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DMS-100 Family

Extended Peripheral Module

International Logs Reference Manual

XPM09 and up Standard 07.01 March 1998

NORTEL
NORTHERN TELECOM

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Contents

About this document v
How to check the version and issue of this document v
References in this document v
What precautionary messages mean v
How commands, parameters, and responses are represented vii
Input prompt (>) vii
Commands and fixed parameters vii
Variables vii
Responses vii

International XPM product related logs 1-1
The log system 1-1
What is a log report? 1-1
Product related logs 1-1
Controlling output from the log system 1-1

RSC-S International related logs 2-1
Peripheral module logs 2-1
RCO2 logs 2-1
ESA logs 2-36
Other RSC-S logs 2-38
DRCO2 logs 2-38
RSC-S with ISDN logs 2-40

Global Peripheral Platform logs 3-1
The log system 3-1
What is a log report? 3-1
Product related logs 3-1
Controlling output from the log system 3-2
Logs associated with the GPP 3-2

RSC-M International related logs 4-1
Peripheral module logs 4-1
RCO2 logs 4-1
ESA logs 4-32

About this document

How to check the version and issue of this document

The version and issue of the document are indicated by numbers, for example, 01.01.

The first two digits indicate the version. The version number increases each time the document is updated to support a new software release. For example, the first release of a document is 01.01. In the *next* software release cycle, the first release of the same document is 02.01.

The second two digits indicate the issue. The issue number increases each time the document is revised but rereleased in the *same* software release cycle. For example, the second release of a document in the same software release cycle is 01.02.

To determine which version of this document applies to the software in your office and how documentation for your product is organized, check the release information in *Product Documentation Directory,* 297-8991-001.

This document is written for all DMS-100 Family offices. More than one version of this document may exist. To determine whether you have the latest version of this document and how documentation for your product is organized, check the release information in *Product Documentation Directory,* 297-8991-001.

References in this document

The following documents are referred to in this document:

- *Log Report Reference Manual*
- *Product Documentation Directory,* 297-8991-001
- *Translations Guide*

What precautionary messages mean

The types of precautionary messages used in NT documents include attention boxes and danger, warning, and caution messages.

An attention box identifies information that is necessary for the proper performance of a procedure or task or the correct interpretation of information or data. Danger, warning, and caution messages indicate possible risks.

Examples of the precautionary messages follow.

ATTENTION Information needed to perform a task

ATTENTION

If the unused DS-3 ports are not deprovisioned before a DS-1/VT Mapper is installed, the DS-1 traffic will not be carried through the DS-1/VT Mapper, even though the DS-1/VT Mapper is properly provisioned.

DANGER Possibility of personal injury

DANGER

Risk of electrocution

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

WARNING Possibility of equipment damage

WARNING

Damage to the backplane connector pins

Align the card before seating it, to avoid bending the backplane connector pins. Use light thumb pressure to align the card with the connectors. Next, use the levers on the card to seat the card into the connectors.

CAUTION Possibility of service interruption or degradation

CAUTION
Possible loss of service
Before continuing, confirm that you are removing the card from the inactive unit of the peripheral module. Subscriber service will be lost if you remove a card from the active unit.

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 is a command:

>BSY

Commands and fixed parameters

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

>BSY CTRL

Variables

Variables are shown in lowercase letters:

>BSY CTRL ctrl_no

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:

```
FP 3 Busy CTRL 0: Command request has been submitted.
FP 3 Busy CTRL 0: Command passed.
```

The following excerpt from a procedure shows the command syntax used in this document:

1 Manually busy the CTRL on the inactive plane by typing

>BSY CTRL ctrl_no
and pressing the Enter key.

where

ctrl_no is the number of the CTRL (0 or 1)

Example of a MAP response:

```
FP 3 Busy CTRL 0: Command request has been submitted.
FP 3 Busy CTRL 0: Command passed.
```

International XPM product related logs

The log system

What is a log report?

A log report is a message generated by the DMS switch whenever a significant event has occurred in the switch or one of its peripherals. Log reports include status and activity reports, as well as reports on hardware or software faults, test results, changes in state, and other events or conditions likely to affect the performance of the switch. A log report may be generated in response to either a system or a manual action.

Product related logs

This document provides information on logs that relate to an XPM product or feature. Specific log data and recommended actions, if not information only logs, concerning a particular XPM product is presented in the respective chapters. For a complete description of all logs refer to the *DMS-100 Log Report Reference Manual*.

Controlling output from the log system

Log output, including storage, distribution, prioritization, suppression, and thresholds, may be controlled in two ways.

First, individual offices may customize the output from the log system to meet local requirements by making changes to the appropriate customer data tables. Refer to the data schema section of the *DMS-100 Translations Guide* for more information.

Second, specific log utility (LOGUTIL) commands may be executed in the LOGUTIL level on a MAP terminal. LOGUTIL commands may be used to temporarily override parameters set in the customer data tables, for example, to turn log reports off, or to route output temporarily to a different device. In most cases, a restart (reinitialization of the DMS-100 operating system and user processes) will reset any temporary change that was made by the use of LOGUTIL commands.

RSC-S International related logs

Gathering and interpreting logs is a primary way for operating companies to monitor Remote Switching Center-SONET (RSC-S) components. Certain logs are useful in isolating a problem to a single component, while others help in spotting link problems.

Peripheral module logs

To perform maintenance of the RSC-S, the operating company should pay particular attention to peripheral module (PM) logs. This section provides a general description of PM logs and highlights maintenance activities that result in specific logs.

Note 1: Existing PM logs are updated to reflect the RSC-S.

Note 2: Basic operational measurements (OM) for the Remote Switching Center (RSC) also apply to the RSC-S.

Note 3: For information on how logs can be used for administrative purposes, refer to the *Log Report Reference Manual*.

Logs in this document are grouped as follows:

- remote center offshore #2 (RCO2) logs
- emergency stand-alone (ESA) logs
- other RSC-S logs
- dual RCO2 (DRCO2) logs
- RSC-S with integrated services digital network (ISDN) logs

RCO2 logs

The following table lists primary PM log reports associated with an RCO2 without ESA. (PM181 logs for ESA are described in a separate section.) Included are example messages, additional message reasons when applicable, and the log's meaning.

Note: One PM181 log is associated with throttling message links. This log is described in a separate section.

RSC-S (INTL) related logs

Log name	Causes	Response

IOAU112	RSC-S has not been routine exercise (REX) tested for 7 days. Investigate why REX has not been run on the RSC-S. Possible reasons are as follows:
	• REX is suspended for the RSC-S.
	• REX is disabled in table REXSCHED.
	• REX is manually turned off using the TST command at the PM level.
	• REX is manually turned off through table OFCVAR using parameter NODEREXCONTROL.
	• REX is disabled because the RSC-S is in service trouble (ISTb). Take corrective action to return the RSC-S to service so the REX test can be run.
		`IOAU112 AUG09 16:35:26`
		`1900 INFO REX Scheduler Notice`
		`RCO2 0 has not been REXed for`
		`7 days`

NAG400	Hourly under the control of the NAG command. Lists information, including REX results, about all nodes not in-service (InSv).	Depending on review of the log report, the craftsperson should take the necessary steps to either return the node to service or have the node REX enabled if it is appropriate to do so.

PM102	The DMS switch has set the RCO2 system busy (SysB) from another state, usually ISTb. Produced when the link audit with the central-side (C-side) PM fails.	`PM102 MAY21 22:15:21 2453`
		`SysB RCO2 0`
		`Node :SysB From ISTb`
		`Unit0 Inact:SysB(Link`
		`Audit)`
		`Unit1 Act:SysB :Link Audit`
		`from CBsy`

PM105	The BSY command has been entered from the MAP terminal, and the RCO2 can now be tested or placed offline. If the RCO2 is already busy, check with other personnel to determine why it was busied.	`PM105 MAY21 22:15:21 2453`
		`MANB RCO2 0`
		`Node :ManB From ISTb`
		`Unit0 Inact::ManB`
		`Unit1 Act::ManB`

—continued—

RSC-S (INTL) related logs (continued)

Log name	Causes	Response
PM106	The DMS switch has returned the RCO2 to service, usually from the ISTb state.	PM106 MAY21 22:15:21 2453 RTS RCO2 0 Node :InSv From ISTb Unit0 Inact::InSv Unit1 Act::InSv
PM107	The DMS switch has set the RCO2 C-side busy. This usually means both messaging RCO2 links are busy, or the C-side PM is SysB.	PM107 MAY21 22:15:21 2453 CBSY RCO2 0 Node :CBsy Unit0 Inact::SysB (Link Audit) from CBsy Unit1 Act::CBsy
PM109	The level set in table CARRMTC for the out-of-service (OOS) limit has been exceeded. The pulse code modulation 30 (PCM-30) card associated with the link from the RCO2 to the C-side PM has been removed. The RCO2 is set ISTb.	PM109 MAY21 22:15:21 2451 PBSY CARRIER LGC0 CARRIER-NO: 3 REASON:CARRIER LOCAL ALARM SET CARRIER CARD REMOVED
PM110	The level set in table CARRMTC for bipolar violation (BpV) maintenance limit has been exceeded.	PM110 MAY21 22:15:21 2451 INFO CARRIER LGC0 CARRIER-NO: 3 REASON:CARRIER BPV MTC LIMIT SET
	The BpV limit has dropped below the threshold and cleared.	BPV MTC LIMIT CLEARED
	The C-side PM has detected loss of frame (LOF), set in table CARRMTC.	LOF MTCE LIMIT SET
	The loss of frame has cleared.	LOF MTCE LIMIT CLEARED
	The slip level set in table CARRMTC has been exceeded.	SLIP MTCE LIMIT SET
	The slip level has dropped below the threshold.	SLIP MTCE LIMIT CLEARED

—continued—

RSC-S (INTL) related logs (continued)

Log name	Causes	Response

PM111	A local carrier group alarm (LCGA) has been cleared, and the PCM-30 links have been returned to service.	`PM111 MAY21 22:15:21 2451`
		`RTS CARRIER`
		`LGCO`
		`CARRIER-NO: 3`
		`REASON:CARRIER LOCAL`
		`ALARM CLEARED`

PM117	The RCO2 failed to return a `Who-Am-I` message to the central control (CC) after the CC requested that the RCO2 reset itself.	`PM117 MAY21 22:15:21 2451`
		`LGC 0 Unit 1:Act`
		`VALUE: 1 NO WAI RECEIVED`
		`AFTER RESET`

PM128	The DMS switch has set the RCO2 ISTb. While the problem is corrected, the RCO2 can continue to process calls.
	
	State of the two units changed because of a REX test failure.
	
	REX test passed.
	
	Diagnostic TESTALL fails.
	
	REX warm SWACT has occurred.
		`PM128 MAY21 22:15:21 2451`
		`TBL ISTb RCO2 0`
		`Node :ISTb (Inact OOS)`
		`From InSv`
		`Unit0 Inact::SysB From InSv`
		`Unit1 Act::InSv`

	NT7X05 not present	The NT7X05 card is datafilled in the appropriate inventory table, but during a maintenance action involving the NT7X05 it is discovered that the NT7X05 is not physically present in the correct slot. To correct this fault, follow NT7X05 card replacement procedures to Bsy the unit, install the NT7X05 card, and RTS the unit.
	NT7X05 Fault Detected	The card may be functional, but a fault was detected so the card should be replaced. To correct this fault, follow NT7X05 card replacement procedures to Bsy the unit, install the NT7X05 card, and RTS the unit.

—continued—

RSC-S (INTL) related logs (continued)

Log name	Causes	Response
PM128 (contd)	Unusable or missing image file on the NT7X05	Set when the XPM unit does not have a usable image file on the NT7X05 card. This may be due to one of several factors: • the file may have a corruption indicated by a failed checksum, • a loading attempt using the file failed yet loading from other files passed • the file may simply be missing altogether • the file may be present but may be the wrong file, that is, not the correct load as datafilled in the inventory table To correct this fault, cause the image dump to take place manually by executing a Bsy and RTS of the unit.
	Unusable or missing load file on the NT7X05	Set when one of more of the load files on the NT7X05 card in the XPM unit are not usable. This could indicate problems with the XPM loadfile and/or the CMR loadfile (if applicable). This may be due to one of several factors: • the file(s) may have a corruption indicated by a failed checksum, • a loading attempt using the file(s) failed yet loading from other files passed • the file(s) may simply be missing altogether • the file(s) may be present but may be the wrong file(s), i.e. not the correct primary file(s) as datafilled in the PMLOADS table To correct this fault, reload the NT7X05 card using the command string LOADPM INACTIVE CC NT7X05.

—continued—

RSC-S (INTL) related logs (continued)

Log name	Causes	Response
PM128 (contd)	Image in progress	Set when the XPM unit is actively dumping an image to the NT7X05 card.

ISDN LINE 131	Generated for 2B1Q loops when performance thresholds on line cards are exceeded.	`LINE131 APR01 16:53:10 6100`
		`INFO Performance Monitoring (PM) Alert`
		`LEN HOST 10 0 08 14`
		`DN 7225227`
		`Report Type PERFORMANCE ALERT`
		`Source QISLC – FE ES CURR`
		`Day Threshold Of 100`
		`Exceeded ES=101 SES=101`

LINE 145	Reports any of the following layer 1 events:
	• loss of synchronization
	• loss of signal with *dying gasp*
	• loss of signal without *dying gasp*
	• recovery of signal
		`LINE145 ATPR 01 11:19:15 8200`
		`INFO ISLC Signal Alarm`
		`LEN HOST 10 0 08 15`
		`DN 7225228`
		`Loss of signal with “dying gasp” at NT1: Loop state remains DMB`

	Triggered when loss or gain of signaling occurs between the ISDN line card and a multipoint node or network termination 1 (NT1). Specifies the multipoint node number at which signaling loss occurred.	`LINE145 APR01 12:34:56 6969`
		`INFO ISDN line card SIGNAL Alarm`
		`LEN HOST 10 0 07 28`
		`DN 7225226`
		`LOSS OF SIGNAL with “Dying Gasp” at NT1 :LOOP state changed from IDL to LO`

LINE 147	Reports changes in the customer’s NT1 test mode	`LINE147 APR10 21:25:51 3402`
		`INFO NT1 test mode indication alarm`
		`LEN HOST 10 0 08 16`
		`DN 7225229`
		`NT1 test mode initiated`

—continued—

RSC-S (INTL) related logs (continued)

Log name	Causes	Response

LINE 148	Reports the correction of mismatches in layer 1 thresholds or time-of-day values of 2B1Q line cards	`LINE148 APR10 00:01:31`
		`4200 Layer 1 BLM`
		`Parameters Refreshed`
		`LEN HOST 10 0 08 17`
		`NO DIRN`
		`Thresholds updated by index`
		`index = 7`
		`ES/Hr=234`
		`SES/Hr=186`
		`ES/Day=2567`

LINE 149	Reports multipoint EOC configuration changes. Log LINE149 is triggered by an unsolicited message from the LCME when the multipoint audit detects an inconsistency in multipoint data.	`LINE149 OCT07 17:56:52 4407`
		`INFO mp-eoc`
		`configuration change`
		`LEN HOST 10 0 07 18`
		`DN 7225226`
		`mp-eoc configuration`
		`changed: 2 to 4 line units`

PM179	Indicates a software condition has occurred that affects the normal operation of the SMU. PM179 supplies information related to a PM Hardware Exception Report. Features AF5329 and AF5672 adds the contents of the processor board configuration register to the log report.	Refer to description of PM179 in *Log Report Reference Manual*, for specific problems and responses indicated by this report.
	Features AF5911 and AF5912 add the Talk battery failure detected and Cannot test talk battery, modifications to this log report.	Refer to description of PM179 in *Log Report Reference Manual*, for specific problems and responses indicated by this report.

