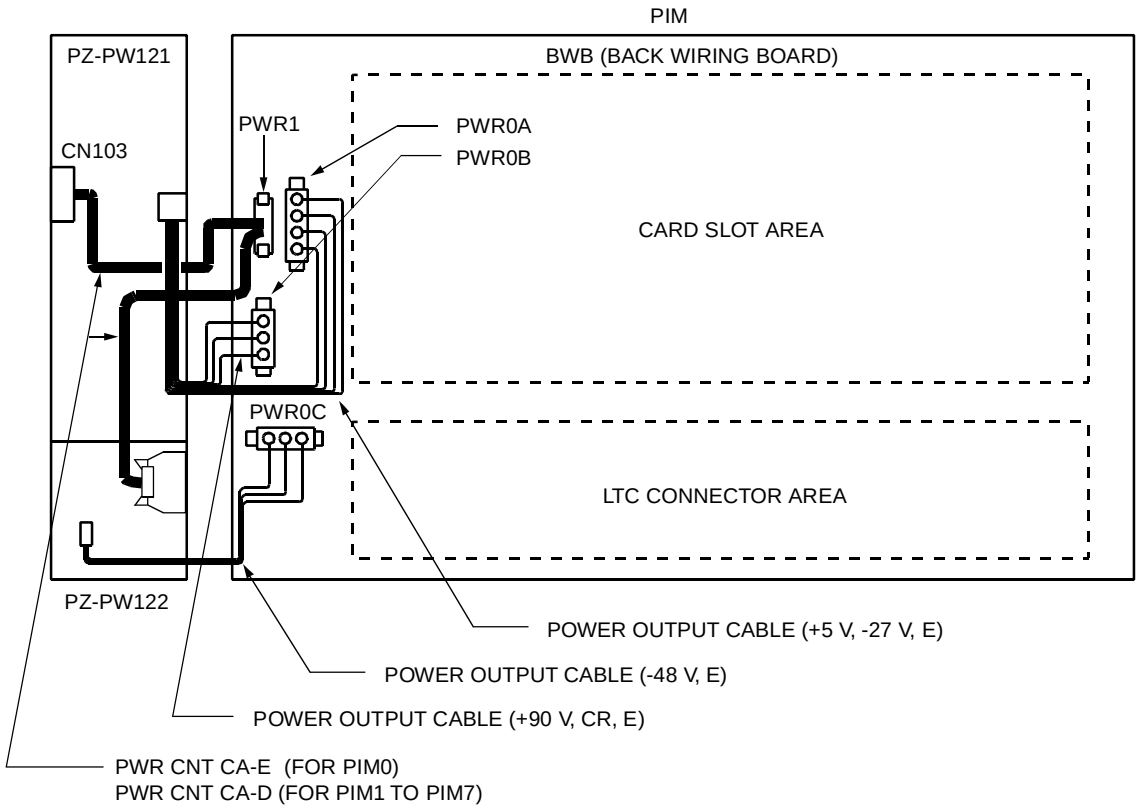
Figure 2-4 Mounting PZ-PW122 into PIM



(3) Connect the PWR CNT CA-E or PWR CNT CA-D, and POWER OUTPUT CABLE (–48 V, E) to the PZ-PW122 card as shown in Figure 2-5.

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

Figure 2-5 Cable Connection between PZ-PW121/PZ-PW122 and BWB



MOUNTING EXPMEM CARD

The EXPMEM (PZ-M537) card is required when the number of PS is more than 128.

(1) Confirm the correct switch settings. See CHAPTER 4

(2) Mount the EXPMEM card on the MP card.
For details, refer to the Installation Procedure Manual.

(3) Then, mount the MP card into the MP slot of PIM0.

MOUNTING CSH CARD

(1) Before mounting the CSH (PN-SC03-A) card, set the MB switch to UP position, and set the other switches to appropriate position.
See CHAPTER 4.

(2) Mount the CSH card in the AP slots of PIM0 through PIM7.
PIM0-7: AP00-AP11 slots
The AP11 slot on PIM0 is available only when the FP card is not mounted on the FP11 slot on PIM0.

(3) After mounting the card, set the MB switch to DOWN position to put the card in service.

MOUNTING CSI CARD

(1) Before mounting the CSI (PN-2CSIA) card, confirm the correct switch settings. See CHAPTER 4.

(2) Mount the CSI card in the LT slots of PIM0 though PIM7.
PIM0-7: LT00-LT07 slots

CONNECTION OF ZT

Connect the cable to a ZT via the MDF as described in this section.

- Location ofLT slots andLTC connectors for ZT (Figure 2-1)
- MDF Cross connection for ZT (Figure 2-2)

Figure 2-1 Location of LT Slotsand LTC Connectors for ZT

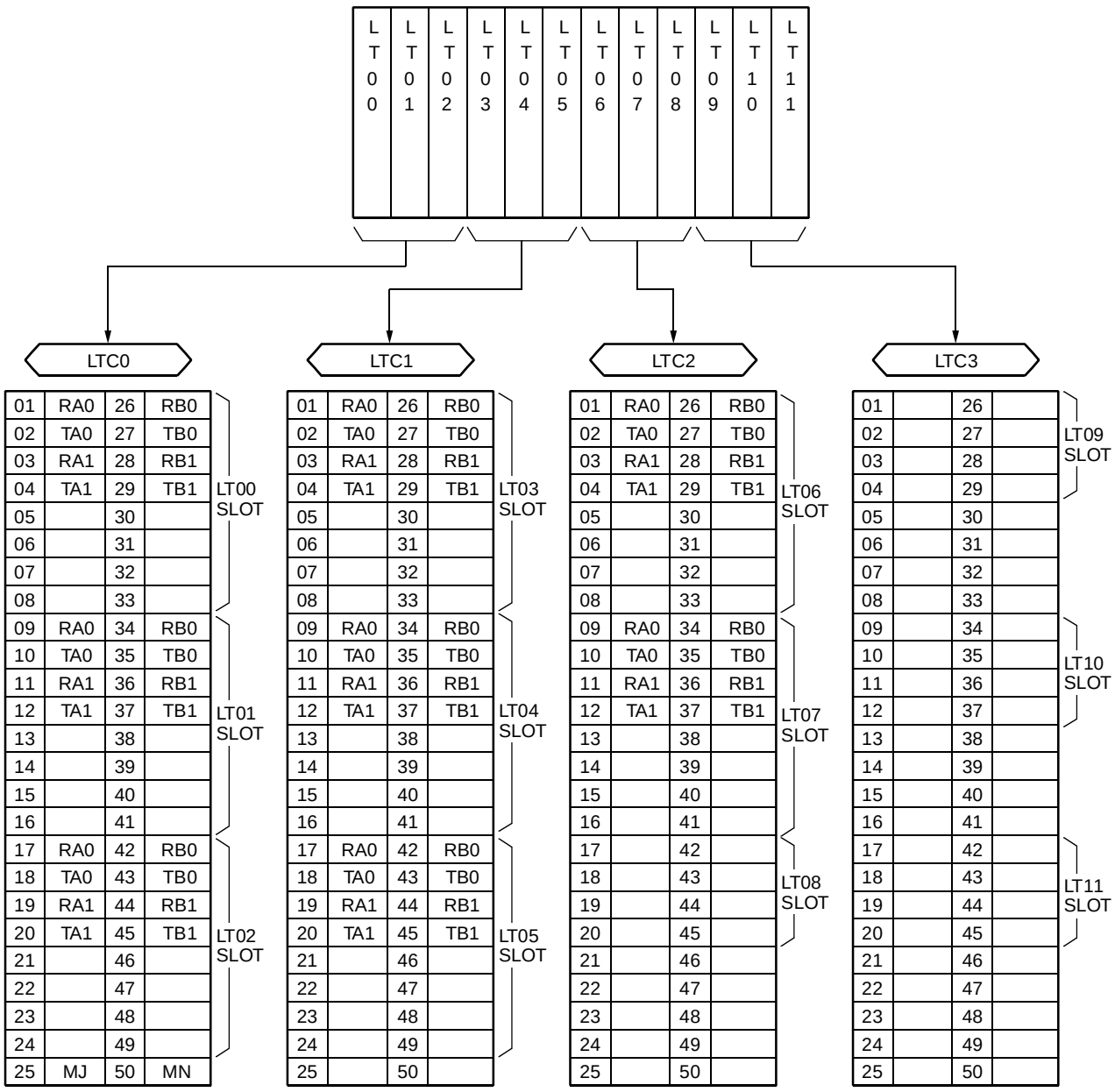
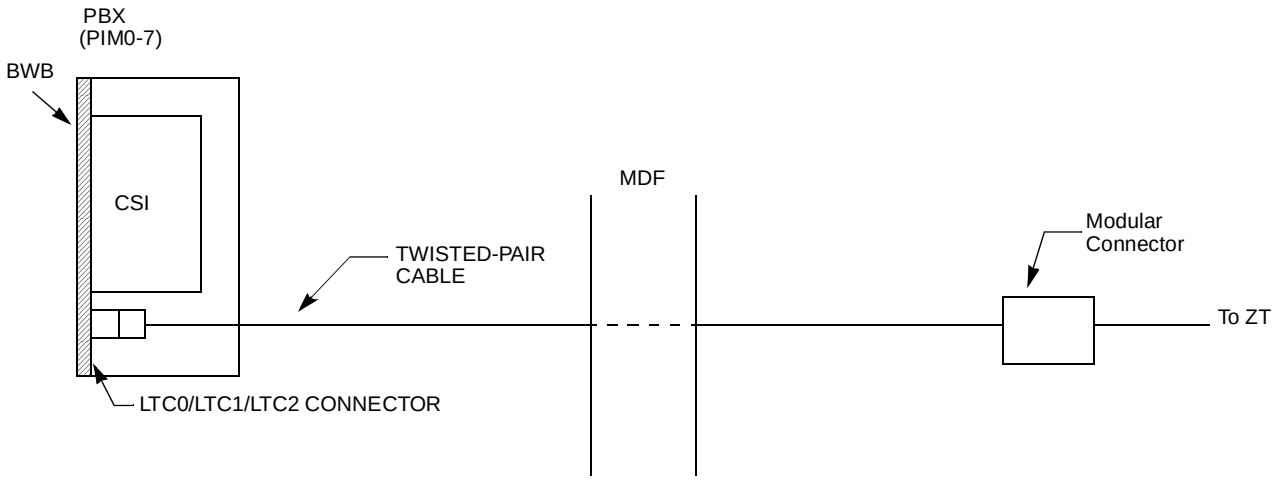
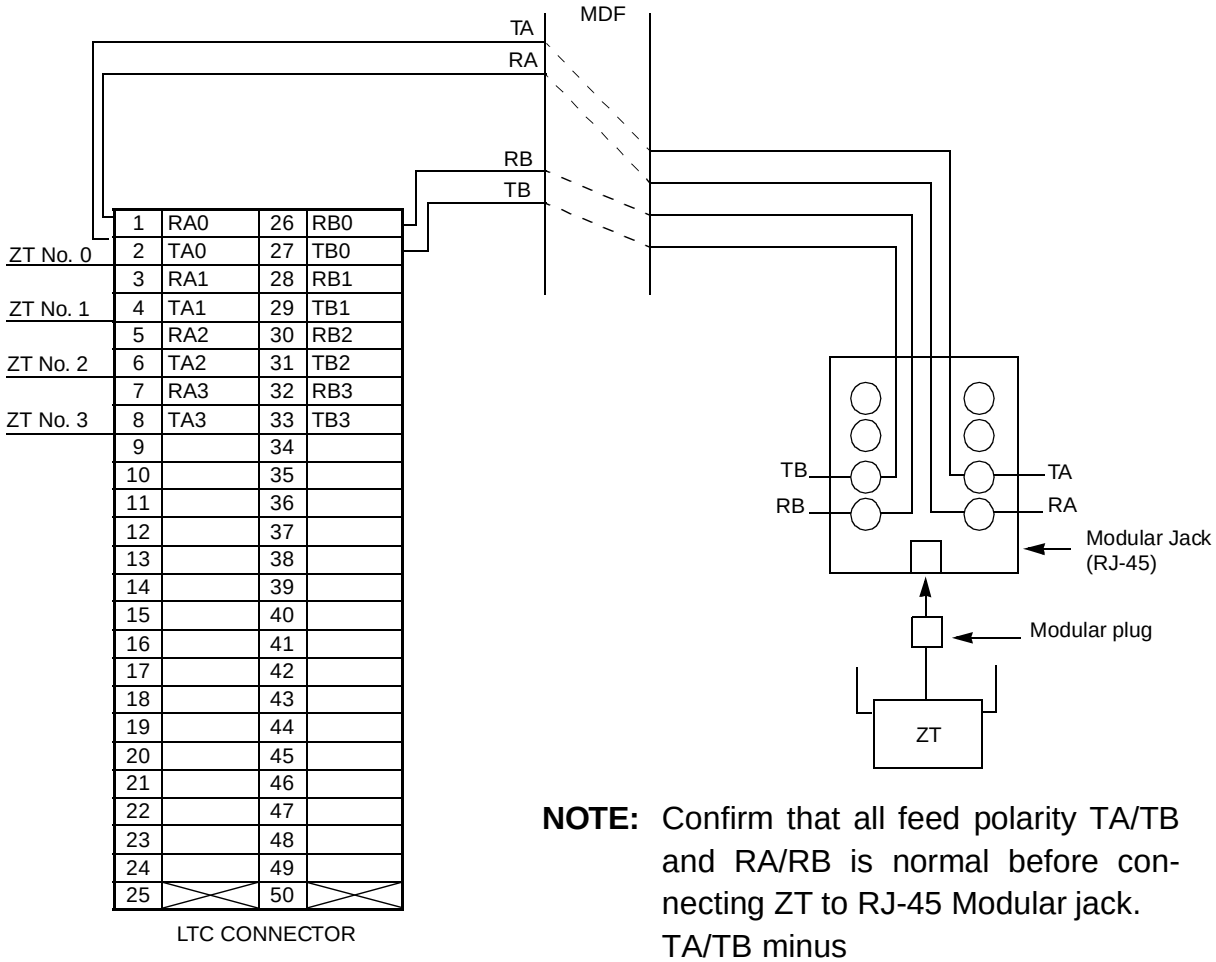


Figure 2-2 MDF Cross Connection for ZT





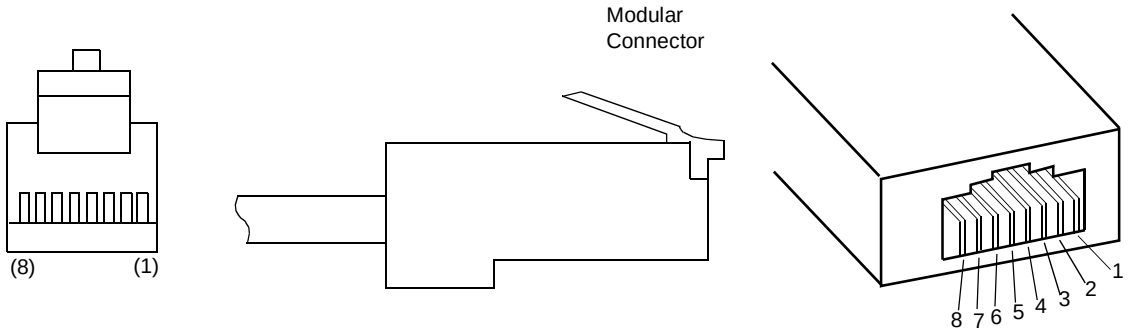
1	RA0	26	RB0
2	TA0	27	TB0
3	RA1	28	RB1
4	TA1	29	TB1
5	RA2	30	RB2
6	TA2	31	TB2
7	RA3	32	RB3
8	TA3	33	TB3
9		34	
10		35	
11		36	
12		37	
13		38	
14		39	
15		40	
16		41	
17		42	
18		43	
19		44	
20		45	
21		46	
22		47	
23		48	
24		49	
25		50	

LTC CONNECTOR

NOTE: Confirm that all feed polarity TA/TB and RA/RB is normal before connecting ZT to RJ-45 Modular jack.
TA/TB minus
RA/RB plus

CAUTION: Incorrect wiring may cause severe damage to the equipment.

Figure 2-3 MDF Cross Connection via MDF for ZT



TERMINAL NUMBER	COLOR	TERMINAL NUMBER	FUNCTION		POLARITY		CSI TERMINAL
			TERMINAL EQUIPMENT	CSI	SIGNAL	FEED	
1	blue	a	Not used	Not used			
2	orange	b	Not used	Not used			
3	black	c	Transmission	Reception	+	–	RA
4	red	d	Reception	Transmission	+	–	TA
5	green	e	Reception	Transmission	–	+	TB
6	yellow	f	Transmission	Reception	–	+	RB
7	brown	g	Not used	Not used			
8	slate	h	Not used	Not used			

NOTE: RJ-45 Modular Jack is highly recommended.

Keep all wiring straight to the jack and perform all reverses at the cross connect for future changes.

INSTALLATION FOR MULTI-SITE ROAMING

(1) Before mounting the DTI (PN-24DTA/PN-30DTC), DCH (PN-SC01), DBM (PN-AP00-A) card, set the MB switch to UP position, and set the other switches to appropriate position. See CHAPTER 4.

(2) Mount the DTI, DCH, DBM card in AP slots of PIM0 though PIM7.
PIM0-7: AP00-AP11 slots

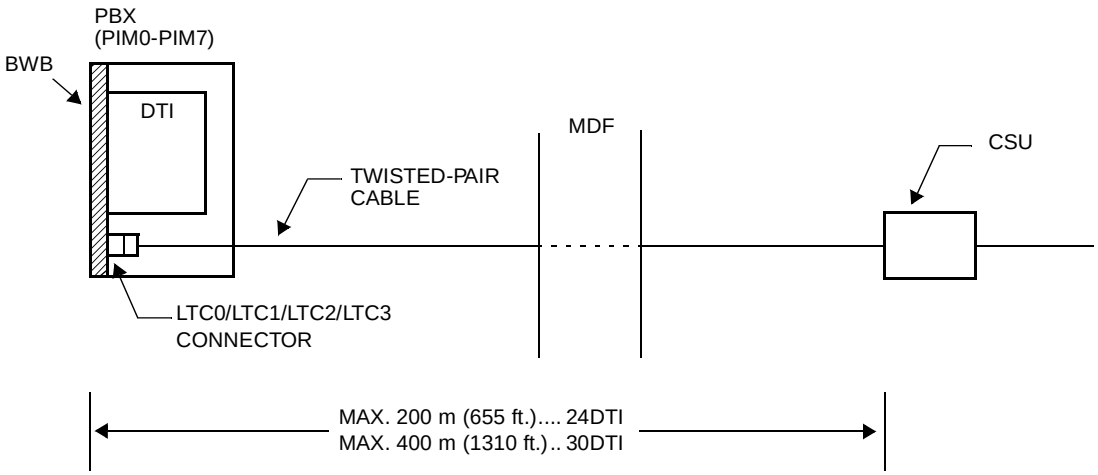
(3) After mounting the card, set the MB switch to DOWN position to put the card in service.

(4) To select PLO in the MP card, set the switches of the MP card. See CHAPTER 4.

(5) Connect the cable to a CSU via the MDF for DTI as shown in Figure 2-4.

- Location of AP Slots and LTC Connectors for DTI (Figure 2-5)
- Example of MDF Cross Connection for DTI (Figure 2-6)

Figure 2-4 DTI Cable Connection via MDF



NOTE: The CSU must be installed to interface with the network, and must be installed on the premises where the PBX is.

