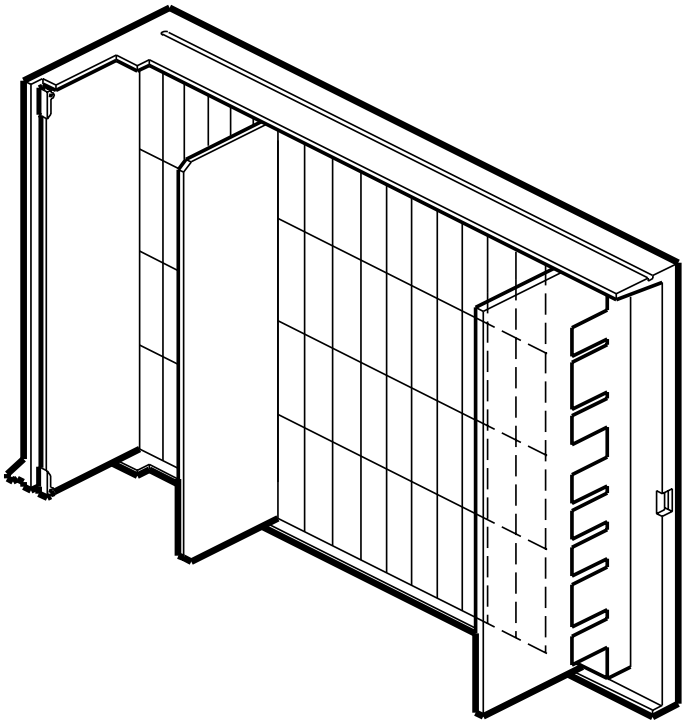
297-2101-504

DMS-100 Family

PCM30 Line Drawer

Maintenance Guide

BCS33 and up Standard 02.01 December 1991



northern telecom

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PCM30 Line Drawer

Maintenance Guide

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BCS33 Standard 02.01 incorporate dual-tone multifrequency (DTMF) outpulsing

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BCS31 Standard 01.02 first release of this document

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About this document

This document describes the maintenance of the PCM30 line drawer (PLD). Procedures are provided for clearing alarms and replacing cards. This document is intended for maintenance personnel in an operating company.

When to use this document

Northern Telecom (NT) software releases are referred to as batch change supplements (BCS) and are identified by a number, for example, BCS29. This document is written for DMS-100 Family offices that have software loads of BCS33 and up.

More than one version of this document may exist. The version and issue are indicated throughout the document, for example, 01.01. The first two digits increase by one each time the document content is changed to support new BCS-related developments. For example, the first release of a document is 01.01, and the next release of the document in a subsequent BCS is 02.01. The second two digits increase by one each time a document is revised and rereleased for the same BCS.

To determine which version of this document applies to the BCS in your office, check the release information in *DMS-100 Family Guide to Northern Telecom Publications,* 297-1001-001.

How to identify the software in your office

The *Office Feature Record (D190)* lists your current BCS and the NT feature packages in it. You can view similar information on a MAP (maintenance and administration position) terminal by typing

>PATCHER;INFORM LIST;LEAVE

and pressing the Enter key.

How PCM30 Line Drawer documentation is organized

This document is part of PCM30 Line Drawer (PLD) documentation that supports the Northern Telecom line of PLD products. PLD documentation is a subset of the DMS-100 Family library.

PCM30 Line Drawer documentation consists of the following documents.

Number	Title
297-2101-114	*PCM30 Line Drawer Planning, Engineering, and Administration Guide* Provides an introduction to the PLD, as well as planning, engineering, and administration information.
297-2101-504	*PCM30 Line Drawer Maintenance Guide* Provides a set of procedures for maintaining the PLD, including clearing alarms, replacing cards, and performing routine procedures.

The DMS-100 Family library is structured in numbered layers, and each layer is associated with an NT product. To understand PCM30 Line Drawer products, you need documents from the following layers:

- DMS-100 Family basic documents in the 297-1001 layer
- PCM30 Line Drawer documents in the 297-2101 layer

References in this document

The following documents are referred to in this document.

Number	Title
297-1001-103	*Peripheral Modules Manual*
297-1001-558	*Peripheral Module Alarm Analysis and Card Replacement Procedures Manual*
297-2101-516	*Line Maintenance Reference Manual*

What precautionary messages mean

Danger, warning, and caution messages in this document indicate potential risks. These messages and their meanings are listed in the following chart.

Message	Significance
DANGER	Possibility of personal injury
WARNING	Possibility of equipment damage
CAUTION	Possibility of service interruption or degradation

Examples of the precautionary messages follow.

DANGER
Risk of electrocution
The inverter contains high voltage lines. Do not open the front panel of the inverter unless fuses F1, F2, and F3 have been removed first. Until these fuses are removed, the high voltage lines inside the inverter are active, and you risk being electrocuted.

WARNING
Damage to backplane connector pins
Use light thumb pressure to align the card with the connectors. Next, use the levers to seat the card into the connectors. Failure to align the card first may result in bending of the backplane connector pins.

CAUTION
Loss of service
Subscriber service is lost if you accidentally remove a card from the active unit of the peripheral module (PM). Before continuing, confirm that you are removing the card from the inactive unit of the PM.

How commands, parameters, and responses are represented

Commands, parameters, and responses in this document conform to the following conventions.

Input prompt (>)

An input prompt (>) indicates that the information that follows it is a command:

>BSY

Commands and fixed parameters

Commands and fixed parameters that are entered at a MAP are shown in uppercase letters:

>BSY LINK

Variables

Variables are shown in lowercase letters:

>BSY LINK ps_link

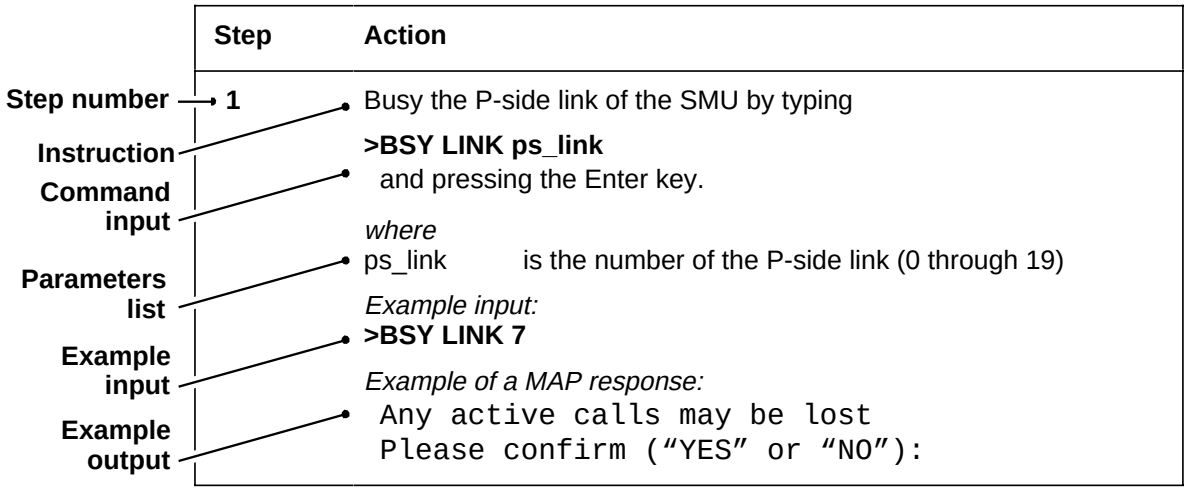
The letters or numbers that the variable represents must be entered. Each variable is explained in a list that follows the command string.