	Example log report LCM talk battery failure detected.	`*** PM179 JUN22 15:47:20 3114`
		`TBL PM HW EXCEPTION REPORT`
		`LCM RSC0 00 0 Unit 1`
		`Talk Battery Failure detected`
		`on shelf 54 by RSC0 00 1 12 30.`

	Example log report Cannot test talk battery.	`* PM179 JUN22 20:17:06 5214 TBL`
		`PM HW EXCEPTION REPORT`
		`LCM RSC0 00 0 Unit 1`
		`Cannot test Talk Battery on`
		`shelf 54 since no WLC`
		`provisioned.`

—continued—

RSC-S (INTL) related logs (continued)

Log name	Causes	Response
PM180	Collect all PM180 reports.	
	Indicates an occurrence of improper execution of the software. Feature AF5890 appends the XLCM real-time overload field to this log report.	Collect all PM180 reports and contact next level of support.
	Example log report LCM enters overload	`* PM180 MAY14 12:37:10 6702 TBL PM SW EXCEPTION REPORT LCM RSC0 00 0 Unit 1 LCM enters overload: DMSX: 5 IUC: 0 SEQ: 0 RT OVLD:medium (4/9,A8)`
	Example log report LCM overloaded	`* PM180 MAY14 12:37:10 6702 TBL PM SW EXCEPTION REPORT LCM RSC0 00 0 Unit 1 LCM overloaded: DMSX: 45 IUC: 4 SEQ: 3 RT OVLD:medium (2/9,58)`
	Example log report LCM out of overload. The new information includes DMSX and Inter-unit communications (IUC) message lost totals up to 65,535. The peak real-time distress during the overload period and the duration of the overload period in minutes up to 255.	`* PM180 MAY14 12:37:10 6702 TBL PM SW EXCEPTION REPORT LCM RSC0 00 0 Unit 1 LCM out of overload: Total DMSX:1234 Total IUC:1230 SEQ: 3 RT OVLD peak: High (2/9,58) Duration: 25 mins`
	Example log report invalid real-time control variables. When the overload period ended, the XLCM found that one or more of its real-time control variables had not returned to a normal state. Absence of this log assures the craftperson that the XLCM has deactivated all of its realtime overload protection mechanisms, so its capacity is not inhibited in any way.	`** PM180 MAY14 12:37:10 6702 TBL PM SW EXCEPTION REPORT LCM RSC0 00 0 Unit 1 TASKID: 000B TIME: 8081 TEXT: INV RT CTL 5267 0000 4C14 0001 0064 424A2555 7676 839F 5311 52AE 839F 00F6 8399 99D2`
PM181	Informs operating company personnel when the downloading of multipoint embedded operations channel (EOC) data to the LCME fails	`PM181 FEB15 20:13:12 2300 INFO LCME HOST 10 0 Unit 1 Node:InSv, Unit 0: InSv, Unit 1: InSv Loading of mp-eoc data failed`

—continued—

RSC-S (INTL) related logs (continued)

Log name	Causes	Response
PM181 (contd)	Reports failures in the downloading of performance monitoring data to the enhanced line concentrating module (LCME) when it is returned to service	`PM181 APR10 18:17:45 1600 INFO LCME HOST 10 0 08 17 Unit 0 Node: ManB, Unit 0: ManB, Unit 1: ManB Loading of performance monitoring data failed`
	The RCO2 encountered a trouble, usually while running a test. PM181 has numerous messages and is the most useful report to track while maintaining the RCO2.	`PM181 MAY21 22:15:21 2451 ISTb SysB RCO2 0 Node :SysB From ISTb Unit0 Inact:: Static Data Cleared Unit1 Act: Static Data Cleared`
	Test the peripheral side (P-side) PM.	`Diagnose C-side links.`
	Run the TEST command later.	`Diagnostic system in overload.`
	The TEST command succeeded.	`Diagnostic TESTALL passes.`
	The TEST command was unsuccessful, and a list of cards is produced. This log is produced during troubleshooting procedures.	`Diagnostic TESTALL failed, Cardlist:`
	Run the TEST command later.	`Diagnostic resource was unavailable`
	Static data was not available. Busy the RCO2 unit, and load the unit with CC static data.	`Diagnostic TESTALL failed, invalid static data.`
	Check the C-side PM.	`Failed to open C-side link.`
	The PCM-30 link is throttling messages. See the next section.	`Operational fault: C_Side Message`
	The load is corrupt, or a CHECKSUM failed.	`Software error (SWERR) in diagnostic TESTALL`
	The RCO2 reloaded static data.	`Static data update`

—continued—

RSC-S (INTL) related logs (continued)

Log name	Causes	Response
PM181	An HDLC link gained synchronization. DMS-X protocol can be dynamically changed to HDLC protocol while the RCO2 is InSv. The PM state is changed to ISTb until all HDLC links are synchronized to the host. An unsolicited message is sent to CC for each HDLC link synchronized, and a PM 181 log is generated. When all HDLC links between an RCO2 and an LTC+ are synchronized, the ISTb state is cleared.	`PM181 MAY09 14:09:11 6400 INFO RCO2 REM1 0 Unit 0 Node: InSv, Unit0 Act: Insv, Unit1 Inact: Istb HDLC Cside msg link GAINED sync - link 0`
	An HDLC link lost synchronization. When the synchronization of an HDLC link fails during a dynamic DMS-X to HDLC protocol upgrade, an unsolicited message is sent to the CC, and a PM181 log is generated. If all HDLC message links between an RCO2 and an LTC+ are not synchronized after the dynamic upgrade, the RCO2 works in the DMS-X mode. If the remote was in the ISTb state due to HDLC links synchronization, the ISTb is cleared.	`PM181 MAY09 14:09:11 6400 INFO RCO2 REM1 0 Node: Istb, Unit0 Act: Insv, Unit1 Inact: Istb HDLC Cside msg link LOST sync - link 2`

—continued—

RSC-S (INTL) related logs (continued)

Log name	Causes	Response
PM600	Generated when an extended peripheral module (XPM) REX test fails. REX fail reasons follow: • Warm SWACT (switch of activity) • Warm SWACT turned off • Pre-SWACT audit failure • Post-SWACT audit failure • SWACT back failure • Autonomous SWACT • OOS tests of inactive unit 0 • OOS tests of inactive unit 1 • RTS of inactive unit 0 • RTS of inactive unit 1 • Achieving superframe/data sync of unit 0 • Achieving superframe/data sync of unit 1 • InSv tests of inactive unit 0 before SWACT • InSv tests of inactive unit 1 before SWACT	** PM600 JUN08 01:28 8600 TBL REX FAILED XPM 0 Node:ISTb, Unit 0 Act:InSv, Unit 1 Inact:SysB (Diag Failed) REX Step Unit Start Time Failure Reason Tst Inact 0 09:17:33 Bsy Inact 0 09:17:47 RTS Inact 0 09:18:15 Sync Inact 0 09:21:43 Pre-SwAct 0 09:21:51 Warm SwAct – 09:22:37 Bsy Inact 1 09:22:40 RTS Inact 1 09:23:08 Sync Inact 1 09:25:27 Tst Act 0 09:22:50 REX test failed–InSv tests of active Unit 0 after Swact Warm SwAct – 09:25:28 Bsy Inact 0 09:25:29 Finished – 01:28:25 Supplemental Data Diagnostic Failures: UTRDIAG Site Flr RPos Bay_id Shf Description Slot EqPEC HOST 01 L15 LTE 00 65 LTC : 000 15 6X92

—continued—

RSC-S (INTL) related logs (continued)

Log name	Causes	Response
PM600 (contd)	REX fail reasons (contd) • InSv tests of active unit 0 after SWACT • InSv tests of active unit 1 after SWACT • InSv tests of inactive unit 0 after SWACT • InSv tests of inactive unit 1 after SWACT • RTS of inactive unit 0 after SWACT • RTS of inactive unit 1 after SWACT • Achieving superframe/data sync of unit 0 after SWACT • Achieving superframe/data sync of unit 1 after SWACT • SWACT to unit 0 refused by SWACT controller • SWACT to unit 1 refused by SWACT controller • SWACT back to unit 0 occurred • SWACT back to unit 1 occurred • Recovery failed—SWACT • Unit 1 failed the REX test ***Note:*** The example text is shown as is due to space limits.	

—continued—

RSC-S (INTL) related logs (continued)

Log name	Causes	Response
PM601	PM601 is generated when operating company personnel reset long-term failure counters to zero for an XPM posted at the MAP display. PM601 is also generated when an XPM is deleted from datafill.	PM601 AUG20 09:44:15 2741 INFO XPM Diagnostic History RCC 1 Reset Long Term Failure (LTF) counts LTF last reset: 92/07/01 06:22:10 Summary of LTF counts prior to reset: UNIT 0 UNIT 1 DIAGLIST AB DIAG 1 1 SPCH DG 0 1 ---------- CARDLIST NTMX75 1 2
PM777	The message and tone card is faulty. Messaging between the RCO2 and the CC is impaired or interrupted.	PM777 JAN04 17:44:56 2709 INFO H/W FAULT RCO2 0 UNIT NO: 00 Error State: 6X69 Insane Suspected card(s): Site Flr RPos Bay_id Shf HOST 00 A00 RCE 00 65 Description Slot EqPEC RCC : 00 18 6X69 Data: 00 02 42 FA 00 1A
PRFM 200	The performance subsystem generates this log to represent activity data for the RCO2 peripheral.	Due to space limitations, an example of the PRFM200 log follows. For the NTMX73AA and NTMX76AA circuit cards, the summary line contains the average time for the last 15 min. However, if the perform tool is run for less than 15 min, the time provided is the requested time. In this example the summary fields contain no values.

—continued—

RSC-S (INTL) related logs (continued)

Log name	Causes	Response

```
PRFM 200 JAN10 04:39:50 2044 INFO PMACT_DATA
RCO2 0 UNIT 1
Load name: CRI02BY
UPHP UPCP UPLP ISPHP ISPCP ISPLP SIGP MX76 ORIG TERM UTR
    CHNL
1.19% 38%   9%   0%    16%    0%   9%  22%  105  110  1
     82
2.19% 38%   8%   0%    15%    0%   9%  22%  102   98  1
     81
..
..
..
Summary
Summary UTRAVAIL XX UTRHIGH XX PSIDEAVAIL XXX PSIDEHIGH  XX
```

—end—

PM181 logs (firmware download events)

Text reasons are added to the existing PM181 log format to record firmware download events and failures. The text reasons displayed are as follows:

Text reason:

```
PM181 JAN01 09:44:11 1333 INFO RCO2 Unit 0 :
Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT :
INSV
Mismatch of the firmware edition between
LOADABLE and
EXECUTABLE EEPROMs in unit 0
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates the name of the firmware of the LOADABLE EEPROM is different from the name of the firmware of the EXECUTABLE EEPROM. During the initialization, an attempt to upgrade the EEPROM with the wrong firmware name occurred. The action failed, and that is the reason for the mismatch.

System action: None

User action: Perform the loading of the firmware to the EEPROM. If the log appears again, replace the card.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 :
Inact
Node : ISTB, Unit0 Inact :ManB, Unit1 ACT :INSV
Mismatch of the firmware edition between inventory
table and EEPROM # 0 in the unit 0
```

Explanation: This is a part of the standard PM181 log. Only the message field has changed. The message field indicates that the name of the firmware in the inventory table is different from the firmware name of the EXECUTABLE EEPROM.

System action: None

User action: Perform the loading of the firmware to the EEPROM. If the log appears again, replace the card.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB Unit1 ACT : INSV
FAIL TO LOAD EEPROM – UNIT FOUND IN ROM LEVEL
```

Explanation: This is a part of the standard PM181 log. Only the message field has changed. The message field indicates that the unit was found in the ROM level.

System action: None

User action: Perform the PMRESET command. If this does not help, load the unit again and perform the RTS command, then load the firmware to the EEPROM again.

Text reason:

```
PM181  JAN01 09:44:11  1333 INFO RCO2 Unit 0 : Inact
Node : ISTB, Unit 0 Inact : ManB, Unit 1 ACT : INSV
FAIL TO PROGRAM EEPROM – TIME OUT OPEN ROUTE
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates that programming is not successful because of time-out open route.

System action: None

User action: If the loading of the EEPROM failed, perform the LOADPM command again.

Text reason:

```
PM181 JAN01 09:44:11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB Unit0 Inact : ManB, Unit1 ACT :INSV
Failed to query for edition of EEPROM
```

Explanation: This is a part of the standard PM181 log. Only the message field has changed. The message field indicates the addition of the two EEPROMs. If the query is not successful, this log is generated. A reason for failure in the query step is the wrong unified processor (UP) card.

System action: None

User action: Perform the LOADPM command again. If the same LOG is generated, replace the card.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Erase EEPROM # 0 completed successfully
# of reerases is : 209
# of rewrites is : 202
```

Explanation: This is a part of the standard PM181 log. Only the message field has changed. The message field indicates that the erase is successful. The log generated mentions the number of re-erases and rewrites, and if the EEPROM is functioning correctly. A large number of re-erases or rewrites indicates the load action will take more time.

System action: None

User action: If the number of re-erases is close to 3000, load time increases. It is time to replace the EEPROM.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB Unit0 Inact : ManB, Unit1 ACT : INSV
Fail to erase EEPROM # 0
# of reerases is : 202
# of rewrites is : 209
```

Explanation: This is a part of the standard PM181 log. Only the message field has changed. The message field indicates that the erase is not successful. The log generated mentions the number of re-erases and rewrites. This information is for checking if the EEPROM is functioning as expected. A large number of re-erases or rewrites indicates that the load action will take more time.

System action: None

User action: If the loading of the EEPROM failed, perform the LOADPM command again. If the same log is generated again, replace the card. If the number of re-erases is close to 3,000, load time increases. It is time to replace the EEPROM.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Fail to load EEPROM # 0 – file incorrect
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates that programming is not successful because of incorrect file name.

System action: None

User action: The load file in the inventory table is incorrect. The file must be replaced.

Text reason:

```
PM181 JAN01 09:44:11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit 0 Inact : ManB, Unit 1 ACT : INSV
FAIL TO LOAD EEPROM # 0 – FLAGS INCORRECT
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates that programming is not successful because of incorrect flags.

System action: None

User action: The load file in the inventory table is incorrect, so the file must be replaced. RTS the unit to upgrade the erased EEPROM. Change the firmware file that includes correct flags.

Text reason:

```
PM181 JAN01 09:44:11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Fail to load EEPROM # 0 – program fail
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates that programming is not successful because of burning-action failure.

System action: None

User action: Perform the LOADPM command again. If the same log is generated, replace the EEPROM. If the same log is generated again, replace the card.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Fail to program EEPROM # 0 – address overlap
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates that programming is not successful because of address overlap.

System action: None

User action: The load file in the inventory table is incorrect. The file must be replaced.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Fail to program EEPROM # 0 – illegal s-record
```

Explanation: This is a part of the standard PM181 log. Only the message field has changed. The message field indicates that programming is not successful because of an illegal s-record.

System action: None

User action: The load file in the inventory table is incorrect. The file must be replaced.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Fail to program EEPROM # 0 – address range violation
```

Explanation: This is a part of the standard PM181 log. Only the message field has changed. The message field indicates that programming is not successful because of an address range error.

System action: None

User action: The load file in the inventory table is incorrect. The file must be replaced.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Bad EEPROM # 0 checksum
Msg_count of CC is : 9
Msg_count of XPM is : 2
```

Explanation: This is a part of the standard PM181 log. Only the message field has changed. The message field indicates that the checksum has failed.

System action: None

User action: If the checksum of the EEPROM failed, perform the LOADPM command again. If the log is generated, check for possible logs. If the same log is generated again, replace the file.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Failed to switch between EEPROMs
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates that the switching action between the two EEPROMs has failed.

System action: None

User action: If the switching of the EEPROMs failed, perform the LOADPM command again. If the same log is generated, replace the card.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Failed to load EEPROM – ROM diagnostic failed
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates that the ROM diagnostic has failed.

System action: None

User action: If the ROM diagnostic failed, perform the LOADPM command again. If the same log is generated, replace the card.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Failed to load EEPROM – Failed to run from EEPROM # 0
```

Explanation: This is a part of the standard PM181 log. Only the message field has changed. The message field indicates that running on the executing EEPROM is successful.

System action: None

User action: Check for possible logs. Load the unit again with the previous firmware.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Updated EEPROM # 0 with MX77MA12 completed successfully.
EEPROM # 0 edition was changed from MA11 to MA12
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates that updating the loadable EEPROM is successful.

System action: None

User action: None

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Updated EEPROM # 0  Info:
# of rewrites : 12
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates that the number of rewrites is as remarked.

