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DMS-100 Family

North American DMS-100

Trouble Locating and Clearing Procedures

Volume 2 of 2

LEC0015 and up Standard 14.02 May 2001

NORTEL NETWORKS™

DMS-100 Family

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Trouble Locating and Clearing Procedures

Volume 2 of 2

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Contents

Trouble Locating and Clearing Procedures
Volume 2 of 2

NTP Summary Contents vii

1 Trouble locating and clearing procedures (continued) 1-1

Incorrect DN in incoming callers list 1-2
Incorrect or no displayed calling party name or DN 1-5
Line state is Call processing busy (CPB) 1-16
Line state is Cut (CUT) 1-19
Line state is D-channel maintenance busy (DMB) 1-21
Line state is Idle (IDL) 1-28
Line state is Installation busy (INB) 1-37
Line state is Line module busy (LMB) 1-40
Line state is Lock out (LO) 1-45
Line state is Maintenance busy (MB) 1-53
Line state is Packet service unavailable 1-56
Manually switching to a backup D-channel ISDN PRI primary and backup D-channels 1-80
Modifying provisioned data for resource modules DMS-Spectrum Peripheral Module 1-84
Monitoring call processing busy trunk circuits 1-88
Performing an external continuity test on a DS-1 or PCM30 link ISDN PRI single D-channel 1-92
Performing an external continuity test on a DS-1 link ISDN PRI primary and backup D-channels 1-97
Performing an internal continuity test on a DS30 link ISDN PRI primary and backup D-channels 1-102
Performing an internal continuity test on a DS30 link ISDN PRI single D-channel 1-107
Performing a manual MTCTST test on a CM 1-112
Performing a manual REx test on an LIM 1-118
Performing a manual REx test on an NIU 1-123
Prioritizing CCS alarms 1-129
Recovering a stuck HLIU or HSLR 1-137
Recovering a stuck two-slot LIU7 1-145
Repairing FAN faults on an LCEI frame; cooling unit replacement 1-153
Repairing an NTBX63AA cooling unit on the bench top 1-163

Repairing and replacing NT3X90AA cooling units 1-169
Repairing and replacing NT3X90AB cooling units 1-181
Repairing and replacing NT3X90AC cooling units 1-191
Replacing a 3.5 in. disk drive unit NTFX32BA 1-199
Replacing an 8-in. or a 5.25-in. disk drive unit 1-211
Replacing a 14-in. disk drive unit 1-228
Replacing a bulkhead gasket 1-247
Replacing a cooling unit assembly in a 42-in. cabinet CPC A0377580, A0382102, A0383322, A0383323 1-250
Replacing a cooling unit electronic module CPC A0383326, A0383327, A0383984 1-261
Replacing a cooling unit fan CPC A0345301 1-271
Replacing a cooling unit fan CPC A0381714, A0382103, A0383325 1-281
Replacing cooling unit NTRX91AA 1-291
Replacing a CU voltage limiter and filter in a 28-in. cabinet 1-294
Replacing a digital audio tape (DAT) drive NTFX32CA 1-299
Replacing a door gasket 1-308
Replacing a fan in a 28-in. cabinet 1-311
Replacing a fan in a 28-in. frame 1-317
Replacing a fan in a 42-in. cabinet 1-323
Replacing a line card 1-333
Replacing a missing line card 1-339
Replacing an NT9X95 card in a cooling unit 1-343
Replacing an NTFX39 bulkhead splitter unit 1-354
Replacing a point-of-use power supply card 1-365
Reseating a line card 1-372
Responding to TRMS301 logs 1-378
Restoring far-end service for a D-channel ISDN PRI primary and backup D-channels 1-381
Restoring far-end service for a D-channel ISDN PRI single D-channel 1-386
Returning a busy D-channel to service ISDN PRI primary and backup D-channels 1-390
Returning a busy D-channel to service ISDN PRI single D-channel 1-395
Returning a busy PRI trunk to service ISDN PRI trunk 1-399
Returning a card or assembly in Canada 1-404
Returning a card or assembly in Germany 1-408
Returning a card or assembly in Japan 1-411
Returning a card or assembly in the United States of America 1-415
Returning an LIM to service 1-419
Running a C7BERT 1-423
Running a C7BERT for high-speed links 1-455
Scheduling an automatic REx test 1-478
Scheduling ISUP trunk audits 1-483
Setting up an ISUP per-call continuity test 1-487
Setting up the signaling link marginal performance report 1-491
Softkey information does not download to the ADSI set 1-502
Testing an SPM carrier 1-510
Testing an SPM CEM 1-516
Testing an SPM DSP RM 1-520
Testing an SPM OC3 interface module 1-524

Testing the DS-1 carrier states 1-530
Troubleshooting a customer-reported failure No FRIU alarms 1-534
Troubleshooting a customer-reported failure No PM alarms 1-540
VSLE session defaults to audio SLE 1-547

NTP Summary Contents

Trouble Locating and Clearing Procedures
Volume 1 of 2

About this document **Vol. 1, xiii**

How to check the version and issue of this document Vol. 1, xiii
References in this document Vol. 1, xiii
What precautionary messages mean Vol. 1, xiv
How commands, parameters, and responses are represented Vol. 1, xv
Input prompt (>) Vol. 1, xv
Commands and fixed parameters Vol. 1, xvi
Variables Vol. 1, xvi
Responses Vol. 1, xvi

1 Trouble locating and clearing procedures **Vol. 1, 1-1**

Introduction Vol. 1, 1-1
Application Vol. 1, 1-1
Definition Vol. 1, 1-1
Common procedures Vol. 1, 1-1
Action Vol. 1, 1-1
Activating a loopback on an HLIU Vol. 1, 1-2
Activating a loopback on an LIU7 Vol. 1, 1-9
Activating a loopback on an NTEX26AA paddle board Vol. 1, 1-16
Activating an offline linkset Vol. 1, 1-23
Activating the throttling logs mechanism Vol. 1, 1-30
Adding an LIM to an automatic REx test schedule Vol. 1, 1-36
Adding an NIU to an automatic REx test schedule Vol. 1, 1-39
Assembling 2x5 AMP connectors in SuperNode cabling Vol. 1, 1-43
BCLID link failure Vol. 1, 1-48
Cannot be called Vol. 1, 1-58
Cannot call out Vol. 1, 1-93
Changing table C7TIMER entries Vol. 1, 1-138
Clearing problems on the SCAI link Vol. 1, 1-145
CMR data mismatch with CC Vol. 1, 1-151
Confirming a missing telephone Vol. 1, 1-156
Correcting an attendant console problem Vol. 1, 1-160
Correcting an automatic line test failure Vol. 1, 1-164
Correcting a call cut-off problem Vol. 1, 1-168
Correcting a data error problem Vol. 1, 1-174

Correcting digital test unit problems Vol. 1, 1-183
Correcting DRAM announcement trouble Vol. 1, 1-195
Correcting DRAM sit tone trouble Vol. 1, 1-204
Correcting EDRAM voice file problems Vol. 1, 1-211
Correcting enhanced network load entries Vol. 1, 1-220
Correcting a line flux cancellation error Vol. 1, 1-231
Correcting a line loop detect error Vol. 1, 1-237
Correcting a line loopback problem Vol. 1, 1-243
Correcting a line noise problem Vol. 1, 1-249
Correcting a line pad test problem Vol. 1, 1-253
Correcting a line ringing failure Vol. 1, 1-257
Correcting a line synchronization loss at a U-loop Vol. 1, 1-261
Correcting a line test unit problem Vol. 1, 1-266
Correcting a line that does not receive calls Vol. 1, 1-275
Correcting a line that does not ring Vol. 1, 1-281
Correcting a line transhybrid error Vol. 1, 1-286
Correcting a line with free pay telephone service Vol. 1, 1-290
Correcting locked-out trunks Vol. 1, 1-295
Correcting metallic test access problems Vol. 1, 1-300
Correcting metallic test unit problems Vol. 1, 1-304
Correcting a no ANI on coin line condition Vol. 1, 1-318
Correcting no response from a peripheral module Vol. 1, 1-324
Correcting PCM level meter card problems Vol. 1, 1-329
Correcting poor line transmission or reception Vol. 1, 1-335
Correcting receive-level problems on T1 trunks Vol. 1, 1-340
Correcting release mismatch problems Vol. 1, 1-346
Correcting a ringing pretrip problem Vol. 1, 1-364
Correcting a stuck test access line relay Vol. 1, 1-370
Correcting supervision trouble on intertoll T1 trunks Vol. 1, 1-374
Correcting transmission test trunk trouble Vol. 1, 1-379
Correcting transmission test unit trouble Vol. 1, 1-385
Correcting transmission-level trouble on T1 trunks Vol. 1, 1-390
Determining the D-channel state ISDN PRI primary and backup D-channels Vol. 1, 1-395
Determining the D-channel state ISDN PRI single D-channel Vol. 1, 1-399
Determining the line state Vol. 1, 1-403
Determining the location of the problem Vol. 1, 1-410
Determining location of problems (ACDMIS, NACD, MACD) Vol. 1, 1-418
Determining the trunk state ISDN PRI trunk Vol. 1, 1-426
Digital test access for BRI lines Vol. 1, 1-430
Digital test access for PRI lines Vol. 1, 1-435
DIRP 101 logs Reason 2 Vol. 1, 1-440
DIRP 101 logs Reason 26 Vol. 1, 1-445
DIRP 101 logs Reason 27 Vol. 1, 1-450
DIRP 101 logs Reason 46 Vol. 1, 1-454
DIRP 101 logs Reason 51 Vol. 1, 1-459
DIRP 101 logs Reason 56 Vol. 1, 1-463
DIRP 101 logs Reason 78 Vol. 1, 1-467
DIRP 101 logs Reason 100 Vol. 1, 1-472
DIRP 101 logs Reason 127 Vol. 1, 1-475
DIRP 101 logs Reason 129 Vol. 1, 1-479

DIRP 101 logs Reason 153 Vol. 1, 1-483
DIRP 101 logs Reason 154 Vol. 1, 1-487
DIRP 101 logs Reason 155 Vol. 1, 1-491
DIRP 101 logs Reason 223 Vol. 1, 1-495
DIRP 101 logs Reason 251 Vol. 1, 1-499
DIRP 101 logs Reason 266 Vol. 1, 1-504
DIRP 101 logs Reason 267 Vol. 1, 1-508
DIRP 101 logs Reason 279 Vol. 1, 1-512
DIRP 101 logs Reason 280 Vol. 1, 1-516
Downloading software to an APU Vol. 1, 1-520
Downloading software to an EIU Vol. 1, 1-524
Downloading software to an LIM unit Vol. 1, 1-529
Downloading software to an LIU7, HLIU, or HSLR Vol. 1, 1-533
Downloading software to a VPU Vol. 1, 1-540
Downloading software to an XLIU Vol. 1, 1-544
DSCWID/SCWID subscriber, no notification of waiting call Vol. 1, 1-549
E911 LDT and Line/ACD PSAP complaint Occasional failure of some E911 functions Vol. 1, 1-557
E911 LDT PSAP complaint ANI failure Vol. 1, 1-564
E911 LDT PSAP Operator Complaint Ringing not being applied to PSAP position Vol. 1, 1-573
E911 Line and ACD PSAP complaint ANI failure (or ALI failure) Vol. 1, 1-580
Establishing a DS-1 loopback for a far-end office ISDN PRI primary and backup D-channels Vol. 1, 1-587
Establishing a DS-1 PCM30 loopback for a far-end office ISDN PRI single D-channel Vol. 1, 1-593
Estimating signaling link occupancy Vol. 1, 1-598
Excluding an LIM from an automatic REx test schedule Vol. 1, 1-602
Excluding an NIU from an automatic REx test schedule Vol. 1, 1-605

Trouble Locating and Clearing Procedures Volume 2 of 2

1 Trouble locating and clearing procedures (continued) Vol. 2, 1-1

Incorrect DN in incoming callers list Vol. 2, 1-2
Incorrect or no displayed calling party name or DN Vol. 2, 1-5
Line state is Call processing busy (CPB) Vol. 2, 1-16
Line state is Cut (CUT) Vol. 2, 1-19
Line state is D-channel maintenance busy (DMB) Vol. 2, 1-21
Line state is Idle (IDL) Vol. 2, 1-28
Line state is Installation busy (INB) Vol. 2, 1-37
Line state is Line module busy (LMB) Vol. 2, 1-40
Line state is Lock out (LO) Vol. 2, 1-45
Line state is Maintenance busy (MB) Vol. 2, 1-53
Line state is Packet service unavailable Vol. 2, 1-56
Manually switching to a backup D-channel ISDN PRI primary and backup

D-channels Vol. 2, 1-80
Modifying provisioned data for resource modules DMS-Spectrum Peripheral Module Vol. 2, 1-84
Monitoring call processing busy trunk circuits Vol. 2, 1-88
Performing an external continuity test on a DS-1 or PCM30 link ISDN PRI single D-channel Vol. 2, 1-92
Performing an external continuity test on a DS-1 link ISDN PRI primary and backup D-channels Vol. 2, 1-97
Performing an internal continuity test on a DS30 link ISDN PRI primary and backup D-channels Vol. 2, 1-102
Performing an internal continuity test on a DS30 link ISDN PRI single D-channel Vol. 2, 1-107
Performing a manual MTCTST test on a CM Vol. 2, 1-112
Performing a manual REx test on an LIM Vol. 2, 1-118
Performing a manual REx test on an NIU Vol. 2, 1-123
Prioritizing CCS alarms Vol. 2, 1-129
Recovering a stuck HLIU or HSLR Vol. 2, 1-137
Recovering a stuck two-slot LIU7 Vol. 2, 1-145
Repairing FAN faults on an LCEI frame; cooling unit replacement Vol. 2, 1-153
Repairing an NTBX63AA cooling unit on the bench top Vol. 2, 1-163
Repairing and replacing NT3X90AA cooling units Vol. 2, 1-169
Repairing and replacing NT3X90AB cooling units Vol. 2, 1-181
Repairing and replacing NT3X90AC cooling units Vol. 2, 1-191
Replacing a 3.5 in. disk drive unit NTFX32BA Vol. 2, 1-199
Replacing an 8-in. or a 5.25-in. disk drive unit Vol. 2, 1-211
Replacing a 14-in. disk drive unit Vol. 2, 1-228
Replacing a bulkhead gasket Vol. 2, 1-247
Replacing a cooling unit assembly in a 42-in. cabinet CPC A0377580, A0382102, A0383322, A0383323 Vol. 2, 1-250
Replacing a cooling unit electronic module CPC A0383326, A0383327, A0383984 Vol. 2, 1-261
Replacing a cooling unit fan CPC A0345301 Vol. 2, 1-271
Replacing a cooling unit fan CPC A0381714, A0382103, A0383325 Vol. 2, 1-281
Replacing cooling unit NTRX91AA Vol. 2, 1-291
Replacing a CU voltage limiter and filter in a 28-in. cabinet Vol. 2, 1-294
Replacing a digital audio tape (DAT) drive NTFX32CA Vol. 2, 1-299
Replacing a door gasket Vol. 2, 1-308
Replacing a fan in a 28-in. cabinet Vol. 2, 1-311
Replacing a fan in a 28-in. frame Vol. 2, 1-317
Replacing a fan in a 42-in. cabinet Vol. 2, 1-323
Replacing a line card Vol. 2, 1-333
Replacing a missing line card Vol. 2, 1-339
Replacing an NT9X95 card in a cooling unit Vol. 2, 1-343
Replacing an NTFX39 bulkhead splitter unit Vol. 2, 1-354
Replacing a point-of-use power supply card Vol. 2, 1-365
Reseating a line card Vol. 2, 1-372
Responding to TRMS301 logs Vol. 2, 1-378
Restoring far-end service for a D-channel ISDN PRI primary and backup D-channels Vol. 2, 1-381

Restoring far-end service for a D-channel ISDN PRI single D-channel Vol. 2, 1-386
Returning a busy D-channel to service ISDN PRI primary and backup D-channels Vol. 2, 1-390
Returning a busy D-channel to service ISDN PRI single D-channel Vol. 2, 1-395
Returning a busy PRI trunk to service ISDN PRI trunk Vol. 2, 1-399
Returning a card or assembly in Canada Vol. 2, 1-404
Returning a card or assembly in Germany Vol. 2, 1-408
Returning a card or assembly in Japan Vol. 2, 1-411
Returning a card or assembly in the United States of America Vol. 2, 1-415
Returning an LIM to service Vol. 2, 1-419
Running a C7BERT Vol. 2, 1-423
Running a C7BERT for high-speed links Vol. 2, 1-455
Scheduling an automatic REx test Vol. 2, 1-478
Scheduling ISUP trunk audits Vol. 2, 1-483
Setting up an ISUP per-call continuity test Vol. 2, 1-487
Setting up the signaling link marginal performance report Vol. 2, 1-491
Softkey information does not download to the ADSI set Vol. 2, 1-502
Testing an SPM carrier Vol. 2, 1-510
Testing an SPM CEM Vol. 2, 1-516
Testing an SPM DSP RM Vol. 2, 1-520
Testing an SPM OC3 interface module Vol. 2, 1-524
Testing the DS-1 carrier states Vol. 2, 1-530
Troubleshooting a customer-reported failure No FRIU alarms Vol. 2, 1-534
Troubleshooting a customer-reported failure No PM alarms Vol. 2, 1-540
VSLE session defaults to audio SLE Vol. 2, 1-547

1 Trouble locating and clearing procedures (continued)

The following chapter is a continuation of the trouble locating and clearing procedures. For general information on the trouble locating and clearing procedures refer to the introduction in Volume 1.

Incorrect DN in incoming callers list

Application

Use this procedure to determine if an error in entry causes a problem with the incoming callers list (ICL). Use this procedure to correct the error.

Definition

A subscriber complaint indicates wrong directory number (DN) information in the ICL. To view the ICL, use softkeys on the Analog Display Services Interface (ADSI) set of the subscriber.

Common procedures

There are no common procedures.

Action

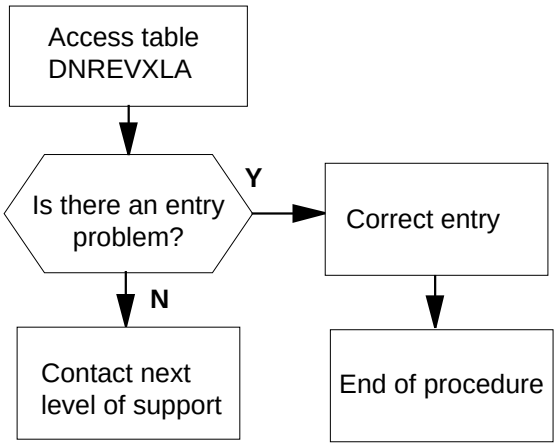
This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Incorrect DN in incoming callers list (continued)

Summary of Incorrect DN in incoming callers list

This flowchart summarizes the procedure.

Use the instructions that follow the flowchart to perform the procedure.



Incorrect DN in incoming callers list (end)

Incorrect DN in Incoming Caller List

At your current location:

1 Access table DNREVXLA and check the entries.

If entries	Do
are correct	step 3
are wrong	step 2

2 Correct the table DNREVXLA entries and go to step 4

3 For additional help, contact the next level of support.

4 This procedure is complete.

Incorrect or no displayed calling party name or DN

Application

Use this procedure to determine if a problem with the directory number (DN) results from any of the following:

- a software error
- a line-ended peripheral module (PM) failure
- a possible CLASS modem resource (CMR) card problem

Definition

A subscriber complaint indicates a wrong or missing calling party name or DN information that enters on the line. The subscriber set displays the information.

Common procedures

There are no common procedures.

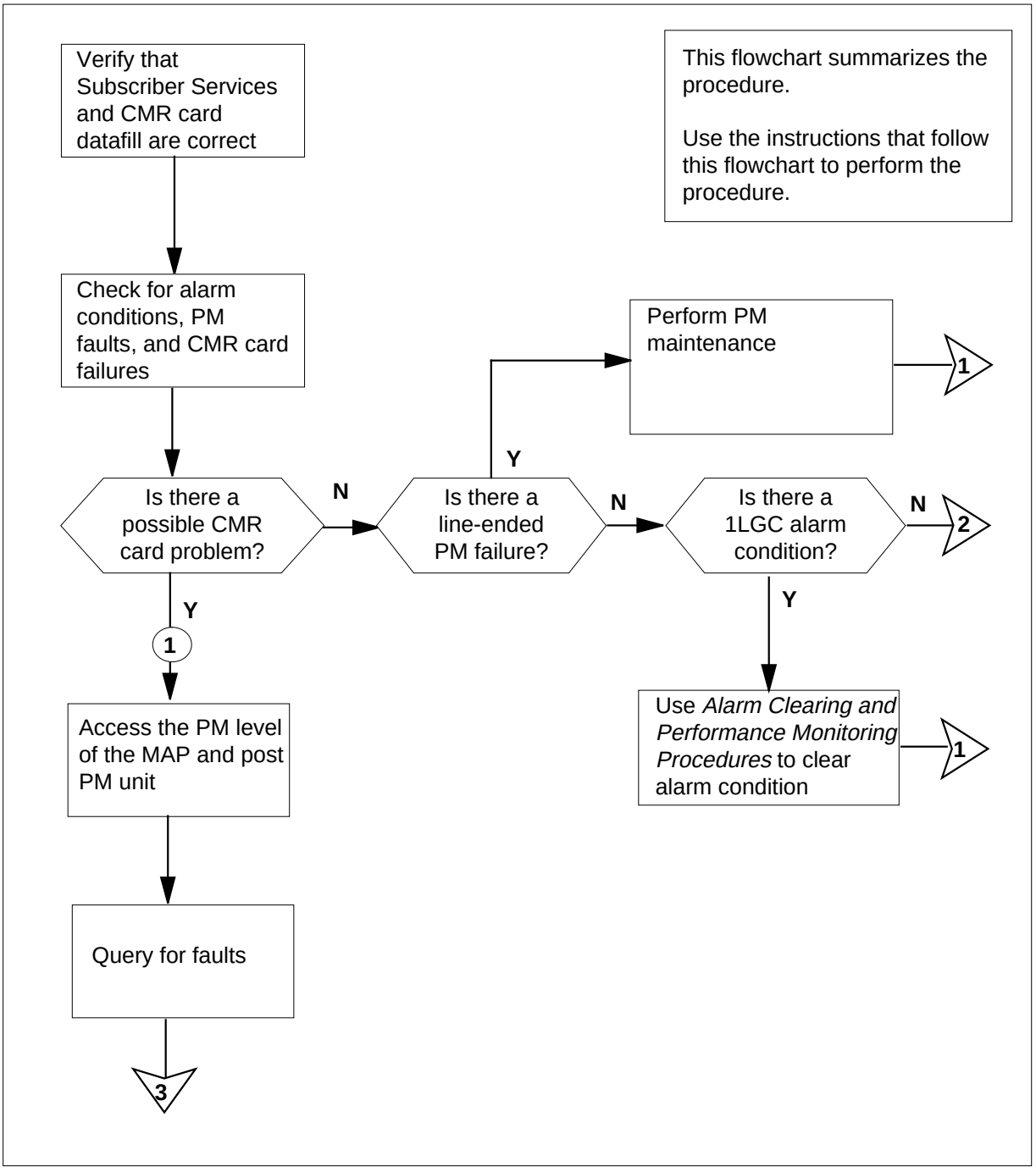
Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Note: The CMR card NT6X78 can go out of service in the active unit. If the card goes out of service, the operating company personnel can busy, replace, load, and return the card to service. The operating company personnel do not need to perform these operations on the whole unit.

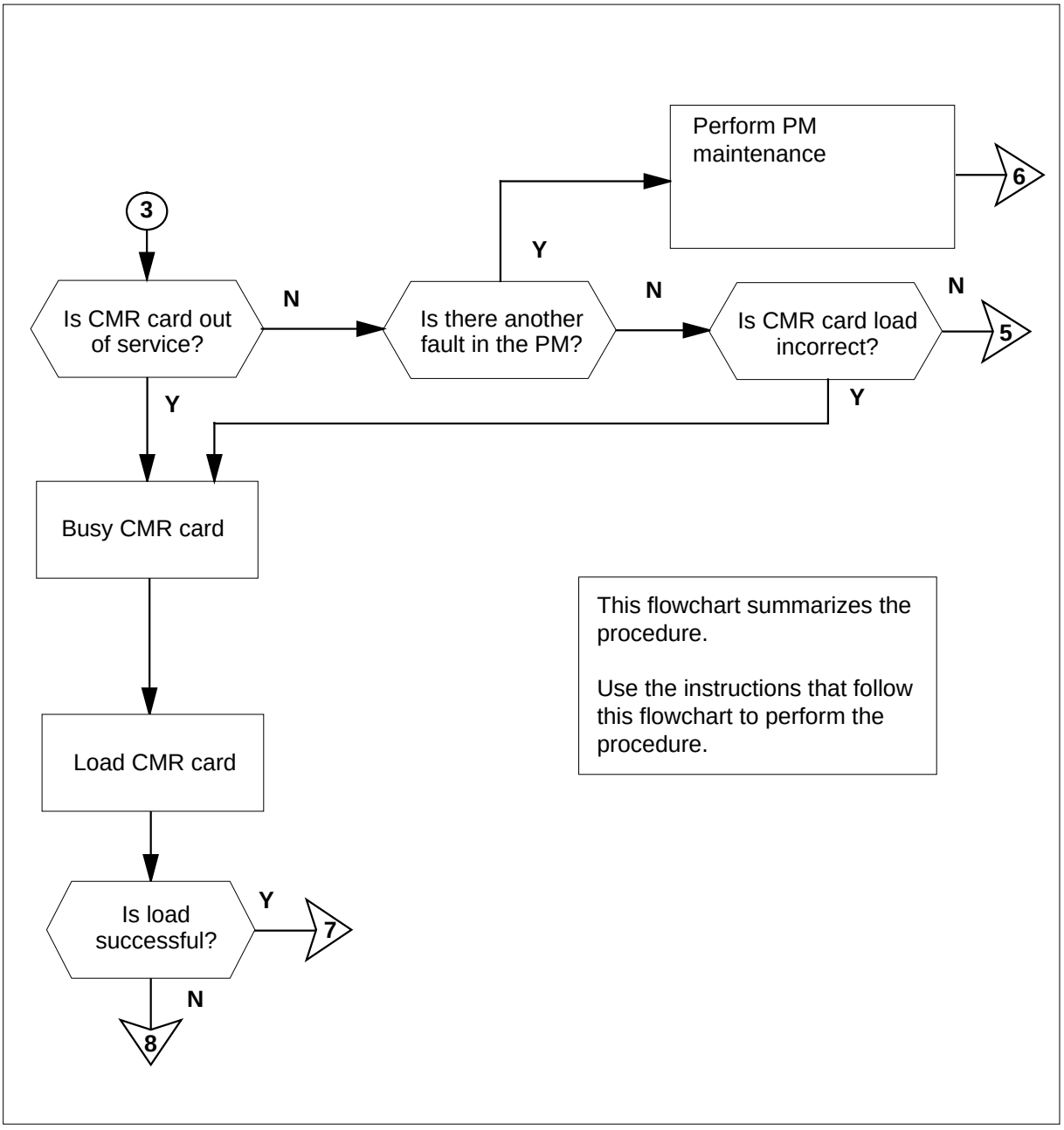
Incorrect or no displayed calling party name or DN (continued)

Summary of Incorrect or no displayed calling party name or DN



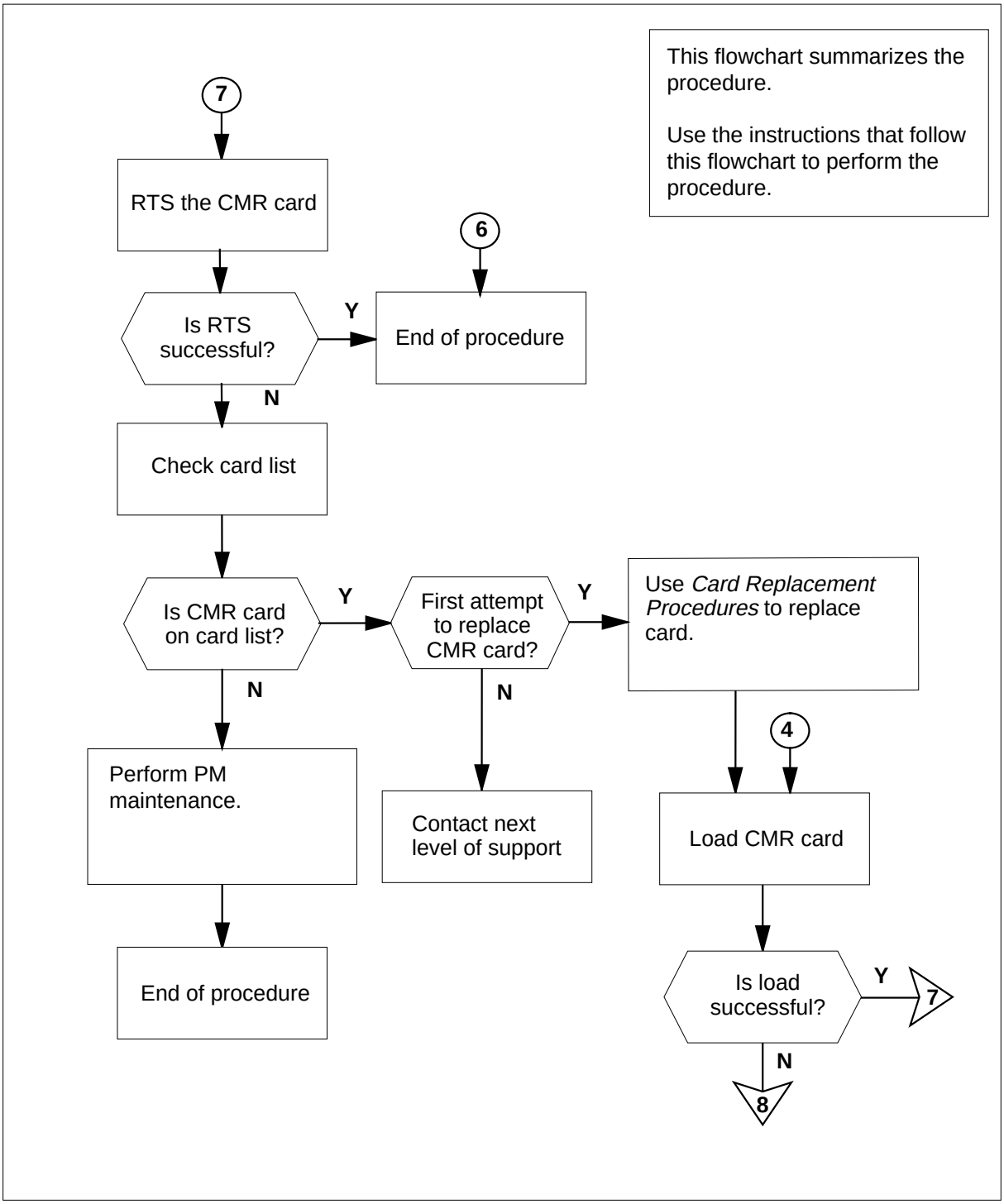
Incorrect or no displayed calling party name or DN (continued)

Summary of Incorrect or no displayed calling party name or DN (continued)



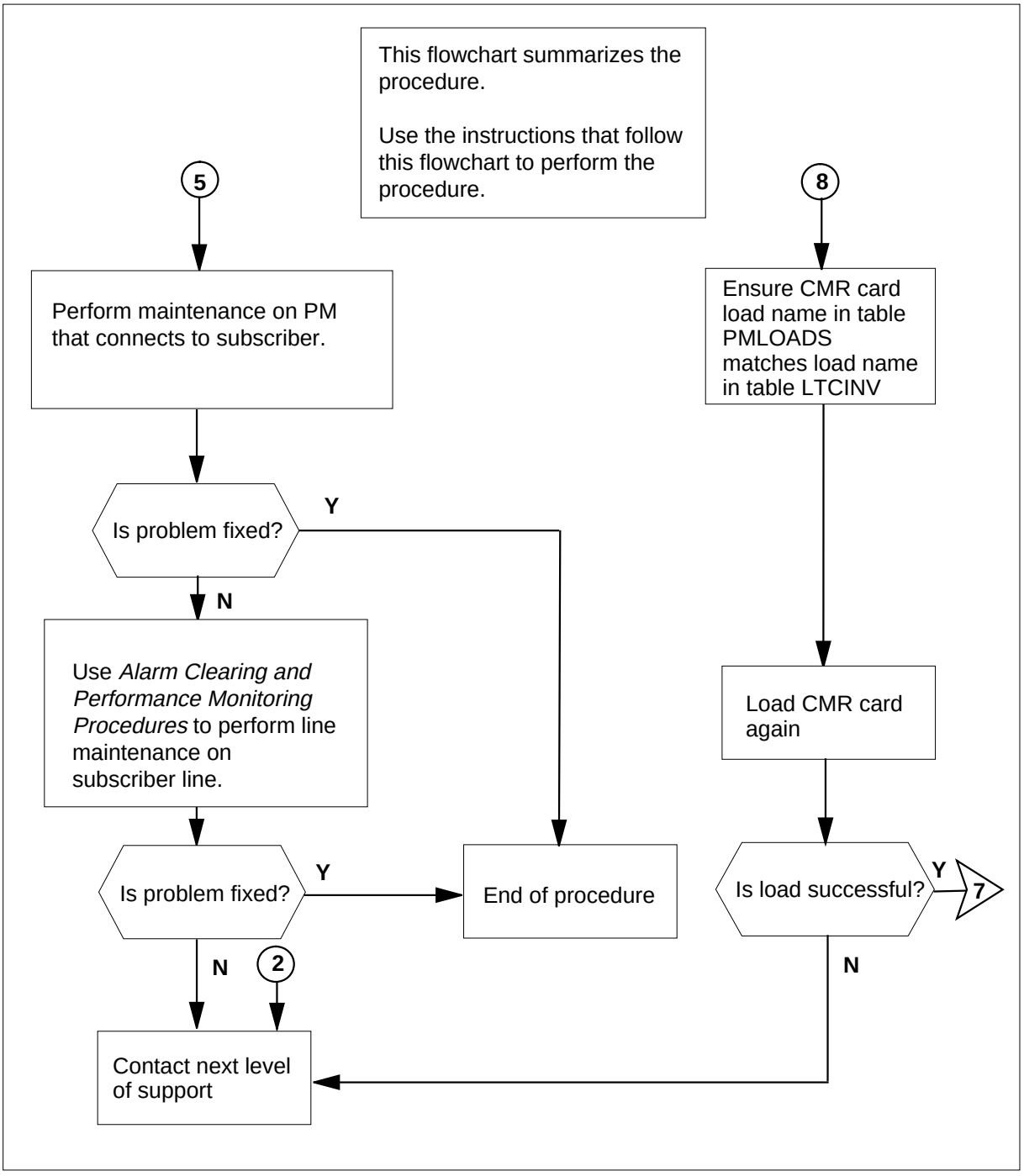
Incorrect or no displayed calling party name or DN (continued)

Summary of Incorrect or no displayed calling party name or DN (continued)



Incorrect or no displayed calling party name or DN (continued)

Summary of Incorrect or no displayed calling party name or DN (continued)



Incorrect or no displayed calling party name or DN (continued)

Incorrect or no displayed calling party name or DN

At your current location:

1 Verify that the CMR card and Subscriber Services entries are correct. Refer to *Translations Guide* and the documentation for the peripheral device entries, and return to this point.

2 Check for alarm conditions. To obtain alarm information, refer to *Alarm Clearing and Performance Monitoring Procedures*, and return to this point.

If	Do
a 1LGC alarm condition at the MAPCI display occurs	step 3
a line-ended PM failure occurs	step 5
a possible CMR card problem occurs in the line group controller (LGC), line trunk controller (LTC), remote cluster controller (RCC), Subscriber Carrier Module-100S (SMS), or Subscriber Carrier Module-Urban (SMU).	step 7
no indication of a CMR card problem, a line-ended PM failure, or a line maintenance problem occurs	step 31

3 Go to the procedure to clear a peripheral module in-service trouble (PM ISTb) alarm in *Alarm Clearing and Performance Monitoring Procedures*. Complete the procedure and return to this point.

4 Go to step 7.

5 Refer to the maintenance guide for the PM for information on line-ended PM failure, and return to this point.

6 Go to step 7.

7 To access the PM level of the MAP, type

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

and press the Enter key.

8 To post the PM unit, type

```
>POST pm_type pm_number
```

and press the Enter key.

where

pm_type
is the PM type (LGC, LTC, RCC, SMS, or SMU)

pm_number
is the number of the PM (0 through 127)

9 To check for fault indicators, type

```
>QUERYPM FLT
```

Incorrect or no displayed calling party name or DN (continued)

and press the Enter key.

If response	Do
is CLASS MODEM RESOURCE CARD NT6X78 OUT OF SERVICE	step 14
is another message that associates with the CMR card	step 17
is CMR load mismatch withInventory table	step 17
is another card in the PM has a fault	step 10
is no fault	step 12

10 Perform PM maintenance on the PM posted, and return to this point.

11 Go to step 32.

12 Perform PM maintenance on the PM connected to the subscriber.

If problem	Do
continues to be present	step 13
is not present	step 32

13 Refer to *Alarm Clearing and Performance Monitoring Procedures* to perform line maintenance on subscriber line.

If problem	Do
continues to be present	step 31
is not present	step 32

14 Note the unit of the PM that has the out-of-service CMR card.

15 Go to step 17.

16 Note the unit of the PM that has the suspect CMR card.

17 To busy the CMR card, type

```
>BSY UNIT unit_no CMR
```

and press the Enter key.

where

unit_no
is the number of the PM unit (0 or 1)

Note: CMR is an optional parameter that means busy only the CMR card.

18 To return the CMR card to service, type

```
>RTS UNIT unit_no CMR
```

and press the Enter key.

Incorrect or no displayed calling party name or DN (continued)

where

unit_no
is the number of the PM unit (0 or 1)

Note: CMR is an optional parameter that means return only the CMR card to service.

If RTS	Do
passes and data transmission problem is no longer present	step 32
fails or passes and problem continues to be present	step 19

19 Examine the generated card list. The step you perform depends on the card list.

The following card list is a normal message for a CMR card failure.

```
RTS Failed, TESTALL
        Diagnostic TESTALL failed.
        Fail message received from PM
        Replace the Cards in the Card List
        and applicable Paddleboards (i.e. 6X12) :
Site Flr RPos Bay_id  Shf  Description    Slot   EqPEC
HOST  01  D02 LGE  00  18  LGC : 000      13     6X78
```

If CMR card	Do
is on the card list	step 22
is not on the card list	step 20

20 Perform PM maintenance on the posted PM and return to this point.

21 Go to step 32.

22 Refer to *Card Replacement Procedures* and return to this point.

23 To load the CMR card, type

`>LOADPM UNIT unit_no CC CMR`

and press the Enter key.

where

unit_no
is the number of the PM unit (0 or 1)

Note: CMR is an optional parameter that means load only the CMR card.

If response	Do
is the loading succeeds	step 27

Incorrect or no displayed calling party name or DN (continued)

If response	Do
is `CMR FAILED TO LOAD. TASKABORTED WHILE LOADING CMR.`	step 24
is `CMR FILE CMRXXXXX NOT FOUND ONDE-VICE INDICATED IN TABLEPMLOADS` *Note:* CMRXXXXX is the CMR load name	step 24
is `FAILED TO OPEN` successfully	step 24

24 Verify that you can load the CMR card. To use the QUERYPM command to determine the CMR load name, type

`>QUERYPM CNTRS`

and press the Enter key.

Example of a MAP response:

```
Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0.
Unit 0:
RAM Load: NLG32BU
ROM Load: XPMRKA02
CMR LOAD: CMR33AI5
CMR DEFINERS:  12
MP: 6X45BA/BB
SP: 6X45BA/BB
Unit 1:
RAM Load: NLG32BU
ROM Load: XPMRKA03
CMR LOAD: CMR33AI5
CMR DEFINERS:  12
MP: 6X45BA/BB
SP: 6X45BA/BB
```

Note: In this example, the CMR load name is CMR33AI5.

25 Make sure that the CMR card load name in table PMLOADS matches the load name specified in table LTCINV or table RCCINV.

26 To load the CMR card again, type

`>LOADPM UNIT unit_no CC CMR`

and press the Enter key.

where

unit_no
is the number of the PM unit (0 or 1)

Incorrect or no displayed calling party name or DN (continued)

Note: CMR is an optional parameter that means load only the CMR card.

If load	Do
passes	step 27
fails	step 31

27 To return the CMR card to service, type

>RTS UNIT unit_no CMR

and press the Enter key.

where

unit_no
is the number of the PM unit (0 or 1)

Note: CMR is an optional parameter that means return only the CMR card to service.

The following card list is a normal message for a CMR card failure.

```
RTS Failed, TESTALL
        Diagnostic TESTALL failed.
        Fail message received from PM
        Replace the Cards in the Card List
        and applicable Paddleboards (i.e. 6X12) :
Site Flr RPos Bay_id  Shf  Description    Slot   EqPEC
HOST  01  D02 LGE  00  18  LGC : 000      13     6X78
```

If RTS	Do
passes and data transmission functions	step 32
fails but the CMR card is not on the card list	step 28
fails and the CMR card is on the card list	step 30

28 Perform PM maintenance on the posted PM and return to this point.

29 Go to step 32.

30 Use the following information to determine the next step.

If the replacement of the CMR card	Do
is occurring for the first time	step 22
is complete	step 31

Incorrect or no displayed calling party name or DN (end)

31 For additional help, contact the next level of support.

32 The procedure is complete.

Line state is Call processing busy (CPB)

Application

Use this procedure to troubleshoot a line in the call processing busy (CPB) state.

Definition

The CPB state indicates that integrated services digital network (ISDN) call processing is active. For the DMS packet handler (PH), the CPB state shows for active packet calls.

The BSY command cannot busy an ISDN line that has a permanent virtual circuit (PVC). Contact the next level of support to do a forced release that results in a service interruption. The forced release results in an MB line state. Use the BSY INB command after the line state changes to MB.

Common procedure

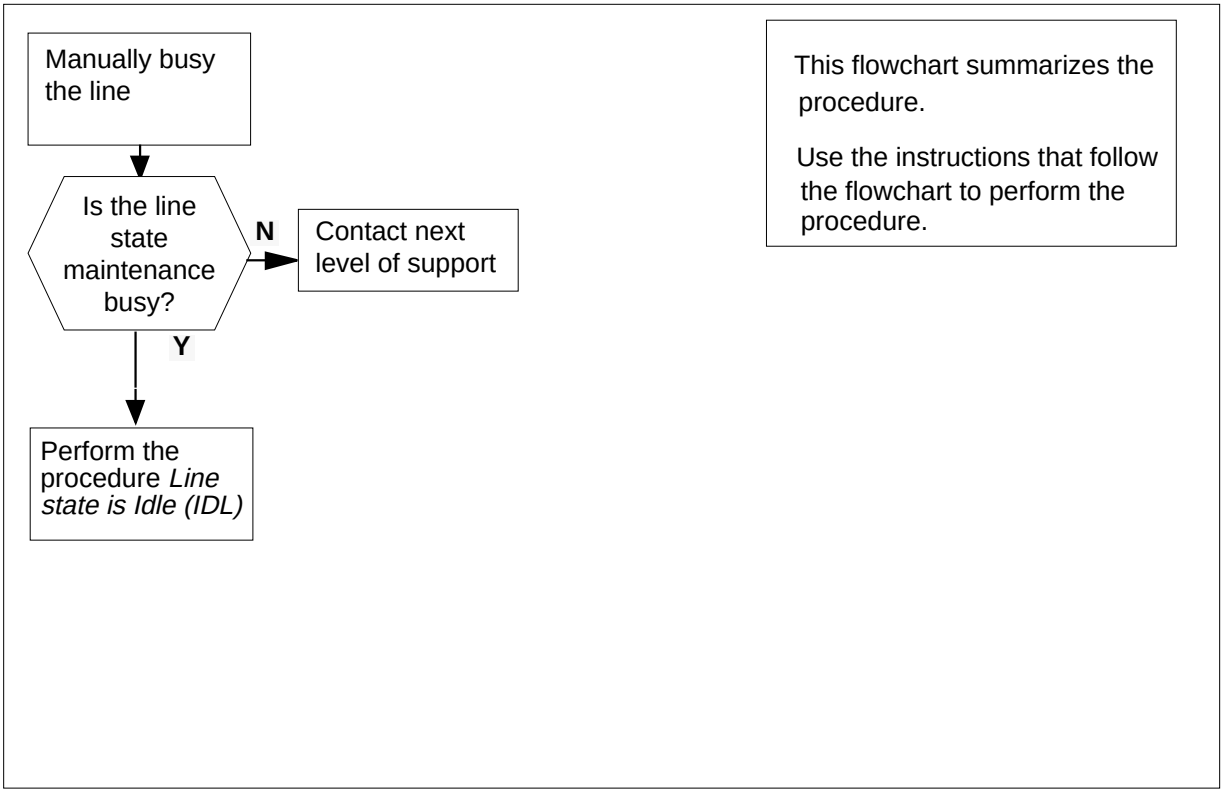
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Line state is Call processing busy (CPB) (continued)

Summary of Line state is Call processing busy (CPB)



Line state is Call processing busy (CPB)

WARNING
Possible equipment damage
Proceed only if you have been directed to this procedure from a step in a maintenance procedure. Separate use of this procedure can cause equipment damage or loss of service.

At the MAP

1 To manually busy the line, type

```
>MAPCI;MTC;LNS;LTP;LTPISDN
>Post D or L <Dir No.> or <Len No.>
>BSY
```

and press the Enter key.

Line state is Call processing busy (CPB) (end)

2 Determine the state of the line.

If the state of the line	Do
is MB (maintenance busy)	step 5
is CPD (call processing deload)	step 3
is DEL (deloaded)	step 3
is other than listed here	step 4

3 Wait 5 min. Determine the state of the line.

If the state of the line	Do
`is MB`	step 5
is other than MB	step 4

4 For additional help, contact the next level of support.

5 Perform the procedure *Line state is Idle (IDL).* Do not return to this procedure.

Line state is Cut (CUT)

Application

Use this procedure to clear a cut-off (CUT) line state.

Definition

The cut-off relay in the line card for the integrated services digital network (ISDN) is in the operated state. This state disconnects the subscriber loop from the ISDN line card.

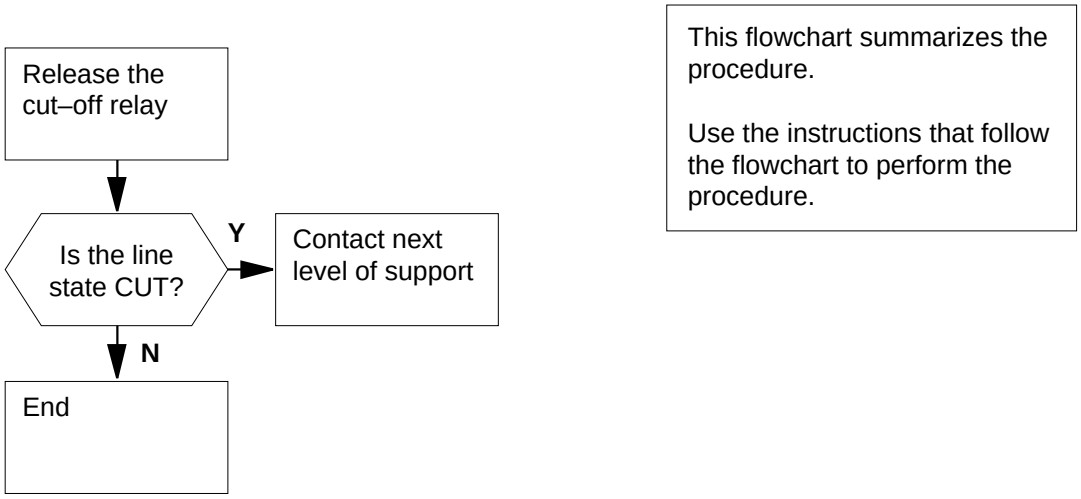
Common procedures

There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Summary of Line state is Cut (CUT)



Line state is Cut (CUT) (end)

Line state is Cut (CUT)

WARNING
Possible equipment damage
Proceed only if you have been directed to this procedure from a step in a maintenance procedure. Separate use of this procedure can cause equipment damage or loss of service.

At the MAP terminal

1 To release the line card cutoff relay, type

```
>MAPCI;MTC;LNS;LTP;LTPISDN
>Post D or L <Dir No.> or <Len No.>
>LCO  R
```

and press the Enter key.

2 Determine the state of the line.

If the state of the line	Do
is CUT (Cutoff)	step 3
is other than CUT	step 4

3 For additional help, contact the next level of support.

4 The procedure is complete.

Line state is D-channel maintenance busy (DMB)

Application

Use this procedure to clear the line state that is D-channel maintenance busy (DMB).

Definition

The D-channel does not connect to the integrated services digital network (ISDN) line for one of the following reasons:

- The D-channel handler (DCH) or enhanced D-channel handler (EDCH) is out of service.
- The connection between the DCH or EDCH and the ISDN line card (ISLC) does not work or is not active.
- The link for the ISDN enhanced line concentrating module (LCME) has faults.
- The DCH channel is out of service due to a layer 1 babbler (DMB inverse video and I fail flag).
- The ISDN service group (ISG) channel is out of service.

Common procedures

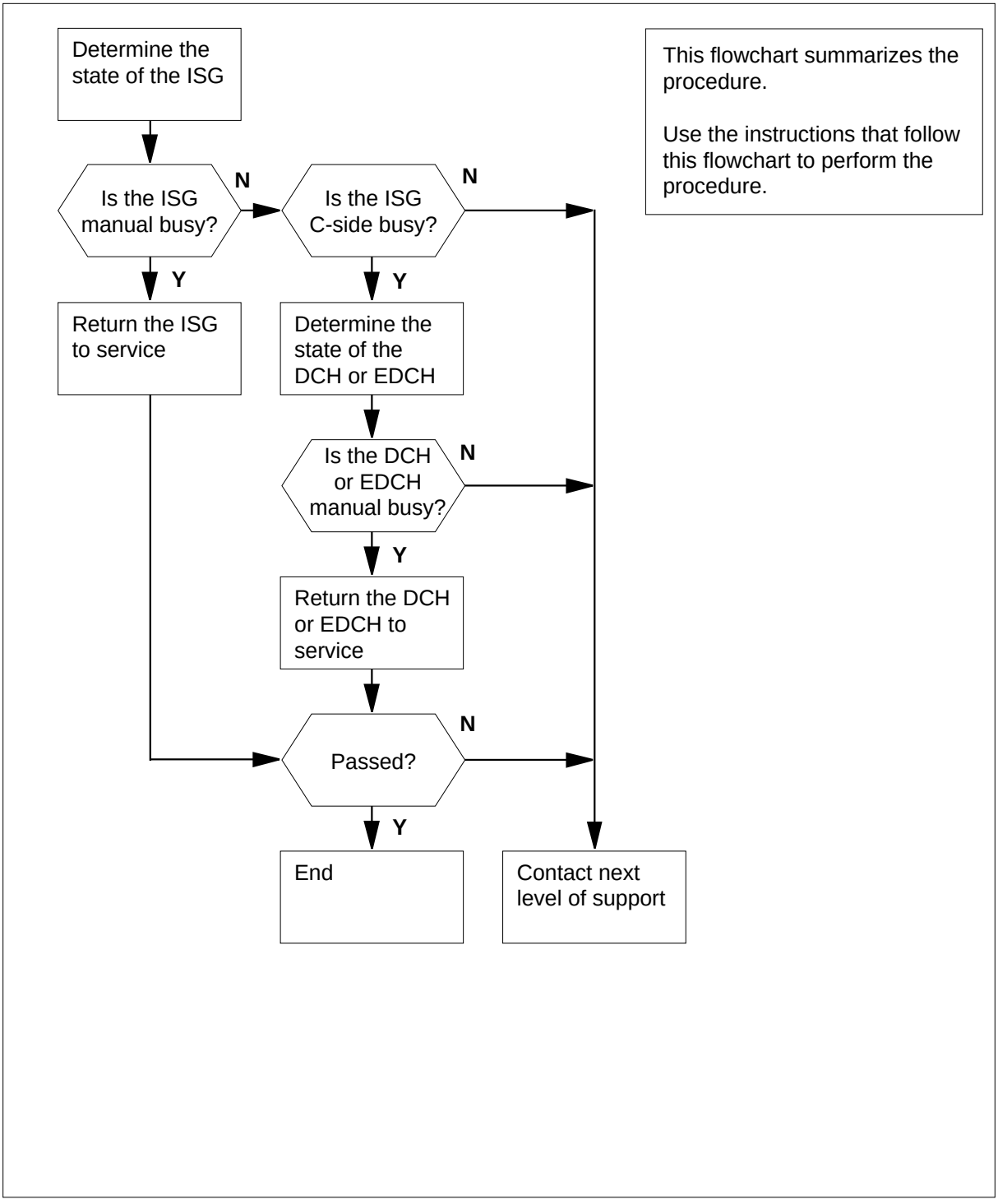
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Line state is D-channel maintenance busy (DMB) (continued)

Summary of Line state is D-channel maintenance busy (DMB)



Line state is D-channel maintenance busy (DMB) (continued)

Line state is D-channel maintenance busy (DMB)

WARNING
Possible equipment damage
Proceed only when a step in a maintenance procedure directs you to proceed. Separate use of this procedure can cause equipment damage or loss of service.

At the MAP terminal

1 To determine the state of the ISG and the DCH or EDCH through the CKTLOC command on the posted line, type

```
>MAPCI;MTC;LNS;LTP;LTPISDN
>Post D or L <Dir No.> or <Len No.>
>CKTLOC
```

and press the Enter key.

Example of a MAP response:

```
Site Flr RPos Bay_id Shf Description Slot  EqPEC
HOST  00  G04 LCEI 07 18  LCME 07 0  05:07 BX27AA

LGC 4   Status: InSv PSLink: 10 Status: OK
LCME    Status: InSv CSLink:  2
DCH 101 Status: ISTb ISG 100  CHNL  8 Status: ManB
      ConType: Con  Status: Active   TDM: 4
```

2 Record the following:

- The number of the ISDN line trunk controller (LTC) or the ISDN line group controller (LGC)
- The number of the DCH or the EDCH
- The number of the ISG
- The number of the channel

3 From the CKTLOC information that appears in step 1, determine the state of the ISG.

If the state of the ISG	Do
is ManB (manual busy)	step 4
is CBsy (C-side busy)	step 11
is other than listed here	step 19

Line state is D-channel maintenance busy (DMB) (continued)

4 Determine from office records or operating company personnel if the ISG channels can return to service.

If the ISG channels	Do
can return to service	step 5
cannot return to service	step 19

5 To access the PM level of the MAP display and post the LTC or LGC recorded in step 2, type

```
>PM; POST  pm_type  pm_no
```

and press the Enter key.

where

pm_type
is either LTC or LGC

pm_no
is the number of the LTC or LGC

6 To access the ISG level of the MAP, type

```
>ISG
```

and press the Enter key.

7 To post the ISG, type

```
>POST   isg_no
```

and press the Enter key.

where

isg_no
is the number of the ISG recorded in step 2

Example of a MAP response:

```
ISG          1111111111 2222222222 33
123456789 0123456789 0123456789 01
.......M. .......... .......... ......................................

ISG 100 DCH 101 ISTb LTC  4 port 17  DCH Chnls BSY
```

Note: The example displays the posted ISG 100.

8 Determine the state of the ISG channels.

Note: The state of the ISG channel appears under the channel number. In the example in step 7, the M indicates that channel 8 is manual busy.

If	Do
one channel is `M`	step 9
more than one channel is `M`	step 10

Line state is D-channel maintenance busy (DMB) (continued)

9 To return the ISG channel to service, type

>RTS channel_no

and press the Enter key.

where

channel_no
is the number of the ISG channel recorded in step 2

If the RTS command	Do
passed	step 20
failed	step 19

10 To return the ISG to service, type

>RTS ALL

and press the Enter key.

If the RTS command	Do
passed	step 20
failed	step 19

11 From the CKTLOC information that appears in step 1, determine the state of the DCH or EDCH.

If the state of the DCH or EDCH	Do
is ManB	step 12
is other than listed here	step 19

12 Determine from office records or operating company personnel if you can return the DCHs or EDCHs to service.

If the DCHs or EDCHs	Do
can return to service	step 13
cannot return to service	step 19

13 To access the PM level of the MAP display and post the LTC or LGC, type

>PM;POST pm_type pm_no

and press the Enter key.

where

pm_type
is either LTC or LGC

pm_no
is the number of the LTC or LGC recorded in step 2

Line state is D-channel maintenance busy (DMB) (continued)

14 To access the DCH level of the MAP display, type

>DCH

and press the Enter key.

Example of a MAP response:

```
      SysB    ManB    OffL    CBsy    ISTb   InSv
PM       0       0       0       0       0   117
LTC      0       0       0       0   0         3
         .       .       .       .       .   .
         .       .       .       .       .   .

DCH      0       2       0       0       0   3
```

Note: In the example, two DCHs are manually busy and three DCHs are in service.

15 Determine the state of the DCHs or EDCHs.

Note: The number that appears in the ManB column for DCH or EDCH indicates the number of manual-busy DCHs or EDCHs.

If	Do
one or two DCHs or EDCHs are manual-busy	step 16
more than two DCHs or EDCHs are manual-busy	step 19

16 To post the manual busy DCHs or EDCHs, type

>POST MANB

and press the Enter key.

17 To test the DCHs or EDCHs, type

>TST ALL

and press the Enter key.

If the TST command	Do
passed	step 18
failed	step 19

18 To return the DCHs or EDCHs to service, type

>RTS ALL

and press the Enter key.

If the RTS command	Do
passed	step 20

Line state is D-channel maintenance busy (DMB) (end)

If the RTS command	Do
failed	step 19

19 For additional help, contact the next level of support.

20 The procedure is complete.

Line state is Idle (IDL)

Application

Use this procedure to troubleshoot a line in the idle (IDL) state.

Definition

The line for the integrated services digital network (ISDN) is idle and available.

Common procedures

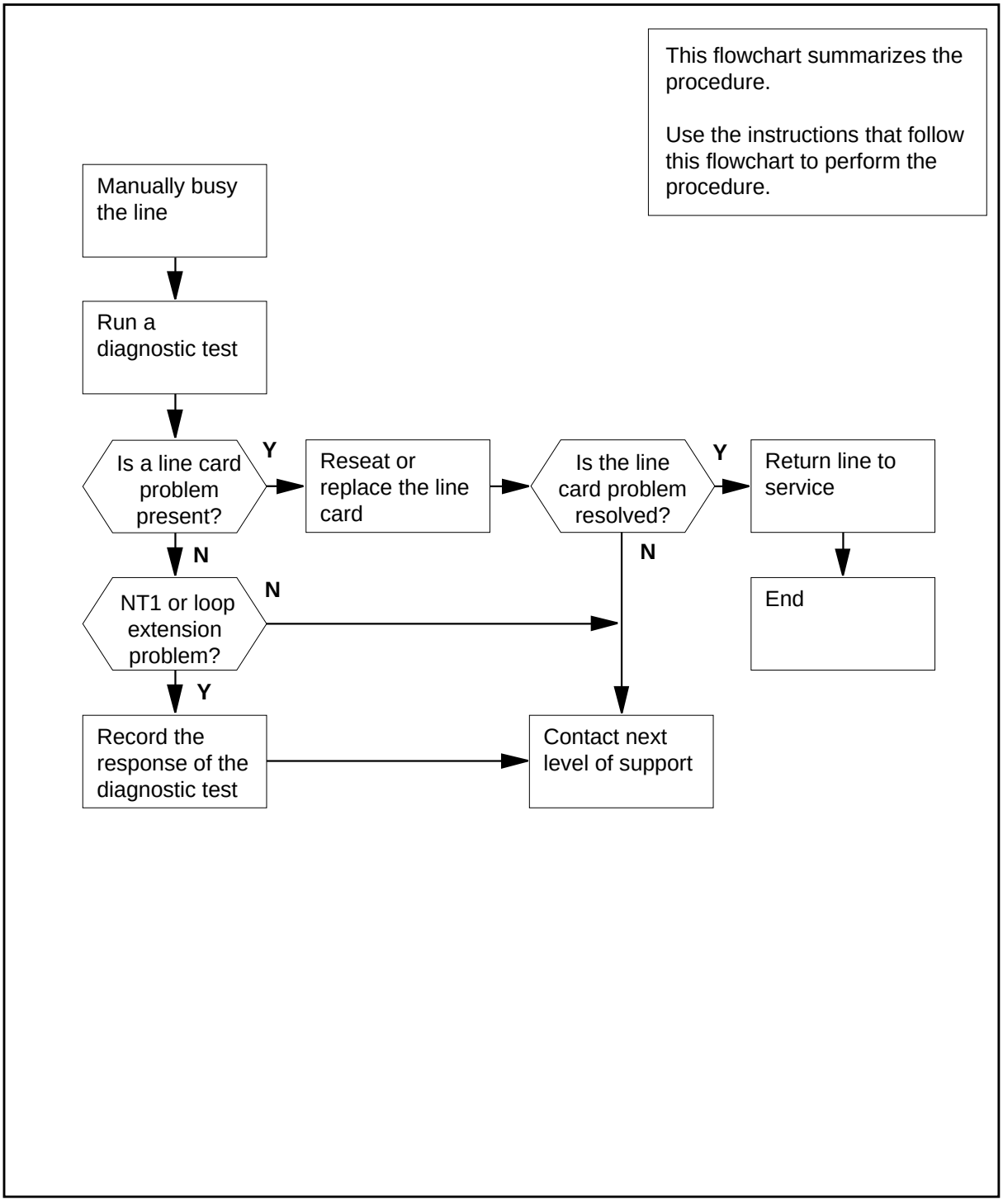
This procedure refers to *Reseating a line card*. This procedure also refers to *Replacing a line card*, and *Replacing a point-of-use power supply card*.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Line state is Idle (IDL) (continued)

Summary of Line state is Idle (IDL)



Line state is Idle (IDL) (continued)

Line state is Idle (IDL)

WARNING
Possible equipment damage
Proceed only when a step in a maintenance procedure directs you to proceed. Separate use of this procedure can cause equipment damage or loss of service.

At the MAP terminal

1 Line extension devices (ISDN mp-eoc line units) are an example of a line configuration. To determine the line configuration, type

```
>MAPCI;MTC;LNS;LTP;LTPISDN
>Post D or L <Dir No.> or <Len No.>
>LTPDATA;  SUSTATE
```

and press the Enter key.

Example of a MAP response:

```
Line Equipment Status
CO  TA  LC_Lpbk  V_id
-   -   -       0D07

 ES_NE/h  ES_FE/h  ES_NE/d  ES_FE/d
       0        0        0        0

U_sync  U_act  T_Lpbk  P_pwr  S_pwr  NTM
   -       -       .      .      -     -
T_sync  T_act
    -       -

ISDN mp-eoc Status
Line Unit   1   2   3   4   NT1
Status      .   .   .   -   -

ISDN TEI Status
TEI         1   2
Status      -   -
```

Note: A response that includes “ISDN mp-eoc Status" indicates the status and number of line units on the posted line.

2 Record the status for each line unit and NT1.

Note: The . (dot) in the status line indicates the line unit is active. The - (dash) indicates the line unit lost synchronization with the U-interface and is not active. You will use this information in step 25.

Line state is Idle (IDL) (continued)

3 Determine the state of the line.

If the state of the line	Do
is MB (maintenance busy)	step 6
is other than listed here	step 4

4 To manually busy the line, type

>BSY

and press the Enter key.

If the state of the line	Do
is MB	step 6
is CPD (call processing deload)	step 5
is DEL (deloaded)	step 5
is other than listed here	step 32

5 Wait 5 min. Determine the state of the line.

If the state of the line	Do
is MB	step 6
is other than listed here	step 32

6 To identify the product engineering code (PEC) for the posted line, type

>CKTLOC

and press the Enter key.

Example of a MAP response:

```
Site Flr RPos Bay_id Shf Description Slot  EqPEC
HOST  00  G04 LCEI 07 18  LCME 07 0  05:07 BX27AA

LGC 4   Status: InSv PSLink: 10 Status: OK
LCME    Status: InSv CSLink:  2
DCH 101 Status: ISTb ISG 100  CHNL  8 Status: ManB
        ConType: Con  Status: Active   TDM: 4
```

If the PEC	Do
is BX27AA	step 9
is other than listed here	step 7

Line state is Idle (IDL) (continued)

7 To run a diagnostic test on the posted line, type

>DIAG

and press the Enter key.

Example of a MAP response:

```
Warning - Action may affect Packet Data Service
          Do you wish to continue?
Please confirm ("Yes", "Y", "NO", or "N"):
```

8 To confirm the command, type

>YES

and press the Enter key.

Go to step 11.

9 Run the diagnostic test for the posted line. Use the enhanced display capability that provides in-depth debug information. To run the test, type

>DIAG DISP

and press the Enter key.

Example of a MAP response:

```
EXPECT EXTENSIVE MAP DISPLAY!!!
Warning - Action may affect Packet Data Service
          Do you wish to continue?
Please confirm ("Yes", "Y", "NO", or "N"):
```

10 To confirm the command, type

>YES

and press the Enter key.

11 Your next step depends on the results of the diagnostic test.

If the results	Do
display a line 100 log, indicated by `PASS LN_DIAG`	step 30
display a line 101 log, indicated by `FAIL LN_DIAG`	step 12
display other than listed here	step 12

12 Record the MAP response from the diagnostic test.

If the response	Do
is `PUPS failure detected.`	step 21
is `FEBE detection test failed.`	step 29
is `Communications failed to NT1.`	step 25

Line state is Idle (IDL) (continued)

If the response	Do
is `NT1 not present.`	step 25
is `LCD is overloaded.`	step 25
is `LCD is in mateload.`	step 25
is `NT1 B1 loopback did not release.`	step 25
is `NT1 B2 loopback did not release.`	step 25
is `NT1 2B+D loopback did not release.`	step 25
is `Customer-initiated maintenance.`	step 25
is `S/T interface not active.`	step 25
is other than listed here	step 13

13 Perform the procedure *Reseating a line card.* Complete the procedure and return to this point.

14 To test the line card for the posted line, type

`>DIAG`

and press the Enter key.

Example of a MAP response:

```
Warning - Action may affect Packet Data Service
          Do you wish to continue?
Please confirm ("Yes", "Y", "NO", or "N"):
```

15 To confirm the command, type

`>YES`

and press the Enter key.

16 Your next step depends on the results of the diagnostic test.

If the results display	Do
display a line 100 log, indicated by `PASS LN_DIAG`	step 30
display a line 101 log, indicated by `FAIL LN_DIAG`	step 17
display other than listed here	step 17

17 Perform the procedure *Replacing a line card.* Complete the procedure and return to this point.

18 To test the line card for the posted line, type

`>DIAG`

and press the Enter key.

Line state is Idle (IDL) (continued)

Example of a MAP response:

```
Warning - Action may affect Packet Data Service
          Do you wish to continue?
Please confirm ("Yes", "Y", "NO", or "N"):
```

19 To confirm the command, type

>YES

and press the Enter key.

20 Your next step depends on the results of the diagnostic test.

If the results	Do
display a line 100 log, indicated by `PASS LN_DIAG`	step 30
display a line 101 log, indicated by `FAIL LN_DIAG`	step 32
display other than listed here	step 32

21 Perform the procedure *Replacing a point-of-use power supply card.* Complete the procedure and return to this point.

22 To test the line card for the posted line, type

>DIAG

and press the Enter key.

Example of a MAP response:

```
Warning - Action may affect Packet Data Service
          Do you wish to continue?
Please confirm ("Yes", "Y", "NO", or "N"):
```

23 To confirm the command, type

>YES

and press the Enter key.

24 Your next step depends on the results of the diagnostic test.

If the results	Do
display a line 100 log, indicated by `PASS LN_DIAG`	step 30
display a line 101 log, indicated by `FAIL LN_DIAG`	step 32
display other than listed here	step 32

25 Determine if an NT1 problem or line extension problem is present. Refer to the information recorded for ISDN mp-eoc units in step 1.

If the MAP response	Do
included an ISDN mp-eoc status	step 26

Line state is Idle (IDL) (continued)

If the MAP response	Do
did not include an ISDN mp-eoc status	step 29

26 Determine the status of the ISDN mp-eoc units.

If the ISDN mp-eoc status	Do
is . (active) for the line units	step 29
is - (inactive) for the line units	step 27

27 A - (dash) displayed under any line unit indicates that the line unit lost synchronization with the U-interface. A - (dash) also indicates that the line unit is not active. Restore the line units to service. Refer to local operating company procedures or the documentation of the original equipment manufacturer (OEM). Refer to this documentation for maintenance procedures. Return to this point.

28 To check the status of the line extension devices (for example, ISDN mp-eoc line units), type

>LTPDATA; SUSTATE

and press the Enter key.

Example of a MAP response:

```
Line Equipment Status
CO  TA  LC_Lpbk  V_id
 -   -    -          0D07

ES_NE/h  ES_FE/h  ES_NE/d  ES_FE/d
    0          0          0          0

U_sync  U_act  T_Lpbk  P_pwr  S_pwr  NTM
   .       .       .      .      .      -
T_sync  T_act
   .       .

ISDN mp-eoc Status
Line Unit   1   2   3   4   NT1
Status      .   .   .   .   .

ISDN TEI Status
TEI         1   2
Status      -   -
```

If the ISDN mp-eoc status	Do
is . (active) for the line units and active for the NT1	step 30
is - (inactive) for the line units	step 31

Line state is Idle (IDL) (end)

If the ISDN mp-eoc status	Do
is . (active) for the line units and - (inactive) for the NT1	step 29

29 An NT1 problem exists. Refer to the MAP response recorded in step 12.

Go to step 32.

30 To return the line to service, type

>RTS

and press the Enter key.

If the RTS	Do
failed	step 32
passed	step 33

31 For additional help, contact the operating company personnel responsible for the maintenance of the line units.

32 For additional help, contact the next level of support.

33 The procedure is complete.

Line state is Installation busy (INB)

Application

Use this procedure to clear an installation busy (INB) line state.

Definition

The ISDN line is not available for one of the following reasons:

- The system did not assign data.
- The system made a data change.
- A line test position operator performs maintenance on the ISDN line.

Common procedures

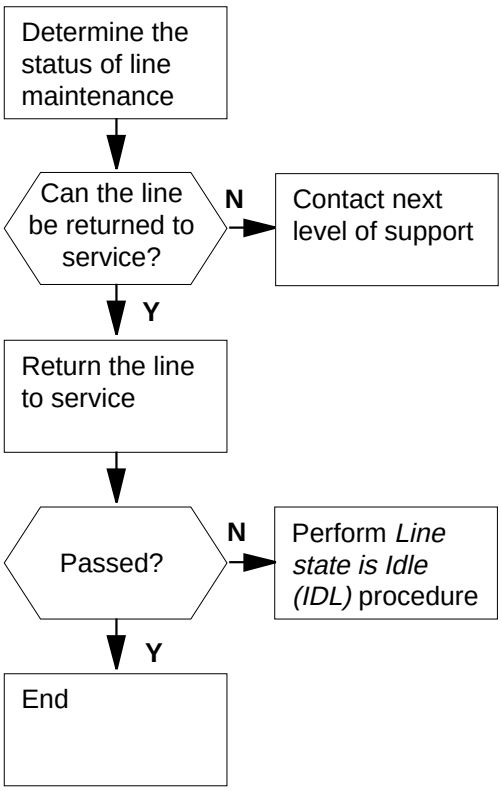
There are no common procedures.

Action

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

Line state is Installation busy (INB) (continued)

Summary of Line state is Installation busy (INB)



This flowchart summarizes the procedure.

Use the instructions in the step–action table that follows this flowchart to perform the procedure.

Line state is Installation busy (INB) (end)

Line state is Installation busy (INB)

WARNING
Possible equipment damage
Proceed only when a step in a maintenance procedure directs you to this procedure. Separate use of this procedure can cause equipment damage or loss of service.

At the MAP terminal

1 Determine from office records or operating company personnel if the line can return to service.

If the line	Do
can return to service	step 2
cannot return to service	step 5

2 To manually busy the line, type

```
>MAPCI;MTC;LNS;LTP;LTPISDN
>Post D or L <Dir No.> or <Len No.>
>BSY
```

and press the Enter key.

If the state of the line is	Do
MO (maintenance busy	step 3
other than listed here	step 5

3 To return the line back into service when the installation is complete, type

```
>RTS
```

and press the Enter key.

If the RTS command	Do
failed	step 4
passed	step 6

4 Perform the procedure *Line state is Idle (IDL).* Do not return to this procedure.

5 For additional help, contact the next level of support.

6 The procedure is complete.

Line state is
Line module busy (LMB)

Application

Use this procedure to clear a line module busy (LMB) line state.

Definition

The ISDN enhanced line concentrating module (LCME), or the line drawer, is out of service.

Common procedures

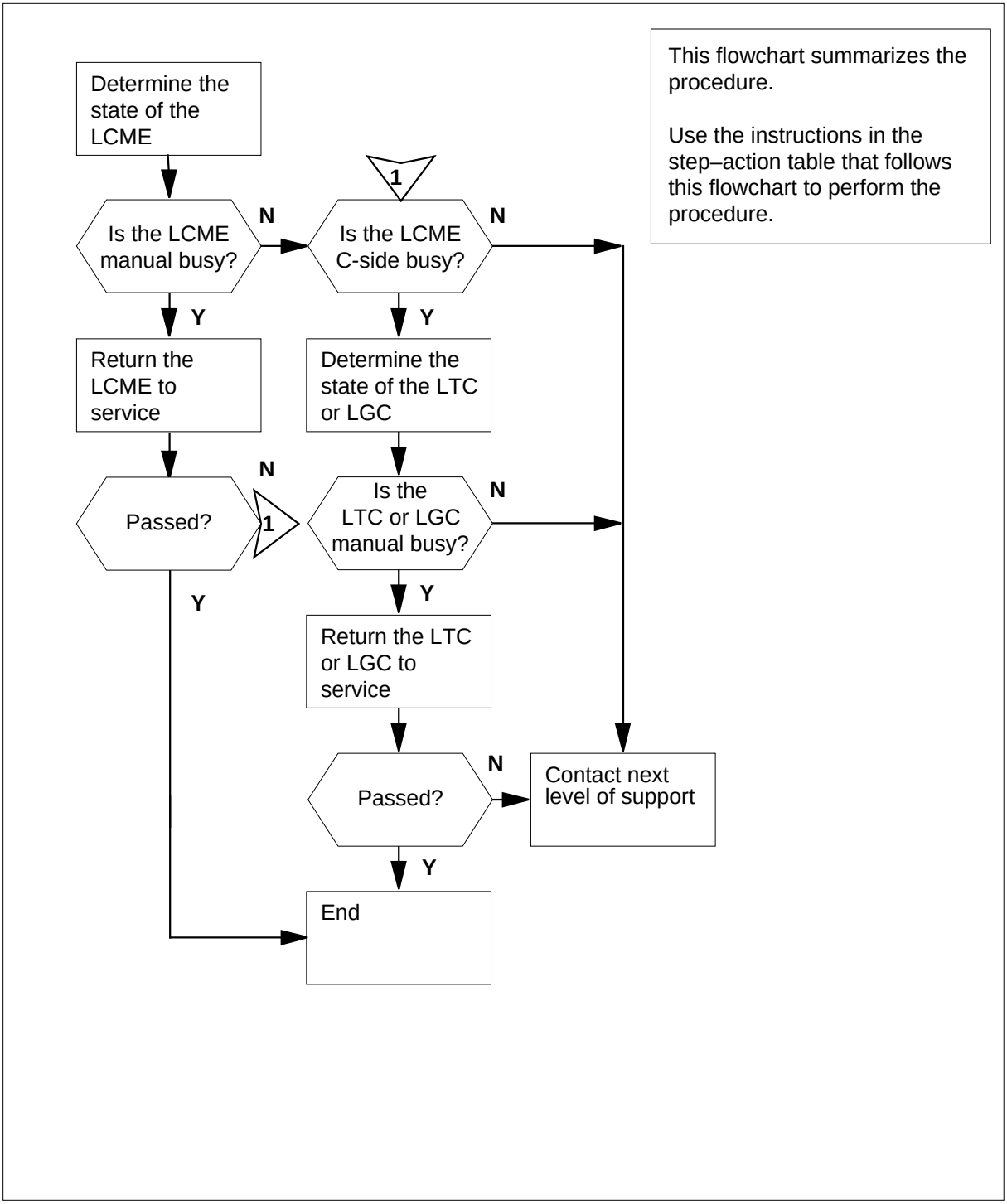
There are no common procedures.

Action

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

Line state is Line module busy (LMB) (continued)

Summary of Line state is Line module busy (LMB)



Line state is Line module busy (LMB) (continued)

Line state is Line module busy (LMB)

WARNING
Possible equipment damage
Proceed only when a step in a maintenance procedure directs you to this procedure. Separate use of this procedure can cause equipment damage or loss of service.

At the MAP Terminal

1 To determine the state of the LCME and the LTC or LGC, type

```
>MAPCI;MTC;LNS;LTP;LTPISDN
>Post D or L <Dir No.> or <Len No.>
>CKTLOC
```

and press the Enter key.

Example of a MAP response:

```
Site Flr Rpos Bay_id Shf Description Slot  EqPEC
HOST  00  G04 LCEI 07 18  LCMI 07 0  05:07 BX25AB

LGC 4   Status: ISTb PSLink: 10 Status: CORRECT
LCME    Status: ManB CSLink:  2
DCH 101 Status: ISTb ISG 100  CHNL  8 Status: InSv
        ConType: Con  Status: PMBusy   TDM: 4
```

2 Record the number of the LCME and number of the LTC or LGC.

3 From the CKTLOC information displayed in step 1, determine the state of the LCME.

If the state of the LCME	Do
is ManB (manual busy)	step 4
is CBsy (C-side busy)	step 8
is other than listed here	step 13

4 Determine from office records or operating company personnel if you can turn the LCME back on.

If the LCME	Do
can return to service	step 5
cannot return to service	step 13

Line state is Line module busy (LMB) (continued)

5 To access the PM level of the MAP display, type

>PM

and press the Enter key.

6 To post the manual-busy LCME, type

>POST LCME pm_no

and press the Enter key.

where

pm_no
is the number of the LCME you recorded in step 2

Example of a MAP response:

```
LCME HOST 67 1   SysB   Links OOS: Cside  0
Unit0: SysB
Unit1: SysB
                                  11  11  11  RG: Uneq
Drwr:  01  23  45  67  89  01  23  45
         ..   ..    ..   ..    ..   ..   ..   ..
```

7 To return the manual busy LCME to service, type

>RTS PM

and press the Enter key.

If the RTS command	Do
passed	step 14
failed	step 8

8 From the CKTLOC information displayed in step 1, determine the state of the LTC or LGC.

If the state of the LTC or LGC	Do
is ManB	step 9
is other than listed here	step 13

9 Determine from office records or from office personnel if the LTC or LGC can return to service.

If the LTC or LGC	Do
can return to service	step 10
cannot return to service	step 13

10 To access the PM level of the MAP display, type

>PM

Line state is Line module busy (LMB) (end)

and press the Enter key.

11 To post the LTC or LGC, type

>POST pm_type pm_no

and press the Enter key.

where

pm_type
is either LTC or LGC

pm_no
is the number you recorded at step 2

Example of a MAP response:

```
LTC     1 ISTb  Links_OOS: CSide  0 , PSide 3
Unit0:    Act   ISTb
Unit1:    Inact ISTb
```

12 To return the manual busy LTC or LGC to service, type

>RTS PM

and press the Enter key.

If the RTS command	Do
passed	step 14
failed	step 13

13 For additional help, contact the next level of support.

14 The procedure is complete.

Line state is Lock out (LO)

Application

Use this procedure to clear a lock out (LO) line state.

Definition

The ISDN line card (ISLC) and the network termination 1 (NT1) or mp-eoc line unit are not synchronized. The S/T ISDN line card (ISLC) does not experience this state.

Common procedures

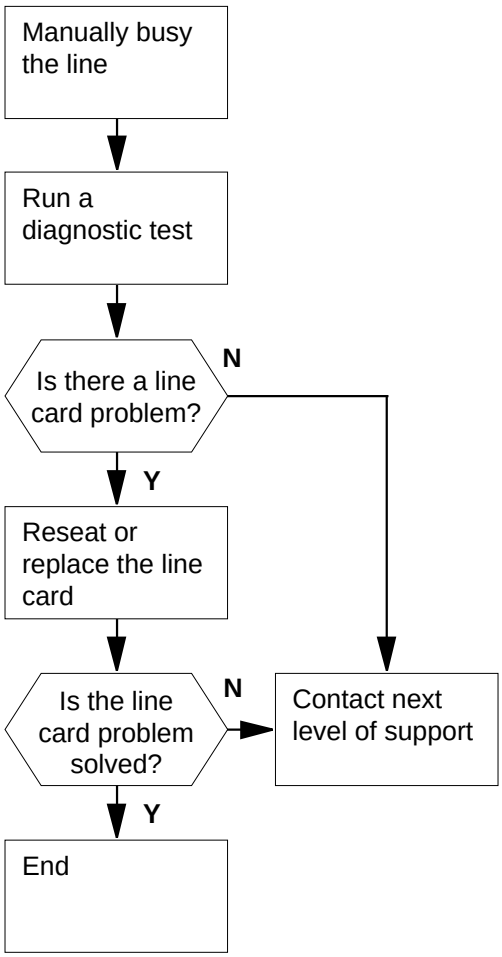
This procedure makes references to *Reseating a line card* and *Replacing a line card*.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Line state is Lock out (LO) (continued)

Summary of Line state is Lock out (LO)



This flowchart summarizes the procedure.

Use the instructions that follow this flowchart to perform the procedure.

Line state is Lock out (LO) (continued)

Line state is Lock out (LO)

WARNING
Possible equipment damage
Proceed only when a step in a maintenance procedure directs you to this procedure. Separate use of this procedure can cause equipment damage or loss of service.

At the MAP Terminal

1 To determine the configuration of the line (for example: line extension devices [ISDN mp-eoc line units] are present), type

```
>MAPCI;MTC;LNS;LTP;LTPISDN
>Post D or L <Dir No.> or <Len No.>
>LTPDATA;  SUSTATE
```

and press the Enter key.

Example of a MAP response:

```
Line Equipment Status
CO  TA  LC_Lpbk  V_id
  -   -      -       0D07

ES_NE/h  ES_FE/h  ES_NE/d  ES_FE/d
      0         0         0         0

U_sync  U_act  T_Lpbk  P_pwr  S_pwr  NTM
    -       -       .      .      -     -
T_sync  T_act
    -       -

ISDN mp-eoc Status
Line Unit   1   2   3   4   NT1
Status      .   .   .   -   -




ISDN TEI Status
TEI       1   2
```

Line state is Lock out (LO) (continued)

Status - -

Note: A response that includes “ISDN mp-eoc Status" indicates the status and number of line units on the posted line.

2 Record the status for each line unit and NT1.

Note: The . (dot) in the status line indicates the line unit is active. The - indicates the line unit lost synchronization with the U-interface and is inactive. Step 19 uses this information.

3 To manually busy the line, type

>BSY

and press the Enter key.

4 Determine the state of the line.

If the state of the line	Do
is MB (maintenance busy)	step 5
is other than listed here	step 26

5 To identify the product engineering code (PEC) for the posted line, type

>CKTLOC

and press the Enter key.

Example of a MAP response:

```
Site Flr Rpos Bay_id Shf Description Slot  Eq
PECHOST  00  G04 LCEI 07 18  LCME 07 0  05:07 BX27AA

LGC 4   Status: InSv PSLink: 10 Status: OK
LCME    Status: InSv CSLink:  2
DCH 101 Status: ISTb ISG 100  CHNL  8 Status: ManB
             ConType: Con  Status: Active   TDM: 4
```

If the PEC	Do
is BX27AA	step 8
is other than listed here	step 6

6 To run a diagnostic test on the posted line, type

>DIAG

and press the Enter key.

Example of a MAP response:

Line state is Lock out (LO) (continued)

Warning - Action may affect Packet Data Service
Do you wish to continue?
Confirm ("Yes", "Y", "NO", or "N"):

7 To confirm the command, type

>YES

and press the Enter key.

Go to step 10.

8 Run the diagnostic test for the posted line. Use the enhanced display capability that provides in-depth debug information. To perform this procedure, type

>DIAG DISP

and press the Enter key. This procedure uses the enhanced display capability.

Example of a MAP response:

EXPECT EXTENSIVE MAP DISPLAY!!!
Warning - Action may affect Packet Data Service
Do you wish to continue?
Please confirm ("Yes", "Y", "NO", or "N"):

9 To confirm the command, type

>YES

and press the Enter key.

10 Record the MAP response from the diagnostic test.

If the response	Do
is `Loop termination missing.`	step 19
is `Communications failed to NT1.`	step 19
is `NT1 not present.`	step 19
is `NT1 B1 loopback did not release.`	step 19
is `NT1 B2 loopback did not release.`	step 19
is `NT1 2B+D loopback did not release.`	step 19
is `Customer-initiated maintenance.`	step 19
is `S/T interface not active.`	step 19
is other than listed here	step 11

11 Perform the procedure *Reseating a line card.* Complete the procedure and return to this point.

Line state is Lock out (LO) (continued)

12 To test the line card for the posted line, type

>DIAG

and press the Enter key.

Example of a MAP response:

```
Warning - Action may affect Packet Data Service
          Do you wish to continue?
Please confirm ("Yes", "Y", "NO", or "N"):
```

13 To confirm the command, type

>YES

and press the Enter key.

14 Your next step depends on the results of the diagnostic test.

If the results	Do
display a line 100 log, indicated by `PASS LN_DIAG`	step 24
display a line 101 log, indicated by`FAIL LN_DIAG`	step 15
display other than listed here	step 15

15 Perform the procedure *Replacing a line card.* Complete the procedure and return to this point.

16 To test the line card for the posted line, type

>DIAG

and press the Enter key.

Example of a MAP response:

```
Warning - Action may affect Packet Data Service
          Do you wish to continue?
Please confirm ("Yes", "Y", "NO", or "N"):
```

17 To confirm the command, type

>YES

and press the Enter key.

18 Your next step depends on the results of the diagnostic test.

If the results	Do
display a line 100 log, indicated by`PASS LN_DIAG`	step 24
display a line 101 log, indicated by`FAIL LN_DIAG`	step 26
display other than listed here	step 26

Line state is Lock out (LO) (continued)

19 Determine if an NT1 problem or a line extension problem exists. Refer to the information recorded for ISDN mp-eoc units in step 2.

If the response	Do
included an ISDN mp-eoc status	step 20
did not include an ISDN mp-eoc status	step 23

20 Determine the status of the ISDN mp-eoc units.

If the ISDN mp-eoc status	Do
is . (active) for the line units	step 23
is - (inactive) for the line units	step 21

21 A - displayed under any of the line units indicates loss of synchronization between the line unit and the U-interface. A - also indicates that the line unit is inactive. Restore the line units to service. Refer to local operating company procedures or the documentation of the original equipment manufacturer (OEM) for correct maintenance procedures. Return to this point.

22 To check the status of the line extension devices (for example, ISDN mp-eoc line units), type

`>LTPDATA; SUSTATE`

and press the Enter key.

Example of a MAP response:

```
Line Equipment Status
CO  TA  LC_Lpbk  V_id
 -   -     -      0D07

ES_NE/h  ES_FE/h  ES_NE/d  ES_FE/d
      0        0        0        0

U_sync  U_act  T_Lpbk  P_pwr  S_pwr  NTM
   .      .      .      .      .     -
T_sync  T_act
   .      .

ISDN mp-eoc Status
Line Unit   1   2   3   4   NT1
Status      .   .   .   .   .

ISDN TEI Status
TEI       1   2
```

Line state is Lock out (LO) (end)

Status - -

If the ISDN mp-eoc status	Do
is . (active) for the line units and active for the NT1	step 24
is - (inactive) for the line units	step 25
is . (active) for the line units and - (inactive) for the NT1	step 23

23 An NT1 problem exists. Refer to the MAP response recorded in step 10.

Go to step 26.

24 To return the line to service, type

>RTS

and press the Enter key.

If the RTS command	Do
passed	step 27
failed	step 26

25 For additional help, contact the person responsible for the maintenance of the line units.

26 For additional help, contact the next level of support.

27 The procedure is complete.

Line state is Maintenance busy (MB)

Application

Use this procedure to clear a maintenance busy (MB) line state.

Definition

Maintenance personnel or the DMS-100 switch removed the line from service.

Common procedures

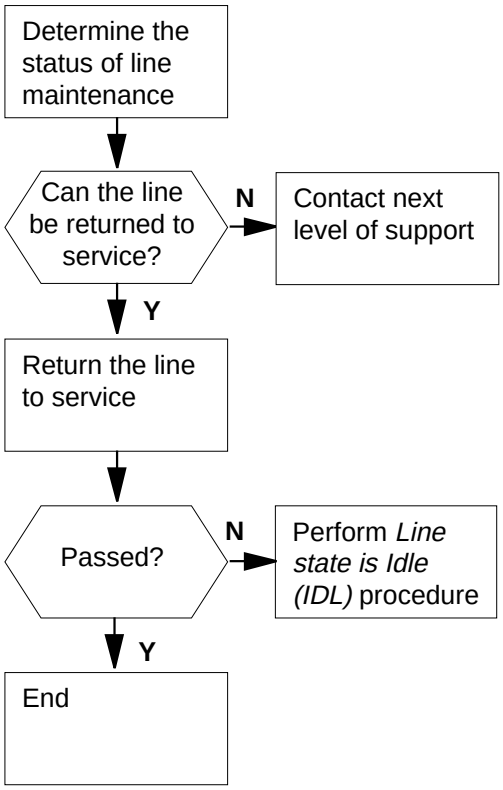
There are no common procedures.

Action

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

Line state is Maintenance busy (MB) (continued)

Summary of Line state is Maintenance busy (MB)



This flowchart summarizes the procedure.

Use the instructions in the step–action table that follows this flowchart to perform the procedure.

Line state is Maintenance busy (MB) (end)

Line state is Maintenance busy (MB)

WARNING
Possible equipment damage
Proceed only when a step in a maintenance procedure directs you to this procedure. Separate use of this procedure can cause equipment damage or loss of service.

At the MAP Terminal

1 Determine from office records or from operating company personnel if the line can return to service.

If the line	Do
can return to service	step 2
cannot return to service	step 4

2 To return the line to service when maintenance action is complete, type

```
>MAPCI;MTC;LNS;LTP;LTPISDN
>Post D or L <Dir No.> or <Len No.>
>RTS
```

and press the Enter key.

If the RTS command	Do
passed	step 5
failed	step 3

3 Perform the procedure *Line state is Idle (IDL).* Do not return to this procedure.

4 For additional help, contact the next level of support.

5 The procedure is complete.

Line state is Packet service unavailable

Application

Use this procedure when the line state is packet service unavailable (PSU).

Definition

D-channel or B-channel access to the DMS packet handler (PH) is not available. The PSU state appears under the STA header of the LTP or LTPISDN level of the MAP display. This state also appears in reverse video when you post an idle directory number on the same line equipment number (LEN).

The PSU state indicates a layer three fault. The PSU state does not indicate the state of layer one or layer two. Faults in layer one or layer two also indicate faults in layer three. The displayed state changes from PSU to IDL when you create layer three again. You can have more than one PM.

The most common reasons for layer three faults involve the customer premises equipment (CPE). For example, the CPE can power down or a connection does not exist for the CPE. Another example is the wrong installation or functioning of the CPE. Any of these conditions cause a PSU state.

Another explanation for the faults in layer three is the removal of a channel from service for maintenance activities. For example, removal of a complete X.25/X.75 link interface unit (XLIU) occurred. Another example is that a channel failure in the high-level data link control (HDLC) frame processor (HFP) occurred.

Limits

This feature does not present limitations.

Common procedures

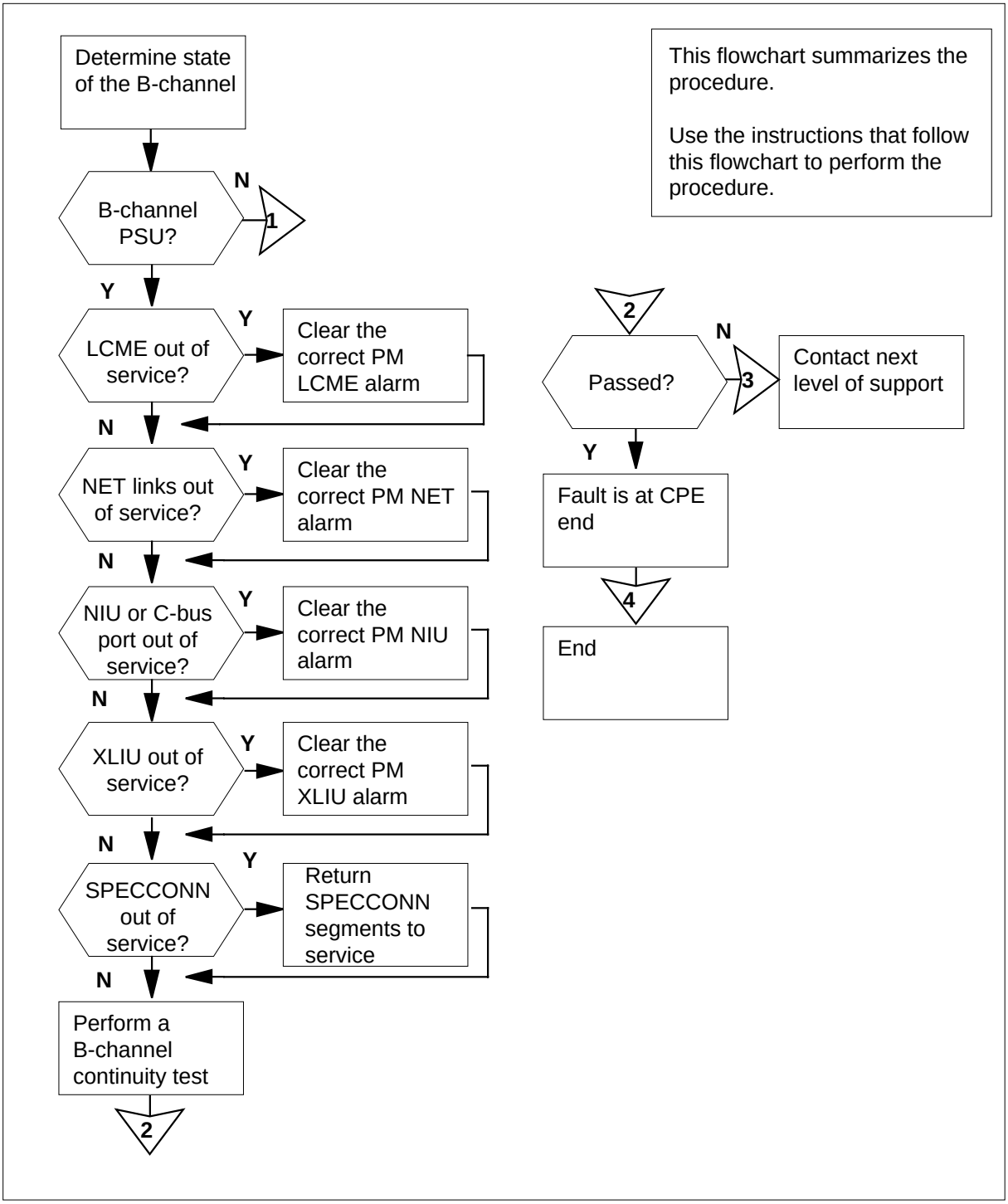
There are no common procedures.

Action

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

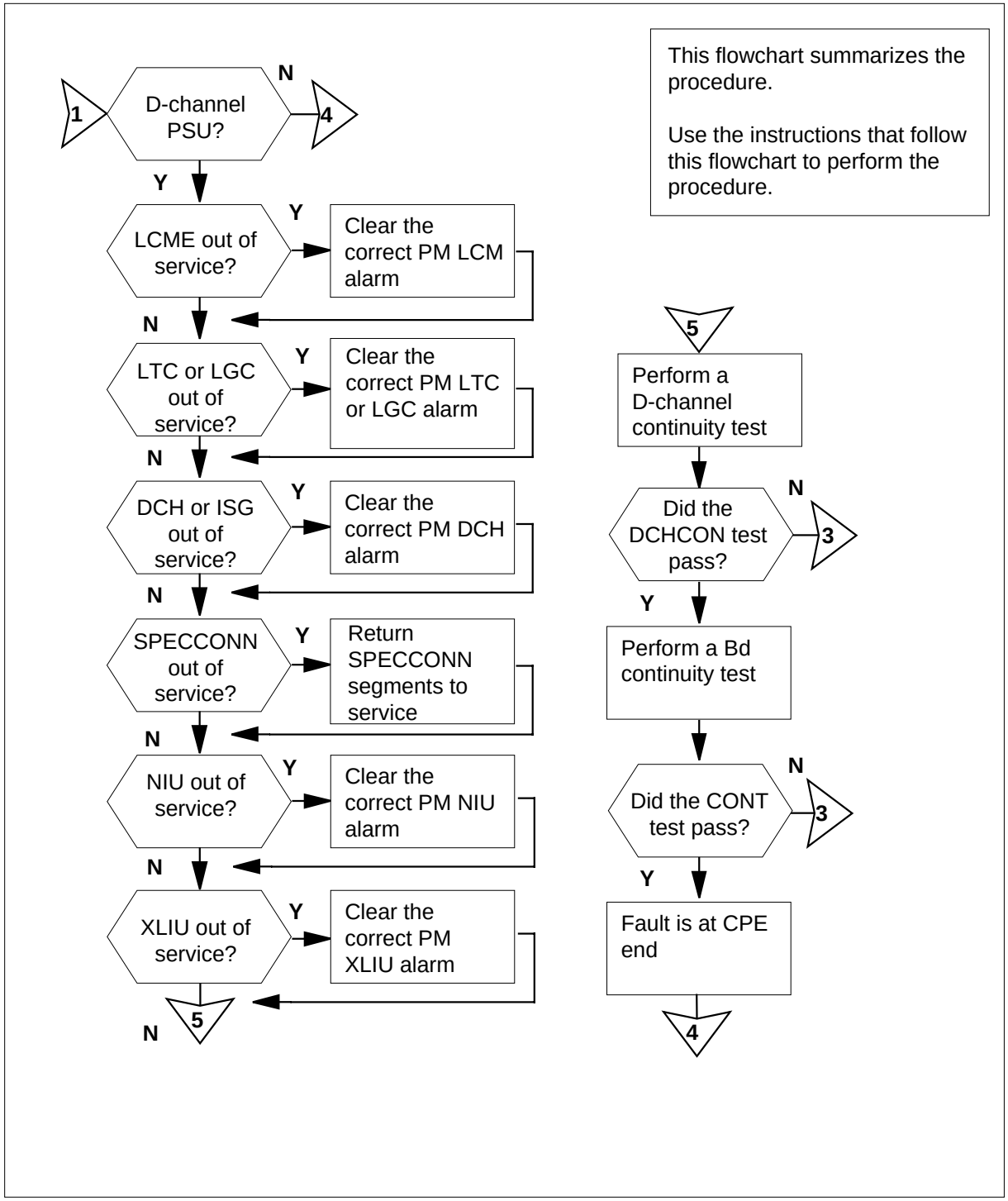
Line state is Packet service unavailable (continued)

Summary of Line state is Packet service unavailable (PSU)



Line state is Packet service unavailable (continued)

Summary of Line state is Packet service unavailable (PSU) (continued)



Line state is Packet service unavailable (continued)

Line state is Packet service unavailable (PSU)

At the MAP

1

WARNING
Possible equipment damage
Proceed only if a step in a maintenance procedure directs you to this procedure. Separate use of this procedure can cause equipment damage or loss of service.