Responses

Responses correspond to the MAP display and are shown in a different type:

```
Any active calls may be lost
Please confirm (“YES” or “NO”):
```

The following example illustrates the command syntax used in this document.



Understanding the PCM30 line drawer

This chapter introduces the PCM30 line drawer (PLD). The PLD is discussed in subsequent sections of this chapter as follows:

Application of the PCM30 line drawer on page 1-2 describes the PLD and provides an example of its application.

System configuration on page 1-5 describes where the PLD fits into the DMS peripheral architecture.

How the PCM30 line drawer is configured on page 1-6 describes the physical configuration of the PLD.

How the peripheral modules are configured on page 1-8 describes the physical configuration of the host and remote line concentrating modules in relation to the PLD.

Application of the PCM30 line drawer

The PCM30 line drawer (PLD) is a unit that fits in a line concentrating module (LCM) at a host site or in a PCM30 remote line concentrating module (PRLCM) at a remote site. The PLD interfaces with customer terminating equipment (CTE) at customer sites.

The PLD concentrates line trafffic by enabling a maximum of 60 digital exchange lines to be carried over two PCM30 links (30 digital exchange lines on each PCM30 link) that terminate on a host LCM or a PRLCM.

Provisioning exchange lines from a host LCM or a PRLCM rather than over a PCM30 digital trunk controller (PDTC) increases the number of exchange lines that can terminate on the DMS-100. The PDTC does not concentrate line traffic.

The PLD enables operating companies to provide users with access to services through an all-digital network.

Services provided by the PLD range from direct access lines to centrex and automatic call distribution. The PLD can also provide termination for key systems and private branch exchanges within the limits of the traffic capacity of the host LCM or the PRLCM and the signaling types provided by the PLD.

Example of a PCM30 line drawer application

The PLD supports the Mercury exchange line multiplexer (MUX) used by Mercury Communications Ltd. (MCL).

Used in conjunction with the Mercury exchange line multiplexer, the PLD enables Mercury Communications to provide telephone services to small and medium sites, using both host and remote sites as satellites.

The application of the PLD in the MCL network consists of having fiber links from the host switch connect to PRLCMs equipped with PLDs. The PCM30 links from the PLDs then interface to Mercury exchange line multiplexers that are located at strategic business centers throughout the city.

Figures 1-1 and 1-2 illustrate Mercury exchange line (MEL) connections from a host LCM and a PRLCM.

Figure 1-1xxx
Provision of exchange lines from a host LCM

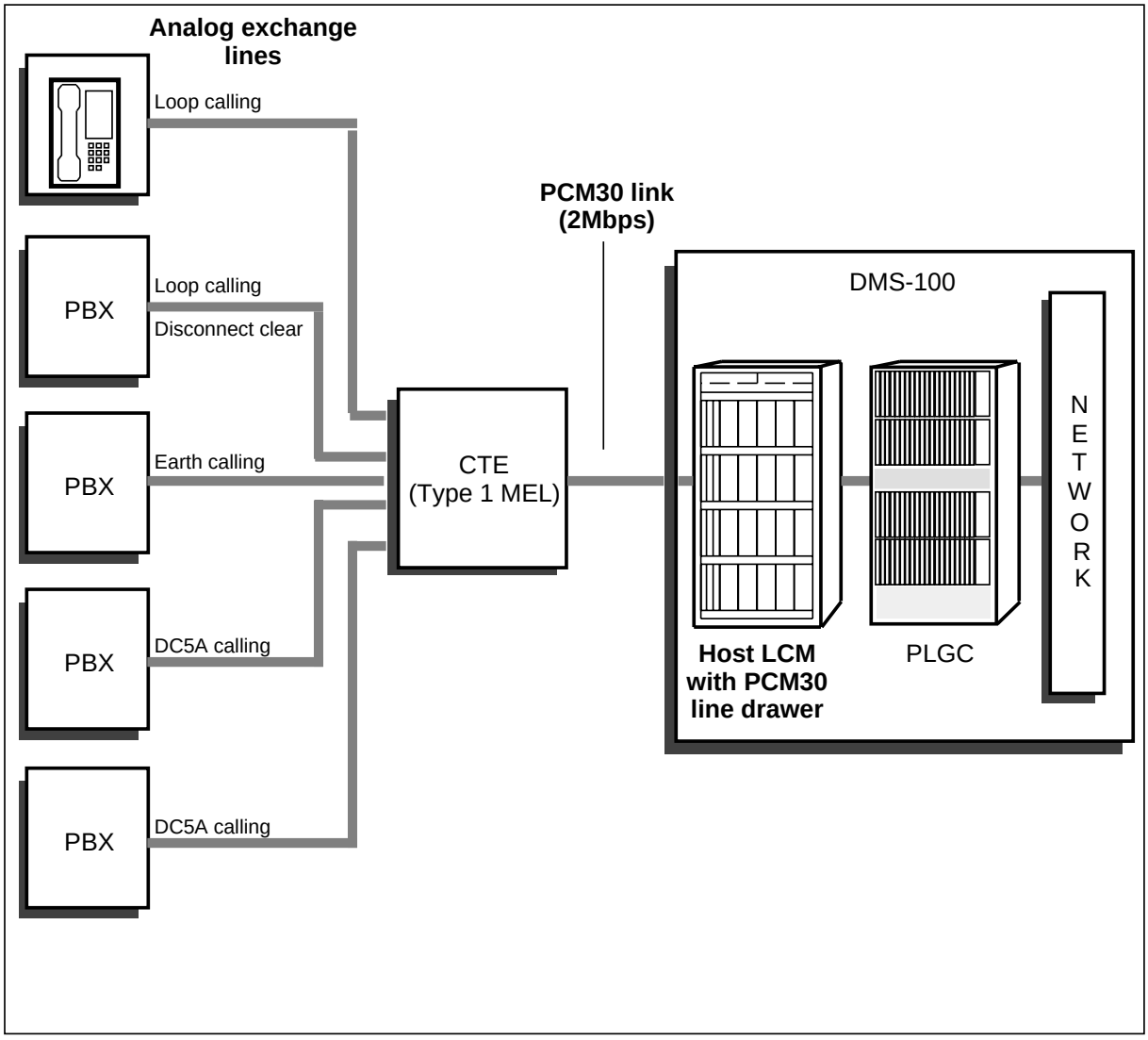
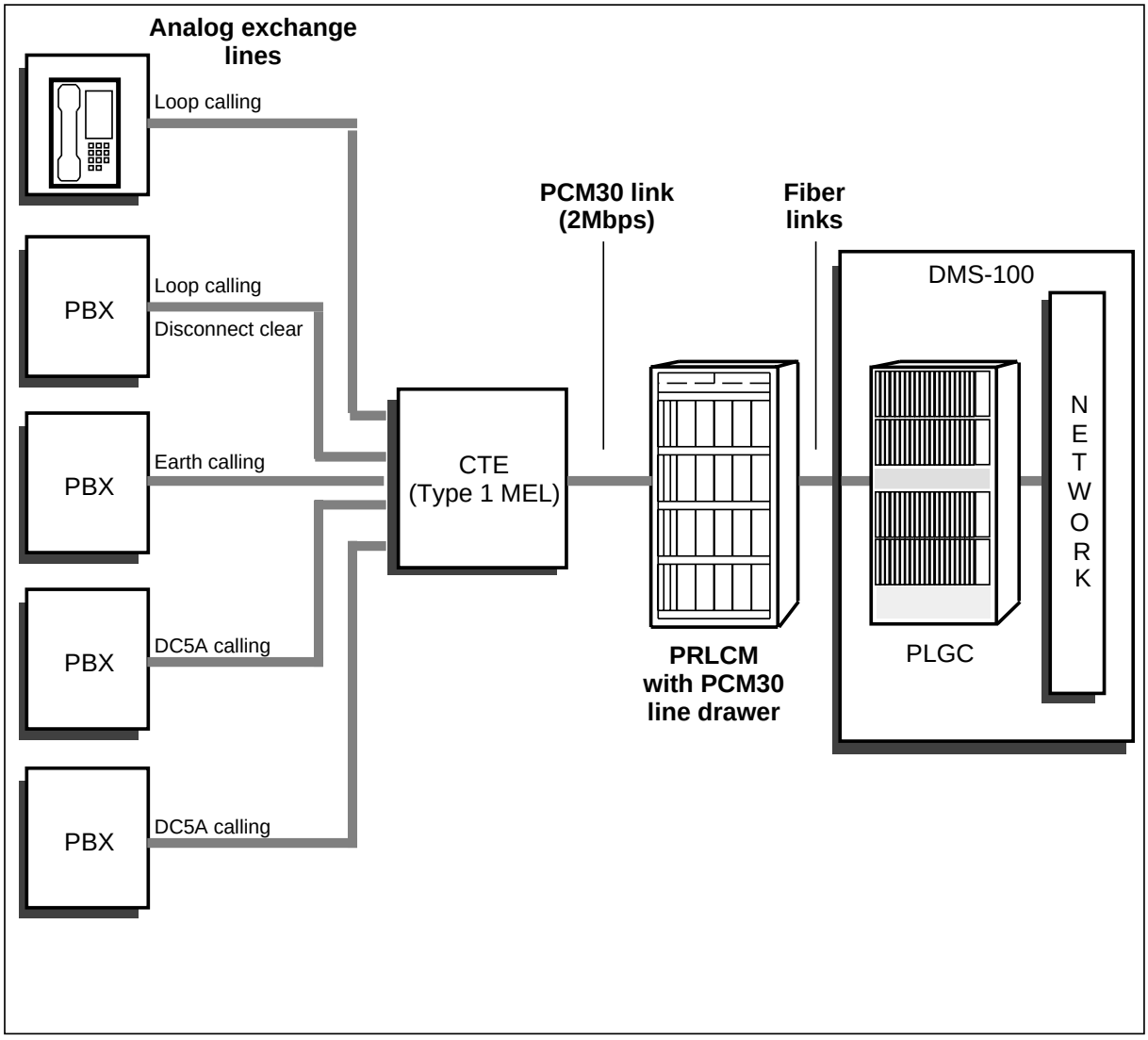