System action: None

User action: None

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Failed to load EEPROM # 0 – flags update fail
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates that the updating flags action of the loadable EEPROM failed. A reason for this type of failure is a hardware problem.

System action: None

User action: If the update of the EEPROM failed, perform the LOADPM command again. If the same log is generated, replace the card.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Updated EEPROM # 1 with MX77MA16 completed successfully.
EEPROM # 1 edition was changed from MA15 to MA16
```

Explanation: This is a part of the standard PM181 log. Only the message field has changed. The message field indicates that the second EEPROM is upgraded successfully.

System action: None

User action: None

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Upgrade EEPROM # 1 Info:
# of reerases : 4 $ of rewrites : 1
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates that the number of re-erases and rewrites is as remarked.

System action: None

User action: None

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Task aborted while loading EEPROM
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates that the loading process is aborted.

System action: None

User action: None

Expanded use of PM180 (PM777)

Prior to batch change supplement (BCS) 33, PM180 logs included information on software error (SWERR) states resulting from hardware errors. In BCS33, log PM777 has been added specifically to handle hardware error information previously included in PM180 logs. The PM777 log provides this information in simple text to enable operating company personnel to locate and correct hardware errors more easily. In particular, the new log identifies any suspected card or cards that may be causing a hardware error.

The PM777 log is used with the feature Log Retrieve Facility for E1 Incidents, which allows the journaling of all logs to a storage device for later retrieval and analysis.

Restrictions for the PM777 are as follows:

- Only the most critical software modules are analyzed for output of the new log.
- Software-related PM180 logs for service-affecting states are not analyzed.

PM181 (activity dropped)

The following messages show the active unit has dropped activity. The CC immediately performs a warm SWACT so call processing is not affected. For messages dealing with an XPM parity fault, the unit goes SysB or ISTb.

- `PARITY AUDIT DETECTED HARD PARITY FAULT`

  If the faulty unit is inactive, the RCO2 sets the unit SysB. If the faulty unit is active, a warm SWACT occurs and the newly inactive unit is set SysB. If the faulty unit is active and warm SWACT is not available, the CC sets the unit ISTb. A card list is displayed with this log.

- `PARITY AUDIT DETECTED SOFT PARITY FAULT IN PROGRAM STORE (OR DATA STORE)`

  If the faulty unit is inactive, the unit is set SysB. If the faulty unit is active, a warm SWACT occurs and the newly inactive unit is set SysB. If warm SWACT is not available, the unit is set ISTb. If the unit is already busy, it is is reloaded. (For data store, if the faulty unit is already busy, the CC RTSes the unit with new static data and full diagnostics.)

- `PARITY AUDIT DETECTED INTERMITTENT PARITY FAULT`

  If the faulty unit is inactive, the CC busies the unit and returns it to service with full diagnostics. If the faulty unit is active and the inactive

unit is in service (InSv), there is a warm SWACT and the newly inactive unit is RTSed with full diagnostics. If the faulty unit is active and the inactive unit is not InSv, the active unit is set ISTb. The inactive unit can return to service if the parity audit does not detect an intermittent fault in 2 min after the fault was reported.

- ACTIVITY TIMEOUT
- SANITY TIMEOUT
- TRAP
- REQUEST
- DUPLICATE FAULT
- JAMMED
- DATA CORRUPTION
- STATIC DATA CORRUPTION
- PRE-SWACT AUDIT FAILURE
- UNDEFINED DROP REASON
- DROPPED ACTIVITY DUE TO POWER FAIL
- DROPPED ACTIVITY DUE TO SIGNALING PROCESSOR CLOCK FAIL

PM181 (throttling faults on the messaging PCM-30 links)

Operational faults reported on the PCM-30 messaging links that connect the RCO2 to the host PCM-30 line group controller (PLGC)/line group controller offshore (LGCO) are throttled. A PM181 log is created to indicate that an operational fault has occurred on an RCO2 messaging link.

The purpose of throttling operational faults is to prevent a single small fault on a PCM-30 messaging link from taking the RCO2 OOS. When an operational fault on an RCO2 messaging link occurs, the RCO2 increments the appropriate message error counter and sends a message containing all message error counts to the CC. The CC takes the information and formats it into a PM181 log. The link is then reopened, unless there are many faults in a short period of time.

The log includes information on whether the latest fault occurred at the PLGC P-side or the RCO2 C-side and gives the current message error counts. If the fault is on the C-side, the C-side message error counters are shown. Likewise, if the fault is on the P-side, the P-side message error counters are shown. The counters are not kept on a per-link basis; therefore, the counts are the total for all the links on the indicated side. Message counts are not cleared until the peripheral returns to service; therefore, two logs must be compared in order to determine the most recent message error.

This throttling affects operational faults on RCO2 PCM-30 message links. It does not affect any other type of peripheral.

Following is an example of the PM181 log. The following table lists the fields and their meanings.

```
PM181 MAY15 14:15:42 2530 INFO RCO2 60
Node: ISTb, Unit0 Inact: ISTb, Unit1 Act: InSv
LINK NO:    2, OPERATIONAL FAULT: C_SIDE_MSG
MISTO:    0 WAMTO:     3 WASTO:    0 WACKTO:   0 WANRTO:   3
WANXTO:   0 MSGLEN:    0 BADCRC:   0
NACK2:    0 NACK1:     0 NACKX:    3 RBNDMG:   3 FLSMIS:   0
BCKDWN:  16 BACKPR:    0 BUFOVF:    0
```

Fields of the PM181 log (message throttling)

Field	Meaning
BACKPR	Back pressure timeout, no free receiver buffers.
BADCRC	Cyclic redundancy code is incorrect.
BCKDWN	A slave process is waiting for a SEND to transmit a message, and instead receives a May-I-Send (MIS) from the master processor.
BUFOVF	Buffer overflow. No buffers available.
FLSMIS	False MIS—only one MIS is seen on the link. There must be at least two MISs on the link to be valid.
MISTO	MIS timeout message.
MSGLEN	Message length error occurs when an incorrect message length is received.
NACK1	The first negative acknowledgment (NACK) is received after a message is transmitted.
NACK2	The second NACK is received after a message is transmitted.
NACKX	A NACK is transmitted after a corrupted message is received.
RBNDMSG	A message has rebounded (error).
WACKTO	Wait for acknowledgment timeout error. No positive acknowledgment (PACK) or NACK is received after a message is transmitted.

—continued—

Fields of the PM181 log (message throttling) (continued)

Field	Meaning
WANRTO	Wait for idle after acknowledging a message timeout error. No idle is received after acknowledging a message with either a PACK or NACK.
WANXTO	Wait for idle after packing a NACK timeout error. No PACK or NACK is received after acknowledging the reception of a NACK.
WASTO	Wait for send timeout error. No filtered SEND is received after transmitting an MIS.
—end—	

PM128 (RCO2 overload logs)

When the RCO2 enters overload, a PM128 (RCO2 is ISTb) is produced with the following message:

```
PM Overloaded
```

Also, at the PM MAP level, posting the RCO2 and entering the QUERYPM FLT command gives the same message (`PM Overloaded`).

Operating company personnel should immediately begin to collect all relevant OMs that track the amount and types of traffic. Although the reason for the RCO2 entering overload can be related to a maintenance area (such as network faults), in other cases the reasons may relate to an underengineering of the RCO2 configuration. Therefore, the OM reports should be forwarded to both maintenance and engineering personnel for analysis.

PM128 (static data mismatch)

When the RCO2 and the CC have different sets of static data, call processing can be affected. When there is a static data mismatch, the following log message is produced:

```
Static Data mismatch with CC
```

The best strategy to clear the alarm is to RTS the inactive unit using the NODATASYNC option and perform a cold SWACT.

PM181, PM128 (parity error logs)

Following are some maintenance scenarios on the logs that are produced by the parity audit, the responses to the QUERYPM FLT command, and an overview of locating and clearing faults.

PM181 (hard parity fault and both units InSv)

Following is an example report.

```
PM181 JUL23 23:29:16 5561 INFO RCO2 0 Unit 0
Node: ISTb, Unit 0 Act: InSv, Unit 1, Inact:  InSv
Parity audit detected hard parity fault
Site Flr  RPos  Bay_id  Shf Description Slot  EqPEC
RALL 00   C05   RCO2 00  18  RCO2 : 000    10    MX77
```

Other trouble indicators

PM128—The RCO2 has been set ISTb, with the inactive unit as OOS.

```
PM128 JUL23 23:29:16 5561 TBL  ISTb RCO2 0
Node: ISTb, (Inact OOS) From InSv
Unit 0 Inact: SysB (Parity errors detected) from InSv
Unit 1   Act: InSv
```

PM189—The inactive unit of the RCO2 has a hard fault.

```
PM189 JUL23 23:29:17 5561 INFO PM SW INFORMATION REPORT
RCO2 0 Unit 0 : Inact
TASKID : 00370037 PARAUDT, TIME : 22:29:16.68 COMID: FF
TEXT : hard_flt 00 00 57 F6 00 00
```

>QUERYPM FLT

```
System busy reason: hard parity fault was detected
```

The system-busy portion of the message means the inactive unit has been removed from service and cannot process calls. Since both units were InSv, either the inactive unit was taken OOS, or a warm SWACT was performed on the active unit and then it was taken OOS, as explained below.

Action by the CC: The CC sets the inactive unit as SysB. If the faulty unit was the active unit, the CC performs a warm SWACT and busies the newly inactive unit.

User action: Since this is a hard fault, operating company personnel must physically replace the card that is listed in the PM181 log. Operating company personnel should manually busy the inactive unit (>BSY UNIT n) and test the ROM (>TST UNIT n ROM) to ensure that the correct card has been chosen. After replacing the card, reload the PM (>LOADPM UNIT n CC DATA), and then RTS the PM (>RTS UNIT n). The unit should successfully come back to service.

PM181 (hard parity fault inactive unit already SysB)

Following is an example report.

```
PM181 JUL23 23:29:16 5561 INFO RCO2 0 Unit 0
Node : ISTb, Unit 0 Act : InSv, Unit 1, Inact : OOS
Parity audit detected hard parity fault
Site Flr  RPos  Bay_id  Shf Description Slot  EqPEC
RALL 00   C05   RCO2 00  18  RCO2 : 000    10    MX47
```

Other trouble indicators

PM128—The RCO2 has been set as ISTb and the active unit as ISTb from InSv.

```
PM128 JUL23 23:29:16 5561 TBL  ISTb RCO2 0
Node : ISTb, (Inact OOS) From InSv
Unit 0 Act   : ISTb (Parity errors detected) from InSv
Unit 1 Inact : OOS
```

PM189—The active unit of the RCO2 has a hard_fault.

```
PM189 JUL23 23:29:17 5561 INFO PM SW INFORMATION REPORT
RCO2 0 Unit 0 : Act
TASKID : 00370037 PARAUDT, TIME : 22:29:16.68 COMID: FF
TEXT : hard_flt 00 00 57 F6 00 00
```

>QUERYPM FLT

```
The following inservice troubles exist:
Hard parity fault was detected in XX memory
```

Action by the CC: In this scenario, either the inactive unit is not InSv or warm SWACT is not available. The CC cannot take the faulty unit OOS, or the entire RCO2 would be busy and could not process calls. The CC therefore sets the active unit as ISTb.

User action: Operating company personnel should follow the same procedure as scenario 1, but when the unit is SysB, all call processing is dropped. To avoid this, operating company personnel can try to get the inactive unit up and processing calls, either by returning it to service or having warm SWACT available if the inactive unit is InSv.

PM181 (soft parity fault in program store both units InSv)

Following is an example report.

```
PM181 JUL23 23:29:16 5561 INFO RCO2 0 Unit 0
Node : ISTb, Unit 0 Act : InSv, Unit 1, Inact :  InSv
Parity audit detected soft parity fault in program store
```

Other trouble indicators

PM128—The RCO2 has been set ISTb with the inactive unit as OOS.

```
PM128 JUL23 23:29:16 5561 TBL  ISTb RCO2 0
Node : ISTb, (Inact OOS) From InSv
Unit 0 Inact : SysB (Parity errors detected) from InSv
Unit 1   Act : InSv
```

PM189—The inactive unit of the RCO2 has a fault in program store.

```
PM189 JUL23 23:29:17 5561 INFO PM SW INFORMATION REPORT
RCO2 0 Unit 0 : Inact
TASKID : 00370037 PARAUDT, TIME : 22:29:16.68 COMID: FF
NIL CID
TEXT : softpgm 00 00 57 F6 00 00
```

>QUERYPM FLT

```
System busy reason: soft parity fault was detected
in ps of XX memory
```

The system busy portion of the message means the CC has taken the inactive unit OOS, or the CC performed a warm SWACT on the RCO2 and took the newly inactive unit OOS.

Action by the CC: The CC sets the inactive unit as SysB. If the faulty unit is the active unit, the CC performs a warm SWACT and busies the newly inactive unit. At this point, the CC tries to recover the busy unit *without operating company personnel intervention*. The CC implements autoloading (assuming the correct loads are in tables PMLOADS and LTCINV), loads the entire load, and returns the unit to service.

User action: Since the CC brings the unit back to service, intervention is only required if the RCO2 does not RTS. Check the load tables. Also check for other trouble indicators that can mean the faulty unit cannot be returned to service.

PM181 (soft parity fault in program store inactive unit is already OOS)

Following is an example report.

```
PM181 JUL23 23:29:16 5561 INFO RCO2 0 Unit 0
Node : ISTb, Unit 0 Act : InSv, Unit 1, Inact :  OOS
Parity audit detected soft parity fault in program store
```

Other trouble indicators

PM128—The RCO2 has been set ISTb, with the inactive unit already OOS.

```
PM128 JUL23 23:29:16 5561 TBL  ISTb RCO2 0
Node : ISTb, (Inact OOS) From InSv
Unit 0 Inact : ISTb (Parity errors detected) from InSv
unit 1   Act : Manb
```

PM189—The active unit of the RCO2 has a fault in program store.

```
PM189 JUL23 23:29:17 5561 INFO PM SW INFORMATION REPORT
RCO2 0 Unit 0 : Act
TASKID : 00370037 PARAUDT, TIME : 22:29:16.68 COMID: FF  NI
TEXT : softpgm 00 00 57 F6 00 00
```

>QUERYPM FLT

```
The following inservice troubles exist:
Soft parity fault was detected in ps of XX memory
```

Action by the CC: In this scenario, either the inactive unit is not InSv or warm SWACT is not available. The CC cannot take the faulty unit OOS, or the entire RCO2 would be busy and could not process calls. The CC therefore sets the active unit as ISTb.

User action: Operating company personnel must understand that since the inactive unit is OOS (or cannot takeover call processing), all call processing is dropped when operating company personnel busy the unit. To avoid this, operating company personnel can try to get the inactive unit up and processing calls, either by returning it to service or having warm SWACT available if the inactive unit is InSv. Otherwise, they should busy the active unit, load the unit with the complete load, and RTS the unit.

PM181 (soft parity fault in data store both units InSv)

Following is an example report.

```
PM181 JUL23 23:29:16 5561 INFO RCO2 0 Unit 0
Node : ISTb, Unit 0 Act : InSv, Unit 1, Inact :  InSv
Parity audit detected soft parity fault in data store
```

Other trouble indicators

PM128—The RCO2 has been set ISTb, with the inactive unit set as SysB.

```
PM128 JUL23 23:29:16 5561 TBL  ISTb RCO2 0
Node : ISTb, (Inact OOS) From InSv
Unit 0 Inact : SysB (Parity errors detected) from InSv
Unit 1   Act : InSv
```

PM189—The inactive unit of the RCO2 has a fault in program store.

```
PM189 JUL23 23:29:17 5561 INFO PM SW INFORMATION REPORT
RCO2 0 Unit 0 : Inact
TASKID : 00370037 PARAUDT, TIME : 22:29:16.68 COMID: FF
TEXT : softdat 00 00 57 F6 00 00
```

>QUERYPM FLT

```
System busy reason: soft parity fault was detected
in ds of XX memory
```

The system busy portion of the message indicates the CC has taken the inactive unit OOS, or the CC performed a warm SWACT on the RCO2 and took the newly inactive unit OOS.

Action by the CC: The CC sets the inactive unit as SysB. If the faulty unit is the active unit, the CC performs a warm SWACT and busies the newly inactive unit. At this point, the CC tries to recover the busy unit *without* operating company personnel intervention. The CC returns the unit to service and ensures new static data is downloaded and full diagnostics are run.

User action: Since the CC brings the unit back to service, intervention is only required if the RCO2 does not RTS. Check for other trouble indicators that can mean the faulty unit cannot be returned to service.

PM181 (soft parity fault in data store inactive unit already OOS)

Following is an example report.

