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Great care has been taken to ensure that the information contained in this handbook is accurate and complete. Should any errors or omissions be discovered or should any users wish to make suggestions for improving this handbook, they are invited to send the relevant details to:

NEC PHILIPS Unified Solutions Nederland B.V.
P.O. BOX 32
1200 JD HILVERSUM
THE NETHERLANDS

PREFACE

This manual is valid for the SOPHO 2000 IPS telephone system.

In this manual the term NEAX 2000 IPS or NEAX PBX telephone system represents the SOPHO 2000 IPS system.
This book might refer to products not included in the SOPHO portfolio.
Certain items in this manual do not apply to the European market.

In case of doubt, please contact your supplier.

LIST OF TERMS

Abbr. NEC	Description NEC	Abbr. PBC	Description / Remarks PBC
	(Trunk) Route Restriction Class	TRFC	Traffic Class
	AIMWorX		SMDR & CTI based management platform
	Authorization Code		PID code
	Background music (feature)		When phone is idle, user can have background music on speaker
	Boss/Secretary dialing		Executive/Secretary
	Broker's call		Shuttle : alternate between 2 parties occupying one line
	Busy in/busy out - ACD		Group - Absent/Present switching
	Class of Service		Facility Class Mark (sometimes traffic class)
	Coin lines		
	Consecutive Speed Dialing		Common number can be speed dial, individual choice dialed manually
	Consultation hold		Enquiry
	Development table		Analysis tree : table within numbering plan
	Dial conversion		Conversion from pulse to DTMF
	Dynamic Dial Pad		Pressing numeric keys grabs a line as well.
	Executive calling		VIP status assigned to a station.
	Ground Start		Earth calling : analog trunk protocol
	Hearing Aid Compatibility		Voice volume control on terminals
	Home side trunk	User side trunk	For ISDN trunks
	Legacy		TDM based equipment (non IP)
	Location number		Division based on capabilities or priorities in the IP system
	Loop Start		Subscriber signalling e.g. an ATU-SS
	Mate side trunk	Network side trunk	For ISDN trunks
	MATWorX		Operational Maintenance interface tool
	Multi line terminal		SOPHO Set / ErgoLine : digital terminal with soft key assignment possible
	Multiple Call Forwarding		Multi hop (maximum 5 hops allowed)
	My Line		Users own station number.
	Nailed down connection (data)		Fixed connection between two data adapters.
	Night Connection - fixed	PLE	Permanent Line Extension
	Night connection - fixed		Permanent Line Extension
	Night Connection - flexible		CF on night extension
	Office Code	CLID	Cluster Identity used for Open Numbering Plans
	One touch key		Dterm keys, work (and programmed) like speed dial function
	OpenWorX		CTI Application platform
	Operator		PSTN operator / provider
	Party lines		
	Peer to peer		Peer to peer : one to one relation on functional level
	Pilot number		Group number
	Preset dialing		En-block dialing : prepare number and send it in one go (versus overlap dialing)
	Prime Line		Seized line (trunk line or extension) when going off-hook (or speaker)
	Restriction Class	TRFC	Traffic Class
	Route Advance		Alternative routing when trunk(s) busy
	Route Pattern		Tree : part of the number analysis table
	Save and Repeat	LNR	Last Number Redial
	Secondary appearance		park position / sub line

Abbr. NEC	Description NEC	Abbr. PBC	Description / Remarks PBC
	Single line terminal		Analog Phone
	Software Line Appearance		Virtual Extension
	Split Call Forwarding		Separate CF for internal and external calls.
	Stack Dial	LNNR	Last Number/Number Repetition Outgoing calling list (5 entries)
	Stack Dial		Redial List : maximum 5 numbers
	Station	Extension / DNR	
	Station Class	FCM	Facility Class Mark
	Sub Line		Lines on the stations, other then the prime line
	Tenant		Analysis group : multi company on one PBX
	Trunk Route		Route
	Voice Call		
	Whisper page		Announcement without 3rd party hearing it.
AC	Account Code (Client Billing Code)	PID	Password integrated dialing
ACF	Authorization Code Facility		OAI related.
ADF			OAI related.
ALM DSPP	(External) Alarm Display Panel		
ANI	Automatic Number Identification		Caller subscriber number coming in with MF signaling on T1 trunks
ANS	Answer		
AOC	Advice of charge		
AP	Application Card		
AP	Analog Port		
ATND	Attendant		
AttCon	Attendant console		Operator console
BATTM	Battery Module		
BGM	Back Ground Music service		
BHCA	Busy Hour Call Attempts		
BK	Black		
BSY	Busy		
BT	Busy Tone		
CAMA	Centralized Message Accounting		A standard related to 911 service
CAS	Centralized Attendant Service		
CAT	Customer Administration terminal		Dterm used as programming device for PBX
CCIS	Common Channel Interoffice Signalling		Comparable to IMP
CCSA	Common Control Switching arrangement		Customer specific leased lines/network, US only
CCT	CCIS Trunk		
CF-D	Call Forwarding - Destination		Call Forwarding – Destination : no preparation on originator necessary.
CFT	Conference trunk		
CIC	Circuit Identification Code		Trunk channel ID for virtual IP trunk channels (Line number)
CID	Call ID Display		
CIR	Caller ID Receiver		
CIS	Call Information System		
CM	Command		See Commands Manual
CNP	Closed Numbering Plan		
CO	Central Office		
COT	Central Office Trunk		
CPN	Calling Party Number		ISDN calling party number
CPN	Calling Party Number		
CPU	Central Processing Unit		
CRD	Call Redirect		
CS	Cell Station		
CSU			
DAT	Digital Announcement Trunk		

Abbr. NEC	Description NEC	Abbr. PBC	Description / Remarks PBC
DBM			Commands Manual - AP00 card
DCH	D-Channel Handler		
DD key	Do not Disturb Key		
DDD	Direct Distance Dialing		
DDI	Direct Digital interface		T1/E1 interface to public network
DDOVR	Do not Disturb Override		
DeskCon	Desk Console	SV	SuperVisor / Operator Console
DID calls	Direct Inward Dialing calls	DDI	Direct dialing in : not for FX and WATS trunk (USA only)
DISA	Direct Inward System Access		Remote access to system
DIT	DID trunk / Direct Inward Termination	PLE	Permanent Line Extension(s) : for limited direct inward dialing: 1/more trunk(s) related to 1 station
DLC	Digital Line Circuit		For Dterm, Attendant and Desk Console.
DM	Distributed Module		
DMS	Distributed Module Small		
DNIS	Dialed number Identification Service		
DOD	Direct Outward Dialing	DDO	Direct Dialing Out : setting up external calls without attendant assistance
DP	(Rotary) Dial Pulse		Pulse dialing
DPC	Data Port Controller		
DPC	Destination Point Code		Kind of Cluster ID; for terminating office
DRS	Device Registration Server		Compare with Gatekeeper function: registering endpoints
DS	Differential Services (DiffServ)		
DSS/BLF	Direct Station Select / Busy Lamp Field		
DSW	Device Server WorX		For Dterm assistant software
DT	Dial Tone		
DTE	Data Terminal Equipment		
Dterm	Digital (or IP) terminal	Dterm	Desktop Telephone (analog or digital)
DTG	Digital Tone Generator		
DTI	Digital Trunk Interface		
FAC	Forced Account Code		
FCC	Federal Communications Commission		American regulation office
FD	Floppy Disk		
FDA	Forwarded - All calls		
FDB	Forwarded - Busy		
FDN	Forwarded - No answer		
FG	Frame Ground		
FGD	Feature Group D format		Signalling format for ANI.
FLF	Free Location Facility		OIA related, Desksharing look-a-like. NOT available for IPS 2000
FP	Firmware Processor		Compare with PMC
FX	Foreign Exchange		Specific part of PSTN; US only
HDT	Hold Tone		
HWT	howler tone		Alarm tone
ICH	ISDN channel handler		
ICI	Incoming Call Identification		
ICM	Intercom		
IEC	International Electro-technical Commission		
ILC	ISDN line card		
IP	Internet Protocol	IP	Internet Protocol
IPM	Indications per minute		For flashing lamps / LEDs
IPS	Internet Protocol Server		
IPT	IP trunk		
IPX	Internet Protocol eXchange		
IVS	Integrated Voice Server		

Abbr. NEC	Description NEC	Abbr. PBC	Description / Remarks PBC
KF	Key Feauture (registration)		Key systems are operating directly on outside lines.
KTF	Key Transfer Facility		OAI related.
LAN	Local Area Network	LAN	Local Area Network
LCR	Least Cost Routing	LCCR	Least cost call routing : number analysis development manner
LDN	Listed Directory Number		
LDT	Loop Dial trunk		
LEN	Line Equipment Number	EHWA	Equipment hardware Address : PIM nbr (0 ~ 7)+ Port nbr (00 ~ 63) LEN = (000 ~ 763)
LT	Line/Trunk		
MAT	Maintenance Administration Terminal	OMM	Operation Maintenance module : PC needed in terminals mode
MB	Make Busy	SETOUT	Set to Out Of Service : Out of Service / Not installed situation for reset or maintenance
MCI	Message Center Interface		Interface for Voice Mail system
MEM	Main Memory		
MFG			
MFR	MF receiver / MFC receiver/sender		
MIB	management Information Base		
MIC	Microphone		Microphone or its key
MIS	management Information System		
MJ	Major (alarm)		
MLDT	Melody Trunk		
MN	Minor (alarm)		
MOC			OM terminal window, part of MATWorX
MP	Main Processor		Compare with CPU
MRF	Mode Reset Facility		OAI related.
MSF	Mode Set Feature		OAI related.
MSG	Message		
NEAX	NEC PBX	SOPHO	
NS	Network Station		
NTF	Number Transfer Facility		OAI related.
NTS	Night Transfer Station		Night Extension
OAI	Open Application Interface		CTI interface
ODT	OD Trunk		2/4 wire E&M
ODT	Outband Dialing Trunk		
ONP	Open Numbering Plan		
OPC	Origional Point Code		Kind of Cluster ID; for originating office
OPR	Operator		Attendant
PAD	(IP) Packet Assembler / Disassembler		Used for TDM / IP translation
PBR	Push Button Receiver		DTMF receiver
PBSND	Push Button Sender		DTMF sender
PC	Point Code		
PCK	Pickup		
PFT	Power Failure Transfer		
PIM	Port Interface Module		Shelf : comparable with CSM and PM shelves
PLO	Phase Locked Oscillator		
PMS	Property Management System	PMS	Property Management System (in hotel environments)
PN	Part Number		For example PN-8DLCC board
PNA	Phone line Network Alliance		
PPS	Pulses per second		Used in pulse dialing
PROTIMS			Proprietary protocol, used for building CCIS
PRT	ISDN primary rate interface trunk		
PS	Personal Station		
PS	Portable Station		NEC wireless system
QoS	Quality of Service		

Abbr. NEC	Description NEC	Abbr. PBC	Description / Remarks PBC
RAS	Registration Admission Status		Registration Admission Status
RBT	Ringback Tone		
RC	Room Cutoff		
REN	Ring Equivalence Number		
RLS	Release		
ROT	Reorder Tone		
RPIM	Remote PIM		
RSC	Route restriction Class		
RST	Restricted		
RTP	Real Time Protocol		
SCF	Switch Control Facility		OAI related.
SDT	Special Dial Tone		
SLT	Single Line Telephone		Analog telephone
SMDR	Station Message Detail Recording	FDCR	Full Detailed Call Recording
SMFN	Status Monitor Facility (Notification)		OAI related.
SMFR	Status Monitor Facility (Request)		
SOC	System on chip		
SP	Soft Phone		
SPID	Service Profile ID (ISDN)	BSP-ID	Basic Service Profile ID (ISDN)
SPN	Special Part Number		
SSFM	Service Set facility Monitor		OAI related.
SSFR	Service Set Facility Request		OAI related.
SST	Service Set Tone		
STA	Station		
STN	Station		
TAH	Trunk Appearance Hold		
TAS	Trunk Answer Any Station		Pickup incoming calls in night mode
TCF	Terminal Control Facility		OAI related.
TCM	(Deluxe) Travelling Class Mark		
TDM	Time division multiplexing		
TDS	Time division switching		
TDSW	Time Division Switch		
TIC	(Individual) Trunk identification Code		Line numbers of trunk lines
TMF	Terminal Multi-information transfer Facility		OAI related.
TMSF	(Terminal) Mode Set Facility		OAI related.
TNT	Tone/Music source interface		
TRF	Transfer		
TSW	Time Switched		
UAP	User Application Processor		
UCD	Uniform Call Distribution		Basic ACD. Distribution of calls based on longest idle.
UNP	Uniform Numbering Plan		(Network) numbering plan
USOC	User Service Order Code		Other word for REN
VC	Voice Compression		
VCT	Voice CODEC circuit card		
VDSL	Very high data rate Digital Subscriber Line		
VM	Voice Mail		
VOIP	Voice over IP	VOIP	Voice over IP
WAN	Wide Area Network	WAN	Wide Area Network
WATS	Wide Area Telephone Service		Specific part of PSTN, US only
WCS	Wireless Communication System		"Analog DECT"
WH	White		
WU	Wake up		
ZT	Zone Transceiver		For Wireless system

Dterm icon	Meaning
	Hold
	Transfer
	Speaker
	Answer
	Redial
	Conf(erence)
	Recall
	Feature
	MIC
	Message
	Directory
	- / +
	Help
	Exit

NEAX 2000 IPS
ISDN System Manual

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INTRODUCTION

PURPOSE

This manual describes the hardware installation and the programming procedure for the Integrated Service Digital Network (ISDN) on the NEAX 2000 IPS System.

OUTLINE OF THIS MANUAL

This manual consists of five chapters. The following paragraphs summarize Chapters 1 through 5.

CHAPTER 1 GENERAL INFORMATION

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

CHAPTER 2 INSTALLATION

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

CHAPTER 3 SYSTEM DATA PROGRAMMING

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

CHAPTER 4 CIRCUIT CARD INFORMATION

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

CHAPTER 5 OPERATION TEST

This chapter explains the operation test to be performed after you completed the installation of ISDN. For fault diagnosis by MAT or CAT, refer to the Maintenance Manual.

TERMS IN THIS MANUAL

PBX System Designation

PBX system is designated as “PBX” or “system” usually.
When we must draw a clear line between the PBX systems, they are designated as follows.
2000 IPS : NEAX 2000 IPS INTERNET PROTOCOL SERVER
IPS^{DMR} : NEAX IPS^{DMR} INTERNET PROTOCOL SERVER^{DMR}
IPS^{DM} : NEAX IPS^{DM} INTERNET PROTOCOL SERVER^{DM}

Terminal Name

The following IP terminals are designated as “D^{term}IP” usually, unless we need to mention the type of terminal in particular.
D^{term}IP (IP Adapter Type) **[For North America Only]**
D^{term}IP (IP Bundled Type)
D^{term}IP INASET
D^{term}SP20
D^{term}SP30

NOTE 1: *D^{term}75 (Series E)/D^{term}85 (Series i) terminal can be used as the IP terminal by attaching the IP Adapter (IP Enabled D^{term}). This terminal provides users with all features currently available in D^{term}IP.*

NOTE 2: *In regard to the China market, we have not released NEAX 2000 IPS INTERNET PROTOCOL SERVER but NEAX 2000 is released.*

REFERENCE MANUAL

During installation, refer also to the manuals below:

System Manual:
Contains the system description, hardware installation procedure and the programming procedure for the NEAX 2000 IPS System.

Command Manual:
Contains the Customer Administration Terminal (CAT) operation, command functions, setting data required for programming the system and the Resident System Program.

Office Data Programming Manual:
Contains the Customer Specifications Sheets and the Office Data Programming Sheets.

Maintenance Manual:
Contains the maintenance service features and the recommended troubleshooting procedure.

Installation Procedure Manual:
Contains the installation procedure for the PBX system.

CCIS System Manual:
Contains the installation and the programming procedure for the CCIS system.

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CHAPTER 1

GENERAL INFORMATION

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

SYSTEM OUTLINE

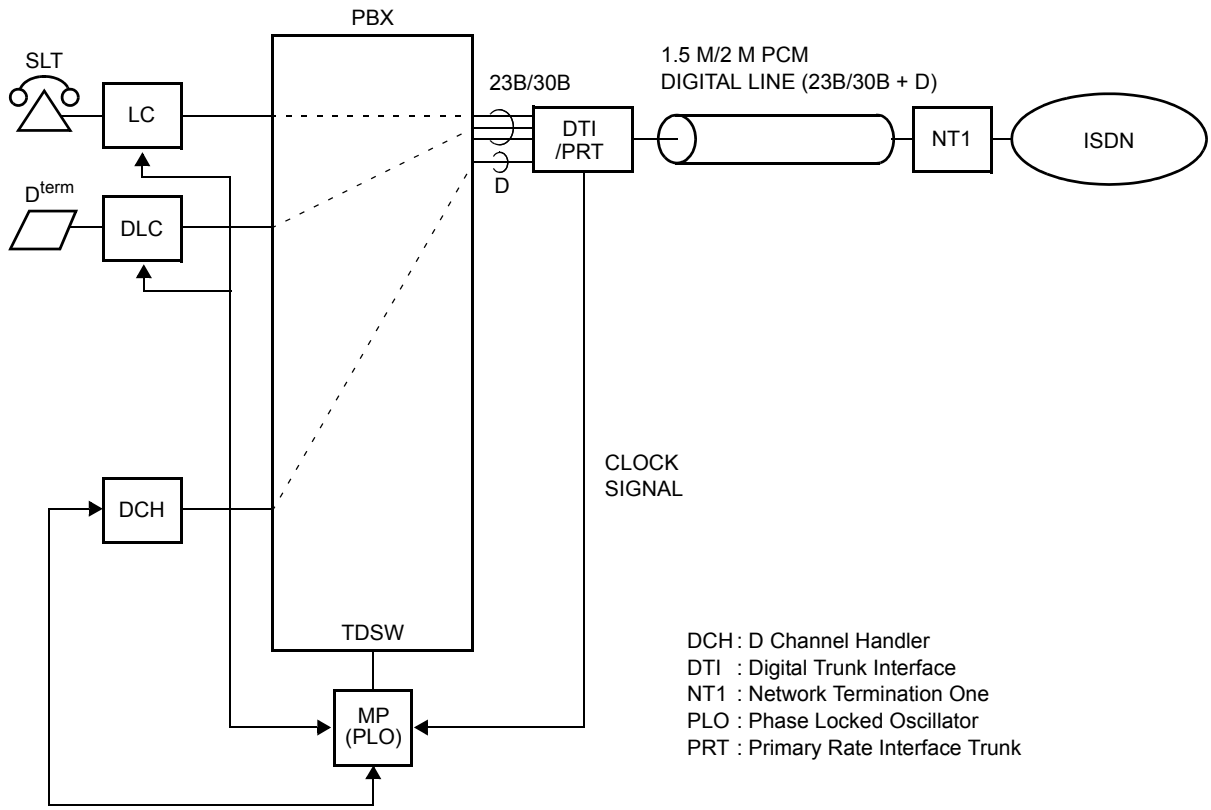
This system can be interfaced with an ISDN with the Primary Rate Interface or the Basic Rate Interface at the reference point S/T and ISDN Terminal.

System Outline of ISDN-PRI

The system is configured with a 24/30-channel Digital Trunk Interface (DTI) for digital network interface, D Channel Handler (DCH) for receiving/transmitting D channel signaling data from/to the ISDN exchange. Since the Main Processor (MP) contains Phase Locked Oscillator (PLO), the system can be synchronized to the ISDN as a clock receiver office.

The figure below shows the system outline of ISDN-PRI.

System Outline of ISDN-PRI



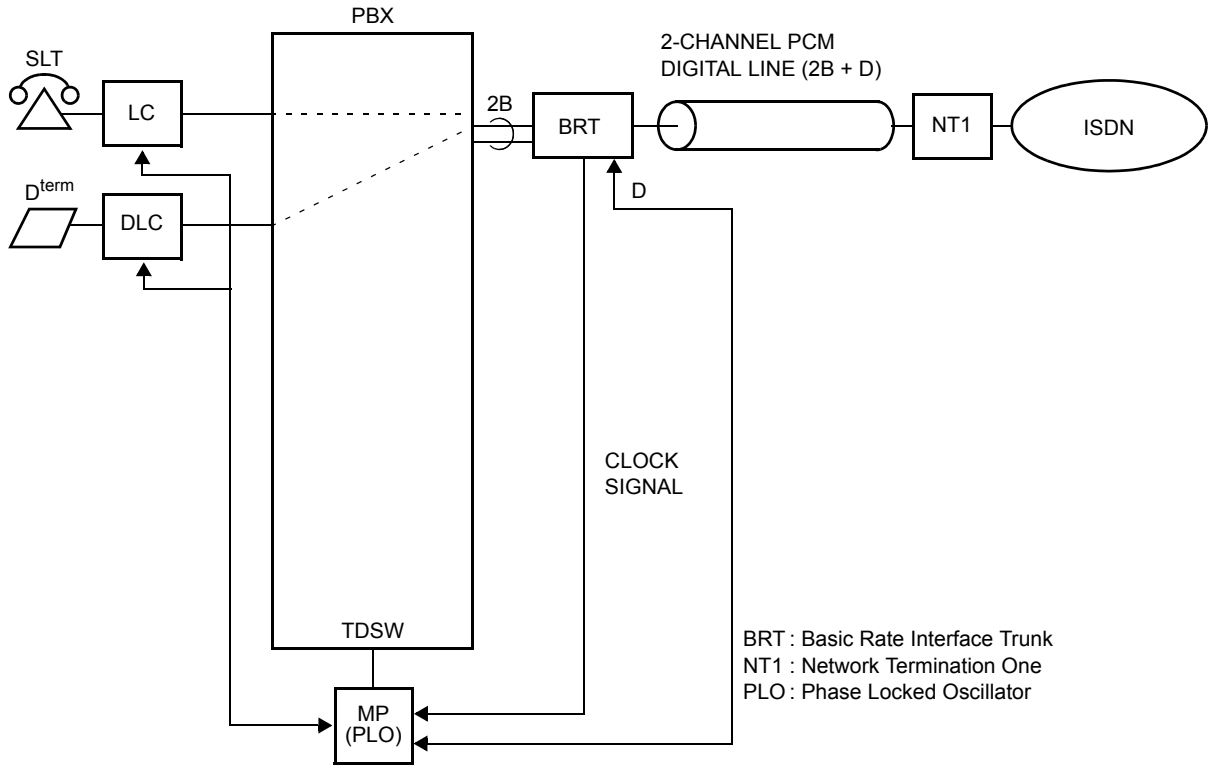
NOTE 1: *NT1 equipment must be installed in the premise.*
NOTE 2: *The PRT provides a built-in DCH.*

System Outline of ISDN-BRI

The system is configured with a Basic Rate Interface Trunk (BRT) for the digital network interface. Since the MP contains PLO, the system can be synchronized to the ISDN as a clock receiver office.

The figure below shows the system outline of ISDN-BRI.

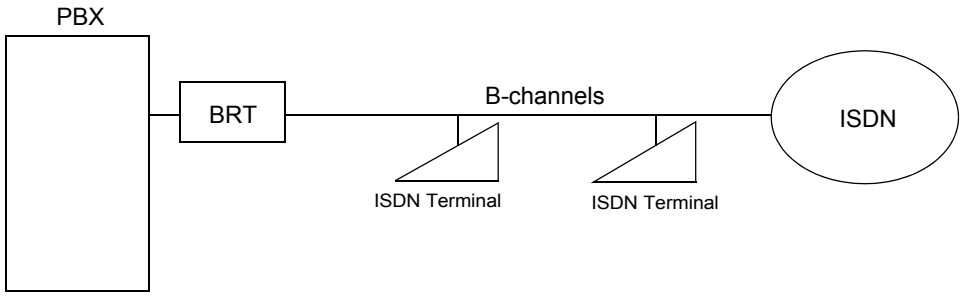
System Outline of ISDN-BRI



NOTE 1: *NT1 equipment must be installed in the premise.*

NOTE 2: *We recommend the point-to-point connection when connecting the system to the public network using the BRT card (Set the second data of CM35 Y=79 to 0).*
For the point-to-multipoint connection using the BRT card, when the system is established far from the public network, the communication error occurs easily because the ISDN signal fades away.

NOTE 3: *When connecting the system to the public network by the point-to-multipoint connection that the plural ISDN terminals and the system use the same B-channels as shown below, during the B-channels are used by the ISDN terminals, the terminals in the system cannot call to the outside party (receive ROT, if they call) even if the B-channels of BRT card are idle. Because the system cannot recognize that the B-channels are used by ISDN terminals.*
Therefore, divide the B-channels into the system and ISDN terminals or use the D-channel packet for the communication of ISDN terminals.



System Outline of ISDN-VPN

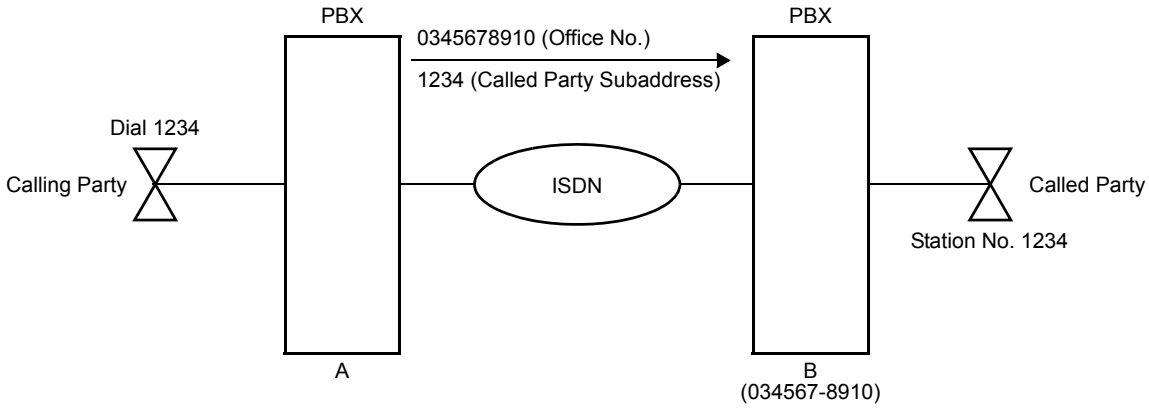
The Virtual Private Network (VPN) is a service which provides an interoffice private line via an ISDN network.

When you dial a station number (Called Party Subaddress), the system sends a pre-assigned office number of a called party together with the Called Party Subaddress to an ISDN network. With this function, an interoffice call can be made by only dialing a station number (Called Party Subaddress).

The following figure shows an example of using the VPN.

Example of ISDN-VPN

- When an opposite office can interface with the ISDN network.



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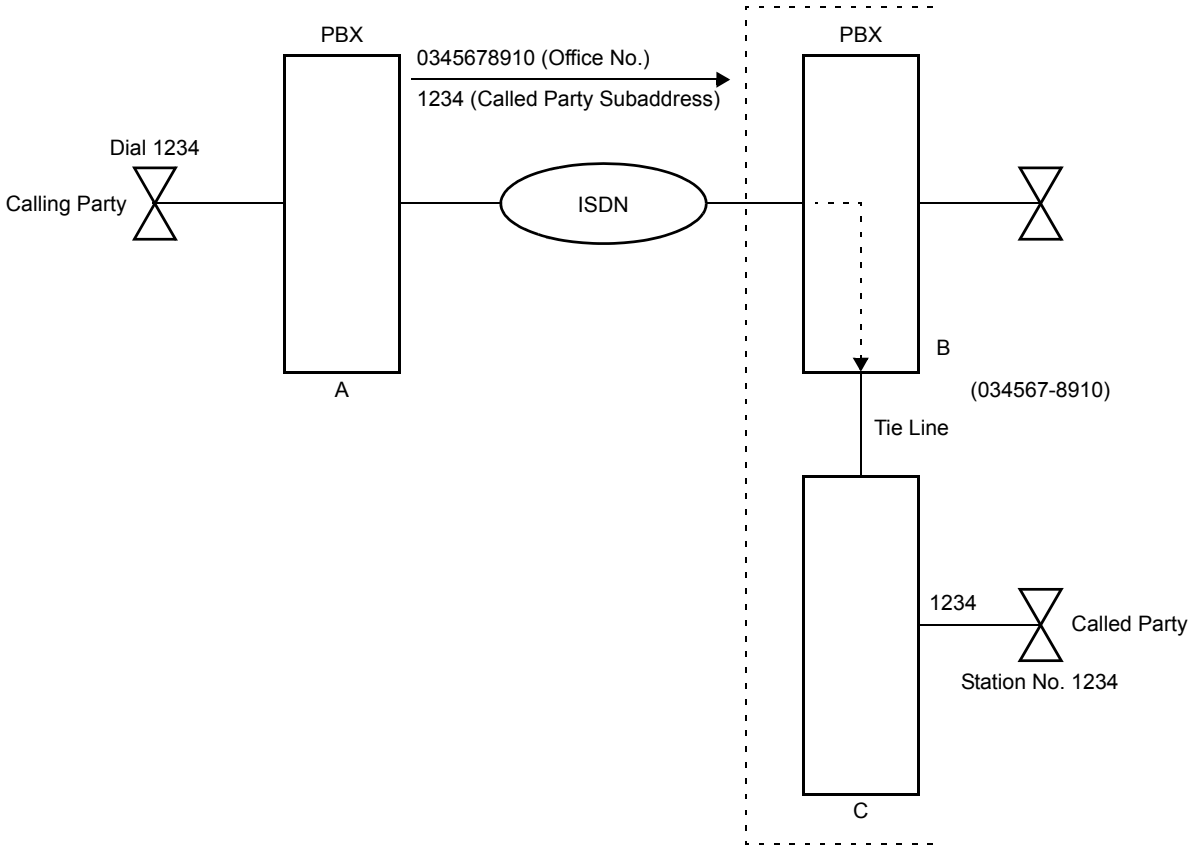
Example of ISDN-VPN

- When an opposite office cannot interface with the ISDN network.



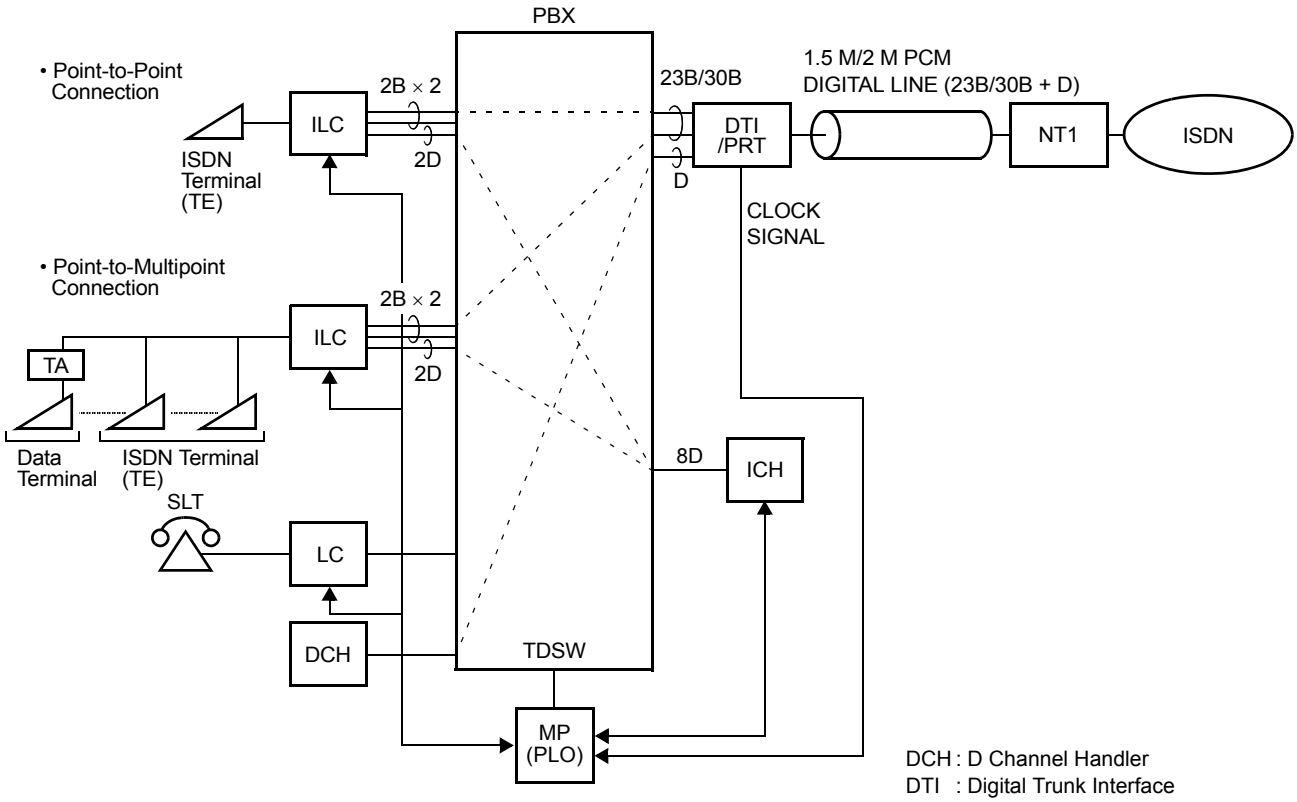
System Outline of ISDN Terminal

The system is configured with an ISDN Line Circuit (ILC) for the line interface of an ISDN Terminal and an ISDN Channel Handler (ICH) for layer 2 protocol processing (LAP-D).

The following figures show the system outline of ISDN Terminal (for ISDN-PRI).

(a) For PN-2ILCA card

System Outline of ISDN Terminal (for ISDN-PRI)



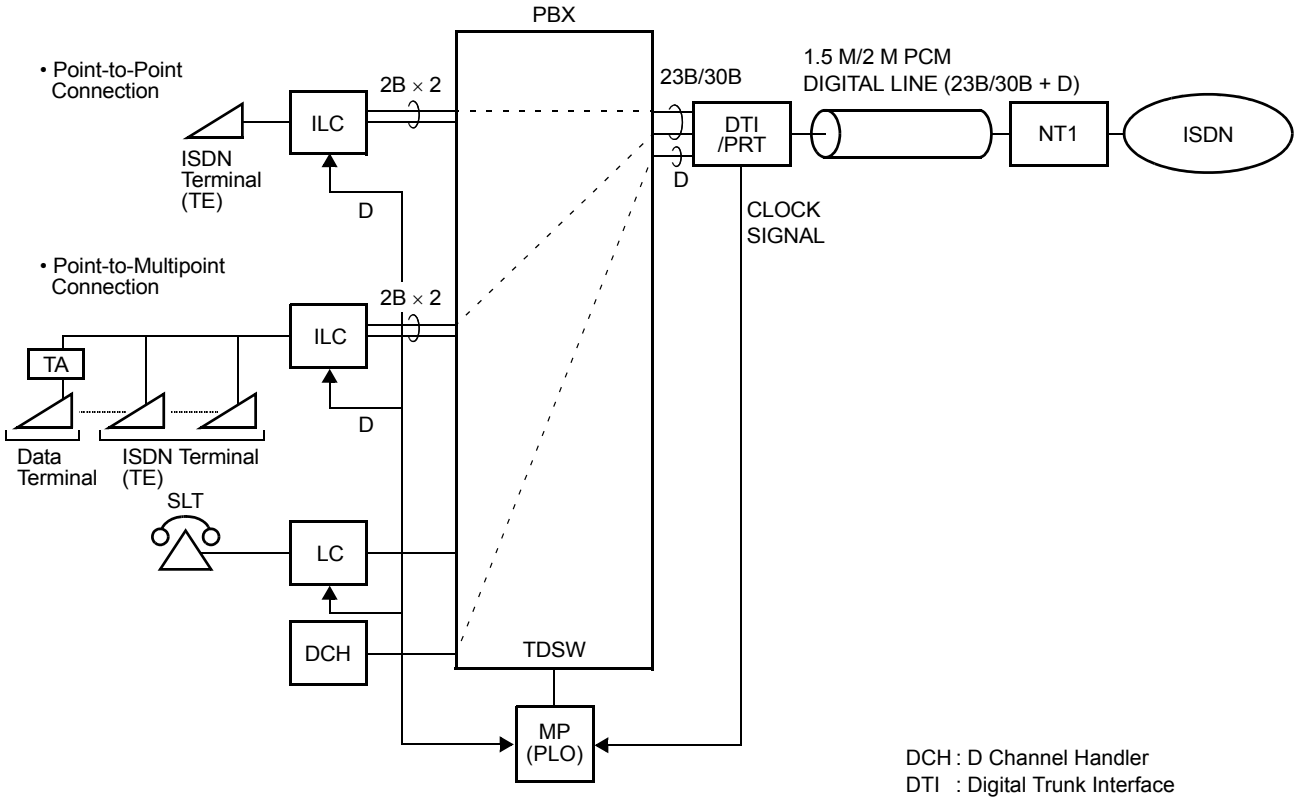
NOTE 1: *The following connections are only available.*

- *ISDN Terminal to ISDN Terminal Connection*
- *ISDN Terminal to ISDN Trunk Connection*
- *ISDN Trunk to ISDN Terminal Connection*
- *ISDN Terminal to Single Line Telephone Connection*
- *ISDN Terminal to D^{term} Connection*

NOTE 2: *NT1 equipment must be installed in the premise.*

(b) For PN-2ILCC card

System Outline of ISDN Terminal (for ISDN-PRI)



DCH : D Channel Handler
DTI : Digital Trunk Interface
ILC : ISDN Line Circuit
LC : Line Circuit
NT1 : Network Termination One
PLO : Phase Locked Oscillator
PRT : Primary Rate Interface Trunk
TA : Terminal Adapter

NOTE 1: *The following connections are only available.*

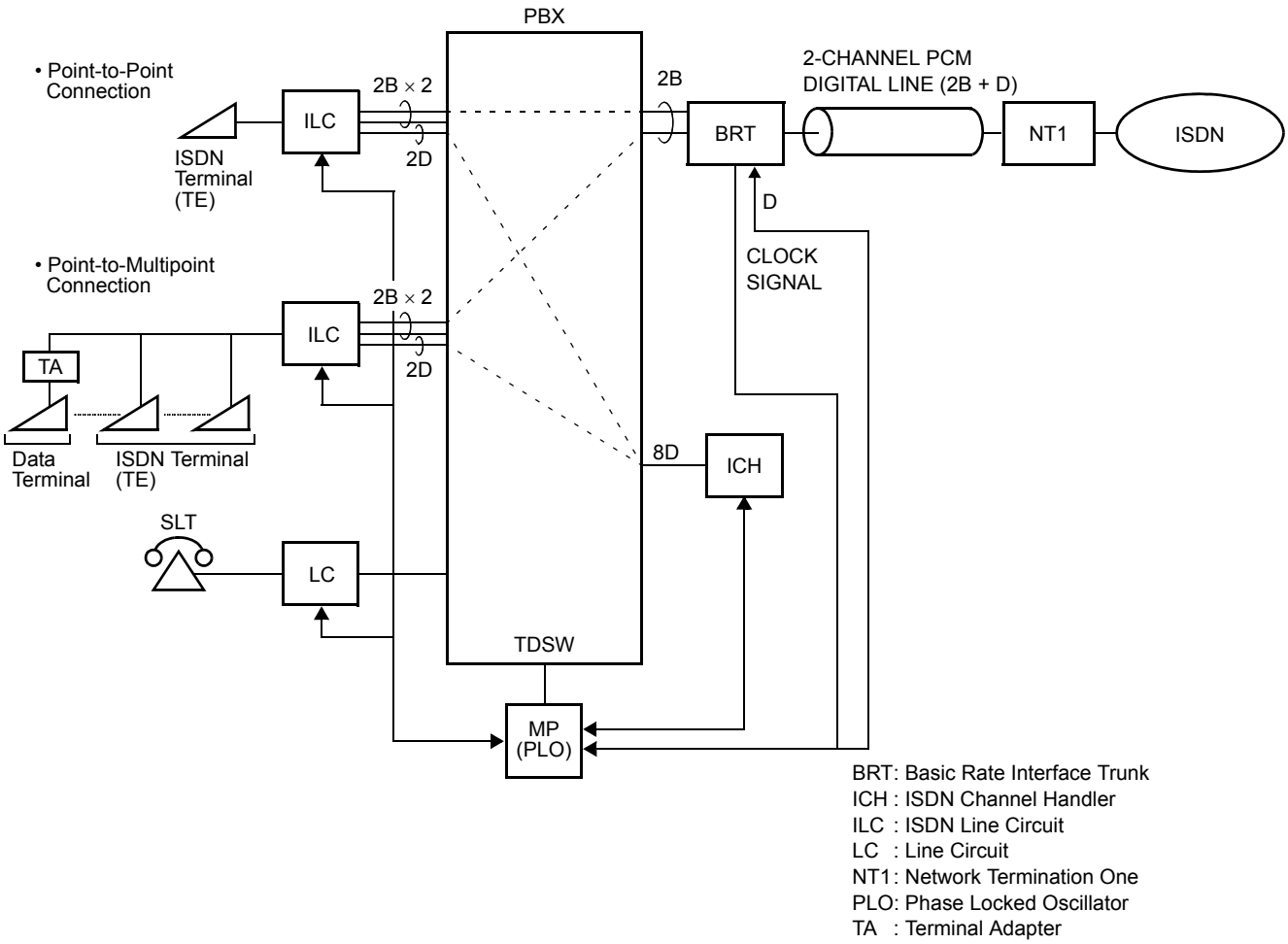
- *ISDN Terminal to ISDN Terminal Connection*
- *ISDN Terminal to ISDN Trunk Connection*
- *ISDN Trunk to ISDN Terminal Connection*
- *ISDN Terminal to Single Line Telephone Connection*
- *ISDN Terminal to D^{term} Connection*

NOTE 2: *NT1 equipment must be installed in the premise.*

The following figures show the system outline of ISDN Terminal (for ISDN-BRI).

(a) For PN-2ILCA card

System Outline of ISDN Terminal (for ISDN-BRI)



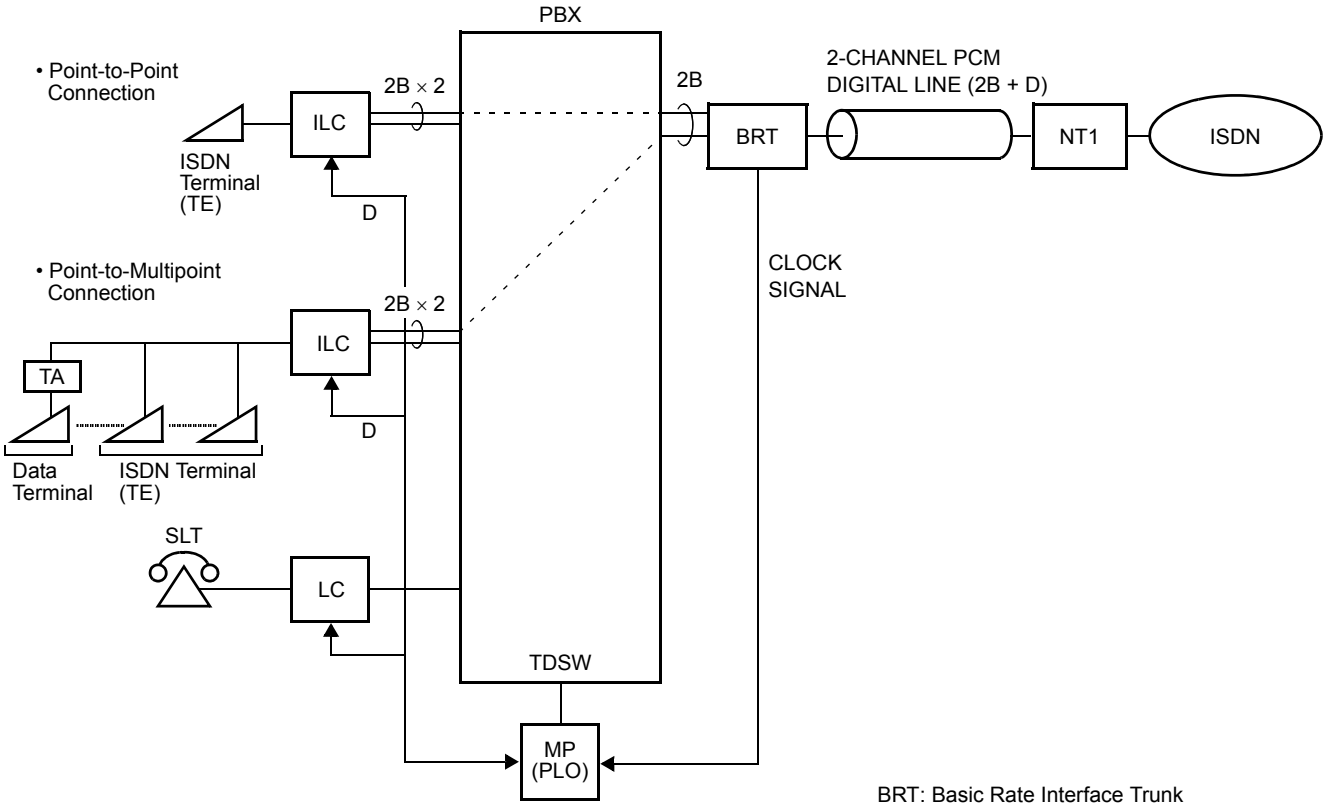
NOTE 1: *The following connections are only available.*

- *ISDN Terminal to ISDN Terminal Connection (S/T Interface)*
- *ISDN Terminal to ISDN Trunk Connection (S/T Interface)*
- *ISDN Trunk to ISDN Terminal Connection (S/T Interface)*
- *ISDN Terminal to Single Line Telephone Connection*
- *ISDN Terminal to D^{term} Connection*

NOTE 2: *NT1 equipment must be installed in the premise.*

(b) For PN-2ILCC card

System Outline of ISDN Terminal (for ISDN-BRI)



BRT: Basic Rate Interface Trunk
ILC : ISDN Line Circuit
LC : Line Circuit
NT1: Network Termination One
PLO: Phase Locked Oscillator
TA : Terminal Adapter

NOTE 1: *The following connections are only available.*

- *ISDN Terminal to ISDN Terminal Connection (S/T Interface)*
- *ISDN Terminal to ISDN Trunk Connection (S/T Interface)*
- *ISDN Trunk to ISDN Terminal Connection (S/T Interface)*
- *ISDN Terminal to Single Line Telephone Connection*
- *ISDN Terminal to D^{term} Connection*

NOTE 2: *NT1 equipment must be installed in the premise.*

DTI

The Digital Trunk Interface (DTI) interfaces the PBX directly to 24/30-channel PCM transmission line. The DTI has the following functions.

For 24DTI:

- Unipolar/Bipolar Conversion (AMI/B8ZS Format)
- Alarm Detection/Insertion
- Digital PAD on Voice Signal Transmission
- Loopback Test (Local/Remote Loopback)
- Cyclic Redundancy Checking (based on ITU-T Rec. G704)

For 30DTI:

- Unipolar/Bipolar Conversion (HDB3 Format)
- Alarm Detection/Insertion
- Digital PAD on Voice Signal Transmission
- Loopback Test (Local/Remote Loopback)
- Cyclic Redundancy Checking (based on ITU-T Rec. G704)

For connections of 24DTI and transmission line, twisted-pair cable can be used. For connection of 30DTI and transmission line, either coaxial cable or twisted pair cable can be used.

DCH

The D Channel Handler (DCH) provides the D Channel signaling interface through the DTI to an ISDN exchange, and it is responsible for signaling between the PBX and the ISDN exchange under control of the system MP.

PRT

The Primary Rate Interface Trunk (PRT) provides the ISDN Primary Rate Interface (1.5 Mbps PCM-23B + D/2 Mbps PCM-30B + D) and a built-in D Channel Handler (DCH). The PRT has the following functions.

For 24PRT:

- Unipolar/Bipolar Conversion (AMI/B8ZS Format)
- Alarm Detection/Insertion
- Digital PAD on Voice Signal Transmission
- Loopback Test (Local/Remote Loopback)
- Cyclic Redundancy Checking (based on ITU-T Rec. G704)

For 30PRT:

- Unipolar/Bipolar Conversion (HDB3 Format)
- Alarm Detection/Insertion
- Digital PAD on Voice Signal Transmission
- Loopback Test (Local/Remote Loopback)
- Cyclic Redundancy Checking (based on ITU-T Rec. G704)

  For connections of 24PRT and transmission line, twisted-pair cable can be used. For connection of 30PRT and transmission line, either coaxial cable or twisted pair cable can be used.

NOTE: *ISDN requires B8ZS Line coding with Extended superframing (ESF) format.*

BRT

The Basic Rate Interface Trunk (BRT) provides one, two or four physical interface to the ISDN-Basic Rate Interface service (192 Kbps PCM-2B + D).

The BRT has the following functions.

- Unipolar/Bipolar Conversion (AMI Format) (S/T Interface)
- Signaling Insertion/Extraction
- Frame Synchronization
- Digital PAD on Voice Signal Transmission

For connections of BRT and transmission line, twisted-pair cables can be used.

NOTE: *We recommend the point-to-point connection when connecting the system to the public network using the BRT card (Set the second data of CM35 Y=79 to 0).*
For the point-to-multipoint connection using the BRT card, when the system is established far from the public network, the communication error occurs easily because the ISDN signal fades away.

The way of Terminal Endpoint Identifier (TEI) assignment for the combination of the terminal connection form and each BRT card shows the table below.

×: Available –: Not available

BRT		TEI Value			
		Non-Automatic TEI Assignment			Automatic TEI Assignment
BRT Card	**Terminal Connection Form for ISDN-BRI**	**0**	**1**	**2-63**	**64-126**
PN-BRTA/ PN-2BRTC/ PN-2BRTK	Point-to-Point Connection	×	–	–	–
	Point-to-Multipoint Connection	–	–	–	×
	Service Profile ID (SPID) for Voice Channel **[North America Only]**	–	–	–	× *1
PN-4BRTA-A	Point-to-Point Connection	×	–	–	–
	Point-to-Multipoint Connection	×	–	–	× *2, *3, *4
	Service Profile ID (SPID) for Voice Channel **[North America Only]**	×	×	–	–

***1** TEI value is assigned for each B channel. Therefore, two TEI values are used.

***2** Automatic TEI Assignment (TEI=64-126) is available for Series 3800 software or later. When using Series 3700 software or before, use Non-Automatic TEI Assignment (TEI=0).

***3** Non-Automatic TEI Assignment and Automatic TEI Assignment can be assigned for each D channel.
[Series 3800 software or later]

***4** Assign Non-Automatic TEI Assignment when connecting to the regular ISDN network. According to the specification of the ISDN network, assign Automatic TEI Assignment only when Automatic TEI Assignment is required.

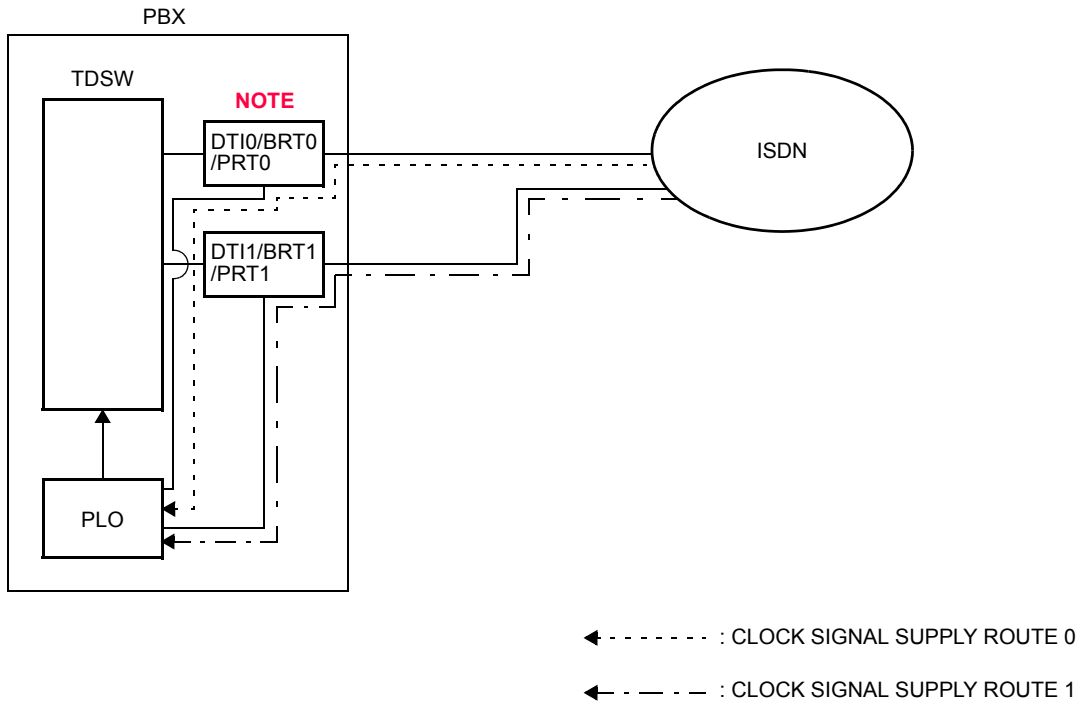
PLO

The Phase Locked Oscillator (PLO) equipped on the MP card is responsible to synchronize the system to ISDN clocks.

The PLO generates the clock signals according to the source clocks received from network. The source clock signals are extracted at DTI/BRT/PRT cards and supplied to the PLO. Two clock routes are available; one is the route 0 to receive clock signals from DTI0/BRT0/PRT0, and the other is a standby route 1 (DTI1/BRT1/PRT1) to receive clock signals when no clock signals appear on the route 0. When no clock signals come from either route 0 or route 1, the PLO keeps generating the clock signals at the frequency of the last source clock. The PLO can receive different frequency of source clocks from the route 0 and route 1.

The figure below shows an example of clock supply route.

Clock Supply Route



NOTE: *DTI0/BRT0/PRT0 and DTI1/BRT1/PRT1 must be mounted in PIM0.*

ICH

The ISDN Channel Handler (ICH) provides the D channel signaling interface and controls an ILC (Layer 2 and 3).

ILC

The ISDN Line Circuit (ILC) provides a physical interfaces to the ISDN Terminal. The interface provides for a maximum of 2 line circuit.

In the station to station call, the Calling Party Number sent to the ISDN Terminal is as follows.

[Series 3700 R12.2 software required]

- When calling from Single Line Telephone/D^{term}
  By setting CM08>584, you can select Station Number or Calling Party Number (set by CM12 Y=12/13) to send to the ISDN Terminal as follows.

SUPPORT SOFTWARE VERSION	CM08>584	SENT NUMBER
Series 3700 R12.2 software or later	1	Station Number is sent.
	0	Calling Party Number assigned by CM12 Y=12/13 is sent.
Series 3700 R12.1 software or before	Not available	Calling Party Number assigned by CM12 Y=12/13 is sent.

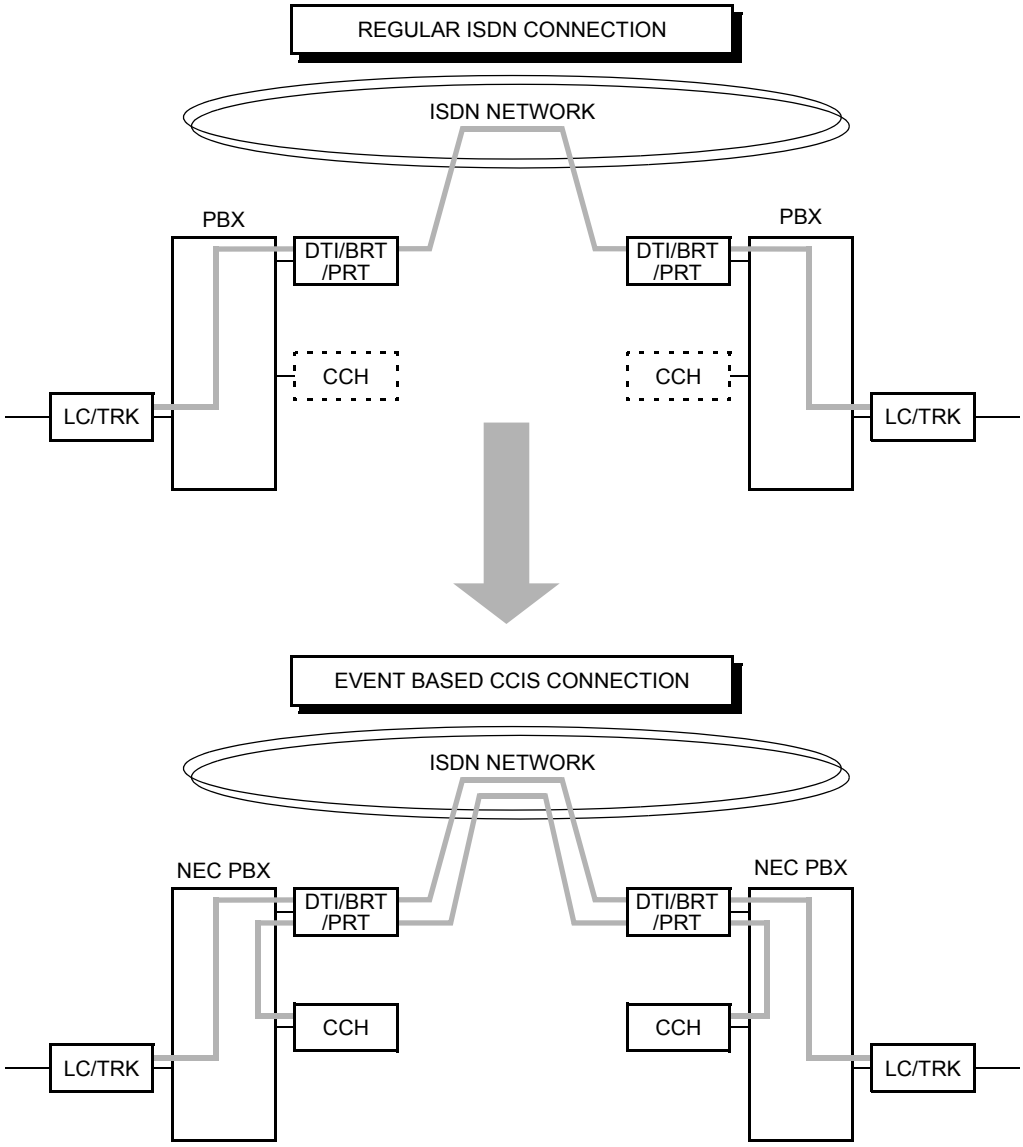
- When calling from ISDN Terminal
  Calling Party Number is sent to the terminated ISDN Terminal, when the originated ISDN Terminal sends Calling Party Number (set by the ISDN Terminal or CM12 Y=12/13).
  Station Number of the originated ISDN Terminal is sent to the terminated ISDN Terminal, when the originated ISDN Terminal doesn't send Calling Party Number.

OUTLINE OF EVENT BASED CCIS

Event Based CCIS allows a PBX customer who does not have tie lines to use the various Common Channel Interoffice Signaling (CCIS) features by using ISDN lines as CCIS virtual tie lines. For the PBX customer who usually has low traffic, Event Based CCIS is available between NEC NEAX PBXs.

The figure below shows the system outline of Event Based CCIS.

System Outline of Event Based CCIS



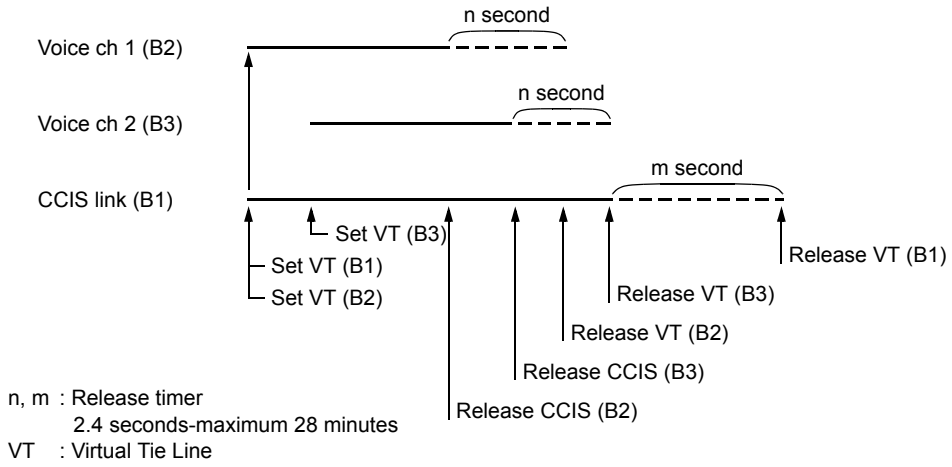
Common Channel and Voice Channel Link Control

When the call is a regular ISDN call, or when there is no call on the PBX, the common signaling channel and the voice channel for the virtual tie lines are disconnected.

If the virtual tie lines are all busy, or when the virtual tie lines cannot be connected due to a line fault, a call is transmitted to the opposite office via ISDN network as a regular ISDN call not as a CCIS call.

When a predetermined time passed after all calls finish, the voice channels and common signaling channel are released and the CCIS link is disconnected. The release timer is set by system data programming for the common signaling channel and voice channels.

Release Timing of Virtual Tie Line and CCIS Link



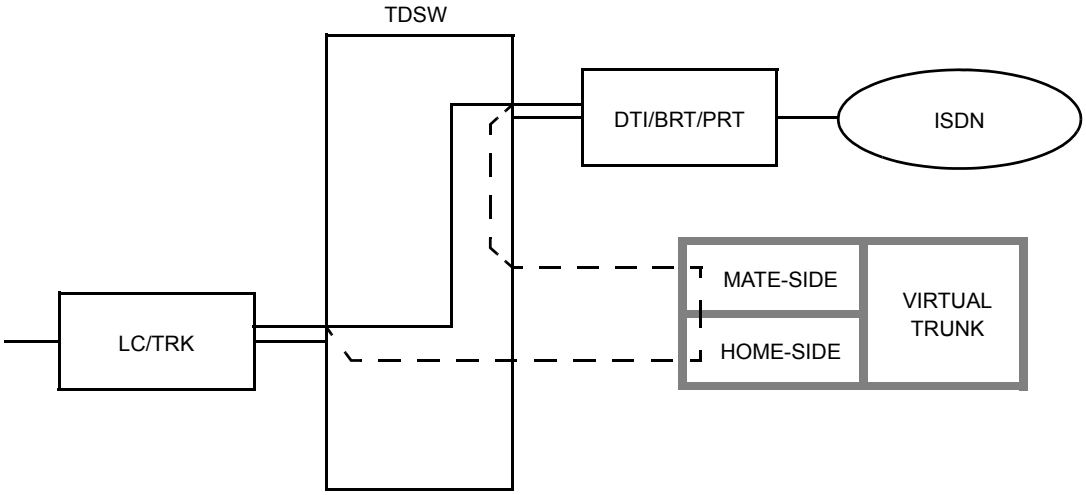
For Event Based CCIS, the Virtual Trunks which are used as a No. 7 CCIS trunk.