Figure 1-2xxx
Provision of exchange lines from a PRLCM



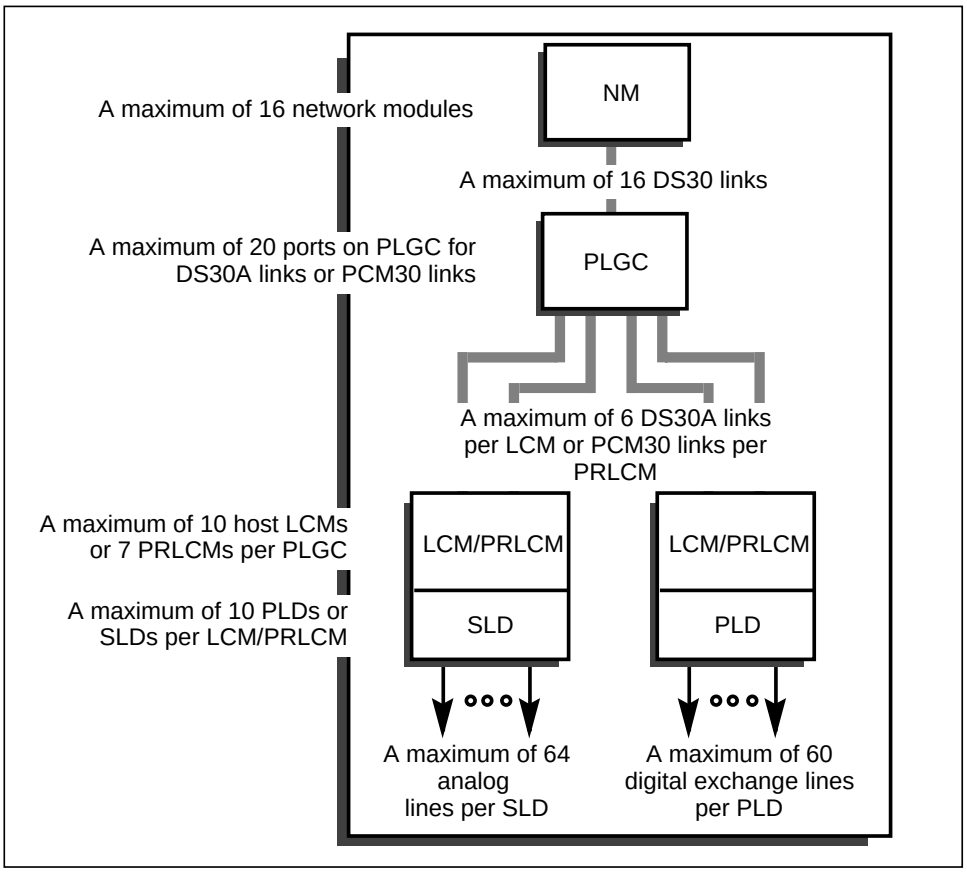
System configuration

The PLD fits into the DMS-100 peripheral architecture in the same way as the standard line drawer. The PLD is an integral part of the host LCM or the PRLCM and provides two PCM30 links, each link carrying a maximum of 30 digital exchange lines to the customer terminating equipment.

A maximum of ten drawers, in any combination of PLDs and standard line drawers, resides in a host LCM or a PRLCM. A host LCM equipped with ten PLDs allows the connection of up to 600 (20 by 30) subscriber lines. The host LCM then connects to the PCM30 line group controller (PLGC) through DS30A links (a maximum of six links). The PRLCM connects to the PLGC through PCM30 links.

Each PLGC supports a maximum of ten host LCMs or seven PRLCMs. The PLGC, in turn, connects to the network module (NM) by a maximum of 16 DS30 links.

Figure 1-3xxx
PLD and DMS configuration



How the PCM30 line drawer is configured

Figure 1-4 illustrates the physical configuration of the PLD. The PLD is physically similar to the standard line drawer and includes the following components:

- bus interface card
- PCM30 interface card

The PLD connects to the digital distribution frame by four coaxial cables, which terminate on the rear of the drawer.