```
PM181 JUL23 23:29:16 5561 INFO RCO2 0 Unit 0
Node : ISTb, Unit 0 Act : InSv, Unit 1, Inact :  SysB
Parity audit detected soft parity fault in data store
```

Other trouble indicators

PM128—The RCO2 has been set ISTb, with the active unit set at ISTb.

```
PM128 JUL23 23:29:16 5561 TBL  ISTb RCO2 0
Node : ISTb, (Inact OOS) From InSv
Unit 0 Inact : SysB (Parity errors detected) from InSv
Unit 1   Act : ISTb
```

PM189—The active unit of the RCO2 has a fault in program store.

```
PM189 JUL23 23:29:17 5561 INFO PM SW INFORMATION REPORT
RCO2 0 Unit 0 : Act
TASKID : 00370037 PARAUDT, TIME : 22:29:16.68 COMID: FF
TEXT : softdat 00 00 57 F6 00 00
```

>QUERYPM FLT

```
The following inservice troubles exist:
Soft parity fault was detected in ds of XX memory
```

Action by the CC: In this scenario, either the inactive unit is not InSv or warm SWACT is not available. The CC cannot take the faulty unit OOS, or the entire RCO2 would be busy and could not process calls. The CC therefore sets the active unit as ISTb.

User action: Operating company personnel must understand that since the inactive unit is OOS (or cannot takeover call processing), all call processing is dropped when operating company personnel busy the unit. To avoid this, operating company personnel can try to get the inactive unit up and processing calls, either by returning it to service or having warm SWACT available if the inactive unit is InSv. Otherwise, busy the active unit and RTS the faulty unit. (The static data is sent as part of the RTS.)

PM181 (intermittent parity fault both units InSv)

```
PM181 JUL23 23:29:16 5561 INFO RCO2 0 Unit 0
Node : ISTb, Unit 0 Act : InSv, Unit 1, Inact :  SysB
Parity audit detected intermittent parity fault
```

Other trouble indicators

PM128—The RCO2 has been set ISTb, with the inactive unit as OOS.

```
PM128 JUL23 23:29:16 5561 TBL  ISTb RCO2 0
Node : ISTb, (Inact OOS) From InSv
Unit 0 Inact : SysB (Parity errors detected) from InSv
Unit 1   Act : InSv
```

PM189—The inactive unit of the RCO2 has an intermittent parity fault.

```
PM189 JUL23 23:29:17 5561 INFO PM SW INFORMATION REPORT
RCO2 0 Unit 0 : Inact
TASKID : 00370037 PARAUDT, TIME : 22:29:16.68 COMID: FF
TEXT : intflt 00 00 57 F6 00 00
```

>QUERYPM FLT

```
System busy reason: Intermittent parity fault
was detected in ps (or ds) of XX memory
```

Action by the CC: The system busy portion of the message indicates the CC has taken the inactive unit OOS, or the CC performed a warm SWACT on the RCO2 and took the newly inactive unit OOS.

The CC sets the inactive unit as SysB. If the faulty unit is the active unit, the CC performs a warm SWACT and busies the newly inactive unit. At this point, the CC tries to recover the busy unit *without operating company personnel intervention*. The CC returns the unit to service and ensures full diagnostics are run.

User action: Since the CC brings the unit back to service, intervention is only required if the RCO2 does not RTS. Check for other trouble indicators that can mean the faulty unit cannot be returned to service.

PM181 (intermittent parity fault inactive is already OOS)

Following is an example report.

```
PM181 JUL23 23:29:16 5561 INFO RCO2 0 Unit 0
Node : ISTb, Unit 0 Act: InSv, Unit 1, Inact :  OOS
Parity audit detected intermittent parity fault
```

Other trouble indicators

PM128—The RCO2 has been set ISTb, with the active unit as ISTb.

```
PM128 JUL23 23:29:16 5561 TBL  ISTb RCO2 0
Node : ISTb, (Inact OOS) From InSv
Unit 0   Act : ISTb (Parity errors detected) from InSv
Unit 1 Inact : SysB
```

PM189—The active unit of the RCO2 has an intermittent parity fault.

```
PM189 JUL23 23:29:17 5561 INFO PM SW INFORMATION REPORT
RCO2 0 Unit 0 : Act
TASKID : 00370037 PARAUDT, TIME : 22:29:16.68 COMID: FF
TEXT : intflt 00 00 57 F6 00 00
```

>QUERYPM FLT

```
The following inservice troubles exist:
Intermittent parity was fault was detected in XX memory
```

The in-service (InSv) portion of the message means the CC has set the active unit as ISTb, since the inactive unit is already OOS, or that warm SWACT is not available.

Action by the CC: The CC sets the active unit as ISTb. The CC cannot perform any recovery action at this point. However, if the audit runs twice (approximately 2 min) and no parity audit is found, the CC returns the active unit to InSv.

User action: Operating company personnel must understand that since the inactive unit is OOS (or cannot takeover call processing), all call processing is dropped when operating company personnel busy the unit. To avoid this, operating company personnel can also try to get the inactive unit up and processing calls, either by returning it to service or having warm SWACT available if the inactive unit is InSv. Otherwise, they should busy the active unit and RTS the faulty unit. (The static data is sent as part of the RTS.)

PM185 (enhanced parity reporting)

PM185 log reports are generated by the system when a parity trap occurs. This log report shows the system or supervisor stack and user stack. These stacks show the exact location of the trap. Log PM189 shows whether the parity error is in or out of code. The following example shows a PM185 log report with all available data.

```
        PM185 FEB16 12:41:58 8900 TBL  PM TRAP
        LTC 9 Unit 0 : Inact
Trap Sequence #: 1 Current  load
# Reloads since trap: 0     # Restarts since trap: 0
Trap in UP : Division by 0
Trap was Recoverable.
Load name = ECL03AN
Executable EEPROM version: XPMRMA25
Loadable   EEPROM version: XPMRMA25
RTSS Version = AI15    Trap Version = 01    Trap flags: 2080
Unit was Inactive/Ready    Mate was Active/Running
Kstats: 3F00    Load Status: A1A1A1A1
Task: BASEMON    000B 000B
CC Time : 16:12:34:34.00    PP Time : 00:02:32:59.79
Occurred at: 008D4881   TRAPMSG   44   DOZERODI  54   Offset: #2B
Called from: 3E0023A4   BASEMON   19   TDRIVBOD  30   Offset: #22C
             3E0024B3   BASEMON   19   TERMDRIV  11   Offset: #19
PC:00001350  SR=2004      US=000A69AE  SS=002B0FF6  TCB=00024D9A
D0 =0000010C D1 =00000059 D2 =00020000 D3 =00000003
D4 =000A5DA6 D5 =FFFF0040 D6 =0000FFF4 D7 =00000000
A0 =00001A96 A1 =008E9BCE A2 =00025C5E A3 =008D4881
A4 =02000000 A5 =00025C6C A6 =00009724
Supervisor Stack:
          002B0FF6    FAB9 FFFB FAB9 FFFB 2367 0000 0001 0000
          002B1006    FB20 0000 0001 0102 0001 0000 0000 0000
          002B1016    0000 6B09 0000 0000 000C 0000 0000 0000
        User Stack:
          00025C5E    0000 0000 0000 008D 488E 0218 0000 0002
          00025C6E    5E40 002C 0036 0000 25E4 015A 5000 0000
PM185 FEB16 12:41:58 8900 TBL  PM TRAP(continued)
        Possible Locals:
          00025C44    3E00 0001 008E 9BCE 0218 0000 0002 5C6C
          00025C54    0006 008F CD5C 000F 000F 0000 0000 0000
        Stack Frame:
          00025C64    008D 488E 0218 0000 0002 5E40 002C 0036
          00025C74    0000 25E4
        Possible Parameters:
          00025C78    015A 5000 0000 002E 0000 24C8 008F 5368
          00025C88    0002 5CAA 0218 0000 002E 9E46 0002 5CAC
        END OF TRAP
```

ESA logs

The ESA logs described in this section are as follows:

- ESA101—ESA109
- PM181
- PM171

ESA101—109

ESA logs are generated when the ESA download from the CC exceeds the RCO2 allocation for ESA static data. The following table shows these logs and what entries are exceeded.

ESA logs produced for download warnings

Log	Table	Type entry	Max. entry
	Terminal data	1 per terminal	5760
ESA 101	Automatic line	1 per AUL line	256
ESA 102	Customer group	1 per group	288
	Prefix header	1 per customer group	288
ESA 103	Prefix table	1 per ESA prefix translator POTS Customer Group	16 8
ESA 110	Table ESAHNPA	1 per customer group POTS Customer Group	32 16
ESA 104	Extension header	1 per Customer Group	288
	EFG		2304
ESA 105	ABCD	1 per directory number (DN)	5760
ESA 106	Hunt header	1 per hunt group	200
ESA 107	Hunt member	1 per hunt group	4000
	Office parameter		1
	Table ESARTE		256
ESA 109	Trunkgroup table	Subset of tables TRKGRP and TRKSGRP (tables not accessible to customers)	

PM181 logs

The PM subsystem generates PM181 logs and reports the following data:

- manual exit warning
- failed to exit ESA
- failed to download ESA static data
- successful ESA static data update

Manual exit warning If the RCO2 is not manually busy (ManB) and the RSC_XPMESAEXIT timeout parameter is zero, when links are restored after the RCO2 is in ESA, a PM181 log is produced to suggest a manual exit is required. The PM181 log prints once every minute until a manual EXIT is performed on the RCO2 unit. Following is an example of the PM181 log:

```
PM181 MAR14 14:33:54 7534 INFO REM1 RCO2 1 UNIT 0
Node: SysB, Unit 0 Act : SysB, Unit 1 Inact: SysB
PM in ESA, Communication restored, ready to be RTS'ed
```

Failed to exit ESA The failure reason is included, as shown in the following example:

```
PM181 JUN14 12:33:04 3333 INFO REM1 RCO2 1 UNIT 1
Node: SysB, Unit 0 Act : SysB, Unit 1 Inact: SysB
ESA Exit failed. Reason : No reply from pp
```

Failed to download ESA static data The failure reason and the table ID where the load failed are included, as shown in the following example:

```
PM181 JUN14 12:33:04 3333 INFO REM1 RCO2 1 UNIT 0
Node: ISTb, Unit 0 Act : ISTb, Unit 1 Inact: SysB
Failed to Load esa hunt Table (Table id 46)
```

Successful ESA static data update Following is an example of the PM181 log:

```
PM181 JUN24 12:33:04 3298 INFO REM1 RCO2 1 UNIT 1
Node: InSv, Unit 0 Act : InSv, Unit 1 Inact: InSv
ESA Static Data updated
```

Failed to download ESA static data The failure reason is included, as shown in the following example:

```
PM181 JUN14 12:33:04 3333 INFO REM1 RCO2 1 UNIT 1
Node: InSv, Unit0 Act; InSv, Unit 1 Inact: InSv
Failed to Load ESA Static Data, Reason : no reply from pm
```

Other RSC-S logs

For subscriber lines and PCM-30 links, the RSC-S produces the same logs as for a host office configuration.

PM171

OMs provided by the RCO2 are stored in the RCO2 and are forwarded to the host in the form of a PM171 log after the RCO2 has exited ESA. Since this log deals with traffic counts, refer to *Log Report Reference Manual* for information on the fields of this log.

DRCO2 logs

The logs specific to the RCO2 are those that deal with interlinks and the entering of dual ESA (DESA). The following sections highlight the PM221, PM222, PM223, and PM189 logs.

> ***Note:*** The DRCO2 configuration will be available at a future software release.

PM221 (interlink changes to ManB)

Report format:

```
PM221 mmmdd hh:
mm:ss ssdd MANB IRLINK
  PORT: modno  P-side LINK linkno
  PORT: modno  P-side LINK linkno
  IRLINK NO: irlnkno FROM: state
```

Example:

```
PM221 NOV17 19:
03:00 5603 MANB IRLINK
  PORT: RCO2 0  P -side LINK  0
  PORT: RCO2 1  P-side LINK   0
  IRLINK NO:   1  FROM: InSv
```

PM222 (interlink changes to SysB)

Report format:

```
PM222 mmmdd hh:
mm:ss ssdd SysB IRLINK
  PORT: modno  P-side LINK linkno
  PORT: modno  P-side LINK linkno
  IRLINK NO: irlnkno FROM: state
```

Example:

```
PM222 NOV18 19:
03:30 5604 SysB IRLINK
  PORT: RCO2 0  P-side LINK   0
  PORT: RCO2 1  P-side LINK   0
  IRLINK NO:   1  FROM: InSv
```

PM223 (interlink changes to InSv)

Report format:

```
PM223 mmmdd hh:
mm:ss ssdd RTS IRLINK
  PORT: modno  P-side LINK linkno
  PORT: modno  P-side LINK linkno
  IRLINK NO: irlnkno FROM: state
```

Example:

```
PM223 NOV18 19:
03:40 5604 RTS IRLINK
  PORT: RCO2 0  P-side LINK   8
  PORT: RCO2 1  P-side LINK   8
  IRLINK NO:   1  FROM: MANB
```

PM189 (RCO2 is in forced ESA)

Report format:

```
PM189 mmmdd hh:
mm:ss ssdd INFO SW Information Report
  pmid n UNIT n : acttxt
  TASKID: taskid , TIME: hh:mm:ss.cc
  TEXT : swerrtxt  logdata
```

Example:

```
PM189 JAN01 12:
34:40 1234 INFO SW Information Report
  RCO2 0 UNIT 1 : Act
  TASKID: 001C001C  MTCSLAV, TIME: 12:34:40.19
  TEXT : FORCE DOWN
```

RSC-S with ISDN logs

When the RSC-S has the ability to process ISDN calls, logs are produced that are specific to ISDN functionality. The following sections explain the types of actions that result in logs and the specific logs that are produced.

Logical link management audit/logs

The logical link management (LLM) audit is an important source of ISDN log reports. The present LLM audit periodically attempts to establish any logical link. With the RCO2, this audit attempts to reestablish links if

- the D-channel is InSv
- there is no outstanding maintenance action on the link

Autonomous terminal endpoint identifier check and restoration

During an LLM audit cycle, an autonomous terminal endpoint identifier (TEI) check is carried out on removed TEIs. If the check passes, TEI restoration follows immediately. A log is displayed if the restore action passes.

Autonomous D-channel restoration

D-channels that have failed autonomously are audited, and an attempt is made to return the channel to service. A log is sent to the CC if the action has succeeded, and maintenance action is taken to restore the channel.

ISDN logs

The following logs are applicable to RSC-S with ISDN faults:

- ISDN100—A D-channel handler (DCH) channel associated with an ISDN line cannot be put into traffic level.
- ISDN101—A DCH detects that a terminal (loop) is not available for message traffic.
- ISDN102—A DCH has detected duplicated TEIs on the same ISDN line and has removed the line from service.
- ISDN103—Manual action has changed the state of a D-channel used for D-channel packet service.
- ISDN104—Sync is lost on a D-channel used for D-channel packet service and this loss removes the channel from service.
- ISDN106—Layer one of a D-channel fails; the loop goes to the DMB state; and the fail flag, I, is set.
- ISDN107—The system fails to restore the TEI.
- ISDN108—The TEI is restored by the system.

- ISDN109—A previously failed D-channel is restored to service, the loop is returned to the IDL state from DMB, and the I flag is cleared.
- LINE131—For the U-type line card, this log is generated when the number of BpVs detected on an ISDN line exceeds a threshold set by input of the THRESHOLD command in the LOGUTIL software.

Logs created as a result of system action

The following table lists logs generated when a fault is detected by automatic system tests or changes in some system state.

Log reports generated by system tests or changes

Equipment	Name	Summary
LGCI/LCMI/LCME	PM102	Source state change to SysB
	PM100	Diagnostic fail
	PM101	Checksum fail
	PM107	Resource state change to C-side busy
	PM113	Message congestion
	PM114	Load or test fail
	PM115	Miscellaneous reports
	PM116	Message error reports
	PM117	Trouble during normal operation
	PM118	Miscellaneous reports
	PM179	PM hardware exception reports
	PM180	PM software exception reports
	PM190	DCH state change to SysB
	PM192	DCH state change to C-side removed from service
	PM193	DCH state change to offline
	PM194	DCH state change from InSv to ISTb
	PM195	DCH state change to InSv
	PM198	DCH fault that is not service affecting
	PM199	DCH diagnostic results

—continued—

Log reports generated by system tests or changes (continued)

Equipment	Name	Summary
	PM200	DCH load information
	PM235	DCH takeover occurrence to SysB
Links	PM183	P-side link state to SysB
	PM187	Carrier state change to SysB
	PM188	Protection switching on carriers cannot be put in traffic level
Lines	ISDN100	DCH ISDN line channel is not available for service
	ISDN101	DCH has detected that a terminal is not available for service
	ISDN102	DCH has detected TEIs on same ISDN line
	ISDN 103	State of the D-channel has changed
	ISDN104	Sync is lost on a D-channel
	ISDN106	D-channel layer one failure
	ISDN107	TEI restore failed
	ISDN108	TEI restored by the system
	ISDN109	D-channel restored to service

—end—

Logs created as a result of user input

The following table contains log reports generated when the system detects a fault while taking action requested by a command at a MAP display.

ISDN log reports generated after input of commands

Equipment	Name	Summary
LGCI/LCME/LCME	PM100	Diagnostic failed
	PM101	Checksum failed
	PM102	State change to SysB
	PM103	State change to offline

—continued—

ISDN log reports generated after input of commands (continued)

Equipment	Name	Summary
	PM104	State change to not equipped
	PM105	State change to ManB
	PM106	State change from ManB to InSv
	PM114	Load or test failure
	PM191	DCH state change to ManB
	PM192	DCH state change to C-side removed from service
	PM193	DCH state change to offline
	PM195	DCH state change to InSv
	PM196	DCH removed from customer table DCHINV
	PM199	DCH diagnostic results
	PM200	DCH load information
	PM235	DCH takeover occurrence
Links	PM182	P-side link state change to ManB
	PM184	P-side link state change to INSv
	PM188	RTS or protection switching
Lines	LINE100	Diagnostic pass
	LINE101	Diagnostic fail
	LINE107	Insulation test required
	LINE110	Foreign potential detected
	LINE118	Failure to connect metallic test access (MTA)

—end—

Global Peripheral Platform logs

This chapter describes Global Peripheral Platform (GPP) logs.

The log system

The output reporting system generates many log reports. Since it is normally not economically feasible to have a printer for each log type, and because the system generates the log reports in real time, all log reports are intermingled on the log device.

Monitoring the printer for background information that may have occurred hours before a particular event is difficult. Therefore, it becomes essential to use the individual subsystem buffers where log reports of the same log type can be viewed.

For example, if a fault has occurred in GPP 0, maintenance personnel may want to dump the contents of the peripheral module (PM) subsystem logs, and scan those logs for any information relative to GPP 0. This action would provide the necessary background information to help isolate the fault.

What is a log report?

A log report is a message generated by the Digital Multiplex System (DMS) whenever a significant event has occurred in the switch or one of its peripherals. Log reports include status and activity reports, as well as reports on hardware or software faults, test results, changes in state, and other events or conditions likely to affect the performance of the switch. A log report may be generated in response to either a system or a manual action.

Product related logs

This document provides information on logs that relate to an XMS-based peripheral module (XPM) product or feature. Specific log data and recommended actions, if not information-only logs, concerning a particular XPM product is presented in the respective chapters. For a complete description of all logs refer to the *DMS-100 Log Report Reference Manual*.

Controlling output from the log system

Log output, including storage, distribution, prioritization, suppression, and thresholds, may be controlled in two ways.

First, individual offices may customize the output from the log system to meet local requirements by making changes to the appropriate customer data tables. Refer to the data schema section of the *DMS-100 Translations Guide* for more information.

Second, specific log utility (LOGUTIL) commands may be executed in the LOGUTIL level on a MAP terminal. LOGUTIL commands may be used to temporarily override parameters set in the customer data tables, for example, to turn log reports off, or to route output temporarily to a different device. In most cases, a restart (reinitialization of the DMS-100 operating system and user processes) will reset any temporary change that was made by the use of LOGUTIL commands.

The GPP is a host-based common peripheral module (CPM). The GPP provides multi-vendor interface to a DMS switch and supports up to 48 pulse coded modulation (PCM30) links for cable TV AccessNodes (AN). The DMS switch is the local exchange (LE) which, along with the GPP, performs the protocol translation between the ANs and public switched telephone networks (PSTN).

Logs associated with the GPP

The following table lists log reports useful in the maintenance of the GPP. Each log report is listed along with its possible causes and an appropriate action by operating company personnel.

GPP related logs

Log name	Causes	What to do
IOAU112	GPP has not been routine exercise (REX) tested for 7 days. Investigate why REX has not been run on the GPP. Possible reasons are as follows: • REX is suspended for the GPP. • REX is disabled in table REXSCHED. • REX is manually turned off using the TST command at the PM level. • REX is manually turned off through table OFCVAR using parameter NODEREXCONTROL. • REX is disabled because the GPP is in service trouble (ISTb).	Determine why GPP is not scheduled for REX. If GPP is ISTb take corrective action to return the GPP to service to enable REX text execution.
PM102	The DMS switch has set the GPP system busy (SysB) from another state, usually ISTb. Produced when the link audit with the central-side (C-side) PM fails.	Determine reason, perform test, replace faulty cards, and return GPP to service.
PM105	The BSY command has been entered from the MAP terminal, and the GPP can be tested or placed offline. If the GPP is already busy, check with other personnel to determine why it was busied.	Information log only
PM106	The DMS switch has returned the GPP to service, usually from the ISTb state.	Information log only
PM107	The DMS switch has set the GPP C-side busy. This usually means both messaging GPP links are busy, or the C-side PM is SysB.	If system requested, determine reason, perform test, replace faulty cards, and return PM to service.

—continued—

GPP related logs (continued)

Log name	Causes	What to do
PM108	Firmware or hardware error in GPP.	No action required if generated for less than 2 minutes. If generated for more than 2 minutes or if diagnostics fail, perform test, replace faulty cards, and return PM to service.
PM109	The level set in table CARRMTC for the out-of-service (OOS) limit has been exceeded.	No action required if generated for less than 2 minutes; otherwise, check for faults at the AN then at the GPP.
	The PCM30 circuit card associated with the link from the GPP to the C-side PM has been removed. The GPP is set ISTb.	
PM110	The level set in table CARRMTC for maintenance limits has been exceeded.	No action required if levels return to normal; otherwise, check for faults at the AN then at the GPP.
PM117	The GPP failed to return a `Who-Am-I` message to the central control (CC) after the CC requested the GPP reset itself.	Determine reason, perform test, replace faulty cards, and return the GPP to service.
PM128	The DMS switch has set the GPP ISTb. While the problem is corrected, the GPP can continue to process calls.	No action required if system recovers. If GPP cannot recover, PM102 is generated.
	REX warm SwAct has occurred.	Information log only
	Diagnostic TESTALL fails.	Information log only
	State of the two units changed because of a REX test failure.	Investigate the PM600 log for reasons for the REX failure.
	REX test passed.	Information log only
	CLASS modem resource (CMR) card faulty or CMR load mismatch.	Busy unit, replace CMR card if faulty, reload, and return the unit to service.
PM180	Encountered GPP software exception (improper execution of software).	Used to troubleshoot software defects. Retain log report for trend analysis.
PM181	Hard parity fault	Busy unit, replace circuit card in list, reload, and return to service (RTS).

—continued—

GPP related logs (continued)

Log name	Causes	What to do
	Soft, intermittent parity faults	No action required if both units are InSv when CC brings the ISTb unit back to service. Otherwise, busy, reload, and RTS the unit.
	CMR card fault	Busy unit, replace circuit card in list, reload if necessary, and return the unit to service.
	Faulty common controller cards in GPP	Busy the unit, replace CMR circuit card if faulty, reload, and return the unit to service.
PM600	REX fail reasons	PM600 records the maintenance actions performed on the XPM during the failed REX, from the start of the REX, to the step that failed. This information can be used to pinpoint the source of the REX failure.
	warm SwAct	
	warm SwAct turned off	
	autonomous SwAct	
	OOS tests of inactive unit 0	
	OOS tests of inactive unit 1	
	RTS of inactive unit 0	
	RTS of inactive unit 1	
	achieving superframe/data sync of unit 0	
	achieving superframe/data sync of unit 1	
	InSv tests of inactive unit 0 before SwAct	
	InSv tests of inactive unit 1 before SwAct	
PM600 (continued)	InSv tests of active unit 0 after SwAct	
	InSv tests of active unit 1 after SwAct	

—continued—

GPP related logs (continued)

Log name	Causes	What to do
	InSv tests of inactive unit 0 after SwAct	
	InSv tests of inactive unit 1 after SwAct	
	RTS of inactive unit 0 after SwAct	
	RTS of inactive unit 1 after SwAct	
	achieving superframe/data sync of unit 0 after SwAct	
	achieving superframe/data sync of unit 1 after SwAct	
	SwAct to unit 0 refused by SwAct controller	
	SwAct to unit 1 refused by SwAct controller	
	SwAct back to unit 0 occurred	
	SwAct back to unit 1 occurred	
	recovery failed—SwAct	
PM601	Generated when operating company personnel reset long term failure counters to zero for a XPM posted at the MAP terminal. Generated when an XPM is deleted from datafill.	This log is an information log and should be kept in a form that can be passed on for analysis to the Technical Assistance Service (TAS) and field support organizations in the event of a later outage.
V5101	Generated when a GPP PCM30 link connected to a V5 AN becomes offline.	Determine the reason the link is offline.
V5102	Generated when the GPP PCM30 link connected to the V5 AN) becomes manually busy (ManB).	Determine why the link was set ManB.
V5103	Generated when the GPP link connected to the V5 AN is SysB.	Determine the cause of failure and RTS the link.
V5104	Generated when the GPP link connected to the V5 AN is remote blocked.	Determine why the link was blocked by the AN.

—continued—

GPP related logs (continued)

Log name	Causes	What to do
V5105	Generated when the GPP link connected to the V5 AN RTS.	Information log only
V5106	V5 Interface activated	information log only
V5107	V5 Interface deactivated	information log only
V5108	V5 Interface startup failed	Determine the cause of failure and reactivate V5 Interface
V5150	Generated when a C-channel is removed from service. The severity is minor.	Information log only
V5151	Generated when a C-channel becomes InSv.	Information log only
V5152	Generated when a link protection switch occurs.	Determine the cause of failure of the primary C-channel and RTS.
V5153	Generated when protection switch over has failed. The severity is major.	Determine the cause of the failure of the primary C-channel and RTS. If the primary C-channel fault cannot be determined, determine the cause of failure of the backup C-channel and RTS.
V5154	Generated when the link identification procedure fails.	If a protection switch has occurred determine the cause of failure and RTS the link. If protection switching has not occurred, determine if the backup link is InSv and manually protection switch the C-channel links.
V5200	Generated when there is a bearer channel connection (BCC) failure.	Determine the cause of failure of the BCC and RTS.

—continued—

GPP related logs (continued)

Log name	Causes	What to do
V5201	Generated when there is a BCC request rejection.	Determine if the BCC rejection is caused by a hardware fault or one of the following conditions: Connection already present at the PSTN user port to a different time slot. Connection already present at the V5 interface time slot to a different user port. DE-allocation of the time slot cannot be completed due to incompatible data content. De-allocation of the time slot cannot be completed due to users ports time slot incompatable data content. User port is not provisioned. User port is blocked. Invalid V5 PCM30 link identification. V5 time slot is being used as physical C-channel and is not avaliable. ***Note:*** If many V5201 logs are generated over several hours it may be an indication of a stuck channel in the AN. Bsy and RTS the affected link. If the V5201 logs continue contact the AN maintenance personnel.
V5202	Generated when there is a BCC audit connection incomplete information element.	Determine the reason the BCC audit detected a BCC request rejection. See the V5201 log reasons.
V5203	Generated when an AN fault message is received.	Determine the cause of the BCC failure.

—continued—

GPP related logs (continued)

Log name	Causes	What to do
V5250	Generated when a BCC error is received from the AN. The failure message should list one of the following causes: Protocol discriminator error Message type unrecognized Information element out of sequence Repeated mandatory information element Repeated optional information element Information element missing Unrecognized information element Mandatory Information element content error Optional information element content error Too many information elements. Message not compatible with BCC protocol state	Determine which of the reasons caused the BCC failure and if the error is link, GPP, or AN related.

—continued—

GPP related logs (continued)

Log name	Causes	What to do
V5251	Generated when a protection protocol error is received from the AN. The failure message should list one of the following causes: Protocol discriminator error Message type unrecognized Repeated mandatory information element Repeated optional information element Mandatory Information element missing Unrecognized information element Mandatory Information element content error Too many information elements. Message not compatible with BCC protocol state	Determine which of the reasons caused the protection protocol error and if the failure is link, GPP, or AN related.

—continued—

GPP related logs (continued)

Log name	Causes	What to do
V5252	Generated when a PSTN protocol error is received from the AN. The failure message should list one of the following causes: Protocol discriminator error L3 address error Message type unrecognized Information element out of sequence Repeated mandatory information element Repeated optional information element Mandatory Information element missing Unrecognized information element Mandatory Information element content error Mandatory Information element content error Optional information element content error Too many information elements. Message not compatible with path state	Determine which of the reasons caused the PSTN protocol error and if the failure is link, GPP, or AN related.
V5253	Generated when a PSTN layer 3 error error is detected.	Determine what caused the PSTN layer 3 error and if the failure is link, GPP, or AN related.

—continued—

GPP related logs (continued)

Log name	Causes	What to do
V5254	Generated when there is a PSTN state mismatch.	Determine from the log report the reasons for the mismatch of the finite state machines (FSM) in the AN and LE.
V5300	Generated once a day, and includes information on the total number of correct and errored frames received and transmitted over the V5 C-channels. V5300 is a report of layer 2 statistics on each V5 switch.	Information log only
V5301	Generated once a day, and is a report of the percentage of errored frames, retransmitted frames, and elapsed time of errored frames. The number of bad C-channels occurring during the day is reported.	Information log only
V5302	Generated once a day, and is a report of layer 2 high abnormality rates of C-channels.	Information log only
	—end—	

RSC-M International related logs

Gathering and interpreting logs is a primary way for operating companies to monitor Remote Switching Center Multi-access (RSC-M) components. The RSC-M supports a remote generic vendor access for channel associated signaling (CAS) lines. Channel associated signaling lines are associated with the existing logs. No new log types are added to the existing RSC-S/RCO2 logs. Certain logs are useful in isolating a problem to a single component, while others help in spotting link problems.

Peripheral module logs

To perform maintenance of the RSC-M, the operating company should pay particular attention to peripheral module (PM) logs. This section provides a general description of PM logs and highlights maintenance activities that result in specific logs.

Note 1: Existing PM logs for the RCO2 without RSC-M also apply to the RSC-M.

Note 2: Basic operational measurements (OM) for the Remote Switching Center overseas (RSC-S) also apply to the RSC-M.

Note 3: For information on how logs can be used for administrative purposes, refer to the *Log Report Reference Manual*.

Logs in this document are grouped as follows:

- remote center offshore #2 (RCO2) logs
- emergency stand-alone (ESA) logs

RCO2 logs

The following table lists primary PM log reports associated with an RCO2 without ESA. (PM181 logs for ESA are described in a separate section.) Included are example messages, additional message reasons when applicable, and the log's meaning.

Note: One PM181 log is associated with throttling message links. This log is described in a separate section.

RSC-M (INTL) related logs

Log name	Causes	Response
IOAU112	RSC-M has not been routine exercise (REX) tested for 7 days. Investigate why REX has not been run on the RSC-M. Possible reasons are as follows: • REX is suspended for the RSC-M. • REX is disabled in table REXSCHED. • REX is manually turned off using the TST command at the PM level. • REX is manually turned off through table OFCVAR using parameter NODEREXCONTROL. • REX is disabled because the RSC-M is in service trouble (ISTb). Take corrective action to return the RSC-M to service so the REX test can be run.	`IOAU112 AUG09 16:35:26 1900 INFO REX Scheduler Notice RCO2 0 has not been REXed for 7 days`
NAG400	Hourly under the control of the NAG command. Lists information, including REX results, about all nodes not in-service (InSv).	Depending on review of the log report, the user should take the necessary steps to either return the node to service or have the node REX enabled if it is appropriate to do so.
PM102	The DMS switch has set the RCO2 system busy (SysB) from another state, usually ISTb. Produced when the link audit with the central-side (C-side) PM fails.	`PM102 MAY21 22:15:21 2453 SysB RCO2 0 Node :SysB From ISTb Unit0 Inact:SysB(Link Audit) Unit1 Act:SysB :Link Audit from CBsy`
PM105	The BSY command has been entered from the MAP terminal, and the RCO2 can now be tested or placed offline. If the RCO2 is already busy, check with other personnel to determine why it was busied.	`PM105 MAY21 22:15:21 2453 MANB RCO2 0 Node :ManB From ISTb Unit0 Inact::ManB Unit1 Act::ManB`

—continued—

RSC-M (INTL) related logs (continued)

Log name	Causes	Response
PM106	The DMS switch has returned the RCO2 to service, usually from the ISTb state.	PM106 MAY21 22:15:21 2453 RTS RCO2 0 Node :InSv From ISTb Unit0 Inact::InSv Unit1 Act::InSv
PM107	The DMS switch has set the RCO2 C-side busy. This usually means both messaging RCO2 links are busy, or the C-side PM is SysB.	PM107 MAY21 22:15:21 2453 CBSY RCO2 0 Node :CBsy Unit0 Inact::SysB (Link Audit) from CBsy Unit1 Act::CBsy
PM109	The level set in table CARRMTC for the out-of-service (OOS) limit has been exceeded. The pulse code modulation 30 (PCM-30) card associated with the link from the RCO2 to the C-side PM has been removed. The RCO2 is set ISTb.	PM109 MAY21 22:15:21 2451 PBSY CARRIER LGC0 CARRIER-NO: 3 REASON:CARRIER LOCAL ALARM SET CARRIER CARD REMOVED
PM110	The level set in table CARRMTC for bipolar violation (BpV) maintenance limit has been exceeded.	PM110 MAY21 22:15:21 2451 INFO CARRIER LGC0 CARRIER-NO: 3 REASON:CARRIER BPV MTC LIMIT SET
	The BpV limit has dropped below the threshold and cleared.	BPV MTC LIMIT CLEARED
	The C-side PM has detected loss of frame (LOF), set in table CARRMTC.	LOF MTCE LIMIT SET
	The loss of frame has cleared.	LOF MTCE LIMIT CLEARED
	The slip level set in table CARRMTC has been exceeded.	SLIP MTCE LIMIT SET
	The slip level has dropped below the threshold.	SLIP MTCE LIMIT CLEARED

—continued—

RSC-M (INTL) related logs (continued)

Log name	Causes	Response
PM111	A local carrier group alarm (LCGA) has been cleared, and the PCM-30 links have been returned to service.	PM111 MAY21 22:15:21 2451 RTS CARRIER LGCO CARRIER-NO: 3 REASON:CARRIER LOCAL ALARM CLEARED
PM117	The RCO2 failed to return a Who-Am-I message to the central control (CC) after the CC requested that the RCO2 reset itself.	PM117 MAY21 22:15:21 2451 LGC 0 Unit 1:Act VALUE: 1 NO WAI RECEIVED AFTER RESET
PM128	The DMS switch has set the RCO2 ISTb. While the problem is corrected, the RCO2 can continue to process calls. State of the two units changed because of a REX test failure. REX test passed. Diagnostic TESTALL fails. REX warm SWACT has occurred. Image in progress	PM128 MAY21 22:15:21 2451 TBL ISTb RCO2 0 Node :ISTb (Inact OOS) From InSv Unit0 Inact::SysB From InSv Unit1 Act::InSv Set when the XPM unit is actively dumping an image to the NT7X05 card.
LINE 145	Reports any of the following layer 1 events: • loss of synchronization • loss of signal with *dying gasp* • loss of signal without *dying gasp* • recovery of signal	LINE145 ATPR 01 11:19:15 8200 INFO ISLC Signal Alarm LEN HOST 10 0 08 15 DN 7225228 Loss of signal with “dying gasp” at NT1: Loop state remains DMB
LINE 147	Reports changes in the customer’s NT1 test mode	LINE147 APR10 21:25:51 3402 INFO NT1 test mode indication alarm LEN HOST 10 0 08 16 DN 7225229 NT1 test mode initiated

—continued—

RSC-M (INTL) related logs (continued)

Log name	Causes	Response
PM179	Indicates a software condition has occurred that affects the normal operation of the RCO2. PM179 supplies information related to a PM Hardware Exception Report. Features AF5329 and AF5672 add the contents of the processor board configuration register to the log report.	Refer to description of PM179 in *Log Report Reference Manual*, for specific problems and responses indicated by this report.
	Features AF5911 and AF5912 add the Talk battery failure detected and Cannot test talk battery, modifications to this log report.	Refer to description of PM179 in *Log Report Reference Manual*, for specific problems and responses indicated by this report.
PM180	Collect all PM180 reports.	
	Indicates an occurrence of improper execution of the software.	Collect all PM180 reports and contact next level of support.
PM181	The RCO2 encountered a trouble, usually while running a test. PM181 has numerous messages and is the most useful report to track while maintaining the RCO2.	`PM181 MAY21 22:15:21 2451 ISTb SysB RCO2 0 Node :SysB From ISTb Unit0 Inact:: Static Data Cleared Unit1 Act: Static Data Cleared`
	Test the peripheral side (P-side) PM.	`Diagnose C-side links.`
	Run the TEST command later.	`Diagnostic system in overload.`
	The TEST command succeeded.	`Diagnostic TESTALL passes.`
	The TEST command was unsuccessful, and a list of cards is produced. This log is produced during troubleshooting procedures.	`Diagnostic TESTALL failed, Cardlist:`
	Run the TEST command later.	`Diagnostic resource was unavailable`
	Static data was not available. Busy the RCO2 unit, and load the unit with CC static data.	`Diagnostic TESTALL failed, invalid static data.`
	Check the C-side PM.	`Failed to open C-side link.`

—continued—

RSC-M (INTL) related logs (continued)

Log name	Causes	Response
PM181 (cont)	The PCM-30 link is throttling messages. See the next section.	`Operational fault: C_Side Message`
	The load is corrupt, or a CHECKSUM failed.	`Software error (SWERR) in diagnostic TESTALL`
	The RCO2 reloaded static data.	`Static data update`
PM181	An HDLC link gained synchronization. DMS-X protocol can be dynamically changed to HDLC protocol while the RCO2 is InSv. The PM state is changed to ISTb until all HDLC links are synchronized to the host. An unsolicited message is sent to CC for each HDLC link synchronized, and a PM 181 log is generated. When all HDLC links between an RCO2 and an LTC+ are synchronized, the ISTb state is cleared.	`PM181 MAY09 14:09:11 6400 INFO RCO2 REM1 0 Unit 0 Node: InSv, Unit0 Act: Insv, Unit1 Inact: Istb HDLC Cside msg link GAINED sync - link 0`
	An HDLC link lost synchronization. When the synchronization of an HDLC link fails during a dynamic DMS-X to HDLC protocol upgrade, an unsolicited message is sent to the CC, and a PM181 log is generated. If all HDLC message links between an RCO2 and an LTC+ are not synchronized after the dynamic upgrade, the RCO2 works in the DMS-X mode. If the remote was in the ISTb state due to HDLC links synchronization, the ISTb is cleared.	`PM181 MAY09 14:09:11 6400 INFO RCO2 REM1 0 Node: Istb, Unit0 Act: Insv, Unit1 Inact: Istb HDLC Cside msg link LOST sync - link 2`

—continued—

RSC-M (INTL) related logs (continued)

Log name	Causes	Response
PM600	Generated when an extended peripheral module (XPM) REX test fails. REX fail reasons follow: • Warm SWACT (switch of activity) • Warm SWACT turned off • Pre-SWACT audit failure • Post-SWACT audit failure • SWACT back failure • Autonomous SWACT • OOS tests of inactive unit 0 • OOS tests of inactive unit 1 • RTS of inactive unit 0 • RTS of inactive unit 1 • Achieving superframe/data sync of unit 0 • Achieving superframe/data sync of unit 1 • InSv tests of inactive unit 0 before SWACT • InSv tests of inactive unit 1 before SWACT	** PM600 JUN08 01:28 8600 TBL REX FAILED XPM 0 Node:ISTb, Unit 0 Act:InSv, Unit 1 Inact:SysB (Diag Failed) REX Step Unit Start Time Failure Reason Tst Inact 0 09:17:33 Bsy Inact 0 09:17:47 RTS Inact 0 09:18:15 Sync Inact 0 09:21:43 Pre-SwAct 0 09:21:51 Warm SwAct – 09:22:37 Bsy Inact 1 09:22:40 RTS Inact 1 09:23:08 Sync Inact 1 09:25:27 Tst Act 0 09:22:50 REX test failed–InSv tests of active Unit 0 after Swact Warm SwAct – 09:25:28 Bsy Inact 0 09:25:29 Finished – 01:28:25 Supplemental Data Diagnostic Failures: UTRDIAG Site Flr RPos Bay_id Shf Description Slot EqPEC HOST 01 L15 LTE 00 65 LTC : 000 15 6X92

—continued—

RSC-M (INTL) related logs (continued)

Log name	Causes	Response
PM600 (cont)	REX fail reasons (contd) • InSv tests of active unit 0 after SWACT • InSv tests of active unit 1 after SWACT • InSv tests of inactive unit 0 after SWACT • InSv tests of inactive unit 1 after SWACT • RTS of inactive unit 0 after SWACT • RTS of inactive unit 1 after SWACT • Achieving superframe/data sync of unit 0 after SWACT • Achieving superframe/data sync of unit 1 after SWACT • SWACT to unit 0 refused by SWACT controller • SWACT to unit 1 refused by SWACT controller • SWACT back to unit 0 occurred • SWACT back to unit 1 occurred • Recovery failed—SWACT • Unit 1 failed the REX test ***Note:*** The example text is shown as is due to space limits.	

—continued—

RSC-M (INTL) related logs (continued)

Log name	Causes	Response
PM601	PM601 is generated when operating company personnel reset long-term failure counters to zero for an XPM posted at the MAP display. PM601 is also generated when an XPM is deleted from datafill.	PM601 AUG20 09:44:15 2741 INFO XPM Diagnostic History RCC 1 Reset Long Term Failure (LTF) counts LTF last reset: 92/07/01 06:22:10 Summary of LTF counts prior to reset: UNIT 0 UNIT 1 DIAGLIST AB DIAG 1 1 SPCH DG 0 1 --- CARDLIST NTMX75 1 2
PM777	The message and tone card is faulty. Messaging between the RCO2 and the CC is impaired or interrupted.	PM777 JAN04 17:44:56 2709 INFO H/W FAULT RCO2 0 UNIT NO: 00 Error State: 6X69 Insane Suspected card(s): Site Flr RPos Bay_id Shf HOST 00 A00 RCE 00 65 Description Slot EqPEC RCC : 00 18 6X69 Data: 00 02 42 FA 00 1A
PRFM200	The performance subsystem generates this log to represent activity data for the RCO2 peripheral.	Due to space limitations, an example of the PRFM200 log follows. For the NTMX73AA and NTMX76AA circuit cards, the summary line contains the average time for the last 15 min. However, if the perform tool is run for less than 15 min, the time provided is the requested time. In this example the summary fields contain no values.

—continued—

RSC-M (INTL) related logs (continued)

Log name	Causes	Response