Virtual Trunk:

The Virtual Trunk consists of a Home-Side Trunk and a Mate-Side Trunk. The Home-Side Trunk is connected to the station side, and the Mate-Side Trunk is connected to network side of the PBX virtually.

The virtual trunks do not exist actually, but are handled as No. 7 CCIS trunk by the system, for system data. ISDN subaddress or ISDN Indial number is used to notify the CCIS channel number for virtual tie line and establish a CCIS link and individual voice links between offices.

Virtual Trunk



CCH Card:

The CCH card is used to handle the common channel signaling.

DTI/BRT/PRT Card:

The system uses the same interface trunk for regular ISDN connection and the virtual tie line connection on Event Based CCIS.

ISDN Protocol Analyzer:

For ISDN PRI, the protocol analyzer must be able to support ISDN exchange, such as AT&T, Nortel. For North America, it must support National ISDN 2 (NI-2) protocols.

For ISDN BRI, the protocol analyzer must be an S/T interface. For North America, it must support National ISDN 1 (NI-1) protocol.

Both analyzers must be capable of collecting Layer 2 and Layer 3 (Q921 & Q931) information.

Event Based CCIS Feature List

Event Based CCIS Feature List

×: Available –: Not available

SERVICE FEATURE	AVAILABILITY	REMARKS
Attendant Camp-On with Tone Indication-CCIS	×	
Attendant Controlled Conference-CCIS	×	NOTE 4
Automatic Recall-CCIS	×	
Brokerage-Hot Line-CCIS	×	
Busy Lamp Field (BLF)-CCIS	–	
Busy Verification-CCIS	×	
Call Back-CCIS	×	
Call Forwarding-All Calls-CCIS	×	
Call Forwarding-Busy Line-CCIS	×	
Call Forwarding-Don't Answer-CCIS	×	
Call Forwarding-Intercept-CCIS	×	
Call Forwarding-Override-CCIS	×	
Call Processing Indication-CCIS	×	
Call Transfer-All Calls-CCIS	×	
Call Transfer-Attendant-CCIS	×	
Called Station Status Display-CCIS	×	
Calling Name Display-CCIS	×	
Calling Number Display-CCIS	×	
CCIS Networking via IP	–	
Centralized Billing-CCIS	×	NOTE 2
Centralized Day/Night Mode Change-CCIS	–	
Centralized E911-CCIS	×	
Centralized MAT-CCIS	–	
Consultation Hold-All Calls-CCIS	×	
Data Line Security-CCIS	×	
Deluxe Traveling Class Mark-CCIS	×	

Continued on next page

Event Based CCIS Feature List

×: Available –: Not available

SERVICE FEATURE	AVAILABILITY	REMARKS
Dial Access to Attendant-CCIS	×	
Digital Display-Station-CCIS	×	
Digital Display-Trunk-CCIS	×	
Direct-In Termination-CCIS	×	
Distinctive Ringing-CCIS	×	
Do Not Disturb-CCIS	×	
Dual Hold-CCIS	×	
Elapsed Time Display-CCIS	×	
Flexible Numbering of Stations-CCIS	×	
Hands-Free Answerback-CCIS	×	
Hot Line-CCIS	×	
House Phone-CCIS	×	
Incoming Call Identification-CCIS	×	
Individual Attendant Access-CCIS	×	NOTE 5
LDN Night Connection-CCIS	×	
Link Alarm Display-CCIS	–	
Link Reconnect-CCIS	×	
Message Waiting Lamp Setting-Attendant-CCIS	×	NOTE 3
Message Waiting Lamp Setting-Station-CCIS	×	NOTE 3
Miscellaneous Trunk Access-CCIS	×	
Miscellaneous Trunk Restriction-CCIS	×	
Multiple Call Forwarding-All Calls-CCIS	×	
Multiple Call Forwarding-Busy Line-CCIS	×	
Multiple Call Forwarding-Don't Answer-CCIS	×	
Multiple Console Operation-CCIS	×	
Network Station Number-CCIS (FCCS)	×	

Continued on next page

Event Based CCIS Feature List

×: Available –: Not available

SERVICE FEATURE	AVAILABILITY	REMARKS
Night Connection-Fixed-CCIS	×	
Night Connection-Flexible-CCIS	×	
Outgoing Trunk Queuing-CCIS	–	
Paging Access-CCIS	×	
Restriction from Outgoing Calls-CCIS	×	
Service Display-CCIS	×	
Single-Digit Station Calling-CCIS	×	
Station-Controlled Conference-CCIS	×	NOTE 4
Station-to-Station Calling-CCIS	×	
Station-to-Station Calling-Operator Assistance-CCIS	×	
Toll Restriction-3/6 Digits-CCIS	×	
Trunk Answer from Any Station-CCIS	×	
Trunk-to-Trunk Restriction-CCIS	×	
Uniform Numbering Plan-CCIS	×	
Voice Call-CCIS	×	
Voice Mail Integration-CCIS	×	
Voice Mail Live Record-CCIS	–	
Voice Mail Private Password-CCIS	×	

NOTE 1: *The voice channel and the common signaling channel keep connecting after the calls finish according to the release timer data. Therefore, while the CCIS link is kept up by the timer, the features are available.*

NOTE 2: *The billing information is sent while the CCH link is connected. If the sending of billing information has failed, it is sent again when a new CCH link is established by the next call.*

NOTE 3: *As a remote office, this feature is available on 2000 IPS.*

NOTE 4: *An attendant/extension of the 2000 IPS cannot be a conference leader.*

NOTE 5: *This service is available when the Attendant Console is provided at the 2400 IPX office on the network.*

Event Based CCIS Service Conditions

- Event Based CCIS connection is available between NEC NEAX PBXs.

- The maximum number of the virtual tie lines is 16 channels per one system, including both common signaling channels and voice channels.

- This feature supports voice calls only. Supported objects at PBX transmission side: single line telephone, D^{term}, DID/E&M/Ring Down (analog/T1/E1) tandem calls.
  The data calls are transmitted via the regular ISDN network.

- The number of originating call from the ISDN trunk is counted as Peg Count when using the ISDN line for the virtual tie line by route basis.

- Billing information of the virtual tie line using the ISDN line can be treated as regular tie line calls.

- Billing information of the virtual tie line using the ISDN line can be treated on tandem calls.

- The voice channel of the virtual tie line is released after the call is finished.
  The common signaling channel of virtual tie line is released after all calls on voice channels are finished. The release timer is determined by system timer programming for the voice channels and the common signaling channels.

- The ISDN line used for the virtual tie line can also be used as a regular ISDN line.
  The trunk route used for the virtual tie line can be distinguished from the regular ISDN line by assigning different LCR data in system programming.

CARD NAME AND FUNCTION

The table below shows the circuit card name and function for ISDN.

ISDN Card Name and Function

CARD NAME	FUNCTIONAL NAME	FUNCTION
PN-BRTA	BRT	1-line Basic Rate (2B + D) Interface Trunk Card Accommodates one 2-channel PCM digital lines.
PN-2BRTC	BRT	2-line Basic Rate (2B + D) Interface Trunk Card Accommodates two 2-channel PCM digital lines.
PN-2BRTK [For UK]	BRT	2-line Basic Rate (2B + D) Interface Trunk Card Accommodates two 2-channel PCM digital lines.
PN-4BRTA-A	BRT	4-line Basic Rate (2B + D) Interface Trunk Card Accommodates four 2-channel PCM digital lines.
PN-24DTA-C	DTI	T1 Digital Trunk Interface (1.5 Mbps) Card Accommodates 24-channel PCM digital lines.
PN-30DTC-C	DTI	E1 Digital Trunk Interface (2 Mbps) Card Accommodates 30-channel PCM digital lines.
PN-2ILCA	ILC	2-line ISDN Line Circuit Card Provides a physical interface to ISDN Terminals.
PN-2ILCC	ILC	2-line ISDN Line Circuit Card Provides a physical interface to ISDN Terminals. This card does not require PN-SC03-B (ICH) card.
PN-24PRTA	PRT	ISDN Primary Rate (23B + D) Interface Card Provided a built-in D-channel Handler (DCH).
PN-30PRTA	PRT	ISDN Primary Rate (30B + D) Interface Card Provides a built-in D-channel Handler (DCH).
PN-DTA	PRT	ISDN Primary Rate (23B + D/30B + D) Interface Card Provided a built-in D-channel Handler (DCH).
PN-DTB	PRT	ISDN Primary Rate (23B + D/30B + D) Interface Card Provides a built-in D-channel Handler (DCH).

Continued on next page

ISDN Card Name and Function

CARD NAME	FUNCTIONAL NAME	FUNCTION
PN-DTA	CCH	Common Channel Handler Card for Erent Based CCIS Transmits/receives signals on the common signaling channel of Event Based CCIS.
PN-DTB	CCH	Common Channel Handler Card for Event Based CCIS Transmits/receives signals on the common signaling channel of Event Based CCIS.
PN-SC00	CCH	Common Channel Handler Card Transmits/receives signals on the common signaling channel of No. 7 CCIS.
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-B	ICH	ISDN-channel Handler Card Provides the D-channel signaling interface and controls maximum four ILC cards (Layer 2 and 3).

SYSTEM CAPACITY

The table below shows the system capacity of the ISDN-PRI/ISDN-BRI.
When you use the NEAX IPS^{DM}, refer to "NEAX IPS^{DM} Hardware Installation Guide".

System Capacity for ISDN-PRI

System Capacity for ISDN-PRI

DESCRIPTION			CAPACITY			
			24DTI	30DTI	24PRT	30PRT
DTI Card			8	8	–	–
DCH Card			8	8	–	–
Trunks for DTI			192	248	–	–
PRT Card			–	–	8	8
Trunks for PRT			–	–	192	248
ISDN Routes			8			
ICH Card			16			
ILC Card (2ILCA)			64			
ILC Card (2ILCC)			16			
Port per DTI Card			24	31	–	–
Port per DCH Card			1	1	–	–
Port per PRT Card			–	–	24 + 1 (DCH)	31 + 1 (DCH)
Port per ICH Card			4			
Port per ILC Card (2ILCA)			8			
Port per ILC Card (2ILCC)			8			
No. of ISDN Terminal (Simultaneous Connection)	P to P Connection	PN-2ILCA	128			
		PN-2ILCC	32			
	P to MP Connection	PN-2ILCA	256			
		PN-2ILCC	64			

Continued on next page

System Capacity for ISDN-PRI

DESCRIPTION			CAPACITY			
			24DTI	30DTI	24PRT	30PRT
No. of ISDN Terminal (Max. number of terminal)	P to P Connection	PN-2ILCA	128			
		PN-2ILCC	32			
	P to MP Connection	PN-2ILCA	512			
		PN-2ILCC	256			

System Capacity for ISDN-BRI

System Capacity for ISDN-BRI

DESCRIPTION			CAPACITY
BRT Card (BRT/2BRT/4BRT)			12/24/24
Trunks for BRT (BRT/2BRT/4BRT)			24/96/192
ICH Card			16
ILC Card (2ILCA)			64
ILC Card (2ILCC)			16
Port per BRT Card (BRT/2BRT/4BRT)			2/4/8
Port per ICH Card			4
Port per ILC Card (2ILCA)			8
Port per ILC Card (2ILCC)			8
No. of ISDN Terminal (Simultaneous Connection)	P to P Connection	PN-2ILCA	128
		PN-2ILCC	32
	P to MP Connection	PN-2ILCA	256
		PN-2ILCC	64

Continued on next page

System Capacity for ISDN-BRI

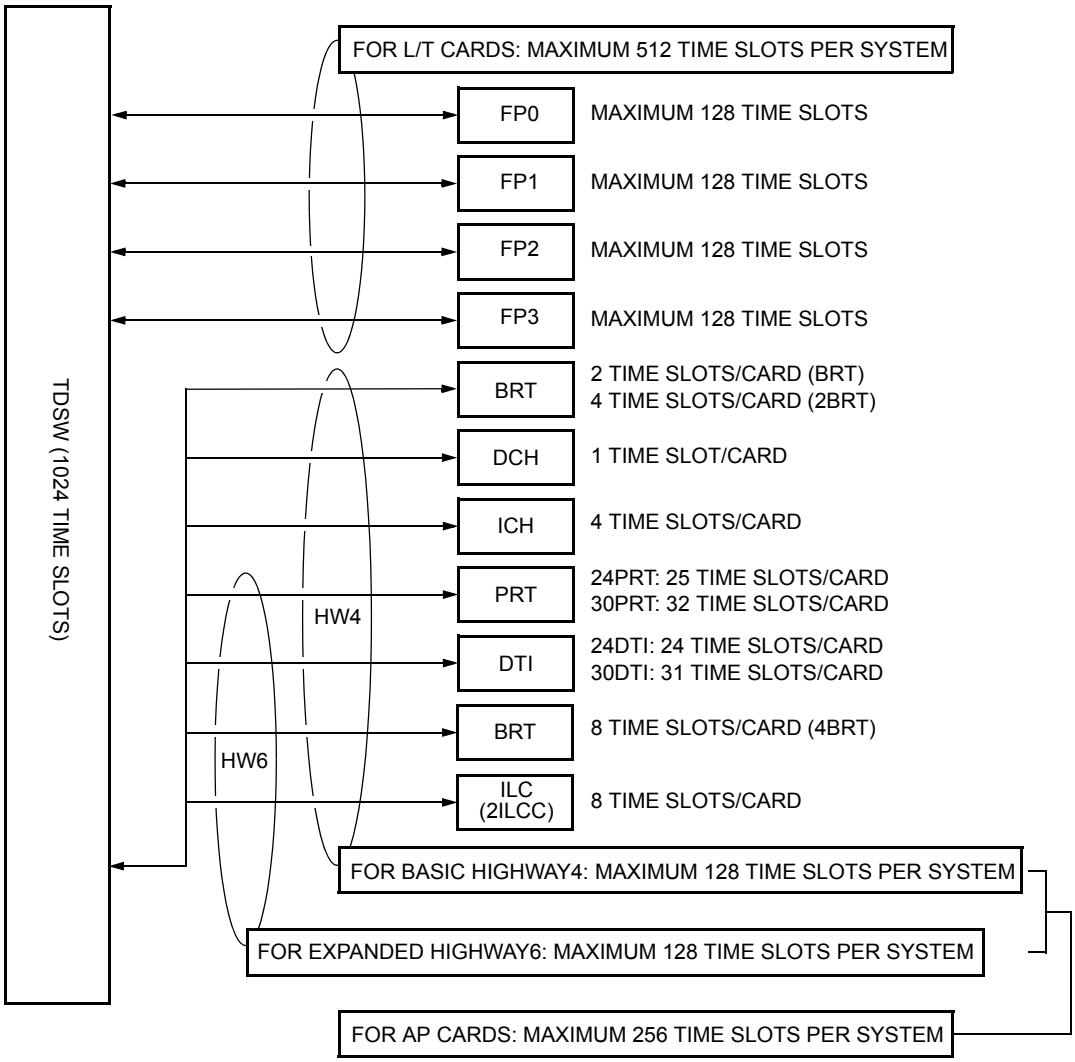
DESCRIPTION			CAPACITY			
			24DTI	30DTI	24PRT	30PRT
No. of ISDN Terminal (Max. number of terminal)	P to P Connection	PN-2ILCA	128			
		PN-2ILCC	32			
	P to MP Connection	PN-2ILCA	512			
		PN-2ILCC	256			

SYSTEM CONDITIONS

Time Slot Assignment Condition

As shown below, the DCH/ICH/BRT/2BRT card uses the time slot on the basic highway 4. Therefore, the total number of time slots for all DCH/ICH/BRT/2BRT cards must be 128 time slots or less including all other application processor cards, which use the highway 4.
The 24DTI/30DTI/24PRT/30PRT/4BRT/2ILCC card can use the time slot on both the basic and expanded highway 4 and 6. Therefore, the total number of time slots for all 24DTI/30DTI/24PRT/30PRT/4BRT/2ILCC cards must be 256 time slots or less including all other application processor cards, which use the highway 4 and 6.

Accommodation of DTI/DCH/ICH/BRT/PRT into TDSW



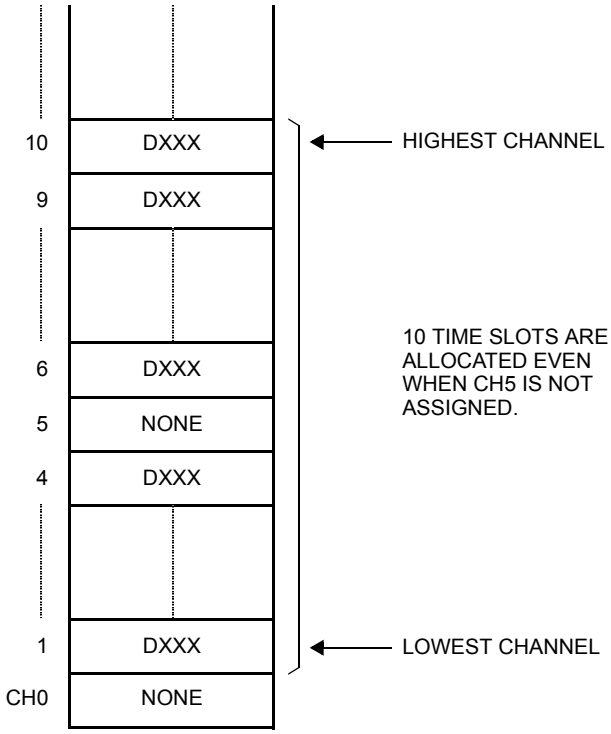
Time Slot Allocation for DTI/PRT/DCH Card

On each DTI/PRT card, the system recognizes the lowest and highest channel numbers to which trunk numbers have been assigned, and allocates time slots to all the channels within them. If trunk numbers are assigned to discontinuous channels in this case, the system also allocates time slots to channels not assigned.

For example, as shown below, even when Channel 1 through Channel 10 have been assigned by the system data programming (CM07 Y=01) except Channel 5, the system allocates a total of 10 time slots for all the ten channels. Therefore, to avoid allocation of unnecessary time slots, it is recommended that consecutive channels are assigned on each DTI/PRT card.

In the case of the DCH card, one time slot is allocated for setting up a fixed path between the DTI and the DCH by assigning Channel 16 of the DTI as the D Channel.

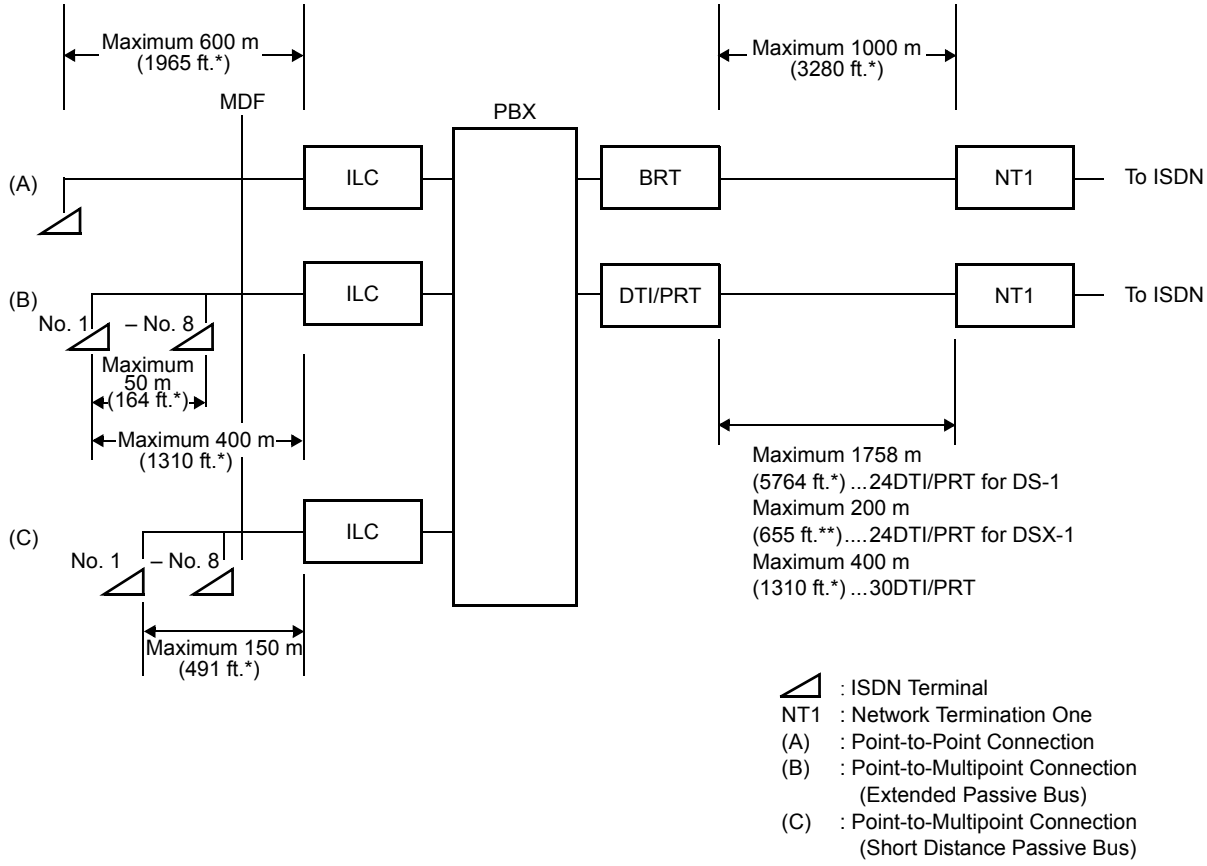
Time Slot Allocation for DTI



Line Distance between PBX and NT1/ISDN Terminal

The figure below shows the line distance between PBX and NT1 and the line distance between PBX and ISDN Terminal.

Line Distance between PBX and NT1/ISDN Terminal



NOTE 1: *The line distance marked by * shows the value when the 0.5ϕ twisted-pair cable is used.*
NOTE 2: *The line distance marked by ** shows the value when the 0.65ϕ twisted-pair cable is used.*

DTI SPECIFICATIONS

Transmission Characteristics

Transmission Characteristics

CHARACTERISTICS	24-CHANNEL	30-CHANNEL
(1) Output		
• Line Rate	1.544 Mbps ± 50 ppm	2.048 Mbps ± 50 ppm
• Line Code	AMI with ZCS/B8ZS*	High Density Bipolar 3 (HDB3)
• Line Impedance	100 Ω	75 Ω (Coaxial Cable) 120 Ω (Twisted-Pair Cable)
• Pulse Amplitude (Base to Peak)	3 volts ± 0.6 volts	2.37 volts nominal (Coaxial Cable) 3 volts nominal (Twisted-Pair Cable)
• Pulse Width	324 ns ± 30 ns	244 ns nominal

Continued on next page

*AMI : Alternate Mark Inversion
ZCS : Zero Code Suppression
B8ZS: Bipolar Eight Zero Substitution

Transmission Characteristics

CHARACTERISTICS	24-CHANNEL	30-CHANNEL
(2) Input		
• Line Rate	1.544 Mbps ± 200 bps (130 ppm)	2.048 Mbps ± 50 ppm
• Pulse Amplitude (Base to Peak)	1.5 volts – 3 volts	1.5 volts – 2.7 volts (Coaxial Cable) 1.5 volts – 3.3 volts (Twisted-Pair Cable)
• Frame Synchronization Pattern	001011 (24MF)	
• Input Jitter	ITU-T Fig. 1/G743	ITU-T Fig. 1/G743
• Wander	+138UI, –193UI or –138UI, +193UI	ITU-T G823
• Cable Length from PBX to NT1	Maximum 200 m (655 ft.) (with 0.65ϕ (22 ABAM) twisted-pair cable)	Maximum 400 m (with 0.65ϕ twisted-pair cable)

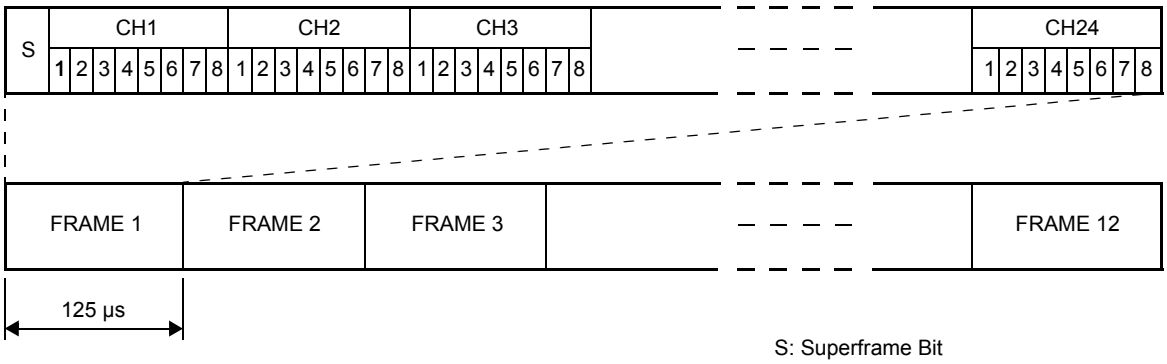
Frame Configuration of 24DTI

According to the AT&T Specifications for 24-Channel transmission, there are two types of frame configurations: 12-Multi Frame and 24-Multi Frame.

(1) 12-Multi Frame

The frame has 12-Multi Frames, and each Multi frame has a 24-Channel PCM signal (8 bits/channel) and a S bit (Super Frame Bit). Figure below shows the frame configuration, and Table in next page shows frame bit assignment.

DTI Frame Configuration (12-Multi Frame)



S: Superframe Bit

12-Multi Frame Bit Assignment

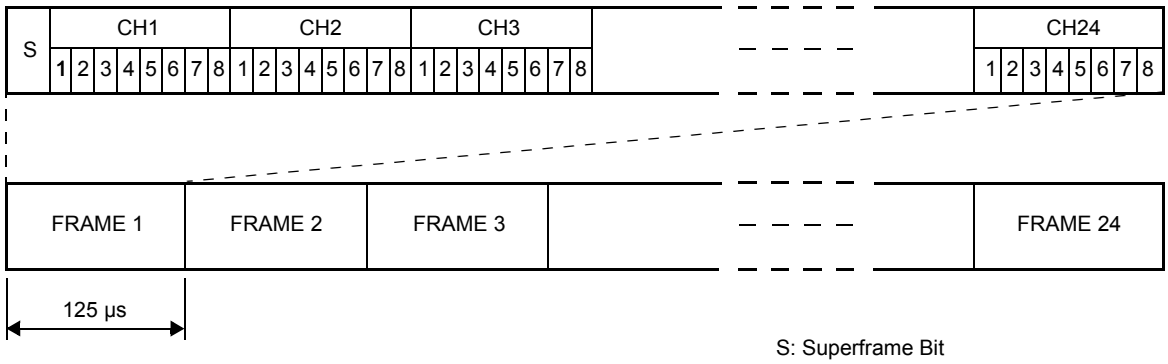
FRAME No.	S BIT	
	TERMINAL SYNCHRONIZATION (FT)	SIGNAL SYNCHRONIZATION (FS)
1	1	
2		0
3	0	
4		0
5	1	
6		1
7	0	
8		1
9	1	
10		1
11	0	
12		0

*The S-bit is the first bit in each frame.
*Frames are repeated in the order shown above.

(2) 24-Multi Frame

This configuration has 24-Multi Frames and each Multi frame has a 24-Channel PCM signal (8 bits/channel) and a S bit (Super Frame Bit). Figure below shows the frame configuration, and Table in next page shows frame bit assignment.

DTI Frame Configuration (24-Multi Frame)



S: Superframe Bit

24-Multi Frame Bit Assignment

FRAME No.	S BIT		
	FRAME SYNCHRONIZATION	4 Kbps DATA LINK	CRC
1		m	
2			CB1
3		m	
4	0		
5		m	
6			CB2
7		m	
8	0		
9		m	
10			CB3
11		m	
12	1		
13		m	
14			CB4
15		m	
16	0		
17		m	
18			CB5
19		m	
20	1		
21		m	
22			CB6
23		m	
24	1		

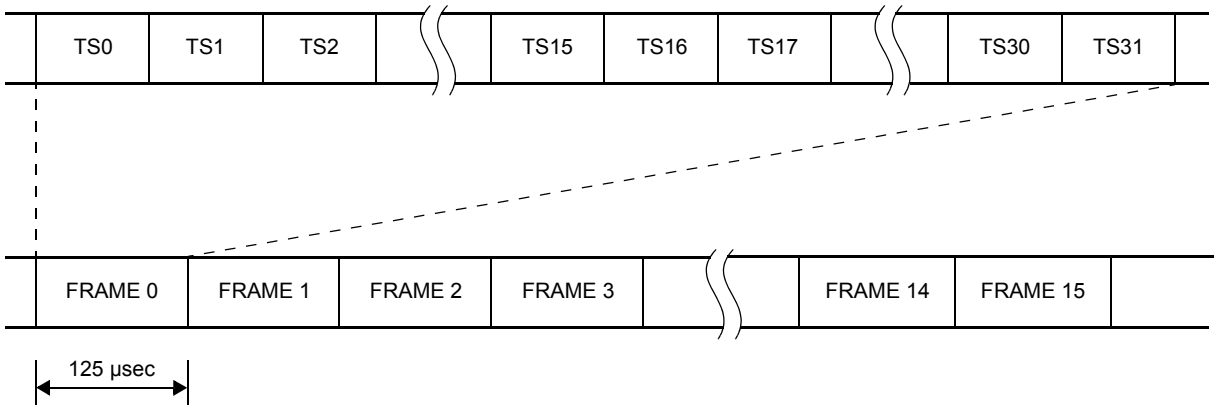
*The S-bit is the first bit in each frame.
*Frames are repeated in the order shown above.
*“m” in the “4 Kbps Data Link” column means that the frame is usually assigned to 1.

Frame Configuration of 30DTI

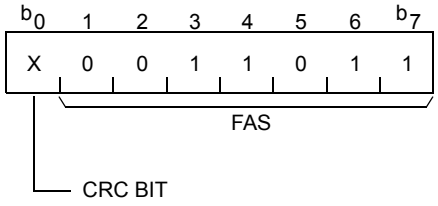
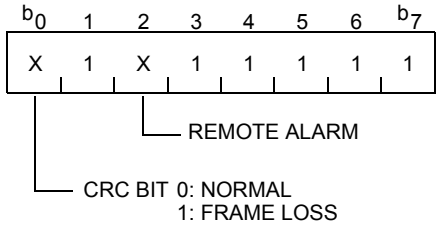
Based on 30-channel transmission method of ITU-T Specification, the frame configuration consists of 16-multi frame, each frame having 32 time slots.

Figure below shows the frame configuration, and Table in next page shows the details of time slot assignment.

Frame Configuration of 30DTI



Time Slot Assignment of 30DTI

TIME SLOT No.	EVEN No. FRAME	ODD No. FRAME
TS0	Frame Alignment Signal (FAS)  	
TS1 ~ TS15	Voice Channel (B channel) CH1 ~ CH15	
TS16	D Channel Signaling	
TS17 ~ TS31	Voice Channel (B channel) CH17 ~ CH31	

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CHAPTER 2

INSTALLATION

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

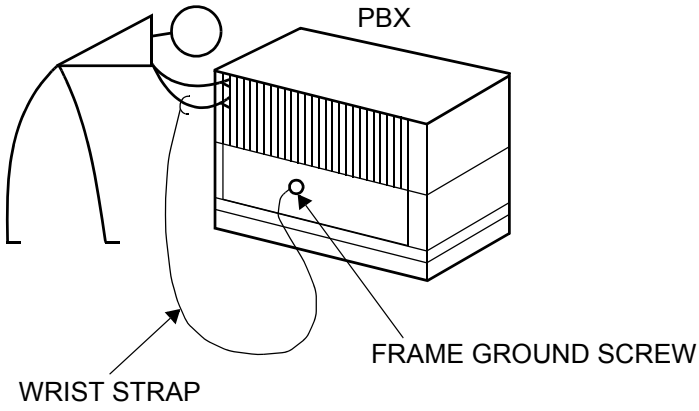
PRECAUTIONS

Static Electricity Guard

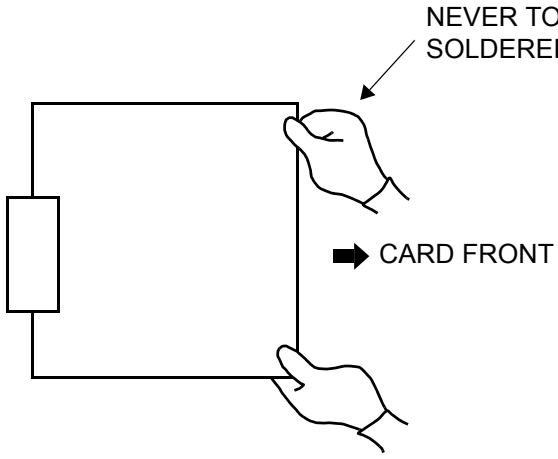
You must wear a grounded wrist strap to protect circuit cards from static electricity.

Static Electricity Guard

- WHEN PLUGGING/UNPLUGGING A CIRCUIT CARD



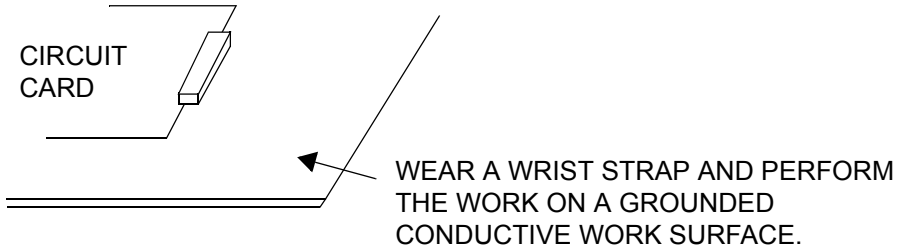
- WHEN HOLDING A CIRCUIT CARD



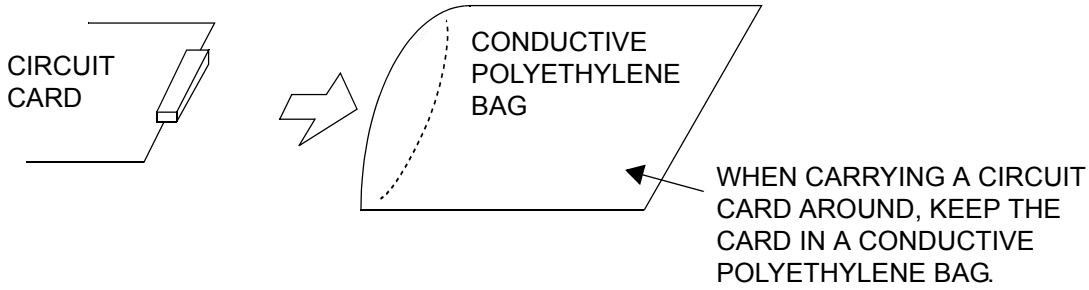
Continued on next page

Static Electricity Guard

- WHEN MAKING A SWITCH SETTING ON A CIRCUIT CARD



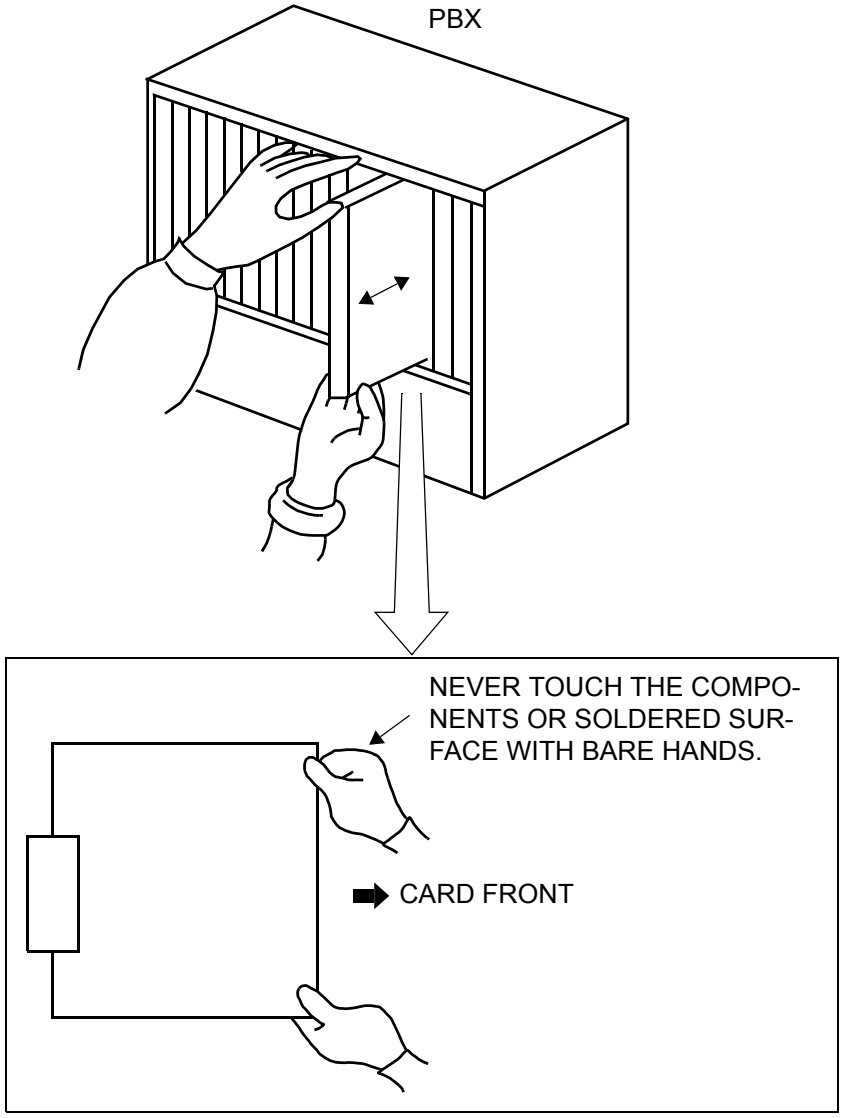
- WHEN CARRYING A CIRCUIT CARD



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

1. **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.**



2. **You must wait for 30 seconds before plugging the circuit card again when unplugging the circuit card while the operating power is being supplied.**

REQUIRED EQUIPMENT

ISDN-PRI Required Equipment

The table below shows the equipment required to provide ISDN with Primary Rate Interface to the system.

ISDN-PRI Required Equipment

EQUIPMENT	DESCRIPTION	QUANTITY	REMARKS
PN-24DTA-C (24DTI)	24-channel DTI Card	1-8	For 23B + D
PN-24PRTA (24PRT)	24-channel PRT Card	1-8	
PN-DTA (24PRT)	24-channel PRT Card	1-8	
PN-DTB (24PRT)	24-channel PRT Card	1-8	
PN-30DTC-C (30DTI)	30-channel DTI Card	1-8	For 30B + D
PN-30PRTA (30PRT)	30-channel PRT Card	1-8	
PN-DTA (30PRT)	30-channel PRT Card	1-8	
PN-DTB (30PRT)	30-channel PRT Card	1-8	
PN-SC01 (DCH)	D Channel Handler Card	1-8	1 DTI/card
PZ-M542/PZ-M557 (CONN)	Connection Card for Coaxial Cable	As required	1 DTI/card, 1 PRT/card Maximum 2 per PIM

ISDN-BRI Required Equipment

The table below shows the equipment required to provide ISDN with Basic Rate Interface to the system.

ISDN-BRI Required Equipment

EQUIPMENT	DESCRIPTION	QUANTITY	REMARKS
PN-BRTA (BRT)	1-line BRT Card	1-12	
PN-2BRTC/PN-2BRTK (BRT)	2-line BRT Card	1-24	
PN-4BRTA-A (BRT)	4-line BRT Card	1-24	Maximum 6 per PIM

ISDN Terminal Required Equipment

The table below shows the equipment required to provide ISDN Terminal interface to the system, in addition to the required equipment for ISDN-PRI or ISDN-BRI.

ISDN Terminal Required Equipment

EQUIPMENT	DESCRIPTION	QUANTITY	REMARKS
PN-SC03-B (ICH)	ISDN Channel Handler Card for PN-2ILCA Card	1-16	Controls 4 cards of PN-2ILCA
PN-2ILCA (ILC)	ISDN Line Circuit Card	1-64	2 terminals/card
PN-2ILCC (ILC)	ISDN Line Circuit Card	1-16	2terminals/card

NOTE: *When using the PN-2ILCC (ILC) card, the PN-SC03-B (ICH) card is not required.*

Event Based CCIS Required Equipment

The table below shows the required equipment to provide Event Based CCIS to the system, in addition to the required equipment for ISDN-PRI or ISDN-BRI.

Event Based CCIS Required Equipment

EQUIPMENT	DESCRIPTION	QUANTITY	REMARKS
PN-SC00 (CCH)	Common Channel Handler Card	1-8	1 DTI/card
PN-DTA/PN-DTB (CCH)	Common Channel Handler Card	1-8	1 DTI/card

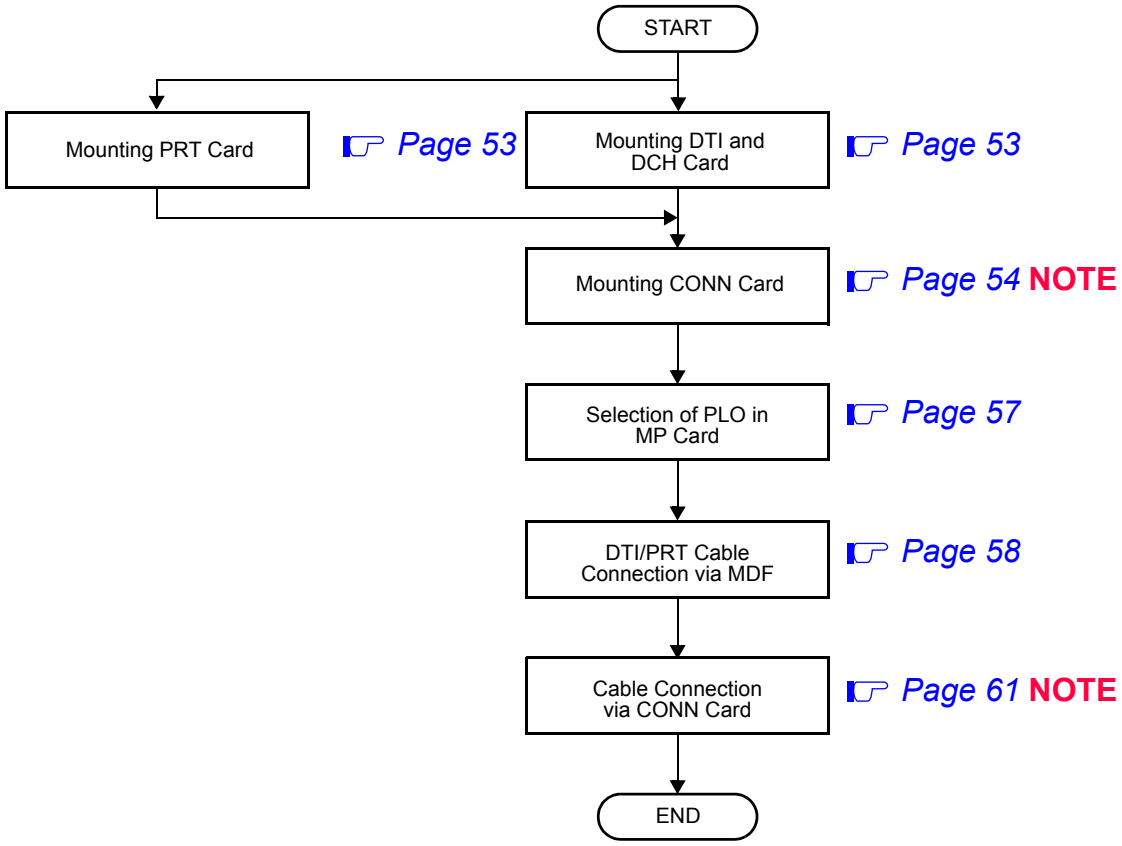
NOTE: *For Event Based CCIS, PN-24CCTA/PN-30CCTA (CCT)/PN-DTA (PRT) card cannot be used.*

INSTALLATION PROCEDURE FOR ISDN-PRI

Install the equipment for ISDN-PRI according to the procedure shown below.

NOTE: *For Call Recording of ISDN call, install the equipment for SMDR or CIS. For details, refer to the Installation Procedure Manual.*

Installation Procedure for ISDN-PRI



NOTE: *This procedure is required when you provide CONN card to connect a coaxial cable for DTI/PRT.*

Mounting DTI and DCH Card
Mounting PRT Card

(1) Before mounting the DTI (PN-24DTA-C/PN-30DTC-C) card and the DCH (PN-SC01) card, or the PRT (PN-24PRTA/PN-30PRTA/PN-DTA/PN-DTB) card, set the MB switch to UP position, and set the other switches to appropriate position. See CHAPTER 4. ☞ *Page 241, Page 248, Page 298, Page 254, Page 262, Page 269, Page 276*

(2) Mount the DTI card and the DCH card, or mount the PRT card in the following AP slots of PIM0-PIM7.
PIM0-7: AP00-AP11 slots
PIM0 (for Backup CPU) : AP00-AP10 slots

If you use the PRT card, the DCH card is not required because the PRT has a built-in DCH.

NOTE: *The DTI/PRT card (DTI0/PRT0, DTI1/PRT1) which sends a clock signal to PLO of the MP card must be mounted in the AP slots on PIM0.*

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

Mounting CONN Card

When providing CONN (PZ-M542/PZ-M557) card to connect a coaxial cable for DTI/PRT, do the following installation.

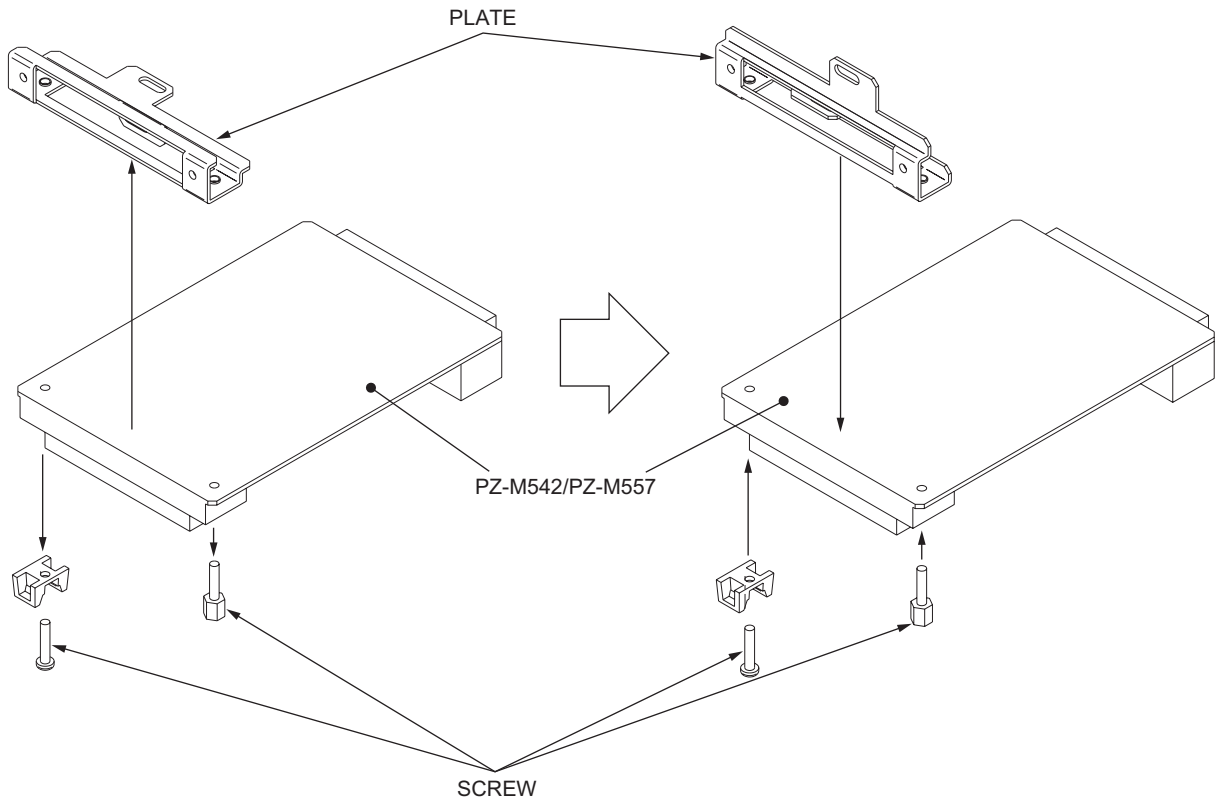
(1) Confirm the correct switch settings of the CONN card. See CHAPTER 4. ☞ *Page 303, Page 305*

(2) Connect the CONN card to LTC connector on BWB in the PIM which accommodates DTI/PRT cards as shown below.

STEP1: When using LTC0 or LTC2 connector to mount the PZ-M542/PZ-M557 card, take off the PLATE from the PZ-M542/PZ-M557 card. Then, overturn the PLATE and secure it to the card with screws.
When using LTC1 or LTC3 connector to mount the PZ-M542/PZ-M557 card, skip STEP1.

NOTE: *The PLATE and screws are attached to the PZ-M542/PZ-M557 card.*

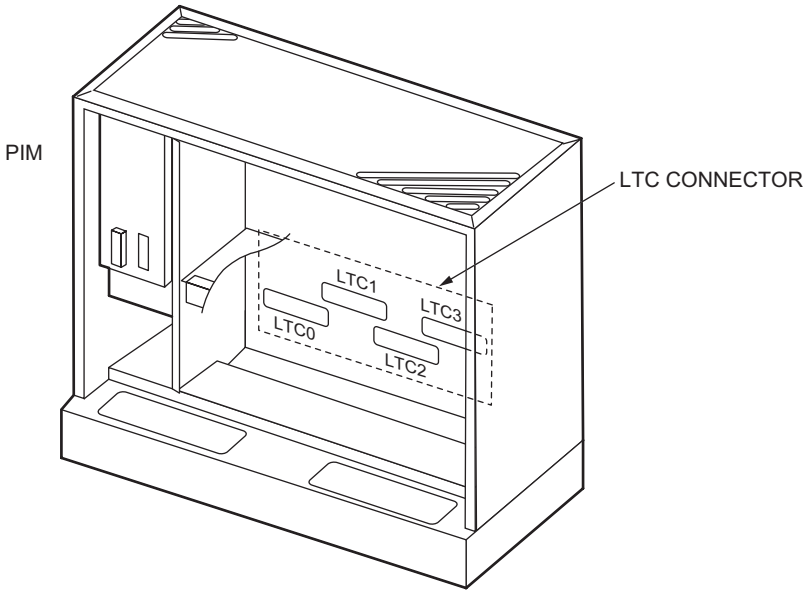
Connection of PZ-M542/PZ-M557 and PLATE



STEP2: Connect the LT connector on the PZ-M542/PZ-M557 card to the LTC connector on BWB in PIM.

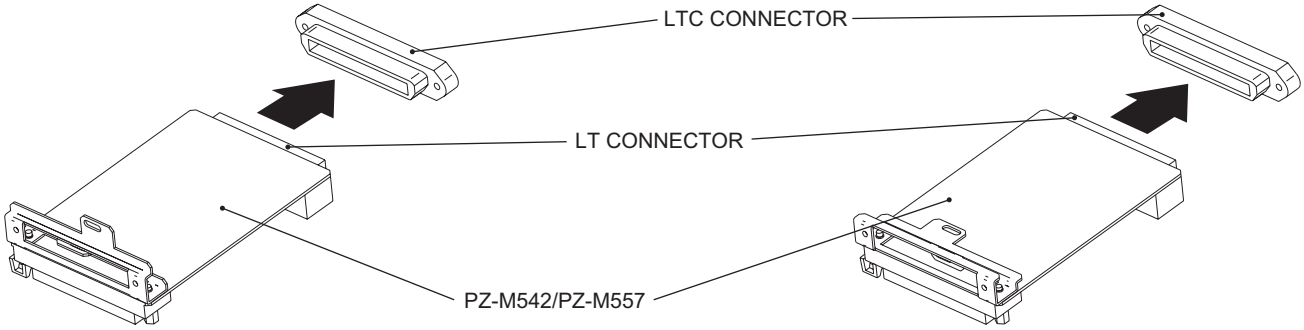
NOTE: *Two PZ-M542/PZ-M557 cards cannot be mounted on the adjoining LTC connectors. LTC0 and LTC2, or LTC0 and LTC3, or LTC1 and LTC3 are mountable.*

Mounting of PZ-M542/PZ-M557 Card



When connecting to LTC1 or LTC3

When connecting to LTC0 or LTC2

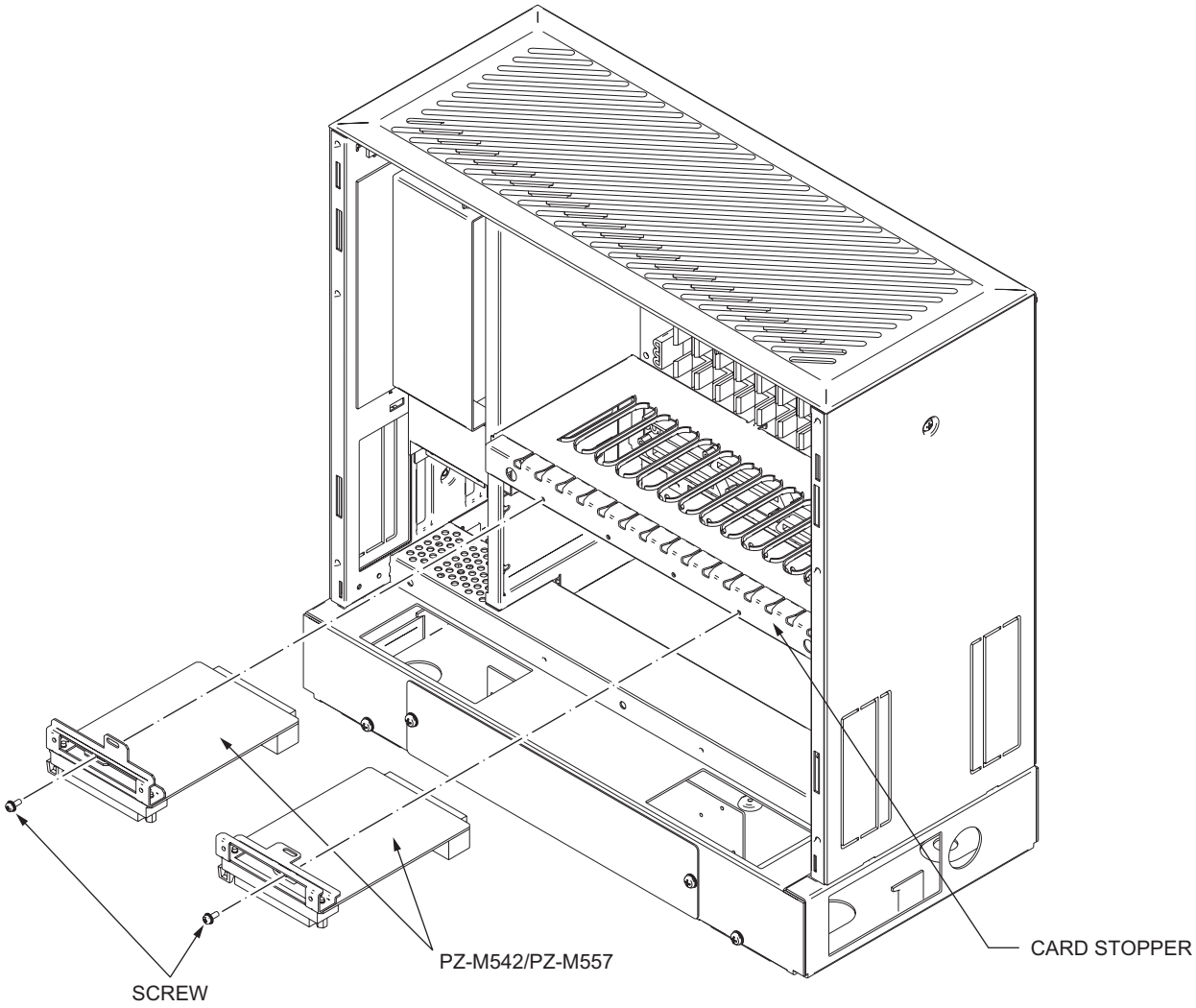


STEP3: Secure the PZ-M542/PZ-M557 card to the PIM CARD STOPPER with one screw.

NOTE 1: *Screw is attached to the PZ-M542/PZ-M557 card.*

NOTE 2: *Before securing the PZ-M542/PZ-M557 card to the PIM CARD STOPPER, all the cards should be mounted on the card slots and the PIM CARD STOPPER should be secured with screws. For installation of the PIM CARD STOPPER, refer to the Installation Procedure Manual, CHAPTER 2, "MOUNTING CIRCUIT CARDS."*

Mounting of PZ-M542/PZ-M557 Card



Selection of PLO in MP Card

(1) Select the PLO input by the switch settings of MP (PN-CP24-A/PN-CP24-B/ PN-CP24-C/PN-CP24-D/PN-CP27-A/PN-CP27-B) card as follows.

- Selection of PLO0 input

  For clock receiver office:

SW2-2	SW2-3	FUNCTION
OFF	OFF	1.5 MHz clock [For PN-24DTA/PN-24CCT/PN-DTA/PN-DTB/ PN-24PRT/PZ-M649]
ON	OFF	192 kHz clock [For PN-BRTA]
OFF	ON	2 MHz clock [For PN-30DTC/PN-DTA/PN-DTB/PN-2BRT/ PN-4BRT/PN-30CCT/PN-30PRT/PZ-M650]
ON	ON	Not used

  For clock source office:

SW2-2	SW2-3
OFF	OFF

- Selection of PLO1 input

  For clock receiver office:

SW4-3	SW4-4	FUNCTION
OFF	OFF	1.5 MHz clock [For PN-24DTA/PN-24CCT/PN-DTA/PN-DTB/ PN-24PRT/PZ-M649]
ON	OFF	192 kHz clock [For PN-BRTA]
OFF	ON	2 MHz clock [For PN-30DTC/PN-DTA/PN-DTB/PN-2BRT/ PN-4BRT/PN-30CCT/PN-30PRT/PZ-M650]
ON	ON	Not used

  For clock source office:

SW4-3	SW4-4
OFF	OFF

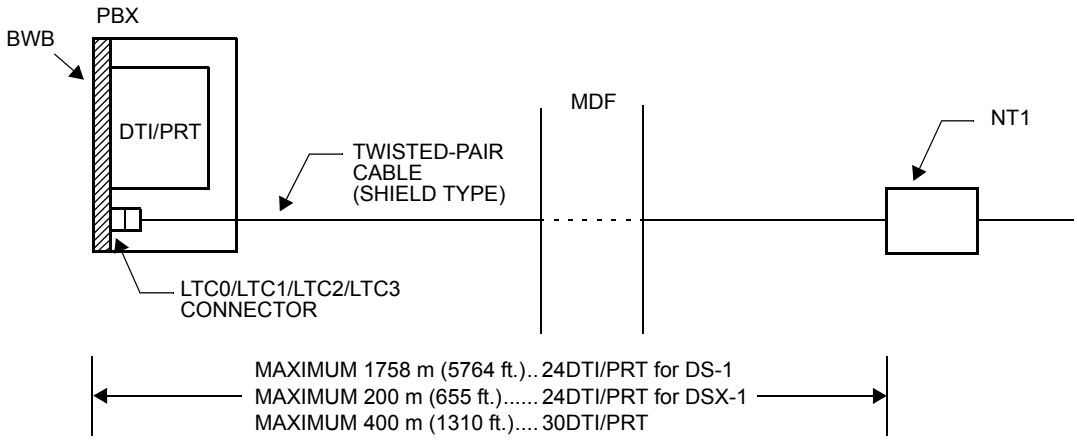
(2) Mount the MP card in the MP slot of PIM0.

DTI/PRT Cable Connection via MDF

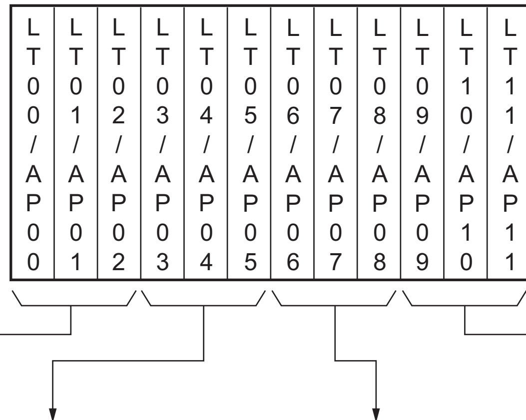
When you use a twisted-pair cable, connect the cable to a NT1 equipment via the MDF as shown below.