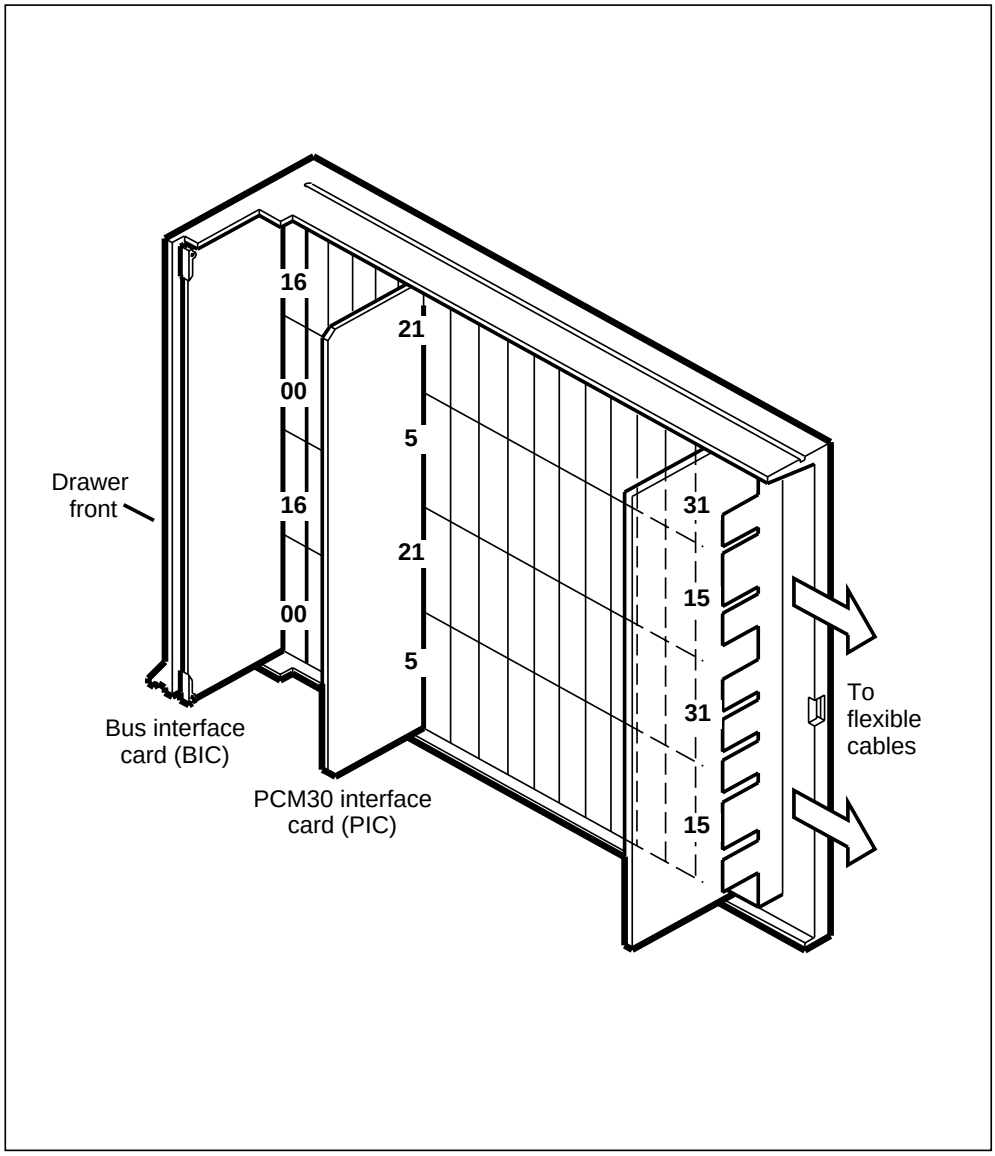
Within the PLD are two subgroups or logical drawers, and each subgroup or logical drawer supports one PCM30 link within time slots 1 to 15 and 17 to 31. The time slots of the logical PLD are mapped one-to-one onto the line equipment number of the logical standard line drawer. Slots 0 and 16 are not used.

Within the PLD, the upper part of the drawer is the even-numbered subgroup and the lower part is the odd-numbered subgroup. Within the standard line drawer, however, the upper part of the drawer is the odd-numbered subgroup and the lower part is the even-numbered subgroup.

The bus interface card is located at the front of the drawer directly behind the faceplate. It monitors drawer activity and provides an interface between the two 30-channel subgroups and the digroup control card.

The PCM30 interface card is located behind the bus interface card and occupies slot numbers 5 and 21. It provides two PCM30 interfaces at 2 Mbps to the customer terminating equipment and interfaces with the bus interface card by means of a DS60 serial link at 5.12 Mbps.

Figure 1-4xxx
PCM30 line drawer



How the peripheral modules are configured

The PLD resides either in an LCM at the host site, or in a PRLCM at a remote site. A brief description of each module is provided in the following pages.

For more detailed information on the LCM or the PRLCM, refer to the *Peripheral Modules Manual*, 297-1001-103.

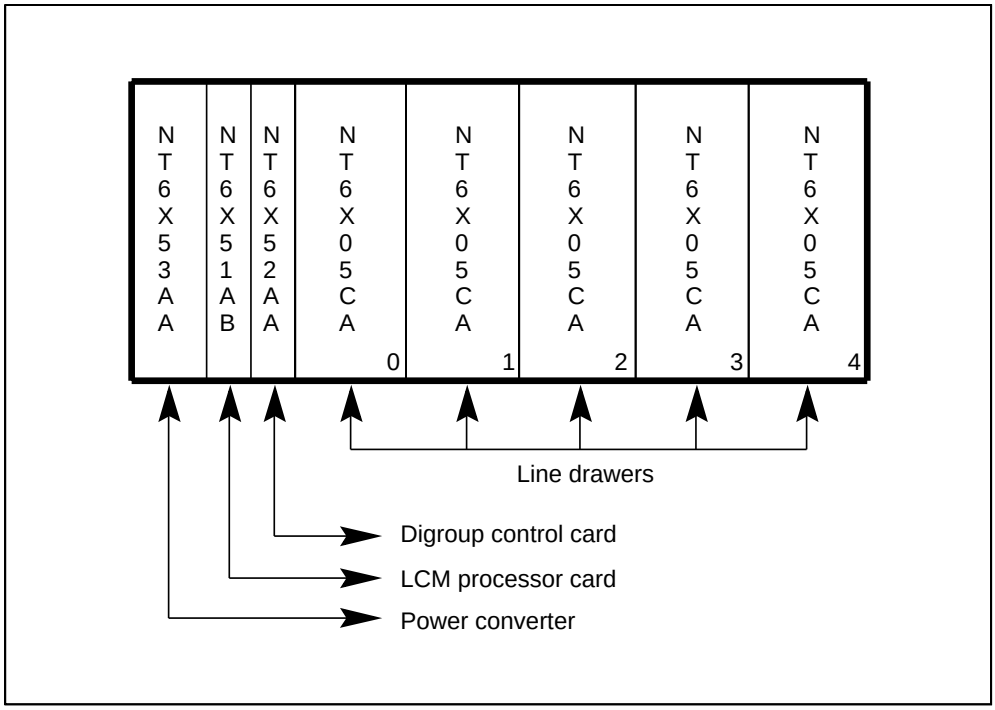
The LCM (NT6X04AB) is a peripheral module that provides low-level functions, for example, line scanning and ringing. It contains two line concentrating array shelves (NT6X0401), and each shelf consists of the following components:

- one power converter card (NT6X53AA)
- one LCM processor card (NT6X51AB)
- one digroup control card (NT6X52AA or NT6X52AB of release 6 or greater)
- five line drawers, either standard (NT6X05AB) or PCM30 (NT6X05CA)

Note: Verify that the printed circuit board (PCB) for the digroup control card is version 6 or greater.

Figure 1-5 illustrates a single line concentrating array. The PLD is located in the same position as the standard line drawer, that is, in positions 0 to 4 on each line concentrating array.

