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Meridian SL-100

Commercial Systems

Alarm Clearing Procedures

MSL14 Standard 11.02 June 2002

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About this document

Purpose and audience

This publication contains alarm-clearing procedures. These procedures are used by switch maintenance personnel.

Note: The MSL14 software delivery is part of an on-going evolution. This book is one of several transitional documents that must be used with the following DMS-100 procedures and extended peripheral module (XPM) maintenance manuals for the full complement of documentation:

- *NA DMS-100 Alarm Clearing and Performance Monitoring Procedures*
- XPM-specific maintenance manuals

Disregard the signaling point (SP), Traffic Operator Position System (TOPS), and SuperNode Data Manager (SDM) information as it does not apply to the Meridian SL-100 switch.

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 *MSL-100 Master Index of Publications*.

References in this document

The following documents are referred to in this document:

- *DMS-100 Family Magnetic Tape Reference Manual*
- *S/DMS AccessNode Alarm and Trouble Clearing Procedures*
- *Trouble Locating and Clearing Procedures*
- *Recovery Procedures*
- *Card Replacement Procedures*

What precautionary messages mean

The types of precautionary messages used in Nortel Networks 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.

x About this document

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.



PM alarm clearing procedures

Purpose

This book provides alarm clearing procedures for the peripheral module (PM). Peripheral module alarms appear under the PM header of the alarm banner in the maintenance and administration (MAP) display. Each procedure contains the following sections:

- Alarm display
- Indication
- Meaning
- Result
- Common procedures
- Action

Alarm display

This section indicates how the alarm appears at the maintenance and administration (MAP) terminal.

Indication

This section indicates the following:

- Appearance of the alarm
- Model of the alarm
- Affected subsystems
- Alarm intensity

Meaning

This section indicates the cause of the alarm.

Result

This section indicates the results of the alarm condition.

2 PM alarm clearing procedures

Common procedures

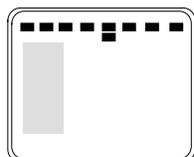
This section lists common procedures used during the alarm clearing procedure. A common procedure consists of a series of repeated steps within maintenance procedures, for example, removal and replacement of a card. Common procedures are in the common procedures chapter of the Nortel Networks technical publication (NTP), DMS-100 Alarm Clearing and Performance Monitoring Procedures, 297-8001-543.

Do not go to a common procedure unless the step-action procedure directs you to go.

Action

This section provides a summary flowchart of the alarm clearing procedure. A detailed step-action procedure follows the flowchart.

Alarm display



```

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

```

Indication

If 1LCME *C* under the PM subsystem header at the MTC level of the MAP terminal exists, a critical condition in the LCME is indicated.

Meaning

The indicated number of LCME units are in the System-Busy (SysB) state.

Impact

LCME can be a peripheral module in an MCRM-S configuration. If all LCME units fail, a loss of subscriber service occurs. No call processing support exists.

Common procedures

Not applicable

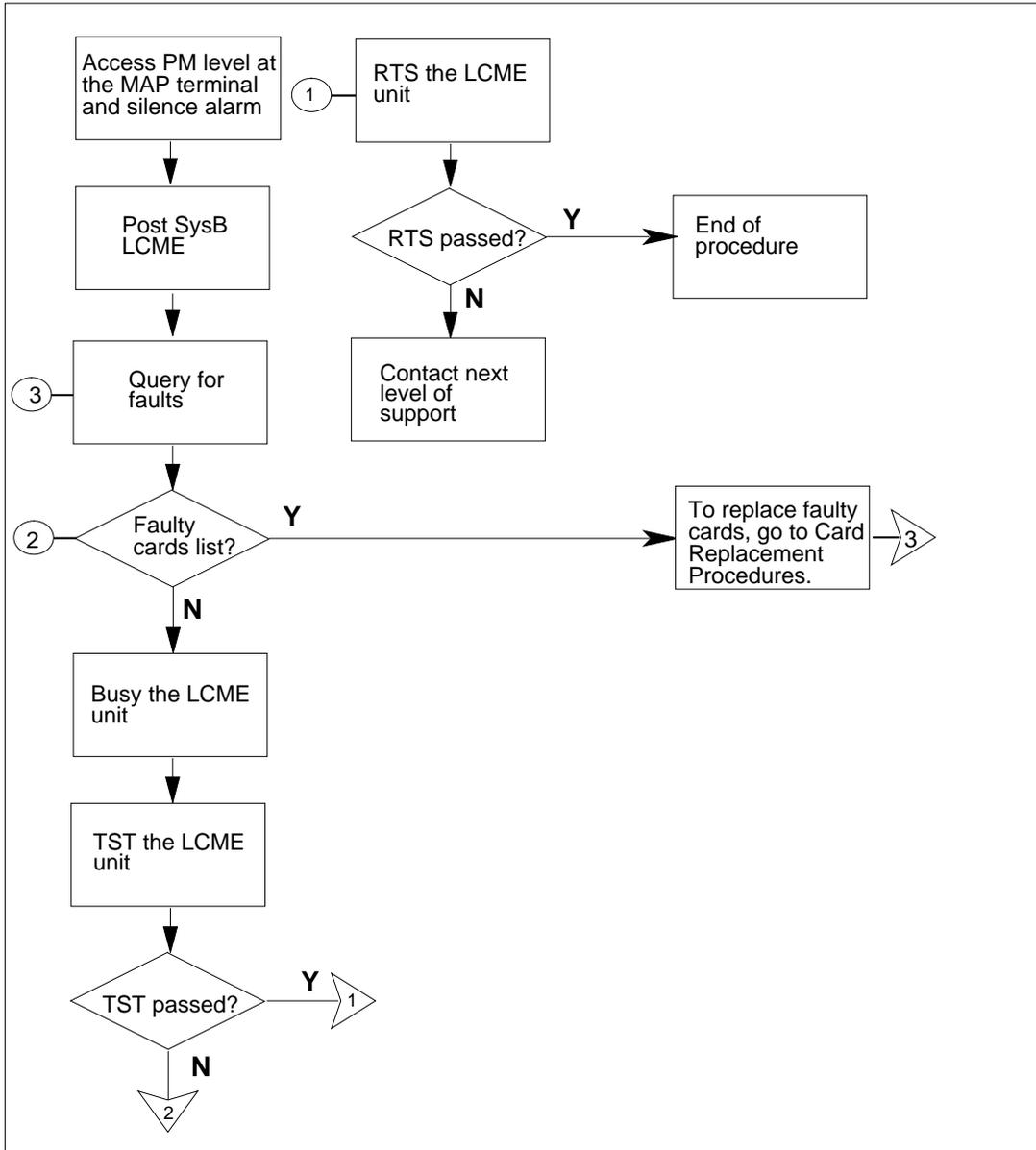
Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

Summary of clearing a PM LCME alarm

4 PM alarm clearing procedures

PM LCME - critical (continued)



PM LCME - critical (continued)

Clearing a PM LCME alarm

At the MAP terminal

- 1 Silence the alarm, if required, by typing the following string:

```
> MAPCI;MTC;PM;SIL
```

and pressing the ENTER key.

- 2 Identify the faulty LCME by typing the following string:

```
> DISP STATE SYSB lcme_no
```

and pressing the ENTER key.

where

lcme_no is the number of the faulty LCME

Example of a MAP display

SysB LCME: 2

- 3 Post the SysB LCME identified in Step 2 by typing the following string:

```
> POST LCME lcme_site_name lcme_cabinet_no  
lcme_no
```

and pressing the ENTER key.

where

lcme_site_name is the site name for the faulty LCME

lcme_cabinet_no is the number of the associated LCME
equipment cabinet

lcme_no is the number of the faulty LCME

Example of a MAP display:

6 PM alarm clearing procedures

PM LCME - critical (continued)

CM	MS	IOD	Net	PM	CCS	LnS	Trks	Ext
.	.	.	.	1LCME	.	.	.	.
				C				
LCME			SysB	ManB	OffL	CBsy	ISTb	InSv
0 Quit	PM		1	0	2	0	2	12
2 Post_	LCME		0	0	2	0	2	9
3 ListSet								
4 SwRG	LCME	RSC-S	14 1	SysB	Links_OOS:	CSide	0	PSide 0
5 Trnsl_	Unit0:	SysB			/RG: 1			
6 Tst_	Unit1:	SysB			/RG: 1			
7 Bsy_					11 11 11 11 11	RG:Pref	1	InSv
8 RTS_	Drwr:	01 23 45 67 89			01 23 45 67 89	Stby	0	InSv
9 OffL		.. .. .			.. .. .
10 LoadPM_								
11 Disp_								
12 Next								
13								
14 QueryPM								
15								
16								
17								
18								

- 4 Check for fault indicators by typing the following string:

> **QUERYPM FLT**

and pressing the ENTER key.

Example of a MAP display:

PM LCME - critical (continued)

```

CM      MS      IOD      Net      PM      CCS      Lns      Trks      Ext
.      .      .      .      1LCME
      *C*
LCME
0 Quit      PM      1      0      2      0      2      12
2 Post_    LCME      0      0      2      0      2      9
3 ListSet
4 SwRG      LCME      RSC-S 14 1 SysB Links_OOS: CSide 0 PSide 0
5 Trnsl_    Unit0:    SysB      /RG: 1
6 Tst_      Unit1:    SysB      /RG: 1
7 Bsy_
8 RTS_      Drwr:    01 23 45 67 89 01 23 45 67 89 RG:Pref 1 InSv
9 OffL
10 LoadPM_ QUERYPM FLT
11 Disp_    Node inservice troubles exist:
12 Next      One or both Units inservice trouble
13          LCME UNIT 0 Out of Service Troubles Exist:
14 QueryPM  LCME UNIT 1 Out of Service Troubles Exist:
15
16          SITE FLR RPOS BAY_ID SHF DESCRIPTION SLOT EQPEC
17          RSCS0 01 A00 LCME 00 32 LCME : 000 : 21 BX34
18          RSCS0 01 A00 LCME 00 32 LCME : 000 : 19 BX35
          RSCS0 01 A00 LCME 00 32 LCME : 000 : 20 BX35
    
```

If faulty card is	Do
indicated	Step 22
not indicated	Step 6

5 Manually Busy (ManB) the LCME posted in Step 3 by typing the following string:

>BSY PM

and pressing the ENTER key.

6 Test the ManB LCME by typing the following string:

>TST PM

and pressing the ENTER key.

Example of a MAP display:

Test Passed

or

Test Failed

8 PM alarm clearing procedures

PM LCME - critical (continued)

- 7 Proceed as shown in the following table:

If TST	Do
passed	Step 20
failed	Step 22
unable to test CBsy	Step 8

- 8 Identify C-side links that are in a SysB condition by typing the following string:

```
> TRNSL C
```

and pressing the ENTER key.

Example of a MAP display:

```
LINK 0   RCC2 2 ;CAP MS;STATUS: SYSB,;MSGCOND:CLS,Restricted
LINK 1   RCC2 2  CAP S; STATUS:   SYSB
LINK 2   RCC2 2 ;CAP MS;STATUS:   SYSB,;MSCOND:CLS,Restricted
```

- 9 Proceed as shown in the following table:

If links are	Do
SysB	Step 10
open	Step 27

- 10 Post the RCC2 unit associated with the LCME by typing the following string:

```
> POST RCC2 rcc2_no
```

and pressing the ENTER key.

where

rcc2_no is the RCC2 unit identified in Step 8

Example of a MAP display:

PM LCME - critical (continued)

```

CM      MS      IOD      Net      PM      CCS      Lns      Trks      Ext
.      .      .      .      1LCME
      *C*

RCC2
0 Quit      PM      3      0      1      0      4      12
2 Post_     RCC2     0      0      2      0      2      9
3 ListSet
4
5 Trnsl_    Unit0:   Act ISTb
6 Tst_     Unit1:   Inact InSv
7 Bsy_
8 RTS_
9 OffL
10 LoadPM_
11 Disp_
12 Next
13 SwAct
14 QueryPM
15
16
17
18
    
```

- 11 Identify the faulty P-side links and choose a faulty link by typing the following string:

> **TRNSLP**

and pressing the ENTER key.

Example of a MAP display:

```

:LCME 1 0;CAP MS;STATUS: SYSB;MSGCOND:CLS,Restricted
:LCME 1 1;CAP S;STATUS: OK
:LCME 1 2;CAP MS;STATUS: SYSB;MSGCOND:CLS,Restricted
:LCME 1 4;CAP S;STATUS: SYSB
:LCME 1 4;CAP S;STATUS: OK
:LCME 1 4;CAP S;STATUS: OK
:LCME 1 4;CAP S;STATUS: OK
    
```

- 12 Busy the faulty link by typing the following string:

> **BSY LINK link_no**

and pressing the ENTER key.

where

link_no is the number of the faulty P-side link chosen in Step 11

- 13 Test the ManB link by typing the following string:

> **TST LINK link_no**

10 PM alarm clearing procedures

PM LCME - critical (continued)

where

link_no is the number of the link manually busied in Step 12

- 14 Proceed as shown in the following table:

If faulty card is	Do
indicated	Step 22
not indicated	Step 15

- 15 Return the ManB link to service by typing the following string:

```
> RTS LINK link_no
```

and pressing the ENTER key.

where

link_no is the number of the link tested in Step 13

- 16 Proceed as shown in the following table:

If RTS	Do
passed	Step 18
failed	Step 27

Note: If other faulty lines are identified, execute the procedures in Steps 12-16 for each link until all links are busied, tested, and returned to service.

- 17 Post the LCME identified in Step 2 by typing following string:

```
> POST LCME lcme_site_name lcme_cabinet_no  
lcme_no
```

and pressing the ENTER key.

where

lcme_site_name is the site name for the faulty LCME
lcme_cabinet_no is the number of the associated LCME
lcme_no is the number of the faulty LCME

- 18 Test the LCME by typing the following string:

```
> TST PM
```

and pressing the ENTER key.

PM LCME - critical (continued)

19 Proceed as shown in the following table:

If TST	Do
passed	Step 20
failed	Step 22

20 Return the ManB LCME to service by typing the following string:
> RTSPM
 and pressing the ENTER key.

21 Proceed as shown in the following table:

If RTS	Do
passed	Step 28
failed	Step 27

22 Observe the card listing as shown in the following MAP display.
Example of a MAP display

SITE	FLR	RPOS	BAY_ID	SHF	DESCRIPTION	SLOT	EQPEC
RSCS0	01	A00	LCME	00	32 LCME :000	: 19	BX35
RSCS0	01	A00	LCME	00	32 LCME :000	: 20	BX35
RSCS0	01	A00	LCME	00	32 LCME :000	: 21	BX34

23 Proceed as shown in the following table:

If all cards on the list have	Do
been replaced	Step 24
not been replaced	Step 25

24 Determine if the NTB48 circuit card has been replaced.

If the NTB48 card has	Do
been replaced	Step 27
not been replaced	Step 26

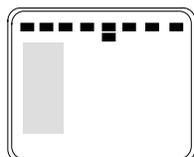
25 Go to the card replacement procedure for the NTB48 circuit card in *Card Replacement Procedures*. When you have finished with the card replacement procedures, go to Step 18 of this procedure.

12 PM alarm clearing procedures

PM LCME - critical (end)

- 26 Go to the card replacement procedure in *Card Replacement Procedures* for the next card on the card list. When you have finished with the card replacement procedures, go to Step 19 of this procedure.
- 27 Obtain further assistance in clearing this alarm by contacting the personnel responsible for higher level support.
- 28 This procedure is completed. If there are other alarms displayed, reference the appropriate alarm clearing procedures for the indicated alarms.

Alarm display



CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	1LCME	.	.	.	.	.
				M					

Indication

A 1LCME M under the PM subsystem header at the MTC level of the MAP screen indicates an LCME major alarm.

Meaning

The indicated number of LCME units are in the In-Service (InSv) or System-Busy (SysB) state.

Impact

LCME is a peripheral module in an MCRM-S configuration. Subscriber service is affected. You will have no local LCME backup if the other LCME units fail.