- Location of AP Slots and LTC Connectors for DTI/PRT ☞ *Page 59*
- Example of MDF Cross Connection for DTI/PRT ☞ *Page 60*

DTI/PRT Cable Connection via MDF



Location of AP Slots and LTC Connectors for DTI/PRT



LTC0

01	RA	26	RB	AP00 SLOT
02	TA	27	TB	
03		28		
04		29		
05		30		
06		31		
07		32		
08		33		
09	RA	34	RB	AP01 SLOT
10	TA	35	TB	
11		36		
12		37		
13		38		
14		39		
15		40		
16		41		
17	RA	42	RB	AP02 SLOT
18	TA	43	TB	
19		44		
20		45		
21		46		
22		47		
23		48		
24		49		
25	MJ	50	MN	

LTC1

01	RA	26	RB	AP03 SLOT
02	TA	27	TB	
03		28		
04		29		
05		30		
06		31		
07		32		
08		33		
09	RA	34	RB	AP04 SLOT
10	TA	35	TB	
11		36		
12		37		
13		38		
14		39		
15		40		
16		41		
17	RA	42	RB	AP05 SLOT
18	TA	43	TB	
19		44		
20		45		
21		46		
22		47		
23		48		
24		49		
25		50		

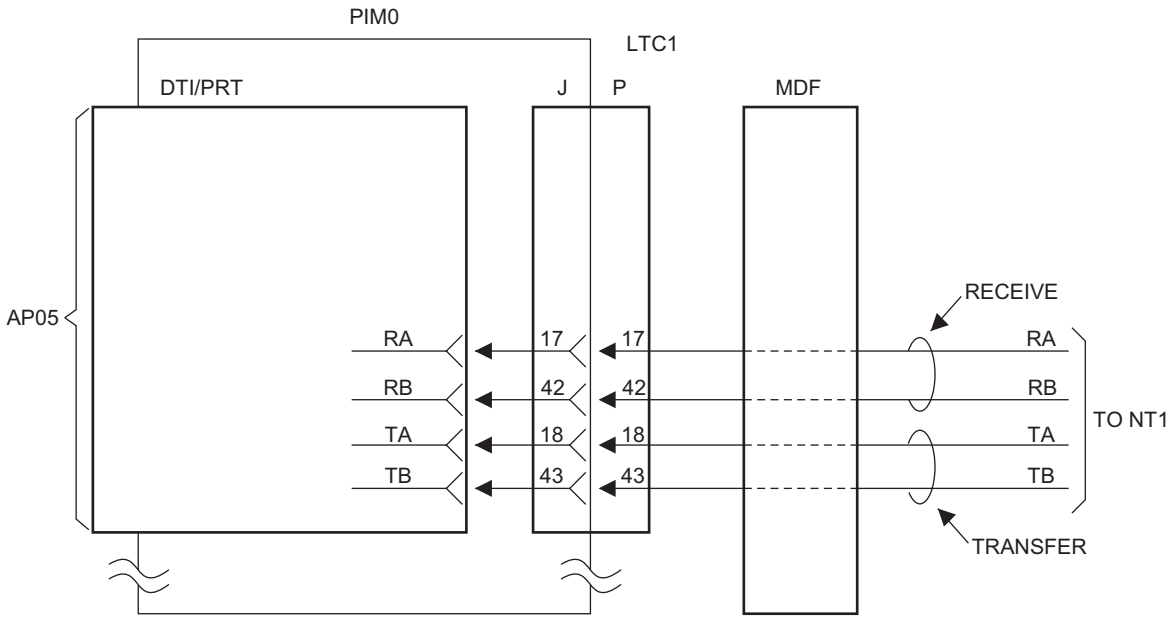
LTC2

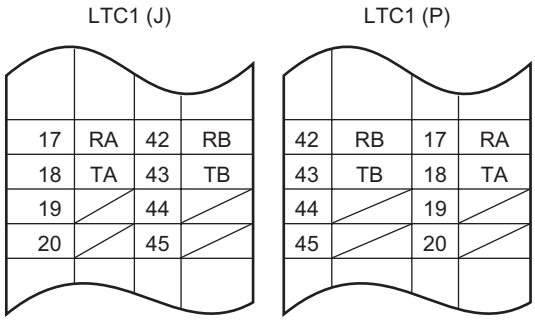
01	RA	26	RB	AP06 SLOT
02	TA	27	TB	
03		28		
04		29		
05		30		
06		31		
07		32		
08		33		
09	RA	34	RB	AP07 SLOT
10	TA	35	TB	
11		36		
12		37		
13		38		
14		39		
15		40		
16		41		
17	RA	42	RB	AP08 SLOT
18	TA	43	TB	
19		44		
20		45		
21		46		
22		47		
23		48		
24		49		
25		50		

LTC3

01	RA	26	RB	AP09 SLOT
02	TA	27	TB	
03		28		
04		29		
05		30		
06		31		
07		32		
08		33		
09	RA	34	RB	AP10 SLOT
10	TA	35	TB	
11		36		
12		37		
13		38		
14		39		
15		40		
16		41		
17	RA	42	RB	AP11 SLOT
18	TA	43	TB	
19		44		
20		45		
21		46		
22		47		
23		48		
24		49		
25		50		

Example of MDF Cross Connection for DTI/PRT



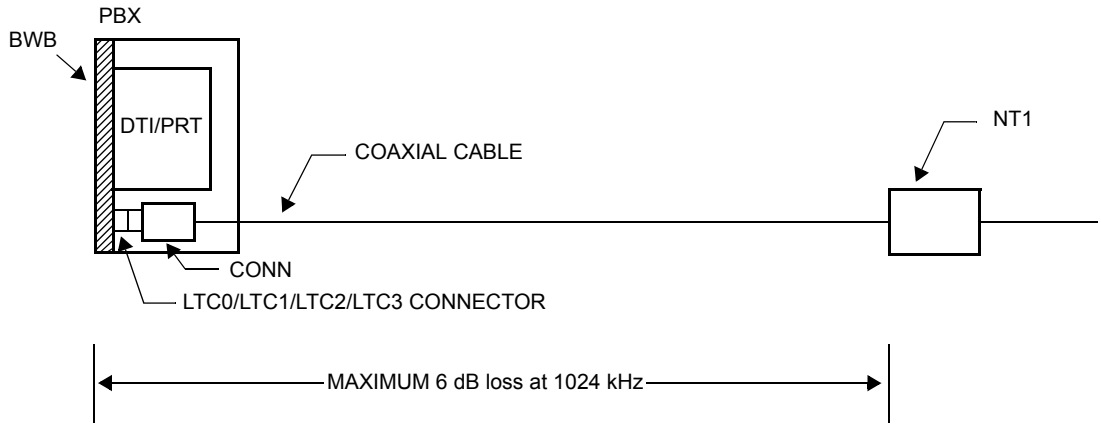


Cable Connection via CONN Card

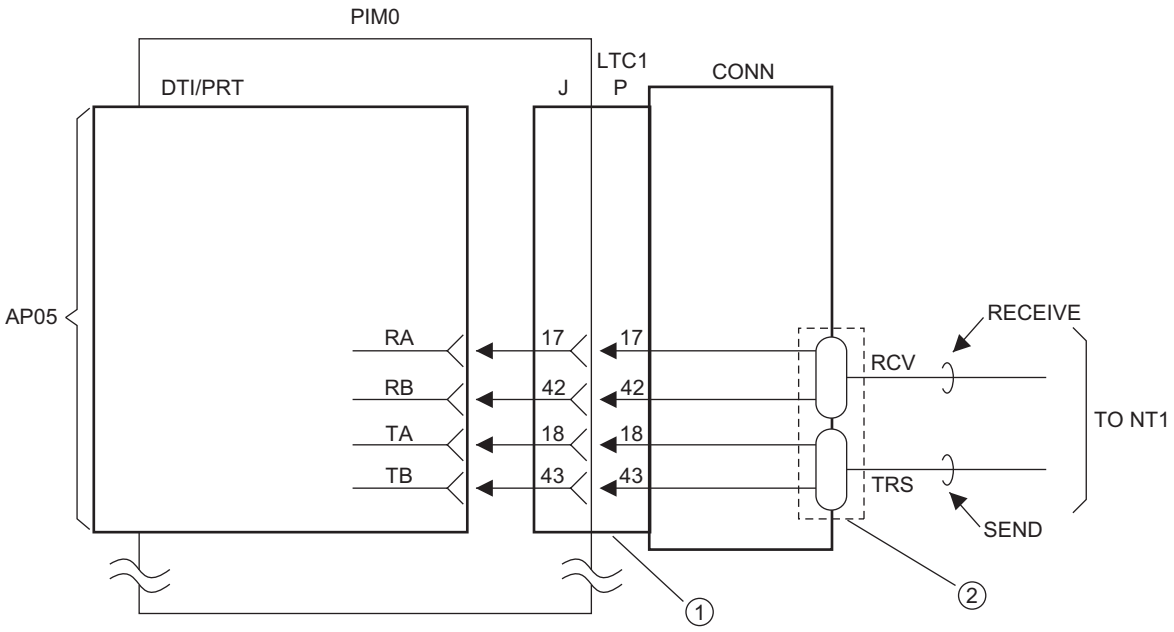
When you use a coaxial cable, connect the cable to a NT1 equipment via the CONN (PZ-M542/PZ-M557) card as shown below.

The figure in next page shows an example of the cable connection when the DTI/PRT card is mounted on the AP05 slot of PIM0.

Cable Connection via the CONN Card



Example of Coaxial Cable Connection



1 LTC1 CONNECTOR

2 COAXIAL CONNECTOR

LTC1 (J)

17	RA	42	RB
18	TA	43	TB
19		44	
20		45	

LTC1 (P)

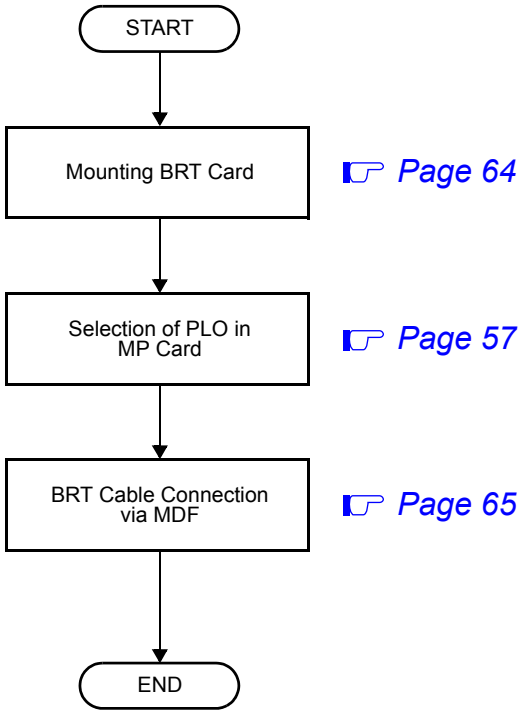
42	RB	17	RA
43	TB	18	TA
44		19	
45		20	

INSTALLATION PROCEDURE FOR ISDN-BRI

Install the equipment for ISDN-BRI according to the procedure shown below.

NOTE: *For Call Recording of ISDN call, install the equipment for SMDR or CIS. For details, refer to the Installation Procedure Manual.*

Installation Procedure for ISDN-BRI



Mounting BRT Card

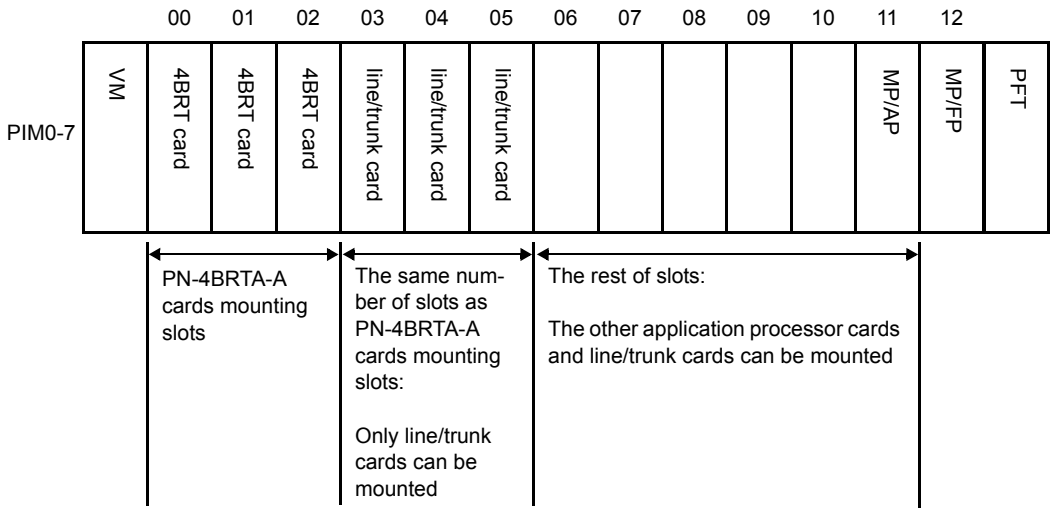
(1) Before mounting the BRT (PN-BRTA/PN-2BRTC/PN-2BRTK/PN-4BRTA-A) card, set the MB switch to UP position, and set the other switches to appropriate position. See CHAPTER 4. ☞ *Page 218, Page 223, Page 228, Page 233*

(2) Mount the BRT card in the following AP slots of PIM0-PIM7.
PIM0-7: AP00-AP11 slots
PIM0 (for Backup CPU) : AP00-AP10 slots

NOTE 1: *The BRT card (BRT0/BRT1), which sends a clock signal to PLO of the MP card, must be mounted in the AP slots of PIM0.*

NOTE 2: *Maximum of six PN-4BRTA-A cards can be mounted per PIM, maximum of 24 cards per system. For the same number of slots as PN-4BRTA-A cards, only line/trunk cards can be mounted in any slot of LT00-LT11 slots of each PIM.*

EXAMPLE: When mounting three PN-4BRTA-A cards in PIM0-7



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

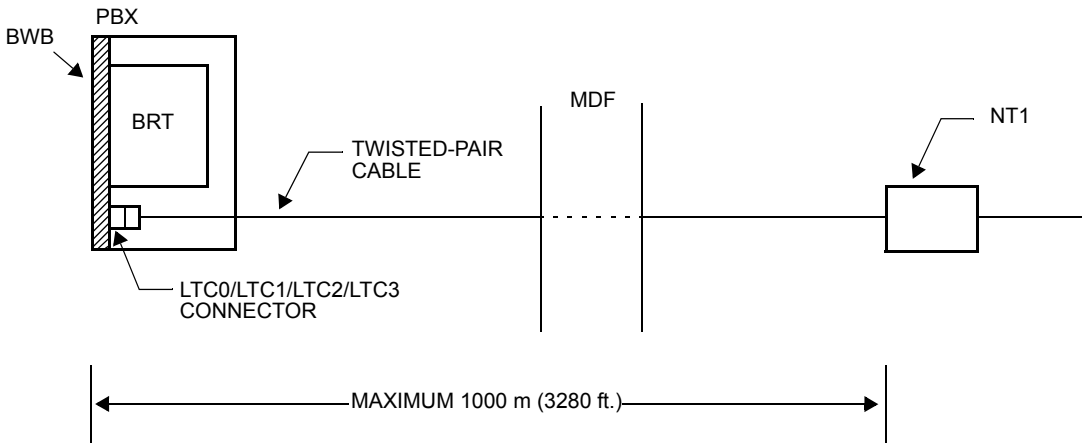
BRT Cable Connection via MDF

Connect the cable to a NT1 equipment via the MDF as shown below.

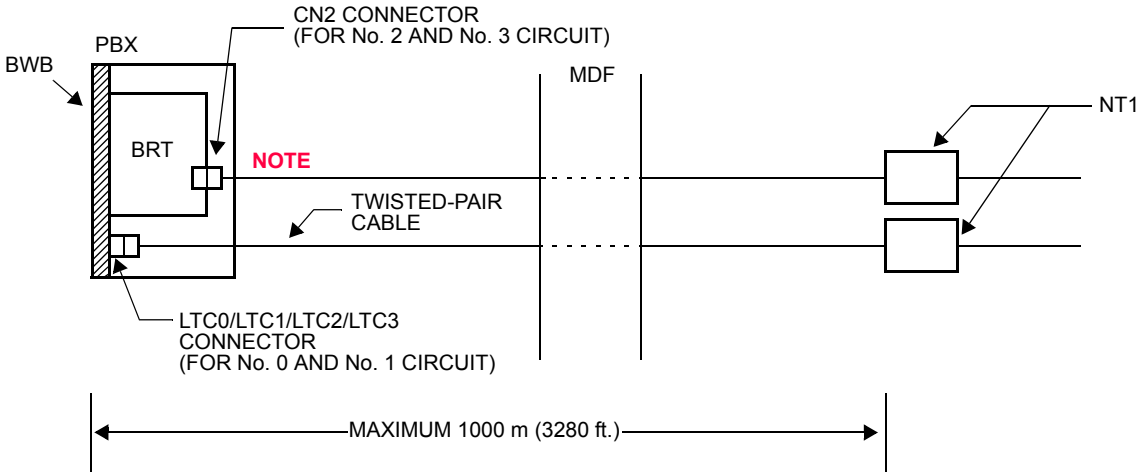
- Location of AP Slots and LTC Connectors for BRT ☞ *Page 66*
- Example of MDF Cross Connection for BRT ☞ *Page 67*

BRT Cable Connection via MDF

- For BRT/2BRT/4BRT (AP00-AP07 slot)

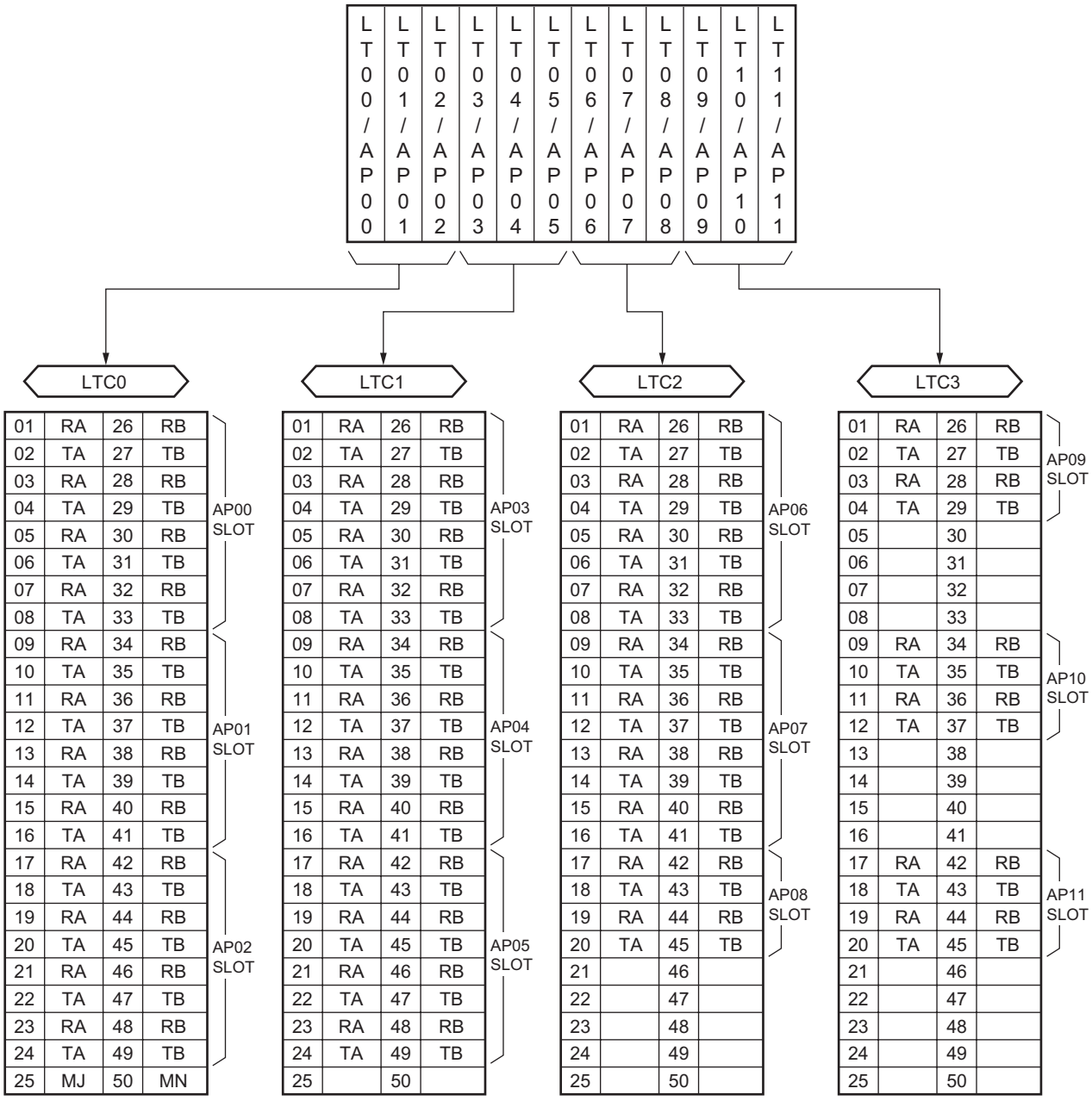


- For 4BRT (AP08-AP11 slot)
  Connect No. 0 and No. 1 circuit via the LTC connector, and No. 2 and No. 3 via the CN2 connector.



NOTE: *Make the installation cable by using the connector attached with the PN-4BRTA-A card.*

Location of AP Slots and LTC Connectors for BRT



01	RA	26	RB
02	TA	27	TB
03	RA	28	RB
04	TA	29	TB
05	RA	30	RB
06	TA	31	TB
07	RA	32	RB
08	TA	33	TB
09	RA	34	RB
10	TA	35	TB
11	RA	36	RB
12	TA	37	TB
13	RA	38	RB
14	TA	39	TB
15	RA	40	RB
16	TA	41	TB
17	RA	42	RB
18	TA	43	TB
19	RA	44	RB
20	TA	45	TB
21	RA	46	RB
22	TA	47	TB
23	RA	48	RB
24	TA	49	TB
25	MJ	50	MN

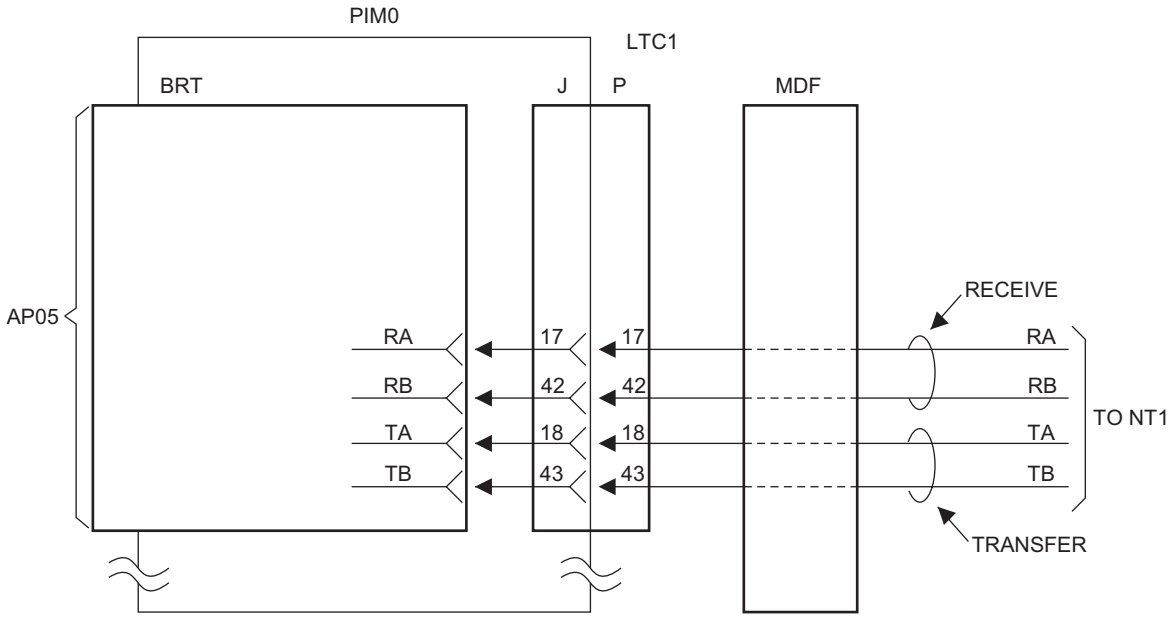
01	RA	26	RB
02	TA	27	TB
03	RA	28	RB
04	TA	29	TB
05	RA	30	RB
06	TA	31	TB
07	RA	32	RB
08	TA	33	TB
09	RA	34	RB
10	TA	35	TB
11	RA	36	RB
12	TA	37	TB
13	RA	38	RB
14	TA	39	TB
15	RA	40	RB
16	TA	41	TB
17	RA	42	RB
18	TA	43	TB
19	RA	44	RB
20	TA	45	TB
21	RA	46	RB
22	TA	47	TB
23	RA	48	RB
24	TA	49	TB
25		50	

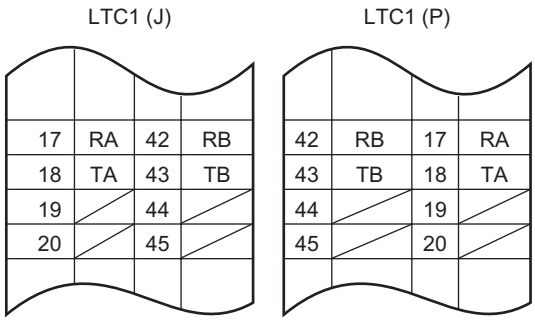
01	RA	26	RB
02	TA	27	TB
03	RA	28	RB
04	TA	29	TB
05	RA	30	RB
06	TA	31	TB
07	RA	32	RB
08	TA	33	TB
09	RA	34	RB
10	TA	35	TB
11	RA	36	RB
12	TA	37	TB
13	RA	38	RB
14	TA	39	TB
15	RA	40	RB
16	TA	41	TB
17	RA	42	RB
18	TA	43	TB
19	RA	44	RB
20	TA	45	TB
21		46	
22		47	
23		48	
24		49	
25		50	

01	RA	26	RB
02	TA	27	TB
03	RA	28	RB
04	TA	29	TB
05		30	
06		31	
07		32	
08		33	
09	RA	34	RB
10	TA	35	TB
11	RA	36	RB
12	TA	37	TB
13		38	
14		39	
15		40	
16		41	
17	RA	42	RB
18	TA	43	TB
19	RA	44	RB
20	TA	45	TB
21		46	
22		47	
23		48	
24		49	
25		50	

Example of MDF Cross Connection for BRT

- For BRT

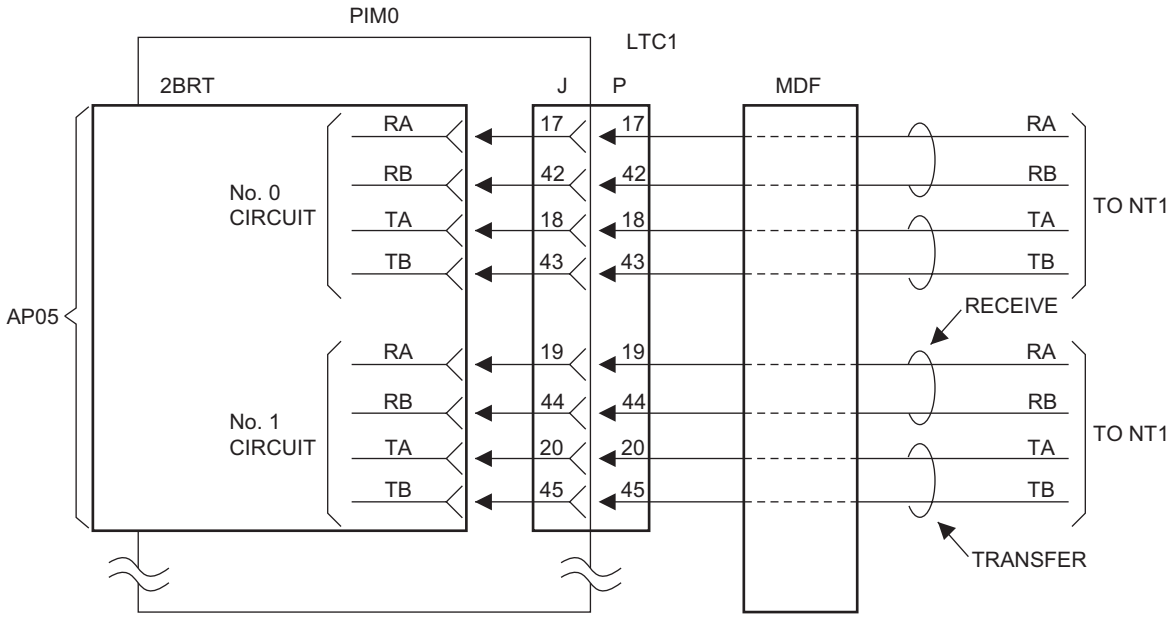




Continued on next page

Example of MDF Cross Connection for BRT

- For 2BRT



LTC1 (J)

17	RA	42	RB
18	TA	43	TB
19	RA	44	RB
20	TA	45	TB

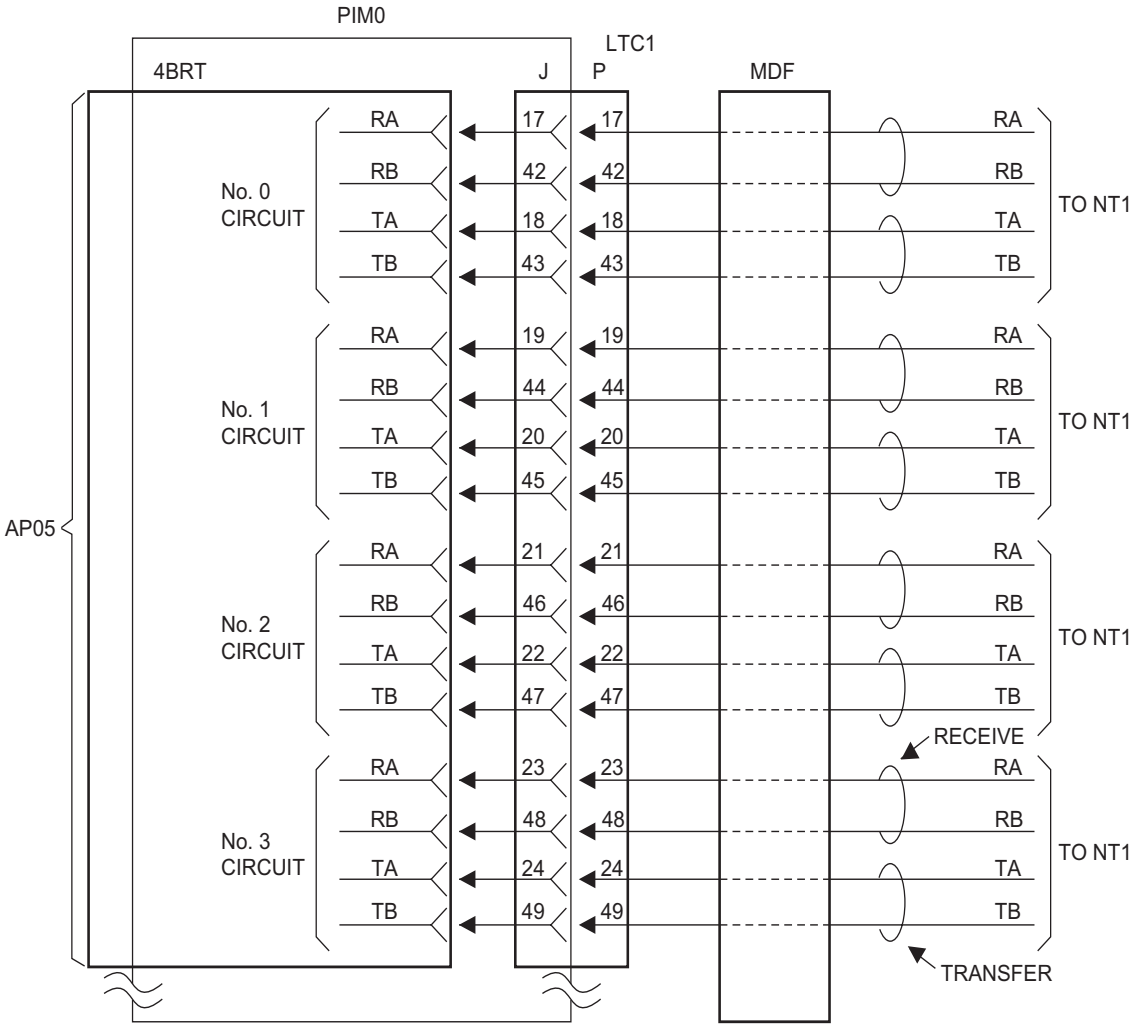
LTC1 (P)

42	RB	17	RA
43	TB	18	TA
44	RB	19	RA
45	TB	20	TA

Continued on next page

Example of MDF Cross Connection for BRT

- For 4BRT (AP00-AP07 slot)



LTC1 (J)

17	RA	42	RB
18	TA	43	TB
19	RA	44	RB
20	TA	45	TB
21	RA	46	RB
22	TA	47	TB
23	RA	48	RB
24	TA	49	TB

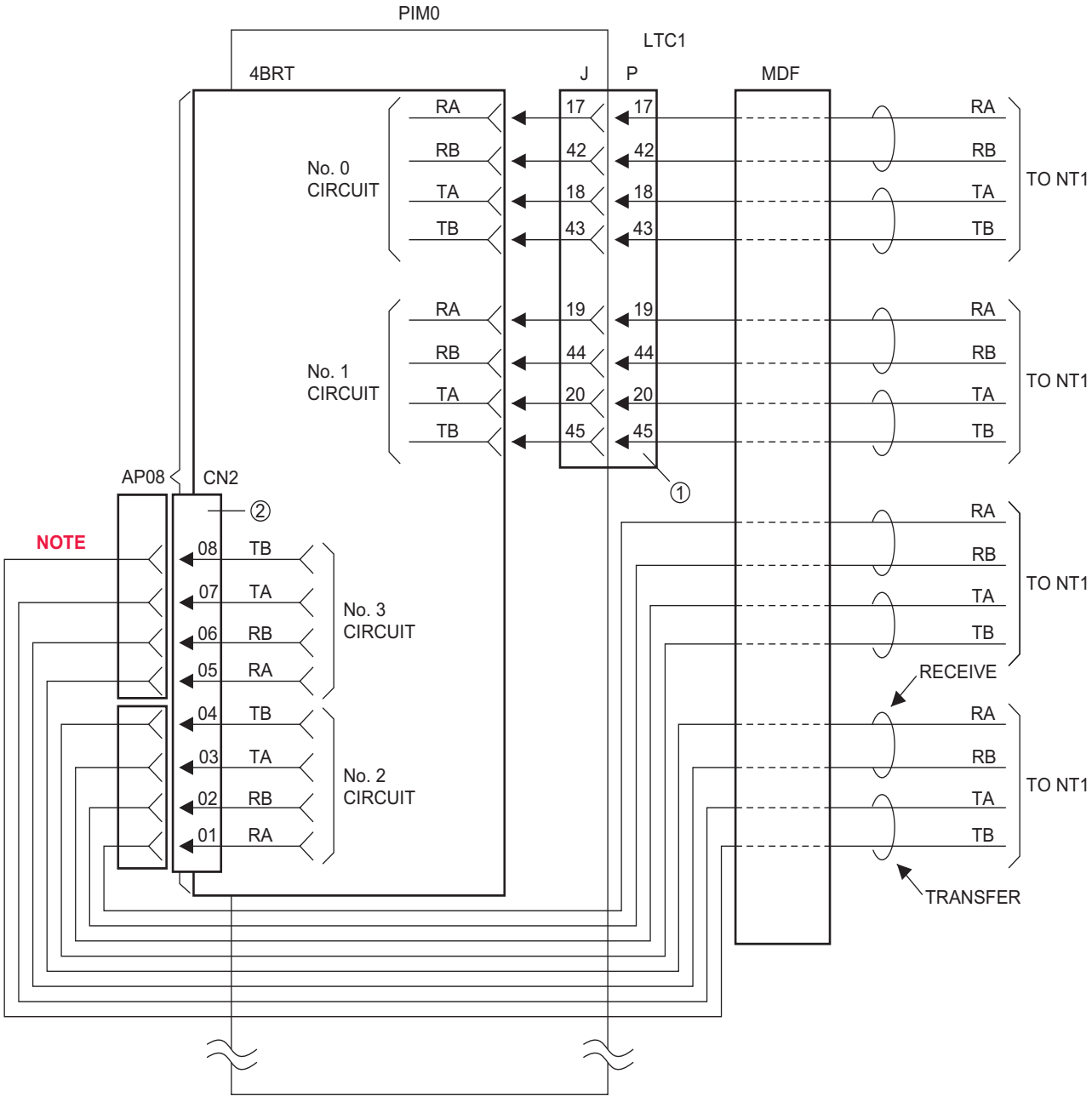
LTC1 (P)

42	RB	17	RA
43	TB	18	TA
44	RB	19	RA
45	TB	20	TA
46	RB	21	RA
47	TB	22	TA
48	RB	23	RA
49	TB	24	TA

Continued on next page

Example of MDF Cross Connection for BRT

- For 4BRT (AP08-AP11 slot)



NOTE: *Make the installation cable by using the connector attached with the PN-4BRTA-A card.*

Continued on next page

Example of MDF Cross Connection for BRT

① LTC CONNECTOR

② CN2 CONNECTOR
(FRONT CONNECOR)

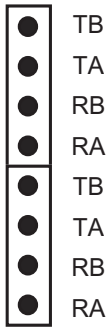
LTC1 (J)

17	RA	42	RB
18	TA	43	TB
19	RA	44	RB
20	TA	45	TB

LTC1 (P)

42	RB	17	RA
43	TB	18	TA
44	RB	19	RA
45	TB	20	TA

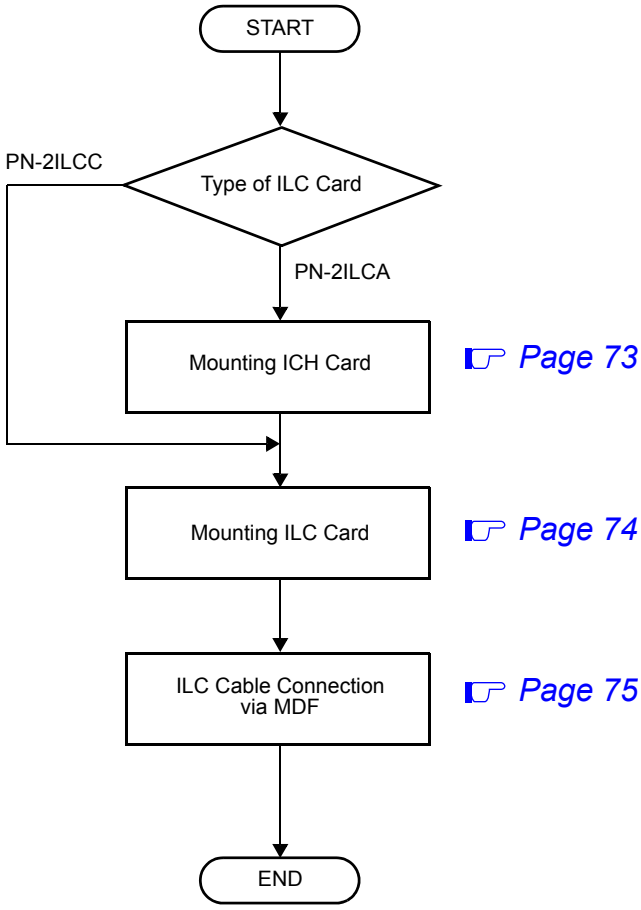
CN2



INSTALLATION PROCEDURE FOR ISDN TERMINAL

Install the equipment for the ISDN Terminal according to the procedure shown below.

Installation Procedure for ISDN Terminal



Mounting ICH Card

(1) Before mounting the ICH (PN-SC03-B) card, set the MB switch to UP position, and set the other switches to appropriate position.
See CHAPTER 4. ☞ *Page 301*

(2) Mount the ICH card in the following AP slots of PIM0-PIM7.
PIM0-7: AP00-AP11 slots
PIM0 (for Backup CPU) : AP00-AP10 slots

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

Mounting ILC Card

(1) Confirm the correct switch settings of the ILC (PN-2ILCA/PN-2ILCC) card. See CHAPTER 4. ☞ *Page 307*, *Page 310*

NOTE: *When using the ILC (2ILCC) card, the ICH (PN-SC03-B) card is not required.*

(2) Mount the ILC card in the following LT slots of PIM0-PIM7.
- PN-2ILCA card
  PIM0-7: LT00-LT07 slots
  PIM0 (for Backup CPU): LT00-LT07 slots
- PN-2ILCC card
  PIM0-7: AP00-AP07 slots
  PIM0 (for Backup CPU): AP00-AP07 slots

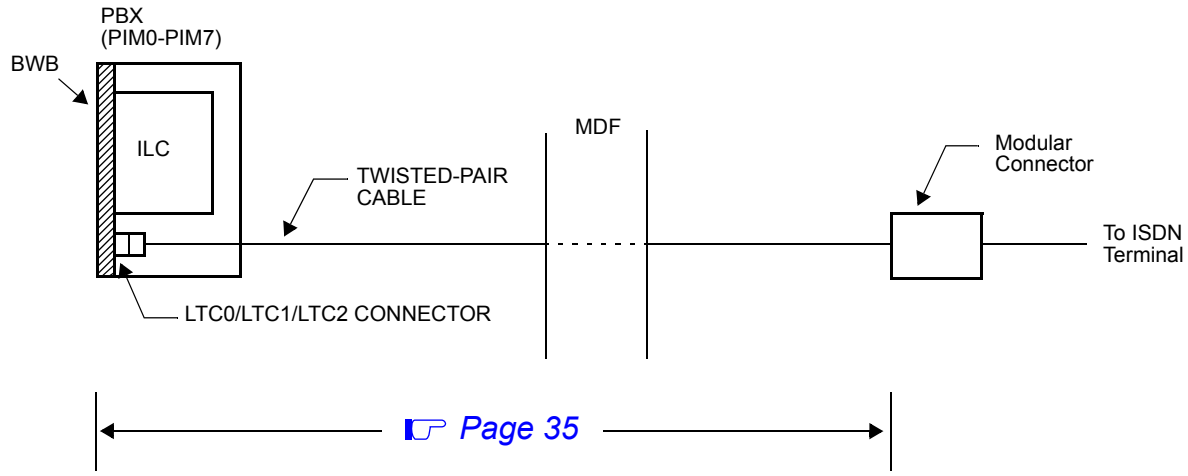
(3) After mounting the card (for PN-2ILCC), set the MB switch to DOWN position to put the card in service.

ILC Cable Connection via MDF

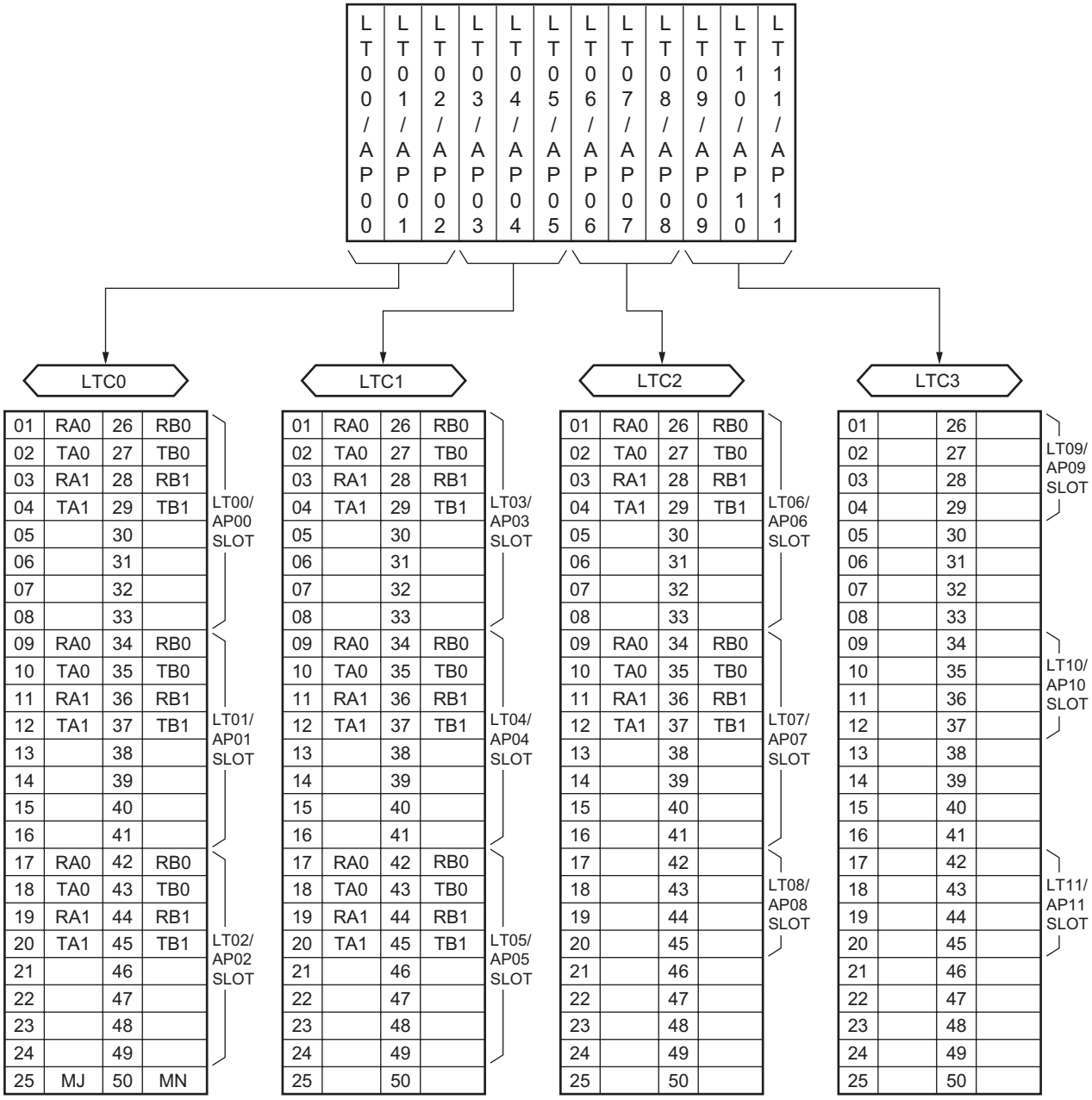
Connect the cable to an ISDN Terminal or a Terminal Adapter (TA) via the MDF as shown below.

- Location of LT/AP Slots and LTC Connectors for ILC ☞ *Page 76*
- Example of MDF Cross Connection for ILC ☞ *Page 77*

ILC Cable Connection via MDF



Location of LT/AP Slots and LTC Connectors for ILC



01	RA0	26	RB0
02	TA0	27	TB0
03	RA1	28	RB1
04	TA1	29	TB1
05		30	
06		31	
07		32	
08		33	
09	RA0	34	RB0
10	TA0	35	TB0
11	RA1	36	RB1
12	TA1	37	TB1
13		38	
14		39	
15		40	
16		41	
17	RA0	42	RB0
18	TA0	43	TB0
19	RA1	44	RB1
20	TA1	45	TB1
21		46	
22		47	
23		48	
24		49	
25	MJ	50	MN

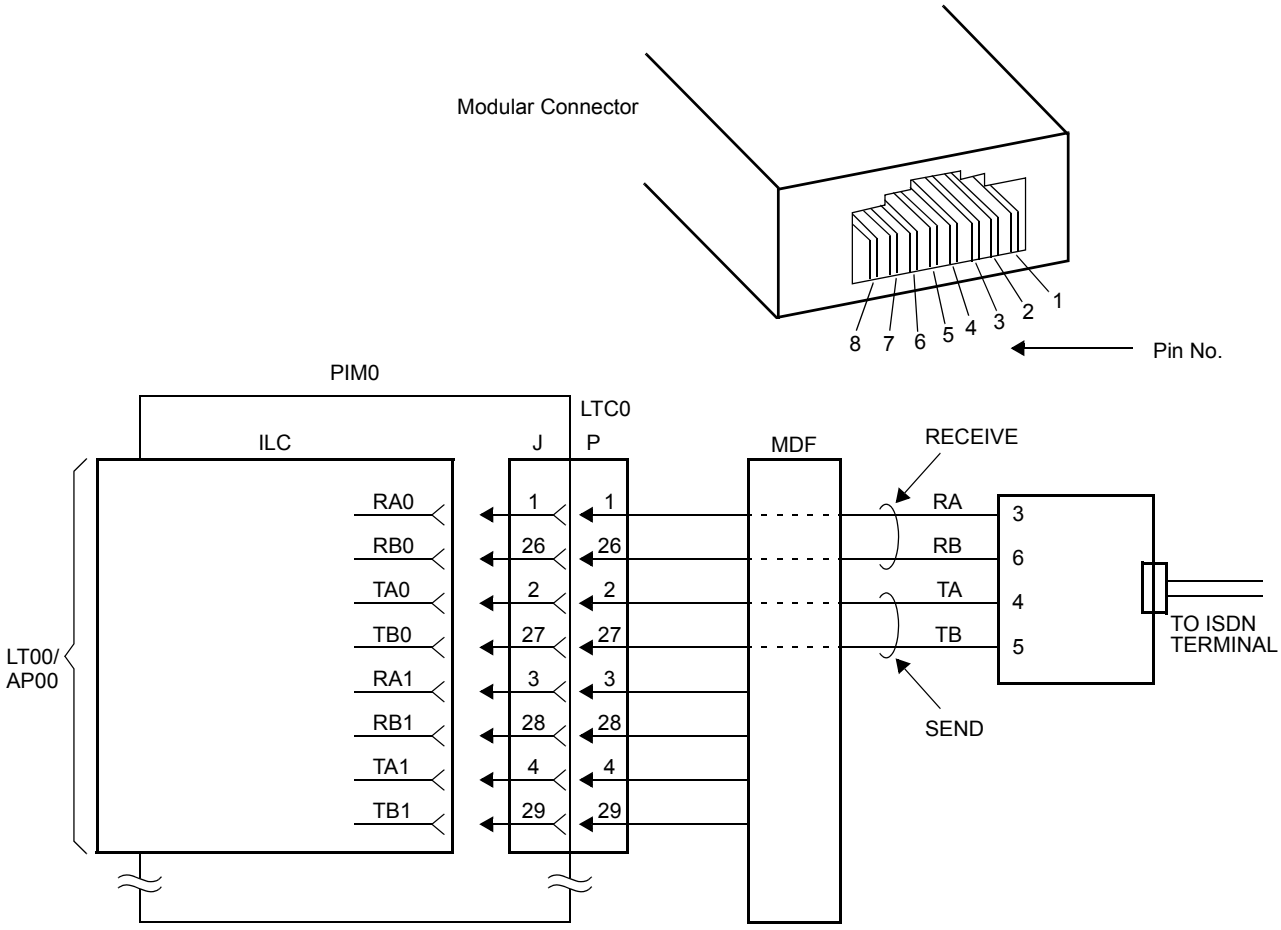
01	RA0	26	RB0
02	TA0	27	TB0
03	RA1	28	RB1
04	TA1	29	TB1
05		30	
06		31	
07		32	
08		33	
09	RA0	34	RB0
10	TA0	35	TB0
11	RA1	36	RB1
12	TA1	37	TB1
13		38	
14		39	
15		40	
16		41	
17	RA0	42	RB0
18	TA0	43	TB0
19	RA1	44	RB1
20	TA1	45	TB1
21		46	
22		47	
23		48	
24		49	
25		50	

01	RA0	26	RB0
02	TA0	27	TB0
03	RA1	28	RB1
04	TA1	29	TB1
05		30	
06		31	
07		32	
08		33	
09	RA0	34	RB0
10	TA0	35	TB0
11	RA1	36	RB1
12	TA1	37	TB1
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	

01		26	
02		27	
03		28	
04		29	
05		30	
06		31	
07		32	
08		33	
09		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	

NOTE: *Be sure to mount an ILC card on the LTC connector separated from analog line/trunk cards.*

Example of MDF Cross Connection for ILC



LTC (J)

1	RA	26	RB
2	TA	27	TB
3		28	
4		29	

LTC (P)

26	RB	1	RA
27	TB	2	TA
28		3	
29		4	

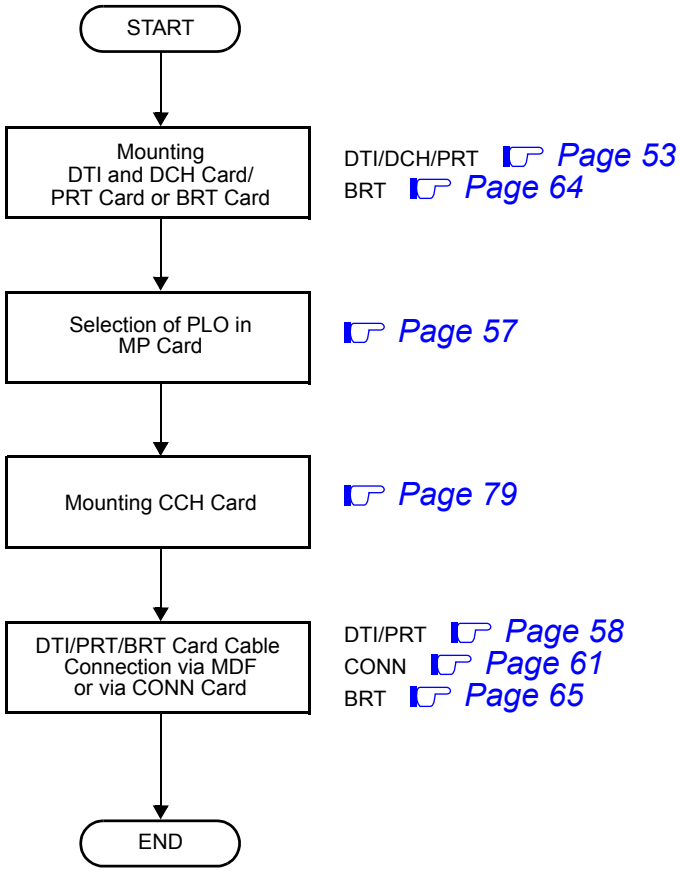
Pin No.	PBX	Direction of Signal	Terminal
1, 2	Not Used		
3	RA	←	TA
4	TA	→	RA
5	TB	→	RB
6	RB	←	TB
7, 8	Not Used		

INSTALLATION PROCEDURE FOR EVENT BASED CCIS

Install the equipment for Event Based CCIS according to the procedure shown below.

NOTE: *For Call Recording of ISDN call, install the equipment for SMDR/CIS. For details, refer to the Installation Procedure Manual.*

Installation Procedure for Event Based CCIS



Mounting CCH Card

(1) Before mounting the CCH (PN-SC00/PN-DTA/PN-DTB) card, set the MB switch to UP position, and set the other switches to appropriate position.
See CHAPTER 4. ☞ *Page 283*, *Page 286*, *Page 292*

(2) Mount the CCH card in the following AP slots.
PIM0-7: AP00-AP11 slots
PIM0 (for Backup CPU) : AP00-AP10 slots

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

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CHAPTER 3

SYSTEM DATA PROGRAMMING

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

HOW TO READ THIS CHAPTER

In the programming procedure, the meanings 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) : System Initialization
A reset of the MP card is required after data setting.
Press SW1 switch on the MP card.

(DTI INITIAL) : DTI Initialization
A reset of the DTI/PRT card is required after data setting.
Set the Make Busy switch to UP and then Down.

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

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

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

(OFF LINE) : Off Line
Command with this marking can be used only under Off-Line mode of the MP card.
To set Off-Line mode,
(1) Set SW3 on the MP card to “2” or “3”.
(2) Press SW1 on the MP card.

PRECAUTIONS

System Data Backup

CAUTION

- **If you operate as follows without system data backup after system data setting or service memory setting (registration of the features such as "Call Forwarding" and "Speed Calling [Speed Dialing]" from a station), the data that has been set is invalid.**
  You must execute the system data backup before the following operations.
  -Turning Off the system
  -System Initialization (reset of MP card)
  -Changing the MP card to Off-Line Mode
  -Changing the MP card to On-Line Mode after system data setting under Off-Line Mode
- **You can execute the system data backup by the following two ways.**
  -Executing the system data backup once a day at the time set by CM43 Y=5>00
  (If no data is set, the default setting is 3:00 a.m.)
  -Executing the system data backup from MAT/CAT by CMEC Y=6>0:0
- **Do not reset the MP card while "SYSD" lamp on the MP card is flashing.**

Office Data Conversion

When upgrading the software of the system from Series 3300 or before to Series 3400 or later, the office data conversion by CM00>90 is required. The office data that has been converted and the office data in Series 3400 software or later are incompatible with the software of Series 3300 or before. We recommend to execute the system data backup before the office data conversion.

NOTE: *When upgrading the software in Retrofit system to Series 3400 or later, convert the office data using "Office Data Converter" in the MATWorX CD-ROM and then execute the office data conversion by CM00>90.*

START	DESCRIPTION	DATA
CM00	Execute the office data conversion. **[Series 3200 R6.2 software required]** OFF LINE	(1) 90 (2) 0: Start conversion 1: Always displayed after first data "90" is typed **NOTE 1**
END		

NOTE 1: *When first data "90" is typed, second data "1" is displayed. Also while converting the office data, "1" is displayed.*

NOTE 2: *There is no problem even if the office data conversion is executed repeatedly.*

LEN Assignment by CM14

For the setting of LEN by CM14, the range of the FP/AP number that must be assigned to the 1st data of CM14 is valid by the software version you use.
Assign the correct FP/AP number to each FP/AP, referring to the tables below.

[For Series 3200 R6.1 software or before]

×: Available –: Not available

FP/AP No. / FP/AP TYPE	00	01-03	04-15	16-19	20-31	32-59	60-63
FP card (PN-CP15)	–	×	–	×	–	–	–
MP built-in FP	×	–	–	–	–	–	–
DAIA/DAID card	–	×	–	×	–	–	–
Virtual FP for D^{term}IP	–	×	–	×	–	–	–
AP card	–	–	×	–	×	–	–
Virtual AP (Virtual IPT)	–	–	×	–	×	–	–

[For Series 3200 R6.2 software]

×: Available –: Not available

FP/AP No. / FP/AP TYPE	00	01-03	04-15	16-19	20-31	32-59	60-63
FP card (PN-CP15)	–	×	–	×	–	–	–
MP built-in FP	×	–	–	–	–	–	–
Virtual FP for D^{term}IP	–	×	×	×	×	–	–
AP card	–	–	×	–	×	–	–
Virtual AP (Virtual IPT)	–	–	×	–	×	–	–

[For Series 3300 software]

×/Δ: Available **NOTE** –: Not available

FP/AP No. / FP/AP TYPE	00	01-03	04-15	16-19	20-31	32-59	60-63
FP card (PN-CP15)	–	×	–	×	–	–	–
MP built-in FP	×	–	–	–	–	–	–
Virtual FP for D^{term}IP	–	×	Δ	×	Δ	Δ	–
AP card	–	–	×	–	×	–	–
Virtual AP (Virtual IPT/ Virtual CSH **[For PHS]**)	–	–	Δ	–	Δ	×	–
Virtual FP for PS Station	–	Δ	–	–	–	–	×

NOTE: *Although FP/AP number marked with "Δ" is available to use, we recommend FP/AP number marked with "×".*

[For Series 3400 software or later]

×/Δ: Available **NOTE 1** –: Not available

FP/AP No. / FP/AP TYPE	00	01-03	04-15	16-19	20-31	32-59	60-63
FP card (PN-CP15)	–	×	–	×	–	–	–
MP built-in FP	×	–	–	–	–	–	–
Virtual FP for D^{term}IP	–	×	Δ	×	Δ	Δ	–
AP card	–	–	×	–	×	–	–
Virtual AP (Virtual IPT/ Virtual CSH for IP-CS **[For PHS]**/Virtual CSH for WLAN) **NOTE 3**	–	–	Δ	–	Δ	×	–
Virtual FP for PS Station/ Virtual FP for WLAN Station **NOTE 3**	–	Δ	–	–	–	× **NOTE 2**	×

NOTE 1: *Although FP/AP number marked with "Δ" is available to use, we recommend FP/AP number marked with "×".*

NOTE 2: *We recommend the setting of the FP number (60-63), when providing 256 PS stations/WLAN stations or less and setting of the FP number (56-63), when providing 257 PS stations/WLAN stations or more.*

NOTE 3: *Virtual CSH for WLAN and Virtual FP for WLAN Station are available for Series 3500 software or later.*

Trunk Number Assignment

When assigning the trunk number with commands as shown in the following table, the range of the trunk number that can be assigned is valid by the software version you use.

COMMAND CODE	AVAILABLE RANGE OF TRUNK NUMBER	
	Series 3700 R12.2 or before	Series 3800 or later
First data of CM30	000-255	000-511 **NOTE**
Second data of CM07/CMA9		

NOTE: *Assign the trunk number 256-511 only when accommodating the PRT card in Remote Site.*

AP Number Assignment

When using Series 3800 software or later in the system, AP numbers 64-93 (for the expanded PRT card) can be assigned by the following commands. However, AP numbers 64-93 are available only when accommodating the PRT card in Remote Site.

- Second data of CM06
- First data of CMAA

ISDN-PRI PROGRAMMING

Digital Trunk Data Assignment

START	DESCRIPTION	DATA
CM05	Assign an AP number to the DTI/PRT card. The AP number must match the SENSE switch setting on the DTI/PRT card. (INITIAL)	• Y=0 (1) 04-15, 20-31, 64-93: AP No. (2) 09: DTI card 12: PRT card
	Specify the AP highway channel for 24DTI/30DTI/24PRT/30PRT card. (INITIAL)	• Y=1 (1) 04-15, 20-31, 64-93: AP No. (2) 0 : Use Expanded Highway channel (128 time slots) 1◀: Use Basic Highway channel (128 time slots)
	Assign an Remote Site number that accommodates AP cards to the AP number assigned by CM05 Y=0. (INITIAL)	• Y=8 (1) 04-15, 20-31, 64-93: AP No. (2) XX 99 XX 9931 (for AP No. 64-93) **[Series 3800 software or later]** **NOTE 2** XX : 01-30: Remote Site No. 01-30 **NOTE 3** NONE◀: No data
	NOTE 1: *Set this command only when accommodating the PRT card in Remote Site.*	
	NOTE 2: *When accommodating the PRT card in Remote Site with AP numbers 64-93 (for the expanded PRT card), be sure to set the switch number of all the PRT cards accommodated with the SENSE switch/SW1-4 to 31, and to assign any one number from AP numbers 64-93 with CM05 per PRT card (same even if the site that accommodates the PRT card is different).*	
	NOTE 3: *When using Series 3200 R6.2 software or Series 3300 software, Remote Site No. 01-15 can be assigned.*	
A		

A

	DESCRIPTION	DATA
CM05	Assign the accommodation type of the Remote Site to the AP number assigned by CM05 Y=0. (INITIAL) **NOTE:** *Only when accommodating the PRT card in Remote Site, set the second data to 1 (remote site) to the AP number assigned by CM05 Y=0.*	• Y=6 (1) 04-15, 20-31, 64-93: AP No. (2) 1 : Remote Site 3◀: AP card
CM07	Assign trunk numbers to each channel number on the DTI/PRT card. (INITIAL) 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.	• Y=01 (1) XX ZZ XX: 04-15, 20-31, 64-93: AP No. assigned by CM05 ZZ : 00-22: B channel No. of 24DTI/24PRT 23: D channel No. of 24DTI/24PRT ZZ : 01-15, 17-31: B channel No. of 30DTI/30PRT 16: D channel No. of 30DTI/30PRT (2) D000-D511: Trunk No. Any trunk No. already assigned by CM10/CM14 cannot be used.
CM48	Allow second Dial Tone when dialing access code assigned by CM20 for ISDN B channel route.	• Y=2 (1) 04 (2) 0 : For ISDN trunk route, 2nd Dial Tone is provided. 1◀: No 2nd Dial Tone

B

B

CMAA

DESCRIPTION

Specify the type of PRT card.