Figure 1-5xxx
LCA shelf layout

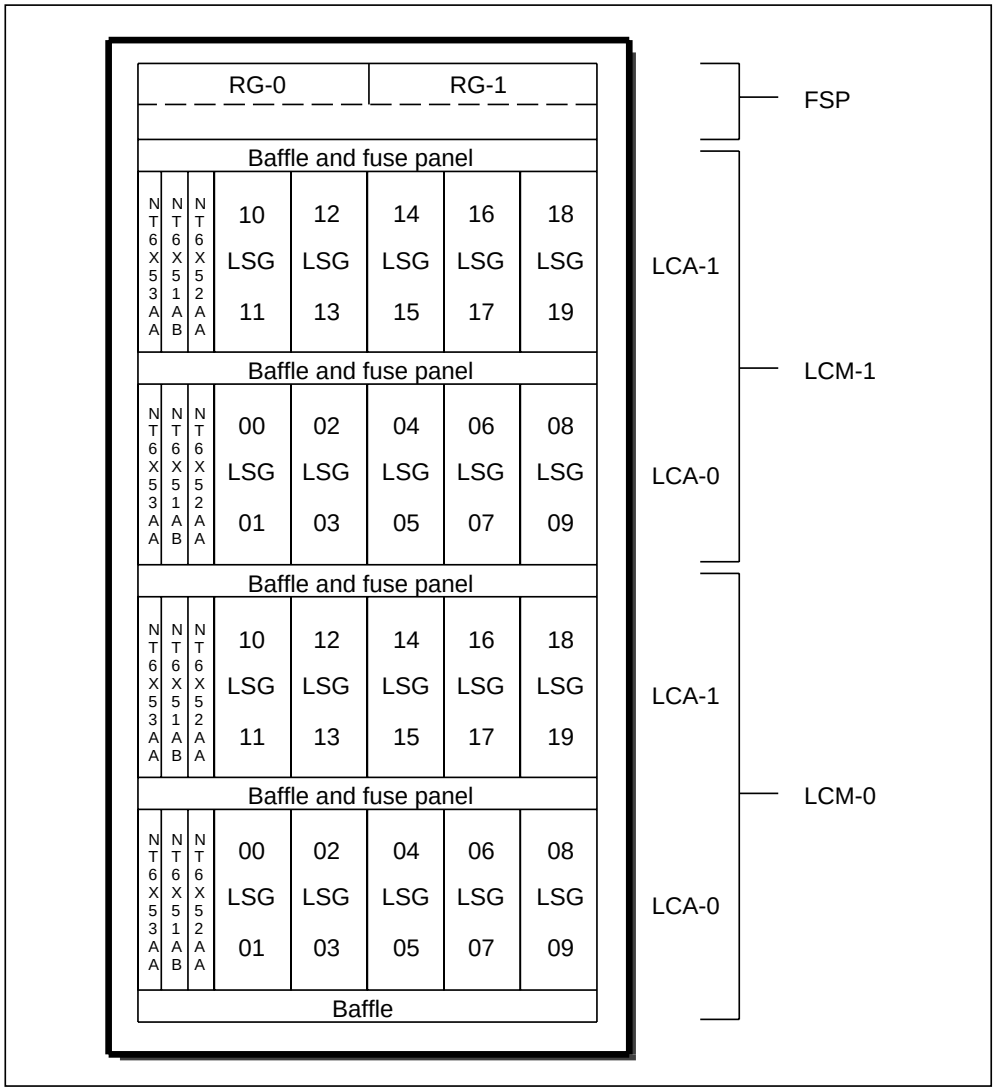


Two host LCMs, each one supporting a maximum of ten PLDs, are housed in a standard DMS-100 single-bay frame that is referred to as a line concentrating equipment frame. A maximum of 20 PLDs are assigned in one line concentrating equipment frame, as shown in Figure 1-6.

Within each PLD are two line subgroups or logical drawers. The upper part of the drawer is the even-numbered subgroup and the lower part is the odd-numbered subgroup. Within the standard line drawer, however, the upper part of the drawer is the odd-numbered subgroup and the lower part is the even-numbered subgroup.

Also included in the line concentrating equipment frame are baffle and fuse panels and a frame supervisory panel, which contains two ringing generators (NT6X30AB).

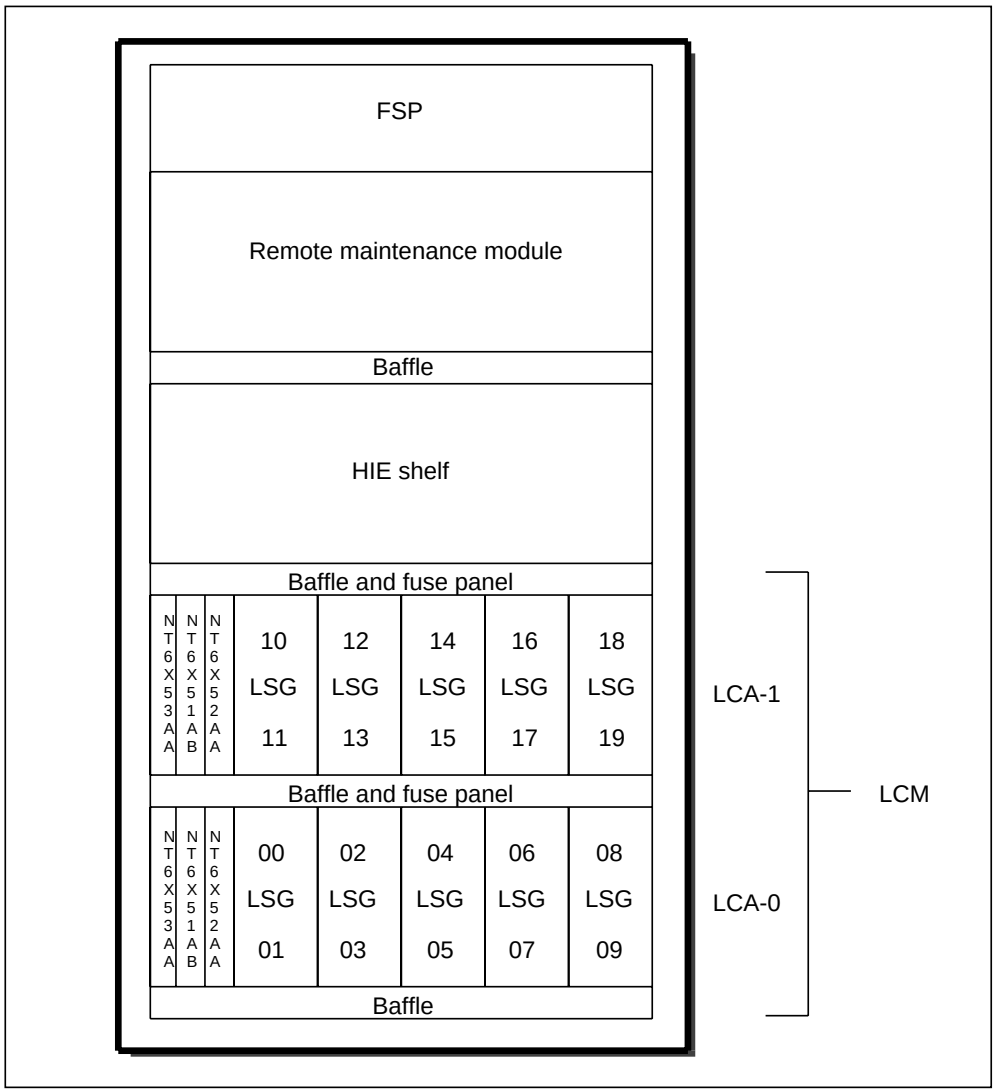
Figure 1-6xxx
LCE frame layout



The PRLCM is a remote LCM. Similar to the host LCM, the PRLCM provides low-level functions, for example, line scanning and ringing. It is located at a remote site and connects to the PLGC through PCM30 links. Figure 1-7 illustrates the physical configuration of the PRLCM, which consists of the following components:

- one LCM that supports a maximum of ten PLDs
- one host interface equipment (HIE)
- one remote maintenance module
- one frame supervisory panel (FSP)

Figure 1-7xxx
PRLCM frame layout



PCM30 line drawer maintenance

This chapter describes the maintenance functions available for the PCM30 line drawer (PLD) as follows:

PCM30 line drawer maintenance description on page 2-2 describes the maintenance functions available for the PLD.