Figure 2-5 Location of AP Slots and LTC Connectors for DTI

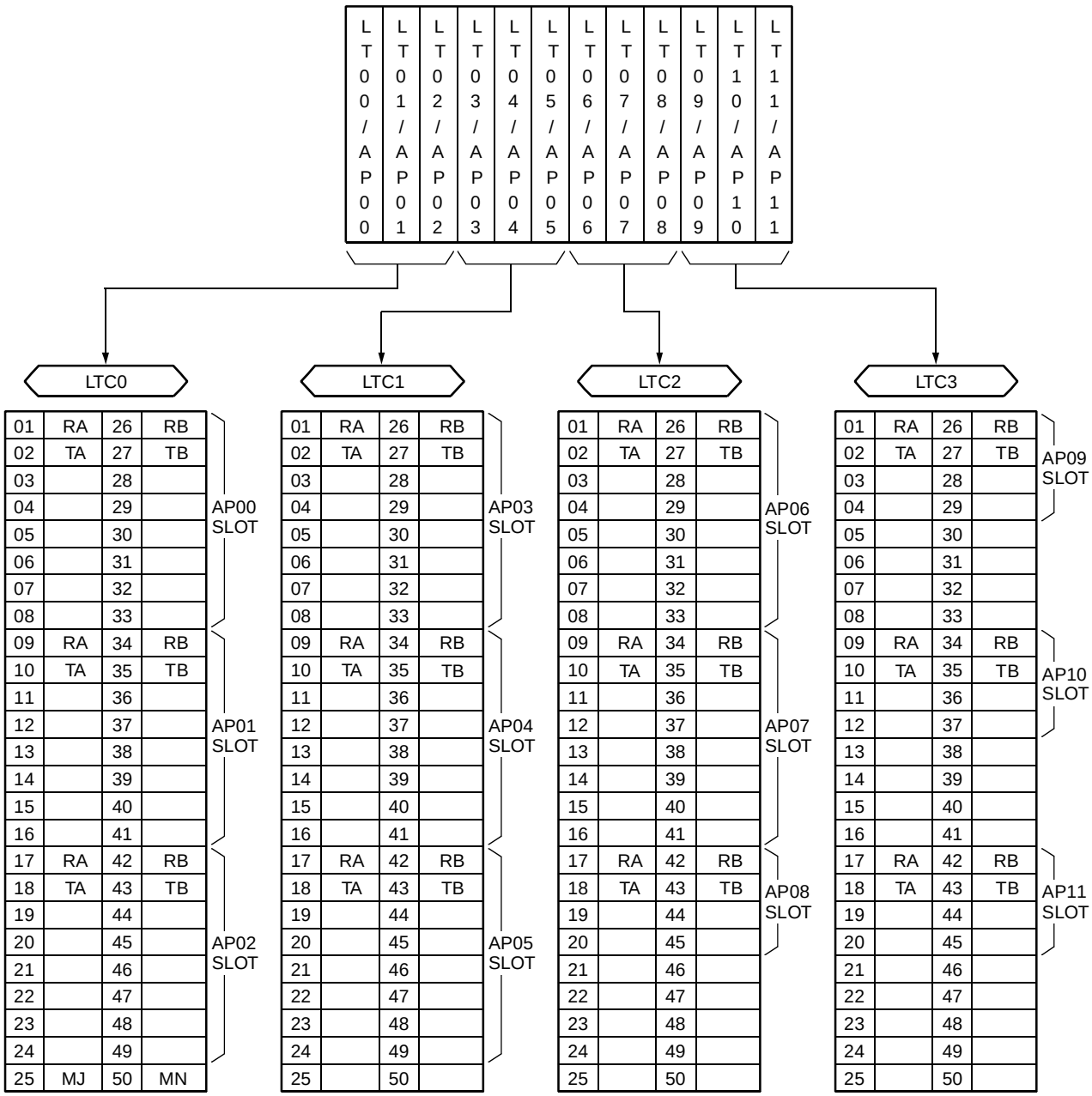
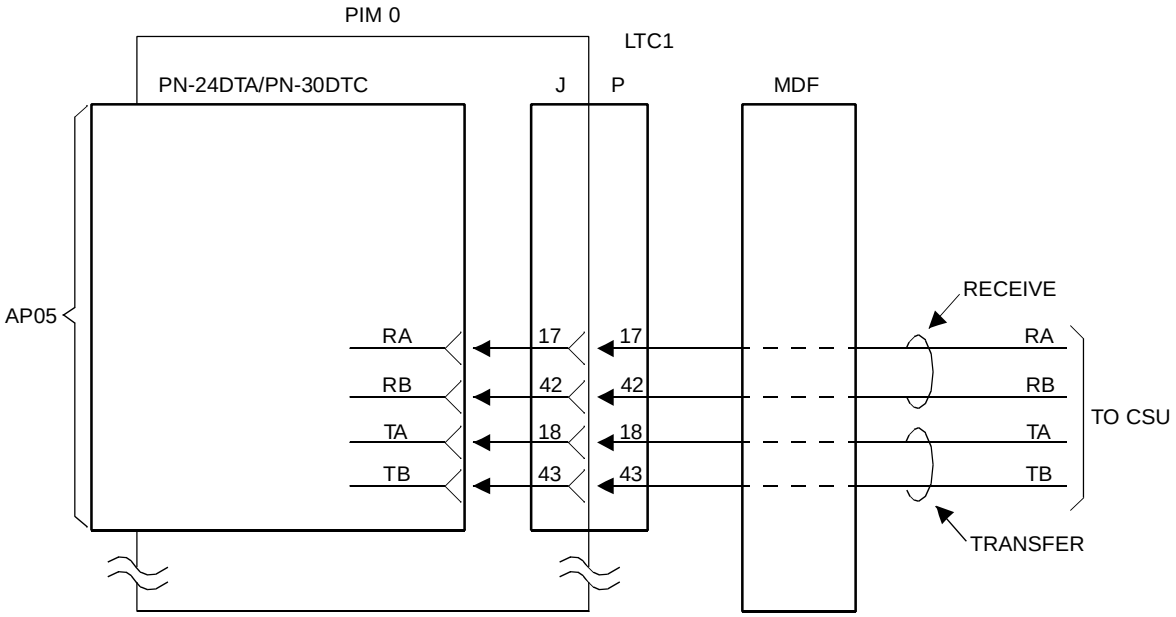
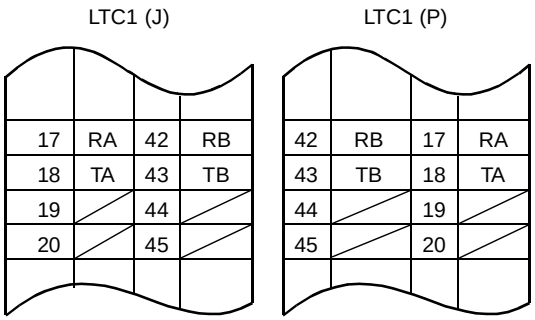


Figure 2-6 Example of MDF Cross Connection for DTI





This page is for your notes.

CHAPTER 3

SYSTEM DATA PROGRAMMING

This chapter explains the programming procedure to provide the WCS feature to the PBX.

HOW TO READ THIS CHAPTER

In the programming procedure, the meaning of (1), (2), and markings are as follows.

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

(INITIAL) : A reset of the MP card is required after data setting.
Press SW1 switch on the MP card.

(DBM INITIAL) : A reset of the DBM card is required after data setting.
Set the Make Busy switch to UP and then DOWN.

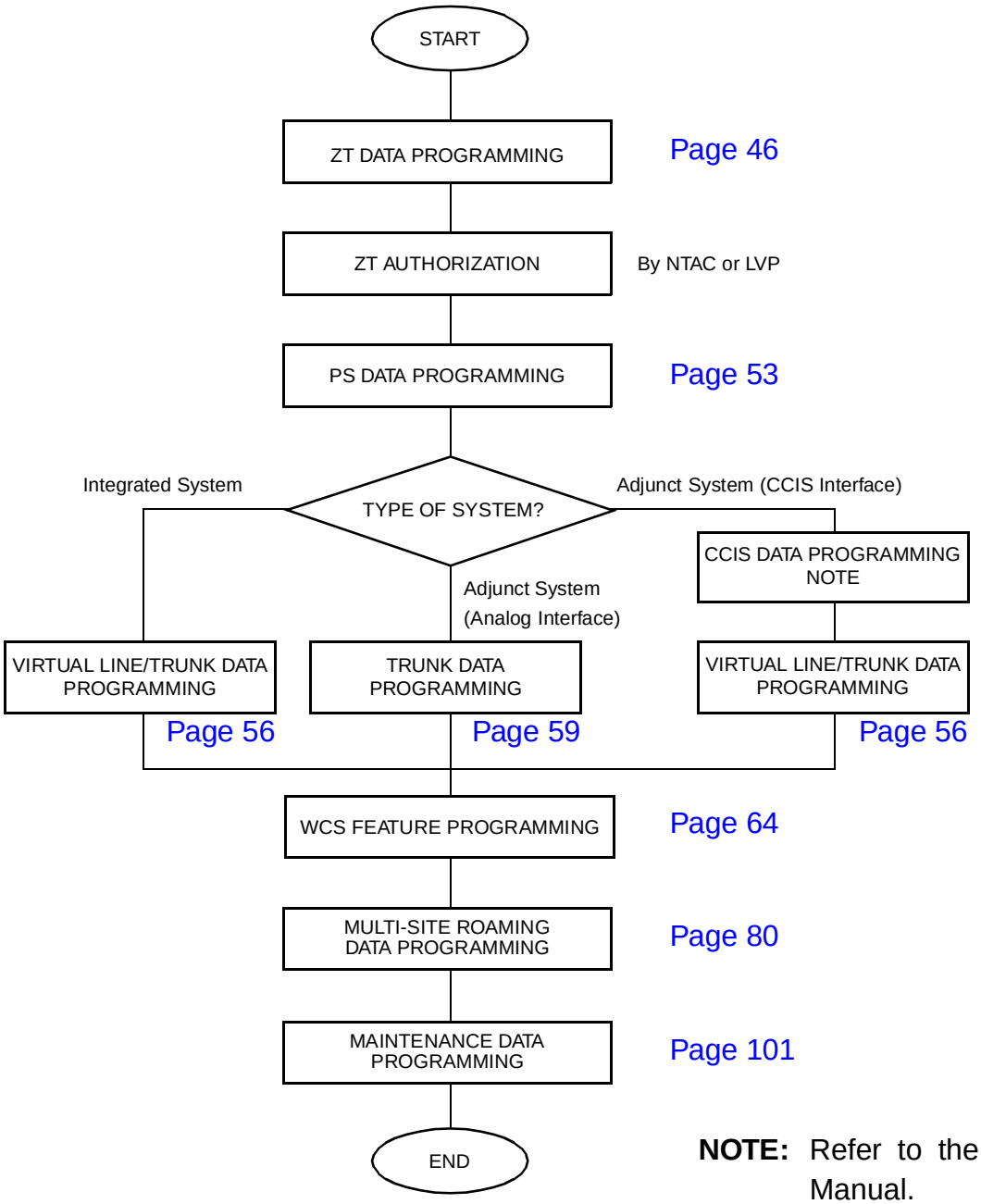
For general description, operating procedure, service conditions of WCS features, refer to the WCS Features and Specifications.

PROGAMMING SUMMARY

Perform the system data programming related to the WCS according to the following procedure.

For other system data related to the PBX, refer to the Command Manual and the CCIS System Manual.

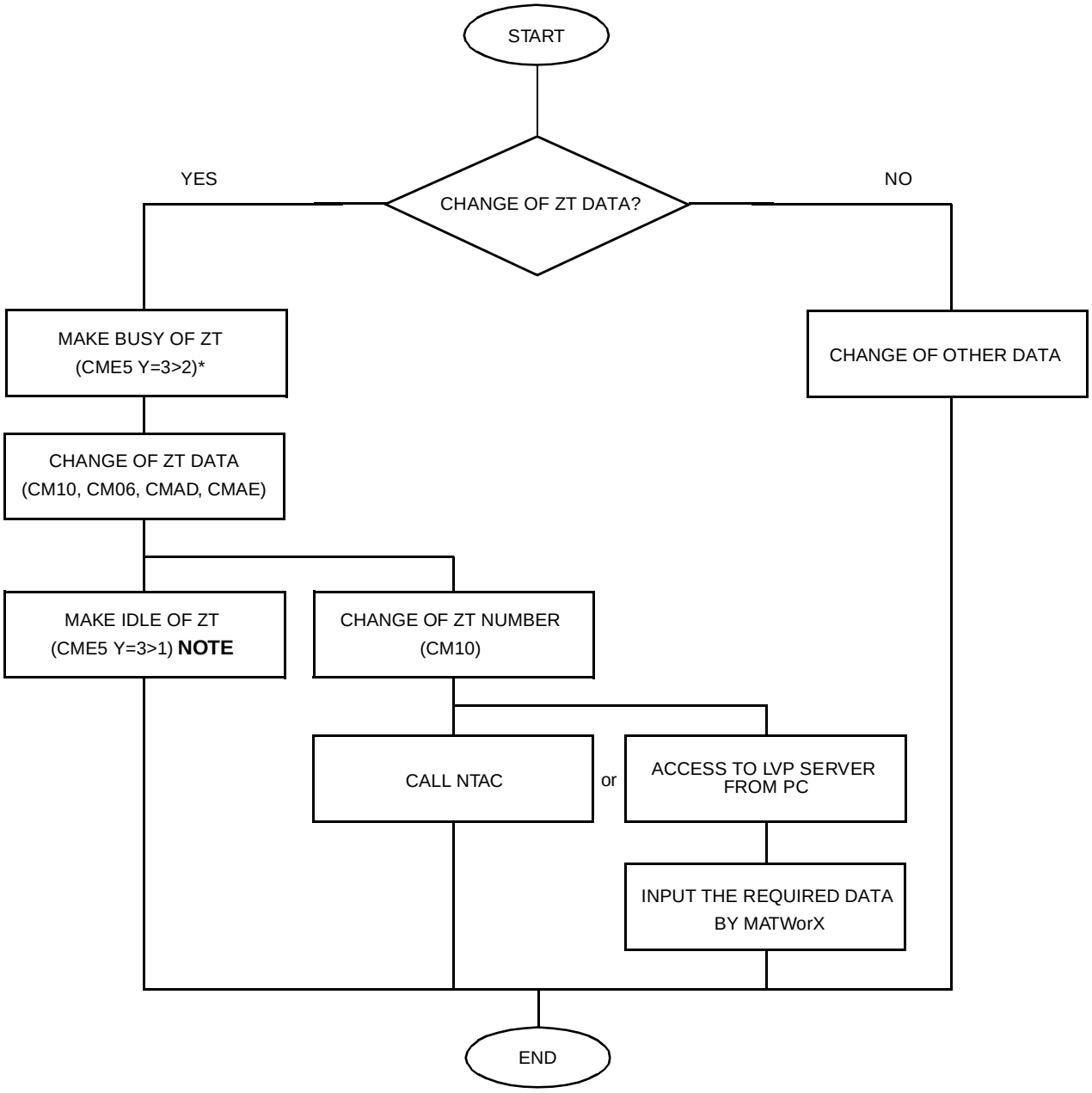
Initial Setup of System



NOTE: Refer to the CCIS System Manual.

Changing ZT Data in Service

When you change the ZT data (CM10, CM06, CMAD, CMAE) in service, make busy of the ZT is required. In this case, do the following procedure.



NOTE: To make busy or make idle the ZT in service, assign data as follows:

CME5 Y=3
(1) 000-127: ZT No.
(2) 1: Make idle
2: Make busy after calls finished.

Changing PS Data

If you change the PS data which has been already downloaded to a PS, do PS data download again by CM1D.

CM1D YY=20
(1) X-XXXXXXXX: PS station No.
(2) 1

Replacing PS

When replacing the PS with a new one, moreover assigning the same PS number to the new PS, delete the PS number registered to the WCS by CM1C is required before downloading the new PS data.

CM1C
(1) 000-255: Virtual PS LEN
(2) CCC: Clear

ZT DATA PROGRAMMING

Initial Setup

START	DESCRIPTION	DATA
CM05	Assign an AP number to the CSH card. The AP number must match the SENSE switch settings on the CSH card. (INITIAL)	• Y=0 (1) 04-15, 20-31: AP No. (2) 23: CSH (PN-SC03-A) card
CM10	Assign a ZT number to the required LEN. **NOTE:** The ZT number must be assigned to the first LEN (Level 0) and/or second LEN (Level 2) of each LT slot.	(1) 000-763: LEN 0-7 (PIM0-7) + 00-63 (Port No.) (2) EE 3 XXX XXX : 000-127 (ZT No.) NONE◀: No data CCC : Data Clear
CM06	Assign a data path between the CSH and the CSI. D channel Block number is used to assign the control data path between the CSH and CSI. One CSH had 4 D channel Blocks, and 1 D Channel Block controls 1 CSI. **NOTE:** The first LEN (Level 0) must be assigned as the 2nd data.	• YY=10 (1) XX YY XX : AP No. assigned by CM05 (04-15, 20-31) YY : 00-03 (D Channel Block No.) (2) X00, X08, X16, X24, X32, X40, X48, X56 : The first LEN (Level 0) of each CSI card X: PIM No. (0-7) NONE◀: No data CCC : Data Clear
A		

A

CMAD

DESCRIPTION	DATA
Assign an area to be called to eachZT. **NOTE:** Confirm that the busy LED lamp on CSI card is flashing (60 IPM).	• YY=00 (1) 000-127 : ZT No. (2) XX Y ZZ XX : 00-31 (Calling Area No.) Y : 0-7 (Group No.) ZZ : 00-31 (Group ZT No.) NONE◀: No data CCC : Data Clear
Specify the type of ZT.	• YY=19 (1) 000-127 : ZT No. (2) 00◀ : D^{term} PS II Type 15 : Previous D^{term} PS Type
Assign a PAD data to each ZT, if required.	• YY=01/08/09/10 (Connecting Patterns) (1) 000-127 : ZT No. (2) See the following table:

2ND DATA	PAD DATA (T/R)			
	YY=01 (CSI-COT/ODT/ DID)	YY=08 (CSI-DTI)	YY=09 (CSI-LC/DLC)	YY=10 (CSI-CSI)
00	0/0	0/0	0/0	0/0
01	0/+3	0/+3	0/+3	0/+3
02	0/+6	0/+6	0/+6	0/+6
03	0/–3	0/–3	0/–3	0/–3
04	+3/+3	+3/+3	+3/+3	+3/+3
05	+3/+6	+3/+6	+3/+6	+3/+6
06	+3/–3	+3/–3	+3/–3	+3/–3
07	–3/–3	–3/–3	–3/–3	–3/–3
08	+3/0	+3/0	+3/0	+3/0
09	+6/0	+6/0	+6/0	+6/0
10	–3/0	–3/0	–3/0	–3/0
11	–3/0	–3/0	–3/0	–3/0
12	0/–3	0/–3	0/–3	0/–3
13	0/–6	0/–6	0/–6	0/–6
15◀	0/0	0/0	0/+6	0/+6

T: Transmitter (PS to ZT) PAD (dB) /R: Receiver (ZT to PS) PAD (dB)
+: Gain
–: Loss

B

B

CMAE

C

DESCRIPTION	DATA
Specify the Nation Code.	• YY=00 (1) 03 (Nation Code Assignment) (2) 003 : North America 310 004 : North America 311 005 : North America 312 006 : North America 313 007 : North America 314 008 : North America 315 009 : North America 316 255◀: Not used
When providing Roaming service, assign the Network ID. (DBM INITIAL)	• YY=42 (1) 00 (Network ID Assignment) (2) 00000-65534: Network ID NONE◀ : Invalid (No Network ID)

NOTE: Network ID method is one method to operate multi-site roaming. A Roaming PS must have two SYS-IDs on the Network ID method. One is main SYS-ID for Home PBX and the other is Network ID for Roaming network. The Network ID is used to define whether the PS can operate under the control of PBXs on the Roaming network. The same Network ID must be used for all PBXs within the same network. This data must be assigned only if roaming service is provided.