Common procedures

Not applicable

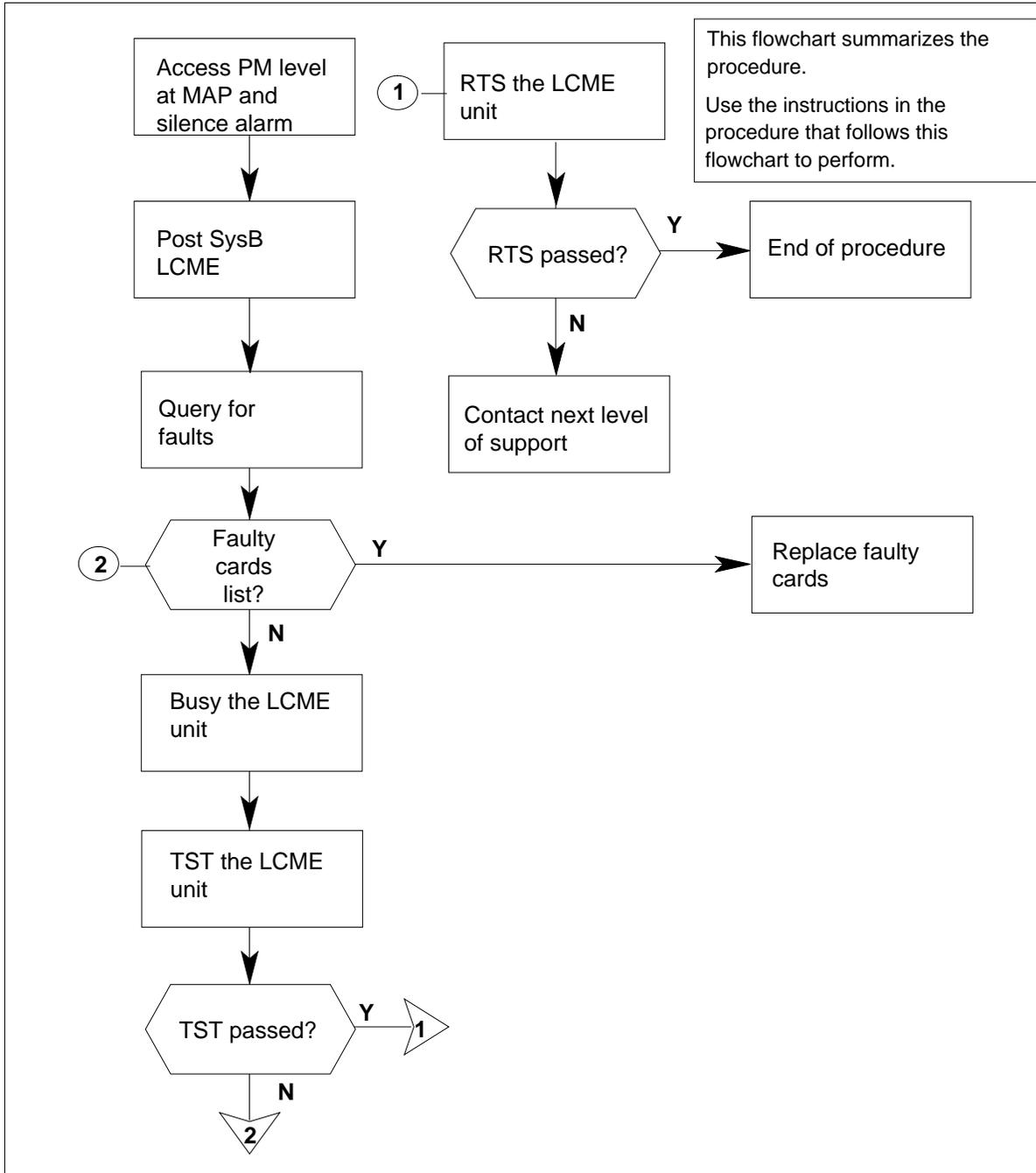
Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

Summary of clearing a PM LCME alarm

14 PM alarm clearing procedures

PM LCME - major (continued)



PM LCME - major (continued)

Clearing a PM LCME major alarm

- 1 You should be entering this procedure from a PM system level alarm clearing procedure step that identified an LCME associated fault.

At the MAP terminal

- 2 Silence the alarm, if required, by typing the following string:

```
>MAPCI;MTC;PM;SIL
```

and pressing the ENTER key.

- 3 Identify the SysB LCME by typing the following string:

```
> DISP STATE ISTB LCME
```

and pressing the ENTER key.

Example of a MAP display:

SysB LCME : 2

- 4 Post the SysB LCME identified in Step 3 by typing the following string:

```
> POST LCME lcme_site_name lcme_frame_no  
lcme_no
```

and pressing the ENTER key.

where

lcme_site_name is the site name for the faulty LCME

lcme_frame_no is the number of the associated LCME equipment frame

lcme_no is the number of the faulty LCME

Example of a MAP display:

16 PM alarm clearing procedures

PM LCME - major (continued)

CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext
.	.	.	.	1LCME	.	.	.	.
				M				
LCME		SysB	ManB	OffL	CBsy	ISTb	InSv	
0 Quit	PM	1	0	2	0	2	12	
2 Post_	LCME	1	0	2	0	2	9	
3 ListSet								
4 SwRG	LCME	RSCS 14	1 ISTb	Links_OOS:	CSide 0	PSide 0		
5 Trnsl_	Unit0:	InSv	Takeover	/RG: 1				
6 Tst_	Unit1:	SysB		/RG: 1				
7 Bsy_				11 11 11	RG:Pref 1	InSv		
8 RTS_	Drwr:	01 23 45 67 89	01 23 45	Stby 0	InSv			
9 OffL		.. .. .	.. .. .	.. .. .	.. .. .	.. .. .
10 LoadPM_								
11 Disp_								
12 Next								
13								
14 QueryPM								
15								
16								
17								
18								

5 Check for fault indicators by typing the following string:

> **QUERYPM FLT**

and pressing the ENTER key.

Example of a MAP display:

PM LCME - major (continued)

```

CM      MS      IOD      Net      PM      CCS      Lns      Trks      Ext
.      .      .      .      1LCME
      M

LCME
0 Quit      PM      1      0      2      0      2      12
2 Post_    LCME      1      0      2      0      2      9
3 ListSet
4 SwRG      LCME      RSCS 14 1 ISTb Links_OOS: CSide 0 PSide 0
5 Trnsl_    Unit0:    InSv  Takeover /RG: 1
6 Tst_      Unit1:    SysB
7 Bsy_      11 11 11  RG:Pref 1 InSv
8 RTS_      Drwr:    01 23 45 67 89 01 23 45  Stby 0 InSv
9 OffL
10 LoadPM_  QUERYPM FLT
11 Disp_    Node inservice troubles exist:
12 Next      One or both Units inservice trouble
13          LCME  UNIT 0  Inservice No Troubles Exist:
14 QueryPM  LCME  UNIT 1  Out of service Troubles Exist:
15
16          SITE FLR  RPOS  BAY_ID  SHF  DESCRIPTION  SLOT  EQPEC
17          RSCS0 01  A00  LCME  00  32  LCME : 000 : 19  BX35
18          RSCS0 01  A00  LCME  00  32  LCME : 000 : 20  BX35
    
```

If faulty card is	Do
indicated	Step 17
not indicated	Step 6

6 Manually busy the LCME posted in Step 4 by typing the following string:

> BSY UNIT unit_no

and pressing the ENTER key.

where

unit_no is the number of the SysB LCME

7 Test the LCME by typing the following string:

>TST UNIT unit_no

and pressing the ENTER key.

where

unit_no is the number of the LCME unit manually busied in Step 6

Example of a MAP display:

18 PM alarm clearing procedures

PM LCME - major (continued)

Test Passed

or

Test Failed

If TST	Do
passed	Step 16
failed	Step 17
unable to test CBsy links	Step 8

- 8 Identify C-side links that are in a SysB condition by typing the following string:

>TRNSLC

and pressing the ENTER key.

Example of a MAP display:

```
LINK 0: RCC2 2 ;CAP MS;STATUS: SysB,;MSGCOND:OPN,Restricted
LINK 1: RCC2 2 CAP S;STATUS: OK
```

If links are	Do
SysB	Step 9
open	Step 21

- 9 Post the RCC2 unit associated with the LCME by typing the following string:

> *POST RCC2 rcc2_no*

and pressing the ENTER key.

where

rcc2_no is the RCC2 unit identified in Step 8

Example of a MAP display:

PM LCME - major (continued)

```

CM      MS      IOD      Net      PM      CCS      Lns      Trks      Ext
.      .      .      .      1LCME
      M

RCC2
0 Quit      PM      3      0      1      0      4      12
2 Post_     RCC2    0      0      2      0      2      9
3 ListSet
4           RCC2    1 ISTb  Links_OOS: CSide 0, PSide 1
5 Trnsl_    Unit0:  Act InSv
6 Tst_      Unit1:  Inact InSv
7 Bsy_
8 RTS_
9 OffL
10 LoadPM_
11 Disp_
12 Next
13 SwAct
14 QueryPM
15
16
17
18
    
```

- 10 Identify the faulty P-side links and choose a faulty link by typing the following string:

> **TRNSL P**

and pressing the ENTER key.

Example of a MAP display:

```

LINK 0:LCME 1 0;CAP MS;STATUS: SysB,;MSGCOND:CLS,Restricted
LINK 1:LCME 1 1;CAP S;STATUS: OK
LINK 2:LCME 1 2;CAP MS;STATUS: OK,;MSGCOND:OPN,Unrestricted
LINK 4:LCME 1 4;CAP S;STATUS: OK
LINK 5:LCME 1 4;CAP S;STATUS: OK
LINK 6:LCME 1 4;CAP S;STATUS: OK
LINK 7:LCME 1 4;CAP S;STATUS: OK
    
```

- 11 Busy the faulty link by typing the following string:

> **BSY LINK link_no**

and pressing the ENTER key.

where

link_no is the number of the faulty P-side link chosen in Step 10

PM LCME - major (continued)

- 12 Test the ManB link by typing the following string:

>TST LINK link_no

and pressing the ENTER key.

where

link_no is the number of the link manually busied in Step 11

If faulty card is	Do
indicated	Step 17
not indicated	Step 13

- 13 Return the ManB link to service by typing the following string:

>RTS LINK link_no

and pressing the ENTER key.

where

link_no is the number of the link tested in Step 12

Note: If other faulty cards are identified, execute the procedures in Steps 11 through 13 for each link until all links are busied, tested, and returned to service.

If RTS	Do
passed	Step 14
failed	Step 21

- 14 Post the LCME identified in Step 3 by typing the following string:

> POST LCME lcme_site_name lcme_frame_no
lcme_no

and pressing the ENTER key.

where

lcme_site_name is the site name for the faulty LCME

lcme_frame_no is the number of the associated LCME

lcme_no is the number of the faulty LCME

- 15 Test the LCME unit by typing the following string:

>TST UNIT unit_no

and pressing the ENTER key.

PM LCME - major (continued)

where

unit_no is the number of the LCME unit posted in Step 14

If TST	Do
passed	Step 16
failed	Step 17

- 16 Return the LCME to service by typing the following string:
 > *RTS UNIT unit_no*
 and pressing the ENTER key.

where

unit_no is the number of the LCME tested in Step 15

If RTS	Do
passed	Step 22
failed	Step 21

- 17 Observe the card listing as shown in the following MAP display.
Example of a MAP display:

SITE	FLR	RPOS	BAY_ID	SHF	DESCRIPTION	SLOT	EQPEC
RSCS0	01	A00	LCME 00	32	LCME :000	: 21	BX34
RSCS0	01	A00	LCME 00	32	LCME :000	: 19	BX35
RSCS0	01	A00	LCME 00	32	LCME :000	: 20	BX35

Note: If no card list is generated, check the logs and escalate to a higher level of maintenance support by going to Step 28.

If all cards on the list have	Do
been replaced	Step 18
not been replaced	Step 20

- 18 Determine if the NTMX74 circuit card has been replaced.

If NTMX74 card has	Do
been replaced	Step 21
not been replaced	Step 19

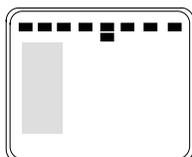
22 PM alarm clearing procedures

PM LCME - major (end)

Note: If the NTMX74 card is indicated, check to see if one link or several links are faulty. Repeat clearing procedure as necessary.

- 19 Go to the card replacement procedure for the NTMX74 circuit card in *Card Replacement Procedures*. When you have finished with the card replacement procedures, go to Step 12 of this procedure.
- 20 Go to the card replacement procedure in *Card Replacement Procedures* for the next card on the card list. When you have finished with the card replacement procedures, go to Step 15 of this procedure.
- 21 Obtain further assistance in clearing this alarm by contacting the personnel responsible for higher level support.
- 22 Procedure is completed. If there are other alarms displayed, reference the appropriate alarm clearing procedures for the indicated alarms.

Alarm display



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

Indication

The 1LCME under the PM subsystem header at the MTC level of the MAP terminal indicates an LCME minor alarm.

Meaning

The indicated number of LCME units are in the In-Service Trouble (ISTb) state.

Impact

LCME can be a peripheral module in an MCRM-S configuration. Subscriber service is not affected. However, there is no local backup if the other LCME units fail.

Common procedures

Not applicable

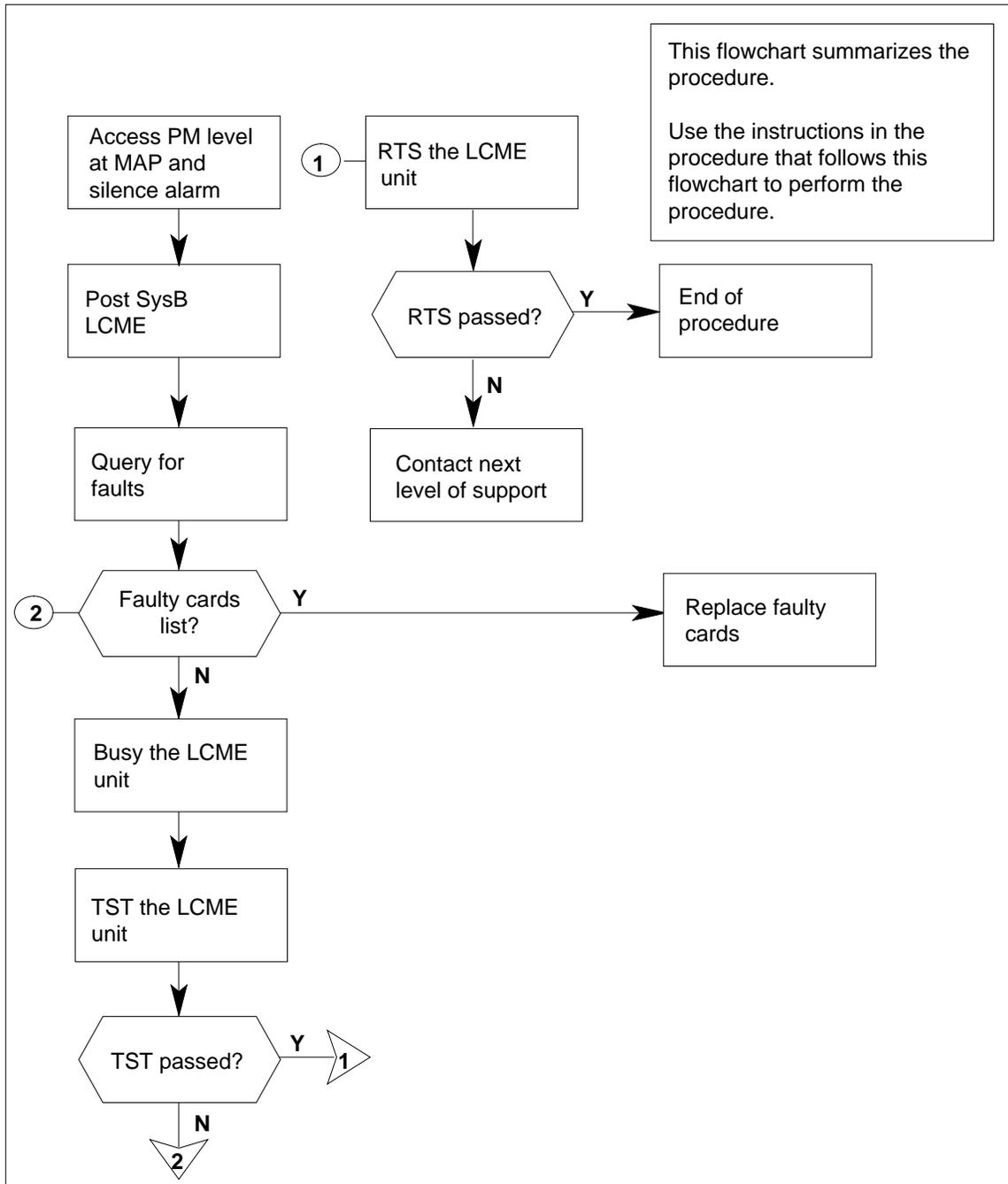
Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

Summary of clearing a PM LCME alarm

24 PM alarm clearing procedures

PM LCME - minor (continued)



PM LCME - minor (continued)

Clearing a PM LCME minor alarm**ATTENTION**

You should be entering this procedure from a PM system level alarm clearing procedure step that identified an LCME associated fault.