Fault detection and isolation on page 2-3 describes how faults are detected and isolated.

Performing maintenance functions on page 2-4 describes the maintenance functions that can be performed on the PLD, and the level of the MAP terminal at which they are performed.

PCM30 line drawer maintenance description

The existing standard line drawer (SLD) maintenance has been extended to support the maintenance of the PCM30 line drawer (PLD), specifically the PCM30 interface card (PIC), which is an integral part of the PLD. Maintenance is performed by the line concentrating module (LCM) drawer maintenance, which is part of the LCM maintenance, and includes maintenance of the PIC. Therefore, the automatic and manual maintenance procedures executed on the PLD are similar to those executed on the SLD.

The codes that indicate the state of the PLD are similar to the codes for the SLD. The codes are listed below with a brief description. The state of a drawer is changed either automatically by the system, or manually by inputting commands at the MAP terminal. Log report PM181 is generated to indicate the state changes, for example, ManB from SysB.

Table 2-1xxx
PLD drawer states

Code	Description
. (dot)	The PLD is in service and is available for call processing.
M	The PLD has been manually busied for maintenance purposes and is unavailable for call processing.
O	The PLD is offline for maintenance purposes and is unavailable for call processing.
S	The PLD has been automatically taken out of service for maintenance purposes and is unavailable for call processing.
-	The PLD is unequipped and is unavailable for call processing.

Fault detection and isolation

Fault detection on the PLD is accomplished through continuous self-monitoring of the system, routine audits, and both automatic and manual diagnostic procedures. Fault isolation can be performed to circuit card level, that is, the fault can be identified as either a BIC or a PIC failure.

If a hardware or link fault occurs on the PLD, the fault status code LCM is displayed below the peripheral module (PM) subsystem. The PLD becomes system busy (S), the LCM is set to in-service trouble (ISTb), and all associated lines are removed from service and set to line module busy (LMB).

Log report PM181 provides the reason for the hardware failure, which can be one of the following:

- BIC failure
- PIC failure

Log report PM179 provides the reason for the link failure, which can be any of the following:

- PIC not equipped (CARD OUT)
- local loss of frame alignment (LLFA)
- local loss of multiframe alignment (LLMA)
- remote frame alignment indication (RFAI)
- remote multiframe alignment indication (RMAI)
- alarm indication signal (AIS)

Once link alarms have been cleared, all associated lines are set to the idle state and log report PM179 is generated to indicate that the alarms have been cleared.

For more detailed information on log reports, refer to the *PCM30 Line Drawer Planning, Engineering, and Administration Guide*, 297-2101-115.

If a fault occurs on the Mercury exchange line multiplexer that brings down the PCM30 link, the PLD becomes system busy (S). All associated lines are removed from service and set to line module busy (LMB) until the fault is corrected.

Performing maintenance functions

Maintenance functions are performed at the MAP (maintenance and administration position) terminal located at either the host or the remote site.

Drawer maintenance

Maintenance functions on the PLD are performed at the MAP terminal under the PM subsystem at the LCM level, and these functions are similar to the functions performed on the SLD. Maintenance functions can be executed on only one drawer at a time.

When the command return to service (RTS) or test (TST) is entered at the MAP terminal, a hardware diagnostic test is performed on the specified drawer. If the test fails, log report PM181 is generated to provide the reason for the failure. For more information on log reports, refer to the *PCM30 Line Drawer Planning, Engineering, and Administration Guide*, 297-2101-115.

PLD line maintenance

Standard line maintenance does not extend to PCM30 lines. Subscriber line status can be viewed at the LTP level of the MAP terminal under the lines (LNS) subsystem. The commands POST, BSY, RTS, HOLD, and NEXT can be applied. For more information, refer to the *Line Maintenance Reference Manual*, 297-2101-516.

Clearing drawer faults

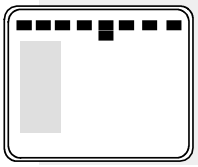
This chapter describes the procedure for clearing PCM30 line drawer (PLD) faults. If a card replacement is required, refer to the “Card replacement procedures” chapter of this document.

The procedure in this chapter begins at the peripheral module (PM) level of the MAP terminal. If you are not at this level, get to the PM level from the command interpreter (CI) level of the MAP terminal by typing

>MAPCI;MTC;PM

and pressing the Enter key.

PM **LCM Minor**



CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	**1LCM**	.	.	.	.	.

Indication

The alarm code LCM, below the peripheral module (PM) subsystem header, indicates a line concentrating module minor alarm. The number that precedes LCM is the number of LCMs with a minor alarm.

Meaning

The indicated number of LCMs have one or more faulty drawers. An LCM that has one or more faulty drawers is in in-service trouble (ISTb).

Impact

Lines in a drawer that is system busy (S) or manual busy (M) are line module busy (LMB), and subscribers are without service.

Common procedures

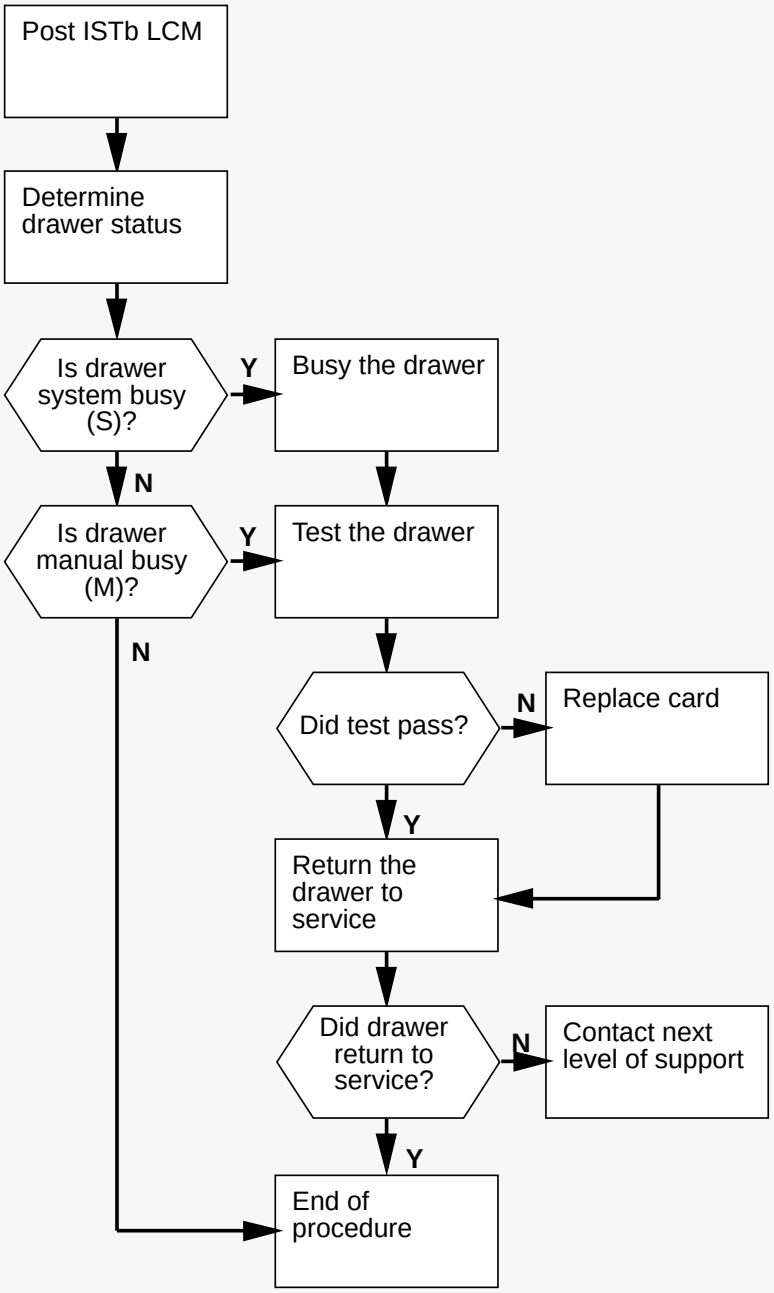
None

Action

The following flowchart is a summary of this procedure. Use the instructions in the step-action table that follows the flowchart to perform the procedure.