C

CMAE

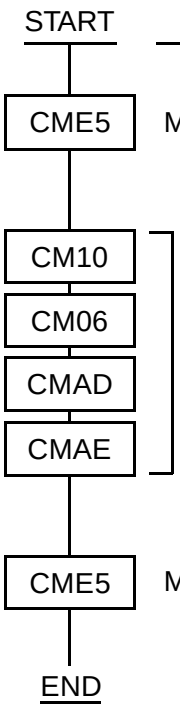
END

DESCRIPTION	**DATA**
Assign a Control Carrier Information. **NOTE 1:** Set 1st priority to the 5th priority (10 digits). **NOTE 2:** Select the Control Carrier No. as follows: For example: AA: 02DD: 00 BB: 04EE : 00 CC: 06 **NOTE 3:** After changing CMAE Y=15, a system reset is required for the change to take effect and PS operation data must be downloaded every time the control carrier number is changed. **NOTE 4:** When roaming service is provided, assign the same control carrier information in all PBXs in the network. Call NTAC or get your LVP code before proceeding.	• YY=15 (Control Carrier Information) (1) 00 (Assignment of Carrier Priority) (2) AA BB CC DD EE (Control Carrier No.: See below.) AA : 1st Priority BB : 2nd Priority CC : 3rd Priority DD : 00 EE : 00 Control Carrier No. (01-20) 01: 1920. 35 MHz 02: 1920. 65 MHz 03: 1920. 95 MHz 04: 1921. 55 MHz 05: 1921. 85 MHz 06: 1922. 15 MHz 07: 1923. 05 MHz 08: 1923. 35 MHz 09: 1924. 25 MHz 10: 1924. 55 MHz 11: 1925. 45 MHz 12: 1925. 75 MHz 13: 1926. 65 MHz 14: 1926. 95 MHz 15: 1927. 85 MHz 16: 1928. 15 MHz 17: 1928. 45 MHz 18: 1929. 05 MHz 19: 1929. 35 MHz 20: 1929. 65 MHz

Changing ZT Data in Service

When you change the ZT data (CM10, CM06, CMAD, CMAE) in service, make busy of the ZT is required.

When you change the ZT number by CM10, ZT authorization is required by NTAC or LVP Server entry.

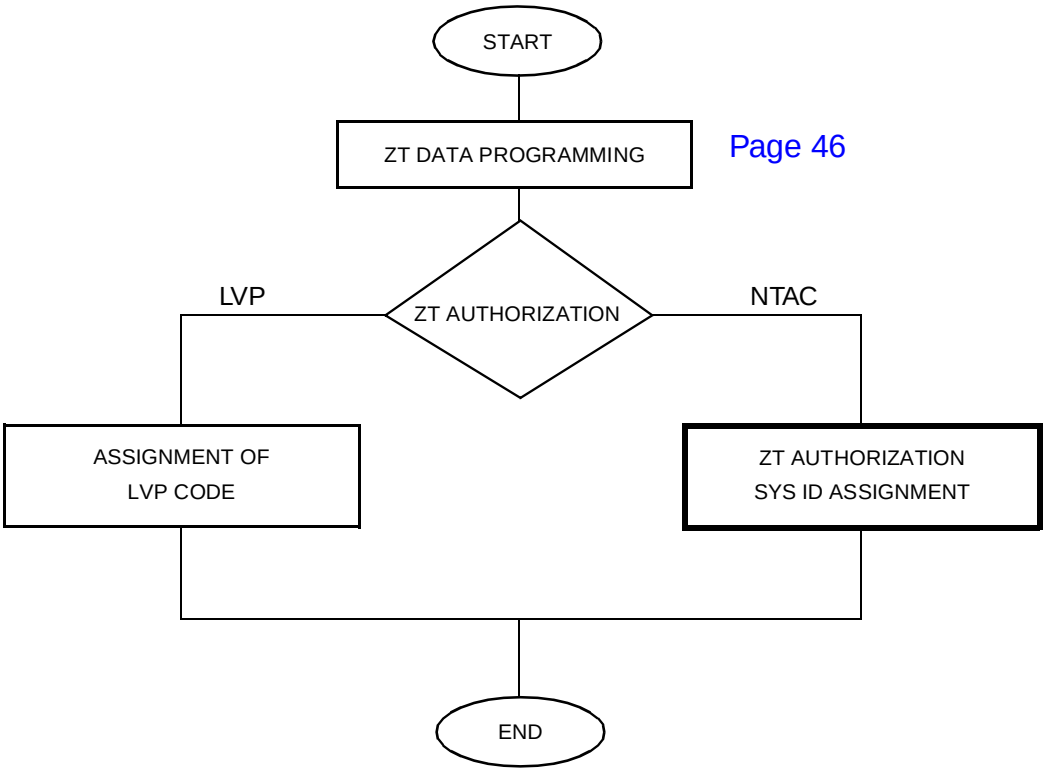


DESCRIPTION	DATA
Make the ZT busy.	• Y=3 (1) 000-127 : ZT No. (2) 2 : Make busy after calls finished.
Change the ZT data. See "Initial Setup" on Page 46	
Make the ZT idle.	• Y=3 (1) 000-127 : ZT No. (2) 1 : Make Idle

ZT AUTHORIZATION

Initial Setup of ZT

Do the following procedure to set up the ZT.



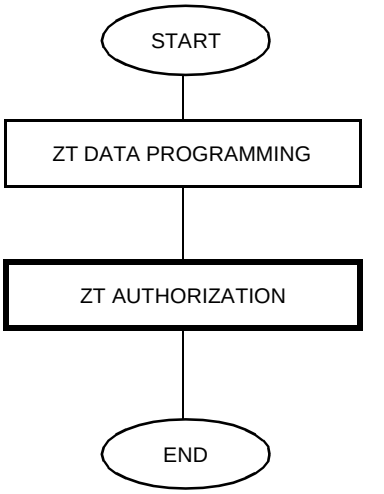
NOTE: When re-installing the system after power down exceeding 8 hours, the System ID will be cleared. The System ID must be re-entered.

: Action by Maintenance Person

: Please call NTAC (National Technical Assistance Center) for this data assignment.

Setting Up of Additional ZT

Do the following procedure to add the ZT.



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See MATWorX Studio.

: Action by Maintenance Person

: Please call NTAC (National Technical Assistance Center) for this data assignment.

PS DATA PROGRAMMING

Perform the following procedure after completing SYS ID Assignment and ZT Authorization.

START	DESCRIPTION	DATA
CM1C	Assign a PS station No. to the required virtual PS LEN. **NOTE 1:** When the Expansion Memory card (PZ-M537) is not mounted on the MP card, the 1st data is 000-127. **NOTE 2:** For Roaming PS, max. 5 digits PS station number should be assigned.	(1) 000-255 : Virtual PS LEN (2) X-XXXXXXXX : PS station No. (X=0-9, *, #)
CM1D	Assign a PS-ID. (Primary PS station only) **NOTE 1:** Insert leading zeroes in the PS-ID for a maximum of nine digits. For example, if PS ID is 1234, enter 000001234 as the PS-ID. **NOTE 2:** When a PS is assigned as a sub-line (second line), CM1D YY=21 should not be assigned and must be set to default “NONE”. See "Multi-Line Operation-PS" on Page 75.	• YY=21 (1) X-XXXXXXXX : PS station No. (2) XX···XX : PS-ID (Max. 9 digits, Decimal) **NOTE 3:** PS-ID is shown inside the battery compartment of your PS.
	For the D^{term} PS II, specify the terminal kind of the PS as “D^{term} PS II”. Set this data also to the Sub-line PS station number, if provided.	• YY=15 (1) X-XXXXXXXX: PS station No./Sub-line PS station No. (2) 00◀ : D^{term} PS II 15 : Former D^{term} PS
	Assign the sub-line PS number to each primary PS station.	• YY=01 (1) X-XXXXXXXX: Primary PS station No. (2) X-XXXXXXXX: Sub-line PS station No.
A		

	DESCRIPTION	DATA
A		
CM12	Assign the Service Restriction Class to each PS station.	• YY=02 (1) X-XXXXXXXX: PS station No. (2) XX ZZ XX : Service Restriction Class A (00-15◀)
CM15	When providing Roaming service, specify the Service Restriction Class for Roaming service data download. **NOTE 1:** Assign the same Service Restriction Class data to the PS station number and the Virtual LC station number (For Roaming service, see "Visitor PS Data Programming" on Page 93). **NOTE 2:** When the roaming service is provided, in the system where the second line service is also provided, it is recommended to set the primary PS-stations in different service restriction class than sub-lines, since sub-lines do not support the roaming feature.	• YYY=117 (1) 00-15: Service Restriction Class A assigned by CM12 Y=02 (2) 0 : Allowed 1◀ : Restricted
CMAE	When providing Roaming service, assign the Home PBX ID of own PBX to which the PS belongs. Assign the same number with the first 4 digits of the Individual PS number.	• YY=00 (1) 04 (Assignment of Home PBX ID) (2) X-XXXX: Home PBX ID (1-4 digits, Decimal)
B		

B

CM1D

END

DESCRIPTION	DATA
Download the PS operation data to each PS by assigning the 2nd data 1.	• YY=20 (1) X-XXXXXXXX: PS station No. (2) 1 : To be executed Refer to "D^{term} PS User Manual".
NOTE 1: All steps for setting up ZTs and all wiring must be successfully completed and ZTs must be idle before downloading PS operation data.	**NOTE 4:** If the download is successful, it will display the D^{term} PS II number for 2 seconds, automatically reset, then return to stand-by mode. If the download failed, an error tone will sound and the D^{term} PS II displays "Download Failed". Download must be performed again. If this procedure continues to fail, contact the Service Center.
NOTE 2: When a PS is set up initially, set the PS in Data Download Mode by applying power to the PS while pressing the SEND key, and then execute the CM1D Y=20 in Calling Area No. 00.	**NOTE 5:** The following messages display on the MAT.
NOTE 3: Set the D^{term} PS II to download mode by simultaneously applying power to the D^{term} PS II and pressing the L1 key.	STATUS / DISPLAY Loading succeeded / OK PS is busy / WAIT BUSY NOW PS is out of area / WD ERROR Lack of PS data / DATA ERROR

- When changing the PS operation data

If you change the PS operation data in this section which has been already downloaded to a PS, do PS data download (CM1D YY=20 second data: 1) again.

VIRTUAL LINE/TRUNK DATA PROGRAMMING (FOR INTEGRATED/ADJUNCT CCIS)

This programming is required for Integrated Type or Adjunct Type (CCIS Interface).

START

CM10

DESCRIPTION

Assign a virtual station number to the required LEN.

NOTE 1: The Virtual LEN must be assigned from the last LEN 763.

NOTE 2: Do not assign the same station No. to the Virtual Station No. and the PS Station No.

DATA

(1) 763-000 : LEN **NOTE 1**
(2) X-XXXXXXXX : Virtual Station No. **NOTE 2**

CM5A

Specify a path between the virtual line and virtual trunk.

- YY=00

(1) 256-511 : Virtual Trunk No. **NOTE 3**, **NOTE 4**
(2) X-XXXXXXXX : Virtual Station No.

NOTE 3: PS station No. is assigned by the first data of CM1C (Virtual PS LEN) as follows. Virtual Trunk No. minus 256 equals Virtual PS LEN.

For example, when the Virtual Trunk No. is 256 (CM5A YY=00 1st data: 256), then the Virtual PS LEN is 000 (CM1C 1st data: 000).

NOTE 4: When the Expansion Memory card (PZ-M537) is not mounted on the MP card, the first data is 256-383.

A

A

DESCRIPTION **DATA**

CM5A

The following data is set automatically by the virtual line-trunk path setting of CM5A YY=00. If you clear CM5A YY=00 setting data, the following data is also cleared automatically.

COMMAND CODE	MEANINGS	1ST DATA	2ND DATA	MEANING
CM12 YY=00	DTMF/DP	Virtual Station No. assigned by CM10	1	DP
CM13 YY=18	Reverse signal sending to station	Virtual Station No. assigned by CM10	0	Send
CM30 YY=00	Trunk route allocation	Virtual Trunk No. 256-511	63 **NOTE**	Trunk Route No. 63
CM30 YY=02	Terminating system in Day Mode	Virtual Trunk No. 256-511	04	Direct-In Termination
CM30 YY=03	Terminating system in Night Mode	Virtual Trunk No. 256-511	04	Direct-In Termination
CM30 YY=04	Destination of DIT in Day Mode	Virtual Trunk No. 256-511	PS Station No.	Station No. of DIT destination
CM30 YY=05	Destination of DIT in Night Mode	Virtual Trunk No. 256-511	PS Station No.	Station No. of DIT destination
CM30 YY=40	Terminating system in Mode A	Virtual Trunk No. 256-511	04	Direct-In Termination
CM30 YY=41	Terminating system in Mode B	Virtual Trunk No. 256-511	04	Direct-In Termination
CM30 YY=42	Direct-In Termination in Mode A	Virtual Trunk No. 256-511	PS Station No.	Station No. of DIT destination
CM30 YY=43	Direct-In Termination in Mode B	Virtual Trunk No. 256-511	PS Station No.	Station No. of DIT destination
CM12 YY=16	Trunk to be seized	PS Station No.	Virtual Trunk No. D256-D511	Trunk No.

NOTE: The trunk route data must be assigned by CM35 because the trunk route data is not automatically assigned.
The trunk route of the Virtual Trunk is 63 by the default data setting. If you want other use for the trunk route 63, change the trunk route number of Virtual Trunk route by CM30 YY=00.

B

	DESCRIPTION	DATA
B		
CM30	Change the trunk route for the virtual trunk number, if required.	• YY=00 (1) 256-511: Virtual Trunk No. (2) 00-63◀: Trunk No.
CM35	Assign the data for the Virtual Line/Trunk to the trunk route No. assigned by CM30 YY=00.	• YY=00 (Kind of Route) (1) 00-63 : Trunk Route No. (2) 00 : DDD
		• YY=01 (Type of Signal) (1) 00-63 : Trunk Route No. (2) 4 : DTMF
		• YY=04 (Answer Signal Condition) (1) 00-63 : Trunk Route No. (2) 1 : Answer Signal by Polarity Reversal
		• YY=05 (Release Signal Condition) (1) 00-63 : Trunk Route No. (2) 1◀ : Release Signal from C.O.
		• YY=09 (Incoming Connection Signaling) (1) 00-63 : Trunk Route No. (2) 15◀ : Ring Down (Loop Start)
		• YY=20 (Sender Start Condition) (1) 00-63 : Trunk Route No. (2) 15◀ : Timing Start
		• YY=98 (Designated Seizure of trunks) (1) 00-63 : Trunk Route No. (2) 0 : Allowed
	Specify the COT card Terminating Impedance.	• YYY=100 (1) 00-63 : Trunk Route No. (2) 0 : 600 ohm/complex BNW for Integrated Type and Adjunct Type (CCIS Interface) 2◀ : 600 ohm/600 ohm for Adjunct Type (Analog Interface)
END		

TRUNK DATA PROGRAMMING (FOR ADJUNCT ANALOG)

This programming is required for Adjunct Type (Analog Interface).

START	DESCRIPTION	DATA
CM10	Assign a trunk number to the required LEN.	(1) 000-763 : LEN 0-7 (PIM0-7) + 00-63 (Port No.) (2) D000-D255 : Trunk No.
CM30	Assign the trunk route number to the trunk number.	• YY=00 (DP or DTMF) (1) 000-255: Trunk No. (2) 00-63 : Trunk Route No.
	Assign the data for terminating system.	• YY=02 (Day Mode) • YY=03 (Night Mode) • YY=40 (Mode A) • YY=41 (Mode B) (1) 000-255: Trunk No. (2) 04 : Direct in Termination
	Assign the PS station number to be terminated by Direct-In Termination.	• YY=04 (Day Mode) • YY=05 (Night Mode) • YY=42 (Mode A) • YY=43 (Mode B) (1) 000-255 : Trunk No. (2) X-XXXXXXXX: PS Station No.
CM35	Assign the kind of trunk to the trunk route.	• YY=00 (1) 00-63 : Trunk Route No. (2) 00 : C.O. Trunk
	Specify the dialing signal type to the trunk route.	• YY=01 (1) 00-63 : Trunk Route No. (2) 2 : Call Origination-DP Call Termination-DP 4 : Call Origination-DTMF Call Termination-DTMF 7◀ : Call Origination-DP/DTMF Call Termination-DTMF
	Assign the call direction to the trunk route.	• YY=02 (1) 00-63 : Trunk Route No. (2) 3◀ : Bothway Trunk
A		

A

CM35

DESCRIPTION	DATA
Specify the answer signal from the distant office for outgoing connection to the trunk route.	• YY=04 (1) 00-63 : Trunk Route No. (2) 1 : Battery Reversal 7◀ : Answer signal does not arrive from C.O. Line (Answer timing shall be set by CM41 Y=0 Function No. 03)
Specify the release signal from the distant office for an outgoing connection of an incoming connection to the trunk route. **NOTE:** If Adjunct Type (Analog Interface), using a line card over the Main PBX is recommended to provide the release signal (i.e., momentarily, an open circuit).	• YY=05 (1) 00-63 : Trunk Route No. (2) 0 : Release signal does not arrive 1◀ : Release signal arrives
Assign the sending of the dial pulse on an outgoing call to the trunk route.	• YY=08 (1) 00-63 : Trunk Route No. (2) 3◀ : Dial pulses are sent out
Assign the incoming connection signaling to the trunk route.	• YY=09 (1) 00-63 : Trunk Route No. (2) 15◀ : Ring Down (Loop Start C.O.)
Assign the sending of Hook Flash to outside to the trunk route.	• YY=16 (1) 00-63 : Trunk Route No. (2) 1◀ : Sending
Assign the Sender start condition to the trunk route.	• YY=20 (1) 00-63 : Trunk Route No. (2) 15◀ : Timing Start

B

B

CM35

DESCRIPTION	DATA
Specify the Sender prepause timing to the trunk route. **NOTE:** To reduce the connecting time, it is preferable to shorten the prepause timing (i.e., second data=03 (1.5 sec.))	• YY=21 (1) 00-63: Trunk Route No. (2) 00: 0 sec. 08 : 6.0 sec. 01: 0.5 sec. 09 : 7.0 sec. 02: 1.0 sec. 10 : 8.0 sec. 03: 1.5 sec. 11 : 9.0 sec. 04: 2.0 sec. 12 : 10.0 sec. 05: 2.5 sec. 13 : 11.0 sec. 06: 4.0 sec. 14 : 12.0 sec. 07: 5.0 sec. 15◀: 3.0 sec.
Specify the DP Inter-Digital Pause to the trunk route.	• YY=23 (1) 00-63: Trunk Route No. (2) 0: 200 ms. 4 : 600 ms. 1: 300 ms. 5 : 800 ms. 2: 400 ms. 6 : 1000 ms. 3: 500 ms. 7◀: 700 ms.
Specify the DTMF Inter-Digital Pause to the trunk route. **NOTE:** To reduce the connecting time, it is recommended to shorten the DTMF inter-digital Pause timing (YY=24), i.e., second data= 2 (80 ms). YY=26, i.e., second data=0 (64 ms).	• YY=24 (1) 00-63 : Trunk Route No. (2) 0: 40 ms. 4 : 160 ms. 1: 60 ms. 5 : 200 ms. 2: 80 ms. 6 : 240 ms. 3: 100 ms. 7◀: 120 ms.