```
PRFM 200 JAN10 04:39:50 2044 INFO PMACT_DATA
RCO2 0 UNIT 1
Load name: CRI02BY
UPHP UPCP UPLP ISPHP ISPCP ISPLP SIGP MX76 ORIG TERM UTR
    CHNL
1.19% 38%   9%   0%    16%    0%   9%  22%  105  110  1
     82
2.19% 38%   8%   0%    15%    0%   9%  22%  102   98  1
     81
..
..
..
Summary
Summary UTRAVAIL XX UTRHIGH XX PSIDEAVAIL XXX PSIDEHIGH  XX
```

—end—

PM181 logs (firmware download events)

Text reasons are added to the existing PM181 log format to record firmware download events and failures. The text reasons displayed are as follows:

Text reason:

```
PM181 JAN01 09:44:11 1333 INFO RCO2 Unit 0 :
Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT :
INSV
Mismatch of the firmware edition between
LOADABLE and
EXECUTABLE EEPROMs in unit 0
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates the name of the firmware of the LOADABLE EEPROM is different from the name of the firmware of the EXECUTABLE EEPROM. During the initialization, an attempt to upgrade the EEPROM with the wrong firmware name occurred. The action failed, and that is the reason for the mismatch.

System action: None

User action: Perform the loading of the firmware to the EEPROM. If the log appears again, replace the card.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 :
Inact
Node : ISTB, Unit0 Inact :ManB, Unit1 ACT :INSV
Mismatch of the firmware edition between inventory
table and EEPROM # 0 in the unit 0
```

Explanation: This is a part of the standard PM181 log. Only the message field has changed. The message field indicates that the name of the firmware in the inventory table is different from the firmware name of the EXECUTABLE EEPROM.

System action: None

User action: Perform the loading of the firmware to the EEPROM. If the log appears again, replace the card.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB Unit1 ACT : INSV
FAIL TO LOAD EEPROM – UNIT FOUND IN ROM LEVEL
```

Explanation: This is a part of the standard PM181 log. Only the message field has changed. The message field indicates that the unit was found in the ROM level.

System action: None

User action: Perform the PMRESET command. If this does not help, load the unit again and perform the RTS command, then load the firmware to the EEPROM again.

Text reason:

```
PM181  JAN01 09:44:11  1333 INFO RCO2 Unit 0 : Inact
Node : ISTB, Unit 0 Inact : ManB, Unit 1 ACT : INSV
FAIL TO PROGRAM EEPROM – TIME OUT OPEN ROUTE
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates that programming is not successful because of time-out open route.

System action: None

User action: If the loading of the EEPROM failed, perform the LOADPM command again.

Text reason:

```
PM181 JAN01 09:44:11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB Unit0 Inact : ManB, Unit1 ACT :INSV
Failed to query for edition of EEPROM
```

Explanation: This is a part of the standard PM181 log. Only the message field has changed. The message field indicates the addition of the two EEPROMs. If the query is not successful, this log is generated. A reason for failure in the query step is the wrong unified processor (UP) card.

System action: None

User action: Perform the LOADPM command again. If the same log is generated, replace the card.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Erase EEPROM # 0 completed successfully
# of reerases is : 209
# of rewrites is : 202
```

Explanation: This is a part of the standard PM181 log. Only the message field has changed. The message field indicates that the erase is successful. The log generated mentions the number of re-erases and rewrites, and if the EEPROM is functioning correctly. A large number of re-erases or rewrites indicates the load action will take more time.

System action: None

User action: If the number of re-erases is close to 3000, load time increases. It is time to replace the EEPROM.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB Unit0 Inact : ManB, Unit1 ACT : INSV
Fail to erase EEPROM # 0
# of reerases is : 202
# of rewrites is : 209
```

Explanation: This is a part of the standard PM181 log. Only the message field has changed. The message field indicates that the erase is not successful. The log generated mentions the number of re-erases and rewrites. This information is for checking if the EEPROM is functioning as expected. A large number of re-erases or rewrites indicates that the load action will take more time.

System action: None

User action: If the loading of the EEPROM failed, perform the LOADPM command again. If the same log is generated again, replace the card. If the number of re-erases is close to 3,000, load time increases. It is time to replace the EEPROM.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Fail to load EEPROM # 0 – file incorrect
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates that programming is not successful because of incorrect file name.

System action: None

User action: The load file in the inventory table is incorrect. The file must be replaced.

Text reason:

```
PM181 JAN01 09:44:11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit 0 Inact : ManB, Unit 1 ACT : INSV
FAIL TO LOAD EEPROM # 0 – FLAGS INCORRECT
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates that programming is not successful because of incorrect flags.