To post the B-channels (B1 and B2) for the directory number (DN) that has faults, type

```
>MAPCI;MTC;LNS;LTP;LTPISDN
>Post D or L <Dir No.> or <Len No.>
>POST  L  frame_no  unit_no  drawer_no  circuit_no  bchnl
```

and press the Enter key.

where

frame_no
is the frame number (0 to 511) for the B-channel

unit_no
is the unit number (0 to 9) for the B-channel

drawer_no
is the drawer number (0 to 99) for the B-channel

circuit_no
is the circuit number (0 to 99) for the B-channel

bchnl
is the B-channel (B1 or B2)

Example input:

```
>POST  L  7  1  15  10  B1
```

Example of a MAP:

```
LCC PTY RNG .....LEN.....     DN    STA F S LTA  TE  RESULT
ISDN    B1  HOST  7 1 15 10     742 8102 PSU
```

Note: In the example above, the B-channel B1 is PSU.

If	Do
one or both B-channels are PSU	step 2
no B-channel is PSU	step 34

Line state is Packet service unavailable (continued)

2 Determine the status of the enhanced line concentrating module (LCME), network links, and the network interface unit (NIU). Determine the status of the central bus (C-bus) port, XLIU, and SPECCONN connection for the B-channel that is PSU. To determine the status, type,

>CKTLOC

and press the Enter key.

Example of a MAP response:

```
XPM       Status: Unkn
LCME      Status: InSv
NET  3    --    51     7: OK
TO   1    --    58     5: OK
NIU 2 ISTb, CBus Port 2 InSv
SPEC Endpt XSG 2 Channel 7 XLIU 131 Status: SYSb
ConType: Con   Status: Active
```

Note: The SPECCONN status appears on the last line of the MAP response to the right of the Status field. In the example above, the SPECCONN status is Active.

3 Record the response information in step 2 for the connection.

4 Your next action depends on the status of the LCME, network links, NIU, C-bus port, and the XLIU. Your next action also depends on the status of the SPECCONN connection for the B-channel that is PSU.

If	Do
the LCME is out of service	step 13
the NET links are out of service	step 16
the NIU is out of service	step 19
the C-bus port is out of service	step 22
the XLIU is out of service	step 25
the SPECCONN status is `PMBusy`	step 5
the SPECCONN status is `Maintenance`	step 6
the SPECCONN status is `NoInteg`	step 7
the SPECCONN status is `InActive`	step 7
all of the above are in service	step 28

Line state is Packet service unavailable (continued)

5 One of the nodes in the connection is busy. Wait for the node to return to service.

Note: Wait approximately two minutes.

If	Do
the SPECCONN status remains `PMBusy`	step 7
the SPECCONN status changes	step 2

6 The connection performs a maintenance action. Wait for the maintenance action to finish.

Note: Wait approximately five minutes.

If	Do
the SPECCONN status remains `Maintenance`	step 7
the SPECCONN status remains `Maintenance`	step 2

7 To determine the status of the SPECCONN segments, type

`>QSCONN SEG XSGCHNL xsg_no chnl_no`

and press the Enter key.

where

xsg_no
is the XSG number (0 to 749) determined in step 2

chnl_no
is the channel number (0 to 31) determined in step 2

Example input:

`>QSCONN SEG XSGCHNL 2 7`

Example of a MAP response:

```
SEG   ENDPOINT1                ENDPOINT2           CONTYPE   STATUS
-------------------------------------------------------------------------------------------------
0     XSGCHNL   2 7            XPM_CSIDE NIU  2 2 2    Con     Inact
1     JNET  1  58   5          JNET  3  51   7              Con     Act
2     XPM_CSIDE LTC  1 12 6    XPM_PSIDE LTC  1 11 24 Con     Act
3      LCM_CSIDE 10 24          ISLC HOST  7 1 15 10 B1 Con     Act
```

8 Find the SPECCONN segment that has faults.

Note: For example, the response in step 7 indicates that all SPECCONN segments are in service, except the XSG to NIU segment. THe XSG to

Line state is Packet service unavailable (continued)

NIU segment is inactive. The response indicates either a XLIU has faults or a NIU has faults.

If the bad segment	Do
is with the LCME	step 9
is with the LGC	step 9
is with the LTC	step 9
is with the NET	step 11
is with the NIU	step 9
is with the XLIU	step 9

9 Perform the correct LCME, LGC, LTC, NIU, or XLIU alarm clearing procedure in *Alarm Clearing and Performance Monitoring Procedures*. Complete the procedure and return to this point.

10 Go to step 12.

11 Perform the correct NET alarm clearing procedure in *Alarm Clearing and Performance Monitoring Procedures*. Complete the procedure and return to this point.

12 To determine the status of the SPECCONN segments, type

>QSCONN SEG XSGCHNL xsg_no chnl_no

and press the Enter key.

where

xsg_no
is the XSG number (0 to 749) determined in step 2

chnl_no
is the channel number (0 to 31) determined in step 2

Example input:

>QSCONN SEG XSGCHNL 2 7

Example of a MAP response:

```
SEG  ENDPOINT1              ENDPOINT2              CONTYPE  STATUS
-------------------------------------------------------------------------------------------
0   XSGCHNL   2 17          XPM_CSIDE NIU  2 2 2     Con     Act
1   JNET 1  58   5          JNET  3  51   7          Con     Act
2   XPM_CSIDE LTC  1 12 6   XPM_PSIDE LTC  1 11 24   Con     Act
3    LCM_CSIDE 10 24         ISLC HOST 7 1 15 10 B1   Con     Act
```

If	Do
status of the SPECCON segements is `Act`	step 2

Line state is Packet service unavailable (continued)

If	Do
status of the SPECCON segments is other than listed here	step 78

13 To post the LCME that has faults, type

>MAPCI;MTC;PM;POST LCME frame_no unit_no

and press the Enter key.

where

frame_no
is the frame number (0 to 511) used in step 1

unit_no
is the unit number (0 or 1) used in step 1

Example input:

>MAPCI;MTC;PM;POST LCME 7 1

Example of a MAP:

```
LCME HOST 7 1   SysB   Links OOS: Cside  5
Unit0: SysB
Unit1: SysB                    11  11  11  RG: Uneq
Drwr:  01  23  45  67  89  01  23  45
         ..  ..   ..  ..  ..  ..   ..  ..
```

If	Do
the LCME is out of service	step 14
the LCME is in service	step 2

14 Perform the correct LCME alarm clearing procedure in *Alarm Clearing and Performance Monitoring Procedures*. Complete the procedure and return to this point.

15 Go to step 2.

16 To post the NET links that have faults, type

>MAPCI;MTC;NET;LINKS link_no

and press the Enter key.

where

link_no
is the link number (0 to 31) determined in step 2 on the line ofthe response that follows NET

Line state is
Packet service unavailable (continued)

Example of a MAP:

```
Net                    11111  11111  22222  22222  33
 Plane  01234  56789  01234  56789  01234  56789  01
   0     .....
   1     .....
Net  3 Links                 11  1111 1111   2222 2222 2233
       Plane     0123  4567  8901  2345  6789  0123  4567  8901
        0        ....  ....  ....  ..-.  .-.-  ..--  ..--  .--.
        1        ....  ...P  ....  ..-.  .-.-  ..--  ..--  .--.
       Links     3333  3333  4444  4444  4455  5555  5555  6666
        Plane    2345  6789  0123  4567  8901  2345  6789  0123
        0        .---  ..-.  ..-.  -.-.  .-.S  .--.  .-..  .-.-
        1        .---  ..-.  ..-.  -.-.  .-.S  .--.  .-..  .-.-
```

If	Do
the NET links are out of service	step 17
the NET links are in service	step 2

17 Perform the correct NET alarm clearing procedure in *Alarm Clearing and Performance Monitoring Procedures*. Complete the procedure and return to this point.

18 Go to step 2.

19 To post the NIU that has faults, type

`>MAPCI;MTC;PM;POST  NIU  unit_no`

and press the Enter key.

where

unit_no
is the unit number (0 to 99) determined in step 2 on the line of theresponse that follows NIU

Example of a MAP response:

Line state is Packet service unavailable (continued)

NIU 1: ISTb
Unit 0: InAct ISTb
Unit 1: Act ISTb

If	Do
the NIU is out of service	step 20
the NIU is in service	step 2

20 Perform the correct NIU alarm clearing procedure in *Alarm Clearing and Performance Monitoring Procedures*. Complete the procedure and return to this point.

21 Go to step 2.

22 To access the NIU Devices (C-bus) level of the MAP, type

`>MAPCI;MTC;PM;POST NIU unit_no;DEVICES`

and press the Enter key.

where

unit_no
is the unit number (0 to 99) determined in step 2 on the line of theresponse that follows NIU

Example of a MAP response:

```
NIU 2: IstbUnit 0: Act   IstbUnit 1: InAct Istb      Net Links      0 1 2 3
CBUS ports OOSPB 0   . . S .            1PB 1   . . S .            1
```

If	Do
the C-bus ports are out of service	step 23
the C-bus ports are in service	step 2

23 A C-bus port fault produces an NIU alarm. Perform the correct NIU alarm clearing procedure in *Alarm Clearing and Performance Monitoring Procedures*. Complete the procedure and return to this point.

24 Go to step 2.

25 To post the XLIU that has faults, type

`>MAPCI;MTC;PM;POST XLIU unit_no`

and press the Enter key.

where

unit_no
is the unit number (0 to 999) determined in step 2 on the line of theresponse that follows XLIU

Example of a MAP response:

Line state is Packet service unavailable (continued)

XLIU 131 SysB

If	Do
the XLIU is out of service	step 26
the XLIU is in service	step 2

26 Perform the correct XLIU alarm clearing procedure in *Alarm Clearing and Performance Monitoring Procedures*. Complete the procedure and return to this point.

27 Go to step 2.

28 To perform a B-channel continuity test on the posted loop, type

>MAPCI;MTC;LNS;LTP;LTPISDN;BCHCON

and press the Enter key.

Example of a MAP response:

```
WARNING - Action may affect Packet Data Service
          Do you wish to continue ?
Please confirm ("YES", "Y", "NO", or "N"):
```

29 To confirm the command, type

>YES

and press the Enter key.

Example of a MAP response:
B1 Bb cont failed, invalid XLIU stateB1 Bb chnl RTS failed, SPECCONN status not active

If	Do
the BCHCON test passed	step 30
the BCHCON test failed	step 78

30 To determine the state of the other B-channel, type

>POST L frame_no unit_no drawer_no circuit_no bchnl

and press the Enter key.

where

frame_no
is the frame number (0 to 511) for the B-channel

unit_no
is the unit number (0 to 9) for the B-channel

drawer_no
is the drawer number (0 to 99) for the B-channel

Line state is Packet service unavailable (continued)

circuit_no
is the circuit number (0 to 99) for the B-channel

bchnl
is the B-channel (B1 or B2)

Example input:

```
>POST   L    7   1   15   10   B2
```

Example of a MAP response:

```
LCC PTY RNG .....LEN.....     DN    STA F S LTA  TE  RESULT
ISDN    B2  HOST  7 1 15 10     742 8102 IDL
```

Note: In the example above, the B-channel B2 is idle.

If	Do
the B-channel state is PSU	step 2
the B-channel state is IDL	step 32
other than listed here	step 31

31 Perform the correct trouble locating procedure in this book.

32 To post the damaged directory number, type

```
>POST   D   dn
```

and press the Enter key.

where

dn
is the DN that has faults determined in step 30 on the response line under DN

Example input:

```
>POST   D   7428118
```

Example of a MAP:

```
LCC PTY RNG .....LEN.....     DN    STA F S LTA  TE  RESULT
ISDN LOOP   HOST  7 1 15 10     742 8118 PSU
```

Note: In the example above, the DN 742-8118 is PSU.

If	Do
the DN state is PSU	step 34
the DN state is IDL	step 79
the DN state is other than listed here	step 33

Line state is Packet service unavailable (continued)

33 Perform the correct trouble locating procedure.

34 Determine the status of the LTC, LCME, DCH, ISG Bd channel, and SPECCONN connection for the D-channel. To determine the status, type

>CKTLOC

and press the Enter key.

Example of a MAP response:

```
LCC PTY RNG .....LEN.....     DN    STA F S LTA  TE  RESULT
ISDN LOOP   HOST  7 1 15 10     742 8118 PSU

Site Flr RPos  Bay_id   Shf  Description    Slot     EqPEC
HOST  01  C07  LCEI  7   32  LCME  7 1      15:10    BX26AA

LTC    1  Status: ISTb  PSLink: 11  Status: OK
LCME      Status: ISTb  CSLink:  1
DCH   51  Status: ISTb  ISG  203  CHNL   7  Status: SYSB
      ConType: Con   Status: Active    TDM: 2
```

Note: The SPECCONN status appears on the last line of the MAP to the right of the Status field. In the example above, the SPECCONN status is Active.

35 Record the PM names and numbers from the step 34 response for the connection. The information appears below the Site header and response line.

36 Your next action depends on the status of the LTC, LCME, DCH, ISG Bd channel, and SPECCONN connection for the D-channel.

If	Do
the LTC or LGC is out of service	step 47
the LCME is out of service	step 50
the DCH is out of service	step 53
the ISG CHNL is out of service	step 56
the SPECCONN status is `PM-Busy`	step 37
the SPECCONN status is `Maintenance`	step 38
the SPECCONN status is `NoInteg`	step 39

Line state is Packet service unavailable (continued)

If	Do
the SPECCONN status is `In-Active`	step 39
all of the above are in service	step 59

37 One of the nodes in the connection is busy. Wait for the node to return to service.

Note: Wait approximately two minutes.

If	Do
the SPECCON status remains `PMBusy`	step 39
the SPECCON status changes	step 34

38 The connection performs a maintenance action. Wait for the maintenance action to finish.

Note: Wait approximately two minutes.

If	Do
the SPECCONN status remains `Maintenance`	step 39
the SPECCONN status changes	step 34

39 To determine the XSG for the DN, type

`>QPHF DN dn`

and press the Enter key.

where

dn
is the directory number

Example input:

`>QPHF DN 7428118`

Example of a MAP response:

```
                    DN INFORMATION (D Channel)
                    ------------------------------------------
NUI:    NO   FSA:    NO   RCA:    NO   TCN:    NO  ICB:   NO
FCPN:  NO   RPOAB: NO   LCP:    NO   CUGS:  NO  OCB:   NO
IMPS:  128  OMPS:  128  NDPS:   YES
DTCA:  NO   IDTCA: 9600  ODTCA:  9600
SLCN:  1    NPVC:  0    NOWI:   0    NNRC:  10  NOWO:  0
```

Line state is
Packet service unavailable (continued)

```
PLSQ:  MOD8 IPLWS: 7       OPLWS:  7     NDWS:  YES
ICS:   NO

MAPPING
-----------
LTID: PKT 118
CHANNEL:  5  X.25 Bd
XSG: 4
```

40 Record the XSG and channel numbers for the DN.

41 To determine the status of the SPECCONN segments, type

`>QSCONN SEG XSGCHNL xsg_no chnl_no`

and press the Enter key.

where

xsg_no
is the XSG number (0 to 749) determined in step 39

chnl_no
is the channel number (0 to 31) determined in step 39

Example input:

`>QSCONN SEG XSGCHNL 4 5`

Example of a MAP response:

```
SEG    ENDPOINT1                ENDPOINT2          CONTYPE STATUS
-------------------------------------------------------------------------------------------
0      XSGCHNL   4 5             XPM_CSIDE NIU  1 2 25    Con    Inact
1      JNET  1  51  25           JNET  3  51   4           Con    Act
2      XPM_CSIDE LTC  1 12 4    DCHCHNL 203 30            Con    Act
```

42 Find the SPECCONN segment that has faults.

Note: For example, the MAP response in step 41 indicates that all the SPECCONN segments are in service, except the XSG to NIU segment. The XSG to NIU segment is inactive. This response indicates either a XLIU that has faults or a NIU that has faults.

If the damaged segment	Do
is with the DCH	step 43
is with the LGC	step 43
is with the LTC	step 43
is with the NET	step 45
is with the NIU	step 43
is with the XLIU	step 43

Line state is Packet service unavailable (continued)

43 Perform the correct LCME, LGC, LTC, NIU, or XLIU alarm clearing procedure in *Alarm Clearing and Performance Monitoring Procedures*. Complete the procedure and return to this point.

44 Go to step 46.

45 Perform the correct NET alarm clearing procedure in *Alarm Clearing and Performance Monitoring Procedures*. Complete the procedure and return to this point.

46 To determine the status of the SPECCONN segment, type

```
>QSCONN  SEG  XSGCHNL  xsg_no  chnl_no
```

and press the Enter key.

where

xsg_no
is the XSG number (0 to 749) determined in step 39

chnl_no
is the channel number (0 to 31) determined in step 39

Example input:

```
>QSCONN  SEG  XSGCHNL  4  5
```

Example of a MAP response:

```
SEG   ENDPOINT1              ENDPOINT2          CONTYPE      STATUS
-------------------------------------------------------------------------------------------------
0   XSGCHNL   4 5            XPM_CSIDE NIU  1 2 25   Con          Act
1   JNET  1  51  25          JNET  3  51   4          Con          Act
2   XPM_CSIDE LTC  1 12 4   DCHCHNL 203 30           Con          Act
```

If all SPECCONN segments	Do
are `Act`	step 34
are other than listed here	step 78

47 To post the LTC or LGC that have faults, type

```
>MAPCI;MTC;PM;POST  pm  unit_no
```

and press the Enter key.

where

pm
is the peripheral module (LTC or LGC) determined in step 34

unit_no
is the unit number (0 to 99) determined in step 34

Example input:

```
>MAPCI;MTC;PM;POST  LTC  1
```

Line state is Packet service unavailable (continued)

Example of a MAP:

```
LTC     1 ISTb  Links_OOS: CSide  0 , PSide 3
Unit0:    Act   ISTb
Unit1:    Inact ISTb
```

If	Do
the LTC or LGC is out of service	step 48
the LTC or LGC is in service	step 34

48 Perform the correct LTC or LGC alarm clearing procedure in *Alarm Clearing and Performance Monitoring Procedures*. Complete the procedure and return to this point.

49 Go to step 34.

50 To post the LCME that has faults, type

`>MAPCI;MTC;PM;POST  LCME  frame_no  unit_no`

and press the Enter key.

where

frame_no
is the frame number (0 to 511) used in step 1

unit_no
is the unit number (0 or 1) used in step 1

Example of a MAP:

```
LCME HOST 67 1   SysB   Links OOS: Cside  0
Unit0: SysB
Unit1: SysB                    11  11  11  RG: Uneq
Drwr:  01  23  45  67  89  01  23  45
         ..  ..  ..  ..  ..  ..  ..  ..
```

If	Do
the LCME is out of service	step 51
the LCME is in service	step 34

51 Perform the correct LCME alarm clearing procedure in *Alarm Clearing and Performance Monitoring Procedures*. Complete the procedure and return to this point.

52 Go to step 34.

53 To post the DCH that has faults, type

`>MAPCI;MTC;PM;POST  pm  pm_unit_no;DCH;POST  dch_unit_no`

and press the Enter key.

Line state is Packet service unavailable (continued)

where

pm
is the peripheral module (LTC or LGC) recorded in step 35

pm_unit_no
is the peripheral module unit number (0 to 99) recorded instep 35

dch_unit_no
is the DCH unit number (0 to 99) recorded in step 35

Example input:

```
>MAPCI;MTC;PM;POST  LTC  1;DCH;POST  51
```

Example of a MAP:

```
LTC     1 ISTb  Links_OOS: CSide  0 , PSide 3
Unit0:   Act   ISTb
Unit1:   Inact ISTB

DCH              0      0      0      3      0      0

DCH  51 ISG 203 ISTb LTC    1 port 15
```

If	Do
the DCH is out of service	step 54
the DCH is in service	step 34

54 Perform the correct DCH alarm clearing procedure in *Alarm Clearing and Performance Monitoring Procedures*. Complete the procedure and return to this point.

55 Go to step 34.

56 To post the ISG that has faults, type

```
>MAPCI;MTC;PM;POST  pm  pm_unit_no;ISG;POST  isg_unit_no
```

and press the Enter key.

where

pm
is the peripheral module (LTC or LGC) recorded in step 35

pm_unit_no
is the peripheral module unit number (0 to 99) recorded instep 35

isg_unit_no
is the ISG unit number (0 to 255) recorded in step 35

Example input:

```
>MAPCI;MTC;PM;POST  LTC  1;ISG;POST  203
```

Example of a MAP response:

Line state is
Packet service unavailable (continued)

```
LTC     1 ISTb  Links_OOS: CSide  0 , PSide 3
Unit0:    Act   ISTb
Unit1:    Inact ISTB

ISG              1111111111 2222222222 33
  123456789 0123456789 0123456789 01
   . . . . . .  . . . . . .  . . . . . .  S .

ISG 203 DCH  51 ISTb LTC    1 port 15
```

If	Do
the DCH is out of service	step 57
the DCH is in service	step 34

57 ISG faults produce a DCH alarm. Perform the correct DCH alarm clearing procedure in *Alarm Clearing and Performance Monitoring Procedures*. Complete the procedure and return to this point.

58 Go to step 34.

59 To determine the XSG for the DN, type

>QPHF DN dn

and press the Enter key.

where

dn
is the directory number

Example input:

>QPHF DN 7428118

Example of a MAP response:

```
                    DN INFORMATION (D Channel)
                    ----------------------------------------------
NUI:     NO   FSA:      NO    RCA:     NO    TCN:    NO  ICB:    NO
FCPN:  NO    RPOAB: NO    LCP:     NO    CUGS:  NO  OCB:    NO
IMPS:  128    OMPS:  128    NDPS:   YES
DTCA:  NO    IDTCA: 9600  ODTCA:  9600
SLCN:  1       NPVC:  0       NOWI:   0       NNRC:  10   NOWO:   0
PLSQ:  MOD8   IPLWS: 7     OPLWS:  7       NDWS:  YES
ICS:   NO


MAPPING
-----------
LTID: PKT 118
CHANNEL:  5  X.25 Bd
XSG: 4
```

Line state is Packet service unavailable (continued)

60 Record the XSG and channel numbers from the response in step 59 for the DN.

61 To determine the NIU for the DN, type

>QSCONN SEG XSGCHNL xsg_no chnl_no

and press the Enter key.

where

xsg_no
is the XSG number (0 to 749) recorded in step 60

chnl_no
is the channel number (0 to 31) recorded in step 60

Example input:

>QSCONN SEG XSGCHNL 4 5

Example of a MAP response:

```
SEG  ENDPOINT1              ENDPOINT2              CONTYPE  STATUS
-------------------------------------------------------------------------------------------------
0    XSGCHNL   4 5           XPM_CSIDE NIU  1 2 25    Con      PMB
1    JNET  1  51  25         JNET  3  51   4           Con      Act
2    XPM_CSIDE LTC  1 12 4   DCHCHNL 203 30          Con      Act
```

Note: In the example above, the NIU associated with the D-channel is NIU 1.

62 Record the NIU unit number from the response in step 61 for the connection. This information appears below the ENDPOINT2 header and in the XSGCHNL response line.

63 To determine the state of the NIU, type

>MAPCI;MTC;PM;POST NIU unit_no

and press the Enter key.

where

unit_no
is the unit number (0 to 99) recorded in step 62

Example of a MAP:

```
NIU 1:  SYSb
Unit 0:  InAct SYSb
Unit 1:  Act   SYSb
```

If	Do
the NIU is in service	step 65
the NIU is not in service	step 64

Line state is
Packet service unavailable (continued)

64 Perform the correct procedure in *Alarm Clearing and Performance Monitoring Procedures*. to clear NIU alarm.Complete the procedure and return to this point.

65 To determine the XLIU for the XSG, type

>QPHF XSG xsg_no

and press the Enter key.

where

xsg_no
is the XSG number (0 to 749) recorded in step 60

Example of a MAP response:

```
                          XSG INFORMATION
                         ----------------------------
  XSG EXT INDEX: 4       CURRENT NUMBER OF LINKS: 54
  XLIU INDEX: 124        MAXIMUM NUMBER OF CHANNELS:30

MAPPING
-------------
CHANNEL:  1  X.25 PB
CHANNEL:  2  X.25 PB
CHANNEL:  3  X.25 PB
CHANNEL:  4  X.25 Bd
CHANNEL:  5  X.25 Bd
CHANNEL:  6  X.75 B
CHANNEL:  7  X.75 B
CHANNEL:  8  X.75 B
CHANNEL:  9  X.75 B
CHANNEL: 10  X.75 B
CHANNEL: 11  X.75 B
```

66 Record the XLIU unit number next to the XLIU INDEX header in the response in step 65.

67 To post the XLIU, type

>MAPCI;MTC;PM;POST XLIU unit_no

and press the Enter key.

where

unit_no
is the unit number (0 to 999) recorded in step 66

Example of a MAP:
XLIU 124 SysB

If the XLIU	Do
is in service	step 69

Line state is Packet service unavailable (continued)

If the XLIU	Do
is out of service	step 68

68 Perform the correct XLIU alarm clearing procedure in *Alarm Clearing and Performance Monitoring Procedures*. Complete the procedure and return to this point.

69 To perform a D-channel continuity test between the DCH and the line card of the posted loop, type

>MAPCI;MTC;LNS;LTP;LTPISDN;DCHCON

and press the Enter key.

Example of a MAP response:

```
WARNING - Action may affect Packet Data Service
          Do you wish to continue ?
Please confirm ("YES", "Y", "NO", or "N"):
```

70 To confirm the response, type

>YES

and press the Enter key.

Example of a MAP response:

```
DCH continuity test passed
```

If the DCHCON test	Do
passed	step 71
failed	step 78

71 To post the ISG recorded in step 35, type

>MAPCI;MTC;PM;POST pm pm_unit_no;ISG;POST isg_unit_no

and press the Enter key.

where

pm
is the peripheral module (LTC or LGC) recorded in step 35

pm_unit_no
is the peripheral module unit number (0 to 99) recorded in step 35

isg_unit_no
is the ISG unit number (0 to 255) recorded in step 35

Example input:

>MAPCI;MTC;PM;POST LTC 1;ISG;POST 203

Line state is
Packet service unavailable (continued)

Example of a MAP response:

```
LTC     1 ISTb  Links_OOS: CSide  0 , PSide  3
Unit0:   Act   ISTb
Unit1:   Inact ISTb

ISG                 1111111111    2222222222 33
      123456789     0123456789    0123456789 01
      . . . . . .   . . . . . .   . . . . . .  S.

ISG 203 DCH  51 ISTb LTC    1 port 15  DCH Chnls BSY
```

72 To determine the Bd channel for the LEN, type

`>QLEN frame_no unit_no drawer_no circuit_no`

and press the Enter key.

where

frame_no
is the frame number (0 to 511) for the B-channelused in step 1

unit_no
is the unit number (0 to 9) for the B-channel usedin step 1

drawer_no
is the drawer number (0 to 99) for the B-channelused in step 1

circuit_no
is the circuit number (0 to 99) for the B-channelused in step 1

Example of a MAP response:

```
LEN:     HOST  7 1 15 10
ISG: 203 DCH: 51 ISG BRA CHANNEL: 7
CARDCODE:  BX26AA    PADGRP: NPDGP
PM NODE NUMBER     :    131
PM TERMINAL NUMBER :    487
LEN HAS ONE NAILEDUP B-CHANNEL

TEI       LTID        CS    PS     BCH/ISG Bd
---       ----------  --     --     ----------
1         PKT  118    N     D     ISG Bd: 30
2         PKT  119    N     D     ISG Bd: 30
3         PKT  120    N     D     ISG Bd: 30
4         PKT  121    N     D     ISG Bd: 30
5         PKT  122    N     D     ISG Bd: 30
6         PKT  123    N     D     ISG Bd: 30
7         PKT  124    N     D     ISG Bd: 30
-         PKT  102    N     B     B1
```

Note: In the example above, the Bd channel is 30.

Line state is Packet service unavailable (end)

73 Record the Bd channel number below the BCH/ISG Bd header in the response in step 72.

74 To manually busy the Bd channel between the DCH (ISG) and the XLIU (XSG), type

>BSY bd _chnl_no

and press the Enter key.

where

bd_chnl_no
is the Bd channel number (30 or 31) recorded in step 73

Example of a MAP response:

27 associated LTIDs will be affected
Please confirm ("YES", "Y", "NO", or "N"):

75 To confirm the command, type

>YES

and press the Enter key.

Example of a MAP response:

ISG 203 channel 30 BD Bsy Passed

76 To perform a continuity test on the Bd channel, type

>CONT bd _chnl_no

and press the Enter key.

where

bd_chnl_no
is the Bd channel number (30 or 31) recorded in step 73

Example of a MAP response:

XSG loop point set passed
Loop point removed
Internal continuity test passed

If the CONT test	Do
passed	step 77
failed	step 78

77 Terminals at the customer premises end have possible design and connection problems. Terminals with these problems will not allow layer two and layer three to appear. As a result, PSU appears. Direct the customer or the service representative to troubleshoot the customer premises end.

78 For additional help, contact the next level of support.

79 The procedure is complete.

Manually switching to a backup D-channel ISDN PRI primary and backup D-channels

Application

Use this procedure to switch manually from a primary D-channel to a backup D-channel.

Definition

The primary D-channel is in the in-service (INS) state and the backup D-channel is in the standby (STB) state. The switch can generate log reports ISDN110 or ISDN113.

In a problem condition, the system automatically switches the activities on the D-channels. For example, an automatic switch occurs when

- a carrier or trunk at the far end office fails
- when hardware problems occur at the DMS-100 switch

When you busy an in-service D-channel, a switch of activities to the standby D-channel occurs automatically.

Common procedures

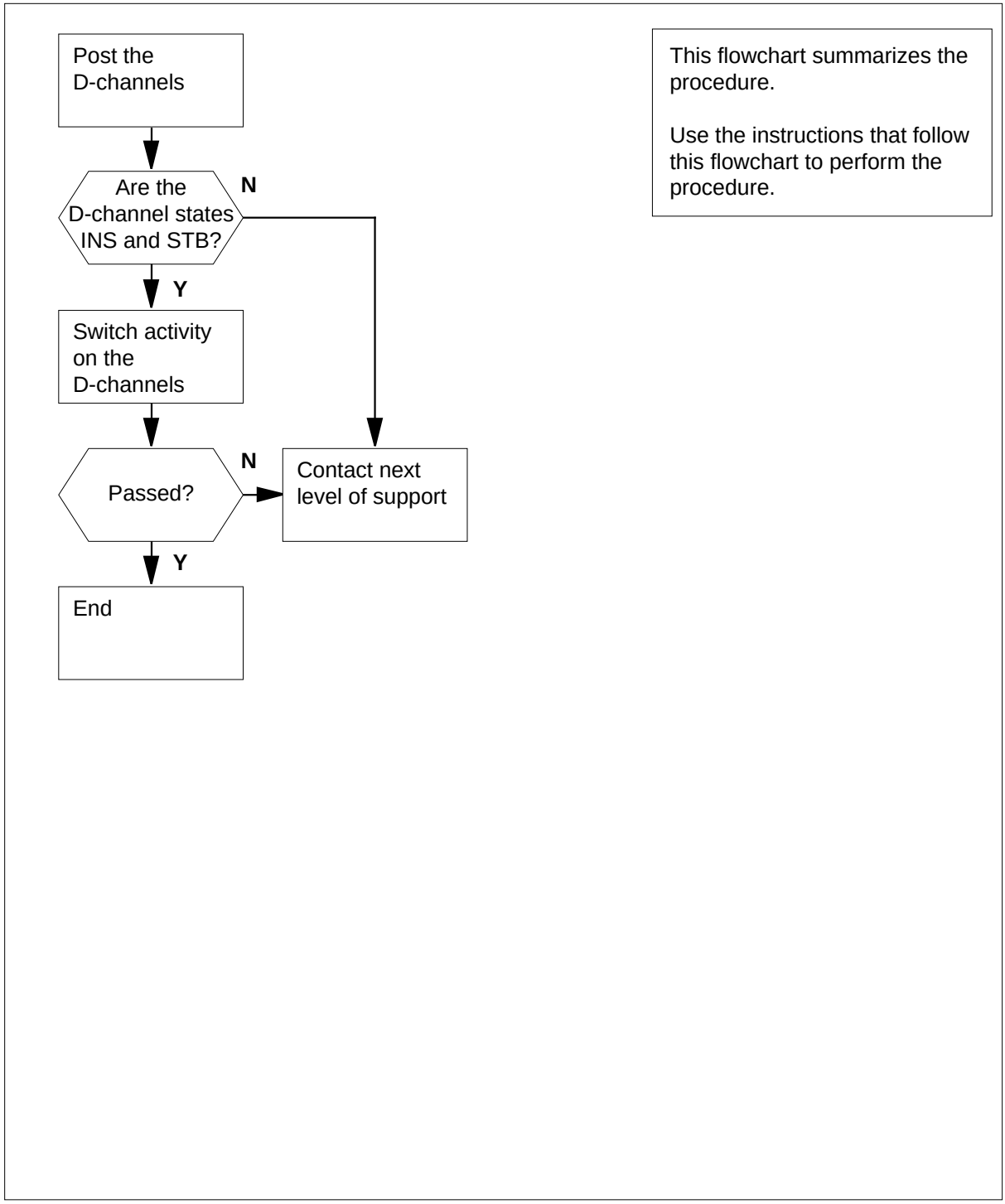
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Manually switching to a backup D-channel
ISDN PRI primary and backup D-channels (continued)

Summary of Manually switching to a backup D-channel



Manually switching to a backup D-channel ISDN PRI primary and backup D-channels (continued)

Manually switching to a backup D-channel

At the MAP display

1 From office records or operating company personnel, determine the name of the trunk group.

2 To access the TTP level of the MAP display, type

>MAPCI;MTC;TRKS;TTP;PRADCH

and press the Enter key.

3 To post the D-channels, type

>POST GD group_name

and press the Enter key.

where

group_name
is the name of the trunk group

Example input:

>POST GD F5678935PAV

Example of a MAP response:

```
POST    1    DELQ      BUSYQ    DIG
TTP  6-005
CKT TYPE   PM NO      COM LANG STA S R DOT TE RESULT
2W IS IS LTC 2 3 24 F5678935PAV D1 INS
         LTC 2 5 24 F5678935PAV D2 STB R

SHORT CLLI IS: F56789
OK,CKT POSTED
```

4 Determine the states of the D-channels.

Note: The MAP lists the state of the D-channel on the right side of the DCHL header.

If	Do
one D-channel is INS and the other is STB	step 5
one D-channel is INS and the other is not STB	step 7
neither D-channel is INS	step 7

Manually switching to a backup D-channel ISDN PRI primary and backup D-channels (end)

5

CAUTION
PRI service interruption
The following step affects PRI service when the switch of activities occurs. Perform this procedure during periods of low traffic.

To switch activity on the D-channels, type

>SWACT

and press the Enter key.

Example of a MAP response:

```
WARNING: THIS WILL CAUSE D-CHANNEL SWACT
         AND AFFECT THE SERVICE.
Please confirm (″YES″, ″Y″, ″NO″ or ″N″):
```

6 To confirm the command, type

>YES

and press the Enter key.

If the SWACT command	Do
passed	step 8
failed	step 7

7 For additional help, contact the next level of support.

8 The procedure is complete.

Modifying provisioned data for resource modules DMS-Spectrum Peripheral Module

Application

Use this procedure to modify the provisioned datafill for DMS-Spectrum Peripheral Modules (SPM) resource modules (RM), such as digital signal processors (DSP) and voice signal processors (VSP). Provisioned configuration data is changed in table MNCKTPAK.

Sparing actions between multiple RMs may have occurred since the original data download from the computing module (CM) to the common equipment module (CEM). Also, the services being provided by the RM may or may not be the same as the provisioned services for that RM.

Definition

Perform the specific steps of the procedure to modify provisioned datafill for an RM.

Common procedures

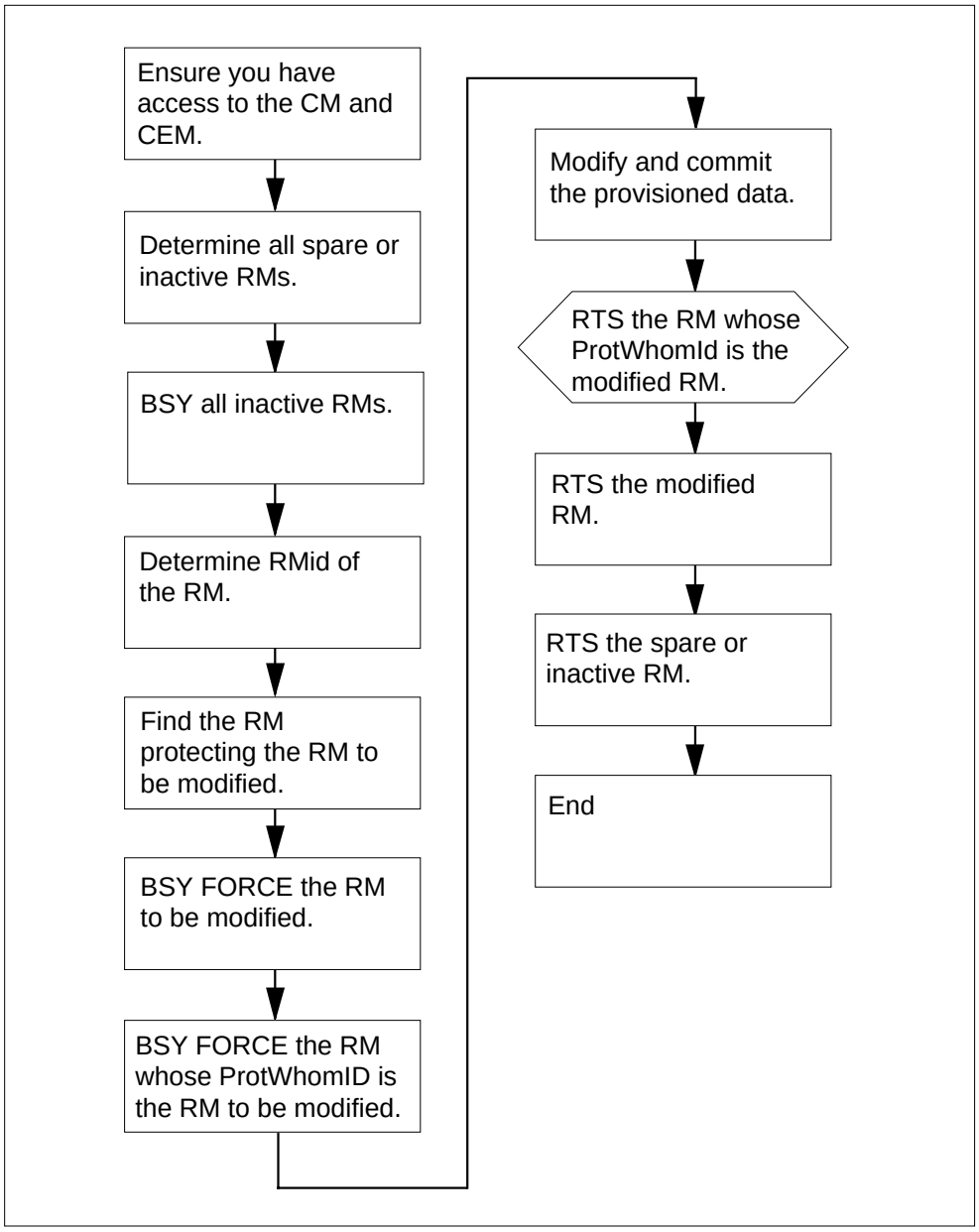
None

Action

This procedure contains a summary flowchart and a list of specific steps. Use the flowchart as an overview of the procedure. Follow the specific steps to perform the procedure.

Overview of the procedure

Modifying provisioned data for resource modules DMS-Spectrum Peripheral Module (continued)



Note: For detailed information and definitions, refer to “Supplementary information,” “table MNCKTPAK,” in the appropriate Data Schema Reference Manual.

Modifying provisioned data for resource modules DMS-Spectrum Peripheral Module (continued)

Modifying provisioned data for resource modules

At the MAP terminal

1 Ensure you have access to both the CM and the CEM.

2 Determine all spare or inactive RMs in the same protection group as the RM to be modified by entering the following:

```
CI>table mncktpak

TABLE: MNCKTPAK

>lis all
```

> ***Note:*** The RM whose datafill is to be changed belongs to a particular protection group. To prevent sparing actions from taking place while the datafill procedures are being executed, all inactive RMs in the same protection group as the RM to be modified must be busied. Use table MNCKTPAK to determine all inactive RMs that are in the same protection group and on the same SPM as the RM to be modified.

3 BSY all inactive RMs by entering the following:

```
CI> mapci;mtc;pm;post spm <<#>;select [DSP|VSP] <<#>;bsy
```

4 Determine RMid of the RM to be modified.

The RM whose provisioned data is to be modified must be a working RM. The RMid of this RM is determined by a combination of its shelf and slot numbers. RMid = (shelf number x 14) + slot number.

5 Find the RM that is protecting the services of the to-be-modified RM by entering the following:

```
CI> remlogin spm <<#> <<1|0>

You are now logged into the SPM debug shell.

Type `help' to see the available shell commands.

dSH> cd resman

dSH> configdata all verbose
```

Example:

In the following example, X is the ProtWhomId of RMid Y. This means that Y is currently configured with the provisioned data of X.

```
Service Configuration data for rmId Y
Desired configuration
COT  ECAN    DTMF    FTR     TONESYN ABBIT   MF
  0    210       0      0           0       0      0
Actual configuration
COT  ECAN    DTMF    FTR     TONESYN ABBIT   MF
  0    210       0      0           0       0      0
This RM is currently protecting the services provisioned on RM X
```

Modifying provisioned data for resource modules DMS-Spectrum Peripheral Module (end)

6 BSY FORCE the RM whose datafill is to be modified by entering the following:

```
CI> mapci;mtc;pm;post spm <<#>;select [DSP|VSP] <<#>;bsy
force
```

To change datafill, the RM must be in the state MANB. Since the spare or inactive RM has already been busied, the BSY FORCE command may need to be used to change the state of this RM.

7 BSY FORCE the RM whose ProtWhomId is the RM to be modified by entering the following:

```
CI> mapci;mtc;pm;post spm <<#>;select [DSP|VSP] <<#>;bsy
force
```

8 Modify and commit the provisioned data for the RM in table MNCKTPAK for RM by entering the following:

```
CI>table mncktpak

TABLE: MNCKTPAK

>pos spm <<#> <<shelf#> <slot#>

> cha

> ...
```

9 RTS the RM whose ProtWhomId is the modified RM by entering the following:

```
CI> mapci;mtc;pm;post spm <<#>;select [DSP|VSP] <<#>;bsy
rts
```

When the RM whose ProtWhomId is the modified RM is returned to service, it resumes protecting the services of the modified RM. Therefore, the RM will be configured with the new provisioned data of the modified RM.

If the RM described in step 9 is the RM that was modified, go to step 11.

10 RTS the modified RM by entering the following:

```
CI> mapci;mtc;pm;post spm <<#>;select [DSP|VSP] <<#>;bsy
rts
```

11 RTS the spare or inactive RMs that were busied in Step 3 by entering the following:

```
CI> mapci;mtc;pm;post spm <<#>;select [DSP|VSP] <<#>;bsy
rts
```

12 The modification to the provisioned data is complete.

Monitoring call processing busy trunk circuits

Application

Use this procedure to monitor trunk circuits that are call processing busy (CPB). Monitor CPB trunk circuits for conditions like noise, transmit (TX) level problems, and receive (RX) level problems.

Definition

This procedure monitors CPB trunk circuits. To monitor these circuits, the procedure establishes a three-party conference circuit. The conference circuit operates between the circuit in the control position, the circuit linked to it, and the headset circuit.

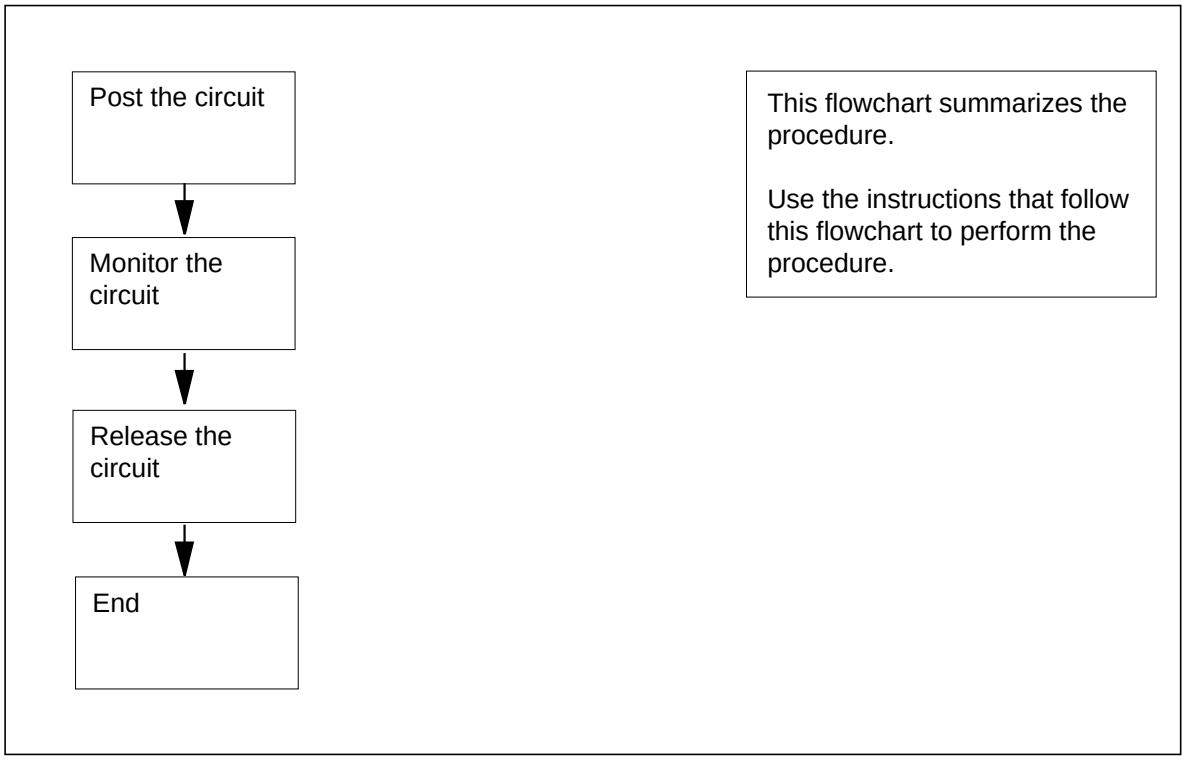
Common procedures

There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Summary of Monitoring call processing busy trunk circuits



Monitoring call processing busy trunk circuits (continued)

Monitoring call processing busy trunk circuits

At the MAP terminal

1 To access the MONITOR level of the MAP display, type

>MAPCI;MTC;TRKS;TTP;MONITOR

and press the Enter key.

2 Determine if you require a list of the different methods to post a trunk circuit.

If you	Do
require a list	step 3
do not require a list	step 5

3 To list the first circuit posting parameters, type

>POST

and press the Enter key.

Example of a MAP response:

```
INVALID PARM 1, IT IS
{A,B,D,E,G,P,S,T,TB,TM,CPTERMERR,
BC,WB}
A – POST ALL CKT BY STATE IND. B – POST
BSYQ CKT OR LEAVE
OUT OFF SERVICE CKT IN POST SET.D –
POST DIGITAL CKT ON DEQ.
E – POST ECHO SUPR CKT ON DES. G – POST
A GRP OF CKT BY CLLI
P/TM – POST CKT ON PERIPHERAL MODULE. S
– SELECT CKT BY STATE
INDICATED FROM POST SET. T – POST
INDIVIDUAL CKT BY CLLI  NAME.
TB – BY TROUBLE BUFFER. CPTERMERR –
POST CPTERMERR QUE
UE
BC – POST THE TRK CIRCUITS INVOLVED IN
A  BROADCAST CALL
WB – POST THE TRK CIRCUITS INVOLVED IN
A  WIDEBAND CALL
```

4 To list the second circuit posting parameters, type

>POST parm_1

and press the Enter key.

where

parm_1
is the first circuit posting parameter

Monitoring call processing busy trunk circuits (continued)

Example input:

>POST D

Example of a MAP response:

```
Next par is:
<DEQNM> {DCM,

  LTC,
  DTC,
  DCA,
  DCT,
  IDTC,
  ILTC,
  RCC,
  PDTC,
  TDTC,
  TLTC,
  TRCC,
  IAC,
  RCCI,
  DTCI,
  ICP,
  TMS,
  RCC2,
  SRCC}
Enter:  <DEQNM>
<DEQ_NO>
[<CARR_NO>]
[<TS_NO>] [<TO>]
<TS_NO>
```

5 To post the circuits that you want to monitor, type

>POST parm_1 parm_2

and press the Enter key.

where

parm_1
is the first circuit posting parameter

parm_2
is the second circuit posting parameter

Example input:

>POST G MAIDBNR

Example of a MAP response:

Monitoring call processing busy trunk circuits (end)

```
CKT TYPE     PM NO.          COM LANG
   STA S R  DOT TE  RESULT
 2W S7 S7 DTC   0  3  1 MAIDBNR
 1  IDL
```

6 Wait for the circuit state (STA) to change to CPB.

7 To connect the headset trunk to the CPB circuit, type

>MONTALK mode conn_length

and press the Enter key.

where

mode
is the monitoring mode, either talk (T) or listen (L)

conn_length
is the connection length in minutes (1 to 36)

Example input:

>MONTALK L 5

Example of a MAP response:

```
OK,MONITOR TALK CONNECTION SET
```

8 Monitor the circuit.

9 To release the circuit, type

>RLS

and press the Enter key.

Note: If the circuit state (STA) changes, the monitor connection automatically releases.

If the RLS command	Do
passed	step 11
failed	step 10

10 For additional help, contact the next level of support.

11 The procedure is complete.

Performing an external continuity test on a DS-1 or PCM30 link ISDN PRI single D-channel

Application

Use this procedure to perform an external continuity test on a DS-1 or a PCM30 link.

Definition

The external continuity test requires operating company personnel at the far-end office to create a DS-1 or a PCM30 carrier loopback for you.

Common procedures

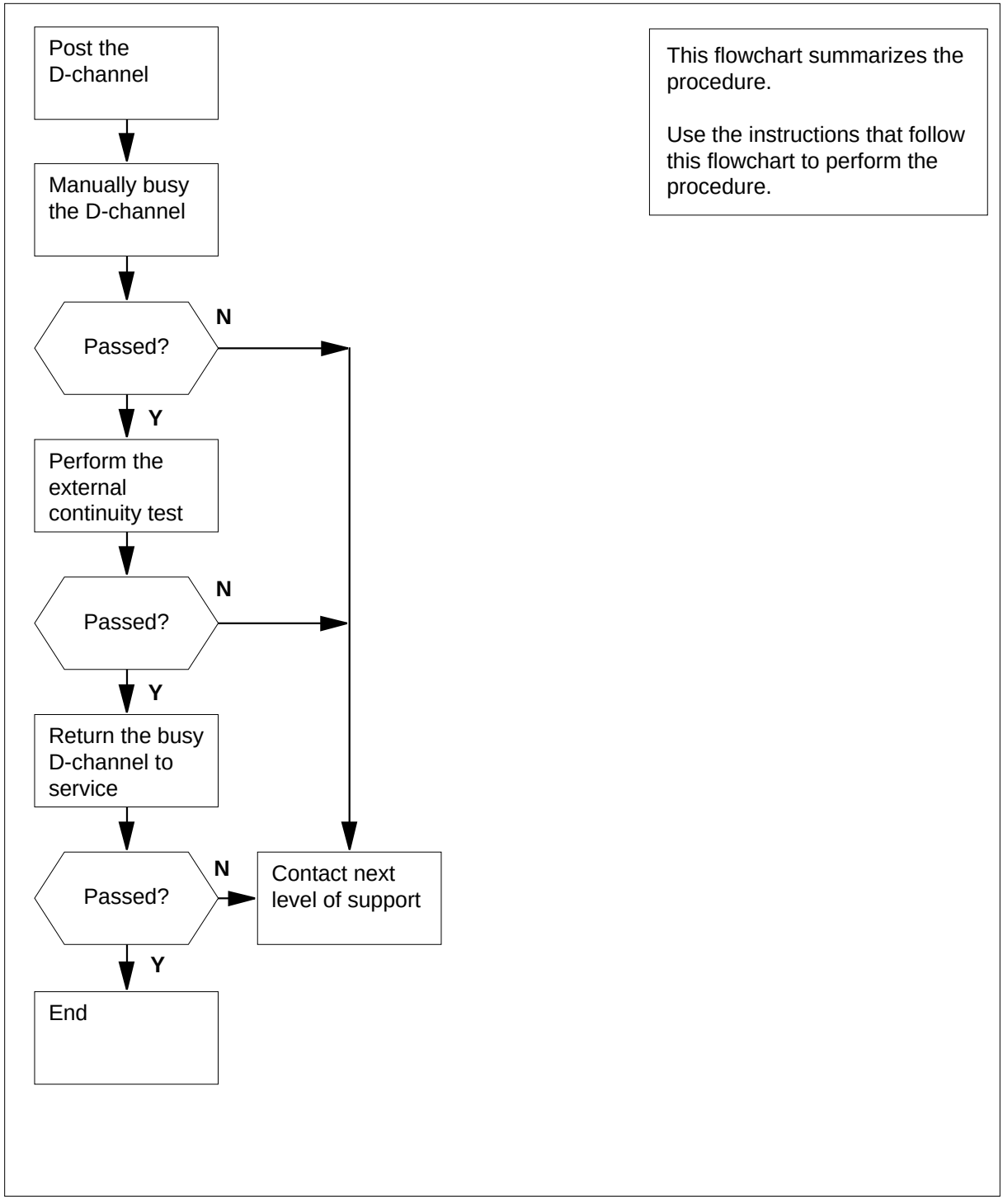
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Performing an external continuity test on a DS-1 or PCM30 link ISDN PRI single D-channel (continued)

Summary of Performing an external continuity test on a DS-1 or PCM30 link



Performing an external continuity test on a DS-1 or PCM30 link ISDN PRI single D-channel (continued)

Performing an external continuity test on a DS-1 or PCM30 link

At the MAP Terminal

1 From office records or operating company personnel, determine the name of the trunk group.

2 To access the PRADCH level of the MAP display, type

>MAPCI;MTC;TRKS;TTP;PRADCH

and press the Enter key.

3 To post the D-channel, type

>POST GD group_name

and press the Enter key.

where

group_name
is the name of the trunk group

Example input:

>POST GD F9876035PRAPRV

Example of a MAP display:

```
POST    1   DELQ      BUSYQ    DIG
TTP  6-005
CKT TYPE   PM NO      COM LANG STA S R DOT TE RESULT
2W IS IS DTCIPDTC 2 3 24 F9876035PRAPRV DCHL INS
                                        R
```

Example of a MAP response:

```
LAST CKT 3 24
POSTED CKT IDLED
SHORT CLLI IS: F98760
OK,CKT POSTED
```

4

CAUTION
PRI service interruption
The following step takes an in-service D-channel out of service. When you take an in-service D-channel out of service, the backup D-channel automatically switches into service.

To busy the D-channel manually, type

>BSY

Performing an external continuity test on a DS-1 or PCM30 link ISDN PRI single D-channel (continued)

and press the Enter key.

Example of a MAP response:

```
STATE CHANGED
     or
THIS WILL PUT DTCIPDTC  2  3  24 DCH OUT-OF-SERVICE.
Active calls will be killed
Please confirm (”YES”, ”Y”, ”NO”, or ”N”):
```

5 To confirm the command, type

>YES

and press the Enter key.

Note: The D-channel state changes to manual busy (MB).

If the BSY command	Do
passed	step 6
failed	step 11

6 Ask operating company personnel at the far-end office to create a DS-1 or PCM30 loopback.

7 Operating Company Personnel at the far-end office will notify you about the created loopback. To start the external continuity test after the operating company personnel notifies you, type

>CONT EXT

and press the Enter key.

Example of a MAP response:

```
EXTERNAL CONTINUITY TEST STARTED
EXTERNAL CONTINUITY TEST PASSED
```

If the external continuity test	Do
passed	step 8
failed	step 10

8 Ask operating company personnel at the far-end office to remove the DS-1 or PCM30 loopback.

9 To return the busy D-channel to service, type

>RTS

and press the Enter key.

Example of a MAP response:

Performing an external continuity test on a DS-1 or PCM30 link ISDN PRI single D-channel (end)

```
STATE CHANGED
```

If the RTS command	Do
passed (INS state)	step 12
failed	step 11

10 Ask the operating company personnel at the far-end office to remove the DS-1 or PCM30 loopback.

11 For additional help, contact the next level of support.

12 The procedure is complete.

Performing an external continuity test on a DS-1 link ISDN PRI primary and backup D-channels

Application

Use this procedure to perform an external continuity test on a DS-1 link.

Definition

The external continuity test requires operating company personnel at the far-end office to create a DS-1 carrier loopback for you.

Common procedures

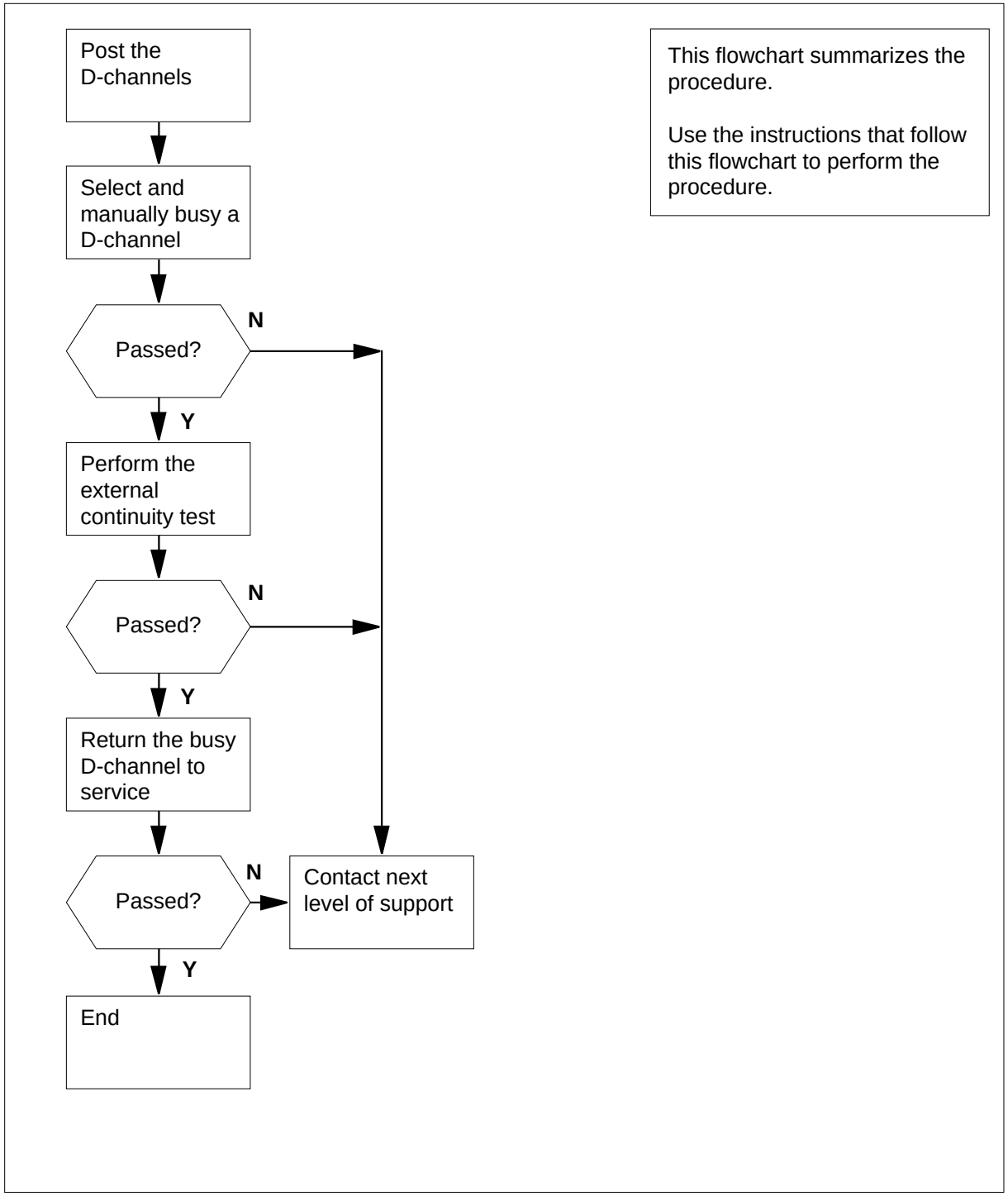
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Performing an external continuity test on a DS-1 link ISDN PRI primary and backup D-channels (continued)

Summary of Performing an external continuity test on a DS-1 link



Performing an external continuity test on a DS-1 link ISDN PRI primary and backup D-channels (continued)

Performing an external continuity test on a DS-1 link.

At the MAP Terminal

1 From office records or operating company personnel, determine the name of the trunk group.

2 To access the PRADCH level of the MAP display, type

>MAPCI;MTC;TRKS;TTP;PRADCH

and press the Enter key.

3 To post the D-channels, type

>POST GD group_name

and press the Enter key.

where

group_name
is the name of the trunk group

Example input:

>POST GD F5678935PAV

Example of a MAP display:

```
POST    1   DELQ      BUSYQ    DIG
TTP  6-005
CKT TYPE   PM NO      COM LANG STA S R DOT TE RESULT
2W IS IS LTC 2 3 24 F5678935PAV D1 STB
         LTC 2 5 24 F5678935PAV D2 INS  R
```

Example of a MAP response:

```
SHORT CLLI IS: F56789
OK,CKT POSTED
```

4 Choose the D-channel for the external continuity test. Write down its identifier (D1 or D2).

Note 1: The MAP display lists the state of the D-channel on the right side of the DCHL header. The MAP display lists the identifier under the LANG header.

Note 2: In-service (INS) is the normal operation state for the primary D-channels. Standby (STB) is the normal operation state for the backup D-channels. The STB state occurs for a backup D-channel when the primary D-channel is INS.

Note 3: You must use the same identifier (D1 or D2) for all steps used in the external continuity test.

Performing an external continuity test on a DS-1 link ISDN PRI primary and backup D-channels (continued)

5

CAUTION
PRI service interruption
The following step takes an in-service D-channel out of service. When you take an in service D-channel out of service, the backup D-channel automatically switches into service.

To manually busy the D-channel, type

>BSY d_channel

and press the Enter key.

where

d_channel
is the D-channel identifier (D1 or D2)

Example of a MAP response:

```
D1: STATE CHANGED
     or
THIS WILL PUT DTCI  2  5  24 D2 OUT-OF-SERVICE.
Active calls will be killed
Please confirm (”YES”, ”Y”, ”NO” or ”N”):
```

6 To confirm the command, type

>YES

and press the Enter key.

Note: The D-channel state changes to manual busy.

If the BSY command	Do
passed	step 7
failed	step 12

7 Ask the operating company personnel at the far-end office to create a DS-1 loopback.

8 Operating company personnel at the far-end office will notify you when they establish a loopback. To perform an external continuity test after the operating company personnel notifies you, type

>CONT EXT d_channel

and press the Enter key.

where

Performing an external continuity test on a DS-1 link ISDN PRI primary and backup D-channels (end)

d_channel
is the D-channel identifier (D1 or D2)

Example of a MAP response:

```
EXTERNAL CONTINUITY TEST STARTED
D2: EXTERNAL CONTINUITY TEST PASSED
```

If the external continuity test	Do
passed	step 9
failed	step 11

9 Ask the operating company personnel at the far-end office to remove the DS-1 loopback.

10 To return the D-channel to service, type

>RTS d_channel

and press the Enter key.

where

d_channel
is the D-channel identifier (D1 or D2)

Example of a MAP response:

```
D2: STATE CHANGED
```

If the RTS command	Do
passed (INS or STB state)	step 13
failed	step 12

11 Ask the persons at the far-end office to remove the DS-1 loopback.

12 For additional help, contact the next level of support.

13 The procedure is complete.

Performing an internal continuity test on a DS30 link ISDN PRI primary and backup D-channels

Application

Use this procedure to perform an internal continuity test on a DS30 link or DS30A link.

Definition

The test checks the internal link between the DS30 or DS30A and the ISDN digital trunk controller (DTCI).

Common procedures

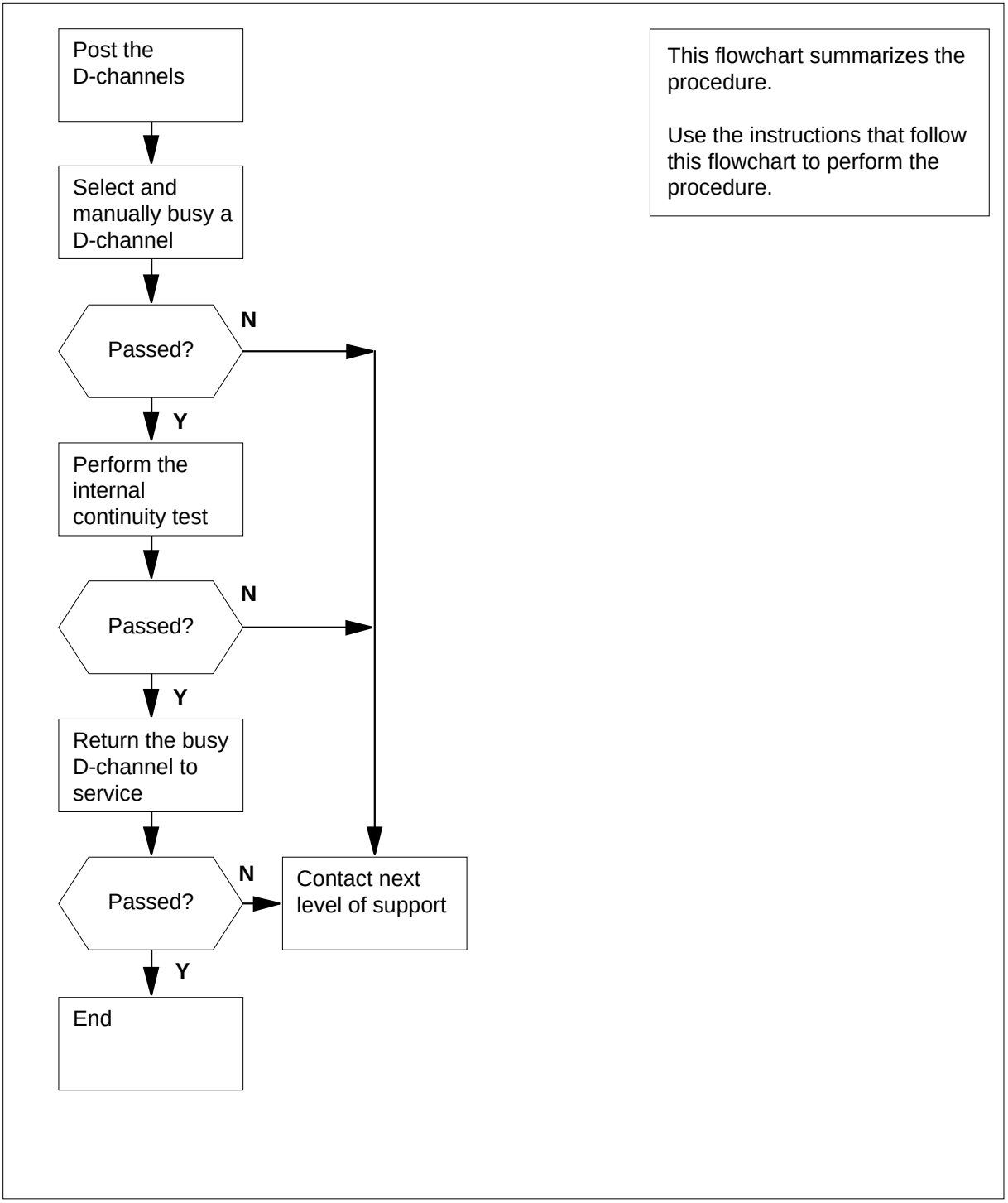
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Performing an internal continuity test on a DS30 link ISDN PRI primary and backup D-channels (continued)

Summary of Performing an internal continuity test on a DS30 link



Performing an internal continuity test on a DS30 link ISDN PRI primary and backup D-channels (continued)

Performing an internal continuity test on a DS30 link

At the MAP terminal

1 From office records or operating company personnel, determine the name of the trunk group.

2 To access the PRADCH level of the MAP display, type

>MAPCI;MTC;TRKS;TTP;PRADCH

and press the Enter key.

3 To post the D-channels, type

>POST GD group_name

and press the Enter key.

where

group_name
is the name of the trunk group

Example input:

>POST GD F5678935PAV

Example of a MAP display:

```
POST    1   DELQ      BUSYQ    DIG
TTP  6-005
CKT TYPE   PM NO      COM LANG STA S R DOT TE RESULT
2W IS IS LTC 2 3 24 F5678935PAV D1 STB
         LTC 2 5 24 F5678935PAV D2 INS R
```

Example of a MAP response:

```
SHORT CLLI IS: F56789
OK,CKT POSTED
```

4 Choose the D-channel for the internal continuity test. Write down its identifier (D1 or D2).

Note 1: The MAP display lists the state of the D-channel on the right side of the DCHL header. The MAP display lists the identifier under the LANG header.

Note 2: In-service (INS) is the normal operation state for the primary D-channels. Standby (STB) is the normal operation state for the backup D-channels. The STB state occurs for a backup D-channel when the primary D-channel is INS.

Note 3: You must use the same identifier (D1 or D2) for all steps used in the internal continuity test.

Performing an internal continuity test on a DS30 link ISDN PRI primary and backup D-channels (continued)

5

CAUTION
PRI service interruption
The following step takes an in-service D-channel out of service. When you take an in-service D-channel out of service, the backup D-channel automatically switches into service.

To manually busy the D-channel, type

>BSY d_channel

and press the Enter key.

where

d_channel
is the D-channel identifier (D1 or D2)

Example of a MAP response:

```
D1: STATE CHANGED
     or
THIS WILL PUT DTCI  2  5  24 D2 OUT-OF-SERVICE.
Active calls will be killed
Please confirm (”YES”, ”Y”, ”NO” or ”N”):
```

6 To confirm the command, type

>YES

and press the Enter key.

Note: The D-channel state changes to manual busy.

If the BSY command	Do
passed	step 7
failed	step 9

7 To perform an internal continuity test, type

>CONT INT d_channel

and press the Enter key.

where

d_channel
is the D-channel identifier (D1 or D2)

Example of a MAP response:

Performing an internal continuity test on a DS30 link ISDN PRI primary and backup D-channels (end)

```
INTERNAL CONTINUITY TEST STARTED
D2: INTERNAL CONTINUITY TEST PASSED
```

If the internal continuity test	Do
passed	step 8
failed	step 9

8 To return the D-channel to service, type

`>RTS  d_channel`

and press the Enter key.

where

d_channel
is the D-channel identifier (D1 or D2)

Example of a MAP response:

```
D2: STATE CHANGED
```

If the RTS command	Do
passed (INS or STB state)	step 10
failed	step 9

9 For additional help, contact the next level of support.

10 The procedure is complete.

Performing an internal continuity test on a DS30 link ISDN PRI single D-channel

Application

Use this procedure to perform an internal continuity test on a DS30 link or DS30A link.

Definition

The test checks the internal link between the DS30 or DS30A and the ISDN digital trunk controller offshore (DTCO).

Common procedures

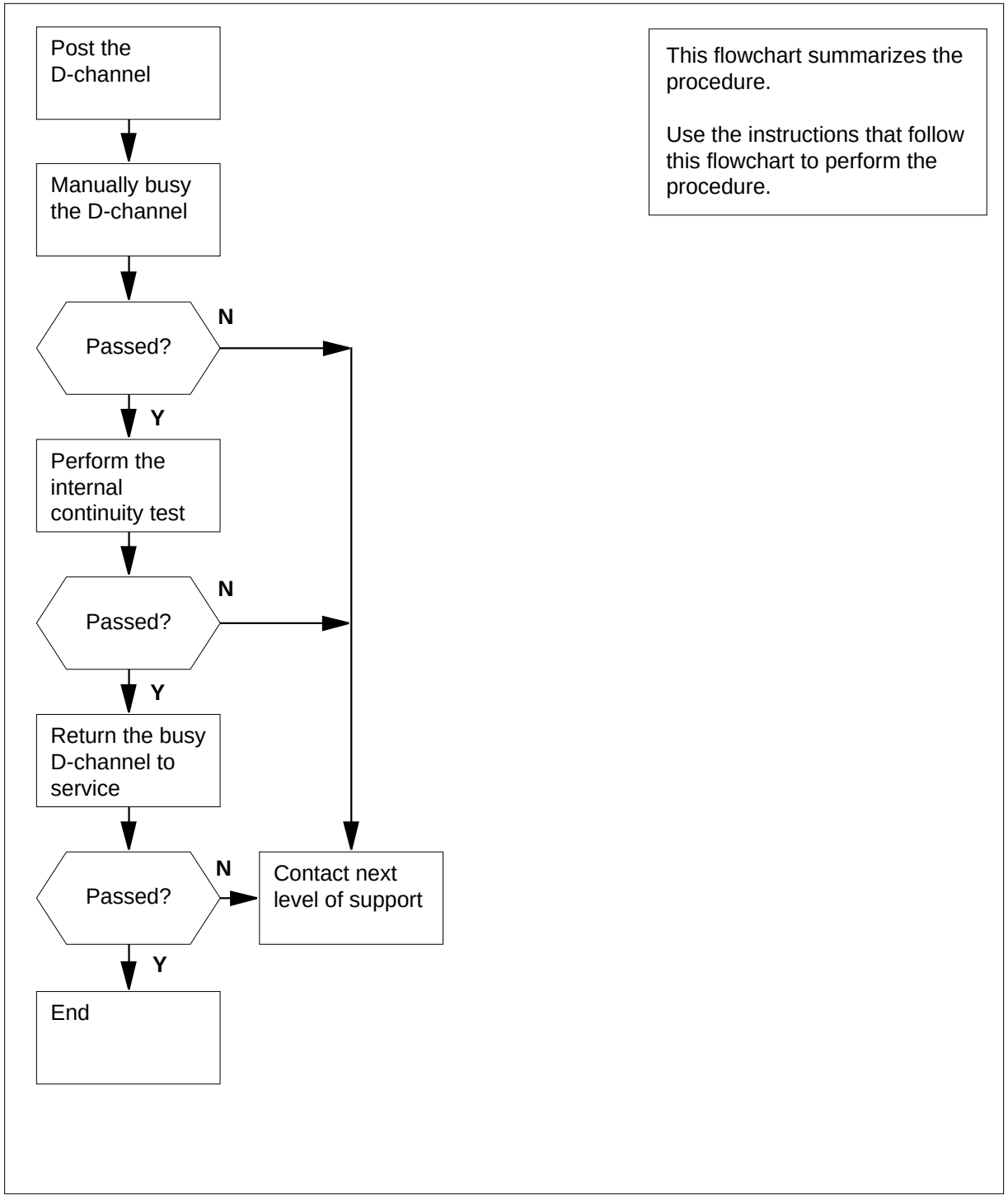
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Performing an internal continuity test on a DS30 link ISDN PRI single D-channel (continued)

Summary of Performing an internal continuity test on a DS30 link



Performing an internal continuity test on a DS30 link ISDN PRI single D-channel (continued)

Performing an internal continuity test on a DS30 link

At the MAP terminal

1 From office records or operating company personnel, determine the name of the trunk group.

2 To access the PRADCH level of the MAP display, type

>MAPCI;MTC;TRKS;TTP;PRADCH

and press the Enter key.

3 To post the D-channel, type

>POST GD group_name

and press the Enter key.

where

group_name
is the name of the trunk group

Example input:

>POST GD F9876035PRAPRV

Example of a MAP Display:

```
POST    1   DELQ      BUSYQ    DIG
TTP  6-005
CKT TYPE   PM NO      COM LANG STA S R DOT TE RESULT
2W IS IS DTCIPCM30 2 3 24 F9876035PRAPRV DCHL INS
                                          R
```

Example of a MAP response:

```
LAST CKT 3 24
POSTED CKT IDLED
SHORT CLLI IS: F98760
OK,CKT POSTED
```

4

CAUTION
PRI service interruption
The following step takes an in-service D-channel out of service. When you take an in-service D-channel out of service, the backup D-channel automatically switches into service.

To manually busy the D-channel, type

>BSY

Performing an internal continuity test on a DS30 link ISDN PRI single D-channel (continued)

and press the Enter key.

Example of a MAP response:

```
STATE CHANGED
     or
THIS WILL PUT DTCIPDTC  2  3  24 DCH OUT-OF-SERVICE.
Active calls will be killed
Please confirm (”YES”, ”Y”, ”NO”, or ”N”):
```

5 To confirm the command, type

>YES

and press the Enter key.

Note: The D-channel state changes to manual busy (MB).

If the BSY command	Do
passed	step 6
failed	step 8

6 To perform an internal continuity test, type

>CONT INT

and press the Enter key.

Example of a MAP response:

```
INTERNAL CONTINUITY TEST STARTED
INTERNAL CONTINUITY TEST PASSED
```

If the internal continuity test	Do
passed	step 7
failed	step 8

7 To return the D-channel to service, type

>RTS

and press the Enter key.

Example of a MAP response:

```
STATE CHANGED
```

If the RTS command	Do
passed (INS state)	step 9
failed	step 8

Performing an internal continuity test on a DS30 link ISDN PRI single D-channel (end)

8 For additional help, contact the next level of support.

9 The procedure is complete.

Performing a manual MTCTST test on a CM

Application

Use this procedure to perform a manual maintenance test (MTCTST) on a computing module (CM).

Definition

The MTCTST test executes CPU and memory class tests on an inactive CPU on the CM. Perform a manual maintenance test (MTCTST) to detect faults on new hardware installations or hardware that may have faults.

Common procedures

This procedure refers to card replacement procedures.

Next level of maintenance

Repeat this procedure if it is not successful when you first perform the procedure.

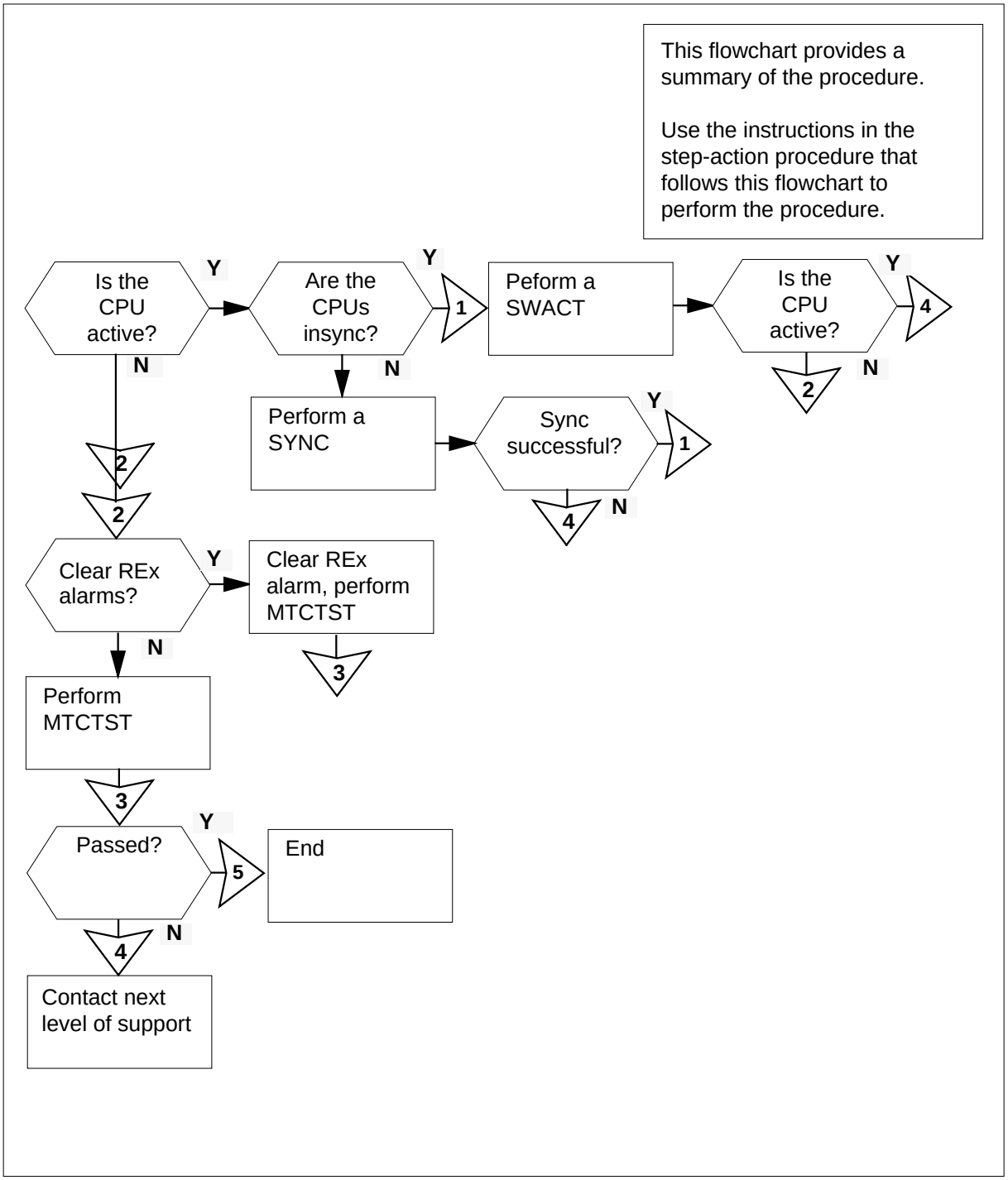
A problem can occur that requires the help of the local maintenance personnel. Gather all important logs, reports, and system information (that is, product type and current software load) for analysis. The related logs, maintenance notes, and system information help make sure that the next level of maintenance and support can find the problem. More detail about logs appears in the *Log Report Reference Manual*.

Action

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

Performing a manual MTCTST test on a CM (continued)

Summary of Performing a manual MTCTST test on a CM



Performing a manual MTCTST test on a CM (continued)

Performing a manual MTCTST on a CM

At the MAP terminal

1 To access the CM level of the MAP display, type:

>MAPCI;MTC;CM

and press the Enter key.

Example of a MAP display:

```
   CM    MS  IOD    Net   PM      CCS   Lns   Trks  Ext    APPL
CM Flt   .   .      .     .        .    .     .    .       .
   M     .   .      .     .        .
CM        CM   Sync  Act  CPU0  CPU1  Jam  Memory  CMMnt  MC  PMC
  0 Quit   0    no   cpu 0  .    flt         flt   SLMLIM cbsy tbl
  2 CMMnt
  3 Memory    MAPCI;
  4 MC        MTC;
  5 PMC       CM;
  6 Tst
  7
  8
  9
 10
 11
 12 MtcTst
 13 SwAct
 14 Sync
 15 DpSync
 16
 17
 18 Locate_
```

2 Determine which CPU to test.

3 Confirm that the CPU to be tested is not active.

Note: An active CPU cannot be tested.

If the CPU to be tested	Do
is active	4
is not active	9

Performing a manual MTCTST test on a CM (continued)

4 Determine the next action.

IfAre the CPUs	Do
insync	6
out of sync	5

5 To synchronize the CM, type

>SYNC

and press the Enter key.

If the response	Do
indicates the SYNC command was successful	step 6
indicates other than listed here	step 19

6 To perform a switch of activity, type

>SWACT

and press the Enter key.

Example of a MAP display:

```
Switch of activity will cause the CM to be runningon the
inactive CPU's processor clock. System will drop SYNC and
then re-SYNC in order to switch to the active CPU's clock.
Do you wish to continue? Please confirm ("YES", "Y", "NO",
or "N"):
```

7 To confirm the command, type

>YES

and press the Enter key.

8 Determine the next action.

If the CPU to be tested	Do
is active	19
is not active	9

9 Determine the next action.

If REx alarms	Do
that are raised by memory or CPU faults are present	10

Performing a manual MTCTST test on a CM (continued)

If REx alarms	Do
that are raised by memory or CPU faults are not present	15

10 Do you want to clear the REx alarms raised by MEM or CPU faults on the inactive CPU?

If to	Do
clear Mem REx fault alarms	11
clear CPU REx fault alarms	12
not clear the REx alarms and continue with this procedure	15

11 To clear a REx alarm raised by memory faults on the inactive CPU and run the MTCTST, type

>MTCTST MEM CLRREXALARM

and press the Enter key.

Example of a MAP display:

```
Caution: CM will drop sync when MTCTST is running.
Please confirm ("YES", "Y", "NO", or "N"):
```

Go to step 13.

12 To clear a REx alarm raised by CPU faults on the inactive CPU and run the MTCTST, type

>MTCTST CLRREXALARM

and press the Enter key.

Note: The default class option is CPU.

Example of a MAP display:

```
Caution: CM will drop sync when MTCTST is running.
Please confirm ("YES", "Y", "NO", or "N"):
```

13 To confirm the command, type

>YES

and press the Enter key.

If the reponse	Do
is `maintenance action submitted .. ..mtctst passed`	20
lists instructions to clear the REx alarm	14

Performing a manual MTCTST test on a CM (end)

14 Perform the instructions described in the map response and return to step 9.

15 To perform a MTCTST test on the CM, type

>MTCTST

and press the Enter key.

Example of a MAP display:

```
Caution: CM will drop sync when MTCTST is running.
Please confirm ("YES", "Y", "NO", or "N"):
```

16 To confirm the command, type

>YES

and press the Enter key.

Example of a MAP display:

```
Maintenace action submitted.
```

17 Determine the next action.

If the reponse	Do
is `MTCTST aborted. Detected a mismatch or SWACT during CM MTCTST. Please check logs.`	18
is `MTCTST: Inactive FOOTPRINT transfer in progress ..MTCTST: Inactive FOOTPRINT transfer passed.MTCTST Failed. Test name: <test name>`	19
is `Termination timed out`	19
is `Maintenance action not performed, resources in use`	19
is `MTCTST passed`	20
is not listed here and the map response does not indicate the next action	19

18 Check logs and record reason for failure. Contact the next level of support.

19 Contact the next level of support.

20 The procedure is complete.

Performing a manual REx test on an LIM

Application

Use this procedure to perform a manual routine exercise (REx) test on a link interface module (LIM).

Definition

The manual REx test is a test of software and hardware that you perform as required.

Common procedures

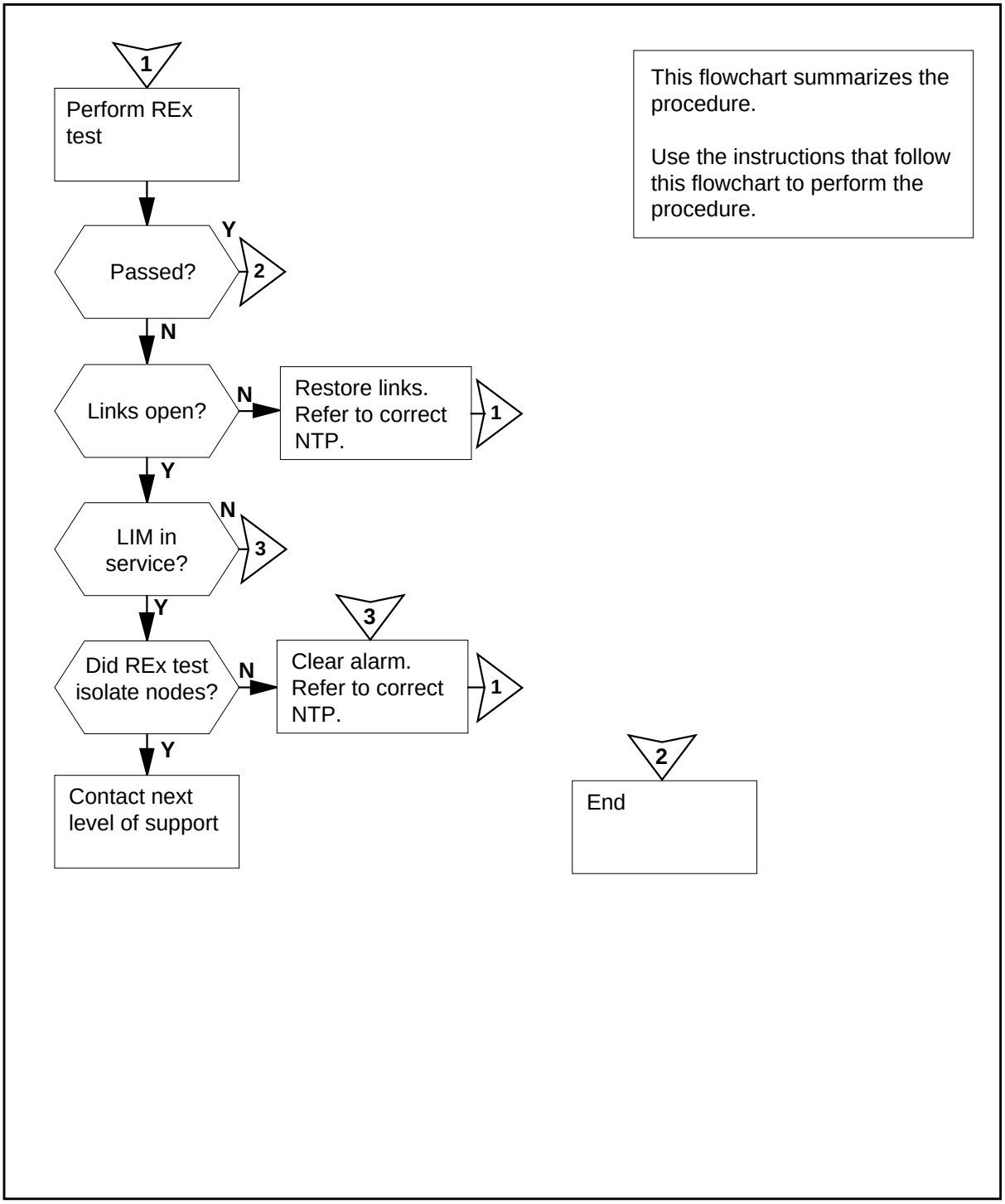
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Performing a manual REx test on an LIM (continued)

Summary of Performing a manual REx test on an LIM



Performing a manual REx test on an LIM (continued)

Performing a manual REx test on an LIM

At the MAP terminal

1

CAUTION
Possible performance degradation
Perform this procedure during a period of low traffic. If you perform a REx test during a period of high traffic, system performance degrades.

To access the PM level of the MAP display, type

>MAPCI;MTC;PM

and press the Enter key.

```
         SysB    ManB    OffL    CBsy    ISTb    InSv
PM       0       0       0       0       0       39
```

2 To post the LIM that you want to perform the REx test on, type

>POST LIM lim_no

and press the Enter key.

where

lim_no
is the number of the LIM (0 to 16)

Example of a MAP display:

```
LIM  0 OffL
                   Links_OOS Taps_OOS
Unit0: OffL             6         3
Unit1: OffL             6         3
```

3 To perform a manual REx test on the posted LIM, type

>REX PM

and press the Enter key.

Note: In the following table, the variable x refers to a LIM number of 0 to 16, and the variables y and z refer to LIM unit numbers.

If the response is	Do
LIM x UNIT y routine exercise cannot be performed because not all of the links on the LIM are open.	step 4

Performing a manual REx test on an LIM (continued)

If the response is	Do
`LIM x UNIT y routine exercise cannot be performed because it would isolate other nodes.`	step 6
`LIM x UNIT y routine exercise cannot be performed unless it is InSv.`	step 8
`LIM x UNIT y routine exercise failed due to outstanding faults.`	step 14
`Imaging is currently in progress on LIM x UNIT y. At this time a Routine Exercise is not allowed on this LIM.`	step 10
`Imaging is currently in progress on LIM x UNIT y and UNIT z. At this time a Routine Exercise is not allowed on this LIM.`	step 12
`LIM x UNIT y ROUTINE EXERCISE PASSED.`	step 14

4 A problem with the links of the LIM unit is present. Perform the procedure *Restoring LIM unit cross-links* in *Alarm and Performance Monitoring Procedures*. When the procedure is complete, return to this point.

5 Go to step 1.

6

CAUTION
Possible loss of service
Isolating LIM nodes on the F-bus of the LIM you are testing removes them from service.

There is a problem with the taps on the F-bus. Perform the procedure *Testing F-bus taps* in the *Routine Maintenance Procedures*. When you have completed the procedure, return to this point.

7 Go to step 1.

8 A failed REx test on one or both LIM units will produce a LIM alarm. Perform the correct procedure in *Alarm and Performance Monitoring Procedures*. to clear the alarm. Complete this procedure and return to this point.

9 Go to step 1.

10 Imaging is being performed on one of the units of the LIM you want to REx test. The command is aborted. Wait until imaging is completed and then return to this point.

Performing a manual REx test on an LIM (end)

11 Go to step 1.

12 Imaging is being performed on both units of the LIM you want to REx test. The command is aborted. Wait until imaging is completed and then return to this point.

13 Go to step 1.

14 For additional help, contact the next level of support.

15 The procedure is complete.

Performing a manual REx test on an NIU

Application

Use this procedure to perform a manual routine exercise (REx) test on a network interface unit (NIU) that is in service.

Definition

A REx test is a series of of software and hardware integrity tests.

Common procedures

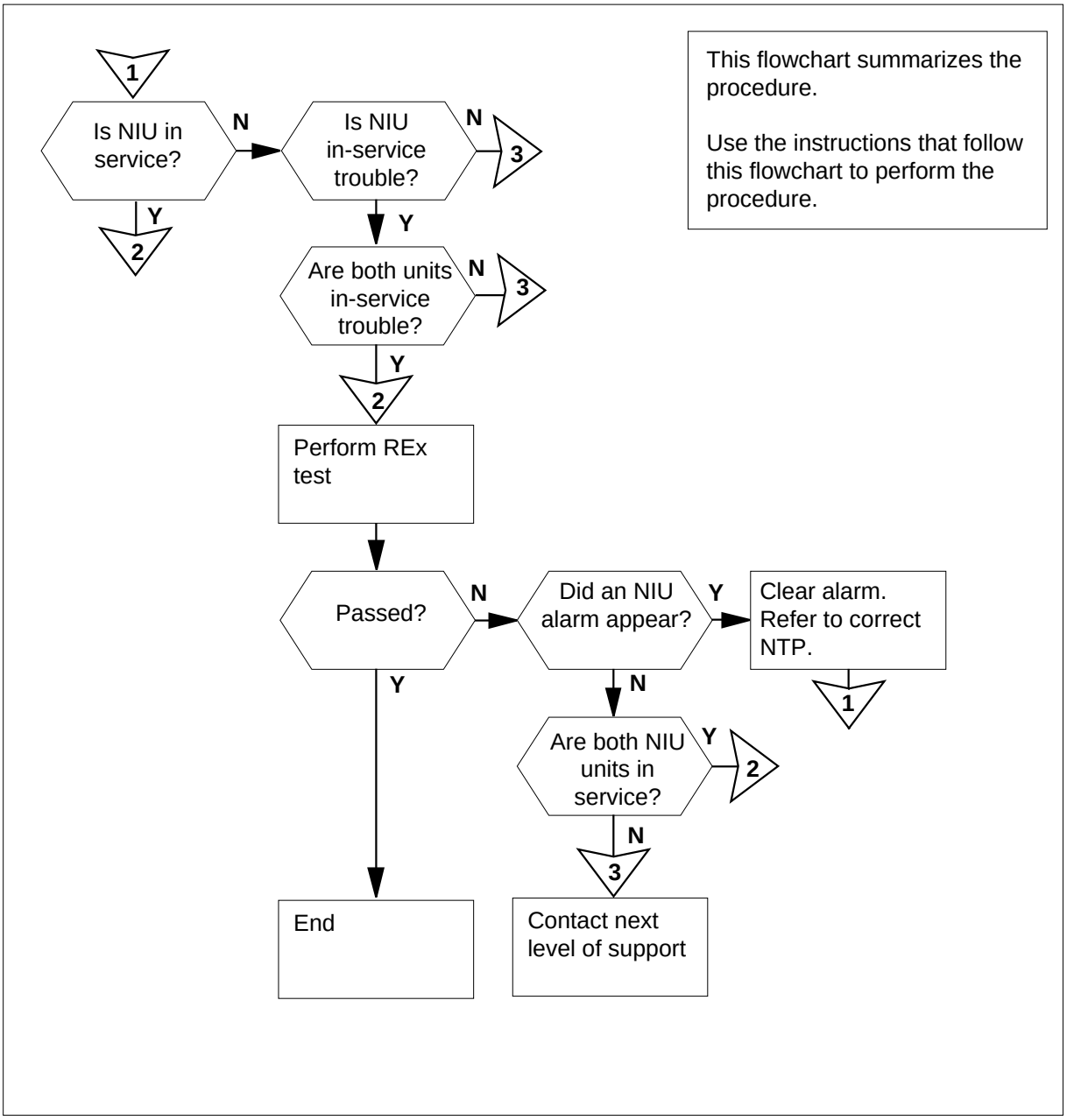
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Performing a manual REx test on an NIU (continued)

Summary of Performing a manual REx test on an NIU



Performing a manual REx test on an NIU (continued)

Performing a manual REx test on an NIU

At the MAP terminal

1

CAUTION
Possible performance degradation
Perform this procedure during a period of low traffic. If you perform a REx test during a period of high traffic, you will degrade system performance.

To access the PM level of the MAP display, type

>MAPCI;MTC;PM

and press the Enter key.