C

C

CM35

DESCRIPTION	DATA
Specify the DP Make Ratio.	• YY=25 (1) 00-63 : Trunk Route No. (2) 0 : 39 % Make Ratio 1◀ : 33 % Make Ratio
Assign the DTMF signal width to the trunk route. **NOTE:** To reduce the connecting time, it is recommended to shorten the DTMF inter-digital Pause timing (YY=24), i.e., second data=2 (80 ms). YY=26, i.e., second data=0 (64 ms).	• YY=26 (1) 00-63 : Trunk Route No. (2) 0 : 64 ms. 1◀ : 128 ms.
Assign the trunk release by detection of reversal of tip and ring to the trunk route.	• YY=39 (1) 00-63 : Trunk Route No. (2) 0 : Not to be released 1◀ : To be released

CAUTION: Check the timing on main PBX before making any change on timing function.

Specify the DP Sender release timing to the trunk route.	• YY=45 (1) 00-63 : Trunk Route No. (2) 0 : 2 sec. 1 : 4 sec. 2 : 6 sec. 3 : 8 sec. 4 : 12 sec. 5 : 14 sec. 6 : 16 sec. 7◀ : 10 sec.

D

	DESCRIPTION	DATA
D		
CM35	Specify the DTMF Sender release timing to the trunk route.	• YY=46 (1) 00-63 : Trunk Route No. (2) 0 : 2 sec. 1 : 4 sec. 2 : 6 sec. 3 : 8 sec. 4 : 12 sec. 5 : 14 sec. 6 : 16 sec. 7◀ : 10 sec.
	Specify the designated seizure of trunks on each station basis.	• YY=98 (1) 00-63 : Trunk Route No. (2) 0 : Allowed
	Specify the COT card Terminating Impedance.	• YYY=100 (1) 00-63 : Trunk Route No. (2) 0 : 600 ohm/complex BNW for Integrated Type and Adjunct Type (CCIS Interface) 2◀ : 600 ohm/600 ohm for Adjunct Type (Analog Interface)
CM12	Assign the trunk to be seized on each PS station basis.	• YY=16 (1) X-XXXXXXXX : PS Station No. (2) D000-D255 : Trunk No.
END		

WCS FEATURE PROGRAMMING

Announcement-PS No Answer/Announcement-PS Out of Cell

See the WCS Features and Specifications.

START	DESCRIPTION	DATA
CM10	Assign a Digital Announcement Trunk (DAT) circuit number to the required LEN. **NOTE 1:** The DAT circuit No. must be assigned to the first LEN (Level 0), the third LEN (Level 2), the fifth LEN (Level 4), and the seventh LEN (Level 6) of each LT slot. **NOTE 2:** EB000 and EB001 are dedicated to built-in Digital Announcement Trunk of MP card.	(1) 000-763: LEN 0-7 (PIM0-7) + 00-63 (Port No.) (2) EB002-EB127: Digital Announcement Trunk circuit No. For PIM 0/1 : EB002-EB031 For PIM 2/3 : EB032-EB063 For PIM 4/5 : EB064-EB095 For PIM 6/7 : EB096-EB127
CM12	Assign a tenant No. to a PS station.	• YY=04 (1) X-XXXXXXXX: PS Station No. (2) 00 : Tenant 00 1◀: Tenant 01 ≀ 63 : Tenant 63
CM08	Provide PS No-Answer feature.	(1) 504 (2) 0 : Available 1◀: Not Available
	Specify types of No-Answer Timer.	(1) 085 (2) 0: No-Answer timer (CM41 Y=0>86) 1: No-Answer timer (CM41 Y=0>01)
CM41	Specify the message reply timer for Announcement -PS No Answer.	• Y=0 (1) 01 (2) 01-30: 4-120 sec. in 4 sec. increments If no data is set, the default setting is 32-36 seconds.
	Specify the duration of message for Announcement -PS No Answer.	• Y=0 (1) 75 (2) 01-99: 4-396 sec. in 4 sec. increments If no data is set, the default setting is 116-120 seconds.
A		

A

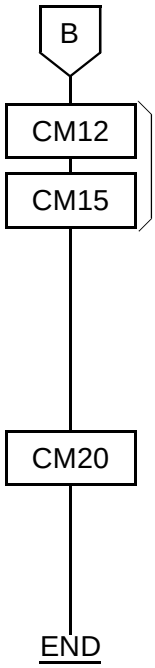
	DESCRIPTION	DATA
CM41	Specify the duration of message for Announcement-PS Out of Cell/PS Power Off.	• Y=0 (1) 84 (2) 01-99: 4-396 sec. in 4 sec. increments If no data is set, the default setting is 116-120 seconds.
	Specify the message reply timer for Announcement-PS No Answer. **NOTE:** CM41 Y=0>01 is effective only when CM08>085 is set to 0.	• Y=0 (1) 86 (2) 01-99: 4-396 sec. in 4 sec. increments If no data is set, the default setting is 36-40 seconds.
	Specify the message reply timer for Announcement-PS Out of Cell/PS Power Off.	• Y=0 (1) 85 (2) 01-99: 4-396 sec. in 4 sec. increments If no data is set, the default setting is 8-12 seconds.
CM48	Provide the Announcement Service.	• Y=5 (1) 00: PS No-Answer 02: PS Out of Cell/PS Power Off (2) 0500 : Provided NONE◀ : Not provided
CM49	Assign the function for each Digital Announcement Trunk.	• YY=00 (1) 002-127 : Digital Announcement Trunk Circuit No. (EB002-EB127) (2) 1300-1363 : PS No Answer Message Group No. 00-63 1500-1563 : PS Out of Cell/PS Power Off Message Group No. 00-63 NONE◀ : None
	Assign the message group for PS No Answer to each tenant.	• YY=10 (1) 00-63 : Tenant No. (2) 00-63 : Message Group No. NONE◀ : None
	Assign the message group for PS Out of Cell/PS Power Off to each tenant.	• YY=12 (1) 00-63 : Tenant No. (2) 00-63 : Message Group No. NONE◀ : None

B

To record/replay/delete a message:

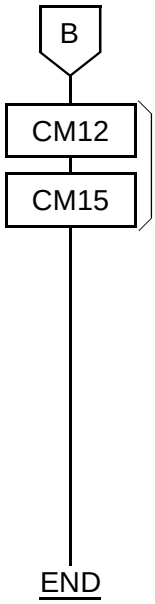
There are two methods to record/replay/delete a message from a PS or a station.

(1) To record/replay/delete a message from a station or a PS by dialling an access code assigned by CM20, do the following programming.
This method is available only for the IntegratedType.



DESCRIPTION	DATA
Assign the Class of Service for the Announcement Service to a certain PS/ station.	• CM12 YY=02 (Service Restriction Class A) • CM15 YY=33 (Digital Announcement Trunk Access: Record/Replay/Delete) (1) 00-15 : Service Restriction Class A (2) 0 : Restricted 1◀ : Allowed
Assign the access codes to record/replay/ delete the message.	• Y=0-3 (Numbering Plan Group 0-3) (1) X-XXXX: Access Code (2) A100 : Record A101 : Replay A102 : Delete

(2) To record/replay/delete a message from a PS by dialling “1”, “2”, “3”, do the following programming.
This method is available for both the Integrated Type and the AdjunctType.



DESCRIPTION	DATA
Assign the Class of Service for the Announcement Service to a certain PS station. **NOTE:** By this method, while a PS is specified to “Allowed” to record/replay/delete a message by CM15 YYY=110, the PS cannot originate a call. Specify to “Restricted” by CM15 YYY=110 again after a message is completed to record/replay/delete.	• CM12 YY=02 (Service Restriction Class A) • CM15 YYY=110 (Digital Announcement Trunk Access: Record/Replay/Delete) (1) 00-15 : Service Restriction Class A (2) 0 : Restricted 1◀ : Allowed

For operating procedure, see the following pages.

Operating Procedure for Announcement Service

(1) By dialling predetermined access cord from a station or a PS (For Integrated Type)

To replay an announcement:

1. Dial the access code to replay the announcement assigned by CM20.
2. Dial the Digital Announcement Trunk Circuit Number (000-127).
3. Press the SEND key.
4. Receive a message.
5. Press the END key.

To record an announcement:

1. Dial the access code to record the announcement assigned by CM20.
2. Dial the Digital Announcement Trunk Circuit Number (000-127).
3. Press the SEND key.
4. Receive a service set tone.
5. Record a message.
6. Press the END key.

To delete an announcement:

1. Dial the access code to delete the announcement assigned by CM20.
2. Dial the Digital Announcement Trunk Circuit Number (000-127).
3. Press the SEND key.
4. Receive a service set tone.
5. Press the END key.

(2) By dialling “1”, “2”, “3”, from a PS (For Integrated Type and AdjunctType)

To replay an announcement:

1. Dial “2”.
2. Dial the Digital Announcement Trunk Circuit Number (000-127).
3. Press the SEND key.
4. Receive a message.
5. Press the END key.

To record an announcement:

1. Dial “1”.
2. Dial the Digital Announcement Trunk Circuit Number (000-127).
3. Press the SEND key.
4. Receive a service set tone.
5. Record a message.
6. Press the END key.

To delete an announcement:

1. Dial “3”.
2. Dial the Digital Announcement Trunk Circuit Number (000-127).
3. Press the SEND key.
4. Receive a service set tone.
5. Press the END key.

Call Forwarding-Not Available

Refer to the WCS Features and Specifications.

START	DESCRIPTION	DATA
CM51	Assign the destination VMS station for Call Forwarding-Not Available.	• YY=20 (1) 00-63: Tenant No. of Virtual PS (2) X-XXXXXXXX: VMS Station No.
CM20	Assign the access code to set/cancel Call Forwarding when the incoming call is not available, and set the access code to replay the message.	• Y=0-3 (Numbering Plan Group 0-3) (1) X-XXXX: Access Code (2) A089: Call Forwarding-Not Available Set A090: Call Forwarding-Not Available Cancel A091: Call Forwarding-Not Available Replay
CM48	Specify whether confirmation of message existence by Special Dial Tone is available or not. If the second data is set to 0, the Special Dial Tone is sent when a message exists. (INITIAL)	• Y=2 (1) 12 (Confirmation by DialTone) (2) 0 : Available 1◀: Not available
CM12 CM15	Set the Class of Service for Call Forwarding-Not Available to each PS station.	• CM12 YY=02 (Service Restriction Class A) • CM15 YYY=115 (Call Forwarding-Not Available) (1) 00-15 : Service Restriction Class A for the Virtual PS Station (2) 0 : Restricted 1◀ : Allowed
END		

Calling Name Display-PS

Refer to the WCS Features and Specifications.

START	DESCRIPTION	DATA
CM1D	Specify the terminal kind of the PS as "D^{term} PS II".	• YY=15 (1) X-XXXXXXXX: PS station No. (Assigned by CM1C) (2) 00 : D^{term} PS II
CMAD	Specify the kind of the ZT as "D^{term} PS II type ZT".	• YY=19 (1) 000-127 : ZT No. (2) 00 : D^{term} PS II type ZT
CM12	Assign a Service Restriction Class to each station.	• YY=02 (1) X-XXXXXXXX: PS station No. (Assigned by CM1C) (2) XX ZZ XX: Service Restriction Class A (00-15◀)
CM15	Provide Calling Name Display to PS **NOTE:** The previous PS D^{term} does not provide the Calling Name Display feature; therefore, CM15 YYY=123 should be set to "1" Not Available. Set data to "0" Available if providing service for the D^{term} PS II.	• YYY=123 (1) 00-15 : Service Restriction Class A assigned by CM12 YY=02 (2) 0 : Available 1◀ : Not Available
END		

Refer to the following manuals for the name display feature programming.

Feature Programming Manual : Alphanumeric Display, Caller ID Class, Guest Name Display
CCIS System Manual : Calling Name Display-CCIS

Group Call-Automatic Conference (6/10-Party)

Refer to the WCS Features and Specifications.

START	DESCRIPTION	DATA
CM10	Assign a Conference Trunk card number to the required LEN. (INITIAL)	(1) 000-763 : LEN 0-7 (PIM0-7) + 00-63 (Port No.) (2) ED00-ED03: Conference Trunk Card No.
CM56	Assign the stations which belongs to each paging group, and their number within the group. A maximum of 9 stations can be paged simultaneously except the conference leader. **NOTE 1:** Single line telephones, D^{term}s and PSs can be assigned as the station within the group. A virtual-line cannot be assigned. **NOTE 2:** A station can belong to plural group.	• YY=00-07: Simultaneous Paging Group 0-7 (1) 00-15 : Serial No. within the Group (2) X-XXXXXXXX: Station No.
CM12	Assign a Service Restriction Class to each station.	• YY=02 (1) X-XXXXXXXX: Station No. (2) XX YY XX : Service Restriction Class A (00-15◀)
CM15	Allow the Service Restriction Class A to page the conference.	• YYY=119 (1) 00-15: Service Restriction Class A assigned by CM12 YY=02 (2) 0: Allowed
A		

	DESCRIPTION	DATA
A		
CM20	Assign the access code of paging groups for Group Call-Automatic Conference (6/10-Party). **NOTE:** Even if an extension does not belong to the conference group, the extension can page the conference group, and can re-participate in the conference if there is an idle circuit on the Conference Trunk.	• Y=0-3 (Tenant Group No.) (1) X-XXXX: Access Code (2) A200 : Simultaneous Paging Group 0 for 6/10 Party 〃 〃 A207 : Simultaneous Paging Group 7 for 6/10 Party A210 : Re-participation Group 0 for 6/10 Party 〃 〃 A217 : Re-participation Group 7 for 6/10 Party
CM90	Assign a Group Call-Automatic Conference (6/10-Party) key of each paging group to the D^{term}, if required. **NOTE:** Even if an extension does not belong to the conference group, the extension can page the conference group, and can re-participate in the conference if there is an idle circuit on the Conference Trunk.	• YY=00 (1) X-XXXXXXXX: My Line No. + , + Key No. (2) F0B00: Simultaneous Paging Group 0 for 6/10 Party 〃 〃 F0B07: Simultaneous Paging Group 7 for 6/10 Party F0B10: Re-participation Group 0 for 6/10 Party 〃 〃 F0B17: Re-participation Group 7 for 6/10 Party
CM41	Specify the duration of simultaneous paging.	• Y=0 (1) 95 (2) 01-99: 4-396 sec. in 4 sec. increments If no data is set, the default setting is 32-36 seconds.
END		

Group Call-2 Way Calling

Refer to the WCS Features and Specifications.

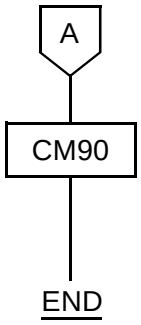
START	DESCRIPTION	DATA
CM56	Assign the stations which belongs to each paging group, and their number within the group. A maximum of nine stations can be paged simultaneously except the conference leader. **NOTE 1:** Single line telephones, D^{term}s and PSs can be assigned as the station within the group. A virtual-line cannot be assigned. **NOTE 2:** A station can belong to plural group.	• YY=00-07: Simultaneous Paging Group 0-7 (1) 00-15: Serial No. within the Group (2) X-XXXXXXXX:Station No.
CM12	Assign a Service Restriction Class to each station.	• YY=02 (1) X-XXXXXXXX: Station No. (2) XX YY XX: Service Restriction Class A (00-15◀)
CM15	Allow the Service Restriction Class A to page the conference.	• YYY=119 (1) 00-15: Service Restriction Class A assigned by CM12 YY=02 (2) 0 : Allowed
CM20	Assign the access code of paging groups for Group Call-2 Way Calling. **NOTE:** Even if an extension does not belong to the conference group, the extension can page the conference group.	• Y=0-3 (Tenant Group No.) (1) X-XXXX: Access Code (2) A220 : Simultaneous Paging Group 0 for Group Call-2 Way Calling 〜 〜 A227 : Simultaneous Paging Group 7 for Group Call-2 Way Calling
CM90	Assign a Group Call-2 Way Calling key of each paging group to the D^{term}, if required. **NOTE:** Even if an extension does not belong to the conference group, the extension can page the conference group.	• YY=00 (1) X-XXXXXXXX: My Line No. + [,] + Key No. (2) F0B20: Simultaneous Paging Group 0 for Group Call-2 Way Calling 〜 〜 F0B27: Simultaneous Paging Group 7 for Group Call-2 Way Calling
END		

Multi-Line Operation-PS

Refer to the WCS Features and Specifications.

START	DESCRIPTION	DATA
CM1C	Assign a PS station number to the virtual PS number.	• 000-255: Virtual PS LEN (1) X-XXXXXXXX: Primary PS station No. (2) X-XXXXXXXX: Sub-line PS station No.
CM1D	Assign the sub-line PS number to each primary PS station, both are assigned by CM1C.	• YY=01 (1) X-XXXXXXXX: Primary PS station No. (2) X-XXXXXXXX: Sub-line PS station No.
	Assign PS-ID of the sub-line PS as “NONE”.	• YY=21 (1) X-XXXXXXXX: Sub-line PS station No. assinged by CM1C (2) NONE
	Specify the terminal kind of the PS as “D^{term} PS II”. This data must be set to both the primary PS station number and the sub-line PS station number assigned by CM1C.	• YY=15 (1) X-XXXXXXXX: Primary PS station No. Sub-line PS station No. (2) 00 : D^{term} PS II
CM12	Provide the multi-line function to the virtual PS No. for the sub-line PS.	• YY=05 (1) X-XXXXXXXX: Virtual PS No. (2) 0 : Provided (Sub-line station)
CM10 CM5A CM30 CM35	Assign the virtual line/trunk data for the sub line PS as same as the primary PS. See "Virtual Line/Trunk Data Programming (For Integrated/Adjunct CCIS)" on Page 56 and "Trunk Data Programming (For Adjunct Analog)" on Page 59	
A		

To assign the PS station to the line key on the D^term, assign the following data.



DESCRIPTION	DATA
Assign a virtual PS station number to the key number of the D^term. A virtual PS number of PS sub-line can be assigned to the key on the D^term.	• YY=00 (1) Primary Extension No. + [,] + Key No. (2) X-XXXXXXXX: Virtual PS Station No.

Number Sharing

Refer to the WCS Features and Specifications.