Specify the A-law/μ-law setting of PN-DTB (PRT) card.
[For Taiwan]
[Series 3900 software required]

NOTE: *When providing A-law/μ-law conversion for PRT in Taiwan, assign the second data of CMAA Y=17 to 0/1 (A-law/μ-law) and set the SW3-3 of PN-DTB card to ON.*

Assign the necessary functions to the DTI/PRT card. CMAA Y=00/01/02 assignment is required only for 24DTI/24PRT.

DTI INITIAL

After entering the data, set the MB switch on the DTI/PRT card to UP, and then to DOWN, for DTI/PRT initialization.

NOTE: *The following table shows the relationship between CMAA Y=01 and Y=02.*

CMAA Y=01 (FRAME CONFIGURATION)	CMAA Y=02 (ZERO CODE SUPPRESSION)	SIGNALING
24-Multi Frame [1]		B8ZS
12-Multi Frame [0]	Not available [1]	Transparent
	Available [0]	B7

[ ]: Indicates 2nd data

C

DATA

- Y=15

(1) 04-15, 20-31, 64-93: AP No. assigned by CM05
(2) 0 : PN-30PRTA/PN-DTA/PN-DTB (30PRT)
1◀: PN-24PRTA/PN-DTA/PN-DTB (24PRT)

- Y=17

(1) 04-15, 20-31, 64-93: AP No. assigned by CM05
(2) 0 : A-law
1 : μ-law
3◀: Depends on CM04 Y=10>00

- Y=00 Data Mode

(1) 04-15, 20-31, 64-93: AP No. assigned by CM05
(2) 0: Based on AT&T Spec.

- Y=01 Frame Configuration

(1) 04-15, 20-31, 64-93: AP No. assigned by CM05
(2) 0 : 12-Multi Frame
1◀: 24-Multi Frame

- Y=02 Zero Code Suppression

(1) 04-15, 20-31, 64-93: AP No. assigned by CM05
(2) 0 : Available
1◀: Not available

- Y=03

(1) 04-15, 20-31, 64-93: AP No. assigned by CM05
(2) 7◀: Associated Channel Interoffice Signaling

C

CM30

DESCRIPTION	DATA
Assign a trunk route number to each ISDN trunk used for voice channel and also to signaling channel. The DTI route must be separated from any analog trunk route.	• Y=00 (1) 000-511: Trunk No. assigned by CM07 Y=01 (2) 00-63: Trunk Route No.
Assign the trunk data to each ISDN incoming trunk used for voice channel only. **NOTE 1:** *For ISDN Indial programming, see "DID Addressing".* ☞ *Page 117* **NOTE 2:** *For Event Based CCIS, only trunk numbers 000-255 are available.*	• Y=02 Day Mode • Y=03 Night Mode • Y=40 Mode A • Y=41 Mode B (1) 000-511: Trunk No. assigned by CM07 Y=01 (2) 04: Direct-In Termination 09: Automated Attendant 14: Termination to Attendant console 16: Remote Access to System (DISA) 18: ISDN Indial
Assign Circuit Identification Code (CIC) to each ISDN trunk used for voice channel only. **NOTE:** *CIC must not be assigned to the trunk No. of D channel: TS16 (30DTI/30PRT) or TS23 (24DTI/24PRT).*	• Y=07 (1) 000-511: Trunk No. assigned by CM07 Y=01 (2) 000-029: CIC EXAMPLE OF 30DTI/30PRT B channel trunk No.: D100-D114, D116-D130 D channel trunk No.: D115 (1) 100-114, 116-130 (2) 000-014, 015-029 EXAMPLE OF 24DTI/24PRT B channel trunk No.: D100-D122 D channel trunk No.: D123 (1) 100-122 (2) 000-022

D

D

CM35

E

DESCRIPTION

Assign trunk route data to the trunk route number assigned by CM30 Y=00.

NOTE 1: *This data should be assigned to the B channel trunk route. For D channel trunk route, no data setting is required.*

NOTE 2: *This data should be assigned to both B channel trunk route and D channel trunk route.*

DATA

- Y=00 Kind of Trunk Route **NOTE 2**

(1) 00-63: B channel Trunk Route No.
(2) 00: ISDN Trunk

(1) 00-63: D channel Trunk Route No.
(2) 15◀: Not used

- Y=02 Call Direction **NOTE 1**

(1) 00-63: B channel Trunk Route No.
(2) 3◀: Bothway Trunk

- Y=04 Answer Signal from distant office **NOTE 2**

(1) 00-63: B channel Trunk Route No.
(2) 2: Answer signal arrives (ISDN Trunk)

(1) 00-63: D channel Trunk Route No.
(2) 7◀: Not used

- Y=05
  Release Signal from distant office **NOTE 1**

(1) 00-63: B channel Trunk Route No.
(2) 1◀: Release signal arrives

- Y=09 Incoming Connection Signaling **NOTE 2**

(1) 00-63: B channel Trunk Route No.
(2) 08: ISDN

(1) 00-63: D channel Trunk Route No.
(2) 15◀: Not used

- Y=11 Toll Restriction **NOTE 1**

(1) 00-63: B channel Trunk Route No.
(2) 0 : To provide
3◀: Not provided

E

CM35

F

DESCRIPTION

NOTE: *This data should be assigned to the B channel trunk route. For D channel trunk route, no data setting is required.*

DATA

- Y=14 SMDR for outgoing call **NOTE**

(1) 00-63: B channel Trunk Route No.
(2) 0 : Not provided
1◀: To provide

- Y=15 Kind of Call Termination Indicator Key/Lamp on ATT **NOTE**

(1) 00-63: B channel Trunk Route No.
(2) 00-07: C.O. Incoming Call 0-7

- Y=16
Hooking Signal Sending to outside **NOTE**

(1) 00-63: B channel Trunk Route No.
(2) 0: Not sending

- Y=19 **NOTE**

(1) 00-63: B channel Trunk Route No.
(2) 0-3 : Programmable PAD
(See CM42)
4-7◀: Fixed PAD

NOTE: *For details of PAD data, refer to Command Manual.*

F

CM35

DESCRIPTION	DATA
NOTE 1: *This data should be assigned to the B channel trunk route. For D channel trunk route, no data setting is required.*	• Y=28 Outgoing Trunk Queuing **NOTE 1** (1) 00-63: B channel Trunk Route No. (2) 0: Restricted
	• Y=39 Trunk release by detection of reversal of tip and ring **NOTE 1** (1) 00-63: B channel Trunk Route No. (2) 1◀: To release
NOTE 2: *This data should be assigned to both B channel trunk route and D channel trunk route.*	• Y=89 CRC error check **NOTE 2** (1) 00-63: B channel Trunk Route No. (2) 0 : To provide 1◀: Not provided
	(1) 00-63: D channel Trunk Route No. (2) 0 : To provide 1◀: Not provided
	• Y=90 Assignment of DTI route for ISDN **NOTE 2** (1) 00-63: B channel Trunk Route No. (2) 3: ISDN-Primary Rate Interface
	(1) 00-63: D channel Trunk Route No. (2) 3: ISDN-Primary Rate Interface
Allow sending extension information of Low layer Compatibility (LLC) information element, to each trunk route. **[Series 3200 R6.2 software required]**	• Y=130 (1) 00-63: Trunk Route No. (2) 0: Allow
	• Y=143 Sending method of CCIS channel No. for Event Based CCIS **NOTE 1** (1) 00-63: B channel Trunk Route No. (2) 0 : By Subaddress 1◀: By dialed-in digits

G

G

CM35

DESCRIPTION	DATA
Specify whether the ISDN trunk is released when the system receives ISDN DISCONNECT message with Progress Description=08 from ISDN (effective for an outgoing call). **[Series 3200 R6.2 software required]**	• Y=158 (1) 00-63: B channel Trunk Route No. (2) 0 : To release 1◀: Not released
NOTE: *When sending the in-band tone to the calling station from ISDN, set the second data to 1. In this case, the ISDN trunk will be released automatically in 30 seconds after the calling station receives the in-band tone or when the calling station goes on-hook.*	
Specify whether the ISDN trunk is released when the system receives ISDN DISCONNECT message with Progress Description=08 from ISDN (effective for an incoming call). **[Series 3200 R6.2 software required]**	• Y=208 (1) 00-63: B channel Trunk Route No. (2) 0 : Not released 1◀: To release
NOTE: *When sending the in-band tone to the called station from ISDN, set the second data to 0. In this case, the ISDN trunk will be released automatically in 30 seconds after the called station receives the in-band tone or when the called station goes on-hook.*	
Specify whether the ISDN trunk tone is sent when the ISDN trunk is seized. **[Series 3400 software required]**	• Y=200 (1) 00-63: B channel Trunk Route No. (2) 0 : To send 1◀: Not sent

H

- For originating calls to the ISDN, do the following programming.

H

	DESCRIPTION	DATA
CM20	Assign ISDN access code to each trunk route assigned by CM30 Y=00. **NOTE:** *LCR can be used with ISDN-PRI. Refer to Feature Programming Manual.*	• Y=0-3 Numbering Plan Group 0-3 (1) X-XXXX: Access code (2) 100-163: Trunk Route 00-63
CM08	Specify the timing start when making an ISDN call from an attendant.	(1) 403 (2) 0 : Not available 1◀: Available
CM41	Specify the timing start when making an ISDN call from a Single Line Telephone (PB/DP), D^{term} or Attendant Console, if required.	• Y=0 (1) 50 (2) 03-14: 3-14 seconds If no data is set, the default setting is 10 seconds. Recommended setting is 05 (5 seconds).

NOTE: *A # or timing start is used for outgoing ISDN calls when LCR is not invoked. Example: 1-214-555-1212 is dialed from a D^{term}. The PBX will access a bearer channel and ship the digits only after the timing start timer has expired or # is dialed by the caller. The # sign tells the PBX that dialing is completed.*

I

I

CM8A

J

DESCRIPTION	DATA
Assign the Type of Number of Called Party Number.	• Y=5000-5255 LCR Pattern No. 000-255 (1) 157: Type of Number of Called Party No. (for E.164) (2) 00 : Unknown 01 : International Number 02 : National Number 04 : Subscriber Number NONE◀: Unknown (1) 157: Type of Number of Called Party No. (for Private Numbering Plan) (2) 00 : Unknown 01 : Level 2 Regional Number 02 : Level 1 Regional Number 03 : PSTN Specific Number 04 : Local Number 06 : Abbreviated Number NONE◀: Unknown
Assign the Called Party Numbering Plan Identifier.	• Y=5000-5255 LCR Pattern No. 000-255 (1) 158: Called Party Numbering Plan Identifier (2) 00 : Unknown 01 : ISDN/Telephone Numbering Plan 03 : Data Numbering Plan 04 : Telex Numbering Plan 08 : National Numbering Plan 09 : Private Numbering Plan NONE◀: Unknown

- When providing Tandem Connection (ODT/DTI to ISDN, ISDN to ODT/DTI), do the following programming.

J

	DESCRIPTION	DATA
CM36	Specify the combination of trunk routes allowing the tandem connection.	• Y=0 (1) XX ZZ XX: 00-63: Incoming Trunk Route ZZ : 00-63: Outgoing Trunk Route (2) 0 : Allowed 1◀: Restricted
CM41	Specify the timing start when making an ISDN call from a station (PB/DP telephone/D^{term}) or Attendant Console for the Tandem Connection.	• Y=0 (1) 57 (2) 03-14: 3-14 seconds If no data is set, the default setting is 10 seconds.

NOTE 1: *By using CM41 Y=0>57, an ISDN call is available even if "#" is not dialed.*

NOTE 2: *CM41 Y=0>57 is effective for dialing a called number. When dialing a called party sub-address, this command is not effective.*

K

- When providing Tandem Connection (ISDN to CCIS, CCIS to ISDN), do the following programming.

K

	DESCRIPTION	DATA
CM36	Specify the combination of trunk routes allowing the tandem connection.	• Y=0 (1) XX ZZ XX: 00-63: Incoming Trunk Route ZZ : 00-63: Outgoing Trunk Route (2) 0 : Allowed 1◀: Restricted
CM08	Allow tandem connection by station or attendant.	(1) 028 (2) 0: Available

L

- When providing Tandem Connection (ISDN to ISDN), do the following programming.
  [Series 3600 software required]

L

	DESCRIPTION	DATA
CM36	Specify the combination of trunk routes allowing the tandem connection.	• Y=0 (1) XX ZZ XX: 00-63: Incoming Trunk Route ZZ : 00-63: Outgoing Trunk Route (2) 0 : Allowed 1◀: Restricted
CM08	Allow tandem connection by station or attendant.	(1) 028 (2) 0: Available
CM35	Provide release of ISDN trunk when receiving the ISDN DISCONNECT message with Progress Description=8 from ISDN because the called party is busy in tandem connection (ISDN to ISDN). **NOTE:** *To release the ISDN trunk when receiving the ISDN DISCONNECT message, set the second data 0 to the incoming trunk route of tandem office.*	• Y=233 (1) 00-63: B channel Trunk Route No. (2) 0: To provide
	Provide relay of the ALERT message to the calling party in tandem connection (ISDN to ISDN). **NOTE:** *This command should be set to both incoming trunk route and outgoing trunk route of tandem office.*	• Y=266 (1) 00-63: B channel Trunk Route No. (2) 0: To provide

END

D Channel Handler Assignment

START	DESCRIPTION	DATA
CM05	When you use the DCH card (PN-SC01), assign an AP number to the DCH card. The AP number must match the SENS switch settings on the DCH card. (INITIAL) **NOTE:** *When you use the PRT card, skip this assignment, since the PRT AP number has been assigned on* ☞ *Page 89*.	• Y=0 (1) 04-15, 20-31: AP No. (2) 12: PN-SC01 (DCH)
CMAA	Select DCH for ISDN-PRI.	• Y=14 (1) 04-15, 20-31, 64-93: AP No. of DCH/PRT card assigned by CM05 (2) 0 : PN-24PRTA/PN-30PRTA/PN-DTA/PN-DTB (Built-in DCH) 1◀: PN-SC01 (DCH)
A		

A

CMAA

B

DESCRIPTION

Assign the ISDN Protocol Type for DCH/PRT card.

DTI INITIAL

DCH INITIAL

DATA

- Y=06

(1) 04-15, 20-31, 64-93: AP No. of DCH/PRT card assigned by CM05

(2) ISDN Protocol Type
17 : Australia
18 : New Zealand
19 : ITU-T (Hong Kong)
20 : AT&T (#4, #5 ESS)
21 : NTI (DMS 100, 250)
22 : Australia ETSI
23 : ETSI VN4 (Chile)
24 : ETSI Standard (Brazil, Chile, Columbia, UAE)
25 : ITU-T Standard (Thailand)
28 : USA NI-2
30 : ETSI-2 (Latin America/Europe)
31 : Germany
[Series 3200 R6.2 software required]
[For EU]
32 : Netherlands
[Series 3200 R6.2 software required]/
Greece/Luxembourg/Portugal/Spain/Sweden
[Series 3500 software required]
[For EU]
33 : Italy
[Series 3200 R6.2 software required]
[For EU]
34 : ETSI (Huawei)
[Series 3300 software required]
[For China]
63◀: Not used

B

	DESCRIPTION	DATA
CM06	Assign the DCH number to the AP number of DCH/PRT card assigned by CM05. (INITIAL)	• Y=08 (1) 0-7 : DCH No. **[Series 3700 R12.2 software required]** 00-31 : DCH No. **[Series 3800 software required]** (2) 04-15, 20-31, 64-93: AP No. of DCH/PRT card assigned by CM05 NONE◀: No data
CM35	Assign the DCH number to the each B channel trunk route assigned by CM30 Y=00.	• Y=93 Assignment of D Channel Handler (1) 00-63: B channel Trunk Route No. (2) 00-07: DCH No. assigned by CM06 **[Series 3700 R12.2 software required]** 00-31: DCH No. assigned by CM06 **[Series 3800 software required]** 15◀: No data **[Series 3700 R12.2 software required]** NONE◀: No data **[Series 3800 software required]**
CMA9	Assign the DTI/PRT trunk number assigned by CM07 Y=01 to each DCH number for providing D channel path between DTI/PRT and DCH. (DCH INITIAL)	• Y=00 (1) 0-7: DCH No. assigned by CM06 **[Series 3700 R12.2 software required]** (2) 00-31: DCH No. assigned by CM06 **[Series 3800 software required]** 000-511 : DTI/PRT Trunk No. assigned by CM07 Y=01 NONE◀: No data

END

ISDN-BRI PROGRAMMING

BRT Assignment

START	DESCRIPTION	DATA
CM05	Assign an AP number to the BRT card. The AP number must match the SENSE switch setting on the BRT card. (INITIAL)	• Y=0 (1) 04-15, 20-31: AP No. (2) 10: BRT card
	NOTE: *The AP number 20-31 cannot be set to the PN-BRTA card.*	
	Specify the AP highway channel for PN-4BRTA-A card. (INITIAL)	• Y=1 (1) 04-15, 20-31: AP No. (2) 0 : Use Expanded Highway channel (128 time slots) 1◀: Use Basic Highway channel (128 time slots)
	Assign an Remote Site number that accommodates AP cards to the AP number assigned by CM05 Y=0. (INITIAL)	• Y=8 (1) 04-15, 20-31: AP No. (2) XX 99 XX: 01-15: Remote Site No. 01-15 **[Series 3200 R6.2 software or Series 3300 software required]** 01-30: Remote Site No. 01-30 **[Series 3400 software required]** NONE◀: No data
	Assign the accommodation type of the Remote Site to the AP number assigned by CM05 Y=0. (INITIAL)	• Y=6 (1) 04-15, 20-31: AP No. (2) 1 : Remote Site 3◀: AP card
	NOTE: *Only when accommodating the BRT card in Remote Site, set the second data to 1 (remote site) to the AP number assigned by CM05 Y=0.*	
A		

A

	DESCRIPTION	DATA
CMAA	Assign the ISDN Protocol Type for DCH circuit on the BRT card. BRT INITIAL	• Y=06 (1) 04-15, 20-31: AP No. of BRT assigned by CM05 (2) ISDN Protocol Type 17 : Australia 18 : New Zealand 20 : AT&T (#4, #5 ESS) 21 : NTI (DMS 100, 250) 22 : Australia ETSI 24 : ETSI Standard (Brazil, Columbia, Indonesia, UAE) 25 : ITU-T Standard (Thailand) 27 : USA NI-1 28 : USA NI-2 31 : Germany **[Series 3200 R6.2 software required] [For EU]** 32 : Netherlands **[Series 3200 R6.2 software required]**/ Greece/Luxembourg/Portugal/Spain/ Sweden **[Series 3500 software required] [For EU]** 33 : Italy **[Series 3200 R6.2 software required] [For EU]** 63◀: Not used
CM07	Assign ISDN trunk number to each channel number of BRT. INITIAL **NOTE:** *Be sure to assign the trunk numbers to all circuits (00-03 of the 2BRT card, 00-07 of the 4BRT card), even if only one PCM digital line is accommodated to the 2BRT card or less than four PCM digital lines are accommodated to the 4BRT card. Set make-busy to the unused trunk numbers by CME5 Y=1, 2nd data=0.*	• Y=02 (1) XX ZZ XX: 04-15, 20-31: AP No. assigned by CM05 ZZ : B channel No. (00/01: BRT) (00-03: 2BRT) (00-07: 4BRT) (2) D000-D255: Trunk No. Trunk No. already assigned by CM10/CM14 cannot to be used.

B

B

	DESCRIPTION	DATA
CM30	Assign trunk route to each ISDN trunk used for voice channel (B channel).	• Y=00 (1) 000-255: Trunk No. assigned by CM07 Y=02 (2) 00-63: Trunk Route
	NOTE: *BRT route must be separated from analog trunk routes.*	
	Assign the trunk data to each ISDN incoming trunk used for voice channel only.	• Y=02 Day Mode • Y=03 Night Mode • Y=40 Mode A • Y=41 Mode B (1) 000-255: Trunk No. assigned by CM07 Y=01 (2) 04: Direct-In Termination 09: Automated Attendant 14: Termination to Attendant Console 16: Remote Access to System (DISA) 18: ISDN Indial
	NOTE: *If CM35 Y=143 is set to "1" for Event Based CCIS, this command must be set to "18" (ISDN Indial). For ISDN Indial programming, see "DID Addressing".* ☞ Page 117	
	Assign an ISDN subscriber number (last 4 digits of telephone number) to each ISDN trunk.	• Y=19 (1) 000-255: Trunk No. assigned by CM07 Y=02 (2) XXXX: ISDN Subscriber No.
	Assign ISDN Local Office Code Table number to each ISDN trunk.	• Y=34 (1) 000-255: Trunk No. assigned by CM07 Y=02 (2) 00-14: Local Office Table No. 15◀ : Not assigned
CM35	Assign trunk route data to the trunk route number assigned by CM30 Y=00.	• Y=00 Kind of Trunk Route (1) 00-63: B channel Trunk Route No. (2) 00: ISDN Trunk
		• Y=02 Call Direction (1) 00-63: B channel Trunk Route No. (2) 3◀: Bothway Trunk
		• Y=04 Answer Signal from distant office (1) 00-63: B channel Trunk Route No. (2) 2: Answer signal arrives (ISDN Trunk)

C

C

CM35

DESCRIPTION	DATA

- Y=05 Release signal from distant office

(1) 00-63: B channel Trunk Route No.
(2) 1◀: Release signal arrives

- Y=09 Incoming Connection Signaling

(1) 00-63: B channel Trunk Route No.
(2) 08: ISDN Indial

- Y=11 Toll Restriction

(1) 00-63: B channel Trunk Route No.
(2) 0 : To provide
3◀: Not provided

- Y=14 SMDR for outgoing call

(1) 00-63: B channel Trunk Route No.
(2) 0 : Not provided
1◀: To provide

- Y=15 Kind of Call Termination Indicator Key/Lamp on ATT

(1) 00-63: B channel Trunk Route No.
(2) 00-07: C.O. Incoming Call 0-7

- Y=16
Hooking Signal Sending to outside

(1) 00-63: B channel Trunk Route No.
(2) 0: Not sending

- Y=19

(1) 00-63: B channel Trunk Route No.
(2) 0-3 : Programmable PAD (See CM42)
4-7◀: Fixed PAD

NOTE: *For details of PAD data, refer to Command Manual.*

- Y=28 Outgoing Trunk Queuing

(1) 00-63: B channel Trunk Route No.
(2) 0: Restricted

D

D

CM35

DESCRIPTION	DATA
	• Y=39 Trunk release by detection of reversal of tip and ring (1) 00-63: B channel Trunk Route No. (2) 1◀: To release
NOTE: *We recommend the point-to-point connection when connecting the system to the public network using the BRT card. For the point-to-multipoint connection using the BRT card, when the system is established far from the public network, the communication error occurs easily because the ISDN signal fades away.*	• Y=79 Terminal connection form for ISDN Basic Rate Interface BRT INITIAL (1) 00-63: B channel Trunk Route No. (2) 0 : Point-to-Point 1◀: Point-to-Multipoint
	• Y=90 Assignment of BRT route for ISDN (1) 00-63: B channel Trunk Route No. (2) 2: ISDN-Basic Rate Interface
Allow sending extension information of Low layer Compatibility (LLC) information element, to each trunk route. **[Series 3200 R6.2 software required]**	• Y=130 (1) 00-63: B channel Trunk Route No. (2) 0: Allow
Specify the method of Layer 1 activation.	• Y=144 BRT INITIAL (1) 00-63: B channel Trunk Route No. (2) 0 : Activated by call event 1◀: Always activated
Specify whether the ISDN trunk is released when the system receives ISDN DISCONNECT message with Progress Description=08 from ISDN (effective for an outgoing call). **[Series 3200 R6.2 software required]**	• Y=158 (1) 00-63: B channel Trunk Route No. (2) 0 : To release 1◀: Not released
NOTE: *When sending the in-band tone to the calling station from ISDN, set the second data to 1.* *In this case, the ISDN trunk will be released automatically in 30 seconds after the calling station receives the in-band tone or when the calling station goes on-hook.*	

E

E

	DESCRIPTION	DATA
CM35	Assign the method of Terminal Endpoint Identifier (TEI) assignments for the Trunk number. **[Series 3800 software required]** BRT INITIAL **NOTE:** *Automatic TEI assignment (set the second data to 0) is available only when second data of CM35 Y=79 is set to 1 (Point-to-Multipoint connection).*	• Y=283 (1) 00-63: B channel Trunk Route No. (2) 0 : Automatic TEI Assignment (TEI: 64-126) 1◀: Non-Automatic TEI Assignment (TEI: 0 fixed)
	Specify whether the ISDN trunk is released when the system receives ISDN DISCONNECT message with Progress Description=08 from ISDN (effective for an incoming call). **[Series 3200 R6.2 software required]** **NOTE:** *When sending the in-band tone to the called station from ISDN, set the second data to 0.* *In this case, the ISDN trunk will be released automatically in 30 seconds after the called station receives the in-band tone or when the called station goes on-hook.*	• Y=208 (1) 00-63: B channel Trunk Route No. (2) 0 : Not released 1◀: To release
	Specify whether the ISDN trunk tone is sent when the ISDN trunk is seized. **[Series 3400 software required]**	• Y=200 (1) 00-63: B channel Trunk Route No. (2) 0 : To send 1◀: Not sent
CM50	Assign ISDN Local Office Code.	• Y=05 (1) 00-14: Local Office Table No. assigned by CM30 Y=34 (2) X....X (Maximum 12 digits)
CMAC	Assign Service Profile ID (SPID) to each B channel number. **[North America Only]** INITIAL	• Y=30 (1) XX Z XX: 04-15, 20-31: AP No. assigned by CM05 Z : 0-7: B channel No. (2) XXXX ZZZZ XXXX: ISDN Subscriber No. ZZZZ : SPID

F

- For originating calls to the ISDN network, do the following programming.

F

	DESCRIPTION	DATA
CM20	Assign ISDN access code to each trunk route assigned by CM30 Y=00. **NOTE:** *LCR can be used with ISDN-BRI. Refer to Feature Programming Manual.*	• Y=0-3 Numbering Plan Group 0-3 (1) X-XXXX: Access code (2) 100-163: Trunk Route 00-63
CM08	Specify the timing start when making an ISDN call from an attendant.	(1) 403 (2) 0 : Not available 1◀: Available
CM41	Specify the timing start when making an ISDN call from a Single Line Telephone (PB/DP), D^{term} or Attendant Console, if required.	• Y=0 (1) 50 (2) 03-14: 3-14 seconds If no data is set, the default setting is 10 seconds. (Dialing terminated by entering #.) Recommended setting is 05 (5 seconds).
	NOTE: *A # or timing start is used for outgoing ISDN calls when LCR is not invoked. Example: 1-214-555-1212 is dialed from a D^{term}. The PBX will access a bearer channel and ship the digits only after the timing start timer has expired or # is dialed by the caller. The # sign tells the PBX that dialing is completed.*	
CM8A	Assign the Type of Number of Called Party Number.	• Y=5000-5255 LCR Pattern No. 000-255 (1) 157: Type of Number of Called Party No. (for E.164) (2) 00 : Unknown 01 : International Number 02 : National Number 04 : Subscriber Number NONE◀: Unknown (1) 157: Type of Number of Called Party No. (for Private Numbering Plan) (2) 00 : Unknown 01 : Level 2 Regional Number 02 : Level 1 Regional Number 03 : PSTN Specific Number 04 : Local Number 06 : Abbreviated Number NONE◀: Unknown

G

G

	DESCRIPTION	DATA
CM8A	Assign the Called Party Numbering Plan Identifier.	• Y=5000-5255 LCR Pattern No. 000-255 (1) 158: Called Party Numbering Plan Identifier (2) 00 : Unknown 01 : ISDN/Telephone Numbering Plan 03 : Data Numbering Plan 04 : Telex Numbering Plan 08 : National Numbering Plan 09 : Private Numbering Plan NONE◀: Unknown

H

- When providing Tandem Connection (COT/ODT/LDT/DTI to ISDN, ISDN to COT/ODT/LDT/DTI), do the following programming.

H

	DESCRIPTION	DATA
CM08	Specify whether the busy tone is sent to a calling party of ISDN when a called party is busy in the tandem connection (ISDN to COT).	(1) 407 (2) 0 : Available (BT) 1◀: Not available (RBT)
CM36	Specify the combination of trunk routes allowing the tandem connection.	• Y=0 (1) XX ZZ XX: 00-63: Incoming Trunk Route ZZ : 00-63: Outgoing Trunk Route (2) 0 : Allowed 1◀: Restricted
CM41	Specify the timing start when making an ISDN call from a station (PB/DP telephone D^{term}) or Attendant Console for the Tandem Connection.	• Y=0 (1) 57 (2) 03-14: 3-14 seconds If no data is set, the default setting is 10 seconds.

NOTE 1: *By using CM41 Y=0>57, an ISDN call is available even if "#" is not dialed.*

NOTE 2: *CM41 Y=0>57 is effective for dialing a called number. When dialing a called party sub-address, this command is not effective.*

I

- When providing Tandem Connection (ISDN to CCIS, CCIS to ISDN), do the following programming.

I

	DESCRIPTION	DATA
CM36	Specify the combination of trunk routes allowing the tandem connection.	• Y=0 (1) XX ZZ XX: 00-63: Incoming Trunk Route ZZ : 00-63: Outgoing Trunk Route (2) 0 : Allowed 1◀: Restricted
CM08	Allow tandem connection by station or attendant.	(1) 028 (2) 0: Available

J

- When providing Tandem Connection (ISDN to ISDN), do the following programming.
  [Series 3600 software required]

J

	DESCRIPTION	DATA
CM36	Specify the combination of trunk routes allowing the tandem connection.	• Y=0 (1) XX ZZ XX: 00-63: Incoming Trunk Route ZZ : 00-63: Outgoing Trunk Route (2) 0 : Allowed 1◀: Restricted
CM08	Allow tandem connection by station or attendant.	(1) 028 (2) 0: Available

K

K

	DESCRIPTION	DATA
CM35	Provide release of ISDN trunk when receiving the ISDN DISCONNECT message with Progress Description=8 from ISDN because the called party is busy in tandem connection (ISDN to ISDN).	• Y=233 (1) 00-63: B channel Trunk Route No. (2) 0: To provide
	NOTE: *To release the ISDN trunk when receiving the ISDN DISCONNECT message, set the second data 0 to the incoming trunk route of tandem office.*	
	Provide relay of the ALERT message to the calling party in tandem connection (ISDN to ISDN).	• Y=266 (1) 00-63: B channel Trunk Route No. (2) 0: To provide
	NOTE: *This command should be set to both incoming trunk route and outgoing trunk route of tandem office.*	

END

- Specify whether the Calling Party Number (CPN) sent from ISDN is sent to the CCIS network.

START

	DESCRIPTION	DATA
CM08	Maximum number of digits sent to CCIS network.	(1) 379 (2) 0: 24 digits
CMA7	Activate IAI2 message for sending ISDN CPN to CCIS network.	• Y=26 (1) 0-7: CCIS Channel No. (2) 0: Active
	Allow sending of CPN to CCIS network.	• Y=28 (1) 0-7: CCIS Channel No. (2) 0: Allowed

END

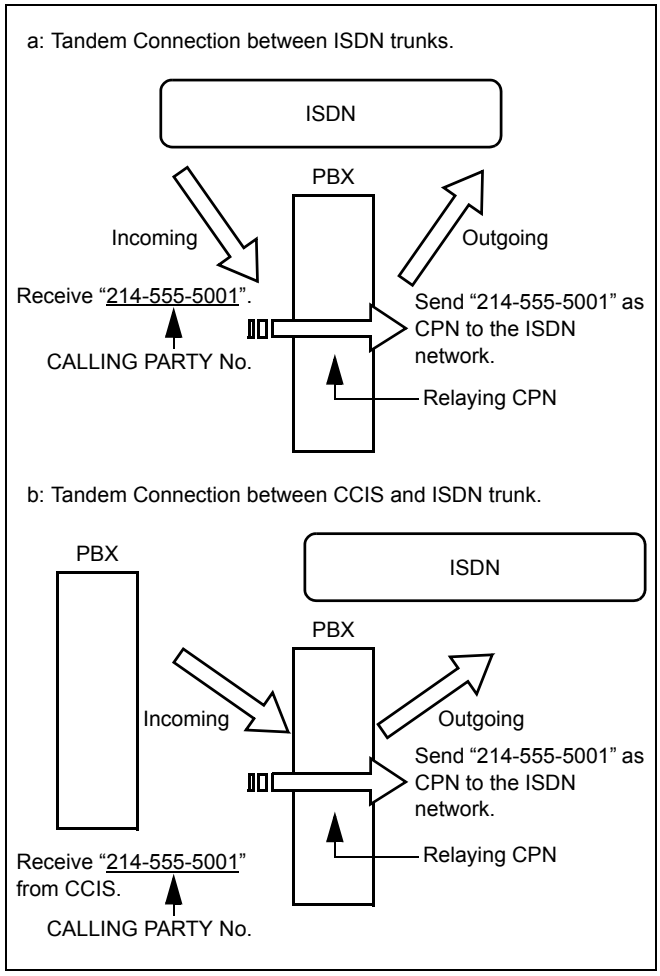
ISDN FEATURE PROGRAMMING

- Calling Party Recognition Service (Direct-In Termination (DIT))
  Refer to "Direct Inward Termination (DIT)" in the Feature Programming Manual.
- CLI Transparency ☞ *Page 115*
- DID Addressing ☞ *Page 117*
- MEGACOM® Access **[North America Only]** ☞ *Page 121*
- MEGACOM® 800 Service **[North America Only]**
  Refer to "DID Addressing" for programming instructions. ☞ *Page 117*
- SID to Network-Present **[Australia/NZ/Asia/Latin America/UK]** ☞ *Page 122*
- CPN to Network-Present **[North America]** ☞ *Page 122*
- SID to Terminating User-Display **[Australia/NZ/Asia/Latin America/UK]** ☞ *Page 128*
- CPN to Terminating User-Display **[North America]** ☞ *Page 131*
- Subaddress-Present ☞ *Page 133*
- Trunk Provisioning Service Selection ☞ *Page 134*
- ISDN PRI Call By Call Service Selection **[North America Only]** ☞ *Page 135*
- Advice of Charge-Display **[Australia/France/Germany/Netherlands/Italy/Greece/Luxembourg/Portugal/Spain/Sweden]**
  [ITU-T (UAE) Only] ☞ *Page 141*
- Alternate Routing for ISDN **[Australia Only]** ☞ *Page 143*
- Centrex SHF over ISDN **[New Zealand Only]** ☞ *Page 144*
- ETSI ISDN Overlap Sending **[For EU]** ☞ *Page 145*
- ETSI ISDN Overlap Receiving **[For EU]** ☞ *Page 148*
- ETSI ISDN Addressing **[For EU]** ☞ *Page 153*
- ETSI ISDN Channel Negotiation **[For EU]** ☞ *Page 156*
- Connected Line Identification Presentation (COLP)/Connected Line Identification Restriction (COLR) **[For EU]** ☞ *Page 157*
- Malicious Call Trace **[Australia Only]** ☞ *Page 159*
- Call Completion to Busy Subscriber (CCBS) **[For EU]** ☞ *Page 160*

CLI Transparency

[For EU]

[Series 3800 software required]



START

CM35

A

DESCRIPTION

Provide Calling Party Number relaying in ISDN to ISDN/CCIS to ISDN connection for incoming trunk route.

NOTE 1: *This command must be set for incoming trunk route.*

NOTE 2: *Calling Party Number relaying in ISDN tandem connection is available when both CM35 Y=281 and Y=282 are set to 0.*

DATA

- Y=281

(1) 00-63: B channel Trunk Route No.
(2) 0: To provide

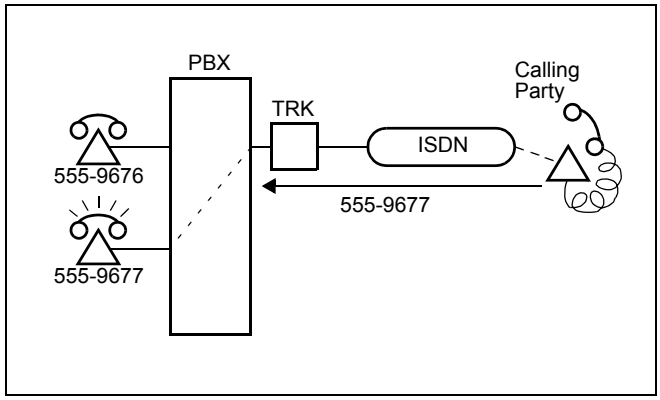
A

CM35

DESCRIPTION	DATA
Provide Calling Party Number relaying in ISDN to ISDN/CCIS to ISDN connection for outgoing trunk route. **NOTE 1:** *This command must be set for outgoing trunk route.* **NOTE 2:** *Calling Party Number relaying in ISDN tandem connection is available when both CM35 Y=281 and Y=282 are set to 0.*	• Y=282 (1) 00-63: B channel Trunk Route No. (2) 0: To provide
Specify the Screening Indicator for outgoing trunk route.	• Y=265 (1) 00-63: B channel Trunk Route No. (2) 0: User-provided, Not screened
Specify the Type of Number for outgoing trunk route.	• Y=230 (1) 00-63: B channel Trunk Route No. (2) 01: International Number 02: National Number
Specify the Numbering Plan Identification for outgoing trunk route.	• Y=231 (1) 00-63: B channel Trunk Route No. (2) 01: ISDN/Telephony Numbering Plan
Provide the Type of Number/Numbering Plan Identification of CPN for outgoing trunk route.	• Y=234 (1) 00-63: B channel Trunk Route No. (2) 0: To provide

END

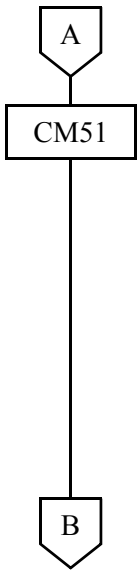
DID Addressing



START

	DESCRIPTION	DATA
CM30	Assign the data for DID to the trunk numbers assigned by CM07.	• Y=02 Day Mode • Y=03 Night Mode • Y=40 Mode A • Y=41 Mode B (1) 000-511: Trunk No. assigned by CM07 Y=01/02 (2) 18: ISDN Indial
CM35	Assign the data for DID to the trunk routes assigned by CM30.	• Y=00 Kind of Trunk (1) 00-63: B channel Trunk Route No. (2) 00: DID • Y=02 OG/IC (1) 00-63: B channel Trunk Route No. (2) 3◀: Bothway Trunk • Y=05 Release Signal Condition (1) 00-63: B channel Trunk Route No. (2) 1◀: Release signal arrives • Y=09 Incoming Connection Signaling (1) 00-63: B channel Trunk Route No. (2) 08: ISDN

A



DESCRIPTION	DATA
Assign the destination of DID Call transferred when the station is busy/unassigned/no answer.	• Y=00 No Answer • Y=03 Busy • Y=06 Unassigned (1) 00-63: Tenant No. (2) Destination: X-XXXXXXXX: Station No. E000 : Attendant Console EBXXX: Announcement Service: Digital Announcement Trunk No. set by CM10/CM14

- To provide DID Digit Conversion:

B

CM35

C

DESCRIPTION	DATA
Assign the data for DID Digit Conversion to the trunk routes assigned by CM30.	• Y=18 Digit Conversion on DID call (1) 00-63: B channel Trunk Route No. (2) 0: To provide • Y=170 Development Table (1) 00-63: B channel Trunk Route No. (2) 0 : Development Table 1 3◀: Development Table 0
NOTE: *If CM35 Y=143 is set to "1" for Event Based CCIS, the number of digits received on DID must be assigned.*	• Y=12 Number of digits to be received (1) 00-63: B channel Trunk Route No. (2) 0 : 1 digit 1 : 2 digits 2 : 3 digits 3◀: 4 digits • Y=78 Number of digits to be converted for Development Table 0 (1) 00-63: B channel Trunk Route No. (2) 0 : Leading 2-4 digits 1◀: All digits of DID are converted by CM76 • Y=171 Number of digits to be converted for Development Table 1 (1) 00-63: B channel Trunk Route No. (2) 01-08: 1-8 digits 15◀ : 4 digits

C

CM76

DESCRIPTION	DATA
Assign the Number Conversion Block number for Development Table 0.	• Y=00 (1) X-XXXX: DID No. (2) 000-999: Number Conversion Block No.
Assign the Number Conversion Block number for Development Table 1.	• Y=90 (1) X-XXXXXXXX: DID No. (2) 000-999: Number Conversion Block No.
Assign the data for interpreting the digits received.	• Y=01 Day Mode • Y=02 Night Mode • Y=03 Mode A • Y=04 Mode B (1) 000-999: Number Conversion Block No. assigned by CM76 Y=00/90 (2) X-XXXXXXXX: Station No. to be terminated DXX: Change terminating system to: D04: Direct-In Termination D14: Attendant Console

END

MEGACOM® Access

[North America Only]

START	DESCRIPTION	DATA
CM12	Assign the Trunk Restriction Class to each station.	• Y=01 Trunk Restriction Class (1) X-XXXXXXXX: Station No. (2) X Z X: 1◀-8: Trunk Restriction Class in Day mode Z: 1◀-8: Trunk Restriction Class in Night mode 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)
CM35	Set the outgoing/incoming Trunk Route Restriction data by Trunk Restriction Classes (RCA-RCH).	• Y=51-58 Outgoing Trunk Restriction • Y=61-68 Incoming Trunk Restriction (1) 00-63: B channel Trunk Route No. (2) 0 : Restricted 1◀: Allowed
END		

NOTE: *If Call-By-Call Service Selection is required, see* ☞ *Page 135* *for additional programming.*

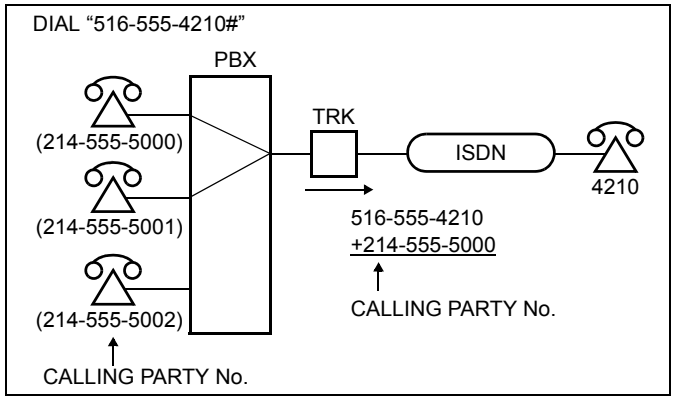
In addition to the programming of Direct Outward Dialing, assign WATS line to the required trunk route, as shown below.

START	DESCRIPTION	DATA
CM35	Assign a WATS line to the required trunk route.	• Y=00 (1) 00-63: B channel Trunk Route No. (2) 02: WATS line
END		

SID to Network-Present
[Australia/NZ/Asia/Latin America/UK]

CPN to Network-Present
[North America]

For providing the Calling Party Number (CPN) to the network, do the following programming.



- When Dial-In service is provided:

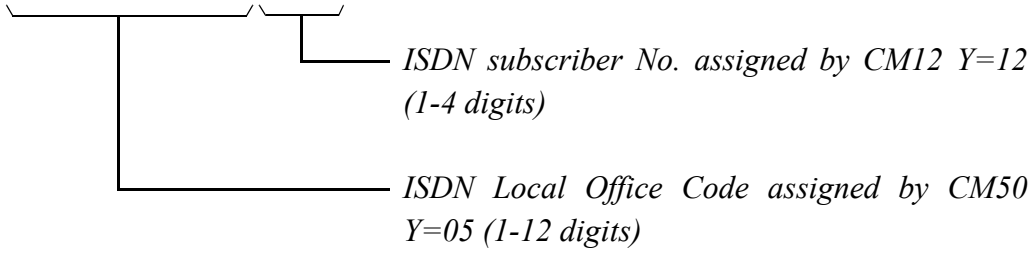
START	DESCRIPTION	DATA
CM12	Assign an ISDN Subscriber number and ISDN Local Office Code Table number to required stations. **NOTE 1**	• Y=12 (1) X-XXXXXXXX: Station No. (2) X-XXXX: ISDN Subscriber No. • Y=13 (1) X-XXXXXXXX: Station No. (2) 00-14: ISDN Local Office Code Table No. 00-14
CM13	Specify the facility control of CPN (Calling Party Number).	• Y=25 (1) X-XXXXXXXX: Station No. (2) 0 : To provide 1◀: Not provided **NOTE 2**
CM50	Assign ISDN Local Office Code to the Table number assigned by CM12 Y=13.	• Y=05 (1) 00-14: ISDN Local Office Code Table No. 00-14 (2) X...X: Local Office Code (Maximum 12 digits)
END		

- When ISDN (BRI) Terminals are used:

START	DESCRIPTION	DATA
CM08	Allow the ISDN Terminal to send the CPN to network without using PBX programming.	(1) 434 (2) 0 : CPN set in ISDN Terminal 1◀: CPN assigned by CM12 Y=12, 13
END		

NOTE 1: *The ISDN number consists of the following numbers.*

ISDN number: XXXXXXXXXXXX YYYY



This number must be in the indial range assigned by Telecom for the ISDN line.

For example:
National Destination Code for Dallas: 214
Local Code for a station: 518-5000
In this case, the ISDN Number is
National Destination Code + Local Code=214518-5000
That is
ISDN Subscribers No. assigned by CM12 Y=12 is 5000.
ISDN Local Office Code assigned by CM50 Y=05 is 214518.

NOTE 2: *The following facility control services for CPN are available in accordance with the subscription category of distant ISDN exchange. In case of no subscription, SID (CPN) to Network-Present is not available.*

Example:

	1st Data	2nd Data	Meaning
CM13 Y=25	*5000*	*0*	*Restrict transfer*
	5001	*1*	*Permit transfer*

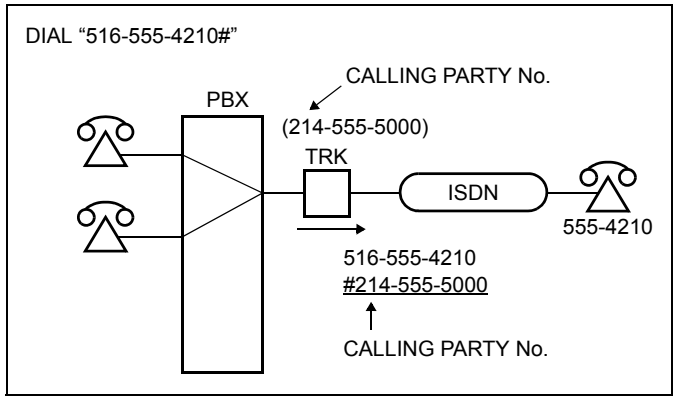
Station 5000 places an outgoing call to an ISDN subscriber. Because CM13>25 is set to 0, the ISDN network is instructed to not send 214-518-5000 (see **NOTE 1** *above) to the distant ISDN subscriber.*

Station 5001 places an outgoing call to an ISDN subscriber, and 214-518-5001 is sent to the called party.

NOTE 3: *When transferring to an ISDN line after a C.O. incoming call is terminated, the calling number of the call forwarding station is notified to the ISDN line.*
Priority of the calling number that is notified is as follows.
[Series 3700 R12.2 software required]

CALLING NUMBER (OFFICE DATA SETTING)	CALLING NUMBER THAT IS NOTIFIED	PRIORITY
CM12 Y=12, 13, CM50 Y=05 ISDN subscriber number is available	Calling number per station	High ↓
CM30 Y=19, 34, CM50 Y=05 ISDN subscriber number is available	Calling number per trunk	
No data	No data	Low

- When Dial-In service is not provided:



START

	DESCRIPTION	DATA
CM13	Specify the sending out of Calling Party Number (CPN).	• Y=25 (1) X-XXXXXXXX: Station No. (2) 0 : To send 1◀: Not sent **NOTE 2** on *Page 123*
CM30	Assign an ISDN subscriber number to each ISDN trunk. **NOTE 1** on *Page 123*	• Y=19 (1) 000-511: Trunk No. assigned by CM07 Y=01/02 (2) XXXX: ISDN Subscriber No.
	Assign ISDN Local Office Code Table number to each ISDN trunk.	• Y=34 (1) 000-511: Trunk No. assigned by CM07 Y=01/02 (2) 00-14: Local Office Code Table No. 00-14
CM50	Assign ISDN Local Office Code to the Table number assigned by CM30 Y=34.	• Y=05 (1) 00-14: ISDN Local Office Code Table No. 00-14 (2) X...X: Local Office Code (Maximum 12 digits)

END

- To provide the specifications of Calling Party Number (CPN), do the following programming in addition to the programming of "When Dial-In service is provided/When Dial-In service is not provided".

START

	DESCRIPTION	DATA
CM35	Specify whether the Type of Number/Numbering Plan Identification of CPN is provided, or not. **[Series 3500 software required]** **NOTE:** *If this data is set to "1", the setting data of CM35 Y=230/231 is invalid.*	• Y=234 (1) 00-63: B channel Trunk Route No. (2) 0: To provide
	Specify the Type of Number for outgoing call.	• Y=230 (1) 00-63: B channel Trunk Route No. (2) 00 : Unknown 01 : International Number 02 : National Number 03 : Network Specific Number 04 : Subscriber Number 06 : Abbreviated Number NONE◀: No data
	Specify the Numbering Plan Identification for outgoing call.	• Y=231 (1) 00-63: B channel Trunk Route No. (2) 00 : Unknown 01 : ISDN/Telephony Numbering Plan 03 : Data Numbering Plan 04 : Telex Numbering Plan 08 : National Standard Numbering Plan 09 : Private Numbering Plan NONE◀: No data
	Specify the Screening Indicator for outgoing call. **[Series 3500 software required]**	• Y=265 (1) 00-63: B channel Trunk Route No. (2) 3 : Network provided NONE◀: No data

END

For providing the Calling Party Name for outgoing call to the network, do the following programming.

[North America]

[Series 3600 software required]

NOTE 1: *This feature is available only when the 24PRT card is used.*

NOTE 2: *This programming is effective when ISDN Protocol type is assigned to 28 (National ISDN-2 [NI-2]) by CMAA Y=06.* ☞ *Page 102*

START	DESCRIPTION	DATA
CM77	Assign the Calling Party Name to each stations with character code/character.	• Y=0 (1) X-XXXXXXXX: Station No. (2) 20-7F: Calling Party Name Character Code (Maximum 32 digits) See Command Manual.
	NOTE: *The characters available for assigning are 0-9, A-Z with MAT/CAT.*	• Y=1 (1) X-XXXXXXXX: Station No. (2) XX...XX: Calling Party Name Character (Maximum 16 characters) **NOTE**
CM12	Assign Service Restriction Class B to each station.	• Y=02 (1) X-XXXXXXXX: Station No. (2) XX ZZ ZZ: 00-15◀: Service Restriction Class B
CM15	Allow Calling Party Name sending to ISDN.	• Y=156 (1) 00-15: Service Restriction Class B assigned by CM12 Y=02 (2) 1◀: Allow
CM35	Provide the Calling Party Name sending to ISDN.	• Y=268 (1) 00-63: B channel Trunk Route No. (2) 0: To provide
CM08	Assign the Calling Party Name sending to ISDN when making an outgoing call from Sub Line.	(1) 502 (2) 0 : Name of My Line 1◀: Name of Sub Line
END		

SID to Terminating User-Display

[Australia/NZ/Asia/Latin America/UK]

To provide Calling Name Display for incoming calls from ISDN, assign the following data.

START	DESCRIPTION	DATA
CM12	Assign Service Restriction Class A to each station.	• Y=02 (1) X-XXXXXXXX: Station No. (2) XX ZZ XX: 00-15◀: Service Restriction Class A
CM15	Allow Calling Name Display for incoming calls in Service Restriction Class A assigned by CM12 Y=02.	• Y=136 (1) 00-15: Service Restriction Class A assigned by CM12 Y=02 (2) 1◀: Calling Name Display
CM08	Specify the duration of displaying the name when the incoming call is answered/the select key for Calling Number Display and Calling Name Display or CID key is pressed. **[Series 3300/3400/3500/3600 software required]** **NOTE:** *When using Series 3700 R12.2 software or later, set the first data to 580.*	(1) 537 (2) 0 : Until call is finished/key is pressed again 1◀: 6 seconds
	Specify the duration of displaying the name when the incoming call is answered/the select key for Calling Number Display and Calling Name Display or CID key is pressed. **[Series 3700 R12.2 software required]**	(1) 580 (2) 0 : 6 seconds 1◀: Until call is finished/key is pressed again
	Specify the duration of displaying the destination information when the outgoing call is answered by the destination via ISDN. **[Series 3300 software required]**	(1) 538 (2) 0 : Until call is finished 1◀: 6 seconds
CM35	Provide the ISDN trunk route with Calling Name Display for incoming calls.	• Y=156 (1) 00-63: B channel Trunk Route No. (2) 0: To provide
A		

A

	DESCRIPTION	DATA
CM74	Assign the calling party number, which is used for Calling Name search, to the 1000-Slot Memory Block No. 3. **NOTE 1:** *When this feature is provided, the 1000-Slot Memory Block No. 3 cannot be used for Speed Calling-Station (Station Speed Dialing).* **NOTE 2:** *The calling party number must be the number received from network, including the area code.*	• Y=0 (1) 3 YY Z 3 : 1000-Slot Memory Block No. 3 **NOTE 1** YY: 10-Slot Memory Block No. 00-99 Z : Memory Parcel No. 0-9 (2) Stored No.: Access Code (Maximum 4 digits) + [,] + Calling Party No. (Maximum 16 digits) **NOTE 2** NONE◀: No data
	Assign the calling party name to be displayed for the calling party number assigned by CM74 Y=0, to each Memory Slot number, by character codes or characters.	• Y=1 (1) 3 YY Z 3 : 1000-Slot Memory Block No. 3 YY: 10-Slot Memory Block No. 00-99 Z : Memory Parcel No. 0-9 (2) XX...XX: Calling Party Name Character Code (Maximum 32 digits, 16 characters) See Command Manual. NONE◀: No data
		• Y=2 (1) 3 YY Z 3 : 1000-Slot Memory Block No. 3 YY: 10-Slot Memory Block No. 00-99 Z : Memory Parcel No. 0-9 (2) XX...XX: Calling Party Name Character (Maximum 16 characters) NONE◀: No data
CM90	Provide the D^{term} with a Caller ID Display key.	• Y=00 (1) My Line No. + [,] + Key No. (2) F5010: Caller ID Display
	Provide the D^{term} with a select key of Calling Number Display or Calling Name Display.	• Y=00 (1) My Line No. + [,] + Key No. (2) F1099: Select Key of Calling No. Display or Calling Name Display
	Provide the ATTCON/DESKCON with a select key of Calling Number Display or Calling Name Display.	• Y=00 (1) ATTCON No. (E000-E007) + [,] + Key No. (2) F6122: Select Key of Calling No. Display or Calling Name Display
END		

To indicate the reason why the calling number is not informed from the network, on the LCD of D^{term}/ATTCON/DESKCON.

[Hong Kong]

NOTE: *This feature is available only when the PN-24PRTA card is used for the trunk route.*

START	DESCRIPTION	DATA
CM35	Assign the sending method of calling number from the network, to each trunk route.	• Y=129 Calling No. sending method (1) 00-63: B channel Trunk Route No. (2) 0: CALLER ID
	Specify whether the LCD indicates the reason why the calling number is not informed from the network. When CM35 Y=133 is assigned as 0, the reason is indicated as follows. • A call from a calling party which does not inform the calling number: PRIVACY • A call from a network or a single line telephone which cannot inform the calling number: OUT OF AREA • A call from a public telephone: No indication	• Y=133 (1) 00-63: B channel Trunk Route No. (2) 0 : To indicate 1◀: Not indicated
END		

CPN to Terminating User-Display
[North America]

To provide Calling Name Display for incoming calls from National ISDN 2/NTI (DMS100), assign the following programming.

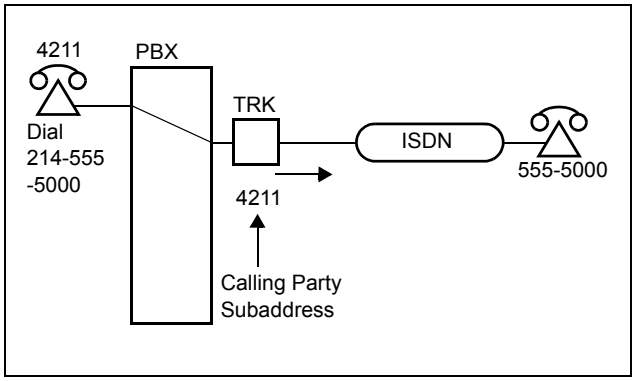
START	DESCRIPTION	DATA
CM12	Assign Service Restriction Class A to each station.	• Y=02 (1) X-XXXXXXXX: Station No. (2) XX ZZ XX: 00-15◀: Service Restriction Class A
CM15	Allow Calling Name Display for incoming calls in Service Restriction Class A assigned by CM12 Y=02.	• Y=136 (1) 00-15: Service Restriction Class A assigned by CM12 Y=02 (2) 1◀: Calling Name Display
	Specify the displaying pattern of Caller ID on the LCD of D^{term} before answering or after answering a trunk call. **[Series 3800 software required]** **NOTE 1:** *When the second data of CM15 Y=400 is set to 0, set the second data of CM15 Y=136 to 1 (Calling Name Display).* **NOTE 2:** *When the second data of CM15 Y=400 is set to 1, set the second data of CM15 Y=136 to 0 (Calling Number Display).*	• Y=400 (1) 00-15: Service Restriction Class A assigned by CM12 Y=02 (2) 0 : To display Calling No. on upper line of LCD, Calling Name on middle line of LCD 1 : To display Calling Name on upper line of LCD, Calling No. on middle line of LCD 7◀: Not displayed Calling No. and Calling Name simultaneously
CM08	Specify the duration of displaying the name when the incoming call is answered/the select key for Calling Number Display and Calling Name Display or CID key is pressed. **[Series 3300/3400/3500/3600 software required]** **NOTE:** *When using Series 3700 R12.2 software or later, set the first data to 580.*	(1) 537 (2) 0 : Until call is finished/key is pressed again 1◀: 6 seconds
A		

	DESCRIPTION	DATA
A		
CM08	Specify the duration of displaying the name when the incoming call is answered/the select key for Calling Number Display and Calling Name Display or CID key is pressed. **[Series 3700 R12.2 software required]**	(1) 580 (2) 0 : 6 seconds 1◀: Until call is finished/key is pressed again
	Specify the duration of displaying the destination information when the outgoing call is answered by the destination via ISDN. **[Series 3300 software required]**	(1) 538 (2) 0 : Until call is finished 1◀: 6 seconds
CM90	Provide the D^{term} with a Caller ID Display key.	• Y=00 (1) My Line No. + [,] + Key No. (2) F5010: Caller ID Display
	Provide the D^{term} with a select key of Calling Number Display or Calling Name Display.	• Y=00 (1) My Line No. + [,] + Key No. (2) F1099: Select Key of Calling No. Display or Calling Name Display
	Provide the ATTCON/DESKCON with a select key of Calling Number Display or Calling Name Display.	• Y=00 (1) ATTCON No. (E000-E007) + [,] + Key No. (2) F6122: Select Key of Calling No. Display or Calling Name Display
CMA7	Specify whether the calling party name is sent to CCIS network. **NOTE:** *When providing tandem connection (ISDN to CCIS), this data is required to relay a calling party name.*	• Y=28 (1) 0-7: CCIS Channel No. (2) 0 : To send 1◀: Not sent
END		

Subaddress-Present

(1) Calling Party Subaddress

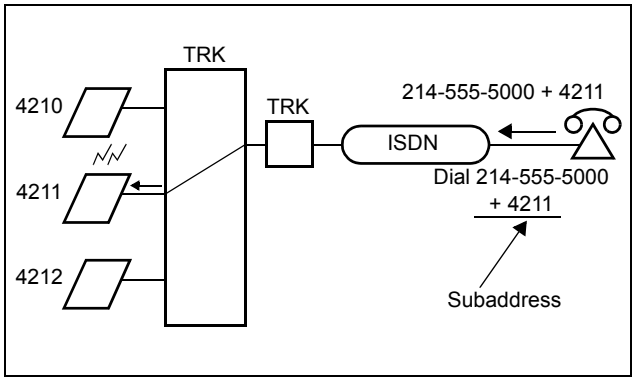
When a station has dialed an ISDN subscriber number, the station number is automatically sent as a Calling Party Subaddress.



START	DESCRIPTION	DATA
CM08	Provide the system with Calling Party Subaddress to ISDN.	(1) 400 (2) 0: To send
END		

(2) Called Party Subaddress

When the system has received a Called Party Subaddress (Calling Station Number) from an ISDN subscriber, the system connects the call with the specified terminal.



START	DESCRIPTION	DATA
CM08	Specify the terminating system for Called Party Subaddress. **NOTE:** *If CM35 Y=143 is set to "0" for Event Based CCIS, assign the second data to "0".*	(1) 401 (2) 0 :Station Call 1◀: Terminating System assigned by CM30 Y=02/03/40/41
END		

Trunk Provisioning Service Selection

START	DESCRIPTION	DATA
CM30	Assign the trunk route to the trunk number assigned by CM07.	• Y=00 Trunk Route Allocation (1) 000-511: Trunk No. assigned by CM07 Y=01/02 (2) 00-63: Route No.
END		

ISDN PRI Call By Call Service Selection

[North America Only]

Available Services

The following Binary Facility Code can be sent to the ISDN network when the called party number is flagged as a Service. Services and features are selected by the ISDN subscriber at the time the ISDN is ordered. The PBX must be programmed to match the services and features provided by the ISDN provider.

AT&T	Northern Telecom
SDN	Private
Megacom	InWATS
Megacom 800	OutWATS
Accunet	Foreign Exchange
International 800	Tie Trunk
AT&T MultiQuest	

Call By Call LCR Programming

The following programming steps are an example of a long-distance call placed to any area code that begins with a 2 and that call is flagged as AT&T Megacom.

CM8A4005>12 (dialed #)=0001 (go to route pattern 001)
CM8A0001>1 (1st choice)=00010 (use LCR pattern 000 + trk route 10)
CM855>12=11 (maximum number of digits dialed)

CM8A5000>157=02 (Kind of called party=National)
(dialed number is 10 digits NANP, select National)
CM8A5000>158=01 (Called party Number Plan ID=ISDN/Telephony Numbering Plan)
CM8A5000>159~161 are not used for this call.
CM8A5000>162=1 (Service)
CM8A5000>163=03 (Megacom)
CM8A5000>164 is not required for this call.

The next example details a local 7 digit call and will not used a Binary Facility Code.