At the MAP terminal

- 1 Silence the alarm, if required, by typing the following string:
> *MAPCI;MTC;PM;SIL*
and pressing the ENTER key
- 2 Identify the faulty LCME by typing the following string:
> *DISP STATE ISTB LCME*
and pressing the ENTER key
Example of a MAP display:
ISTb LCME : 2
- 3 Post the ISTb LCME identified in Step 3 by typing the following string:
> *POST LCME lcme_site_name lcme_cabinet_no
lcme_no*
and pressing the ENTER key
where
lcme_site_name is the site name for the faulty LCME
lcme_frame_no is the number of the associated LCME
lcme_no is the number of the faulty LCME
Example of a MAP display:

26 PM alarm clearing procedures

PM LCME - minor (continued)

```
CM      MS      IOD      Net      PM      CCS      Lns      Trks      Ext      APPL
.       .       .       .       1LCME   .       .       .       .       .

LCME
0 Quit      PM      1      0      2      0      2      12
2 Post_    LCME   0      0      2      0      2      9
3 ListSet
4 SwRG     LCME   RSCS 14 1 ISTb Links_OOS: CSide 0 PSide 0
5 Trnsl_   Unit0: InSv Takeover /RG: 1
6 Tst_     Unit1: ISTb /RG: 1
7 Bsy_
8 RTS_     Drwr:  01 23 45 67 89 01 23 45 Stby 0 InSv
9 OffL
10 LoadPM_
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

- 4 Check for fault indicators by typing the following string:

> **QUERYPM FLT**

and pressing the ENTER key.

Example of a MAP display:

PM LCME - minor (continued)

```

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

LCME
0 Quit      PM          SysB      ManB      OffL      Cbsy      ISTb      InSv
2 Post_     LCME        1         0         2         0         2         12
3 ListSet
4 SwRG      LCME        RSCS 14 1 ISTb  Links_OOS: CSide 1 PSide 0
5 Trnsl_    Unit0:      InSv  Takeover  /RG: 1
6 Tst_      Unit1:      ISTb
7 Bsy_
8 RTS_      Drwr: 01 23 45 67 89 01 23 45  RG:Pref 1 InSv
9 OffL
10 LoadPM_  QUERYPM FLT
11 Disp_    Node inservice troubles exist:
12 Next     One or both Units inservice trouble
13          LCME UNIT 0 Inservice No Troubles Exist:
14 QueryPM  LCME UNIT 1 Inservice Troubles Exist:
15
16
17
18

```

If faulty card is	Do
indicated	Step 18
not indicated	Step 6

5 Manually busy the LCME posted in Step 4 by typing the following string:

> *BSY UNIT unit_no*

and pressing the ENTER key.

where

unit_no is the number of the ISTb LCME unit

6 Test the ManB LCME by typing the following string:

>*TST UNIT unit_no*

and pressing the ENTER key.

where

unit_no is the number of the LCME unit manually busied in Step 6

Example of a MAP display:

28 PM alarm clearing procedures

PM LCME - minor (continued)

Test Passed

or

Test Failed

If TST	Do
passed	Step 17
failed	Step 18
unable to test CBsy	Step 8

- 7 Identify C-side links that are in a SysB condition by typing the following string:

>TRNSL C

and pressing the ENTER key.

Example of a MAP display:

```
LINK 0: RCC2 2 ;CAP MS;STATUS: OK,;MSGCOND:OPN,Restricted
LINK 1: RCC2 2 ;CAP S;STATUS: SysB
```

If links are	Do
SysB	Step 9
open	Step 22

- 8 Post the RCC2 unit associated with the LCME by typing the following string:

> POST RCC2 rcc2_no

and pressing the ENTER key.

where

rcc2_no is the RCC2 unit identified in Step 8

Example of a MAP display:

PM LCME - minor (continued)

```

CM      MS      IOD      Net      PM      CCS      Lns      Trks      Ext      APPL
.      .      .      .      LLCME      .      .      .      .      .

RCC2
0 Quit      PM      0      0      OffL      CBSy      ISTb      InSv
2 Post_     RCC2    0      0      0      0      2      9
3 ListSet
4
4      RCC2    2 ISTb Links_OOS: CSide 0, PSide 1
5 Trnsl_    Unit0:  Act InSv
6 Tst_     Unit1:  Inact InSv
7 Bsy_
8 RTS_
9 OffL
10 LoadPM_
11 Disp_
12 Next
13 SwAct
14 QueryPM
15
16
17
18
    
```

- 9 Identify the faulty P-side links and choose a faulty link by typing the following string:

> **TRNSL P**

and pressing the ENTER key.

Example of a MAP display:

```

LINK 0:  RCC2 1 0;CAP MS;STATUS: OK,;MSGCOND:OPN,Restricted
LINK 1:  RCC2 1 1;CAP S;STATUS: SysB
LINK 2:  RCC2 1 2;CAP MS;STATUS: OK,;MSGCOND:OPN,Unrestricted
LINK 4:  RCC2 1 4;CAP S;STATUS: OK
LINK 5:  RCC2 1 4;CAP S;STATUS: OK
LINK 6:  RCC2 1 4;CAP S;STATUS: OK
LINK 7:  RCC2 1 4;CAP S;STATUS: OK
    
```

- 10 Busy the faulty link by typing the following string:

>**BSYLINK link_no**

and pressing the ENTER key.

where

link_no is the number of the faulty P-side link manually busied in Step 10

PM LCME - minor (continued)

- 11 Test the ManB link by typing the following string:

> *TST LINK link_no*

and pressing the ENTER key.

where

link_no is the number of the faulty link manually busied in Step 11

If TST	Do
passed	Step 17
failed	Step 13

- 12 Determine where to proceed next by reading the following table.

If faulty card is	Do
indicated	Step 18
not indicated	Step 14

- 13 Return the ManB link to service by typing the following string:

>*RTS LINK link_no*

and pressing the ENTER key.

where

link_no is the number of the link tested in Step 12

If RTS	Do
passed	Step 23
failed	Step 22

Note: If other faulty links are identified, execute the procedures in Steps 11 through 14 for each link until all links are busied, tested, and returned to service.

- 14 Post the LCME identified in Step 3 by typing following string:

> *POST LCME lcme_site_name lcme_cabinet_no lcme_no*

and pressing the ENTER key.

where

lcme_site_name is the site name for the faulty LCME

PM LCME - minor (continued)

lcme_frame_no is the number of the associated LCME

lcme_no is the number of the faulty LCME

- 15** Test the LCME unit by typing the following string:

> *TST UNIT unit_no*

and pressing the ENTER key.

where

unit_no is the number of the LCME unit posted in Step 15

If TST	Do
passed	Step 17
failed	Step 18

- 16** Return the LCME unit to service by typing the following string:

> *RTS UNIT unit_no*

and pressing the ENTER key

where

unit_no is the number of the LCME unit tested in Step 16

If RTS	Do
passed	Step 23
failed	Step 22

- 17** Observe the card listing as shown in the following MAP display.

Example of a MAP display:

```

SITE      FLR  RPOS BAY_ID  SHF      DESCRIPTION  SLOT  EQPEC
RSCS0     01   A00 LCME   00 32      LCME :000    : 19   BX35
RSCS0     01   A00 LCME   00 32      LCME :000    : 20   BX35
RSCS0     01   A00 LCME   00 32      LCME :000    : 21   BX34
    
```

If all cards on the list have	Do
been replaced	Step 19
not been replaced	Step 21

32 PM alarm clearing procedures

PM LCME - minor (end)

- 18 Determine if the NTMX74 circuit card has been replaced.

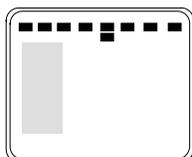
If the NTMX74 card has	Do
been replaced	Step 22
not been replaced	Step 20

Note: If the MX74 card is indicated, check to see if one link or several links are faulty. Repeat the alarm clearing procedure as necessary.

- 19 Go to the card replacement procedure for the NTMX74 circuit card in *Card Replacement Procedures*. When you have finished with the card replacement procedures, go to Step 12 of this procedure.
- 20 Go to the card replacement procedure in *Card Replacement Procedures* for the next card on the card list. When you have finished with the card replacement procedures, go to Step 16 of this procedure.
- 21 Obtain further assistance in clearing this alarm by contacting the personnel responsible for higher level support.
- 22 This procedure is complete. If there are other alarms displayed, reference the appropriate alarm clearing procedures for the indicated alarms.

PM LCME (RG) major

Alarm display



CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	1LCME	.	.	.	.	.
				M					

Indication

A major condition involving an LCME ringing generator is indicated by a 1LCME M under the PM subsystem header at the MTC level of the MAP screen display.

Meaning

One ringing generator unit is in the InService Trouble (ISTb) state and the other Ringing Generator (RG) is System-Busy (SysB).

Impact

LCME can be a peripheral module in an MCRM-S configuration. Subscriber service is affected because ringing is not provided to the subscribers.

Common procedures

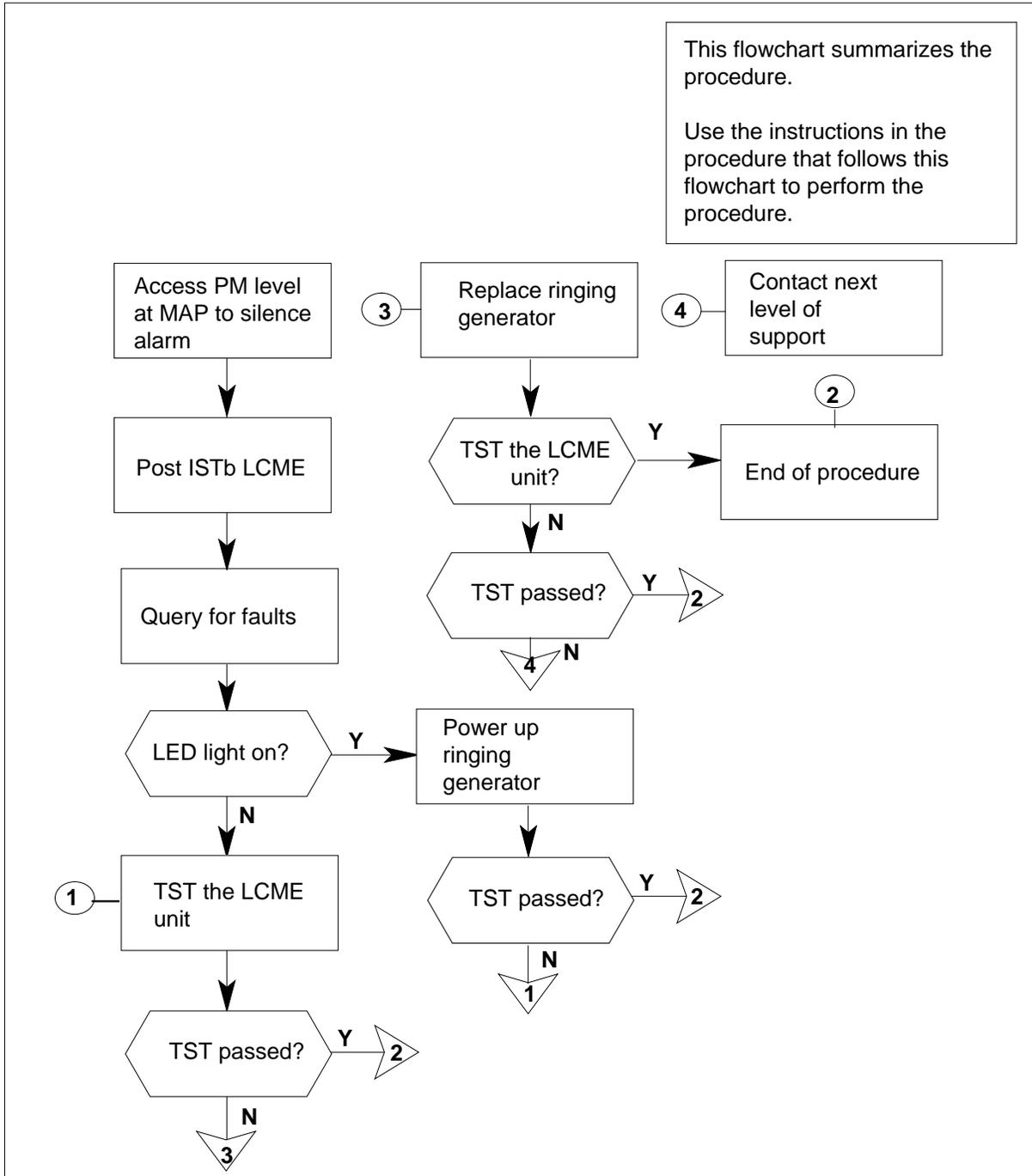
Not applicable

Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

Summary of clearing a PM LCME (RG) major alarm

PM LCME (RG) - major (continued)



PM LCME (RG) - major (continued)

Clearing a PM LCME (RG) major alarm

- 1 You should be entering this procedure from a PM system level alarm clearing procedure step that identified an LCME associated fault.

At the MAP terminal

- 2 Silence the alarm, if required, by typing the following string:

```
> MAPCI;MTC;PM;SIL
```

and pressing the ENTER key.

- 3 Identify the faulty LCME by typing the following string:

```
> DISP STATE ISTB LCME
```

and pressing the ENTER key.

Example of a MAP display:

```
ISTb LCME : 2
```

- 4 Post the ISTb LCME identified in Step 3 by typing the following string:

```
>POST LCME lcme_site_name lcme_cabinet_no  
lcme_no
```

and pressing the ENTER key.

where

lcme_site_name is the site name for the faulty LCME

lcme_frame_no is the number of the associated LCME equipment frame

lcme_no is the number of the faulty LCME

Example of a MAP display

36 PM alarm clearing procedures

PM LCME (RG) - major (continued)

CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext
.	.	.	.	1LCME	.	.	.	.
				M				
LCME			SysB	ManB	OffL	CBsy	ISTb	InSv
0 Quit	PM	1	0	0	2	0	2	12
2 Post_	LCME	0	0	0	2	0	2	9
3 ListSet								
4 SwRG	LCME	RSCS 14	1	ISTb	Links_OOS:	CSide 0	PSide 0	0
5 Trnsl_	Unit0:	InSv	Takeover		/RG: 1			
6 Tst_	Unit1:	ISTb			/RG: 1			
7 Bsy_					11 11 11 11	11 11	RG:Pref 1	InSv
8 RTS_	Drwr:	01 23 45	67 89	01 23 45 67 89			Stby 0	ISTb
9 OffL		.. ..	.. ..	.. ..	.. ..	.. ..
10 LoadPM_								
11 Disp_								
12 Next								
13								
14 QueryPM								
15								
16								
17								
18								

- 5 Check for fault indicators by typing the following string:

>QUERYPM FLT

and pressing the ENTER key.

Example of a MAP display:

PM LCME (RG) - major (continued)

```

CM      MS      IOD      Net      PM      CCS      Lns      Trks      Ext
.      .      .      .      1LCME
      M

LCME
0 Quit      PM      1      0      2      0      1      12
2 Post_    LCME      0      0      2      0      1      9
3 ListSet
4 SwRG      LCME      RSCS   14 1 ISTb Links_OOS: CSide 0 PSide 0
5 Trnsl_    Unit0:    InSv   Takeover /RG: 1
6 Tst_      Unit1:    ISTb           /RG: 1
7 Bsy_
8 RTS_      Drwr:    01 23 45 67 89 01 23 45 67 89 Stby 0 ISTb
9 OffL
10 LoadPM_ QUERYPM FLT
11 Disp_    Node in-service troubles exist:
12 Next      One or both Units in-service trouble
13          LCME UNIT 0 In-service Troubles Exist:
14 QueryPM  Ringing Generator Failure :Ring Generator in Excess load
15          LCME UNIT 1 In-service Troubles Exist:
16          Ring Generator in Excess load
17
18
    
```

If faulty card is	Do
indicated	Step 11
not indicated	Step 6

At the LCME

- 6 Make a visual inspection of the ringing generator. Check to see if the LED light is on.

If the LED light is	Do
ON	Step 7
OFF	Step 8

- 7 Power up the ringing generator by moving the power switch to the ON position. (The LED light should go off.) These switches are identified as follows: RG 0 and RG 1.

If power is	Do
restored	Step 16
not restored	Step 8

PM LCME (RG) - major (continued)

At the MAP terminal

8 Manually busy the LCME unit that is ISTB by typing the following string:

> *BSY UNIT unit_no*

and pressing the ENTER key.

where

unit_no is the number of the LCME unit posted in Step 4

9 Test the ManB LCME by typing the following string:

> *TST UNIT unit_no*

where

unit_no is the number of the LCME unit manually busied in Step 8

Example of a MAP display:

```

LCME      RSCS0      14  1      Unit 1      InSvce Test Initiated
LCME      RSCS0      14  1      Unit 1      Tst Failed: (Reason for
                                     failure)
                                     or
LCME      RSCS0      14  1      Unit 1      InSvce Test Initiated
LCME      RSCS0      14  1      Unit 1      Tst passed
    
```

If TST	Do
passed	Step 10
failed	Step 11

10 Return the ManB LCME to service by typing the following string:

> *RTS UNIT unit_no*

and pressing the ENTER key.

where

unit_no is the number of the LCME tested in Step 9

If RTS	Do
passed	Step 16

PM LCME (RG) - major (end)

If RTS	Do
failed	Step 15

- 11** Observe the card listing as shown in the following MAP display (resulting from Step 9).

Example of a MAP display:

```
SITE FLR RPOS BAY_ID SHF DESCRIPTION SLOTEQPEC
RSCS0 01 A00 LCME 00 32 LCME :000 : 20 BX35
RSCS0 01 A00 LCME 00 32 LCME :000: 21 BX34
```

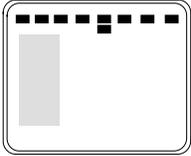
If all cards on the list have	Do
been replaced	Step 12
not been replaced	Step 14

- 12** Determine if the NT6X30 circuit card has been replaced.

If the NT6X30 card has	Do
been replaced	Step 15
not been replaced	Step 13

- 13** Go to the card replacement procedure for the NT6X30 circuit card in *Card Replacement Procedures*. When you have finished with the card replacement procedures, go to Step 9 of this procedure.
- 14** Go to the card replacement procedure in *Card Replacement Procedures* for the next card on the card list. When you have finished with the card replacement procedures, go to Step 9 of this procedure.
- 15** Obtain further assistance in clearing this alarm, by contacting the personnel responsible for higher level support.
- 16** You have successfully completed this procedure. If there are other alarms displayed, reference the appropriate alarm clearing procedures for the indicated alarms.

Alarm display



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

Indication

A minor alarm involving an LCME ringing generator is indicated by 1LCME under the PM subsystem header at the MTC level of the MAP terminal.

Meaning

One of the Ringing Generator (RG) units is in the In-Service Trouble (ISTb) state.

Impact

LCME can be a peripheral module in an MCRM-S configuration. Service is not affected since a switching of support to a backup ringing generator (SwRG) automatically occurs. However, if the backup ringing generator fails, ringing will not be produced.

Common procedures

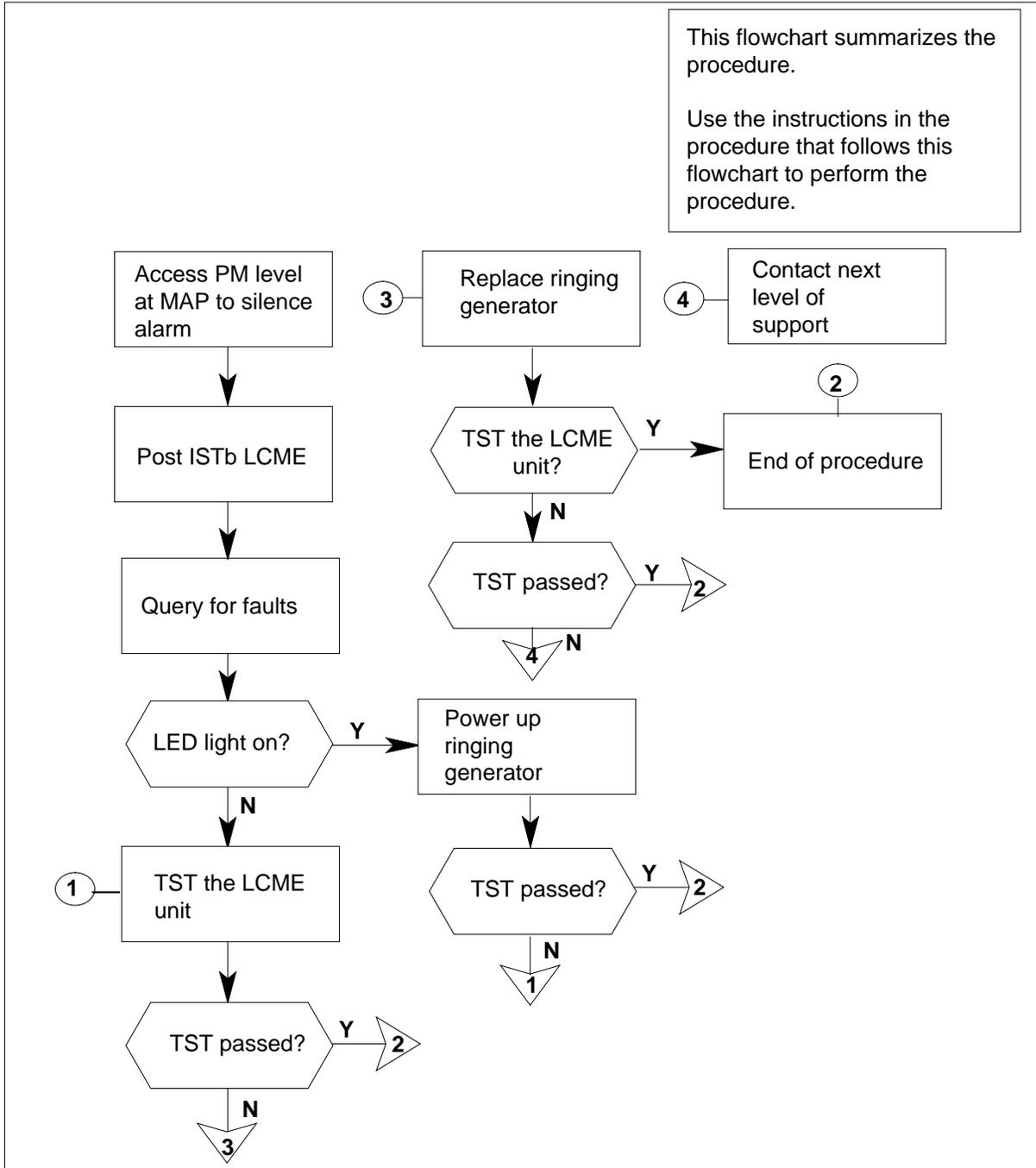
Not applicable

Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

PM LCME (RG) - minor (continued)

Summary of clearing a PM LCME (RG) alarm



PM LCME (RG) - minor (continued)

Clearing a PM LCME (RG) alarm

- 1 You should be entering this procedure from a PM system level alarm clearing procedure step that identified an LCME associated fault.

At the MAP terminal

- 2 Silence the alarm, if required, by typing the following string:

```
>MAPCI;MTC;PM;SIL
```

and pressing the ENTER key.

- 3 Identify the faulty LCME by typing the following string:

```
> DISP STATE ISTB LCME
```

and pressing the ENTER key.

Example of a MAP display:

```
ISTb LCME : 2
```

- 4 Post the ISTb LCME identified in Step 3 by typing the following string:

```
>POST LCME lcme_site_name lcme_cabinet_no  
lcme_no
```

and pressing the ENTER key.

where

lcme_site_name is the site name for the faulty LCME

lcme_frame_no is the number of the associated LCME equipment frame

lcme_no is the number of the faulty LCME

Example of a MAP display:

43 PM alarm clearing procedures

PM LCME (RG) - minor (continued)

CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext
.	.	.	.	1LCME	.	.	.	.
LCME			SysB	ManB	OffL	CBsy	ISTb	InSv
0	Quit	PM	1	0	2	0	2	12
2	Post_	LCME	0	0	2	0	2	9
3	ListSet							
4	SwRG	LCME	RSCS 14	1 ISTb	Links_OOS:	CSide	0	PSide 0
5	Trnsl_	Unit0:	InSv	Takeover	/RG: 1			
6	Tst_	Unit1:	ISTb		/RG: 1			
7	Bsy_				11 11 11 11 11			RG:Pref 1 InSv
8	RTS_	Drwr:	01 23 45	67 89	01 23 45 67 89			Stby 0 ISTb
9	OffL	..	..	..	..	..	..	..
10	LoadPM_							
11	Disp_							
12	Next							
13								
14	QueryPM							
15								
16								
17								
18								

- 5 Check for fault indicators by typing the following string:

> **QUERYPM FLT**

and pressing the ENTER key.

Example of a MAP display:

PM LCME (RG) - minor (continued)

```

CM      MS      IOD      Net      PM      CCS      Lns      Trks      Ext
.       .       .       .       1LCME  .       .       .       .

LCME
0 Quit      PM          1          0          2          0          1          12
2 Post_     LCME        0          0          2          0          1          9
3 ListSet
4 SwRG      LCME        RSCS      14 1 ISTb  Links_OOS: CSide 0 PSide 0
5 Trnsl_    Unit0:      InSv      Takeover  /RG: 1
6 Tst_      Unit1:      ISTb      /RG: 1
7 Bsy_
8 RTS_      Drwr:      01 23 45 67 89 01 23 45 67 89  RG:Pref 1 InSv
9 OffL      .. .. .. .. .. .. .. .. .. ..
10 LoadPM_  QUERYPM FLT
11 Disp_    Node in-service troubles exist:
12 Next     One or both Units in-service trouble
13          LCME  UNIT 0  In-service Troubles Exist:
14 QueryPM  Ringing Generator Failure :Ring Generator in Excess load
15          LCME  UNIT 1  In-service Troubles Exist:
16          Ring Generator in Excess load
17
18
    
```

If faulty card is	Do
indicated	Step 11
not indicated	Step 6

At the LCME

6 Make a visual inspection of the ringing generator. Check to see if the LED light is on.

If the LED light is	Do
ON	Step 7
OFF	Step 8

7 Power up the ringing generator by moving the power switch to the ON position. (The LED light should go off.) These switches are identified as follows: RG 0 and RG 1.

If the power is	Do
restored	Step 16
not restored	Step 15

PM LCME (RG) - minor (continued)

At the MAP terminal

- 8 Manually busy the LCME unit that is ISTB by typing the following string:

`>BSY UNIT unit_no`

and pressing the ENTER key.

where

unit_no is the number of the LCME unit posted in Step 4

- 9 Test the ManB LCME by typing the following string:

`> TST UNIT unit_no`

and pressing the ENTER key.

where

unit_no is the number of the LCME unit manually busied in Step 8

Example of a MAP display:

```

LCME      RSCS0      14  1      Unit 1      InSvce Test Initiated
LCME      RSCS0      14  1      Unit 1      Tst Failed: (Reason for
failure)
                                     or
LCME      RSCS0      14  1      Unit 1      InSvce Test Initiated
LCME      RSCS0      14  1      Unit 1      Tst passed
    
```

If TST	Do
passed	Step 10
failed	Step 11

- 10 Return the ManB LCME to service by typing the following string:

`>RTS UNIT unit_no`

and pressing the ENTER key.

where

unit_no is the number of the LCME tested in Step 9

If RTS	Do
passed	Step 16
failed	Step 11

PM LCME (RG) - minor (end)

- 11** Observe the card listing as shown in the following MAP display (resulting from Step 11).

Example of a MAP display:

SITE	FLR	RPOS	BAY_ID	SHF	DESCRIPTION	SLOT	EQPEC
RSCSO	01	A00	LCME 00	32	LCME :000	: 21	BX34
RSCSO	01	A00	LCME 00	32	LCME :000	: 19	BX35
RSCSO	01	A00	LCME 00	32	LCME :000	: 20	BX35

If all cards on the list have	Do
been replaced	Step 12
not been replaced	Step 14

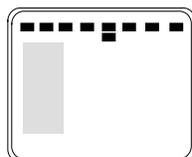
- 12** Determine if the NT6X30 circuit card has been replaced.

If the NT6X30 card has	Do
been replaced	Step 15
not been replaced	Step 13

- 13** Go to the card replacement procedure for the NT6X30 circuit card in *Card Replacement Procedures*. When you have finished with the card replacement procedures, go to Step 9 of this procedure.
- 14** Go to the card replacement procedure in *Card Replacement Procedures* for the next card on the card list. When you have finished with the card replacement procedures, go to Step 9 of this procedure.
- 15** Obtain further assistance in clearing this alarm by contacting the personnel responsible for higher level support.
- 16** This procedure is completed. If there are other alarms displayed, reference the appropriate alarm clearing procedures for the indicated alarms.

PM RCC2 critical

Alarm display



CM	MS	IOD	Net	PM	Lns	Trks	Ext	APPL
.	.	.	.	nRCC2	.	.	.	.
				C				

Indication

An RCC2 *C* under the PM subsystem header at the MTC level of the MAP terminal display indicates an RCC2 critical alarm.

Meaning

Both RCC2 units are in the System-Busy (SysB) or C-side Busy (CBsy) state.

Impact

A loss of subscriber service may occur. The RCC2 may be in Emergency Stand-Alone (ESA) status.

Common procedures

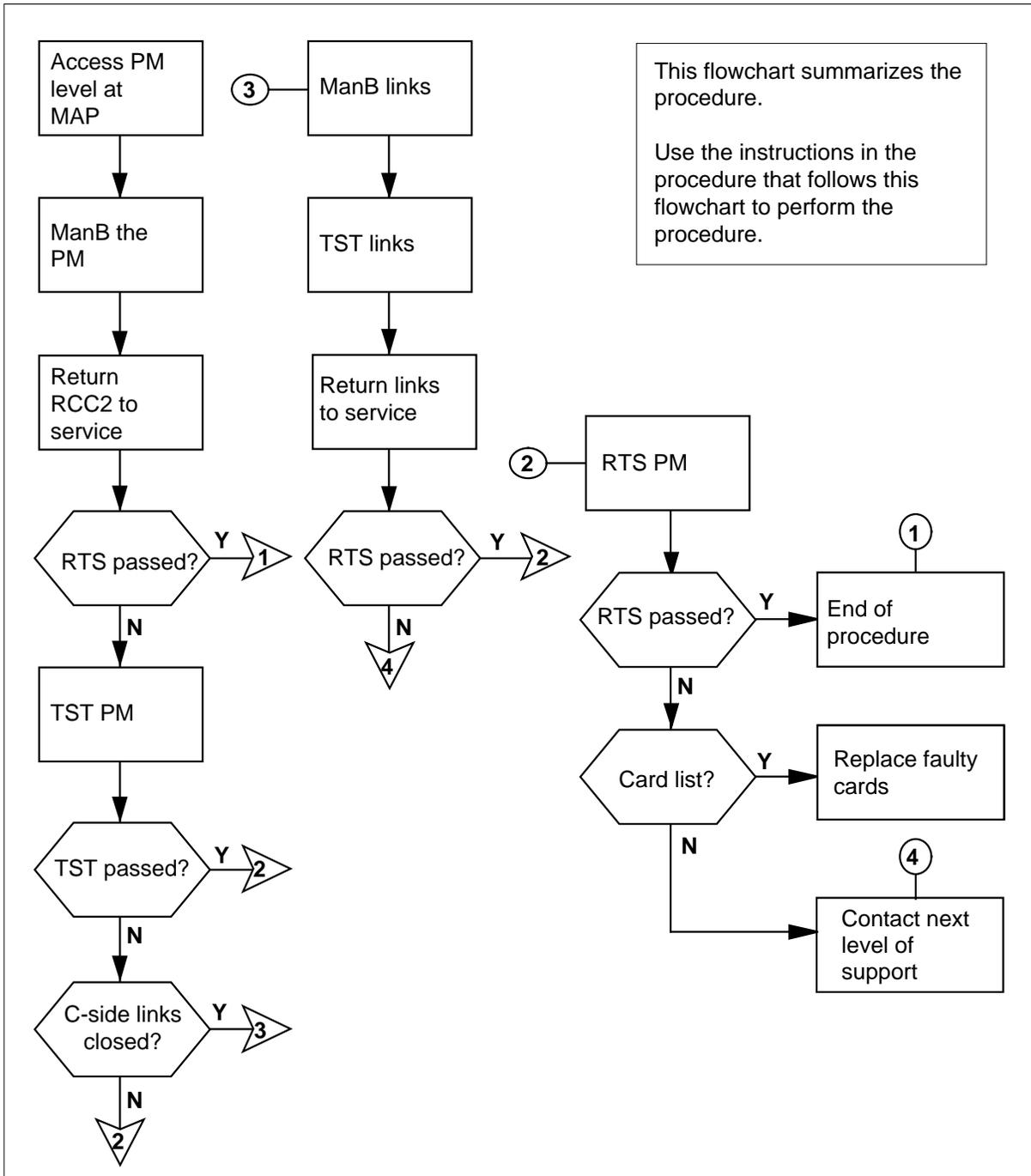
Not applicable

Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

PM RCC2 - critical (continued)

Summary of clearing a PM RCC2 critical alarm



PM RCC2 - critical (continued)

Clearing a PM RCC2 critical alarm

- 1 You should enter this procedure from a PM system level alarm clearing procedure step that identified an RCC2 associated fault.

At the MAP terminal

- 2 Silence the alarm, if required, by typing the following string:

```
MAPCI ;MTC ;PM ;SIL
```

and pressing the ENTER key.

- 3 Identify the faulty RCC2 by typing the following string:

```
>PM;DISP STATE CBSY RCC2
```

and pressing the ENTER key.

Example of a MAP response:

```
CBsy RCC2: 2
```

or

```
None
```

If *None* appears on the MAP screen, display the SysB RCC2 by typing the following string:

```
>DISP STATE SYSB RCC2
```

and pressing the Enter key.

Example of a MAP response:

```
SysB RCC2: 2
```

- 4 Post the CBsy or SysB RCC2 by typing the following string:

```
> POST RCC2 rcc2_no
```

and pressing the ENTER key.

where

rcc2_no is the number of the RCC2 displayed in Step 3

Example of a MAP display:

```
RCC2SysBManBOfflCBsyISTbInSv
```

```
PM 3 0 1 1 4 12
```

```
RCC2 0 0 2 1 2 9
```

PM RCC2 - critical (continued)

- 5 Check for fault indicators by typing the following string:
> QUERYPM FLT
 and pressing the ENTER key.

Example of a MAP display:

```

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

RCC
0 Quit      PM      3      0      OffL      CBsy      ISTb      InSv
2 Post_     RCC      0      0      2      1      2      9
3 ListSet
4           RCC      0 CBsy  Links_OOS:  CSide 1, PSide 0
5 TRNSL_   Unit0:   Act  CBsy
6 Tst_     Unit1:   Inact CBsy
7 Bsy_     QUERYPM FLT
8 RTS_     Unit0   Static data not updated
9 OffL     Unit1   Reset
10 LoadPM_
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
    
```

- 6



CAUTION
 The RCC2 may be in ESA
 A CBsy indicator could change to a SysB indicator that would indicate that the RCC2 is in Emergency Stand-Alone mode. During ESA, PM180 and PM181 logs are generated indicating ESA. Only local calls are supported.

Proceed as shown in the following table:

If the RCC2 is	Do
SysB	Step 7
CBsy	Step 16

- 7 Check PM180 and PM181 logs that may indicate that the RCC2 is in Emergency Stand-Alone state. This should be done

PM RCC2 - critical (continued)

according to local policy and according to the type of device used to generate log reports.

If log reports are	Do
available	Step 11
not available	Step 8

- 8 Activate the LOGUTIL database by typing the following string:
>QUIT ALL;LOGUTIL PM
 and pressing the ENTER key.
- 9 Display PM180 and PM181 log reports by typing the following string:
>WHILE (BACK)(SLEEP 2)
 and pressing the ENTER key.
- 10 The MAP display scrolls PM181 and PM180 log reports as well as other types of log reports. Scan these reports to determine possible reasons for the critical alarm in the RCC2. When the MAP display finishes scrolling and you have the necessary information, return to the CI command level by typing the following string:
>QUIT
 and pressing the ENTER key.
- 11 Post the RCC2 again by typing the following string:
>MAPCI;MTC;PM;POST RCC2 rcc2_no
 and pressing the ENTER key.
where
 rcc2_no is the number of the RCC2 displayed in Step 3

If the PM logs	Do
indicate ESA	Step 36
do not indicate ESA	Step 12

- 12 Manually busy the RCC2 by typing the following string:
>BSY PM
 and pressing the ENTER key.

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PM RCC2 - critical (continued)

- 13 Restore PM service by typing the following string:

>RTS PM FORCE

and pressing the ENTER key.

Example of a MAP response:

```
UNIT unit_no in ESA MODE.  
THIS ACTION WILL CAUSE ESA EXIT AND ABORT n CALLS  
PLEASE CONFIRM ("YES" OR "NO")
```

where

unit_no is the number of the RCC2 identified in Step 3

n is the number of calls currently in progress

- 14 Confirm the command in Step 13 by typing the following string:

>YES

and pressing the ENTER key.

If RTS PM FORCE	Do
passes for both units	Step 38
fails for both units	Step 15
fails for one unit	alarm clearing procedure for an RCC2 ISTb major alarm

- 15 Perform an in-service test on the ManB RCC2 by typing the following string:

>TST PM

and pressing the ENTER key.

Example of a MAP response:

Test Passed

or

Test Failed

If TST	Do
passes	Step 13

PM RCC2 - critical (continued)

If TST	Do
fails because C-side links are closed	Step 16
fails and a card list appears	Step 32

- 16** Identify C-side links to the host PM that are CBsy by typing the following string:

`>TRNSL C`

and pressing the ENTER key.

A host PM is either a Line Group Controller (LGC) or a Line Trunk Controller (LTC). In the following example, the host PM is an LTC.

Example of a MAP response:

```
LINK 0: LTC 1 0;CA MS; OK,; MSGCOND: OPN,
           P   STATUS: Restricted
LINK 1: LTC 1 1;CA S; OK
           P   STATUS:
LINK 2: LTC 1 2;CA MS; OK,; MSGCOND: OPN,
           P   STATUS: Unrestricted
LINK 4: LTC 1 4;CA S; CBsy
           P   STATUS:
LINK 5: LTC 1 4;CA S; OK
           P   STATUS:
LINK 6: LTC 1 4;CA S; OK
           P   STATUS:
LINK 7: LTC 1 4;CA S; OK
           P   STATUS:
```

- 17** Post the host PM identified in Step 16 by typing the following string:

`>POST host_pm host_pm_no`

and pressing the ENTER key.

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PM RCC2 - critical (continued)

where

host_pm is either an LGC(I) or an LTC(I)

host_pm_no is the number of either the LGC(I) or LTC(I)

Example of a MAP display:

CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	1RCC2	.	.	.	.	.
				C					
LTC			SysB	ManB	OffL	CBsy	ISTb	InSv	
0	Quit	PM	3	0	1	1	4	12	
2	Post_	LTC	0	0	2	1	2	9	
3	ListSet								
4		LTC	1	ISTb	Links_OOS:	CSide	0, PSide	1	
5	Trnsl_	Unit0:	Act	InSv					
6	Tst_	Unit1:	Inact	InSv					
7	Bsy_								
8	RTS_								
9	OffL								
10	LoadPM_								
11	Disp_								
12	Next								
13	SwAct								
14	QueryPM								
15									
16									
17	Perform								
18									

- 18 Identify the faulty P-side links and choose a faulty link by typing the following string:

>TRNSL P

and pressing the ENTER key.

Example of a MAP response: (Sheet 1 of 2)

```
LINK 0:      1  0;CA  MS;      OK;; MSGCOND: OPN,
RCC2        P      STATUS:  Restricted

LINK 1:      1  1;CA  S;       OK
RCC2        P      STATUS:

LINK 2:      1  2;CA  MS;      OK;; MSGCOND: OPN,
RCC2        P      STATUS:  Unrestricted

LINK 4:      1  4;CA  S;       ISTb
RCC2        P      STATUS:
```

PM RCC2 - critical (continued)

Example of a MAP response: (Sheet 2 of 2)

```
LINK 5:      1  4;CA  S;      OK
RCC2                P  STATUS:

LINK 6:      1  4;CA  S;      OK
RCC2                P  STATUS:

LINK 7:      1  4;CA  S;      OK
RCC2                P  STATUS:
```

- 19 Busy the faulty link by typing the following string:

```
>BSY LINK link_no
```

and pressing the ENTER key.

where

link_no is the number of the faulty P-side link indicated in Step 18

- 20 Test the faulty link by typing the following string:

```
>TST LINK link_no
```

and pressing the ENTER key.

where

link_no is the number of the link manually busined in Step 19

Note: Repeat Steps 19 and 20 for each faulty link identified in Step 18.

If TST on all links	Do
passes and the alarm clears	Step 26
fails	Step 21

- 21 Display any faulty trunks by typing the following string:

```
>TRKS ;CARRIER;POST REMOTE
```

and pressing the ENTER key.

Example of a MAP response:

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PM RCC2 - critical (continued)

```
CLASS ML OS ALARM SYSB  MANB UNEQ OFFL CBSY PBSY  INSV
TRUNKS 0 0 0    0    0    0    0    0    0    0
REMOTE 0 0 0    5    1    0    0    1    0    10
```

```
NO CLASS SITE RCC2 CKT D ALARM SLIP FRAME BER SES STATE
0 TRUNKS BRSC 0    2  C          0    0  <-.7 0  INSV
1 REMOTE BRSC 0   12  C          0    0  <-.7 0  INSV
2 REMOTE BRSC 0   13  C          0    0  <-.7 0  MANB
```

MORE . . .

Note: The MORE . . . at the bottom of the display indicates more links can be observed by typing the following string:

>NEXT

and pressing the ENTER key.

- 22 Carry out the repair/corrective procedure indicated by the MAP display in Step 21.

Note: If faulty message links are indicated, these links must be ManB before they can be Returned To Service (RTS).

- 23 Test the ManB link by typing the following string:

>TST link_no

and pressing the ENTER key.

where

link_no is the number of the ManB link. This link number is listed under the NO column as shown in the MAP display in Step 21. The number for the ManB link in the example is 2.

If TST	Do
passes and the alarm clears	Step 24
fails	Step 37
fails and a card list appears	Step 32

- 24 Post the host PM by typing the following string:

>PM;POST host_pm host_pm_no

and pressing the ENTER key.

where

PM RCC2 - critical (continued)

host_pm is the host PM LGCI or LTCI posted in Step 17

host_pm_no is the number of the host PM

- 25** Verify the status of the P-side links by typing the following string:

```
>TRNSL P
```

and pressing the ENTER key.

Example of a MAP response:

LINK 0: RCC2	1	0;CA P	MS; STATUS:	OK,; MSGCOND: OPN, Restricted
LINK 1: RCC2	1	1;CA P	S; STATUS:	OK
LINK 2: RCC2	1	2;CA P	MS; STATUS:	OK,; MSGCOND: OPN, Unrestricted
LINK 4: RCC2	1	4;CA P	S; STATUS:	OK
LINK 5: RCC2	1	4;CA P	S; STATUS:	OK
LINK 6: RCC2	1	4;CA P	S; STATUS:	OK
LINK 7: RCC2	1	4;CA P	S; STATUS:	OK

- 26** Return the link to service by typing the following string:

```
>RTS LINK link_no
```

and pressing the ENTER key.

where

link_no is the number of the link identified in Step 18

Note: This step must be performed for each faulty link that was busied.

- 27** Post the *inactive* RCC2 by typing the following string:

```
>POST RCC2 rcc2_no
```

PM RCC2 - critical (continued)

and pressing the ENTER key.

where

rcc2_no is the number of the RCC2 identified in Step 3

Note: This RCC2 should be SysB.

- 28 Return the *inactive* PM unit to service by typing the following string:

>RTS PM

and pressing the ENTER key.

If RTS for both RCC2 units	Do
passes	Step 38
fails	Step 29

- 29 Manually busy the *inactive* RCC2 unit by typing the following string:

>BSU UNIT unit_no

and pressing the ENTER key.

where

unit_no is the number of the inactive RCC2 unit from Step 27

- 30 Perform an out-of-service (OOS) test on the *inactive* RCC2 unit by typing the following string:

>TST UNIT unit_no

and pressing the ENTER key.

where

unit_no is the number of the RCC2 unit manually busied in Step 29

If TST	Do
passes	Step 31
fails	Step 32

- 31 Return the *inactive* RCC2 unit to service by typing the following string:

>RTS UNIT unit_no

PM RCC2 - critical (continued)

and pressing the ENTER key.

where

`unit_no` is the number of the RCC2 tested in Step 30

If RTS	Do
passes	Step 38
fails	Step 37

- 32** Observe the card listing shown on the MAP display.

Example of a MAP response:

SITE	FLR	RPOS	BAY_ID	SHF	DESCRIPTION	SLOT	EQPEC
RSCS0	01	A00	RCE	00 32	RCC2 : 000	:20	6X50
RSCS0	01	A00	RCE	00 32	RCC2 : 000	:19	6X72
RSCS0	01	A00	RCE	00 32	RCC2 : 000	:17	6X69
RSCS0	01	A00	RCE	00 32	RCC2 : 000	:13	6X45
RSCS0	01	A00	RCE	00 32	RCC2 : 000	:08	6X45

If all cards on the list were	Do
replaced	Step 33
not replaced	Step 35

- 33** Determine if the NTMX81 circuit card has been replaced.

If the NTMX81 card has	Do
been replaced	Step 37
not been replaced	Step 34

- 34** Go to the card replacement procedure for the NTMX81 circuit card in *Card Replacement Procedures*. When you have finished with the card replacement procedures, go to Step 24 of this procedure.

- 35** Go to the card replacement procedure in *Card Replacement Procedures* for the next card on the card list. When you finish the card replacement procedures, go to Step 30 of this procedure.

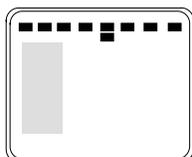
- 36** *Go to Recovery Procedures for instructions on recovering the RCC2.* When you have completed the recovery procedure, return to Step 5 and complete the alarm clearing procedure.

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PM RCC2 - critical (end)

- 37 Obtain further assistance in clearing this alarm by contacting personnel responsible for higher level support.
- 38 You have successfully completed this procedure. If other alarms are displayed, reference the appropriate alarm clearing procedures for the indicated alarms.

Alarm display



CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	1RCC2	.	.	.	.	.
				M					

Indication

A 1RCC2 M under the PM subsystem header at the MTC level of the MAP screen display indicates an RCC2 major alarm.

Meaning

The indicated number of RCC2 units are in the System-Busy (SysB) state.

Impact

Subscriber service is not affected. However, if both RCC2 units fail, a loss of subscriber service occurs.

Common procedures

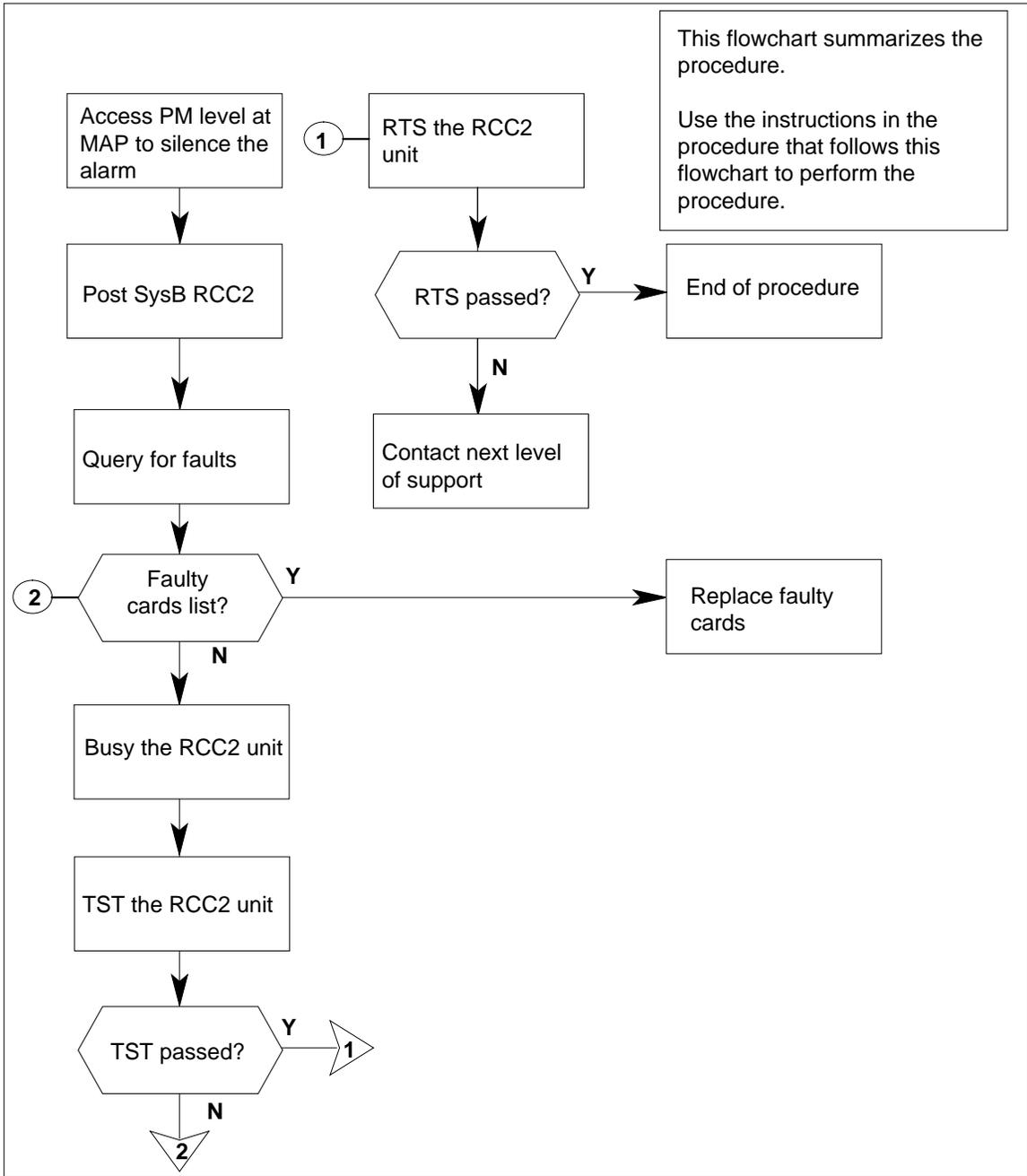
Not applicable

Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

Summary of clearing a PM RCC2 major alarm

PM RCC2 - major (continued)



PM RCC2 - major (continued)

Clearing a PM RCC2 major alarm

- 1 You should be entering this procedure from a PM system level alarm clearing procedure step that identified an RCC2 associated fault.

At the MAP display

- 2 Silence the alarm, if required, by typing the following string:
`> MAPCI;MTC;PM;SIL`
 and pressing the ENTER key.

- 3 Identify the faulty RCC2 by typing the following string:
`> DISP STATE ISTB RCC2`
 and pressing the ENTER key.

Example of a MAP display:
 SysB RCC2 : 2

- 4 Post the SysB RCC2 by typing the following string:
`>POST RCC2 rcc2_no`
 and pressing the ENTER key.

where

rcc2_no is the number of the RCC2 displayed in Step 3

Typical response on the MAP display:

RCC2	2	SysB	ManB	Off1	CBsy	ISTb	InSv	
		PM	3	0	1	0	4	12
		RCC2	1	0	2	0	2	9

- 5 Check for fault indicators by typing the following string:
`>QUERYPM FLT`
 and pressing the ENTER key.

Example of a MAP display:

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PM RCC2 - major (continued)