START

	DESCRIPTION	DATA
CM12	Specify the combination of the main station and the sub station, also the contrary combination, as follows. 1st data : Main station (D^{term} My Line) 2nd data: Sub station (PS) 1st data : Sub station (PS) 2nd data: Main station (D^{term} My Line) **NOTE:** As the main station number, D^{term} My Line number must be assigned. As the sub station number, following number must be assigned. Integrated type/Adjunct type (CCIS): Virtual PS number assigned by CM10. Adjunct type (Analog): PS station number assigned by CM30 YY=04.	• YY=19 (Assignment of main station and sub station) (1) X-XXXXXXXX: Main station (D^{term} My Line) No./Sub station (PS) No. (2) X-XXXXXXXX: Sub station (PS) No./ Main station (D^{term} My Line) No.
	Assign the Class of Service to required stations. **NOTE:** For the Trunk Restriction Class (CM12 YY=01) and the Tenant Number (CM12 YY=04), the same data must be assigned to the sub station and the main station.	• YY=02 (1) X-XXXXXXXX (Station No.) (2) XX YY XX: Service Restriction Class A (00-15)
CM15	To the sub station (PS), specify the number which is informed to calling/called party, SMDR and MCI as the main station number.	• YYY=127 (1) 00-15: Service Restriction Class A of main station (2) 1◀ : Own station number is informed (1) 00-15: Service Restriction Class A of sub station (2) 0 : Main station number is informed

A

	DESCRIPTION	DATA
A		
CM15	Provide the capability of setting/cancelling the Number Sharing from the sub station.	• YYY=128 (1) 00-15: Service Restriction Class A of main station (2) 1◀ : Not provide (1) 00-15: Service Restriction Class A of sub station (2) 0 : To provide
	Specify whether the sub station is controlled as same as the main station, by a Message Waiting lamp control signal sent from the MCI. **NOTE:** This assignment is effective only when the system is an Integrated type. Do not assign CM15 YYY=129 for a sub station.	• YYY=129 (1) 00-15 : Service Restriction Class A of main station (2) 0 : Main station and sub station are controlled. 1◀ : Only main station is controlled.
CM90	Provide the Number Sharing set/cancel keys to the main station (D^{term}).	• YY=00 (1) My Line No. + [,] + Key No. (2) F0A94: Number Sharing Set/Cancel
CM20	Assign the Access Code for setting or canceling Number Sharing from the sub station (PS).	• Y=0-3 (Tenant Group Number) (1) X-XXXX: Access Code (2) A192 : Set Number Sharing from the sub station A193 : Cancel Number Sharing from the sub station
END		

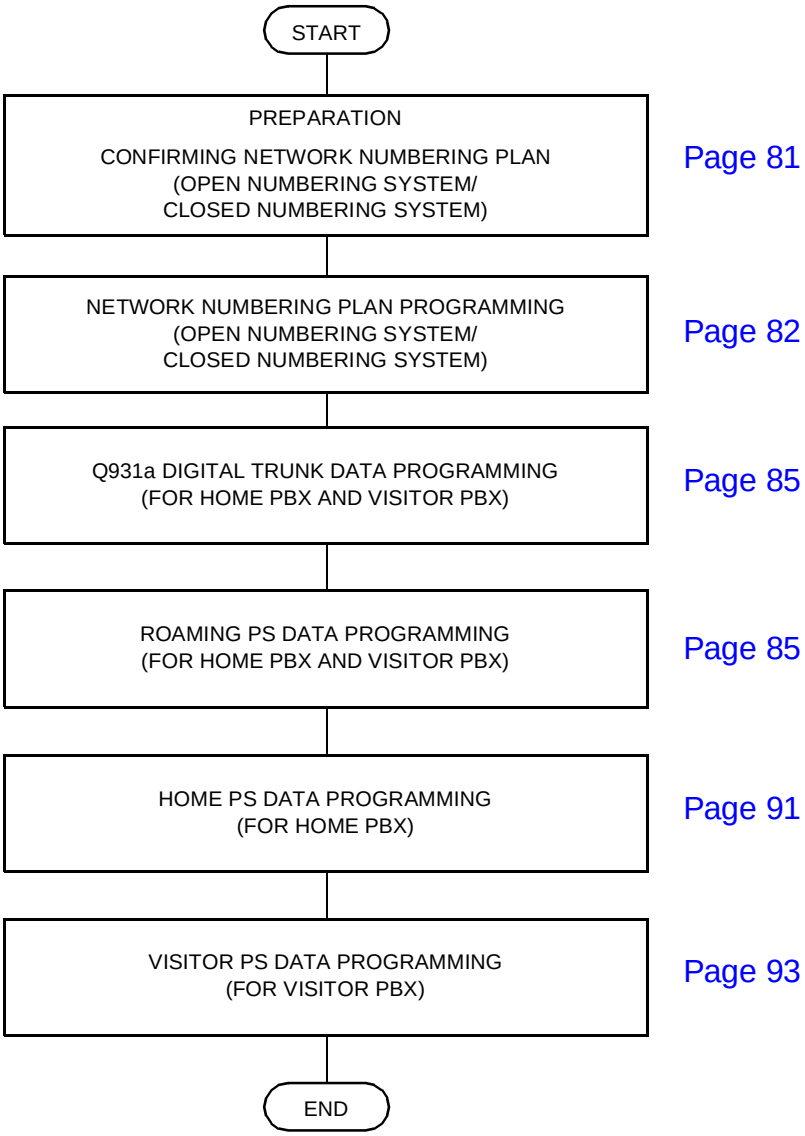
Voice Mail Indication

Refer to the WCS Features and Specifications.

START	DESCRIPTION	DATA
CM13	Provide PS stations with Message Waiting service. The first data should be the virtual PS number.	• YY=03 (1) X-XXXXXXXX: Virtual PS No. (2) 0 : Provided (For the station with MW lamp)
END		

MULTI-SITE ROAMING PROGRAMMING

According to the following procedure, assign the system data for Roaming service.



Confirming Network Numbering Plan

Confirm whether the network adopts Open Numbering System or Closed Numbering System for the network numbering plan.

NOTE: The System data stored in the memory of the DBM (PN-AP00-A) card can be saved, loaded, and verified from the MAT.
To save; Memory Area No. : A, Memory Address: 00900-10870
To load or verify; File Extension : DMA

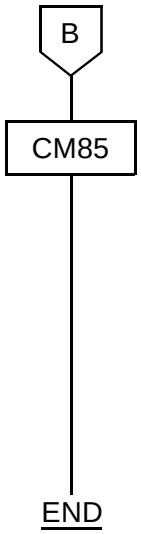
Network Numbering Plan Programming

START	DESCRIPTION	DATA
CM20	Assign an access code for LCR Group 0-3. For Closed Numbering System, assign the second data to A129 (LCR Group 3).	• Y=0-3 (Numbering Group 0-3) (1) X-XXXX: Access Code (2) A126: LCR Group 0 A127: LCR Group 1 A128: LCR Group 2 A129: LCR Group 3
	Specify the number of digits and the first digit for station number.	• Y=0-3 (Numbering Group 0-3) (1) X: First Digit of Station No. (2) 801: 1 digit 802: 2 digits 803: 3 digits 804: 4 digits 805: 5 digits
CM8A	Assign an Area Code Development Pattern number. to each LCR Group. For Closed Numbering System, assign the first data to 3.	• YYYY=A000 (1) 0-3: LCR Group 0-3 (2) 4000-4007: Area Code Development Pattern No. 0-7
	Assign a Route Pattern number. to each area code for the Area Code Development Pattern number. assigned by CM8A YYYY=A000.	• YYYY=4000-4007 (Area Code Development Pattern No. 0-7) (1) XX...XX (Area Code, Max. 8 digits) (2) 0000-0255: Route Pattern No.
	Assign an area code including LCR access code assigned by CM20>A129.	• YYYY=4000-4007 (Area Code Development Pattern No. 0-7) (1) X-XXXXXXXX (Area Code, 8 digits) (2) 8000 (Intra-Office Termination) 8001 (1-digit intra-office station) 8002 (2-digit intra-office station) 8003 (3-digit intra-office station) 8004 (4-digit intra-office station) 8005 (5-digit intra-office station) 8006 (6-digit intra-office station) 8007 (7-digit intra-office station) 8008 (8-digit intra-office station)
A		

A

	DESCRIPTION	DATA
CM8A	Specify the order of LCR selection for the Route Pattern No. assigned by YYYY=4000-4007.	• YYYY=0000-0255 (Route Pattern No. 000-255) (1) 1-4: Order of LCR Selection (2) 1: 1st 2: 2nd 3: 3rd 4: 4th XXX ZZ XXX: 000-255 (LCR Pattern No. 000-255) ZZ: 00-63 (Trunk Route No. 00-63)
	To delete the designated digit of an area code:	• YYYY=5000-5255 (1) 153 (Designation of digit to be deleted) (2) 00: No digits deleted 01: First digit deleted | | 10: First 10 digits deleted CCC: No digits deleted
	Assign the digits to be added to the digits sent to the distant office. For Closed Numbering System, this assignment is not required.	• YYYY=5000-5255 (1) 100 (Designation of digit Addition Pattern No.) (2) 9000-9255 (Digit Addition Pattern No. 000-255) CCC: No digits added • YYYY=9000-9255 (Digit Addition Pattern No. 000-255) (1) 0 (2) X-X...X [Digits to be added (Max. 32 digits)] X=0-9, A (*), B (#), C (Fixed Pause) D (Programmable Pause)

B



DESCRIPTION	DATA
Specify the maximum number of digits to be dialed by the calling party. The maximum number of digits including the area codes should be assigned to each area code.	• Y=0-7 (Area Code Development Pattern No. 0-7 assigned by CM8A, Y=A00) (1) X-X...X (Area Code dialed, Max. 8 digits) (2) 01 : 1 digit 24◀: 24 digits 79 : 79 digits

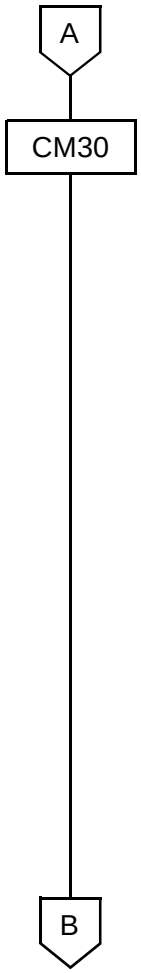
Q931a Digital Trunk Data Programming

- DTI Assignment

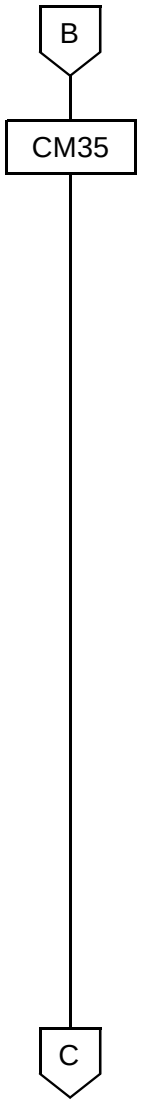
START

	DESCRIPTION	DATA
CM05	Assign an AP number to the DTI card. The AP number must match the SENS switch setting on the DTI card. INITIAL	• Y=0 (1) 04-15, 20-31: AP No. (2) 09: DTI card
CM07	Assign the trunk number to each channel number on the DTI card. INITIAL **NOTE:** The system allocates time slots to consecutive channels from lowest to highest channel number assigned. To minimize the number of time slots allocated, assign trunk numbers to the consecutive channels on each card. Never skip channels in CM07.	• YY=01 (1) XX ZZ XX : AP No. (04-15, 20-31) assigned by CM05 ZZ : Channel No. of DTI For 24DTI 00-22 : B channel 23 : D channel For 30DTI 01-15, 17-31 : B channel 16 : D channel (2) D000-D255: Trunk No. Analog Trunk number already assigned by CM10 cannot be used.

A



DESCRIPTION	DATA
Assign a Trunk Route to each trunk number used for voice channel (B channel), and also to signaling channel (D channel). Make a separate route for B channels and D channels. **NOTE:** DTI route must be separated from analog trunk routes	• YY=00 (1) 000-255: B Channel, D channel Trunk No. assigned by CM07 YY=01 (2) 00-63: Trunk Route No.
Assign the terminating system to each incoming trunk used for voice channel, as “dial-in”.	• YY=02 (Day Mode) • YY=03 (Night Mode) • YY=40 (Mode A) • YY=41 (Mode B) (1) 000-255: B Channel Trunk No. assigned by CM07 YY=01 (2) 21: Dial-in
Assign the CIC (Circuit Identification Code) to each voice channel trunk.	• YY=07 (1) 000-255: B Channel Trunk No. assigned by CM07 YY=01 (2) 000-022: CIC 000-CIC 022



DESCRIPTION	DATA
Assign trunk route data to each channel trunk route number assigned by CM30 YY=00.	• YY=00 (Kind ofTrunk Route) (1) 00-63: B Channel, D Channel Route No. 04: Tie Line (2) • YY=01 (Dialing Signal Type) (1) 00-63: B Channel Route No. (2) 7◀: Call Termination; DP/DTMF Call Origination; DTMF • YY=04 (Answer Signal from Distant Office) (1) 00-63: B Channel Route No. (2) 2 : Answer signal arrives. 7◀: Answer signal does not arrive. • YY=05 (Release Signal from Distant Office) (1) 00-63: B Channel Route No. (2) 0 : Release signal does not arrive. 1◀ : Release signal arrives. • YY=09 (Incoming Connection Signaling) (1) 00-63: B Channel Route No. (2) 08: Q931a

C

DESCRIPTION | **DATA**

CM35

CONNECTION PATTERNS	PAD DATA OF DTI [dB]			
	DATA =4 (T/R)	DATA =5 (T/R)	DATA =6 (T/R)	DATA =7 (T/R)
Station-DTI	–3/–8	–3/–3	–3/–3	–3/–8
Tone-DTI	0/0	0/0	0/0	0/0
COT/LDT-DTI	0/0	0/0	0/0	0/0
ODT -DTI	+3/–3	0/0	0/0	+3/–3
DTI-DTI	0/–6	0/0	0/–6	0/0

T/R: Transmitter PAD/Receiver PAD
+: Gain
–: Loss

- YY=19

(1) 00-63: B Channel Route No.

(2) 0 : 1 : 2 : 3 : Programmable PAD (See CM42)
4 : 5 : 6 : 7◀: Fixed PAD (See left table)

CM42

When using the programmablePAD (CM35 YY=19, 2nd Data=0-3), assign the PAD data.

(1) 50-65
(2) 00-15
See the following tables.

PATTERN / 1ST DATA	PAD DATA PATTERNS				CONNECTING PATTERNS
	CM35 YY=19 2ND DATA=0	CM35 YY=19 2ND DATA=1	CM35 YY=19 2ND DATA=2	CM35 YY=19 2ND DATA=3	
50	50	54	58	62	STA/TONE-DTI
≀	51	55	59	63	COT/LDT-DTI
65	52	56	60	64	ODT-DTI
	53	57	61	65	DTI-DTI

2ND DATA / PATTERN		PAD DATA OF DTI (T/R) [dB]	REMARKS
00	00	0/0	
	01	–2/–2	
	02	–3/–3	
	03	0/–6	
≀	04	–3/–8	
	05	+3/–3	
15	06	–6/–6	
	07	–8/–8	
	08 ≀ 15	Not Used	

T/R: Transmitter PAD/Receiver PAD
+: Gain
–: Loss

D

- DCH Assignment

D

	DESCRIPTION	DATA
CM05	Assign an AP number to the DCH card (PN-SC01). The AP number must match the SENS switch setting on the DCH card. (INITIAL)	• Y=0 (1) 04-15, 20-31: AP No. (2) 35: DCH for Roaming
CM06	Assign the DCH number to the AP number of DCH assigned by CM05. (INITIAL)	• YY=08 (1) 0-7: DCH No. (2) 04-15, 20-31: AP No. assigned by CM05
CM35	Execute CM35 YY=90 for the B channel route and D channel route.	• YY=90 (Special Facilities) (1) 00-63: B Channel, D Channel Route No. (2) 6: PBX-PBX Interface for Roaming (Q931a digital)
	Assign the DCH number to the voice channel trunk route assigned by CM30 YY=00.	• YY=93 (Assignment of D Channel Handler) (1) 00-63: B Channel Route No. (2) 00-07: DCH No. (0-7) 15◀: Not used

E

E

	DESCRIPTION	DATA
CM35	Specify the LAPD Mode of the D channel route as “Network Mode” or “User Mode”. This data must be set differently between the opposite DTIs. When the opposite office is a master office, set this data to 1 (User Mode), and when the opposite office is a slave office, set this data to 0 (Network Mode). (DBM INITIAL)	• YYY=113 (LAPD Mode) (1) 00-63: D Channel Route No. (2) 0 : Network Mode 1◀: User Mode
	Assign the roaming service to each B channel and D channel route.	• YYY=140 (Roaming Service) (1) 00-63: B Channel, D Channel Route No. (2) 0: Available
	Provide pursuit function after the roaming PS to each B channel route.	• YYY=141 (Roaming PS Pursuit) (1) 00-63: B Channel Route No. (2) 0: Provided
	Specify the protocol type between the PBXs as “Q931a-Digital”. (DBM INITIAL)	• YYY=142 (Protocol between PBXs) (1) 00-63: B Channel, D Channel Route No. (2) 1: Q931a-Digital
CMA9	Assign the trunk number assigned by CM07 YY=01 to each DCH number for providing D channel path between DTI and DCH. (INITIAL)	• YY=00 (1) 0-7: DCH No. (2) 000-255: Trunk No.
	NOTE: Confirm that the SC01 Run LED is flashing.	
	When the Network Numbering Plan is the Open Numbering System, assign the Home PBX ID for the indication on the PS/ D^{term}.	• YY=01 (1) 0-7: DCH No. (2) X-XXXX: Home PBX ID (1-4 digits, Decimal)

END

Home PS Data Programming

START

DESCRIPTION

DATA

CM05

Assign an AP number to the DBM (Data Base Module) card (PN-AP00-A).
The AP number must match the SENSE switch setting of the card.

INITIAL

- Y=0

(1) 04-15: AP No.
(2) 34: DBM (AP00-A) for Roaming

CM12

Assign the Trunk Restriction Class for Home PS. This data is sent to the visitor PBX when the PS is roaming.

NOTE 1: When the location registration of a Visitor PS is executed, the Trunk Restriction Class assigned on the Home PBX is notified to the Visitor PBX being substituted as follows.

CM12 YY=01 Settings on the Home PBX	Notified Class
1: Unrestricted (RCA)	1
2: Non-Restricted 1 (RCB)	2
3: Non-Restricted 2 (RCC)	3
4: Semi-Restricted 1 (RCD)	4
5: Semi-Restricted 2 (RCE)	4
6: Restricted 1 (RCF)	5
7: Restricted 2 (RCG)	5
8: Fully-Restricted (RCH)	6

- YY=01 (Trunk Restriction Class)

(1) X-XXXXXXXX: Virtual LC station No.
(2) X Y
X: Trunk Restriction Class in Day Mode (1◀-8)
Y: Trunk Restriction Class in Night Mode (1◀-8)
1◀: Unrestricted (RCA)
2 : Non-Restricted 1 (RCB)
3 : Non-Restricted 2 (RCC)
4 : Semi-Restricted 1 (RCD)
5 : Semi-Restricted 2 (RCE)
6 : Restricted 1 (RCF)
7 : Restricted 2 (RCG)
8 : Fully-Restricted (RCH)

Assign the Service Restriction Class for Home PS.

NOTE 2: Different Service Restriction Class for Multi-Site Roaming must be assigned to the PSs according as whether the PS is used for Roaming.