PM **LCM** (continued)
Minor (continued)

Summary of clearing an LCM alarm



End

Clearing a PM LCM Minor alarm

Step	Action
	At the MAP
1	Access the PM level of the MAP by typing **>PM** and pressing the Enter key. ↵
2	Display all the in-service-trouble LCMs by typing **>DISP ISTB LCM** and pressing the Enter key. ↵
3	If more than one in-service-trouble LCM is displayed, select one on which to work.
4	Post the selected LCM by typing **>POST LCM frame_no pair_no** and pressing the Enter key. ↵ *where* frame_no is the number of the frame that contains the LCM (0 to 511) pair_no is the number of the LCM in the frame (0 or 1)
5	From the MAP display, determine the status of the drawers. ***Note:*** The term drawer in this procedure refers to a line subgroup (LSG). Two LSGs make up one physical drawer. For example, 0 and 1 are two LSGs in one physical drawer. Maintenance functions can be executed on only one LSG at a time.

If a drawer is	Do
system busy (S)	step 6
manual busy (M)	step 7

-continued-

PM **LCM** (continued)
Minor (continued)

Clearing a PM LCM Minor alarm (continued)

Step	Action
6	Busy the drawer by typing **>BSY DRWR drwr_no** and pressing the Enter key. ↵ *where* drwr_no is the number of the LSG to be busied (0 to 19)
7	Test the drawer by typing **>TST DRWR drwr_no** and pressing the Enter key. ↵ *where* drwr_no is the number of the LSG to be tested (0 to 19)

If the TST command	Do
passed	step 8
failed and a card list is generated	step 10
failed and a card list *is not* generated	step 14

-continued-

Clearing a PM LCM Minor alarm (continued)

Step	Action
8	Return the drawer to service by typing **>RTS DRWR drwr_no** and pressing the Enter key. ↵ *where* drwr_no is the number of the LSG to be returned to service (0 to 19) **If the RTS command** — **Do** passed and the drawer is in service (.) — step 15 passed and the drawer is in service (.), but there are other drawers that are either system busy (S) or manual busy (M) — step 9 failed and a card list is generated — step 10 failed and a card list *is not* generated — step 14
9	Repeat steps 5 to 8 for each LSG that is either system busy (S) or manual busy (M).
10	A card list is generated. Record the locations and PECs, including suffixes, of the cards on the list.
11	See the chapter titled “Card replacement procedures” in this document to replace the first card on the list, and return to this point.

-continued-

Clearing a PM LCM Minor alarm (continued)

Step	Action
12	Return the drawer to service by typing **>RTS DRWR drwr_no** and pressing the Enter key. ↵ *where* drwr_no is the number of the LSG to be returned to service (0 to 19) ***Note:*** Both LSGs must be returned to service. **If the RTS command** — **Do** passed and the drawer is in service (.) — step 15 passed and the drawer is in service (.), but other drawers are either system busy (S) or manual busy (M) — step 9 failed and you *have not* replaced all the cards in the list recorded in step 9 — step 13 failed and you have replaced all the cards in the list recorded in step 9 — step 14 failed and a card list *is not* generated — step 14
13	See the chapter titled “Card replacement procedures” in this document to replace the next card on the list, and return to step 12 in this procedure.
14	For further assistance, contact the personnel responsible for the next level of support.
15	You have completed this procedure.
	End

Card replacement procedures

This chapter provides procedures for replacing cards in a PCM30 line drawer (PLD).

The procedures in this chapter assume that you are at the PM level (peripheral module level) of the MAP terminal. If you are not at this level, get to the PM level from the CI level (command interpreter level) of the MAP terminal by typing

>MAPCI;MTC;PM

and pressing the Enter key.

When a card is replaced, the following information must be noted in office records:

- the serial number of the replaced card
- the date of replacement
- the reason for the replacement

NT6X27
in a **PCM30 line drawer**

Application

Use this procedure to replace the PCM30 interface card (PIC) in a PCM30 line drawer (PLD).

PEC	Suffixes	Name
NT6X27	CA	PCM30 interface card

Common procedures

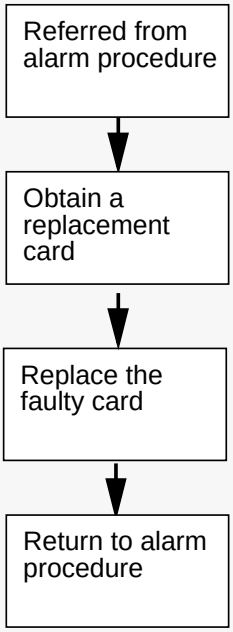
None

Action

The following flowchart is a summary of this procedure. Use the instructions in the step-action table that follows the flowchart to perform the procedure.

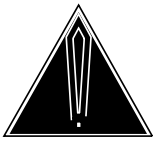
NT6X27 (continued)
in a **PCM30 line drawer** (continued)

Summary of replacing an NT6X27 in a PCM30 line drawer



NT6X27 (continued) in a **PCM30 line drawer** (continued)

Replacing an NT6X27 in a PCM30 line drawer

Step	Action
	 **CAUTION** **Loss of service** Service to the lines connected to the PIC that is being replaced is interrupted. Perform this procedure during a period of low traffic. Do not perform this procedure on a drawer handling data calls.
1	Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card being removed.
At the MAP	
2	Busy the drawer that contains the PCM30 interface card (PIC) to be replaced, by typing **>BSY DRWR drwr_no** and pressing the Enter key. ↵ *where* drwr_no is the number of the LSG to be busied (0 to 19) ***Note:*** The term drawer refers to a line subgroup (LSG). Two LSGs make up one physical drawer. For example, 0 and 1 are two LSGs in one physical drawer. Both LSGs have to be busied to replace the PCM30 interface card (PIC).

-continued-

Replacing an NT6X27 in a PCM30 line drawer (continued)

Step	Action
At the shelf	
	 **WARNING** **Static electricity damage** Wear a wrist strap connected to the wrist strap grounding point of a frame supervisory panel (FSP) while handling circuit cards. This protects the cards against damage caused by static electricity.
3	Open the line drawer that you busied in step 2.
4	Locate and remove the NT6X27 card and insert the replacement card.
5	Close the line drawer.
6	Return to the maintenance procedure that sent you to this procedure and continue as directed.
	End

NT6X54 in a PCM30 line drawer

Application

Use this procedure to replace the bus interface card (PIC) in a PCM30 line drawer (PLD).