```
CM      MS      IOD      Net      PM      CCS      Lns      Trks      Ext
.      .      .      .      1RCC2  .      .      .      .
      M
RCC2
0 Quit  PM      1      0      1      0      0      12
2 Post_ RCC2    1      0      2      0      0      9
3 ListSet
4      RCC2  2  ISTb  Links_OOS: CSide 0, PSide 0
5 TRNSL_ Unit0:  Act  InSv
6 Tst_   Unit1:  Inact SysB
7 Bsy_   QUERYPM FLT
8 RTS_   Unit0  No fault exists
9 OffL   Unit1  Reset
10 LoadPM_
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

If faulty card is	Do
indicated	Step 26
not indicated	Step 6

- 6 Manually busy the SysB RCC2 unit by typing the following string:
>BSY UNIT unit_no
and pressing the ENTER key.
where
unit_no is the number of the SysB RCC2 indicated in Step 5
- 7 Test the ManB RCC2 by typing the following string:
>TST UNIT unit_no
and pressing the ENTER key.
where
unit_no is the number of the RCC2 unit manually busied in Step 6

PM RCC2 - major (continued)

Example of a MAP display:

Test Passed

or

Test Failed

If TST	Do
passed	Step 25
failed with card list	Step 26
failed with no card list	Step 8

- 8** Identify C-side links to the host PM that is in a SysB condition by typing the following string:

>TRNSLC

and pressing the ENTER key.

A host PM may be either a Line Group Controller (LGC) or a Line Trunk Controller (LTC) with or without ISDN. In the following example, the host PM is an LTC.

Example of a MAP display:

```
LINK 0: LTC 1 0;CAP MS;STATUS:OK,;MSGCOND:OPN,Restricted
LINK 1: LTC 1 1;CAP S;STATUS:OK
LINK 2: LTC 1 2;CAP MS;STATUS:SysB,;MSGCOND:CLS,Unrestricted
LINK 4: LTC 1 4;CAP S;STATUS: ISTb
LINK 5: LTC 1 4;CAP S;STATUS: OK
LINK 6: LTC 1 4;CAP S;STATUS: OK
LINK 7: LTC 1 4;CAP S;STATUS: OK
```

If link is	Do
not busy	Step 30
a message link	Step 9
a speech link	Step 9

- 9** Post the host PM by typing the following string:

>POST host_pm host_pm_no

and pressing the ENTER key.

where

host_pm is either an LGCI or an LTCI

PM RCC2 - major (continued)

host_pm_no is the number of the LGCI or LTCI

Example of a MAP display:

```

CM      MS      IOD      Net      PM      CCS      Lns      Trks      Ext
.       .       .       .       1RCC2   .       .       .       .
          M
LTC(I)
0 Quit  PM      1       0       OffL    CBsy    ISTb    InSv    12
2 Post_ LTC(I)  0       0       2       0       1       9
3 ListSet
4       LTC(I) 1 ISTb  Links_OOS: CSide 0, PSide 1
5 Trnsl_ Unit0:  Act InSv
6 Tst_   Unit1:  Inact InSv
7 Bsy_
8 RTS_
9 OffL
10 LoadPM_
11 Disp_
12 Next
13 SwAct
14 QueryPM
15
16
17 Perform
18
    
```

- 10** Identify the faulty P-side links and choose a faulty link by typing the following string:

>TRNSLP

Example of a MAP display:

```

LINK 0:  RCC2  1  0;CAP MS;STATUS:OK,;MSGCOND:OPN,Restricted
LINK 1:  RCC2  1  1;CAP S;STATUS:OK
LINK 2:  RCC2  1  2;CAP MS;STATUS:SysB,;MSGCOND:CLS,Unrestricted
LINK 4:  RCC2  1  4;CAP S;STATUS:ISTb
LINK 5:  RCC2  1  4;CAP S;STATUS:OK
LINK 6:  RCC2  1  4;CAP S;STATUS:OK
LINK 7:  RCC2  1  4;CAP S;STATUS:OK
    
```

- 11** Busy the faulty link by typing the following string:

>BSY LINK link_no

and pressing the ENTER key.

where

link_no is the number of the faulty P-side link chosen in Step 10

PM RCC2 - major (continued)

- 12 Test the faulty link by typing the following string:

>TSTLINK link_no

where

link_no is the number of the link manually busied in Step 11

If TST	Do
passed and alarm clears	Step 30
passed and alarm persists	Step 17
failed	Step 13

- 13 Display any links that may be faulty by typing the following string:

>TRKS ;CARRIER;POST MANB

and pressing the ENTER key.

Example of a MAP display:

```

CLASS ML  OS  ALARM  SYSB  MANB  UNEQ  OFFL  CBSY  PBSY  INSV
TRUNKS 0  0   0       0     0     0     0     0     0     0
REMOTE 0  0   0       5     1     0     0     0     0    10
    
```

```

NO  CLASS  SITE  RCC  CKT  D  ALARM  SLIP  FRAME  BER  SES  STATE
0   TRUNKS BRSCS  0   0   C     0     0     0  <-.7  0  INSV
1   REMOTE BRSCS  0   1   C     0     0     0  <-.7  0  INSV
2   REMOTE BRSCS  0   2   C     0     0     0  <-.7  0  MANB
    
```

MORE

Note: The MORE at the bottom of the display indicates that more links can be observed by typing the following string:

>NEXT

and pressing the ENTER key.

- 14 Test the ManB link by typing the following string:

>TST link_no

and pressing the ENTER key.

where

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PM RCC2 - major (continued)

link_no is the number for the ManB link. This link number is listed under the NO column as shown in the MAP display in Step 13. The number for the ManB link used in the example is two (2).

If TST	Do
passed and alarm clears	Step 16
failed	Step 30

- 15 Carry out the repair/corrective procedure indicated on the MAP screen display in Step 13.

Note: If faulty message links are indicated, then these links must be in ManBusy state before they can be Returned To Service (RTS).

- 16 Post the host PM by typing following string:

```
> PM;POST host_pm host_pm_no
```

and pressing the ENTER key.

where

host_pm is the host PM (LGCI or LTCI) posted in Step 9

host_pm_no is the number of the host PM (LGCI or LTCI)

- 17 Return the link to service by typing the following string:

```
>RTS LINK link_no
```

and pressing the ENTER key.

where

link_no is the number of the link identified in Step 10

If RTS	Do
passed	Step 18
failed	Step 30

- 18 Post the RCC2 by typing the following string:

```
>POST RCC2 rcc2_no
```

and pressing the ENTER key.

where

PM RCC2 - major (continued)

rcc2_no is the number of the RCC2 identified in Step 3

Note: This RCC2 should be SysB.

- 19** Return the INACTIVE unit to service by typing the following string:

> *RTS UNIT unit_no*

and pressing the ENTER key.

where

unit_no is the number of the RCC2 posted in Step 18

If RTS	Do
passed	Step 20
failed	Step 30

- 20** Switch Activity (SwAct) of the RCC2 units to ensure the one to be tested is INACTIVE by typing the following string:

> *SWACT*

and pressing the ENTER key.

Example of a MAP display:

```
RCC2 1 A Warm SwAct will be performed
Please confirm ("YES" or "NO")
```

If the prompt indicates a	Do
cold SwAct will be performed	Step 22
warm SwAct will be performed	Step 21

- 21**

	<p>CAUTION Loss of service All calls, including data calls, being handled by this PM will be lost. Perform the next step during a period of low traffic only.</p>
---	---

PM RCC2 - major (continued)

- 22 Confirm the SwAct initiated in Step 20 by typing the following string:

>YES

and pressing the ENTER key.

After both units are in-service, determine where to proceed from the following information.

If SWACT	Do
passed	Step 23
failed	Step 30

- 23 Busy the INACTIVE RCC2 unit by typing the following string:

>BSY UNIT unit_no

and pressing the ENTER key.

where

unit_no is the number of the inactive RCC2 unit

- 24 Perform an Out-Of-Service (OOS) test on the INACTIVE RCC2 unit by typing the following string:

>TST UNIT unit_no

and pressing the ENTER key.

where

unit_no is the number of the RCC2 unit busied in Step 23

If TST	Do
passed	Step 25
failed	Step 26

- 25 Return the INACTIVE RCC2 unit to service by typing the following string:

>RTS UNIT unit_no

and pressing the ENTER key.

where

PM RCC2 - major (end)

unit_no is the number of the RCC2 unit tested in Step 24

If RTS	Do
passed	Step 31
failed	Step 30

- 26** Observe the card listing as shown in the following MAP display.
Example of a MAP display:

SITE	FLR	RPOS	BAY_ID	SHF	DESCRIPTION	SLOT	EQPEC
RSCS0	01	A00	RCE 00	32	RCC2 : 000	: 03	MX77
RSCS0	01	A00	RCE 00	32	RCC2 : 000	: 08	6X69
RSCS0	01	A00	RCE 00	32	RCC2 : 000	: 11	MX73
RSCS0	01	A00	RCE 00	32	RCC2 : 000	: 15	MX74
RSCS0	01	A00	RCE 00	32	RCC2 : 000	: 17	MX73

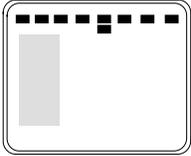
If all cards on the list have	Do
been replaced	Step 27
not been replaced	Step 29

- 27** Determine if the NTMX81 circuit card has been replaced.

If the NTMX81 card has	Do
been replaced	Step 30
not been replaced	Step 28

- 28** Go to the card replacement procedure for the NTMX81 circuit card in *Card Replacement Procedures*. When you have finished with the card replacement procedures, go to Step 14 of this procedure.
- 29** Go to the card replacement procedure in *Card Replacement Procedures* for the next card on the card list. When you have finished with the card replacement procedures, go to Step 24 of this procedure.
- 30** Obtain further assistance in clearing this alarm by contacting the personnel responsible for higher level support.
- 31** This procedure is complete. If there are other alarms displayed, reference the appropriate alarm clearing procedures for the indicated alarms.

Alarm display



CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	1RCC2	.	.	.	.	.

Indication

A 1RCC2 under the PM subsystem header at the MTC level of the MAP indicates an RCC2 minor alarm.

Meaning

The indicated number of RCC2 units are in the In-Service Trouble (ISTb) state.

Impact

Subscriber service is not affected.

Common procedures

Not applicable

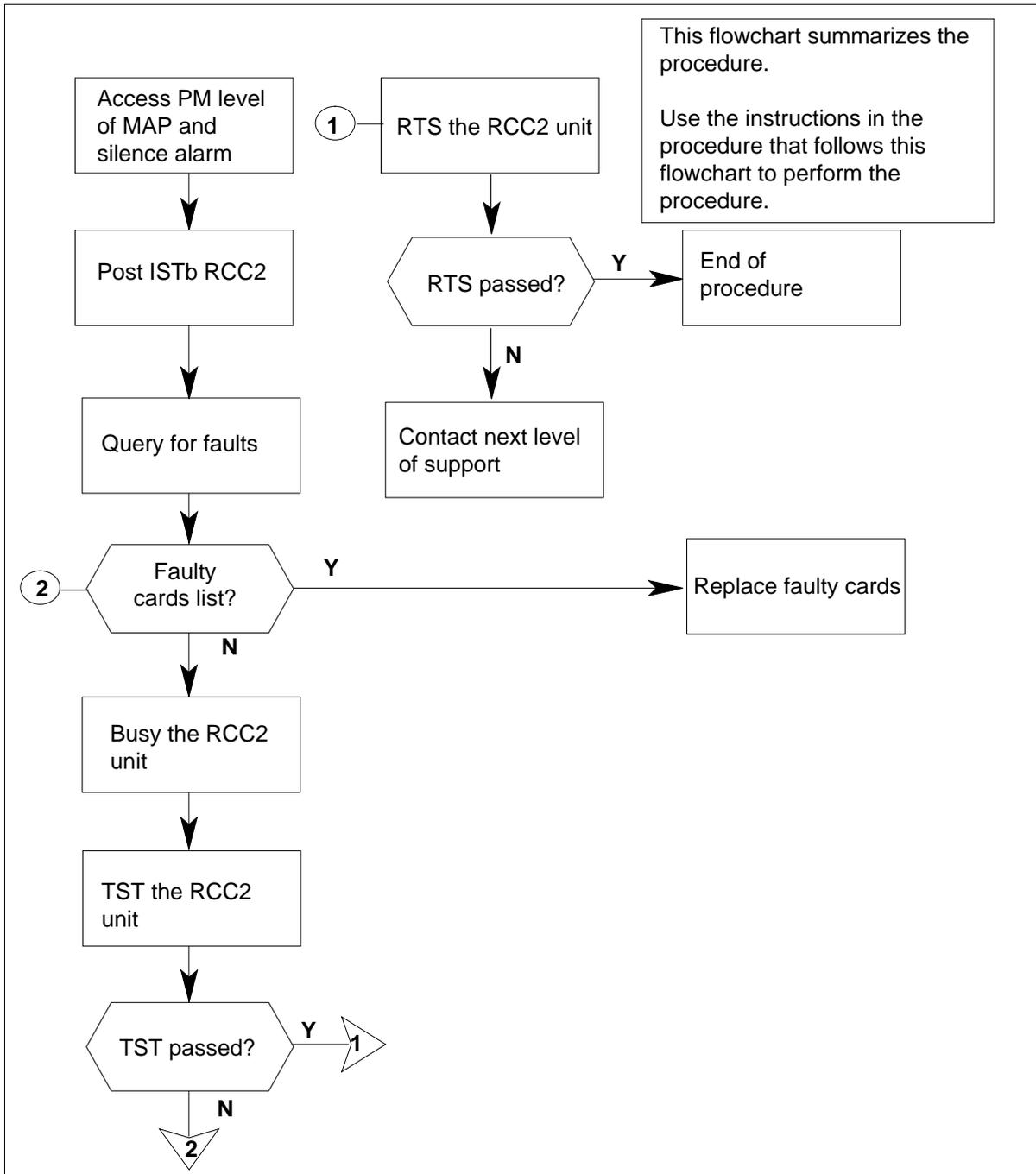
Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

Summary of clearing a PM RCC2 minor alarm

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PM RCC2 - minor (continued)



PM RCC2 - minor (continued)

Clearing a PM RCC2 alarm

- 1 You should be entering this procedure from a PM system level alarm clearing procedure step that identified an RCC2 associated fault.