- YY=02 (Service Restriction Class)

(1) X-XXXXXXXX: Virtual LC station No.
(2) XX YY
XX: Service Restriction Class A (00-15◀)
YY: Service Restriction Class B (00-15◀)

A

	DESCRIPTION	DATA
A		
CM12	Assign the Tenant number to the Home PS. This data is sent to the visitor PBX when the PS is roaming. **NOTE 3:** It is recommended to assign the PS station (CM1C) and its related virtual LC station number to the same service restriction class when roaming is provided. See "PS Data Programming" on Page 53	• YY=04 (Service Restriction Class) (1) X-XXXXXXXX: Virtual LC station No. (2) 00-63: Tenant No. 01◀
CM15	Specify the Service Restriction Class for Roaming service download. **NOTE:** Assign the same Service Restriction Class data to the Virtual LC station number and the PS station number for Roaming service.	• YYY=117 (1) 00-15: Service Restriction Class A Assigned by CM12 YY=02 (2) 0 : Allowed 1◀: Restricted
CM08	Specify whether the Home PBX Numbering Plan is the Open Numbering System or Closed Numbering System. This assignment defines whether the Home PBX ID is added to the Roaming number, and to the Originating number sent to the Visitor PBX.	(1) 088 (Home PBX Numbering Plan) (2) 0 : Closed Numbering System 1◀: Open Numbering System
END		

Visitor PS Data Programming

START	DESCRIPTION	DATA
CMAF	Execute System Data Memory All Clear of the DBM (PN-AP00-A) card. The System Data Memory All Clear must be done at the initial setup. This data is valid when the DBM card is on-line.	• YYY=999 (1) 1 (All Clear) (2) CCC
	Execute Work Memory All Clear of the DBM card. The Work Memory All Clear must be done before the system starts operating. All HLR and VLR data are cleared by this command. This data is valid when the DBM card is on-line.	• YYY=998 (1) 1 (All Clear) (2) CCC
	Assign the Home PBX ID of Visitor PS and its data table number. This data is used to define the PBX for which the PS can perform Roaming. This data is valid when the DBM card is on-line.	• YYY=000 (1) X-XXXX: Home PBX ID (1-4 digits, Decimal) (2) 000-511: Data Table No. CCC : Data Clear NONE ◀
	Assign the Home PBX ID of Visitor PS and its data table number. This data is used to define the route used for registration of the PS location. This data is valid when the DBM card is on-line.	• YYY=001 (1) 000-511: Data Table No. assigned by CMAF Y=000 (2) 00-07 : Route Selection Pattern No. CCC : Data Clear NONE ◀
A		

	DESCRIPTION	DATA
A		
CMAF	Assign the Trunk Route to be used for requesting the data of the Visitor PS against its Home PBX. This data is valid when the DBM card is on-line.	• YYY=100-107 (Route Selection Pattern No. 00-07) (1) 1-4: First-Fourth Selected Route (2) 00-63 : Q931a D ChannelTrunk Route No. NONE◀: No Data CCC : No Data Clear
	Assign the default restriction class for Visitor PS. This data is valid when the DBM card is on-line. **NOTE:** The Roaming will not work properly if the second data is set to Default (NONE). It must be set to any value from 01 to 08.	• YYY=002 (1) 000-511: Data table No. Assigned by CMAF Y=000 (2) 01-08 : Default restriction class of Visitor PS. NONE◀: No Data (Default)
CM10	Assign the Virtual Line number for the Visitor PS to the required LEN. **NOTE 1:** The Virtual Line No. must be assigned from the last LEN 763. **NOTE 2:** The Virtual station No. for Visitor PS must be maximum 4 digits.	(1) 000-763: LEN 0-7 (PIM0-7) + 00-63 (Port No.) (2) X-XXXX: Virtual station No. NONE◀: No Data
CM20	Assign an access code for LCR Group 0-3 if necessary.	• Y=0-3 (Numbering Plan 0-3) (1) X-XXXX: Access Code (2) A126: LCR Group 0 A127: LCR Group 1 A128: LCR Group 2 A129: LCR Group 3
B		

B

CM5A

DESCRIPTION	DATA
Specify a path between the virtual line and virtual trunk.	• YY=00 (1) 256-511: Virtual Trunk No. **NOTE 1**, **NOTE 2** (2) X-XXXX: Virtual Station No.

The following data are set automatically by the virtual line-trunk path setting of CM5A YY=00. If you clear CM5A YY=00 setting data, the following data are also cleared automatically.

COMMAND CODE	MEANINGS	1ST DATA	2ND DATA	MEANING
CM12 YY=00	DTMF/DP	Virtual Station No. assigned by CM10	1	DP
CM13 YY=18	Reverse signal sending to station	Virtual Station No. assigned by CM10	0	Send
CM30 YY=00	Trunk route allocation	Virtual Trunk No. 256-511	63 **NOTE 3**	Trunk Route No. 63
CM30 YY=02	Terminating system in Day Mode	Virtual Trunk No. 256-511	04 **NOTE 4**	Direct-In Termination
CM30 YY=03	Terminating system in Night Mode	Virtual Trunk No. 256-511	04 **NOTE 4**	Direct-In Termination
CM30 YY=40	Terminating system in Mode A	Virtual Trunk No. 256-511	04 **NOTE 4**	Direct-In Termination
CM30 YY=41	Terminating system in Mode B	Virtual Trunk No. 256-511	04 **NOTE 4**	Direct-In Termination

C

C

CM5A

D

DESCRIPTION	DATA

NOTE 1: PS station No. is assigned by the first data of CM1C (Virtual PS LEN) as follows.

Virtual PS LEN=Virtual Trunk No. minus 256

For example, when the Virtual Trunk No. is 256 (CM5A YY=00 1st data: 256), then the Virtual PS LEN is 000 (CM1C 1st data: 000).

NOTE 2: When the Expansion Memory card (PZ-M537) is not mounted on the MP card, the first data is 256-383.

NOTE 3: The trunk route data must be assigned by CM35, because the trunk route data are not automatically assigned.
The trunk route of the Virtual Trunk is 63 by the default data setting. Be sure to assign the separate trunk route number of Virtual Trunk for Home PS and Visitor PS by CM30 YY=00.

NOTE 4: The second data of CM30 YY=02, 03, 40, 41 are set to “4” (Direct -In Termination) automatically by CM5A YY=00.
Be sure to change these data to “22” (Roaming Termination), for Roaming service.

	DESCRIPTION	DATA
D		
CM12	Assign the Service Restriction Class of the Virtual LC for the Visitor PS. Assign the different class to the Virtual LC for Visitor PSs from the station and Home PS of the PBX.	• YY=02 (1) X-XXXX: Virtual LC station No. (2) XX YY XX: Service Restriction Class A (00-15◀) YY: Service Restriction Class B (00-15◀)
	Assign the Service Restriction Class C of the Virtual LC for the Visitor PS.	• YY=07 (1) X-XXXX: Virtual LC station No. (2) 00-15◀: Service Restriction Class C
CM13	Allow the Virtual LC for the Visitor PS to use Roaming.	• YY=39 (1) X-XXXX: Virtual LC station No. (2) 0: Available
CM15	For the Virtual LC for the Visitor PS, restrict the station service data of CM15 YY=00-115.	• YY=00, 02, 03, 10, 11, 12, 13, 15, 16, 19, 22, 26, 27, 28, 29, 40, 41, 44, 47, 48, 49, 115. (1) 00-15 (Service Restriction Class A) (2) 0: Restricted
CM30	Assign a Trunk Route to each trunk number used for Virtual COT for the Visitor PS. Make a separate route from the Home PS.	• YY=00 (1) 000-255: Trunk No. (2) 00-63: Trunk Route No.
	Assign the terminating system to the Virtual COT as “Roaming Termination”.	• YY=02 (Day Mode) • YY=03 (Night Mode) • YY=40 (Mode A) • YY=41 (Mode B) (1) 000-255: Trunk No. (2) 22: Roaming Termination
E		

E

CM35

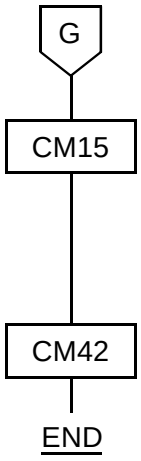
F

DESCRIPTION	DATA
Assign trunk route data to the Virtual COT route number for the visitor PS assigned by CM30 YY=00.	• YY=00 (Kind ofTrunk Route) (1) 00-63 : Route No. (2) 00: ISDN/C.O. Trunk • YY=01 (Dialing Signal Type) (1) 00-63 : Route No. (2) 4 : Call Termination; DTMF Call Origination; DTMF 7◀ : Call Termination; DP/DTMF Call Origination; DTMF • YY=04 (Answer Signal from Distant Office) (1) 00-63 : Route No. (2) 1 : Answer Signal arrives (C.O.) • YY=05 (Release Signal from Distant Office) (1) 00-63 : Route No. (2) 1◀ : Release signal arrives • YY=14 (SMDR for Outgoing Call) (1) 00-63 : Route No. (2) 0 : Not to be provided 1◀ : To be provided • YYY=139 (Roaming) (1) 00-63 : Route No. (2) 0 : Available

F

	DESCRIPTION	DATA
CMAF	Specify the Route Selection Pattern Number as "Pattern Number 0", for all classes of the Trunk Restriction Class (01-06) sent from the Home PBX. This data is valid when the DBM card is on-line.	• YYY=208 (1) 01-06 : Trunk Restriction Class sent from the Home PBX (2) 00 : Route Selection Pattern 0
	Specify the Virtual COT trunk route to be used for originating/terminating calls from/to the Visitor PS. This data is valid when the DBM card is on-line.	• YYY=200 (Route Selection Pattern 0) (1) 1: First Selected Route (2) 00-63 : Trunk Route NONE ◀: No Data
CM18	Assign the Station Hunting Group of the virtual LCs for the Visitor PSs. All the Virtual LC stations in one Hunting Group must be the Virtual LC Station corresponds to the Virtual COTs for which the same trunk route is assigned.	• Y=0 (1) X-XXXX: Virtual LC station No. (2) X-XXXX: Virtual LC station No.
	Specify the kind of station for a Virtual LC Station as a Pilot station, and for other Virtual LC stations as a Member station.	• Y=1 (1) X-XXXX: Virtual LC station No. (2) 0 : Member station 1◀ : Pilot station
CMAF	Assign the Roaming station number for the Visitor PS. For the Roaming station number, set the Virtual LC Pilot station number specified by CM18 Y=1. This data is valid when the DBM card is on-line.	• YYY=210 (1) 00 (Roaming Number Assignment) (2) X-XXXX: Roaming station number

G



DESCRIPTION	DATA
Provide the Visitor PS with the capability to enter an Account Code, if required.	• YY=30 (1) 00-15 (Service Restriction Class A assigned by CM12 YY=02) (2) 0 : Restricted 1◀: Allowed
Specify the maximum number of Account Code.	(1) 10 (Max. digits for Account Code) (2) 01-16◀: 01-16 digits

MAINTENANCE DATA PROGRAMMING

START

END

	DESCRIPTION	DATA
CMEA	Assign the registration of fault information into Memory and the control of the external alarm.	• Y=2 (1) 12 : ZT fault occurred 2B : ZT fault occurred 3B : ZT fault recovered (2) 0 : Registration of fault memory No output of External alarm 1 : Registration of fault memory External alarm is MN alarm 2 : Registration of fault memory External alarm is MJ alarm 3 : Registration of fault memory External Alarm kind is determined in standard data NONE◀: No Registration of Fault Memory/No output of External alarm

This page is for your notes.

CHAPTER 4

CIRCUIT CARD INFORMATION

This chapter explains the mounting location, the meaning of lamp indications and the method of switch settings of each circuit card for the WCS.

HOW TO READ THIS CHAPTER

This chapter explains the following items for each circuit card used in this system. Explanations are given in alphabetical order of the circuit card names within each circuit card category (Control, Application Processor, and Line/Trunk).

(1) Locations of Lamps, Switches, and Connectors

The locations of lamps, switches, and connectors of each circuit card are shown by a face layout.

(2) Lamp Indications

The name, color, and functions of each indicator lamp equipped on each circuit card are described in a table.

(3) Switch Settings

The name, settings, and functions of each switch equipped on each circuit card are described in a table.

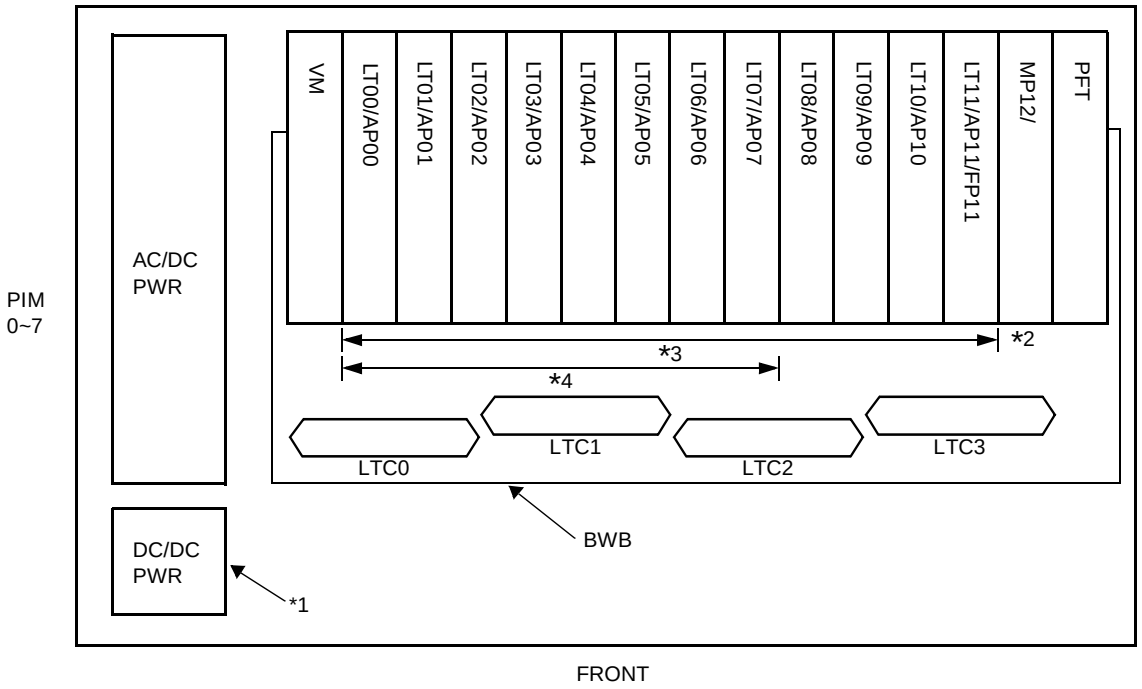
Each switch setting table has a CHECK column. Make necessary entries in the CHECK column during and/or after the system installation and maintenance, and use each table as a reference for subsequent system maintenance and operations.

MOUNTING LOCATION OF CIRCUIT CARDS

This section explains the conditions for mounting circuit cards for the WCS.

This figure below shows circuit card mounting slots allocated in the PIM.

Figure 4-1 Mounting Location of Circuit Card



*1: PZ-PW122 (DC/DC PWR) card on the PIM which accommodates CSI card.

*2: PZ-M537 (EXPMEM) card mounted on the PN-CP14 (MP) on PIM0.

*3: The following application processor cards are mounted on the AP00-AP11 PIM0-7.
The AP11 slot on PIM0 is available for application processor cards only when PN-CP15 (FP) card is not mounted on the FP11 slot on PIM0.

- PN-SC03-A (CSH)
- PN-AP00-A (DBM)
- PN-24DTA-C (DTI)
- PN-30DTC-A (DTI)
- PN-SC01 (DCH)

*4: PN-2CSIA (CSI) card on the LT00-LT07 slots on PIM0-7.

LIST OF REQUIRED CIRCUIT CARDS

Table 4-1 shows the required circuit cards explained in this section.

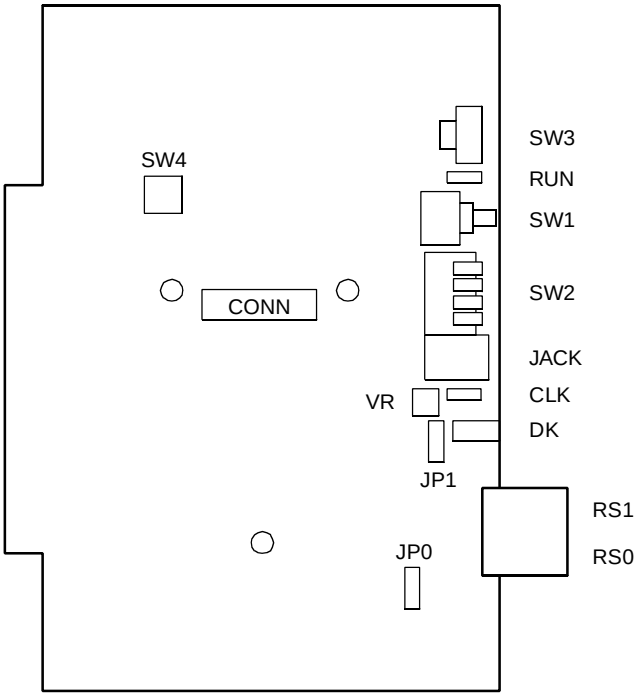
Table 4-1 List of Required Circuit Card

NAME (FUNCTIONAL NAME)	LAMP X: PROVIDED –: NOT PROVIDED	SWITCH X: PROVIDED –: NOT PROVIDED	EXTRACTION/ INSERTION WITH POWER ON X: ALLOWED Δ: ALLOWED AFTER MB* –: NOT ALLOWED	REFERENCE PAGE
PN-CP14 (MP)	X	X	–	Page 107
PZ-PW122 (DC/DC PWR)	X	X	–	Page 112
PZ-M537 (EXPMEM)	–	X	–	Page 114
PN-SC03-A (CSH)	X	X	Δ	Page 116
PN-2CSIA (CSI)	X	X	X	Page 118
PN-AP00-A (DBM)	X	X	Δ	Page 121
PN-24DTA-C (DTI)	X	X	Δ	Page 124
PN-30DTC-A (DTI)	X	X	Δ	Page 130
PN-SC01 (DCH)	X	X	Δ	Page 136

*MB = Make Busy

PN-CP14 (MP)

Locations of Lamps, Switches, and Connectors

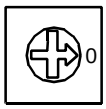
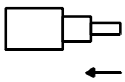


CONN: To CONNR connector on PZ-M537 (EXPMEM)

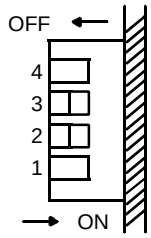
Lamp Indications

LAMP NAME	COLOR	FUNCTION
RUN	Green	Flashes at 120 IPM while this card is operating normally.
CLK	Green	Remains lit while receiving clock signals to the PLO.