CM8A4005>2 (dialed number)=001 (go to route pattern 000)
CM8A0000>1 (1st choice)=00210 (use LCR pattern 002 + trk route 10)
CM855>2=7 (maximum number of digits dialed)

CM8A5002>157=04 (Kind of called party=Local) (dialed number is 7 digits NANP, select Local)
CM8A5002>158=01 (Called party Number Plan ID=ISDN/Telephony Numbering Plan)
CM8A5002>159~161 are not used for this call.
CM8A5002>162=1 (Service)
CM8A5002>163=NONE (not sending)
CM8A5002>164 is not required for this call.

NOTE: *These examples are provided to demonstrate the required programming. Always verify with the ISDN provider as to how local calls should be handled.*

Features

Carrier Identification Codes (CIC)

In ISDN terms placing a long-distance call using the equal access carrier code is a feature. There are times when, depending upon the type of service provider (LEC or IEX), the PBX must contain the following programming to complete a long-distance call by using CIC.

Currently all CIC are three digits in length preceded by a 10. Example: To dial AT&T a user dials 10288 + the long-distance number. The PBX must route the call based on 10288 or a portion of that number. ISDN complicates this process by identifying each CIC at the PBX level.

For example: Without ISDN the PBX is able to simply outpulse 10288 and the public network would provide connection to AT&T. With ISDN used for routing equal access calls, the PBX must translate the 10288 in its entirety and provide the network with four pieces of information as described below. The implementation of this feature is further complicated by the fact that this is only required by some ISDN providers and not others.

Required Network Information

Four components are required by the network when sending CIC information. This information can be found in the SETUP message.

(1) FEATURE (A statement advising the network that this is a feature based call, as opposed to a Service based call).
(2) TYPE OF NETWORK ID (The PBX should send out NATIONAL for this information).
(3) NETWORK ID PLAN NUMBER (The Interchange Carrier should be sent).
(4) NETWORK ID CHARACTER (XXX) (For AT&T the PBX sends out 288).

Use the following programming to assign the ISDN PRI Call By Call Identification Codes.

CM8A4005>10 (dialed number)=406 (go to table 406)
CM8A4006>288 (dialed number)=010 (use route pattern 010)
CM8A0010>1 (1st choice)=02010 (use LCR pattern 020 + trk route 10)

CM8A5020>157=02 (Kind of called party=National)
CM8A5020>158=01 (Called party Number Plan ID=ISDN/Telephony Numbering Plan)

CM8A5020>159=02 (Type of Network ID=National)
CM8A5020>160=01 (Network ID Plan Number=Interexchange Carrier)
CM8A5020>161=288 (CIC for AT&T)
CM8A5020>162=1 (Service)
CM8A5020>163=01~16

The above programming will allow the 10288 to be sent out with the proper Setup message to the network. However, further LCR programming is required because the network will not understand what 10288 is as a dialed number. Use the following LCR programming to delete the 10288 digits from being sent to the ISDN.

CM8A5020>151=0 (Allow digit deletion.)
CM8A5020>153=05 (Delete the first five digits of the dialed number)

NOTE: *This programming example only details the required steps for the 288 CIC. Each CIC must be programmed in different tables to allow CM8A5XXX-Y=161 to send out the unique CIC to the network.*

START	DESCRIPTION	DATA
CM8A	Assign the kind of the called party number.	• Y=5000-5255 LCR/TR Pattern No. 000-255 (1) 157: Kind of Called Party No. (2) 00 : Unknown 01 : International 02 : National 03 : Network 04 : Local 05 : Not used 06 : Speed Dial NONE◀: Unknown
	Assign the Called Party Numbering Plan Identifier.	• Y=5000-5255 LCR/TR Pattern No. 000-255 (1) 158: Called Party Numbering Plan Identifier (2) 00 : Unknown 01 : ISDN/Telephone Numbering Plan 02 : Not used 03 : Data Numbering Plan 04 : Telex Numbering Plan 05 : Not used 06 : Not used 07 : Not used 08 : National Numbering Plan 09 : Private Numbering Plan NONE◀: Unknown
	Assign the Type of Network ID number.	• Y=5000-5255 LCR/TR Pattern No. 000-255 (1) 159: Type of Network ID (2) 00-07 : Type of Network ID No. NONE◀: No data
A		

A

CM8A

DESCRIPTION	DATA
Assign the Network ID Plan number.	• Y=5000-5255 LCR/TR Pattern No. 000-255 (1) 160: Network ID Plan (2) 00-15 : Network ID Plan No. NONE◀: No data
Assign the Network ID character. **NOTE:** *For assigning 4 or 5 digits Network ID;*	• Y=5000-5255 LCR/TR Pattern No. 000-255 (1) 161: Network ID Character (2) X-XXXXX: X=0-9, A (*), B (#)
Specify whether Call By Call is Feature or Service.	• Y=5000-5255 LCR/TR Pattern No. 000-255 (1) 162: Feature/Service (2) 0 : Feature 1◀: Service
Assign the Binary Facility Coding Value.	• Y=5000-5255 LCR/TR Pattern No. 000-255 (1) 163: Binary Facility Coding Value (2) For AT&T 01 : SDN 02 : MEGACOM800 03 : MEGACOM 04 : Not used 05 : Not used 06 : ACCUNET 07 : Not used 08 : INTERNATIONAL800 16 : AT&T MULTIQUEST NONE◀: No data For Northern Telecom 01 : Private 02 : INWATS 03 : OUTWATS 04 : Foreign Exchange (FX) 05 : Tie Trunk (TIE) NONE◀: No data

B

B

CM8A

END

DESCRIPTION	DATA
Assign the WATS Band number.	• Y=5000-5255 LCR/TR Pattern No. 000-255 (1) 164: WATS Band No. (2) 00-09 : WATS Band No. NONE◀: No data
Specify whether the Transit Network Selection is sent to the network.	• Y=5000-5255 LCR/TR Pattern No. 000-255 (1) 172: Sending Transit Network Selection (2) 0 : To send 3◀: Not sent

NOTE: *Network-Specific Facilities or Transit Network Selection is sent according to the following condition.*

CM8A Y=5000-5255>163	CM8A Y=5000-5255>172	
	3◀	0
Data assigned	Network-Specific Facilities are sent	Transit Network Selection is sent
NONE◀: No data	No information element is sent	

Advice of Charge-Display

[Australia/France/Germany/Netherlands/Italy/Greece/Luxembourg/Portugal/Spain/ Sweden]

START	DESCRIPTION	DATA
CM08	Specify the Advice of Charge (AOC) display on D^{term} when the charge total is over $9999.99/€655.35. (After 6 seconds, the display goes off.)	(1) 402 (2) 0 : Flashing display 1◀: Fixed display
	Provide Advice of Charge (AOC).	(1) 404 (2) 0 : Not provided 1◀: To provide
	Specify Advice of Charge (AOC) information is sent to PMS. **[Series 3700 R12.2 software required]** **NOTE:** *To send call unit to PMS, set the second data of CM08>841 to 1.*	(1) 841 (2) 0 : To send (dollar/euro charge) 1◀: Not sent (call unit)
CM42	Specify the call charge per unit. By this setting, the call charge is calculated according to the call unit sent from the network.	(1) 69: dollar/euro/integral charge per unit (2) 00-99: 00-99 dollars/euro 00-99: integral charge per unit (1) 70: cent/euro cent/two decimals charge per unit (2) 00-99: 00-99 cents/euro cents 00-99: two decimals charge per unit
END		

NOTE: *When you require Call Recording of ISDN call, do the data programming for SMDR, CIS or PMS. For details, refer to the Feature Programming Manual.*

[ITU-T (UAE) Only]
[Series 3500 software required]

START	DESCRIPTION	DATA
CMAA	Provide the PRT/BRT card with ISDN Advice of Charge (AOC) feature.	• Y=16 (1) 04-15, 20-31: AP No. of PRT/BRT card assigned by CM05 (2) 0 : To provide 1◀: Not provided
CM08	Provide the Advice of Charge (AOC).	(1) 404 (2) 0 : Not provided 1◀: To provide
CM42	Specify the call charge per unit. By this setting, the call charge is calculated according to the call unit sent from the network.	(1) 69: integral charge per unit (2) 00-99: integral charge per unit (1) 70: two decimals charge per unit (2) 00-99: two decimals charge per unit
END		

NOTE: *When you require Call Recording of ISDN call, do the data programming for SMDR, CIS or PMS. For details, refer to the Feature Programming Manual.*

Alternate Routing for ISDN

[Australia Only]

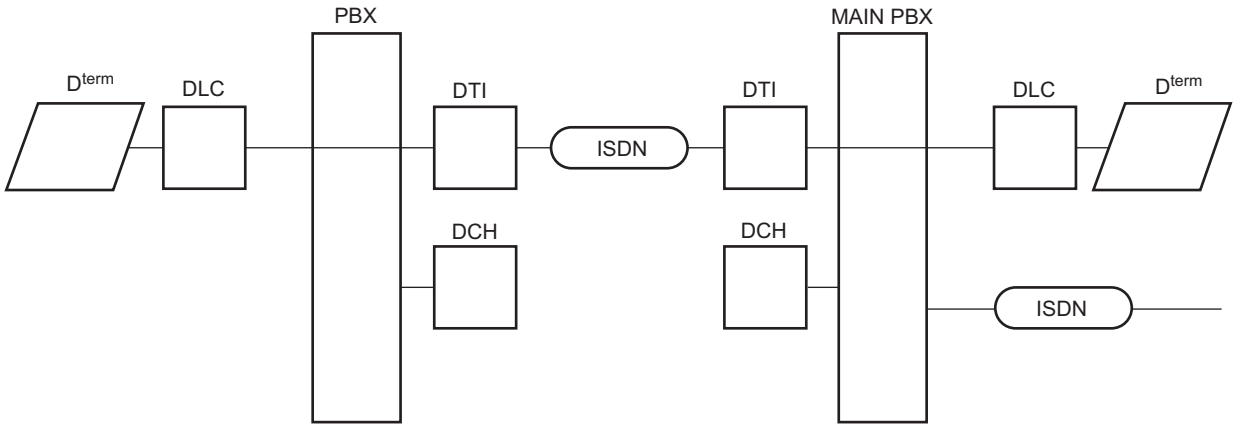
To provide Alternate Routing to the other trunk route (ISDN/CCIS/COT/tie line/IPT), when a call originating to the ISDN route is not available due to a line fault or other reason:

START	DESCRIPTION	DATA
CM29	Assign a Numbering Plan Group number to each tenant.	(1) 00-63: Tenant No. (2) 710-713: Numbering Plan Group 0-3
CM20	Assign the access code for LCR Group 0-3.	• Y=0-3 Number Plan 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
CM35	Provide the ISDN route with Alternate Routing when a fault occurs.	• Y=187 (1) 00-63: B channel Trunk Route No. (2) 0: To provide
CM8A	Assign an Area Code Development Pattern number to each LCR Group.	• Y=A000 (1) 0-3: LCR Group 0-3 (2) 4005-4007: Area Code Development Pattern No. 5-7
	Assign a Route Pattern number to each area code for the Area Code Development Pattern number assigned by CM8A Y=A000.	• Y=4005-4007 Area Code Development Pattern No. 5-7 (1) X...X: Area Code, Maximum 8 digits (2) 0000-0255: Route Pattern No. 000-255
	Specify the order of LCR selection for the Route Pattern number assigned by CM8A Y=4005-4007.	• Y=0000-0255 Route Pattern No. 000-255 (1) 1-4: Order of LCR Selection 1: 1st 2: 2nd 3: 3rd 4: 4th (2) XXX ZZ XXX: 000-255: LCR Pattern No. ZZ : 00-63: Trunk Route No.
END		

Centrex SHF over ISDN

[New Zealand Only]

To send hooking signal from a D^{term} to a main PBX via ISDN, do the following programming.



START

DESCRIPTION	DATA
CM35 — Provide the voice channel trunk route for the main PBX with the Centrex function.	• Y=86 (1) 00-63: B channel Trunk Route No. (2) 0: To provide
CM90 — Assign the SHF Key on the D^{term}.	• Y=00 (1) My Line No. + [,] + Key No. (2) F1009: SHF (Hooking Signal sent to outside)

END

ETSI ISDN Overlap Sending

[For EU]
[Series 3300 software required]

NOTE: *This feature is not available for call origination from the ISDN terminal.*

START	DESCRIPTION	DATA
CM08	Provide the system with ETSI ISDN Overlap Sending. DTI INITIAL BRT INITIAL	(1) 644 (2) 0 : To provide 1◀: Not provided
CM20	Assign the access code for LCR Group 0-3.	• Y=0-3 Number Plan 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
CM8A	Assign an Area Code Development Pattern number to each LCR Group.	• Y=A000 (1) 0-3: LCR Group 0-3 (2) 4005-4007: Area Code Development Pattern No. 5-7
	Assign a Route Pattern number to each area code for the Area Code Development Pattern number assigned by CM8A Y=A000.	• Y=4005-4007 Area Code Development Pattern No. 5-7 (1) X...X: Area Code, Maximum 8 digits (2) 0000-0255: Route Pattern No. 000-255
	Specify the order of LCR selection for the Route Pattern number assigned by CM8A Y=4005-4007.	• Y=0000-0255 Route Pattern No. 000-255 (1) 1-4: Order of LCR Selection 1: 1st 2: 2nd 3: 3rd 4: 4th (2) XXX ZZ XXX: 000-255: LCR Pattern No. ZZ : 00-63: Trunk Route No.
A		

A

CM8A

DESCRIPTION	DATA
For area code addition, designate the digits to be added.	• Y=5000-5255 (1) 100: Designation of digit Addition Pattern No. (2) 9000-9255: Digit Addition Pattern No. 000-255 CCC : No digit addition • Y=9000-9025: Digit Addition Pattern No. 000-255 (1) 0 (2) X-X...X: Digits to be added (Maximum 32 digits)
To delete the designated digit of an area code assigned by CM8A Y=4005-4007.	• Y=5000-5255 (1) 153: Designation of digit to be deleted from area code assigned by CM8A Y=4005-4007 (2) 00 : No digit deletion 01-10: Leading 1-10 digits deletion CCC : No digit deletion

NOTE: *When originating a call, the digit number of SETUP message to ISDN is as follows:*
The digit number of SETUP message
=[20 digits]-[Number of digit deletion (2nd data set by CM8A Y=5000-5255>153)]

For example, when CM8A Y=5000-5255>153 is set to 02 (2 digits area code deletion) and a calling station dials number "0-12345678901234567890123 45 (26 digits)", ISDN message sent from the system becomes as follows.*

ISDN message:SETUP message: 345678901234567890 (18 digits)
INFO message: 12345 (5 digits)

**: Header 0 is LCR access code for LCR Group 0 set by CM20>A126, and following number 12 is an area code.*

Assign the sending an area code to ISDN as a Called Party Subaddress.	• Y=5000-5255 (1) 155: Designation of sending area code as a Called Party Subaddress (2) 0: Available

B

	DESCRIPTION	DATA
B		
CM85	Specify the maximum number of digits to be dialed by 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=A000 (1) X-X...X: Area code dialed, Maximum 8 digits (2) 01-79: 1 digit-79 digits 24◀ : 24 digits
CM35	Assign the Area Code Development Pattern number for Toll Restriction and maximum digit analysis to each trunk route.	• Y=76 (1) 00-63: B channel Trunk Route No. (2) 00-07: Area Code Development Pattern No. 0-7
	Assign the ISDN call origination procedure.	• Y=206 (1) 00-63: B channel Trunk Route No. (2) 0 : En-bloc call origination and overlap call origination 1◀: En-bloc call origination only
	Assign the number of division digits.	• Y=207 (1) 00-63: B channel Trunk Route No. (2) 00-31: 0 digit-31 digits 63◀ : Not used
END		

ETSI ISDN Overlap Receiving

[For EU]

NOTE: *This feature is not available when using the ISDN terminal.*

START	DESCRIPTION	DATA
CM20	Assign the Station Numbering Plan data to the leading one, two, three or four digits of station number.	• Y=0-3 Numbering Plan Group 0-3 (1) X-XXXX: Leading 1-4 digits of Station No. (2) 801: 1 digit Station No. 802: 2 digits Station No. 803: 3 digits Station No. 804: 4 digits Station No. 805: 5 digits Station No. 806: 6 digits Station No. 807: 7 digits Station No. 808: 8 digits Station No.
CM30	Assign the data for DID to the trunk numbers assigned by CM07.	• Y=02 Day Mode • Y=03 Night Mode (1) 000-511: Trunk No. assigned by CM07 Y=01/02 (2) 18: ISDN Indial
A		

A

	DESCRIPTION	DATA
CM35	Assign the data for DID Digit Conversion to the trunk routes assigned by CM30.	• Y=18 Digit Conversion on DID call (1) 00-63: B channel Trunk Route No. (2) 0: To provide • Y=170 Development Table (1) 00-63: B channel Trunk Route No. (2) 0 : Development Table 1 (For Maximum DID number 8 digits) 3◀: Development Table 0 (For Maximum DID number 4 digits) • Y=12 Number of digits to be received (1) 00-63: B channel Trunk Route No. (2) 0 : 1 digit 1 : 2 digits 2 : 3 digits 3◀: 4 digits • Y=171 Number of digits to be converted for Development Table 1 (1) 00-63: B channel Trunk Route No. (2) 01-08: 1-8 digits 15◀ : 4 digits
CM76	Assign the Number Conversion Block number for Development Table 0.	• Y=00 (1) X-XXXX: DID No. (2) 000-999 : Number Conversion Block No. NONE◀: No data
	Assign the Number Conversion Block number for Development Table 1.	• Y=90 (1) X-XXXXXXXX: DID No. (2) 000-999 : Number Conversion Block No. NONE◀: No data
	Assign the data for interpreting the digits received.	• Y=01 Day Mode (1) 000-999: Number Conversion Block No. assigned by CM76 Y=00/90 (2) X-XXXXXXXX: Station No. to be terminated DXX: Change terminating system to: D14: Attendant Console

B

B

	DESCRIPTION	DATA
CM35	To distinguish the maximum number of digits received from ISDN for each trunk route, specify an Area Code Development Pattern number to each trunk route number. **[Series 3200 R6.2 software required]**	• Y=202 (1) 00-63: B channel Trunk Route No. (2) 00-07: Area Code Development Pattern No. 0-7 15◀ : Not used
	Provide the ETSI ISDN Overlap Receiving feature for each trunk route. **[Series 3200 R6.2 software required]**	• Y=203 (1) 00-63: B channel Trunk Route No. (2) 0 : To provide 1◀: Not provided
CM85	Specify the maximum number of digits to be dialed by 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=A000 (1) X-X...X: Area Code dialed, Maximum 8 digits (2) 01-24◀: 1 digit-24 digits 25-79 : 25 digits-79 digits
CM08	Specify whether the system connects to the calling party when the system does not receive the following DID number within the time set by CM41 Y=0>109, after the first DID number of the calling party is received. **[Series 3200 R6.2 software required]**	(1) 626 (2) 0 : Not connected 1◀: To connect
	Specify whether the system connects to the calling party when the DID number of digits received from ISDN is more than the maximum number of digits assigned by CM85 Y=0-7. **[Series 3200 R6.2 software required]**	(1) 627 (2) 0 : Not connected 1◀: To connect
CM41	Specify the ORT timer for ETSI ISDN Overlap Receiving. **[Series 3300 software required]**	• Y=0 (1) 109 (2) 03-99: 3-99 seconds (1 second increments) If no data is set, the default setting is 6 seconds.

C

- When providing Tandem Connection (ISDN to BRT/DTI/PRT/CCT) with LCR development, do the following programming.

	DESCRIPTION	DATA
C		
CM20	Assign the access code for LCR Group 0-3.	• Y=0-3 Number Plan 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
CM8A	Assign an Area Code Development Pattern number to each LCR Group.	• Y=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 Y=A000.	• Y=4000-4007 Area Code Development Pattern No. 0-7 (1) X...X: Area Code, Maximum 8 digits (2) 0000-0255: Route Pattern No. 000-255
	Specify the order of LCR selection for the Route Pattern number assigned by CM8A Y=4000-4007.	• Y=0000-0255 Route Pattern No. 000-255 (1) 1-4: Order of LCR Selection 1: 1st 2: 2nd 3: 3rd 4: 4th (2) XXX ZZ XXX: 000-255: LCR Pattern No. 000-255 ZZ : 00-63: Trunk Route No. 00-63
D		

	DESCRIPTION	DATA
D		
CM8A	For area code addition, designate the digits to be added.	• Y=5000-5255 (1) 100: Designation of digit Addition Pattern No. (2) 9000-9255: Digit Addition Pattern No. 000-255 CCC : No digit addition • Y=9000-9255 Digit Addition Pattern No. 000-255 (1) 0 (2) X-X...X: Digits to be added (Maximum 32 digits) X=0-9, A (*), B (#), C (Fixed Pause), D (Programmable Pause)
	For area code deletion, designate the digits to be deleted.	• Y=5000-5255 LCR Pattern No. 000-255 (1) 152: Deletion of all digits of the area code assigned by CM8A Y=4000-4007 (2) 0 : To delete 1◀: Not deleted
END		

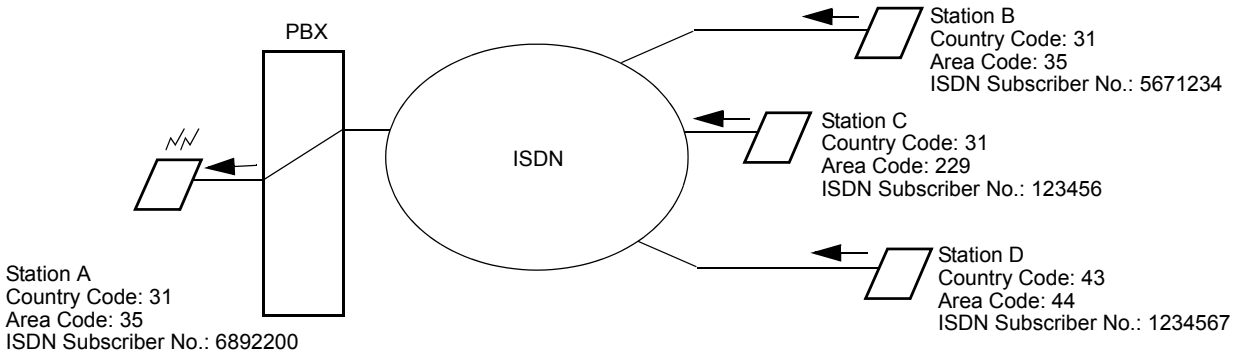
ETSI ISDN Addressing

[For EU]

[Series 3300 software required]

NOTE: *This feature is not available when using the ISDN terminal.*

When ETSI ISDN Addressing is provided, calling party number of station B/C/D is displayed on a called party station A as follows:



- Call from station B to station A
  Calling Party Number “05671234” is displayed on station A
  (0: Trunk Access Code + 5671234: ISDN Subscriber Number)
- Call from station C to station A
  Calling Party Number “00229123456” is displayed on station A
  (0: Trunk Access Code + 0: National Prefix + 229: Area Code + 123456: ISDN Subscriber Number)
- Call from station D to station A
  Calling Party Number “00043441234567” is displayed on station A
  (0: Trunk Access Code + 00: International Prefix + 43: Country Code + 44: Area Code + 1234567: ISDN Subscriber Number)

START	DESCRIPTION	DATA
CM35	Assign data for ETSI ISDN Addressing to required trunk route.	• Y=222 International Prefix Code (1) 00-63: B channel Trunk Route No. X-XXXX: Prefix Code (2) X: 0-9, A (*), B (#) • Y=223 National Prefix Code (1) 00-63: B channel Trunk Route No. (2) X-XXXX: Prefix Code X: 0-9, A (*), B (#)
A		

	DESCRIPTION	DATA
A		
CM35		• Y=224 Country Code (1) 00-63: B channel Trunk Route No. (2) X-XXXX: Country Code X: 0-9, A (*), B (#) • Y=225 Area Code (1) 00-63: B channel Trunk Route No. (2) X-XXXXXX: Area Code X: 0-9, A (*), B (#)
	Enable International/National Prefix Code display when a call terminates via ETSI ISDN.	• Y=226 International/National Prefix Code Display (1) 00-63: B channel Trunk Route No. (2) 0 : Available
CM12	Assign Service Restriction Class B to each station.	• Y=02 (1) X-XXXXXXXX: Station No. (2) XX ZZ ZZ: 00-15◀: Service Restriction Class B
CM15	Allow International/National Prefix Code display in Service Restriction Class B assigned by CM12 Y=02.	• Y=155 (1) 00-15: Service Restriction Class B assigned by CM12 Y=02 (2) 1◀: Allow
CM35	Assign a trunk access code for outgoing call.	• Y=44 (1) 00-63: B channel Trunk Route No. (2) 00-31: 1 digit-31 digits 00-99: Trunk Access Code
CM08	Enable the trunk access code display when a call terminates via ETSI ISDN.	(1) 633 (2) 0: Available
B		

B

CM35

DESCRIPTION	DATA
Specify whether the Type of Number/Numbering Plan Identification of CPN is provided, or not. **[Series 3500 software required]** **NOTE:** *If this data is set to "1", the setting data of CM35 Y=230/231 is invalid.*	• Y=234 (1) 00-63: B channel Trunk Route No. (2) 0: To provide
Specify the Type of Number for outgoing call.	• Y=230 Type of Number (1) 00-63: B channel Trunk Route No. (2) 00: Unknown 01: International Number 02: National Number 03: Network Specific Number 04: ISDN Subscriber Number 06: Abbreviated Number
Specify the Numbering Plan Identification for outgoing call.	• Y=231 Numbering Plan Identification (1) 00-63: B channel Trunk Route No. (2) 00: Unknown 01: ISDN/Telephony Numbering Plan 03: Data Numbering Plan 04: Telex Numbering Plan 08: National Standard Numbering Plan 09: Private Numbering Plan

END

ETSI ISDN Channel Negotiation

[For EU]

[Series 3300 software required]

NOTE: *This feature is not available when using the ISDN terminal.*

START

END

DESCRIPTION	DATA
CM35 Provide the ETSI ISDN Channel Negotiation to required trunk route.	• Y=228 (1) 00-63: B channel Trunk Route No. (2) 0: To provide

Connected Line Identification Presentation (COLP) / Connected Line Identification Restriction (COLR)

[For EU]
[Series 3300 software required]

START	DESCRIPTION	DATA
CM12	Assign an ISDN Subscriber number and ISDN Local Office Code Table number to required stations. **NOTE 1** on ☞ *Page 123*	• Y=12 (1) X-XXXXXXXX: Station No. (2) X-XXXX: ISDN Subscriber No. • Y=13 (1) X-XXXXXXXX: Station No. (2) 00-14: ISDN Local Office Code Table No. 00-14
CM50	Assign ISDN Local Office Code to the Table number assigned by CM12 Y=13.	• Y=05 (1) 00-14: ISDN Local Office Code Table No. 00-14 (2) X...X: Local Office Code (Maximum 12 digits)
CM12	Assign Service Restriction Class B to each station.	• Y=02 (1) X-XXXXXXXX: Station No. (2) XX ZZ ZZ: 00-15◀: Service Restriction Class B
CM15	For a call terminating office, allow the connected line number indication on D^{term} display in Service Restriction Class B assigned by CM12 Y=02.	• Y=153 (1) 00-15: Service Restriction Class B assigned by CM12 Y=02 (2) 1◀: Allow
	For a call originating office, allow ETSI ISDN Connected Line Identification Presentation (COLP) in Service Restriction Class B assigned by CM12 Y=02.	• Y=154 (1) 00-15: Service Restriction Class B assigned by CM12 Y=02 (2) 1◀: Allow
A		

	DESCRIPTION	DATA
A		
CM35	For a call terminating office, provide the ETSI ISDN Connected Line Identification Presentation (COLP).	• Y=220 (1) 00-63: B channel Trunk Route No. (2) 0: To provide
	For a call originating office, enable the receiving connected line number from call terminating office in ETSI ISDN Connected Line Identification Presentation (COLP).	• Y=221 (1) 00-63: B channel Trunk Route No. (2) 0: Available
	Specify coding type when sending the ISDN Connected Line Identification Presentation (COLP). **[Series 3600 software required]**	• Y=267 (1) 00-63: B channel Trunk Route No. (2) 0 : Codeset 5 (Spanish specification) 1◀: Codeset 0 (ETSI specification)
CM08	Specify whether the connected line number indication is provided on ATTCON/DESKCON display.	(1) 629 (2) 0 : Not provided 1◀: To provide
END		

Malicious Call Trace
[Australia Only]

START	DESCRIPTION	DATA
CM12	Assign Service Restriction Class A to each station.	• Y=02 (1) X-XXXXXXXX: Station No. (2) XX ZZ XX: 00-15◀: Service Restriction Class A
CM15	Allow Malicious Call Trace in Service Restriction Class A assigned by CM12 Y=02. **[Series 3500 software required]**	• Y=211 (1) 00-15: Service Restriction Class A assigned by CM12 Y=02 (2) 0 : Restricted 1◀: Allow
CM20	Assign the access code for Malicious Call Trace. **[Series 3500 software required]**	• Y=0-3 Numbering Plan Group 0-3 (1) X-XXXX: Access Code (2) A170: Malicious Call Trace
CM35	Provide the ISDN route with Malicious Call Trace.	• Y=106 (1) 00-63: B channel Trunk Route No. (2) 0 : Not provided 1◀: To provide
CM90	Assign the Malicious Call Trace key to the D^{term}, if required.	• Y=00 (1) My Line No. + [,] + Key No. (2) F0A70: Malicious Call Trace
	Assign the Malicious Call Trace key to the ATTCON/DESKCON.	• Y=00 (1) ATTCON No. (E000-E007) + [,] + Key No. (2) F6120: Malicious Call Trace
END		

Call Completion to Busy Subscriber (CCBS)

[For EU]

[Series 3700 R12.2 software required]

START	DESCRIPTION	DATA
CM20	Assign the access code for Call Completion to Busy Subscriber (CCBS).	• Y=0-3 Numbering Plan Group 0-3 (1) X-XXXX: Access code (2) A004: Call Completion to Busy Subscriber (CCBS) Set A005: Call Completion to Busy Subscriber (CCBS) Cancel
CM90	Assign a Call Completion to Busy Subscriber (CCBS) key to the D^{term}, if required.	• Y=00 (1) My Line No. + [,] + Key No. (2) F0004: Call Completion to Busy Subscriber (CCBS) Set/Cancel
CM35	Assign the trunk access code for Call Completion to Busy Subscriber (CCBS).	• Y=44 (1) 00-63: B channel Trunk Route No. (2) 0-9/00-99: Trunk Access Code
	Assign the trunk route data to Call Completion to Busy Subscriber (CCBS) set from calling party.	• Y=277 (1) 00-63: B channel Trunk Route No. (2) 0 : Allow 1◀: Restricted
	Assign the trunk route data to Call Completion to Busy Subscriber (CCBS) set to called party.	• Y=278 (1) 00-63: B channel Trunk Route No. (2) 0 : Allow 1◀: Restricted
A		

	DESCRIPTION	DATA
A		
CM12	Assign Service Restriction Class B to each station.	• Y=02 (1) X-XXXXXXXX: Station No. (2) XX ZZ ZZ: 00-15◀: Service Restriction Class B
	Assign an ISDN Subscriber number and ISDN Local Office Code Table number to required stations. **NOTE 1** on ☞ *Page 123*	• Y=12 (1) X-XXXXXXXX: Station No. (2) X-XXXX: ISDN Subscriber No. NONE◀ : No data
		• Y=13 (1) X-XXXXXXXX: Station No. (2) 00-14: ISDN Local Office Code Table No. 00-14 15◀ : No data
CM13	Specify the sending out of CPN (Calling Party Number).	• Y=25 (1) X-XXXXXXXX: Station No. (2) 0 : Not sent 1◀: To send **NOTE 2** on ☞ *Page 123*
CM15	Allow Call Completion to Busy Subscriber (CCBS) set from calling party in Service Restriction Class B assigned by CM12 Y=02.	• Y=157 (1) 00-15: Service Restriction Class B assigned by CM12 Y=02 (2) 0 : Restricted 1◀: Allow
	Allow Call Completion to Busy Subscriber (CCBS) set to called party in Service Restriction Class B assigned by CM12 Y=02	• Y=158 (1) 00-15: Service Restriction Class B assigned by CM12 Y=02 (2) 0 : Restricted 1◀: Allow
CM50	Assign ISDN Local Office Code to the Table number assigned by CM12 Y=13.	• Y=05 (1) 00-14: ISDN Local Office Code Table No. 00-14 (2) X...X : Local Office Code (Maximum 12 digits) NONE◀: No data
END		

NOTE: *When providing the calling party number (CPN) to the network, do the programming of SID to Network-Present.* ☞ *Page 122*

ISDN-VPN PROGRAMMING

START	DESCRIPTION	DATA
CM20	Assign the access code for LCR Group 0-3.	• Y=0-3 Number Plan 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
CM90	Assign the LCR Group key on the D^{term}, if required.	• Y=00 (1) My Line No. + [,] + Key No. (2) F0A26: LCR Group 0 F0A27: LCR Group 1 F0A28: LCR Group 2
CM8A	Assign an Area Code Development Pattern number to each LCR Group.	• Y=A000 (1) 0-3: LCR Group 0-3 (2) 4005-4007: Area Code Development Pattern No. 5-7
	Assign a Route Pattern number to each area code for the Area Code Development Pattern number assigned by CM8A Y=A000.	• Y=4005-4007 Area Code Development Pattern No. 5-7 (1) X...X: Area Code, Maximum 8 digits (2) 0000-0255: Route Pattern No. 000-255
	Specify the order of LCR selection for the Route Pattern number assigned by CM8A Y=4005-4007.	• Y=0000-0255 Route Pattern No. 000-255 (1) 1-4: Order of LCR Selection 1: 1st 2: 2nd 3: 3rd 4: 4th (2) XXX ZZ XXX: 000-255: LCR Pattern No. ZZ : 00-63: Trunk Route No.
	For area code addition, designate the digits to be added.	• Y=5000-5255 (1) 100: Designation of digit Addition Pattern No. (2) 9000-9255: Digit Addition Pattern No. 000-255 CCC : No digit addition
A		

	DESCRIPTION	DATA
A		
CM8A		• Y=9000-9025: Digit Addition Pattern No. 00-255 (1) 0 (2) X-X...X: Digits to be added (Maximum 32 digits)
	To delete the designated digit of an area code assigned by CM8A Y=4005-4007.	• Y=5000-5255 (1) 153: Designation of digit to be deleted from area code assigned by CM8A Y=4005-4007 (2) 00 : No digit deletion 01-10: Leading 1-10 digits deletion CCC : No digit deletion
	Assign the sending an area code to ISDN as a Called Party Subaddress.	• Y=5000-5255 (1) 155: Designation of sending area code as a Called Party Subaddress (2) 0: Available
CM85	Specify the maximum number of digits to be Dialed by 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=A000 (1) X-X...X: Area code dialed, Maximum 8 digits (2) 01-79: 1 digit-79 digits 24◀ : 24 digits
CM35	Assign the Area Code Development Pattern number for Toll Restriction and maximum digit analysis to each trunk route.	• Y=76 (1) 00-63: B channel Trunk Route No. (2) 00-07: Area Code Development Pattern No. 0-7
END		

ISDN TERMINAL DATA PROGRAMMING

ILC Assignment

START	DESCRIPTION	DATA
CM10	Assign an ISDN line station number to the required LEN. **NOTE:** *We recommend the setting of ISDN line station number by CM14, when using Series 3200 R6.2 software or later.*	(1) 000-763: LEN (2) EFX-EFXXXXXXXX: ISDN Line Station No.
CM14	Assign the ISDN line station number to the required LEN. **[Series 3200 R6.2 software required]**	(1) XX ZZZ: LEN XX : 00-59: FP No. ZZZ: 000-127: Port No. (2) EFX-EFXXXXXXXX: ISDN Line Station No.
CM12	Assign a Tenant number to each ISDN line station number.	• Y=04 (1) X-XXXXXXXX: ISDN Line Station No. (2) 00-63: Tenant No. If no data is set, the default data is 01.
	Assign a Trunk Restriction Class to each ISDN line station number, if required.	• Y=01 (1) X-XXXXXXXX: ISDN Line Station No. (2) X Z: Trunk Restriction Class X: 1◀-8: Trunk Restriction Class in Day Mode Z: 1◀-8: Trunk Restriction Class in Night Mode 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)
A		

A

	DESCRIPTION	DATA
CM12	Assign an ISDN Subscriber number to the required ISDN line station number, if required.	• Y=12 (1) X-XXXXXXXX: ISDN Line Station No. (2) X-XXXX: ISDN Subscriber No. NONE◀ : No data
	Assign a Local Office Code Table number to the required ISDN line station number, if required.	• Y=13 (1) X-XXXXXXXX: ISDN Line Station No. (2) 00-14: ISDN Local Office Code Table No. 00-14 15◀ : No data
CM13	Specify the facility control of Calling Party Number (CPN), if required. **NOTE:** *This command is effective when sending a Calling Party Number (CPN) to ISDN.*	• Y=25 (1) X-XXXXXXXX: ISDN Line Station No. (2) 0 : To provide 1◀: Not provided
CM29	Assign a Numbering Plan Group number to each tenant.	(1) 00-63: Tenant No. (2) 710-713: Numbering Plan Group 0-3
CM20	Assign the digit number of ISDN line station number.	• Y=0-3 (1) X-XXXX: Access Code (2) 801-808: 1 digit-8 digits
CM08	Specify whether the subaddress is sent to ISDN when making a call from ISDN Terminal, if required.	(1) 430 (2) 0 : To send (As per CM08>431) 1◀: Not sent
	Specify the Calling Party Subaddress which is sent to ISDN when making a call from ISDN Terminal, if required.	(1) 431 (2) 0 : ISDN Line Station No. assigned by CM10/CM14 1◀: ISDN Terminal No.
	Specify the forced release when a called ISDN Terminal does not answer during 3 minutes, if required.	(1) 432 (2) 0 : Not available 1◀: Available
	Assign Calling Party Number (CPN) which is sent to ISDN when making a call from ISDN Terminal, if required.	(1) 434 (2) 0 : CPN entered in ISDN Terminal 1◀: CPN assigned by CM12 Y=12/13

B

	DESCRIPTION	DATA
B		
CM08	Specify the calling number, which is sent to ISDN Terminal from Single Line Telephone/ D^{term} (for station to station call). **[Series 3700 R12.2 software required]**	(1) 584 (2) 0 : Calling Party No. (assigned by CM12 Y=12, 13) **NOTE** 1◀: Station No.
	Allow sending extension information of Low layer Compatibility (LLC) information element for connection between ISDN terminals/ ISDN trunks. **[Series 3200 R6.2 software required]**	(1) 722 (2) 0: Allow
CME5	Specify the make busy of B channel (B1, B2) for ISDN Terminal, if required.	• Y=2 (1) XXXXXXXX , Z XXXXXXXX: ISDN Line Station No. Z: 0: B1 channel 1: B2 channel (2) 0 : Make busy 1◀: In service
END		

NOTE: *The calling party number consists of the following numbers.*
Calling party number: YYYY
ISDN subscriber No. assigned by CM12 Y=12 (1-4 digits)

For example:
In this case, the Calling Party Number is 5000.
That is
ISDN Subscribers No. assigned by CM12 Y=12 is 5000.

ICH Assignment

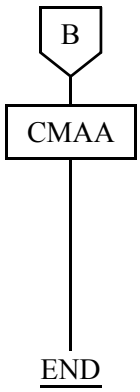
START	DESCRIPTION	DATA
CM05	Assign an AP number to each ICH/ILC (PN-2ILCC) card. The AP number must match the SENSE switch setting on the ICH/ILC (PN-2ILCC) card. (INITIAL)	• Y=0 (1) 04-15, 20-31: AP No. (2) 13: ICH card/ILC (PN-2ILCC) card
	Specify the AP highway channel for ICH/ILC (PN-2ILCC) card. (INITIAL)	• Y=1 (1) 04-15, 20-31: AP No. (2) 0 : Use Expanded Highway channel (128 time slots) 1◀: Use Basic Highway channel (128 time slots)
CMAA	Specify the type of ICH/ILC (PN-2ILCC) card. **[Series 3700 R12.2 software required]** (INITIAL)	• Y=14 (1) 04-15, 20-31: AP No. (2) 0 : ILC card 1◀: ICH card
CM06	Assign the ICH number/D channel number controls ISDN terminal to the AP number of ICH/ILC (PN-2ILCC) card assigned by CM05. (INITIAL)	• Y=09 (1) 00-15: ICH No./D channel No. controls ISDN terminal (2) 04-15, 20-31: AP No. assigned by CM05
CMAC	Assign the ISDN line station number to the ISDN line number of ICH/ILC (PN-2ILCC) card. (INITIAL)	• Y=00 (1) XX Z XX: 00-15: ICH No./D channel No. controls ISDN terminal Z : 0-7: ISDN Line No. of ICH card : 0-1: ISDN Line No. of ILC (PN-2ILCC) card (2) X-XXXXXXXX: ISDN Line Station No.
A		

A

CMAC

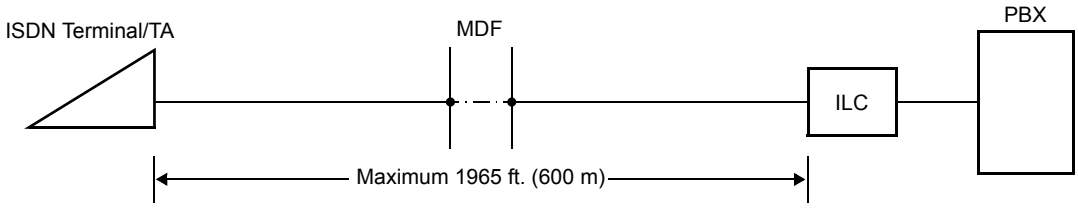
DESCRIPTION	DATA
Specify the method of Terminal Endpoint Identifier (TEI) assignment. (INITIAL) **NOTE:** *CMAC Y=02 must be assigned to match the specification of ISDN Terminal.*	• Y=02 (1) XX Z XX: 00-15: ICH No./D channel No. controls ISDN terminal Z : 0-7: ISDN Line No. of ICH card : 0-1: ISDN Line No. of ILC (PN-2ILCC) card (2) 0 : Non-Automatic TEI Assignment 1◀: Automatic TEI Assignment
Specify the method of Layer 1 activation. (INITIAL) **NOTE:** *CMAC Y=04 must be assigned to match the specification of ISDN Terminal.*	• Y=04 (1) XX Z XX: 00-15: ICH No./D channel No. controls ISDN terminal Z : 0-7: ISDN Line No. of ICH card : 0-1: ISDN Line No. of ILC (PN-2ILCC) card (2) 0 : Always activated 1◀: Activated by call event
Specify the checking of TEI (Terminal Endpoint Identifier) when Layer 2 data link is released. (INITIAL)	• Y=06 (1) XX Z XX: 00-15: ICH No./D channel No. controls ISDN terminal Z : 0-7: ISDN Line No. of ICH card : 0-1: ISDN Line No. of ILC (PN-2ILCC) card (2) 0 : To Provide 1◀: Not Provided
Allow sending extension information of Low layer Compatibility (LLC) information element for connection between ISDN terminals/ ISDN trunks. **[Series 3200 R6.2 software required]** (INITIAL)	• Y=11 (1) XX Z XX: 00-15: D channel No. controls ISDN terminal Z : 0-7: ISDN Line No. of 8ICH card : 0-1: ISDN Line No. of ILC (PN-2ILCC) card (2) 0: Allow

B



DESCRIPTION	DATA
Assign the ISDN Terminal Type to the AP number assigned by CM05. ICH INITIAL	• Y=06 (1) 04-15, 20-31: AP No. of ICH/ILC (PN-2ILCC) assigned by CM05 (2) 24 : ETSI Terminal 63◀: Not ETSI Terminal

Point-to-Point Connection



START

DESCRIPTION | **DATA**

CMAC

Assign the point-to-point connection as the Layer 2 data link.

INITIAL

- Y=01

(1) XX Z
XX: 00-15: ICH No.
Z : 0-7: ISDN Line No. of ICH card
: 0-1: ISDN Line No. of ILC (PN-2ILCC) card

(2) 0: Point-to-Point Connection

NOTE: *When Point-to-Point Connection is selected, the PBX will address the BRI Terminal with channel select (B1/B2) message. Some BRI Terminals cannot answer the call with this type of signaling. Some of the BRI Terminals require a Calling Party Number sent from the PBX. In this case, use Point-to-Multipoint for CMAC Y=01 and CM1B to assign extension number for the BRI Terminal.*

Assign the Non-Automatic TEI Assignment.

INITIAL

- Y=02

(1) XX Z
XX: 00-15: ICH No.
Z : 0-7: ISDN Line No. of ICH card
: 0-1: ISDN Line No. of ILC (PN-2ILCC) card

(2) 0: Non-Automatic TEI Assignment

Assign the Extended Passive Bus.

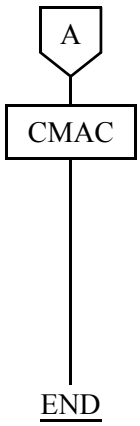
INITIAL

- Y=03

(1) XX Z
XX: 00-15: ICH No.
Z : 0-7: ISDN Line No. of ICH card
: 0-1: ISDN Line No. of ILC (PN-2ILCC) card

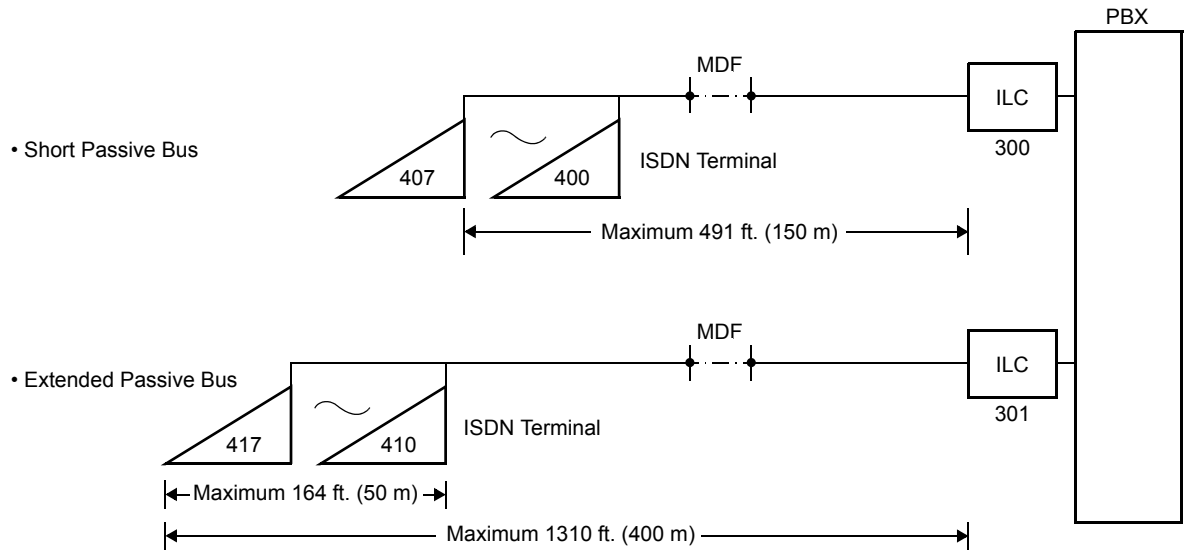
(2) 0: Extended Passive Bus

A



DESCRIPTION	DATA
Assign the always activated as the method of Layer 1 activation. (INITIAL)	• Y=04 (1) XX Z XX: 00-15: ICH No. Z : 0-7: ISDN Line No. of ICH card : 0-1: ISDN Line No. of ILC (PN-2ILCC) card (2) 0: Always activated

Point-to-Multipoint Connection



START	DESCRIPTION	DATA
CMAC	Assign the point-to-multipoint connection as the Layer 2 data link. (INITIAL)	• Y=01 (1) XX Z XX: 00-15: ICH No. Z : 0-7: ISDN Line No. of ICH card : 0-1: ISDN Line No. of ILC (PN-2ILCC) card (2) 1◀: Point-to-Multipoint Connection
	Specify the passive bus. (INITIAL)	• Y=03 (1) XX Z XX: 00-15: ICH No. Z : 0-7: ISDN Line No. of ICH card : 0-1: ISDN Line No. of ILC (PN-2ILCC) card (2) 0 : Extended Passive Bus 1◀: Short Passive Bus
CM1B	Assign an ISDN Terminal Multipoint station number to the ISDN Line station number. The numbers assigned in this command are station numbers that are to be programmed in the BRI terminal. CM12 Y=12 will use the station assignment from CM10/CM14.	(1) XXXXXXXX [,] Z XXXXXXXX: ISDN Line Station No. assigned by CM10/CM14 Z: 0-7: ISDN Multipoint No. (2) X-XXXXXXXX: ISDN Terminal Multipoint Station No.
END		

BRI Programming Example:

The following is an example of common BRI Station Programming.

```
CM10   024>EF2125
       025>EF2126

CMAC00>000-2125
       001-2126

CMAC01>000-1
       001-1

CMAC02>000-1
       001-1

CMAC03>000-1
       001-1

CMAC04>000-1
       001-1

CMAC06>000-1
       001-1
```

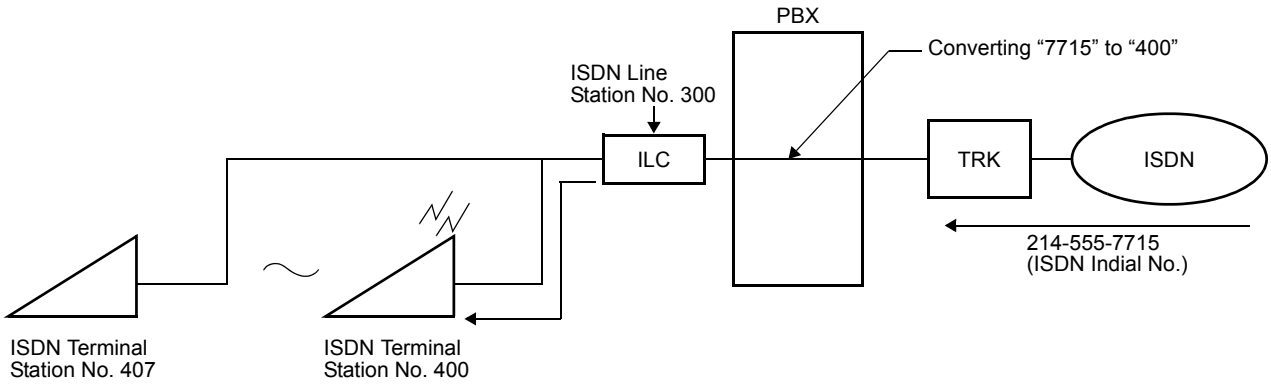
```
CM1B>2125, 0>2225*
     2125, 1>2226
          2
          ↓ >None
          7
     2126, 0>2235*
     2126, 1>2236*
          2
          ↓ >None
          7
```

* Ext. 2225 and others assigned in CM1B are the Extension numbers that should be entered into the BRI Terminals. Most BRI Terminals require a 10 digits number.
  If the BRI Terminals require a SPID **[North America Only]**, it is common to add a 3 digits number to the main number.
  For example;
  Main number (1): 214-555-2225
  Main number (2): 214-555-2226
  SPID (1) : 214-555-2225123
  SPID (2) : 214-555-2226123
  SPIDs are required for NI-1 protocol and AT&T Point-to-Multipoint. Devices that are set as AT&T Point-to-Point do not use SPIDs.

Individual Terminal Call

(1) ISDN Indial

When receiving an ISDN Terminal station number as the ISDN Indial number, or when converting an ISDN Indial number to an ISDN Terminal station number, by CM76, the system connects the call with the specified ISDN Terminal or Terminal Adapter (TA) on the same bus (2B + D).



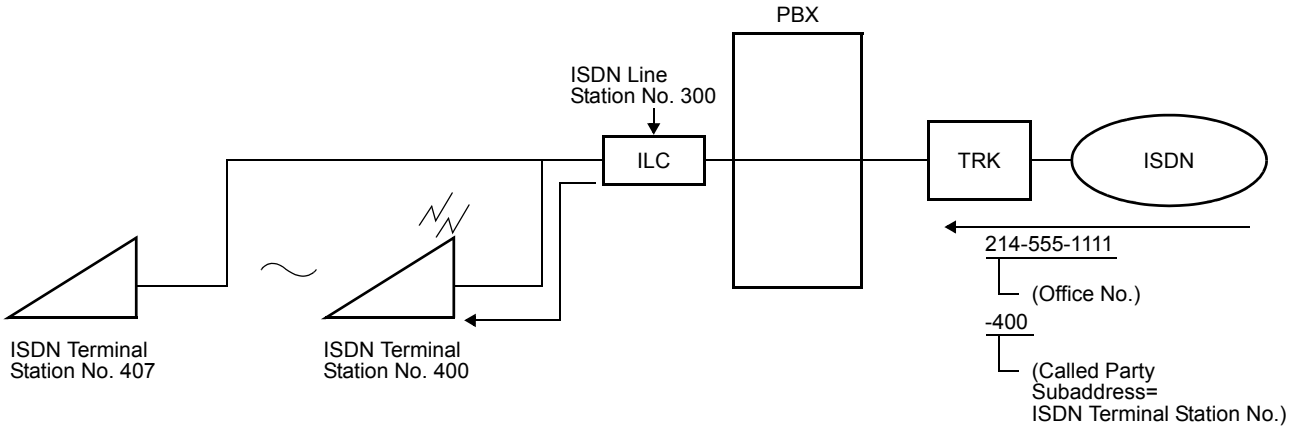
Do the following programming:

“DID Addressing” ☞ *Page 117*

“Point-to-Multipoint Connection” ☞ *Page 172*

(2) Called Party Subaddress

When the system has received a Called Party Subaddress (ISDN Terminal station number) from an ISDN Subscriber, the system connects the call with the specified ISDN Terminal or TA on the same bus (2B + D).



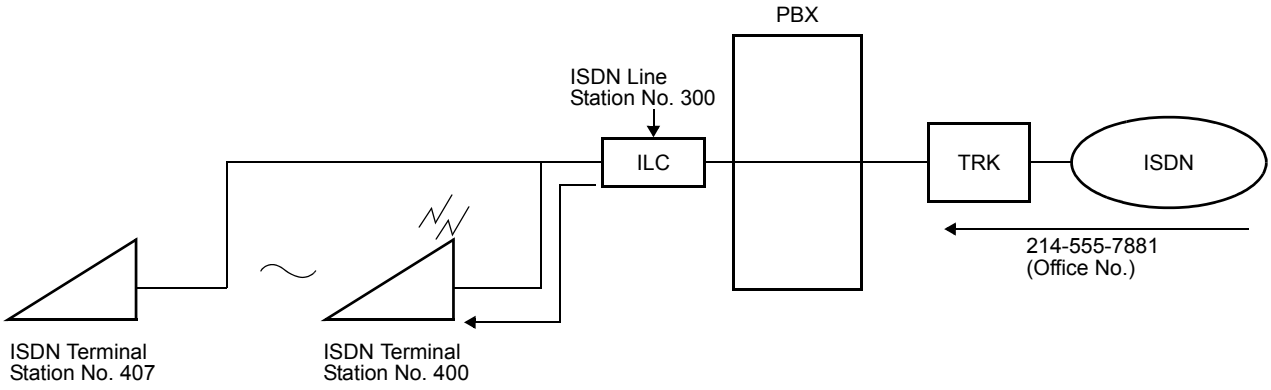
Do the following programming:

"Subaddress-Present" ☞ *Page 133*

"Point-to-Multipoint Connection" ☞ *Page 172*

(3) Direct In Termination (DIT)

When the ISDN Terminal station number is assigned as the destination of DIT, the system connects the call with the specified ISDN Terminal or TA on the same bus (2B + D).

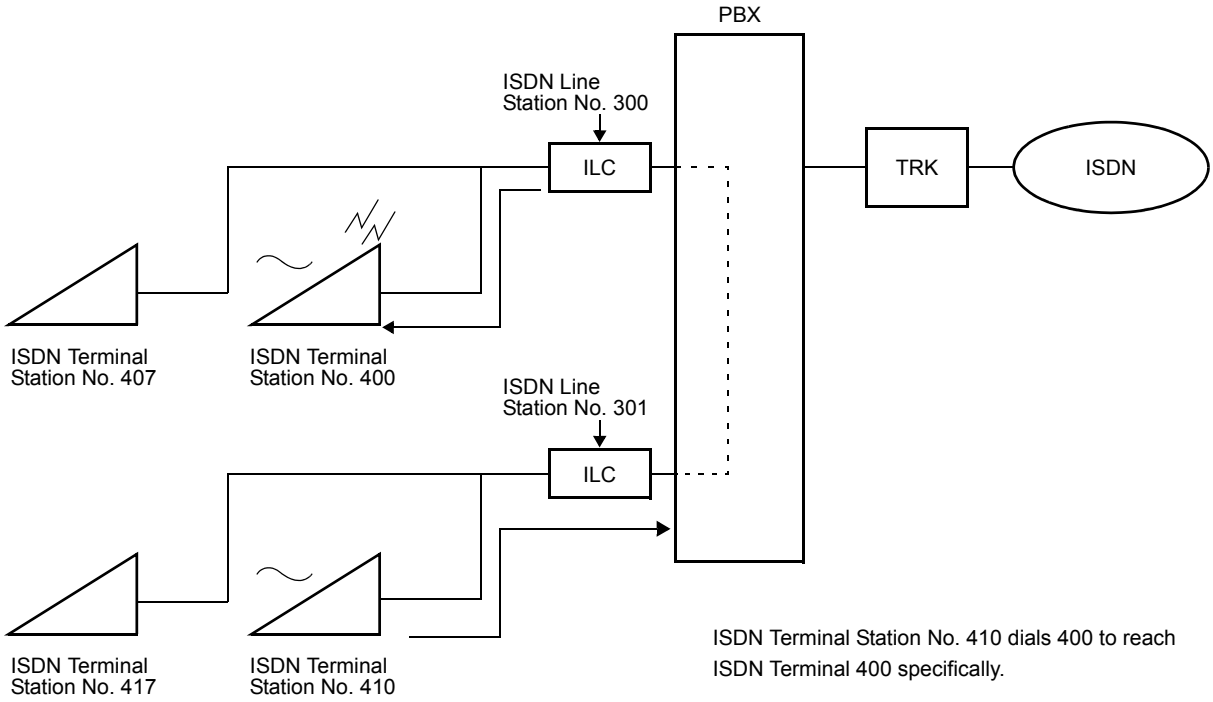


In addition to the programming of "Point-to-Multipoint Connection" ☞ *Page 172*, do the following programming.

START	DESCRIPTION	DATA
CM30	Assign the data for DIT to the trunk numbers assigned by CM07.	• Y=02 Day Mode • Y=03 Night Mode • Y=40 Mode A • Y=41 Mode B (1) 000-255: Trunk No. assigned by CM07 Y=01/02 (2) 04: Direct-In Termination
	Assign the ISDN Terminal station number to be terminated by Direct In Termination.	• Y=04 Day Mode • Y=05 Night Mode • Y=42 Mode A • Y=43 Mode B (1) 000-255: Trunk No. assigned by CM07 Y=01/02 (2) X-XXXXXXXX: ISDN Terminal Station No.
END		

(4) Station-to-Station Calling

When an ISDN Terminal user dials an ISDN Terminal station number within the system, the system connects the call with the specified ISDN Terminal.

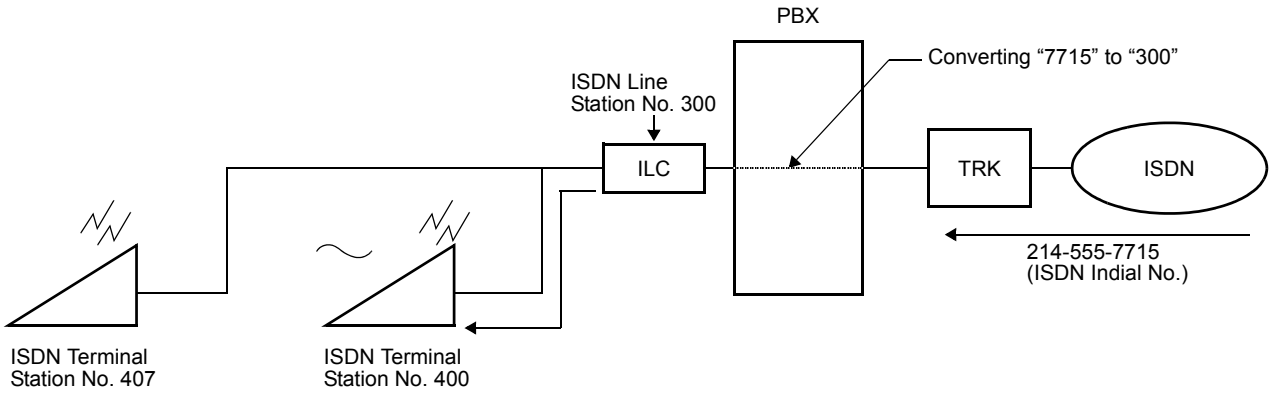


Do the programming of “Point-to-Multipoint Connection”. ☞ *Page 172*

Group Call

(1) ISDN Indial

When receiving an ISDN line station number as ISDN Indial number, or when converting an ISDN Indial number to an ISDN line station number by CM76, the system connects the call with all ISDN Terminals or Terminal Adapters (TA) on the same bus (2B + D).



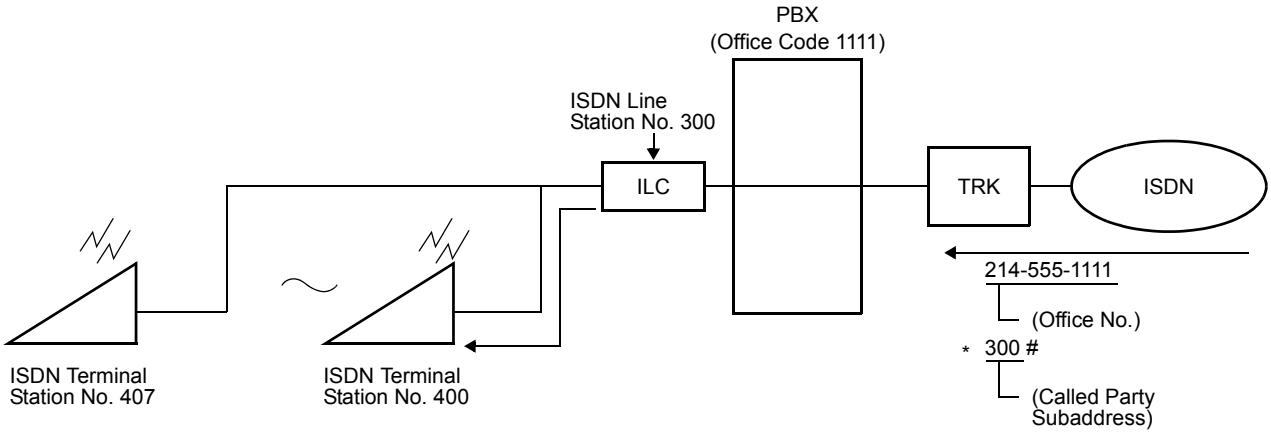
Do the following programming:

“DID Addressing” ☞ *Page 117*

“Point-to-Multipoint Connection” ☞ *Page 172*

(2) Called Party Subaddress

When receiving an ISDN line station number as the Called Party Subaddress, the system connects the call with all ISDN Terminals or Terminal Adapters (TA) on the same bus (2B + D).