System action: None

User action: The load file in the inventory table is incorrect, so the file must be replaced. RTS the unit to upgrade the erased EEPROM. Change the firmware file that includes correct flags.

Text reason:

```
PM181 JAN01 09:44:11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Fail to load EEPROM # 0 – program fail
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates that programming is not successful because of burning-action failure.

System action: None

User action: Perform the LOADPM command again. If the same log is generated, replace the EEPROM. If the same log is generated again, replace the card.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Fail to program EEPROM # 0 – address overlap
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates that programming is not successful because of address overlap.

System action: None

User action: The load file in the inventory table is incorrect. The file must be replaced.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Fail to program EEPROM # 0 – illegal s-record
```

Explanation: This is a part of the standard PM181 log. Only the message field has changed. The message field indicates that programming is not successful because of an illegal s-record.

System action: None

User action: The load file in the inventory table is incorrect. The file must be replaced.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Fail to program EEPROM # 0 – address range violation
```

Explanation: This is a part of the standard PM181 log. Only the message field has changed. The message field indicates that programming is not successful because of an address range error.

System action: None

User action: The load file in the inventory table is incorrect. The file must be replaced.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Bad EEPROM # 0 checksum
Msg_count of CC is : 9
Msg_count of XPM is : 2
```

Explanation: This is a part of the standard PM181 log. Only the message field has changed. The message field indicates that the checksum has failed.

System action: None

User action: If the checksum of the EEPROM failed, perform the LOADPM command again. If the log is generated, check for possible logs. If the same log is generated again, replace the file.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Failed to switch between EEPROMs
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates that the switching action between the two EEPROMs has failed.

System action: None

User action: If the switching of the EEPROMs failed, perform the LOADPM command again. If the same log is generated, replace the card.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Failed to load EEPROM – ROM diagnostic failed
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates that the ROM diagnostic has failed.

System action: None

User action: If the ROM diagnostic failed, perform the LOADPM command again. If the same log is generated, replace the card.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Failed to load EEPROM – Failed to run from EEPROM # 0
```

Explanation: This is a part of the standard PM181 log. Only the message field has changed. The message field indicates that running on the executing EEPROM is successful.

System action: None

User action: Check for possible logs. Load the unit again with the previous firmware.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Updated EEPROM # 0 with MX77MA12 completed successfully.
EEPROM # 0 edition was changed from MA11 to MA12
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates that updating the loadable EEPROM is successful.

System action: None

User action: None

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Updated EEPROM # 0  Info:
# of rewrites : 12
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates that the number of rewrites is as remarked.

System action: None

User action: None

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Failed to load EEPROM # 0 – flags update fail
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates that the updating flags action of the loadable EEPROM failed. A reason for this type of failure is a hardware problem.

System action: None

User action: If the update of the EEPROM failed, perform the LOADPM command again. If the same log is generated, replace the card.

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Updated EEPROM # 1 with MX77MA16 completed successfully.
EEPROM # 1 edition was changed from MA15 to MA16
```

Explanation: This is a part of the standard PM181 log. Only the message field has changed. The message field indicates that the second EEPROM is upgraded successfully.

System action: None

User action: None

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Upgrade EEPROM # 1 Info:
# of reerases : 4 $ of rewrites : 1
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates that the number of re-erases and rewrites is as remarked.

System action: None

User action: None

Text reason:

```
PM181 JAN01 09:44;11 1333 INFO RCO2 2 Unit 0 : Inact
Node : ISTB, Unit0 Inact : ManB, Unit1 ACT : INSV
Task aborted while loading EEPROM
```

Explanation: This is part of the standard PM181 log. Only the message field has changed. The message field indicates that the loading process is aborted.

System action: None

User action: None

Expanded use of PM180 (PM777)

Prior to batch change supplement (BCS) 33, PM180 logs included information on software error (SWERR) states resulting from hardware errors. In BCS33, log PM777 has been added specifically to handle hardware error information previously included in PM180 logs. The PM777 log provides this information in simple text to enable operating company personnel to locate and correct hardware errors more easily. In particular, the new log identifies any suspected card or cards that may be causing a hardware error.

The PM777 log is used with the feature Log Retrieve Facility for E1 Incidents, which allows the journaling of all logs to a storage device for later retrieval and analysis.

Restrictions for the PM777 are as follows:

- Only the most critical software modules are analyzed for output of the new log.
- Software-related PM180 logs for service-affecting states are not analyzed.

PM181 (activity dropped)

The following messages show the active unit has dropped activity. The CC immediately performs a warm SWACT so call processing is not affected. For messages dealing with an XPM parity fault, the unit goes SysB or ISTb.

- `PARITY AUDIT DETECTED HARD PARITY FAULT`

  If the faulty unit is inactive, the RCO2 sets the unit SysB. If the faulty unit is active, a warm SWACT occurs and the newly inactive unit is set SysB. If the faulty unit is active and warm SWACT is not available, the CC sets the unit ISTb. A card list is displayed with this log.

- `PARITY AUDIT DETECTED SOFT PARITY FAULT IN PROGRAM STORE (OR DATA STORE)`

  If the faulty unit is inactive, the unit is set SysB. If the faulty unit is active, a warm SWACT occurs and the newly inactive unit is set SysB. If warm SWACT is not available, the unit is set ISTb. If the unit is already busy, it is reloaded. (For data store, if the faulty unit is already busy, the CC RTSes the unit with new static data and full diagnostics.)

- `PARITY AUDIT DETECTED INTERMITTENT PARITY FAULT`

  If the faulty unit is inactive, the CC busies the unit and returns it to service with full diagnostics. If the faulty unit is active and the inactive

unit is in service (InSv), there is a warm SWACT and the newly inactive unit is RTS with full diagnostics. If the faulty unit is active and the inactive unit is not InSv, the active unit is set ISTb. The inactive unit can return to service if the parity audit does not detect an intermittent fault in 2 min after the fault was reported.

- ACTIVITY TIMEOUT
- SANITY TIMEOUT
- TRAP
- REQUEST
- DUPLICATE FAULT
- JAMMED
- DATA CORRUPTION
- STATIC DATA CORRUPTION
- PRE-SWACT AUDIT FAILURE
- UNDEFINED DROP REASON
- DROPPED ACTIVITY DUE TO POWER FAIL
- DROPPED ACTIVITY DUE TO SIGNALING PROCESSOR CLOCK FAIL

PM181 (throttling faults on the messaging PCM-30 links)

Operational faults reported on the PCM-30 messaging links that connect the RCO2 to the host PCM-30 line group controller (PLGC)/line group controller offshore (LGCO) are throttled. A PM181 log is created to indicate that an operational fault has occurred on an RCO2 messaging link.

The purpose of throttling operational faults is to prevent a single small fault on a PCM-30 messaging link from taking the RCO2 OOS. When an operational fault on an RCO2 messaging link occurs, the RCO2 increments the appropriate message error counter and sends a message containing all message error counts to the CC. The CC takes the information and formats it into a PM181 log. The link is then reopened, unless there are many faults in a short period of time.

The log includes information on whether the latest fault occurred at the PLGC P-side or the RCO2 C-side and gives the current message error counts. If the fault is on the C-side, the C-side message error counters are shown. Likewise, if the fault is on the P-side, the P-side message error counters are shown. The counters are not kept on a per-link basis; therefore, the counts are the total for all the links on the indicated side. Message counts are not cleared until the peripheral returns to service; therefore, two logs must be compared in order to determine the most recent message error.

This throttling affects operational faults on RCO2 PCM-30 message links. It does not affect any other type of peripheral.

Following is an example of the PM181 log. The following table lists the fields and their meanings.

```
PM181 MAY15 14:15:42 2530 INFO RCO2 60
Node: ISTb, Unit0 Inact: ISTb, Unit1 Act: InSv
LINK NO:    2, OPERATIONAL FAULT: C_SIDE_MSG
MISTO:    0 WAMTO:     3 WASTO:    0 WACKTO:   0 WANRTO:   3
WANXTO:   0 MSGLEN:    0 BADCRC:   0
NACK2:    0 NACK1:     0 NACKX:    3 RBNDMG:   3 FLSMIS:   0
BCKDWN:  16 BACKPR:    0 BUFOVF:    0
```

Fields of the PM181 log (message throttling)

Field	Meaning
BACKPR	Back pressure timeout, no free receiver buffers.
BADCRC	Cyclic redundancy code is incorrect.
BCKDWN	A slave process is waiting for a SEND to transmit a message, and instead receives a May-I-Send (MIS) from the master processor.
BUFOVF	Buffer overflow. No buffers available.
FLSMIS	False MIS—only one MIS is seen on the link. There must be at least two MISs on the link to be valid.
MISTO	MIS timeout message.
MSGLEN	Message length error occurs when an incorrect message length is received.
NACK1	The first negative acknowledgment (NACK) is received after a message is transmitted.
NACK2	The second NACK is received after a message is transmitted.
NACKX	A NACK is transmitted after a corrupted message is received.
RBNDMSG	A message has rebounded (error).
WACKTO	Wait for acknowledgment timeout error. No positive acknowledgment (PACK) or NACK is received after a message is transmitted.

—continued—

Fields of the PM181 log (message throttling) (continued)

Field	Meaning
WANRTO	Wait for idle after acknowledging a message timeout error. No idle is received after acknowledging a message with either a PACK or NACK.
WANXTO	Wait for idle after packing a NACK timeout error. No PACK or NACK is received after acknowledging the reception of a NACK.
WASTO	Wait for send timeout error. No filtered SEND is received after transmitting an MIS.
—end—	

PM128 (RCO2 overload logs)

When the RCO2 enters overload, a PM128 (RCO2 is ISTb) is produced with the following message:

```
PM Overloaded
```

Also, at the PM MAP level, posting the RCO2 and entering the QUERYPM FLT command gives the same message (`PM Overloaded`).

Operating company personnel should immediately begin to collect all relevant OMs that track the amount and types of traffic. Although the reason for the RCO2 entering overload can be related to a maintenance area (such as network faults), in other cases the reasons may relate to an underengineering of the RCO2 configuration. Therefore, the OM reports should be forwarded to both maintenance and engineering personnel for analysis.

PM128 (static data mismatch)

When the RCO2 and the CC have different sets of static data, call processing can be affected. When there is a static data mismatch, the following log message is produced:

```
Static Data mismatch with CC
```

The best strategy to clear the alarm is to RTS the inactive unit using the NODATASYNC option and perform a cold SWACT.

PM181, PM128 (parity error logs)

Following are some maintenance scenarios on the logs that are produced by the parity audit, the responses to the QUERYPM FLT command, and an overview of locating and clearing faults.

PM181 (hard parity fault and both units InSv)

Following is an example report.

```
PM181 JUL23 23:29:16 5561 INFO RCO2 0 Unit 0
Node: ISTb, Unit 0 Act: InSv, Unit 1, Inact:  InSv
Parity audit detected hard parity fault
Site Flr  RPos  Bay_id  Shf Description Slot  EqPEC
RALL 00   C05   RCO2 00  18  RCO2 : 000    10    MX77
```

Other trouble indicators

PM128—The RCO2 has been set ISTb, with the inactive unit as OOS.

```
PM128 JUL23 23:29:16 5561 TBL  ISTb RCO2 0
Node: ISTb, (Inact OOS) From InSv
Unit 0 Inact: SysB (Parity errors detected) from InSv
Unit 1   Act: InSv
```

PM189—The inactive unit of the RCO2 has a hard fault.

```
PM189 JUL23 23:29:17 5561 INFO PM SW INFORMATION REPORT
RCO2 0 Unit 0 : Inact
TASKID : 00370037 PARAUDT, TIME : 22:29:16.68 COMID: FF
TEXT : hard_flt 00 00 57 F6 00 00
```

>QUERYPM FLT

```
System busy reason: hard parity fault was detected
```

The system-busy portion of the message means the inactive unit has been removed from service and cannot process calls. Since both units were InSv, either the inactive unit was taken OOS, or a warm SWACT was performed on the active unit and then it was taken OOS, as explained in the following paragraphs.

Action by the CC: The CC sets the inactive unit as SysB. If the faulty unit was the active unit, the CC performs a warm SWACT and busies the newly inactive unit.

User action: Since this is a hard fault, operating company personnel must physically replace the card that is listed in the PM181 log. Operating company personnel should manually busy the inactive unit (>BSY UNIT n) and test the ROM (>TST UNIT n ROM) to ensure that the correct card has been chosen. After replacing the card, reload the PM (>LOADPM UNIT n CC DATA), and then RTS the PM (>RTS UNIT n). The unit should successfully come back to service.

PM181 (hard parity fault inactive unit already SysB)

Following is an example report.

```
PM181 JUL23 23:29:16 5561 INFO RCO2 0 Unit 0
Node : ISTb, Unit 0 Act : InSv, Unit 1, Inact : OOS
Parity audit detected hard parity fault
Site Flr  RPos  Bay_id  Shf Description Slot  EqPEC
RALL 00   C05   RCO2 00  18  RCO2 : 000    10    MX47
```

Other trouble indicators

PM128—The RCO2 has been set as ISTb and the active unit as ISTb from InSv.

```
PM128 JUL23 23:29:16 5561 TBL  ISTb RCO2 0
Node : ISTb, (Inact OOS) From InSv
Unit 0 Act   : ISTb (Parity errors detected) from InSv
Unit 1 Inact : OOS
```

PM189—The active unit of the RCO2 has a hard_fault.

```
PM189 JUL23 23:29:17 5561 INFO PM SW INFORMATION REPORT
RCO2 0 Unit 0 : Act
TASKID : 00370037 PARAUDT, TIME : 22:29:16.68 COMID: FF
TEXT : hard_flt 00 00 57 F6 00 00
```

>QUERYPM FLT

```
The following inservice troubles exist:
Hard parity fault was detected in XX memory
```

Action by the CC: In this scenario, either the inactive unit is not InSv or warm SWACT is not available. The CC cannot take the faulty unit OOS, or the entire RCO2 would be busy and could not process calls. The CC therefore sets the active unit as ISTb.

User action: Operating company personnel should follow the same procedure as scenario 1, but when the unit is SysB, all call processing is dropped. To avoid this, operating company personnel can try to get the inactive unit up and processing calls, either by returning it to service or having warm SWACT available if the inactive unit is InSv.

PM181 (soft parity fault in program store both units InSv)

Following is an example report.

```
PM181 JUL23 23:29:16 5561 INFO RCO2 0 Unit 0
Node : ISTb, Unit 0 Act : InSv, Unit 1, Inact :  InSv
Parity audit detected soft parity fault in program store
```

Other trouble indicators

PM128—The RCO2 has been set ISTb with the inactive unit as OOS.

```
PM128 JUL23 23:29:16 5561 TBL  ISTb RCO2 0
Node : ISTb, (Inact OOS) From InSv
Unit 0 Inact : SysB (Parity errors detected) from InSv
Unit 1   Act : InSv
```

PM189—The inactive unit of the RCO2 has a fault in program store.

```
PM189 JUL23 23:29:17 5561 INFO PM SW INFORMATION REPORT
RCO2 0 Unit 0 : Inact
TASKID : 00370037 PARAUDT, TIME : 22:29:16.68 COMID: FF
NIL CID
TEXT : softpgm 00 00 57 F6 00 00
```

>QUERYPM FLT

```
System busy reason: soft parity fault was detected
in ps of XX memory
```

The system busy portion of the message means the CC has taken the inactive unit OOS, or the CC performed a warm SWACT on the RCO2 and took the newly inactive unit OOS.

Action by the CC: The CC sets the inactive unit as SysB. If the faulty unit is the active unit, the CC performs a warm SWACT and busies the newly inactive unit. At this point, the CC tries to recover the busy unit *without operating company personnel intervention*. The CC implements autoloading (assuming the correct loads are in tables PMLOADS and LTCINV), loads the entire load, and returns the unit to service.