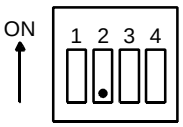
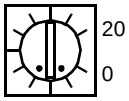
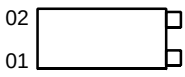
Switch Settings

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
SW3 (Rotary SW)  **NOTE**	0-F	0	On Line (Call processing is in progress)	
		2	Off Line (Call processing is stopped) I/O port: Depending on CM40 YY=08	
		3	Off Line (Call processing is stopped) I/O port: 9600 bps (Fixed)	
		B	For clearing the office data	
		C	For setting the resident system program	
		1, 4-9 A, D-F	Not used	
SW1 (Push SW) 			For initializing CPU	

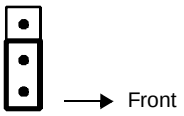
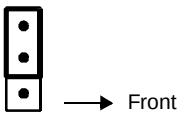
(Continued)

<table>
<tr><th>SWITCH NAME</th><th>SWITCH NUMBER</th><th>SETTING POSITION</th><th>FUNCTION</th><th>CHECK</th></tr>
<tr><td rowspan="4">SW2
(Piano Key SW)
 
</td><td rowspan="2">1</td><td>ON</td><td>A-law (Australia)</td><td></td></tr>
<tr><td>OFF</td><td>μ-law (North America)</td><td></td></tr>
<tr><td>2, 3</td><td colspan="2">Selection of PLO0 input
(Phase Locked Oscillator)
• For clock receiver office:
<table><tr><th>SW2-2</th><th>SW2-3</th><th>FUNCTION</th></tr><tr><td>OFF</td><td>OFF</td><td>1.5 MHz clock
[For PN-24DTA/PN-24PRTA]</td></tr><tr><td>ON</td><td>OFF</td><td>192 kHz clock
[For PN-BRTA]</td></tr><tr><td>OFF</td><td>ON</td><td>2 MHz clock
[For PN-30DTC/PN-2BRTC]</td></tr><tr><td>ON</td><td>ON</td><td>Not used</td></tr></table>• For clock source office:
SW2-2 SW2-3
OFF OFF</td><td></td></tr>
<tr><td rowspan="2">4</td><td>ON</td><td>When using RS1 port for built-in MODEM</td><td></td></tr>
<tr><td>OFF</td><td>When using RS1 port for RS-232C</td><td></td></tr>
</table>

(Continued)

<table>
<tr><th>SWITCH NAME</th><th>SWITCH NUMBER</th><th>SETTING POSITION</th><th>FUNCTION</th><th>CHECK</th></tr>
<tr><td rowspan="4">SW4 (DIP SW)
 
</td><td>1</td><td>ON</td><td>A-law (Australia)</td><td></td></tr>
<tr><td></td><td>OFF</td><td>µ-law (North America)</td><td></td></tr>
<tr><td>2</td><td>OFF</td><td>Not used</td><td></td></tr>
<tr><td>3, 4</td><td colspan="2">Selection of PLO1 input
(Phase Locked Oscillator)
• For clock receiver office:
<table><tr><th>SW4-3</th><th>SW4-4</th><th>FUNCTION</th></tr><tr><td>OFF</td><td>OFF</td><td>1.5 MHz clock
[For PN-24DTA/PN-24PRTA]</td></tr><tr><td>ON</td><td>OFF</td><td>192 kHz clock
[For PN-BRTA]</td></tr><tr><td>OFF</td><td>ON</td><td>2 MHz clock
[For PN-30DTC/PN-2BRTC]</td></tr><tr><td>ON</td><td>ON</td><td>Not used</td></tr></table>• For clock source office:
<u>SW4-2</u> <u>SW4-3</u>
OFF OFF</td><td></td></tr>
<tr><td>VR (Rotary SW)
 
</td><td></td><td></td><td>Variable Resister for External Hold Tone Source
(0-20 Kohms: Clockwise)</td><td></td></tr>
<tr><td rowspan="2">DK (Connector)
 
</td><td>02</td><td colspan="2">Ground detection</td><td></td></tr>
<tr><td>01</td><td colspan="2">Ground sending</td><td></td></tr>
</table>

(Continued)

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
JP0 (Jumper Pin) 		UP	Not used (Memory backup OFF)	
		(DOWN)	For normal operation (Memory backup ON)	
JP1 (Jumper Pin) 		(UP)	For using internal tone source	
		DOWN	For using external tone source	

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

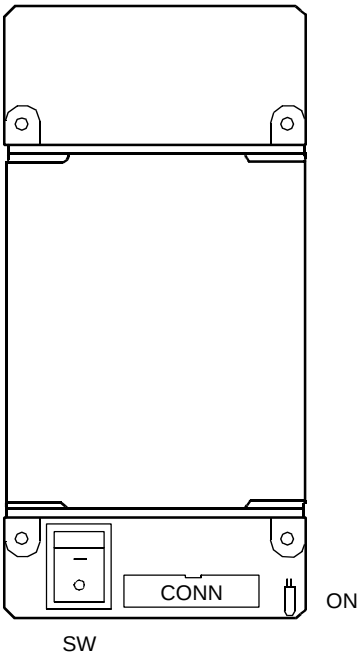
NOTE: Set the groove on the switch to the desired position.

CAUTION

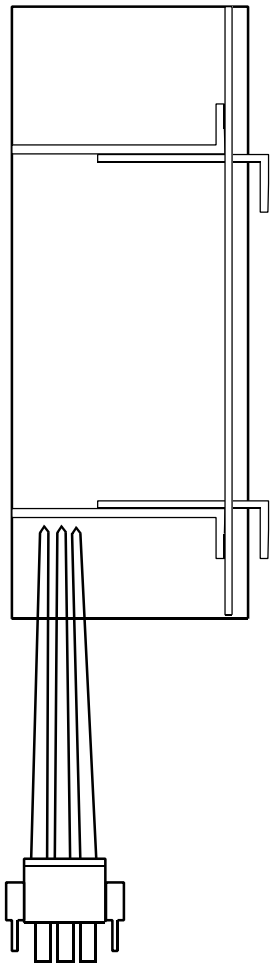
When the operating power is being supplied to this circuit card, do not plug/unplug this circuit card into/from its mounting slot.

PZ-PW122 (DC/DC PWR)

Locations of Lamps, Switches, and Connectors



CONN connector:
To PWR1 connector on PIM BWB

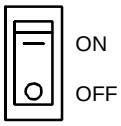


POWER OUTPUT CABLE (-48V, E):
To PWR0C connector on PIM BWB

Lamp Indications

LAMP NAME	COLOR	FUNCTION
ON	Green	Remains lit while the operating power is being supplied

Switch Settings

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
SW 		ON	For turning AC power on	
		OFF	For turning AC power off	

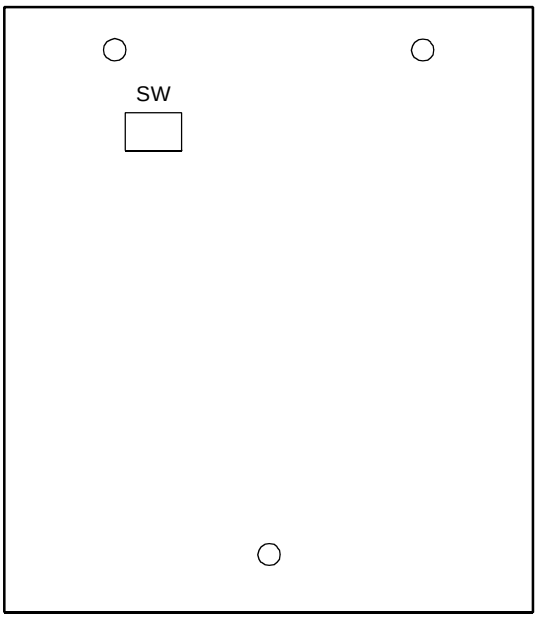
CAUTION

When the operating power is being supplied to this circuit card, do not plug/unplug this circuit card into/from its mounting slot.

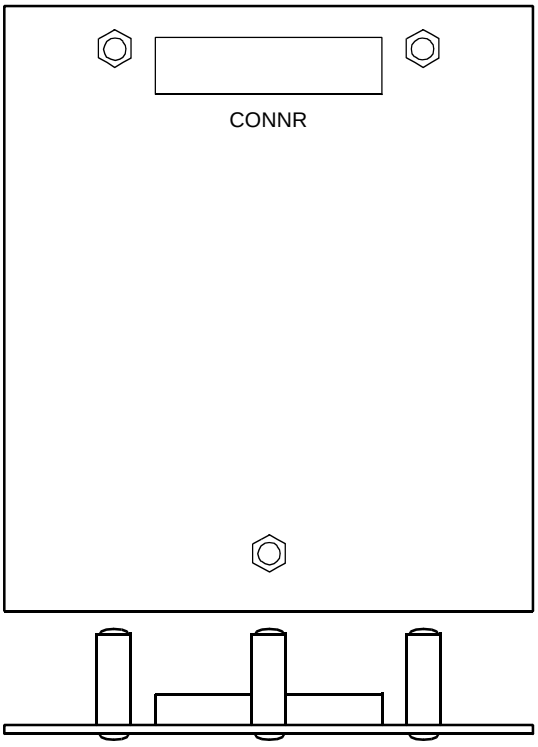
PZ-M537 (EXPMEM)

Locations of Lamps, Switches, and Connectors

FACE



REAR

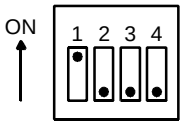


CONNR: To CONN connector on
PN-CP14 (MP) or
PN-AP00-B (AP00)

Lamps Indications

This card has no lamps.

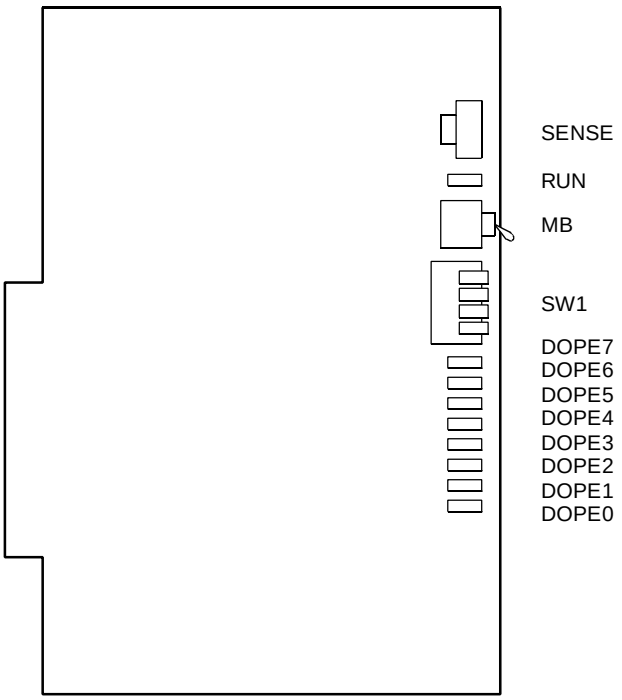
Switch Settings

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
SW (DIP SW) 	1	(ON)	For normal operation (Memory backup ON)	
		OFF	Not used (Memory backup OFF)	
	2	(OFF)	Not used	
	3	(OFF)	Not used	
	4	(OFF)	Not used	

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

PN-SC03-A (CSH)

Locations of Lamps, Switches, and Connectors

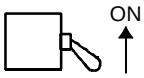


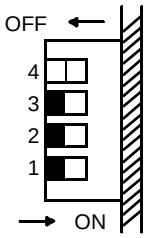
Lamp Indications

LAMP NAME	COLOR	FUNCTION
RUN	Green	Flashes at 120 IPM while this card is operating normally.
DOPE7	Green	Remains lit when No. 7 circuit D channel link is connected.
DOPE6	Green	Remains lit when No. 6 circuit D channel link is connected.
DOPE5	Green	Remains lit when No. 5 circuit D channel link is connected.
DOPE4	Green	Remains lit when No. 4 circuit D channel link is connected.
DOPE3	Green	Remains lit when No. 3 circuit D channel link is connected.
DOPE2	Green	Remains lit when No. 2 circuit D channel link is connected.
DOPE1	Green	Remains lit when No. 1 circuit D channel link is connected.
DOPE0	Green	Remains lit when No. 0 circuit D channel link is connected.

Switch Settings

<table>
<tr><th>SWITCH NAME</th><th>SWITCH NUMBER</th><th>SETTING POSITION</th><th>FUNCTION</th><th>CHECK</th></tr>
<tr><td rowspan="2">SENSE
(Rotary SW)
 

NOTE 1</td><td>4-F</td><td colspan="3">Set the switch to match the AP Number (04-31) to be set by CM05.
<table><tr><td rowspan="2">AP No.</td><td>SW1-1: ON</td><td>04</td><td>05</td><td>06</td><td>07</td><td>08</td><td>09</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td></tr><tr><td>SW1-1: OFF</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td><td>31</td></tr><tr><td colspan="2">SW No.</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td></tr></table></td></tr>
<tr><td>0-3</td><td>Not used</td><td></td><td></td></tr>
<tr><td rowspan="2">MB (Toggle SW)
 

NOTE 2</td><td rowspan="2"></td><td>UP</td><td>For make-busy</td><td></td></tr>
<tr><td>(DOWN)</td><td>For normal operation</td><td></td></tr>
<tr><td rowspan="4">SW1
(Piano Key SW)
 
</td><td>1</td><td>(OFF)</td><td>Not used</td><td></td></tr>
<tr><td>2</td><td>(OFF)</td><td>Not used</td><td></td></tr>
<tr><td>3</td><td>(OFF)</td><td>Not used</td><td></td></tr>
<tr><td rowspan="2">4</td><td>ON</td><td>AP No. 04-15</td><td></td></tr>
<tr><td>OFF</td><td>AP No. 20-31</td><td></td></tr>
</table>

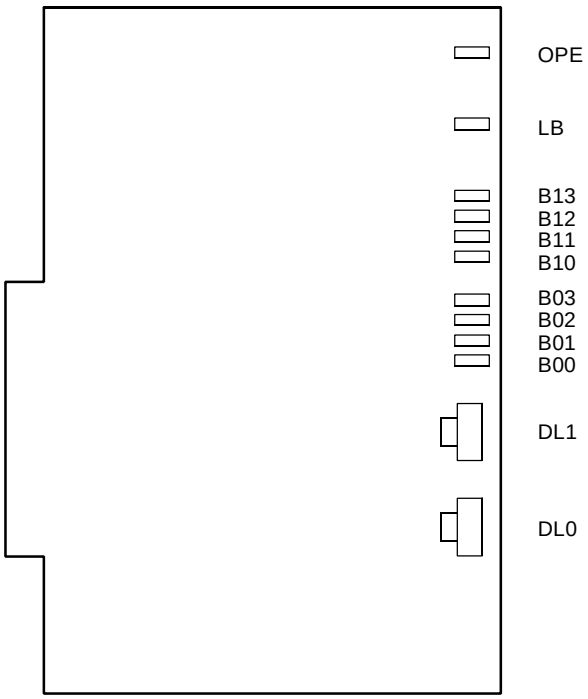
The figure in the SWITCH NAME column and the position in ( ) in the SETTING POSITION column indicate the standard setting of the switch. When the switch is not set as shown by the figure and ( ), the setting of the switch varies with the system concerned.

NOTE 1: Set the groove on the switch to the desired position.

NOTE 2: When the power is on, flip the MB switch to ON (UP position) before plugging/ unplugging the circuit card.

PN-2CSIA (CSI)

Locations of Lamps, Switches, and Connectors



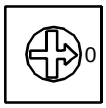
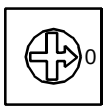
Lamp Indications

LAMP NAME	COLOR	FUNCTION
OPE	Green	Remains lit when the corresponding circuit is in use.
LB	Red	Remains lit when a loop-back is in progress.
B13	Red	Not used (Flash [60 IPM])
B12	Red	B channel status ON : B2 channel of the No. 1 circuit is in use. OFF : B2 channel of the No. 1 circuit is in idle. Flash (60 IPM) : ZT is not connected to the No. 1 circuit. ZT is in make-busy status.
B11	Red	B channel status ON : B1 channel of the No. 1 circuit is in use. OFF : B1 channel of the No. 1 circuit is in idle. Flash (60 IPM) : ZT is not connected to the No. 1 circuit. ZT is in make-busy status.
B10	Red	B channel status ON : B0 channel of the No. 1 circuit is in use. OFF : B0 channel of the No. 1 circuit is in idle. Flash (60 IPM) : ZT is not connected to the No. 1 circuit. ZT is in make-busy status.
B03	Red	Not used (Flash [60 IPM])
B02	Red	B channel status ON : B2 channel of the No. 0 circuit is in use. OFF : B2 channel of the No. 0 circuit is in idle. Flash (60 IPM) : ZT is not connected to the No. 0 circuit. ZT is in make-busy status.
B01	Red	B channel status ON : B1 channel of the No. 0 circuit is in use. OFF : B1 channel of the No. 0 circuit is in idle. Flash (60 IPM) : ZT is not connected to the No. 0 circuit. ZT is in make-busy status.

(Continued)

LAMP NAME	COLOR	FUNCTION
B00	Red	B channel status ON : B0 channel of the No. 0 circuit is in use. OFF : B0 channel of the No. 0 circuit is in idle. Flash (60 IPM) : ZT is not connected to the No. 0 circuit. ZT is in make-busy status.

Switch Settings

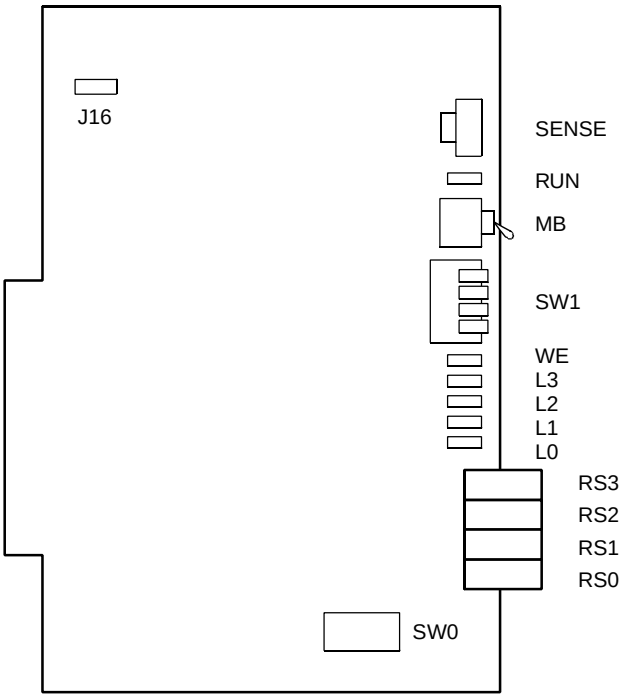
SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
DL0 (Rotary SW)  **NOTE**	0-F	0	For normal operation	
		1-F	Not used	
DL1 (Rotary SW)  **NOTE**	0-F	0	For normal operation	
		1-F	Not used	

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

NOTE: Set the groove on the switch to the desired position.