At the MAP terminal

- 2 Silence the alarm, if required, by typing the following string:

```
> MAPCI;MTC;PM;SIL
```

and pressing the ENTER key.

- 3 Identify the faulty RCC2 by typing the following string:

```
>DISP STATE ISTB RCC2
```

and pressing the ENTER key.

Example of a MAP display:

```
ISTb RCC2 : 2
```

- 4 Post the ISTb RCC2 by typing the following string:

```
>POST RCC2 rcc2_no
```

and pressing the ENTER key.

where

rcc2_no is the number of the RCC2 displayed in Step 3

Example of a MAP display:

RCC2	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	0	0	1	0	4	12
RCC2	0	0	2	0	2	9

- 5 Check for fault indicators by typing the following string:

```
> QUERYPM FLT
```

and pressing the ENTER key.

Example of a MAP display:

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PM RCC2 - minor (continued)

```

CM      MS      IOD      Net      PM      CCS      Lns      Trks      Ext
.      .      .      .      1RCC2      .      .      .      .

RCC2
0 Quit      PM      0      0      1      0      1      12
2 Post_    RCC2      0      0      2      0      1      9
3 ListSet
4
4      RCC2      0 ISTb  Links_OOS:  CSide  1, PSide  0
5 TRNSL_   Unit0:   Act InSv
6 Tst_     Unit1:   Inact ISTb
7 Bsy_     QUERYPM FLT
8 RTS_     Unit0   Static data not updated
9 OffL     Unit1   Reset
10 LoadPM_
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18

```

If the faulty card is	Do
indicated	Step 28
not indicated	Step 6

- 6** Manually busy the ISTb RCC2 unit by typing the following string:

```
>BSY UNIT unit_no
```

and pressing the ENTER key.

where

unit_no is the number of the ISTb RCC2 indicated in Step 5

- 7** Test the ManB RCC2 by typing the following string:

```
> TST UNIT unit_no
```

and pressing the ENTER key.

where

unit_no is the number of the RCC2 unit manually busied in Step 6

Example of a MAP display:

Test Passed

PM RCC2 - minor (continued)

or

Test Failed

If TST	Do
passed	Step 27
failed with card list	Step 28
failed without card list	Step 8

- 8 Identify C-side links to the host PM that are in a SysB condition by typing the following string:

> *TRNSL C*

and pressing the ENTER key.

A host PM may be either a Line Group Controller with or without ISDN (LGC or LGCI) or a Line Trunk Controller with or without ISDN (LTC or LTCI). In the following example, the host PM is an LTCI.

Example of a MAP display:

```
LINK 0:  LTC(I)  1  0;CAP MS;STATUS:  OK,;MSGCOND: OPN,Restricted
LINK 1:  LTC(I)  1  1;CAP S;STATUS:  OK
LINK 2:  LTC(I)  1  2;CAP MS;STATUS:  OK,;MSGCOND: OPN,Unrestricted
LINK 4:  LTC(I)  1  4;CAP S;STATUS:  SysB
LINK 5:  LTC(I)  1  4;CAP S;STATUS:  OK
LINK 6:  LTC(I)  1  4;CAP S;STATUS:  OK
LINK 7:  LTC(I)  1  4;CAP S;STATUS:  OK
```

- 9 Post the host PM by typing the following string:

>POST *host_pm host_pm_no*

and pressing the ENTER key.

where

host_pm is either an LGCI or an LTCI

host_pm_no is the number of either the LGCI or LTCI

Example of a MAP display:

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PM RCC2 - minor (continued)

```
CM      MS      IOD      Net      PM      CCS      Lns      Trks      Ext
.       .       .       .       1RCC2   .       .       .       .

LTC(I)
0 Quit      PM          0          0          1          0          4          12
2 Post_     LTC(I)      0          0          2          0          2          9
3 ListSet
4           LTC(I) 1 ISTb Links_OOS: CSide 0, PSide 1
5 Trnsl_    Unit0:      Act InSv
6 Tst_      Unit1:      Inact InSv
7 Bsy_
8 RTS_
9 OffL
10 LoadPM_
11 Disp_
12 Next
13 SwAct
14 QueryPM
15
16
17 Perform
18
```

- 10** Identify the faulty P-side links and choose a faulty link by typing the following string:

>TRNSL P

and pressing the ENTER key.

Example of a MAP display:

```
LINK 0:  RCC2      1      0;CAP MS;STATUS:  OK,;MSGCOND: OPN,Restricted
LINK 1:  RCC2      1      1;CAP S;STATUS:   OK
LINK 2:  RCC2      1      2;CAP MS;STATUS:  OK,;MSGCOND:OPN,Unrestricted
LINK 4:  RCC2      1      4;CAP S;STATUS:   ISTb
LINK 5:  RCC2      1      4;CAP S;STATUS:   OK
LINK 6:  RCC2      1      4;CAP S;STATUS:   OK
LINK 7:  RCC2      1      4;CAP S;STATUS:   OK
```

- 11** Busy the faulty link by typing the following string:

> BSY LINK link_no

and pressing the ENTER key.

where

link_no is the number of the faulty P-side link chosen in Step 10

PM RCC2 - minor (continued)

- 12 Test the faulty link by typing the following string:

> *TST LINK link_no*

and pressing the ENTER key.

where

link_no is the number of the faulty link manually busied in Step 11

If TST	Do
passed and alarm persists	Step 32
passed and alarm clears	Step 18
failed	Step 13

- 13 Display any links that may be faulty by typing the following string:

> *TRKS;carrier;post manb*

and pressing the ENTER key.

Example of a MAP display:

```

CLASS ML  OS   ALARM      SYSB  MANB      UNEQ  OFFL      CBSY  PBSY  INSV
TRUNKS 0  0    0           0      0      0    0      0      0    0
REMOTE 0  0    0           5      0      0    0      0      0   10

NO  CLASS  SITE      RCC  CKT  D  ALARM  SLIP  FRAME      BER  SES  STATE
0   TRUNKS BRSCS    0   0   C      0    0      <-.7  0   INSV
1   REMOTE BRSCS    0   1   C      0    0      <-.7  0   INSV
2   REMOTE BRSCS    0   2   C      0    0      <-.7  0   MANB
                                     MORE . . .
    
```

Note: The MORE . . . at the bottom of the display indicates that more links can be observed by typing the following string:

>NEXT

and pressing the ENTER key.

- 14 Test the ManB link by typing the following string:

>TST link_no

and pressing the ENTER key.

where

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PM RCC2 - minor (continued)

link_no is the number of the ManB link. This link number is listed under the NO column as shown in the MAP display in Step 13. The number for the ManB link used in the example is two (2).

If TST	Do
passed and alarm clears	Step 17
failed	Step 32

- 15 Carry out the repair/corrective procedure indicated on the MAP terminal display in Step 13.

Note: If faulty message links are indicated, then these links must be in ManB state before they can be Returned To Service (RTS).

- 16 Post the host PM by typing following string:

```
> PM;POST host_pm host_pm_no
```

and pressing the ENTER key.

where

host_pm is the host PM (LGCI or LTCI) posted in Step 9

host_pm_no is the number of the host PM (LGCI or LTCI)

- 17 Using the information displayed in Step 8, determine which RCC2 unit is associated with the SysB link. The unit identified must be INACTIVE to continue.

If RCC2 unit is	Do
INACTIVE	Step 29
ACTIVE	Step 18

- 18 Return the link to service by typing the following string:

```
>RTS LINK link_no
```

and pressing the ENTER key.

where

link_no is the number of the link identified in Step 10

- 19 Post the RCC2 by typing the following string:

```
>POST RCC2 rcc2_no
```

and pressing the ENTER key.

PM RCC2 - minor (continued)

where

rcc2_no is the number of the RCC2 identified in Step 3

Note: This RCC2 should be SysB.

- 20** Return the INACTIVE unit to service by typing the following string:

`> RTS UNIT unit_no`

and pressing the ENTER key.

where

unit_no is the number of the RCC2 posted in Step 19

- 21** Post the host PM by typing the following string:

`> POST host_pm host_pm_no`

and pressing the ENTER key.

where

host_pm is either an LGCI or an LTCI

host_pm_no is the number of the LGCI or LTCI

- 22** Switch Activity (SwAct) of the RCC2 units to ensure the one to be tested is INACTIVE by typing the following string:

`>SWACT`

and pressing the ENTER key.

Example of a MAP display:

```
RCC2 1 A Warm SwAct will be performed
Please confirm ("YES" or "NO")
```

If the prompt indicates a	Do
warm SwAct will be performed	Step 23
cold SwAct will be performed	Step 24

PM RCC2 - minor (continued)

23

	<p>CAUTION Loss of service All calls, including data calls, being handled by this PM will be lost. Perform the next step during a period of low traffic only.</p>
---	--

24 Confirm the SwAct initiated in Step 22 by typing the following string:

>YES

and pressing the ENTER key.

After both units are in-service, use the following information to determine which step to perform next.

If SWACT	Do
passed	Step 25
failed	Step 32

25 Busy the INACTIVE RCC2 unit by typing the following string:

>BSY UNIT unit_no

and pressing the ENTER key.

where

unit_no is the number of the inactive RCC2 unit (from Step 20)

26 Perform an Out-Of-Service (OOS) test on the INACTIVE RCC2 unit by typing the following string:

>TST UNIT unit_no

and pressing the ENTER key.

where

unit_no is the number of the RCC2 busied in Step 25

If TST	Do
passed	Step 27

PM RCC2 - minor (continued)

If TST	Do
failed	Step 28

27 Return the INACTIVE RCC2 unit to service by typing the following string:

>RTS UNIT unit_no

and pressing the ENTER key.

where

unit_no is the number of the RCC2 unit tested in Step 26

If RTS	Do
passed	Step 33
failed	Step 32

28 Observe the card listing as shown in the following MAP display.

Example of a MAP display:

```

SITE      FLR      RPOS BAY_ID      SHF  DESCRIPTION      SLOT EQPEC
RSCS0    01      A00 RCE    00      32  RCC2 : 000      : 20  6X50
RSCS0    01      A00 RCE    00      32  RCC2 : 000      : 19  6X72
RSCS0    01      A00 RCE    00      32  RCC2 : 000      : 17  6X69
    
```

If all cards on the list have	Do
been replaced	Step 29
not been replaced	Step 31

29 Determine if the NTMX81 circuit card has been replaced.

If the NTMX81 card has	Do
been replaced	Step 32
not been replaced	Step 30

30 Go to the card replacement procedure for the NTMX81 circuit card in *Card Replacement Procedures*. When you have finished with the card replacement procedures, go to Step 26 of this procedure.

31 Go to the card replacement procedure in *Card Replacement Procedures* for the next card on the card list. When you have

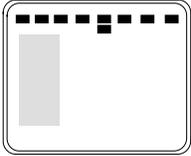
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PM RCC2 - minor (end)

finished with the card replacement procedures, go to Step 26 of this procedure.

- 32 Obtain further assistance in clearing this alarm by contacting the personnel responsible for higher level support.
- 33 This procedure is complete. If there are other alarms displayed, reference the appropriate alarm clearing procedures for the indicated alarms.

Alarm display



CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	1SysB M	.	.	.	.	.

Indication

If n SysB M under the PM subsystem header at the MTC level of the MAP screen display exists, a major alarm associated with an RMM is indicated.

Meaning

The indicated number of RMM units are in the System-Busy (SysB) state.

Impact

If the RMM unit fails, maintenance and line testing is discontinued. Subscriber service is not affected.

Common procedures

Not applicable.

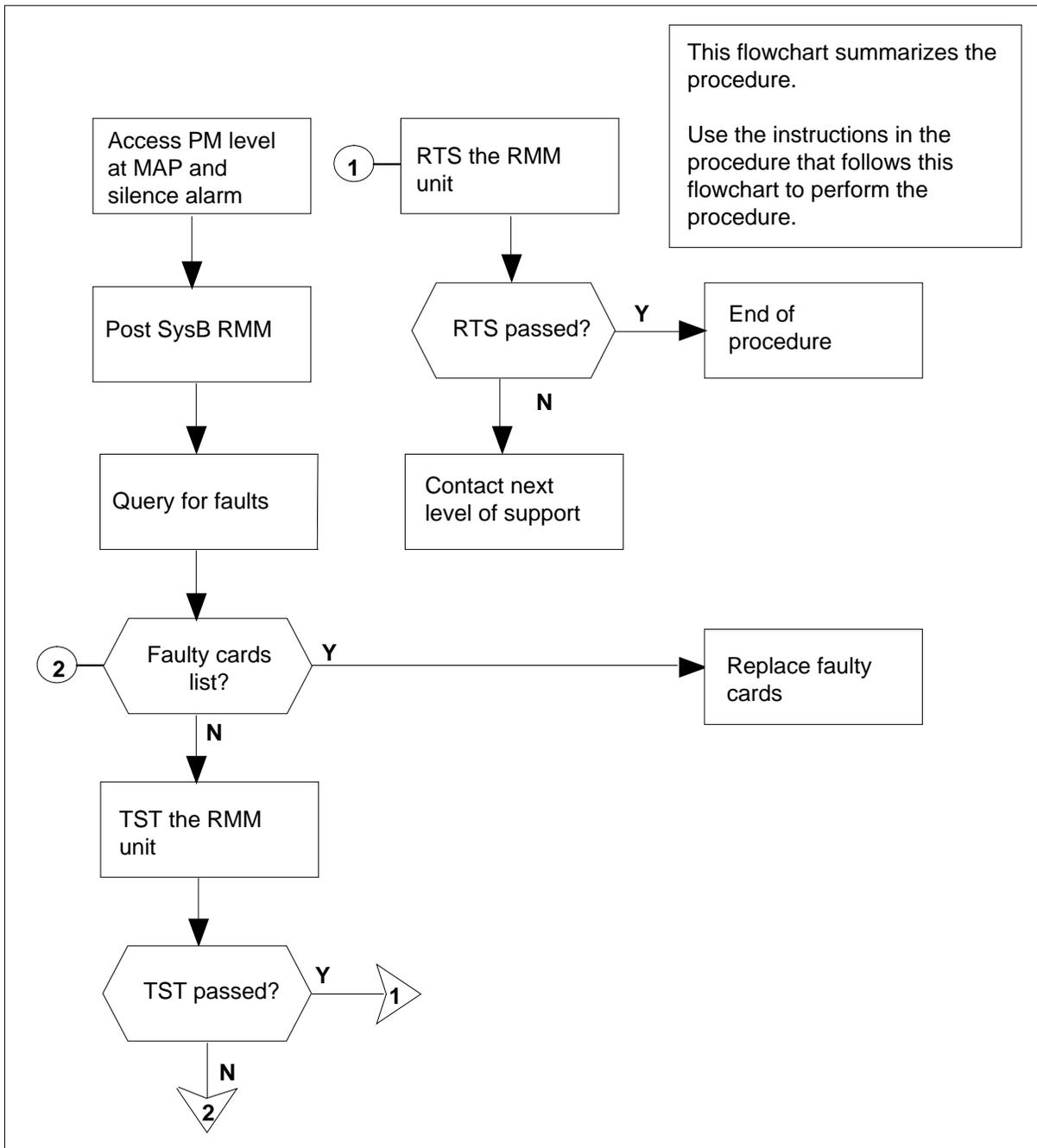
Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

Summary of clearing a PM RMM major alarm

The following flowchart is a summary of the procedure.

PM RMM - major (continued)



PM RMM - major (continued)

Clearing a PM RMM alarm

- 1 You should be entering this procedure from a PM system level alarm clearing procedure step that identified an RMM associated fault.

At the MAP terminal

- 2 Silence the alarm, if required, by typing the following string:

```
> MAPCI;MTC;PM;SIL
```

and pressing the ENTER key.

- 3 Identify the faulty RMM by typing the following string:

```
> DISP STATE RMM
```

and pressing the ENTER key.

Example of a MAP display:

SysB RMM: 2

- 4 Post the SysB RMM identified in Step 3 typing the following string:

```
> POST RMM rmm_no
```

and pressing the ENTER key.

where

rmm_no is the number of the faulty RMM.