PEC	Suffixes	Name
NT6X54	CA	bus interface card

Common procedures

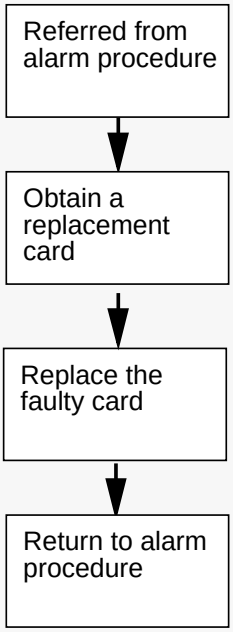
None

Action

The following flowchart is a summary of this procedure. Use the instructions in the step-action table that follows the flowchart to perform the procedure.

NT6X54 (continued)
in a **PCM30 line drawer** (continued)

Summary of replacing an NT6X54 in a PCM30 line drawer



NT6X54 (continued) in a **PCM30 line drawer** (continued)

Replacing an NT6X54 in a PCM30 line drawer

Step	Action
	CAUTION **Loss of service** Service to the lines connected to the PIC that is being replaced is interrupted. Perform this procedure during a period of low traffic. Do not perform this procedure on a drawer handling data calls.
1	Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card being removed.
At the MAP	
2	Busy the drawer that contains the bus interface card (BIC) to be replaced, by typing **>BSY DRWR drwr_no** and pressing the Enter key. ↵ *where* drwr_no is the number of the LSG to be busied (0 to 19) ***Note:*** The term drawer refers to a line subgroup (LSG). Two LSGs make up one physical drawer. For example, 0 and 1 are two LSGs in one physical drawer. Both LSGs have to be busied to replace the bus interface card (BIC).
At the shelf	
	WARNING **Static electricity damage** Wear a wrist strap connected to the wrist strap grounding point of a frame supervisory panel (FSP) while handling circuit cards. This protects the cards against damage caused by static electricity.
3	Open the line drawer that you busied in step 2.
4	Locate and remove the NT6X54 card.
5	Insert the replacement card using a BIC (6X54) insertion tool with the apparatus code QTH59A and common product code AO322985 .

-continued-

Replacing an NT6X54 in a PCM30 line drawer (continued)

Step	Action
6	Close the line drawer.
7	Return to the maintenance procedure that sent you to this procedure and continue as directed.
	End

List of terms

Automatic call distribution (ACD)

A set of Meridian digital centrex features that assigns answering machine priorities to incoming calls and then queues and distributes them to a predetermined group of telephone sets designated as answering positions.

Bus interface card (BIC)

The BIC is a circuit card located in the PCM30 line drawer. The BIC interfaces to the PCM30 interface card that serves two 30-channel digroups to a maximum of 60 digital exchange lines.

CCITT

See Consultative Committee on International Telephony and Telegraphy (CCITT)

Centrex

Centralized private branch exchange. A service that provides a business telephone subscriber with direct inward dialing to extensions on the same system and direct outward dialing from all extensions. Centrex switching equipment is normally located at the central office, but it may be located on the operating company client's premises.

Consultative Committee on International Telephony and Telegraphy (CCITT)

The Consultative Committee on International Telephony and Telegraphy (CCITT) operates under the auspices of the United Nations and is the forum for international agreement on recommendations for international communication systems.

Customer terminating equipment (CTE)

CTE refers to the devices used at customer sites.

Digital multiplex system (DMS)

DMS is a central office switching system in which all external signals are converted to digital data and stored in assigned time slots. Switching is performed by reassigning the original time slots.

DS30A link

A 32-channel transmission link between the line concentrating module and the controllers, for example, a PCM30 line group controller, in the DMS-100 Family.

Dual-tone multifrequency (DTMF) signaling

DTMF is a signaling method that employs set combinations of two specific voice-band frequencies. One frequency is selected from a group of four low frequencies, and the other frequency is selected from a group of three or four relatively high frequencies.

Erlang

An international unit of the average traffic intensity (occupancy) of a facility during a period of time, usually a busy hour.

Frame supervisory panel (FSP)

An FSP accepts the frame battery feed and ground return from the power distribution center and distributes the battery feed, through subsidiary fuses and feeds, to the shelves of the frame or bay in which it is mounted. The FSP also contains alarm circuits.

LEN

See Line equipment number (LEN)

Line concentrating array (LCA) shelf

An LCA shelf is a unit contained in a line concentrating module (LCM). It consists of a power converter, an LCM processor card, a digroup control card, and a maximum of five line drawers, either PCM30 or standard line drawers.

Line concentrating equipment (LCE) frame

An LCE frame is a single-bay frame that contains two line concentrating modules, as well as baffle and fuse panels and a frame supervisory panel.

Line concentrating module (LCM)

An LCM is a peripheral module that performs low-level functions, for example, line scanning and ringing. It interfaces a maximum of 600 digital exchange lines or 640 analog lines with the line group controller.

Line equipment number (LEN)

A LEN is a seven-digit function reference that identifies line circuits.

Line group controller (LGC)

An LGC is a peripheral module that supports the line concentrating module. It performs high-level functions, for example, call coordination and provision of the different tones that are required. The LGC interfaces with the network through DS30 links and with a line concentrating module through DS30A links.

Maintenance and administration position

See MAP (maintenance and administration position)

MAP (maintenance and administration position)

The MAP terminal is a group of components that provides a user interface between operating company personnel and DMS-100 Family systems. A MAP terminal consists of a visual display unit and keyboard, a voice communications module, test facilities, and MAP furniture.

MDC

See Meridian digital centrex (MDC)

Mercury Communications Limited (MCL)

MCL is a common carrier mainly serving business subscribers.

Meridian digital centrex (MDC)

A special DMS business services package that utilizes the data-handling capabilities of DMS-100 Family offices. MDC provides a centralized telephone exchange service. It was formerly known as integrated business network (IBN).

Multiplexer (MUX)

A multiplexer is a device that transmits two or more signals over the same transmission path or enables a single receiver to be shared among several signals.

Operational measurements (OM)

Operational measurements (OM) are the hardware and software resources of the DMS-100 Family systems that control the collection and display of measurements counted on an operating system. OMs organize the measurement of data and manage data transfer to displays and records on which maintenance, traffic, accounting, and provisioning decisions are based.

PCM30 interface card (PIC)

The PIC is a circuit card located in the PCM30 line drawer. The PIC provides two PCM30 interfaces at 2 Mbps to the customer terminating equipment. It interfaces with the bus interface card through DS60 serial links at 5.12 Mbps.

PCM30 line drawer (PLD)

The PLD is an integral part of the host or remote line concentrating module, which interfaces with multiplexers at customer sites. The interface consists of two PCM30 links, and each link is capable of carrying a maximum of 30 digital exchange lines.

PCM30 line group controller (PLGC)

See Line group controller

PCM30 remote line concentrating module (PRLCM)

See Remote line concentrating module

Peripheral module (PM)

PM is a generic term referring to all hardware modules in DMS-100 Family systems. PMs interface with external line, trunk, or service facilities. PMs contain peripheral processors, which perform local routines, to relieve the load on the central processing unit.

Pulse code modulation (PCM)

PCM represents an analog wave form by coding and quantifying periodic samples of the signal, so that each element of information consists of a binary number that represents the value of the sample.

Remote line concentrating module (RLCM)

An RLCM is an equipment frame that interfaces a maximum of 600 digital exchange lines or 640 analog lines with the line group controller. An RLCM consists of a line concentrating module, a remote maintenance module, a host interface equipment shelf, and a frame supervisory panel.

Service order and query system (SERVORD)

The service order and query system (SERVORD) is a user interface that changes, adds, or deletes a subscriber line using standard telephone industry command format.

DMS-100 Family

PCM30 Line Drawer

Maintenance Guide

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