PN-AP00-A (DBM)

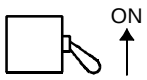
Locations of Lamp, Switches, and Connectors



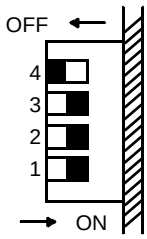
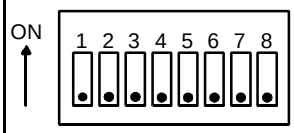
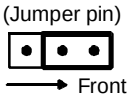
Lamp Indications

LAMP NAME	COLOR	FUNCTION	
RUN	Green	Flashes at 120 IPM while this card is operating normally.	
WE	Red	Not used	
L0-L3	Green	Second data setting value for CMD001>250	
		0	1 (port0)-3 (port2)
L3		Indication of transmitting status of port 0	Indication of CTS signal status on por t0-2
L2		Indication of transmitting status of port 1	Indication of DCD signal status on port 0-2
L1		Indication of transmitting status of port 2	Indication of TXD signal status on port 0-2
L0		Indication of transmitting status of port 3	Indication of RXD signal status on port 0-2

Switch Settings

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
SENSE (Rotary SW)  **NOTE 1**	4-F	Set the switch to match the AP Number (04-15) to be set by CM05.		
	0-3	Not used		
MB (Toggle SW)  **NOTE 2**		UP	For make-busy	
		DOWN	For normal operation	

AP No.	04	05	06	07	08	09	10	11	12	13	14	15
SW No.	4	5	6	7	8	9	A	B	C	D	E	F

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
SW1 (Piano Key SW) 	1	(ON)	For normal operation	
		OFF	Not used	
	2	(ON)	For normal operation	
		OFF	Not used	
	3	(ON)	For normal operation	
		OFF	Not used	
	4	(OFF)	Not used	
SW0 (DIP SW) 	1-8	(OFF)	Not used	
J16 		(RIGHT)	For normal operation (Memory backup ON)	
		LEFT	Not used (Memory backup OFF)	

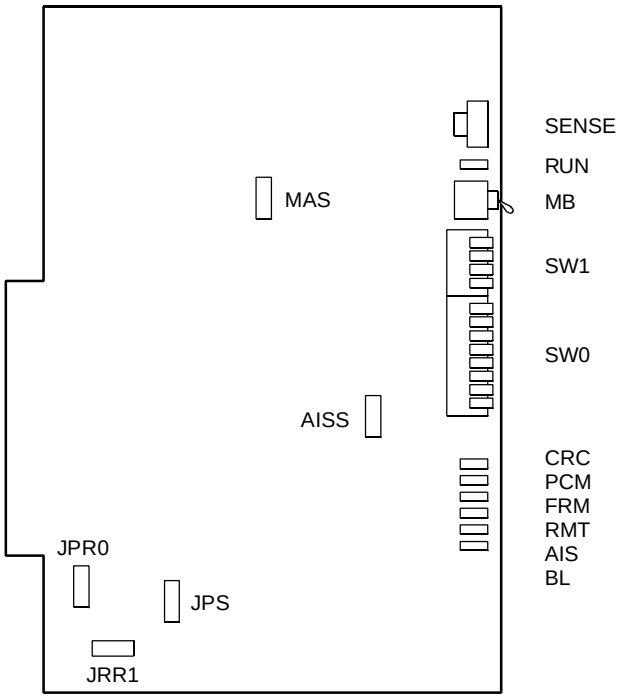
The figure in the SWITCH NAME column and the position in ( ) in the SETTING POSITION column indicate the standard setting of the switch. When the switch is not set as shown by the figure and ( ), the setting of the switch varies with the system concerned.

NOTE 1: Set the groove on the switch to the desired position.

NOTE 2: When the power is on, flip the MB switch to ON (UP position) before plugging/ unplugging the circuit card.

PN-24DTA-C (DTI)

Locations of Lamps, Switches, and Connectors

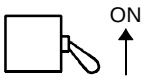


Lamp Indications

LAMP NAME	COLOR	FUNCTION
RUN	Green	Flashes at 120 IPM while this card is operating normally.
CRC	Red	Remains lit when detecting Cyclic Redundancy Checking (CRC) errors.
PCM	Red	Remains lit when detecting PCM signal loss.
FRM	Red	Remains lit when detecting Frame Alignment signal loss.
RMT	Red	Remains lit when receiving Frame Alignment signal loss alarm from a distant office.
AIS	Red	Remains lit when a pattern of consecutive “1” is received. THe distant office transmits this signal for a loop-back test.
BL	Red	B channel status ON : More than 10 channels are busy OFF : All channels are idle Flash (60 IPM) : Only one channel is busy Flash (120 IPM) : 2 through 10 channels are busy

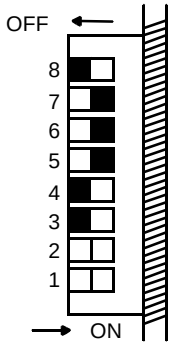
Switch Settings

<table>
<tr><th>SWITCH NAME</th><th>SWITCH NUMBER</th><th>SETTING POSITION</th><th>FUNCTION</th><th>CHECK</th></tr>
<tr><td rowspan="2">SENSE
(Rotary SW)
 

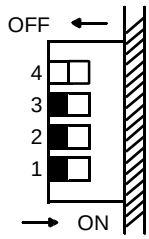
NOTE 1</td><td>0-3</td><td colspan="2">Not used</td><td></td></tr>
<tr><td>4-F</td><td colspan="2">Set the switch to match the AP Number (04-31) to be set by CM05.
<table><tr><td rowspan="2">AP No.</td><td>SW1-4: ON</td><td>04</td><td>05</td><td>06</td><td>07</td><td>08</td><td>09</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td></tr><tr><td>SW1-4: OFF</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td><td>31</td></tr><tr><td colspan="2">SW No.</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td></tr></table></td><td></td></tr>
<tr><td rowspan="2">MB (Toggle SW)
 

NOTE 2</td><td rowspan="2"></td><td>UP</td><td>For make-busy</td><td></td></tr>
<tr><td>DOWN</td><td>For normal operation</td><td></td></tr>
</table>

(Continued)

<table>
<tr><th>SWITCH NAME</th><th>SWITCH NUMBER</th><th>SETTING POSITION</th><th>FUNCTION</th><th>CHECK</th></tr>
<tr><td rowspan="12">SW0
(Piano Key SW)
 
</td><td rowspan="2">1
NOTE 3
NOTE 4</td><td>ON</td><td>Source clock signal from network is sent to the PLO 0 input on MP card.</td><td></td></tr>
<tr><td>OFF</td><td>Source clock signal from network is not sent to the PLO 0 input on MP card.</td><td></td></tr>
<tr><td rowspan="2">2
NOTE 3
NOTE 4</td><td>ON</td><td>Source clock signal from network is sent to the PLO 1 input on MP card.</td><td></td></tr>
<tr><td>OFF</td><td>Source clock signal from network is not sent to the PLO 1 input on MP card.</td><td></td></tr>
<tr><td rowspan="2">3</td><td>ON</td><td>Remote loop-back</td><td></td></tr>
<tr><td>OFF</td><td>For normal operation</td><td></td></tr>
<tr><td rowspan="2">4</td><td>ON</td><td>Local loop-back (AIS send)</td><td></td></tr>
<tr><td>OFF</td><td>For normal operation</td><td></td></tr>
<tr><td rowspan="2">5</td><td>ON</td><td rowspan="6">Set equalizer according to the cable length between the PBX and the MDF.
<table><tr><th>SW0-5</th><th>SW0-6</th><th>SW0-7</th><th>CABLE LENGTH</th></tr><tr><td>ON</td><td>ON</td><td>ON</td><td>0-40 m (0-131.2 ft.)</td></tr><tr><td>ON</td><td>ON</td><td>OFF</td><td>40-80 m (131.2-262.5 ft.)</td></tr><tr><td>ON</td><td>OFF</td><td>ON</td><td>80-120 m (262.5-394 ft.)</td></tr><tr><td>ON</td><td>OFF</td><td>OFF</td><td>120-160 m (394-525 ft.)</td></tr><tr><td>OFF</td><td>ON</td><td>ON</td><td>160-200 m (525-656 ft.)</td></tr><tr><td>OFF</td><td>OFF</td><td>OFF</td><td>Signal is not sent</td></tr></table></td><td></td></tr>
<tr><td>OFF</td><td></td></tr>
<tr><td rowspan="2">6</td><td>ON</td><td></td></tr>
<tr><td>OFF</td><td></td></tr>
<tr><td rowspan="2">7</td><td>ON</td><td></td></tr>
<tr><td>OFF</td><td></td></tr>
<tr><td>8</td><td>OFF</td><td>Not used</td><td></td></tr>
</table>

(Continued)

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
SW1 (Piano Key SW)  **NOTE 4**	1	OFF	Not used	
	2	OFF	Not used	
	3	OFF	Not used	
	4	ON	AP No. 04-15	
		OFF	AP No. 20-31	
JPR0 (Jumper Pin) 		UP	Neutral grounding on the receiving line is provided.	
		DOWN	Neutral grounding on the receiving line is not provided.	
JPR1 (Jumper Pin) 		Right	Line impedance: 100 ohms	
		Left	Line impedance: 110 ohms	
JPS (Jumper Pin) 		UP	Neutral grounding on the transmitting line is provided.	
		DOWN	Neutral grounding on the transmitting line is not provided.	
MAS (Jumper Pin) 		UP	Clock Source	
		DOWN	Clock Receiver	
AISS (Jumper Pin) 		UP	AIS signal is sent out when make-busy or power on.	
		DOWN	AIS signal is not sent out when make-busy or power on.	

(Continued)

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

NOTE 1: Set the groove on the switch to the desired position.

NOTE 2: When the power is on, flip the MB switch to ON (UP position) before plugging/ unplugging the circuit card.

NOTE 3: Set SW0-1 and SW0-2 as follows:

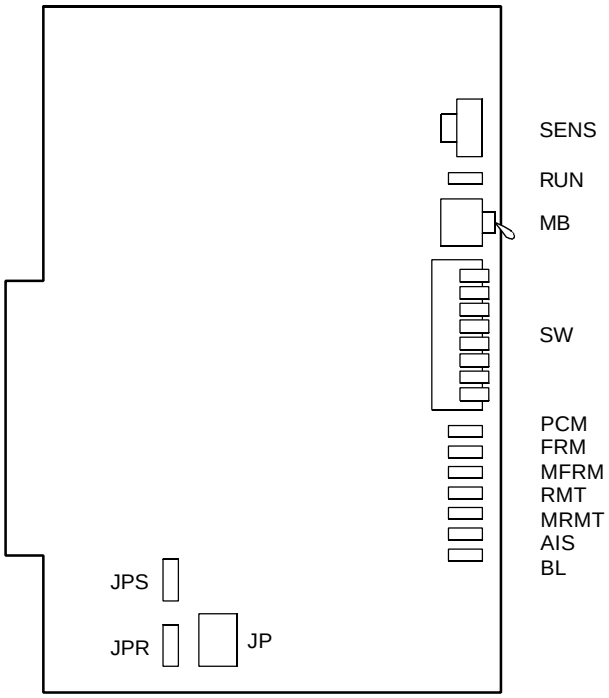
CONDITIONS	DTI0		DTI1		DTI2		DTI3		DTI4		REMARKS
	SW 0-1	SW 0-2	SW 0-1	SW 0-2	SW 0-1	SW 0-2	SW 0-1	SW 0-2	SW 0-1	SW 0-2	
When one DTI is provided.	ON	OFF	–	–	–	–	–	–	–	–	MP card will receive the clock signal from DTI0 at its PLO0 input.
When more than one DTI is provided.	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	MP card will receive the clock signal from DTI0 at its PLO0 input, under normal conditions. Should a clock failure occur with DTI0, MP card will automatically switch to the PLO1 input which gets clock from DTI1.

NOTE 4: When the PBX is a clock source office, set the SW0-1 and SW0-2 on all the DTI cards mounted in PIM0 to OFF.

NOTE 5: Mount the DTI card which receives a clock signal into PIM0.

PN-30DTC-A (DTI)

Locations of Lamps, Switches, and Connectors

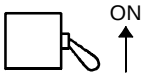


Lamp Indications

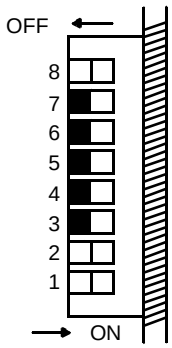
LAMP NAME	COLOR	FUNCTION
RUN	Green	Flashes at 120 IPM when this card is normally operating.
PCM	Red	Remains lit when detecting PCM signal loss.
FRM	Red	Remains lit when detecting Frame Alignment signal loss.
MFRM	Red	Remains lit when detecting Multi-Frame Alignment signal loss on Time Slot 16.
RMT	Red	Remains lit when receiving the alarm from a distant office because Frame Alignment signal loss has been detected at the distant office.
MRMT	Red	Remains lit when receiving the alarm from a distant office because Multi-Frame Alignment signal loss has been detected at the distant office.
AIS	Red	Remains lit when indicating that the pattern of consecutive “1” is being received. The distant office transmits this signal for a loop-back test distant.
BL	Red	B channel status ON : More than 10 channels are busy. OFF : All channels are idle. Flash (60 IPM) : Only one channel is busy. Flash (120 IPM) : 2 to 10 channels are busy.

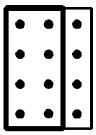
Switch Settings

<table>
<tr><th>SWITCH NAME</th><th>SWITCH NUMBER</th><th>SETTING POSITION</th><th>FUNCTION</th><th>CHECK</th></tr>
<tr><td rowspan="2">SENSE
(Rotary SW)
 

NOTE 1</td><td>4-F</td><td colspan="3">Set the switch to match the AP Number (04-31) to be set by CM05.
<table><tr><td rowspan="2">AP No.</td><td>SW-8: ON</td><td>04</td><td>05</td><td>06</td><td>07</td><td>08</td><td>09</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td></tr><tr><td>SW-8: OFF</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td><td>31</td></tr><tr><td colspan="2">SW No.</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td></tr></table></td><td></td></tr>
<tr><td>0-3</td><td colspan="2">Not used</td><td></td></tr>
<tr><td rowspan="2">MB (Toggle SW)
 

NOTE 2</td><td rowspan="2"></td><td>UP</td><td>For make-busy</td><td></td></tr>
<tr><td>DOWN</td><td>For normal operation</td><td></td></tr>
</table>

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
SW (Piano Key SW)  	1 **NOTE 3** **NOTE 4**	ON	Source clock signal from network is sent to the PLO 0 input on MP card.	
		OFF	Source clock signal from network is not sent to the PLO 0 input on MP card	
	2 **NOTE 3** **NOTE 4**	ON	Source clock signal from network is sent to the PLO 1 input on MP card.	
		OFF	Source clock signal from network is not sent to the PLO 1 input on MP card.	
	3	ON	Remote loop-back	
		OFF	For normal operation	
	4	ON	Local loop-back (AIS send)	
		OFF	For normal operation	
	5	ON	Transmission line cable: Coaxial cable (75 ohms)	
		OFF	Transmission line cable: Twisted-pair cable (120 ohms)	
	6	OFF	Always set to OFF	
	7	OFF		
	8	ON	AP No. 04-15	
		OFF	AP No. 20-31	

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
JPS (Jumper Pin) 		UP	Balanced transmission (For twisted-pair cable)	
		DOWN	TA is grounded on the transmission line (For coaxial cable)	
JPR (Jumper Pin) 		UP	Balanced transmission (For twisted-pair cable)	
		DOWN	RA is grounded on the transmission line (For coaxial cable)	
JP (Jumper Pin) 		RIGHT	Line impedance: 75 ohms (For coaxial cable)	
		LEFT	Line impedance: 120 ohms (For twisted-pair cable)	

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

NOTE 1: Set the groove on the switch to the desired position.

NOTE 2: When the power is on, flip the MB switch to ON (UP position) before plugging/ unplugging the circuit card.

NOTE 3: Set the SW-1 and SW-2 as follows:

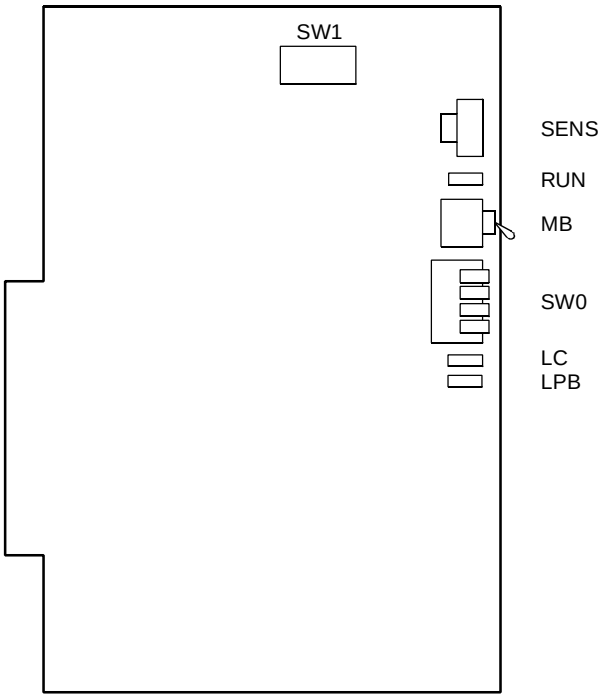
CONDITIONS	DTI0		DTI1		DTI2		DTI3		REMARKS
	SW -1	SW -2	SW -1	SW -2	SW -1	SW -2	SW -1	SW -2	
When one DTI is provided.	ON	OFF	–	–	–	–	–	–	MP card will receive the clock signal from DTI0 at its PLO0 input.
When more than one DTI is provided.	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	MP card will receive the clock signal from DTI0 at its PLO0 input, under normal conditions. Should a clock failure occur with DTI0, MP card will automatically switch to the PLO1 input which gets from DTI1.

NOTE 4: When the PBX is a clock source office, set the SW-1 and SW-2 on all the DTI cards mounted in PIM0 to OFF.

NOTE 5: Mount the DTI card which receives a clock signal into PIM0.

PN-SC01 (DCH)

Locations of Lamps, Switches, and Connectors

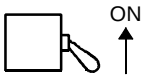


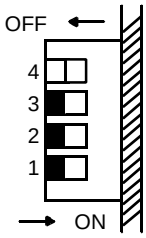
Lamp Indications

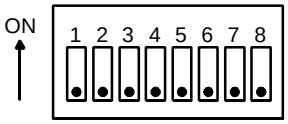
LAMP NAME	COLOR	FUNCTION
RUN	Green	Flashes at 120 IPM while this card is operating normally.
LC	Green	Remains lit when communications are normally ongoing with the D channel data links connected.
LPB	Green	Not used

Switch Settings

<table>
<tr><th>SWITCH NAME</th><th>SWITCH NUMBER</th><th>SETTING POSITION</th><th>FUNCTION</th><th>CHECK</th></tr>
<tr><td rowspan="2">SENS
(Rotary SW)
 

NOTE 1</td><td>4-F</td><td colspan="2">Set the switch to match the AP Number (04-31) to be set by CM05.
<table><tr><td rowspan="2">AP No.</td><td>SW0-4: ON</td><td>04</td><td>05</td><td>06</td><td>07</td><td>08</td><td>09</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td></tr><tr><td>SW0-4: OFF</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td><td>31</td></tr><tr><td colspan="2">SW No.</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td></tr></table></td><td></td></tr>
<tr><td>0-3</td><td colspan="2">Not used</td><td></td></tr>
<tr><td>MB (Toggle SW)
 

NOTE 2</td><td rowspan="2"></td><td>UP</td><td>For make-busy</td><td></td></tr>
<tr><td>DOWN</td><td>For normal operation</td><td></td></tr>
<tr><td rowspan="4">SW0
(Piano Key SW)
 
</td><td>1</td><td>OFF</td><td>Always set to OFF</td><td></td></tr>
<tr><td>2</td><td>OFF</td><td>Always set to OFF</td><td></td></tr>
<tr><td>3</td><td>OFF</td><td>Always set to OFF</td><td></td></tr>
<tr><td rowspan="2">4</td><td>ON</td><td>AP No. 04-15</td><td></td></tr>
<tr><td>OFF</td><td>AP No. 20-31</td><td></td></tr>
</table>

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
SW1 (DIP SW) 	1	OFF	Always set to OFF	
	2	OFF	Always set to OFF	
	3	OFF	Always set to OFF	
	4	OFF	Always set to OFF	
	5	OFF	Always set to OFF	
	6	OFF	Always set to OFF	
	7	OFF	Always set to OFF	
	8	OFF	Always set to OFF	

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

NOTE 1: Set the groove on the switch to the desired position.

NOTE 2: When the power is on flip the MB switch to ON (UP position) before plugging/ unplugging the circuit card.