Example of a MAP display:

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PM RMM - major (continued)

CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	1SysB
RMM		SysB	ManB	OffL	CBsy	ISTb	InSv		
0	Quit	PM	3	0	1	1	4	12	
2	Post_	RMM	0	0	2	1	2	9	
3									
4		RMM	2	SysB					
5	Trnsl_								
6	Tst_								
7	Bsy_								
8	RTS_								
9	OffL								
10	LoadPM_								
11	Disp_								
12	Next_								
13									
14	QueryPM								
15									
16									
17									
18									

- 5 Check for fault indicators or faulty cards by typing:

>QUERYPM FLT

and pressing the ENTER key.

Example of a MAP display:

PM RMM - major (continued)

```

CM      MS      IOD      Net      PM      CCS      Lns      Trks      Ext      APPL
.       .       .       .       lSysB   .       .       .       .       .

RMM
0 Quit      PM        3        0        OffL    CBSy    ISTb    InSv
2 Post_    RMM       0        0        2       1       2       9
3
4          RMM 2 SysB
5 Trnsl_
6 Tst_
7 Bsy_     QUERYPM FLT
8 RTS_
9 OffL
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
    
```

If a faulty card is	Do
indicated	Step 17
not indicated	Step 6

6 Manually busy the RMM posted in Step 4 by typing the following string:

>BSY

and pressing the ENTER key.

7 Perform an in-service test on the faulty RMM by typing:

>TST

and pressing the ENTER key.

Example of a MAP display:

Test Passed

or

PM RMM - major (continued)

Test Failed

If the TST	Do
passes	Step 16
fails because of the C-side links	Step 8
fails and a card list appears	Step 17

- 8** Identify C-side links to the RCC2 that are in a busy condition by typing the following string:

> TRNSL C

and pressing the ENTER key.

Example of a MAP display:

```
LINK 22:  RCC2 2    0;CAP S;STATUS:      OK,;MSGCOND:  OPN,Restricted
LINK 23:  RCC2 2    1;CAP S;STATUS:      SYSB
```

- 9** Post the RCC2 unit associated with the RMM by typing the following string:

> POST RCC2 rcc2_no

and pressing the ENTER key.

where

rcc2_no is the number of the RCC2 unit identified in Step 8

Example of a MAP display:

PM RMM - major (continued)

```

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

RCO2
0 Quit      PM      3      0      1      1      4      12
2 Post_     RCC2    0      0      2      1      2      9
3 ListSet
4           RCC2    2 ISTb  Links_OOS: CSide 0, PSide 1
5 TRNSL_    Unit0:  Act ISTb
6 TST_      Unit1:  Inact InSv
7 BSY_
8 RTS_
9 OffL
10 LoadPM_
11 Disp_
12 Next
13 SwAct
14 QueryPM
15
16
17
18
    
```

- 10 Identify the faulty P-side links by typing the following string the following string:

> **TRNSL P**

and pressing the ENTER key.

Example of a MAP display:

```

LINK 22: RMM 2 0;CAP MS;STATUS: OK,;MSGCOND: OPN,Restricted
LINK 23: RMM 2 1;CAP S;STATUS: SYSB
    
```

- 11 Choose a faulty link and busy it by typing the following string:

> **BSY LINK link_no**

and pressing the ENTER key.

where

link_no is the number of the link (22 or 23) identified in Step 10.

- 12 Test the ManB link by typing the following string:

> **TST LINK link_no**

and pressing the ENTER key.

where

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PM RMM - major (continued)

link_no is the number of the link (22 or 23) manually busied in Step 11

If the TST	Do
passes	Step 13
fails	Step 21

- 13 Return the link to service by typing the following string:

```
> RTS LINK link_no
```

and pressing the ENTER key.

where

link_no is the number of the link (22 or 23) tested in Step 12.

Note: If other faulty links are identified, execute Steps 11 through 13 for each link until all links are busied, tested, and returned to service.

If the RTS	Do
passes	Step 14
fails	Step 17

- 14 Post the ManB RMM by typing the following string:

```
> POST RMM rmm_no
```

and pressing the ENTER key.

where

rmm_no is the number of the RMM busied in Step 6

- 15 Test the RMM unit by typing the following string:

```
> TST
```

and pressing the ENTER key.

If the TST	Do
passes	Step 16
fails	Step 17

- 16 Return the ManB RMM to service by typing the following string:

```
> RTS
```

PM RMM - major (continued)

and pressing the ENTER key.

If the RTS	Do
passes	Step 22
fails	Step 21

- 17 Observe the card listing as shown on the MAP display.

Example of a MAP display:

SITE	FLR	RPOS	BAY_ID	SHF	DESCRIPTION	SLOT	EQPEC
RSC0	01	A00	RCE	00	32	RMM:000	: 00 6X23
RSC0	01	A00	RCE	00	32	RMM:000	: 04 6X51
RSC0	01	A00	RCE	00	32	RMM:000	: 05 6X52
RSC0	01	A00	RCE	00	32	RMM:000	: 16 6X23

If all cards on the list have	Do
been replaced	Step 18
not been replaced	Step 20

- 18 Determine if the NTMX74 circuit card has been replaced.

If the NTMX74 card has	Do
been replaced	Step 21
not been replaced	Step 19

Note: If the NTMX74 card is indicated, check to see if one link or several links are faulty. Repeat the clearing procedure as necessary.

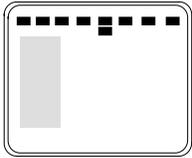
- 19 Go to the card replacement procedure for the NTMX74 circuit card in *Card Replacement Procedures*. When you have finished with the card replacement procedures, go to Step 12 in this procedure.
- 20 Go to the card replacement procedure in *Card Replacement Procedures* for the next card on the card list. When you have finished with the card replacement procedures, go to Step 15 in this procedure.
- 21 Obtain further assistance in clearing this alarm by contacting the personnel responsible for higher level support.

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PM RMM - major (end)

- 22 This procedure is completed. If there are other alarms displayed, reference the appropriate alarm clearing procedures for the indicated alarms.

Alarm display



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

Indication

If n CBsy under the PM subsystem header at the MTC level of the MAP terminal exists, a minor alarm associated with an RMM is indicated.

Note: n represents a numeric character.

Meaning

The indicated number of units are in the C-side Busy (CBsy) state.

Impact

Subscriber service is not affected. You will have no local RMM backup if the unit [or both units if the peripheral contains two RMMs] should fail.

Common procedures

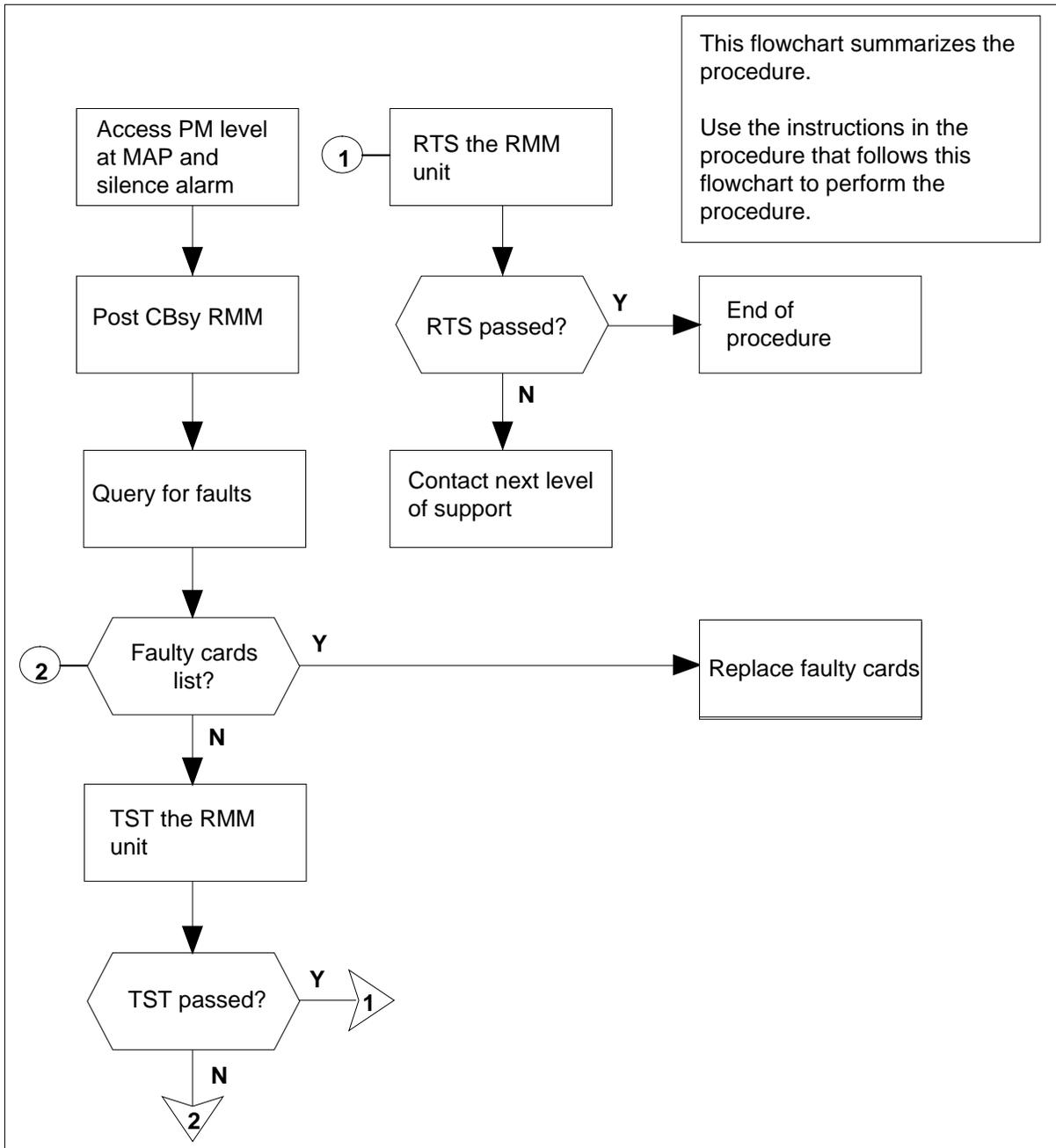
Not applicable

Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

Summary of clearing a PM RMM minor alarm

PM RMM - minor (continued)



PM RMM - minor (continued)

Clearing a PM RMM minor alarm

- 1 You should be entering this procedure from a PM system level alarm clearing procedure step that identified an RMM associated fault.

At the MAP terminal

- 2 Silence the alarm, if required, by typing:

```
> MAPCI;MTC;PM;SIL
```

and pressing the ENTER key.

- 3 Identify the faulty RMM by typing:

```
> DISP STATE CBSY RMM
```

and pressing the ENTER key.

Example of a MAP display:

CBsy RMM: 1

- 4 Post the CBsy RMM identified in Step 3 by typing:

```
> POST RMM rmm_no
```

and pressing the ENTER key.

where

rmm_no is the number of the faulty RMM

Example of a MAP display:

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PM RMM - minor (continued)

CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	1CBSy
RMM		SysB	ManB	OffL	CBSy	ISTb	InSv		
0	Quit	PM	3	0	0	1	4	12	
2	Post_	RMM	0	0	0	1	2	9	
3									
4		RMM	1	CBSy					
5	Trnsl_								
6	Tst_								
7	Bsy_								
8	RTS_								
9	OffL								
10	LoadPM_								
11	Disp_								
12	Next_								
13									
14	QueryPM								
15									
16									
17									
18									

5 Check for fault indicators or faulty cards by typing:

> *QUERYPM FLT*

and pressing the ENTER key.

Example of a MAP display:

PM RMM - minor (continued)

```

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

RMM
0 Quit      PM      3       0       0       0       4       12
2 Post_    RMM     0       0       0       0       2       9
3
4          RMM     1       CBSy
5 Trnsl_
6 Tst_
7 Bsy_     QUERYPM FLT
8 RTS_
9 OffL
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
    
```

If a faulty card is	Do
indicated	Step 17
not indicated	Step 6

6 Busy the RMM posted in Step 4 by typing:

>BSY

and pressing the ENTER key.

7 Perform an in-service test on the faulty RMM by typing:

>TST

and pressing the ENTER key.

Example of a MAP display:

Test Passed

or

Test Failed

If TST	Do
passes	Step 16

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PM RMM - minor (continued)

If TST	Do
fails because of the C-side links	Step 8
fails and a card list appears	Step 17

- 8** Identify C-side links to the RCC2 that are in a busy condition by typing:

>TRNSL C

and pressing the ENTER key.

Example of a MAP display:

```
LINK 22: RCC2 2 0;CAP S;STATUS: OK,;MSGCOND: OPN,Restricted
LINK 23: RCC2 2 1;CAP S;STATUS: CBSY
```

- 9** Post the RCC2 unit associated with the RMM by typing:

> POST RCC2 rcc2_no

and pressing the ENTER key.

where

rcc2_no is the RCC2 unit identified in Step 8

Example of a MAP display:

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	APPL
.	.	.	.	1CBSy	.	.	.	.	.
RCC2			SysB	ManB	OffL	CBsy	ISTb	InSv	
0	Quit	PM	0	0	0	0	4	12	
2	Post_	RCC2	0	0	0	0	2	9	
3	ListSet								
4		RCC2	2	ISTb	Links_OOS:	Cside	0, Pside	1	
5	TRNSL_	Unit0:	Act	ISTb					
6	TST_	Unit1:	Inact	InSv					
7	BSY_								
8	RTS_								
9	OffL								
10	LoadPM_								
11	Disp_								
12	Next								
13	SwAct								
14	QueryPM								
15									
16									
17									
18									

PM RMM - minor (continued)

- 10 Identify the faulty P-side links by typing:

> *TRNSL P*

and pressing the ENTER key.

Example of a MAP display:

```
LINK 22: RMM 1 0;CAP MS;STATUS: OK,;MSGCOND: OPN,Restricted
LINK 23: RMM 1 1;CAP S;STATUS: CBSY
```

- 11 Choose the faulty link and busy it by typing:

> *BSY LINK link_no*

and pressing the ENTER key.

where

link_no is the number of the link identified in Step 10 (22 or 23)

- 12 Test the ManB link by typing:

> *TST LINK link_no*

and pressing the ENTER key.

where

link_no is the number of the link identified in Step 10 (22 or 23)

If TST	Do
passes	Step 13
fails	Step 17

- 13 Return the ManB link to service by typing:

>*RTS LINK link_no*

where

link_no is the number of the link (22 or 23) tested in Step 12

If RTS	Do
passes	Step 14
fails	Step 17

Note: If other faulty links are identified, execute the procedures in Steps 11 through 13 for each link until all links are busied, tested, and returned to service.

101 PM alarm clearing procedures

PM RMM - minor (continued)

- 14 Post the ManB RMM by typing:

```
> POST RMM rmm_no
```

and pressing the ENTER key.

where

rmm_no is the number of the RMM busied in Step 6

- 15 Test the RMM unit by typing:

```
>TST
```

and pressing the ENTER key.

If TST	Do
passes	Step 16
fails	Step 17

- 16 Return the ManB RMM to service by typing:

```
>RTS
```

and pressing the ENTER key.

If RTS	Do
passes	Step 22
fails	Step 21

- 17 Observe the card listing as shown on the MAP screen.

Example of a MAP display:

```
SITE      FLR  RPOS  BAY_ID  SHF  DESCRIPTION  SLOT  EQPEC
RSCS0    01  A00   RCE    00   32  RMM:000    : 00  6X23
RSCS0    01  A00   RCE    00   32  RMM:000    : 04  6X51
RSCS0    01  A00   RCE    00   32  RMM:000    : 05  6X52
RSCS0    01  A00   RCE    00   32  RMM:000    : 16  6X23
```

If all cards on the list have	Do
been replaced	Step 18
not been replaced	Step 20

PM RMM - minor (end)

- 18 Determine if the NTMX74 circuit card has been replaced.

If the NTMX74 card has	Do
been replaced	Step 21
not been replaced	Step 19

Note: If the NTMX74 card is indicated, check to see if one link or several links are faulty. Repeat the alarm clearing procedure as necessary.

- 19 Go to the card replacement procedure for the NTMX74 circuit card in *Card Replacement Procedures*. When you have finished with the card replacement procedures, go to Step 12 of this procedure.
- 20 Go to the card replacement procedure in *Card Replacement Procedures* for the next card on the card list. When you have finished with the card replacement procedures, go to Step 15 of this procedure.
- 21 Obtain further assistance in clearing this alarm by contacting the personnel responsible for higher level support.
- 22 This procedure is completed. If there are other alarms displayed, reference the appropriate alarm clearing procedures for the indicated alarms.

Meridian SL-100

Commercial Systems

Alarm Clearing Procedures

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