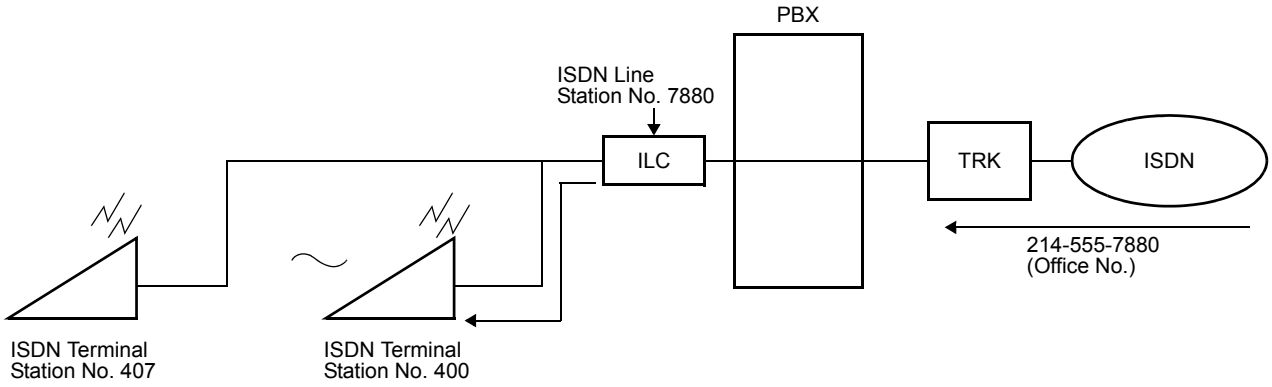
Do the following programming:

"Subaddress-Present" ☞ *Page 133*

"Point-to-Multipoint Connection" ☞ *Page 172*

(3) Direct In Termination (DIT)

When the ISDN line station number is assigned as the destination of DIT, the call from ISDN terminates all ISDN Terminals on the same bus (2B + D) simultaneously.

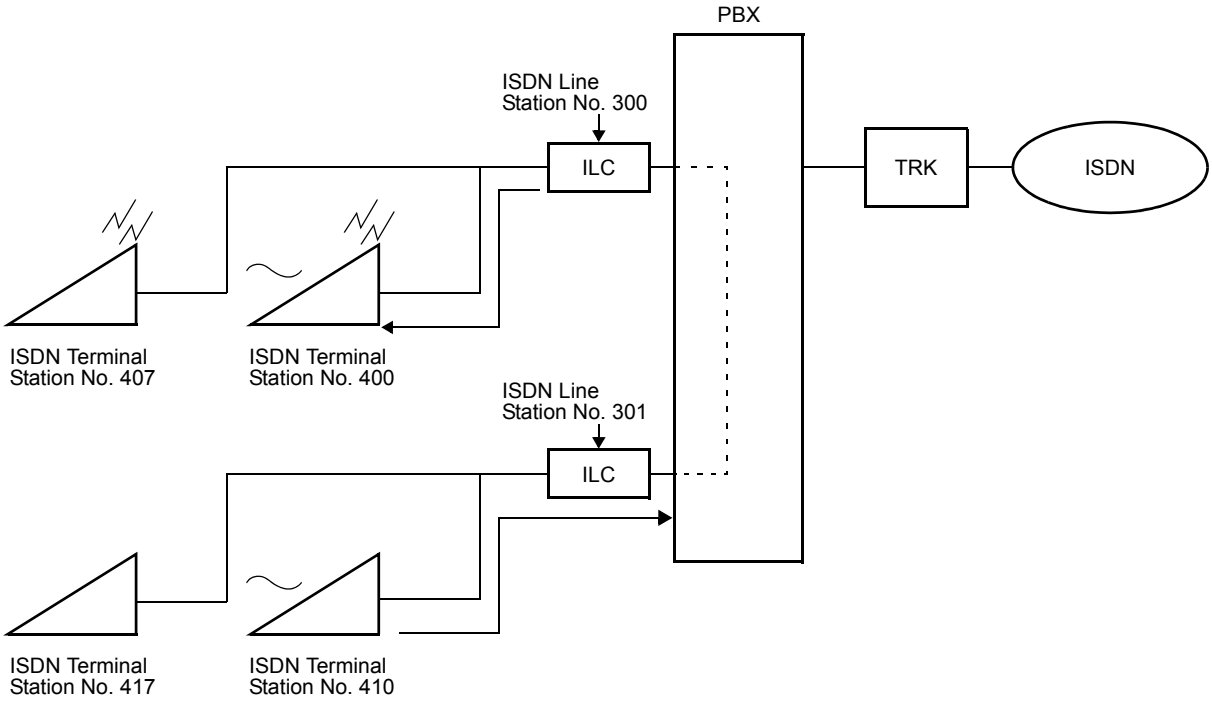


In addition to the programming of "Point-to-Multipoint Connection" ☞ *Page 172*, do the following programming.

START	DESCRIPTION	DATA
CM30	Assign the data for DIT to the trunk numbers assigned by CM07.	• Y=02 Day Mode • Y=03 Night Mode • Y=40 Mode A • Y=41 Mode B (1) 000-255: Trunk No. assigned by CM07 Y=01/02 (2) 04: Direct-In Termination
	Assign the ISDN Terminal station number to be terminated by Direct In Termination.	• Y=04 Day Mode • Y=05 Night Mode • Y=42 Mode A • Y=43 Mode B (1) 000-255: Trunk No. assigned by CM07 Y=01/02 (2) X-XXXXXXXX: ISDN Terminal Station No.
END		

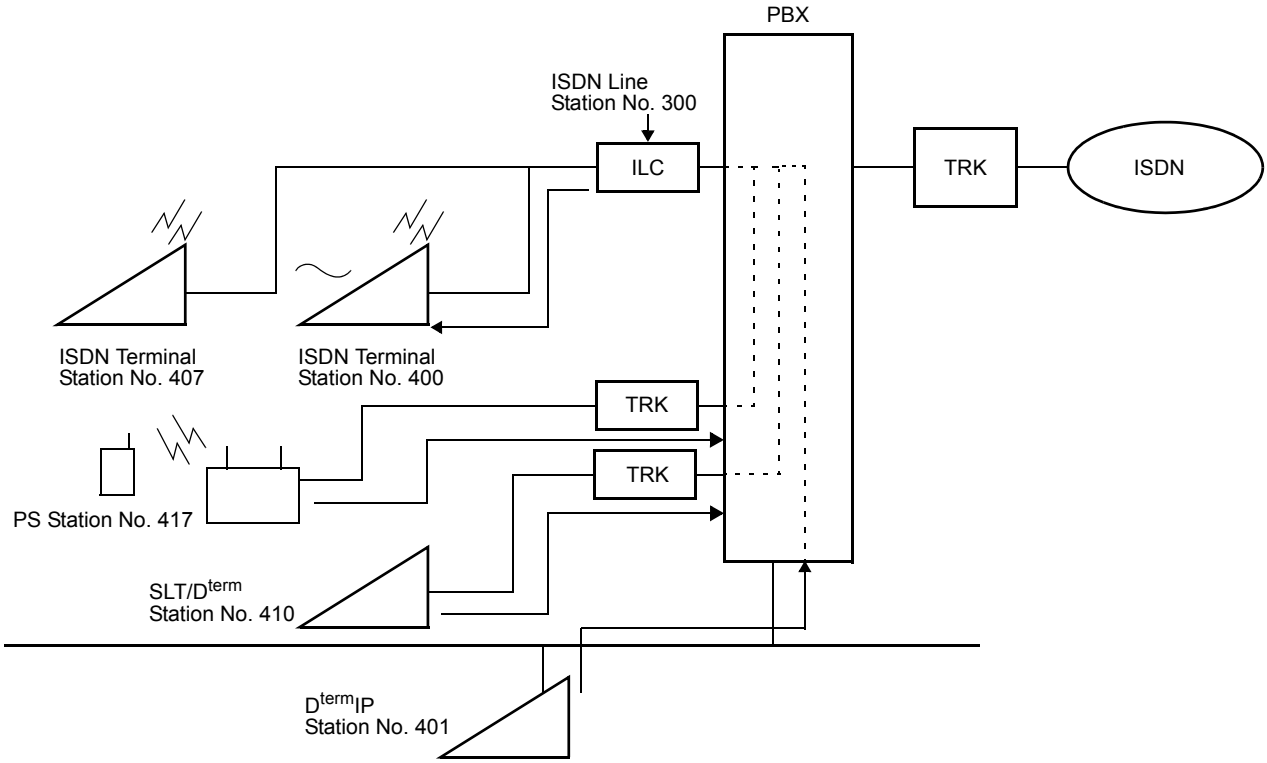
(4) Station-to-Station Calling

- When an ISDN Terminal user dials an ISDN line station number within the system, the system connects the call with all ISDN Terminals.



Do the programming of “Point-to-Multipoint Connection”. ☞ *Page 172*

- When Single Line Telephone, D^{term}, D^{term}IP, PS user dials an ISDN line station number within the system, the system connects the call with all ISDN Terminals.
  [Series 3200 R6.2 software required]



In addition to the programming of "Point-to-Multipoint Connection" ☞ *Page 172*, do the following programming.

START

	DESCRIPTION	DATA
CM08	Provide the system with the voice communication between ISDN terminal group and Single Line Telephone/D^{term}/D^{term}IP/PS within the system. **[Series 3200 R6.2 software required]**	(1) 527 (2) 0 : Provide 1◀: Not provided

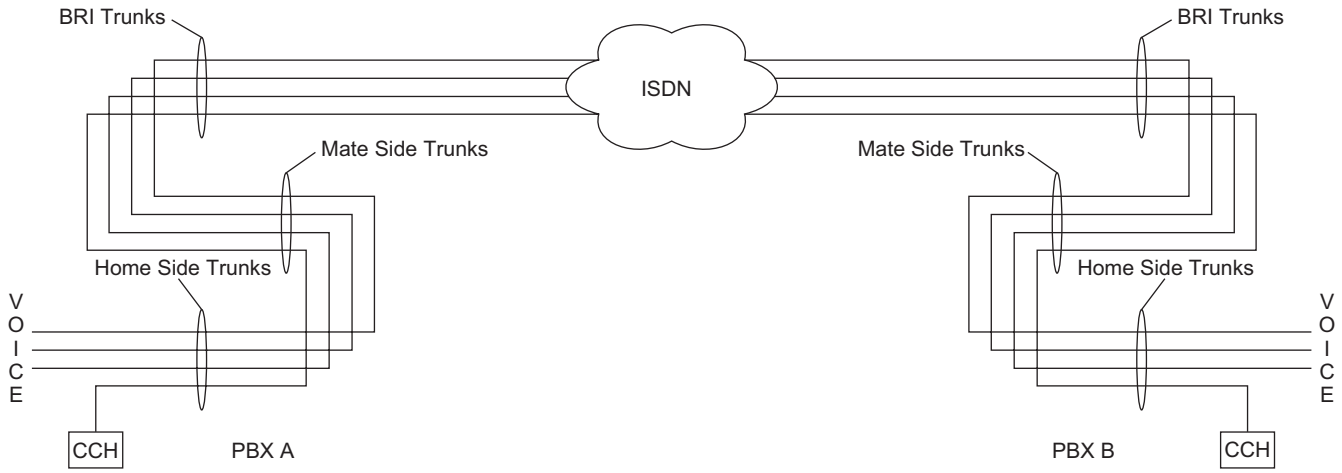
END

EVENT BASED CCIS PROGRAMMING

Programming Summary

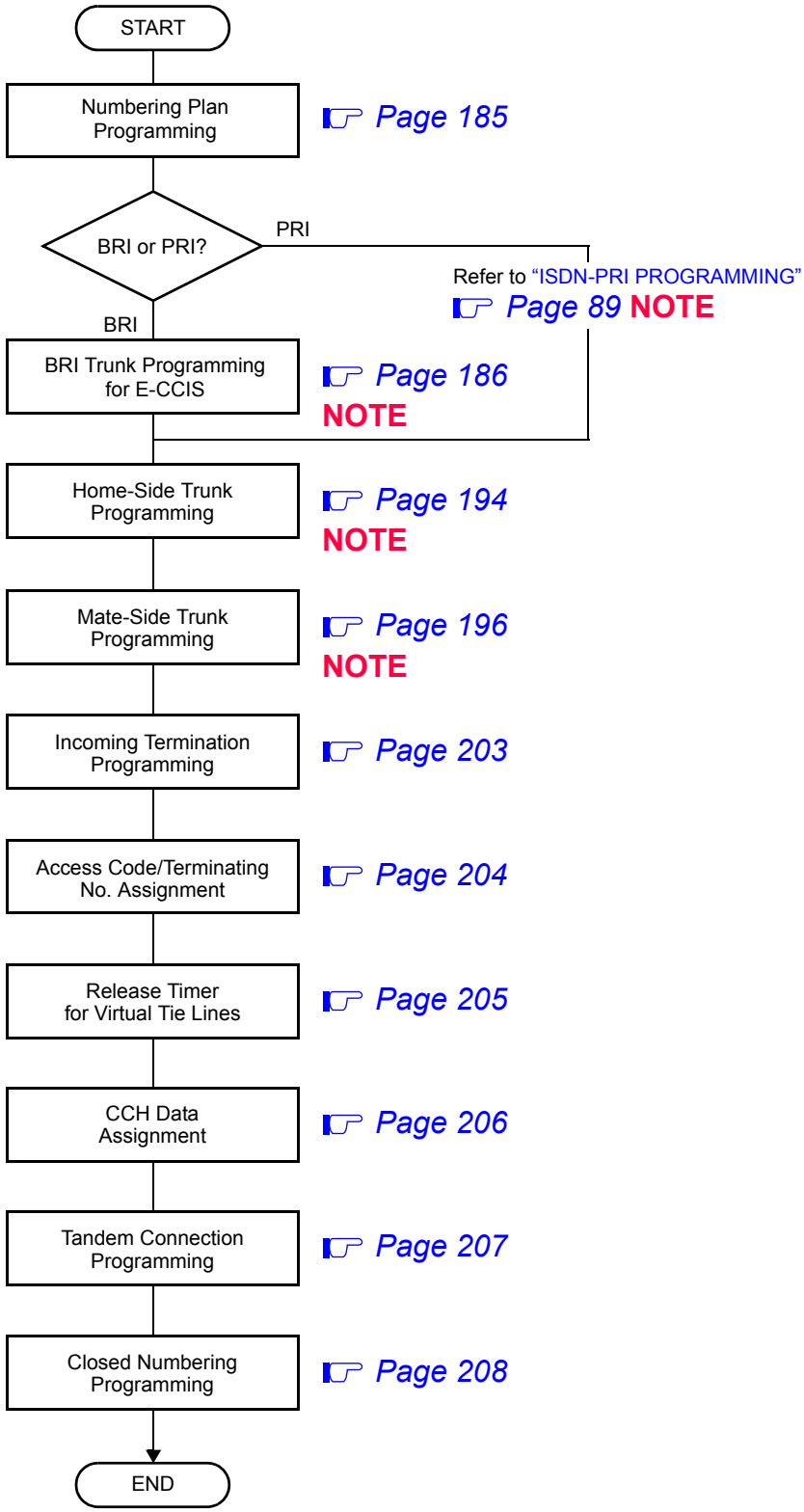
Do the system data programming for Event Based CCIS, according to the procedure on the next page. As for the CCIS feature programming, refer to the CCIS System Manual.

The figure below is an outline of BRI to BRI connections.



Programming for PBX A and PBX B is required on each programming procedure.

Event Based CCIS Programming Summary



NOTE: *Refer to "Event Based CCIS Trunk Data Table" also.* ☞ *Page 209*

Numbering Plan Programming

START	DESCRIPTION	DATA
CM20	Assign station numbers, LCR and trunk route access codes.	• Y=0-3 (1) X-XXXX: Access Code (2) 801-808 : 1 to 8 digits station A126-A129: LCR Group 0-3 100-163 : Trunk Route 00-63
END		

BRI Trunk Programming

START	DESCRIPTION	DATA
CM05	Assign an AP number to the BRT card. The AP number must match the SENS switch setting on the BRT card. (INITIAL)	• Y=0 (1) 04-15, 20-31: AP No. (2) 10: BRT card
	NOTE: *The AP number 20-31 cannot be set to the PN-BRTA card.*	
	Specify the AP highway channel for PN-4BRTA-A card. (INITIAL)	• Y=1 (1) 04-15, 20-31: AP No. (2) 0 : Use Expanded Highway channel (128 time slots) 1◀: Use Basic Highway channel (128 time slots)
	Assign an Remote Site number that accommodates AP cards to the AP number assigned by CM05 Y=0. (INITIAL)	• Y=8 (1) 04-15, 20-31: AP No. (2) XX 99 XX: 01-15: Remote Site No. 01-15 **[Series 3200 R6.2 software or Series 3300 software required]** 01-30: Remote Site No. 01-30 **[Series 3400 software required]** NONE◀: No data
	Assign the accommodation type of the Remote Site to the AP number assigned by CM05 Y=0. (INITIAL)	• Y=6 (1) 04-15, 20-31: AP No. (2) 1 : Remote Site 3◀: AP card
	NOTE: *Only when accommodating the BRT card in Remote Site, set the second data to 1 (remote site) to the AP number assigned by CM05 Y=0.*	
A		

A

	DESCRIPTION	DATA
CMAA	Assign the ISDN Protocol Type for DCH circuit on the BRT card. BRT INITIAL	• Y=06 (1) 04-15, 20-31: AP No. of BRT assigned by CM05 (2) ISDN Protocol Type 17 : Australia 18 : New Zealand 20 : AT&T (#4, #5 ESS) 21 : NTI (DMS 100, 250) 22 : Australia ETSI 24 : ETSI Standard (Brazil, Columbia, Indonesia, UAE) 25 : ITU-T Standard (Thailand) 27 : USA NI-1 28 : USA NI-2 31 : Germany **[Series 3200 R6.2 software required] [For EU]** 32 : Netherlands **[Series 3200 R6.2 software required]**/ Greece/Luxembourg/Portugal/Spain/ Sweden **[Series 3500 software required] [For EU]** 33 : Italy **[Series 3200 R6.2 software required] [For EU]** 63◀: Not used
CM07	Assign an ISDN trunk number to each Channel number of BRT. INITIAL **NOTE:** *Be sure to assign the trunk numbers to all circuits (00-03 of the 2BRT card, 00-07 of the 4BRT card), even if only one PCM digital line is accommodated to the 2BRT card or less than four PCM digital lines are accommodated to the 4BRT card. Set make-busy to the unused trunk numbers by CME5 Y=1, 2nd data=0.*	• Y=02 (1) XX ZZ XX: 04-15, 20-31: AP No. assigned by CM05 ZZ : B channel No. (00/01: BRT) (00-03: 2BRT) (00-07: 4BRT) (2) D000-D255: Trunk No. Trunk No. already assigned by CM10/CM14 cannot to be used.

B

B

	DESCRIPTION	DATA
CM30	Assign a trunk route to each ISDN trunk used for Voice channel (B channel).	• Y=00 (1) 000-255: Trunk No. assigned by CM07 Y=02 (2) 00-63: Trunk Route
	NOTE: *BRT route must be separated from analog trunk routes.*	
	Assign the trunk route data to each ISDN incoming trunk used for Voice channel only.	• Y=02 Day Mode • Y=03 Night Mode • Y=40 Mode A • Y=41 Mode B (1) 000-255: Trunk No. assigned by CM07 Y=02 (2) 18: ISDN Indial
	NOTE: *Follow the initial data setting.*	• Y=19 (1) 000-255: Trunk No. assigned by CM07 Y=02 (2) NONE◀: No data **NOTE**
	Assign the ISDN Local Office Code Table number to each ISDN trunk.	• Y=34 (1) 000-255: Trunk No. assigned by CM07 Y=02 (2) 00-14: Local Office Code Table No.
	NOTE: *Follow the initial data setting.*	• Y=35 (1) 000-255: Trunk No. assigned by CM07 Y=02 (2) NONE◀: No data **NOTE**
CM50	Assign the ISDN Local Office Code.	• Y=05 (1) 00-14: Local Office Table No. assigned by CM30 Y=34 (2) X....X (Maximum 12 digits)
CMAC	Assign the last 4 digits of telephone number + Service Profile ID (SPID) to each B channel number. **[North America Only]** INITIAL	• Y=30 (1) XX Z XX: 04-15, 20-31: AP No. assigned by CM05 Z : 0-7: B channel No. (2) XXXX ZZZZ (Last 4 digits of tel No. + SPID: 8 digits)

C

C

CM35

DESCRIPTION	DATA
Assign the trunk route data to the route number assigned by CM30 Y=00.	• Y=00 Kind of Trunk Route (1) 00-63: B channel Trunk Route No. (2) 00: ISDN Trunk • Y=01 Dialing Signal Type (1) 00-63: B channel Trunk Route No. (2) 2 : DP 10 PPS (Incoming/Outgoing) 3 : DP 10/20 PPS (Incoming) DP 20 PPS (Outgoing) 4 : DTMF (Incoming/Outgoing) 7◀: DP/DTMF (Incoming) DTMF (Outgoing) • Y=02 Call Direction (1) 00-63: B channel Trunk Route No. (2) 3◀: Bothway Trunk • Y=04 Answer signal from distant office (1) 00-63: B channel Trunk Route No. (2) 2: Answer signal arrives (ISDN Trunk) • Y=05 Release Signal from distant office (1) 00-63: B channel Trunk Route No. (2) 1◀: Release signal arrives • Y=09 Incoming Connection Signaling (1) 00-63: B channel Trunk Route No. (2) 08: ISDN Indial • Y=14 SMDR for outgoing call (1) 00-63: B channel Trunk Route No. (2) 0 : Not provided 1◀: To provide • Y=16 Hooking Signal Sending to outside (1) 00-63: B channel Trunk Route No. (2) 0: Not sending • Y=28 Outgoing Trunk Queuing (1) 00-63: B channel Trunk Route No. (2) 0: Restricted

D

D

CM35

DESCRIPTION	DATA
	• Y=39 Trunk release by detection of reversal of tip and ring (1) 00-63: B channel Trunk Route No. (2) 1◀: To release
NOTE: *Follow the initial data setting.*	• Y=40 (1) 00-63: B channel Trunk Route No. (2) 31◀: Abbreviated Code 31 **NOTE**
	• Y=79 Terminal connection form for ISDN Basic Rate Interface BRT INITIAL (1) 00-63: B channel Trunk Route No. (2) 0 : Point-to-Point 1◀: Point-to-Multipoint
	• Y=90 Assignment of BRT route for ISDN (1) 00-63: B channel Trunk Route No. (2) 2: ISDN-Basic Rate Interface
	• Y=143 Sending method of CCIS channel No. (1) 00-63: B channel Trunk Route No. (2) 0 : By Subaddress 1◀: By dialed-in digits
Specify the method of Layer 1 activation.	• Y=144 BRT INITIAL (1) 00-63: B channel Trunk Route No. (2) 0 : Activated by call event 1◀: Always activated

E

E

CM35

DESCRIPTION	DATA
Specify whether the ISDN trunk is released when the system receives ISDN DISCONNECT message with Progress Description=08 from ISDN (effective for an outgoing call). **[Series 3200 R6.2 software required]** **NOTE:** *When sending the in-band tone to the calling station from ISDN, set the second data to 1. In this case, the ISDN trunk will be released automatically in 30 seconds after the calling station receives the in-band tone or when the calling station goes on-hook.*	• Y=158 (1) 00-63: B channel Trunk Route No. (2) 0 : To release 1◀: Not released
Assign the method of Terminal Endpoint Identifier (TEI) assignments for the Trunk number. **[Series 3800 software required]** BRT INITIAL **NOTE:** *Automatic TEI assignment (set the second data to 0) is available only when second data of CM35 Y=79 is set to 1 (Point-to-Multipoint connection).*	• Y=283 (1) 00-63: B channel Trunk Route No. (2) 0 : Automatic TEI Assignment (TEI: 64-126) 1◀: Non-Automatic TEI Assignment (TEI: 0 fixed)
Specify whether the ISDN trunk is released when the system receives ISDN DISCONNECT message with Progress Description=08 from ISDN (effective for an incoming call). **[Series 3200 R6.2 software required]** **NOTE:** *When sending the in-band tone to the called station from ISDN, set the second data to 0. In this case, the ISDN trunk will be released automatically in 30 seconds after the called station receives the in-band tone or when the called station goes on-hook.*	• Y=208 (1) 00-63: B channel Trunk Route No. (2) 0 : Not released 1◀: To release

F

- To provide DID Digit Conversion:

NOTE: *If CM35 Y=143 is set to "1" for Event Based CCIS, the number of digits received on DID must be assigned by CM35 Y=12.*

F

CM35

G

DESCRIPTION	DATA
Assign the data for DID Digit Conversion to the trunk routes assigned by CM30.	• Y=18 Digit Conversion on DID call (1) 00-63: B channel Trunk Route No. (2) 0: To provide • Y=170 Development Table (1) 00-63: B channel Trunk Route No. (2) 0 : Development Table 1 3◀: Development Table 0 • Y=12 Number of digits to be received (1) 00-63: B channel Trunk Route No. (2) 0 : 1 digit 1 : 2 digits 2 : 3 digits 3◀: 4 digits • Y=78 Number of digits to be converted for Development Table 0 (1) 00-63: B channel Trunk Route No. (2) 0 : Leading 2-4 digits 1◀: All digits of DID are converted by CM76 • Y=171 Number of digits to be converted for Development Table 1 (1) 00-63: B channel Trunk Route No. (2) 01-08: 1-8 digits 15◀ : 4 digits

G

CM76

DESCRIPTION	DATA
Assign the Number Conversion Block number for Development Table 0.	• Y=00 (1) X-XXXX: DID No. (2) 000-999: Number Conversion Block No.
Assign the Number Conversion Block number for Development Table 1.	• Y=90 (1) X-XXXXXXXX: DID No. (2) 000-999: Number Conversion Block No.
Assign the data for interpreting the digits received.	• Y=01 Day Mode • Y=02 Night Mode • Y=03 Mode A • Y=04 Mode B (1) 000-999: Number Conversion Block No. assigned by CM76 Y=00/90 (2) X-XXXXXXXX: Station No. to be terminated DXX: Change terminating system to: D09: Automated Attendant D14: Attendant Console D16: Remote Access to System (DISA)

END

Home-Side Trunk Programming

START	DESCRIPTION	DATA
CM07	Assign a trunk number to each channel on the Home-Side trunk. **NOTE:** *The Virtual channel number on the Home-Side trunk must be an even number (00, 02, 04, ... 30).* (INITIAL)	• Y=05 (1) 3200-3230: Virtual channel No. 00-30 (Even No.) of the Home-Side Trunk (2) D000-D255: Trunk No. Trunk No. already assigned by CM10/ CM14 should not be used.
CM30	Assign a trunk route number to each trunk. **NOTE:** *Set the trunk route for voice channels and the trunk route for common signaling channel respectively.*	• Y=00 (1) 000-255: Trunk No. (2) 00-63: Trunk Route No.
CM35	Assign the trunk route data to each voice channel and common signaling channel route of the Event Based CCIS, as Tie Lines.	• Y=00 (1) 00-63: Trunk Route No. (2) 04: Tie Line • Y=01 (1) 00-63: Trunk Route No. (2) 2: DP • Y=04 (1) 00-63: Trunk Route No. (2) 2: Answer signal arrives • Y=05 (1) 00-63: Trunk Route No. (2) 1◀: Release signal arrives • Y=09 (1) 00-63: Trunk Route No. (2) 06: 2nd DT/Timing Start
	Specify the PAD patterns to voice channel route.	• Y=19 (1) 00-63: Trunk Route No. (2) 0-3 : Programmable PAD (See CM42.) 4-7◀: Fixed PAD **NOTE:** *For details of PAD data, refer to Command Manual.*
A		

	DESCRIPTION	DATA
A		
CM35	**NOTE:** *Follow the initial data setting in Home-Side trunk.*	• Y=40 (1) 00-63: Trunk Route No. (2) 31◀: Abbreviated Code 31 **NOTE**
	Determine the trunk seizure sequence.	• Y=83 (1) 00-63: B channel Trunk Route No. (2) 0: As per CM08>078
	Provide the voice channel and common signaling channel route with No. 7 CCIS facilities.	• Y=90 (1) 00-63: Trunk Route No. (2) 0: No. 7 CCIS
	Assign a CCIS channel number to each common signaling channel and voice channel route.	• Y=91 (1) 00-63: Trunk Route No. (2) 0-7: CCIS Channel No.
	Specify the voice channel and common signaling channel route as the Event Based CCIS route.	• Y=135 (1) 00-63: Trunk Route No. (2) 0: Event Based CCIS Route
	NOTE: *Follow the initial data setting in Home-Side trunk.*	• Y=143 (1) 00-63: Trunk Route No. (2) 1◀: By dialed-in digits **NOTE**
CM08	Select the trunk seizure sequence.	(1) 078 (2) 1◀: Lowest available trunk
CM30	Assign a Circuit Identification Code (CIC) to each trunk used for voice channel. (INITIAL)	• Y=35 (1) 000-255: Trunk No. (2) 001-127: CIC
	NOTE: *CIC represents a circuit number to designate a trunk (of each trunk route) used as a voice channel in the No. 7 CCIS network. Do not assign a CIC to a trunk used as Common Signaling Channel.*	
END		

Mate-Side Trunk Programming

START	DESCRIPTION	DATA
CM07	Assign a trunk number to each channel on the Mate-Side trunk. **NOTE:** *The Virtual channel number on the Mate-Side Trunk must be an odd number (01, 03, 05, ... 31).* (INITIAL)	• Y=05 (1) 3201-3231: Virtual channel No. 01-31 (Odd No.) of the Mate-Side Trunk (2) D000-D255: Trunk No.
CM30	Assign a trunk route number to each trunk.	• Y=00 (1) 000-255: Trunk No. (2) 00-63: Trunk Route No.
	Assign a trunk number, of the opposite office, sent to the network on Event Based CCIS connection. The trunk number is sent by the sub-address to activate the relation between the trunks used for Event Based CCIS. **NOTE 1:** *CM30 Y=19 is not required when the trunk number is sent by ISDN In-dial dialed-in digits. (CM35 Y=143>1)* **NOTE 2:** *CM30 Y=19 must be an unique combination between the offices.*	• Y=19 (1) 000-255: Trunk No. (2) X-XXXX: Trunk No. of the opposite office
CM35	Assign the trunk route data to each voice channel and common signaling channel route of the Event Based CCIS, as Tie Lines. **NOTE:** *Follow the initial data setting in Mate-Side trunk.*	• Y=00 (1) 00-63: Trunk Route No. (2) 04: Tie Line • Y=01 (1) 00-63: Trunk Route No. (2) 7◀: DP/DTMF (Incoming) DTMF (Outgoing) **NOTE**
A		

A

CM35

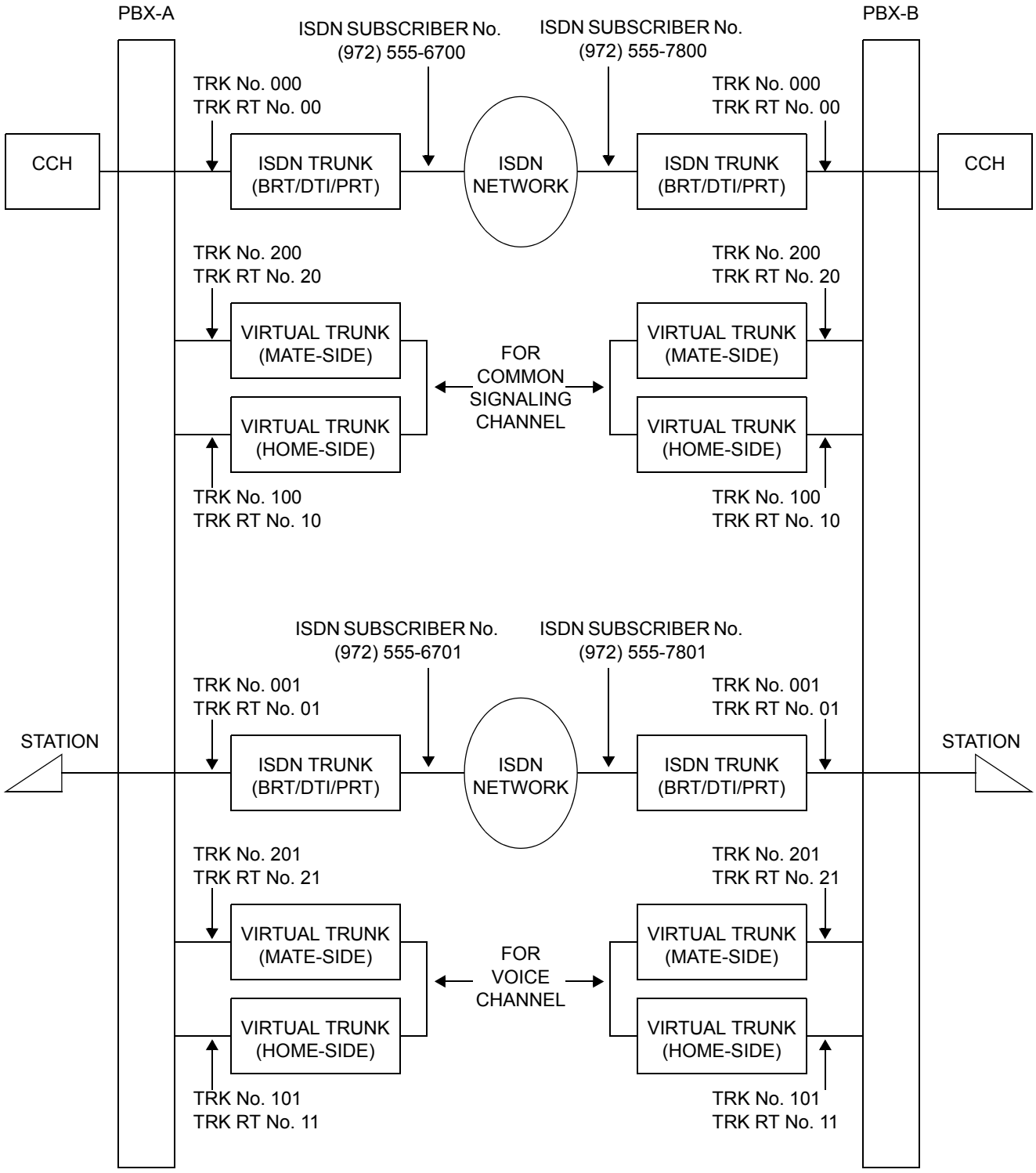
DESCRIPTION	DATA
	• Y=04 (1) 00-63: Trunk Route No. (2) 2: Answer signal arrives
NOTE: *Follow the initial data setting in Mate-Side trunk.*	• Y=05 (1) 00-63: Trunk Route No. (2) 1◀: Release signal arrives **NOTE**
	• Y=09 (1) 00-63: Trunk Route No. (2) 15◀: Ring Down (Loop Start C.O. line) **NOTE**
Assign the abbreviated codes for terminating number of the opposite office. The terminating number and its memory allocation should be assigned by CM71, CM72.	• Y=40 (1) 00-63: Trunk Route No. (2) 00-31: Abbreviated Codes
NOTE: *Follow the initial data setting in Mate-Side trunk.*	• Y=90 (1) 00-63: Trunk Route No. (2) 7◀: Not used **NOTE**
	• Y=91 (1) 00-63: Trunk Route No. (2) NONE◀: No data **NOTE**
Specify the voice channel and common signaling channel route as the Event Based CCIS route.	• Y=135 (1) 00-63: Trunk Route No. (2) 0: Event Based CCIS Route
Specify the method to send the CCIS channel number of virtual trunks between the offices, either subaddress number or ISDN Indial dialed-in digits, to each voice channel and common signaling channel route.	• Y=143 (1) 00-63: Trunk Route No. (2) 0 : By Subaddress 1◀: By dialed-in digits
Specify the Information Transfer Capability of the ISDN line used for Event Based CCIS.	• Y=154 (1) 00-63: Trunk Route No. (2) 5 : 3.1 kHz audio 6 : Speech 7◀: Unrestricted digital information

END

- To provide Verification of Connection for Event Based CCIS, do the following programming. The following data must be set on the opposite PBX identically.
  See also the data setting example on the following pages.

START	DESCRIPTION	DATA
CM35	Provide Verification of Connection to the Mate-Side trunk route for the voice channels and the common signaling channel.	• Y=152 (1) 00-63: Trunk Route No. of Mate-Side Trunk for voice channels and common signaling channel (2) 0: To provide
CM50	Assign the ISDN subscriber number of own office for the voice channel route and the common signaling channel route. This number is sent and verified with the number which is set by CM72 on the opposite office.	• Y=06 (1) 000-254: Trunk No. of Mate-Side Trunk for voice channels and common signaling channel (2) X...XXX: Subscriber No. of ISDN line for voice channels and common signaling channel (Maximum 16 digits)
CM35	Assign the abbreviated codes for terminating number of the opposite office. The terminating number and its memory allocation should be assigned by CM71, CM72.	• Y=40 (1) 00-63: Trunk Route No. of Mate-Side Trunk for voice channels and common signaling channel (2) 00-31◀: Abbreviated Codes
CM71	Assign the memory allocation to store the terminating number of the opposite office.	(1) 66 (2) XXX YYY XXX: 000-299: First Memory Slot No. YYY: 001-016: Number of Memory Slot allocated
CM72	Set the stored number (terminating number of the opposite office: access code for ISDN line + ISDN subscriber number) to the Memory Slot number allocated by CM71. **NOTE:** *The data set by CM35 Y=40, CM71>66, and CM72 is used to verify the terminating number sent from the opposite office.*	• Y=0 (1) 000-299: Memory Slot No. (2) Stored No.: XXXX + , + YYY... XXXX : Access Code for ISDN YYY... : ISDN Subscriber No. of opposite office (Maximum 16 digits) NONE◀: No data
END		

- Example of the programming for Verification of Connection



Programming example for the PBX A in previous illustration;

CM35 Y=152 (1) 20: Mate-Side trunk route number for common signaling channel
(2) 0: Provide Verification of Connection

(1) 21: Mate-Side trunk route number for voice channel
(2) 0: Provide Verification of Connection

CM50 Y=06 (1) 200: Mate-Side trunk number for common signaling channel
(2) 9725556700: ISDN subscriber number of ISDN line used for common signaling channel

(1) 201: Mate-Side trunk number for voice channel
(2) 9725556701: ISDN subscriber number of ISDN line used for voice channel

CM35 Y=40 (1) 20: Mate-Side trunk route number for common signaling channel
(2) 00: Abbreviated Code for terminating number of the opposite office

(1) 21: Mate-Side trunk route number for voice channel
(2) 01: Abbreviated Code for terminating number of the opposite office

CM71 (1) 66: Memory slot allocation for terminating number of opposite office
(2) 000002: First memory slot number=000 + number of memory slot allocated=2

CM72 Y=0 (1) 000: Memory slot number
(2) 0,9725557800: ISDN access code=0 + opposite office's ISDN subscriber number used for common signaling channel=9725557800

(1) 001: Memory slot number
(2) 0,9725557801: ISDN access code=0 + opposite office's ISDN subscriber number used for voice channel=9725557801

Programming example for the PBX B in previous illustration;

CM35 Y=152 (1) 20: Mate-Side trunk route number for common signaling channel
(2) 0: Provide Verification of Connection

(1) 21: Mate-Side trunk route number for voice channel
(2) 0: Provide Verification of Connection

CM50 Y=06 (1) 200: Mate-Side trunk number for common signaling channel
(2) 9725557800: ISDN subscriber number of ISDN line used for common signaling channel

(1) 201: Mate-Side trunk number for voice channel
(2) 9725557801: ISDN subscriber number of ISDN line used for voice channel

CM35 Y=40 (1) 20: Mate-Side trunk route number for common signaling channel
(2) 00: Abbreviated Code for terminating number of the opposite office

(1) 21: Mate-Side trunk route number for voice channel
(2) 01: Abbreviated Code for terminating number of the opposite office

CM71 (1) 66: Memory slot allocation for terminating number of opposite office
(2) 000002: First memory slot number=000 + number of memory slot allocated=2

CM72 Y=0 (1) 000: Memory slot number
(2) 0,9725556700: ISDN access code=0 + opposite office's ISDN subscriber number used for common signaling channel=9725556700

(1) 001: Memory slot number
(2) 0,9725556701: ISDN access code=0 + opposite office's ISDN subscriber number used for voice channel=9725556701

- To connect the ISDN line for the voice channel after the called party answers, do the following programming.
  By the following programming, the ISDN line for the voice channel is not connected, until the called party answers, or when the called party does not answers the call.

NOTE: *This feature is available only for the connection between the 2000 IPS. And the same programming must be set on the opposite office.*

START	DESCRIPTION	DATA
CM35	Specify the ISDN answer signal sending timing as "when the called party answers".	• Y=153 (1) 00-63: Trunk Route No. of Mate-Side Trunk for voice channels (2) 0: Send when the called party answers
	Specify the kind of the Information Transfer Capability of voice channel trunk route as "Speech".	• Y=154 (1) 00-63: Trunk Route No. of Mate-Side Trunk for voice channels (2) 6: Speech
END		

Incoming Termination for Event Based CCIS Calls

START	DESCRIPTION	DATA
CM76	Convert received digits to Mate-Side trunks.	• Y=01 Day Mode • Y=02 Night Mode • Y=03 Mode A • Y=04 Mode B (1) 000-999: Number Conversion Block No. assigned by CM76 Y=00/90 (2) BBBBBXXX: Mate-Side Trunk No. of Virtual Trunk XXX: 000-255
END		

Access Code/Terminating Number Assignment for Outgoing Event Based Calls

START	DESCRIPTION	DATA
CM71	Allocate memory to store the terminating numbers to the opposite office.	(1) 66 (2) XXX YYY XXX: 000-299: First Memory Slot No. YYY: 001-016: Number of Memory Slot allocated
CM72	Assign terminating numbers of the opposite office (access code for ISDN line + ISDN subscriber number) to the Memory Slot number allocated by CM71.	• Y=0 (1) 000-299: Memory Slot No. (2) Stored No.: XX + , + ZZZ... XX : Access Code for ISDN ZZZ... : ISDN Subscriber No. of Opposite Office (Maximum 26 digits) NONE◀: No data
END		

Release Timer for Virtual Tie Lines (Home-Side and Mate-Side Trunks)

START	DESCRIPTION	DATA
CM41	Specify the release timer for voice channels of virtual tie line. If there are no calls for predetermined time, the voice channels used for Event Based CCIS is released.	• Y=0 (1) 87: Virtual Tie Line Release Timer for Voice Channels (2) 02: 2.4-4.8 seconds (2.4 second increments) ≀ ≀ 30: 69.6-72.0 seconds 32: 24 seconds (24 second increments) ≀ ≀ 70: 936 seconds 72: 1 minute (1 minute increments) ≀ ≀ 99: 28 minutes NONE◀: 3 minutes (Error span: 2.4 seconds)
	Specify the release timer for CCH channel of virtual tie line. If all the voice channels are released and there are no calls for predetermined time, the CCH channel used for Event Based CCIS is released.	• Y=0 (1) 89: Virtual Tie Line Release Timer for Common Signaling Channel (2) 02: 2.4-4.8 seconds (2.4 second increments) ≀ ≀ 30: 69.6-72.0 seconds 32: 24 seconds (24 second increments) ≀ ≀ 70: 936 seconds 72: 1 minute (1 minute increments) ≀ ≀ 99: 28 minutes NONE◀: 3 minutes (Error span: 2.4 seconds)
END		

CCH Data Assignment

START	DESCRIPTION	DATA
CM05	Assign an AP number to the CCH card (PN-SC00/PN-DTA/PN-DTB). The AP number must match the SENSE switch setting on the CCH card. (INITIAL)	• Y=0 (1) 04-15, 20-31: AP No. (2) 11: CCH Card
CM06	Assign a CCH channel number to each CCH card. (INITIAL)	• Y=07 (1) 0-7: CCH channel No. (2) 04-15, 20-31: AP No. of CCH Card
CMA7	Assign the trunk number for common signaling channel on the Home-Side trunk used as the common signaling channel.	• Y=00 (1) 0-7: CCH channel No. (2) 000-255: Trunk No. assigned by CM07
	Assign an Originating Point Code (OPC) of own office and Destination Point Code (DPC) of opposite office, to each CCH channel. (INITIAL)	• Y=01 (1) 0-7: CCH channel No. (2) 00001-16367: OPC • Y=02 (1) 0-7: CCH channel No. (2) 00001-16367: DPC
	NOTE: *The OPC is used to designate an originating office in the No. 7 CCIS network. A single OPC of own office should be assigned to all CCH channels provided in the same system.*	
	Assign ACM signal waiting timer.	• Y=10 (1) 0-7: CCH channel No. (2) 14: 28 seconds
CMA8	Assign CCH channel to which a signaling message is transferred according to the Destination Point Code (DPC) received.	(1) 00001-16367: DPC (2) 0-7: CCH channel No.
END		

Tandem Connection Programming

- When providing Tandem Connection (ISDN to CCIS/CCIS to ISDN), do the following programming.

START	DESCRIPTION	DATA
CM36	Specify the combination of trunk routes allowing the tandem connection. **NOTE:** *The Home-Side Virtual Tie line routes must be included for all Tandem combinations.*	• Y=0 (1) XX ZZ XX: 00-63: Incoming Trunk Route ZZ : 00-63: Outgoing Trunk Route (2) 0 : Allowed 1◀: Restricted
CM08	Tandem connection by station or attendant.	(1) 028 (2) 0 : Available 1◀: Not available
END		

Closed Numbering Programming

START	DESCRIPTION	DATA
CM8A	Assign LCR Group number to Area Code Development Pattern.	• Y=A000 (1) 0-3: LCR Group No. (2) 4000-4007: Area Code Development Pattern No.
	Assign Area Code Development Pattern number.	• Y=4000-4007 (1) X...XXX: Area Code (Maximum 8 digits) (2) 0000-0255: Route Pattern No.
	Assign Route Pattern.	• Y=0000-0255 (1) 1-4: 1st-4th Order (2) XXX ZZ XXX: 000-255: LCR/TR Pattern No. ZZ : 00-63: Trunk Route No.
CM85	Assign maximum number of sending digits.	• Y=0-7 Area Code Development Pattern No. 0-7 (1) X...XX: Area Code (Maximum 8 digits) (2) 01-79 : Maximum number of sending digits
END		

Event Based CCIS Trunk Data Table

The following table shows the required trunk data to each channel for Event Based CCIS.

Event Based CCIS Trunk Data Table

◀: Initial Data

Channel Type / Setting Data	Virtual Trunk of Event Based CCIS				ISDN Trunk		
	Home-Side Trunk		Mate-Side Trunk		PRI Trunk		BRI Trunk
	Voice Channel	Common Signaling Channel	Voice Channel	Common Signaling Channel	B Channel	D Channel	B Channel
CM30 Y=07	NONE◀: No data	NONE◀: No data	NONE◀: No data	NONE◀: No data	000-029: CIC 000-029	NONE◀: No data	NONE◀: No data
CM30 Y=19	NONE◀: No data	NONE◀: No data	X-XXXX: Trunk No. of opposite office	X-XXXX: Trunk No. of opposite office	NONE◀: No data	NONE◀: No data	NONE◀: No data
CM30 Y=35	001-127: CIC 001-127	NONE◀: No data	NONE◀: No data	NONE◀: No data	NONE◀: No data	NONE◀: No data	NONE◀: No data
CM35 Y=00	04: Tie Line Trunk	04: Tie Line Trunk	04: Tie Line Trunk	04: Tie Line Trunk	00: ISDN Trunk	15◀: Not used	00: ISDN Trunk
CM35 Y=01	2: DP 10 PPS	2: DP 10 PPS	7◀: DP/DTMF	7◀: DP/DTMF	7◀: DP/DTMF	7◀: DP/DTMF	2-7◀: DP 10 PPS-DP/DTMF
CM35 Y=04	2: Answer signal arrives	2: Answer signal arrives	2: Answer signal arrives	2: Answer signal arrives	2: Answer signal arrives	7◀: Answer signal does not arrive	2: Answer signal arrives
CM35 Y=05	1◀: Release signal arrives	1◀: Release signal arrives	1◀: Release signal arrives	1◀: Release signal arrives	1◀: Release signal arrives	1◀: Release signal arrives	1◀: Release signal arrives
CM35 Y=09	06: 2nd DT/ Timing Start	06: 2nd DT/ Timing Start	15◀: Ring Down (Loop Start C.O. line)	15◀: Ring Down (Loop Start C.O. line)	08: ISDN	15◀: Ring Down (Loop Start C.O. line)	08: ISDN
CM35 Y=12	3◀: 4 digits	3◀: 4 digits	3◀: 4 digits	3◀: 4 digits	0-3◀: 1-4 digits	3◀: 4 digits	0-3◀: 1-4 digits

Continued on next page

Event Based CCIS Trunk Data Table

◀: Initial Data

Channel Type / Setting Data	Virtual Trunk of Event Based CCIS				ISDN Trunk		
	Home-Side Trunk		Mate-Side Trunk		PRI Trunk		BRI Trunk
	Voice Channel	Common Signaling Channel	Voice Channel	Common Signaling Channel	B Channel	D Channel	B Channel
CM35 Y=18	1◀: Not provided	1◀: Not provided	1◀: Not provided	1◀: Not provided	0/1◀: To provide/ Not provided	1◀: Not provided	0/1◀: To provide/ Not provided
CM35 Y=19	0-7◀: PAD Pattern 0-7	7◀: PAD Pattern 7	7◀: PAD Pattern 7	7◀: PAD Pattern 7	7◀: PAD Pattern 7	7◀: PAD Pattern 7	7◀: PAD Pattern 7
CM35 Y=40	31◀: Abbreviated Code 31	31◀: Abbreviated Code 31	00-31◀: Abbreviated Code 00-31	00-31◀: Abbreviated Code 00-31	31◀: Abbreviated Code 31	31◀: Abbreviated Code 31	31◀: Abbreviated Code 31
CM35 Y=79	1◀: Point-to-Multipoint	1◀: Point-to-Multipoint	1◀: Point-to-Multipoint	1◀: Point-to-Multipoint	1◀: Point-to-Multipoint	1◀: Point-to-Multipoint	0/1◀: Point-to-Point/ Point-to-Multipoint
CM35 Y=90	0: No. 7 CCIS	0: No. 7 CCIS	7◀: Not used	7◀: Not used	3: ISDN-PRI	3: ISDN-PRI	2: ISDN-BRI
CM35 Y=91	0-7: CCH0-7	0-7: CCH0-7	NONE◀: No data	NONE◀: No data	NONE◀: No data	NONE◀: No data	NONE◀: No data
CM35 Y=93	15/NONE◀: Not used	15/NONE◀: Not used	15/NONE◀: Not used	15/NONE◀: Not used	00-07: DCH0-7	15/NONE◀: Not used	15/NONE◀: Not used
CM35 Y=135	0: Event Based CCIS route	0: Event Based CCIS route	0: Event Based CCIS route	0: Event Based CCIS route	1◀: Other Trunk route	1◀: Other Trunk route	1◀: Other Trunk route
CM35 Y=143	1◀: By dialed-in digits	1◀: By dialed-in digits	0/1◀: By subad-dress/By dialed-in digits	0/1◀: By subad-dress/By dialed-in digits	0/1◀: By subad-dress/By dialed-in digits	1◀: By dialed-in digits	0/1◀: By subad-dress/By dialed-in digits

CHAPTER 4

CIRCUIT CARD INFORMATION

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

HOW TO READ THIS CHAPTER

This chapter explains the following items about 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.

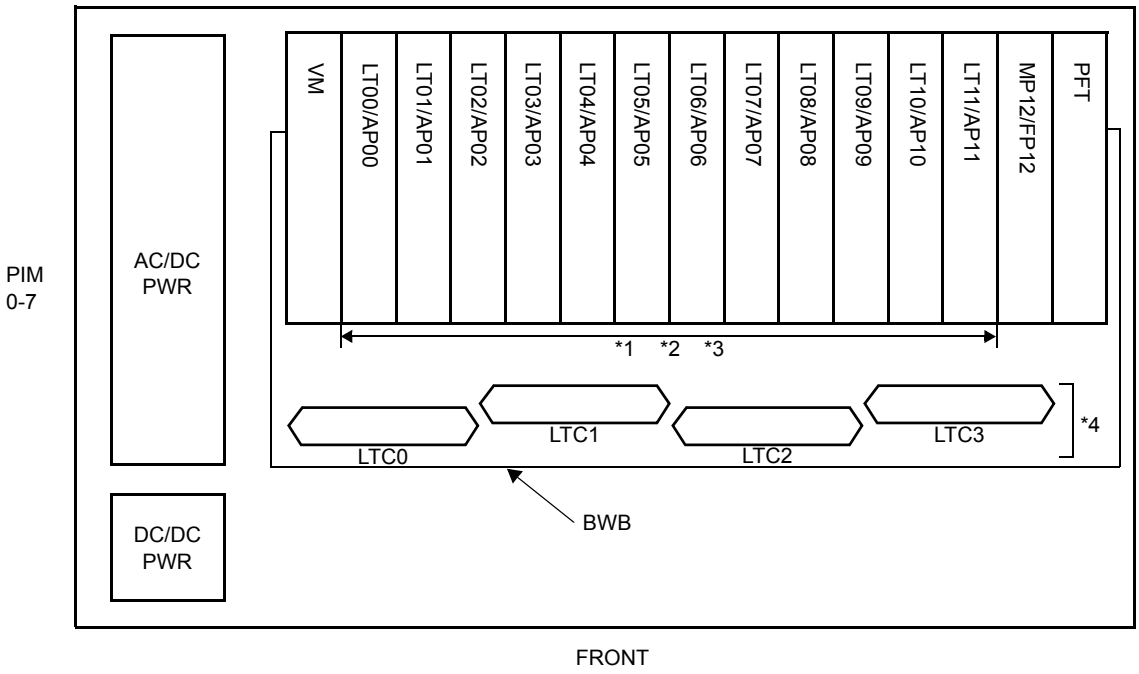
MOUNTING LOCATION OF CIRCUIT CARDS

This section explains the conditions for mounting circuit cards for the ISDN system.

Regular PIM

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

Circuit Card Mounting Slots (Regular PIM)



LT00-LT11 : Line/Trunk card mounting slots
AP00-AP11: Application Processor card mounting slots
MP12 : PN-CP24-A/PN-CP24-B/PN-CP24-C/ PN-CP24-D mounting slot
FP12 : PN-CP15 mounting slot
VM : PZ-VM00/VM00-M/VM10-M/VM03-M mounting slot
PFT : PZ-8PFTB mounting slot
AC/DC PWR: PZ-PW121/PW126 mounting slot
DC/DC PWR: PZ-PW122 mounting slot

***1** The following application processor cards are mounted in the AP00-AP11 slots of PIM0-7. **NOTE**
PN-BRTA/PN-2BRTC/PN-2BRTK/PN-4BRTA-A (BRT),
PN-24DTA-C/PN-30DTC-C (DTI),
PN-24PRTA/PN-30PRTA/PN-DTA/PN-DTB (PRT), PN-SC00/PN-DTA/PN-DTB (CCH),
PN-SC01 (DCH), PN-SC03-B (ICH)

***2** PN-2ILCC (ILC) card is mounted in the AP00-AP07 slots of PIM0-7.

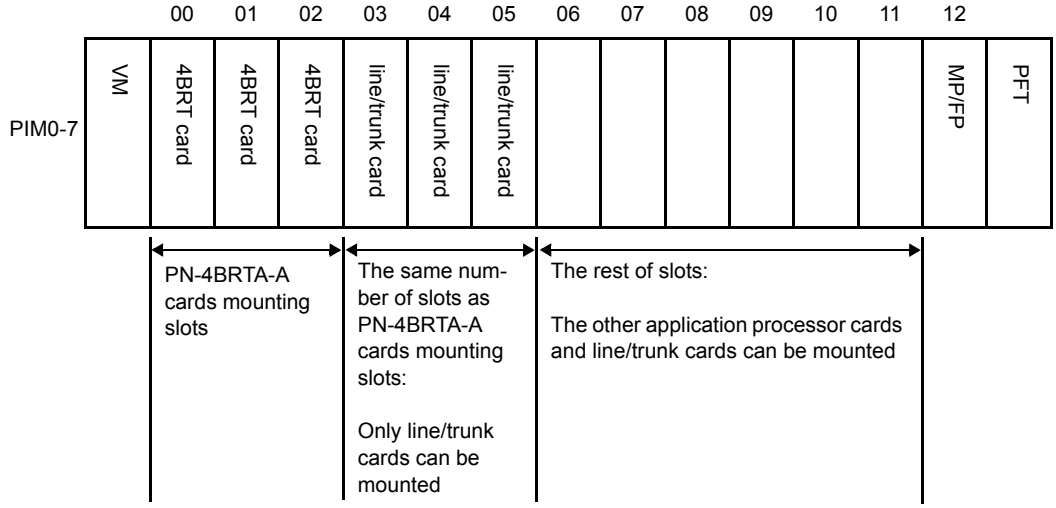
***3** PN-2ILCA (ILC) card is mounted in the LT00-LT07 slots of PIM0-7.

***4** PZ-M542/PZ-M557 (CONN) card is mounted into the LTC0-LTC3 connectors on the PIM which accommodates the 30DTI/30PRT card.

Continued on next page

NOTE: *Maximum of six PN-4BRTA-A cards can be mounted per PIM, maximum of 24 cards per system. For the same number of slots as PN-4BRTA-A cards, only line/trunk cards can be mounted in any slot of LT00-LT11 slots of each PIM.*

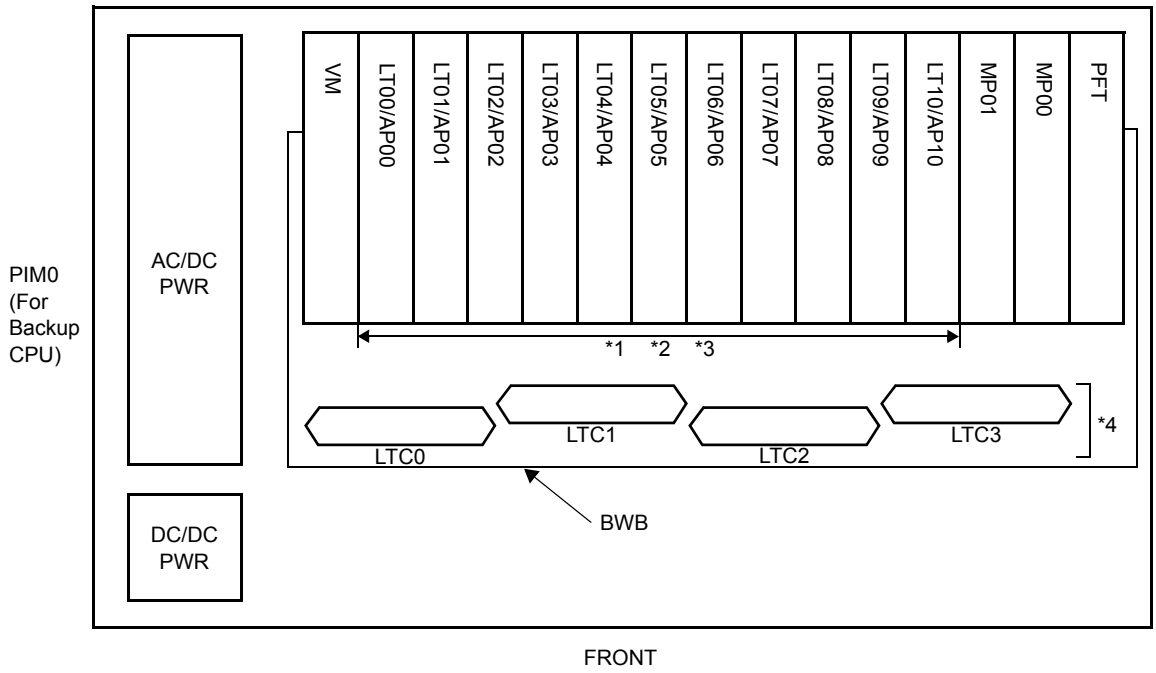
EXAMPLE: When mounting three PN-4BRTA-A cards in PIM0-7



PIM for Backup CPU System

The figure below shows circuit card mounting slots allocated in the PIM0 for the Backup CPU system.