User action: Since the CC brings the unit back to service, intervention is only required if the RCO2 does not RTS. Check the load tables. Also check for other trouble indicators that can mean the faulty unit cannot be returned to service.

PM181 (soft parity fault in program store inactive unit is already OOS)

Following is an example report.

```
PM181 JUL23 23:29:16 5561 INFO RCO2 0 Unit 0
Node : ISTb, Unit 0 Act : InSv, Unit 1, Inact :  OOS
Parity audit detected soft parity fault in program store
```

Other trouble indicators

PM128—The RCO2 has been set ISTb, with the inactive unit already OOS.

```
PM128 JUL23 23:29:16 5561 TBL  ISTb RCO2 0
Node : ISTb, (Inact OOS) From InSv
Unit 0 Inact : ISTb (Parity errors detected) from InSv
unit 1   Act : Manb
```

PM189—The active unit of the RCO2 has a fault in program store.

```
PM189 JUL23 23:29:17 5561 INFO PM SW INFORMATION REPORT
RCO2 0 Unit 0 : Act
TASKID : 00370037 PARAUDT, TIME : 22:29:16.68 COMID: FF  NI
TEXT : softpgm 00 00 57 F6 00 00
```

>QUERYPM FLT

```
The following inservice troubles exist:
Soft parity fault was detected in ps of XX memory
```

Action by the CC: In this scenario, either the inactive unit is not InSv or warm SWACT is not available. The CC cannot take the faulty unit OOS, or the entire RCO2 would be busy and could not process calls. The CC therefore sets the active unit as ISTb.

User action: Operating company personnel must understand that since the inactive unit is OOS (or cannot takeover call processing), all call processing is dropped when operating company personnel busy the unit. To avoid this, operating company personnel can try to get the inactive unit up and processing calls, either by returning it to service or having warm SWACT available if the inactive unit is InSv. Otherwise, they should busy the active unit, load the unit with the complete load, and RTS the unit.

PM181 (soft parity fault in data store both units InSv)

Following is an example report.

```
PM181 JUL23 23:29:16 5561 INFO RCO2 0 Unit 0
Node : ISTb, Unit 0 Act : InSv, Unit 1, Inact :  InSv
Parity audit detected soft parity fault in data store
```

Other trouble indicators

PM128—The RCO2 has been set ISTb, with the inactive unit set as SysB.

```
PM128 JUL23 23:29:16 5561 TBL  ISTb RCO2 0
Node : ISTb, (Inact OOS) From InSv
Unit 0 Inact : SysB (Parity errors detected) from InSv
Unit 1   Act : InSv
```

PM189—The inactive unit of the RCO2 has a fault in program store.

```
PM189 JUL23 23:29:17 5561 INFO PM SW INFORMATION REPORT
RCO2 0 Unit 0 : Inact
TASKID : 00370037 PARAUDT, TIME : 22:29:16.68 COMID: FF
TEXT : softdat 00 00 57 F6 00 00
```

>QUERYPM FLT

```
System busy reason: soft parity fault was detected
in ds of XX memory
```

The system busy portion of the message indicates the CC has taken the inactive unit OOS, or the CC performed a warm SWACT on the RCO2 and took the newly inactive unit OOS.

Action by the CC: The CC sets the inactive unit as SysB. If the faulty unit is the active unit, the CC performs a warm SWACT and busies the newly inactive unit. At this point, the CC tries to recover the busy unit *without* operating company personnel intervention. The CC returns the unit to service and ensures new static data is downloaded and full diagnostics are run.

User action: Since the CC brings the unit back to service, intervention is only required if the RCO2 does not RTS. Check for other trouble indicators that can mean the faulty unit cannot be returned to service.

PM181 (soft parity fault in data store inactive unit already OOS)

Following is an example report.

```
PM181 JUL23 23:29:16 5561 INFO RCO2 0 Unit 0
Node : ISTb, Unit 0 Act : InSv, Unit 1, Inact :  SysB
Parity audit detected soft parity fault in data store
```

Other trouble indicators

PM128—The RCO2 has been set ISTb, with the active unit set at ISTb.

```
PM128 JUL23 23:29:16 5561 TBL  ISTb RCO2 0
Node : ISTb, (Inact OOS) From InSv
Unit 0 Inact : SysB (Parity errors detected) from InSv
Unit 1   Act : ISTb
```

PM189—The active unit of the RCO2 has a fault in program store.

```
PM189 JUL23 23:29:17 5561 INFO PM SW INFORMATION REPORT
RCO2 0 Unit 0 : Act
TASKID : 00370037 PARAUDT, TIME : 22:29:16.68 COMID: FF
TEXT : softdat 00 00 57 F6 00 00
```

>QUERYPM FLT

```
The following inservice troubles exist:
Soft parity fault was detected in ds of XX memory
```

Action by the CC: In this scenario, either the inactive unit is not InSv or warm SWACT is not available. The CC cannot take the faulty unit OOS, or the entire RCO2 would be busy and could not process calls. The CC therefore sets the active unit as ISTb.

User action: Operating company personnel must understand that since the inactive unit is OOS (or cannot takeover call processing), all call processing is dropped when operating company personnel busy the unit. To avoid this, operating company personnel can try to get the inactive unit up and processing calls, either by returning it to service or having warm SWACT available if the inactive unit is InSv. Otherwise, busy the active unit and RTS the faulty unit. (The static data is sent as part of the RTS.)

PM181 (intermittent parity fault both units InSv)

```
PM181 JUL23 23:29:16 5561 INFO RCO2 0 Unit 0
Node : ISTb, Unit 0 Act : InSv, Unit 1, Inact :  SysB
Parity audit detected intermittent parity fault
```

Other trouble indicators

PM128—The RCO2 has been set ISTb, with the inactive unit as OOS.

```
PM128 JUL23 23:29:16 5561 TBL  ISTb RCO2 0
Node : ISTb, (Inact OOS) From InSv
Unit 0 Inact : SysB (Parity errors detected) from InSv
Unit 1   Act : InSv
```

PM189—The inactive unit of the RCO2 has an intermittent parity fault.

```
PM189 JUL23 23:29:17 5561 INFO PM SW INFORMATION REPORT
RCO2 0 Unit 0 : Inact
TASKID : 00370037 PARAUDT, TIME : 22:29:16.68 COMID: FF
TEXT : intflt 00 00 57 F6 00 00
```

>QUERYPM FLT

```
System busy reason: Intermittent parity fault
was detected in ps (or ds) of XX memory
```

Action by the CC: The system busy portion of the message indicates the CC has taken the inactive unit OOS, or the CC performed a warm SWACT on the RCO2 and took the newly inactive unit OOS.

The CC sets the inactive unit as SysB. If the faulty unit is the active unit, the CC performs a warm SWACT and busies the newly inactive unit. At this point, the CC tries to recover the busy unit *without operating company personnel intervention*. The CC returns the unit to service and ensures full diagnostics are run.

User action: Since the CC brings the unit back to service, intervention is only required if the RCO2 does not RTS. Check for other trouble indicators that can mean the faulty unit cannot be returned to service.

PM181 (intermittent parity fault inactive is already OOS)

Following is an example report.

```
PM181 JUL23 23:29:16 5561 INFO RCO2 0 Unit 0
Node : ISTb, Unit 0 Act: InSv, Unit 1, Inact :  OOS
Parity audit detected intermittent parity fault
```

Other trouble indicators

PM128—The RCO2 has been set ISTb, with the active unit as ISTb.

```
PM128 JUL23 23:29:16 5561 TBL  ISTb RCO2 0
Node : ISTb, (Inact OOS) From InSv
Unit 0   Act : ISTb (Parity errors detected) from InSv
Unit 1 Inact : SysB
```

PM189—The active unit of the RCO2 has an intermittent parity fault.

```
PM189 JUL23 23:29:17 5561 INFO PM SW INFORMATION REPORT
RCO2 0 Unit 0 : Act
TASKID : 00370037 PARAUDT, TIME : 22:29:16.68 COMID: FF
TEXT : intflt 00 00 57 F6 00 00
```

>QUERYPM FLT

```
The following inservice troubles exist:
Intermittent parity was fault was detected in XX memory
```

The in-service (InSv) portion of the message means the CC has set the active unit as ISTb, since the inactive unit is already OOS, or that warm SWACT is not available.

Action by the CC: The CC sets the active unit as ISTb. The CC cannot perform any recovery action at this point. However, if the audit runs twice (approximately 2 min) and no parity audit is found, the CC returns the active unit to InSv.

User action: Operating company personnel must understand that since the inactive unit is OOS (or cannot takeover call processing), all call processing is dropped when operating company personnel busy the unit. To avoid this, operating company personnel can also try to get the inactive unit up and processing calls, either by returning it to service or having warm SWACT available if the inactive unit is InSv. Otherwise, they should busy the active unit and RTS the faulty unit. (The static data is sent as part of the RTS.)

PM185 (enhanced parity reporting)

PM185 log reports are generated by the system when a parity trap occurs. This log report shows the system or supervisor stack and user stack. These stacks show the exact location of the trap. Log PM189 shows whether the parity error is in or out of code. The following example shows a PM185 log report with all available data.

```
        PM185 FEB16 12:41:58 8900 TBL  PM TRAP
        LTC 9 Unit 0 : Inact
Trap Sequence #: 1 Current  load
# Reloads since trap: 0     # Restarts since trap: 0
Trap in UP : Division by 0
Trap was Recoverable.
Load name = ECL03AN
Executable EEPROM version: XPMRMA25
Loadable   EEPROM version: XPMRMA25
RTSS Version = AI15    Trap Version = 01    Trap flags: 2080
Unit was Inactive/Ready    Mate was Active/Running
Kstats: 3F00    Load Status: A1A1A1A1
Task: BASEMON    000B 000B
CC Time : 16:12:34:34.00    PP Time : 00:02:32:59.79
Occurred at: 008D4881   TRAPMSG   44   DOZERODI  54   Offset: #2B
Called from: 3E0023A4   BASEMON   19   TDRIVBOD  30   Offset: #22C
             3E0024B3   BASEMON   19   TERMDRIV  11   Offset: #19
PC:00001350  SR=2004      US=000A69AE  SS=002B0FF6  TCB=00024D9A
D0 =0000010C D1 =00000059 D2 =00020000 D3 =00000003
D4 =000A5DA6 D5 =FFFF0040 D6 =0000FFF4 D7 =00000000
A0 =00001A96 A1 =008E9BCE A2 =00025C5E A3 =008D4881
A4 =02000000 A5 =00025C6C A6 =00009724
Supervisor Stack:
          002B0FF6    FAB9 FFFB FAB9 FFFB 2367 0000 0001 0000
          002B1006    FB20 0000 0001 0102 0001 0000 0000 0000
          002B1016    0000 6B09 0000 0000 000C 0000 0000 0000
        User Stack:
          00025C5E    0000 0000 0000 008D 488E 0218 0000 0002
          00025C6E    5E40 002C 0036 0000 25E4 015A 5000 0000
PM185 FEB16 12:41:58 8900 TBL  PM TRAP(continued)
        Possible Locals:
          00025C44    3E00 0001 008E 9BCE 0218 0000 0002 5C6C
          00025C54    0006 008F CD5C 000F 000F 0000 0000 0000
        Stack Frame:
          00025C64    008D 488E 0218 0000 0002 5E40 002C 0036
          00025C74    0000 25E4
        Possible Parameters:
          00025C78    015A 5000 0000 002E 0000 24C8 008F 5368
          00025C88    0002 5CAA 0218 0000 002E 9E46 0002 5CAC
        END OF TRAP
```

ESA logs

The ESA logs described in this section are as follows:

- ESA101 through ESA109
- PM181
- PM171

ESA101 through 109

ESA logs are generated when the ESA download from the CC exceeds the RCO2 allocation for ESA static data. The following table shows these logs and what entries are exceeded.

ESA logs produced for download warnings

Log	Table	Type entry	Max. entry
ESA101	Automatic line	1 per AUL line	256
ESA102	Customer group	1 per group	288
	Prefix header	1 per customer group	288
ESA103	Prefix table	1 per ESA prefix translator POTS	16
		Customer Group	8
ESA110	Table ESAHNPA	1 per customer group POTS	32
		Customer Group	16
ESA104	Extension header	1 per Customer Group	288
	EFG		2304
ESA105	ABCD	1 per directory number (DN)	5760
ESA106	Hunt header	1 per hunt group	200
ESA107	Hunt member	1 per hunt group	4000
	Office parameter		1
	Table ESARTE		256
ESA109	Trunkgroup table	Subset of tables TRKGRP and TRKSGRP (tables not accessible to customers)	

PM181 logs

The PM subsystem generates PM181 logs and reports the following data:

- manual exit warning
- failed to exit ESA
- failed to download ESA static data
- successful ESA static data update

Manual exit warning If the RCO2 is not manually busy (ManB) and the RSC_XPMESAEXIT timeout parameter is zero, when links are restored after the RCO2 is in ESA, a PM181 log is produced to suggest a manual exit is required. The PM181 log prints once every minute until a manual EXIT is performed on the RCO2 unit. Following is an example of the PM181 log:

```
PM181 MAR14 14:33:54 7534 INFO REM1 RCO2 1 UNIT 0
Node: SysB, Unit 0 Act : SysB, Unit 1 Inact: SysB
PM in ESA, Communication restored, ready to be RTS'ed
```

Failed to exit ESA The failure reason is included, as shown in the following example:

```
PM181 JUN14 12:33:04 3333 INFO REM1 RCO2 1 UNIT 1
Node: SysB, Unit 0 Act : SysB, Unit 1 Inact: SysB
ESA Exit failed. Reason : No reply from pp
```

Failed to download ESA static data The failure reason and the table ID where the load failed are included, as shown in the following example:

```
PM181 JUN14 12:33:04 3333 INFO REM1 RCO2 1 UNIT 0
Node: ISTb, Unit 0 Act : ISTb, Unit 1 Inact: SysB
Failed to Load esa hunt Table (Table id 46)
```

Successful ESA static data update Following is an example of the PM181 log:

```
PM181 JUN24 12:33:04 3298 INFO REM1 RCO2 1 UNIT 1
Node: InSv, Unit 0 Act : InSv, Unit 1 Inact: InSv
ESA Static Data updated
```

Failed to download ESA static data The failure reason is included, as shown in the following example:

```
PM181 JUN14 12:33:04 3333 INFO REM1 RCO2 1 UNIT 1
Node: InSv, Unit0 Act; InSv, Unit 1 Inact: InSv
Failed to Load ESA Static Data, Reason : no reply from pm
```

PM171

OMs provided by the RCO2 are stored in the RCO2 and are forwarded to the host in the form of a PM171 log after the RCO2 has exited ESA. Since this log deals with traffic counts, refer to *Log Report Reference Manual* for information on the fields of this log.

PM189 (RCO2 is in forced ESA)

Report format:

```
PM189 mmmdd hh:
mm:ss ssdd INFO SW Information Report
  pmid n UNIT n : acttxt
  TASKID: taskid , TIME: hh:mm:ss.cc
  TEXT : swerrtxt  logdata
```

Example:

```
PM189 JAN01 12:
34:40 1234 INFO SW Information Report
  RCO2 0 UNIT 1 : Act
  TASKID: 001C001C  MTCSLAV, TIME: 12:34:40.19
  TEXT : FORCE DOWN
```

Logs created as a result of system action

The following table lists logs generated when a fault is detected by automatic system tests or changes in some system state.

Log reports generated by system tests or changes

Equipment	Name	Summary
LGCOI+	PM102	Source state change to SysB
	PM100	Diagnostic fail
	PM101	Checksum fail
	PM107	Resource state change to C-side busy
	PM113	Message congestion
	PM114	Load or test fail
	PM115	Miscellaneous reports

—continued—

Log reports generated by system tests or changes (continued)

Equipment	Name	Summary
LGCOi+	PM116	Message error reports
	PM117	Trouble during normal operation
	PM118	Miscellaneous reports
	PM179	PM hardware exception reports
	PM180	PM software exception reports
Links	PM183	P-side link state to SysB
	PM187	Carrier state change to SysB
	PM188	Protection switching on carriers cannot be put in traffic level

—end—

DMS-100 Family

Extended Peripheral Module

International Logs Reference Manual

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