Circuit Card Mounting Slots (Backup CPU)



LT00-LT10 : Line/Trunk card mounting slots
AP00-AP10 : Application Processor card mounting slots
MP00/MP01: PN-CP27-A/PN-CP27-B mounting slot
VM : PZ-VM00/VM00-M/VM10-M/VM03-M mounting slot
PFT : PZ-8PFTB mounting slot
AC/DC PWR: PZ-PW121/PW126 mounting slot
DC/DC PWR: PZ-PW122 mounting slot

***1** The following application processor cards are mounted in the AP00-AP10 slots of PIM0. **NOTE**
PN-BRTA/PN-2BRTC/PN-2BRTK/PN-4BRTA-A (BRT),
PN-24DTA-C/PN-30DTC-C (DTI),
PN-24PRTA/PN-30PRTA/PN-DTA/PN-DTB (PRT), PN-SC00/PN-DTA/PN-DTB (CCH),
PN-SC01 (DCH), PN-SC03-B (ICH)

***2** PN-2ILCC (ILC) card is mounted in the AP00-AP07 slots of PIM0.

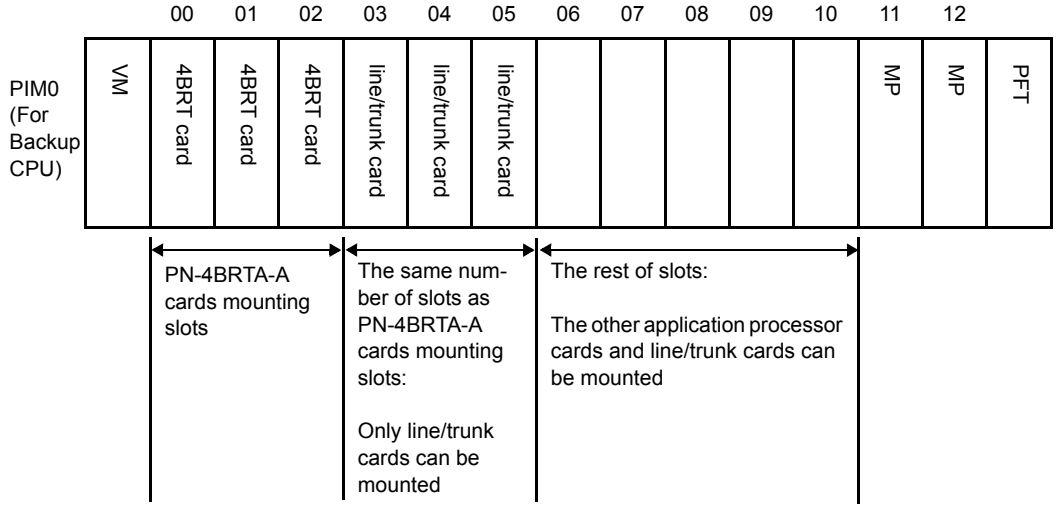
***3** PN-2ILCA (ILC) card is mounted in the LT00-LT07 slots of PIM0.

***4** PZ-M542/PZ-M557 (CONN) card is mounted into the LTC0-LTC3 connectors on the PIM0 which accommodates the 30DTI/30PRT card.

Continued on next page

NOTE: *Maximum of six PN-4BRTA-A cards can be mounted per PIM, maximum of 24 cards per system. For the same number of slots as PN-4BRTA-A cards, only line/trunk cards can be mounted in any slot of LT00-LT10 slots of PIM0.*

EXAMPLE: When mounting three PN-4BRTA-A cards in PIM0



LIST OF REQUIRED CIRCUIT CARDS

The table below shows the required circuit cards to be explained in this section.

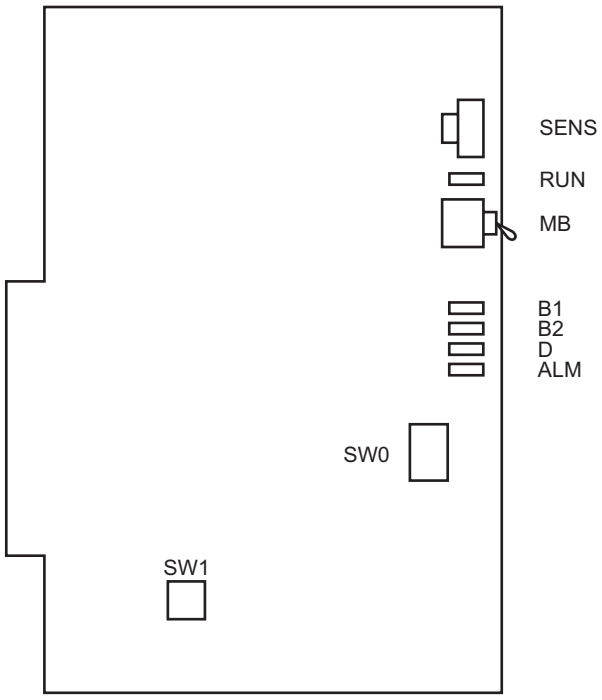
List of Required Circuit Cards

NAME (FUNCTIONAL NAME)	LAMP ×: PROVIDED –: NOT PROVIDED	SWITCH ×: PROVIDED –: NOT PROVIDED	EXTRACTION/ INSERTION WITH POWER ON ×: ALLOWED Δ: ALLOWED AFTER MB* –: NOT ALLOWED	REFERENCE PAGE
PN-BRTA (BRT)	×	×	Δ	*Page 218*
PN-2BRTC (BRT)	×	×	Δ	*Page 223*
PN-2BRTK (BRT)	×	×	Δ	*Page 228*
PN-4BRTA-A (BRT)	×	×	Δ	*Page 233*
PN-24DTA-C (DTI)	×	×	Δ	*Page 241*
PN-30DTC-C (DTI)	×	×	Δ	*Page 248*
PN-24PRTA (PRT)	×	×	Δ	*Page 254*
PN-30PRTA (PRT)	×	×	Δ	*Page 262*
PN-DTA (PRT)	×	×	Δ	*Page 269*
PN-DTB (PRT)	×	×	Δ	*Page 276*
PN-SC00 (CCH)	×	×	Δ	*Page 283*
PN-DTA (CCH)	×	×	Δ	*Page 286*
PN-DTB (CCH)	×	×	Δ	*Page 292*
PN-SC01 (DCH)	×	×	Δ	*Page 298*
PN-SC03-B (ICH)	×	×	Δ	*Page 301*
PZ-M542 (CONN)	–	×	×	*Page 303*
PZ-M557 (CONN)	–	×	×	*Page 305*
PN-2ILCA (ILC)	×	×	×	*Page 307*
PN-2ILCC (ILC)	×	×	×	*Page 310*

*MB=Make Busy

PN-BRTA (BRT)

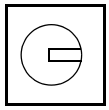
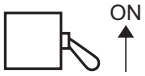
Locations of Lamps, Switches, and Connectors

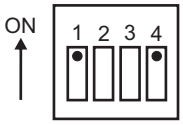


Lamp Indications

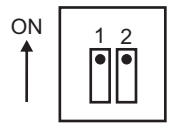
LAMP NAME	COLOR	FUNCTION
RUN	Green	Flashes at 120 IPM while this card is operating normally.
B1	Green	B1 channel status ON: Busy OFF: Idle Flash (60 IPM): Make Busy
B2	Green	B2 channel status ON: Busy OFF: Idle Flash (60 IPM): Make Busy
D	Green	D channel status ON: Link is connected OFF: Link is not connected
ALM	Red	Transmission line fault status ON: Line fault OFF: Normal operation

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 (04-15) to be set by CM05.
<table><tr><td>AP No.</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 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>
<tr><td rowspan="8">SW0 (Dip SW)
 
</td><td rowspan="2">1</td><td>ON</td><td>For normal operation</td><td></td></tr>
<tr><td>OFF</td><td>Not used</td><td></td></tr>
<tr><td rowspan="2">2
NOTE 3</td><td>ON</td><td>Source clock signal from network is sent to the PLO of MP card according to the switch setting of SW0-3.</td><td></td></tr>
<tr><td>OFF</td><td>Source clock signal from network is not sent to the PLO of MP card.</td><td></td></tr>
<tr><td rowspan="2">3
NOTE 3</td><td>ON</td><td>Clock signal is sent to the PLO0 of MP card.</td><td></td></tr>
<tr><td>OFF</td><td>Clock signal is sent to the PLO1 of MP card.</td><td></td></tr>
<tr><td rowspan="2">4</td><td>ON</td><td>For normal operation</td><td></td></tr>
<tr><td>OFF</td><td>Not used</td><td></td></tr>
</table>

Continued on next page

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
SW1 (Dip SW)  	1	ON	For terminating the transmitting side of channels B1 and B2 with 100 Ω.	
		OFF	To remove the terminating resistor on the transmitting side of channels B1 and B2.	
	2	ON	For terminating the receiving side of channels B1 and B2 with 100 Ω.	
		OFF	To remove the terminating resistor on the receiving side of channels B1 and B2.	

The figure in the SWITCH NAME column and the position of ( ) 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.*

Continued on next page

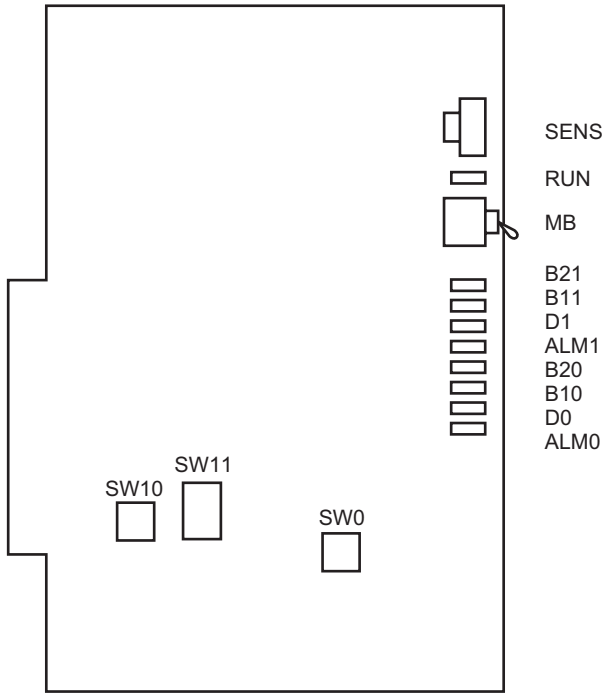
NOTE 3: *Set the SW0-2 and SW0-3 as follows:*

CONDITIONS	BRT0		BRT1		BRT2		----	BRT11		REMARKS
	SW 0-2	SW 0-3	SW 0-2	SW 0-3	SW 0-2	SW 0-3	----	SW 0-2	SW 0-3	
When one BRT is provided.	ON	ON								MP card will receive the clock signal from BRT0 at its PLO0 input.
When more than one BRT is provided.	ON	ON	ON	OFF	OFF	ON	----	OFF	ON	MP card will receive the clock signal from BRT0 at its PLO0 input, under normal conditions. Should a clock failure occur with BRT0, MP card will switch to the PLO1 input which gets clock from BRT1.

NOTE 4: *Mount the BRT card which receives a source clock signals into PIM0.*

PN-2BRTC (BRT)

Locations of Lamps, Switches, and Connectors

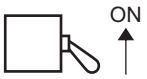


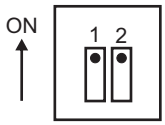
Lamp Indications

LAMP NAME	COLOR	FUNCTION	
RUN	Green	Flashes at 120 IPM while this card is operating normally.	
B21	Red	No.1 Circuit	B2 channel status ON: Busy OFF: Idle Flash (60 IPM): Make Busy
B11	Red		B1 channel status ON: Busy OFF: Idle Flash (60 IPM): Make Busy
D1	Green		D channel status ON: Link is connected OFF: Link is not connected
ALM1	Red		Transmission line fault status ON: Line fault OFF: Normal operation
B20	Red	No.0 Circuit	B2 channel status ON: Busy OFF: Idle Flash (60 IPM): Make Busy
B10	Red		B1 channel status ON: Busy OFF: Idle Flash (60 IPM): Make Busy
D0	Green		D channel status ON: Link is connected OFF: Link is not connected
ALM0	Red		Transmission line fault status ON: Line fault OFF: Normal operation

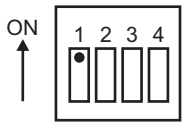
Switch Settings

<table>
<tr><th>SWITCH NAME</th><th>SWITCH NUMBER</th><th colspan="2">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>SW11-4: 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>SW11-4: 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></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, SW10
(Dip SW)
 
</td><td rowspan="2">1</td><td>ON</td><td>For terminating the transmitting side of channels B1 and B2 with 100 Ω.</td><td></td></tr>
<tr><td>OFF</td><td>To remove the terminating resistor on the transmitting side of channels B1 and B2.</td><td></td></tr>
<tr><td rowspan="2">2</td><td>ON</td><td>For terminating the receiving side of channels B1 and B2 with 100 Ω.</td><td></td></tr>
<tr><td>OFF</td><td>To remove the terminating resistor on the receiving side of channels B1 and B2.</td><td></td></tr>
</table>

Continued on next page

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
SW11 (Dip SW)  	1	ON	For normal operation	
		OFF	Not used	
	2 **NOTE 3**	ON	Source clock signal from network is sent to the PLO of MP card according to the switch setting of SW11-3.	
		OFF	Source clock signal from network is not sent to the PLO of MP card.	
	3 **NOTE 3**	ON	Output clock signals to the PLO0 of MP card.	
		OFF	Output clock signals to the PLO1 of MP card.	
	4	ON	AP No. 04-15	
		OFF	AP No. 20-31	

The figure in the SWITCH NAME column and the position of ( ) 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.*

Continued on next page

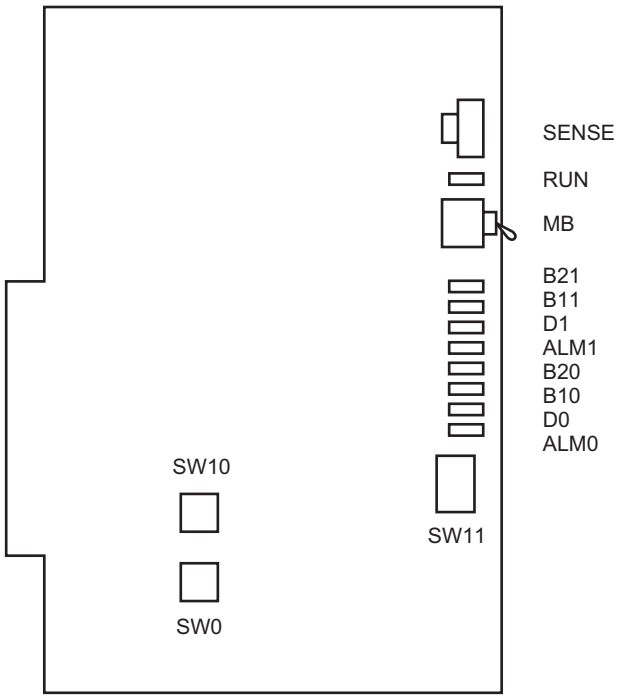
NOTE 3: *The system can receive clock signals from two clock supply routes.*
In normal condition, the system synchronizes to the clock signals supplied on the PLO0 of MP card via the Back Wiring Board, and if the clock signals are failed, the clock supply route takes over to PLO1 automatically. Set SW11-2 and SW11-3 as follows.

CONDITIONS	BRT0		BRT1		BRT2		----	BRT23		REMARKS
	SW 11-2	SW 11-3	SW 11-2	SW 11-3	SW 11-2	SW 11-3	----	SW 11-2	SW 11-3	
When one BRT is provided.	ON	ON								MP card will receive the clock signal from No.0 circuit of BRT0 at its PLO0 input. Should a clock failure occur with No.0 circuit, MP card will switch to No. 1 circuit of BRT0.
When more than one BRT is provided.	ON	ON	ON	OFF	OFF	ON	----	OFF	ON	MP card will receive the clock signal from BRT0 at its PLO0 input, under normal conditions. Should a clock failure occur with both No.0 and No.1 circuits of BRT0, MP card will switch to the PLO1 input which gets clock from BRT1.

NOTE 4: *Mount the BRT card which receives a source clock signals into PIM0.*

PN-2BRTK (BRT)

Locations of Lamps, Switches, and Connectors

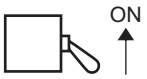


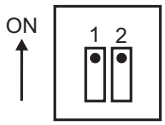
Lamp Indications

LAMP NAME	COLOR	FUNCTION	
RUN	Green	Flashes at 120 IPM while this card is operating normally.	
B21	Red	No.1 Circuit	B2 channel status ON: Busy OFF: Idle Flash (60 IPM): Make Busy
B11	Red		B1 channel status ON: Busy OFF: Idle Flash (60 IPM): Make Busy
D1	Green		D channel status ON: Link is connected OFF: Link is not connected
ALM1	Red		Transmission line fault status ON: Line fault OFF: Normal operation
B20	Red	No.0 Circuit	B2 channel status ON: Busy OFF: Idle Flash (60 IPM): Make Busy
B10	Red		B1 channel status ON: Busy OFF: Idle Flash (60 IPM): Make Busy
D0	Green		D channel status ON: Link is connected OFF: Link is not connected
ALM0	Red		Transmission line fault status ON: Line fault OFF: Normal operation

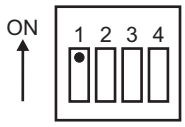
Switch Settings

<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="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>SW11-4: 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>SW11-4: 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 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">SW0, SW10
(Dip SW)
 
</td><td rowspan="2">1</td><td>ON</td><td>For terminating the transmitting side of channels B1 and B2 with 100 Ω.</td><td></td></tr>
<tr><td>OFF</td><td>To remove the terminating resistor on the transmitting side of channels B1 and B2.</td><td></td></tr>
<tr><td rowspan="2">2</td><td>ON</td><td>For terminating the receiving side of channels B1 and B2 with 100 Ω.</td><td></td></tr>
<tr><td>OFF</td><td>To remove the terminating resistor on the receiving side of channels B1 and B2.</td><td></td></tr>
</table>

Continued on next page

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
SW11 (Dip SW)  	1	ON	For normal operation	
		OFF	Not used	
	2 **NOTE 3**	ON	Source clock signal from network is sent to the PLO of MP card according to the switch setting of SW11-3.	
		OFF	Source clock signal from network is not sent to the PLO of MP card.	
	3 **NOTE 3**	ON	Output clock signals to the PLO0 of MP card.	
		OFF	Output clock signals to the PLO1 of MP card.	
	4	ON	AP No. 04-15	
		OFF	AP No. 20-31	

The figure in the SWITCH NAME column and the position of ( ) 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.*

Continued on next page

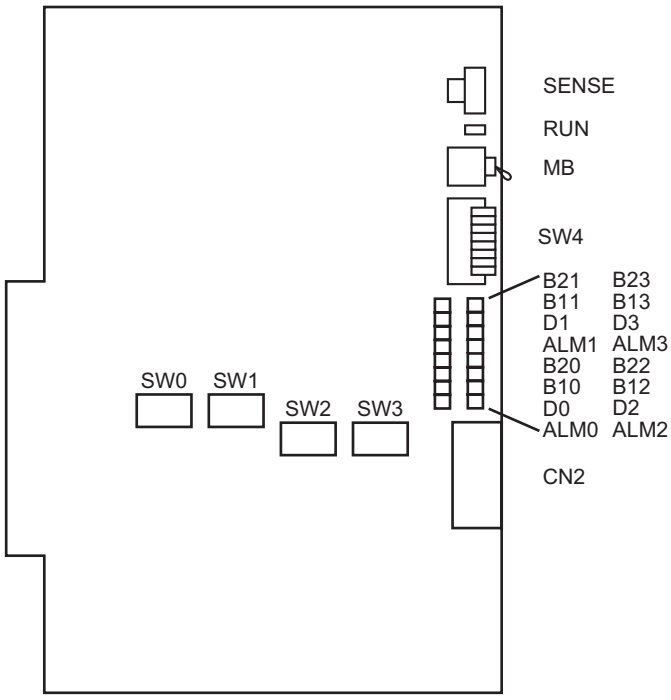
NOTE 3: *The system can receive clock signals from two clock supply routes.*
In normal condition, the system synchronizes to the clock signals supplied on the PLO0 of MP card via the Back Wiring Board, and if the clock signals are failed, the clock supply route takes over to PLO1 automatically. Set SW11-2 and SW11-3 as follows.

CONDITIONS	BRT0		BRT1		BRT2		----	BRT23		REMARKS
	SW 11-2	SW 11-3	SW 11-2	SW 11-3	SW 11-2	SW 11-3	----	SW 11-2	SW 11-3	
When one BRT is provided.	ON	ON								MP card will receive the clock signal from No.0 circuit of BRT0 at its PLO0 input. Should a clock failure occur with No.0 circuit, MP card will switch to No. 1 circuit of BRT0.
When more than one BRT is provided.	ON	ON	ON	OFF	OFF	ON	----	OFF	ON	MP card will receive the clock signal from BRT0 at its PLO0 input, under normal conditions. Should a clock failure occur with both No.0 and No.1 circuits of BRT0, MP card will switch to the PLO1 input which gets clock from BRT1.

NOTE 4: *Mount the BRT card which receives a source clock signals into PIM0.*

PN-4BRTA-A (BRT)

Locations of Lamps, Switches, and Connectors



Lamp Indications

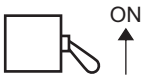
LAMP NAME	COLOR	FUNCTION	
RUN	Green	Flashes at 120 IPM while this card is operating normally.	
B23	Red	No.3 Circuit	B2 channel status ON: Busy OFF: Idle Flash (60 IPM): Make Busy
B13	Red		B1 channel status ON: Busy OFF: Idle Flash (60 IPM): Make Busy
D3	Green		D channel status ON: Link is connected OFF: Link is not connected
ALM3	Red		Transmission line fault status ON: Line fault OFF: Normal operation
B22	Red	No.2 Circuit	B2 channel status ON: Busy OFF: Idle Flash (60 IPM): Make Busy
B12	Red		B1 channel status ON: Busy OFF: Idle Flash (60 IPM): Make Busy
D2	Green		D channel status ON: Link is connected OFF: Link is not connected
ALM2	Red		Transmission line fault status ON: Line fault OFF: Normal operation

Continued on next page

LAMP NAME	COLOR	FUNCTION	
B21	Red	No.1 Circuit	B2 channel status ON: Busy OFF: Idle Flash (60 IPM): Make Busy
B11	Red		B1 channel status ON: Busy OFF: Idle Flash (60 IPM): Make Busy
D1	Green		D channel status ON: Link is connected OFF: Link is not connected
ALM1	Red		Transmission line fault status ON: Line fault OFF: Normal operation
B20	Red	No.0 Circuit	B2 channel status ON: Busy OFF: Idle Flash (60 IPM): Make Busy
B10	Red		B1 channel status ON: Busy OFF: Idle Flash (60 IPM): Make Busy
D0	Green		D channel status ON: Link is connected OFF: Link is not connected
ALM0	Red		Transmission line fault status ON: Line fault OFF: Normal operation

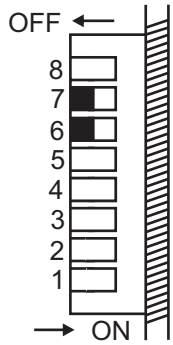
Switch Settings

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

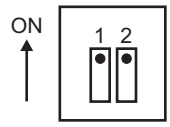
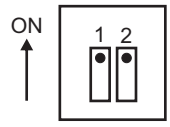
NOTE 1</td><td>4-F</td><td colspan="2">Set the switch to match the AP Number (04-31) to be set by CM05.
<table><tr><td rowspan="2">AP No.</td><td>SW4-8: ON</td><td>04</td><td>05</td><td>06</td><td>07</td><td>08</td><td>09</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td></tr><tr><td>SW4-8: 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>MB (Toggle SW)
 

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

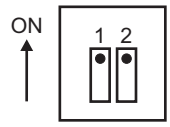
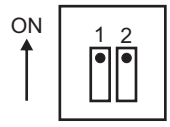
Continued on next page

<table>
<tr><th>SWITCH NAME</th><th>SWITCH NUMBER</th><th>SETTING POSITION</th><th>FUNCTION</th><th>CHECK</th></tr>
<tr><td>SW4 (Piano SW)
 
</td><td colspan="3">Output clock signals to PLO0/PLO1 of MP card. NOTE 3
<table>
<tr><th colspan="4">SW No.</th><th colspan="4">Circuit No.</th></tr>
<tr><th>1</th><th>2</th><th>3</th><th>4</th><th>No.0</th><th>No.1</th><th>No.2</th><th>No.3</th></tr>
<tr><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>–</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>PLO0</td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td><td>–</td><td>PLO0</td><td>–</td><td>–</td></tr>
<tr><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>PLO0</td><td>PLO1</td><td>–</td><td>–</td></tr>
<tr><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>–</td><td>–</td><td>PLO0</td><td>–</td></tr>
<tr><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td><td>–</td><td>–</td><td>–</td><td>PLO0</td></tr>
<tr><td>OFF</td><td>OFF</td><td>ON</td><td>ON</td><td>–</td><td>–</td><td>PLO0</td><td>PLO1</td></tr>
<tr><td>ON</td><td>OFF</td><td>ON</td><td>OFF</td><td>PLO0</td><td>–</td><td>PLO1</td><td>–</td></tr>
<tr><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td><td>PLO0</td><td>–</td><td>–</td><td>PLO1</td></tr>
<tr><td>OFF</td><td>ON</td><td>OFF</td><td>ON</td><td>–</td><td>PLO0</td><td>–</td><td>PLO1</td></tr>
<tr><td>OFF</td><td>ON</td><td>ON</td><td>OFF</td><td>–</td><td>PLO0</td><td>PLO1</td><td>–</td></tr>
<tr><td>ON</td><td>ON</td><td>ON</td><td>OFF</td><td colspan="4" rowspan="5">Not allowed</td></tr>
<tr><td>ON</td><td>ON</td><td>OFF</td><td>ON</td></tr>
<tr><td>ON</td><td>OFF</td><td>ON</td><td>ON</td></tr>
<tr><td>OFF</td><td>ON</td><td>ON</td><td>ON</td></tr>
<tr><td>ON</td><td>ON</td><td>ON</td><td>ON</td></tr>
</table></td><td></td></tr>
<tr><td rowspan="2">5
NOTE 3</td><td>ON</td><td>Output clock signals according to the switch setting of SW4-1 to SW4-4.</td><td></td></tr>
<tr><td>OFF</td><td>Output clock signals to the reverse PLO route of the switch setting of SW4-1 to SW4-4.</td><td></td></tr>
<tr><td>6</td><td>OFF</td><td>Not used (Always set to OFF)</td><td></td></tr>
<tr><td>7</td><td>OFF</td><td>Not used</td><td></td></tr>
<tr><td rowspan="2">8</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>

Continued on next page

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
SW0 (Dip SW) 	1	ON	For terminating the transmitting side of channels B1 and B2 with 100 Ω. (No.0 Circuit)	
		OFF	To remove the terminating resistor on the transmitting side of channels B1 and B2. (No.0 Circuit)	
	2	ON	For terminating the receiving side of channels B1 and B2 with 100 Ω. (No.0 Circuit)	
		OFF	To remove the terminating resistor on the receiving side of channels B1 and B2. (No.0 Circuit)	
SW1 (Dip SW) 	1	ON	For terminating the transmitting side of channels B1 and B2 with 100 Ω. (No.1 Circuit)	
		OFF	To remove the terminating resistor on the transmitting side of channels B1 and B2. (No.1 Circuit)	
	2	ON	For terminating the receiving side of channels B1 and B2 with 100 Ω. (No.1 Circuit)	
		OFF	To remove the terminating resistor on the receiving side of channels B1 and B2. (No.1 Circuit)	

Continued on next page

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
SW2 (Dip SW) 	1	(ON)	For terminating the transmitting side of channels B1 and B2 with 100 Ω. (No.2 Circuit)	
		OFF	To remove the terminating resistor on the transmitting side of channels B1 and B2. (No.2 Circuit)	
	2	(ON)	For terminating the receiving side of channels B1 and B2 with 100 Ω. (No.2 Circuit)	
		OFF	To remove the terminating resistor on the receiving side of channels B1 and B2. (No.2 Circuit)	
SW3 (Dip SW) 	1	(ON)	For terminating the transmitting side of channels B1 and B2 with 100 Ω. (No.3 Circuit)	
		OFF	To remove the terminating resistor on the transmitting side of channels B1 and B2. (No.3 Circuit)	
	2	(ON)	For terminating the receiving side of channels B1 and B2 with 100 Ω. (No.3 Circuit)	
		OFF	To remove the terminating resistor on the receiving side of channels B1 and B2. (No.3 Circuit)	

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

Continued on next page

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.*

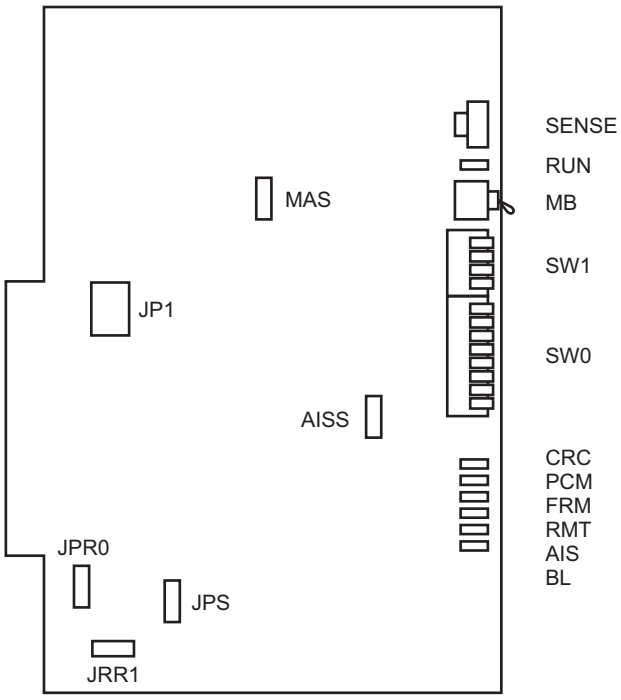
NOTE 3: *The system can receive clock signals from two clock supply routes.*
In normal condition, the system synchronizes to the clock signals supplied on the PLO0 of MP card via the Back Wiring Board, and if the clock signals are failed, the clock supply route takes over to PLO1 automatically. Set SW4-1 to SW4-5 as follows.

CONDITIONS	SWITCH	BRT0	BRT1	BRT2	----	BRT23
When one BRT is provided.	SW4-1	ON				
	SW4-2	OFF				
	SW4-3	OFF				
	SW4-4	OFF				
	SW4-5	ON				
When more than one BRT is provided.	SW4-1	ON	ON	OFF	----	OFF
	SW4-2	OFF	OFF	OFF		OFF
	SW4-3	OFF	OFF	OFF		OFF
	SW4-4	OFF	OFF	OFF		OFF
	SW4-5	ON	OFF	OFF		OFF

NOTE 4: *Mount the BRT card which receives a source clock signals into PIM0.*

PN-24DTA-C (DTI)

Locations of Lamps, Switches, and Connectors

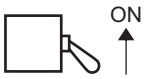


Lamp Indications

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 loopback 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

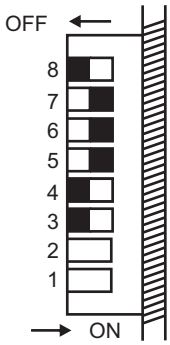
Switch Settings

<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)
 

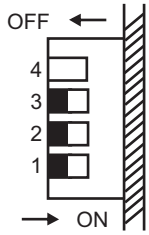
NOTE 1</td><td>0-3</td><td colspan="2">Not used</td><td></td></tr>
<tr><td>4-F</td><td colspan="2">Set the switch to match the AP Number (04-31) to be set by CM05.
<table><tr><td rowspan="2">AP No.</td><td>SW1-4: ON</td><td>04</td><td>05</td><td>06</td><td>07</td><td>08</td><td>09</td><td>10</td><td>11</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>

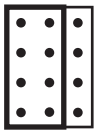
Continued on next page

<table>
<tr><th>SWITCH NAME</th><th>SWITCH NUMBER</th><th>SETTING POSITION</th><th>FUNCTION</th><th>CHECK</th></tr>
<tr><td rowspan="16">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 PLO0 input on MP card.</td><td></td></tr>
<tr><td>OFF</td><td>Source clock signal from network is not sent to the PLO0 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 PLO1 input on MP card.</td><td></td></tr>
<tr><td>OFF</td><td>Source clock signal from network is not sent to the PLO1 input on MP card.</td><td></td></tr>
<tr><td rowspan="2">3
NOTE 6</td><td>ON</td><td>Remote loopback</td><td></td></tr>
<tr><td>OFF</td><td>For normal operation</td><td></td></tr>
<tr><td rowspan="2">4
NOTE 6</td><td>ON</td><td>Local loopback (AIS send)</td><td></td></tr>
<tr><td>OFF</td><td>For normal operation</td><td></td></tr>
<tr><td rowspan="2">5
NOTE 6</td><td>ON</td><td rowspan="6">Set equalizer according to the cable length between the PBX and the C.O. or CSU.
• For DS-1 (SW1-3 ON)<table><tr><th>SW0-5</th><th>SW0-6</th><th>SW0-7</th><th>CABLE LENGTH TO CSU (0.5 ϕ)</th></tr><tr><td>ON</td><td>ON</td><td>ON</td><td>1199-1758 m (3930-5764 ft.)</td></tr><tr><td>OFF</td><td>ON</td><td>ON</td><td>599-1199 m (1965-3930 ft.)</td></tr><tr><td>ON</td><td>OFF</td><td>ON</td><td>0-599 m (0-1965 ft.)</td></tr><tr><td>OFF</td><td>OFF</td><td>ON</td><td>Not used</td></tr><tr><td>OFF</td><td>OFF</td><td>OFF</td><td>Signal is not sent</td></tr></table>• For DSX-1/Hong Kong/Taiwan (SW1-3 OFF)<table><tr><th>SW0-5</th><th>SW0-6</th><th>SW0-7</th><th>CABLE LENGTH TO CSU (0.65 ϕ)</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
NOTE 6</td><td>ON</td><td></td></tr>
<tr><td>OFF</td><td></td></tr>
<tr><td rowspan="2">7
NOTE 6</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 on next page

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
SW1 (Piano Key SW)  **NOTE 4**	1	OFF	Not used	
	2	OFF	Not used	
	3	**[North America only]**		
		ON	DS-1 (T1 with CSU function)	
		OFF	DSX-1 (T1 without CSU function)	
		[Hong Kong/Taiwan]		
		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 Ω	
		LEFT	Line impedance: 110 Ω	
JPS (Jumper pin) 		UP	Neutral grounding on the transmitting line is provided.	
		DOWN	Neutral grounding on the transmitting line is not provided.	

Continued on next page

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
MAS (Jumper pin) 		(DOWN)	Always set to DOWN	
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.	
JP1 (Jumper pin) 		(LEFT)	Always set to LEFT	

The figure in the SWITCH NAME column and the position of ( ) 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.

Continued on next page

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		· · · · ·		DTI7		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	
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 clock from DTI1.

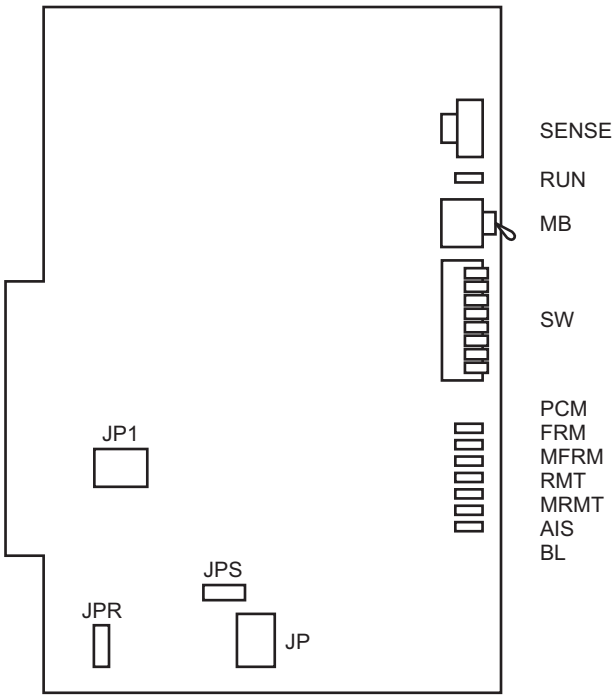
NOTE 4: *When the PBX is a clock source office, set the SW0-1 and SW0-2 on all the DTI cards mounted in PIM0 to "OFF".*

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

NOTE 6: *This card must be reset after the SW0-3 to SW0-7 switch settings. Set the MB switch to UP and then DOWN.*

PN-30DTC-C (DTI)

Locations of Lamps, Switches, and Connectors

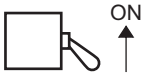


Lamp Indications

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 loopback 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 to 10 channels are busy

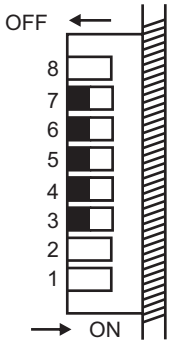
Switch Settings

<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)
 

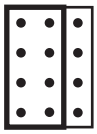
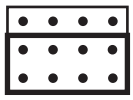
NOTE 1</td><td>4-F</td><td colspan="3">Set the switch to match the AP Number (04-31) to be set by CM05.
<table><tr><td rowspan="2">AP No.</td><td>SW-8: ON</td><td>04</td><td>05</td><td>06</td><td>07</td><td>08</td><td>09</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td></tr><tr><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>MB (Toggle SW)
 

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

Continued on next page

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 PLO0 input on MP card.	
		OFF	Source clock signal from network is not sent to the PLO0 input on MP card.	
	2 **NOTE 3** **NOTE 4**	ON	Source clock signal from network is sent to the PLO1 input on MP card.	
		OFF	Source clock signal from network is not sent to the PLO1 input on MP card.	
	3	ON	Remote loopback	
		OFF	For normal operation	
	4	ON	Local loopback (AIS send)	
		OFF	For normal operation	
	5	ON	Transmission line cable: Coaxial cable (75 Ω)	
		OFF	Transmission line cable: Twisted-pair cable (120 Ω)	
	6	OFF	Not used (Always set to OFF)	
	7	OFF		
	8	ON	AP No. 04-15	
		OFF	AP No. 20-31	

Continued on next page

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
JPS (Jumper pin) 		(RIGHT)	Balanced transmission (For twisted-pair cable)	
		LEFT	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 Ω (For coaxial cable)	
		(LEFT)	Line impedance: 120 Ω (For twisted-pair cable)	
JP1 (Jumper pin) 		(DOWN)	Always set to DOWN	

The figure in the SWITCH NAME column and the position of ( ) 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.*

Continued on next page

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

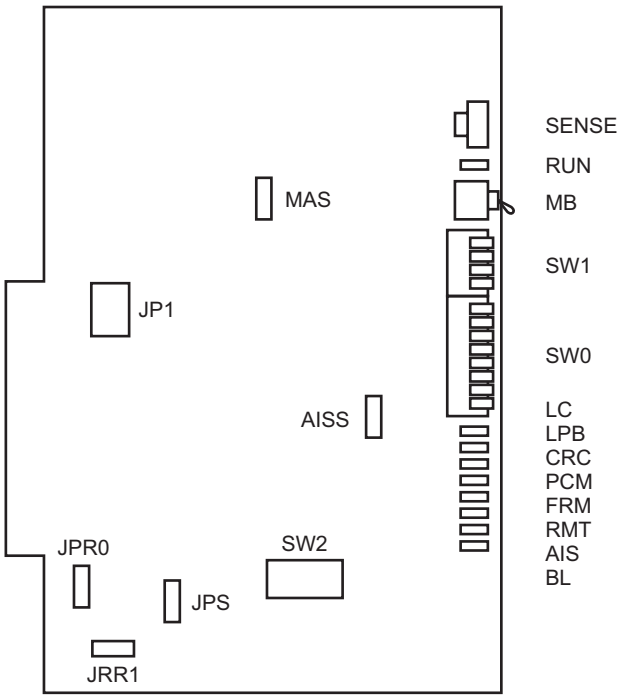
CONDITIONS	DTI0		DTI1		DTI2		· · · · ·		DTI7		REMARKS
	SW -1	SW -2	SW -1	SW -2	SW -1	SW -2			SW -1	SW -2	
When one DTI is provided.	ON	OFF	–	–	–	–			–	–	MP card will receive the clock signal from DTI0 at its PLO0 input.
When more than one DTI is provided.	ON	OFF	OFF	ON	OFF	OFF			OFF	OFF	MP card will 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 source clock signal into PIM0.*

PN-24PRTA (PRT)

Locations of Lamps, Switches, and Connectors



Lamp Indications

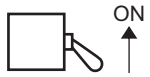
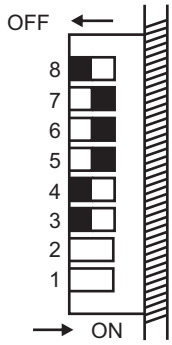
LAMP NAME	COLOR	FUNCTION
RUN	Green	Flashes at 120 IPM while this card is operating normally.
LC	Green	Remains lit when communications are normally ongoing with the D channel data links connected.
LPB	–	Not used
CRC	Red	Remains lit when detecting Cyclic Redundancy Checking (CRC) errors.
PCM	Red	Remains 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 loopback 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

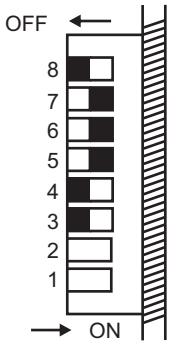
SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
SENSE (Rotary SW)  **NOTE 1**	0-3	Not used		
	4-F	Set the switch to match the AP Number (04-31) to be set by CM05. **NOTE 3**		

AP No.	SW1-4: ON	04	05	06	07	08	09	10	11	12	13	14	15
	SW1-4: OFF	20	21	22	23	24	25	26	27	28	29	30	31
SW No.		4	5	6	7	8	9	A	B	C	D	E	F

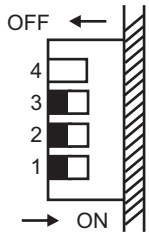
Continued on next page

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
MB (Toggle SW)  **NOTE 2**		UP	For make-busy	
		(DOWN)	For normal operation	
SW0 (Piano Key SW)  	1 **NOTE 4**	ON	Source clock signal from network is sent to the PLO0 input on MP card.	
		OFF	Source clock signal from network is not sent to the PLO0 input on MP card.	
	2 **NOTE 4**	ON	Source clock signal from network is sent to the PLO1 input on MP card.	
		OFF	Source clock signal from network is not sent to the PLO1 input on MP card.	
	3 **NOTE 6**	ON	Remote loopback	
		(OFF)	For normal operation	
	4 **NOTE 6**	ON	Local loopback (AIS send)	
		(OFF)	For normal operation	

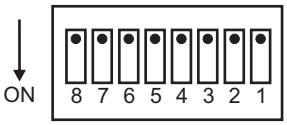
Continued on next page

<table>
<tr><th>SWITCH NAME</th><th>SWITCH NUMBER</th><th>SETTING POSITION</th><th>FUNCTION</th><th>CHECK</th></tr>
<tr><td rowspan="8">SW0
(Piano Key SW)
 
</td><td rowspan="2">5
NOTE 6</td><td>ON</td><td rowspan="8">Set equalizer according to the cable length between the PBX and the C.O. or CSU.
• For DS-1 (SW1-3 ON)<table><tr><th>SW0-5</th><th>SW0-6</th><th>SW0-7</th><th>CABLE LENGTH TO CSU (0.5 ϕ)</th></tr><tr><td>ON</td><td>ON</td><td>ON</td><td>1199-1758 m (3930-5764 ft.)</td></tr><tr><td>OFF</td><td>ON</td><td>ON</td><td>599-1199 m (1965-3930 ft.)</td></tr><tr><td>ON</td><td>OFF</td><td>ON</td><td>0-599 m (0-1965 ft.)</td></tr><tr><td>OFF</td><td>OFF</td><td>ON</td><td>Not used</td></tr><tr><td>OFF</td><td>OFF</td><td>OFF</td><td>Signal is not sent</td></tr></table>• For DSX-1/Hong Kong/Taiwan (SW1-3 OFF)<table><tr><th>SW0-5</th><th>SW0-6</th><th>SW0-7</th><th>CABLE LENGTH TO CSU (0.65 ϕ)</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
NOTE 6</td><td>ON</td><td></td></tr>
<tr><td>OFF</td><td></td></tr>
<tr><td rowspan="2">7
NOTE 6</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>

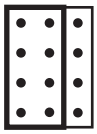
Continued on next page

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
SW1 (Piano Key SW)  	1	ON	DTI mode	
		OFF	PRT mode	
	2	OFF	Not used	
	3	**[North America only]**		
		ON	DS-1 (T1 with CSU function)	
		OFF	DSX-1 (T1 without CSU function)	
		[Hong Kong/Taiwan]		
		OFF	Not used	
	4	ON	AP No. 04-15	
		OFF	AP No. 20-31	

Continued on next page

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
SW2 (Dip SW)  	1	OFF	Always set to OFF	
	2	**[North America only for AT&T]**		
		ON	Deletion of Area Code on International Outgoing call	
		OFF	No deletion of Area Code on International Outgoing call	
		[Hong Kong/Taiwan]		
		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	

Continued on next page

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
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 Ω	
		LEFT	Line impedance: 110 Ω	
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) 		(DOWN)	Always set to DOWN	
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.	
JP1 (Jumper pin) 		(LEFT)	Always set to LEFT	

The figure in the SWITCH NAME column and the position of ( ) 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.*

Continued on next page

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

NOTE 3: *When accommodating the PRT card in Remote Site with AP numbers 64-93 (for the expanded PRT card), be sure to set the switch number of all the PRT cards accommodated with the SENSE switch/SW1-4 to 31, and to assign any one number from AP numbers 64-93 with CM05 per PRT card (same even if the site that accommodates the PRT card is different).*

NOTE 4: *Set SW0-1 and SW0-2 as follows:*

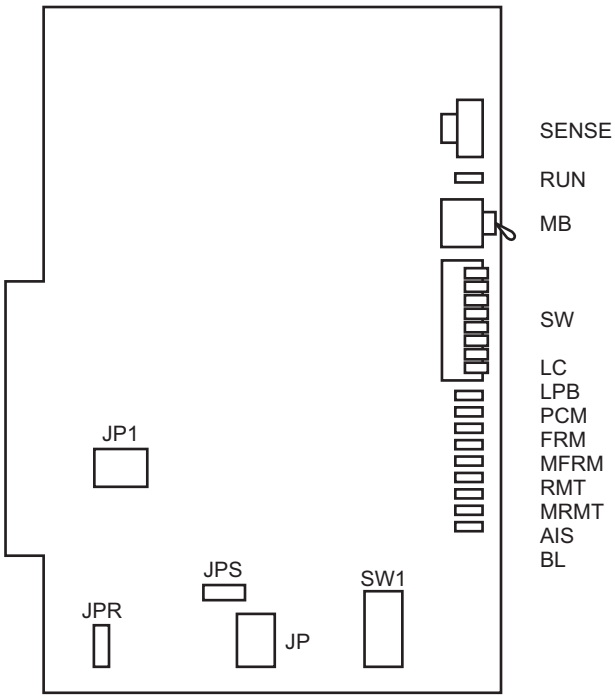
CONDITIONS	PRT0		PRT1		PRT2		· · · · ·		PRT7		REMARKS
	SW 0-1	SW 0-2	SW 0-1	SW 0-2	SW 0-1	SW 0-2			SW 0-1	SW 0-2	
When one PRT is provided.	ON	OFF	–	–	–	–			–	–	MP card will receive the clock signal from PRT0 at its PLO0 input.
When more than one PRT is provided.	ON	OFF	OFF	ON	OFF	OFF			OFF	OFF	MP card will receive the clock signal from PRT0 at its PLO0 input, under normal conditions. Should a clock failure occur with PRT0, MP card will automatically switch to the PLO1 input which gets clock from PRT1.

NOTE 5: *Mount the PRT card which receives a source clock signal into PIM0.*

NOTE 6: *This card must be reset after the SW0-3 to SW0-7 switch settings. Set the MB switch to UP and then DOWN.*

PN-30PRTA (PRT)

Locations of Lamps, Switches, and Connectors

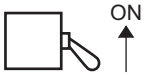


Lamp Indications

LAMP NAME	COLOR	FUNCTION
RUN	Green	Flashes at 120 IPM when this card is normally operating.
LC	Green	Remains lit when communications are normally ongoing with the D channel data links connected.
LPB	–	Not used
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 loopback 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 to 10 channels are busy

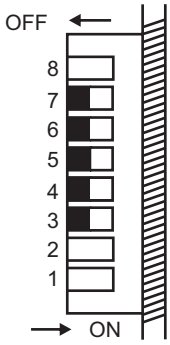
Switch Settings

<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)
 

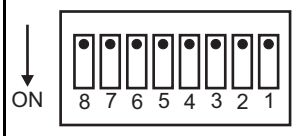
NOTE 1</td><td>4-F</td><td colspan="2">Set the switch to match the AP Number (04-31) to be set by CM05. NOTE 3
<table><tr><td rowspan="2">AP No.</td><td>SW-8: ON</td><td>04</td><td>05</td><td>06</td><td>07</td><td>08</td><td>09</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td></tr><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>MB (Toggle SW)
 

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

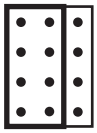
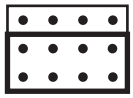
Continued on next page

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
SW (Piano Key SW)  	1 **NOTE 4**	ON	Source clock signal from network is sent to the PLO0 input on MP card.	
		OFF	Source clock signal from network is not sent to the PLO0 input on MP card.	
	2 **NOTE 4**	ON	Source clock signal from network is sent to the PLO1 input on MP card.	
		OFF	Source clock signal from network is not sent to the PLO1 input on MP card.	
	3	ON	Remote loopback	
		OFF	For normal operation	
	4	ON	Local loopback (AIS send)	
		OFF	For normal operation	
	5	ON	Transmission line cable: Coaxial cable (75 Ω)	
		OFF	Transmission line cable: Twisted-pair cable (120 Ω)	
	6	OFF	Not used (Always set to OFF)	
	7	OFF		
	8	ON	AP No. 04-15	
		OFF	AP No. 20-31	

Continued on next page

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	

Continued on next page

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
JPS (Jumper pin) 		RIGHT	Balanced transmission (For twisted-pair cable)	
		LEFT	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 Ω (For coaxial cable)	
		LEFT	Line impedance: 120 Ω (For twisted-pair cable)	
JP1 (Jumper pin) 		DOWN	Always set to DOWN	

The figure in the SWITCH NAME column and the position of ( ) 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: *When accommodating the PRT card in Remote Site with AP numbers 64-93 (for the expanded PRT card), be sure to set the switch number of all the PRT cards accommodated with the SENSE switch/SW1-4 to 31, and to assign any one number from AP numbers 64-93 with CM05 per PRT card (same even if the site that accommodates the PRT card is different).*

Continued on next page

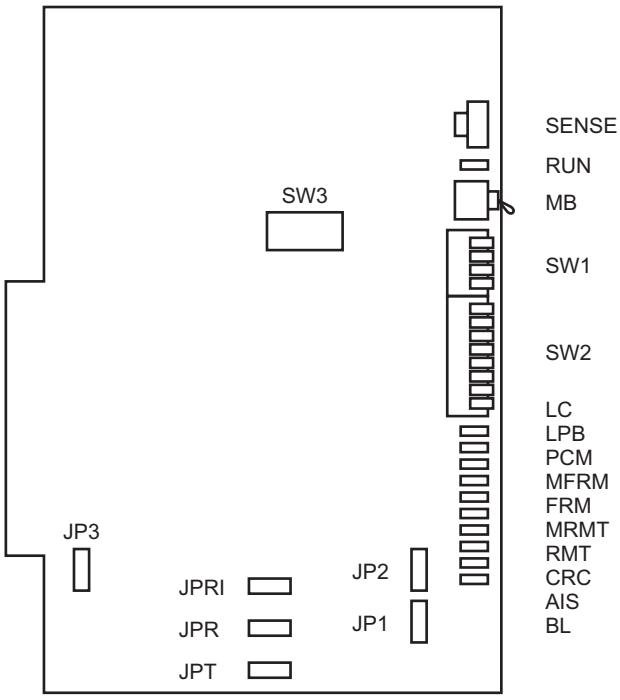
NOTE 4: *Set SW-1 and SW-2 as follows:*

CONDITIONS	PRT0		PRT1		PRT2		· · · · ·		PRT7		REMARKS
	SW -1	SW -2	SW -1	SW -2	SW -1	SW -2			SW -1	SW -2	
When one PRT is provided.	ON	OFF	–	–	–	–			–	–	MP card will receive the clock signal from PRT0 at its PLO0 input.
When more than one PRT is provided.	ON	OFF	OFF	ON	OFF	OFF			OFF	OFF	MP card will receive the clock signal from PRT0 at its PLO0 input, under normal conditions. Should a clock failure occur with PRT0, MP card will automatically switch to the PLO1 input which gets clock from PRT1.

NOTE 5: *Mount the PRT card which receives a source clock signal into PIM0.*

PN-DTA (PRT)

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	Remains lit when loopback test is in progress.
PCM	Red	Remains lit when detecting PCM signal loss.
MFRM	Red	Remains lit when detecting Multi-Frame Alignment signal loss on time slot 16 (Only for E1).
FRM	Red	Remains lit when detecting Frame Alignment signal loss.
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 (Only for E1).
RMT	Red	Remains lit when receiving Frame Alignment signal loss alarm from a distant office.
CRC	Red	Remains lit when detecting Cyclic Redundancy Checking (CRC) errors (Only for T1).
AIS	Red	Remains lit when a pattern of consecutive "1" is received. The distant office transmits this signal for a loopback 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

NOTE: *The following table shows the lamps of PN-DTA card used for T1/E1 interface.*

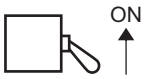
×: Used –: Not used

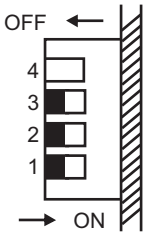
LAMP	PRT (T1)	PRT (E1)
RUN	×	×
LC	×	×
LPB	×	×
PCM	×	×
MFRM	–	×
FRM	×	×

LAMP	PRT (T1)	PRT (E1)
MRMT	–	×
RMT	×	×
CRC	×	–
AIS	×	×
BL	×	×

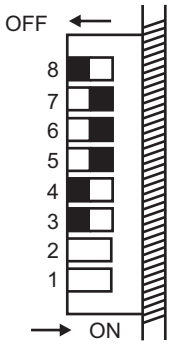
Switch Settings

<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)
 

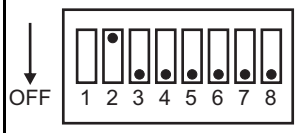
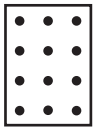
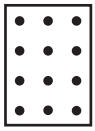
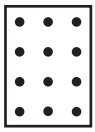
NOTE 1</td><td>0-3</td><td colspan="2">Not used</td><td></td></tr>
<tr><td>4-F</td><td colspan="2">Set the switch to match the AP Number (04-31) to be set by CM05. NOTE 3
<table><tr><td rowspan="2">AP No.</td><td>SW1-4: ON</td><td>04</td><td>05</td><td>06</td><td>07</td><td>08</td><td>09</td><td>10</td><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>MB (Toggle SW)
 

NOTE 2</td><td></td><td>UP</td><td>For make-busy</td><td></td></tr>
<tr><td></td><td>DOWN</td><td>For normal operation</td><td></td></tr>
<tr><td rowspan="8">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 rowspan="4">3</td><td colspan="2">[North America only]</td><td></td></tr>
<tr><td>ON</td><td>DS-1
(T1 with CSU function)</td><td></td></tr>
<tr><td>OFF</td><td>DSX-1
(T1 without CSU function)</td><td></td></tr>
<tr><td colspan="2">[Hong Kong/Taiwan]</td><td></td></tr>
<tr><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>

Continued on next page

<table>
<tr><th>SWITCH NAME</th><th>SWITCH NUMBER</th><th>SETTING POSITION</th><th>FUNCTION</th><th>CHECK</th></tr>
<tr><td rowspan="16">SW2
(Piano Key SW)
 
</td><td rowspan="2">1
NOTE 4
NOTE 5</td><td>ON</td><td>Source clock signal from network is sent to the PLO0 input on MP card.</td><td></td></tr>
<tr><td>OFF</td><td>Source clock signal from network is not sent to the PLO0 input on MP card.</td><td></td></tr>
<tr><td rowspan="2">2
NOTE 4
NOTE 5</td><td>ON</td><td>Source clock signal from network is sent to the PLO1 input on MP card.</td><td></td></tr>
<tr><td>OFF</td><td>Source clock signal from network is not sent to the PLO1 input on MP card.</td><td></td></tr>
<tr><td rowspan="2">3
NOTE 7</td><td>ON</td><td>Remote loopback</td><td></td></tr>
<tr><td>OFF</td><td>For normal operation</td><td></td></tr>
<tr><td rowspan="2">4
NOTE 7</td><td>ON</td><td>Local loopback (AIS send)</td><td></td></tr>
<tr><td>OFF</td><td>For normal operation</td><td></td></tr>
<tr><td rowspan="2">5
NOTE 7</td><td>ON</td><td rowspan="6">Set equalizer according to the cable length between the PBX and the C.O. or CSU.
• For DS-1 (SW1-3 ON)
<table><tr><th>SW2-5</th><th>SW2-6</th><th>SW2-7</th><th>CABLE LENGTH TO CSU (0.5 ϕ)</th></tr><tr><td>ON</td><td>ON</td><td>ON</td><td>1199-1758 m (3930-5764 ft.)</td></tr><tr><td>OFF</td><td>ON</td><td>ON</td><td>599-1199 m (1965-3930 ft.)</td></tr><tr><td>ON</td><td>OFF</td><td>ON</td><td>0-599 m (0-1965 ft.)</td></tr><tr><td>OFF</td><td>OFF</td><td>ON</td><td>Not used</td></tr><tr><td>OFF</td><td>OFF</td><td>OFF</td><td>Signal is not sent</td></tr></table>• For DSX-1/Hong Kong/Taiwan (SW1-3 OFF)
<table><tr><th>SW2-5</th><th>SW2-6</th><th>SW2-7</th><th>CABLE LENGTH TO CSU (0.65 ϕ)</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
NOTE 7</td><td>ON</td><td></td></tr>
<tr><td>OFF</td><td></td></tr>
<tr><td rowspan="2">7
NOTE 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 on next page

<table>
<tr><th>SWITCH NAME</th><th>SWITCH NUMBER</th><th>SETTING POSITION</th><th>FUNCTION</th><th>CHECK</th></tr>
<tr><td rowspan="10">SW3 (Dip SW)
 
</td><td rowspan="2">1</td><td>ON</td><td>T1 mode</td><td></td></tr>
<tr><td>OFF</td><td>E1 mode</td><td></td></tr>
<tr><td rowspan="2">2</td><td>ON</td><td>PRT mode</td><td></td></tr>
<tr><td>OFF</td><td>DTI mode</td><td></td></tr>
<tr><td>3</td><td>OFF</td><td>Not used (Always set to OFF)</td><td></td></tr>
<tr><td>4</td><td>OFF</td><td>Not used (Always set to OFF)</td><td></td></tr>
<tr><td>5</td><td>OFF</td><td>Not used (Always set to OFF)</td><td></td></tr>
<tr><td>6</td><td>OFF</td><td>Not used (Always set to OFF)</td><td></td></tr>
<tr><td>7</td><td>OFF</td><td>Not used (Always set to OFF)</td><td></td></tr>
<tr><td>8</td><td>OFF</td><td>Not used (Always set to OFF)</td><td></td></tr>
<tr><td rowspan="2">JP1 (Jumper pin)
  </td><td rowspan="2"></td><td>RIGHT</td><td rowspan="2">Line impedance is set by combing JP1 and JP2
<table><tr><th>JP1</th><th>JP2</th><th>LINE IMPEDANCE</th></tr><tr><td>LEFT</td><td>RIGHT</td><td>100 Ω (for T1)</td></tr><tr><td>LEFT</td><td>LEFT</td><td>110 Ω (for T1)</td></tr><tr><td>RIGHT</td><td>RIGHT</td><td>120 Ω (for E1)</td></tr><tr><td>RIGHT</td><td>LEFT</td><td>75 Ω (for E1)</td></tr></table></td><td></td></tr>
<tr><td>LEFT</td><td></td></tr>
<tr><td rowspan="2">JP2 (Jumper pin)
  </td><td rowspan="2"></td><td>RIGHT</td><td></td></tr>
<tr><td>LEFT</td><td></td></tr>
<tr><td rowspan="2">JP3 (Jumper pin)
  </td><td rowspan="2"></td><td>RIGHT</td><td>Balanced transmission (For twisted-pair cable) (for T1/E1)</td><td></td></tr>
<tr><td>LEFT</td><td>Unbalanced transmission (For coaxial cable) (for E1)</td><td></td></tr>
</table>

Continued on next page

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
JPRI (Jumper pin) 		(LEFT)	Not used	
JPR (Jumper pin) 		RIGHT	Neutral grounding on the receiving line is provided	
		(LEFT)	Neutral grounding on the receiving line is not provided	
JPT (Jumper pin) 		RIGHT	Neutral grounding on the transmitting line is provided	
		(LEFT)	Neutral grounding on the transmitting line is not provided	

The figure in the SWITCH NAME column and the position of ( ) 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: *When accommodating the PRT card in Remote Site with AP numbers 64-93 (for the expanded PRT card), be sure to set the switch number of all the PRT cards accommodated with the SENSE switch/SW1-4 to 31, and to assign any one number from AP numbers 64-93 with CM05 per PRT card (same even if the site that accommodates the PRT card is different).*

NOTE 4: *Set SW2-1 and SW2-2 as follows:*

CONDITIONS	PRT0		PRT1		PRT2		· · · · ·		PRT7		REMARKS
	SW 2-1	SW 2-2	SW 2-1	SW 2-2	SW 2-1	SW 2-2			SW 2-1	SW 2-2	
When one PRT is provided.	ON	OFF	–	–	–	–			–	–	MP card will receive the clock signal from PRT0 at its PLO0 input.
When more than one PRT is provided.	ON	OFF	OFF	ON	OFF	OFF			OFF	OFF	MP card will receive the clock signal from PRT0 at its PLO0 input, under normal conditions. Should a clock failure occur with PRT0, MP card will automatically switch to the PLO1 input which gets clock from PRT1.

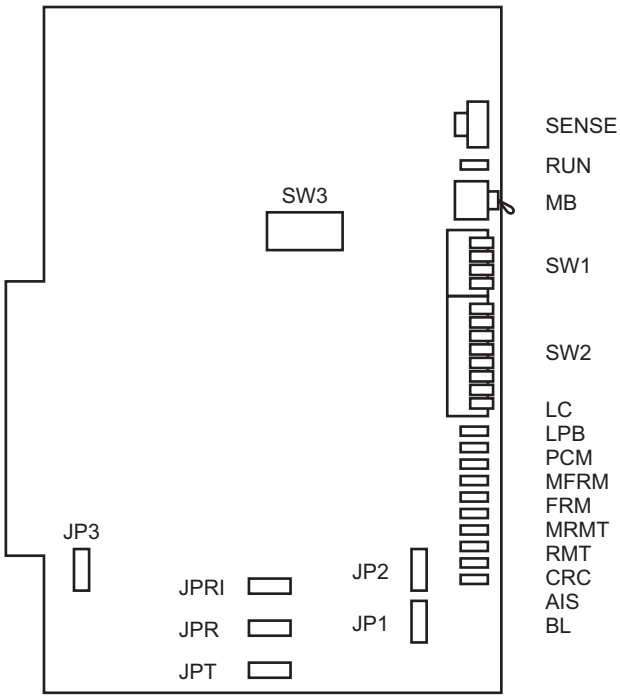
NOTE 5: *When the PBX is a clock source office, set the SW2-1 and SW2-2 on all the PRT cards mounted in PIM0 to "OFF".*

NOTE 6: *Mount the PRT card which receives a source clock signal into PIM0.*

NOTE 7: *This card must be reset after the SW2-3 to SW2-7 switch settings. Set the MB switch to UP and then DOWN.*

PN-DTB (PRT)

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	Remains lit when loopback test is in progress.
PCM	Red	Remains lit when detecting PCM signal loss.
MFRM	Red	Remains lit when detecting Multi-Frame Alignment signal loss on time slot 16 (Only for E1).
FRM	Red	Remains lit when detecting Frame Alignment signal loss.
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 (Only for E1).
RMT	Red	Remains lit when receiving Frame Alignment signal loss alarm from a distant office.
CRC	Red	Remains lit when detecting Cyclic Redundancy Checking (CRC) errors (Only for T1).
AIS	Red	Remains lit when a pattern of consecutive "1" is received. The distant office transmits this signal for a loopback 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

NOTE: *The following table shows the lamps of PN-DTB card used for T1/E1 interface.*

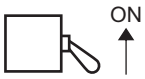
×: Used –: Not used

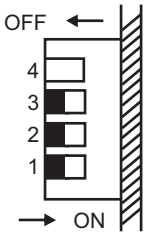
LAMP	PRT (T1)	PRT (E1)
RUN	×	×
LC	×	×
LPB	×	×
PCM	×	×
MFRM	–	×
FRM	×	×

LAMP	PRT (T1)	PRT (E1)
MRMT	–	×
RMT	×	×
CRC	×	–
AIS	×	×
BL	×	×

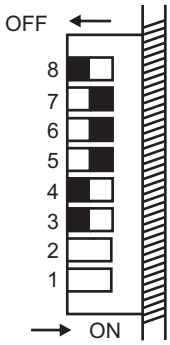
Switch Settings

<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)
 

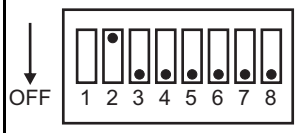
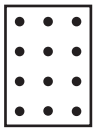
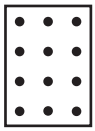
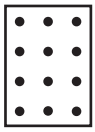
NOTE 1</td><td>0-3</td><td colspan="2">Not used</td><td></td></tr>
<tr><td>4-F</td><td colspan="2">Set the switch to match the AP Number (04-31) to be set by CM05. NOTE 3
<table><tr><td rowspan="2">AP No.</td><td>SW1-4: ON</td><td>04</td><td>05</td><td>06</td><td>07</td><td>08</td><td>09</td><td>10</td><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>MB (Toggle SW)
 

NOTE 2</td><td></td><td>UP</td><td>For make-busy</td><td></td></tr>
<tr><td></td><td>DOWN</td><td>For normal operation</td><td></td></tr>
<tr><td rowspan="8">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 rowspan="4">3</td><td colspan="2">[North America only]</td><td></td></tr>
<tr><td>ON</td><td>DS-1
(T1 with CSU function)</td><td></td></tr>
<tr><td>OFF</td><td>DSX-1
(T1 without CSU function)</td><td></td></tr>
<tr><td colspan="2">[Hong Kong/Taiwan]</td><td></td></tr>
<tr><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>

Continued on next page

<table>
<tr><th>SWITCH NAME</th><th>SWITCH NUMBER</th><th>SETTING POSITION</th><th>FUNCTION</th><th>CHECK</th></tr>
<tr><td rowspan="16">SW2
(Piano Key SW)
 
</td><td rowspan="2">1
NOTE 4
NOTE 5</td><td>ON</td><td>Source clock signal from network is sent to the PLO0 input on MP card.</td><td></td></tr>
<tr><td>OFF</td><td>Source clock signal from network is not sent to the PLO0 input on MP card.</td><td></td></tr>
<tr><td rowspan="2">2
NOTE 4
NOTE 5</td><td>ON</td><td>Source clock signal from network is sent to the PLO1 input on MP card.</td><td></td></tr>
<tr><td>OFF</td><td>Source clock signal from network is not sent to the PLO1 input on MP card.</td><td></td></tr>
<tr><td rowspan="2">3
NOTE 7</td><td>ON</td><td>Remote loopback</td><td></td></tr>
<tr><td>OFF</td><td>For normal operation</td><td></td></tr>
<tr><td rowspan="2">4
NOTE 7</td><td>ON</td><td>Local loopback (AIS send)</td><td></td></tr>
<tr><td>OFF</td><td>For normal operation</td><td></td></tr>
<tr><td rowspan="2">5
NOTE 7</td><td>ON</td><td rowspan="6">Set equalizer according to the cable length between the PBX and the C.O. or CSU.
• For DS-1 (SW1-3 ON)
<table><tr><th>SW2-5</th><th>SW2-6</th><th>SW2-7</th><th>CABLE LENGTH TO CSU (0.5 ϕ)</th></tr><tr><td>ON</td><td>ON</td><td>ON</td><td>1199-1758 m (3930-5764 ft.)</td></tr><tr><td>OFF</td><td>ON</td><td>ON</td><td>599-1199 m (1965-3930 ft.)</td></tr><tr><td>ON</td><td>OFF</td><td>ON</td><td>0-599 m (0-1965 ft.)</td></tr><tr><td>OFF</td><td>OFF</td><td>ON</td><td>Not used</td></tr><tr><td>OFF</td><td>OFF</td><td>OFF</td><td>Signal is not sent</td></tr></table>• For DSX-1/Hong Kong/Taiwan (SW1-3 OFF)
<table><tr><th>SW2-5</th><th>SW2-6</th><th>SW2-7</th><th>CABLE LENGTH TO CSU (0.65 ϕ)</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
NOTE 7</td><td>ON</td><td></td></tr>
<tr><td>OFF</td><td></td></tr>
<tr><td rowspan="2">7
NOTE 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 on next page

<table>
<tr><th>SWITCH NAME</th><th>SWITCH NUMBER</th><th>SETTING POSITION</th><th>FUNCTION</th><th>CHECK</th></tr>
<tr><td rowspan="10">SW3 (Dip SW)
 
</td><td rowspan="2">1</td><td>ON</td><td>T1 mode</td><td></td></tr>
<tr><td>OFF</td><td>E1 mode</td><td></td></tr>
<tr><td rowspan="2">2</td><td>ON</td><td>PRT mode</td><td></td></tr>
<tr><td>OFF</td><td>DTI mode</td><td></td></tr>
<tr><td rowspan="2">3</td><td>ON</td><td>A-law/μ-law conversion (for Taiwan)
NOTE 8, NOTE 9</td><td></td></tr>
<tr><td>OFF</td><td>For normal operation</td><td></td></tr>
<tr><td>4</td><td>OFF</td><td>Not used (Always set to OFF)</td><td></td></tr>
<tr><td>5</td><td>OFF</td><td>Not used (Always set to OFF)</td><td></td></tr>
<tr><td>6</td><td>OFF</td><td>Not used (Always set to OFF)</td><td></td></tr>
<tr><td>7</td><td>OFF</td><td>Not used (Always set to OFF)</td><td></td></tr>
<tr><td>8</td><td>OFF</td><td>Not used (Always set to OFF)</td><td></td></tr>
<tr><td rowspan="2">JP1 (Jumper pin)
  </td><td rowspan="2"></td><td>RIGHT</td><td rowspan="3">Line impedance is set by combing JP1 and JP2
<table><tr><th>JP1</th><th>JP2</th><th>LINE IMPEDANCE</th></tr><tr><td>LEFT</td><td>RIGHT</td><td>100 Ω (for T1)</td></tr><tr><td>LEFT</td><td>LEFT</td><td>110 Ω (for T1)</td></tr><tr><td>RIGHT</td><td>RIGHT</td><td>120 Ω (for E1)</td></tr><tr><td>RIGHT</td><td>LEFT</td><td>75 Ω (for E1)</td></tr></table></td><td></td></tr>
<tr><td>LEFT</td><td></td></tr>
<tr><td rowspan="2">JP2 (Jumper pin)
  </td><td rowspan="2"></td><td>RIGHT</td><td></td></tr>
<tr><td>LEFT</td><td></td></tr>
<tr><td rowspan="2">JP3 (Jumper pin)
  </td><td rowspan="2"></td><td>RIGHT</td><td>Balanced transmission (For twisted-pair cable) (for T1/E1)</td><td></td></tr>
<tr><td>LEFT</td><td>Unbalanced transmission (For coaxial cable) (for E1)</td><td></td></tr>
</table>

Continued on next page

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
JPRI (Jumper pin) 		(LEFT)	Not used	
JPR (Jumper pin) 		RIGHT	Neutral grounding on the receiving line is provided	
		(LEFT)	Neutral grounding on the receiving line is not provided	
JPT (Jumper pin) 		RIGHT	Neutral grounding on the transmitting line is provided	
		(LEFT)	Neutral grounding on the transmitting line is not provided	

The figure in the SWITCH NAME column and the position of ( ) 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: *When accommodating the PRT card in Remote Site with AP numbers 64-93 (for the expanded PRT card), be sure to set the switch number of all the PRT cards accommodated with the SENSE switch/SW1-4 to 31, and to assign any one number from AP numbers 64-93 with CM05 per PRT card (same even if the site that accommodates the PRT card is different).*

Continued on next page

NOTE 4: *Set SW2-1 and SW2-2 as follows:*

CONDITIONS	PRT0		PRT1		PRT2		· · · · ·		PRT7		REMARKS
	SW 2-1	SW 2-2	SW 2-1	SW 2-2	SW 2-1	SW 2-2			SW 2-1	SW 2-2	
When one PRT is provided.	ON	OFF	–	–	–	–			–	–	MP card will receive the clock signal from PRT0 at its PLO0 input.
When more than one PRT is provided.	ON	OFF	OFF	ON	OFF	OFF			OFF	OFF	MP card will receive the clock signal from PRT0 at its PLO0 input, under normal conditions. Should a clock failure occur with PRT0, MP card will automatically switch to the PLO1 input which gets clock from PRT1.

NOTE 5: *When the PBX is a clock source office, set the SW2-1 and SW2-2 on all the PRT cards mounted in PIM0 to "OFF".*

NOTE 6: *Mount the PRT card which receives a source clock signal into PIM0.*

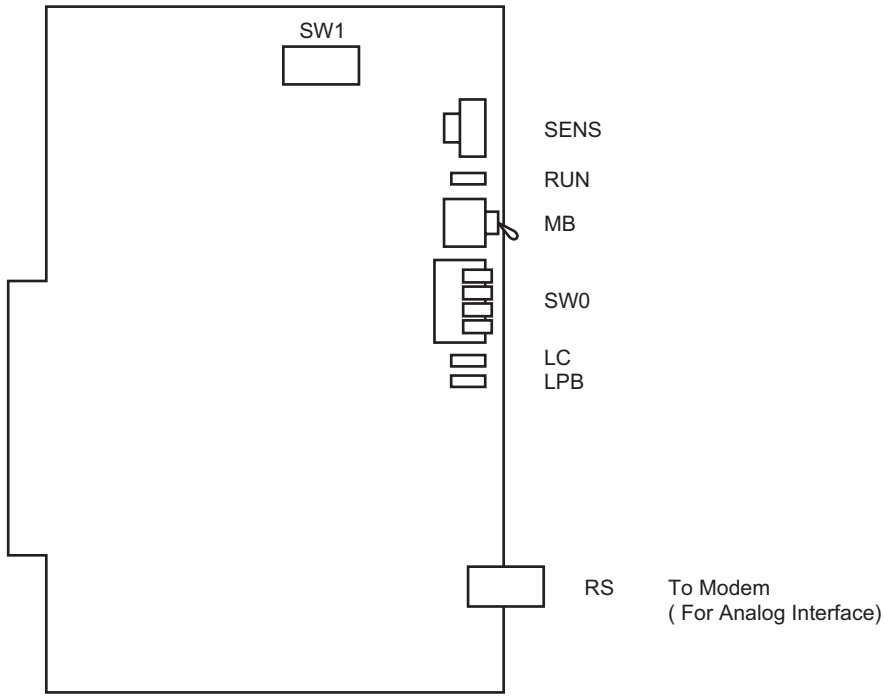
NOTE 7: *This card must be reset after the SW2-3 to SW2-7 switch settings. Set the MB switch to UP and then DOWN.*

NOTE 8: *This switch setting is required when providing A-law/μ-law conversion for PRT in Taiwan. And for PRT, A-law/μ-law setting by CMAA Y=17 is required in addition to the switch setting (Setting SW3-3 to ON).*

NOTE 9: *To provide A-law/μ-law conversion for PRT, the firmware program SC-3712 IPS PRTDA PROG-B1 or later is required.*

PN-SC00 (CCH)

Locations of Lamps, Switches, and Connectors

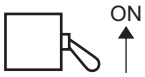


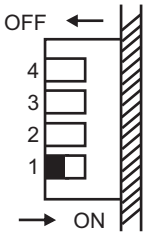
Lamp Indications

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 common signaling channel data links connected.
LPB	Green	Remains lit when a loopback test is in progress.

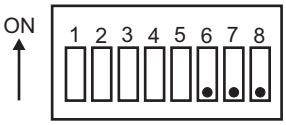
Switch Settings

<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="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>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="8">SW0
(Piano Key SW)
 
</td><td rowspan="2">1</td><td>ON</td><td>Loopback test</td><td></td></tr>
<tr><td>(OFF)</td><td>For normal operation</td><td></td></tr>
<tr><td rowspan="2">2</td><td>ON</td><td>Analog interface</td><td></td></tr>
<tr><td>OFF</td><td>Digital interface</td><td></td></tr>
<tr><td rowspan="2">3</td><td>ON</td><td>RS-232C RTS signal (to MODEM) ON
NOTE 3</td><td></td></tr>
<tr><td>OFF</td><td>RS-232C RTS signal (to MODEM) 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>

Continued on next page

<table>
<tr><th>SWITCH NAME</th><th>SWITCH NUMBER</th><th>SETTING POSITION</th><th>FUNCTION</th><th>CHECK</th></tr>
<tr><td rowspan="10">SW1 (Dip SW)
 
</td><td rowspan="2">1</td><td>ON</td><td rowspan="5">• Common channel signaling data transmission speed (For Digital Interface)

<table><tr><th>TRANSMISSION SPEED</th><th>SW 1-1</th><th>SW 1-2</th><th>SW 1-3</th><th>SW 1-4</th><th>SW 1-5</th></tr><tr><td>48 Kbps NOTE 4</td><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td></tr><tr><td>48 Kbps NOTE 4</td><td>ON</td><td>ON</td><td>ON</td><td>OFF</td><td>ON</td></tr><tr><td>56 Kbps</td><td>ON</td><td>ON</td><td>OFF</td><td>ON</td><td>ON</td></tr><tr><td>64 Kbps</td><td>ON</td><td>ON</td><td>ON</td><td>ON</td><td>ON</td></tr></table></td><td></td></tr>
<tr><td>OFF</td><td></td></tr>
<tr><td rowspan="2">2</td><td>ON</td><td></td></tr>
<tr><td>OFF</td><td></td></tr>
<tr><td rowspan="2">3</td><td>ON</td><td></td></tr>
<tr><td>OFF</td><td></td></tr>
<tr><td rowspan="2">4</td><td>ON</td><td>• Common channel signaling data transmission speed (For Analog Interface)

Set switches (SW1-1 - SW1-5) to OFF.</td><td></td></tr>
<tr><td>OFF</td><td></td></tr>
<tr><td rowspan="2">5</td><td>ON</td><td></td></tr>
<tr><td>OFF</td><td></td></tr>
<tr><td>6</td><td>OFF</td><td>Not used</td><td></td></tr>
<tr><td>7</td><td>OFF</td><td>Always set to OFF</td><td></td></tr>
<tr><td>8</td><td>OFF</td><td>Always set to OFF</td><td></td></tr>
</table>

The figure in the SWITCH NAME column and the position of ( ) 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.

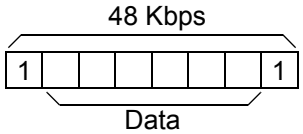
NOTE 1: *Set the groove on the switch to the desired position.*

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

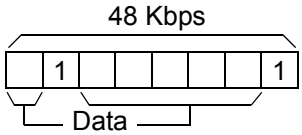
NOTE 3: *This setting is available when SW0-2 is set to ON (Analog Interface).*

NOTE 4: *The following two kinds of rate adaptation method are available in 48 Kbps data transmission. The rate adaptation method must be set to match the rate adaptation of clock source office.*

- SW1-3: OFF

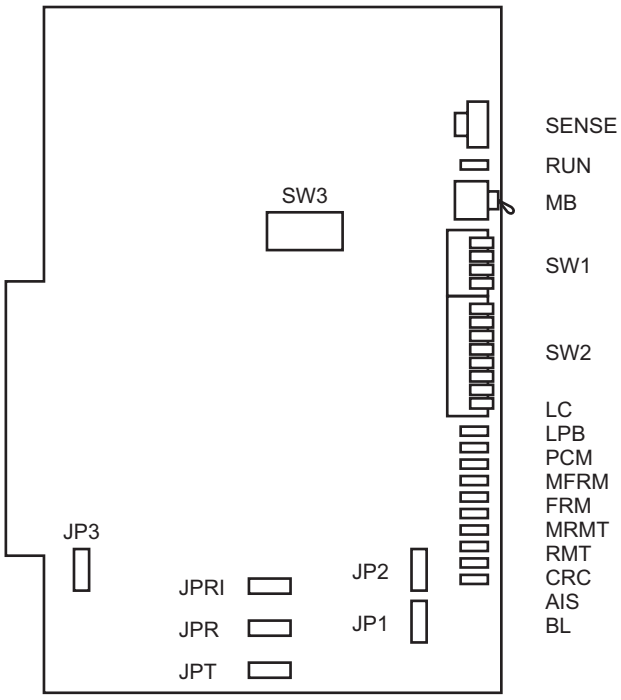


- SW1-3: ON



PN-DTA (CCH)

Locations of Lamps, Switches, and Connectors

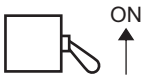


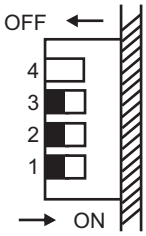
Lamp Indications

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 common signaling channel data links connected.
LPB	Green	Remains lit when loopback test is in progress.
PCM	–	Not used
MFRM	–	Not used
FRM	–	Not used
MRMT	–	Not used
RMT	–	Not used
CRC	–	Not used
AIS	–	Not used
BL	–	Not used

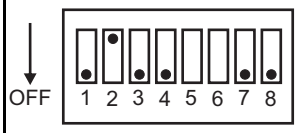
Switch Settings

<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">SENSE
(Rotary SW)
 

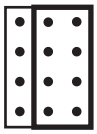
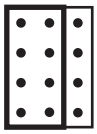
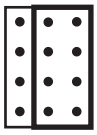
NOTE 1</td><td>0-3</td><td colspan="2">Not used</td><td></td></tr>
<tr><td>4-F</td><td colspan="2">Set the switch to match the AP Number (04-31) to be set by CM05.
<table><tr><td rowspan="2">AP No.</td><td>SW1-4: ON</td><td>04</td><td>05</td><td>06</td><td>07</td><td>08</td><td>09</td><td>10</td><td>11</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>
<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>

Continued on next page

<table>
<tr><th>SWITCH NAME</th><th>SWITCH NUMBER</th><th>SETTING POSITION</th><th>FUNCTION</th><th>CHECK</th></tr>
<tr><td rowspan="3">SW2
(Piano Key SW)
  </td><td rowspan="2">4</td><td>ON</td><td>Local loopback</td><td></td></tr>
<tr><td>OFF</td><td>For normal operation</td><td></td></tr>
<tr><td>1-3, 5-8</td><td>OFF</td><td>Not used</td><td></td></tr>
<tr><td rowspan="9">SW3 (Dip SW)
  </td><td>1</td><td>OFF</td><td>Always set to OFF</td><td></td></tr>
<tr><td>2</td><td>ON</td><td>Always set to ON</td><td></td></tr>
<tr><td>3</td><td>OFF</td><td>Not used (Always set to OFF)</td><td></td></tr>
<tr><td>4</td><td>OFF</td><td>Not used (Always set to OFF)</td><td></td></tr>
<tr><td rowspan="2">5</td><td>ON</td><td rowspan="4">Common channel signaling data transmission speed (For Digital Interface)
<table><tr><th>TRANSMISSION SPEED</th><th>SW 3-5</th><th>SW 3-6</th></tr><tr><td>48 Kbps (1) NOTE 3</td><td>OFF</td><td>ON</td></tr><tr><td>48 Kbps (2) NOTE 3</td><td>OFF</td><td>OFF</td></tr><tr><td>56 Kbps</td><td>ON</td><td>OFF</td></tr><tr><td>64 Kbps</td><td>ON</td><td>ON</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>7</td><td>OFF</td><td>Not used (Always set to OFF)</td><td></td></tr>
<tr><td>8</td><td>OFF</td><td>Not used (Always set to OFF)</td><td></td></tr>
</table>

Continued on next page

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
JP1 (Jumper pin) 		(RIGHT)	Not used	
JP2 (Jumper pin) 		(LEFT)	Not used	
JP3 (Jumper pin) 		(RIGHT)	Not used	
JPRI (Jumper pin) 		(LEFT)	Not used	
JPR (Jumper pin) 		(LEFT)	Not used	
JPT (Jumper pin) 		(LEFT)	Not used	

The figure in the SWITCH NAME column and the position of ( ) 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.

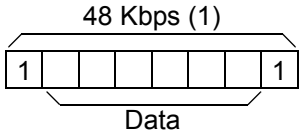
NOTE 1: *Set the groove on the switch to the desired position.*

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

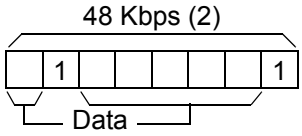
Continued on next page

NOTE 3: *The following two kinds of rate adaptation method are available in 48 Kbps data transmission. The rate adaptation method must be set to match the rate adaptation of clock source office.*

- SW3-6: ON

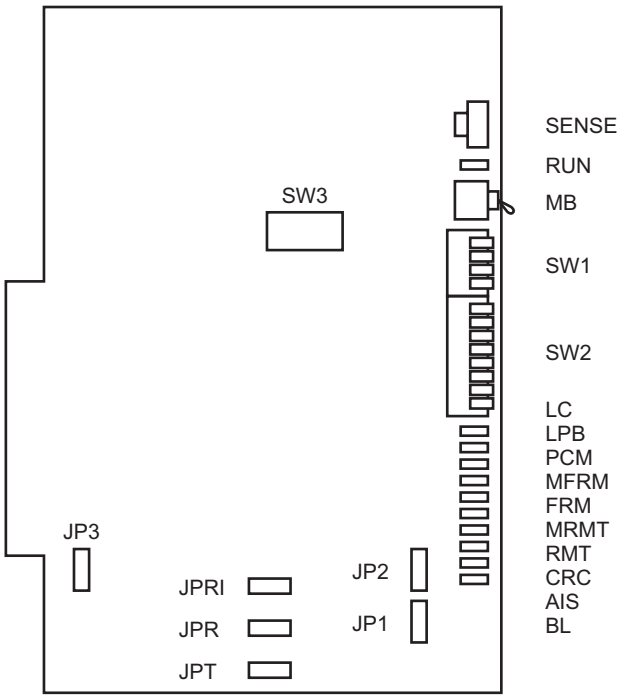


- SW3-6: OFF



PN-DTB (CCH)

Locations of Lamps, Switches, and Connectors

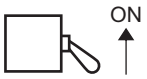


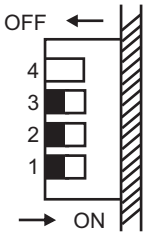
Lamp Indications

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 common signaling channel data links connected.
LPB	Green	Remains lit when loopback test is in progress.
PCM	–	Not used
MFRM	–	Not used
FRM	–	Not used
MRMT	–	Not used
RMT	–	Not used
CRC	–	Not used
AIS	–	Not used
BL	–	Not used

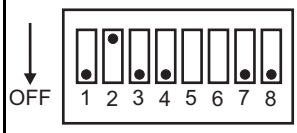
Switch Settings

<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">SENSE
(Rotary SW)
 

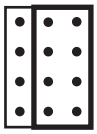
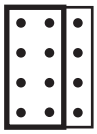
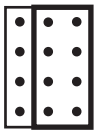
NOTE 1</td><td>0-3</td><td colspan="2">Not used</td><td></td></tr>
<tr><td>4-F</td><td colspan="2">Set the switch to match the AP Number (04-31) to be set by CM05.
<table><tr><td rowspan="2">AP No.</td><td>SW1-4: ON</td><td>04</td><td>05</td><td>06</td><td>07</td><td>08</td><td>09</td><td>10</td><td>11</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>
<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>

Continued on next page

<table>
<tr><th>SWITCH NAME</th><th>SWITCH NUMBER</th><th>SETTING POSITION</th><th>FUNCTION</th><th>CHECK</th></tr>
<tr><td rowspan="3">SW2
(Piano Key SW)
  </td><td rowspan="2">4</td><td>ON</td><td>Local loopback</td><td></td></tr>
<tr><td>OFF</td><td>For normal operation</td><td></td></tr>
<tr><td>1-3, 5-8</td><td>OFF</td><td>Not used</td><td></td></tr>
<tr><td rowspan="9">SW3 (Dip SW)
  </td><td>1</td><td>OFF</td><td>Always set to OFF</td><td></td></tr>
<tr><td>2</td><td>ON</td><td>Always set to ON</td><td></td></tr>
<tr><td>3</td><td>OFF</td><td>Not used (Always set to OFF)</td><td></td></tr>
<tr><td>4</td><td>OFF</td><td>Not used (Always set to OFF)</td><td></td></tr>
<tr><td rowspan="2">5</td><td>ON</td><td rowspan="4">Common channel signaling data transmission speed (For Digital Interface)
<table><tr><th>TRANSMISSION SPEED</th><th>SW 3-5</th><th>SW 3-6</th></tr><tr><td>48 Kbps (1) NOTE 3</td><td>OFF</td><td>ON</td></tr><tr><td>48 Kbps (2) NOTE 3</td><td>OFF</td><td>OFF</td></tr><tr><td>56 Kbps</td><td>ON</td><td>OFF</td></tr><tr><td>64 Kbps</td><td>ON</td><td>ON</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>7</td><td>OFF</td><td>Not used (Always set to OFF)</td><td></td></tr>
<tr><td>8</td><td>OFF</td><td>Not used (Always set to OFF)</td><td></td></tr>
</table>

Continued on next page

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
JP1 (Jumper pin) 		(RIGHT)	Not used	
JP2 (Jumper pin) 		(LEFT)	Not used	
JP3 (Jumper pin) 		(RIGHT)	Not used	
JPRI (Jumper pin) 		(LEFT)	Not used	
JPR (Jumper pin) 		(LEFT)	Not used	
JPT (Jumper pin) 		(LEFT)	Not used	

The figure in the SWITCH NAME column and the position of ( ) 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.

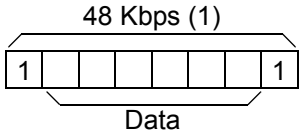
NOTE 1: *Set the groove on the switch to the desired position.*

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

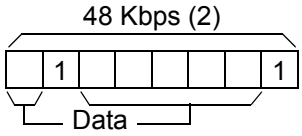
Continued on next page

NOTE 3: *The following two kinds of rate adaptation method are available in 48 Kbps data transmission. The rate adaptation method must be set to match the rate adaptation of clock source office.*

- SW3-6: ON

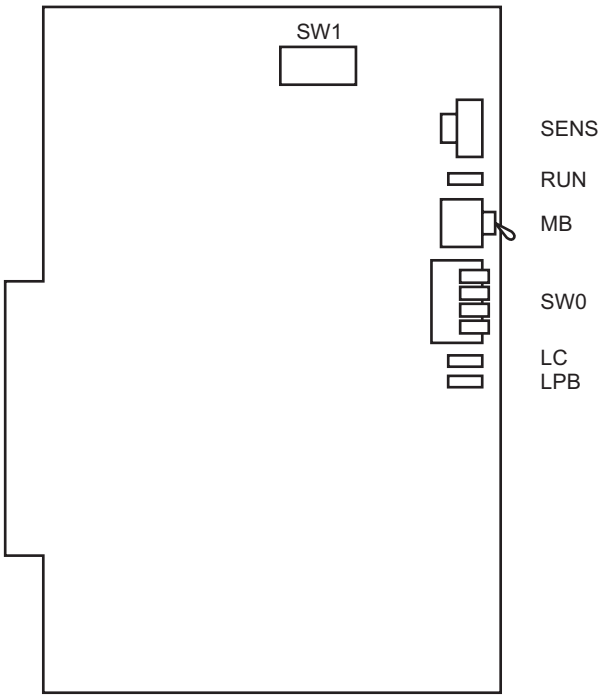


- SW3-6: OFF



PN-SC01 (DCH)

Locations of Lamps, Switches, and Connectors

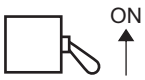


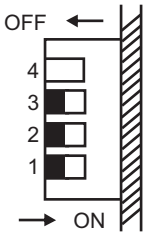
Lamp Indications

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

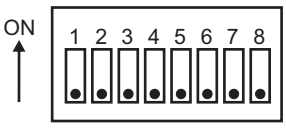
Switch Settings

<table>
<tr><th>SWITCH NAME</th><th>SWITCH NUMBER</th><th>SETTING POSITION</th><th>FUNCTION</th><th>CHECK</th></tr>
<tr><td>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></td><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="5">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>

Continued on next page

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	

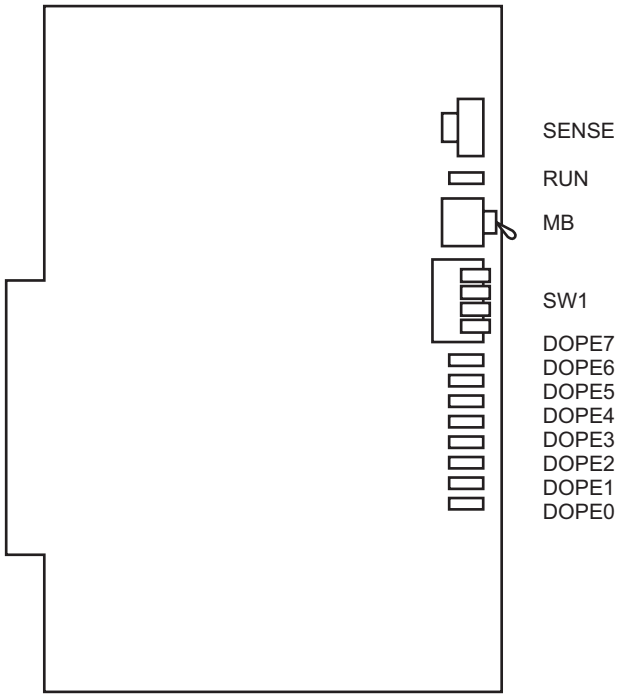
The figure in the SWITCH NAME column and the position of ( ) in the SETTING POSITION column indicate the standard setting of the switch. When the switch is not set as shown by the figure and ( ), the setting of the switch varies with the system concerned.

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-SC03-B (ICH)

Locations of Lamps, Switches, and Connectors

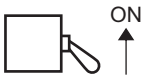


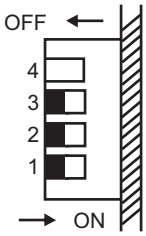
Lamp Indications

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="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>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="5">SW1
(Piano 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>

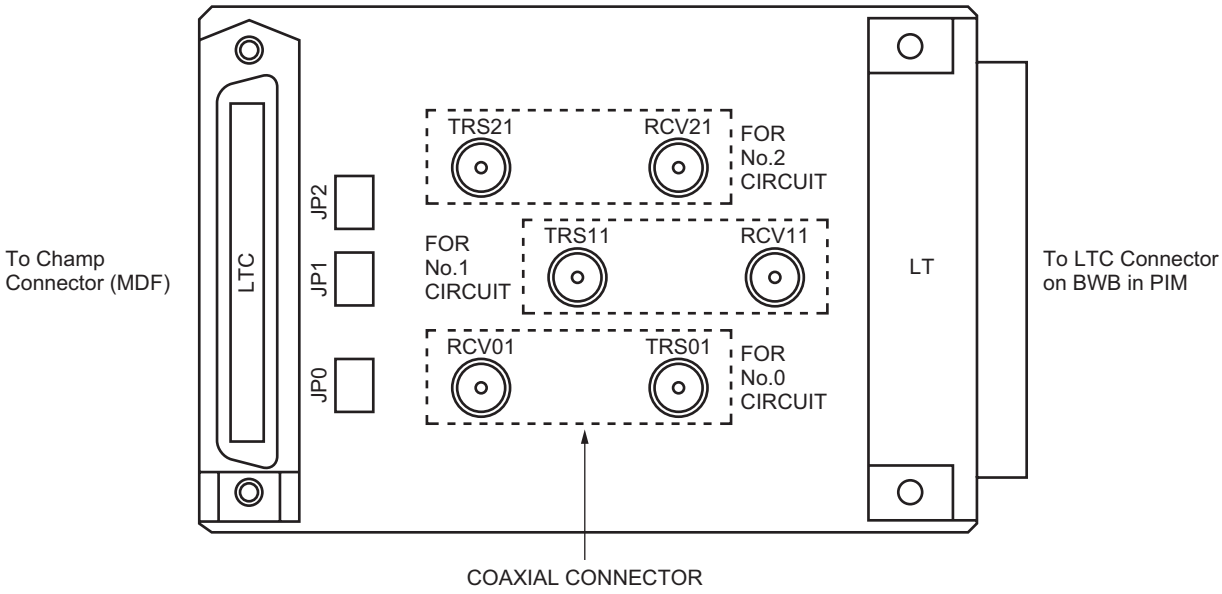
The figure in the SWITCH NAME column and the position of ( ) in the SETTING POSITION column indicate the standard setting of the switch. When the switch is not set as shown by the figure and ( ), the setting of the switch varies with the system concerned.

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.*

PZ-M542 (CONN)

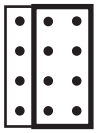
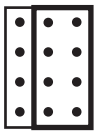
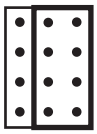
Locations of Lamps, Switches, and Connectors



Lamp Indications

This card has no lamps.

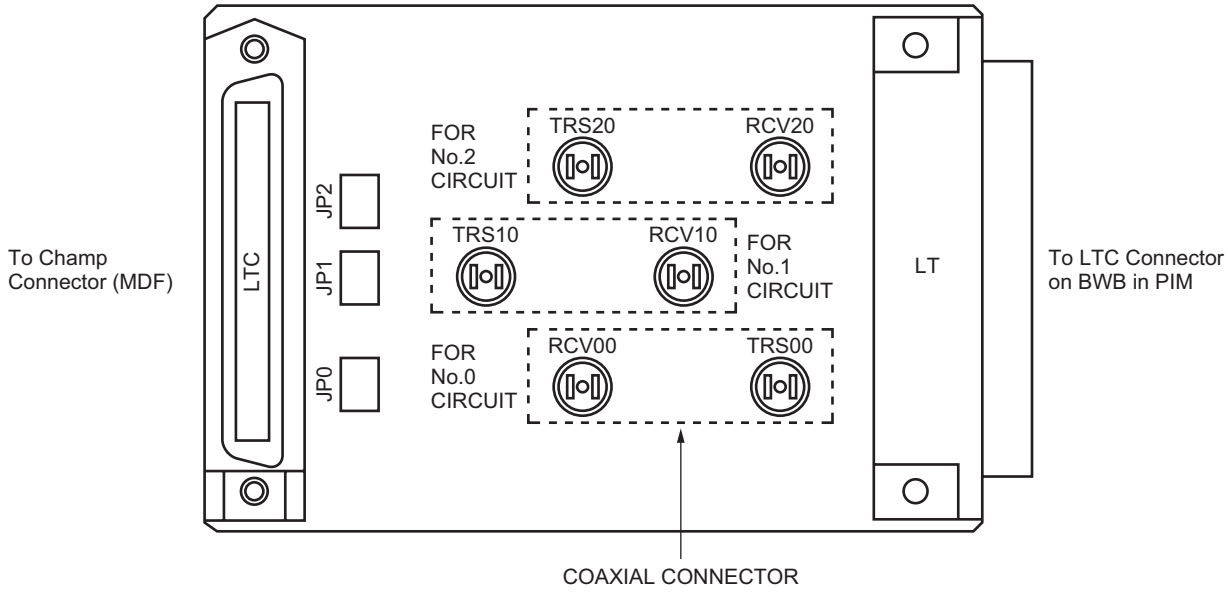
Switch Settings

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
JP0 		(RIGHT)	For coaxial connectors (No.0 circuit)	
		LEFT	For champ connector (LT connector) (No.0 circuit)	
JP1 		(RIGHT)	For coaxial connectors (No.1 circuit)	
		LEFT	For champ connector (LT connector) (No.1 circuit)	
JP2 		(RIGHT)	For coaxial connectors (No.2 circuit)	
		LEFT	For champ connector (LT connector) (No.2 circuit)	

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

PZ-M557 (CONN)

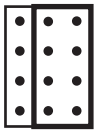
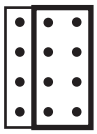
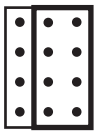
Locations of Lamps, Switches, and Connectors



Lamp Indications

This card has no lamps.

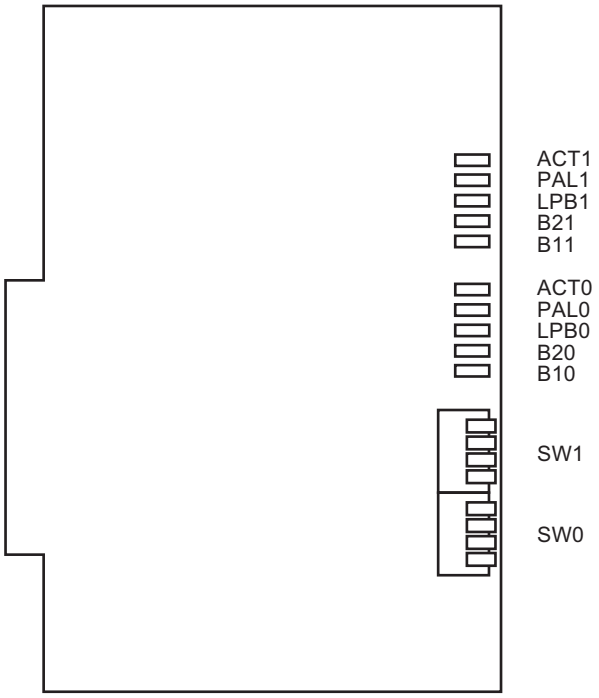
Switch Settings

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
JP0 		RIGHT	For coaxial connectors (No.0 circuit)	
		LEFT	For champ connector (LT connector) (No.0 circuit)	
JP1 		RIGHT	For coaxial connectors (No.1 circuit)	
		LEFT	For champ connector (LT connector) (No.1 circuit)	
JP2 		RIGHT	For coaxial connectors (No.2 circuit)	
		LEFT	For champ connector (LT connector) (No.2 circuit)	

The figure in the SWITCH NAME column and the position of ( ) 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-2ILCA (ILC)

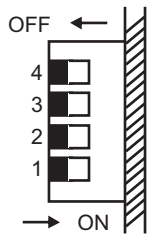
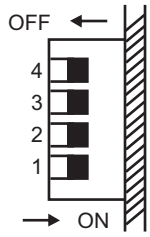
Locations of Lamps, Switches, and Connectors



Lamp Indications

LAMP NAME	COLOR	FUNCTION	
ACT1	Green	No.1 Circuit	ON : Normally operating. OFF: Not operating.
PAL1	Red		ON : Line is short-circuiting. OFF: Normally operating.
LPB1	Red		OFF: Not used.
B21	Red		ON : B2 channel is in use. OFF : B2 channel is idle. Flash (60 IPM): B2 channel is in make busy state.
B11	Red		ON : B1 channel is in use. OFF : B1 channel is idle. Flash (60 IPM): B1 channel is in make busy state.
ACT0	Green	No. 0 Circuit	ON : Normally operating. OFF: Not operating.
PAL0	Red		ON : Line is short-circuiting. OFF: Normally operating.
LPB0	Red		OFF: Not used
B20	Red		ON : B2 channel is in use. OFF : B2 channel is idle. Flash (60 IPM): B2 channel is in make busy state.
B10	Red		ON : B1 channel is in use. OFF : B1 channel is idle. Flash (60 IPM): B1 channel is in make busy state.

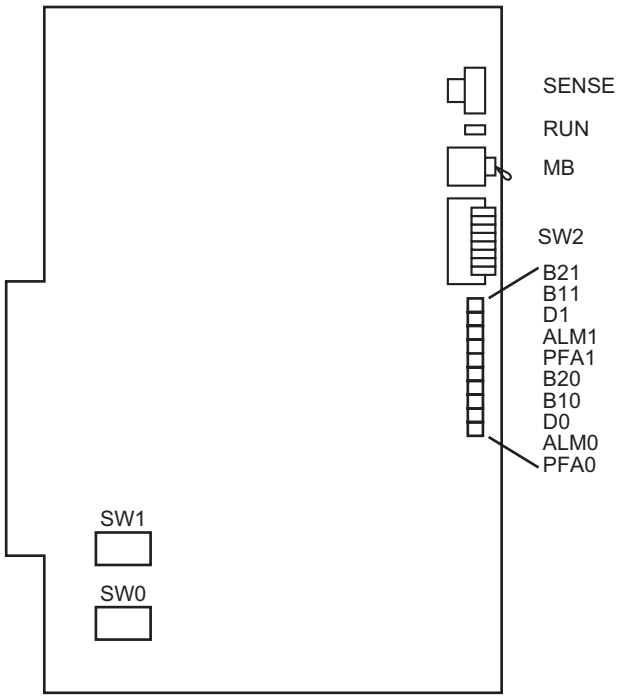
Switch Settings

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION		CHECK
SW1 (Piano Key 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		
SW0 (Piano Key SW)  	1	ON	No.0 Circuit (Receiving)	Terminating register is provided.	
		OFF		Terminating register is not provided.	
	2	ON	No.0 Circuit (Sending)	Terminating register is provided.	
		OFF		Terminating register is not provided.	
	3	ON	No.1 Circuit (Receiving)	Terminating register is provided.	
		OFF		Terminating register is not provided.	
	4	ON	No.1 Circuit (Sending)	Terminating register is provided.	
		OFF		Terminating register is not provided.	

The figure in the SWITCH NAME column and the position of ( ) 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-2ILCC (ILC)

Locations of Lamps, Switches, and Connectors



Lamp Indications

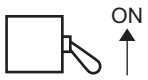
LAMP NAME	COLOR	FUNCTION	
RUN	Green	Flashes at 120 IPM while this card is operating normally.	
B21	Red	No. 1 Circuit	B2 channel status ON : Busy OFF : Idle Flash (60 IPM): Make Busy
B11	Red		B1 channel status ON : Busy OFF : Idle Flash (60 IPM): Make Busy
D1	Green		D channel status ON : Link is connected OFF : Link is not connected
ALM1	Red		Transmission line fault status ON : Line fault OFF : Normal operation
PFA1	Red		Power status ON : Power failure OFF : Normal operation

Continued on next page

LAMP NAME	COLOR	FUNCTION	
B20	Red	No. 0 Circuit	B2 channel status ON : Busy OFF : Idle Flash (60 IPM): Make Busy
B10	Red		B1 channel status ON : Busy OFF : Idle Flash (60 IPM): Make Busy
D0	Green		D channel status ON : Link is connected OFF : Link is not connected
ALM0	Red		Transmission line fault status ON : Line fault OFF : Normal operation
PFA0	Red		Power status ON : Power failure OFF : Normal operation

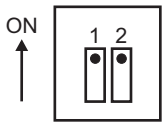
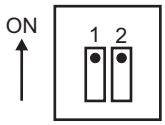
Switch Settings

<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="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>SW4-8: 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>SW4-8: 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>MB (Toggle SW)
 

NOTE 2</td><td></td><td>UP</td><td>For make-busy</td><td></td></tr>
<tr><td></td><td>DOWN</td><td>For normal operation</td><td></td></tr>
<tr><td rowspan="10">SW2 (Piano SW)
 
</td><td rowspan="2">1</td><td>ON</td><td>Remote loopback (No. 0 Circuit)</td><td></td></tr>
<tr><td>OFF</td><td>Normal operation</td><td></td></tr>
<tr><td rowspan="2">2</td><td>ON</td><td>Remote loopback (No. 1 Circuit)</td><td></td></tr>
<tr><td>OFF</td><td>Normal operation</td><td></td></tr>
<tr><td>3</td><td>OFF</td><td>Not used</td><td></td></tr>
<tr><td>4</td><td>OFF</td><td>Not used</td><td></td></tr>
<tr><td>5</td><td>OFF</td><td>Not used</td><td></td></tr>
<tr><td>6</td><td>OFF</td><td>Not used (Always set to OFF)</td><td></td></tr>
<tr><td>7</td><td>OFF</td><td>Not used</td><td></td></tr>
<tr><td rowspan="2">8</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>

Continued on next page

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
SW0 (Dip SW) 	1	ON	For terminating the transmitting side of channels B1 and B2 with 100 Ω. (No.0 Circuit)	
		OFF	To remove the terminating resistor on the transmitting side of channels B1 and B2. (No.0 Circuit)	
	2	ON	For terminating the receiving side of channels B1 and B2 with 100 Ω. (No.0 Circuit)	
		OFF	To remove the terminating resistor on the receiving side of channels B1 and B2. (No.0 Circuit)	
SW1 (Dip SW) 	1	ON	For terminating the transmitting side of channels B1 and B2 with 100 Ω. (No.1 Circuit)	
		OFF	To remove the terminating resistor on the transmitting side of channels B1 and B2. (No.1 Circuit)	
	2	ON	For terminating the receiving side of channels B1 and B2 with 100 Ω. (No.1 Circuit)	
		OFF	To remove the terminating resistor on the receiving side of channels B1 and B2. (No.1 Circuit)	

The figure in the SWITCH NAME column and the position of ( ) 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.*

CHAPTER 5

OPERATION TEST

This chapter explains the operation test to be performed after you completed the installation of ISDN. For fault diagnosis by MAT or CAT, refer to the Maintenance Manual.

INTEROFFICE TRANSMISSION LINE TEST

To confirm inter-office synchronization and speech quality using “In-Service” transmission lines, do the following steps.

STEP1: Connect the transmission line to the MDF or CONN card.

STEP2: Make busy the channels except the channel tested by CME5.

STEP3: Confirm indication lamps on the DTI/PRT/BRT card, as per the following table.
- Alarm Indications on 24DTI ☞ *Page 317*
- Alarm Indications on 30DTI ☞ *Page 318*
- Alarm Indications on 24PRT ☞ *Page 319*
- Alarm Indications on 30PRT ☞ *Page 320*
- Alarm Indications on BRT ☞ *Page 322*

STEP4: Originate an outgoing call via trunk.

STEP5: After an outgoing connection via trunks has been established, confirm the inter-office synchronization as follows:
- On the DTMF telephone set, keep pressing any dial button.
- Check to see if there are noise or abnormal tones.
- Do the above test again in the opposite direction.

STEP6: Repeat the test for all channels. When completed, make idle all channels by CME5.

Alarm Indications on 24DTI

LED	LED INDICATION		FAULT	
	NORMAL	FAULT	CAUSE	ACTION
RUN	Flash (120 IPM)	On or Off	Abnormal operation of DTI card	① Confirm the programming data: CM05 Y=0/Y=1, CM07 Y=01. ② Check to see if the SENSE switch is set as per the AP number (04-15, 20-31) assigned by CM05 Y=0. ③ Reset the MB switch (Down→Up→Down) ④ If the fault cannot be cleared, replace the card.
CRC	Off	On	Bit Error Rate exceeds the predetermined value	① Check the receive line and external equipment. ② Replace the remote DTI card.
PCM	Off	On	No PCM signals arrive from the distant office	① Check to see if the line is correctly connected to the DTI card. ② Plug and unplug the DTI card. Repeat this two or three times.
FRM	Off	On	Frame Alignment signals from the distant office cannot be received	① Check the receive line and external equipment. ② Replace the remote DTI card.
RMT	Off	On	Frame Alignment signals cannot be sent to the remote PBX	① Check the transmission line and external equipment. ② Replace the DTI card.
AIS	Off	On	Remote PBX is in the local loopback state	Check the switch settings of the remote DTI card.

Alarm Indications on 30DTI

LED	LED INDICATION		FAULT	
	NORMAL	FAULT	CAUSE	ACTION
RUN	Flash (120 IPM)	On or Off	Abnormal operation of DTI card	① Confirm the programming data: CM05 Y=0/Y=1, CM07 Y=01. ② Check to see if the SENSE switch is set as per the AP number (04-15, 20-31) assigned by CM05 Y=0. ③ Reset the MB switch (Down→Up→Down) ④ If the fault cannot be cleared, replace the card.
PCM	Off	On	No PCM signals arrive from the distant office	① Check to see if the line is correctly connected to the DTI card. ② Plug and unplug the DTI card. Repeat this two or three times.
FRM	Off	On	Frame Alignment signals from the distant office cannot be received	① Check the receive line and external equipment. ② Replace the remote DTI card.
MFRM	Off	On	Multi Frame Alignment signals from the distant office cannot be received	① Check the receive line and external equipment. ② Replace the remote DTI card.
RMT	Off	On	Frame Alignment signals cannot be sent to the remote PBX	① Check the transmission line and external equipment. ② Replace the DTI card.
MRMT	Off	On	Multi Frame Alignment signals cannot be sent to the remote PBX	① Confirm the switch setting on the DTI card indicating an alarm. ② Replace the DTI card not indicating an alarm, with a spare.
AIS	Off	On	Remote PBX is in the local loopback state	Check the switch settings of the remote DTI card.

Alarm Indications on 24PRT

LED	LED INDICATION		FAULT	
	NORMAL	FAULT	CAUSE	ACTION
RUN	Flash (120 IPM)	On or Off	Abnormal operation of PRT card	① Confirm the programming data: CM05 Y=0/Y=1, CM07 Y=01. ② Check to see if the SENSE switch is set as per the AP number (04-15, 20-31) assigned by CM05 Y=0. ③ Reset the MB switch (Down→Up→Down) ④ If the fault cannot be cleared, replace the card.
LC	On	Off	ISDN Primary Rate D-channel data link connection failure	Check the status of the local office line or public network line.
CRC	Off	On	Bit Error Rate exceeds the predetermined value	① Check the receive line and external equipment. ② Replace the remote PRT card.
PCM	Off	On	No PCM signals arrive from the distant office	① Check to see if the line is correctly connected to the PRT card. ② Plug and unplug the PRT card. Repeat this two or three times.
FRM	Off	On	Frame Alignment signals from the distant office cannot be received	① Check the receive line and external equipment. ② Replace the remote PRT card.
RMT	Off	On	Frame Alignment signals cannot be sent to the remote PBX	① Check the transmission line and external equipment. ② Replace the PRT card.
AIS	Off	On	Remote PBX is in the local loopback state	Check the switch settings of the remote PRT card.

Alarm Indications on 30PRT

LED	LED INDICATION		FAULT	
	NORMAL	FAULT	CAUSE	ACTION
RUN	Flash (120 IPM)	On or Off	Abnormal operation of PRT card	① Confirm the programming data: CM05 Y=0/Y=1, CM07 Y=01. ② Check to see if the SENSE switch is set as per the AP number (04-15, 20-31) assigned by CM05 Y=0. ③ Reset the MB switch (Down→Up→Down) ④ If the fault cannot be cleared, replace the card.
LC	On	Off	ISDN Primary Rate D-channel data link connection failure	Check the status of the local office line or public network line.
PCM	Off	On	No PCM signals arrive from the distant office	① Check to see if the line is correctly connected to the PRT card. ② Plug and unplug the PRT card. Repeat this two or three times.
FRM	Off	On	Frame Alignment signals from the distant office cannot be received	① Check the receive line and external equipment. ② Replace the remote PRT card.
MFRM	Off	On	Multi Frame Alignment signals from the distant office cannot be received	① Check the receive line and external equipment. ② Replace the remote PRT card.
RMT	Off	On	Frame Alignment signals cannot be sent to the remote PBX	① Check the transmission line and external equipment. ② Replace the PRT card.

Continued on next page

Alarm Indications on 30PRT

LED	LED INDICATION		FAULT	
	NORMAL	FAULT	CAUSE	ACTION
MRMT	Off	On	Multi Frame Alignment signals cannot be sent to the remote PBX	① Confirm the switch setting on the PRT card indicating an alarm. ② Replace the PRT card not indicating an alarm, with a spare.
AIS	Off	On	Remote PBX is in the local loopback state	Check the switch settings of the remote PRT card.

Alarm Indications on BRT

LED	LED INDICATION		FAULT	
	NORMAL	FAULT	CAUSE	ACTION
• BRT				
RUN	Flash (120 IPM)	On or Off	Abnormal operation of BRT card	① Confirm the programming data: CM05 Y=0, CM07 Y=02. ② Check to see if the SENS switch is set as per the AP number (04-15) assigned by CM05 Y=0. ③ Reset the MB switch (Down→Up→Down) ④ If the fault cannot be cleared, replace the card.
ALM	Off	On	Transmission line fault	① Confirm circuit line status. ② Confirm PSTN line status.
• 2BRT				
RUN	Flash (120 IPM)	On or Off	Abnormal operation of BRT card	① Confirm the programming data: CM05 Y=0, CM07 Y=02. ② Check to see if the SENSE switch is set as per the AP number (04-15, 20-31) assigned by CM05 Y=0. ③ Reset the MB switch (Down→Up→Down) ④ If the fault cannot be cleared, replace the card.
ALM0	Off	On	No. 0 circuit transmission line fault	① Confirm No. 0 circuit line status. ② Confirm PSTN line status.
ALM1	Off	On	No. 1 circuit transmission line fault	① Confirm No. 1 circuit line status. ② Confirm PSTN line status.

Continued on next page

Alarm Indications on BRT

LED	LED INDICATION		FAULT	
	NORMAL	FAULT	CAUSE	ACTION
• 4BRT				
RUN	Flash (120 IPM)	On or Off	Abnormal operation of BRT card	① Confirm the programming data: CM05 Y=0/Y=1, CM07 Y=02. ② Check to see if the SENSE switch is set as per the AP number (04-15, 20-31) assigned by CM05 Y=0. ③ Reset the MB switch (Down→Up→Down) ④ If the fault cannot be cleared, replace the card.
ALM0	Off	On	No. 0 circuit transmission line fault	① Confirm No. 0 circuit line status. ② Confirm PSTN line status.
ALM1	Off	On	No. 1 circuit transmission line fault	① Confirm No. 1 circuit line status. ② Confirm PSTN line status.
ALM2	Off	On	No. 2 circuit transmission line fault	① Confirm No. 2 circuit line status. ② Confirm PSTN line status.
ALM3	Off	On	No. 3 circuit transmission line fault	① Confirm No. 3 circuit line status. ② Confirm PSTN line status.

PLO OPERATION TEST

To confirm the PLO operation, do the following tests.

- Clock Signal Generation Test
- Clock Signal Synchronization Test
- Interoffice Synchronization Test

To be tested when the PBX is a clock receiver office.

Clock Signal Generation Test

This test checks to see if the PLO keeps generating clock signals at the frequency of the last source clock, when the source clock signals from network have stopped. Do the following steps using "In Service" transmission lines.

STEP1: On all the DTI/PRT/BRT cards mounted in PIM0, set the switches as follows to stop the external clock signal input.

- 30DTI/30PRT card: SW-1 and SW-2 to OFF
- 24DTI/24PRT card: SW0-1 and SW0-2 to OFF
- BRT card: SW0-2 and SW0-3 to OFF
- 2BRT card: SW11-2 and SW11-3 to OFF
- 4BRT card: SW4-1, SW4-2, SW4-3 and SW4-4 to OFF

– The CLK lamp on the MP card goes out.

STEP2: Originate an outgoing call via trunks.

STEP3: After an outgoing connection via trunks has been established, confirm interoffice synchronization and speech quality as follows:

- On the DTMF telephone set, keep pressing any dial button.
- Check to see if noise periodically occurs on the DTMF signals coming from the calling station in the opposite office.
- Do the above test again in the opposite direction.

STEP4: On all the DTI/PRT/BRT cards mounted in PIM0, restore the switches as the state before testing to input the external clock signals.

– The CLK lamp on the MP card lights.

NOTE: *If noise periodically occurs, replace the MP card after checking the switch settings on the MP card, and do the above test again.*

Clock Signal Synchronization Test

This test checks to see if the PLO keeps synchronizing with the external clock signals, when the external clock signals from network have input again after they have stopped once. Do the following steps using "In Service" transmission lines.

(1) When providing one clock supply route

STEP1: On the DTI0/PRT0/BRT0 card extracting clock signals, set the switches as follows to stop the external clock signal input.
- 30DTI0/30PRT0 card: SW-1 and SW-2 to OFF
- 24DTI0/24PRT0 card: SW0-1 and SW0-2 to OFF
- BRT0 card: SW0-2 and SW0-3 to OFF
- 2BRT0 card: SW11-2 and SW11-3 to OFF
- 4BRT0 card: SW4-1, SW4-2, SW4-3 and SW4-4 to OFF

– The CLK lamp on the MP card goes out.

STEP2: Originate an outgoing call via trunk.

STEP3: After an outgoing connection via trunk has been established, confirm interoffice synchronization and speech quality as follows:
- On the DTMF telephone set, keep pressing any dial button.
- Check to see if noise periodically occurs on the DTMF signals coming from the calling station in the opposite office.
- Do the above test again in the opposite direction.

STEP4: On the DTI0/PRT0/BRT0 card, restore the switches as the state before testing to input the external clock signals.
- 30DTI0/30PRT0 card: SW-1 to ON, SW-2 to OFF
- 24DTI0/24PRT0 card: SW0-1 to ON, SW0-2 to OFF
- BRT0 card: SW0-2 to ON, SW0-3 to ON
- 2BRT0 card: SW11-2 to ON, SW11-3 to ON
- 4BRT0 card: SW4-1 to ON, SW4-2 to OFF, SW4-3 to OFF, SW4-4 to OFF and SW4-5 to ON

– The CLK lamp on the MP card lights.

STEP5: Originate an outgoing call via trunks.

STEP6: After an outgoing connection via trunks has been established, confirm interoffice synchronization and speech quality with the procedure shown in STEP 3.

NOTE: *If noise periodically occurs, replace the MP card after checking the switch settings on the MP card, and do the above test again.*

(2) When providing two clock supply routes

STEP1: On the DTI/PRT/BRT cards extracting clock signals, set the switches as follows to change the clock supply route from 0 to 1.
- 30DTI0/30PRT0 card: SW-1 to OFF, SW-2 to OFF
- 30DTI1/30PRT1 card: SW-1 to OFF, SW-2 to ON
- 24DTI0/24PRT0 card: SW0-1 to OFF, SW0-2 to OFF
- 24DTI1/24PRT1 card: SW0-1 to OFF, SW0-2 to ON
- BRT0 card: SW0-2 to OFF, SW0-3 to OFF
- BRT1 card: SW0-2 to ON, SW0-3 to OFF
- 2BRT0 card: SW11-2 to OFF, SW11-3 to OFF
- 2BRT1 card: SW11-2 to ON, SW11-3 to OFF
- 4BRT0 card: SW4-1, SW4-2, SW4-3, SW4-4 and SW4-5 to OFF
- 4BRT1 card: SW4-1 to ON, SW4-2 to OFF, SW4-3 to OFF, SW4-4 to OFF and SW4-5 to OFF

STEP2: Originate an outgoing call via trunks.

STEP3: After an outgoing connection via trunks has been established, confirm interoffice synchronization and speech quality as follows:
- On the DTMF telephone set, keep pressing any dial button.
- Check to see if noise periodically occurs on the DTMF signals coming from the calling station in the opposite office.
- Do the above test again in the opposite direction.

STEP4: On the DTI/PRT/BRT cards, set the switches as follows to stop the external clock signal input.
- 30DTI0/1, 30PRT0/1 card: SW-1 and SW-2 to OFF
- 24DTI0/1, 24PRT0/1 card: SW0-1 and SW0-2 to OFF
- BRT0/1 card: SW0-2 and SW0-3 to OFF
- 2BRT0/1 card: SW11-2 and SW11-3 to OFF
- 4BRT0/1 card: SW4-1, SW4-2, SW4-3 and SW4-4 to OFF

– The CLK lamp on the MP card goes out.

STEP5: Repeat the procedure shown in STEP 2 and STEP 3.

STEP6: On the DTI0/1, PRT0/1, BRT0/1 cards, set the switches as shown in STEP 1 to input clock signals from the clock supply route 1.

STEP7: Repeat the procedure shown in STEP 2 and STEP 3.

STEP8: On the DTI/PRT/BRT cards, set the switches as follows to change the clock supply route from 1 to 0.

- 30DTI0/30PRT0 card: SW-1 to ON, SW-2 to OFF
- 30DTI1/30PRT1 card: SW-1 to OFF, SW-2 to ON
- 24DTI0/24PRT0 card: SW0-1 to ON SW0-2 to OFF
- 24DTI1/24PRT1 card: SW0-1 to OFF, SW0-2 to ON
- BRT0 card: SW0-2 to ON, SW0-3 to ON
- BRT1 card: SW0-2 to ON, SW0-3 to OFF
- 2BRT0 card: SW11-2 to ON, SW0-3 to ON
- 2BRT1 card: SW11-2 to ON, SW0-3 to OFF
- 4BRT0 card: SW4-1 to ON, SW4-2 to OFF, SW4-3 to OFF, SW4-4 to OFF and SW4-5 to ON
- 4BRT1 card: SW4-1 to ON, SW4-2 to OFF, SW4-3 to OFF, SW4-4 to OFF and SW4-5 to OFF

– The CLK lamp on the MP card lights.

STEP9: Repeat the procedure shown in STEP 2 and STEP 3.

NOTE: *If noise periodically occurs, replace the MP card after checking the switch settings on the MP card, and do the above test again.*

Interoffice Synchronization Test

This test checks to see if noise occurs while calling with the opposite office, by difference of the clock signal frequency between the offices. Do the following steps using “In Service” transmission lines.

STEP1: Originate an outgoing call via trunks.

STEP2: Check the speech quality (if noise, distortion or click occurs during a few minutes) with the opposite office mutually.

STEP3: On the DTMF telephone set, keep pressing any dial button, and check to see if noise periodically occurs on the DTMF signals coming from the calling station in the opposite office.

STEP4: Do the above test again in the opposite direction.

NOTE: *If noise periodically occurs, replace the MP card after checking the switch settings on the MP card, and do the above test again.*