Example of a MAP:

```
          SysB    ManB    OffL    CBsy    ISTb    InSv
PM        0       0       0       0       0       39
```

2 To post the NIU that you want to perform the REx test on, type

>POST NIU niu_no

and press the Enter key.

where

niu_no
is the number of the NIU (0 to 29)

Note: In the example, NIU 3 is posted. The state of NIU 3 is INSV. Unit 0 of NIU 3 is the active unit. The state of unit 0 is INSV. Unit 1 of NIU 3 is the inactive unit. The state of unit 1 is INSV.

Example of a MAP display:

```
NIU 3:  InSv
Unit 0:  Act   InSv
Unit 1:  InAct InSv
```

3 Determine the state of the NIU.

If the state of the NIU	Do
is InSv	step 7
is ISTb	step 4
is other than listed here	step 5

Performing a manual REx test on an NIU (continued)

4 Determine the state of the units of the ISTb NIU.

If both units	Do
are ISTb	step 7
are other than listed here	step 5

5 At least one of the NIU units has faults. A REx test cannot be performed on NIU units that are out of service. Perform the procedure *Clearing a PM NIU minor alarm* in the *Alarm and Performance Monitoring Procedures*. When you have completed the procedure, return to this point.

6 Go to step 1.

7 To perform a REx test on the posted NIU, type

>TST REX NOW

and press the Enter key.

Example of a MAP response:

```
Warning: Unit states will change and a SwAct will be
performed during REx test.  Please confirm (”YES”, ”Y”,
”NO”, or ”N”):
```

If the response is	Do
Imaging is in progress on NIU x UNIT y currently. Routine Exercise will cause imaging on this NIU to be aborted.WARNING Unit states will change and a SwAct will be performed during REx test.	step 8
anything else	step 10

8 Imaging is being performed on one of the units of the NIU you want to REx test. Wait until imaging is completed and then return to this point.

9 Go to step 1.

10 To confirm the command, type

>YES

and press the Enter key.

11 Determine the required action.

If the response	Do
is Command passed.	step 19
is Command rejected. Permission to run REx was not given by the node.	step 12

Performing a manual REx test on an NIU (continued)

If the response	Do
is `Command rejected. Permission to run REx was not given by the System REx Controller.`	step 14
is `Command failed.`	step 16
is `Command rejected. Incorrect unit states for the test command.`	step 16
is `Command failed. Rex failed due to a SwAct failure.`	step 17
is `Command rejected. Test failed due to a communication problem with the mate unit.`	step 17

12 Perform the procedure *Clearing a PM NIU minor alarm* in *Alarm and Performance Monitoring Procedures*. Complete the procedure and return to this point.

13 Go to step 3.

14 Determine if the manual REx test on the NIU is on the first or second attempt.

If the REx test	Do
is the first attempt	step 15
is the second or subsequent attempt	step 18

15 Wait 10 min before you use the TST REX command.

Go to step 7.

16 Determine if both units of the NIU are in service.

If the two NIU units	Do
are `InSv` or `ISTb`	step 17
are not `InSv` and not `ISTb`	step 18

17 Determine if the manual REx test on the NIU is on the first or second attempt.

If the REx test	Do
is the first attempt	step 7
is the second or subsequent attempt	step 18

Performing a manual REx test on an NIU (end)

18 For additional help, contact the next level of support.

19 The procedure is complete.

Prioritizing CCS alarms

Application

Use this procedure to redefine the order of importance of the CCS alarms that relate to the message transfer part (MTP). You can add, modify, or delete tuples from table CCSALARM.

Definition

Table CCSALARM redefines the priority of CCS alarms within a given alarm class. Table CCSALARM redefines the priority when the alarm class is critical, major, or minor.

The default order of selection of CCS alarms is as follows:

- 1 RSC (routeset critical)
- 2 LSSC (local subsystem critical)
- 3 PCC (point code critical)
- 4 RSSC (remote subsystem critical)
- 5 LKM (linkset major)
- 6 RSM (routeset major)
- 7 LSSM (local subsystem major)
- 8 RSSM (remote subsystem major)
- 9 LK (linkset minor)
- 10 PC (point code minor)

Do not change the order of alarm classes. Critical has the highest value, and minor has the lowest value.

Common procedures

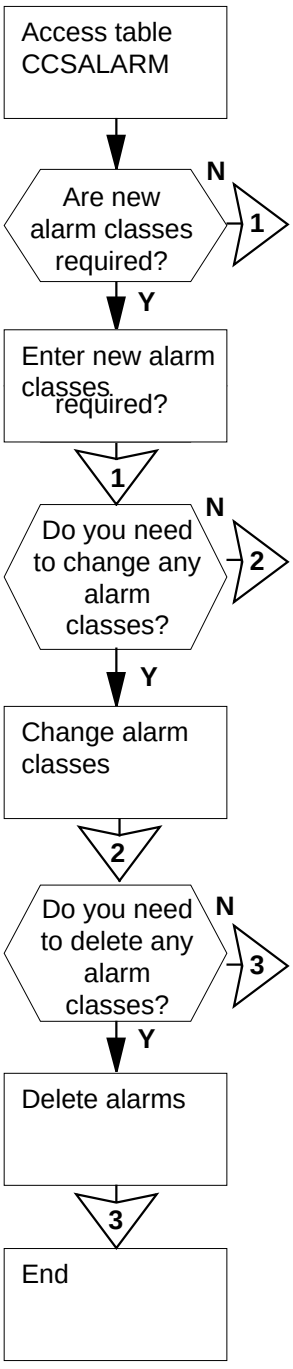
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Prioritizing CCS alarms (continued)

Summary of Prioritizing CCS alarms



This flowchart summarizes the procedure.

Use the instructions that follow this flowchart to perform the procedure.

Prioritizing CCS alarms (continued)

Prioritizing CCS alarms

At the CI level of the MAP terminal

1 To access table CCSALARM, type

>TABLE CCSALARM

and press the Enter key.

MAP response:

```
TABLE: CCSALARM
```

2 To display the contents of table CCSALARM, type

>LIST ALL

and press the Enter key.

Example of a MAP response:

```
TOP
ALARMKEY                                                        ALARMS
-------------------------------------------------------------------
   0          CCS7 CRITICAL (RTESET) (   LSS) (    PC) (   RSS)$
BOTTOM
```

If you	Do
want to add tuples	step 3
want to modify tuples	step 11
want to delete tuples	step 19
want to quit table CCSALARM (work with CCS alarm priority is complete)	step 23

3 Record the number of the last alarm key in the table.

Note: In the example in step 2, the last alarm key is the last number in the column ALARMKEY.

4 To specify that you want to add tuples, type

>ADD

and press the Enter key.

MAP response:

```
ALARMKEY:
```

5 To enter an alarm key, type

>alarm_key

and press the Enter key.

Prioritizing CCS alarms (continued)

where

alarm_key
is one higher than the number recorded at step three

Note: Enter alarm keys in ascending order; for example, alarm key 0 comes before alarm key 1. If the response at step 2 is EMPTY TABLE, use 0 as the alarm key value.

MAP response:

```
CCSTYPE:
```

6 To specify that the alarm is a CCS7 alarm, type

`>CCS7`

and press the Enter key.

MAP response:

```
SEVERITY:
```

7 To specify the alarm class, type

`>alarm_class`

and press the Enter key.

where

alarm_class
is either CRITICAL, MAJOR, or MINOR

MAP response:

```
ALARMSET:
```

8

CAUTION
Possible loss of service
Enter the correct number and names of alarm types for the alarm class that you identified. Failure to enter the correct number and names can result in loss of service.

To specify an alarm type for the alarm class that you defined in step 7, type,

`>alarm_type`

and press the Enter key.

where

alarm_type
for a CRITICAL alarm class is either RTESET (routeset), LSS (local subsystem), PC (point code), or RSS (remote subsystem),

Prioritizing CCS alarms (continued)

for a MAJOR alarm class is RTESET (routeset), LKSET (linkset), or LSS (local subsystem),

for a MINOR alarm class is RTESET (routeset), LKSET (linkset), PC (point code), LM (link minor), or

MAP response:

```
ALARMSET:
```

9 Repeat step 8 until you define all alarm types for the alarm class.

Note: When you define all alarm types for minor alarm classes, enter $ to indicate the end.

Example of a MAP response:

```
TUPLE TO BE ADDED:
o    CCS7 CRITICAL (  LSS) (RTESET) (  RSS) (    PC)$
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

10 After you entered the final alarm type for the alarm class, confirm the added tuple. Type

>Y

and press the Enter key.

MAP response:

```
TUPLE ADDED
```

Go to step 2.

11 From the list displayed in step 2, choose the alarm key for the tuple you want to change.

12 To position on the tuple you want to change, type

>POSITION alarm_key

and press the Enter key.

where

alarm_key
is the alarm key chosen in step 11

Example of a MAP response:

```
1                  CCS7    MAJOR ( LKSET) (RTESET) (   LSS)$
```

13 To initiate the change routine, type

>CHANGE

and press the Enter key.

Example of a MAP response:

```
CCSTYPE: CCS7
```

Prioritizing CCS alarms (continued)

Note: The current value of each field appears on the right side of the CCSTYPE header in the MAP response.

14 To enter a new value for the alarm type for CCS7, type

`>CCS7`

and press the Enter key.

Example of a MAP response:

```
SEVERITY: MAJOR
```

Note: When you change a tuple, the current value of the tuple appears in the MAP response. The current value appears on the right side of the SEVERITY header in the MAP response. To keep the current value (without change to the entry) for a tuple, press the Enter key.

15 To enter a new value for the alarm severity, type

`>alarm_class`

and press the Enter key.

where

alarm_class
is CRITICAL, MAJOR, or MINOR

Example of a MAP response:

```
ALARMSET: RTESET
```

16

CAUTION
Possible loss of service
Enter the correct number and names of alarm types for the alarm class that you identified. Failure to enter the correct number and names can result in loss of service.

To enter a new value for the alarm type, type

`>alarm_type`

and press the Enter key.

where

alarm_type
for a CRITICAL alarm class is either RTESET (routeset), LSS (local subsystem), PC (point code), or RSS(remote subsystem),

for a MAJOR alarm class is RTESET (routeset), LKSET,(linkset), or LSS (local subsystem),

for a MINOR alarm class is RTESET (routeset), LKSET(linkset), or PC (point code),

Prioritizing CCS alarms (continued)

Note: The highest priority for the alarm type appears on the right side of the ALARMSET header in the MAP response.

Example of a MAP display:

```
ALARMSET: LKSET
```

17 Repeat step 16 until you define all the alarm types again for the alarm class.

Example of a MAP response:

```
TUPLE TO BE CHANGED:
1     CCS7   MAJOR ( LKSET) (RTESET) ( LSS)$
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

18 After you defined the final alarm type again for the alarm class, confirm the changed tuple. Type,

>Y

and press the Enter key.

MAP response:

```
TUPLE CHANGED
```

Go to step 2.

19 From the list in step 2, choose the alarm key for the tuple you want to delete.

20 To position on the tuple you want to delete, type

>POSITION alarm_key

and press the Enter key.

where

alarm_key
is the alarm key chosen in step 19

Example of a MAP response:

```
1          CCS7    MAJOR ( LKSET) (RTESET) ( LSS)$
```

21 To delete the tuple, type

>DELETE

and press the Enter key.

Example of a MAP display:

```
TUPLE TO BE DELETED:
   1                CCS7    MAJOR ( LKSET) (RTESET) (   LSS)$
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

22 To confirm the command, type

>Y

and press the Enter key.

MAP response:

Prioritizing CCS alarms (end)

```
TUPLE DELETED
```

Go to step 2.

23 To quit the table level, type

>QUIT

and press the Enter key.

24 The procedure is complete.

Recovering a stuck HLIU or HSLR

Application

Use this procedure to recover a stuck high-speed link interface unit (HLIU) or a high-speed link router (HSLR).

Definition

An HLIU or HSLR is stuck when both F-bus taps of the individual HLIU or HSLR are not accessible (NA).

Common procedures

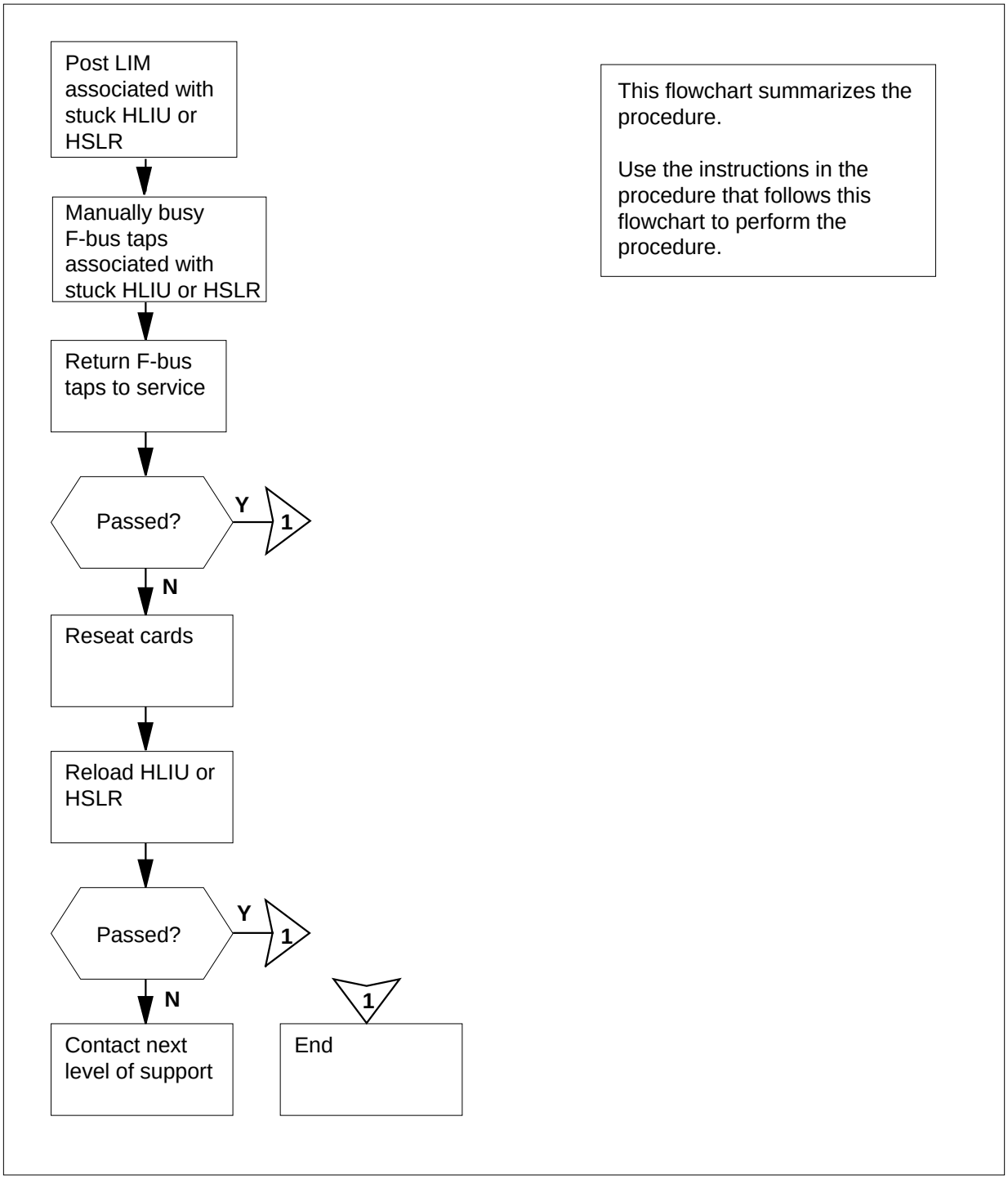
None

Action

This procedure contains a summary flowchart and a list of specific steps. Use the flowchart as an overview of the procedure. Follow the specific steps to perform the procedure.

Recovering a stuck HLIU or HSLR (continued)

Summary of Recovering a stuck HLIU or HSLR



Recovering a stuck HLIU or HSLR (continued)

Recovering a stuck HLIU or HSLR

At the MAP terminal

1

DANGER
Contact your next level of support
Do not attempt this procedure before contacting your next level of support.

Access the PM level of the MAP display by typing

>MAPCI;MTC;PM

and pressing the Enter key.

2 Post the system-busy not accessible HLIU or HSLR by typing

>POST HLIU SYSB

and pressing the Enter key.

or

>POST HSLR SYSB

and pressing the Enter key.

If the state of the HLIU or HSLR is	Do
SysB (NA)	step 5
SysB	step 3

3 Display the next system-busy HLIU or HSLR by typing

>NEXT

and pressing the Enter key.

4 Repeat step 3 until you find the system-busy not accessible (NA) HLIU or HSLR.

5 Determine the LIM associated with the stuck HLIU or HSLR by typing

>QUERYPM

and pressing the Enter key.

Example of a MAP response:
QueryPM
PM type: HLIU PM NO.: 0 Status: SysB
LIM: 0 Shelf: 1 Slot: 8 LIU FTA 4240 1000
Default Load: HCA11AV
Running Load: HCA11AV
Potential service affecting conditions:

Recovering a stuck HLIU or HSLR (continued)

```
    Msg Channel #1  NA
    TAP #0 OOS/NA
    TAP #1 OOS/NA
LMS States  :  InSv     InSv
Auditing    :  No       No
Msg Channels:  Acc      No
TAP 0       :  I (NA)   S (NA)
Reserved HLIU forms part of CCS7 Linkset :HSL172001000 SLC:0
LIU is not allocated
```

6 Post the LIM associated with the stuck HLIU or HSLR by typing

`>POST LIM lim_no`

and pressing the Enter key.

where

lim_no
is the number of the LIM (0 to 16)

7 Post the LIS associated with the stuck HLIU or HSLR by typing

`>POST LIS lis_no`

and pressing the Enter key.

where

lis_no
is the number of the shelf (1 to 3)

8 Determine which F-bus taps are associated with the stuck HLIU or HSLR by typing

`>TRNSL fbus_no`

and pressing the Enter key.

where

fbus_no
is the number of the FBus (0 or 1)

Example of a MAP response for HLIU:

```
LIM 8 LIS 2 FBus 0 Tap 0 is unequipped.
LIM 8 LIS 2 FBus 0 Tap 1 is unequipped
LIM 8 LIS 2 FBus 0 Tap 2 is on HLIU 1
LIM 8 LIS 2 FBus 0 Tap 3 is on HSLR 1
LIM 8 LIS 2 FBus 0 Tap 4 is unequipped
```

9 Manually busy the F-bus taps associated with the stuck HLIU or HSLR by typing

`>BSY FBUS fbus_no tap_no`

and pressing the Enter key.

where

fbus_no
is the number of the F-bus (0 or 1)

Recovering a stuck HLIU or HSLR (continued)

tap_no
is the number of the F-bus tap (0 to 11)

Perform this step for both F-bus taps associated with the stuck HLIU or HSLR.

10 Return the F-bus taps associated with the stuck HLIU or HSLR to service by typing

>RTS FBUS fbus_no tap_no

and pressing the Enter key.

where

fbus_no
is the number of the F-bus (0 or 1)

tap_no
is the number of the F-bus tap (0 to 11)

Perform this step for both F-bus taps associated with the stuck HLIU or HSLR.

Example of a MAP response:

```
LIM lim_no FBus fbus_no Tap tap_no Return to Service
initiated.
```

If the RTS command	Do
passed	step 28
failed	step 11

11 Access the PM level of the MAP display by typing

>PM

and pressing the Enter key.

12 Post the stuck HLIU or HSLR by typing

>POST HLIU liu_no

and pressing the Enter key.

or

>POST HSLR liu_no

and pressing the Enter key.

where

liu_no
is the number of the stuck HLIU or HSLR (0 to 511)

13 Manually busy the HLIU or HSLR by typing

>BSY

and pressing the Enter key.

14 Confirm the command by typing

>YES

and pressing the Enter key.

Recovering a stuck HLIU or HSLR (continued)

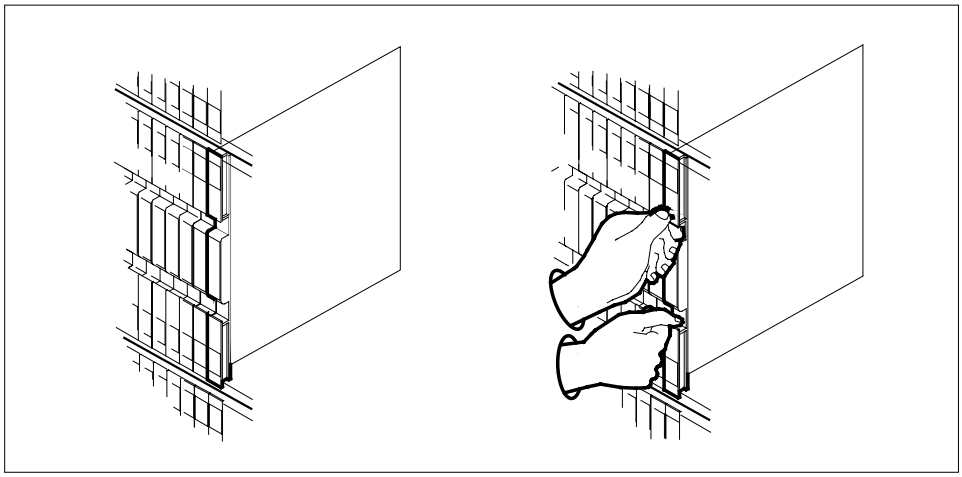
15 Prepare to unseat and reseat the cards belonging to the stuck HLIU or HSLR.

At the ELPP

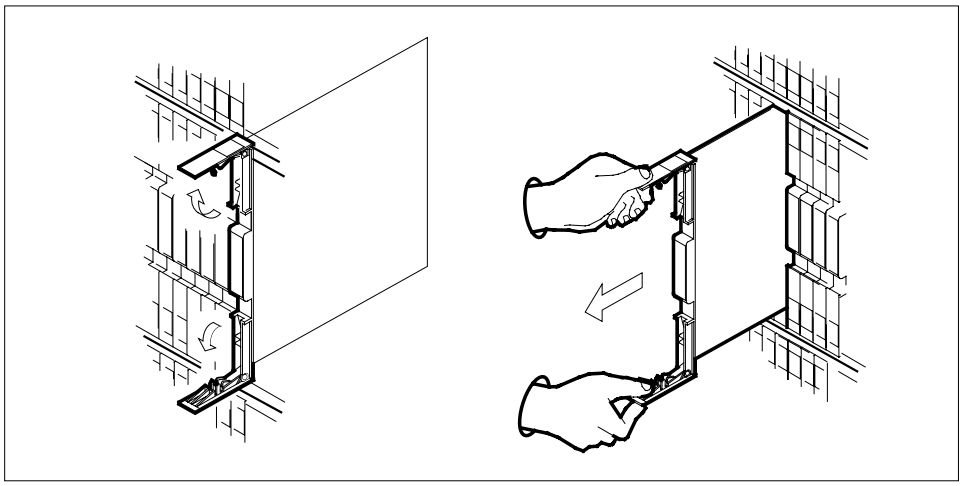
16

WARNING
Static electricity damage
Wear a wrist strap connected to the wrist-strap grounding point of a frame supervisory panel (FSP) while handling cards. This method protects the cards against damage caused by static electricity.

Locate the NTEX22 card belonging to the stuck HLIU or HSLR.



17 Carefully pull the card 25 mm (1 in.) toward you.



18 Leave the NTEX22 sitting in its slot on the link interface shelf (LIS).

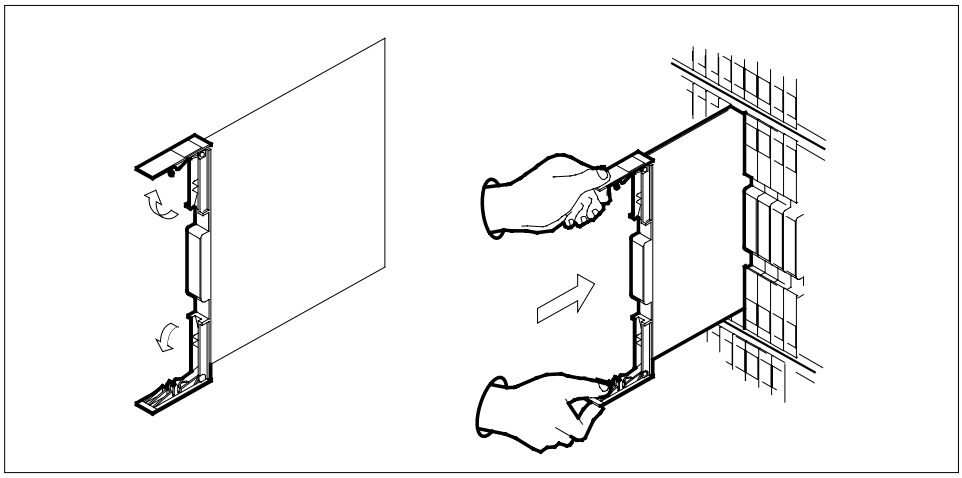
Recovering a stuck HLIU or HSLR (continued)

19 Verify the type of PM.

If the PM is an	Do
HLIU	step 20
HSLR	step 21

20 Repeat steps 16, 17, 18, and 19 for the NTEX76 card belonging to the stuck HLIU. If you have already unseated the NTEX76 card, go to step 21.

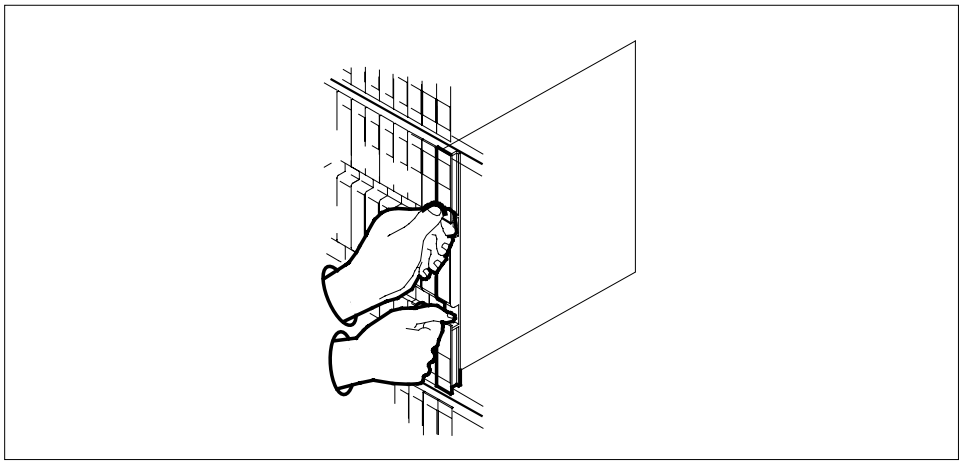
21 Carefully slide the NTEX22 card back into the LIS.



22 Seat and lock the card, as follows:

a Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is in the shelf.

b Close the locking levers.



Recovering a stuck HLIU or HSLR (end)

23 Verify the type of PM.

If the PM is an	Do
HLIU	step 24
HSLR	step 25

24 Repeat steps 21, 22, and 23 for the NTEX76 card that belongs to the stuck HLIU. If you have already reseated both cards, go to step 25.

At the MAP terminal

25 Reload the HLIU or HSLR by typing

>LOADPM

and pressing the Enter key.

If the LOADPM command	Do
passed	step 26
failed	step 27

26 Return the HLIU or HSLR to service by typing

>RTS

and pressing the Enter key.

If the RTS command	Do
passed	step 28
failed	step 27

27 For further assistance, contact the personnel responsible for the next level of support.

28 You have completed this procedure.

Recovering a stuck two-slot LIU7

Application

Use this procedure to recover a stuck CCS7 link interface unit (LIU7). This procedure applies only to two-slot LIU7s.

Definition

An LIU7 is stuck when both of its F-bus taps are not accessible (NA).

Common procedures

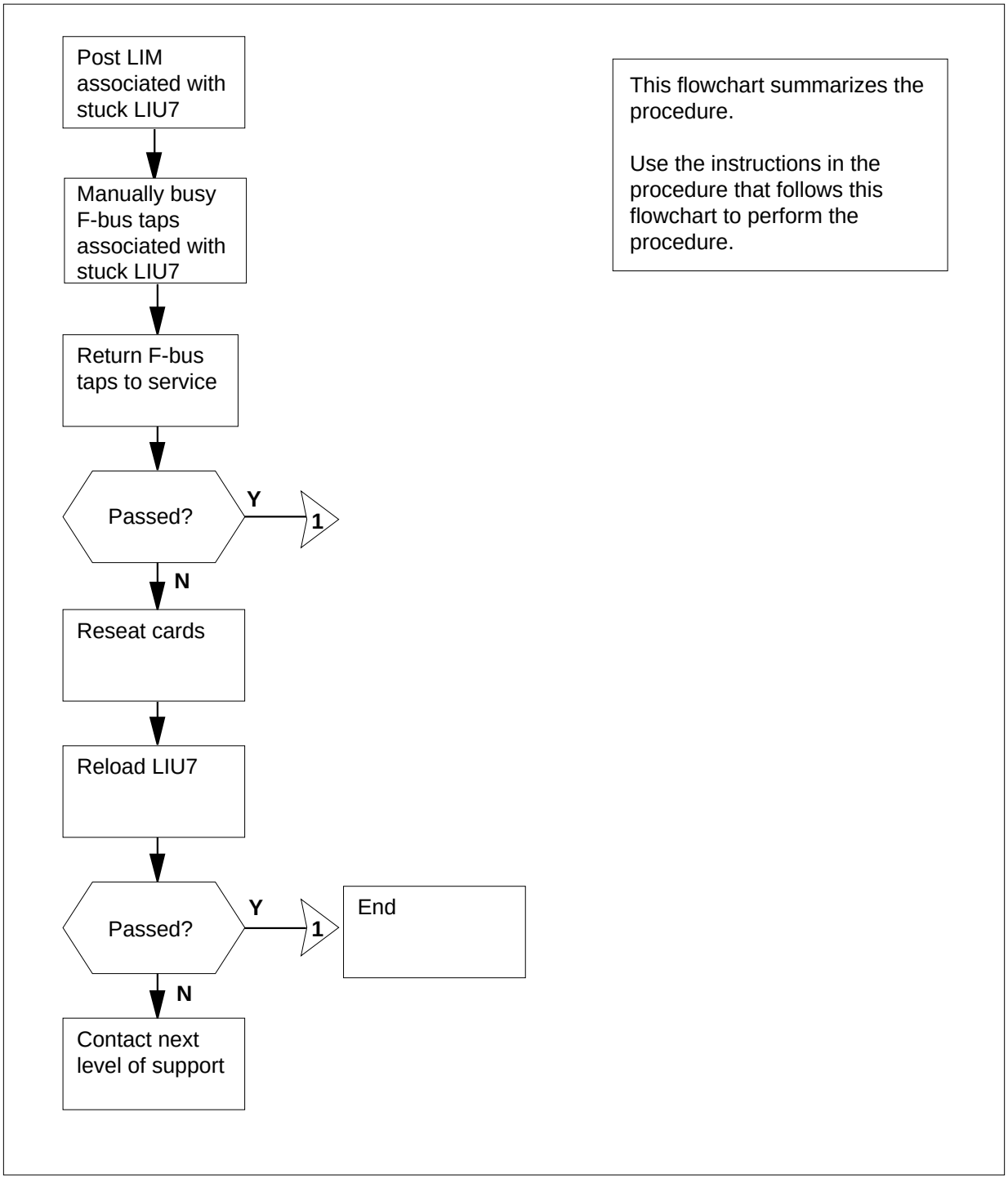
None

Action

This procedure contains a summary flowchart and a list of specific steps. Use the flowchart as an overview of the procedure. Follow the specific steps to perform the procedure.

Recovering a stuck two-slot LIU7 (continued)

Summary of Recovering a stuck two-slot LIU7



Recovering a stuck two-slot LIU7 (continued)

Recovering a stuck two-slot LIU7

At the MAP terminal

1

DANGER
Contact your next level of support
Do not attempt this procedure before contacting your next level of support.

Access the PM level of the MAP display by typing

>MAPCI;MTC;PM

and pressing the Enter key.

2 Post the system-busy not accessible LIU7 by typing

>POST LIU7 SYSB

and pressing the Enter key.

If the state of the LIU7 is	Do
SysB (NA)	step 6
SysB	step 3

3 Display the next system-busy LIU7 by typing

>NEXT

and pressing the Enter key.

4 Repeat step 3 to find the system-busy not accessible LIU7.

5 Determine the location of the LIU7.

6 Determine the LIM associated with the stuck LIU7 by typing

>QUERYPM

and pressing the Enter key.

7 Post the LIM associated with the stuck LIU7 by typing

>POST LIM lim_no

and pressing the Enter key.

where

lim_no
is the number of the LIM (0 or 1)

8 Access the F-bus level of the MAP display by typing

>FBUS

and pressing the Enter key.

Recovering a stuck two-slot LIU7 (continued)

Example of a MAP display:

```
Tap:         0   4   8   12   16   20   24   28     32

FBus0:ISTb(NA) .... .... ...S .... .... .... .... ....
..-.
FBus1:InSv    .... .... ...S .... .... .... .... .....
..-.
```

Note: In the example, S means that F-bus taps are system busy.

9 Determine which F-bus taps are associated with the stuck LIU7 by typing

>TRNSL fbus_no

and pressing the Enter key.

where

fbus_no
is the number of the F-bus (0 or 1)

Example of a MAP response:

```
LIM lim_no FBus fbus_no Tap tap_no is unequipped.
LIM lim_no FBus fbus_no Tap tap_no is on LIU7 liu_no.
LIM lim_no FBus fbus_no Tap tap_no is on LIU7 liu_no.
```

10 Manually busy the F-bus taps associated with the stuck LIU7 by typing

>BSY FBUS fbus_no tap_no

and pressing the Enter key.

where

fbus_no
is the number of the F-bus (0 or 1)

tap_no
is the number of the F-bus tap (0 to 35)

Perform this step for both F-bus taps associated with the stuck LIU7.

11 Return the F-bus taps associated with the stuck LIU7 to service by typing

>RTS FBUS fbus_no tap_no

and pressing the Enter key.

where

fbus_no
is the number of the F-bus (0 or 1)

tap_no
is the number of the F-bus tap (0 to 35)

Perform this step for both F-bus taps associated with the stuck LIU7.

Recovering a stuck two-slot LIU7 (continued)

Example of a MAP response:

```
LIM lim_no FBus fbus_no Tap tap_no Return to Service
initiated.
```

If the RTS command	Do
passed	step 27
failed	step 12

12 Access the PM level of the MAP display by typing

>PM

and pressing the Enter key.

13 Post the stuck LIU7 by typing

>POST LIU7 liu_no

and pressing the Enter key.

where

liu_no
is the number of the stuck LIU7 (0 to 511)

14 Manually busy the LIU7 by typing

>BSY

and pressing the Enter key.

15 Confirm the command by typing

>YES

and pressing the Enter key.

16 Prepare to unseat and reseat the cards that belong to the stuck LIU7.

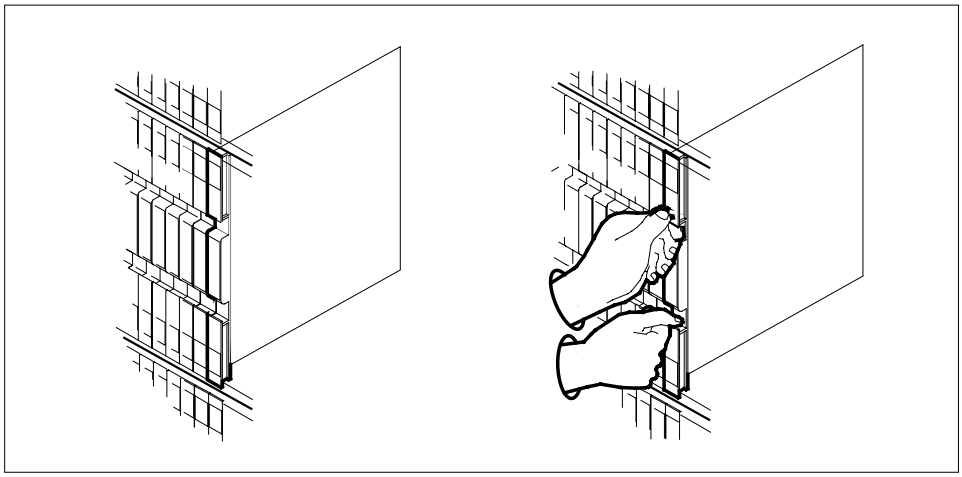
At the LPP

17

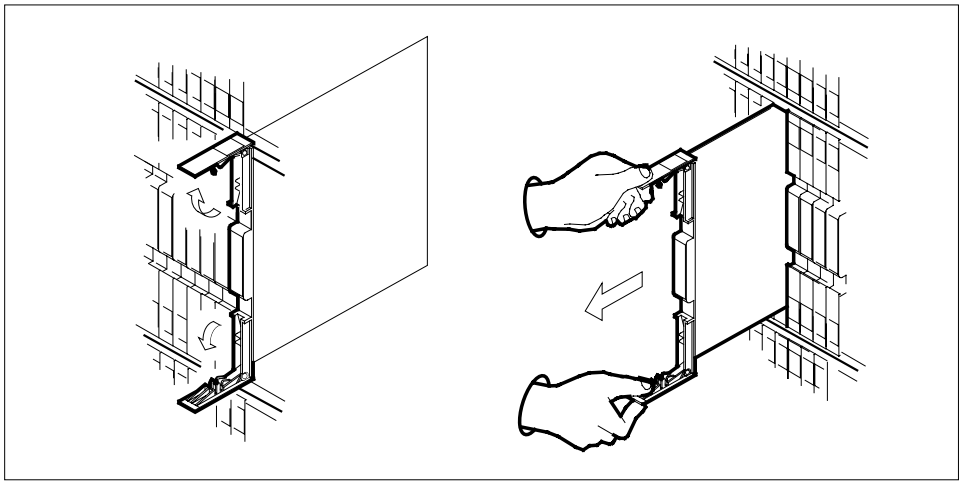
WARNING
Static electricity damage
Wear a wrist strap connected to the wrist-strap grounding point of a frame supervisory panel (FSP) while handling cards. This protects the cards against damage caused by static electricity.

Locate the NTEX22 card that belongs to the stuck LIU7.

Recovering a stuck two-slot LIU7 (continued)



18 Carefully pull the card 25 mm (1 in.) toward you.

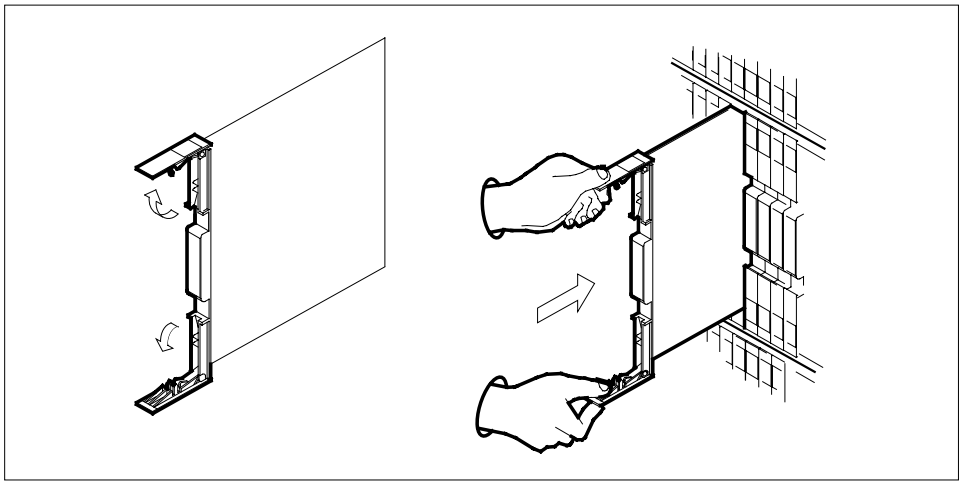


19 Leave the NTEX22 sitting in its slot on the link interface shelf (LIS).

20 Repeat steps 17, 18, and 19 for the NT9X76 card that belongs to the stuck LIU7.

21 Carefully slide the NTEX22 card back into the LIS.

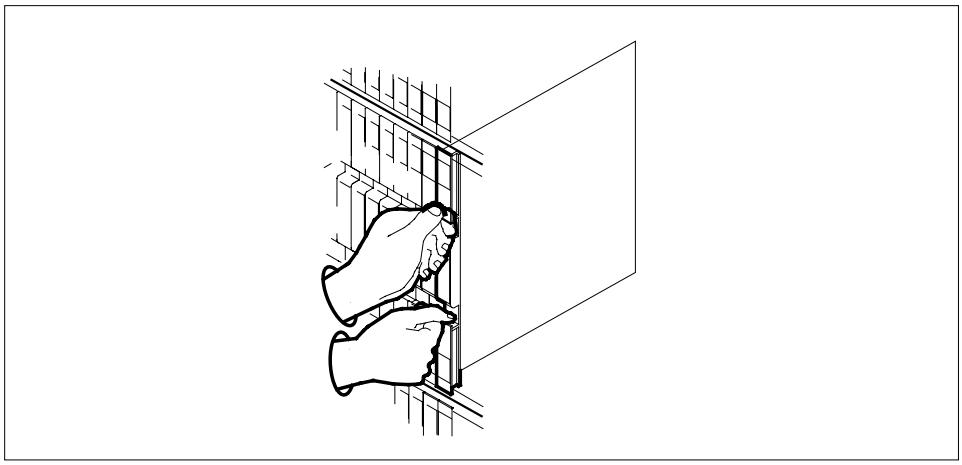
Recovering a stuck two-slot LIU7 (continued)



22 Seat and lock the card, as follows:

a Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is in the shelf.

b Close the locking levers.



23 Repeat steps 21 and 22 for the NT9X76 card that belongs to the stuck LIU7.

At the MAP terminal

24 Reload the LIU7 by typing

>LOADPM

and pressing the Enter key.

If the LOADPM command	Do
passed	step 25
failed	step 26

Recovering a stuck two-slot LIU7 (end)

25 Return the LIU7 to service by typing

>RTS

and pressing the Enter key.

If the RTS command	Do
passed	step 27
failed	step 26

26 For further assistance, contact the personnel responsible for the next level of support.

27 You have completed this procedure.

Repairing FAN faults on an LCEI frame; cooling unit replacement

Application

Use this procedure to identify and to correct faults that can cause a FAN FAIL alarm. The alarm can occur when you install an NTBX63AA cooling unit in an ISDN line concentrating equipment (LCEI) frame. The LCEI frame has enhanced line concentrating module (LCME) or ISDN line concentrating module (LCMI) modules.

A FAN FAIL fault in an LCEI frame results from one of the following:

- a dirty filter
- a blown fuse in the front panel of the cooling unit
- a cooling unit has faults

Definition

The FAN FAIL alarm highlights problems in the frame cooling system.

Common procedures

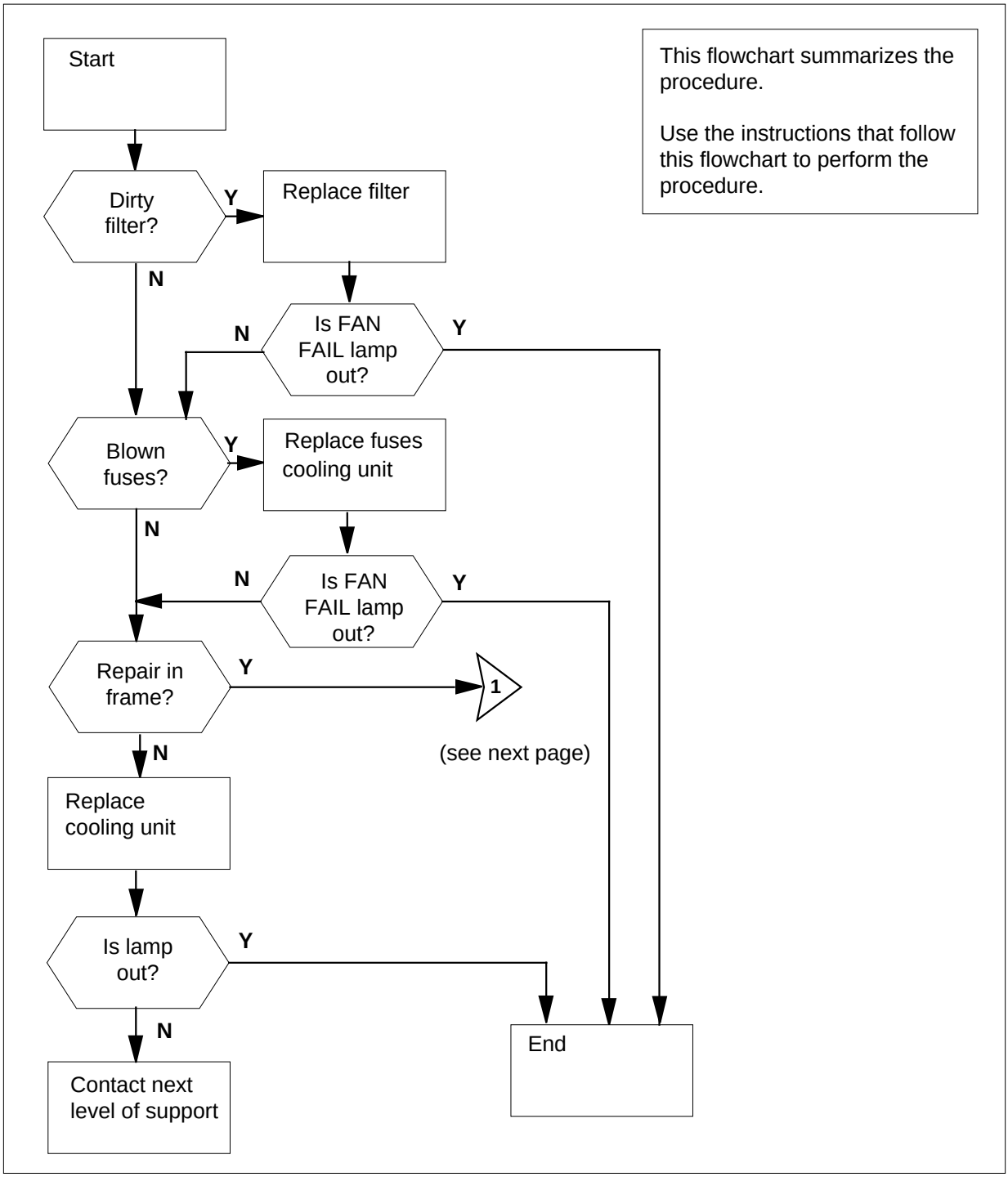
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

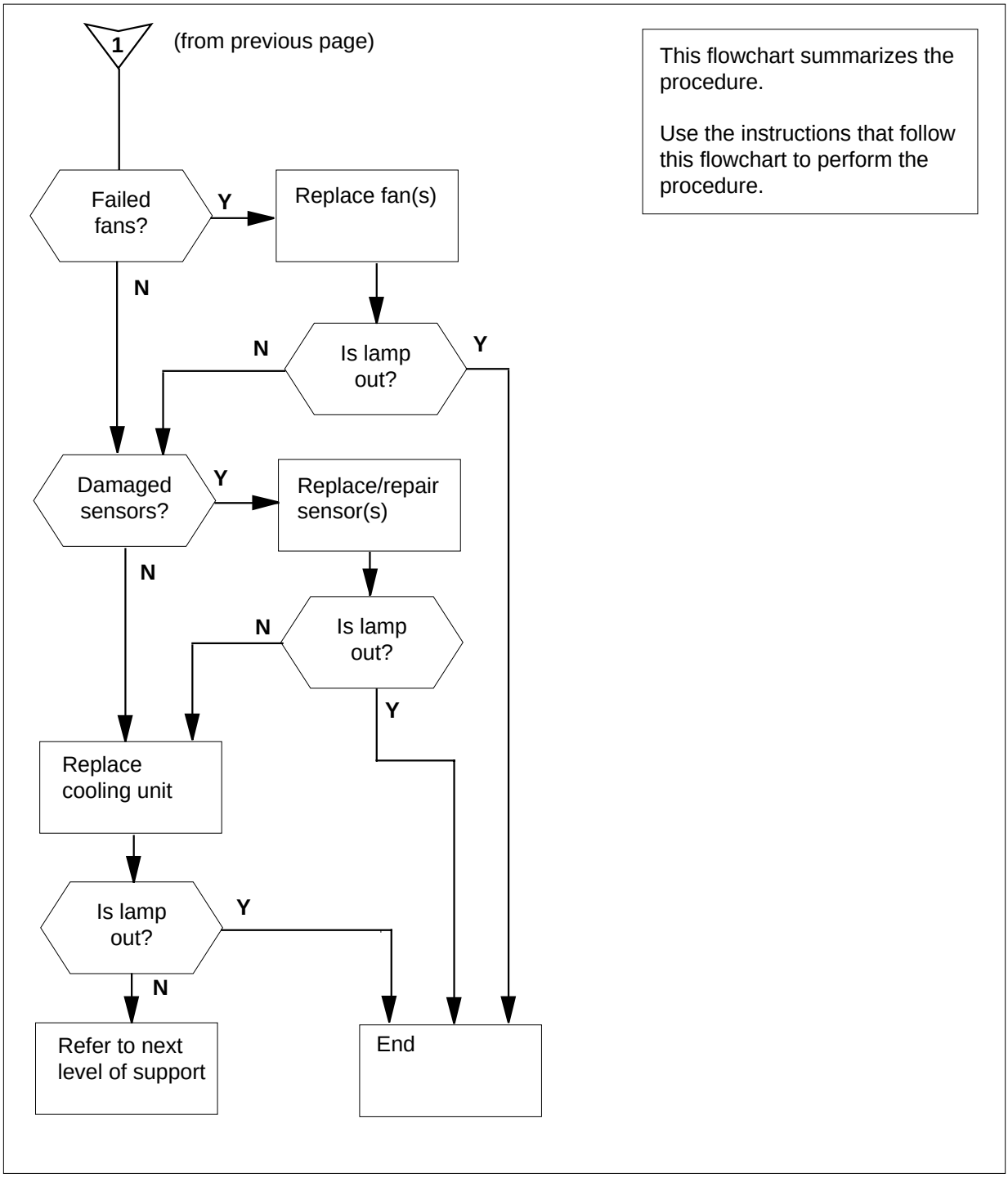
Repairing FAN faults on an LCEI frame; cooling unit replacement

Summary of Repairing FAN FAIL faults on an LCEI frame



Repairing FAN faults on an LCEI frame; cooling unit replacement

Summary of Repairing FAN FAIL faults on an LCEI frame (continued)



Repairing FAN faults on an LCEI frame; cooling unit replacement

Repairing FAN FAIL faults in an LCEI frame

At the front of the frame

1

DANGER
Next level of support
The cooling unit configuration in the frame can differ from the following description. If you encounter an important difference, contact your next level of support.

Determine the location of the problem LCEI frame on the switch.

2 Check for the lit FRAME and FAN FAIL lamps on the frame supervisory panel (FSP).

3 Remove the filter and faceplate assembly NTBX6012 at the bottom of the frame. Inspect the filter.

4 Determine if the FAN FAIL lamp turned off when you removed the filter.

If the FAN FAIL lamp	Do
turned off	step 5
remained on	step 7

Note: If the FAN FAIL lamp turns off when you remove the filter, replacement of the filter is necessary.

5 Slide a replacement filter and faceplate assembly NTBX6012 into the frame. Secure the filter and faceplate in position.

6 Go to step 52.

7 Replace the filter and faceplate assembly into the bottom of the frame.

8

DANGER
Risk of personal injury
Electricity can arc when you remove fan unit fuses. Wear eye protection.

Repairing FAN faults on an LCEI frame; cooling unit replacement

WARNING
Incorrect fuse values
Always use replacement fuses of the correct rating, or damage to the equipment can result.

Check the fuses in positions one to five at the front of the cooling unit. Replace any blown fuses. The cooling unit is at shelf position 33.

9 Did step 8 clear the FRAME and FAN FAIL alarm lamps?

If alarm lamps	Do
clears	step 52
did not clear	step 10

At the front of the frame

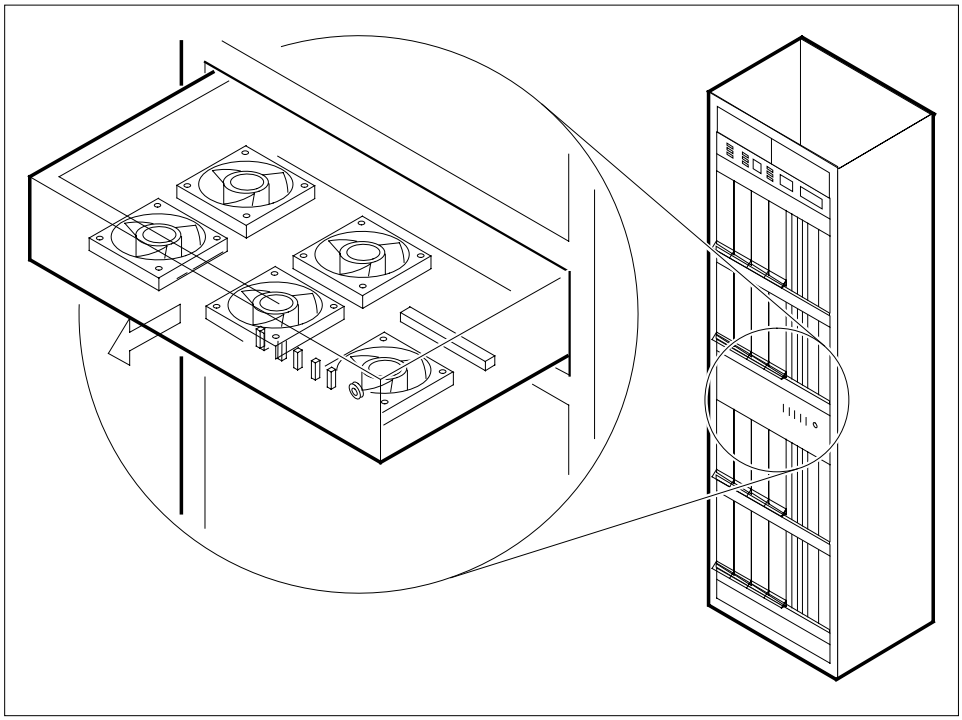
10 To remove the two side trims on the LCE frame, remove the top and bottom screws that secure the trim.

11 Remove the four 5/16-inch bolts that secure the cooling unit brackets (two per side). Ensure that you remove the two center bolts from each side.

At the back of the frame

12 Remove the three mounting screws from the back center of the cooling unit.

Repairing FAN faults on an LCEI frame; cooling unit replacement



At the front of the frame

13 Slide out the line drawer above the cooling unit.

At the back of the frame

14 Look into the frame of the cooling unit. Note the position of any failed or slow fans.

> ***Note:*** The fault can lie in one of the front three fans, or in the air flow sensors on the fans. If this fault occurs, you can repair the cooling unit without the removal of the unit from the frame. If the fault lies with the two back fans or sensors, you must remove the cooling unit. You must remove the unit because the back fans and sensors are not available while the unit is in the frame. Refer to your company procedures to see if you can attempt repairs. Your company procedures can require you to replace the unit with a new one.

15 Push the line drawer that you pulled out in step 13 back into position.

16 Do you want to repair the cooling unit while the unit is in the frame?

If you	Do
want to repair the cooling unit while the unit is in the frame	step 31

Repairing FAN faults on an LCEI frame; cooling unit replacement

If you	Do
you do not want to repair the cooling unit while the unit is in the frame	step 17

At the front of the frame

17 Locate the fan fuses in the front of the cooling unit. Remove the 0.5-amp fuses, (numbered 1 through 5).

At the PDC

18 Remove the cooling unit fuses (cooling unit 0 or 1).

At the back of the frame

19

WARNING
Damage to the cooling unit
Instead of a plug, the cooling unit can have leads that end on a terminal strip. If the cooling unit has leads, label the leads before you disconnect them. If you reconnect the leads to the wrong connector, damage to the cooling unit can result.

WARNING
Loss of frame cooling
Disconnection of the cooling unit for an extended period of time can cause the equipment in the frame to overheat.

Disconnect the power plug or power leads at the back of the cooling unit.

At the front of the frame

20 Remove the cooling unit from the frame.

21 Obtain a replacement NTBX63AA cooling unit. Refer to company procedures on repairs to damaged units. The company procedures can direct you to repair the damaged cooling unit in-house. Refer to procedure *Repairing a NTBX63AA cooling unit* in this document.

22 Push the replacement cooling unit into the frame.

At the back of the frame

23 Replace the three mounting screws at the back center of the cooling unit removed in step 12. Secure the screws in position.

Repairing FAN faults on an LCEI frame; cooling unit replacement

At the front of the frame

24 Replace the four 5/16-inch bolts that secure the cooling unit side brackets (two per side) that you removed in step 11. Secure the brackets in position.

At the back of the frame

25 At the back of the cooling unit, reconnect the power plug or power leads disconnected in step 19.

At the PDC

26 Reinstall the two fuses (cooling unit 0 or 1) removed in step 18.

At the front of the frame

27

DANGER
Risk of personal injury
Electricity can arc when you replace fan unit fuses. Wear eye protection.

At the front of the cooling unit, reinstall the five 0.5-amp fan fuses (numbered 1 through 5) removed in step 17.

28 Check the FAN FAIL lamp on the front panel of the cooling unit.

If the FAN FAIL lamp	Do
is off	step 29
is on	step 46

29 Reinstall the side trim and secure with the top and bottom screws removed in step 10.

30 Go to step 52.

At the front of the frame

31 Pull the cooling unit part way out of the frame. The power cord can be too short to gain access to the front three fans. If the cord is too short, repair the unit on a bench top.

If the power cord	Do
is too short	step 17
is long enough	step 32

Repairing FAN faults on an LCEI frame; cooling unit replacement

32 Determine if any of the front three fans decreased in speed or failed.

If	Do
one or more damaged fans are present	step 33
no damaged fans are present	step 42

Note: Determine if all fans run, and the FAN FAIL lamp on the front of the cooling unit is on. If the fans run, and the FAN FAIL lamp is on, the problem can be a defective air flow sensor switch.

At the front of the cooling unit

33 Remove the fuse associated with the defective fan from the front panel.

34 Disconnect the power supply wiring to the defective fan.

35 Note the position of the sensor switch on the defective fan.

36 Remove the four screws that secure the fan and the screw that secures the sensor switch.

37 Mount the new fan. Position the fan so that air flows toward the top, as the fan label indicates.

38 Replace the sensor switch. Secure the switch with the mounting screw.

39 Connect the power supply to the new fan.

40 Replace the fuse that you removed in step 33.

41 If necessary, repeat steps 33 to 40 for other damaged fans.

If the FAN FAIL lamp	Do
is off	step 48
is on	step 42

42 Inspect the sails of the air flow sensors. Adjust or replace any sails that appear defective.

If the FAN FAIL lamp	Do
turns off	step 48
remains on	step 42

43 Disconnect the wiring from one of the sensor switches. Note which wire connects to each terminal.

If the FAN FAIL lamp	Do
turns off	step 44
remains on	step 45

Repairing FAN faults on an LCEI frame; cooling unit replacement (end)

Note: A FAN FAIL lamp that turns off indicates a defective sensor switch.

44 Remove the mounting screw from the air flow sensor. Remove and replace the sensor with a new sensor. Connect the wiring to the new sensor.

If the FAN FAIL lamp	Do
turns off	step 48
remains on	step 45

45 Repeat steps 42 to 44 until you checked all three accessible sensors, or until the FAN FAIL lamp turns off.

If the FAN FAIL lamp is	Do
off	step 48
on	step 17

Note: If the FAN FAIL lamp remains ON, the fault can lie in the two back fans or air flow sensors. In this event, remove the cooling unit from the frame and replace the unit with a new unit. If your company procedures direct you to repair damaged units in-house, refer to "Repairing a NTBX63AA cooling unit" in this document.

46 Contact the next level of support.

47 Go to step 52.

48 Push the cooling unit back into the frame.

At the back of the frame

49 Replace the three mounting screws at the back center of the cooling unit removed in step 12. Secure the screws in position.

At the front of the frame

50 Replace the four 5/16-inch bolts that secure the cooling unit brackets (two per side) removed in step 11. Secure the bolts in position.

51 Reinstall the side trim and secure the trim with the top and bottom screws removed in step 10.

52 The procedure is complete.

Repairing an NTBX63AA cooling unit on the bench top

Application

Use this procedure to repair an NTBX63AA cooling unit on the bench top. Check for a fault with any of the front three fans. Do the check while the unit remains in the ISDN line concentrating equipment (LCEI) frame. If a fault exists, you can repair the unit while the unit remains in the frame. Check the air flow sensors on the front three fans while the unit remains in the frame.

A fault in a NTBX63AA cooling unit results from one of the following:

- a loose or broken wiring harness
- a fan motor has faults
- a switch of the air flow sensor has faults

Definition

The cooling unit provides forced air to cool the cards in the line card drawer.

Common procedures

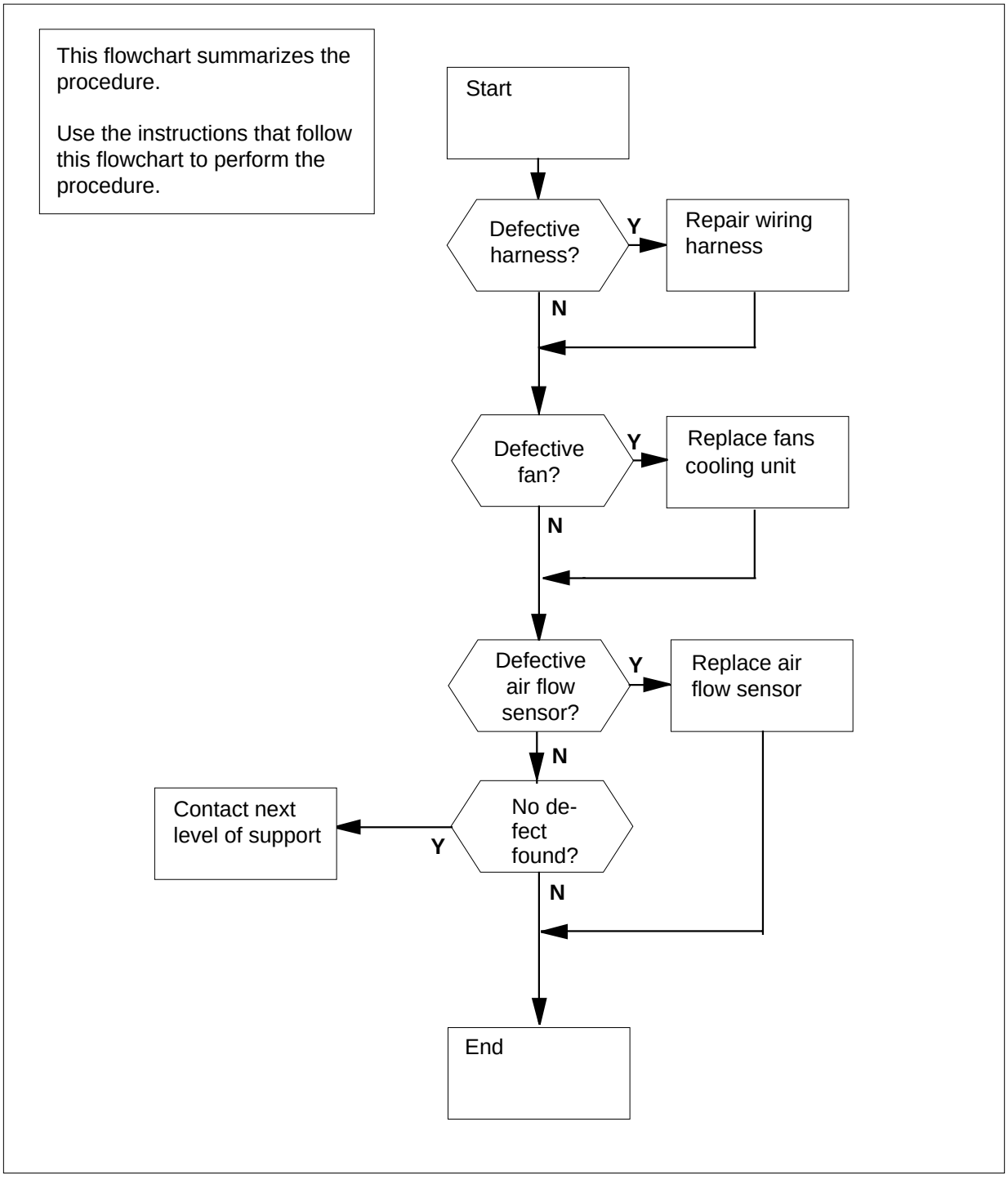
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Repairing an NTBX63AA cooling unit on the bench top (continued)

Summary of Repairing an NTBX63AA cooling unit on the bench top



Repairing an NTBX63AA cooling unit on the bench top (continued)

Repairing an NTBX63AA cooling unit on the bench top

At your current location

1

ATTENTION
The cooling unit configuration in the frame can differ from the following description. If you encounter an important difference, contact your next level of support.

Place the NTBX63AA cooling unit that has faults on a bench.

2

WARNING
Incorrect fuse values
Always use replacement fuses of the correct rating, or damage to the equipment can result.

Check the five fuses at the front of the unit and replace any blown fuses

3

WARNING
Temporary power supply
Ensure that you have an acceptable power supply to run the unit without damage.

Connect the unit to an acceptable 48 V dc power supply.

4 Inspect the fan operation.

If the fans	Do
work correctly	step 21
do not work correctly	step 5

5 Inspect the unit wiring harness for damage or loose switch connections.

If the harness	Do
is damaged or loose	step 6
is not damaged or loose	step 6

Repairing an NTBX63AA cooling unit on the bench top (continued)

6 Disconnect the power supply.

7 Replace or repair the harness that has faults. Tighten the loose connections.

8 Reconnect the 48 V dc power supply.

9 Inspect the fan operation.

If the fans	Do
work correctly	step 35
do not work correctly	step 10

10 Note the fans that do not work correctly.

11 Disconnect the power supply.

12 Disconnect the power supply wiring to the fan (or fans) that has faults noted in step 10.

13 Note the position of the sensor switch on the fan that has faults.

14 Remove the four screws that secure the fan and the screw that secures the sensor switch.

15 Mount the new fan so that air flows toward the top, as indicated on the label.

16 Replace the sensor switch of the last installation. Secure the sensor with the mounting screw.

17 Reconnect the power supply to the new fan.

18 If necessary, repeat steps 12 to 17 for other fans that havew faults.

19 Turn ON the power switch on the unit.

20 Inspect the fan operation.

If the fans	Do
work correctly	step 35
do not work correctly	step 34

21 Inspect the sensor sails and adjust or replace any sails that appear to have faults.

22 Disconnect the wiring from one of the sensor switches. Note which wire connects to each terminal.

23 Connect an ohm meter to the two connected terminals of the sensor switch.

24 Lift the sail of the air flow sensor.

If the ohm meter	Do
indicates a closed sensor switch	step 25
indicates an open sensor switch	step 26

25 An ohm meter that has a closed circuit with the sail in the up position indicates a sensor has faults. Note the sensor and go to step 27.

Repairing an NTBX63AA cooling unit on the bench top (continued)

26 An ohm meter that has an open circuit with the sail in the up position indicates a sensor operates correctly. Reconnect the wiring to the sensor switch.

27 Repeat steps 22 to 26 to test all sensor switches.

28 Disconnect power to the unit.

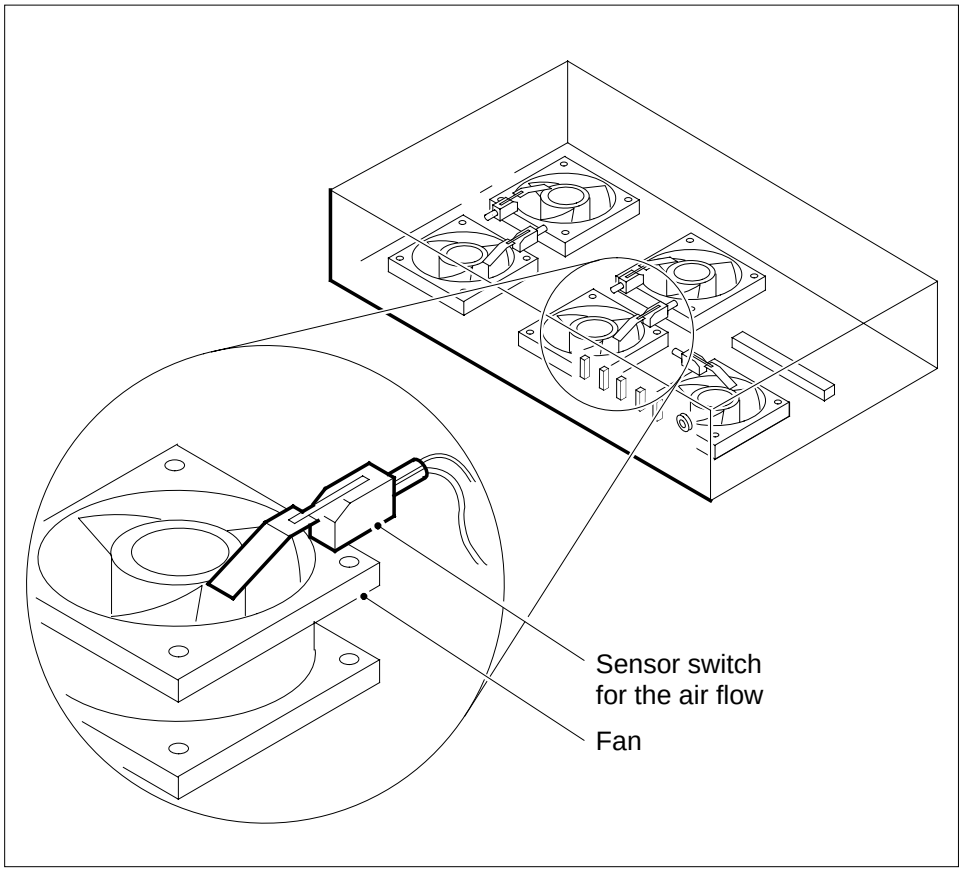
29 Locate any sensor switch (or switches) that has faults, as determined in steps 24 to 27. Note the position of the switch (or switches).

30 Remove the sensor switch that has faults from the switch bracket.

31 Attach the replacement sensor switch to the switch bracket. Secure the sensor in position with screws, nuts, and washers.

32 Reconnect the wiring to the sensor switch, as noted in step 22.

33 Repeat steps 29 to 32 for each sensor switch. Replace any switches that have faults.



Repairing an NTBX63AA cooling unit on the bench top (end)

34 Contact the next level of support.

If you	Do
found no problems with the unit, or that repair to the unit was not possible	step 34
found and repaired the problems	step 35

35 Disconnect the power supply from the cooling unit and store the unit for future use.

36 The procedure is complete.

Repairing and replacing NT3X90AA cooling units

Application

Use this procedure to repair or replace NT3X90AA cooling units in the following frames:

- LGE, DTE, LTE and SME
- ILGE and IDTE
- DSNE
- MS7E, ST6E and ST7E
- SNPC
- CPEI

A fault in a NT3X90AA cooling unit results from one of the following:

- a dirty filter
- a loose or broken wiring harness
- a blown fuse for inverter on PDC frame
- an inverter has faults
- an air flow sensor switch has faults
- a fan motor has faults

Definition

The cooling unit provides forced air to cool the equipment and cards in the frames.

Common procedures

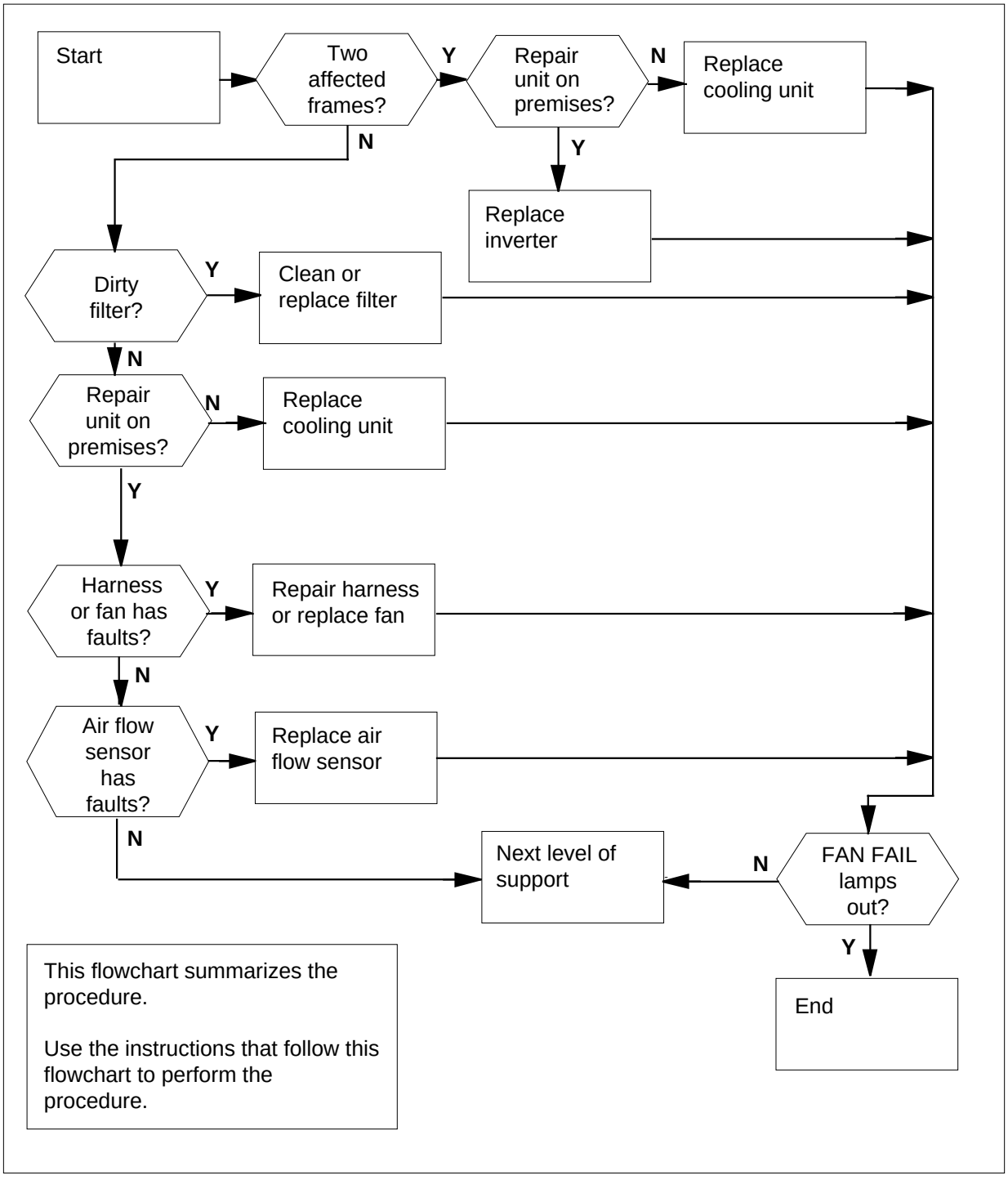
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Repairing and replacing NT3X90AA cooling units (continued)

Summary of Repairing and replacing NT3X90AA cooling units



Repairing and replacing NT3X90AA cooling units (continued)

Repairing and replacing NT3X90AA cooling units

At the FSP

1

ATTENTION

The cooling unit configuration in the frame can differ from the following description. If you encounter an important difference, contact your next level of support.

Identify the frame, or the pair of frames, where the lit FAN FAIL lamp is on the Frame Supervisory Panel (FSP).

Note: NT3X90AA power supplies for the cooling unit connect in pairs. A problem in one unit on a pair can cause an interruption in the operation of both units of the pair. Frames that are near each other will house the pairs.

2 To silence the alarm, turn ON the FAN FAIL OVERRIDE switch (or switches).

If the lit FAN FAIL lamp	Do
is on only one frame	step 3
is on two frames	step 39

At the frame

3 Remove the air intake grill and filter assembly from the front of the affected cooling unit.

4 Determine if the FAN FAIL lamp darkened on the Frame Supervisory Panel (FSP) when you removed the filter.

If the FAN FAIL lamp	Do
darkened	step 5
remained on	step 8

5 Remove the filter and intake grill to a location away from the switchroom. To clean the fan air intake, use a dust cloth and vacuum.

6 Vacuum or wash the filter in soap and water, according to the filter type.

7 Replace the filter in the grill and reinstall the grill at the front of the cooling unit.

8 Turn OFF the FAN FAIL OVERRIDE switch.

Go to step vr.

If your company procedures	Do
direct you to do repairs	step 9

Repairing and replacing NT3X90AA cooling units (continued)

If your company procedures	Do
do not direct you to do repairs	step 71

At the front of the cooling unit

9 Remove the screws that secure the side rail covers to the frame.

10 Remove the eight screws that secure the brackets to the sides of the cooling unit. To remove the screws, use a 5/16-inch ratchet and extension.

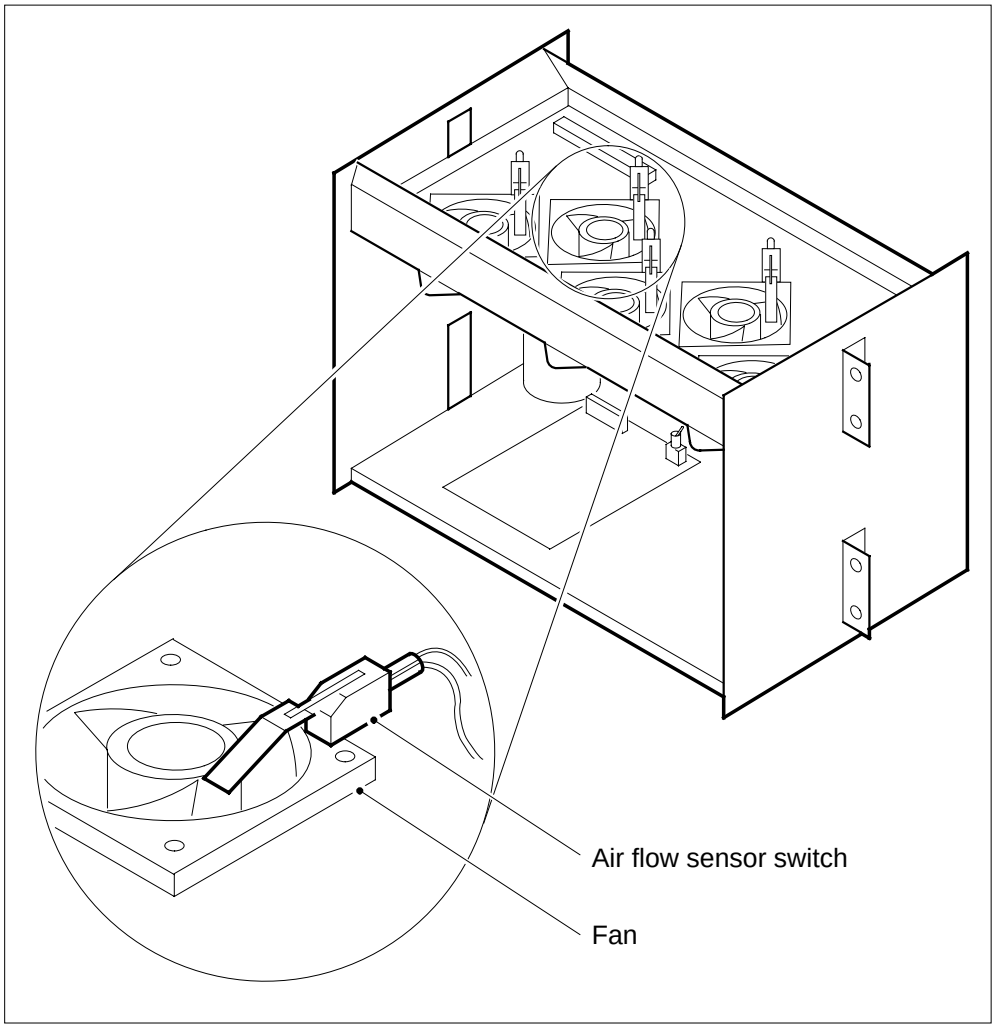
11

WARNING
Loss of frame cooling
Removal of the cooling unit for an extended period of time can cause the equipment in the frame to overheat.

Ease the cooling unit toward you until it is half-way out of the frame.

12 Inspect the fans in the cooling unit. Note any fans that do not work.

Repairing and replacing NT3X90AA cooling units (continued)



If	Do
fans work correctly but FAN FAIL lamp remains on	step 33
one fan does not work	step 13
other than listed above	step 85

Note 1: A fan that does not work indicates a wiring harness, loose connections, or a fan that requires replacement.

Note 2: The operation of all fans with a lit FAN FAIL lamp indicates a air flow sensor that has faults.

13 Inspect the wiring harness for the cooling unit. Look for damage and/or a loose connection at the fans or terminal blocks.

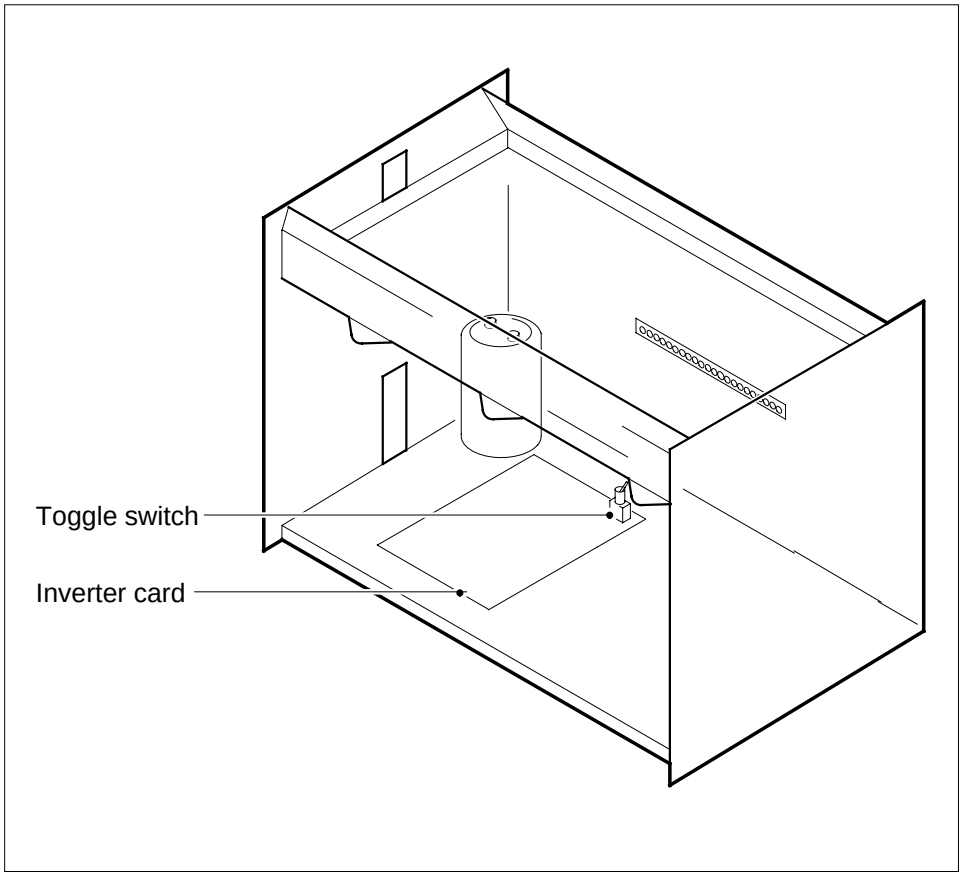
Repairing and replacing NT3X90AA cooling units (continued)

At the back of the frame

14 Unplug the connector at the back of the unit.

At the cooling unit

15 A harness requires replacement. Tighten any loose connections.



At the back of the frame

16 Reconnect the connector at the back of the unit.

At the front of the cooling unit

17 Inspect the fan operation.

If the fan	Do
works correctly, but did not work in step 12	step 62
did not work correctly, and did not work in step 12	step 18

Repairing and replacing NT3X90AA cooling units (continued)

At the back of the cooling unit

18 Unplug the connector at the back of the unit.

At the cooling unit

19 Disconnect the wiring to the airflow sensor switch from the fan. Note the position and color of the wires.

20 Note the position of the air flow switch on the fan.

21 Remove the sensor switch from the switch bracket. Lay the switch to one side.

22 Cut the two tie wraps that secure the power cord to the fan.

23 Remove the four screws, spacers, nuts, and washers that secure the fan to the cooling unit.

24 Disconnect the power cord at the fan terminals.

25 Remove the fan.

26 Plug a new fan into the power cord.

27 Mount the new fan. Ensure that you install the fan to allow air to flow toward the top, as indicated on the label. Secure with screws, spacers, nuts and washers.

28 Secure the power cord to the fan with new tie wraps.

29 Reinstall the wiring to the sensor switch, as noted in step 19.

30 Reinstall the sensor switch to the switch bracket. Secure the sensor in position with screws, nuts, and washers.

At the back of the frame

31 Reconnect the connector at the back of the cooling unit.

32 Inspect the fan operation.

If the fan	Do
works correctly, but did not work in step 12	step 62
did not work correctly, and did not work in step 12	step 85

33 Inspect the sails of the air flow sensors. Replace or repair any sails that appear to have faults.

34 Disconnect the wiring to one of the sensor switches. Note the position and color of the wires.

If the FAN FAIL lamp	Do
remained on when you disconnected the wiring to the air flow sensor	step 37

Repairing and replacing NT3X90AA cooling units (continued)

If the FAN FAIL lamp	Do
did not remain on when you disconnected the wiring to the air flow sensor	step 35

Note: A FAN FAIL lamp that turns OFF when you disconnect the wiring to the sensor indicates a sensor switch that has faults.

35 Remove the sensor switch.

36 Attach the replacement sensor switch to the switch bracket. Secure the switch in position with screws, nuts, and washers.

37 Reconnect the wiring to the sensor switch, as noted in step 34.

38 Repeat steps 34 to 37 to check all sensor switches.

If the FAN FAIL lamp	Do
is off	step 62
is on	step 85

At the PDC frame

39

DANGER
Possible arcing
Electricity can arc when you remove cooling unit fuses. Wear eye protection.

Remove the fuses that power the inverters.

40 Do you have a blown fuse?

If a fuse	Do
is blown	step 41
is not blown	step 44

Repairing and replacing NT3X90AA cooling units (continued)

41

WARNING
Incorrect fuse values
Use replacement fuses of the correct rating, or damage to the equipment may result.

Replace the fuses in the PDC. Replace the blown fuse with a new fuse.

If FAN FAIL lamps at the FSPs	Do
are dark	step 42
are lit	step 44

At the FSPs

42 Turn OFF the FAN FAIL OVERRIDE switches.

43 Go to step 86.

44 Remove the air intake grill and filter assembly from the front of both cooling units.

45 Inspect the fans in both cooling units.

If	Do
a complete row of fans do not work in each cooling unit	step 46
other than listed here	step 85

46 Locate the toggle switches at the back right corner of each inverter.

Note: The toggle switches are the ON/OFF power switches for the inverters.

47 Cycle the toggle switches on both inverters to find the inverter that powers the rows of fans that do not work.

If company procedures	Do
direct you to do repairs	step 50
do not direct you to do repairs	step 48

Note: Each inverter powers the row of three fans. The front of the cooling unit houses the row of fans. Each inverter also powers the row of two fans at the back of the paired unit.

48 Identify the cooling unit with the inverter that powers the fans that do not operate. Replace this cooling unit.

Repairing and replacing NT3X90AA cooling units (continued)

49 Go to step 71.

50 Turn OFF the inverter that powers the row of fans that have faults.

At the PDC frame

51 Remove the fuse for the inverter that powers the fans.

At the frame

52 Disconnect the connector at the back left corner of the inverter.

53 Use a pair of needle-nosed pliers to remove the four plastic mounting pins that hold the inverter card.

54 Lift the inverter out of the cooling unit. Replace the inverter with a new inverter.

55 Mount the new inverter on the four plastic mounting pins.

56 Attach the connector at the back left corner of the new inverter.

At the PDC frame

57 Check the fuse to the inverter. A blown fuse requires a replacement. Replace the fuse in the PDC.

At the frame

58 Turn ON the toggle switch of the new inverter.

If	Do
the fans work correctly and the FAN FAIL lamp is not on	step 59
other than listed here	step 85

59 Install the air intake grill and filter assembly at the front of the cooling unit.

At the FSP

60 Turn OFF the FAN FAIL OVERRIDE switch (or switches).

61 Go to step 86.

62 Ease the cooling unit back completely into the frame.

63 Insert the eight screws that secure the brackets to the sides of the cooling unit. To insert the screws, use a 5/16-inch ratchet and extension.

64 Reinstall the side rail on the front of the frame.

At the PDC frame

65 If you removed the fuse (or fuses) that powers the inverter card (or cards), reinstall it.

66 Locate the toggle switch near the back right side of the inverter card (or cards).

67 If the switches operated during this procedure, ensure that you turn back ON the switches.

Repairing and replacing NT3X90AA cooling units (continued)

68 Reinstall the air intake grill and filter assembly at the at the front of the cooling unit.

69 Turn OFF the FAN FAIL OVERRIDE switch on the FSP.

70 Go to step 86.

At the PDC frame

71 Remove the fuses that power the inverter cards on the cooling unit that requires replacement.

At the back of the cooling unit

72 Disconnect the plug that connects the wiring to the cooling unit.

At the front of the cooling unit

73 Remove the screws that secure the side rail covers to the frame.

74 Remove the eight screws that secure the brackets to the sides of the cooling unit. To remove the screws, use a 5/16-inch ratchet and extension.

75 Ease the cooling unit toward you and out of the frame.

76 Ease the replacement cooling unit into the frame.

77 Insert the eight screws that secure the brackets to the sides of the cooling unit. To insert the Use a 5/16-inch ratchet and extension.

78 Reinstall the side rail on the front of the frame.

At the back of the cooling unit

79 Reconnect the plug that connects the wiring to the cooling unit.

At the PDC frame

80 Reinstall the fuses that power the inverter cards.

At the front of the cooling unit

81 Locate the toggle switches near the back right side of the inverter cards.

82 Ensure that you turn ON the toggle switches.

83 Reinstall the air intake grill and filter assembly at the at the front of the cooling unit.

84 Turn OFF the FAN FAIL OVERRIDE switch (or switches) on the FSP (or FSPs).

85

WARNING
Loss of frame cooling
Do not leave a cooling unit that has faults in the frame. If you cannot repair the cooling unit immediately, go to step 71. Follow the necessary parts of the procedure to replace the unit with one that work correctly.

Repairing and replacing NT3X90AA cooling units (end)

For additional help, contact the next level of support.

86 The procedure is complete.

Repairing and replacing NT3X90AB cooling units

Application

Use this procedure to repair or replace NT3X90AB cooling units in the following frames:

- LGE, DTE, LTE and SME
- ILGE and IDTE
- DSNE
- PMTC
- MS7E, ST6E and ST7E
- RCE
- CPEI

A fault in a NT3X90AB cooling unit results from one of the following:

- a dirty filter
- a loose or broken wiring harness
- a blown fuse for inverter on PDC frame
- a inverter has faults
- a air flow sensor switch has faults
- a fan motor has faults

Definition

The cooling unit provides forced air to cool the equipment and cards in the frames.

Common procedures

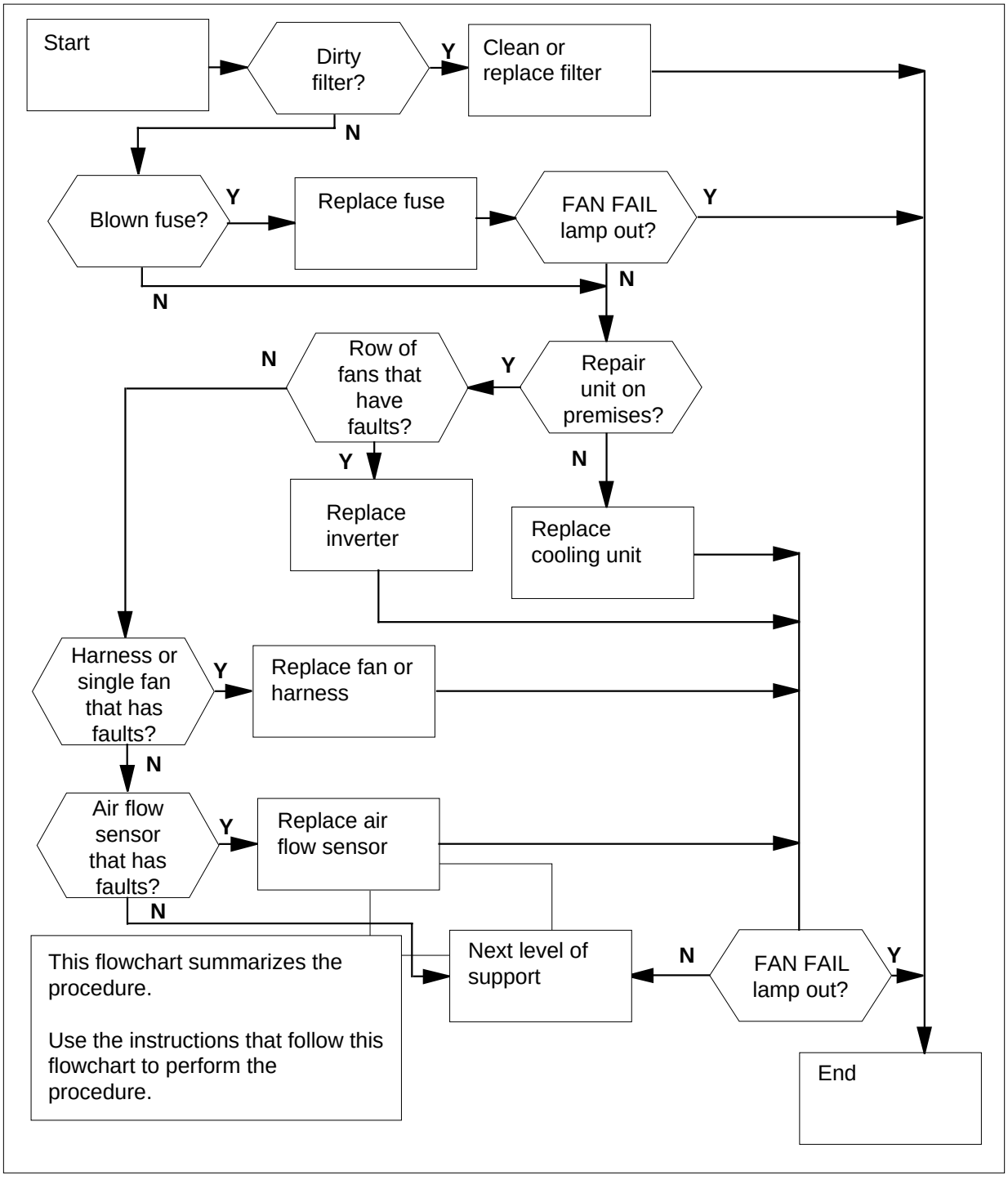
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Repairing and replacing NT3X90AB cooling units (continued)

Summary of Repairing and replacing NT3X90AB cooling units



Repairing and replacing NT3X90AB cooling units (continued)

Repairing and replacing NT3X90AB cooling units

At the FSP

1

DANGER
Next level of support
The cooling unit configuration in the frame can differ from the following description. If you encounter an important difference, contact your next level of support.

To silence the alarm, turn ON the FAN FAIL OVERRIDE switch.

At the frame

2 Remove the air intake grill and filter assembly from the front of the cooling unit.

3 Determine if the FAN FAIL lamp darkened on the frame supervisory panel (FSP) when you removed the filter.

If the FAN FAIL lamp	Do
darkened	step 4
remained on	step 9

4 Remove the filter and grill to a location away from the switchroom. Use a dust cloth and vacuum to clean the fan air intake.

5 Vacuum or wash the filter in soap and water, according to the filter type.

6 Replace the filter in the grill and reinstall the filter in the cooling unit.

7 Turn OFF the FAN FAIL OVERRIDE switch.

8 Go to step 79.

At the PDC frame

9

DANGER
Possible arcing
Electricity can arc when you remove cooling unit fuses. Wear eye protection.

Remove the fuses that power the inverters.

Repairing and replacing NT3X90AB cooling units (continued)

10 Do you have a blown fuse?

If	Do
yes	step 11
no	step13

At the PDC frame

11

WARNING
Incorrect fuse values
Use replacement fuses of the correct rating, or damage to the equipment can result.

Replace the fuse in the PDC with a new one.

12 Replace the filter in the grill.

If the FAN FAIL lamp is	Do
off	step12
on	step13

13 Turn OFF the FAN FAIL OVERRIDE switch.

Go to step 79.

If your company procedures	Do
direct you to do repairs	step 14
do not direct you to do repairs	step 64

At the front of the frame

14 Remove the screws that secure the side rail covers to the frame.

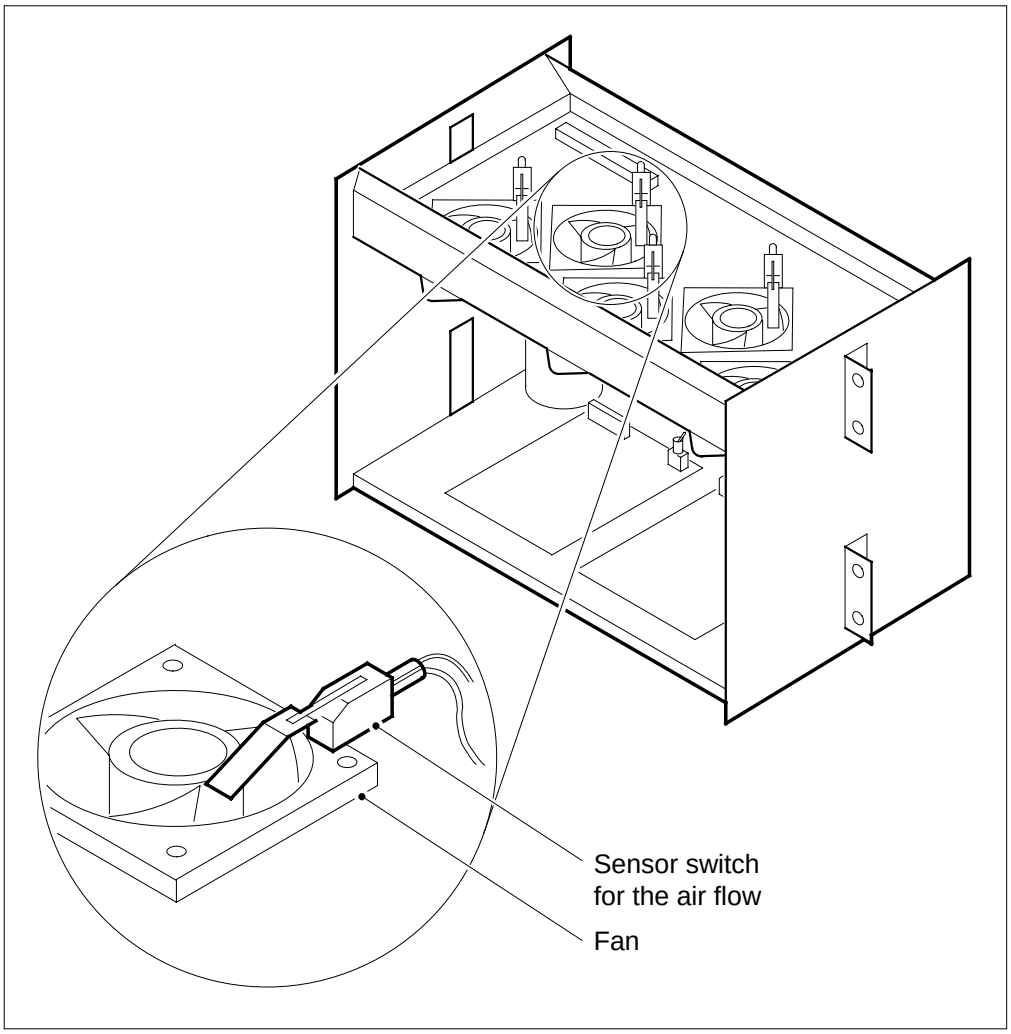
15 Remove the eight screws that secure the brackets to the sides of the cooling unit. To remove the screws, use a 5/16-inch ratchet and extension.

Repairing and replacing NT3X90AB cooling units (continued)

16

WARNING
Loss of frame cooling
Removal of the cooling unit for an extended period of time can cause the equipment in the frame to overheat.

Ease the cooling unit toward you until it is half-way out of the frame.



Repairing and replacing NT3X90AB cooling units (continued)

17 Inspect the fans in the cooling unit. Determine how many fans work.

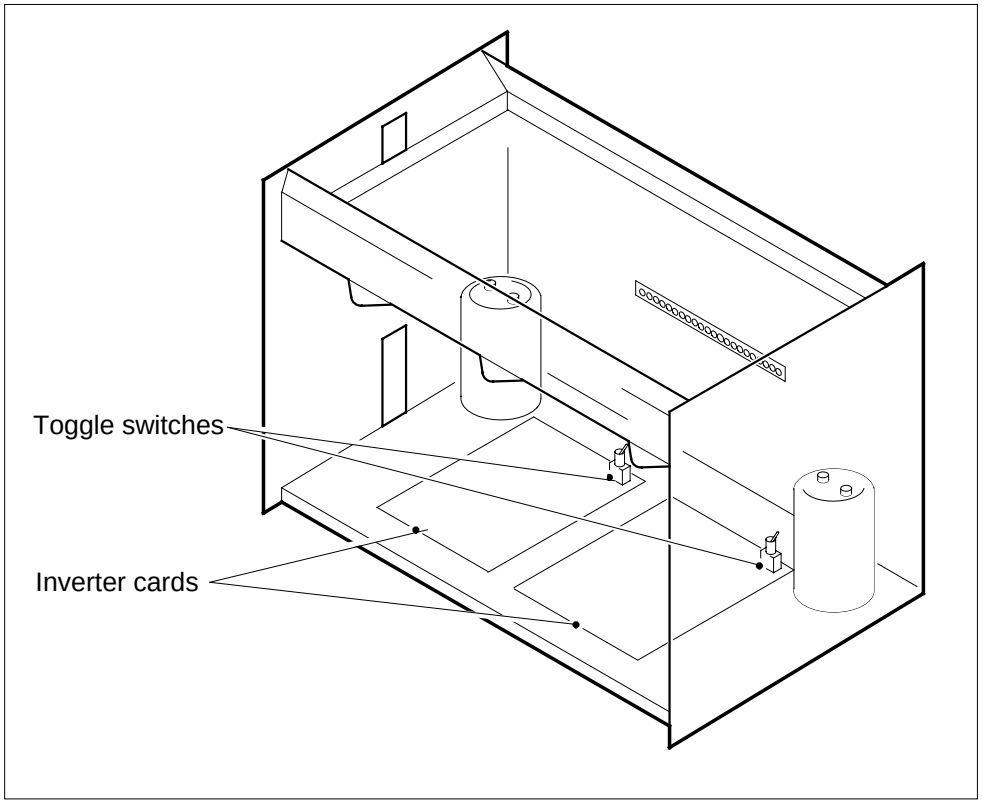
If	Do
fans work correctly but FAN FAIL lamp remains on	step 49
one fan does not work	step 29
both fans in the back row or all three fans in the front row do not work	step 18

Note 1: A complete row of fans that have faults indicates an inverter that powers the row is at fault. The row of fans that have faults also indicates a blown fuse on the PDC frame for the inverter that has faults.

Note 2: One fan that does not operate indicates a damaged wiring harness, loose connections, or a fan that requires replacement.

Note 3: All fans that operate normally with a lit FAN FAIL lamp indicate a air flow sensor that has faults.

18 Locate the toggle switches at the back right corner of each inverter card.



Note: The toggle switches are the ON/OFF power switches for the inverters.

Repairing and replacing NT3X90AB cooling units (continued)

19 Cycle the toggle switches on both inverters until you find the inverter that powers the row of fans that have faults.

20 Switch OFF the inverter that provides power to the row of fans that have faults.

At the PDC frame

21 Remove the fuse for the damaged inverter.

At the frame

22 Disconnect the connector at the back left corner of the inverter.

23 Use a pair of needle-nosed pliers to disconnect the four plastic mounting pins.

24 Lift the old inverter out of the cooling unit. Replace the old inverter with a new inverter.

25 Mount the new inverter on the four plastic mounting pins.

26 Plug the connector into the back left corner of the inverter.

At the PDC frame

27 Examine the fuse to the inverter. If the fuse is a blown fuse, obtain a new fuse. Replace the fuse in the PDC.

At the frame

28 Turn ON the toggle switch of the new inverter.

If	Do
the fans work normally and the FAN FAIL lamp does not turn on	step 55
other than listed here	step 78

29 To turn OFF the inverters, use the toggle switches at the back right corner of the inverters.

30 Inspect the cooling unit wiring harness for damage and/or a loose connection at the fans or terminal blocks.

31 Replace a defective harness. Tighten any loose connections.

32 To turn ON the inverters, use the toggle switches at the back right corner of the inverters.

33 Inspect the fan operation.

If the fan	Do
works correctly, but did not work in step 17	step 55

Repairing and replacing NT3X90AB cooling units (continued)

If the fan	Do
does not work correctly, and did not work in step 17	step 34

34 To turn OFF the inverters, use the toggle switches at the back right corner of the inverters.

35 Disconnect the wiring to the sensor switch from the fan that has faults. Note the position and color of the wires.

36 Note the position of the air flow switch on the fan (or fans) that has faults.

37 Remove the sensor switch from the switch bracket. Lay the switch to one side.

38 Cut the two tie wraps that secure the power cord to the fan.

39 Remove the four screws, spacers, nuts, and washers that secure the fan to the cooling unit.

40 Disconnect the power cord at the fan terminals.

41 Remove the fan.

42 Plug a new fan into the power cord.

43 Mount the new fan. Install the fan so that air flows toward the top, as indicated on the label. Secure the fan with screws, spacers, nuts, and washers.

44 Use new tie wraps to secure the power cord to the fan.

45 Reconnect the wiring to the sensor switch, as noted in step 35.

46 Attach the sensor switch to the switch bracket. Secure the switch in position with screws, nuts, and washers.

47 To switch ON the inverters, use the toggle switches at the back right corner of the inverters.

48 Inspect the fan operation.

If the fan	Do
works correctly, but did not work in step 17	step 55
did not work correctly, and did not work in step 17	step 78

49 Inspect the sails of the air flow sensors. Replace or repair any that appear to have faults.

Repairing and replacing NT3X90AB cooling units (continued)

50 Disconnect the wiring to one of the sensor switches. Note the position and color of the wires.

If the FAN FAIL lamp	Do
remained on when you disconnected the sensor wiring for the air flow	step 53
did not remain on when you disconnected the sensor wiring for the air flow	step 51

Note: A FAN FAIL lamp that turned OFF when you disconnected the sensor wiring indicates a sensor switch that has faults.

51 Remove the defective sensor switch.

52 Attach the replacement sensor switch to the switch bracket. Secure the new sensor in position with screws, nuts, and washers.

53 Reconnect the wiring to the sensor switch, as noted in step 50.

54 Repeat steps 50 to 53 to check all sensor switches.

If the FAN FAIL lamp	Do
turns off	step 55
remains on	step 78

55 Ease the cooling unit completely back into the frame.

56 Insert the eight screws that secure the brackets to the sides of the cooling unit. To insert the screws, use a 5/16-inch ratchet and extension.

57 Reinstall the side rail on the front of the frame.

58 Locate the toggle switch near the back right corner of each inverter card.

59 If the switches worked during this procedure, turn back ON the switches.

At the PDC frame

60 Inspect the fuses that power the inverter cards. Replace any blown fuses.

At the FSP

61 Replace the air intake grill and filter assembly at the front of the cooling unit.

If the FAN FAIL lamp	Do
is off	step 61
is on	step 78

62 Turn OFF the FAN FAIL OVERRIDE switch on the FSP.

63 Go to step 79.

Repairing and replacing NT3X90AB cooling units (end)

At the PDC frame

64 Remove the fuses that power the inverter cards.

At the back of the cooling unit

65 Disconnect the plug that connects the wiring to the cooling unit.

At the front of the cooling unit

66 Remove the screws that secure the side rail covers to the frame.

67 Remove the eight screws that secure the brackets to the sides of the cooling unit. To remove the screws, use a 5/16-inch ratchet and extension.

68 Ease the cooling unit toward you and out of the frame.

69 Ease the replacement cooling unit into the frame.

70 Secure the brackets to the sides of the cooling unit. To secure the brackets, use a 5/16-inch ratchet and extension.

71 Reinstall the side rail on the front of the frame.

At the back of the cooling unit

72 Reconnect the plug that connects the wiring to the cooling unit.

At the PDC frame

73 Insert the fuses that power the inverter cards.

At the front of the cooling unit

74 Locate the toggle switches near the back right corner of the inverter cards.

75 Make sure you turn ON the toggle switches.

76 Reinstall the air intake grill and filter assembly at the front of the cooling unit.

77 Turn ON the FAN FAIL OVERRIDE switch on the FSP.

78

WARNING
Loss of frame cooling
Do not leave a cooling unit that has faults in the frame. If you cannot repair the cooling unit immediately, replace it with a cooling unit that works correctly. Go to step 64 and follow the necessary parts of the procedure.

For additional help, contact the next level of support.

79 The procedure is complete.

Repairing and replacing NT3X90AC cooling units

Application

Use this procedure to replace NT3X90AC cooling unit components in the following frames:

- LGE, DTE, LTE and SME
- LGEI, DTEI, and LTEI
- ILGE and IDTE
- DSNE
- MS6E, MS7E, ST6E and ST7E
- RCE and RCEI
- DSNE
- CPEI

A problem in a NT3X90AC cooling unit results from one of the following:

- a dirty filter
- a loose or broken wiring harness
- a blown fuse in the front panel of the cooling unit
- a switch of the air flow sensor has faults
- a fan motor has faults

Definition

The cooling unit provides forced air to cool the equipment and cards in the frames.

Common procedures

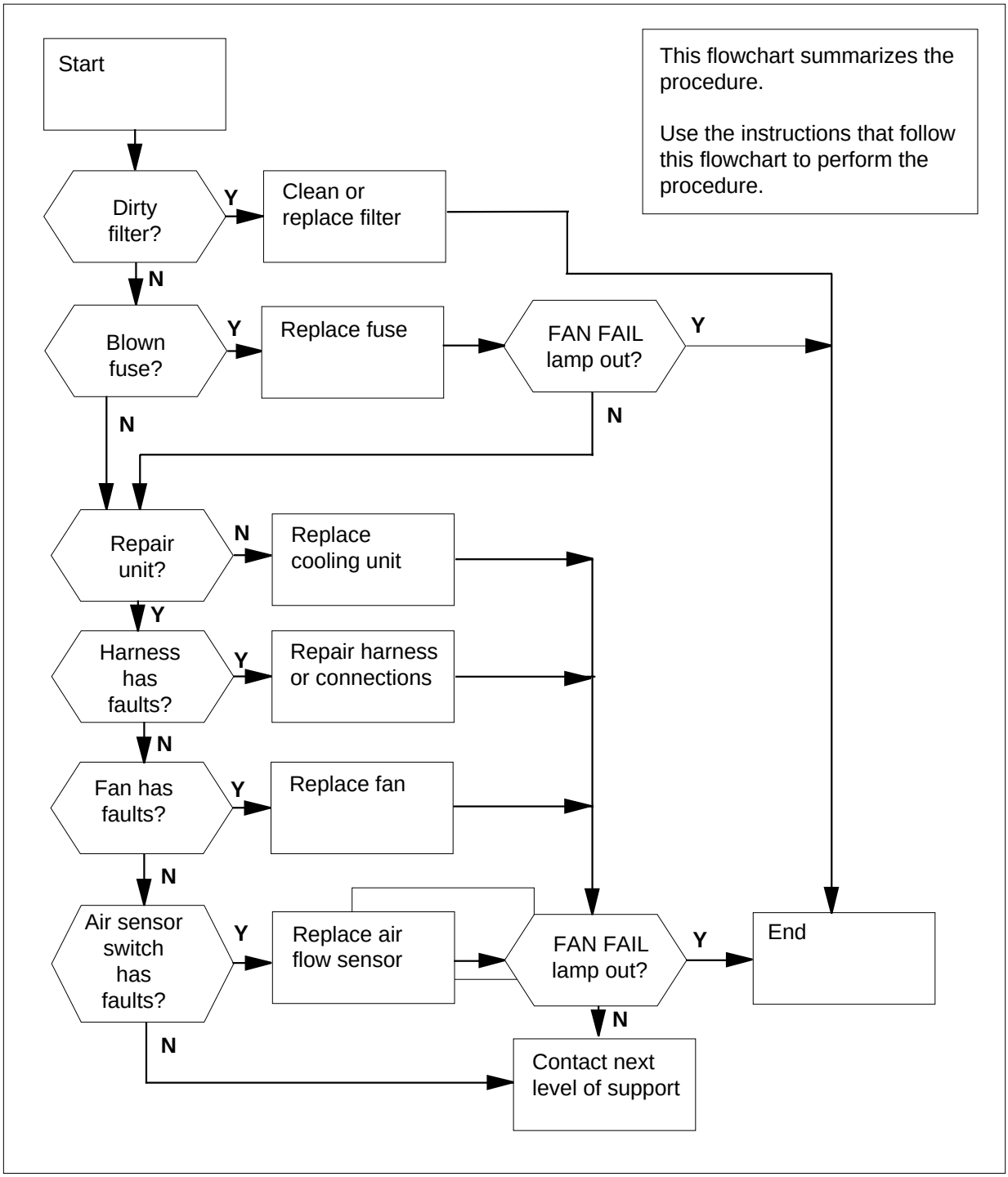
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Repairing and replacing NT3X90AC cooling units (continued)

Summary of Repairing and replacing NT3X90AC cooling units



Repairing and replacing NT3X90AC cooling units (continued)

Repairing and replacing NT3X90AC cooling units

At the FSP

1

DANGER
Next level of support
The cooling unit configuration in the frame can differ from the following description. If you encounter an important difference, contact your next level of support.

To silence the alarm, turn ON the FAN FAIL OVERRIDE switch.

At the frame

2 Remove the air intake grill and filter assembly from the front of the cooling unit.

3 Determine if the FAN FAIL lamp darkened on the frame supervisory panel (FSP) when you removed the filter.

If the FAN FAIL lamp	Do
darkened	step 4
remained on	step 9

4 Remove the filter and grill to a location away from the switch room. Use a dust cloth and vacuum to clean the fan air intake.

5 Vacuum or wash the filter in soap and water, according to the filter type.

6 Replace the filter in the grill.

At the FSP

7 Turn OFF the FAN FAIL OVERRIDE switch.

8 Go to step 60.

9 Locate the seven fuses at the front of the cooling unit and check each one.

10

WARNING
Incorrect fuse values
Use replacement fuses of the correct rating, or damage to the equipment can result.

Repairing and replacing NT3X90AC cooling units (continued)

WARNING
Incorrect fuse values
Use replacement fuses of the correct rating, or damage to the equipment can result.

If one or more fuses blow, replace the blown fuses with new fuses.

If the FAN FAIL lamp	Do
darkened when you replaced the fuses	step 11
remained on when you replaced the fuses	step 14

11 Replace the air intake grill and filter assembly at the front of the cooling unit.

At the FSP

12 Turn OFF the FAN FAIL OVERRIDE switch.

13 Go to step 60.

14 Proceed as directed in the following table.

If your company procedures	Do
direct you to do repairs	step 26
direct you to not do repairs	step 15

At the back of the cooling unit

15 Disconnect the plug that connects the wiring to the cooling unit.

At the front of the cooling unit

16 Remove the screws that secure the side rail covers to the frame.

17 Remove the eight screws that secure the brackets to the sides of the cooling unit. To remove the screws, use a 5/16-inch ratchet and extension.

18 Ease the cooling unit toward you and out of the frame.

19 Ease the replacement cooling unit into the frame.

20 Insert the eight screws that secure the brackets to the sides of the cooling unit. To insert the screws, use a 5/16-inch ratchet and extension.

21 Reinstall the side rail on the front of the frame.

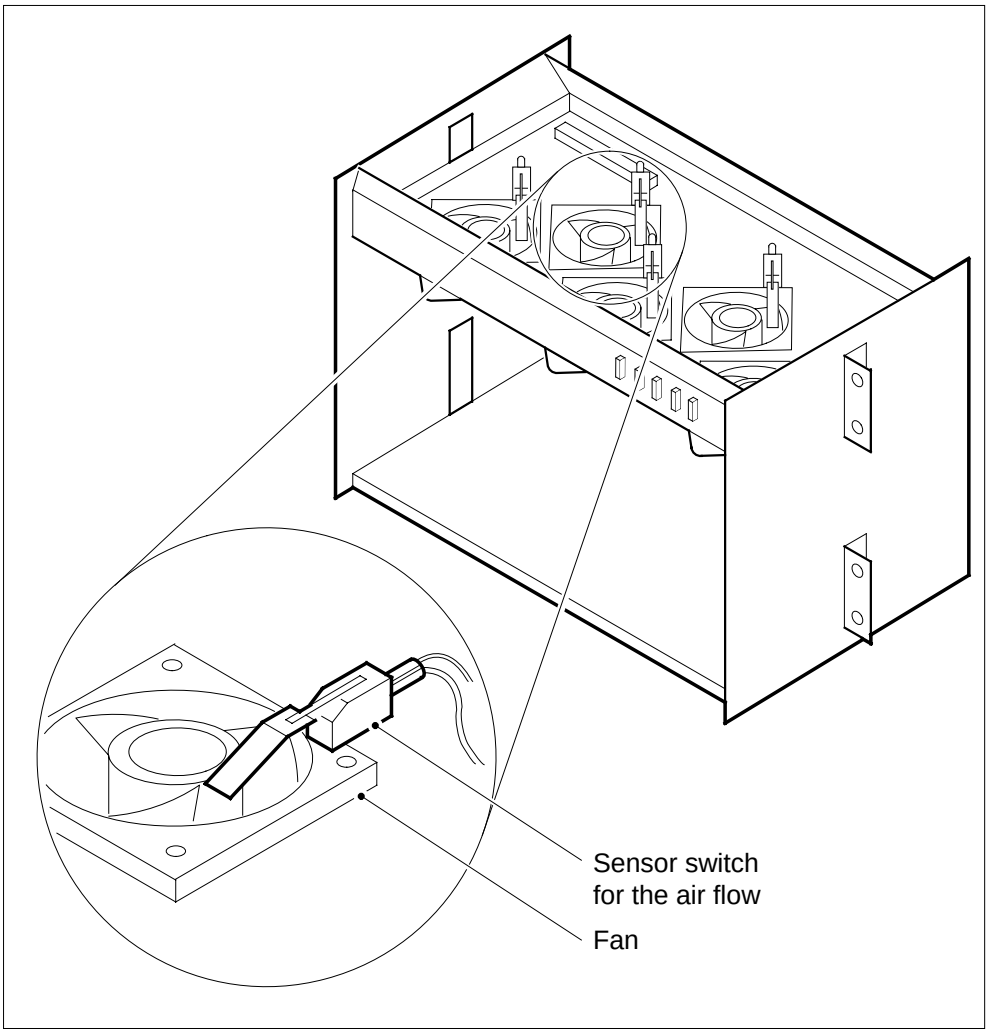
At the back of the cooling unit

22 Reconnect the plug that connects the wiring to the cooling unit.

Repairing and replacing NT3X90AC cooling units (continued)

At the front of the cooling unit

23 Locate the air intake grill and filter at the front of the unit.



At the FSP

24 Turn OFF the FAN FAIL OVERRIDE switch.

25 Go to step 59.

At the front of the cooling unit

26 Remove the screws that secure the side rail covers to the frame.

27 Remove the eight screws that secure the side brackets to the sides of the cooling unit. To remove the screws, use a 5/16-inch ratchet and extension.

Repairing and replacing NT3X90AC cooling units (continued)

28

WARNING
Loss of frame cooling
Removal of the cooling unit for an extended period of time can cause the equipment in the frame to overheat.

WARNING
Loss of frame cooling
Removal of the cooling unit for an extended period of time can cause the equipment in the frame to overheat.

Ease the cooling unit toward you until the unit is half way out of the frame.

29 Inspect the fans in the cooling unit and determine how many fans work.

If	Do
all fans work correctly but the FAN FAIL lamp remains on	step 47
one or more fans do not work	step 30

Note 1: The failure of one or more fans to work indicates a wiring harness that has faults or loose connections. The failure of one or more fans to operate can indicate one or more fans that require replacement.

Note 2: All fans can operate correctly but the FAN FAIL lamp remains on. This occurrence indicates an air flow sensor that has faults.

30 Remove the fuses from the front of the cooling unit.

31 Inspect the wiring harness of the cooling unit for damaged and/or a loose connection at the fans or terminal blocks.

32 If you find a bad harness, replace the harness. Tighten any loose connections.

33 Replace the fuses at the front of the cooling unit.

If	Do
all fans work correctly and the FAN FAIL lamp is off	step 53
one or more fans do not work	step 34

34 Disconnect the wiring to the sensor switch from the fan that has faults. Note the position and color of the wires.

Repairing and replacing NT3X90AC cooling units (continued)

35 Note the position of the sensor switch on the fan that has faults.

36 Remove the sensor switch from the switch bracket and lay the sensor to one side.

37 Cut the two tie wraps that secure the power cord to the fan.

38 Remove the four screws, spacers, nuts, and washers that secure the fan to the cooling unit.

39 Disconnect the power cord at the fan terminals.

40 Remove the fan that has faults.

41 Connect a new fan to the power cord.

42 Mount the new fan. Install the fan so that air flows toward the top, as indicated on the label. Secure the new fan with screws, spacers, nuts, and washers.

43 Use new tie wraps to secure the power cord to the fan.

44 Reattach the wiring to the sensor switch as noted in step 34.

45 Reconnect the sensor switch to the switch bracket. Secure the switch in position with screws, nuts, and washers.

46 Inspect the fan operation.

If all fans	Do
work correctly	step 53
do not work correctly	step 59

47 Inspect the sails of the air flow sensors and replace or repair any sails that appear defective.

48 Disconnect the wiring to one of the sensor switches. Note the position and color of the wires.

If the FAN FAIL lamp	Do
remained on when you disconnected the wiring of the air flow sensor	step 51
did not remain on when you disconnected the wiring of the air flow sensor	step 49

Note: A FAN FAIL lamp that did not remain on when you disconnected the wiring indicates a sensor switch that has faults.

49 Remove the sensor switch that has faults.

50 Attach the replacement of the sensor switch to the switch bracket. Secure the new sensor in position with screws, nuts, and washers.

51 Reconnect the wiring to the sensor switch, as noted in step 48.

Repairing and replacing NT3X90AC cooling units (end)

52 Repeat steps 48 to 51 to check all sensor switches.

If the FAN FAIL lamp	Do
is off	step 53
is on	step 59

53 Ease the cooling unit completely into into the frame.

54 Insert the eight screws that secure the brackets to the sides of the cooling unit. To insert the screws, use a 5/16-inch ratchet and extension.

55 Reinstall the side rail on the front of the frame.

If the FAN FAIL lamp	Do
is off	step 56
is on	step 59

56 Reinstall the air intake grill and filter assembly at the front of the cooling unit.

57 Turn OFF the FAN FAIL OVERRIDE switch on the FSP.

58 Go to step 60.

59

WARNING
Loss of frame cooling
Do not leave a cooling unit that has faults in the frame. If you cannot repair the bad cooling unit immediately, replace it with a unit that operates correctly. Go to step 15 and follow the necessary parts of the procedure.

For additional help, contact the next level of support.

60 The procedure is complete.

Replacing a 3.5 in. disk drive unit NTFX32BA

Application

Use this procedure to replace a 3.5 in. (89-mm) disk drive unit (DDU) NTFX32BA.

Contact the next level of support before you start this procedure.

Definition

The DDU is a data storage device on the storage media card NTFX32AA in the input/output module (IOM). The integrated services module (ISM) shelf contains the IOM. Replace any DDU that has a fault. Do not copy files from a DDU that has a fault; backup files are available on the parallel device.

Common procedures

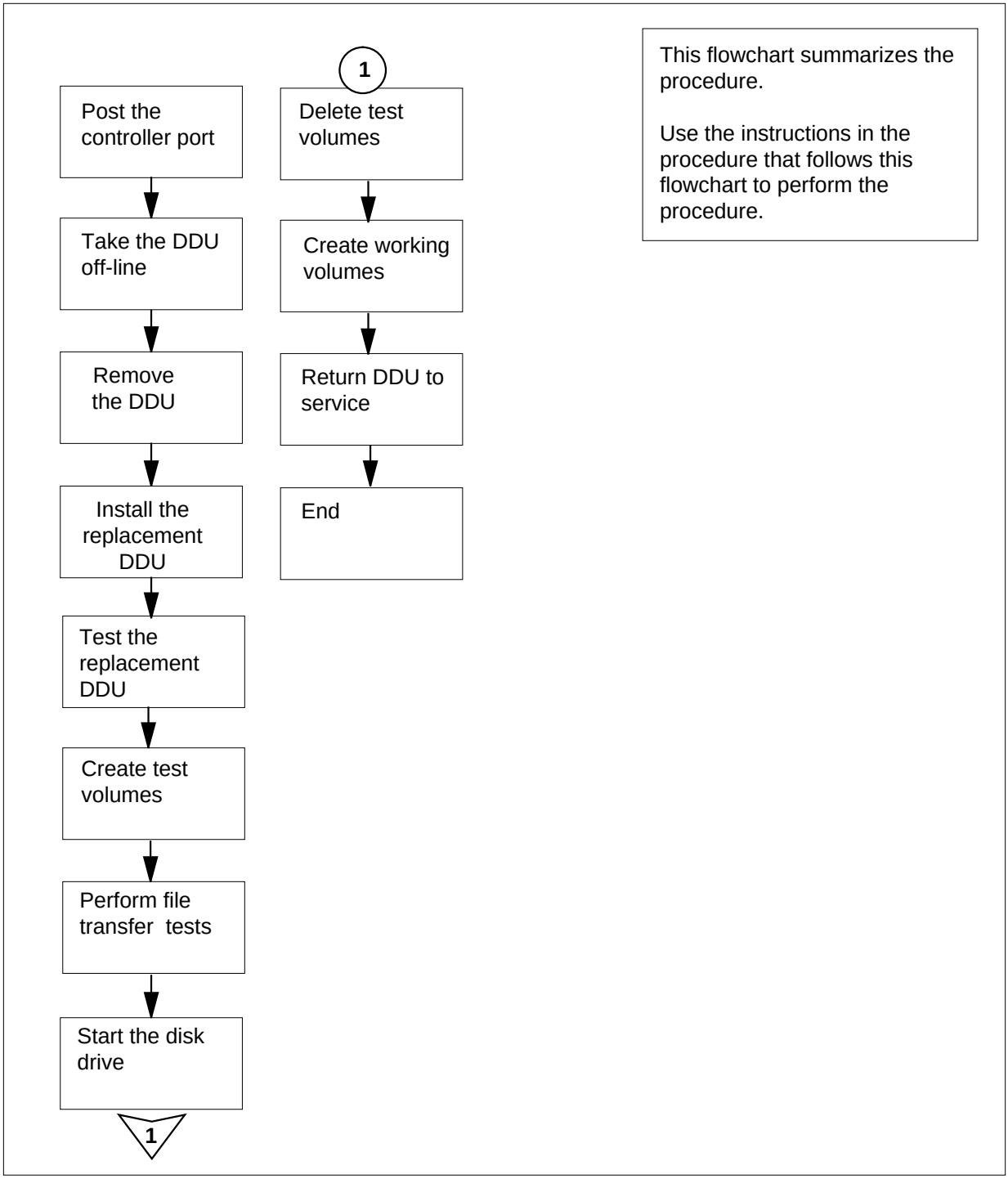
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Replacing a 3.5 in. disk drive unit NTFX32BA (continued)

Summary of Replacing a 3.5 in. disk drive unit NTFX32BA



Replacing a 3.5 in. disk drive unit NTFX32BA (continued)

Replacing a 3.5 in. disk drive unit NTFX32BA

At the MAP terminal

1

CAUTION
Loss of service
Disk allocation is difficult and dangerous errors are possible. Contact the next level of support before you perform this procedure.

Obtain the following items:

- replacement DDU
- flat-blade screwdriver with 1/4-in. (3-mm) blade

Obtain a shipping carton for the replaced DDUs. When possible, use the carton of the new DDUs.

To access the IOD level of the MAP display, type

>MAPCI;MTC;IOD

and press Enter.

Example of a MAP display:

```
IOD
IOC  0  1  2  3
STAT .  .  .  S

DIRP: SMDR B XFER:   .   SLM :   .   NPO:   .   NX25:  .
MLP :   .    DPPP:   .   DPPU:   .   SCAI :
```

2 To post the input/output module (IOM) controller for the replaced DDU, type

>IOC ioc_no

and press Enter.

where

ioc_no
is the number of the affected IOM

Example of a IOM MAP display:

```
IOC   PORT 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
(IOM) STAT . . . - . . - - - .  -  -  -  -  -  -  -  -
0     TYPE C C C   C M       M                   S  S
           O O O   O T       P                   C  C
           N N N   N D       C                   S  S
```

Replacing a 3.5 in. disk drive unit NTFX32BA (continued)

3 To post the port for the replaced DDU, type

>PORT port_no

and press Enter.

where

port_no
is the port number of the DDU device

Example of a IOM MAP display:

```
Port 16  Unit       0
(SCSI)   User       system      Drive_State
         Status     Ready       On_line
```

4 Record the unit number of the replaced DDU.

Note: In the example in step 3, the number of the DDU is 0.

5 Determine the state of the DDU.

Note: The state of the disk drive is under the Drive_State header on the MAP display.

If the DDU is in	Do
an allocated state	step 6
other than listed here	step 38

6 To determine if open files exist on the DDU, type

>ALLOC

and press Enter.

Example of a MAP display:

```
VOLID VOL_NAME SERIAL_NO BLOCKS ADDR TYPE R/O FILES_OPEN
  0   IMAGE     2800     45000  D000  0    NO      0
  1   XPMLOADS  2801     35000  D000  0    NO      0
  2   RTMLOADS  2802     20000  D000  0    NO      0
   .
   .
   .
  7   SMDR      2807     5000   D000  0    NO      0
  8   AMA1      2808     5000   D000  0    NO      0
  9   TST       2809       50   D000  0    NO      0
 10   AMA2      280A      500   D000  0    NO      0
```

If open files	Do
are present	step 37

Replacing a 3.5 in. disk drive unit NTFX32BA (continued)

If open files	Do
are not present	step 7

7 Record the name and size (in blocks) of all disk volumes.

8 To test the DDU, type

>TST

and press Enter.

Example of a MAP display:

```
Process may take up to 3 min
Failed
Drive is disconnected
   .
Site  Flr  RPos  Bay–Id  Shf Description  Slot  EqPec

HOST  01   A00  ISME 03  32  IOC 0 DDU    04    FX30AA
HOST  01   A00  ISME 03  32  IOC 0 DDU    04    FX31AA
```

If the test	Do
passes	step 32
fails	step 9

9 From the MAP response in step 8, record the location (floor, row, bay, and shelf) of the replaced DDU.

10 Notify all users that there will be an interruption of service for the device. Wait until all users stop use of the device before you proceed to the next step.

11 To manually busy the DDU, type

>BSY

and press Enter.

Example of a MAP display:

```
bsy
OK
```

If the BSY command	Do
passed	step 12
failed	step 38

12 To manually stop the DDU, type

>ST0P

Replacing a 3.5 in. disk drive unit NTFX32BA (continued)

and press Enter.

Example of a MAP display:

```
Disk stop successful
```

Note: When the DDU spins down, proceed to step 13. The status code appears under the Drive_State on the MAP display.

If the STOP command	Do
passed	step 13
failed	step 38

13 To take the DDU off-line, type

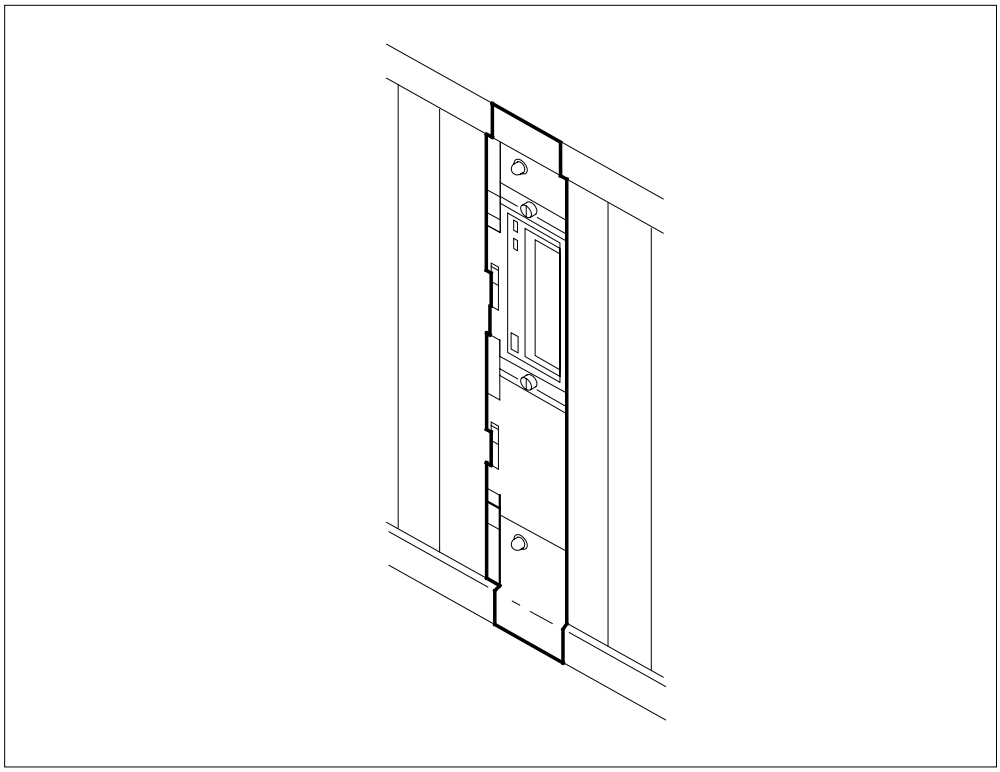
>OFFL

and press Enter.

At the ISM shelf

14 Locate the NTFX32BA DDU that has a fault in the IOM storage media card NTFX32AA in slot 4 of the ISM shelf.

Replacing a 3.5 in. disk drive unit NTFX32BA (continued)



Check the LED on the media card faceplate.

If the LED	Do
is lit	step16
is not lit	step15

15 Perform the correct procedure in *Card Replacement Procedures* to replace the media card NTFX32.

16

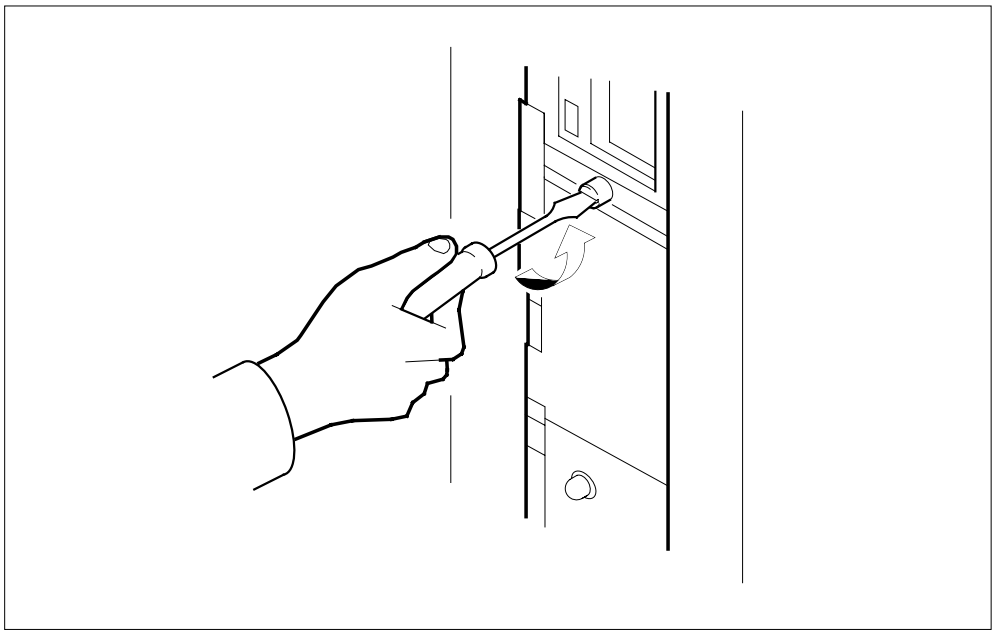
WARNING
Static electricity damage
To handle the DDU, wear a wrist-strap that connects to the wrist-strap grounding point on the modular supervisory panel (MSP). The wrist-strap protects against static electricity damage.

Unscrew the spring loaded lock mechanism on the faceplate of the disk carrier. The disk carrier electrically connects the DDU to the media card.

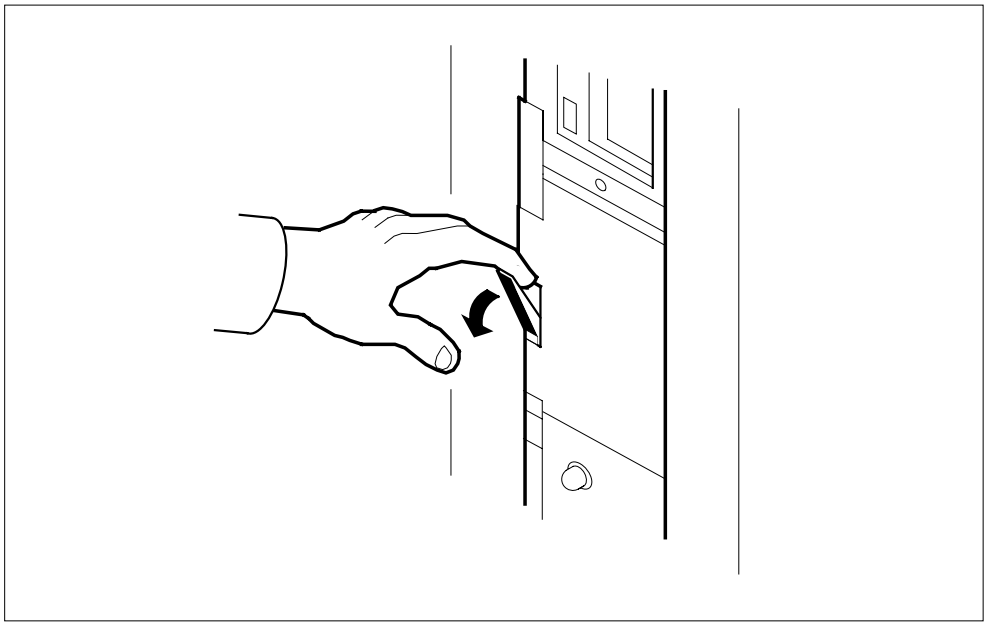
Replacing a 3.5 in. disk drive unit **NTFX32BA** (continued)

After the drive disconnects, the red LED will be ON and the green LED will be OFF.

Note: Unscrew the lock mechanism to its complete limit before you use the ejector to remove the unit.

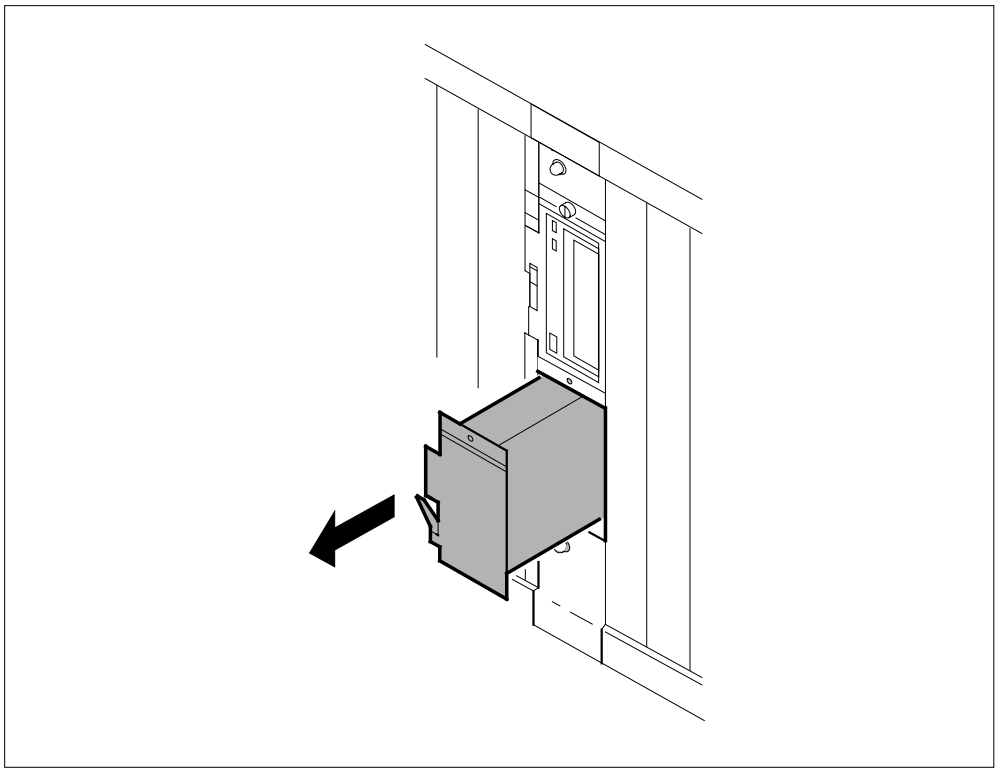


17 Pull down on the ejector to push the DDU carrier away from the media card.



Replacing a 3.5 in. disk drive unit NTFX32BA (continued)

18 Remove the DDU and the carrier. Pull the DDU and the carrier straight out of the media card.



19

WARNING
Ejector arm damage
Ensure that the ejector arm is flat and in the up position on the faceplate. Insert the DDU in the media card faceplate. Complete this procedure to avoid damage to the ejector arm.

Insert the new DDU through the aperture in the media card faceplate. Ensure that the connector at the end of the unit will plug into the receptacle on the card.

Reconnect the DDU electrically with the media card. Turn the spring-loaded lock mechanism to the right to make the connection between the new DDU and the media card.

After the drive connects, the green LED will be ON and the red LED will remain OFF.

Replacing a 3.5 in. disk drive unit NTFX32BA (continued)

At the MAP terminal

20 To manually busy the DDU, type

>BSY

and press Enter.

Example of a MAP display:

```
bsy
OK
```

If the BSY command	Do
passed	step 21
failed	step 38

21 To start the DDU, type

>START

and press Enter.

Example of a MAP response:

```
Disk start successful
```

22 To test the DDU, type

>TST

and press Enter.

Example of a MAP display:

```
Process may take up to 3 minutes.
Test OK
```

If the TST command	Do
passed	step 23
failed	step 38

23 To perform volume allocation tests, follow the procedure *Allocating test volumes on 8-in., 5.25-in., or 3.5 in. DDUs* in *Routine Maintenance Procedures*. When the procedure is complete, return to this point.

24 To perform interference and file transfer tests, follow the procedure *Performing DDU interference and file transfer tests* in *Routine Maintenance Procedures*. When the procedure is complete, return to this point.

25 To access the CI level of the MAP display, type

>QUIT ALL

and press Enter.

Replacing a 3.5 in. disk drive unit NTFX32BA (continued)

26 To access the allocation utility, type

>DSKALLOC ddu_no

and press Enter.

where

ddu_no
is the recorded DDU number in step 4.

27 To confirm the command, type

>YES

and press Enter.

28 To add a volume to the DDU, type

>ADD vol_name vol_size; DIRADD vol_name

and press Enter.

where

vol_name
is the recorded volume name in step 7.

vol_size
is the recorded volume size in step 7.

29 Repeat step 28 for each disk volume that remains.

30 To enforce the allocation of the volumes, type

>UPDATE

and press Enter.

Example of a MAP response:

```
WARNING:    A break HX of this process may cause severe
            corruption on the disk that may require it to
            be reformatted.
Writing label of volume IMAGE
Successful
Starting initialization of volume IMAGE
A break HX of this process may cause severe corruption on
this volume that may require reinitialization of all
non-initialized volumes.
Number of bad blocks=0
Successful
Update done
```

31 To quit the allocation utility, type

>QUIT

and press Enter.

32 To post the IOM controller port for the DDU, type

>MAPCI;MTC;IOD;IOC ioc_no;PORT port_no

Replacing a 3.5 in. disk drive unit NTFX32BA (end)

and press Enter.

where

ioc_no
is the number of the input/output controller (IOC)

port_no
is the number of the DDU port

33 To return the DDU to service, type

>RTS

and press Enter.

Example of a MAP display:

```
Port 16  Unit       0
(SCSI)   User       system      Drive_State
         Status     BSY         Online
```

If the RTS command	Do
passed	step 34
failed	step 38

34 Pack the replaced DDU in a carton and send it to the correct repair location.

Note: For additional information on the return of equipment, refer to the correct procedure in this document.

35 Record the following information in your office records:

- the date of replacement of the damaged DDU
- the serial number of the damaged DDU
- the indications that prompted the DDU replacement

36 A major or minor alarm can rise under the IOD header of the MAP display at the start of this procedure. Determine if the alarm cleared.

If the alarm	Do
cleared	step 39
did not clear	step 38

37 You cannot busy the IOM controller card when files are open. If you busy the card, loss of billing data can result. For additional help, contact the person responsible for the next level of support.

38 For additional help, contact the person responsible for the next level of support.

39 The procedure is complete.

Replacing an 8-in. or a 5.25-in. disk drive unit

Application

Use this procedure to replace an 8-in. (203-mm) or a 5.25-in. (133-mm) disk drive unit (DDU).

Contact the next level of support before you start this procedure.

Definition

The DDU is a data storage device on the DMS-100 switch. Replace a DDU when faults occur and the device cannot record. Do not copy the files from a DDU that has a fault. Backup files are available on the parallel device.

Common procedures

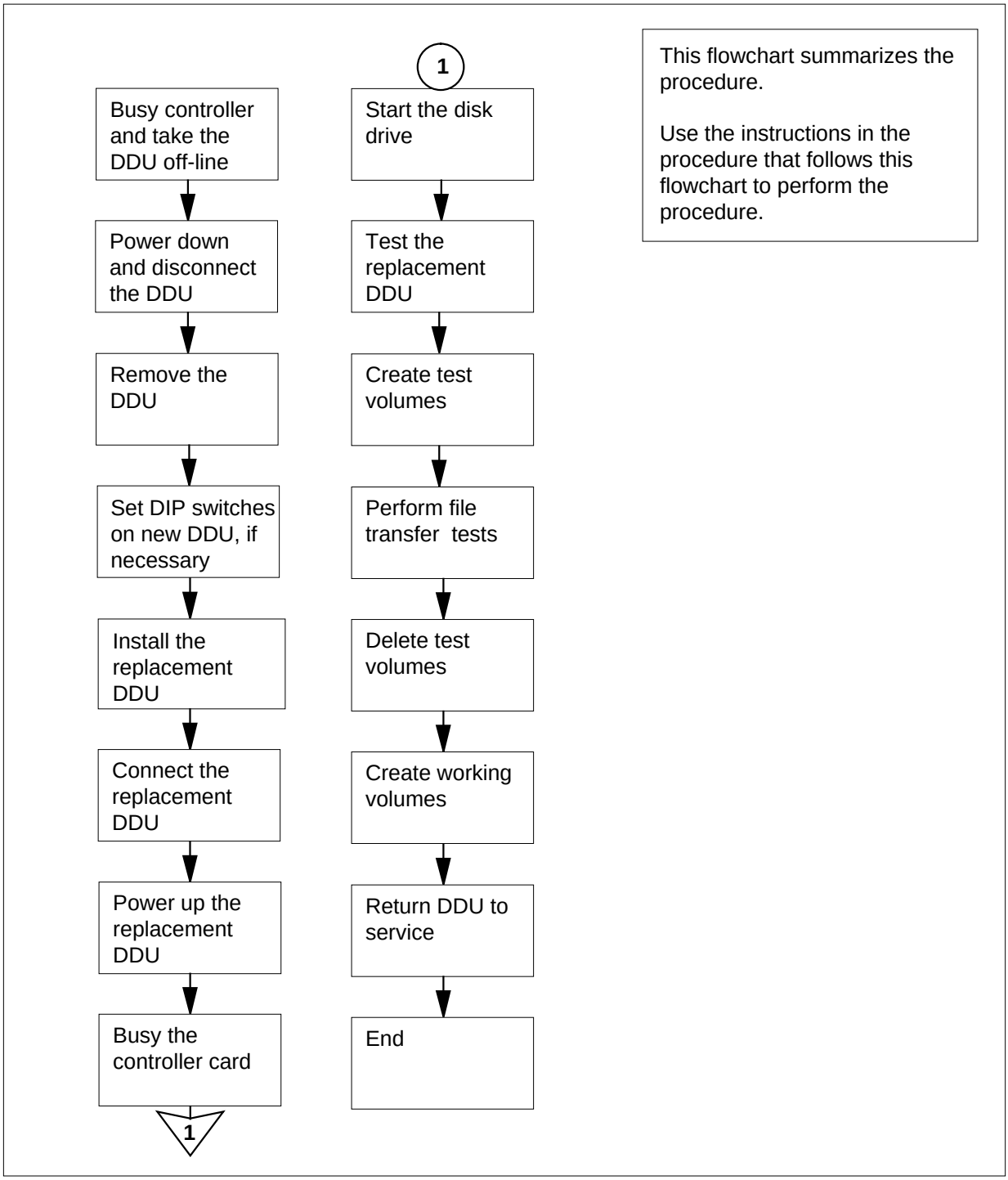
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)

Summary of Replacing an 8-in. or a 5.25-in. disk drive unit



Replacing an 8-in. or a 5.25-in. disk drive unit (continued)

Replacing an 8-in. or a 5.25-in. disk drive unit

At the MAP terminal

1

CAUTION
Loss of service
Disk allocation is difficult and dangerous errors are a possibility. Contact the next level of support before you perform this procedure.

Obtain the following items:

- replacement DDU
- flat-bladed screwdriver with 1/4-in. (3-mm) blade
- 5/16-in. (7-mm) Allen wrench

2 Obtain a strong shipping carton for the DDU you will replace. If possible, use the carton of the new DDU.

To access the IOD level of the MAP display, type

>MAPCI;MTC;IOD

and press Enter.

Example of a MAP display:

```
IOD
IOC      0   1
STAT     L   .
```

3 To post the IOC for the replaced DDU, type

>IOC ioc_no

and press Enter.

where

ioc_no
is the number of the input/output controller (IOC) that holds the controller card for the DDU (0 to 9)

Example of a MAP display:

```
IOC CARD    0    1    2    3    4    5    6    7    8
 2  PORT   0123 0123 0123 0123 0123 0123 0123 0123 0123
    STAT   .... .... ---- .--- ---- P--- ---- .--- .---
    TYPE   CONS CONS      MPC       MPC       MPC  DDU
```

4 To post the controller card for the DDU, type

>CARD card_no

and press Enter.

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)

where

card_no
is the number of the controller card (0 to 8)

Note: In the example in step 3, the number of the controller card is 8.

Example of a MAP display:

```
Card 8  Unit    0
        User    SYSTEM  Drive_State
        Status  BSY     spinning
```

5 Record the number of the replaced DDU.

Note: In the example in step 4, the number of the DDU is 0.

6 Determine the state of the disk drive.

Note: The Drive_State header displays the state of the disk drive on the MAP display.

If the disk drive	Do
is `being allocated`	step 68
is other than listed here	step 9

7 To determine if any files are open on the DDU, type

>ALLOC

and press Enter.

Example of a MAP response:
VOLID VOL_NAME SERIAL_NO BLOCKS ADDR TYPE R/O FILES_OPEN 0 IMAGE 2800 45000 D000 0 NO 0 1 XPMLOADs 2801 35000 D000 0 NO 0 2 RTMLOADS 2802 20000 D000 0 NO 0 . . . 7 SMDR 2807 5000 D000 0 NO 0 8 AMA1 2808 5000 D000 0 NO 0 9 TST 2809 50 D000 0 NO 0 10 AMA2 280A 500 D000 0 NO 0

If open files	Do
are present	step 67
are not present	step 8

8 Record the name and size (in blocks) of each disk volume.

9 To test the disk drive, type

>TST

and press Enter.

Example of a MAP response:

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)

```
Process may take up to 3 minutes.
Failed
Drive is disconnected

Site    Flr RPos    Bay-id  Shf Description Slot    EqPec
HOST    01  A00     IOE 00  04  IOC 0 DDU   02      1X62
HOST    01  A00     IOE 00  04  IOC 0 DDU   22      0X67
```

10 From the MAP response in step 9, record the area (floor, row, bay, and shelf) of the DDU that requires replacement.

11 To manually busy the controller, type

>BSY

and press Enter.

If the BSY command	Do
passed	step 12
failed	step 67

12 To stop the DDU manually, type

>STOP

and press Enter.

Note: Wait until the DDU spins down before you proceed to step 13. The status code `spun_down` appears under the Drive_State header on the MAP display.

If the STOP command	Do
passed	step 13
failed	step 68

13 To off-line the disk drive, type

>OFFL

and press Enter.

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)

At the front of the DDU shelf

14

WARNING
Static electricity damage
To handle the DDU, wear a wrist-strap that connects to a grounding point. Grounding points are on the frame supervisory panel (FSP) or a modular supervisory panel (MSP). The wrist-strap protects against static electricity damage.

Set the power switch on the power converter to the OFF position.

15 Ensure that the converter fail LED on the power converter card lights. The lit fail LED of the power converter card indicates that the power is OFF.

16 Remove the four mounting screws to remove the panel in front of the DDU.

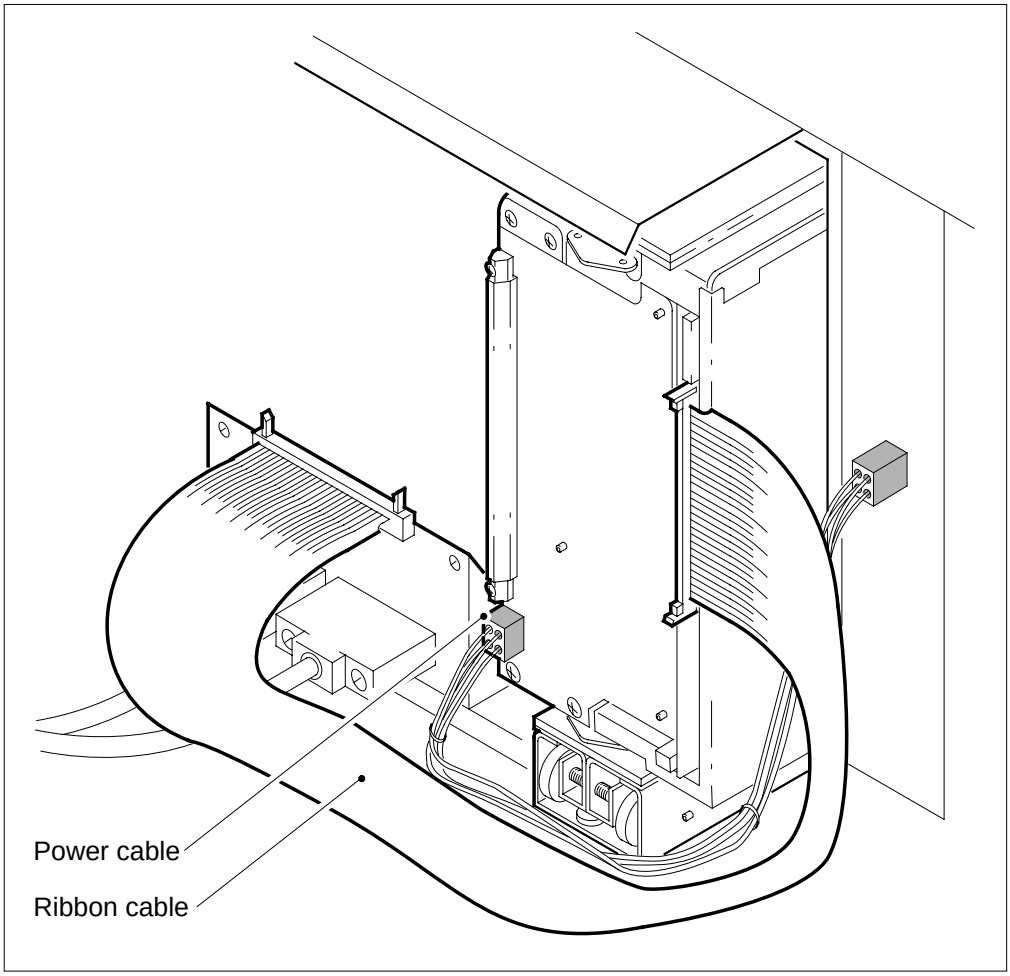
17 The next action depends on the mounting configuration for the DDU.

If the DDU	Do
mounts vertically on tracks	step 18
mounts horizontally on a 14-in. DDU drawer frame	step 38

At the back of the DDU shelf

18 Disconnect the power cable from the back of the DDU.

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)



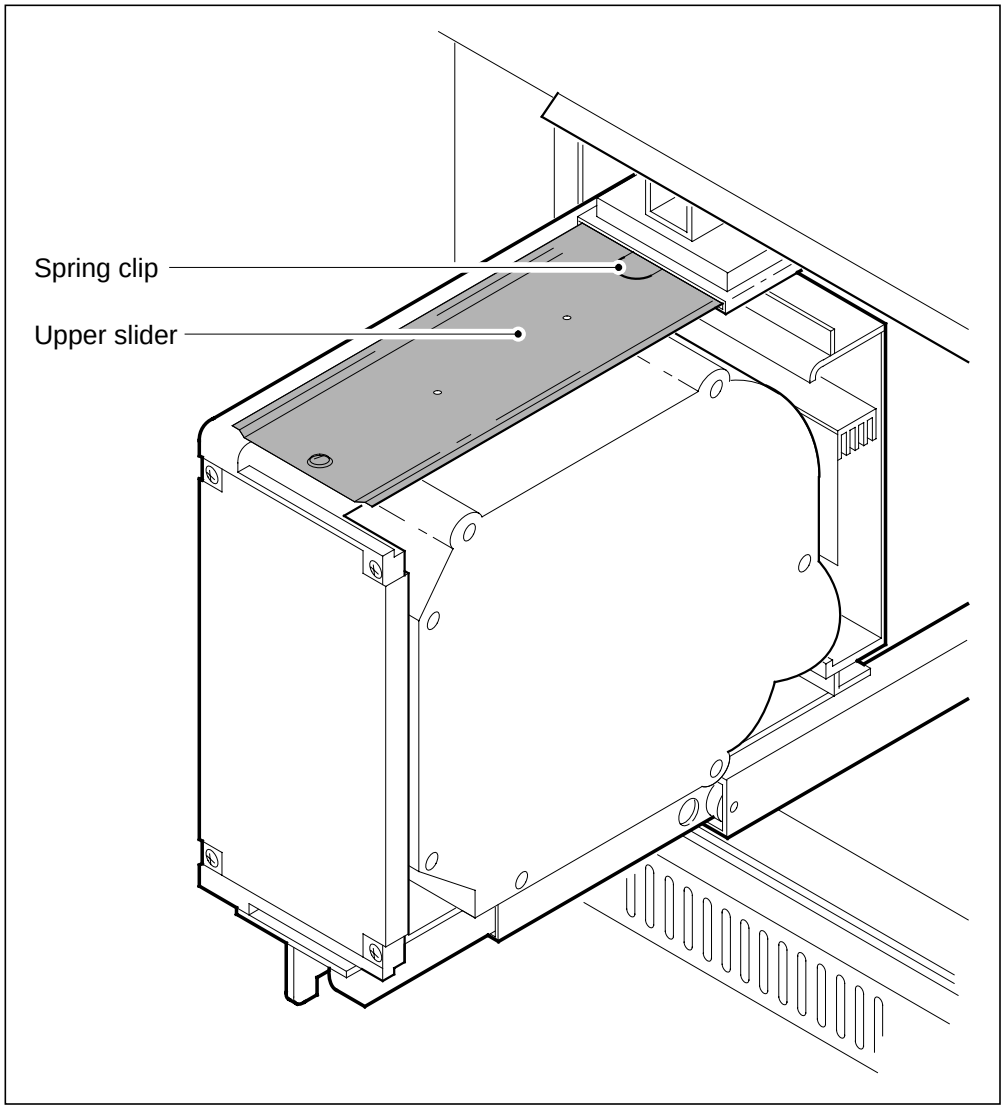
19

WARNING
Equipment damage
Retaining clips holds the ribbon cable in place, and the cable disconnects when the clips release. Do not pull on the cable to disconnect it because you might rip the connector socket away from the disk drive unit.

Release the retaining clips to unplug the connector. This action disconnects the DDU end of the ribbon cable. Refer to the diagram in step 18.

20 Carefully slide the DDU from the frame until the spring clip on the upper slider causes the DDU to stop.

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)



21 Determine if Allen screws are present.

If Allen screws	Do
are present	step 22
are not present	step 23

22 Remove Allen screws with an Allen wrench.

23 Press the spring clip and pull the DDU free of the frame.

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)

At a work table

24 Place the DDU on its front end on a flat surface where room is available to work on two DDUs.

Note: The front end of the DDU is opposite the end that has the power and ribbon cable connectors.

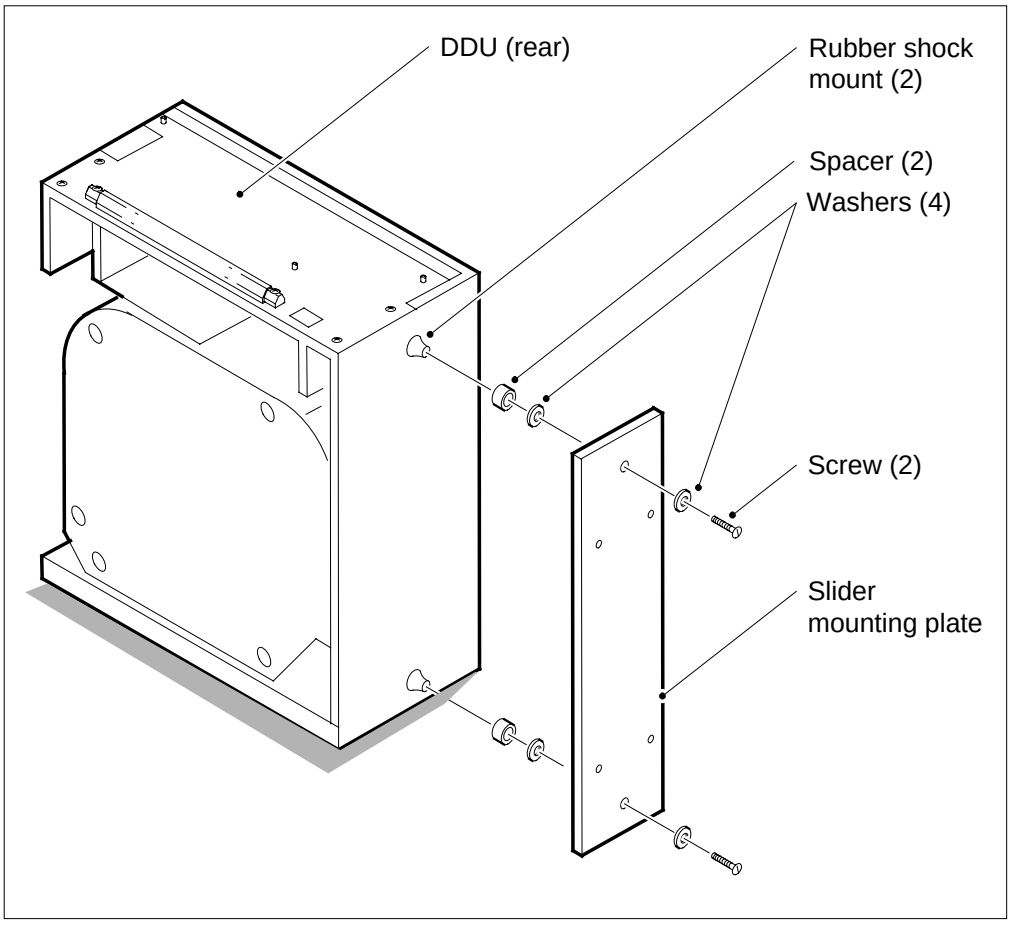
25 Complete a return label and secure it to the removed DDU.

Note: For additional information on the return equipment, refer to the correct procedure in this document.

26 Remove the replacement DDU from the box. Place the DDU on its front end on a flat surface.

27 The replacement DDU can have dip switches. Ensure that you set the dip switches to the same settings as the dip switches on the removed DDU.

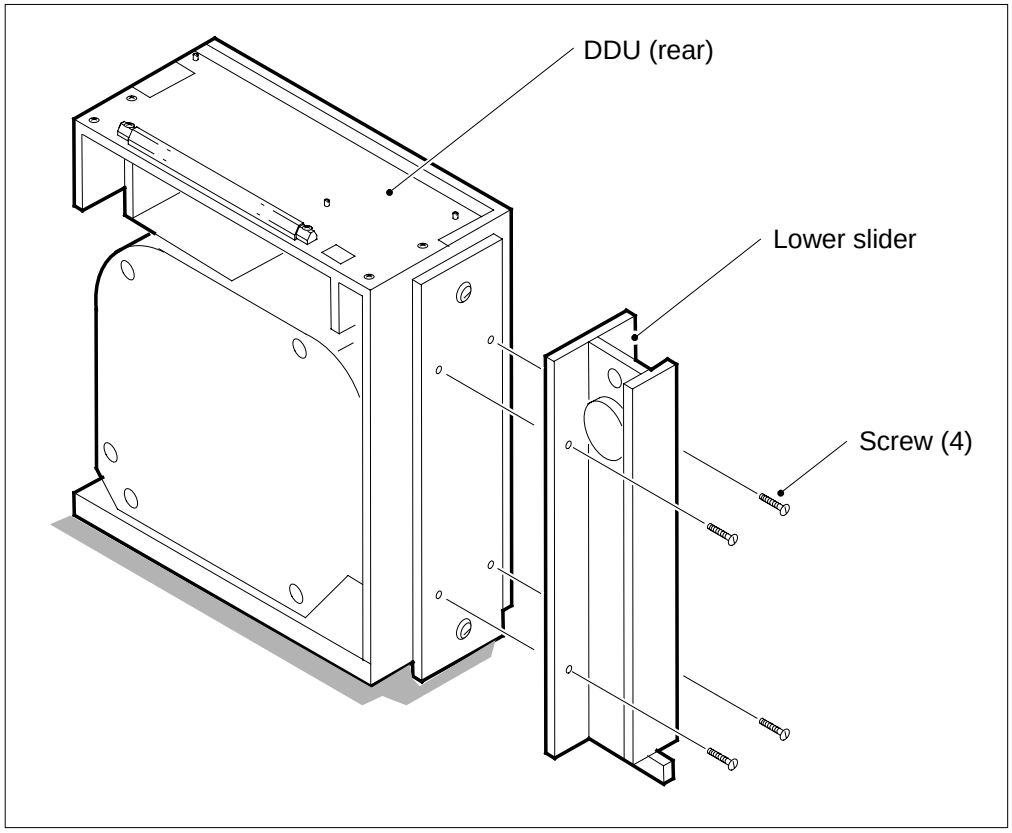
28 To remove the upper slider from the removed DDU, remove the two screws that hold the slider in place.



29 Attach the upper slider to the top of the replacement DDU.

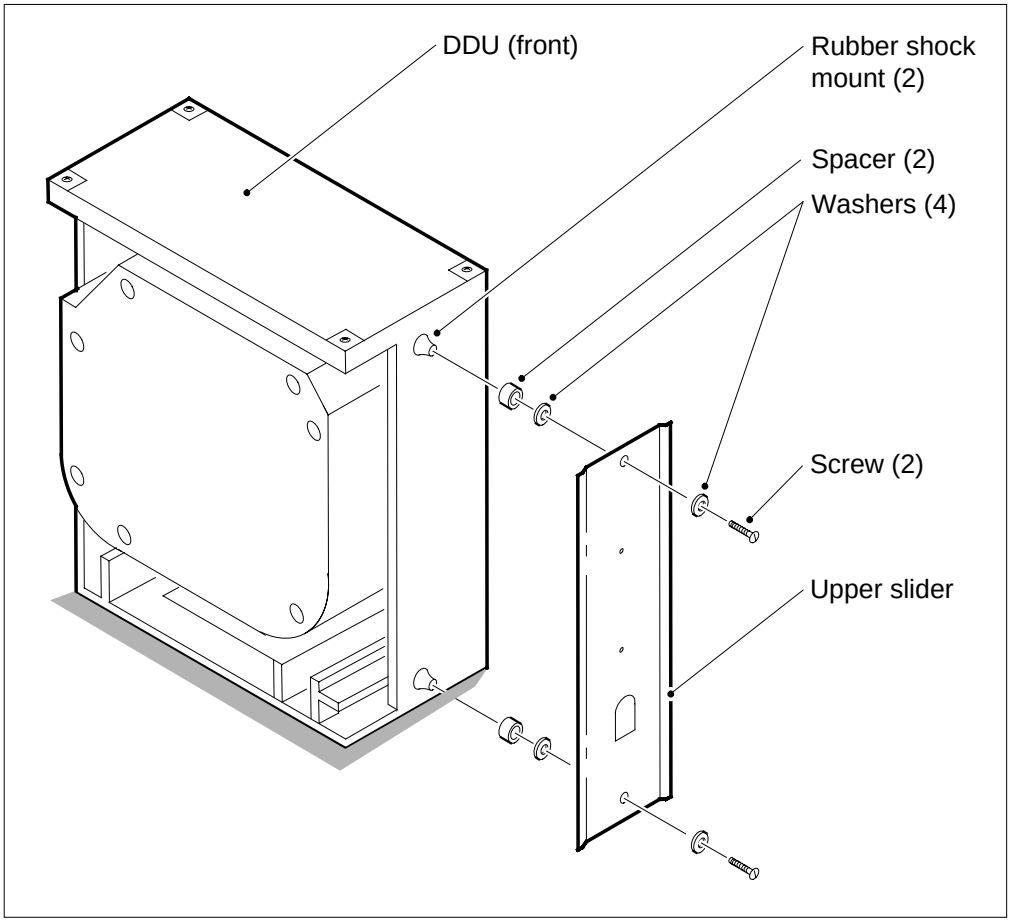
30 To remove the lower slider assembly from the removed DDU, remove the four screws that hold the slider assembly in place.

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)



31 To remove the rectangle-shaped slider mounting plate from the removed DDU, remove the two screws that hold the plate in place.

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)



32 Attach the slider mounting plate to the bottom of the replacement DDU. Refer to the diagram in step 31.

33 Attach the lower slider assembly to mounting plate. Refer to the diagram in step 30.

At the front of the DDU shelf

34 Slide the replacement DDU into the tracks on the frame. Slide the DDU until the spring clip on the upper slider causes the DDU to stop. Refer to the diagram in step 20.

35 Press the spring clip and slide the DDU the rest of the way into the frame.

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)

At the rear of the DDU shelf

36

DANGER
Loss of data
Do not twist the ribbon cable. Failure to route the ribbon cable correctly can result in signal interference, which can cause a loss of data.

To reconnect the ribbon cable, hold the connector in place and snap the retainer clips into place. Refer to the diagram in step 18.

37 Connect the power cable into the back of the DDU.

Go to step 47.

38 Disconnect the power cable from the back of the DDU.

39

WARNING
Equipment damage
The retaining clips hold the ribbon cable in place, and the cable disconnects when the clips release. Do not pull on the cable to disconnect it because you might rip the connector socket away from the disk drive unit.

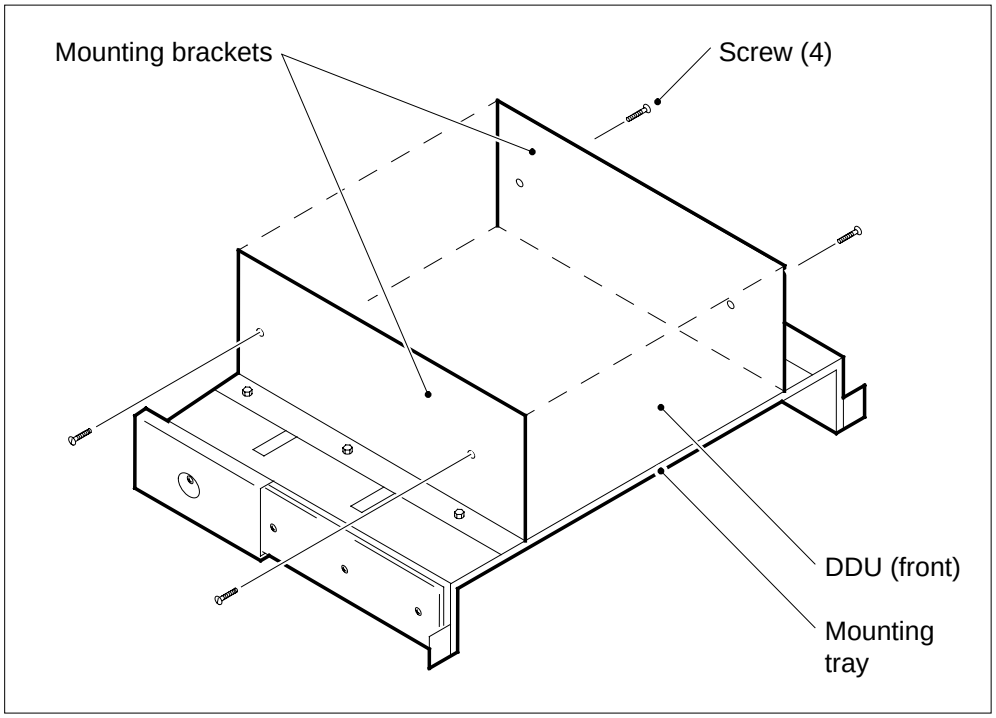
To disconnect the DDU end of the ribbon cable, release the retaining clips to unplug the connector.

At the front of the DDU shelf

40 Carefully slide the DDU out of the frame. Slide the DDU until the spring clips on the sides of sliders cause the DDU to stop.

41 Remove the four screws that mount the DDU to the two mounting brackets on the drawer.

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)



42 Remove the DDU from the drawer.

43 Place the replacement DDU in position between the mounting brackets.

Note: Position the DDU so that the ribbon cable connector is near the top edge of the DDU. Position the DDU so that the connector is at the back of the DDU shelf.

44 Attach the DDU to the mounting brackets. Refer to the diagram in step 41.

45 Press the spring clips on the sliders and slide the DDU back into the frame.

46 Connect the ribbon and power cables.

At the front of the frame

47 Reset the power converter:

a Set the power switch on the converter to ON.

b Press and hold the RESET button on the power converter.

c When the CONVERTER FAIL lamp turns off, release the RESET button.

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)

At the MAP terminal

48 To manually busy the controller, type

>BSY

and press Enter.

If the BSY command	Do
passed	step 49
failed	step 68

49 To start the disk drive motor, type

>START

and press Enter.

MAP response:

```
Disk Start Successful
```

50 To test the disk drive, type

>TST

and press Enter.

Example of a MAP display:

```
Card 8  Unit    0
        User    SYSTEM  Drive_State
        Status  BSY     spinning
```

If the TST command	Do
passed	step 51
failed	step 68

51 To perform volume selection tests, follow the procedure, *Allocating test volumes on 8-in., 5.25-in., or 3.5-in. DDUs* in *Routine Maintenance Procedures*. When the procedure is complete, return to this point.

52 To perform interference and file transfer tests, follow the procedure *Performing DDU interference and file transfer tests* in *Routine Maintenance Procedures*. When the procedure is complete, return to this point.

53 To access the CI level of the MAP display, type

>QUIT ALL

and press Enter.

54 To access the selection utility, type

>ALLOC ddu_no

and press Enter.

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)

where

ddu_no
is the DDU number (0 to 9) recorded in step 5

55 To confirm the command, type

>YES

and press Enter.

56 To add a volume to the disk, type

>ADD vol_name vol_size

and press Enter.

where

vol_name
is the volume name recorded in step 8

vol_size
is the volume size recorded in step 8

57 To add the volume to the root directory, type

>DIRADD vol_name

and press Enter.

where

vol_name
is the volume name recorded in step 8

58 Repeat steps 55 and 57 for each of the remaining disk volumes.

59 To enforce the allocation of the volumes, type

>UPDATE

and press Enter.

Example of a MAP response:

```
WARNING:  A break HX of this process may cause
          severe corruption on the disk that may
          require it to be reformatted.
Writing label of Volume IMAGE
Successful
Starting Initialization of Volume IMAGE
A break HX of this process may cause severe corruption
on this volume that may require reinitialization of all
non initialized volumes.
Number of Bad Blocks = 0
Successful
Update Done
```

60 To quit the allocation utility, type

>QUIT

and press Enter.

Replacing an 8-in. or a 5.25-in. disk drive unit (continued)

61 To post the controller card for the DDU, type

`>MAPCI;MTC;IOD;IOC  ioc_no;CARD  card_no`

and press Enter.

where

ioc_no
is the number of the input/output controller (IOC) that holds the controller card for the DDU (0 to 9)

card_no
is the number of the controller card (0 to 8)

62 To return the disk drive to service, type

`>RTS`

and press Enter.

Example of a MAP display:

```
Card 8  Unit    0
        User    SYSTEM  Drive_State
        Status  BSY     on-line
```

If the RTS command	Do
passed	step 63
failed	step 68

At the front of the DDU shelf

63 Reinstall the panel in front of the DDU.

At the back of the DDU shelf

64 Pack the DDU that you put in a carton. Send the carton to the correct repair location.

Note: For additional information on the return of equipment, refer to the correct procedure in this document.

65 Record the information below in your office records:

- the date of DDU replacement
- the serial number of the new DDU
- the problems that prompted the DDU replacement

66 A major or minor alarm can rise under the IOD header of the MAP display at the start of this procedure. If an alarm rises, determine if the alarm cleared.

If the alarm	Do
cleared	step 69
did not clear	step 68

Replacing an 8-in. or a 5.25-in. disk drive unit (end)

67 You cannot busy the controller card if files are open. This action can result in loss of billing data.

68 For additional help, contact the person responsible for the next level of support.

69 The procedure is complete.

Replacing a 14-in. disk drive unit

Application

Use this procedure to remove a 14-in. (355-cm) disk drive unit (DDU) and replace it with another 14-in. DDU. Contact your next level of support before you perform this procedure.

Definition

The DDU is a storage device on the DMS-100 switch. Replace a DDU that has faults and cannot record. Do not copy the files from a DDU that has faults. Backup files are available on the parallel device.

Common procedures

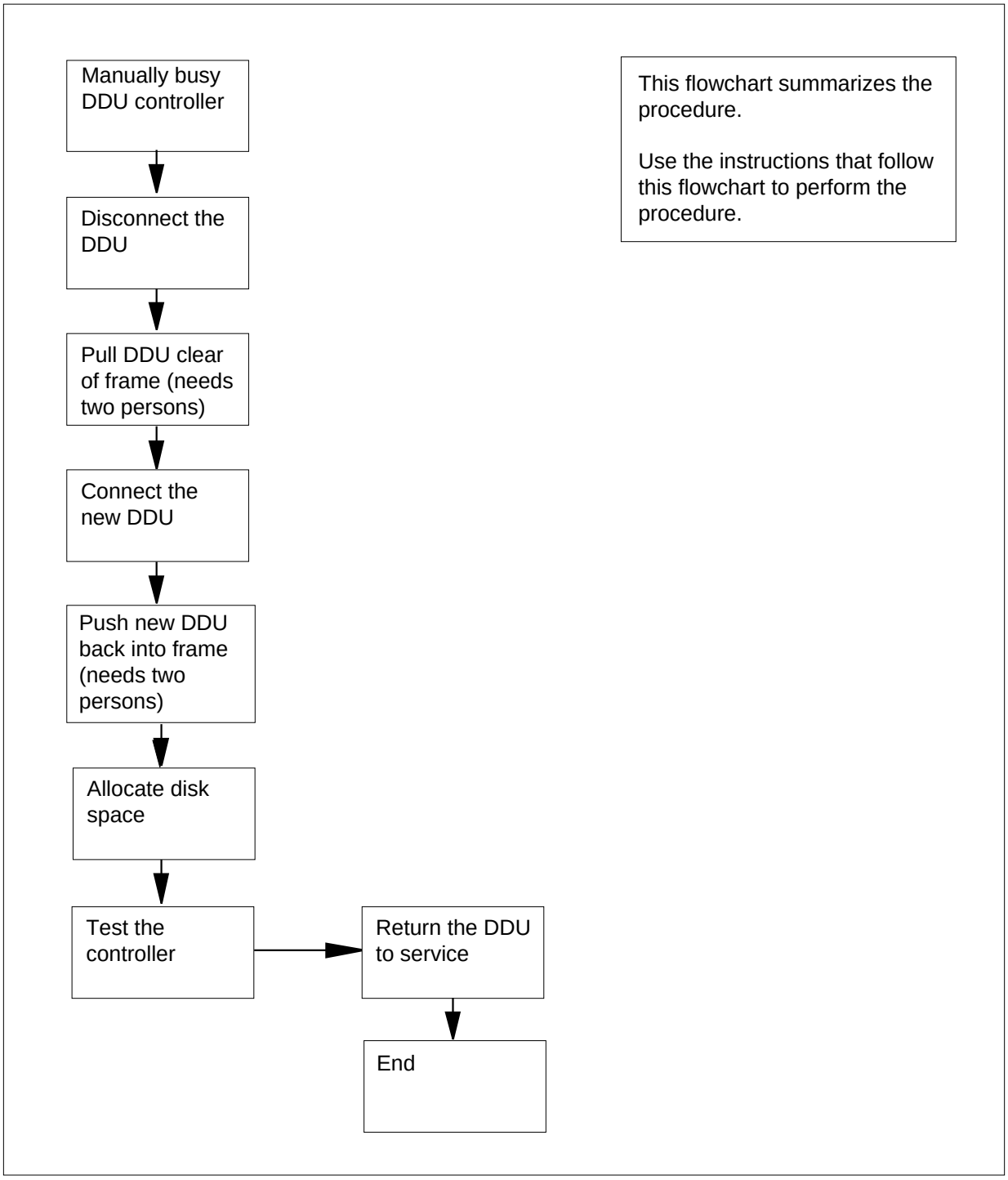
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

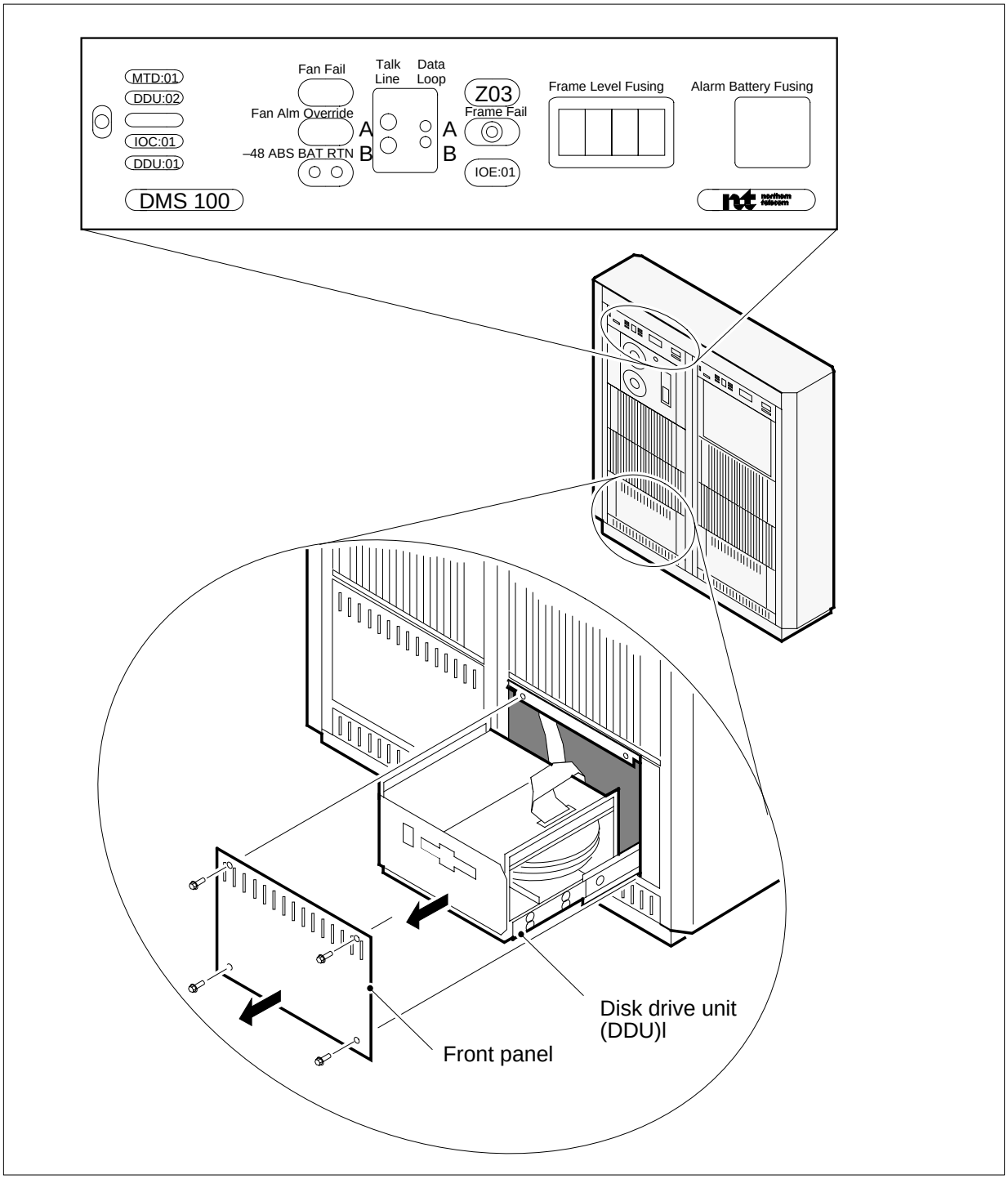
Replacing a 14-in. disk drive unit (continued)

Summary of Replacing a 14-in. disk drive unit



Replacing a 14-in. disk drive unit (continued)

14-in. disk drive unit



Replacing a 14-in. disk drive unit (continued)

Replacing a 14-in. disk drive unit

At your current position

1

CAUTION
Loss of service
Disk allocation is difficult and the possibility for a severe error exists. Contact the next level of support before you perform this procedure.

Obtain the following items:

- a light source
- a mirror
- a set of nut driver
- a 1/4-in. flat-bladed screwdriver
- side cutters
- cable ties

2 Obtain a shipping carton for the DDU that has faults and you will replace. If possible, use the carton that stores the new DDU.

At the MAP terminal

3 To access the IOD level of the MAP display, type

`>MAPCI;MTC;IOD`

and press the Enter key.

Example of a MAP display:

```
IOD
IOC     0   1
STAT    L   .
```

4 Note any alarm under the IOD header and the type of alarm.

5 To post the IOC for the DDU that has faults, type

`>IOC  ioc_no`

and press the Enter key.

where

ioc_no
is the number of the input/output controller (IOC) that holds the controller card for the DDU (0 to 19)

Example of a MAP display:

Replacing a 14-in. disk drive unit (continued)

```
IOC CARD   0    1    2    3    4    5    6    7    8
2   PORT  0123 0123 0123 0123 0123 0123 0123 0123 0123
    STAT  .... .... ---- .--- ---- P--- ---- .--- .---
    TYPE  CONS CONS      MPC       MPC       MPC  DDU
```

6 Record the number of the controller card for the DDU replacement.

7 To post the controller card for the DDU, type

>CARD card_no

and press the Enter key.

where

card_no
is the number of the controller card recorded in step 6

Example of a MAP display:

```
Card 8  Unit    0
        User    SYSTEM  Drive_State
        Status  BSY     spinning
```

8 Record the number of the DDU in use.

Note: In the display example in step 7, the number of the DDU is 0.

9 Find the state of the disk drive recorded in step 8.

If the state of the disk drive	Do
is `being allocated`	step 81
is other than listed here	step 10

10 To determine if open files exist on the DDU, type

>ALLOC

and press the Enter key.

Example of a MAP response:

```
VOLID VOL_NAME SERIAL_NO BLOCKS ADDR TYPE R/O FILES_OPEN
  0   RTMLOADS    2800    50000 D000   0   NO      0
  1   XPMLOADS    2801    65000 D000   0   NO      0
  2   PMLOADS     2802    30000 D000   0   NO      0
```

If files	Do
are open	step 80
are not open	step 11

11 Record the name and size (in blocks) of each volume on the disk.

Replacing a 14-in. disk drive unit (continued)

12 Determine if an alarm is under the IOD header of the alarm banner.

If the IOD header	Do
displays a minor alarm	step 13
displays a major alarm	step 19

13 To test the disk drive controller, type

>TST

and press the Enter key.

Example of a MAP response:

```
Process may take up to 3 minutes.
Failed
Drive is disconnected

Site    Flr RPos    Bay-id  Shf Description Slot    EqPec
HOST    01  A00 IOE 00  04  IOC 0 DDU       02      1X62
HOST    01  A00 IOE 00  04  IOC 0 DDU       22      0X67
```

14 From the MAP response in step 13, record the bay, shelf, and number of the DDU that you will replace.

15 To manually busy the controller card, type

>BSY

and press the Enter key.

Note: Wait until the DDU spins down before you proceed to the next step. When the DDU spins down, the Drive_state header on the MAP display will show `spun_down`.

If the BSY command	Do
passed	step 16
failed	step 81

16 To offline the disk drive, type

>OFFL

and press the Enter key.

Replacing a 14-in. disk drive unit (continued)

At the front of the DDU shelf

17

WARNING
Static electricity damage
When you handle the DDU, wear a wrist strap that connects to a wrist-strap grounding point. A grounding point will be on the frame supervisory panel (FSP) or a modular supervisory panel (MSP). The wrist-strap protects against static electricity damage.

Find the DDU.

If the DDU	Do
is in a packaged-core power module (PCPM) or packaged-core maintenance module (PCMM) frame of a switch package	step 19
is in other than listed here	step 18

18 Turn OFF the power switch on the power converter next to the DDU. Ensure that the LED on the power converter is on. A lit LED indicates that the power switch is OFF.

19

CAUTION
Remove the correct fuse.
Make sure that you remove the correct fuse. If you remove the wrong fuse, loss of service or a shutdown of MAP terminals and printers can result. Loss of recording space for billing information can occur.

Remove the fuse that powers the DDU.

Note: The fuse that powers the DDU is on the frame supervisory panel.

If the DDU	Do
is not a DMS-100P and the DDU is on shelf 04	step 20
is not a DMS-100P and the DDU is on shelf 18	step 21

Replacing a 14-in. disk drive unit (continued)

If the DDU	Do
is not a DMS-100P and the DDU is on shelf 32	step 22
is in a packaged core power module (PCPM) or a packaged core memory module (PCMM) frame on a DMS-100P switch package	step 23

20 Remove fuse F03.

Go to step 25.

21 Remove fuse F02.

Go to step 25.

22 Remove fuse F01.

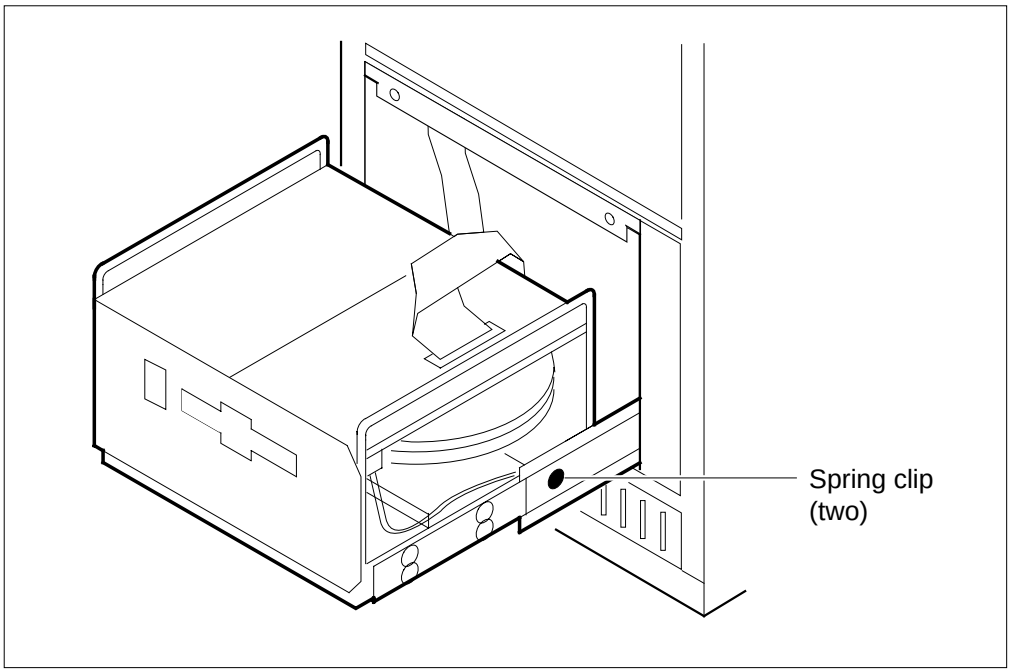
Go to step 25.

23 Contact your next level of support to obtain the correct fuse numbers.

24 Remove the FSP fuse from the PCPM or PCMM.

25 Remove the panel that covers the DDU. To locate the mounting screws, refer to the diagram at the beginning of these instructions.

26 Carefully slide the DDU out of the frame until the DDU stops. Spring clips on the sides of the slide rails cause the DDU to stop.



Replacing a 14-in. disk drive unit (continued)

27

DANGER
Risk of personal injury
Do not touch the parts that rotate on the bottom of the DDU.

Use the flashlight and the mirror. Look under the DDU to determine if the disk rotation continues.

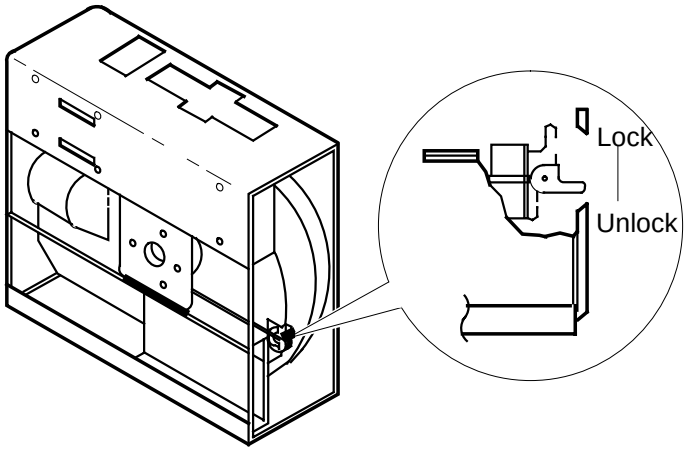
If disk rotation	Do
stops	step 29
continues	step 28

28 Wait until the disk rotation stops.

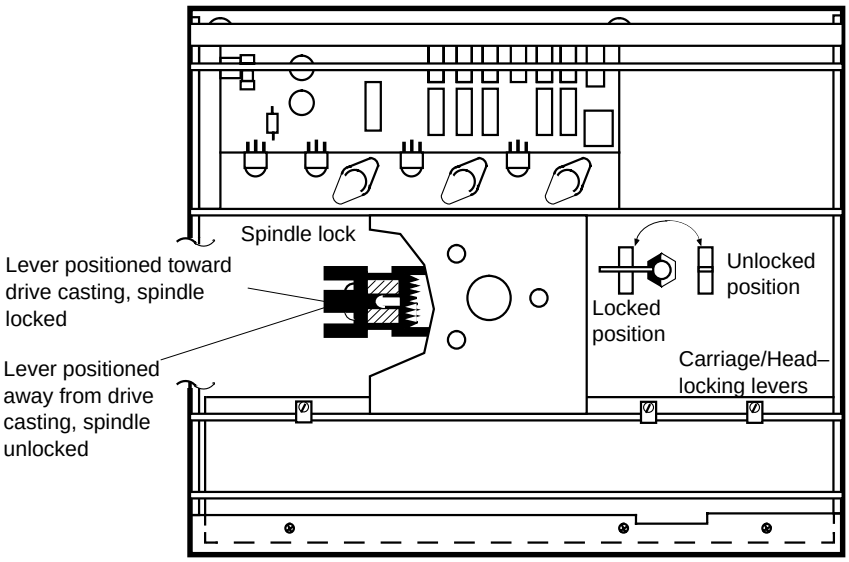
29 To locate the carriage and head-locking levers of the DDU, refer to the following diagrams.

Replacing a 14-in. disk drive unit (continued)

Location of single-lever lock



Location of head and spindle locks



30

WARNING
Damage to the DDU
Make sure that the disk rotation stopped before you lock the carriage and heads. If the disk continues to rotate, damage occurs to the locking mechanism.

Set the lever (or levers) so that the carriage and heads lock.

Replacing a 14-in. disk drive unit (continued)

31 Disconnect the power cable from the DDU.

32

WARNING
Possible equipment damage
Retainer clips hold the ribbon cable in place. The ribbon cable connector releases when the retainer clips release. Do not pull on the ribbon cable to release it. If you pull the cable, you can damage the ribbon cable or the ribbon cable socket on the DDU.

To disconnect the DDU end of the ribbon cable, squeeze the retainer clips.

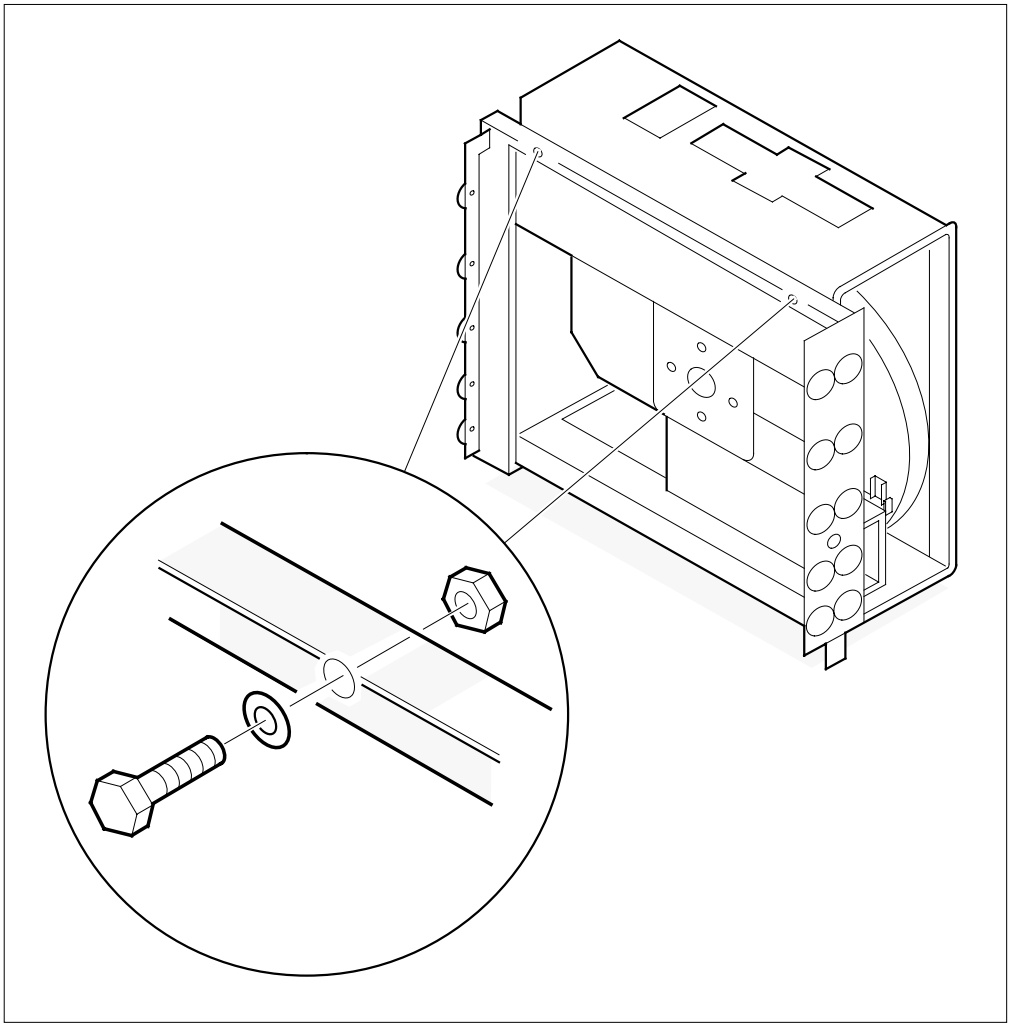
33 Verify that the power cable on the switch is compatible with the power connector on the replacement DDU.

If the power cable	Do
is compatible	step 35
is not compatible	step 34

34 Obtain an adapter from office stores.

35 Remove the two retaining screws that secure the DDU to the slide rails.

Replacing a 14-in. disk drive unit (continued)



36 You need two persons to perform this step. One person stands at the front of the frame, and the other person stands at the back of the frame.

The person at the front grasps the rails of the DDU. The front person tilts the front of the DDU to a 45-degree angle and lifts the DDU forward. The front person slowly pulls the DDU clear of the frame. The person at the back ensures that the hardware in the frame does not catch the cables.

Replacing a 14-in. disk drive unit (continued)

At a work table

37

WARNING
Damage to printed circuit board
If you place the DDU on its sides or its top, you can damage the printed circuit board.

Place the DDU in a vertical position on a flat surface.

38 Obtain a label in order to return the DDU that has faults for repair. Secure the label to the DDU that has faults.

39 Unpack the replacement DDU.

Note: Store the DDU that has faults in the box from the new DDU. The other option is to store the DDU that has faults in the box found in step 2.

40 Use the old DDU as a guide to set the top DIP switches on the new DDU. Match the DIP switches on the new DDU to the DIP switches on the old DDU. The other option is to set the top DIP switches on the new DDU to the settings that follow:

DDU: single-PCB 10K Model 6650-10
split-PCB 1J Model 15450-10

Switch #	Function	Setting
1	unit select 1	on
2	unit select 2	off
3	unit select 3	off
4	unit select 4	off
5	skip defect protection	on
6	write enable	on
7	clock transmit	on
8	clock phase	on

DDU: single-PCB 11K Model 6650-10
split-PCB 9F Model 15450-10

Switch #	Function	Setting
1	1 selector/track	off
2	2 selectors/track	on
3	4 selectors/track	off
4	8 selectors/track	off
5	16 selectors/track	on
6	32 selectors/track	off
7	64 selectors/track	off
8	reserved	

41 Completely extend the DDU slide rails.

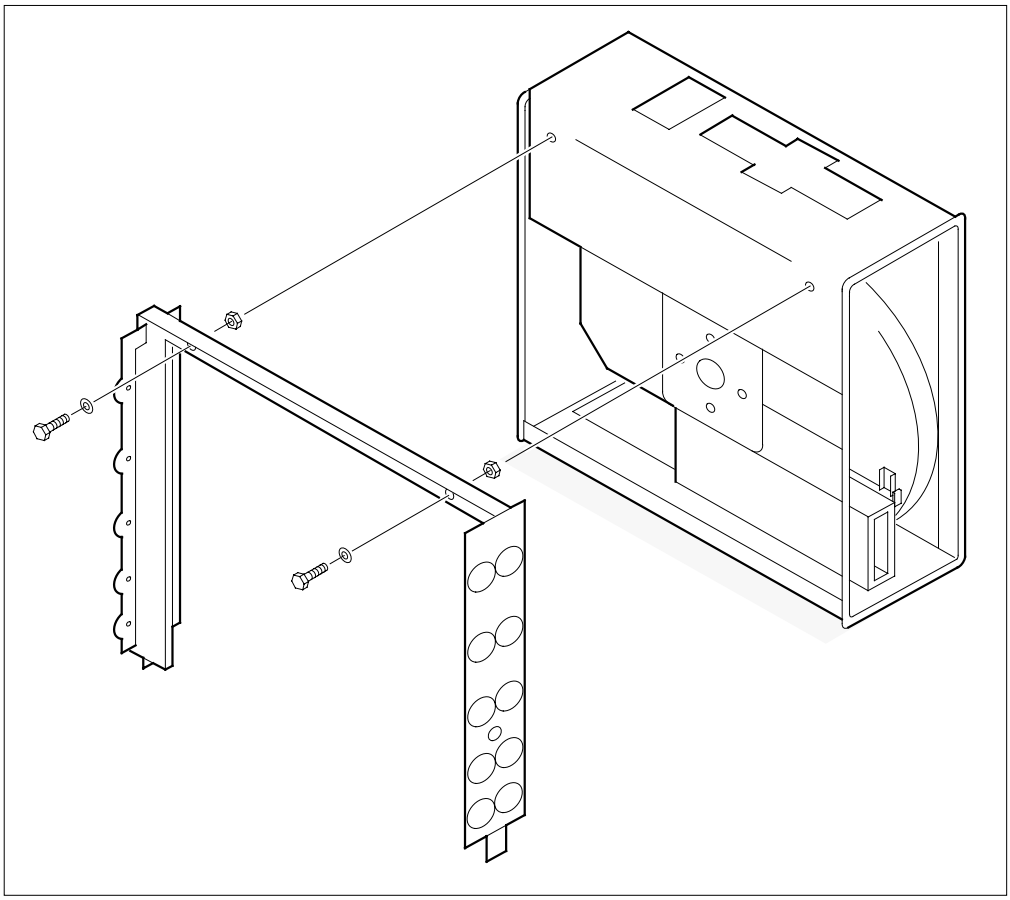
Replacing a 14-in. disk drive unit (continued)

42 You need two persons to perform this step. One person stands at the front of the frame and the other person stands at the back of the frame.

The person at the front tilts the front of the DDU to a 45-degree angle. The person at the back lifts the DDU into place on the slide rails. The back of the DDU frame must butt against the stops of the slide rails.

43 Insert and secure the two retaining screws that hold the front cover of the DDU to the frame.

44 To remove the slider assembly from the DDU that has faults, remove the two screws that secure the slider assembly in place.



45 To mount the slider assembly to the replacement DDU, secure the two mounting screws.

46 Connect the power cable from the power converter to the replacement DDU. To make the connection, plug the end of the power cable with the free ground lead to connector J3. Connector J3 is on the bottom of the main PCB on the DDU.

47 Secure the ground lead to the PCB with the provided hardware.

48 Route the cable toward the back of the DDU. Route the cable along the upper rail of the DDU frame on the coverter side of the DDU.

Replacing a 14-in. disk drive unit (continued)

49 Use three evenly-spaced plastic cable ties to secure the cable to the upper rail of the DDU.

50 Make sure that you position the cable to avoid interference with the frame hardware or converter when the DDU drawer closes.

51 Plug the converter end of the DDU power cable into connector C04 on the back of the power converter.

52 Obtain the model number of the DDU from the label on the inside red of the DDU.

If the model number	Do
is 15450	step 53
is other than listed here	step 54

53 Make sure that you remove the strap at location W3 on the main PCB of the DDU.

54 You need two persons to perform this step. One person stands at the front of the frame and the other person stands at the back of the frame.

The person at the front of the frame presses the release buttons on the DDU slide rails. The front person slowly slides the DDU until it closes. The person at the back makes sure that the hardware in the frame does not catch the cables.

At the back of the frame

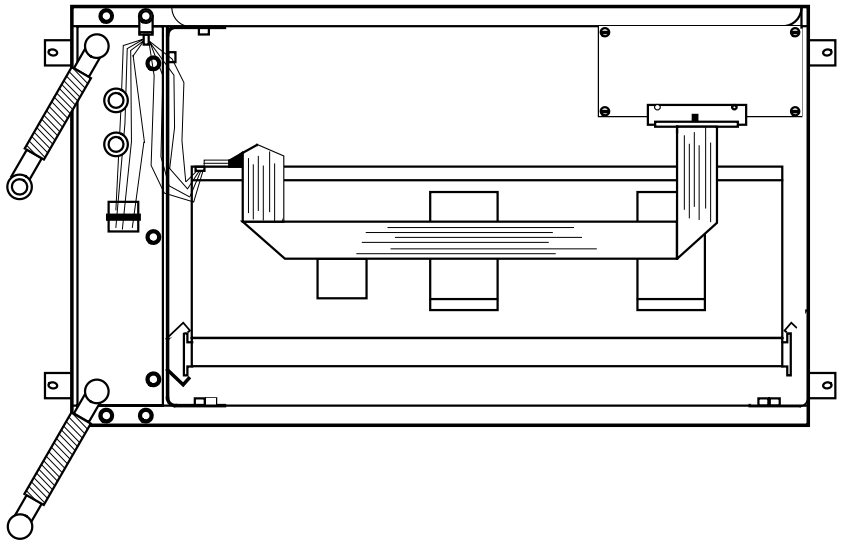
55

CAUTION
Make sure that the ribbon cable is routed correctly.
Route the ribbon cable as shown in the figure that follows. Failure to route the cable correctly can result in loss of information caused by signal interference.

Route the ribbon cable as shown in the following figure.

Replacing a 14-in. disk drive unit (continued)

Position of the ribbon cable



56 Release the carriage and head-locking levers.

57 Insert the fuse removed from the FSP in step 19.

58 Reset the power converter as follows:

a Press and hold the RESET button on the power converter.

b Turn ON the power switch on the converter.

c Release the RESET button.

At the MAP terminal

59 To manually busy the controller card, type

>BSY

and press the Enter key.

If the BSY command	Do
reads passed	step 60
reads failed	step 81

60 To start the disk drive motor, type

>START

and press the Enter key.

MAP response:

```
DISK START SUCCESSFUL
```

Replacing a 14-in. disk drive unit (continued)

61 To test the disk drive controller, type

>TST

and press the Enter key.

Note: The test will fail. Ignore the results.

62 To allocate disk space, type

>DSKALLOC ddu_no

and press the Enter key.

where

ddu_no
is the number of the DDU

63 To confirm the command, type

>YES

and press the Enter key.

64 To perform volume allocation tests, perform the procedure *Allocating test volumes on 14-inch DDUs* in the *Routine Maintenance Procedures.* Complete the procedure and return to this point.

65 Perform interference and transfer tests. To perform these tests, perform the procedure *Performing DDU interference and file transfer tests* in the *Routine Maintenance Procedures.* Complete the procedure and return to this point.

66 Obtain the office records. Determine the names and sizes of the volumes that you will create on the DDU.

67 To add a volume to the disk, type

>ADD volname blocks

and press the Enter key.

where

volname
is the name of the additional volume

blocks
is the number of blocks in the volume

68 Determine if you need to add any more volumes.

If you	Do
need to add more volumes	step 67
do not need to add more volumes	step 69

69 To add the names of the volumes to the directory, type

>DIRADD

and press the Enter key.

Replacing a 14-in. disk drive unit (continued)

70 Determine if you need to add more volumes to the directory.

If you	Do
need to add more volumes	step 69
do not need to add more volumes	step 71

71 To enforce the allocation of the volumes, type

>UPDATE

and press the Enter key.

Example of a MAP response:

```
WARNING:  A break HX of this process may cause severe
corruption on the disk that may require it to be
reformatted.
Writing label of Volume IMAGE
Successful
Starting Initialization of Volume IMAGE
A break HX of this process may cause severe corruption on
this volume that may require reinitialization of all non
initialized volumes.
Number of Bad Blocks = 0
Successful
Update Done
```

72 To quit the software utility for disk allocation, type

>QUIT

and press the Enter key.

73 To test the DDU controller, type

>TST

and press the Enter key.

If the TST command	Do
passed	step 74
failed	step 81

74 To return the DDU to service, type

>RTS

and press the Enter key.

If the RTS command	Do
passed	step 75

Replacing a 14-in. disk drive unit (end)

If the RTS command	Do
failed	step 81

75 Determine if an IOD alarm is present.

If an IOD alarm	Do
is present	step 81
is not present	step 76

At the front of the frame

76 Use the screwdriver to replace the four screws that secure the DDU faceplate to the frame. To locate the mounting screws, refer to to the diagram at the beginning of these instructions.

77 Record the information that follows in your office records:

- The date that you replaced the DDU.
- The serial number of the DDU.
- The problems that prompted the DDU replacement.

78 Return the DDU that has faults to the correct office for repair.

Note: For additional information on the return of equipment, refer to the card return procedure for the correct country in this document.

79 Go to step 82.

80 You cannot busy the controller card if files are open. If you busy the card while files are open, a loss of billing data can result.

81 For additional help, contact the next level of support.

82 The procedure is complete.

Replacing a bulkhead gasket

Application

Use this procedure to replace a defective bulkhead gasket on model C28 (28-in.) and C42 (42-in.) cabinets.

On a model C28 cabinet, use the bulkhead gasket with the product code P0739662. On a model C42 cabinet, use the bulkhead gasket with the product code P0739662.

Definition

Perform this procedure on a gasket that has faults.

Common procedures

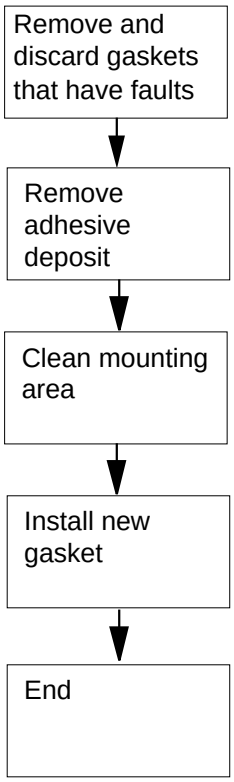
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Replacing a bulkhead gasket (continued)

Summary of Replacing a bulkhead gasket



This flowchart summarizes the procedure.

Use the instructions that follow this flowchart to perform the procedure.

Replacing a bulkhead gasket (end)

Replacing a bulkhead gasket

At the front of the cabinet

1 Remove and discard the gasket that has faults.

2 Remove the adhesive deposit from the mounting surface of the bulkhead.

Note: Apply a petroleum-based cleaner with a lint-free industrial wiper.

3 Use a lint-free industrial wiper to clean the mounting area with a degreasing solvent (for example, isopropyl alcohol).

Note: Let the surface dry before you install the new gasket.

4 Peel the release tape from the adhesive backing of the gasket. Install the gasket base in the groove.

Note 1: Press the gasket down to ensure that it adheres correctly to the surface of the bulkhead.

Note 2: Cut off any excess gasket.

5 Close the doors carefully. Allow the adhesive to cure for 24 hours.

6 The procedure is complete.

Replacing a cooling unit assembly in a 42-in. cabinet CPC A0377580, A0382102, A0383322, A0383323

Application

Use this procedure to replace a cooling unit assembly. The cooling unit assembly must have one of the following common product codes (CPC), in a 42-in. (1.07-m) cabinet:

- A0377580
- A0382102
- A0383322
- A0383323

Note: The product engineering codes for a 42-in. cabinet are NT9X95AA, NT9X95BA, NT9X95CU, and NT9X95GU.

The A0383323 version of the cooling unit can replace the A0377580 unit.

Definition

A cooling unit assembly cools the cabinet components.

Common procedures

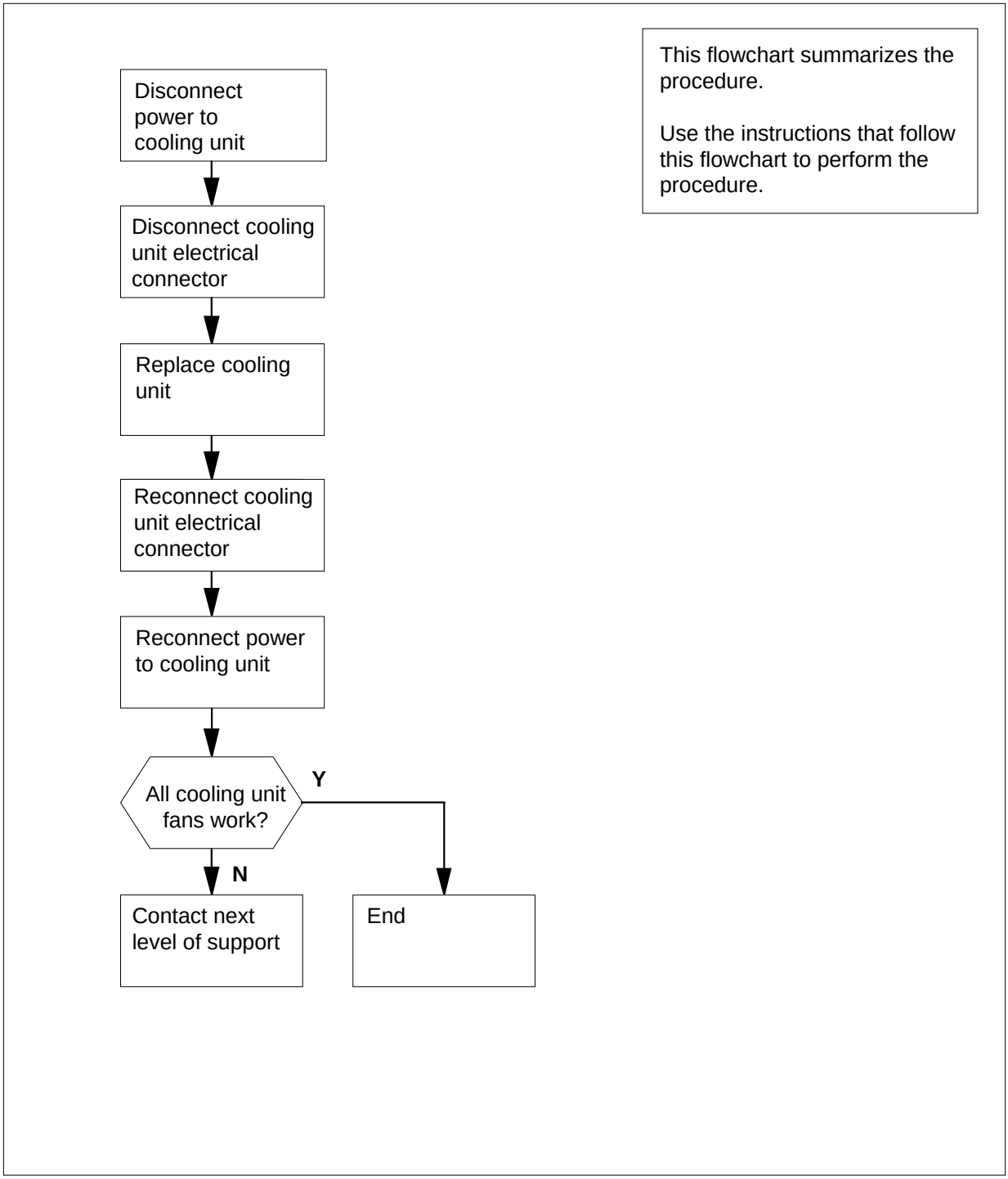
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Replacing a cooling unit assembly in a 42-in. cabinet CPC A0377580, A0382102, A0383322, A0383323 (continued)

Summary of Replacing a cooling unit assembly in a 42-in. cabinet



Replacing a cooling unit assembly in a 42-in. cabinet CPC A0377580, A0382102, A0383322, A0383323 (continued)

Replacing a cooling unit assembly in a 42-in. cabinet

At your current location:

1

DANGER
Risk of injury or damage to equipment
When you replace a cooling unit, do not wear jewelry (for example, rings, bracelets, or necklaces).

WARNING
Possible equipment damage
Do not remove power to the cooling unit for more than 30 minutes. Extended power removal can cause the equipment to overheat and cause damage.

Obtain a replacement for the cooling unit assembly.

At the front of the cabinet

2 Record the cabinet number.

Note: Locate the cabinet number (for example, D00) above the doors on the front of the cabinet.

3 Consult office records or operating company personnel. Determine if power to the cooling unit connects through a power distribution center (PDC) or a cabinetized PDC (CPDC).

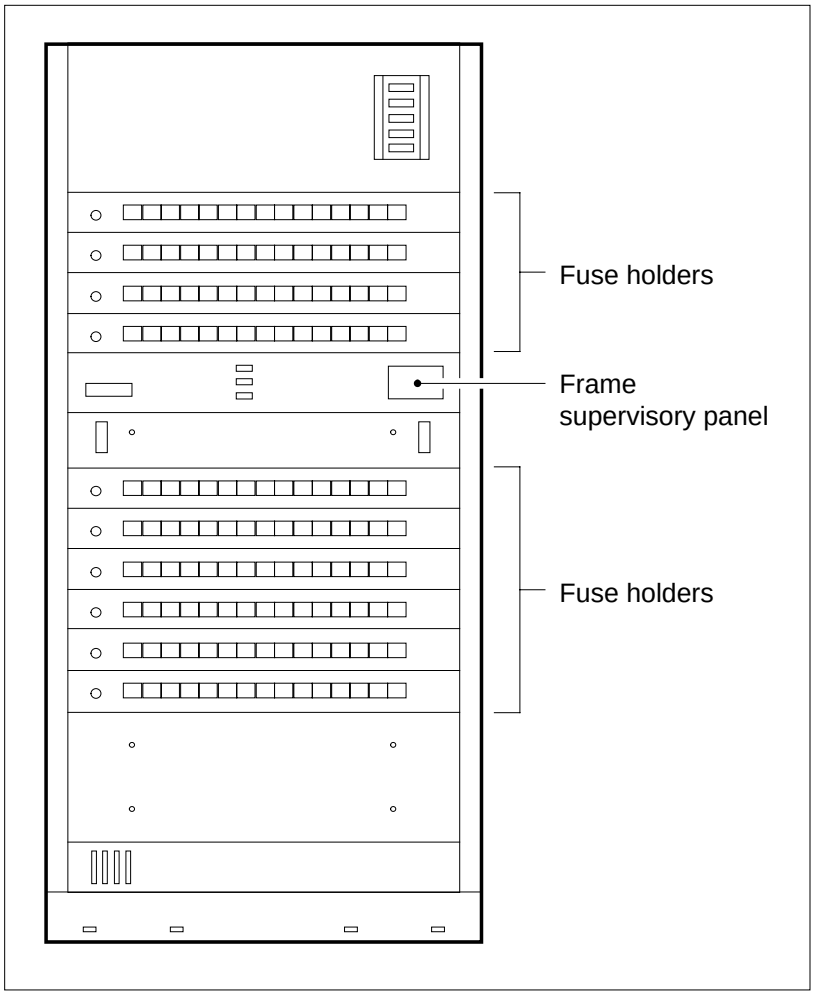
If power to the cooling unit	Do
connects through a PDC	step 4
connects through a CPDC	step 6

At the front of the PDC

4 Locate the cooling unit fuses.

Note: The cooling unit fuse cartridges are on the front panel of the PDC. The fuse cartridges contain two cooling unit fuses. One fuse cartridge is for the side A power feed. The other fuse cartridge is for the side B power feed. The cabinet number (recorded in step 2) is above each fuse cartridge. The letters SN CU (SuperNode cooling unit) are below each fuse cartridge.

Replacing a cooling unit assembly in a 42-in. cabinet CPC A0377580, A0382102, A0383322, A0383323 (continued)



5

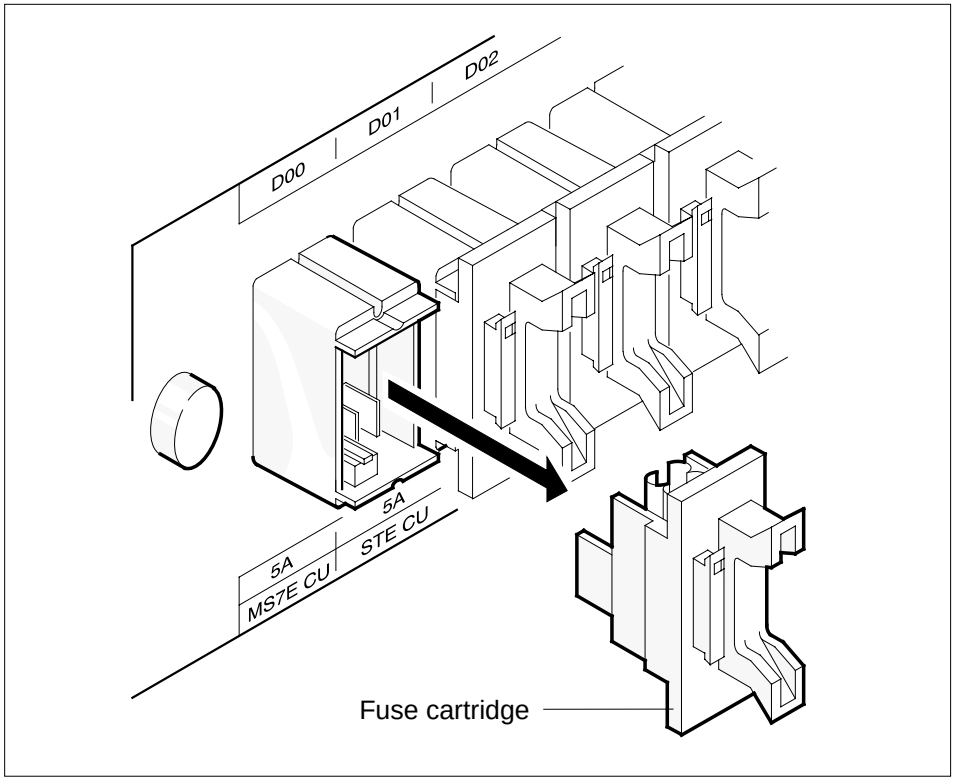
DANGER
Risk of injury
Electricity can arc when you remove a fuse cartridge. Wear eye protection.

Replacing a cooling unit assembly in a 42-in. cabinet CPC A0377580, A0382102, A0383322, A0383323 (continued)

CAUTION
Possible loss of service
Remove only the cooling unit fuses. Removal of the wrong fuses can disconnect power to a critical hardware component and cause loss of service.

To remove the cooling unit fuses, pull the fuse cartridges straight out from the front panel of the PDC.

Note: When you remove the fuse cartridges, you remove power from the cooling unit. Removal of power from the cooling unit causes the fan failure lamp to turn ON. The fan failure lamp is at the top of the cabinet between the doors.

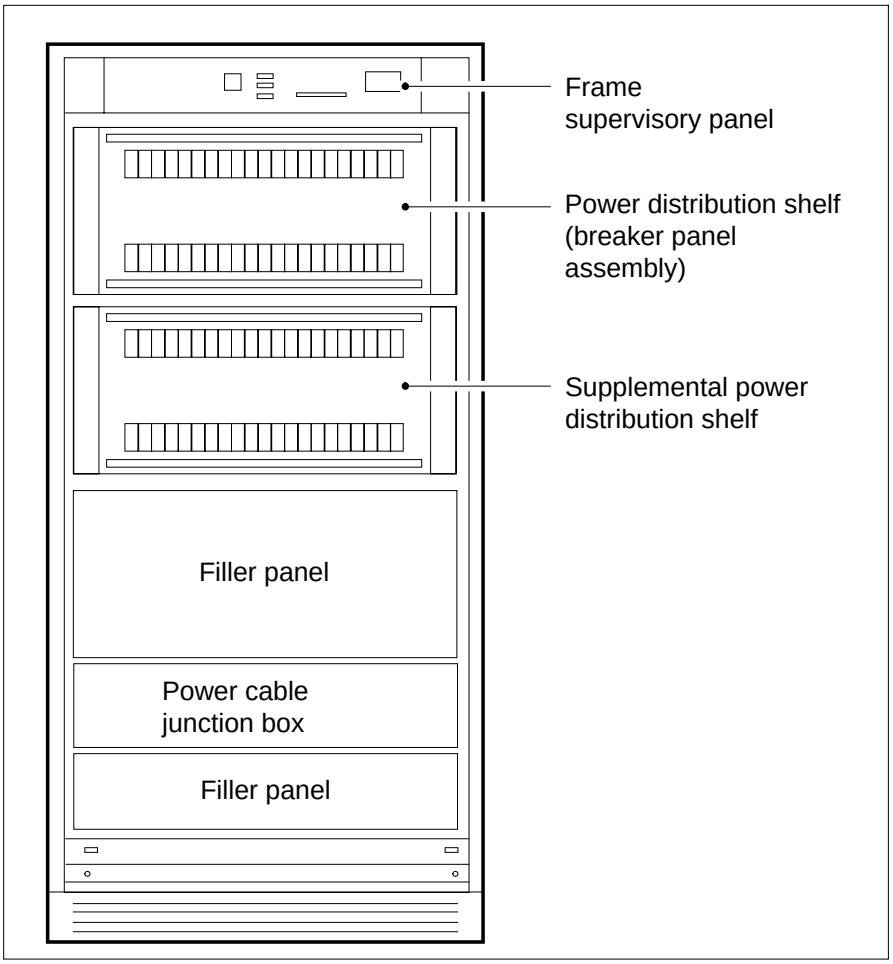


At the front of the CPDC

6 Locate the circuit breaker for the cooling unit.

Note: The two cooling unit circuit breakers are on the front panel of the CPDC. One circuit breaker is for the side A power feed. The other circuit breaker is for the side B power feed. The cabinet number (recorded in step 2) is above each breaker. The letters SN CU (SuperNode cooling unit) are below each breaker.

Replacing a cooling unit assembly in a 42-in. cabinet CPC A0377580, A0382102, A0383322, A0383323 (continued)



7

DANGER
Risk of injury
Electricity can arc when you throw the cooling unit breaker. Wear eye protection.

Replacing a cooling unit assembly in a 42-in. cabinet CPC A0377580, A0382102, A0383322, A0383323 (continued)

CAUTION
Possible loss of service
Ensure that you disconnect power to the cooling unit before you throw the cooling unit breaker. If you throw the wrong breaker, you can disconnect power to a critical hardware component and cause loss of service.

Throw the circuit breakers for the cooling unit.

Note: When you throw the circuit breakers, you remove power from the cooling unit. Removal of power from the cooling unit causes the fan failure lamp to turn ON. The fan failure lamp is at the top of the cabinet between the doors.

At the back of the cabinet

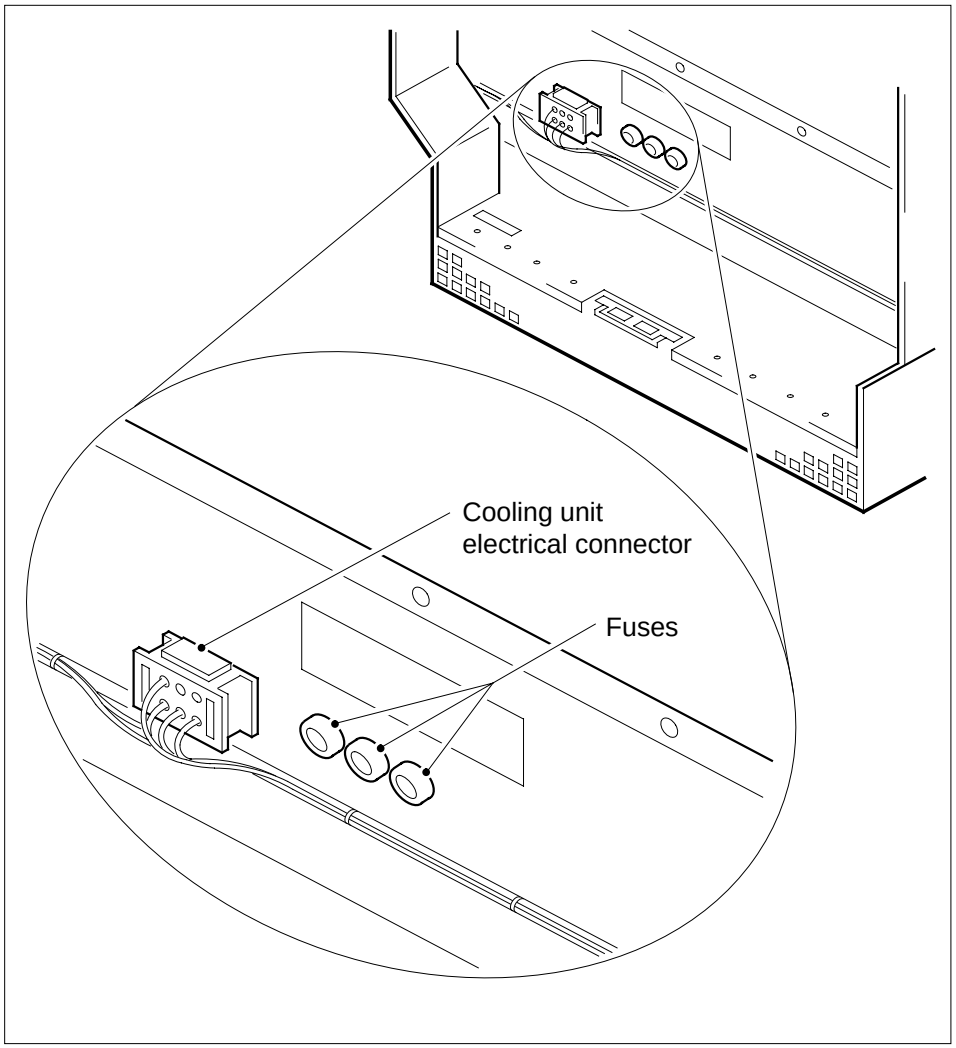
8 Open the cabinet doors.

9

DANGER
Risk of electrocution
Do not touch the cabinet wiring. Contact with wiring can result in electric shock.

Pull out the electrical connector of the cooling unit at the bottom of the cabinet.

Replacing a cooling unit assembly in a 42-in. cabinet CPC A0377580, A0382102, A0383322, A0383323 (continued)

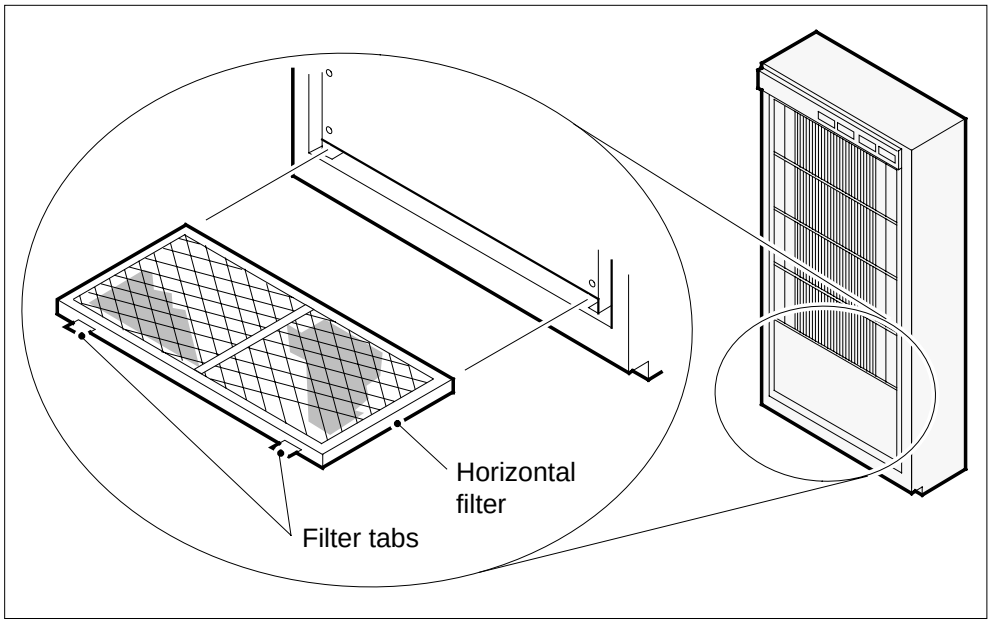


At the front of the cabinet

10 Open the cabinet doors.

11 To remove the filter, pull on the two filter tabs.

Replacing a cooling unit assembly in a 42-in. cabinet CPC A0377580, A0382102, A0383322, A0383323 (continued)

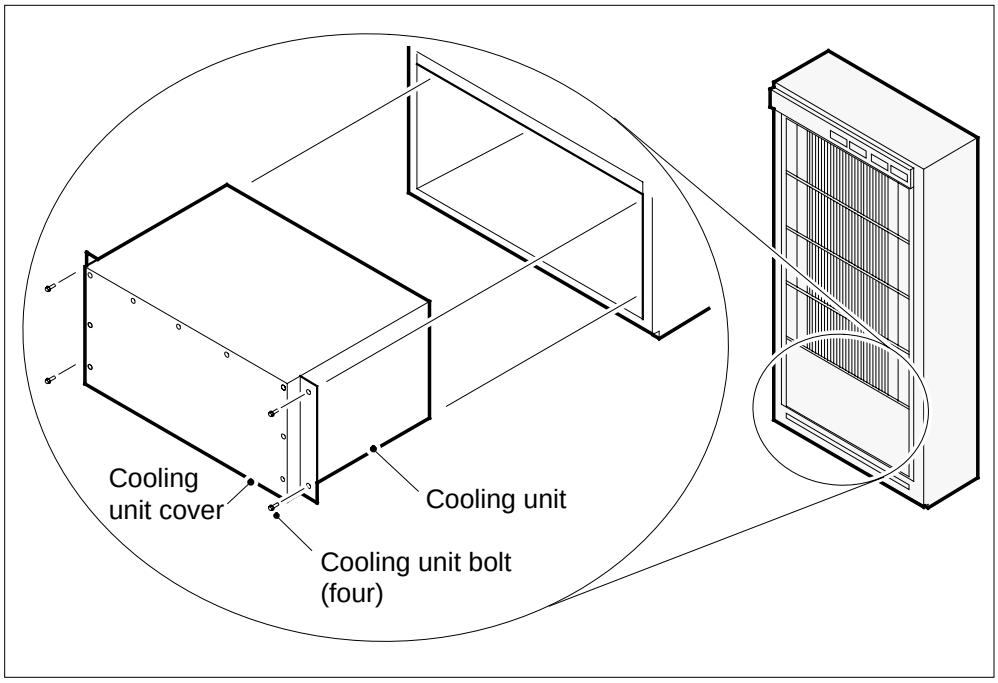


12

DANGER
Risk of injury
The cooling unit weighs approximately 41 kg (90 lbs). To remove or insert the cooling unit requires two or more persons.

Remove the four bolts that fasten the cooling unit assembly to the cabinet.

Replacing a cooling unit assembly in a 42-in. cabinet CPC A0377580, A0382102, A0383322, A0383323 (continued)



13 Slide the cooling unit assembly out of the cabinet.

14 Slide the replacement for the cooling unit assembly into the cabinet.

At the back of the cabinet

15 Reconnect the electrical connector of the cooling unit.

Note: Step 9 shows the location of the connector.

16 Close the cabinet doors.

At the front of the cabinet

17 Use the four mounting bolts to fasten the cooling unit assembly to the cabinet.

Note: Step 12 shows the location of the mounting bolts.

18 Insert the filter, that you removed in step 11, into the replacement cooling unit.

Note: Insert the filter with the arrows on the front that point up.

19 Determine if the power to the cooling unit connects through a PDC or a CPDC.

If the power to the cooling unit	Do
connects through a PDC	step 20
connects through a CPDC	step 21

Replacing a cooling unit assembly in a 42-in. cabinet CPC A0377580, A0382102, A0383322, A0383323 (end)

At the front of PDC

20 To insert the cooling unit fuses, push the fuse cartridges straight into the front panel of the PDC.

Go to step 22.

At the front of CPDC

21

DANGER
Risk of injury
Electricity can arc when you throw a circuit breaker. Wear eye protection.

Throw the circuit breakers for the cooling unit.

At the front of the cabinet

22 Determine if all cooling unit fans are operating.

Note: If one or more of the cooling unit fans is not operating, the fan failure lamp turns on. The fan failure lamp is at the top of the cabinet between the doors.

If	Do
all fans are operating	step 23
any fans are not operating	step 24

23 Close the cabinet doors.

Go to step 25.

24 For additional help, contact the next level of support.

25 The procedure is complete.

Replacing a cooling unit electronic module CPC A0383326, A0383327, A0383984

Application

Use this procedure to replace a cooling unit electronic module. Use this procedure when an electronic module has one of the following common product codes (CPC), in a 42-in. (1.07-m) DMS cabinet:

- A0383326
- A0383327
- A0383984

Note: The product engineering codes for a 42-in. DMS cabinet are NT9X95AA and NT9X95BA.

Definition

An electronic module for the cooling unit provides the external alarm connection. The module also provides power and fusing for the cooling unit fans.

Common procedures

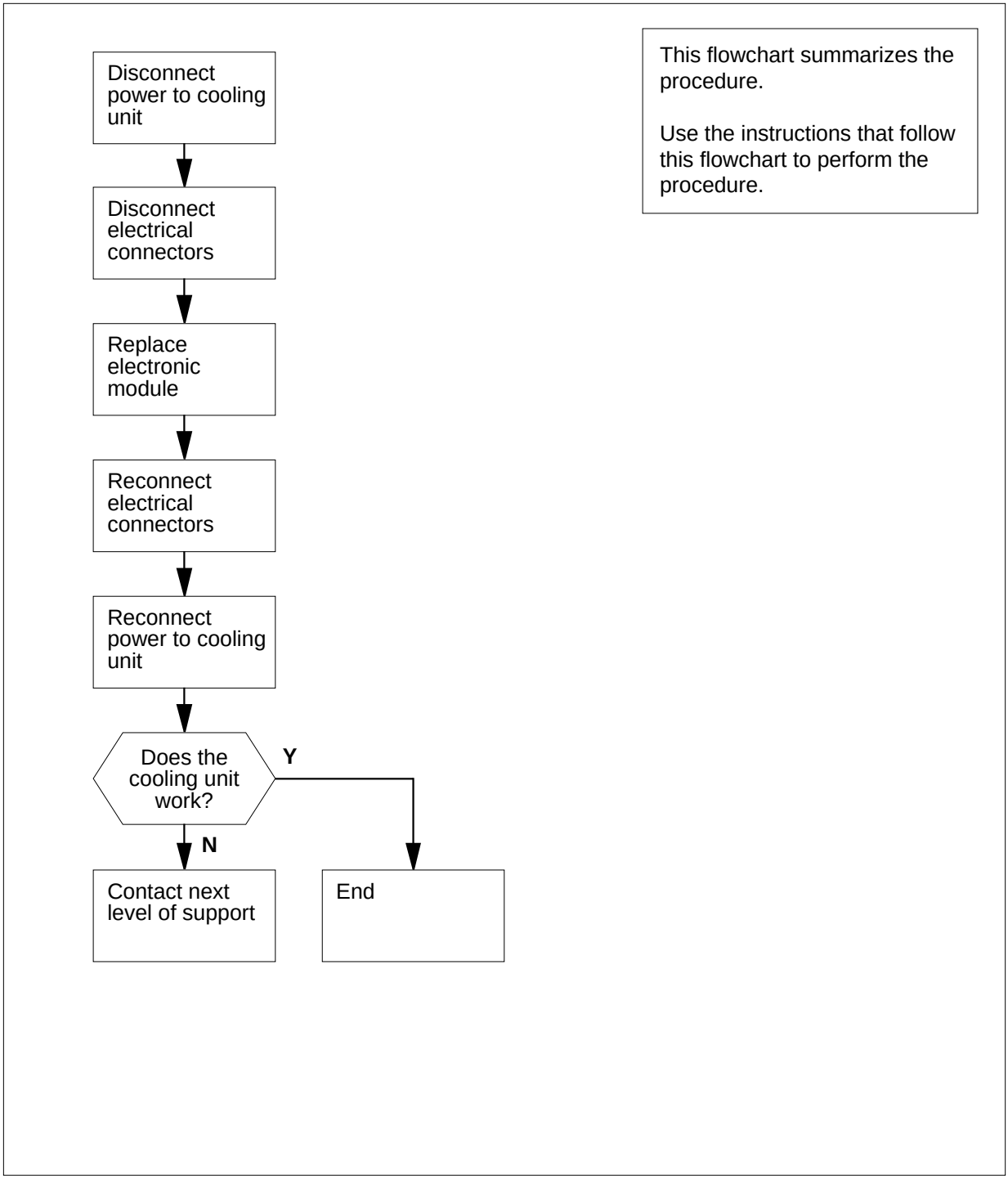
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Replacing a cooling unit electronic module CPC A0383326, A0383327, A0383984 (continued)

Summary of Replacing a cooling unit electronic module



Replacing a cooling unit electronic module CPC A0383326, A0383327, A0383984 (continued)

Replacing a cooling unit electronic module

At your current location

1

DANGER
Risk of injury or damage to equipment
When you replace an electronic module for the cooling unit, do not wear jewelry (for example, rings, bracelets, or necklaces).

WARNING
Possible equipment damage
Do not remove power to the cooling unit for more than 30 minutes. Extended removal of power can cause the unit to overheat and cause damage.

Obtain a replacement electronic module for the cooling unit.

At the front of the cabinet

2 Record the cabinet number.

Note: The cabinet number (for example, A10) is on the front of the cabinet, above the doors.

3 Consult office records or operating company personnel. Determine if power for the cooling unit connects through a power distribution center (PDC) or a cabinetized PDC (CPDC).

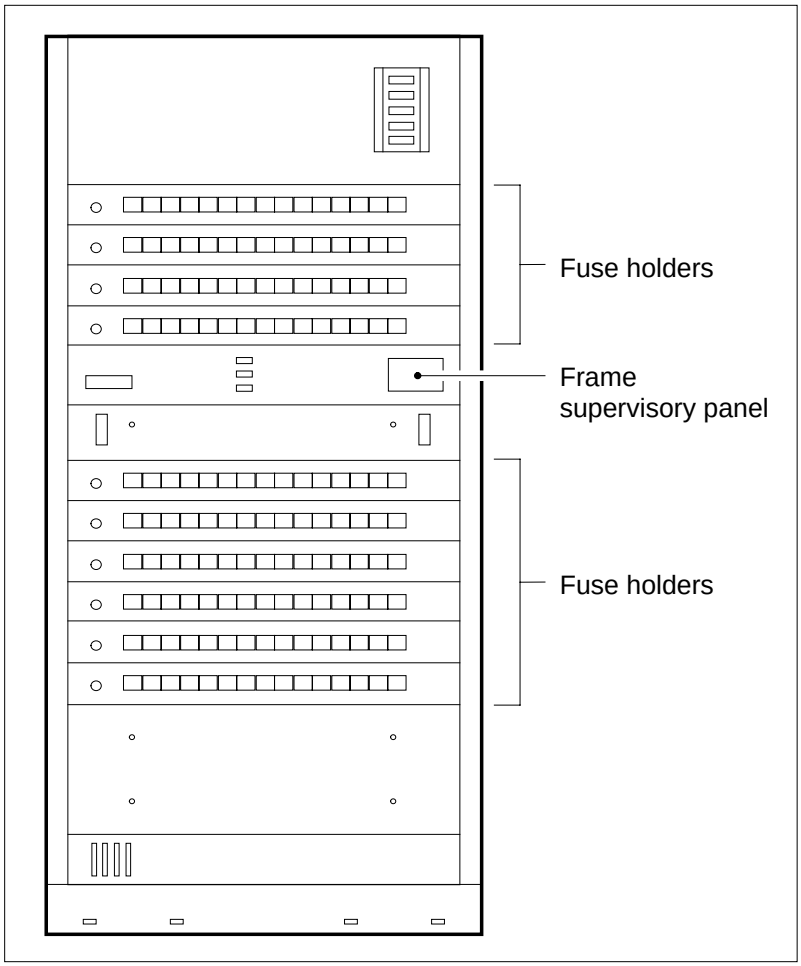
If power to the cooling unit	Do
connects through a PDC	step 4
connects through a CPDC	step 6

At the front of the PDC

4 Locate the two cooling unit fuses.

Note: The cooling unit fuse cartridges are on the front panel of the PDC. The fuse cartridges contain two cooling unit fuses. One fuse is for the A side power feed. The other fuse is for the B side power feed. The cabinet number (recorded in step 2) is above each fuse cartridge and the letters SN CU (SuperNode cooling unit) are below each fuse cartridge.

Replacing a cooling unit electronic module CPC A0383326, A0383327, A0383984 (continued)



5

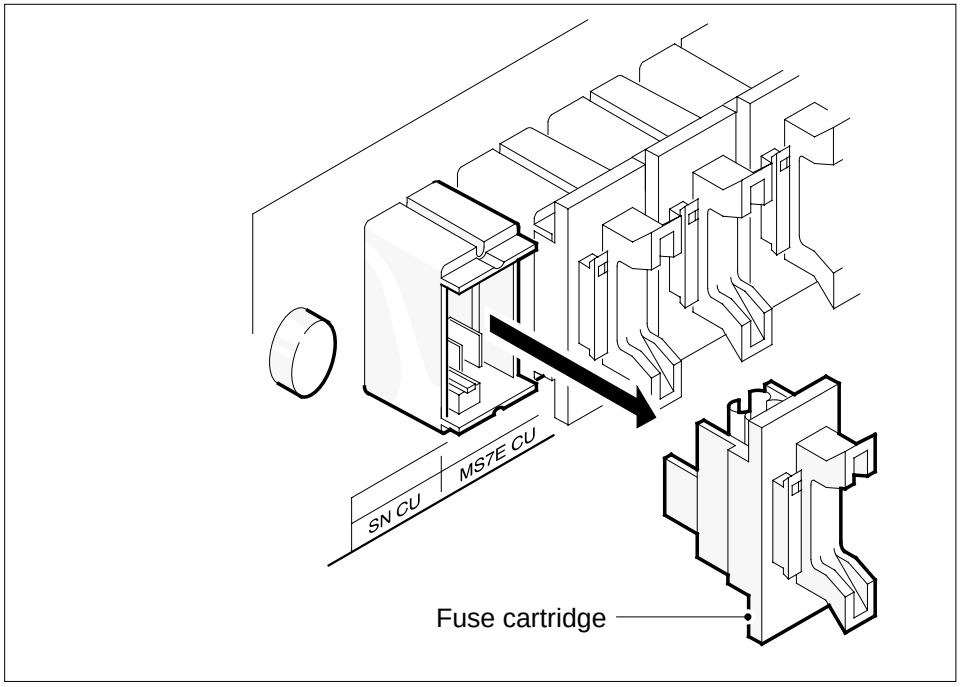
DANGER
Risk of injury
Electricity can arc when you remove a fuse cartridge from the cooling unit. Wear eye protection.

Replacing a cooling unit electronic module CPC A0383326, A0383327, A0383984 (continued)

CAUTION
Possible loss of service
Remove only the cooling unit fuses. Removal of the wrong fuses can disconnect power to a critical hardware component and cause loss of service.

To remove the cooling unit fuses, pull the fuse cartridges straight out from the front panel of the PDC.

Note: When you remove the fuse cartridges, you remove power from the cooling unit. Removal of power from the cooling unit can cause the fan failure lamp to turn ON. The fan failure lamp is at the top of the cabinet between the doors.

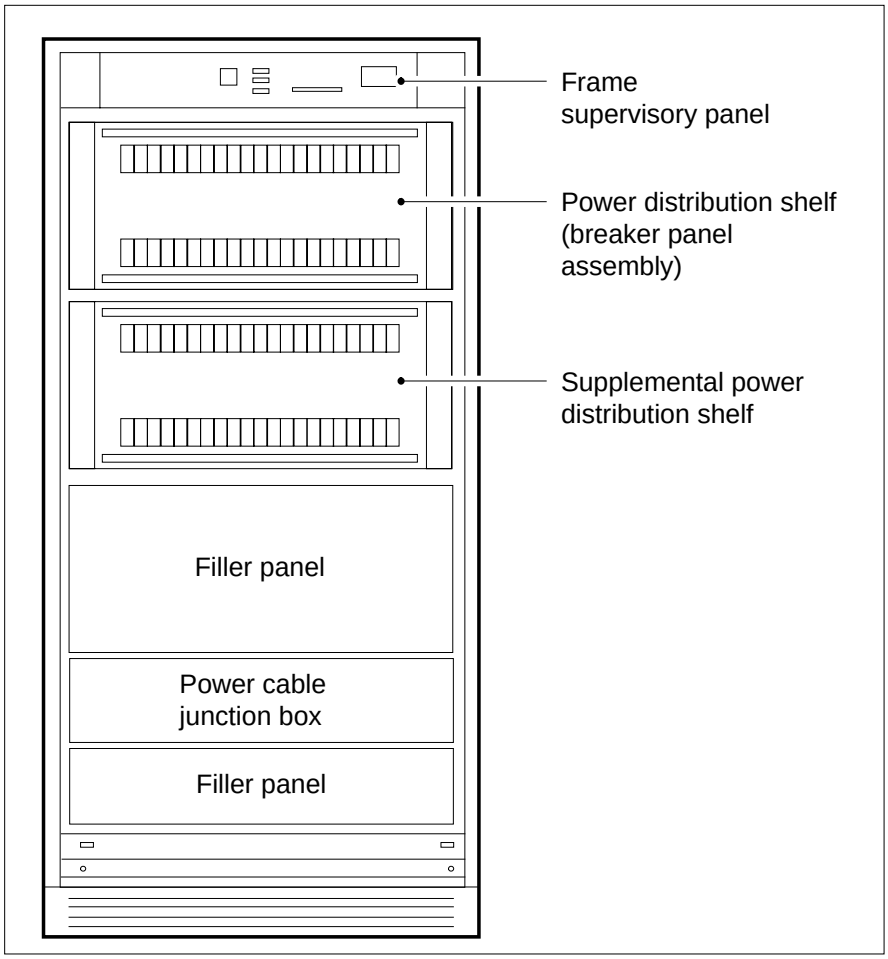


At the front of the CPDC

6 Locate the circuit breakers for the cooling unit.

Note: The two cooling unit circuit breakers are on the front panel of the CPDC. One circuit breaker is for the side A power feed. The other circuit breaker is for the side B power feed. The cabinet number (recorded in step 2) is above each circuit breaker. The letters SN CU (SuperNode cooling unit) are below each circuit breaker.

Replacing a cooling unit electronic module CPC A0383326, A0383327, A0383984 (continued)



7

DANGER
Risk of injury
Electricity can arc when you throw the circuit breakers for the cooling unit. Wear eye protection.

Replacing a cooling unit electronic module CPC A0383326, A0383327, A0383984 (continued)

CAUTION
Possible loss of service
Disconnect power to the cooling unit before you throw the circuit breakers. If you throw the wrong breakers, you can disconnect power to a critical hardware component and cause loss of service.

Throw the circuit breakers for the cooling unit.

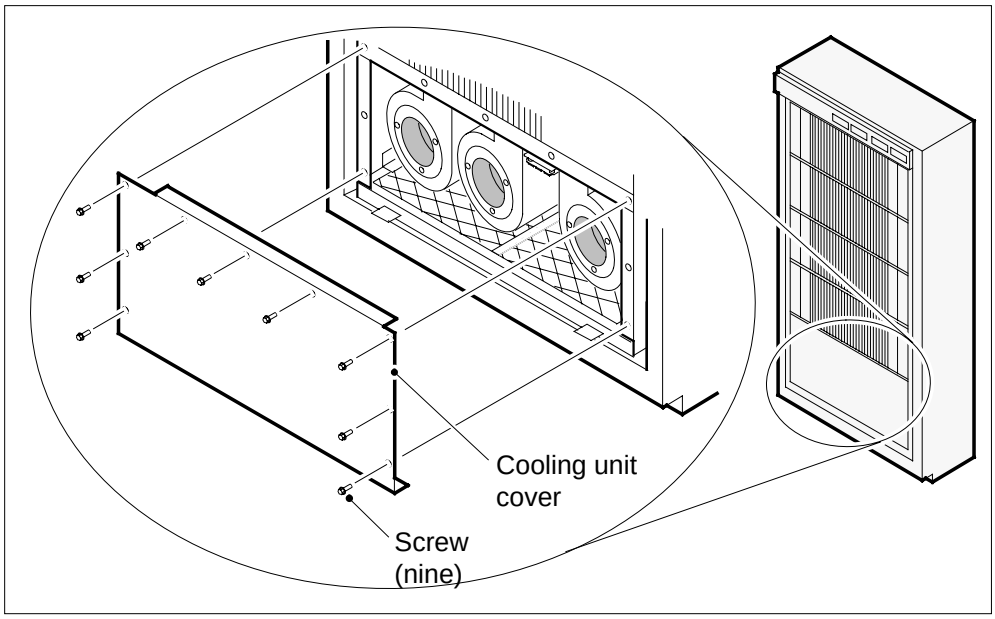
Note: When you throw the circuit breakers, you remove power from the cooling unit. Removal of power from the cooling unit can cause the fan failure lamp to turn ON. The fan failure lamp is at the top of the cabinet between the doors.

At the front of the cabinet

8 Open the cabinet doors.

9 To remove the cooling unit cover at the bottom of the cabinet, remove the nine mounting screws from the cover.

Note: Do not remove the four bolts that fasten the cooling unit to the cabinet. The procedure *Replacing a cooling unit assembly* in this document shows the location of the screws.



Replacing a cooling unit electronic module CPC A0383326, A0383327, A0383984 (continued)

At the back of the cabinet

10 Remove the two screws that fasten the electronic module to the cooling unit assembly.

Note: The screws are near the upper left-hand corner of the backplate of the cooling unit.

11 Disconnect the power connector from the electronic module.

Note: The power connector is near the upper left-hand corner of the backplate of the cooling unit.

At the front of the cabinet

12

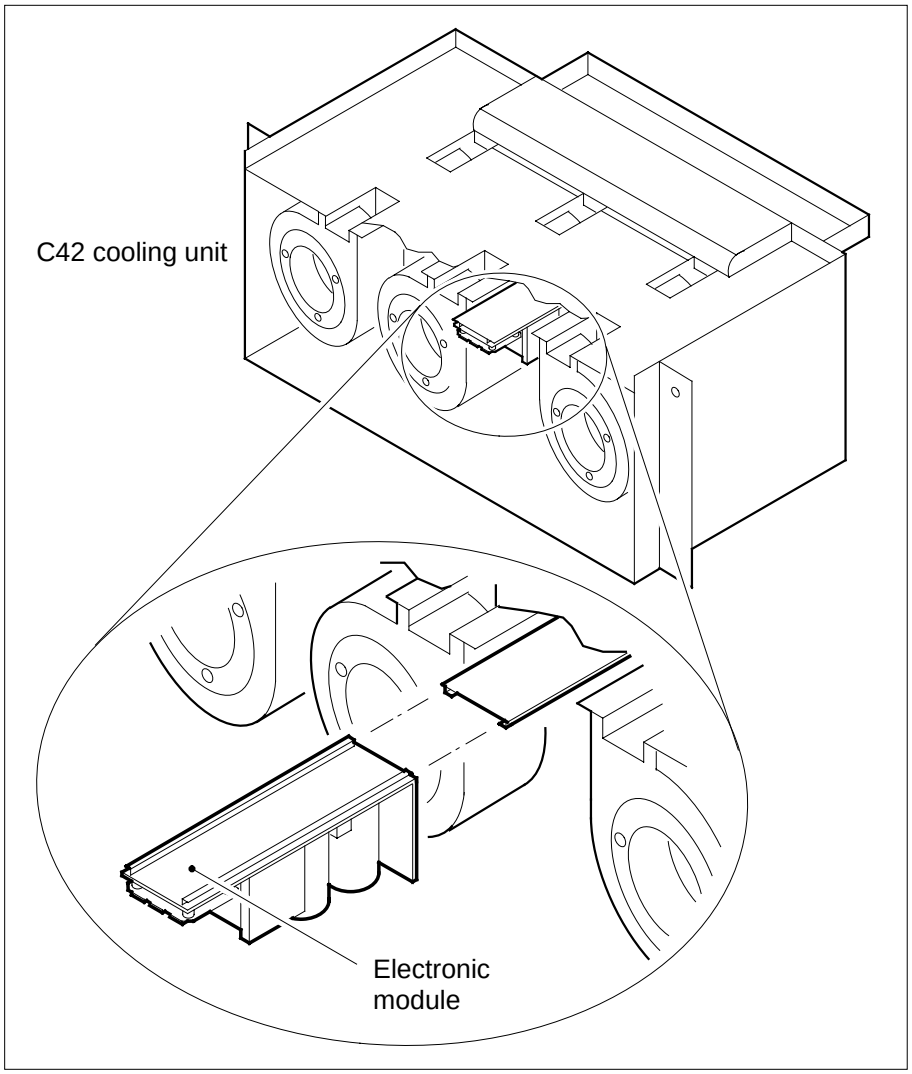
CAUTION
Possible equipment damage or service interruption
Label all electrical connectors before you disconnect them. If you reconnect to the wrong electrical connector, you can cause equipment damage or service interruption.

Disconnect the four electrical connectors at the front of the electronic module.

Note: Use both hands to disconnect the connectors. Grasp the top of the connector in one hand and the bottom of the connector in the other hand. Press the releases at the sides of the connector top and pull on the connector bottom.

13 Slide out cooling unit electronic module.

Replacing a cooling unit electronic module CPC A0383326, A0383327, A0383984 (continued)



14 Slide the replacement cooling unit electronic module until the module touches the cooling unit backplate.

15 Reconnect the four electrical connectors that you removed in step 12.

Note: To reconnect each connector, press the releases on the connector top. Insert the connector bottom until it locks in place. If you cannot insert the connector bottom, turn it one-half turn and try to insert it again.

At the back of the cabinet

16 Insert the screws that fasten the electronic module into the cooling unit assembly. You removed these screws in step 10.

17 Reconnect the power connector that you disconnected in step 11.

Replacing a cooling unit electronic module CPC A0383326, A0383327, A0383984 (end)

At the front of the cabinet

18 Determine if power for the cooling unit connects through a PDC or a CPDC.

If the power for the cooling unit	Do
connects through a PDC	step 19
connects through a CPDC	step 20

At the front of PDC

19 To insert the cooling unit fuses, push the fuse cartridges straight into the front panel of the PDC.

Go to step 21.

At the front of CPDC

20 Throw the circuit breakers for the cooling unit.

At the front of the cabinet

21 Determine if all the cooling unit fans work.

Note: If one or more of the cooling unit fans does not work, the fan failure lamp turns ON. The fan failure lamp is at the top of the cabinet between the doors.

If	Do
all fans work	step 22
any fans do not work	step 24

22 To reinstall the cooling unit cover, insert the mounting screws into the cover.

Note: Step 9 shows the location of the mounting screws.

23 Close the cabinet doors.

Go to step 25.

24 For additional help, contact the next level of support.

25 The procedure is complete.

Replacing a cooling unit fan CPC A0345301

Application

Use this procedure to replace a cooling unit fan with the common product codes (CPC) A0345301, in a 42-inch DMS cabinet:

Note: The product engineering codes (PEC) for a 42-inch DMS cabinet are NT9X0104 and NT9X0113.

Definition

Cooling unit fans cool the cabinet components.

Common procedures

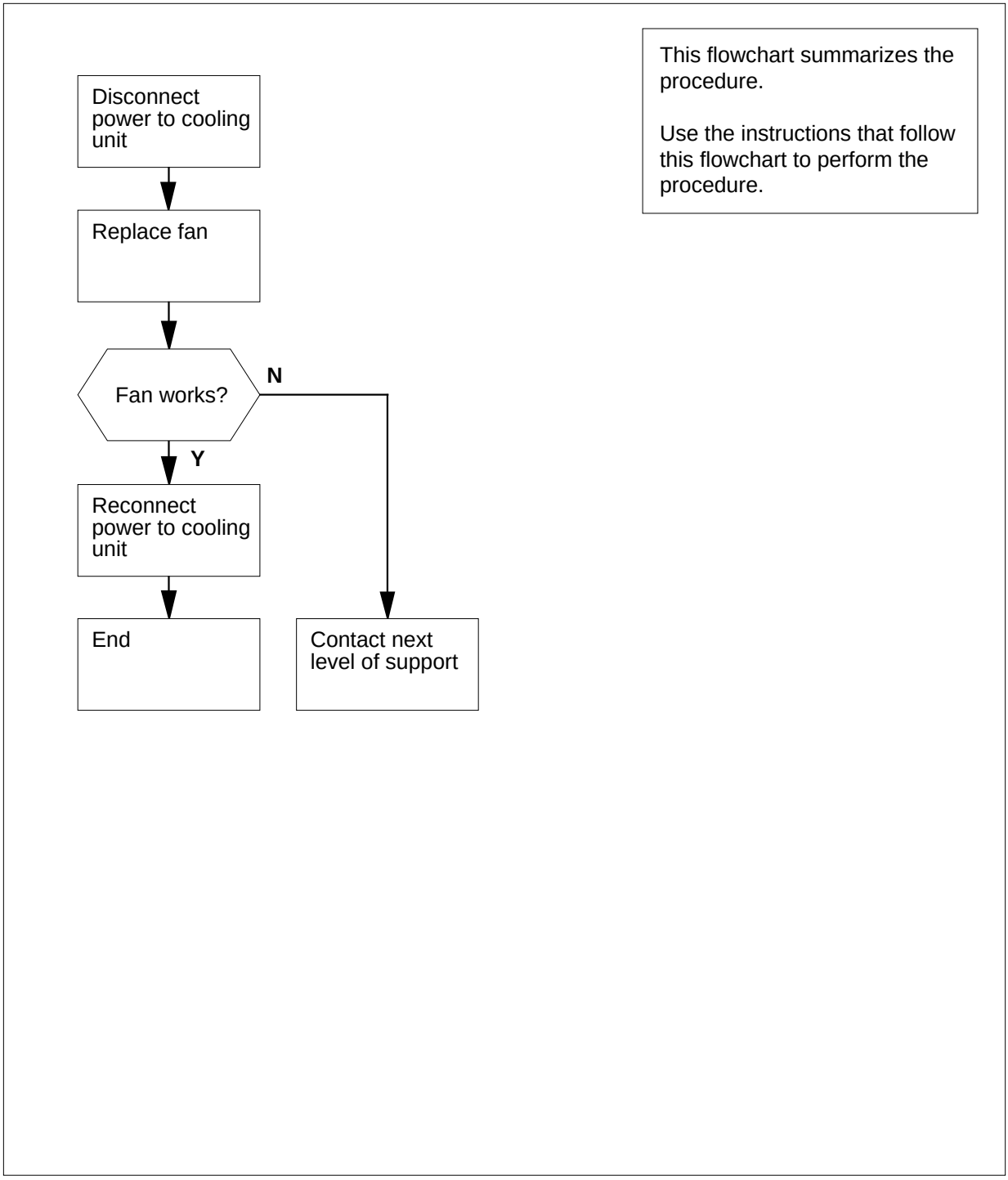
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Replacing a cooling unit fan
CPC A0345301 (continued)

Summary of Replacing a cooling unit fan



Replacing a cooling unit fan
CPC A0345301 (continued)

Replacing a cooling unit fan

At your current location

1

DANGER
Risk of injury or damage to equipment
When you replace a cooling unit, do not wear jewelry (for example, rings, bracelets, or necklaces).

WARNING
Possible equipment damage
Do not remove power to the cooling unit for more than 30 minutes. Extended removal of power can cause the unit to overheat and cause damage.

Obtain a replacement for the cooling unit fan.

Record the cabinet number.

Note: The cabinet number (for example, D00) is on the front of the cabinet, above the doors.

At the front of the cabinet

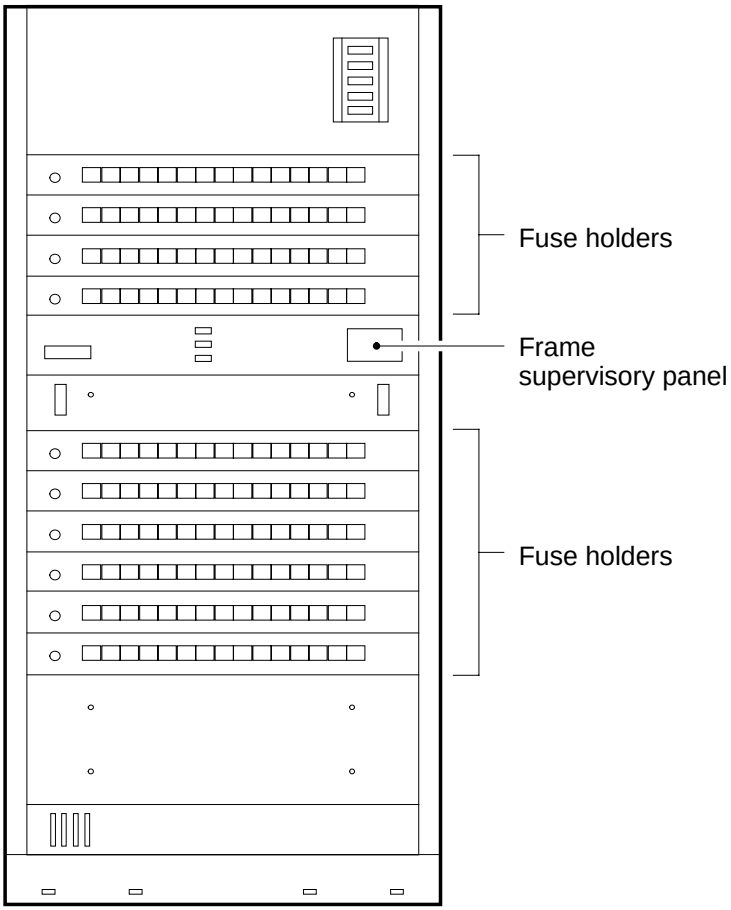
2 Consult office records or operating company personnel. Determine if power to the cooling unit connects through a power distribution center (PDC), or a cabinetized PDC (CPDC).

If power to the cooling unit	Do
connects through a PDC	step 3
connects through a CPDC	step 5

3 Locate the cooling unit fuses.

Note: The cooling unit fuse cartridges are on the front panel of the PDC. The fuse cartridges contain two cooling unit fuses. One fuse is for the side A power feed. The other fuse is for the side B power feed. The cabinet number (recorded in step 1) is above each fuse cartridge. The letters SN CU (SuperNode cooling unit) are below each fuse cartridge.

Replacing a cooling unit fan
CPC A0345301 (continued)



4

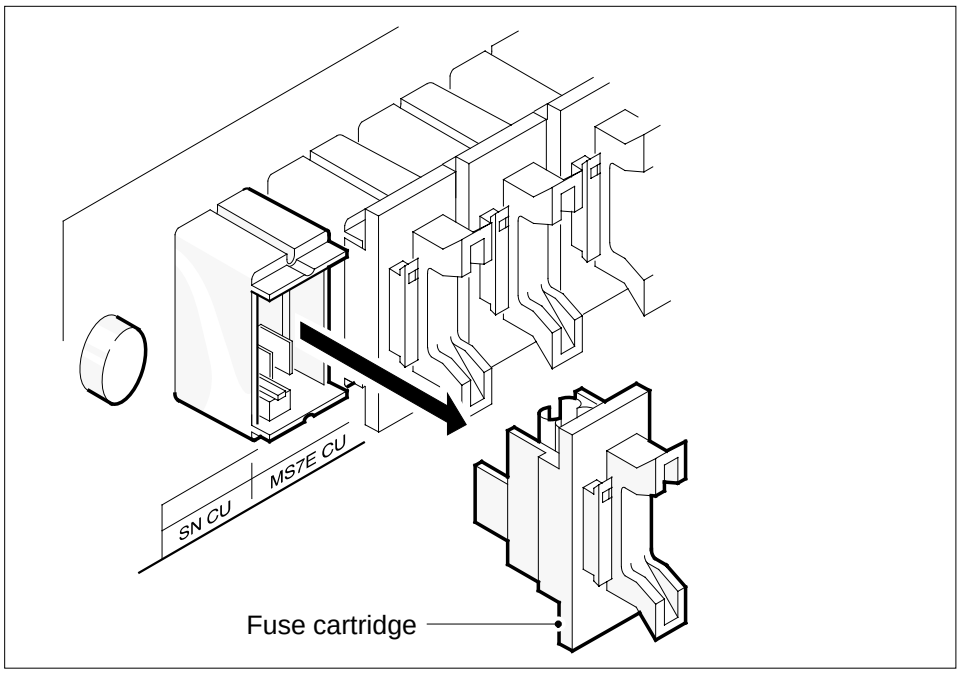
DANGER
Risk of injury
Electricity can arc when you remove the fuse cartridges for the cooling unit. Wear eye protection.

CAUTION
Possible loss of service
Remove only the cooling unit fuses. Removal of the wrong fuses can disconnect power to a critical hardware component and cause loss of service.

Replacing a cooling unit fan CPC A0345301 (continued)

To remove the cooling unit fuses, pull the fuse cartridges straight out from the front panel of the PDC.

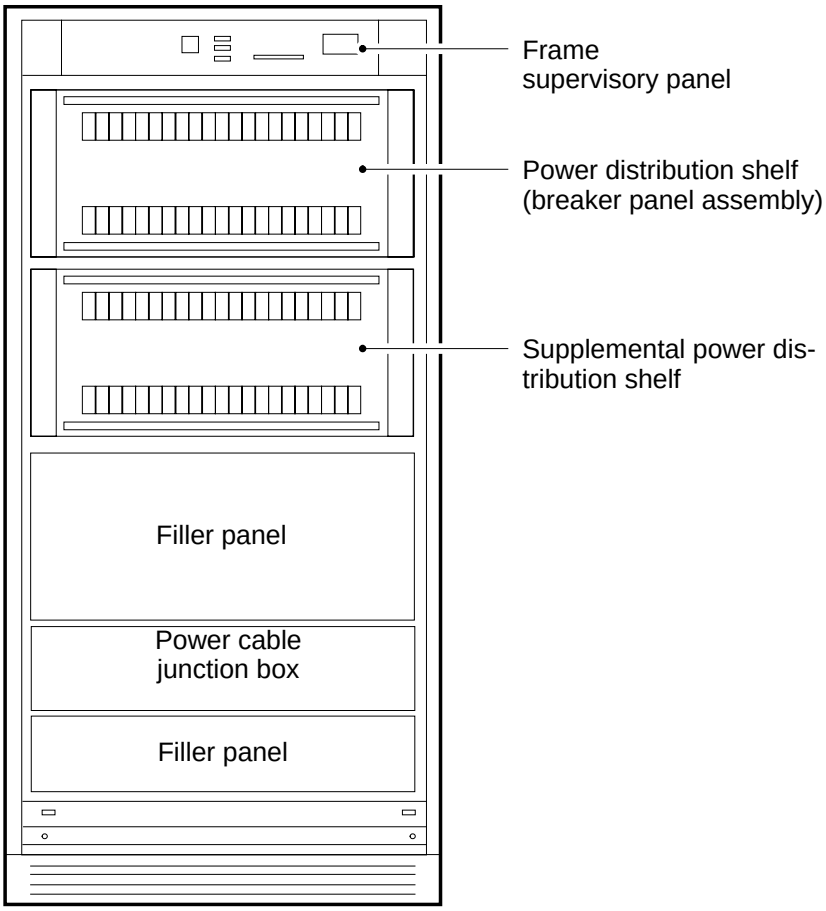
Note: When you remove the fuse cartridges, you remove power from the cooling unit. Removal of power from the cooling unit causes the fan failure lamp to turn ON. The fan failure lamp is at the top of the cabinet between the doors.



5 Locate the cooling unit circuit breakers.

Note: The two cooling unit circuit breakers are on the front panel of the CPDC. One circuit breaker is for the side A power feed. The other circuit breaker is for the side B power feed. The cabinet number (recorded in step 1) is above each breaker. The letters SN CU (SuperNode cooling unit) are below each breaker.

Replacing a cooling unit fan
CPC A0345301 (continued)



6

CAUTION
Possible loss of service
Make sure you remove only the cooling unit fuses before you throw this circuit breaker. Removal of the wrong fuses can disconnect power to a critical hardware component and cause loss of service.

Throw the circuit breaker for the cooling unit.

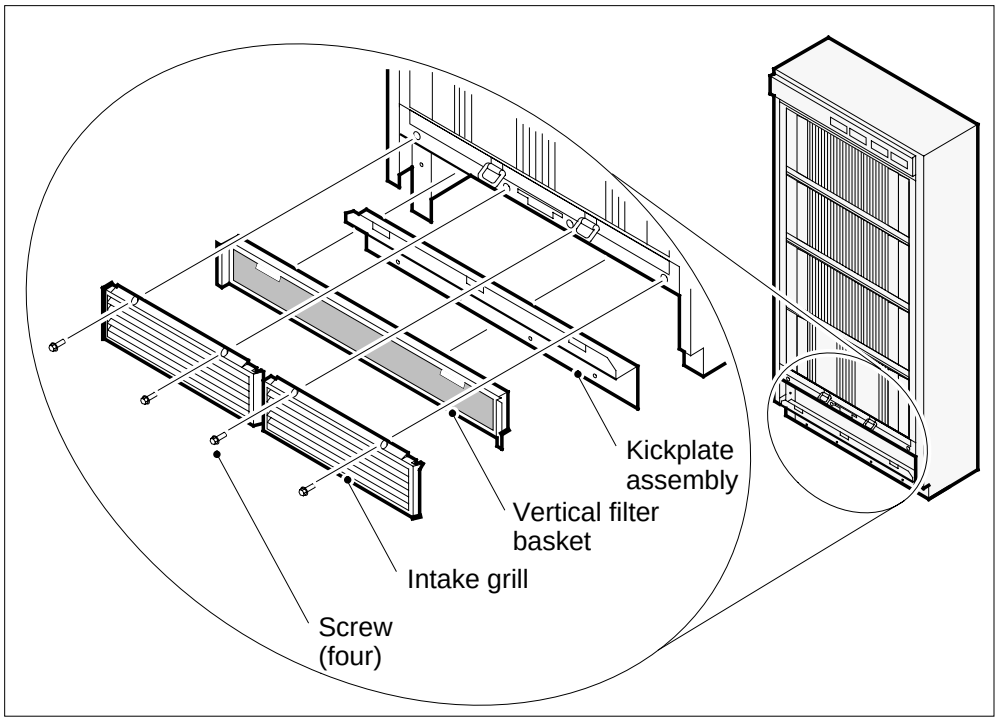
Note: When you throw the circuit breakers, you remove power from the cooling unit. Removal of power from the cooling unit causes the fan failure lamp to turn ON. The fan failure lamp is at the top of the cabinet between the doors.

Replacing a cooling unit fan
CPC A0345301 (continued)

At the front of the cabinet

7 Open the cabinet doors.

8 Remove the two intake grills for the cooling unit at the bottom of the cabinet. To remove the intake grills, remove the four screws that hold the intake grills in place.



9 To remove the filter basket, pull on the handles.

10 To remove the kickplate assembly, remove the mounting screws and mounting bolts that hold the assembly in place.

Note: The four mounting screws are along the bottom of the kickplate. The two mounting bolts are at the sides of the kickplate.

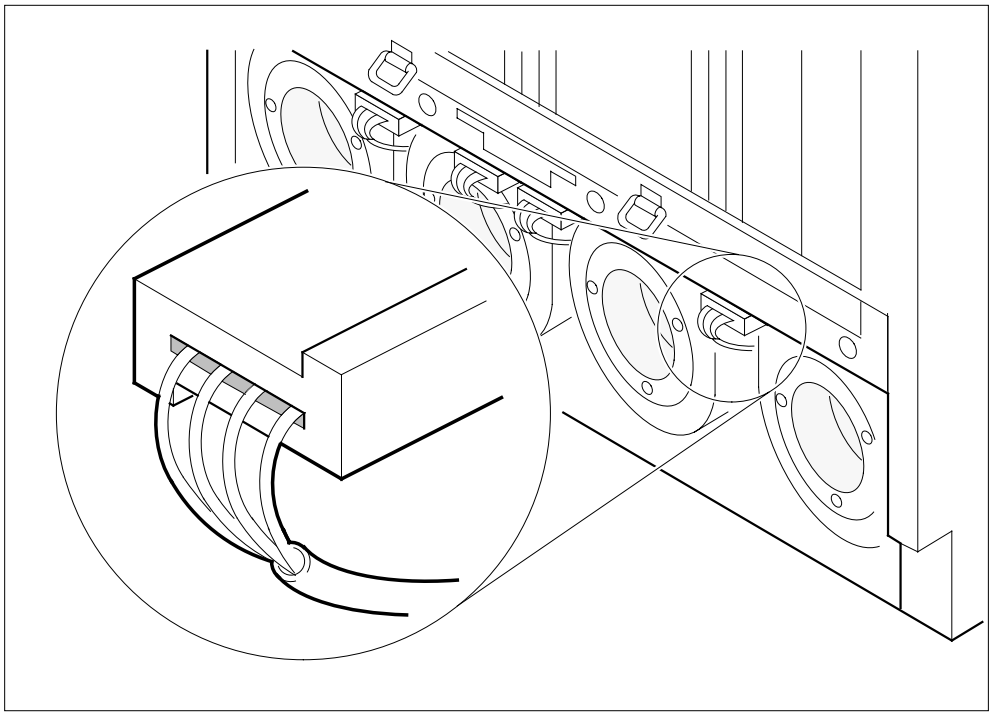
11

DANGER
Electrocution
Avoid contact with the cabinet wiring. Contact with the wiring can result in electric shock.

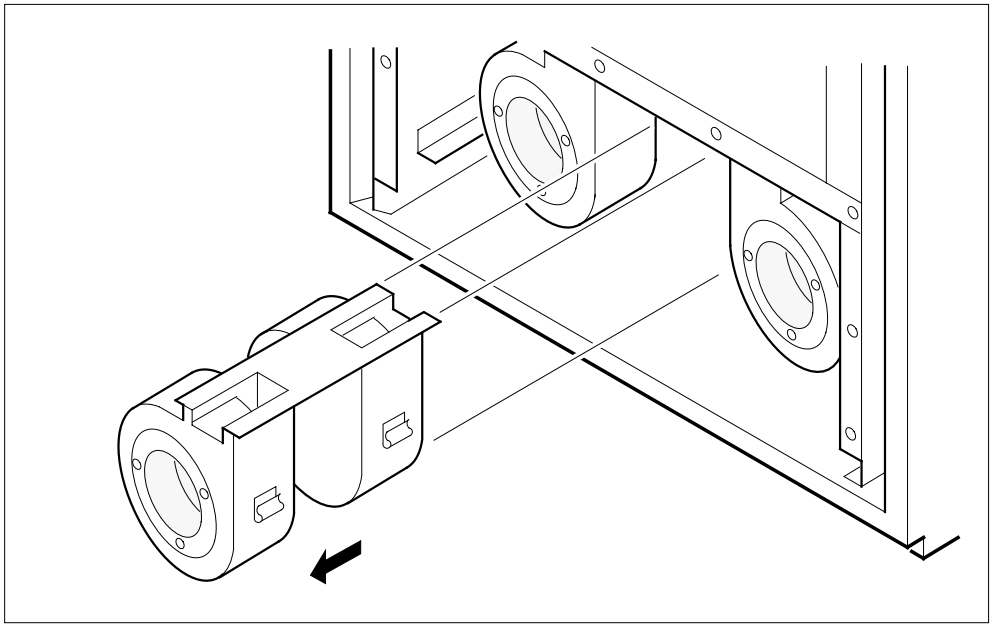
Disconnect the electrical connector of the fan that has faults from the corresponding electrical connector of the cabinet.

Note: The connector for each fan is above the fan.

Replacing a cooling unit fan
CPC A0345301 (continued)



12 Slide the fan that has faults the rest of the way out of the cabinet.



13 Slide the replacement fan into the cabinet.

Replacing a cooling unit fan CPC A0345301 (continued)

14 Connect the electrical connector of the replacement fan to the corresponding electrical connector of the cabinet.

15 Determine if power for the cooling unit connects through a circuit breaker at the CPDC.

If the power for the cooling unit	Do
connects through a PDC	step 16
connects through a CPDC	step 17

At the front of the PDC

16 To insert the cooling unit fuses, push the fuse cartridges straight into the front panel of the PDC.

Go to step 18.

At the front of the CPDC

17

DANGER
Risk of injury
Electricity can arc when you throw a circuit breaker for the cooling unit. Wear eye protection.

Throw the circuit breakers for the cooling unit.

At the front of the cabinet

18 Determine if the replacement fan works.

If the replacement fan	Do
works	step 19
does not work	step 23

19 Reinstall the kickplate assembly.

Note: Step 8 shows the location of the kickplate assembly.

20 Reinstall the filter basket.

Note: Step 8 shows the location of the filter basket.

21 Reinstall the cooling unit intake grill.

Note: Step 8 shows the location of the cover mounting screws for the intake grill.

22 Close the cabinet doors.

Replacing a cooling unit fan
CPC A0345301 (end)

Go to step 24.

23 For additional help, contact the next level of support.

24 The procedure is complete.

Replacing a cooling unit fan CPC A0381714, A0382103, A0383325

Application

Use this procedure to replace a cooling unit fan. Use this procedure when the fan has one of the following common product codes (CPC), in a 42-in. DMS cabinet:

- A0381714
- A0382103
- A0383325

Note: The product engineering codes (PEC) for a 42-in. DMS cabinet are NT9X95AA and NT9X95BA.

Definition

Cooling unit fans cool the cabinet parts.

Common procedures

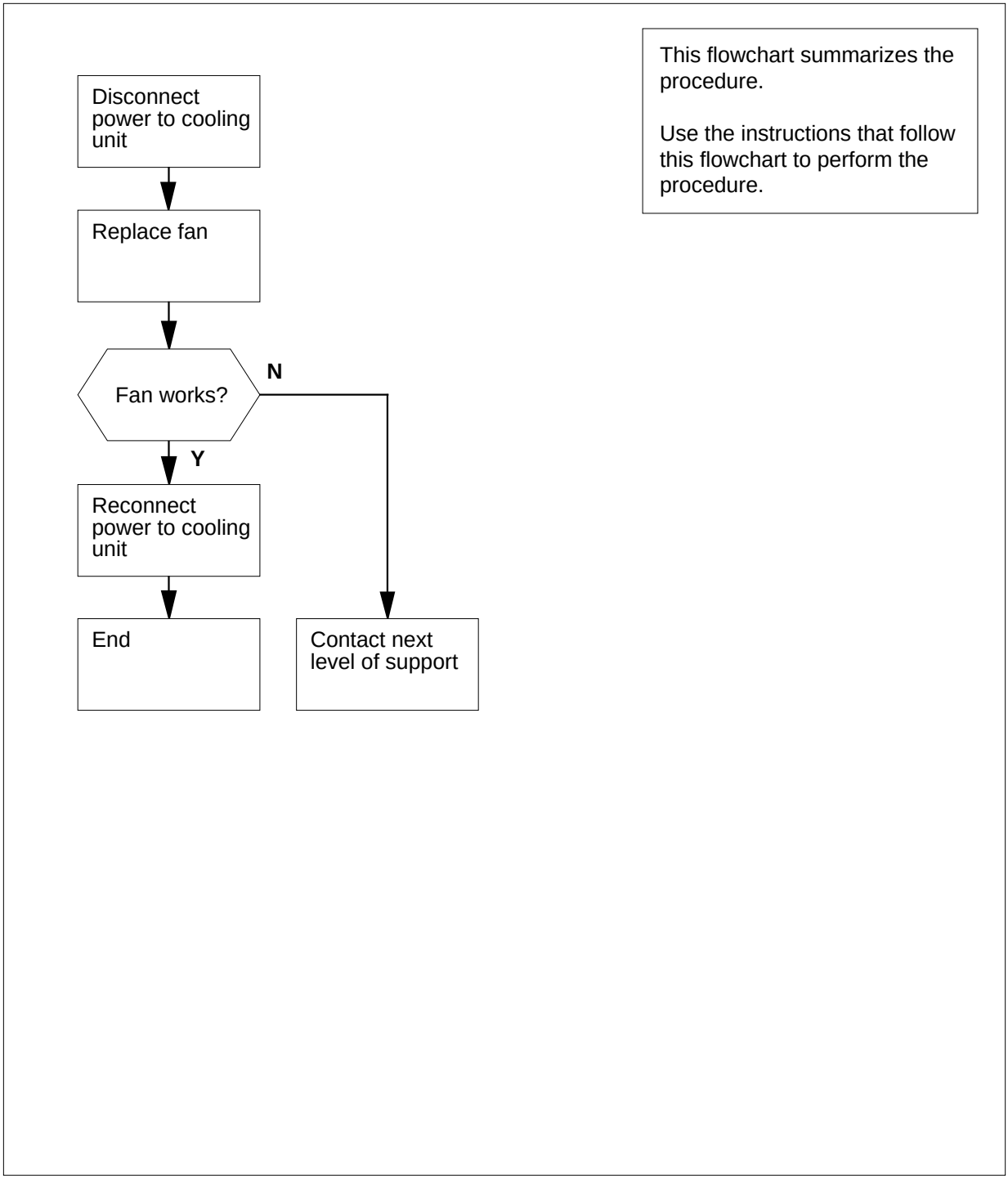
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Replacing a cooling unit fan
CPC A0381714, A0382103, A0383325 (continued)

Summary of Replacing a cooling unit fan



Replacing a cooling unit fan
CPC A0381714, A0382103, A0383325 (continued)

Replacing a cooling unit fan

At your current location

1

DANGER
Risk of injury or damage to equipment
When you replace a cooling unit, do not wear jewelry (for example, rings, bracelets, or necklaces).

WARNING
Possible equipment damage
Do not remove power to the cooling unit for more than 30 minutes. Extended removal of power can cause the unit to overheat and cause damage.

Obtain a replacement for the cooling unit fan.

Record the cabinet number.

Note: The cabinet number (for example, D00) is on the front of the cabinet, above the doors.

At the front of the cabinet

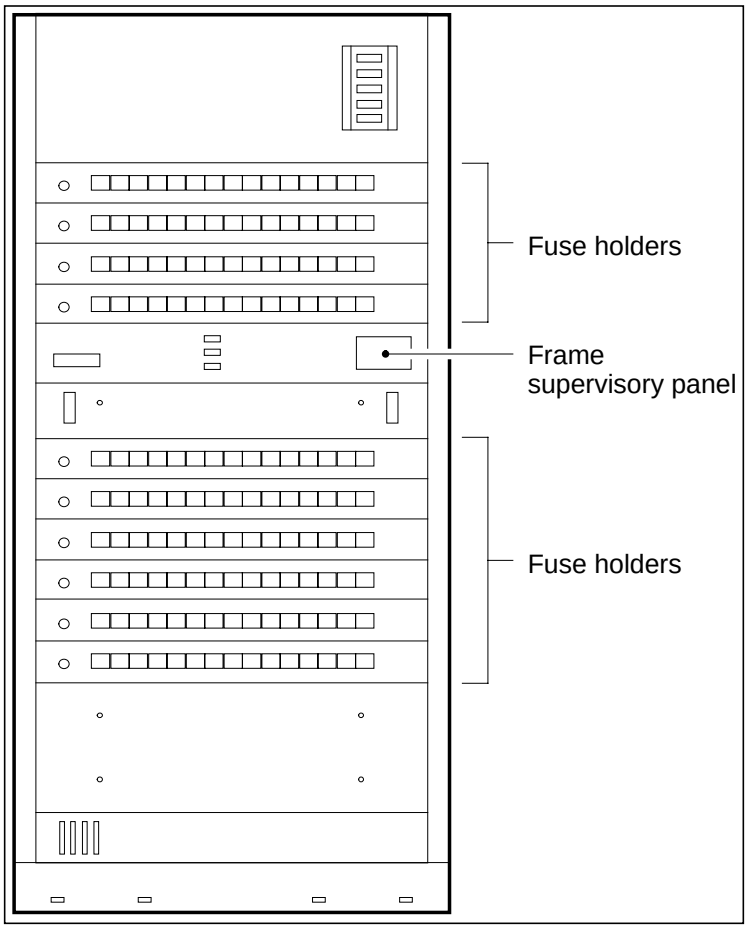
2 Consult office records or operating company personnel. Determine if power to the cooling unit connects through a power distribution center (PDC) or a cabinetized PDC (CPDC).

If power to the cooling unit	Do
connects through a PDC	step 3
connects through a CPDC	step 5

3 Locate the cooling unit fuses.

Note: The cooling unit fuse cartridges are on the front panel of the PDC. The fuse cartridges contain two cooling unit fuses. One fuse is for the side A power feed. The other fuse is for the side B power feed. The cabinet number (recorded in step 1) is above each fuse cartridge. The letters SN CU (SuperNode cooling unit) are below each fuse cartridge.

Replacing a cooling unit fan
CPC A0381714, A0382103, A0383325 (continued)



4

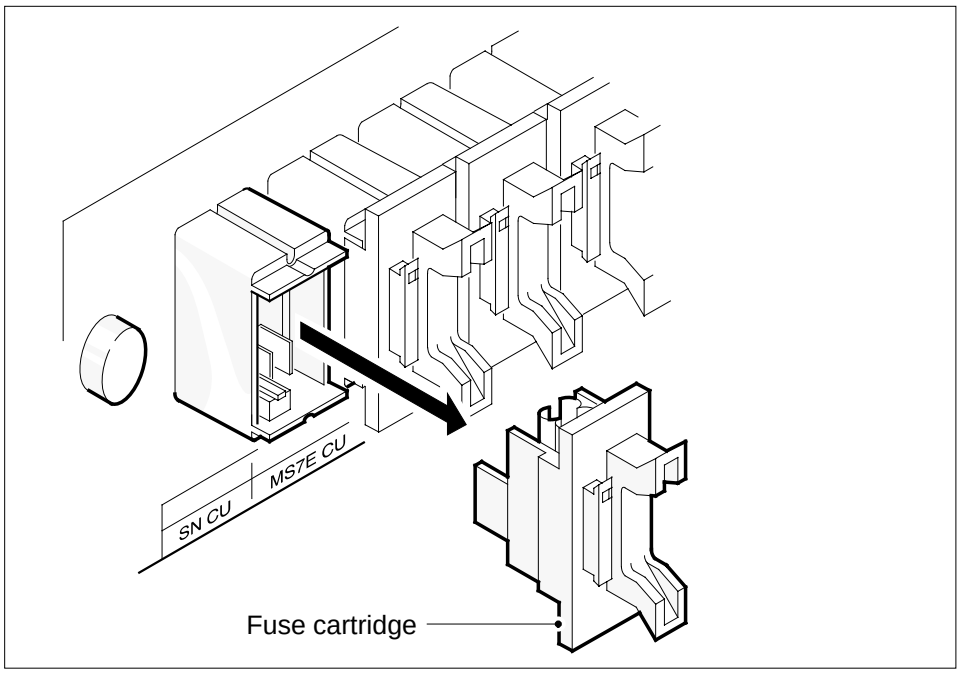
DANGER
Risk of injury
Electricity can arc when you remove a fuse cartridge from the cooling unit. Wear eye protection.

CAUTION
Possible loss of service
Remove only the cooling unit fuses. Removal of the wrong fuses can disconnect power to a critical hardware component and cause loss of service.

Replacing a cooling unit fan CPC A0381714, A0382103, A0383325 (continued)

To remove the cooling unit fuses, pull the fuse cartridges straight out from the front panel of the PDC.

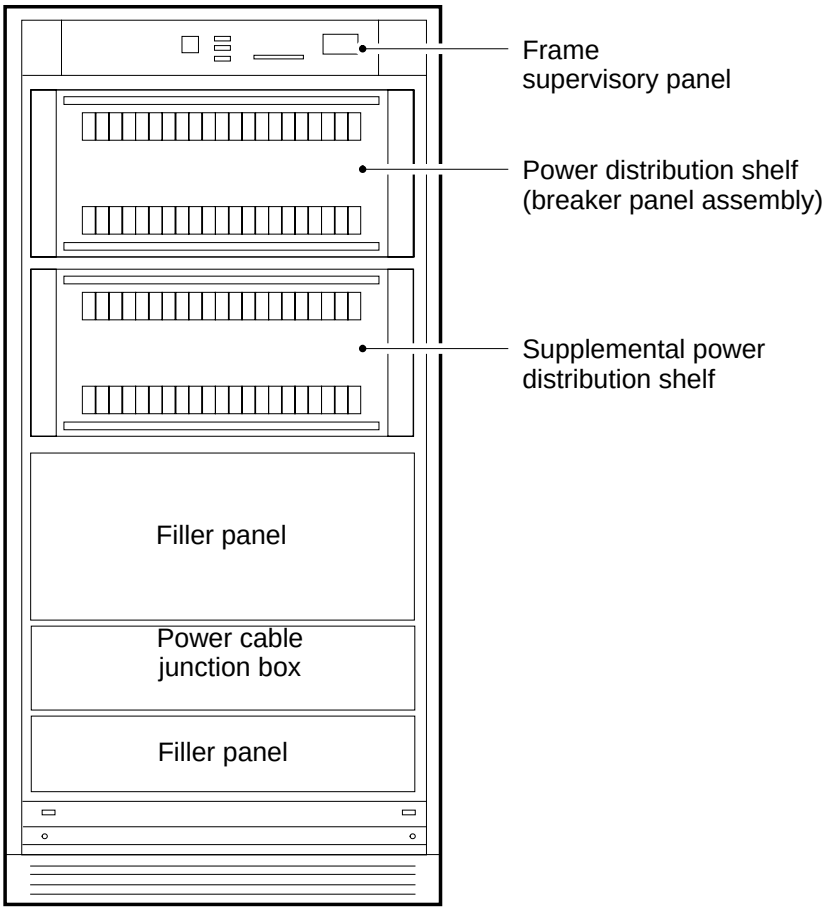
Note: When you remove the fuse cartridges, you remove power from the cooling unit. Removal of power from the cooling unit causes the fan failure lamp to turn ON. The fan failure lamp is at the top of the cabinet between the doors.



5 Locate the circuit breakers for the cooling unit.

Note: The two cooling unit circuit breakers are on the front panel of the CPDC. One circuit breaker is for the side A power feed. The other circuit breaker is for the side B power feed. The cabinet number (recorded in step 1) is above each breaker. The letters SN CU (SuperNode cooling unit) are below each breaker.

Replacing a cooling unit fan
CPC A0381714, A0382103, A0383325 (continued)



6

DANGER
Risk of injury
Electricity can arc when you throw circuit breakers for the cooling. Wear eye protection.

Replacing a cooling unit fan
CPC A0381714, A0382103, A0383325 (continued)

CAUTION
Possible loss of service
Make sure that you remove only the cooling unit fuses before you throw the circuit breakers. Removal of the wrong fuses can disconnect power to a critical hardware component and cause loss of service.

Throw the circuit breaker for the cooling unit.

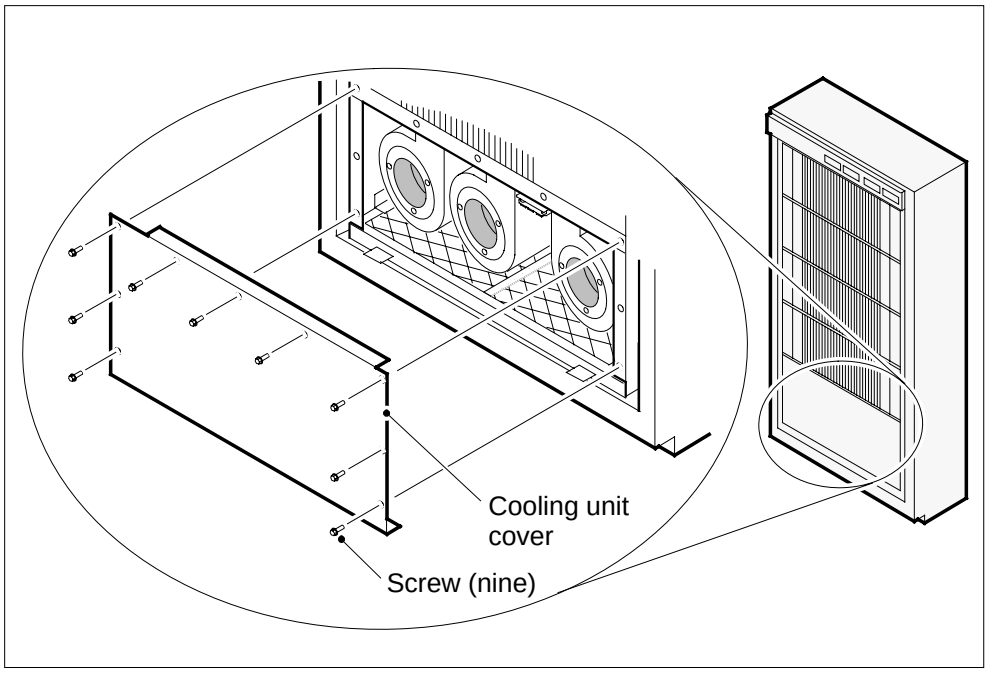
Note: When you throw the circuit breakers, you remove power from the cooling unit. Removal of power from the cooling unit can cause the fan failure lamp to turn on. The fan failure lamp is at the top of the cabinet between the doors.

At the front of the cabinet

7 Open the cabinet doors.

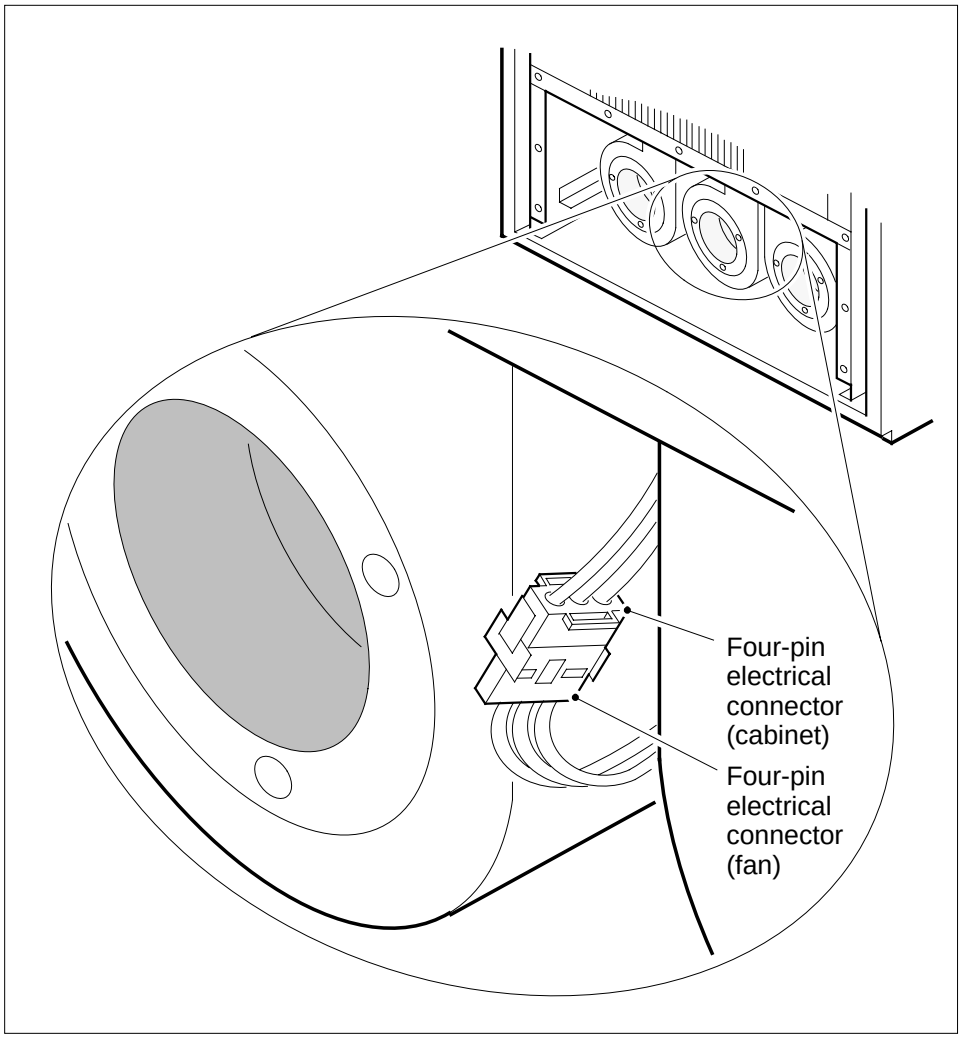
8 The cooling unit cover is at the bottom of the cabinet. To remove the cover, remove the nine mounting screws from the cover.

Note: Do not remove the four bolts that fasten the cooling unit to the cabinet. The procedure *Replacing a cooling unit assembly* in this document shows the location of the screws.



9 Slide the fan that has faults out of the cabinet so that you can disconnect the four-pin electrical connector of the fan.

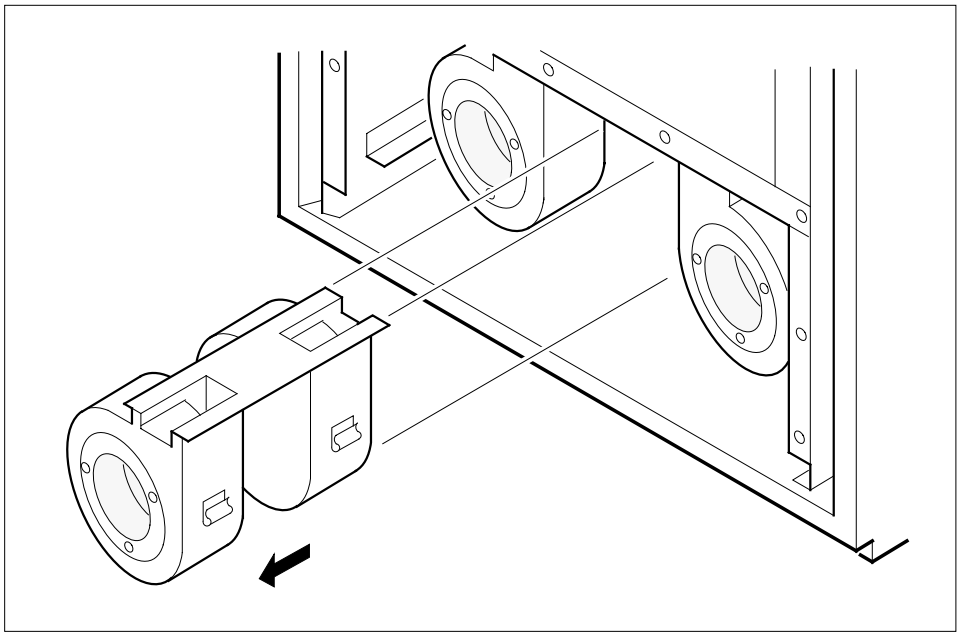
Replacing a cooling unit fan
CPC A0381714, A0382103, A0383325 (continued)



10 Disconnect the four-pin connector of the fan that has faults from the corresponding four-pin connector of the cabinet.

11 Slide the fan that has faults the rest of the way out of the cabinet.

Replacing a cooling unit fan CPC A0381714, A0382103, A0383325 (continued)



12 Slide the replacement fan part way into the cabinet.

13 Connect the four-pin electrical connector of the replacement fan to the corresponding four-pin electrical connector of the cabinet.

Note: Step 9 shows the location of the connector.

14 Slide the replacement fan the rest of the way into the cabinet.

15 Determine if power for the cooling unit connects through a circuit breaker at the CPDC.

If the power for the cooling unit	Do
connects through a PDC	step 16
connects through a CPDC	step 17

At the front of the PDC

16 To insert the cooling unit fuses, push the fuse cartridges straight into the front panel of the PDC.

Go to step 18.

Replacing a cooling unit fan CPC A0381714, A0382103, A0383325 (end)

At the front of the CPDC

17

DANGER
Risk of injury
Electricity can arc when you throw a circuit breaker for the cooling unit. Wear eye protection.

Throw the circuit breakers for the cooling unit.

At the front of the cabinet

18 Determine if the replacement fan works.

If the replacement fan	Do
works	step 19
does not work	step 21

19 Replace the cooling unit cover.

Note: Step 8 shows the location of the cover mounting screws.

20 Close the cabinet doors.

Go to step 22.

21 For additional help, contact the next level of support.

22 The procedure is complete.

Replacing cooling unit NTRX91AA

Application

Use this procedure to replace a cooling unit (NTRX91AA) that has faults in the following cabinetized frames:

- NTMX89FA; cabinetized remote switching center/line card module (CRSC/LCM)
- NTMX89FB: cabinetized remote switching center/integrated services digital network (CRSC/ISDN)
- NTMX90AB: Global Peripheral Platform (GPP) cabinet
- NTRX89FC: cabinetized extension module (CEXT)

Definition

Perform this procedure on a cooling unit that has faults. The illumination of the FAN FAIL indicator on the front of the modular supervisory panel (MSP) indicates a cooling unit that has faults.

Common procedures

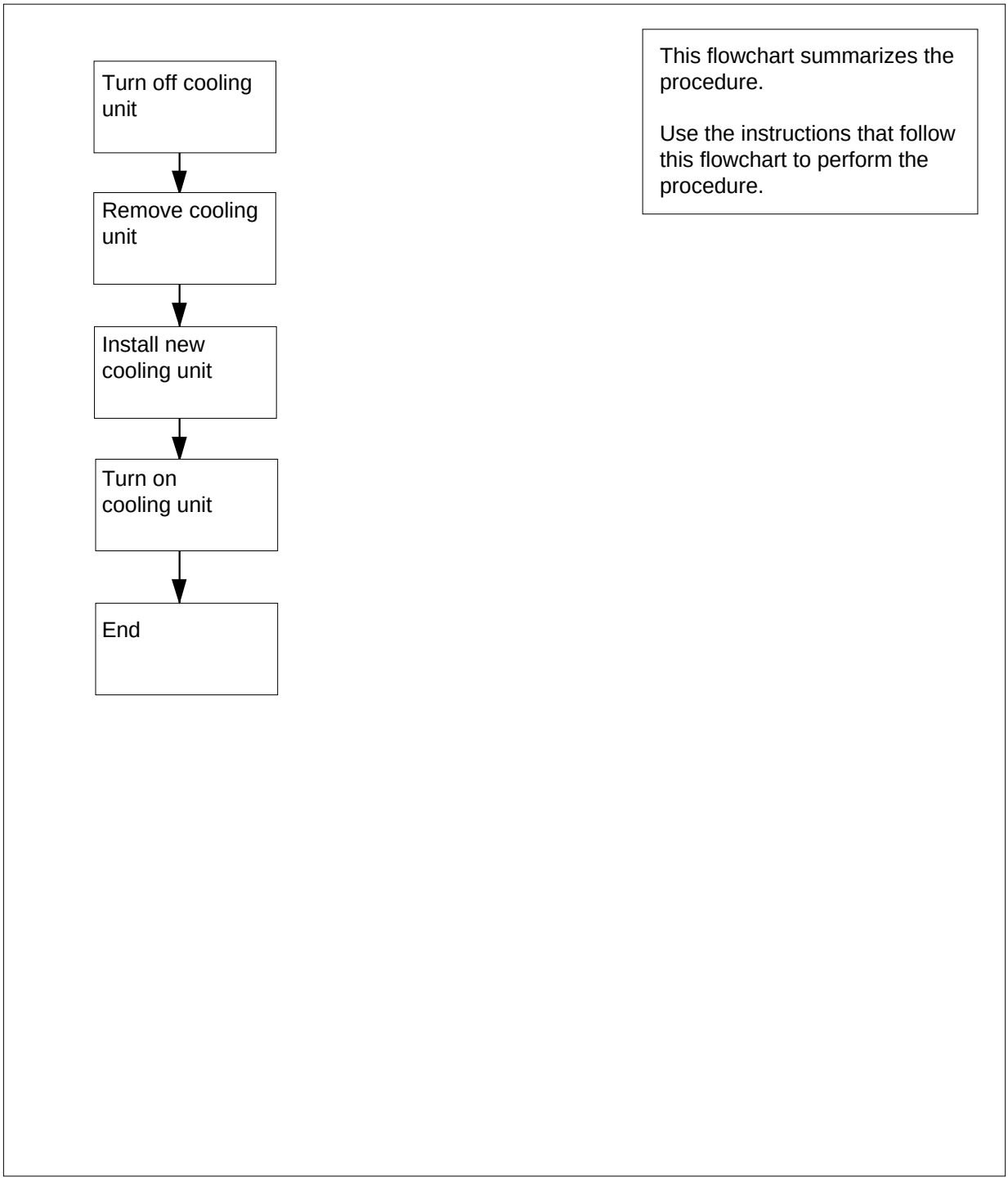
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Replacing cooling unit NTRX91AA (continued)

Summary of Replacing cooling unit NTRX91AA



Replacing cooling unit NTRX91AA (end)

Replacing cooling unit NTRX91AA

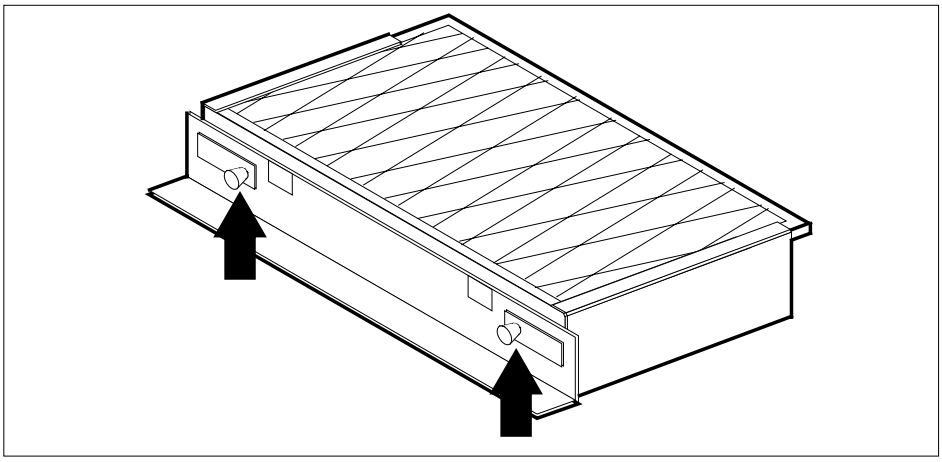
At your current location

1

DANGER
To prevent overheating
Do not turn off the cooling unit for longer than 30 mins.

To make sure that the cooling unit fans are off, remove the two fuses on the faceplate of the modular supervisory panel (MSP).

2 Turn the two knobs on the front panel of the cooling unit counter-clockwise. Slide the cooling unit out.



3 Slide in the new cooling unit (NTRX91AA) until both sides lock into place.

4 Replace the two fuses that you removed in step 1.

5 The procedure is complete.

Replacing a CU voltage limiter and filter in a 28-in. cabinet

Application

Use this procedure to replace a cooling unit (CU) voltage limiter and filter (NTNX13CA) in a 28-in. (0.711-m) cabinet.

Definition

The CU voltage limiter and filter limits the input voltage to 56 V.

Common procedures

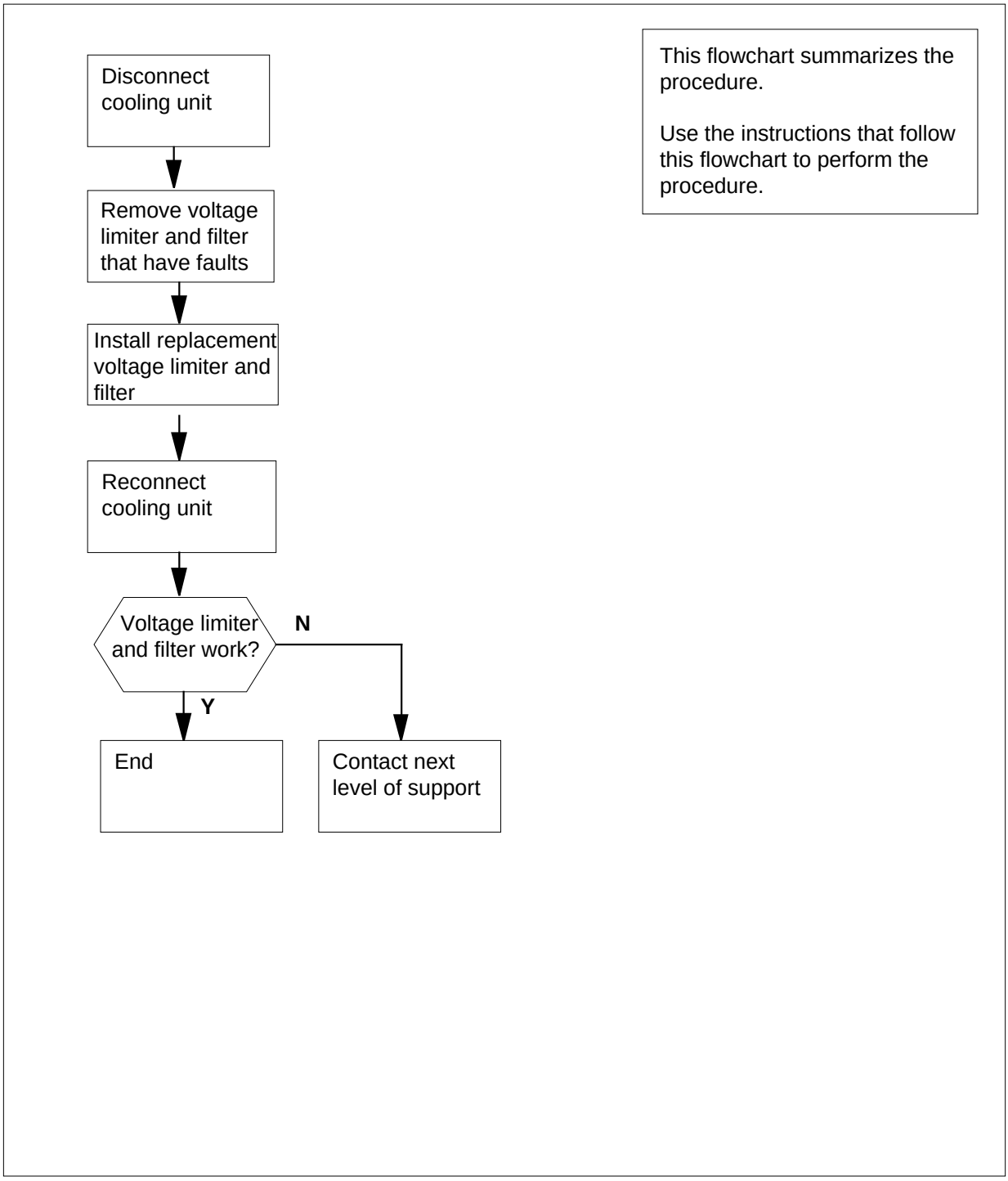
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Replacing a CU voltage limiter and filter in a 28-in. cabinet (continued)

Summary of Replacing a CU voltage limiter and filter in a 28-in. cabinet



Replacing a CU voltage limiter and filter in a 28-in. cabinet (continued)

Replacing a CU voltage limiter and filter in a 28-in. cabinet

At the rear of the cabinet

1

WARNING
Loss of cabinet cooling
Disconnection of the cooling unit for an extended period of time can cause the equipment in the cabinet to overheat.

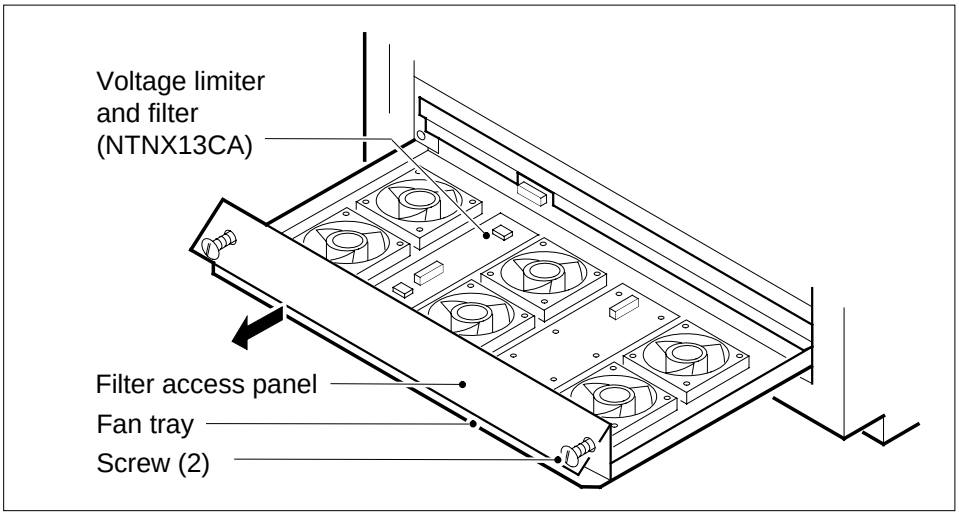
Open the cabinet doors.

2 Disconnect the 15-pin electrical connector of the fan tray from the cabinet. The connector of the fan tray at the bottom of the cabinet corresponds to the 15-pin connector of the cabinet.

At the front of the cabinet

3 Open the cabinet doors.

4 Loosen the two screws that hold the fan tray in place.



5 Slide the fan tray out of the cabinet.

Replacing a CU voltage limiter and filter in a 28-in. cabinet (continued)

6

WARNING
Static electricity damage
To handle circuit cards, wear a wrist strap that connects to a wrist-strap grounding point. A grounding point will be on the modular supervisory panel (MSP), or a frame supervisory panel (FSP). The wrist strap protects against static electricity damage.

Unplug the two connectors on the NTNX13CA card.

7 To remove the NTNX13CA card from the fan tray, pull on the card near each standoff that supports the fan tray. The standoffs have a snapoff tip so that the card pulls off without the requirement of any tools.

8 Align the holes of the new card with the standoffs.

9 Press down on the card near the standoffs until the card snaps into place.

10 Reconnect the two connectors to the replacement NTNX13CA.

11 Slide the fan tray back into the cabinet.

12 Tighten the two screws that hold the fan tray in place.

At the back of the cabinet

13 Reconnect the 15-pin electrical connector of the fan tray.

14 Close the cabinet doors.

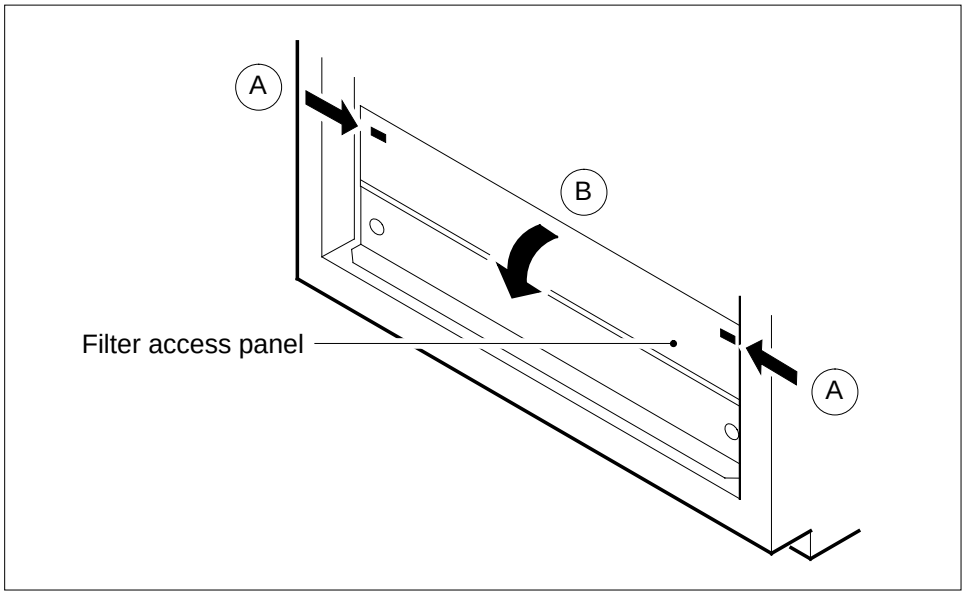
At the front of the cabinet

15

DANGER
Risk of personal injury
Contact with unshielded cabinet wiring can result in electric shock. Do not touch the cabinet wiring.

Open the filter access panel at the bottom of the cabinet. To open the panel, slide the catches toward each other (A) and swing the panel downward (B).

Replacing a CU voltage limiter and filter in a 28-in. cabinet (end)



16 Determine if the replacement NTNX13CA card operates.

Note: The LED on the NTNX13CA card is off, if the unit operates correctly.

If the LED	Do
is off	step 17
is on	step 19

17 Close the filter access panel.

18 Close the cabinet doors. Go to step 20.

19 For additional help, contact the next level of support.

20 The procedure is complete.

Replacing a digital audio tape (DAT) drive NTFX32CA

Application

Use this procedure to replace a digital audio tape (DAT) drive NTFX32CA.

Definition

The digital audio tape (DAT) drive is a data storage device on the storage media card NTFX32AA. Card NTFX32AA is in the input/output module (IOM). The integrated service module (ISM) shelf contains the IOM Replace any drive that has a fault and can no longer record. Do not copy files from any drive that has a fault. Backup files are available on the parallel device.

Common procedures

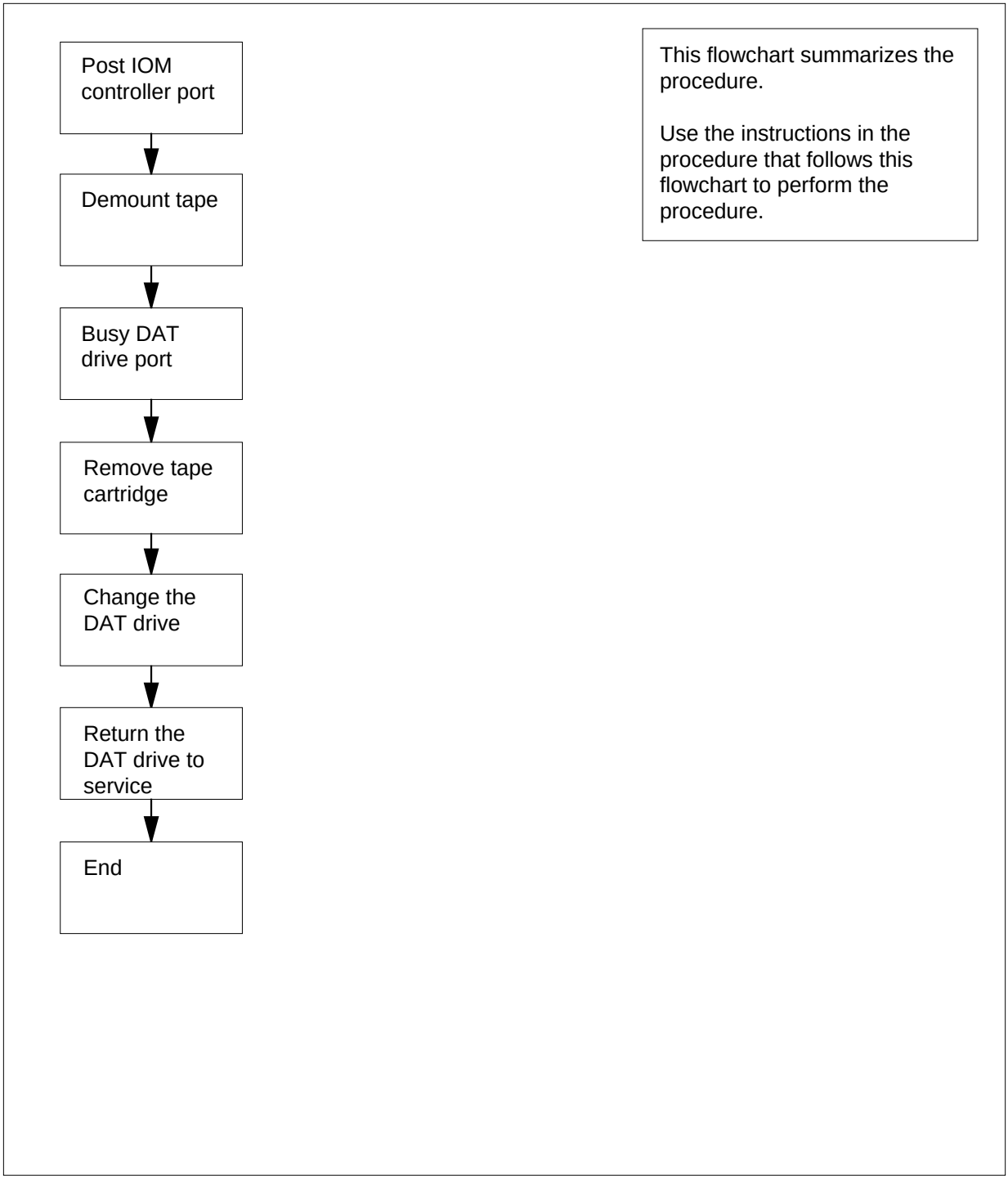
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Replacing a digital audio tape (DAT) drive
NTFX32CA (continued)

Summary of Replacing a digital audio tape (DAT) drive



Replacing a digital audio tape (DAT) drive
NTFX32CA (continued)

Replacing a digital audio tape (DAT) drive

At your current location

1 Obtain the following items:

- replacement tape drive assembly
- flat-blade screwdriver with a 1/4 in. (3-mm) blade

Obtain a shipping carton for the DAT drive that you will replace. When possible, use the carton of the new drive.

To access the IOD level of the MAP display, type

>MAPCI;MTC;IOD

and press Enter.

Example of a MAP display:

```
IOD
IOC  0  2  3
STAT .  .  S

DIRP: SMDR B XFER:   .   SLM:   .   NPO:   .   NX25:
MLP :   .    DPPP:   .   DPPU:  .   SCAI:
```

2 To post the input/output module (IOM) controller for the replaced DAT drive, type

>IOC ioc_no

and press Enter.

where

ioc_no
is the number of the affected IOM

Example of a MAP display:

```
IOC  PORT 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
(IOM)STAT . . . - . . -  - - .  -  -  -  -  -  - . .
0    TYPE C C C   C M        M                  S  S
          O O O   O T        P                  C  C
          N N N   N D        C                  S  S
```

Replacing a digital audio tape (DAT) drive
NTFX32CA (continued)

3 To post the port for the replaced DAT drive, type

>PORT port_no

and press Enter.

where

port_no
is the port number of the DDU device

Example of a MAP display:

```
Port 16     MTD 1       DevType     DAT
(SCSI)      TapeName    User
            Status      Idle
```

4 Record the number of the replaced DAT drive.

5 Notify all users that there will be an interruption in service for the device. Wait until all users stop use of the DAT drive before you proceed to the next step.

6 To demount a mounted DAT tape, type

>DEMOUNT Tmtd_no

and press Enter.

where

mtd_no
is the number of the affected MTD (DAT)

7 To manually busy the DAT drive port, type

>BSY

and press Enter.

Example of a MAP display:

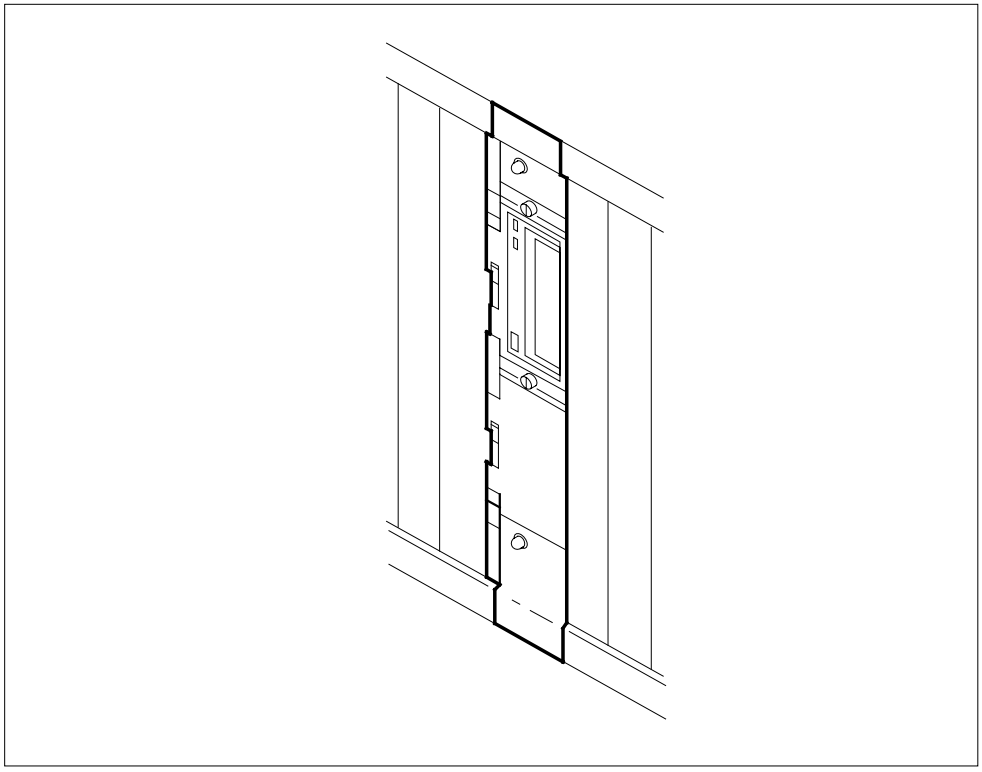
```
bsy
OK
```

If the BSY command	Do
passed	step 8
failed	step 19

Replacing a digital audio tape (DAT) drive NTFX32CA (continued)

At the ISM shelf

8 Find the NTFX32CA DAT drive unit that has a fault in the IOM storage media card NTFX32AA in slot 4 of the ISM shelf.



Check the LED on the media card faceplate.

If the LED	Do
is lit	step 10
is off	step 9

9 To replace the media card NTFX32, perform the correct procedure in *Card Replacement Procedures*.

10

DANGER
Possible loss of data
Force eject to recover a cartridge only for emergency purposes. Never use the method as a quick way to eject the cartridge. Data can become lost or the tape can format in the wrong way.

Replacing a digital audio tape (DAT) drive
NTFX32CA (continued)

Press the unload button at the front of the unit to remove the tape cartridge.

Note: The drive will perform an unload sequence. The tape rewinds to the beginning of partition (BOP) for partition 0. When the tape is write-enabled, the copy of the tape log writes back to tape. The tape rewinds to the beginning of media. The tape also unthreads and ejects from the mechanism.

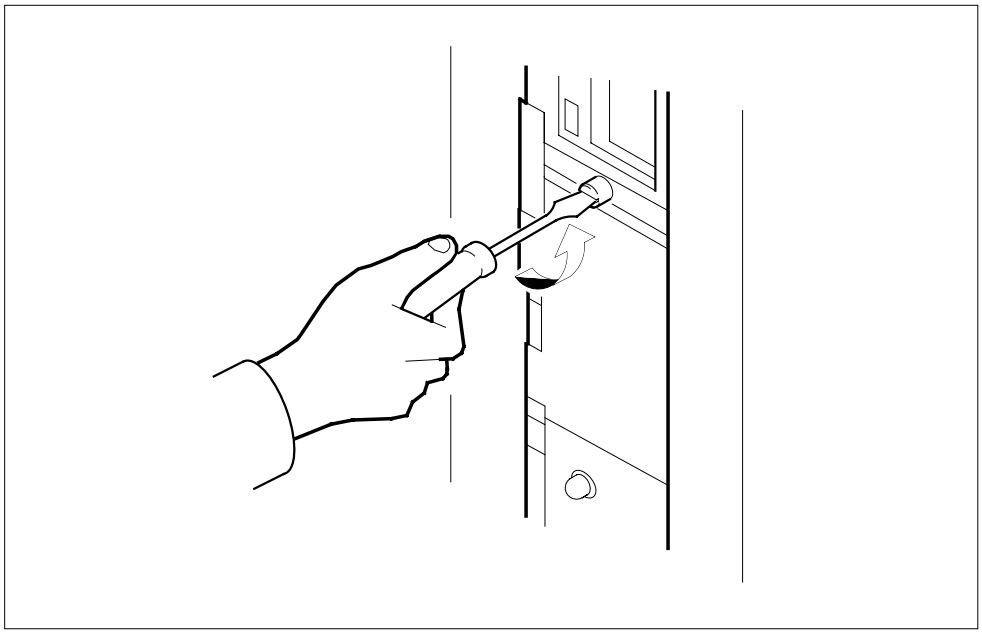
11

WARNING
Static electricity damage
To handle the drive unit, wear a wrist-strap that connects to a wrist-strap grounding point on the modular supervisory panel (MSP). The wrist-strap protects against static electricity damage.

Unscrew the spring-loaded lock mechanism located on the faceplate of the drive carrier. The drive carrier connects the DAT drive to the media card.

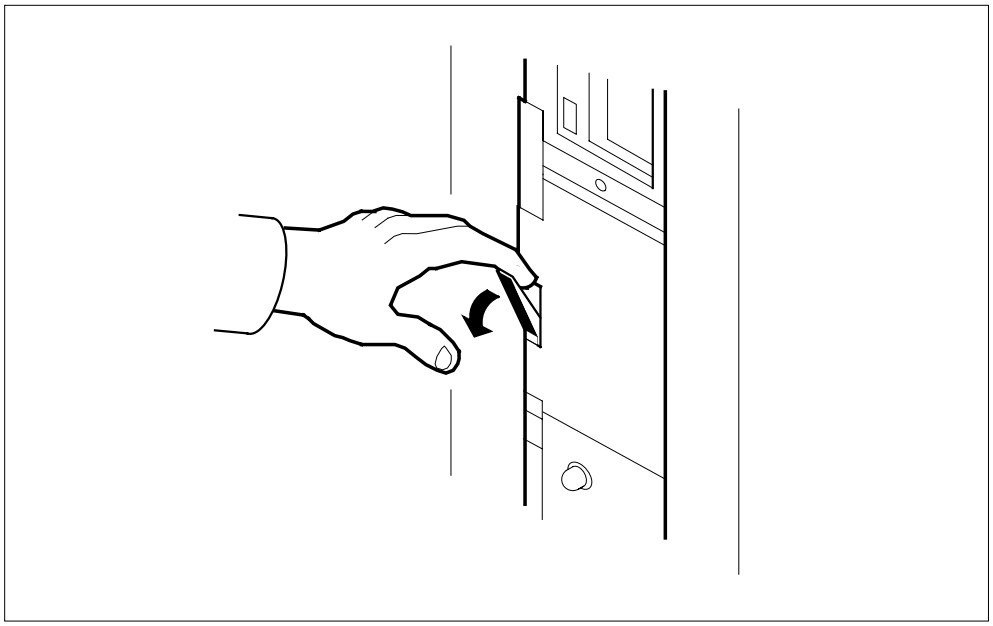
After the drive disconnects, the red LED will be ON and the green LED will be OFF.

Note: Unscrew the lock mechanism to its complete limit, before you use the ejector to remove the unit.

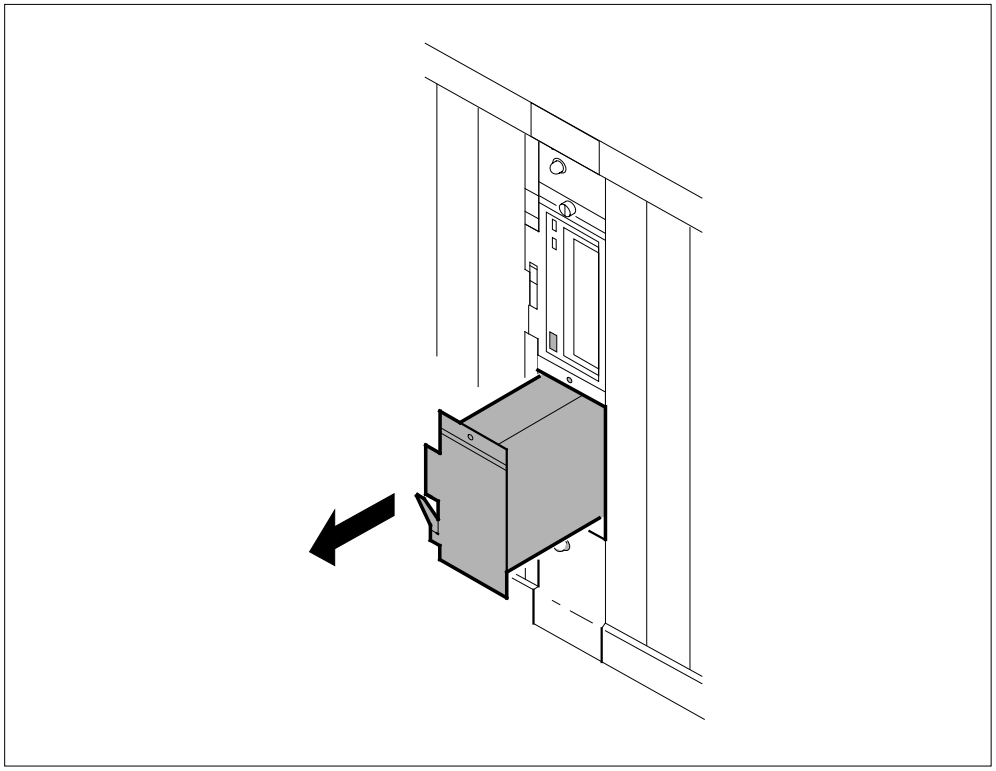


12 Pull down on the lock latch to push the DAT drive carrier away from the media card.

Replacing a digital audio tape (DAT) drive
NTFX32CA (continued)



13 Remove the DAT drive and the carrier. Pull the drive and carrier straight out of the media card.



Replacing a digital audio tape (DAT) drive
NTFX32CA (continued)

14

WARNING
Ejector arm damage
Ensure that the ejector arm on the faceplate is flat and in the up position before you insert the DDU in the media card faceplate. Failure to complete this procedure can result in ejector arm damage.

Insert the new DAT unit through the aperture in the media card faceplate. Ensure that the connector at the end of the unit plugs into the receptacle on the card. Lock the unit in position with the lock latch.

Reconnect the drive unit with the media card. Turn the spring-loaded lock mechanism to the right to make the connection between the new unit and the media card.

After the drive connects, the green LED will be ON and the red LED will stay OFF.

15

DANGER
Use correct tape cartridges
Use cartridges with the digital data storage (DDS) logo on a label. The drive unit will support DDS/DDS-1 cartridges only. The drive will reject DDS-2 cartridges during the load operation.

Insert the tape cartridge that you removed in step 10 into the drive. The drive will take the cartridge and perform a load sequence.

At the MAP display

16 To access the port level of the MAP display for the DAT drive, type

```
>MAPCI;MTC;IOC ioc_no;PORT port_no
```

and press Enter.

where

ioc_no
is the number of the input/output module that houses the DAT unit you are working on

port_no
is the number of the IOM port connected to the DAT unit

Example of a MAP display:

Replacing a digital audio tape (DAT) drive NTFX32CA (end)

```
Port 16     MTD 1       DevType     DAT
(SCSI)      TapeName    User
            Status      Idle
```

17 To return the DAT to service, type

>RTS

and press Enter.

If the RTS command	Do
passed	step 18
failed	step 19

18 To remount the removed tape, type

>MOUNT mtd_no

and press Enter.

where

mtd_no
is the number of the MTD (DAT)

Go to step 20.

19 For additional help, contact the person responsible for the next level of support.

20 The procedure is complete.

Replacing a door gasket

Application

Use this procedure to replace a door gasket that has faults. The door gasket is on model A C28, model B C28 and model A C42 doors.

The following product codes are available for the types of doors listed below:

On model A C28 door:

- P0691073 (EMI gasket, vertical)
- P0691074 (EMI gasket, horizontal)

On model B C28 door:

- P0738895 (EMI gasket, vertical)
- P0738894 (EMI gasket, horizontal)

On model A C42 door:

- P0691073 (EMI gasket, vertical)
- P0691074 (EMI gasket, horizontal)

Note: This procedure does not apply to gaskets for model B C28 (release issue 2) and model B C42 doors. These doors use a gasket that does not have an adhesive backing.

Definition

Perform this procedure if a gasket has faults.

Common procedures

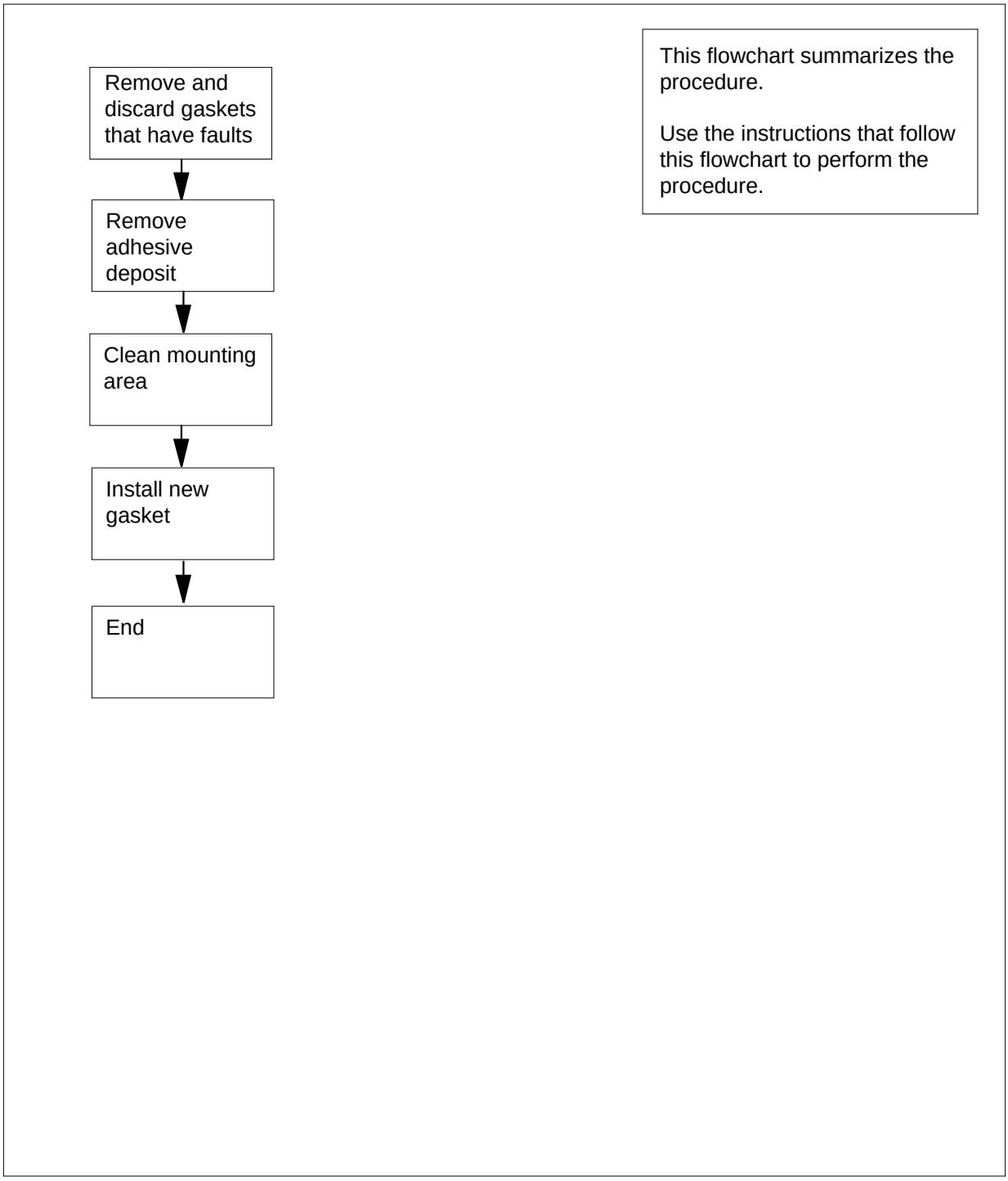
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Replacing a door gasket (continued)

Summary of Replacing a door gasket



Replacing a door gasket (end)

Replacing a door gasket

At the front of the cabinet

1 Remove and discard the gasket that has faults.

2 Remove the adhesive deposit from the mounting surface of the inside door panel.

Note: Apply a petroleum-based cleaner with a lint-free industrial wiper.

3 Use a lint-free industrial wiper to clean the mounting area with a degreasing solvent (for example, isopropyl alcohol).

Note: Let the surface dry before you install the new gasket.

4 Peel off the release tape from the adhesive backing of the gasket. Install the gasket in place.

Note: Press the gasket down to ensure that it adheres correctly to the surface of the door.

5 Close the doors carefully. Allow the adhesive to cure for 24 hours.

6 The procedure is complete.

Replacing a fan in a 28-in. cabinet

Application

Use this procedure to replace a fan in a 28-in. (0.711-m) cabinet.

Definition

A fan cools the components of the cabinet.

Common procedures

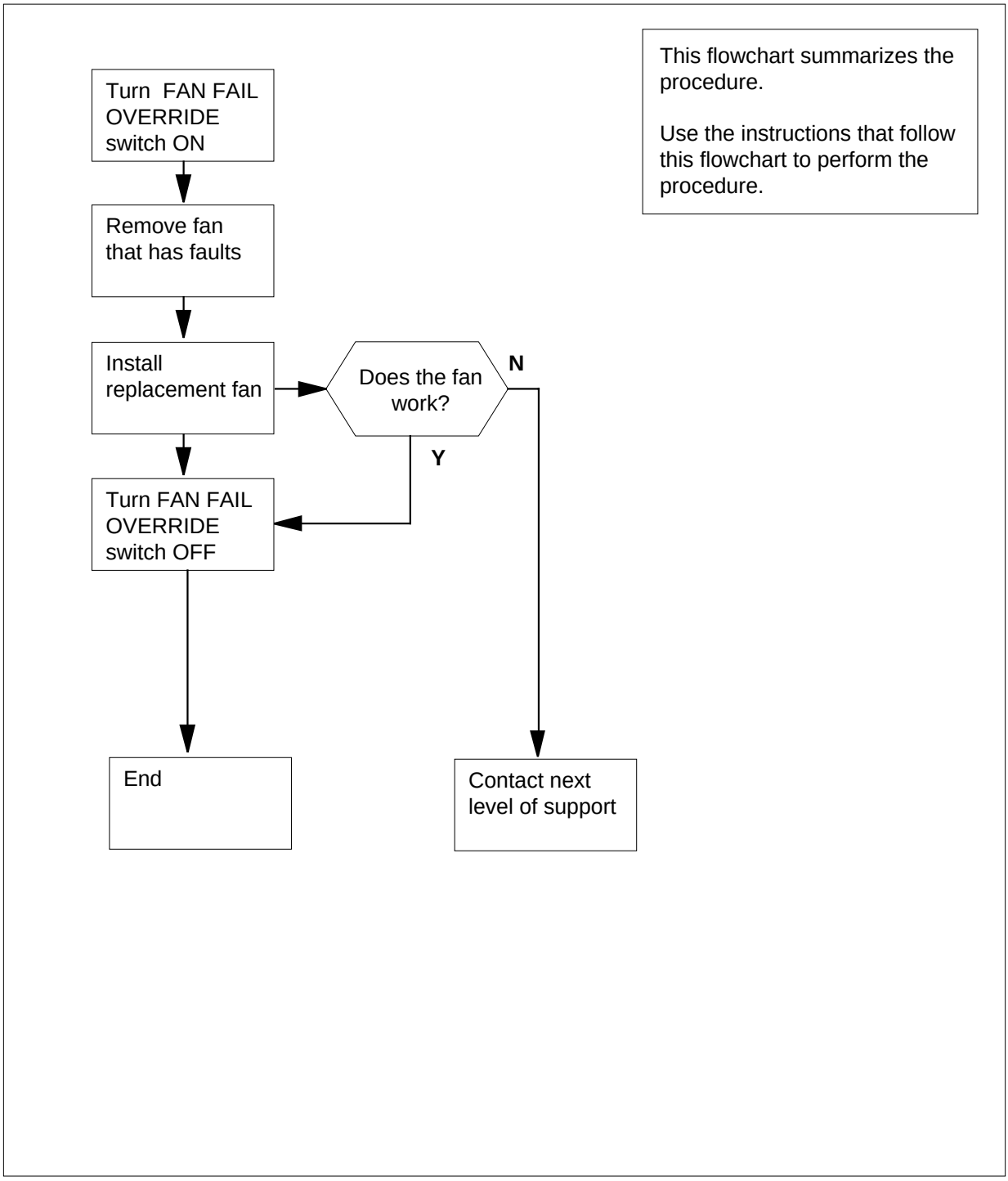
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Replacing a fan in a 28-in. cabinet (continued)

Summary of Replacing a fan in a 28-in cabinet



Replacing a fan in a 28-in. cabinet (continued)

Replacing a fan in a 28-in. cabinet

At the front of the cabinet

1 Open the cabinet doors.

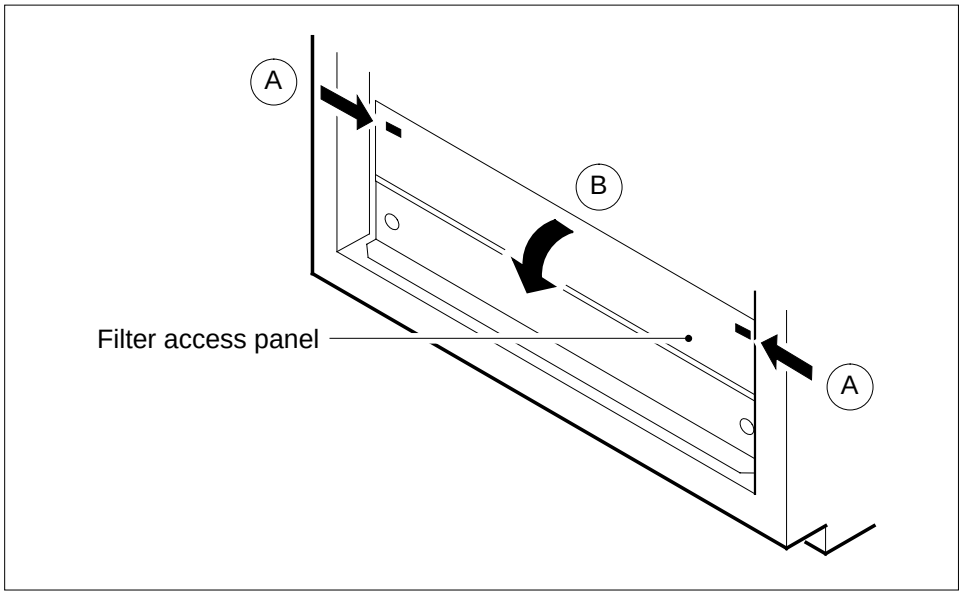
2

DANGER
Risk of personal injury
A risk of electrocution exists. Avoid contact with the cabinet wiring.

DANGER
Risk of personal injury
Avoid contact with the rotating fan blades.

Turn the FAN FAIL OVERRIDE switch ON.

3 Locate the filter access panel at the bottom of the cabinet. To open the panel, slide the catches toward each other (A) and swing the panel down (B).



4 Record which fan has faults.

Replacing a fan in a 28-in. cabinet (continued)

At the back of the cabinet

5 Open the cabinet doors.

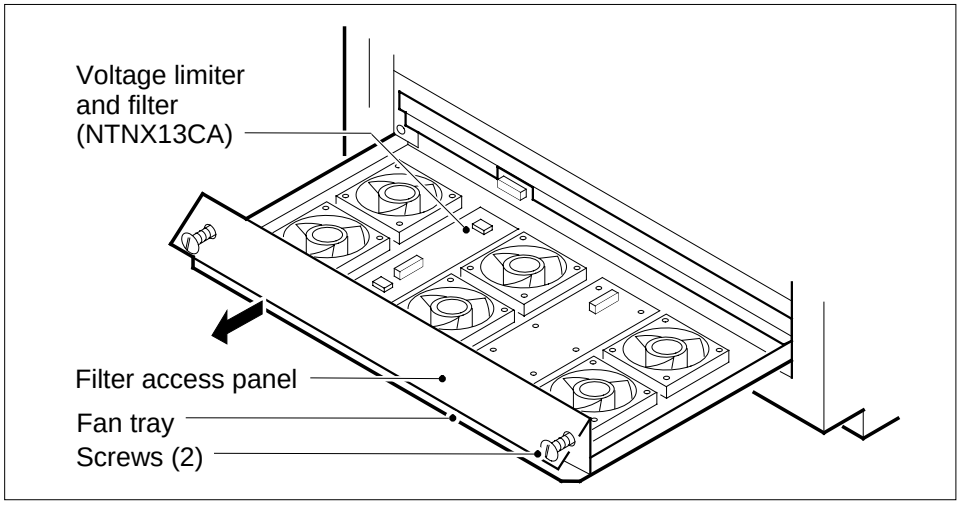
6

WARNING
Loss of cabinet cooling
The equipment can overheat if you leave the fan disconnected for an extended period of time.

Locate the ten-pin electrical connector for the fan tray at the bottom of the cabinet. Disconnect the fan tray connector from the corresponding ten-pin connector on the cabinet.

At the front of the cabinet

7 Loosen the two screws that hold the fan tray in place.



8 Slide the fan tray out of the cabinet.

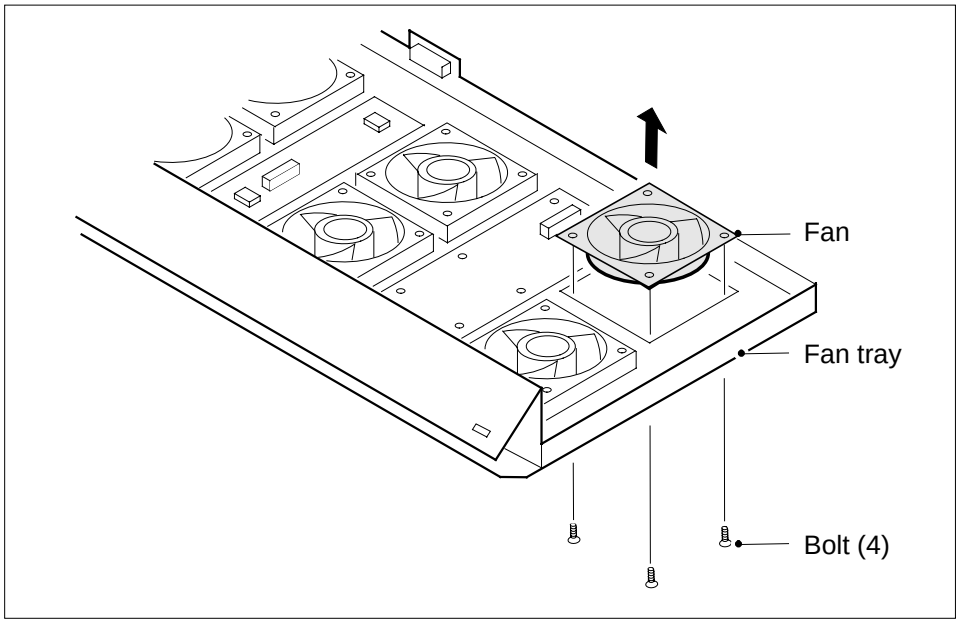
9 Note the positive and negative electrical connections of the fan.

10 Locate the two electrical connectors on the fan tray. Unplug the two electrical connectors on the fan tray from the corresponding connectors on the fan that has faults.

11 Note the position of the fan that has faults (top and bottom, left and right).

12 Unscrew the four bolts that hold the fan in place.

Replacing a fan in a 28-in. cabinet (continued)



13 Remove the fan that has faults.

14 Position the replacement fan on the fan tray in the same position used for the fan that has faults.

15 Screw the four bolts into the fan from the bottom of the tray.

16 Plug the two electrical connectors on the fan tray into the corresponding connectors on the fan.

17 Slide the fan tray back into the cabinet.

18 Tighten the two screws that hold the fan tray in place.

At the back of the cabinet

19 Connect the ten-pin electrical connector on the fan again.

20 Close the cabinet doors.

At the front of the cabinet

21 Determine if the replacement fan works.

If the replacement fan	Do
works	step 22
does not work	step 25

22 Close the filter access panel.

23 Turn OFF the FAN FAIL OVERRIDE switch.

24 Close the cabinet doors. Go to step 26.

25 For additional help, contact the next level of support.

Replacing a fan in a 28-in. cabinet (end)

26 The procedure is complete.

Replacing a fan in a 28-in. frame

Application

Use this procedure to replace a fan in a 28-in. (0.635-m) frame.

Definition

A fan cools the components of a frame.

Common procedures

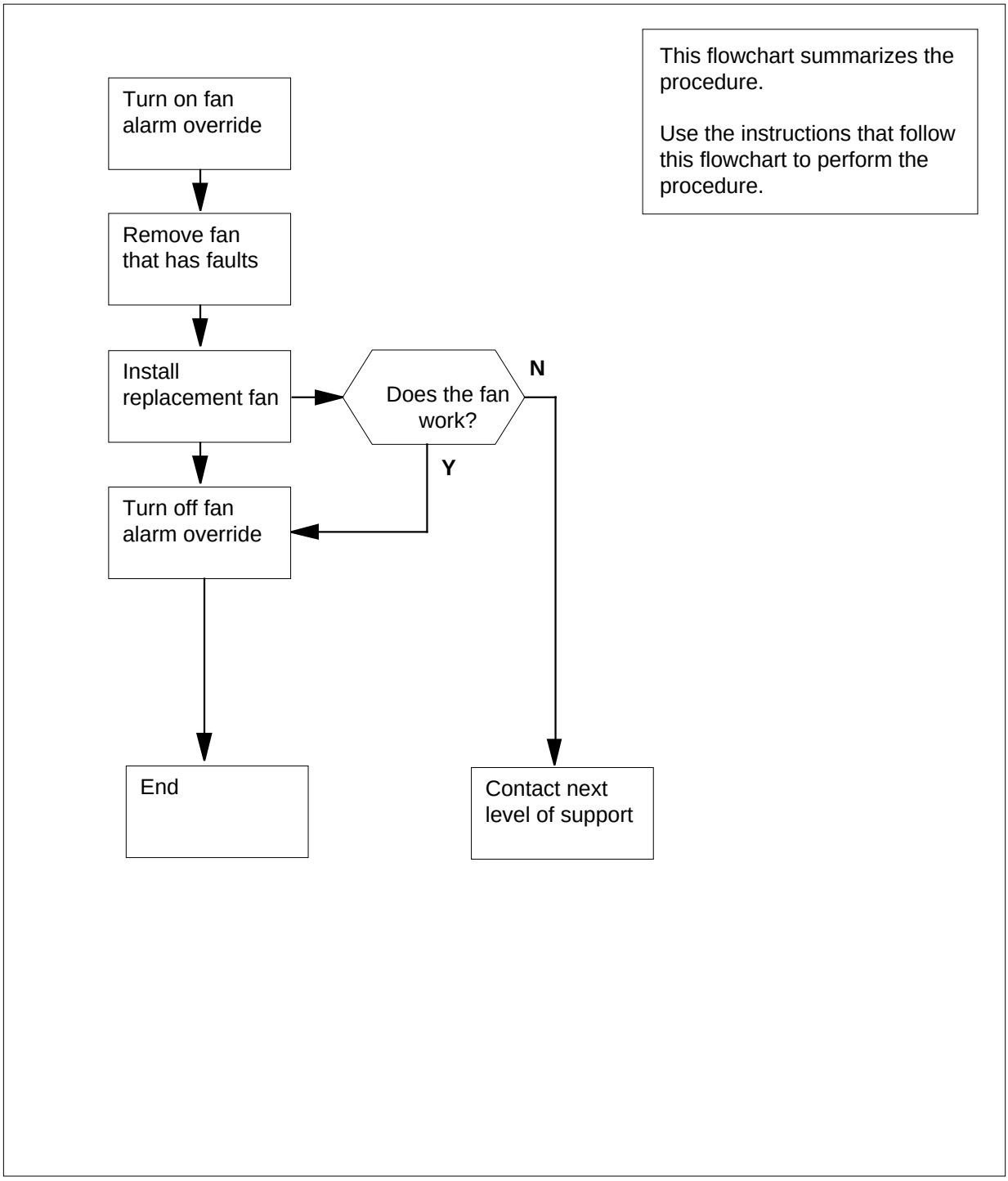
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

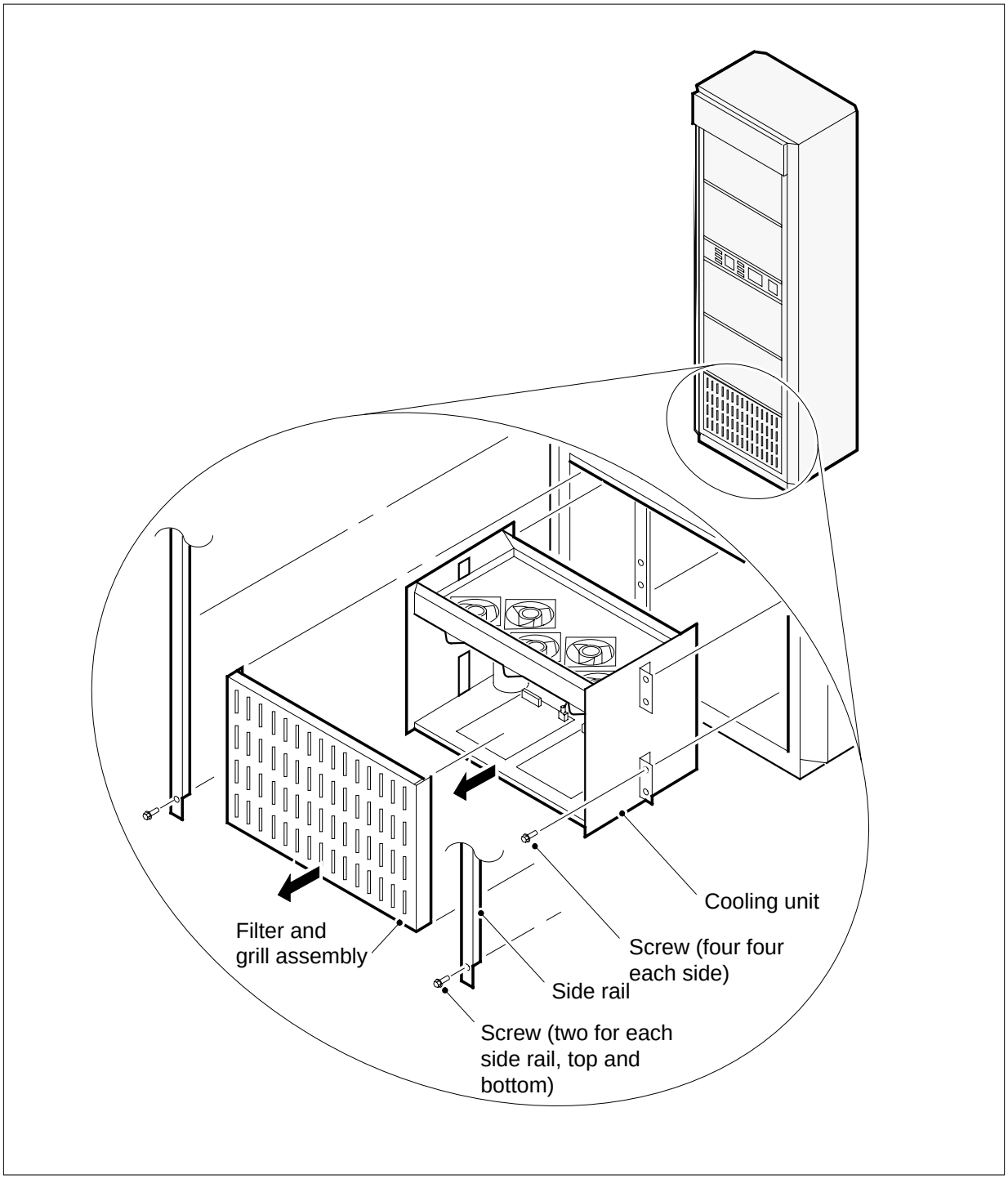
Replacing a fan in a 28-in. frame (continued)

Summary of Replacing a fan in a 28-in. frame



Replacing a fan in a 28-in. frame (continued)

Summary of Replacing a fan in a 28-in. frame



Replacing a fan in a 28-in. frame (continued)

Replacing a fan in a 28-in. frame

At the front of the frame

1 Turn ON the override switch for the fan alarm on the frame supervisory panel (FSP).

2 Remove the filter panel at shelf 04.

3 To determine the fan that has faults, look from below the fan tray.

4

DANGER
Risk of injury
Avoid contact with the cabinet wiring to prevent risk of electrocution.

Remove the side rails on the frame.

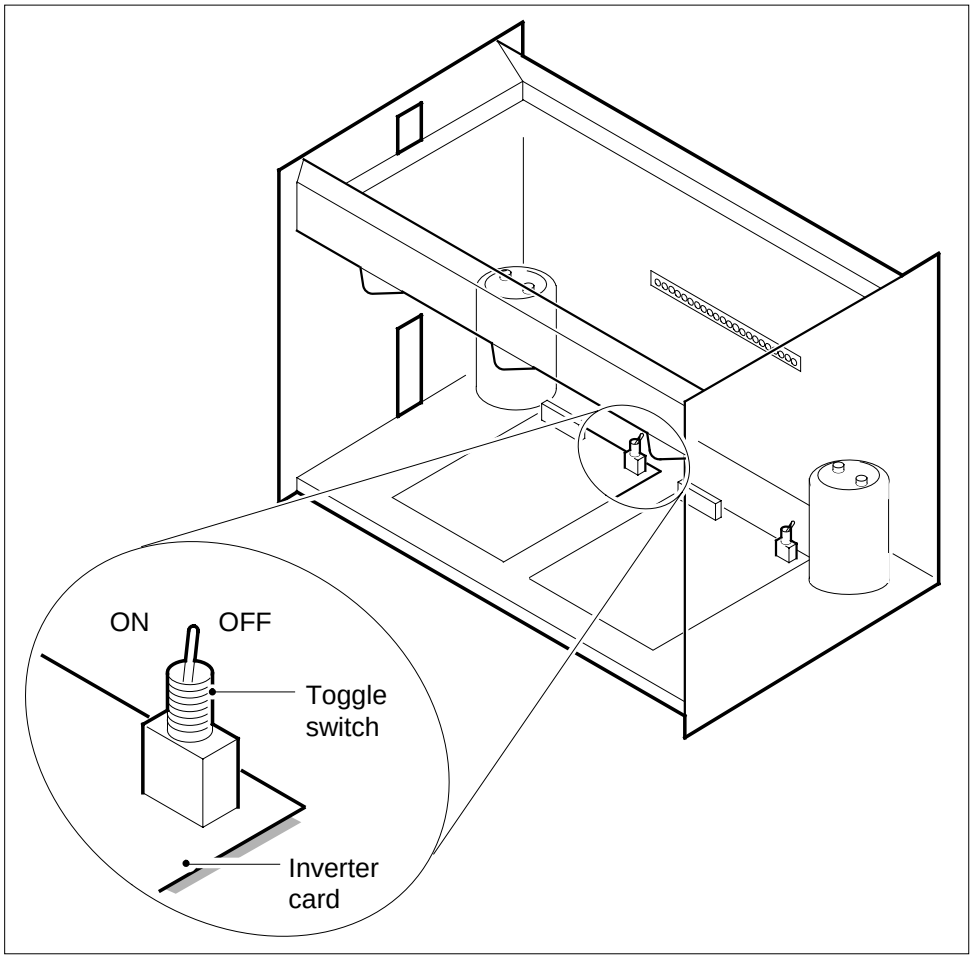
5

DANGER
Loss of frame cooling
Disconnection of the fan for an extended period of time can cause the equipment in the frame to overheat.

Remove the four screws on each side of the cooling unit.

6 Turn OFF the two switches on each of the inverter cards.

Replacing a fan in a 28-in. frame (continued)



7 Slide the fan tray out of the frame.

8 Note the positive and negative electrical connections of the fan that has faults.

9 Unplug the electrical connector of the fan that has faults.

10 Unplug the electrical connectors to each of the inverter cards.

11 Note the position of the fan that has faults (top and bottom, left and right).

12 Remove the fan.

13 Position the replacement fan that has faults on the fan tray with the same position as the fan.

14 Screw the four bolts into the fan from the bottom of the tray.

15 Plug the two electrical connectors on the fan tray into the corresponding connectors of the fan.

16 Plug the electrical connector on the fan that has faults.

Replacing a fan in a 28-in. frame (end)

17

DANGER
Risk of injury
Avoid contact with the fan blades that rotate.

Plug the electrical connectors into each of the inverter cards.

18 To determine if the replacement fan operates, turn ON the toggle on the correct inverter card.

If the replacement fan	Do
works	step 19
does not work	step 24

19 Turn OFF the switch on the inverter card. Slide the fan tray back into the frame.

20 Turn ON the switches on the two inverter cards.

21 Mount the four screws on each side of the cooling unit.

22 Mount the screws on the side rails of the frame.

23 Turn OFF the override switch for the fan alarm.

24 For additional help, contact the next level of support.

25 The procedure is complete.

Replacing a fan in a 42-in. cabinet

Application

Use this procedure to replace a fan with one of the following common product codes (CPC) in a 42-in. (1.07 m) DMS cabinet:

- A0381714
- A0383325
- A0382103

Note: The product engineering codes for a 42-in. DMS cabinet are NT9X95AA and NT9X95BA.

Definition

Cooling unit fans cool the cabinet components.

Common procedures

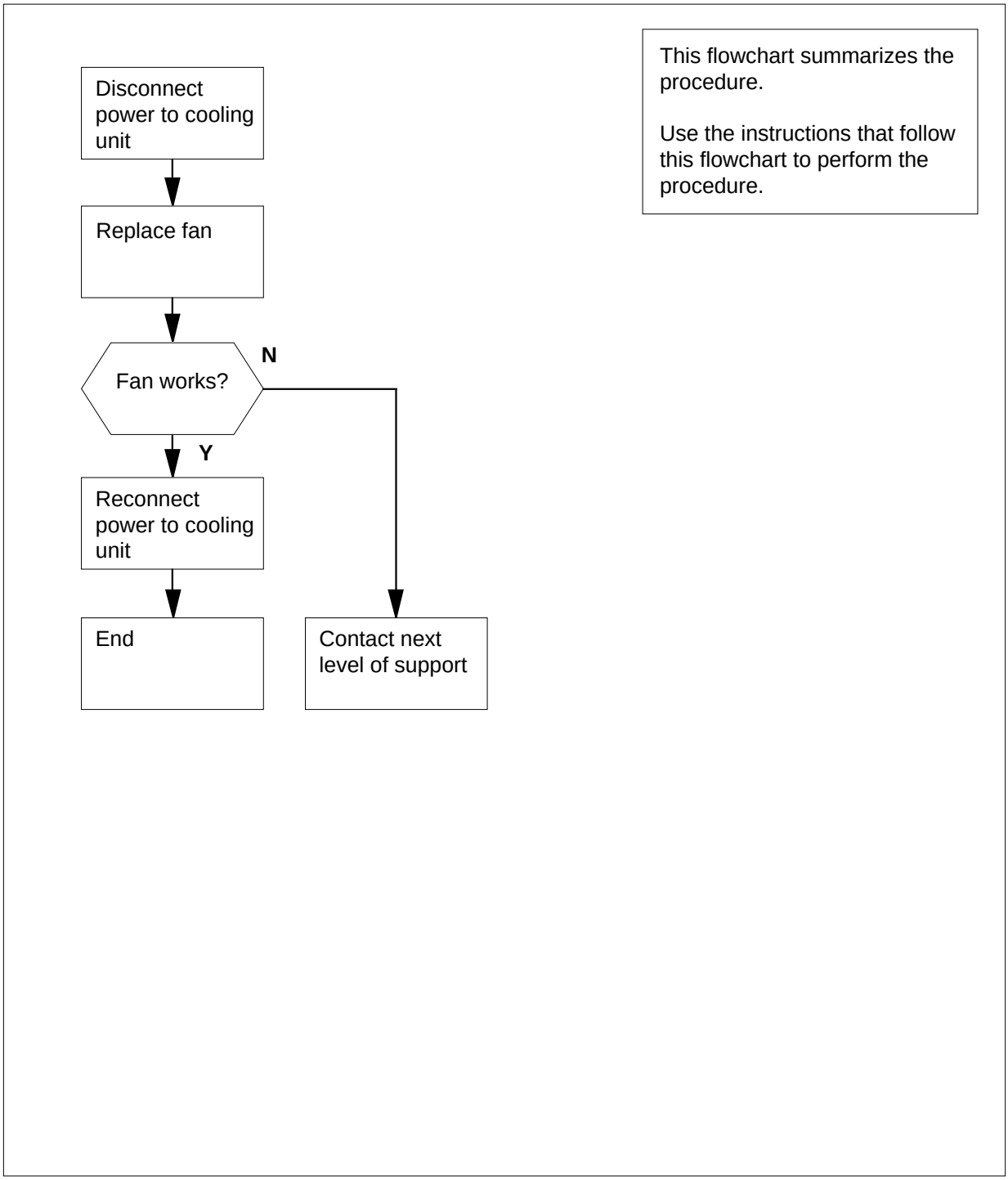
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Replacing a fan in a 42-in. cabinet (continued)

Summary of Replacing a fan in a 42-in. cabinet



Replacing a fan in a 42-in. cabinet (continued)

Replacing a fan in a 42-in. cabinet

At your current Location

1

DANGER
Risk of injury or damage to equipment
When you replace a cooling unit, do not wear jewelry, (for example, rings, bracelets or necklaces).

WARNING
Possible equipment damage
Do not remove power to the cooling unit for more than 30 minutes. Extended removal of power can cause the equipment to overheat and cause damage.

Obtain a replacement for the cooling unit fan.

At the front of the cabinet

2 Record the cabinet number.

Note: The cabinet number (for example D00) is on the front of the cabinet, above the doors.

3 Consult office records or operating company personnel. Determine if power to the cooling unit connects through a power distribution center (PDC) or a cabinetized PDC (CPDC).

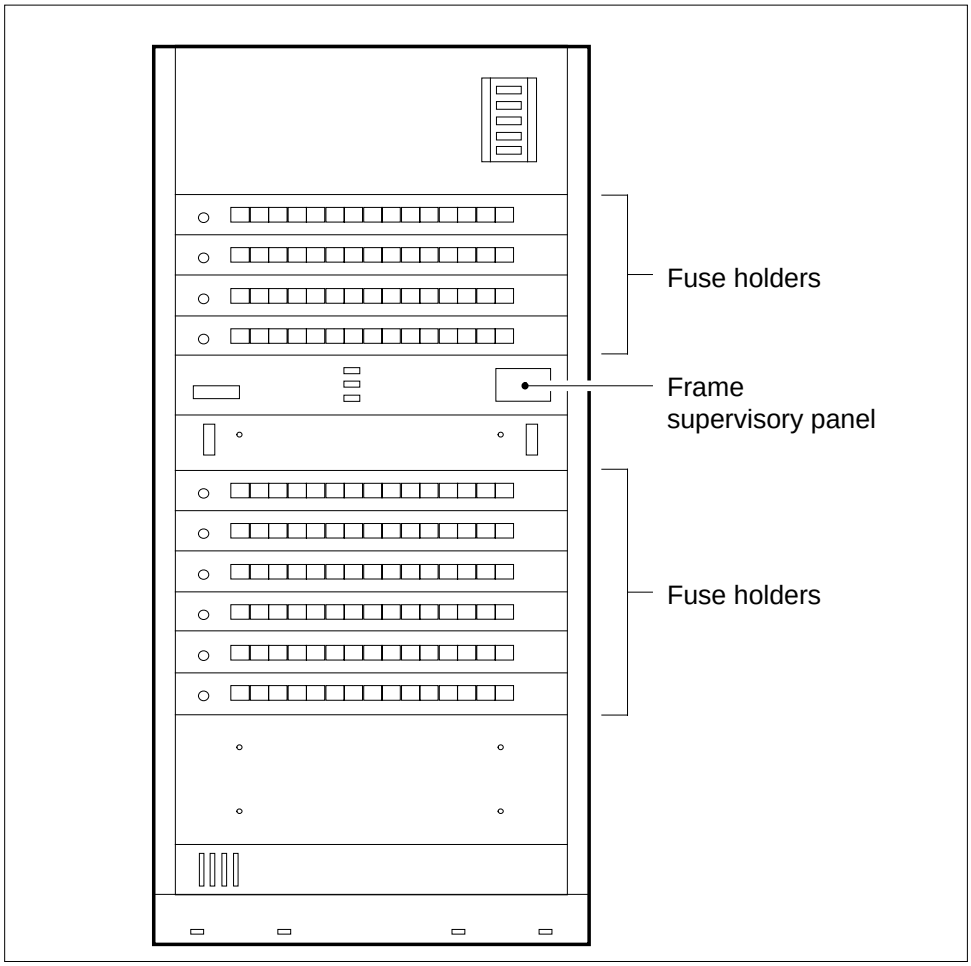
If power to the cooling unit	Do
connects through a PDC	step 4
connects through a CPDC	step 6

At the front of the PDC

4 Locate the cooling unit fuses.

Note: The cooling unit fuse cartridges are on the front panel of the PDC. The fuse cartridges contain two cooling unit fuses. One fuse is for the side A power feed and the other fuse for the side B power feed. The cabinet number (recorded in step 2) is above each fuse cartridge. The letters SN CU (SuperNode cooling unit) are below each fuse cartridge.

Replacing a fan in a 42-in. cabinet (continued)



5

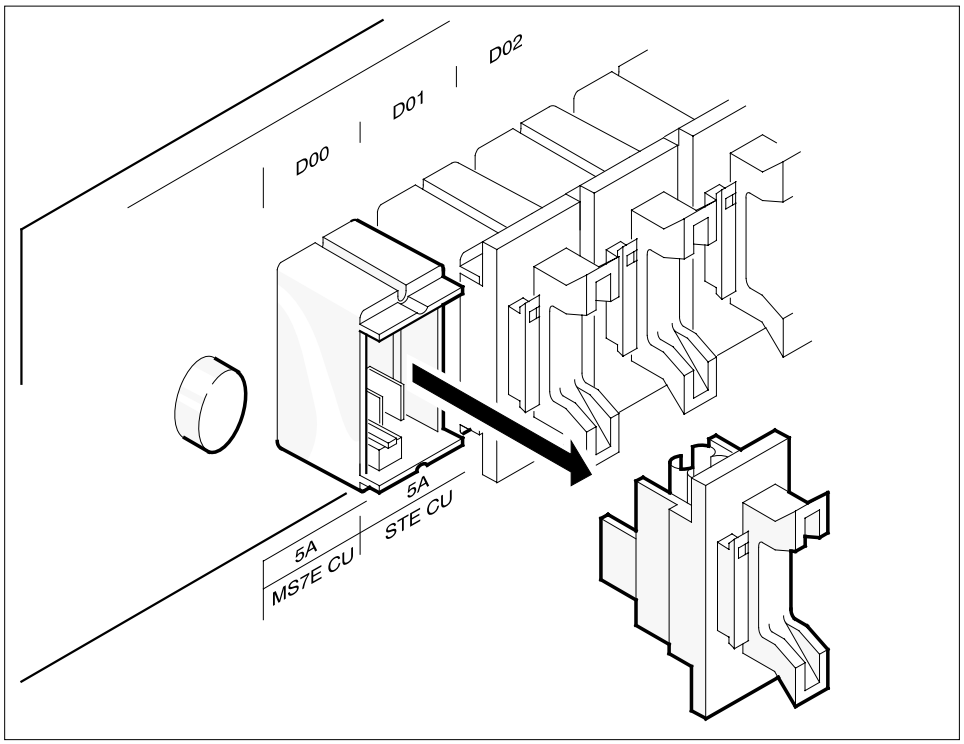
DANGER
Risk of injury
Electricity can arc when you remove a fuse cartridge. Wear eye protection when you remove fuse holders for the cooling unit.

CAUTION
Possible loss of service
Remove only the cooling unit fuses. Removal of the wrong fuses can disconnect power to a critical hardware component and cause loss of service.

Replacing a fan in a 42-in. cabinet (continued)

To remove the cooling unit fuse, pull the fuse holder straight out from the front panel of the PDC.

Note: When you remove the fuse cartridges, you remove power from the cooling unit. Removal of power from the cooling unit causes the fan failure lamp to turn on. The fan failure lamp is at the top of the cabinet between the doors.

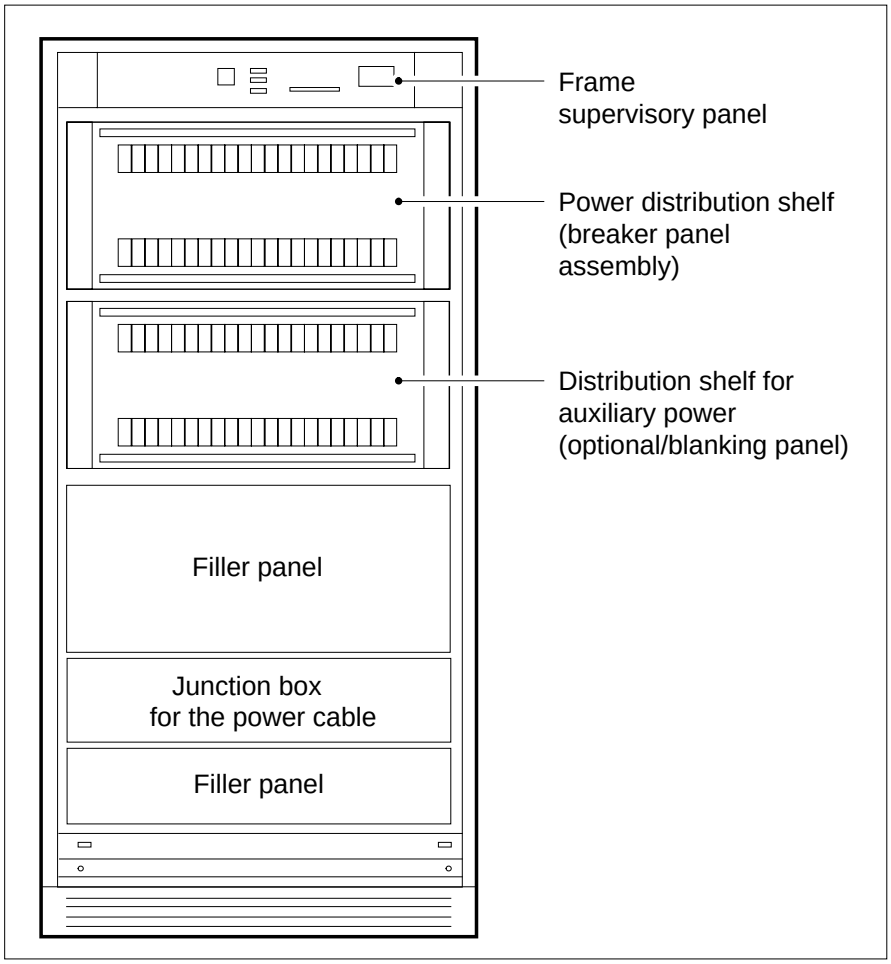


At the front of the CPDC

6 Locate the cooling unit circuit breaker.

Note: The two cooling unit circuit breakers are on the front panel of the CPDC. One circuit breaker is for the side A power feed. The other circuit breaker is for the side B power feed. The cabinet number (recorded in step 2) is above each circuit breaker. The letters SN CU (SuperNode cooling unit) are below each circuit breaker.

Replacing a fan in a 42-in. cabinet (continued)



7

DANGER
Risk of injury
Electricity can arc when you throw the breaker. Wear eye protection.

CAUTION
Possible loss of service
Before you throw the circuit breakers, make sure that you disconnect power to the cooling unit. If you throw the wrong breakers, you can disconnect power to a critical hardware component and cause loss of service.

Replacing a fan in a 42-in. cabinet (continued)

Throw the cooling unit circuit breakers.

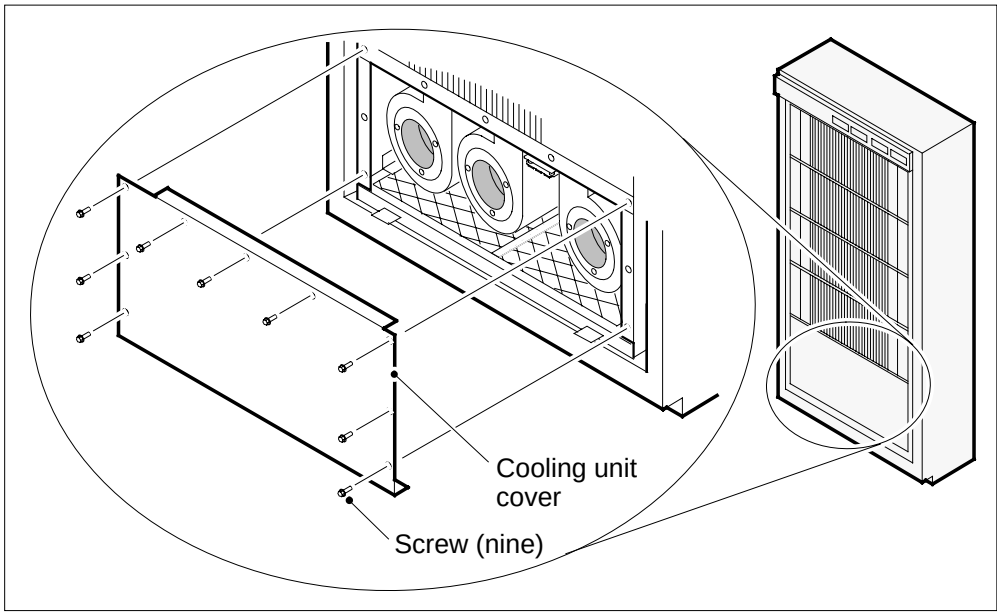
Note: When you throw the circuit breakers, you remove power from the cooling unit. Removal of power from the cooling unit causes the fan failure lamp to turn ON. The fan failure lamp is at the top of the cabinet between the doors.

At the front of the cabinet

8 Open the cabinet doors.

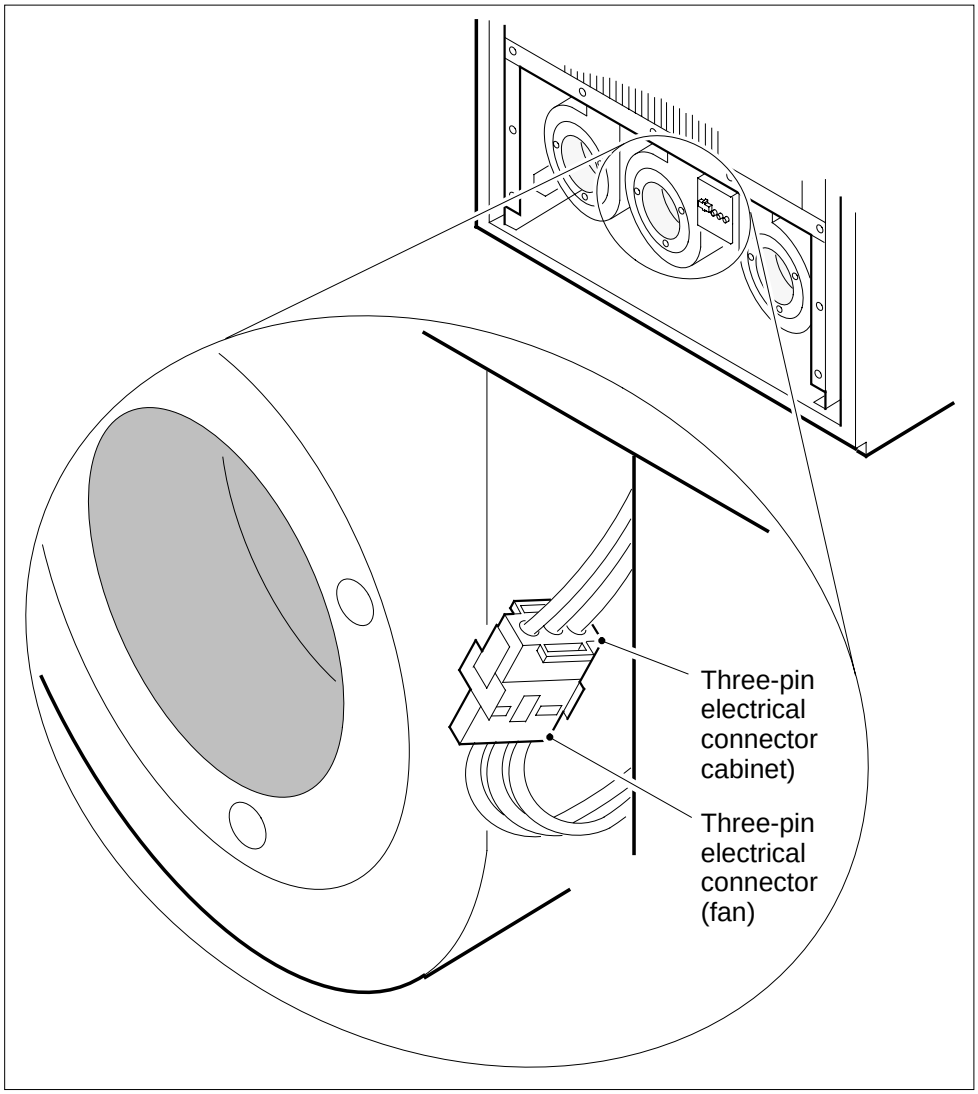
9 To remove the cooling unit cover at the bottom of the cabinet, remove the nine mounting screws from the cover.

Note: Do not remove the four bolts that fasten the cooling unit to the cabinet. The procedure *Replacing a cooling unit assembly in a 42-in. cabinet* in this document shows the location of the screws.



10 Slide the fan that has faults out of the cabinet to disconnect the electrical connector on the fan. Do not strain the wiring harness while you disconnect the connector.

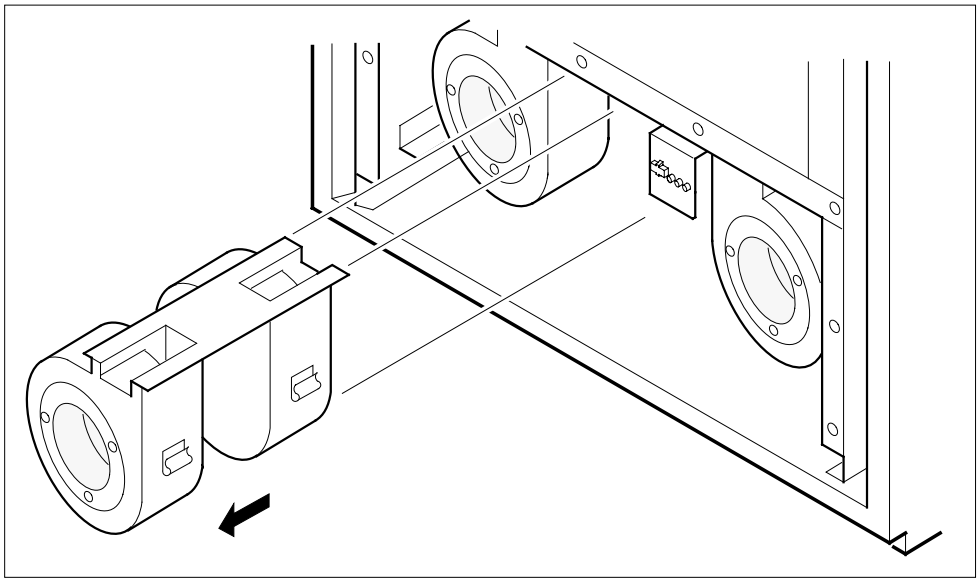
Replacing a fan in a 42-in. cabinet (continued)



11 Disconnect the electrical connector on the fan that has faults from the corresponding electrical connector on the cabinet.

12 Slide the fan that has faults the rest of the way out of the cabinet.

Replacing a fan in a 42-in. cabinet (continued)



13 Slide the replacement fan half-way into the cabinet.

14 Connect the electrical connector on the replacement fan to the corresponding electrical connector on the cabinet.

Note: Step 10 shows the location of the connector.

15 Slide the replacement fan the rest of the way into the cabinet.

16 Determine if power to the cooling unit connects through a circuit breaker at the CPDC.

If power to the cooling unit	Do
connects through a PDC	step 17
connects through a CPDC	step 18

At the front of CPDC

17 To insert the cooling unit fuses, push the fuse cartridges straight into the front panel of the PDC.

Go to step 19.

Replacing a fan in a 42-in. cabinet (end)

At the front of the PDC

18

DANGER
Risk of injury
Electricity can arc when you throw a cooling unit breaker. Wear eye protection.

Throw the cooling unit circuit breaker.

At the front of the cabinet

19 Determine if the replacement fan works.

If the replacement fan	Do
works	step 20
does not work	step 22

20 Reinstall the cooling unit cover.

Note: Step 9 shows the location of the cover mounting screws.

21 Close the cabinet doors.

Go to step 23.

22 For additional help, contact the next level of support.

23 The procedure is complete.

Replacing a line card

Task

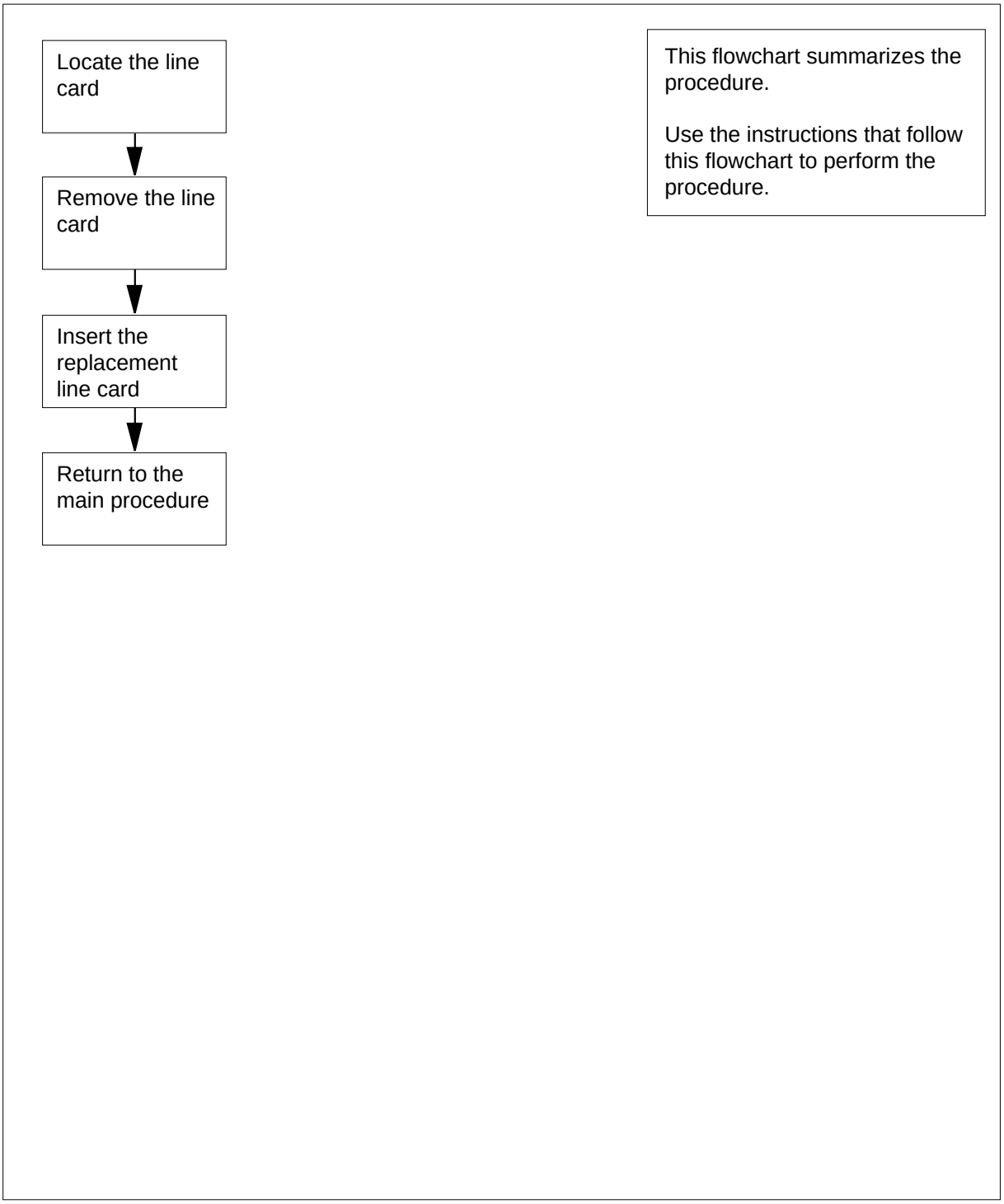
Use this procedure to replace a line card in an ISDN enhanced line concentrating module (LCME).

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Replacing a line card (continued)

Summary of Replacing a line card



Replacing a line card (continued)

Replacing a line card

At the MAP terminal

1

WARNING
Possible equipment damage
Proceed only when a maintenance procedure directs you to this procedure. Separate use of this procedure can cause equipment damage or loss of service.

To display the location and product engineering code (PEC) for the line card, type

>MAPCI;MTC;PM;POST LCME <LCME_NO>;QUERYPM

and press the Enter key.

Example of a MAP display:

```
CI:
>MAPCI  NODISP;  MTC;  PM;  POST  LCME36  0;  QUERYPM
MAPCI:
MTC:
PM:
POST:
PM TYPE: LCME Int. No.: 10 Status index: 5 Node_No: 177
LCME HOST 36 0 Memory Size-Unit 0: 256K, Unit 1: 256K
Loadnames: LCMINV - LCME81BA, Unit0: LCME81BA,
Unit1: LCME81BA
LCM REX is ON; PASSED on TUE. 1997/10/28 at 01:30:05
Node Status: {OK, FALSE}
Unit 0 Status: {OK, FALSE}      /RG: 1
Unit 1 Status: {OK, FALSE}      /RG: 1
Ring Generator Status:
        RG 0 Status: {OK}       Preferred
        RG 1 Status: {OK}       Standby
        RG in Overload : NO
Site Flr RPos Bay_id  Shf Description Slot EqPEC
HOST  03 CC06 LCEI 36  04  LCME 36 0      BX30AB
Services : ISDN Equipped
```

Note: In this example, the location of the line card is

Site
in the HOST office

Flr
on the 3rd floor

RPos
in row C that contains the line equipment bay, 01,

Replacing a line card (continued)

Bay_id
in ISDN-line concentrating equipment, bay 01

Shf
on shelf 18

Description
in hardware device LCME, bay 01

Slot
in slot 02, drawer 09

Note: In this example, the PEC of the line card is BX27AA.

2 Record the location and PEC for the line card.

At the shelf

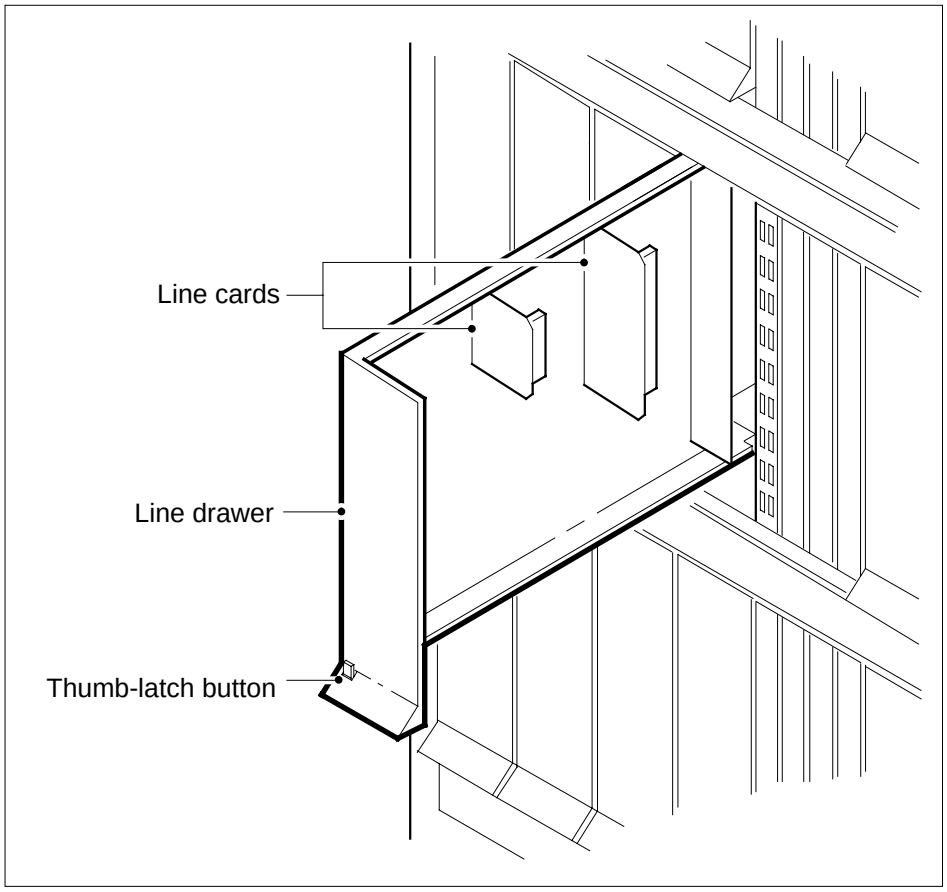
3

WARNING
Static electricity damage
When you handle circuit cards, wear a wrist-strap that connects to the wrist strap grounding point of a frame supervisory panel (FSP). The wrist-strap protects the cards against static electricity damage.

Locate the drawer for the line card. Use the information you recorded in step 2.

4 Press the small thumb-latch button on the lower left edge of the drawer. Carefully pull the drawer toward you until it stops.

Replacing a line card (continued)



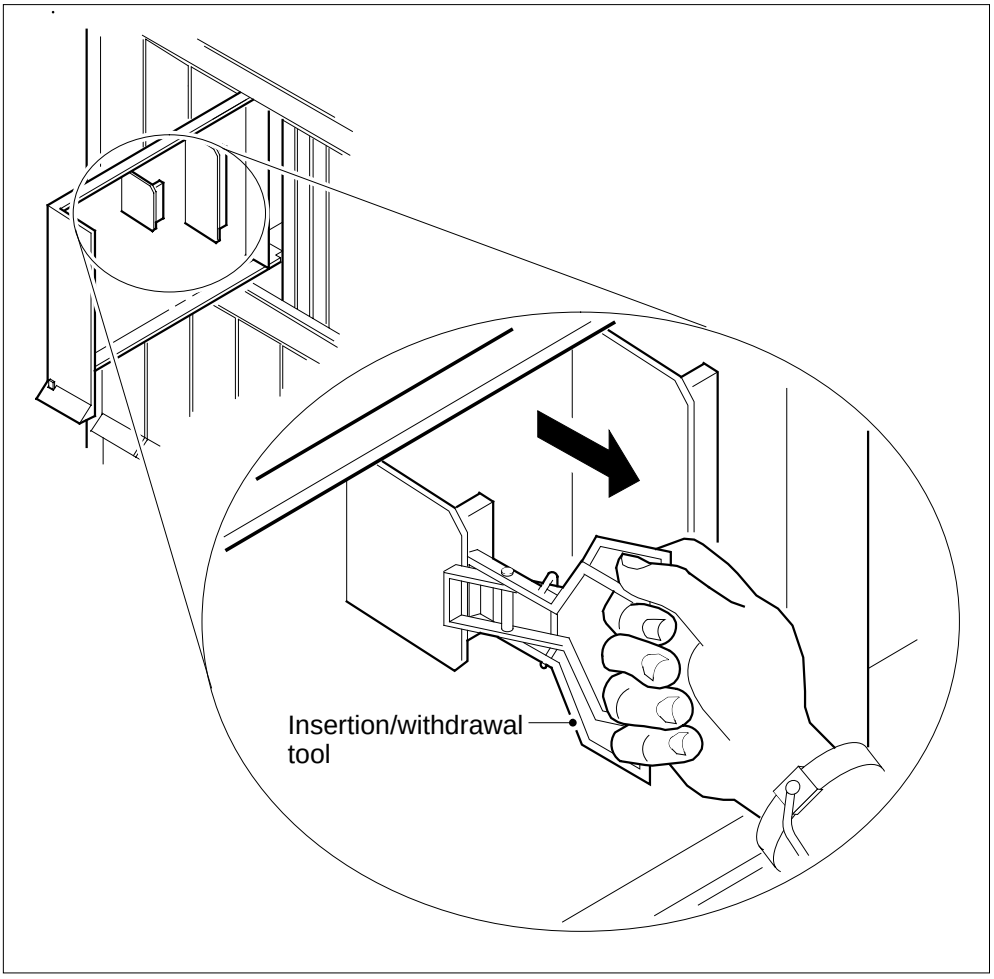
5

DANGER
Risk of personal injury
The large flat rectangular component mounted on the front edge can be very hot. of line cards. To avoid burns to your fingers, use the insertion and withdrawal tool to remove the card as illustrated in step Section 6, "Clamp the insertion and withdrawal tool to the front edge of the card, as illustrated below. Carefully remove the card from the connector pins." on page -337.

Locate the card that needs replacement (it can be either a 3-in or a 6-in card).

6 Clamp the insertion and withdrawal tool to the front edge of the card, as illustrated below. Carefully remove the card from the connector pins.

Replacing a line card (end)



7 Place the removed card into an electrostatic discharge (ESD) protective container.

8 Make sure the replacement card has the same PEC and PEC suffix as the removed card.

9 Clamp the insertion and withdrawal tool to the front edge of the replacement card, as shown in step 6. Align the card with the connector pins and carefully insert the card.

10 Make sure the card sits in a secure position.

11 Carefully push the drawer back into the shelf until the thumb-latch button locks.

12 The procedure is complete. Return to the main procedure that sent you to this procedure and follow the directions.

Replacing a missing line card

Application

Use this procedure to replace a missing line card.

Definition

The next level of support identifies a missing line card. The next level of support can request that you perform this procedure to correct the problem or to provide additional information.

Common procedures

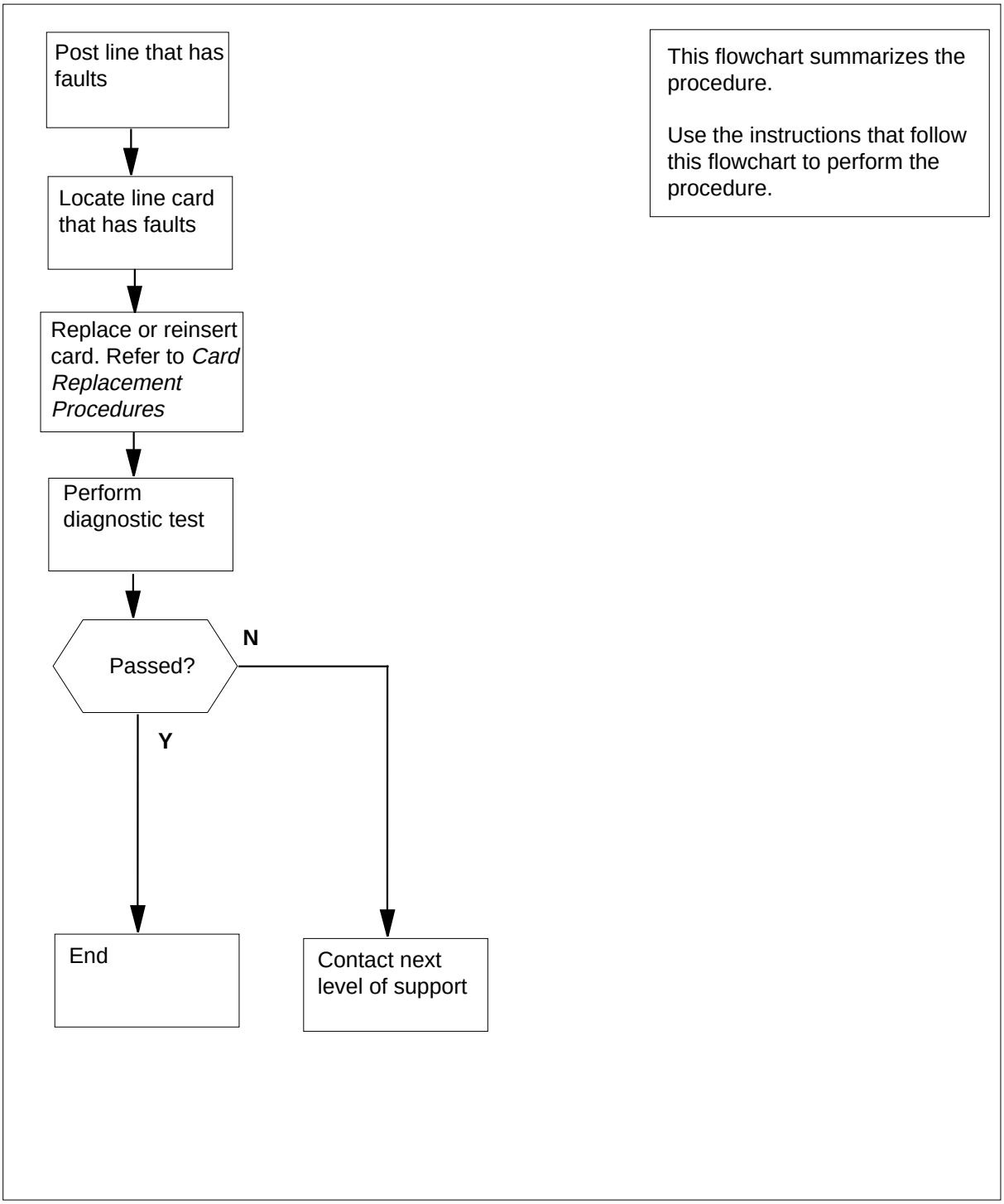
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Replacing a missing line card (continued)

Summary of Replacing a missing line card



Replacing a missing line card (continued)

Replacing a missing line card

At the MAP terminal

1 To access the LTP level of the MAP display, type

>MAPCI;MTC;LNS;LTP

and press the Enter key.

2 To post the line equipment number (LEN) of the line that has faults, type

>POST L len

and press the Enter key.

where

len
is the LEN of the damaged line. Use the format ff u dd cc for frame, unit, drawer, and circuit number.

Example input:

>POST L 00 1 00 01

Example of a MAP response

```
 LCC PTY RNG ...LEN....  DN     STA F S LTA TE RESULT
 1FR    HOST 00 1 00 01 613 621 4777 IDL
```

3 To locate the missing line card, type

>CKTLOC

and press the Enter key.

Example of a MAP response

```
Site Flr RPos  Bay_id  Sh  Description Slot  EqPEC
HOST  00 B00   LCE 00  38  LCM 00 1    00:01 6X17AC

GRD START  2DB LOSS  BAL NETWORK  MAN  OVR  SET
   NO         NO      NON LOADED        NO
```

4 Record the product engineering code (PEC), the PEC suffix, and the location of the line card that has faults.

Note: The PEC appears In the MAP response in step 3. The PEC appears under the EqPEC header. The location appears under the Site, Flr, RPos, Bay_id, Sh, Description, and Slot headers.

5 To replace the line card that you recorded in step 4, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

6 To perform a diagnostic test on the line card that you installed in step 5, type

>DIAG

and press the Enter key.

Example of a MAP response

Replacing a missing line card (end)

```
+LINE100 NOV04 18:34:21 0700 PASS LN_DIAG
LEN HOST 00 1 00 01    DN 6136214777
DIAGNOSTIC RESULT   Card Diagnostic OK
ACTION REQUIRED  None
CARD TYPE  6X17AC
```

If the MAP response	Do
is +LINE100, and other information	step 8
is +LINE101, and other information	step 7
is COULD NOT RUN LINE_CARD_ DIAGNOSTIC	step 7

7 For additional help, contact the next level of support.

8 The procedure is complete.

Replacing an NT9X95 card in a cooling unit

Application

Use this procedure to replace an NT9X95SA card in a cooling unit electronic module. Use this procedure when the electronic module has one of the following common product codes (CPC), in a 42-inch DMS cabinet:

- A0383326
- A0383327

Note: The product engineering codes (PEC) for a 42-in. DMS cabinet are NT9X95AA and NT9X95BA.

Definition

An NT9X95SA card refers to a card that has faults and requires replacement.

Common procedures

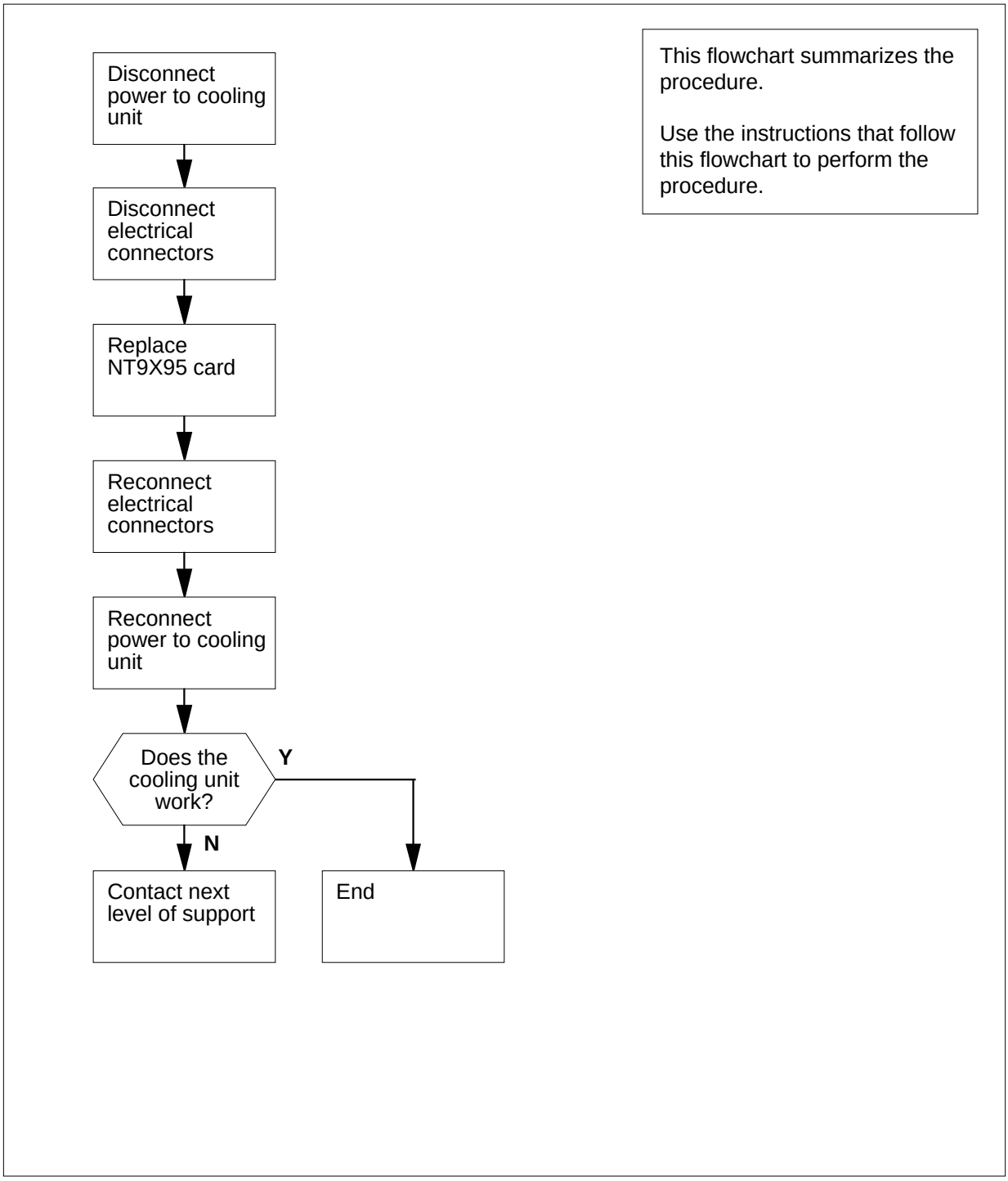
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Replacing an NT9X95 card in a cooling unit (continued)

Summary of Replacing an NT9X95 card in a cooling unit



Replacing an NT9X95 card in a cooling unit (continued)

Replacing an NT9X95 card in a cooling unit

At your current location

1

DANGER
Risk of injury or damage to equipment
When you replace an electronic module for the cooling unit, do not wear jewelry (for example, rings, bracelets or necklaces).

WARNING
Possible equipment damage
Do not remove power to the cooling unit for more than 30 minutes. Extended removal of power can cause the unit to overheat and cause damage.

Obtain a replacement electronic module for the cooling unit. Ensure that the replacement card has the same product engineering code (PEC) and PEC suffix as the card that you remove.

At the front of the cabinet

2 Record the cabinet number.

Note: The cabinet number (for example, D00) is on the front of the cabinet, above the doors.

3 Consult office records or operating company personnel. Determine if power to the cooling unit connects through a power distribution center (PDC) or a cabinetized PDC (CPDC).

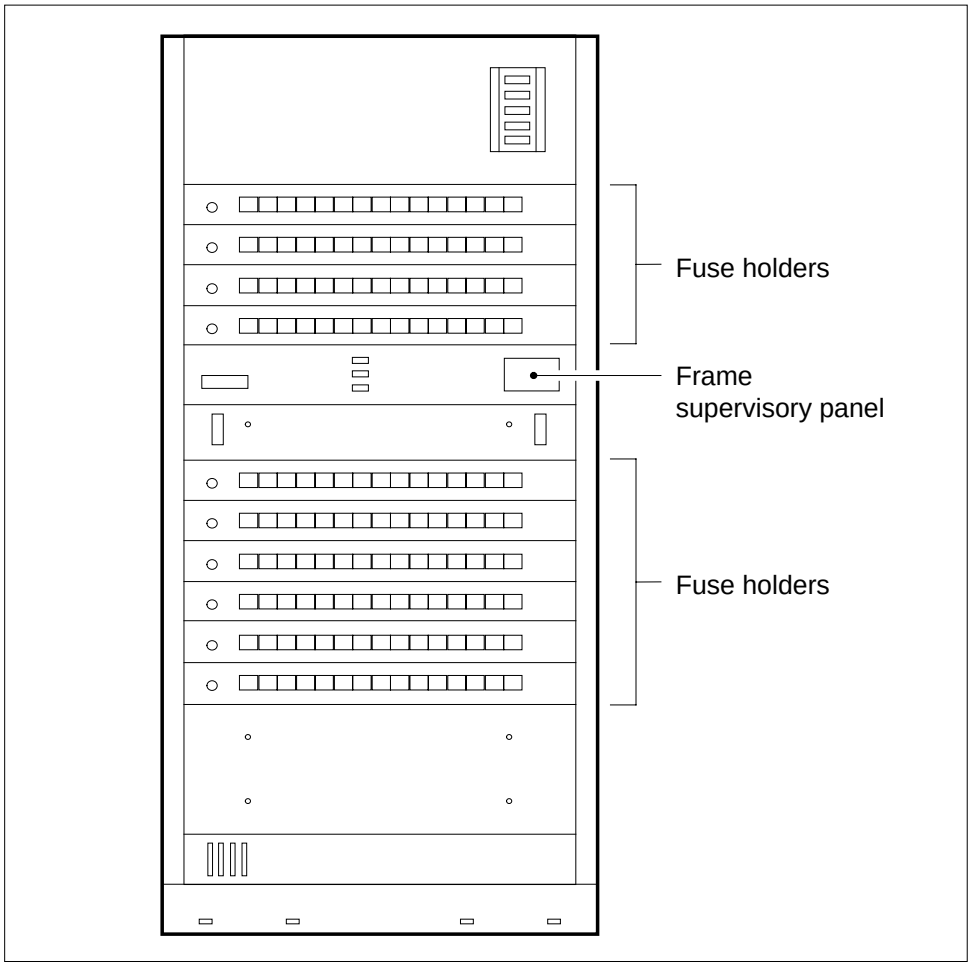
If power for the cooling unit	Do
connects through a PDC	step 4
connects through a CPDC	step 6

At the front of the PDC

4 Locate the cooling unit fuses.

Note: The cooling unit fuse cartridges are on the front panel of the PDC. The fuse cartridges contain two cooling unit fuses. One fuse is for the side A power feed, and one fuse is for the side B power feed. The cabinet number (recorded in step 2) is above each fuse cartridge. The letters SN CU (SuperNode cooling unit) are below each fuse cartridge.

Replacing an NT9X95 card in a cooling unit (continued)



5

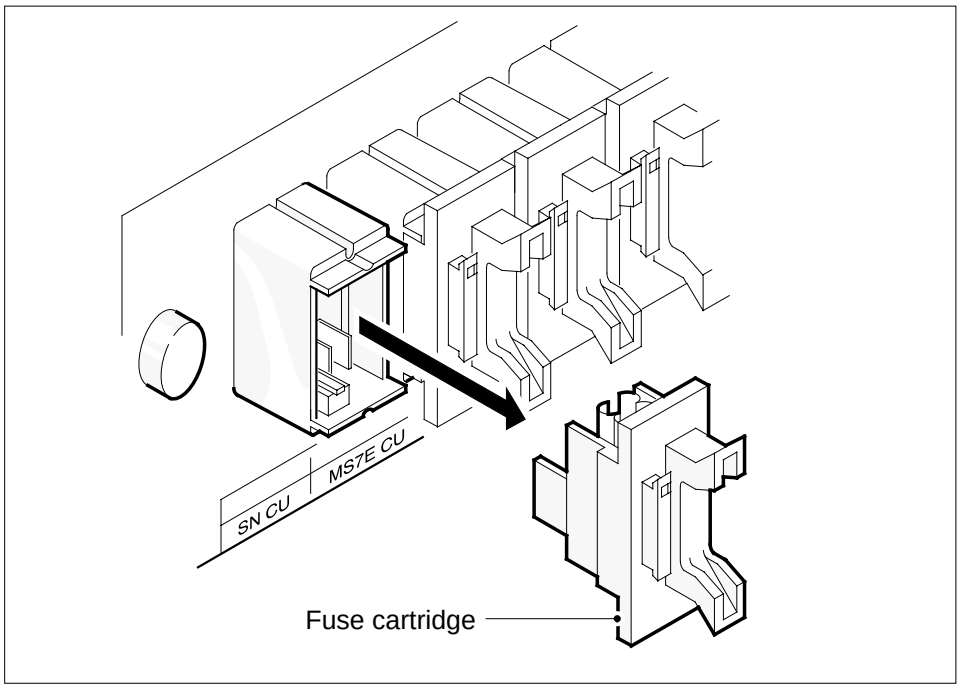
DANGER
Risk of injury
Electricity can arc when you remove a fuse cartridge from the cooling unit. Wear eye protection.

CAUTION
Possible loss of service
Remove only the cooling unit fuses. Removal of the wrong fuses can disconnect power to a critical hardware component and cause loss of service.

Replacing an NT9X95 card in a cooling unit (continued)

To remove the cooling unit fuses, pull the fuse cartridges straight out from the front panel of the PDC.

Note: When you remove the fuse cartridges, you remove power from the cooling unit. Removal of power from the cooling unit causes the fan failure lamp to turn on. The fan failure lamp is at the top of the cabinet between the doors.

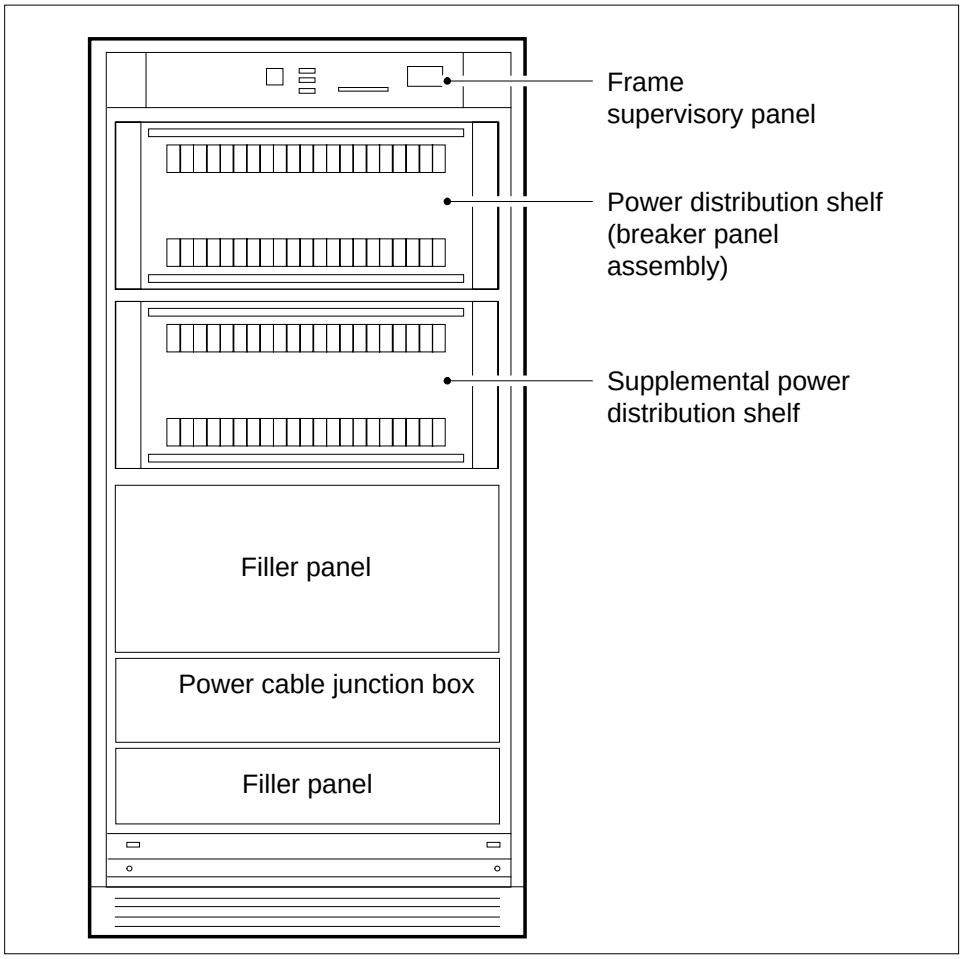


At the front of the CPDC

6 Locate the circuit breakers for the cooling unit.

Note: The two cooling unit circuit breakers are on the front panel of the CPDC. One circuit breaker is for the side A power feed. The other circuit breaker is for the side B power feed. The cabinet number (recorded in step 2) is above each breaker. The letters SN CU (SuperNode cooling unit) are below each breaker.

Replacing an NT9X95 card in a cooling unit (continued)



7

DANGER
Risk of injury
Electricity can arc when you throw a cooling unit circuit breaker. Wear eye protection.

CAUTION
Possible loss of service
Make sure that you disconnect power to the cooling unit before you throw the circuit breakers. If you throw the wrong breakers, you can disconnect power to a critical hardware component and cause loss of service.

Replacing an NT9X95 card in a cooling unit (continued)

Throw the circuit breakers for the cooling unit.

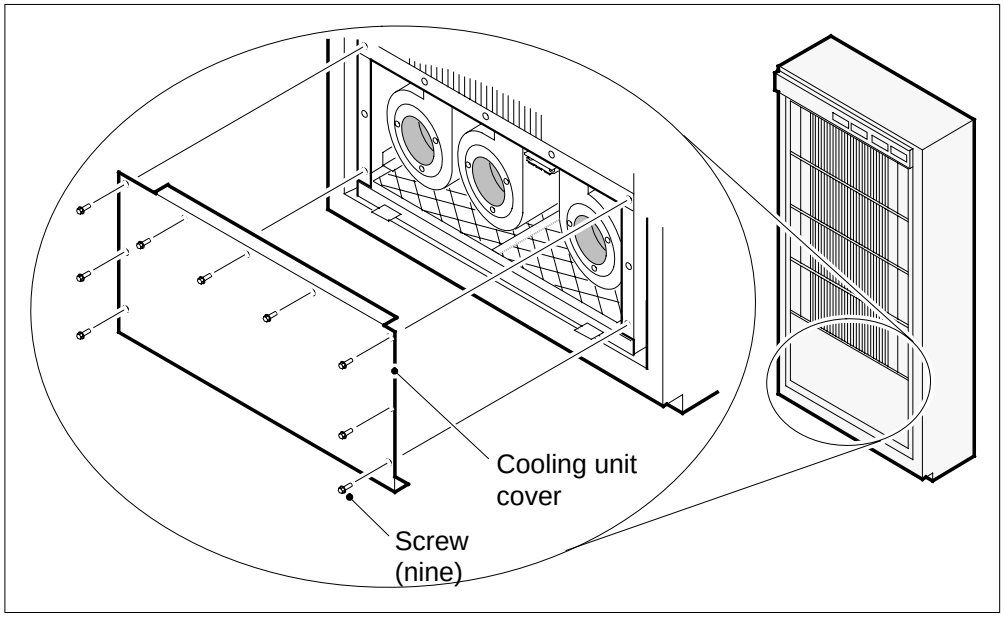
Note: When you throw the circuit breakers, you remove power from the cooling unit. Removal of power from the cooling unit causes the fan failure lamp to turn ON. The fan failure lamp is at the top of the cabinet between the doors.

At the front of the cabinet

8 Open the cabinet doors.

9 To remove the cooling unit cover at the bottom of the cabinet, remove the nine mounting screws from the cover.

Note: Do not remove the four bolts that fasten the cooling unit to the cabinet. The procedure *Replacing a cooling unit assembly* in this document shows the location of these screws.



At the back of the cabinet

10 Remove the two screws that fasten the electronic module to the cooling unit assembly.

Note: The screws are near the upper left-hand corner of the back plate of the cooling unit.

11 Disconnect the power connector from the electronic module.

Note: The power connector is near the upper left-hand corner of the back plate of the cooling unit.

Replacing an NT9X95 card in a cooling unit (continued)

At the front of the cabinet

12

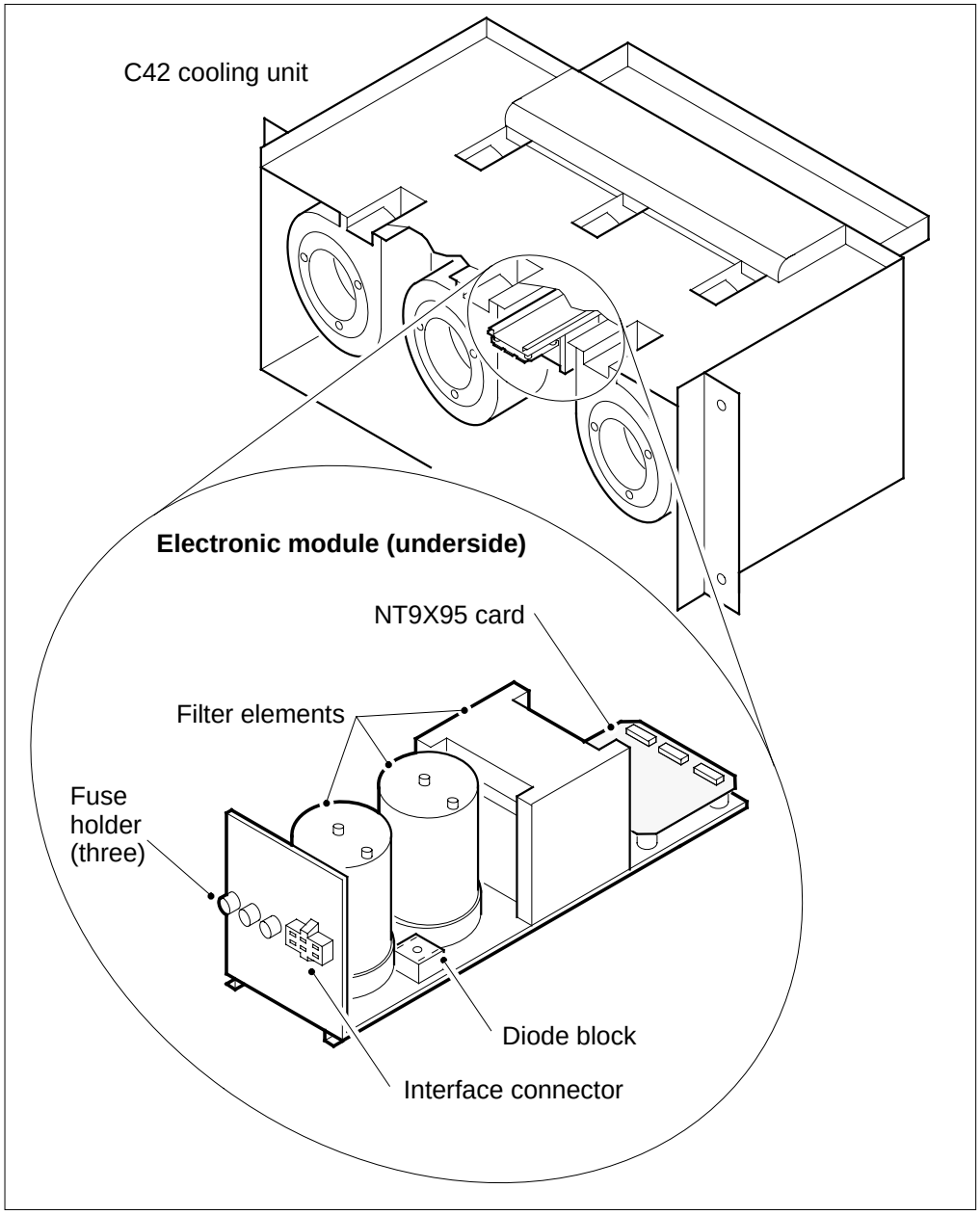
CAUTION
Possible equipment damage or service interruption
Label all electrical connectors before you disconnect them. If you reconnect to the wrong electrical connector, you can cause equipment damage or service interruption.

Disconnect the four electrical connectors at the front of the electronic module.

Note: Use both hands to disconnect the connectors. Grasp the top of the connector in one hand and the bottom of the connector in the other hand. Press the releases at the sides of the connector top and pull on the connector bottom.

13 Slide out the electronic module for the cooling unit.

Replacing an NT9X95 card in a cooling unit (continued)



14 Disconnect the electrical connector that connects the NT9X95 card to the electronic module.

15 To remove the NT9X95 card, remove the four screws that mount the card to the electronic module.

16 To install the replacement NT9X95 card, insert the four screws that mount the card to the electronic module.

17 Reconnect the electrical connector that you disconnected in step 14.

Replacing an NT9X95 card in a cooling unit (continued)

18 Slide the electronic module back in until the module touches the cooling unit backplate.

19 Reconnect the four electrical connectors you disconnected in step 12.

Note: To reconnect each connector, press the releases on the connector top and insert the connector bottom until it locks in place. If you cannot insert the connector bottom, turn it one-half turn and try to insert it again.

At the back of the cabinet

20 Insert the screws that fasten the electronic module back into the cooling unit assembly. You removed these screws in step 10.

21 Reconnect the power connector you disconnected in step 11.

22 Determine if power for the cooling unit connects through a PDC or a CPDC.

If power for the the cooling unit	Do
connects through a PDC	step 23
connects through a CPDC	step 24

At the front of PDC

23 Insert the cooling unit fuses into the front panel of the PDC. Push the fuse cartridges straight into the front panel.

Go to step 25.

At the front of CPDC

24

DANGER
Risk of injury
Electricity can arc when you throw a circuit breaker for the cooling unit. Wear eye protection.

Throw the cooling unit circuit breakers.

At the front of the cabinet

25 Determine if all cooling unit fans work.

Note: If one or more of the cooling unit fans does not work, the fan failure lamp turns on. The fan failure lamp is at the top of the cabinet between the doors.

If	Do
all fans work	step 26
any fans do not work	step 28

Replacing an NT9X95 card in a cooling unit (end)

26 Replace the cooling unit cover.

Note: Step 9 shows the location of the mounting screws.

27 Close the cabinet doors.

Go to step 29.

28 For additional help, contact the next level of support.

29 The procedure is complete.

Replacing an NTFX39 bulkhead splitter unit

Application

Use this procedure to replace a bulkhead splitter unit.

Definition

The bulkhead splitter unit is a connection unit that mounts on the cabinetized integrated services module (CISM) bulkhead. The unit connects the input/output module (IOM) paddle boards on the integrated service module (ISM) shelf to the input/output devices (IOD).

Common procedures

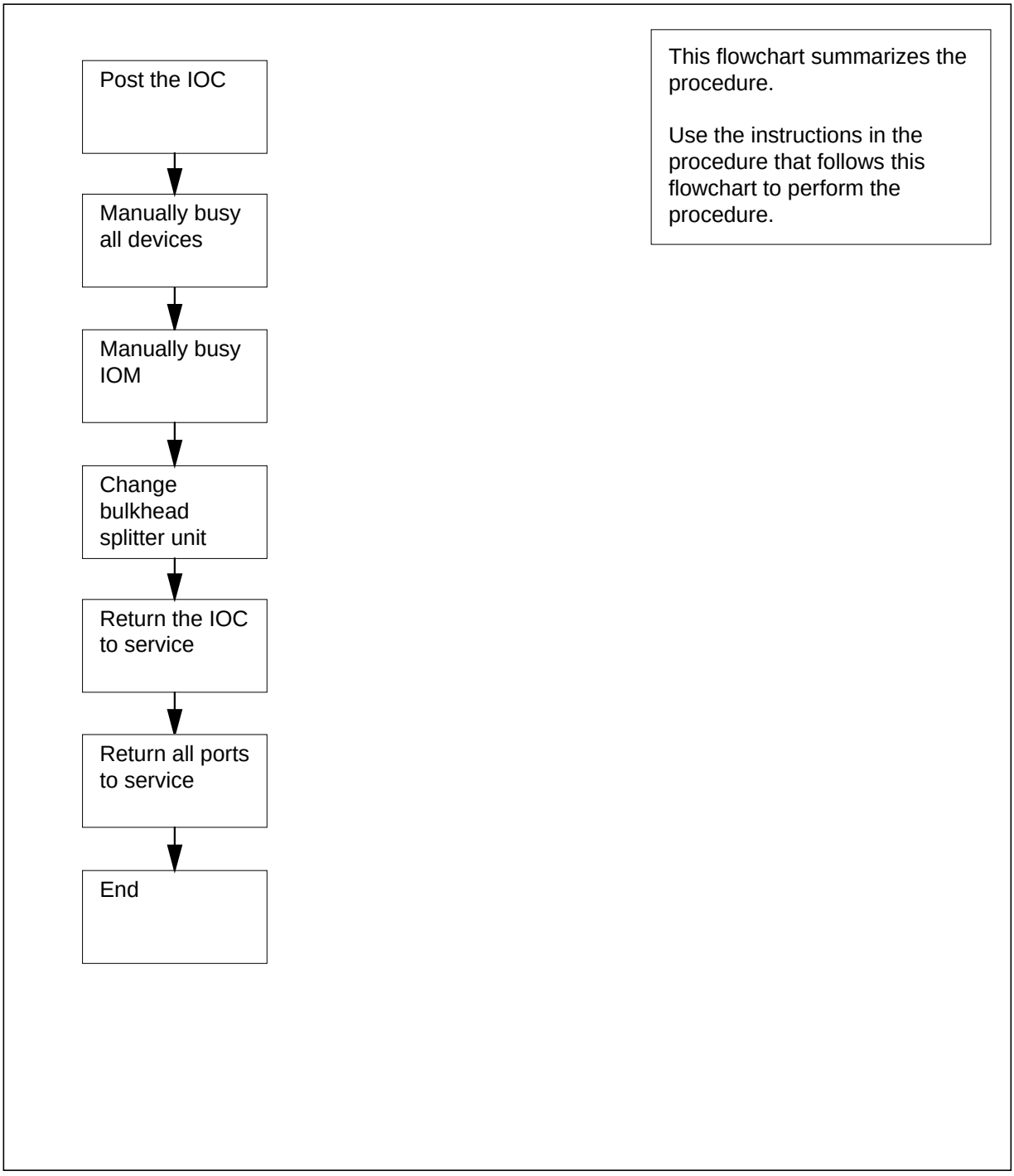
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Replacing an NTFX39 bulkhead splitter unit (continued)

Summary of Replacing an NTFX39 bulkhead splitter unit



Replacing an NTFX39 bulkhead splitter unit (continued)

Replacing an NTFX39 bulkhead splitter unit

ATTENTION

This procedure includes directions to manually busy the controller card for the IOM. Perform this procedure from a MAP terminal that does not connect to the IOM that has the manual-busy controller card.

CAUTION

Loss of service

This procedure instructs you to disconnect the IOM controller card and the connected devices to replace the splitter unit. Perform this procedure to recover out-of-service components. Perform this procedure during periods of low traffic.

At the MAP terminal

1 Obtain a replacement splitter unit. Ensure that the replacement unit has the same PEC and PEC suffix as the removed unit.

2 To access the IOD level of the MAP display, type

`>MAPCI;MTC;IOD`

and press Enter.

Example of a MAP display:

```
IOD
IOC  0  1  2  3
STAT .  .  .  S

DIRP: SMDR B XFER:   .   SLM :   .   NPO:   .   NX25:  .
MLP :   .    DPPP:   .   DPPU:   .   SCAI :
```

3 To post the configured IOM controller, type

`>IOC  ioc_no`

and press Enter.

where

ioc_no
is the IOM identification number

Example of a IOM MAP display:

Replacing an NTFX39 bulkhead splitter unit (continued)

```
IOD
IOC  0  1  2  3
STAT .  .  .  S

DIRP: SMDR B XFER:   .   SLM :   .   NPO:   .   NX25:  .
MLP :   .    DPPP:   .   DPPU:   .   SCAI :

IOC   PORT 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
(IOM) STAT . . . – . . – – – .  –  –  –  –  –  –  –  –
0     TYPE C C C   C M       M                    S  S
           O O O   O T       P                    C  C
           N N N   N D       C                    S  S
```

4 Determine if any terminal controller ports are on the shelf.

If terminal controller ports	Do
are on the shelf	step 5
are not on the shelf	step10

5 Note the CONS ID and status for each port.

If	Do
ports are ManBsy	step 9
one or more ports are Offl	step 55
one or more ports are . (dot) in service	step 6
ports are in any other state that is out of service	step 8

6 Inform office personnel of the removal from service of the CONS IDs for the controller card. Wait until all persons cease activity for these CONS IDs.

7 To post the port for the replaced CONS, type

`>PORT  port_no`

and press Enter.

where

port_no
is the port identification number

Example of a IOM MAP display:

```
Port 0  Status      0
        Cons Id     MAP
        ConType     CYB
```

Replacing an NTFX39 bulkhead splitter unit (continued)

8 To manually busy the port, type

>BSY

and press Enter.

where

port_no
is the port identification number

If the BSY command	Do
passed	step 9
failed	step 57

9 Repeat step 8 until you manually busy all CONS ports.

10 The next action depends on any provisioned multiprotocol controller (MPC) ports that are on the controller card.

If provisioned MPC ports	Do
are present	step 11
are not present	step 18

11 To post a port for the MPC, type

>PORT port_no

and press Enter.

where

port_no
is the port identification number

Example of a IOM MAP display:

```
Port 9  Unit        0
         User       SYSTEM  PROTOCOL  LINK
         Status     Ready   X2584     COMACT ENABLED
```

12 Determine the state of the port.

If the port state	Do
is ManB	step 17
is OFFL	step 55
is other than listed here	step 13

13 To display status information on current MPC conversations, type

>QCONV

and press Enter.

Replacing an NTFX39 bulkhead splitter unit (continued)

Example of a MAP response:

```
MPC  L  LCN  STATUS   CCC  SEC  PARDEV  INP  OPEN  OWNER
---  -  ---  ------  ---  ---  ------  ---  ----  -----
 0   3   1   INACTIVE none  none  none   FIL   0   none
 0   3   2   INACTIVE none  none  none   FIL   0   none
```

If	Do
one or more sessions is active	step 14
all sessions are inactive	step 15

14 Notify all users that there will be an interruption in the MPC service. Wait until all sessions are inactive before you proceed. Repeat step 13 to verify MPC session activity.

15 To manually busy the port and the port links, type

>BSY F0RCE

and press Enter.

Example of MAP response:

```
TYPE YES TO VERIFY FORCE, NO TO CANCEL COMMAND
Please confirm ("YES", "Y", "NO", or "N")
```

16 To confirm the command, type

>YES

and press Enter.

Example of MAP response:

```
REQUEST PASSED FOR PORTS
REQUEST PASSED FOR LINKS
```

If the BSY command	Do
passed	step 17
failed	step 57

17 Repeat steps 11 to 16 for each MPC port on the IOM controller card.

18 The next action depends on any provisioned disk drive units (DDU) ports that are on the controller card.

If provisioned DDU ports	Do
are on the shelf	step 19
are not on the shelf	step 24

Replacing an NTFX39 bulkhead splitter unit (continued)

19 To post a port for the DDU, type

>PORT port_no

and press Enter.

where

port_no
is the port identification number

Example of a IOM MAP display:

```
Port 16  Unit       0
(SCSI)       User       system      Drive_State
         Status     Ready       On_line
```

20 Determine the state of the port.

If the port state	Do
is ManB	step 24
is OFFL	step 55
is other than listed here	step 21

21 To determine if open files on the DDU exist, type

>ALLOC

and press Enter.

Example of a MAP display:

```
VOLID VOL_NAME SERIAL_NO BLOCKS ADDR TYPE R/O FILES_OPEN
  0   IMAGE     2800     45000  D000  0    NO      0
  1   XPMLOADS  2801     35000  D000  0    NO      0
  2   RTMLOADS  2802     20000  D000  0    NO      0
    .
    .
    .
  7   SMDR      2807     5000   D000  0    NO      0
  8   AMA1      2808     5000   D000  0    NO      0
  9   TST       2809       50   D000  0    NO      0
 10   AMA2      280A      500   D000  0    NO      0
```

If files	Do
are open	step 56
are not open	step 22

22 To manually busy the port on the controller card, type

>BSY

Replacing an NTFX39 bulkhead splitter unit (continued)

and press Enter.

Example of MAP response:

```
bsy
OK
```

23 Repeat steps 19 to 22 for the second DDU in the occurrence of two provisioned DDUs.

24 The next action depends on any provisioned magnetic tape drive (MTD) ports that are on the controller card.

If provisioned MTD ports	Do
are on the shelf	step 25
are not on the shelf	step 30

25 To post a port for the MTD, type

>PORT port_no

and press Enter.

where

port_no
is the port identification number

Example of a IOM MAP display:

```
Port 5   MTD        0       DevType
         TapeName           User
         Status     Idle
```

26 Determine the state of the port.

If the port state	Do
is ManB	step 30
is OFFL	step 55
is Idle	step 28
is other than listed here	step 27

27 Notify all users that there will be an interruption in service for the device. Wait until all users stop use of the device before you proceed to the next step.

28 To manually busy the port, type

>BSY

and press Enter.

Example of MAP response:

Replacing an NTFX39 bulkhead splitter unit (continued)

```
bsy
OK
```

29 Repeat steps 24 to 28 for all magnetic tape drive ports provisioned on the controller card.

30 To return to the IOC level of the MAP display, type

>QUIT

and press Enter.

31 Determine the state of the IOM.

If the state of the IOM	Do
is M	step 34
is other than listed here	step 32

32 To manually busy the IOM controller card, type

>BSY IOC

and press Enter.

Example of MAP response:

```
bsy
OK
```

33 Repeat steps 3 to 32 for other IOM units configured on the splitter unit.

At the modular supervisory panel

34

WARNING
Static electricity damage
To handle circuit cards, wear a wrist-strap that connects to a wrist-strap grounding point of a modular supervisory panel (MSP). The wrist-strap protects the cards against static electricity damage.

Put on a wrist strap.

At the rear of the ISM shelf

35 Locate bulkhead splitter unit and disconnect the four cable connectors (C05 to C08) from the harness. Disconnect the shrouded pin unit connections at the rear of the splitter unit.

Note the pin unit positions.

36 Remove the nuts in the back of the splitter unit.

Replacing an NTFX39 bulkhead splitter unit (continued)

37 Replace the splitter unit.

38 Secure the replacement unit with the nuts.

39 Reconnect the four cable connectors (C05 to C08) at the front of the splitter unit. Reconnect the shrouded pin unit connections at the back of the unit.

40 Repeat step 36 for the cable connectors and shrouded pin connections on the second IOM.

41 The next action depends on the reason for the performance of this procedure.

If a maintenance procedure	Do
directed you to this procedure	step 42
did not direct you to this procedure	step 43

42 Return to the maintenance procedure that sent this procedure and continue as directed.

At the MAP terminal

43 To return an IOM to service, type

`>RTS IOC`

and press Enter.

44 The next action depends on any provisioned consoles, disk drives and magnetic tape drives.

If provisioned consoles, disk drives and magnetic tape drive ports	Do
are present	step 45
are not present	step 48

45 To post the device port, type

`>PORT port_no`

and press Enter.

where

port_no
is the port identification number (0 to 17)

46 To return the device to service, type

`>RTS`

and press Enter.

47 Repeat steps 45 and 46 for all provisioned disk drives, consoles, and magnetic tape drive ports.

Replacing an NTFX39 bulkhead splitter unit (end)

48 The next action depends on any provisioned MPC ports.

If provisioned MPC ports	Do
are present	step 49
are not present	step 50

49 To post the MPC port, type

>PORT port_no

and press Enter.

where

port_no
is the port identification number (0 to 17)

50 To return the MPC to service, type

>RTS

and press Enter.

Example of MAP response:

```
REQUEST PASSED FOR UNIT
REQUEST PASSED FOR LINKS
```

51 Check the status of MPC components

If	Do
the system status is Ready, the port status is COMACT, and the link status is enabled for each provisioned link.	step 52
other than listed here	step 57

52 Repeat steps 49 to 51 for each provisioned port on the shelf.

53 Notify users that MPC service is available.

54 Repeat steps 43 to 53 to put the second IOM back into service.

55 Consult an office person to determine why the component is off-line. Continue as directed by the office person.

56 You cannot busy the controller if files are open. The result can be the loss of billing data. For additional help, contact the person responsible for the next level of support.

57 For additional help, contact the person responsible for the next level of support.

58 The procedure is complete.

Replacing a point-of-use power supply card

Application

Use this procedure to replace a point-of-use power supply (PUPS) card in an ISDN enhanced line concentrating module (LCME).

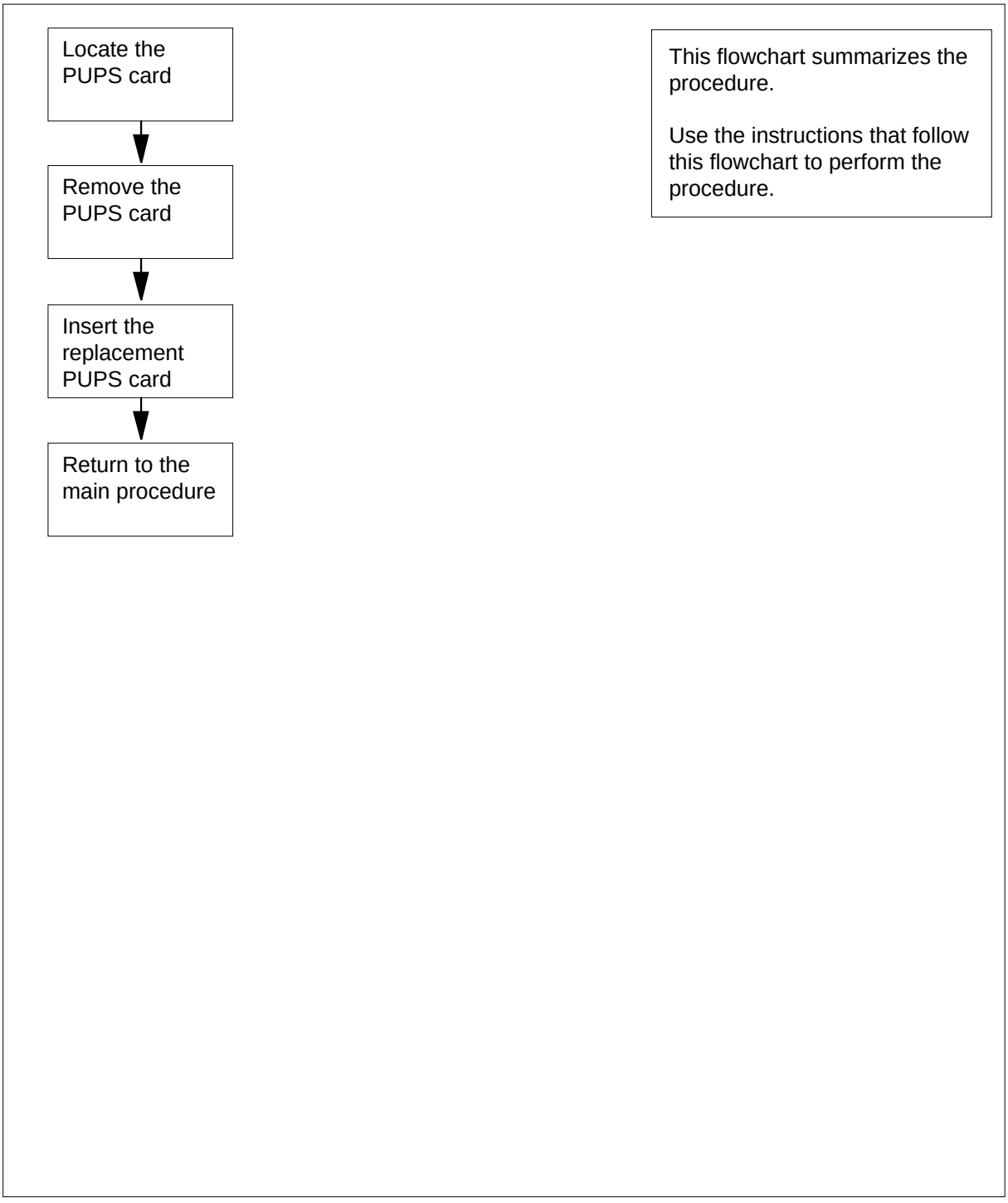
Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Note: The ISDN lines in the drawer require only the PUPS card. A PUPS failure does not affect the lines other than ISDN.

Replacing a point-of-use power supply card (continued)

Summary of Replacing a point-of-use power supply card



Replacing a point-of-use power supply card (continued)

Replacing a point-of-use power supply card

At the MAP terminal

1

WARNING
Possible equipment damage
Proceed only when a step in a maintenance procedure directs you to this procedure. Separate use of this procedure can cause equipment damage or loss of service.

To display the location and product engineering code (PEC) for the line card for the PUPS card, type

```
>MAPCI;MTC;LNS;LTP;LTPISDN
>Post D or L <Dir No.> or <Len No.>
>CKTLOC
```

and press the Enter key.

Example of a MAP response:

```
CKTLOC
Site  Flr RPos Bay_id  Shf Description Slot  EqPEC
HOST  03  C04  LCEI36  18  LCME 00 01  02:09 BX27AA
```

Note: In this example, the location of the line card is

Site
in the HOST office

Flr
on the 3rd floor

RPos
in row C, position 04

Bay_id
in ISDN LCME, bay 36 (identifies the type of equipment in the bay)

Shf
on shelf 18

Description
in LCME module 00, unit 01

Slot
in slot 02, logical drawer 09

Note: In this example, the PEC of the line card is BX27AA.

2 Record the location of the line card.

Note: The PUPS card is in the same drawer as the line card.

3 To access the PM level of the MAP display, type

```
>PM
```

Replacing a point-of-use power supply card (continued)

and press the Enter key.

4 To post the LCME that contains the line card, type

>POST LCME HOST frame_no module_no

and press the Enter key.

where

frame_no
is the frame number of the LCEI

module_no
is the module number of the LCME, 00 or 01

Example of a MAP display:

```
LCME HOST 67 1   SysB   Links OOS: Cside  0
Unit0: SysB
Unit1: SysB                      11  11  11  RG: Uneq
Drwr:  01  23  45  67  89  01  23  45
          ..  ..   ..   ..   ..  ..   ..   ..
```

5

CAUTION
Loss of service
When the drawer busies, there will be a loss of subscriber service on all lines in the drawer.

To manually busy the drawer, type

>BSY DRWR drawer_no

and press the Enter key.

where

drawer_no
is the logical number for the line drawer, 00 to 15

Example of a MAP display:

```
WARNING this action will affect both drawers 0 and 1
LCME HOST 07 1 Drwr 0 will be out of service
Confirm ("YES", "Y", "NO", or "N"):
```

6 To confirm the command, type

>YES

and press the Enter key.

Replacing a point-of-use power supply card (continued)

At the shelf

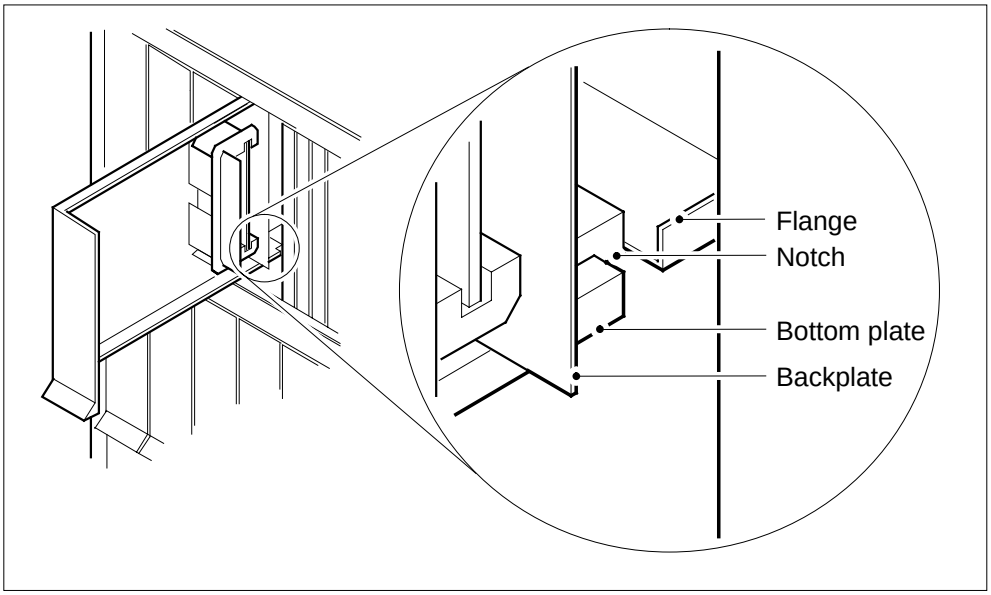
7

WARNING
Static electricity damage
When you handle circuit cards, wear a wrist-strap that connects to the wrist-strap grounding point of a frame supervisory panel (FSP). The wrist-strap protects the cards against static electricity damage.

To locate the PUPS card, use the recorded information in step 1.

8 Press the small thumb-latch button on the lower left edge of the drawer. Carefully pull the drawer forward to its limit.

9 To latch the drawer, use the notch cut into the end of the bottom plate. The notch cut into the bottom plate is behind the back plate (shown in the figure below). The notch fits the end of a flange. Shift the bottom of the drawer toward you to allow the notch to slide over the end of the flange.



10

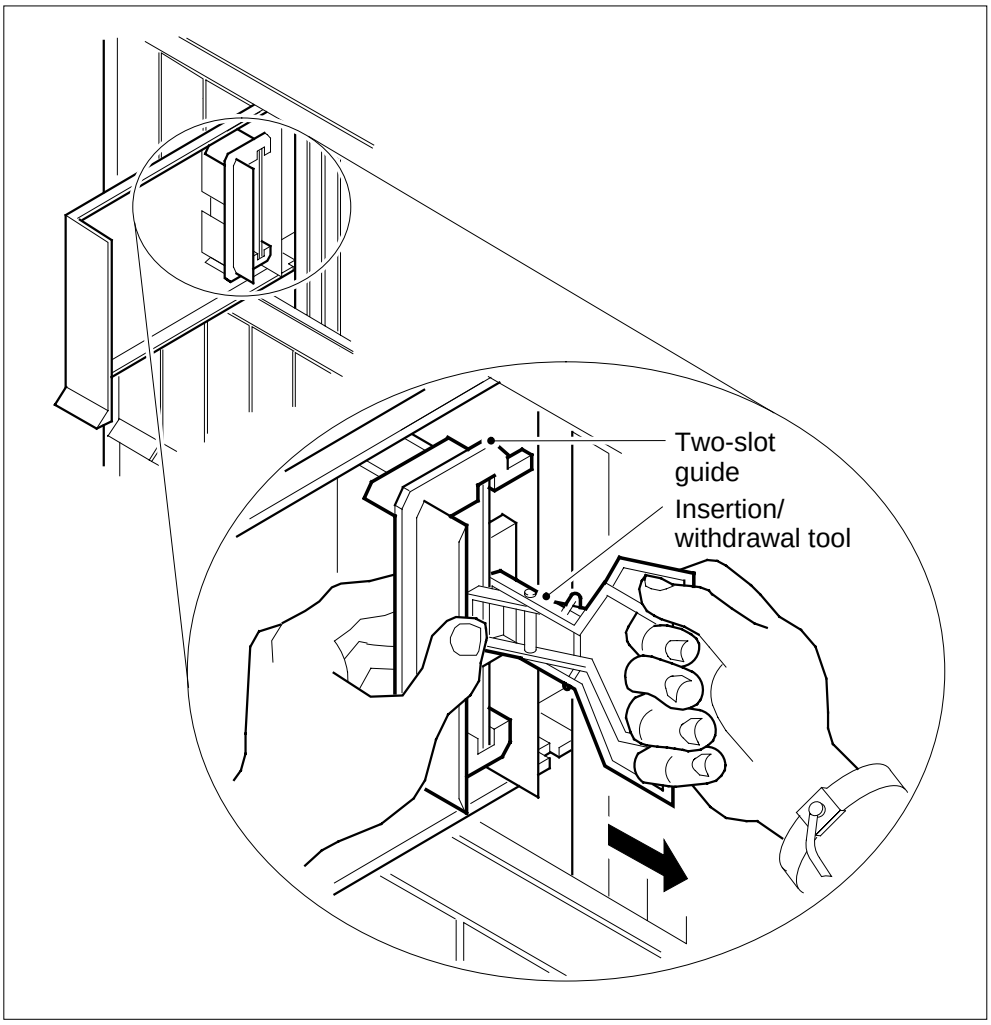
DANGER
Possible loss of device
Drawers 06/07 or 14/15 are near the fuse panels. When you work in these drawers, make sure that you do not snag the projecting fuse blocks as you withdraw the PUPS card. A power outage can result.

Replacing a point-of-use power supply card (continued)

Locate the PUPS card. The PUPS card occupies the two top rows at the back of the drawer.

11 Fit the two-slot guide over the PUPS card and the line card next to it.

Note: If no line card exists next to the PUPS card, do not use the two-slot guide.



12 If you use the two-slot guide, hold it in place with your left hand. With your right hand, clamp the insertion and withdrawal tool to the front edge of the PUPS card. Carefully remove the card from the socket (as illustrated in step 11).

13 Leave the two-slot guide tool in place as a guide for the installation of the replacement PUPS card.

14 Place the removed card in an electrostatic discharge (ESD) protective container.

15 Make sure that the replacement card has the same PEC and PEC suffix as the removed card.

Replacing a point-of-use power supply card (end)

16 Clamp the insertion and withdrawal tool to the front edge of the replacement card, as shown in step 11. Align the card with the socket and carefully insert the card.

17 Make sure the card sits in a secure position.

18 Carefully push the drawer back into the shelf until the thumb-latch button locks.

19 To return the drawer to service, type

```
>RTS  DRWR  drawer_no
```

and press the Enter key.

where

drawer_no
is the logical number of the line drawer, 00 to 15

20 The procedure is complete. Return to the main procedure that sent you to this procedure and continue to follow the directions.

Reseating a line card

Application

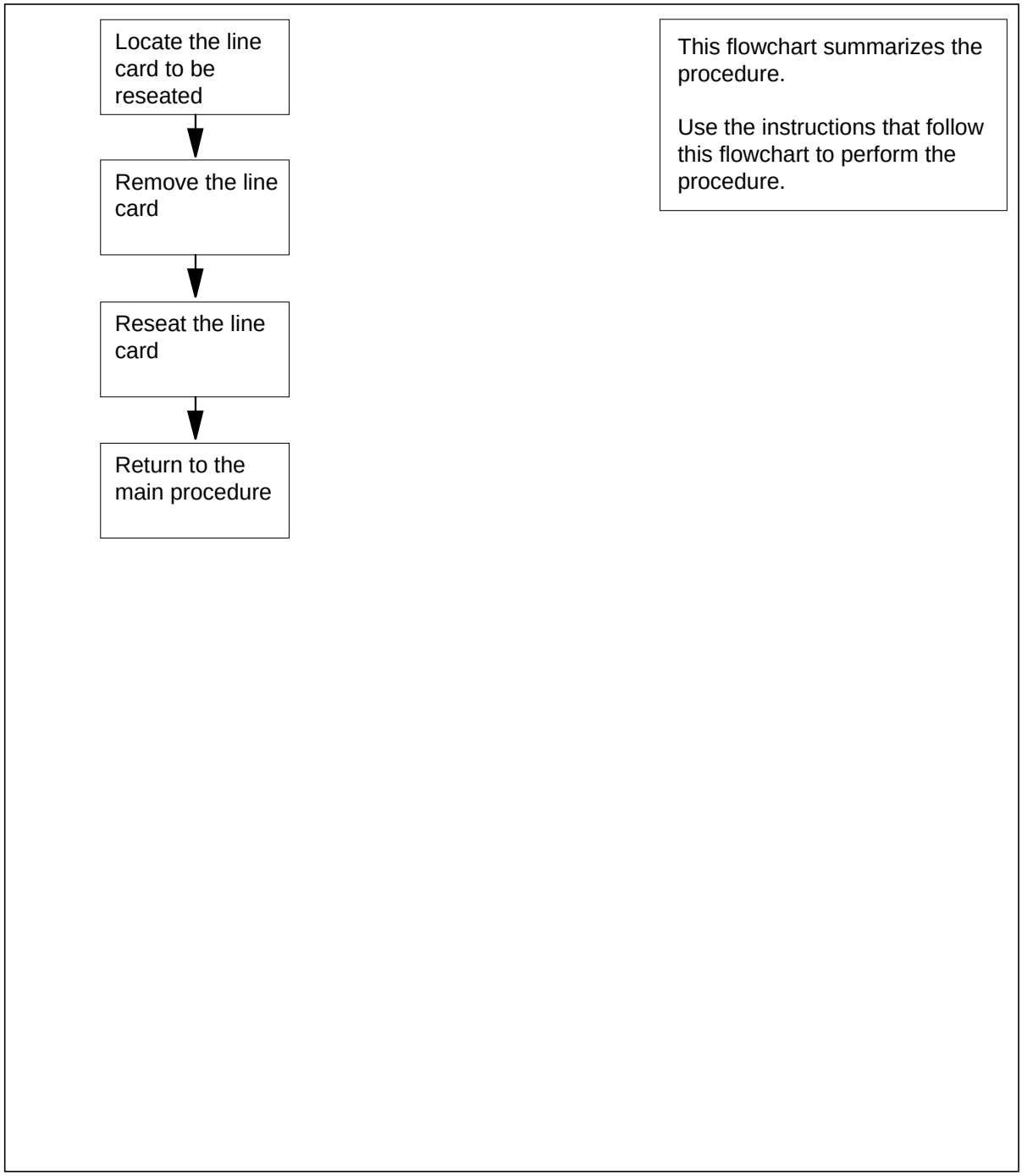
Use this procedure to reseat a line card in an ISDN enhanced line concentrating module (LCME). This procedure ensures the correct electrical connection between the line card and the connector pins on the drawer.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Reseating a line card (continued)

Summary of Reseating a line card



Reseating a line card (continued)

Reseating a line card

At the MAP terminal

1

WARNING
Possible equipment damage
Proceed only when a step in a maintenance procedure directs you to this procedure. Independent use of this procedure can cause equipment damage or loss of service.

To display the location and product engineering code (PEC) for the line card, type

```
>MAPCI;MTC;LNS;LTP;LTPISDN
>Post D or L <Dir No.> or <Len No.>
>CKTLOC
```

and press the Enter key.

Example of a MAP response:
CKTLOCSite Flr RPos Bay_id Shf Description Slot EqPECHOST 03 C01 LCEI01 18 LCME 01 02:09 BX27AA

Note: In this example, the location of the line card is

Site
in the HOST office

Flr
on the 3rd floor

RPos
in row C and in line equipment bay 01

Bay_id
in ISDN line concentrating equipment, bay 01

Shf
on shelf 18

Description
in hardware device LCME, bay 01

Slot
in slot 02, drawer 09

Note: In this example, the PEC of the line card PEC is BX27AA.

2 Record the location of the line card.

Reseating a line card (continued)

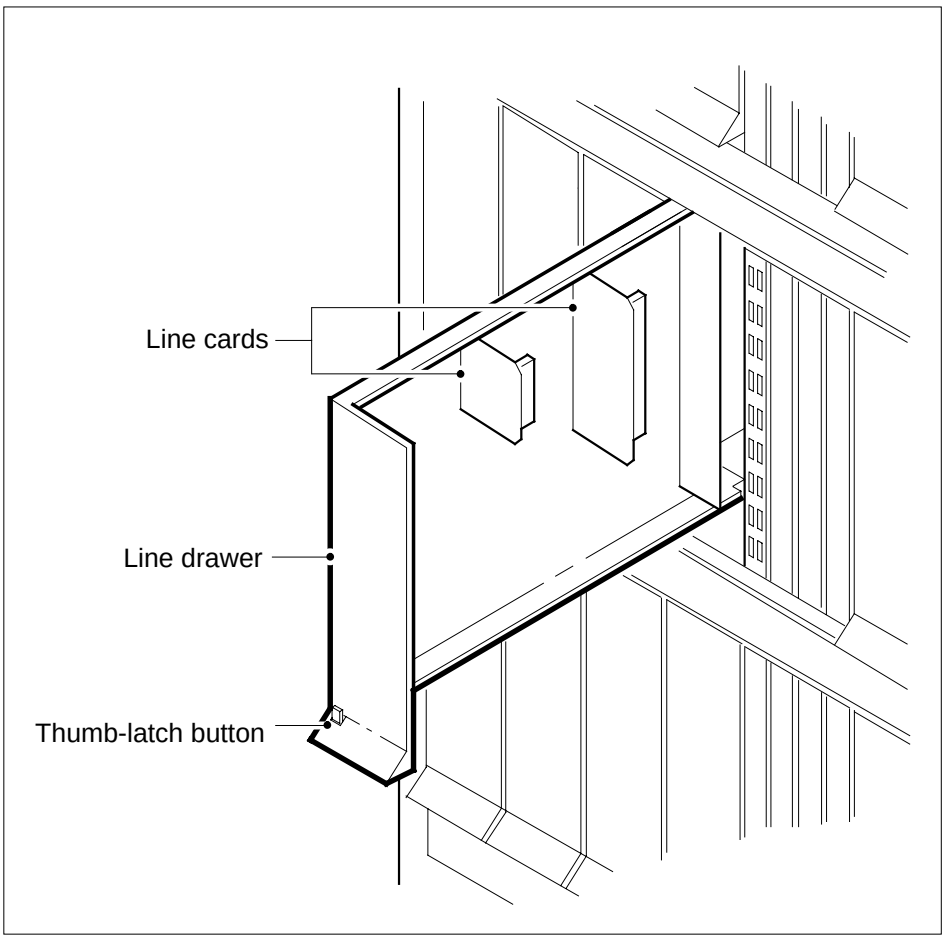
At the shelf

3

WARNING
Static electricity damage
When you handle circuit cards, wear a wrist-strap that connects to the wrist-strap grounding point of a frame supervisory panel (FSP). The wrist-strap protects the cards against static electricity damage.

To locate the drawer for the line card, use the recorded information in step 2.

4 Press the small thumb-latch button on the lower left edge of the drawer. Carefully pull the drawer forward.



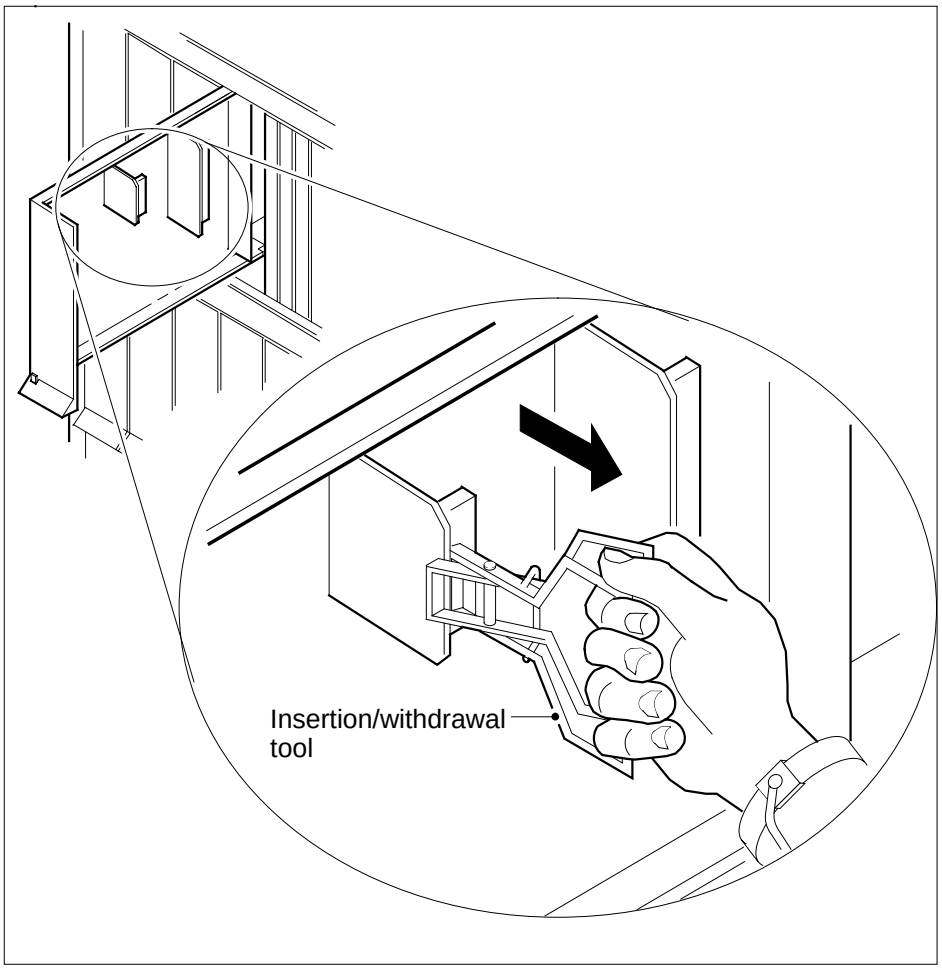
Reseating a line card (continued)

5

DANGER
Risk of personal injury
The large, flat rectangular component mounted on the front edge can be very hot. To avoid burns to your fingers, use the insertion and withdrawal tool. Use the tool to remove and reseat the card as illustrated in step 6.

Locate the card you want to remove (it can be either a 3-in or a 6-in card).

6 Clamp the insertion and withdrawal tool to the front edge of the card, as illustrated below. Carefully remove the card from the connector pins.



7 Align the card with the connector pins and carefully reseat the card.

8 Ensure the card sits in a secure position.

Reseating a line card (end)

9 Carefully push the drawer back into the shelf until the thumb-latch button locks.

10 You have completed this procedure. Return to the main procedure that sent you to this procedure and continue to follow the directions.

Responding to TRMS301 logs

Application

Use this procedure to reply to a TRMS301 log.

Definition

A TRMS301 log indicates that the transactional record management system (TRMS) cannot delete an old database log file. When LOGUTIL is in the EXPERT mode, the log also contains a fault-tolerant file system (FTFS) error code. The FTFS error code explains the problem why the system cannot delete the old log file.

Common procedures

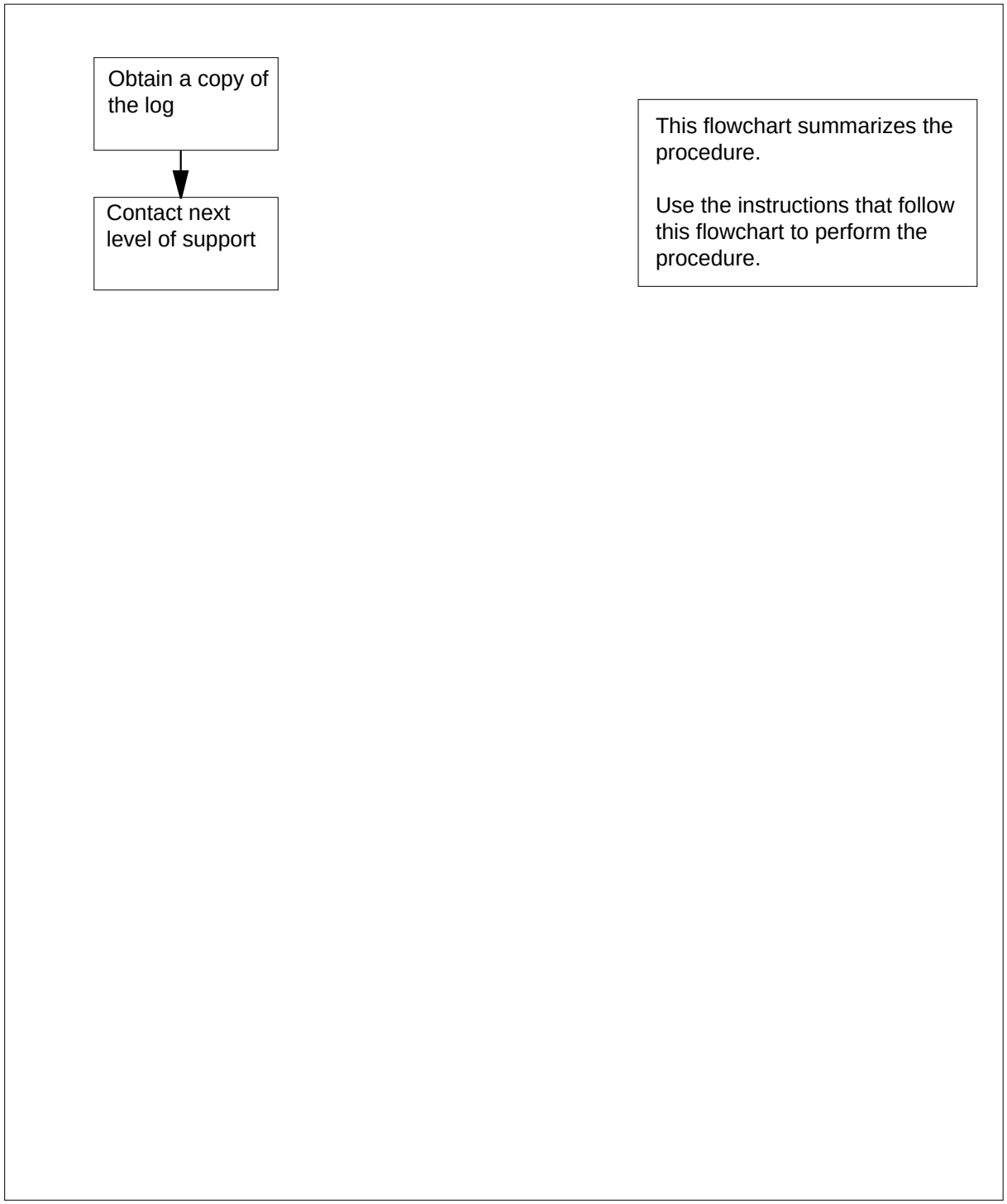
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as an overview of the procedure. Follow the steps to perform the procedure.

Responding to TRMS301 logs (continued)

Summary of Responding to TRMS301 logs



Responding to TRMS301 logs (end)

Responding to TRMS301 logs

At your current location

1 Obtain a copy of the TRMS301 log.

2 Note the information contained in the TRMS301 log that follows:

- the location of the the TRMS failure (for example, FP4)
- the database log name (for example, 800PLUS__SLAVE__0.LOG002)

3 For additional help, contact the next level of support.

Restoring far-end service for a D-channel ISDN PRI primary and backup D-channels

Application

Use this procedure to return a D-channel back into service when the far-end office is out of service.

Definition

The D-channel is in the remote not responding (RNR) state. The RNR state indicates that the far-end office does not respond. Logs ISDN111, ISDN112, or ISDN114 can generate.

Common procedures

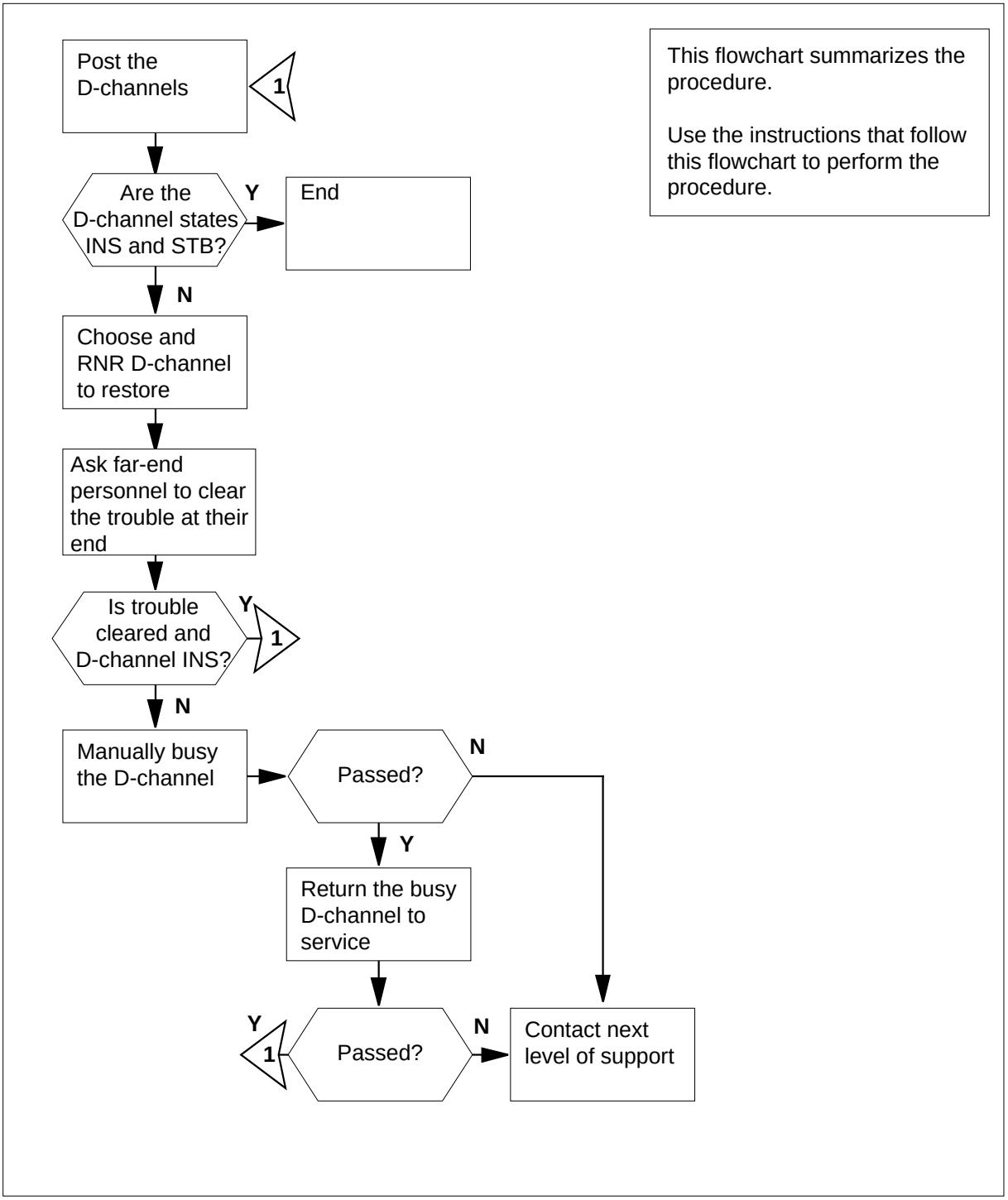
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Restoring far-end service for a D-channel ISDN PRI primary and backup D-channels (continued)

Summary of Restoring far-end service for a D-channel



Restoring far-end service for a D-channel ISDN PRI primary and backup D-channels (continued)

Restoring far-end service for a D-channel

At the MAP terminal

1 Determine the name of the trunk group from office records or operating company personnel.

2 Determine your next step.

If directions to this procedure	Do
came from *Determining the D-channel state*	step 5
came from other than listed here	step 3

3 To access the PRADCH level of the MAP display, type

>MAPCI;MTC;TRKS;TTP;PRADCH

and press the Enter key.

4 To post the D-channels, type

>POST GD group_name

and press the Enter key.

where

group_name
is the trunk group name

Example input:

>POST GD F5678935PAV

Example of a MAP display:

```
POST    1   DELQ      BUSYQ    DIG
TTP  6-005
CKT TYPE   PM NO      COM LANG STA S R DOT TE RESULT
2W IS IS LTC 2 3 24 F5678935PAV D1 INS
         LTC 2 5 24 F5678935PAV D2 RNR R
```

Example of a MAP response:

```
SHORT CLLI IS: F56789
OK,CKT POSTED
```

Restoring far-end service for a D-channel ISDN PRI primary and backup D-channels (continued)

5 Determine the states of the D-channels.

Note: The MAP display lists the state of the D-channel to the right side of the DCHL header.

If	Do
one D-channel is INS (in service) and the other is STB (standby)	step 12
one D-channel is RNR (remote not responding), and the other is in a different out-of-service state or INS	step 6
both D-channels are RNR	step 6

6 Choose an RNR D-channel to restore and record its identifier (D1 or D2).

Note 1: Do not choose an INS or STB D-channel to clear. An INS D-channel is a normal operation state for the primary D-channels. An STB D-channel is a normal operation state for the backup D-channels. The STB state occurs for a backup D-channel when the primary D-channel is INS.

Note 2: You must use the same identifier (D1 or D2) for all procedures and steps used to clear the chosen D-channel. The MAP display lists the identifier under the LANG header.

Note 3: When both D-channels are out of service, restore each channel separately. The first restored D-channel becomes the primary and goes into the INS state. The the second restored D-channel becomes the backup and goes into the STB state.

7 Ask operating company personnel at the far-end office to isolate and correct the problem at their end.

If the state of the D-channel	Do
is INS after the personnel at the far-end correct their problem	step 12
is not INS after the personnel at the far-end correct their problem	step 8

8

CAUTION
PRI service interruption
The following step takes an in-service D-channel out of service. When you take an in-service D-channel out of service, the backup D-channel automatically switches into service.

Restoring far-end service for a D-channel ISDN PRI primary and backup D-channels (end)

To manually busy the D-channel, type

>BSY d_channel

and press Enter.

where

d_channel
is the D-channel identifier (D1 or D2)

Example of a MAP response:

```
D1: STATE CHANGED
     or
THIS WILL PUT LTC 2 5 24 D2  OUT-OF-SERVICE
Please confirm (”YES”, ”Y”, ”NO”, or ”N”):
```

9 To confirm the command, type

>YES

and press the Enter key.

Note: The D-channel state changes to manual busy.

If the BSY command	Do
passed	step 10
failed	step 11

10 To return the busy D-channel to service, type

>RTS d_channel

where

d_channel
is the D-channel identifier (D1 or D2)

Example of a MAP response:

```
D2: STATE CHANGED
```

If the RTS command	Do
passed (INS or STB state)	step 4
failed	step 11

11 For additional help, contact the next level of support.

12 The procedure is complete.

Restoring far-end service for a D-channel ISDN PRI single D-channel

Application

Use this procedure to return a D-channel to service when the far end office is out of service.

Definition

The D-channel is in the remote-not-responding (RNR) state. The RNR state indicates that the far-end office is not responding. Log ISDN105 can generate.

Common procedures

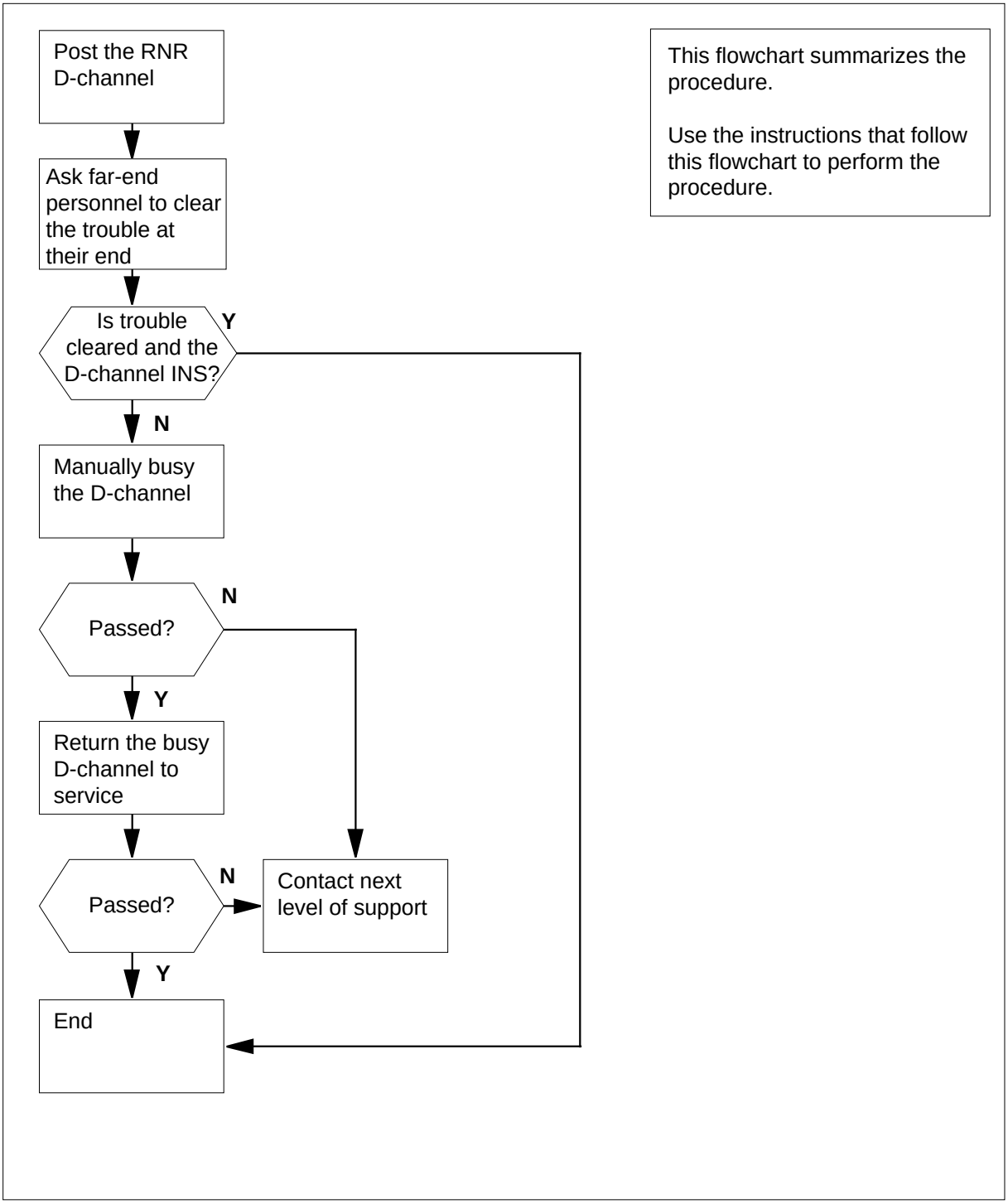
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Restoring far-end service for a D-channel ISDN PRI single D-channel (continued)

Summary of Restoring far-end service for a D-channel



Restoring far-end service for a D-channel ISDN PRI single D-channel (continued)

Restoring far-end service for a D-channel

At the MAP terminal

1 Determine the name of the trunk group from office records or operating company personnel.

2 Determine your next step.

If directions to this procedure	Do
came from *Determining the D-channel state*	step 5
came from other than listed here	step 3

3 To access the PRADCH level of the MAP display, type

`>MAPCI;MTC;TRKS;TTP;PRADCH`

and press the Enter key.

4 To post the RNR D-channel, type

`>POST GD group_name`

and press the Enter key.

where

group_name
is the trunk group name

Example input:

`>POST GD F9876035PRAPRV`

Example of a MAP display:

```
POST       DELQ        BUSYQ    DIG
TTP  6-005
CKT TYPE   PM NO      COM LANG              STA S R DOT TE RESULT
2W IS IS DTCI 2 3 24 F9876035PRAPRV DCHL    RNR R
```

Example of a MAP response:

```
LAST CKT 3 24
POSTED CKT IDLED
SHORT CLLI IS: F98760
OK,CKT POSTED
```

Restoring far-end service for a D-channel ISDN PRI single D-channel (end)

5 Ask operating company personnel at the far-end office to isolate and correct the problem at their end.

Note: The MAP terminal lists the state of the D-channel to the right side of the DCHL header.

If the state of the D-channel	Do
is INS (in service) after the persons at the far-end office correct their problem	step 9
is not INS after the persons at the far-end office correct their problem	step 6

6 To manually busy the D-channel, type

>BSY

and press the Enter key.

Example of a MAP response:

```
STATE CHANGED
```

Note: The D-channel state changes to MB (manual busy).

If the BSY command	Do
passed	step 7
failed	step 8

7 To return the D-channel to service, type

>RTS

and press the Enter key.

Example of a MAP response:

```
STATE CHANGED
```

If the RTS command	Do
passed (INS state)	step 9
failed	step 8

8 For additional help, contact the next level of support.

9 The procedure is complete.

Returning a busy D-channel to service ISDN PRI primary and backup D-channels

Application

Use this procedure to return a busy D-channel to service.

Definition

The D-channel is in

- the installation busy (INB) state. This state indicates an installed D-channel that is not in service
- the manual-busy (MB) state. This state indicates the manual removal of the D-channel from service

The PRI trunk is D-channel manual busy (DMB). A DMB PRI trunk indicates the manual removal from service of the D-channel associated with the trunk group. Trunk group members associated with the out-of-service D-channel remain DMB until the restoration of the D-channel. Only members that are INB do not remain DMB until the restoration of the D-channel. Logs ISDN111, ISDN112, or ISDN114 can generate.

An out-of-service D-channel addresses problem conditions. Normal activity continues on an in-service D-channel. In this event, you perform a procedure that clears problems on the out-of-service D-channel only. Both D-channels can be out of service. Perform a procedure that clears problems for each D-channel. Start with the condition that affects service the most severely. The first restored D-channel becomes the primary D-channel and is in service (INS). The second restored D-channel becomes the backup D-channel and is standby (STB).

Common procedures

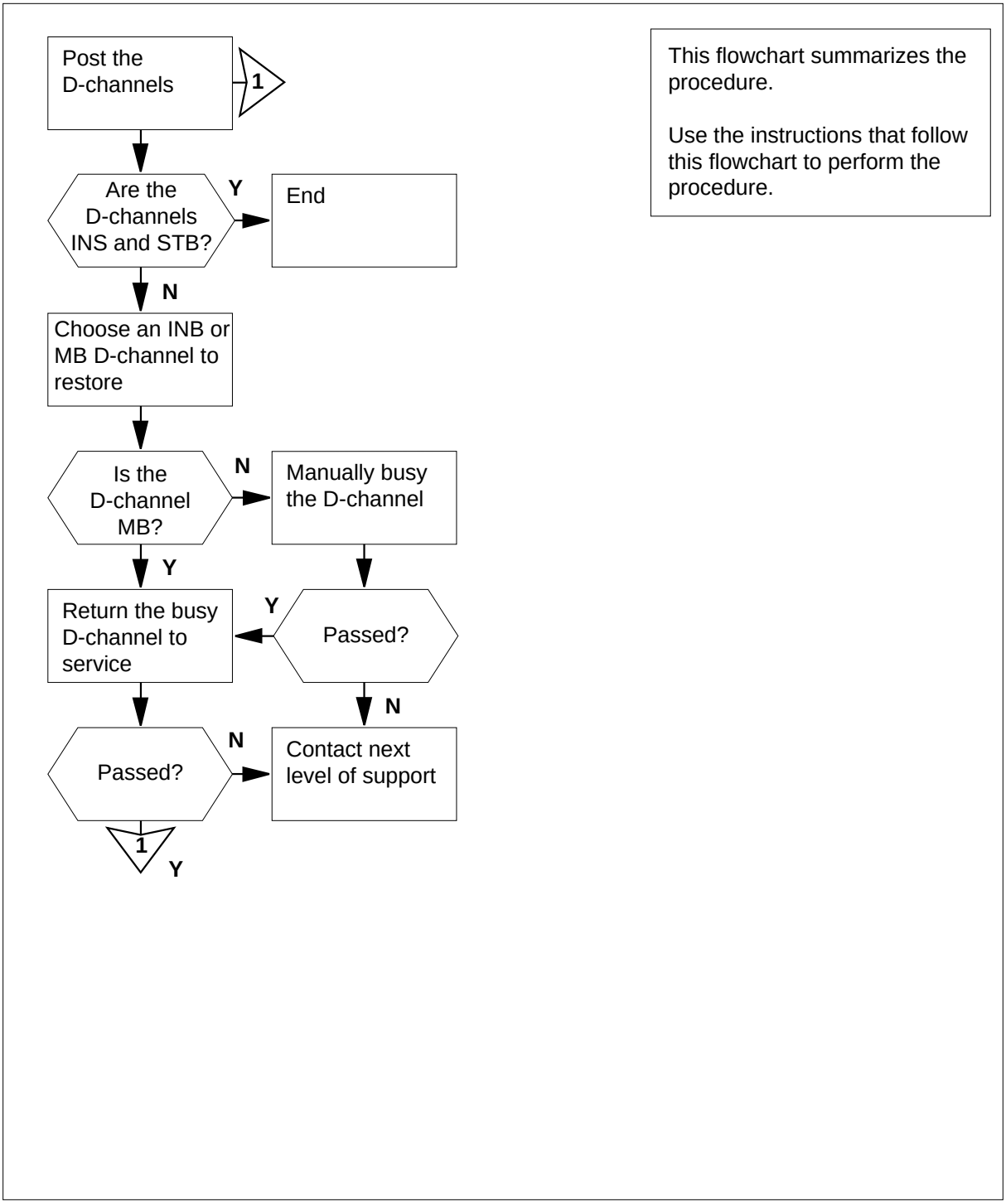
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Returning a busy D-channel to service
ISDN PRI primary and backup D-channels (continued)

Summary of Returning a busy D-channel to service



Returning a busy D-channel to service
ISDN PRI primary and backup D-channels (continued)

Returning a busy D-channel to service

At the MAP terminal

1 Determine the name of the trunk group from office records or operating company personnel.

2 Determine your next step.

If directions to this procedure	Do
come from *Determining the D-channel state*	step 4
come from other than listed here	step 3

3 To access the PRADCH level of the MAP display, type

`>MAPCI;MTC;TRKS;TTP;PRADCH`

and press the Enter key.

4 To post the D-channels, type

`>POST GD group_name`

and press the Enter key.

where

group_name
is the name of the trunk group

Example input:

`>POST GD F5678935PAV`

Example of a MAP display:

```
POST    1   DELQ      BUSYQ    DIG
TTP  6-005
CKT TYPE   PM NO      COM LANG STA S R DOT TE RESULT
2W IS IS LTC 2 3 24 F5678935PAV D1 INS
         LTC 2 5 24 F5678935PAV D2 MB R
```

Example of a MAP response:

```
SHORT CLLI IS: F56789
OK,CKT POSTED
```

Returning a busy D-channel to service
ISDN PRI primary and backup D-channels (continued)

5 Determine the state of the D-channel.

Note: The MAP display lists the state of the D-channel to the right side of the DCHL header.

If	Do
one D-channel is `INS` (in service) and the other is `STB` (standby)	step 10
one D-channel is `INB` (installation busy) or `MB` (manual busy), and the other is in a different out-of-service state or `INS`	step 6
both D-channels are either `INB` or `MB`	step 6

6 Choose an INB or MB D-channel to restore. Record the channel identifier (D1 or D2).

Note 1: Do not choose an in-service (INS) or standby (STB) D-channel to clear. An INS D-channel is a normal operation state for the primary D-channel. An STB D-channel is a normal operation state for the backup D-channel. The STB state occurs for a backup D-channel when the primary D-channel is INS.

Note 2: You must use the same identifier (D1 or D2) for all procedures and steps used to clear the chosen D-channel. The MAP display lists the identifier under the LANG header.

Note 3: When both D-channels are out of service, restore each channel separately. The first restored D-channel becomes the primary and is INS. The second restored D-channel becomes the backup and is STB.

If the state of the D-channel	Do
is INB	step 7
is MB	step 8

7

CAUTION
PRI service interruption
The following step takes an in-service D-channel out of service. When you take an in-service D-channel out of service, the backup D-channel automatically switches into service.

To manually busy the D-channel, type

```
>BSY  d_channel
```

and press the Enter key.

Returning a busy D-channel to service
ISDN PRI primary and backup D-channels (end)

where

d_channel
is the D-channel identifier (D1 or D2)

Example of a MAP response:

```
D2: STATE CHANGED
```

Note: The D-channel state changes to manual busy.

If the BSY command	Do
passed	step 8
failed	step 9

8 To return the busy D-channel to service, type

>RTS d_channel

and press the Enter key.

where

d_channel
is the D-channel identifier (D1 or D2)

Example of a MAP response:

```
D2: STATE CHANGED
```

If the RTS command	Do
passed (INS or STB state)	step 4
failed	step 9

9 For additional help, contact the next level of support.

10 The procedure is complete.

Returning a busy D-channel to service ISDN PRI single D-channel

Application

Use this procedure to return a busy D-channel to service.

Definition

The D-channel is in

- the installation busy (INB) state. This state indicates an installed D-channel that is not in service
- the manual-busy (MB) state. This state indicates the manual removal of the D-channel from service

The PRI trunk is D-channel manual busy (DMB). The DMB PRI trunk indicates the manual removal from service of the D-channel associated with the trunk group. Trunk group members associated with the out-of-service D-channel remain DMB until the restoration of the D-channel. Only members that are INB do not remain DMB until the restoration of the D-channel.

Common procedures

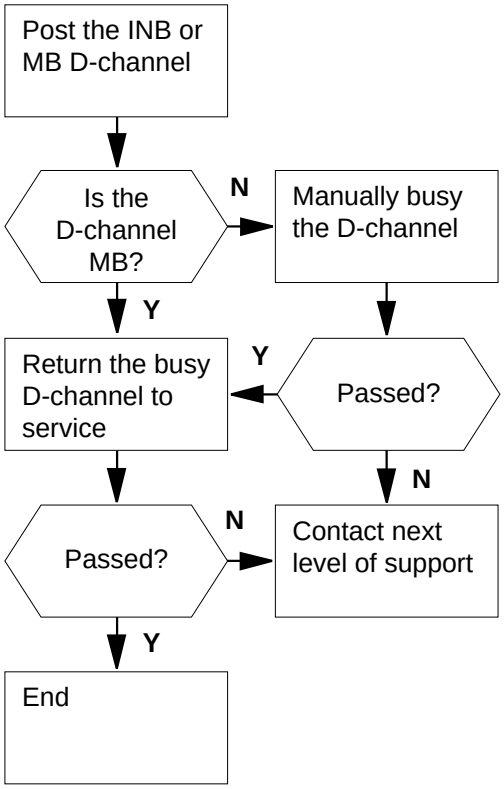
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Returning a busy D-channel to service
ISDN PRI single D-channel (continued)

Summary of Returning a busy D-channel to service



This flowchart summarizes the procedure.

Use the instructions that follow this flowchart to perform the procedure.

Returning a busy D-channel to service
ISDN PRI single D-channel (continued)

Returning a busy D-channel to service

At the MAP terminal

1 From office records or operating company persons, determine the name of the trunk group.

2 Determine your next step.

If directions to this procedure	Do
came from *Determining the D-channel state*	step 4
came from other than listed here	step 3

3 To access the PRADCH level of the MAP display, type

`>MAPCI;MTC;TRKS;TTP;PRADCH`

and press the Enter key.

4 To post the installation busy or manual busy D-channel, type

`>POST GD group_name`

and press the Enter key.

where

group_name
is the name of the trunk group

Example input:

`>POST GD F9876035PRAPRV`

Example of a MAP display:

```
POST       DELQ         BUSYQ    DIG
TTP  6-005
CKT TYPE   PM NO      COM LANG                  STA S R DOT TE RESULT
2W IS IS DTCI 2 3 24 F9876035PRAPRV DCHL        MBR
```

Example of a MAP response:

```
LAST CKT 3 24
POSTED CKT IDLED
SHORT CLLI IS: F98760
OK,CKT POSTED
```

Returning a busy D-channel to service
ISDN PRI single D-channel (end)

5 Determine the state of the D-channel.

Note: The MAP display lists the state of the D-channel to the right side of the DCHL header.

If the state of the D-channel	Do
is INB (installation busy)	step 6
is MB (manual busy)	step 7

6 To manually busy the D-channel, type

>BSY

and press the Enter key.

Example of a MAP response:

```
STATE CHANGED
```

Note: The D-channel state changes to manual busy (MB).

If the BSY command	Do
passed	step 7
failed	step 8

7 To return the D-channel to service, type

>RTS

and press the Enter key.

Example of a MAP response:

```
STATE CHANGED
```

If the RTS command	Do
passed (INS state)	step 9
failed	step 8

8 For additional help, contact the next level of support.

9 The procedure is complete.

Returning a busy PRI trunk to service
ISDN PRI trunk

Application

Use this procedure to return a busy PRI trunk (B-channel) to service.

Definition

The PRI trunk is installation busy (INB). INB indicates that the PRI trunk is installed but is not in service. The PRI trunk can be manual busy (MB). A PRI trunk that is MB is an indication of the manual removal of the PRI trunk from service.

Common procedures

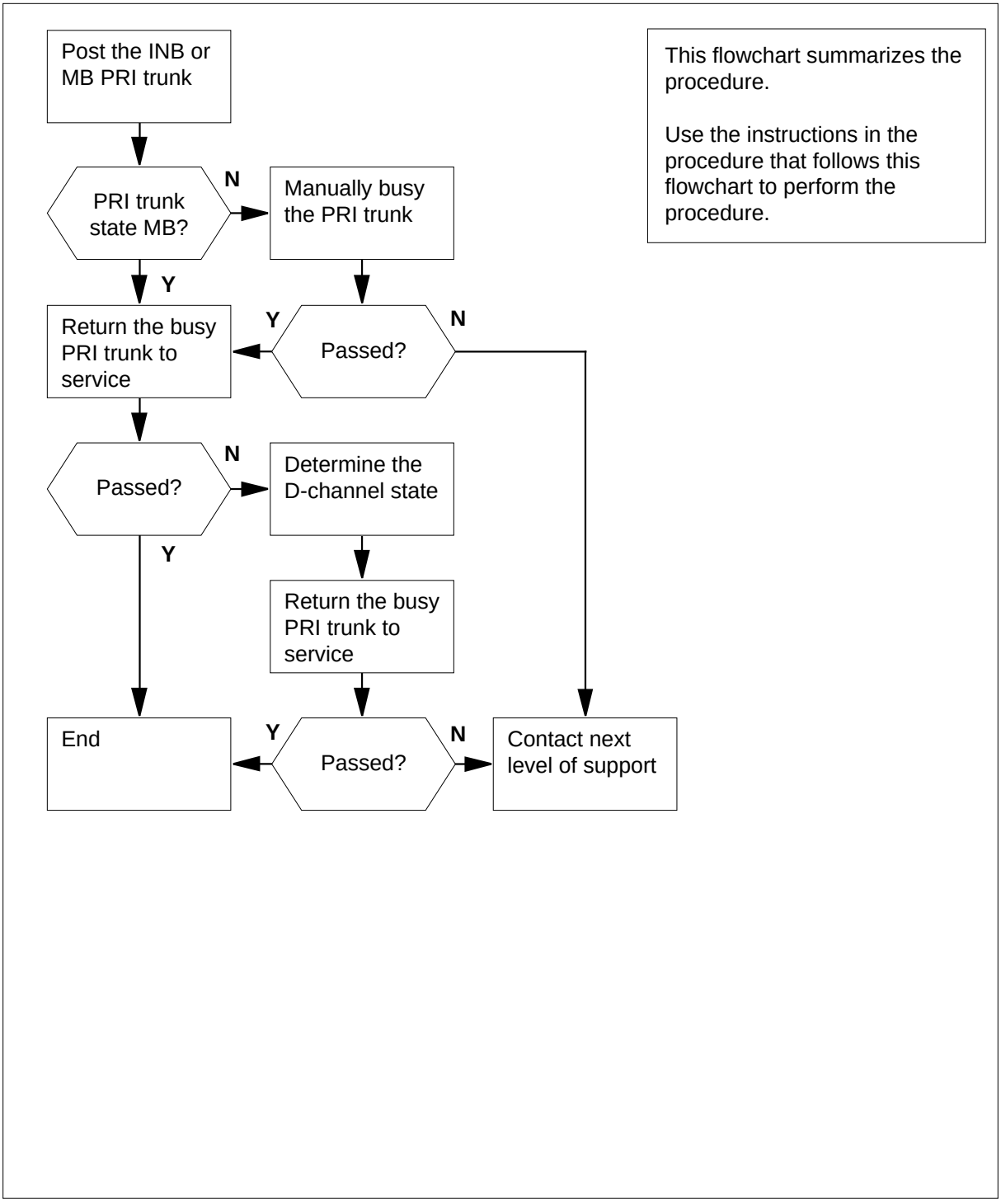
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Returning a busy PRI trunk to service
ISDN PRI trunk (continued)

Summary of Returning a busy PRI trunk to service



Returning a busy PRI trunk to service
ISDN PRI trunk (continued)

Returning a busy PRI trunk to service

At the MAP terminal

1 Determine your next step.

If the system directed you to this procedure from	Do
Determining the PRI trunk state	step 5
other than listed here	step 2

2 Determine the name of the trunk group from office records or an office person.

3 To access the TTP level of the MAP display, type

`>MAPCI;MTC;TRKS;TTP`

and press Enter.

4 To post the installation busy or manual-busy PRI trunk, type

`>POST G group_name`

and press Enter.

where

group_name
is the name of the trunk group

Example input:

`>POST G F1AAA105IPTLA`

Example of a MAP display:

```
POST       DELQ      BUSY                    QDIG
TTP  6-005
CKT TYPE   PM NO      COM LANG                STA S R DOT TE RESULT
IC IS DTCI 7 9 1 F1AAA105IPTLA                MB    R
```

Example of a MAP response:

```
LAST CKTN = 9
POSTED CKT IDLED
SHORT CLLI IS: F1AAA1
OK,CKT POSTED
```

Returning a busy PRI trunk to service
ISDN PRI trunk (continued)

5 Determine the state of the PRI trunk.

Note: The PRI trunk state appears under the STA header on the MAP display.

If the state of the PRI trunk	Do
is INB	step 6
is MB	step 7

6 To manually busy the PRI trunk, type

>BSY

and press Enter.

Example of a MAP response:

```
STATE CHANGED
```

Note: The state of the PRI trunk changes to manual busy.

If the BSY command	Do
passed	step 7
failed	step 11

7 To return the PRI trunk to service, type

>RTS

and press Enter.

Example of a MAP response:

```
STATE CHANGED
```

If the RTS command	Do
passed	step 12
failed for a single D-channel	step 8
failed for both primary and backup D-channels	step 9

8 Perform the procedure *Determining the D-channel state ISDN PRI single D-channel* in this document. When the procedure is complete, go to step 10.

9 Perform the procedure *D-channels Determining the D-channel state ISDN PRI primary and backup* in this document. When the procedure is complete, return to this point.

Returning a busy PRI trunk to service
ISDN PRI trunk (end)

10 To return the PRI trunk to service, type

>RTS

and press Enter.

Example of a MAP response:

```
STATE CHANGED
```

If the RTS command	Do
passed	step 12
failed	step 11

11 For additional help, contact the person responsible for the next level of support.

12 The procedure is complete.

Returning a card or assembly in Canada

Application

This procedure applies to a circuit card or an assembly, for example, a power converter. Use the procedure to return the card or assembly to Northern Telecom for repair or replacement in Canada.

Interval

Perform this procedure as required.

Common procedures

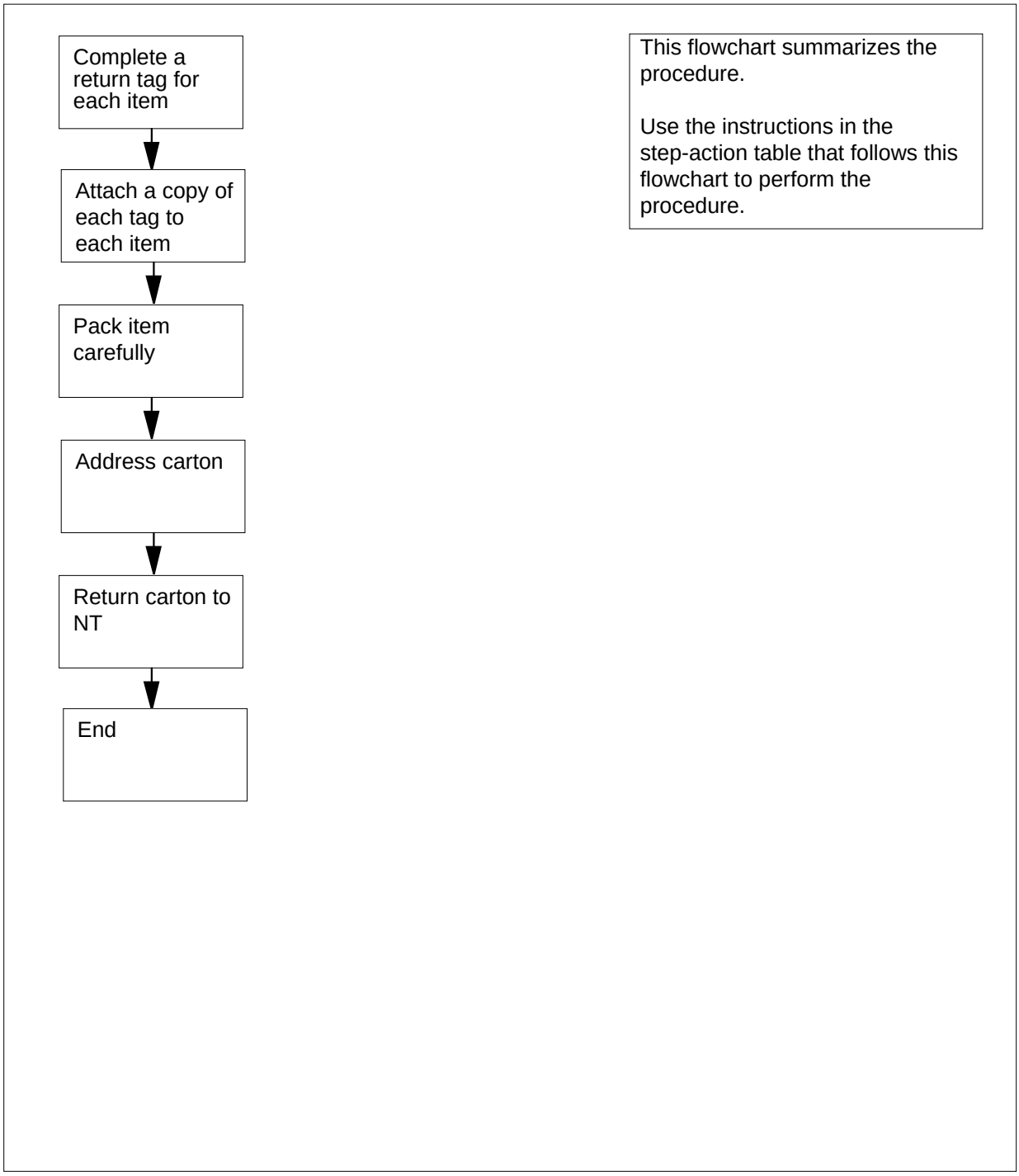
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Returning a card or assembly in Canada (continued)

Summary of Returning a card or assembly in Canada



Returning a card or assembly in Canada (continued)

Returning a card or assembly in Canada

At your Current Location

1 Put the card or assembly that you return into a protective bag for electrostatic discharge (ESD).

2 Complete one return label (form 24-115) for each card or assembly that you return.

Ensure that you include the following information:

- return authorization number from customer service
- NT product engineering code (PEC)
- serial number
- release number
- BCS software release used at the time of replacement
- if necessary, include peripheral module (PM) software load name
- description of the failure and action taken for repairs
- the code that describes the fault
- name of your company
- office identifier code
- your name
- site name

If you	Do
need help to complete the return label	step 3
do not need help to complete the return label	step 4

3 Call the following number for help to complete the return label:

- days: 416-454-2808, or 1-800-668-5511
- evenings: 416-457-9555

4 Attach one copy of the return label for each item you return.

5 Keep the other copies of the label for your records.

6 Pack the card or assembly in a Northern Telecom shipping carton. Seal the carton.

If a Northern Telecom carton	Do
is available	step 8
is not available	step 7

Returning a card or assembly in Canada (end)

7 Use any acceptable carton. Ensure that

- packing paper encloses each card or assembly
- bubble pack or foam surrounds each card or assembly
- the carton secures each card or assembly to prevent movement of the contents during shipment

8 Address the carton to:

Northern Telecom Canada LimitedCustomer Service Operationsc/o Wes Bell TransportUnit 3, Door 41630 Trinity RoadMississauga, OntarioL5T 1L6

9 Return the carton to Northern Telecom.

10 The procedure is complete.

Returning a card or assembly in Germany

Application

This procedure applies to a circuit card or an assembly, for example, a power converter. Use this procedure to return the card or assembly to Northern Telecom for repair or replacement in Germany.

Interval

Perform this procedure as required.

Common procedures

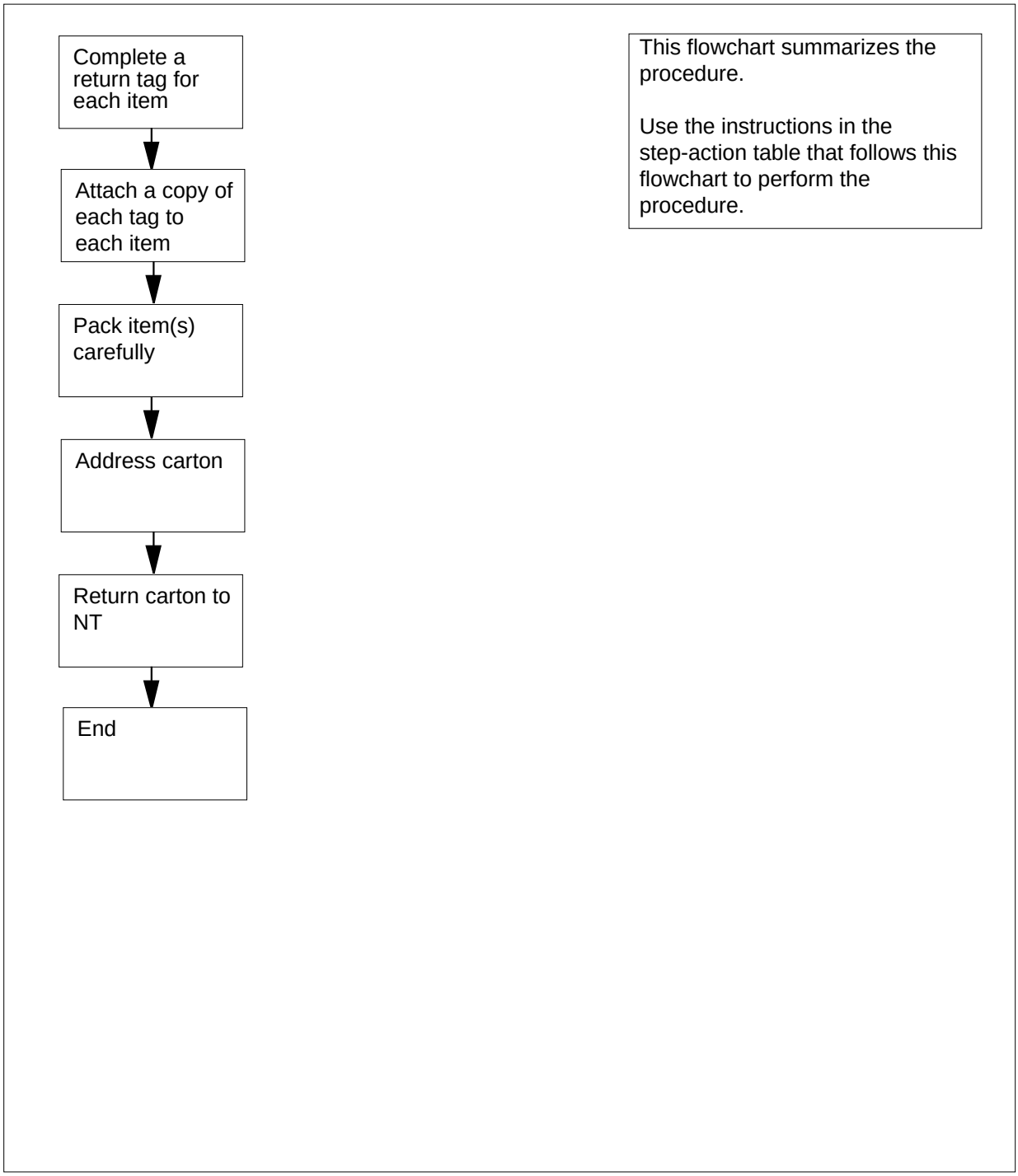
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Returning a card or assembly in Germany (continued)

Summary of Returning a card or assembly in Germany



Returning a card or assembly in Germany (end)

Returning a card or assembly in Germany

At your Current Location

1 Put the card or assembly that you return into a protective bag for electrostatic discharge (ESD).

2 Complete one return label (form 24-115) for each card or assembly that you return.

Ensure that you include the following information:

- return authorization number from customer service
- NT product engineering code (PEC)
- serial number
- release number
- BCS software release used at the time of replacement
- if necessary, include peripheral module (PM) software load name
- description of the failure and action taken for repairs
- the code that describes the fault
- name of your company
- office identifier code
- your name
- site name

3 Attach one copy of the return label for each item you return.

4 Keep the other copies of the label for your records.

5 Pack the card or assembly in a Northern Telecom shipping carton. Seal the carton.

If a Northern Telecom carton	Do
is available	step 7
is not available	step 6

6 Use any acceptable carton. Ensure that

- packing paper encloses each card or assembly
- bubble pack or foam surrounds each card or assembly
- the carton secures each card or assembly to prevent movement of the contents during shipment

7 Address the carton to:

Northern Telecom GmbHLogistik-ZentrumNeiderhofheimer Str. 56D-6238 Hofheim/Taunus

8 Return the carton to Northern Telecom.

9 The procedure is complete.

Returning a card or assembly in Japan

Application

This procedure applies to a circuit card or an assembly, for example, a power converter. Use this procedure to return the card or assembly to Northern Telecom for repair or replacement in Japan.

Interval

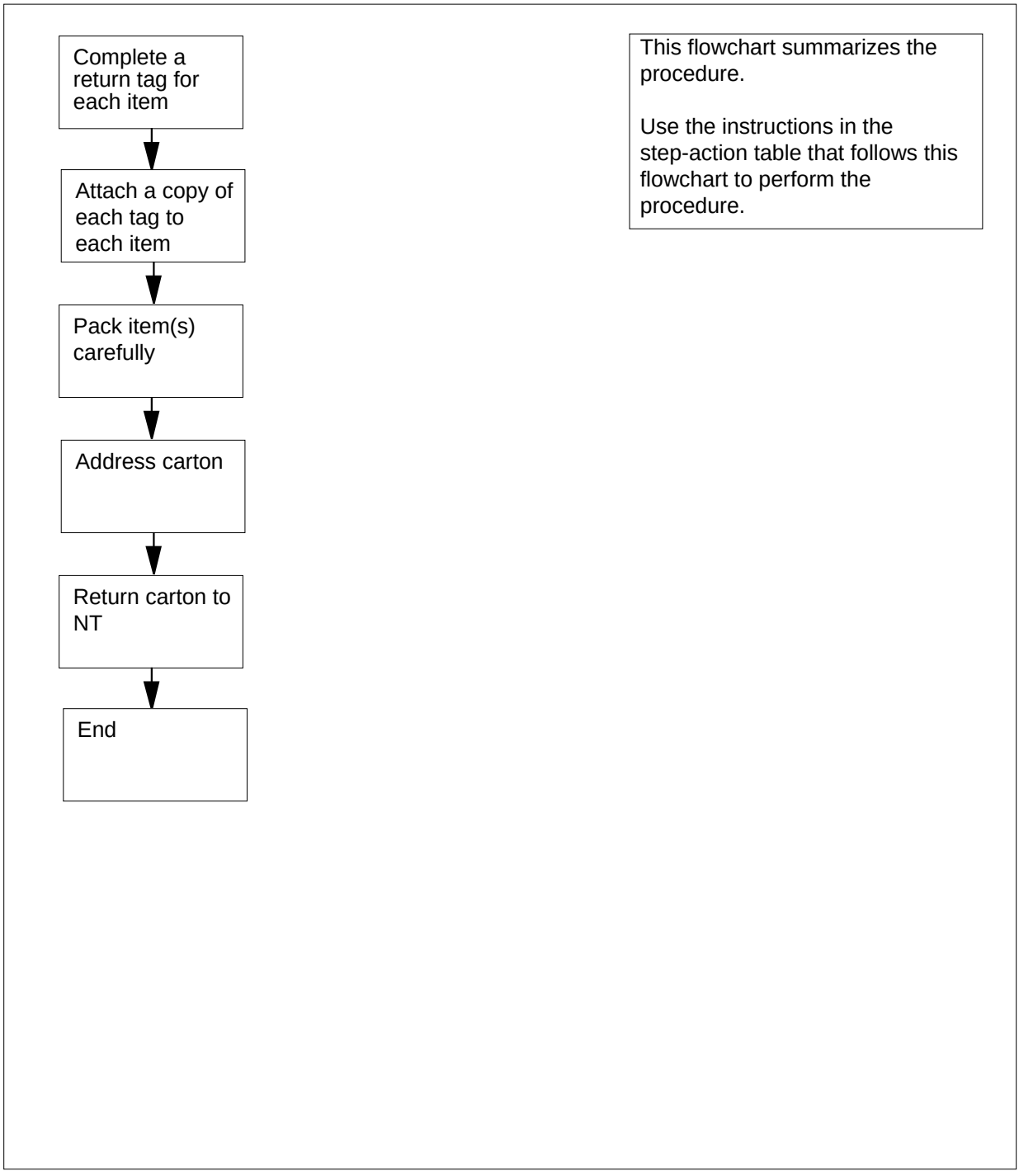
Perform this procedure as required.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Returning a card or assembly in Japan (continued)

Summary of Returning a card or assembly in Japan



Returning a card or assembly in Japan (continued)

Returning a card or assembly in Japan

At your current location:

1 Put the card or assembly that you return into a protective bag for electrostatic discharge (ESD).

2 Complete one return label (form 24-115) for each card or assembly that you return.

Ensure that you include the following information:

- return authorization number from customer service
- NT product engineering code (PEC)
- serial number
- release number
- BCS software release used at the time of replacement
- if necessary, include peripheral module (PM) software load name
- description of the failure and action taken for repairs
- the code that describes the fault
- name of your company
- office identifier code
- your name
- site name

3 Call the number 03-5696-0302 for help to complete the return label.

4 Attach one copy of the return label.

5 Keep the other copies of the label for your records.

6 Pack the card or assembly in a Northern Telecom shipping carton. Seal the carton.

If a Northern Telecom carton	Do
is available	step 8
is not available	step 7

7 Use any acceptable carton. Ensure that

- packing paper encloses each card or assembly
- bubble pack or foam surrounds each card or assembly
- the carton secures each card or assembly to prevent movement of the contents during shipment

8 Address the carton to:

Northern Telecom Japan Inc.Attn: Mr. Y. Harada,c/o Fuji Logitec Inc.3-5-1 Rinkai-cho 3FEdogawa-ku, Tokyo

Tel: 03-3877-2816/7; Fax: 03-3877-2818

9 Return the carton to Northern Telecom.

Returning a card or assembly in Japan (end)

10 The procedure is complete.

Returning a card or assembly in the United States of America

Application

This procedure applies to a circuit card or an assembly, for example, a power converter. Use this procedure to return the card or assembly to Northern Telecom for repair or replacement in the United States.

Interval

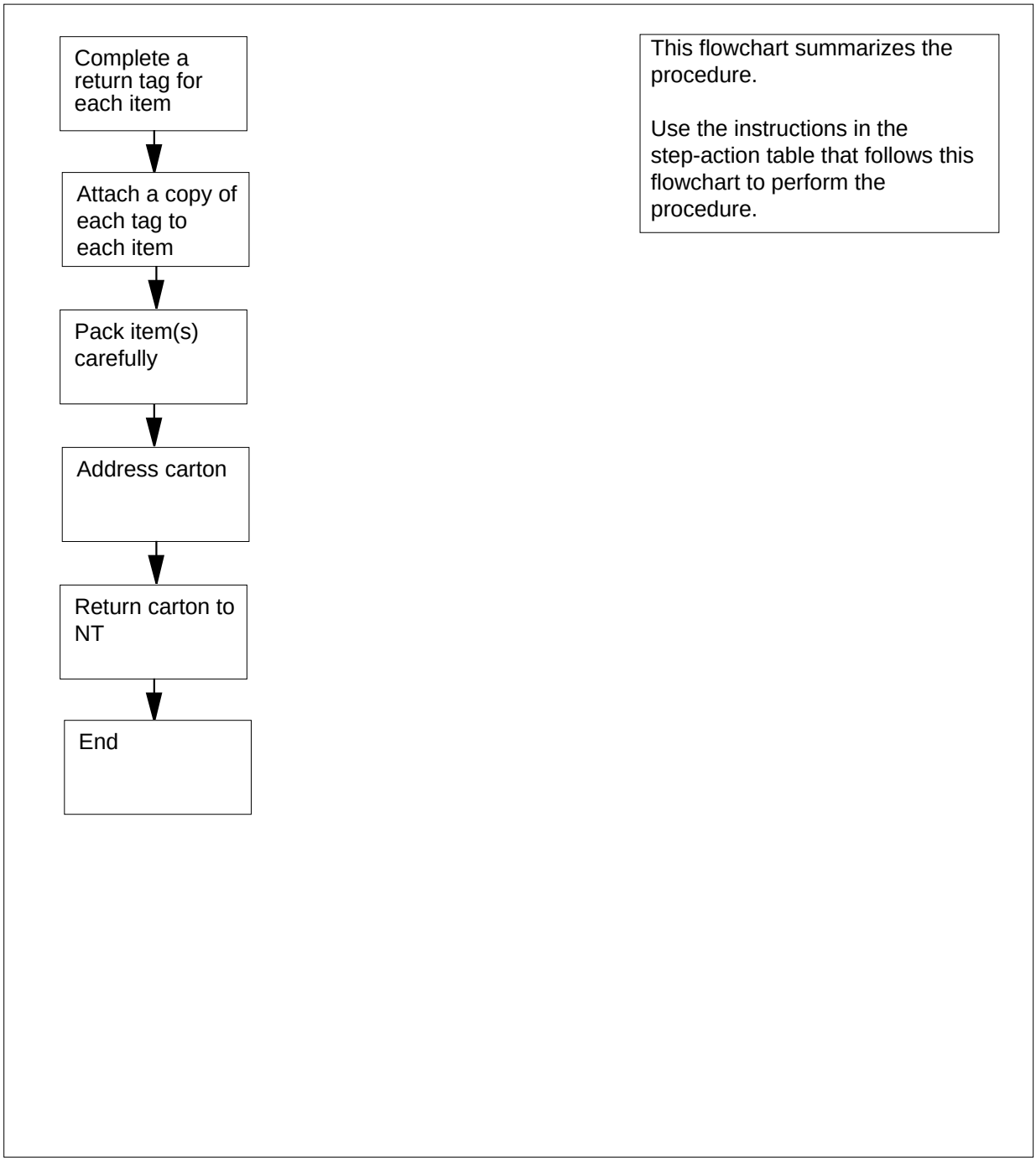
Perform this procedure as required.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Returning a card or assembly in the United States of America

Summary of Returning a card or assembly in the United States of America



Returning a card or assembly in the United States of America

Returning a card or assembly in the United States of America

At your current location

1 Put the card or assembly that you return into an protective bag for electrostatic discharge (ESD)

2 Complete one return label (form 24-115) for each card or assembly that you return.

Ensure that you include the following information:

- return authorization number from customer service
- NT product engineering code (PEC)
- serial number
- release number
- BCS software release used at the time of replacement
- if necessary, include peripheral module (PM) software load name
- description of the failure and action taken for repairs
- the code that describes the fault
- name of your company
- office identifier code
- your name
- site name

If you	Do
need help to complete the return label	step 3
do not need help to complete the return label	step 4

3 In the USA, call 919-992-3333 or 1-800-347-4850 (repair or return service) for help to complete the return label.

4 Attach one copy of the return label for each item that you return.

5 Keep the other copies of the label for your records.

6 Pack the card or assembly in a NorthernTelecom shipping carton. Seal the carton.

If a Northern Telecom carton	Do
is available	step 8
is not available	step 7

Returning a card or assembly in the United States of America (end)

7 Use any acceptable carton. Ensure that

- packing paper encloses each card or assembly
- bubble pack or foam surrounds each card or assembly
- the carton secures each card or assembly to prevent movement of the contents during shipment

8 Address the carton to:

Northern Telecom Inc.Spare Parts Center4600 Emperor BoulevardMorrisville, NC27560

9 Return the carton to Northern Telecom.

10 The procedure is complete.

Returning an LIM to service

Application

Use this procedure to return a link interface module (LIM) which is manually busy or offline to service.

If the LIM is system busy, it will have an alarm associated with one or more of its units. Refer to the *Alarm and Performance Monitoring Procedures* in order to clear the alarm and return the LIM to service.

Definition

The LIM is out of service when manual busy or offline.

Common procedures

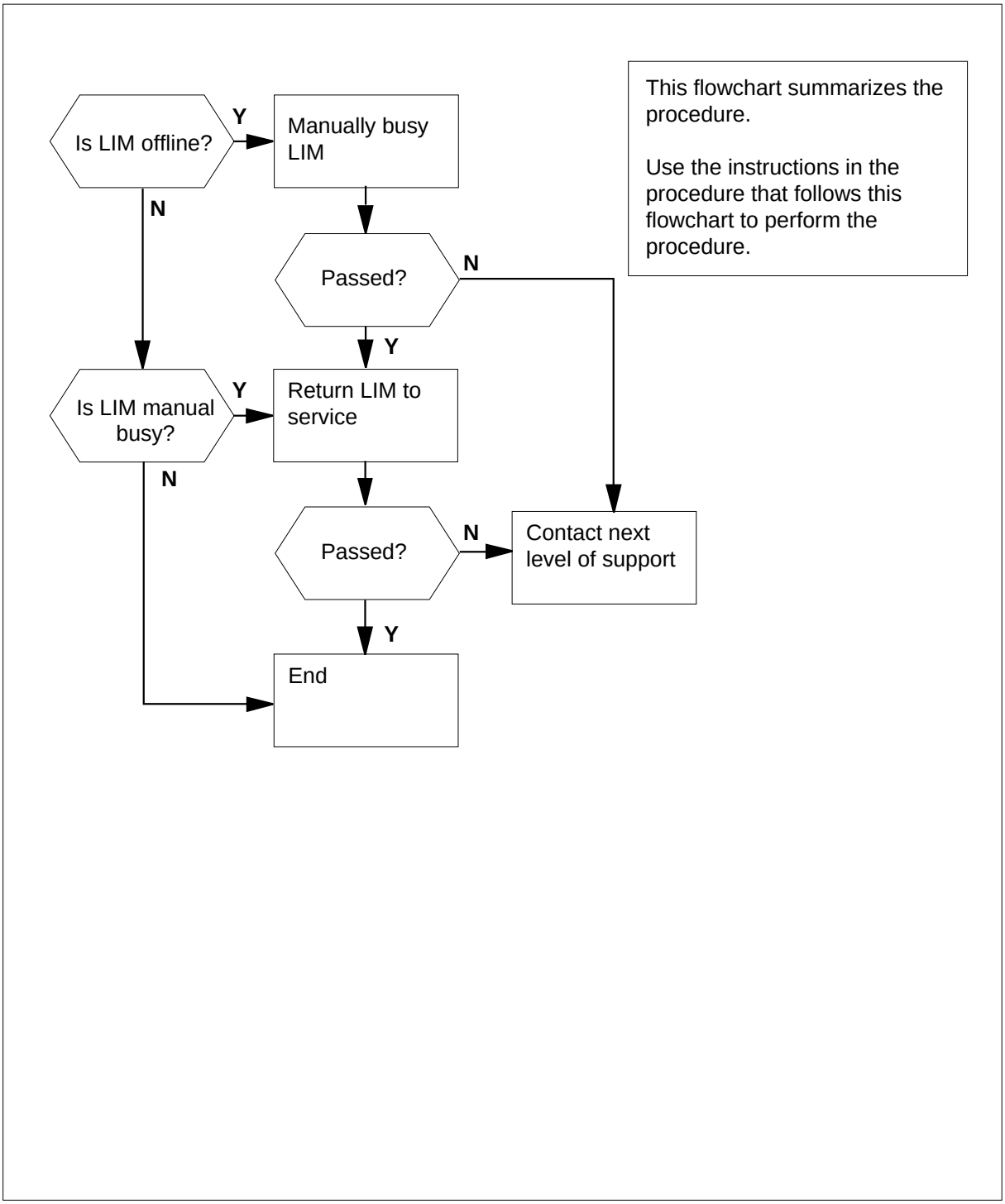
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Returning an LIM to service (continued)

Summary of Returning a LIM to service



Returning an LIM to service (continued)

Returning a LIM to service

At the MAP terminal

1 To access the PM level of the MAP display, type

>MAPCI;MTC;PM

and press Enter.

Example of a MAP display:

```
              SysB    ManB    OffL    CBsy    ISTb    InSv
PM            0       1       0       0       0       39
```

2 To determine if offline LIMs are present, type

>POST LIM OFFL

and press Enter.

If the posted set	Do
contains OffL LIMs	step 3
is empty	step 7

3 Choose an off-line LIM to work on.

4 Determine from office records or an office person the reason that the LIM is offline.

When possible, continue this procedure.

5 To manually busy the offline LIM, type

>BSY PM

and press Enter.

If the BSY command	Do
passed	step 6
failed	step 11

6 To return the LIM to service, type

>RTS PM

and press Enter.

If the RTS command	Do
passed	step 12
failed	step 11

7 To determine if manual-busy LIMs are present, type

>POST LIM MANB

Returning an LIM to service (end)

and press Enter.

If the posted set	Do
contains ManB LIMs	step 8
is empty	step 12

8 Choose a manual-busy LIM on which to work.

9 Determine from office records or from an office person why the LIM is manual busy.

When possible, continue with the procedure.

10 To return the manual-busy LIM to service, type

>RTS PM

and press Enter.

If the RTS command	Do
passed	step 12
failed	step 11

11 For additional help, contact the person responsible for the next level of support.

12 The procedure is complete.

Running a C7BERT

Application

Use this procedure to do the following:

- local or remote loopback on an NT9X77AA, NT9X78BA, NT9X78CA, NT9X78DA or NT9X78DB card for LIUBASIC
- local or remote loopback on an NTEX26AA channelized access link
- link fault sectionalization
- CCS7 bit error rate test (C7BERT)
- inject bit errors during C7BERT

Definition

Tests of bit error rate measure the quality of a CCS7 digital transmission path.

Run a C7BERT in the following conditions:

- before a CCS7 signaling link goes into service
- when isolating faults

Common procedures

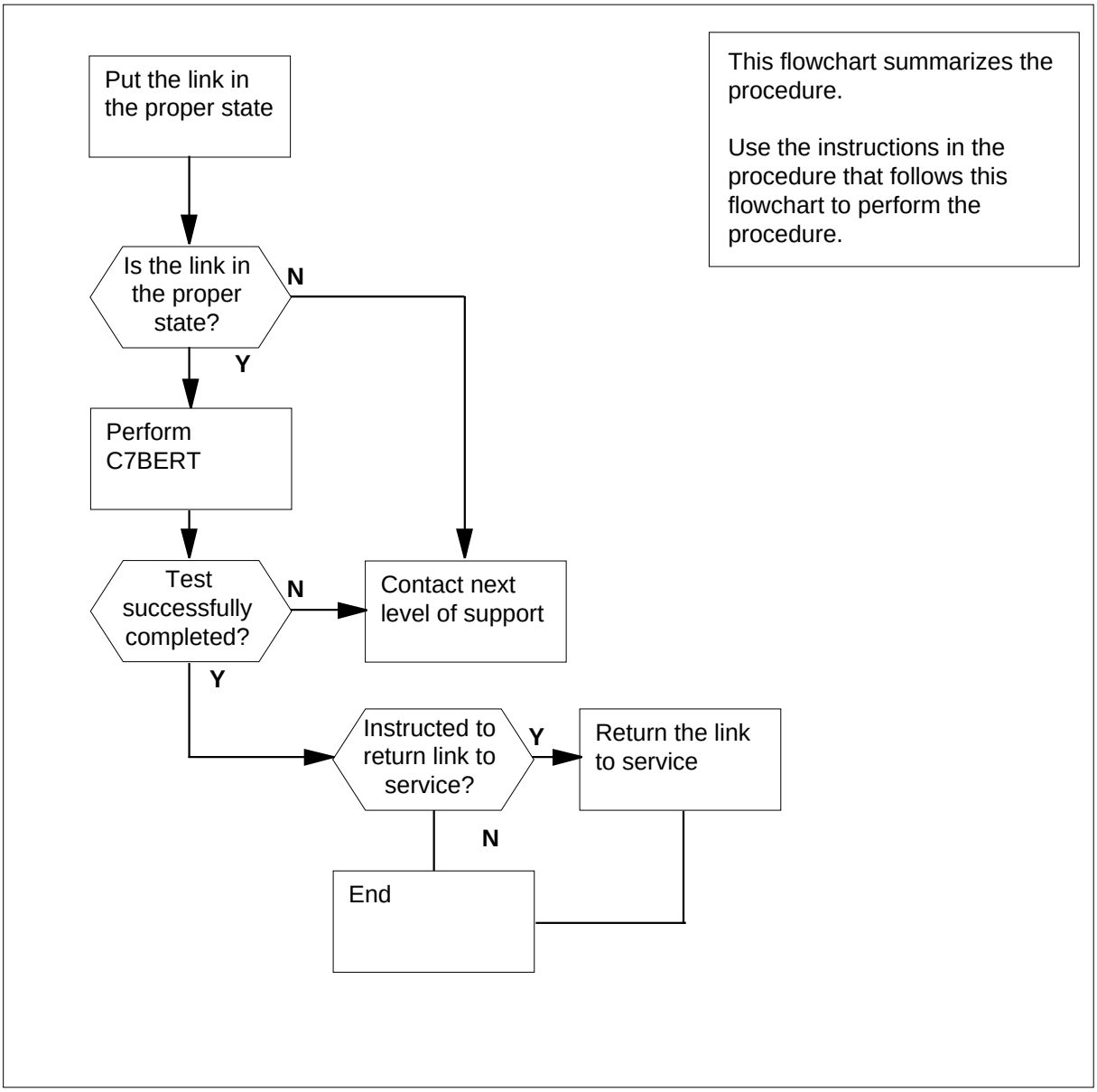
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Running a C7BERT (continued)

Summary of Running a C7BERT



Running a C7BERT

ATTENTION

To run link fault sectionalization (LFS) the SOC option TEL0007 must have the RTU set to “Y" and the state set to “on".

ATTENTION

If link fault sectionalization (LFS) is activated, an anomaly in the NT9X78BA and NT9X78CA cards can cause latch past to occur. When the last DS0DP is a BA or CA paddle board, LFS may latch past the last DS0DP link.For example, if the fifth and last device in a link is a BA or CA card, LFS may latch the sixth or seventh DS0DP.Before running this procedure, check the number and type of devices on a link. This information helps reduce the link diagnosis time.

At the MAP terminal

1 Contact the next level of support to obtain the following information:

- how the test will stop (manually or automatically), and
- if periodic reports are required, and if so, how many times each hour (1 to 12)

2 If you perform a remote loopback, inform a person at the far-end office that

- you will busy and deactivate the link, and
- the person must busy and deactivate the link at their end

3 To access the C7LKSET level of the MAP display, type

`>MAPCI;MTC;CCS;CCS7;C7LKSET`

and press Enter.

Example of a MAP response:

```
    Traf Sync                                          Link
 LK Stat Stat  Resource Stat Physical Access Stat      Action
```

4 To post the linkset that includes the link you want to test, type

`>POST C linkset_name`

and press Enter.

where

linkset_name
is the name of the linkset (as defined in table C7LKSET)

Running a C7BERT (continued)

Example of a MAP response:

```
   Traf Sync                                        Link
LK Stat Stat Resource Stat Physical Access Stat  Action
0  OffL DAct LIU7 12  OffL TTC7LKS1_TL
1  ManB DAct LIU7 13  InSv TTC7LKS1_TL
Size of Posted Set = 2
```

If the linkset	Do
has more than 4 entries	step 5
has 4 or less than 4 entries	step 6

5 To display the rest of the links in the linkset, type

>NEXT

and press Enter.

6 Determine the state of the CCS7 link interface unit (LIU7) for the link you want to test.

Note: The LIU7 state appears under the Stat header that is to the right of Resource.

If the LIU7 state	Do
is SysB, or OffL	step 7
is ManB	step 10
is InSv, or ISTb	step 13
is other than listed here	step 66

7 To access the PM level of the MAP display, type

>PM

and press Enter.

Example of a MAP display:

```
         SysB   ManB   OffL   CBsy   ISTb   InSv
PM          1     10     12      0      6     49
```

8 To post the LIU7, type

>POST LIU7 liu7_no

and press Enter.

Note: The number of the LIU7 appears under the Resource header of the MAP display. In the example in step 4, the LIU7 that connects to link1 is 13.

where

liu7_no
is the number of the LIU7 that connects to the link you want to test

Example of a MAP response:

```
LIU7 13 InSv
```

9 To force the LIU7 to busy, type

>BSY F0RCE

and press Enter.

If the BSY command	Do
passed	step 10
failed	step 66

10 To reset the LIU7, type

>PMRESET

and press Enter.

If the PMRESET command	Do
passed	step 11
failed	step 66

11 To return the LIU7 to service, type

>RTS

and press Enter.

If the RTS command	Do
passed	return to C7LKSET level of MAP
failed	step 66

12 To access the C7LKSET level of the MAP display, type

>CCS;CCS7;C7LKSET

and press Enter.

Example of a MAP response:

```
   Traf Sync                                      Link
LK Stat Stat Resource Stat Physical Access Stat   Action
0  OffL DAct LIU7 12  OffL DS0A
1  ManB DAct LIU7 13  InSv DS0A
Size of Posted Set = 2
```

Running a C7BERT (continued)

13 Determine the traffic state of the link you want to test.

Note: The traffic state of the link appears under the Traf Stat header of the MAP display.

If the traffic state	Do
is ManB	step 15
is other than listed here	step 14

14 To manually busy the link, type

>BSY link_no

and press Enter.

where

link_no
is the number of the link you want to test (0 to 15)

Example of a MAP response:

```
   Traf Sync                                          Link
LK Stat Stat Resource Stat Physical Access Stat  Action
1  ManB Sync LIU7 109  InSv TTC7LKS1_TL   1 SZD
Size of Posted Set = 1
```

If the BSY command	Do
passed	step 15
failed	step 66

15 To deactivate the link, type

>DEACT link_no FORCE

and press Enter.

where

link_no
is the number of the link you want to deactivate (0 to 15)

Note: The response can take 10 minutes. Wait for the status to change InSv and confirm that the link is deactivated.

If the DEACT command	Do
passed	step16
failed	step 66

16 To access the C7BERT level of the MAP display, type

>C7BERT

and press Enter.

Running a C7BERT (continued)

17 Determine the purpose of the next step.

If the next step is to perform	Do
a local loopback	step 18
a remote loopback	step 19
a link fault sectionalization	step 67

18 To activate a local loopback, type

`>PMLOOP LOCON link_no`

and press Enter.

where

link_no
is the number of the link you want to test (0 to 15)

If the response	Do
is `This command is not implemented`	step 22
is `Link nn: Failed - PM not equipped with 9X78DA or 9X78DB`	step 22
is `Link 1: Failed - C7BERT already active on this link`	step 23
is `Link 1: Loopback Local on completed`	step 30
is `Link 1: Failed - PMLOOP <Local> is already active`	step 48
is `Link 1: Failed - PMLOOP <Remote> is already active`	step 49
is `Link 1: Loopback Local on completed. WARNING: In DTE mode, the V.35 clock must be present for C7BERT to pass`	step 66
is other than listed here	step 66

19 If you perform a remote loopback, inform a person at the far-end office that

- you will busy and deactivate the link, and
- the person must busy and deactivate the link at their end

Running a C7BERT (continued)

20 Before activating a remote loopback, access the C7BERT level of the MAP display at the far end office, typimg

>C7BERT

and pressing Enter.

21 To activate a remote loopback, at the far end office, type

>PMLOOP RMTON link_no

and press Enter.

where

link_no
is the number of the link you want to test (0 to 15)

If the response	Do
is `This command is not implemented`	step 22
is `Link 1: Failed - C7BERT already active on this link`	step 23
is `Link 1: Loopback Remote On completed`	step 30
is `Link 1: Failed - PMLOOP <Local> is already active`	step 48
is `Link 1: Failed - PMLOOP <Remote> is already active`	step 49
is `Failed – Cannot seize trunk`	Check the corresponding DTC, and retry the remote loopback.
is `Failed – Cannot install NIU connection (NIU-LIU)`	Check the corresponding NIU, and retry the remote loopback.
is `Link 1: Loopback Remote On completed. WARNING: In DTE mode, the V.35 clock must be present for C7BERT to pass`	step 66

Running a C7BERT (continued)

If the response	Do
is other than listed here	step 66

22 PM loop functionality is not available on your switch.

If	Do
you want to run a C7BERT	step 24
other than listed here	step 66

23 To stop the C7BERT that exists, type

>STOP link_no

and press Enter.

where

link_no
is the number of the link that you entered in PMLOOP command

Note: The STOP command overrides a preset stop time without warning.

If the response	Do
is Link 1: C7BERT stopped	repeat PMLOOP
is other than listed here	step 66

24 Apply manual loopbacks to the network elements that you will test.

25 To determine if a set stop time exists, type

>SETSTOP link_no STATUS

and press Enter.

where

link_no
is the number of the link (0 to 15) that the C7BERT runs on

If the response	Do
is Link nn: Stop time set at: is time	step 26
is Link nn: No stop time has been set	step 27
is other than listed here	step 66

26 To clear the stop time, type

>SETSTOP link_no CLEAR

and press Enter.

Running a C7BERT (continued)

where

link_no
is the number of the link that the C7BERT runs on

If the response	Do
is Stop time cleared	step 27
is other than listed here	step 66

27 To set the stop time to a new value, type

```
>SETSTOP  link_no  SET  day  hours  minutes
```

and press Enter.

where

link_no
is the number of the link (0 to 15) the C7BERT is running on

day
is the day you want the test to stop automatically (MON, TUE, WED,THU, FRI, SAT, or SUN)

hours
is the hour you want the test to stop automatically (0 to 23)

minutes
is the minute you want the test to stop automatically (00 to 59)

Example input:

```
>SETSTOP  3  SET  MON  10  30
```

Note: The example entry sets the stop time for link 3 on every Monday at 10:30 a.m.

If the response	Do
is Link nn: Stop time set at: is 19xx/yy/zz is hh:mm:00.000 ddd	step 28
is other than listed here	step 66

28 Determine if the stop time is correct.

If the stop time	Do
is correct	step 29
is wrong	step 26

29 Wait until the C7BERT stops.

Go to step 45.

Running a C7BERT (continued)

30 To start the C7BERT, type

>START link_no

and press Enter.

where

link_no
is the number of the link you want to test (0 to 15)

If the response	Do
is Link n: C7BERT started	step 31
is Link n:Failed - Link state is invalid for C7BERT Link must be ManB and DAct (or LFS)	step 6
is other than listed here	step 66

31 To display the test results of the C7BERT, type

>QUERY link_no

and press Enter.

where

link_no
is the number of the tested link. (0 to 15)

Example of a MAP response:

```
query 1
Link  1: C7BERT query
Run Time     :       662   Err Free Secs:       662
Tx Frames    :     19016   Rx Sync Errs :         0
Rx Frames    :     19019   Rx Bad Frames:         0
Rx Bit Errors:         0   Rx Bits      :  38931896
Bit Err Rate : 0 x 10–15
```

If the response	Do
is a display of C7BERT statistics	step 32
is other than listed here	step 66

Running a C7BERT (continued)

32 Determine the if any transmitted Tx frames exist.

Note: The number of frames transmitted appears to the right of the Tx Frames header of the MAP display. In the example in step 31, the number of frames transmitted is 19 016 .

If Transmitted Tx Frames	Do
are present	step 33
are not present	step 66

33 The test runs correctly. The C7BERT generates test results when you request periodic reports, stop the test manually, or stop the test automatically at a preset time. Decide the action you want to take.

Note: If a switch restart occurs when a C7BERT runs on a link, the test stops automatically. If the LIU7 for the link fails, the test also stops automatically.

If	Do
you want to request periodic reports	step 40
you want to stop the test manually	step 44
you want to stop the test automatically at a preset time	step 50
the link connects to a NT9X78DA/DB card and you want to inject bit errors	step 34

34 To display C7BERT results, type

`>QUERY link_no`

and press Enter.

where

link_no
is the number of the tested link. (0 to 15)

Example of a MAP response:

Running a C7BERT (continued)

```
Link 1: C7BERT query
Run Time     :      1224   Err Free Secs:      1133
Tx Frames    :     32538   Rx Sync Errs :         0
Rx Frames    :     32580   Rx Bad Frames:         1
Rx Bit Errors:         0   Rx Bits      :  66673662
Bit Err Rate : 1 x 10– 8
```

If the response	Do
is a display of test statistics	step 35
is other than listed here	step 66

35 Record the number of Rx bit errors.

Note: In the example in step 34, the number of bit errors received appears to the right of Rx Bit Errors.

36 To inject bit errors, type

>INJERR link_no

and press the Enter key.

where

link_no
is the number of the link you tested in step 30

Example of a MAP response:

```
injerr 1
```

If the response	Do
is Link 1: INJECT ERROR completed	step 37
is Link n:Failed - C7BERT is not active on this link	step 30
is other than listed here	step 66

37 To display the result of bit error injection, type

>QUERY link_no

and press Enter.

where

link_no
is the number of the tested link (0 to 15)

Example of a MAP response:

Running a C7BERT (continued)

```
Link  1: C7BERT query
Run Time     :      1134   Err Free Secs:      1133
Tx Frames    :     32568   Rx Sync Errs :         0
Rx Frames    :     32570   Rx Bad Frames:         1
Rx Bit Errors:         6   Rx Bits      :  66670792
Bit Err Rate : 1 x 10– 8
```

If the response	Do
is a display of test statistics	step 38
is other than listed here	step 66

38 Determine the result of bit error injection.

Note: In the example in step 37, the number of bit errors received appears to the right of Rx Bit Errors.

39 Subtract the result of the C7BERT recorded in step 35 from the result obtained in step 38.

If the difference	Do
is 6	step 33
is other than listed here	step 66

40 To determine if any requests existed for periodic reports, type

>REPORT link_no STATUS

and press Enter.

where

link_no
is the number of the link (0 to 15) that the C7BERT runs on

If the response	Do
is Link nn: Report interval already set at: mm times per hour	step 41
is Link nn: Automatic query reporting is not active	step 42
is other than listed here	step 66

41 To clear the last report interval, type

>REPORT link_no OFF

and press Enter.

where

link_no
is the number of the link that the C7BERT runs on

MAP response:

```
Link nn: Automatic query reporting has been terminated
```

42 To set the number of reports per hour, type

>REPORT link_no ON number

and press Enter.

where

link_no
is the number of the link (0 to 15) that the C7BERT runs on

number
is the number of reports per hour (1 to 12)

Example input:

>REPORT 1 ON 6

If the response	Do
is Link nn: Report interval set at:is nn times per hour	step 43
is other than listed here	step 66

43 Determine if the report interval is correct.

If the interval	Do
is correct	step 33
is wrong	step 41

44 Stop the C7BERT that exists, type

>STOP link_no

and press Enter.

where

link_no
is the number of the link (0 to 15) that the C7BERT runs on

Note: The STOP command overrides any preset stop time without warning.

If the response	Do
is Link 1: C7BERT stopped is with a display of test statistics	step 45
is other than listed here	step 66

Running a C7BERT (continued)

45 Give the results to the persons responsible for the next level of support.

If	Do
the link stops on an NT9X77AA, NT9X78BA/CA/DA/DB, or NTEX26AA card, and you just ran a peripheral module (PM) local or remote loopback. If instructions required you to return the link to service	step 48 or 49
the link stops on an NT9X77AA, NT9X78BA/CA/DA/DB, or NTEX26AA card, and you just ran a PM local or remote loopback. If instructions required you to perform more tests	step 48 or 49
the link does not stop on an NT9X77AA, NT9X78BA/CA/DA/DB, or NTEX26AA card	step 46
other than listed here	step 110

46 Remove the manual loopback across network elements.

47 Your next step depends on the instructions received from your next level of support.

If	Do
instructions required you to return the link to service	step 55
instructions required you to perform more tests	step 24
other than listed here	step 110

48 To deactivate a local loopback, type

`>PMLOOP LOCOFF link_no`

and press Enter.

where

link_no
is the number of the link you tested in step 18

If the response	Do
is `pmloop off 1` `Link 1: Loopback Local off completed`	step 55
is other than listed here	step 66

Running a C7BERT (continued)

49 To deactivate a remote loopback, type

>PMLOOP RMTOFF link_no

and press Enter.

where

link_no
is the number of the link you tested in step 18

If the response	Do
is `pmloop off 1 Link 1: Loopback Remote off completed`	step 55
is other than listed here	step 66

50 To determine if a set stop time exists, type

>SETSTOP link_no STATUS

and press Enter.

where

link_no
is the number of the link (0 to 15) that the C7BERT runs on

If the response	Do
is Link nn: Stop time set at:is time	step 51
is Link nn: No set stop time	step 52
is other than listed here	step 66

51 To clear the stop time, type

>SETSTOP link_no CLEAR

and press Enter.

where

link_no
is the number of the link that the C7BERT runs on

If the response	Do
is Stop time cleared	step 52
is other than listed here	step 66

52 To set the stop time that is new, type

>SETSTOP link_no SET day hours minutes

and press Enter.

Running a C7BERT (continued)

where

link_no
is the number of the link (0 to 15) that the C7BERT runs on

day
is the day you want the test to stop automatically (MON, TUE, WED, THU, FRI, SAT, or SUN)

hours
is the hour you want the test to stop automatically (0 to 23)

minutes
is the minute you want the test to stop automatically (00 to 59)

Example input:

```
>SETSTOP  3  SET  MON  10  30
```

Note: The example entry sets the stop time for link 3 on every Monday at 10:30 a.m.

If the response	Do
is Link nn: Stop time set at: is 19xx/yy/zz is hh:mm:00.000 ddd	step 53
is other than listed here	step 66

53 Determine if the stop time is correct.

If the stop time	Do
is correct	step 54
is wrong	step 51

54 Wait until the C7BERT stops.

Go to step 45.

55 To quit the C7BERT level of the MAP display, type

```
>QUIT
```

and press Enter.

56 To activate the link that the C7BERT ran on, type

```
>ACT  link_no
```

and press Enter.

where

link_no
is the number of the link (0 to 15)

If the ACT command	Do
passed	step 57
failed	step 66
other than listed here	step 66

57 Determine the synchronization state of the link.

Note: The synchronization state appears under the Sync Stat header of the MAP display.

If the synchronization state	Do
is Alnd	step 54
is other than listed here	step 58

58 Wait 8 minutes, and continue with the procedure.

59 Determine the synchronization state of the link.

If the synchronization state is not Alnd, and you	Do
did not ask the far-end office to activate the link	step 60
already asked the far-end office to activate the link	step 62

60 Determine from office records the far-end office that connects to the linkset posted in step 4.

61 Contact the far-end office. Tell the person at that location that

- you are going to busy and deactivate the link in order to realign it, and that
- the person at the far end and you must activate the link after you busied and deactivated the link

Go to step 57.

62 To deactivate the link, type

```
>DEACT  link_no  FORCE
```

and press Enter.

where

link_no
is the number of the link you activated in step 56

Running a C7BERT (continued)

63 Tell the person at the far-end office to activate the link. To activate the link from your end, type

>ACT link_no

and press Enter.

where

link_no
is the number of the link you activated in step 56

If the ACT command	Do
passed	step 64
failed	step 66

64 To return the link to service, type

>RTS link_no

and press Enter.

where

link_no
is the number of the link you activated in step 56

If the RTS command	Do
passed	step 65
failed	step 66

65 To unhibit the link, type

>UINH link_no

and press Enter.

where

link_no
is the number of the link you activated in step 56

If the UINH command	Do
passed	step 110
failed	step 66

66 For additional help, contact the next level of support.

67

ATTENTION
To run link fault sectionalization (LFS) the SOC option TEL0007 must have the RTU set to "Y" and the state set to "on".

Running a C7BERT (continued)

ATTENTION

If link fault sectionalization (LFS) is activated, an anomaly in the NT9X78BA and NT9X78CA cards can cause latch past to occur. When the last DS0DP is a BA or CA paddle board, LFS may latch past the last DS0DP link.

For example, if the fifth and last device in a link is a BA or CA card, LFS may latch the sixth or seventh DS0DP.

Before running this procedure, check the number and type of devices on a link. This information helps reduce the link diagnosis time.

To activate link fault sectionalization, type

>LFSLOOP START link_no element_type loopback_type occurrence

and press Enter.

where

link_no
is the number of the link you want to test (0 to 15)

element_type
is the type of network element that the loopback will use

(DS0DP, OCUDP, CSU, NEI, or DSU)

loopback_type
is if the loopback latches or does not latch (LATCH or

NONLATCH)

occurrence
is the occurrence of the element type where link fault

sectionalization will initiate (1 to 16)

Example input:

>LFSLOOP START 1 DS0DP LATCH 1

68 Your next step depends on the generated response.

If the response	Do
is Link nn: LFS ON complete is Looped back at element mm	step 79
Link nn: LFS ON complete Looped back at element mm WARNING: Physical loop may exist as confirmation byte not received.	step 79

Running a C7BERT (continued)

If the response	Do
is LFS non-latching sequence initiated for element mm. Run C7BERT to verify loop-back at element mm.	step 79
is Link nn: Failed - C7BERT already active on this link	step 72
is Link 1: Failed - LFS already active on this link	step 70
is Link nn: Has not gone into loopback. is Element mm has not responded is Link nn: LFS OFF complete	step 71
is Link nn: Has not gone into loopback. is Link nn: LFS OFF complete	step 71
is Link nn: Failed - PM not equipped with 9X78DA or 9X78DB	step 69
is other than listed here	step 109

69 PM loop functionality is not available on your switch.

If	Do
you still want to run a C7BERT	step 73
other than listed here	step 109

70 To remove the link fault sectionalization already applied, type

`>LFSLOOP STOP link_no`

and press Enter.

where

link_no
is the number of the link you entered in step 67

If the response	Do
is LFSLoop stop nLink n: LFS OFF complete	step 67
is other than listed here	step 109

71 Record the element type and occurrence specified in step 67.

Note: The link fault sectionalization failed at the element type and occurrence you specified.

Running a C7BERT (continued)

The failure occurred for one of the following reasons:

- The element type and occurrence specified is beyond the location of the link problem.
- There is no element type and occurrence.

Go to step 109.

72 To stop the C7BERT that exists, type

>STOP link_no

and press Enter.

where

link_no
is the number of the link that you entered in step 67

Note: The STOP command overrides the preset stop time without warning.

If the response	Do
is Link 1: C7BERT stopped	step 67
is other than listed here	step 109

73 Apply manual loopbacks to the network elements that you will test.

74 To determine if a stop time is set, type

>SETSTOP link_no STATUS

and press Enter.

where

link_no
is the number of the link (0 to 15) that the C7BERT runs on

If the response	Do
is Link nn: Stop time set at: is time	step 75
is Link nn: No set stop time.	step 76
is other than listed here	step 109

75 To clear the stop time, type

>SETSTOP link_no CLEAR

and press Enter.

where

Running a C7BERT (continued)

link_no
is the number of the link that the C7BERT runs on

If the response	Do
is Stop time cleared	step 76
is other than listed here	step 109

76 To set the stop time that is new, type

>SETSTOP link_no SET day hours minutes

and press Enter.

where

link_no
is the number of the link (0 to 15) that the C7BERT runs on

day
is the day you want the test to stop automatically (MON, TUE, WED, THU, FRI, SAT, or SUN)

hours
is the hour you want the test to stop automatically (0 to 23)

minutes
is the minute you want the test to stop automatically (00 to 59)

Example input:

>SETSTOP 3 SET MON 10 30

Note: The example entry sets the stop time for link 3 on every Monday at 10:30 a.m.

If the response	Do
is Link nn: Stop time set at: is 19xx/yy/zz is hh:mm:00.000 ddd	step 77
is other than listed here	step 109

77 Determine if the stop time is correct.

If the stop time	Do
is correct	step 78
is wrong	step 75

78 Wait until the C7BERT stops.

Go to step 94.

Running a C7BERT (continued)

79 To start the C7BERT, type

>START link_no

and press Enter.

where

link_no
is the number of the link you want to test (0 to 15)

If the response	Do
is Link n: C7BERT started	step 80
is Link n:Failed - Link state is invalid for C7BERTLink must be ManB and DAct (or LFS)	step 6
is other than listed here	step 109

80 To display the test results of the C7BERT, type

>QUERY link_no

and press Enter.

where

link_no
is the number of the tested link (0 to 15)

Example of a MAP response:

```
query 1
Link  1: C7BERT query
Run Time     :       662   Err Free Secs:       662
Tx Frames    :     19016   Rx Sync Errs :         0
Rx Frames    :     19019   Rx Bad Frames:         0
Rx Bit Errors:         0   Rx Bits      :  38931896
Bit Err Rate : 0 x 10–15
```

If the response	Do
is a display of C7BERT statistics	step 81
is other than listed here	step 109

81 Determine if any transmitted Tx frames exist.

Note: The number of frames transmitted appears to the right of the Tx Frames header of the MAP display. In the example in step 31, the number of frames transmitted is 19 016 .

If Transmitted Tx Frames	Do
are present	step 82

Running a C7BERT (continued)

If Transmitted Tx Frames	Do
are not present	step 109

82 The test runs correctly. The test generates results when you request periodic reports. The test also generates results when you stop the test manually, or when the test stops automatically at a preset time. Decide the action you want to take.

Note: If a switch restart occurs when a C7BERT runs on a link, the test stops automatically. If the LIU7 for the link fails, the test also stops automatically.

If	Do
you want to request periodic reports	step 89
you want to stop the test manually	step 93
you want to stop the test automatically at a preset time	step 74
the link connects to a NT9X78DA/DB card and you want to inject bit errors	step 83

83 To display C7BERT results, type

`>QUERY link_no`

and press Enter.

where

link_no
is the number of the tested link. (0 to 15)

Example of a MAP response:

```
Link 1: C7BERT query
Run Time     :      1224   Err Free Secs:      1133
Tx Frames    :     32538   Rx Sync Errs :         0
Rx Frames    :     32580   Rx Bad Frames:         1
Rx Bit Errors:         0   Rx Bits      :  66673662
Bit Err Rate : 1 x 10– 8
```

If the response	Do
is a display of test statistics	step 84
is other than listed here	step 109

Running a C7BERT (continued)

84 Record the number of Rx bit errors.

Note: In the example in step 83, the number of received bit errors appears to the right of Rx Bit Errors.

85 To inject bit errors, type

>INJERR link_no

and press Enter.

where

link_no
is the number of the link you tested in step 79

Example of a MAP response:

```
injerr 1
```

If the response	Do
is Link 1: INJECT ERROR completed	step 86
is Link n:Failed - C7BERT is not active on this link	step 79
is other than listed here	step 109

86 To display the result of bit error injection, type

>QUERY link_no

and press Enter.

where

link_no
is the number of the tested link (0 to 15)

Example of a MAP response:

```
Link  1: C7BERT query
Run Time     :      1134   Err Free Secs:      1133
Tx Frames    :     32568   Rx Sync Errs :         0
Rx Frames    :     32570   Rx Bad Frames:         1
Rx Bit Errors:         6   Rx Bits      :  66670792
Bit Err Rate : 1 x 10– 8
```

If the response	Do
is a display of test statistics	step 87
is other than listed here	step 109

Running a C7BERT (continued)

87 Determine the result of bit error injection.

Note: In the example in step 87, the number of bit errors received appears to the right of Rx Bit Errors.

88 Subtract the result of the C7BERT recorded in step 84 from the result obtained in step 87.

If the difference	Do
is 6	step 82
is other than listed here	step 109

89 To determine if any requests existed for periodic reports, type

>REPORT link_no STATUS

and press Enter.

where

link_no
is the number of the link (0 to 15) that the C7BERT runs on

If the response	Do
is Link nn: Report interval already set at: mm times per hour	step 90
is Link nn: Automatic query reporting is not active	step 91
is other than listed here	step 109

90 To clear the last report interval, type

>REPORT link_no OFF

and press Enter.

where

link_no
is the number of the link that the C7BERT runs on

MAP response:

```
Link nn: Automatic query reporting has been terminated
```

91 To set the number of reports per hour, type

>REPORT link_no ON number

and press Enter.

where

link_no
is the number of the link (0 to 15) that the C7BERT runs on

Running a C7BERT (continued)

number
is the number of reports per hour (1 to 12)

Example input:

```
>REPORT  1  ON  6
```

If the response	Do
is Link nn: Report interval set at: is nn times per hour	step 92
is other than listed here	step 109

92 Determine if the report interval is correct.

If the interval	Do
is correct	step 82
is wrong	step 90

93 To stop the C7BERT, type

```
>STOP  link_no
```

and press Enter.

where

link_no
is the number of the link (0 to 15) that the C7BERT runs on

Note: The STOP command overrides any preset stop time without warning

If the response	Do
is Link 1: C7BERT stopped is with a display of test statistics	step 94
is other than listed here	step 109

94 Give the results to the person responsible for the next level of support.

If	Do
the link stops on an NT9X77AA or NT9X78BA/CA/DA/DB card, and you just ran a link fault sectionalization. If instructions required you to return the link to service	step 98

Running a C7BERT (continued)

If	Do
the link stops on an NT9X77AA or NT9X78BA/CA/DA/DB card, and you just ran a link fault sectionalization. If instructions required you to perform more tests	step 70
link does not stop on an NT9X77AA or NT9X78BA/CA/DA/DB card	step 95
other than listed here	step 110

95 Remove the manual loopback across network elements.

96 The next step depends on the instructions received from the next level of support.

If	Do
instructions require you to return the link to service	step 98
instructions require you to perform more tests	step 73
other than listed here	step 110

97 To remove the link fault sectionalization, type

`>LFSLOOP STOP link_no`

and press Enter.

where

link_no
is the number of the tested link (0 to 15)

If the response	Do
is LFSLoop stop n is Link n: LFS OFF complete	step 98
is other than listed here	step 109

98 To quit the C7BERT level of the MAP display, type

`>QUIT`

and press Enter.

99 To activate the link that the C7BERT ran on, type

`>ACT link_no`

and press Enter.

where

link_no
is the number of the link (0 to 15)

If the ACT command	Do
passed	step 100
failed	step 109
is other than listed here	step 109

100 Determine the synchronization state of the link.

Note: The synchronization state appears under the Sync Stat header of the MAP display.

If the synchronization state	Do
is AInd	step 107
is other than listed here	step 101

101 Wait 8 minutes, and continue with this procedure.

102 Determine the synchronization state of the link.

If the synchronization state is not AInd, and you	Do
did not ask the far-end office to activate the link	step 103
already asked the far-end office to activate the link	step 105

103 Determine from office records the far-end office that connects to the linkset posted in step 4.

104 Contact the far-end office. Tell the person at that location that

- you are going to busy and deactivate the link in order to realign it, and that
- the person and you must activate the link from both ends after you busied and deactivated the link

Go to step 100.

105 To deactivate the link, type

```
>DEACT  link_no  FORCE
```

and press Enter.

where

link_no
is the number of the link you activated in step 99

Running a C7BERT (end)

106 Tell the person at the far-end office to activate the link. Activate the link from your end, type

>ACT link_no

and press Enter.

where

link_no
is the number of the link you activated in step 99

If the ACT command	Do
passed	step 107
failed	step 109

107 To return the link to service, type

>RTS link_no

and press Enter.

where

link_no
is the number of the link you activated in step 99

If the RTS command	Do
passed	step 110
failed	step 109

108 To uninhibit the link, type

>UINH link_no

and press Enter.

where

link_no
is the number of the link you activated in step 99

If the UINH command	Do
passed	step 110
failed	step 109

109 For additional help, contact the person responsible for the next level of support.

110 The procedure is complete.

Running a C7BERT for high-speed links

Application

Use this procedure to do the following:

- perform local or remote loopback on an NTEX78AA card for LIUBASIC
- perform far-end DS-1 ESF loopback (CARLOOP)
- inject bit errors during HSL C7BERT
- run the CCS7 bit-error rate test for high-speed links (HSL C7BERT)

Note: Do not use CARLOOP loopback test for HSLs connected to an asynchronous transfer mode (ATM) switch. CARLOOP test for HSLs is only valid over a direct connection.

Definition

Bit error rate testing measures the quality of a CCS7 digital transmission path.

Run an HSL C7BERT in the following situations:

- before bringing a CCS7 high-speed signaling link into service
- when isolating faults

Common procedures

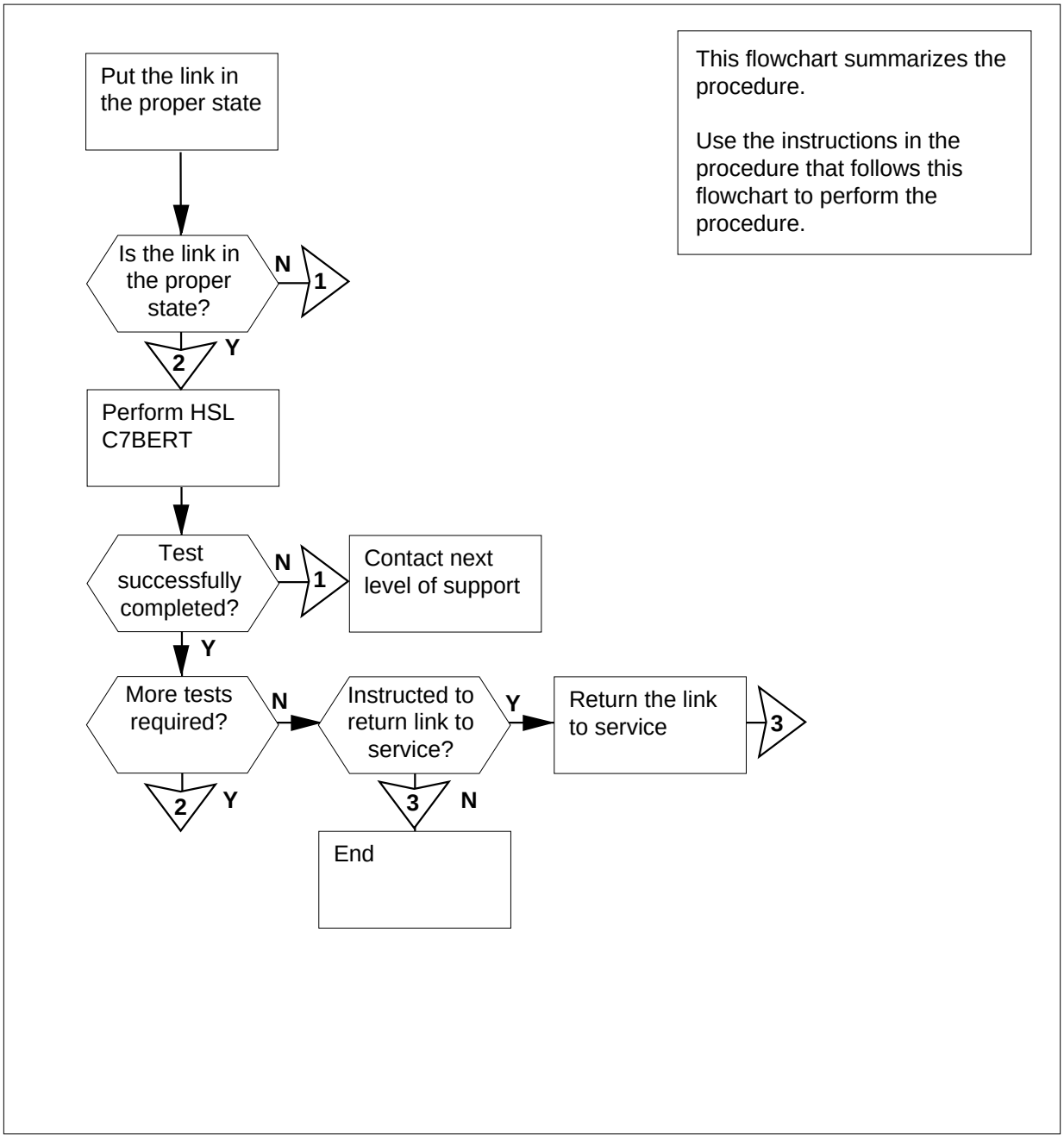
None

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Running a C7BERT for high-speed links (continued)

Summary of Running a C7BERT for high-speed links



Running a C7BERT for high-speed links (continued)

Running a C7BERT for high-speed links

CAUTION
Risk of service interruption
The following procedure takes a CCS7 link out of service. Before proceeding, consult your next level of support to ensure network impact is minimized.

At the MAP terminal

1 Contact the next level of support to obtain the following information:

- how to stop the test (manually or automatically)
- if periodic reports are required and how many times each hour (1 to 12)

2 If you want to perform a remote loopback, inform personnel at the far-end office that

- you want to busy and return the link to service
- they must busy and return the link to service at their end

3 To enter the C7LKSET level of the MAP display, type

`>MAPCI;MTC;CCS;CCS7;C7LKSET`

and press the Enter key.

Example of a MAP response:

```
   Traf Sync                                          Link
LK Stat Stat  Resource Stat Physical Access Stat    Action
```

4 To post the linkset that includes the link that you want to test type

`>POST  C  linkset_name`

and press the Enter key.

where

linkset_name
is the name of the linkset (as defined in table C7LKSET)

Example of a MAP response:

```
   Traf Sync                                    Link
LK Stat Stat Resource Stat Physical Access Stat  Action
0  OffL DAct  DLIU 12  OffL DS1
1  SysB DAct  DLIU 13  InSv DS1
Size of Posted Set = 2
```

Running a C7BERT for high-speed links (continued)

5 Determine the state of the DLIU associated with the link to be tested.

Note: The DLIU state is visible under the Stat header to the right of the Resource header.

If the DLIU state is	Do
SysB, ManB, or OffL	step 6
InSv, or ISTb	step 16
anything else	step 78

Note: The DLIU consists of two peripherals: the high-speed link router (HSLR) and the high-speed link interface unit (HLIU).

6 To enter the PM level of the MAP display, type

>PM

and press the Enter key.

Example of a MAP display:

```
          SysB   ManB   OffL   CBsy   ISTb   InSv
PM           1     10     12      0      6     49
```

7 To post the HLIU, type

>POST HLIU dliu_no

and press the Enter key.

where

dliu_no
is the number of the DLIU connected to the link you want to test

Note: The number of the DLIU is under the Resource header of the MAP display. In the example in step 4, the HLIU connected to link 1 is 13.

Example of a MAP response:

```
HLIU 13 InSv
```

If the HLIU state is	Do
SysB	step 8
OffL	step 9
ManB	step 10
InSv or ISTb	step 11

Running a C7BERT for high-speed links (continued)

8 Wait 1 to 3 min for the HLIU to change from SysB to InSv.

IfAfter 3 min, if the state of the HLIU is	Do
InSv	step 11
SysB	step 78
anything else	step 78

9 To busy the HLIU, type

>BSY

and press the Enter key.

If the BSY command	Do
passed	step 10
failed	step 78

10 To return to service the HLIU, type

>RTS

and press the Enter key.

If the RTS command	Do
passed	step 11
failed	step 78

11 To post the HSLR, type

>POST HSLR dliu_no

and press the Enter key.

where

dliu_no
is the number of the DLIU associated with the HSLR you want to post

If the state of the HSLR is	Do
InSv or ISTb	step 15
ManB	step 14
OffL	step 13
SysB	step 12

Running a C7BERT for high-speed links (continued)

12 Wait 1 to 3 min for the HSLR to change from SysB to InSv.

IfAfter 3 min, if the state of the HSLR is	Do
InSv	step 15
SysB	step 78
anything else	step 78

13 To busy the HSLR, type

>BSY

and press the Enter key.

If the BSY command	Do
passed	step 15
failed	step 78

14 To return the HSLR to service, type

>RTS

and press the Enter key.

If the RTS command	Do
passed	step 15
failed	step 78

15 To enter the C7LKSET level of the MAP display, type

>MAPCI;MTC;CCS;CCS7;C7LKSET

and press the Enter key.

16 Determine the traffic state of the link you want to test.

Note: The traffic state of the link is visible under the Traf Stat header of the MAP display. The synchronization state is visible under the Sync Stat header of the MAP display.

If the traffic and synchronization states are in the sequence given	Do
Offl DAct	step 17
Bsy DAct	step 18
SysB DAct	step 22

Running a C7BERT for high-speed links (continued)

If the traffic and synchronization states are in the sequence given	Do
SysB SysB	step 20
anything else	step 19

17 To busy the link, type

>BSY link_no

and press the Enter key.

where

link_no
is the number of the link you want to test (0 to 15)

If the BSY command	Do
passed	step 19
failed	step 78

18 To return the link to service, type

>RTS link_no

and press the Enter key.

where

link_no
is the number of the link you want to test (0 to 15)

Note: This action places the link into the SysB/DAct state.

If the RTS command	Do
passed	step 22
failed	step 78

19 To inhibit the link you want to test, type

>INH link_no

and press the Enter key.

where

link_no
is the number of the link you want to test (0 to 15)

If the INH command	Do
passed	step 20
failed	step 78

Running a C7BERT for high-speed links (continued)

20 To manually busy the link, type

>BSY link_no

and press the Enter key.

where

link_no
is the number of the link you want to test (0 to 15)

If the BSY command	Do
passed	step 21
failed	step 78

21 To return the link to service, type

>RTS link_no

and press the Enter key.

where

link_no
is the number of the link you want to test (0 to 15)

Note: This action places the link into the SysB/DAct state.

If the RTS command	Do
passed	step 22
failed	step 78

22 To enter the C7BERT level of the MAP display, type

>C7BERT

and press the Enter key.

If you want to	Do
perform a local loopback	step 23
perform a remote loopback	step 25
perform a far-end DS-1 ESF loopback	step 33
run C7BERT	step 39
enable the high-speed signaling terminal (HST) to scan for control codes	step 63

Running a C7BERT for high-speed links (continued)

If you want to	Do
perform an intermediate loop-back C7BERT test	step 38

23 To activate a local loopback, type

>PMLOOP LOCON link_no

and press the Enter key.

where

link_no
is the number of the link you want to test (0 to 15)

If the response is	Do
`Link 1: Loopback Local on completed`	step 24
`Link 1: Failed - PM-LOOP <Local|Re-mote|Enable> is already active`	step 27
`Link 1: Failed - C7BERT already active on this link`	step 32
`Link 1: Failed - Link state is invalid for HSL PMLoop. Link must be SysB and DAct`	step 16
anything else	step 78

24 At this point you have an option to test DS-1 carrier states or to continue with this procedure. Testing DS-1 carrier states to make sure that they are in the correct states is not necessary, but it can prevent a failure of the C7BERT.

If you do not want to test the DS-1 carrier states, go to step 39.

If you want to test the DS-1 carrier states, perform the “Test the DS-1 carrier states" procedure in this document. After completing the procedure, go to step 39.

25 To activate a remote loopback, type

>PMLOOP RMTON link_no

and press the Enter key.

where

link_no
is the number of the link you want to test (0 to 15)

Running a C7BERT for high-speed links (continued)

Note: A remote loopback establishes a loopback for the far end. The far end must run C7BERT to test the quality of the link.

If the response is	Do
`Link 1: Loopback Remote On completed`	step 26
`Link 1: Failed - PMLOOP <Local|Remote|Enable> is already active`	step 27
`Link 1: Failed - C7BERT already active on this link`	step 32
`Link 1: Failed - Link state is invalid for HSL PMLoop. Link must be SysB and DAct`	step 16
anything else	step 78

26 Inform personnel at the far end that the remote loopback is active and the far-end personnel can begin their tests. After the far-end tests are finished, release the loopback. Type

`>PMLOOP RMTOFF link_no`

and press the Enter key.

where

link_no
is the number of the link you entered in PMLOOP command

If the PMLOOP command	Do
passed and you want to perform more C7BERT procedures	step 22
passed and you do not want to perform more C7BERT procedures	step 68
failed	step 78

27 To enter the PM level of the MAP display, type

`>PM`

and press the Enter key.

Running a C7BERT for high-speed links (continued)

28 To post the HLIU, type

>POST HLIU dliu_no

and press the Enter key.

29 To clear the loopback state, type

>LOOPBK C

and press the Enter key.

If the response is	Do
LoopBk passed	step 30
anything else	step 78

30 To enter the C7LKSET level of the MAP display, type

>MAPCI;MTC;CCS;CCS7;C7LKSET

and press the Enter key.

31 To enter the C7BERT level of the MAP display, type

>C7BERT

and press the Enter key.

If you want to	Do
activate a local loopback	step 23
activate a remote loopback	step 25

32 To stop the existing HSL C7BERT, type

>STOP link_no

and press the Enter key.

where

link_no
is the number of the link you entered in step 23 or 25

Note: The STOP command overrides any preset stop time without warning.

If you want to	Do
activate a local loopback	step 23
activate a remote loopback	step 25

33 Contact personnel at the far end to confirm that the far-end signaling terminal is able to receive control codes.

Running a C7BERT for high-speed links (continued)

If the equipment type is DMS, personnel at the far-end can determine the signaling terminal status as follows:

- Type *PM* and press the Enter key to access the PM level of the MAP display.
- Type *POST HLIU dliu_no* and press the Enter key to post the HLIU.
- Type *LOOPBK S* and press the Enter key to display the terminal status.

Users of equipment that is not DMS should contact their next level of support to obtain the procedures for their equipment.

34 To activate the far-end DS-1 ESF loopback from your end, type

```
>CARLOOP  START  link_no  loopback_type
```

and press the Enter key.

where

link_no
is the number of the link you want to test (0 to 15)

loopback_type
indicates if the loopback is line (R) or payload (P)

Example input:

```
>CARLOOP  START  1  R
```

35 Your next step depends on the response.

If the response is	Do
Link nn: DS-1 EFT Loop ON complete Carrier line loopback at far-end paddleboard	step 39
Link nn: Failed - C7BERT already active on this link	step 36
Link 1: Failed - Far-end DS-1 ESF already active on this link	step 37
Link nn: Failed - Has not gone into loopback.	step 78
anything else	step 78

36 To stop the existing HSL C7BERT, type

```
>STOP  link_no
```

and press the Enter key.

where

link_no
is the number of the link you entered in step 34

Running a C7BERT for high-speed links (continued)

Note: The STOP command overrides any preset stop time without warning.

If the response is	Do
Link 1: C7BERT stopped	step 34
anything else	step 78

37 To remove the far-end DS-1 ESF loopback already applied, type

`>CARLOOP STOP link_no`

and press the Enter key.

where

link_no
is the number of the link you entered in step 34

If the response is	Do
CARLoop stop n Link n: DS-1 ESF OFF complete	step 34
anything else	step 78

38 Contact personnel at the intermediate point and request a loopback.

39 To start the HSL C7BERT, type

`>START link_no`

and press the Enter key.

where

link_no
is the number of the link you want to test (0 to 15)

If the response is	Do
Link n: C7BERT started	step 40
Link n:Failed - Link state is invalid for HSL C7BERT Link must be SysB/DAct or SysB/CAR	step 16
anything else	step 78

40 To display the test results of the HSL C7BERT, type

`>QUERY link_no PR`

and press the Enter key.

where

Running a C7BERT for high-speed links (continued)

link_no
is the number of the link being tested (0 to 15)

Example of a MAP response:

```
query 1 pr
Link  1: C7BERT query
Run Time     :       662   Err Free Secs:       662
Tx Frames    :     19016   Rx Sync Errs :         0
Rx Frames    :     19019   Rx Bad Frames:         0
Rx Bit Errors:         0   Rx Bits      :  38931896
Bit Err Rate : 0 x 10–15
```

If the response is	Do
a display of HSL C7BERT statistics	step 41
anything else	step 78

41 Determine if any Tx frames were transmitted.

Note: The number of frames transmitted appears to the right of the Tx Frames header of the MAP display. In the example in step 40, the number of frames transmitted is 19 016.

If	Do
any Tx frames were transmitted	step 42
no Tx frames were transmitted	step 78

42 The test is running correctly.

Test results generate when:

- the periodic reporting function is active
- operating company personnel stop the test manually
- the test stops automatically at a pre-set time

Note: If the switch restarts when an HSL C7BERT is running on a link, the test stops automatically. The test also stops automatically if the HLIU associated with the link fails.

If	Do
you want to request periodic reports	step 54
you want to stop the test manually	step 58

Running a C7BERT for high-speed links (continued)

If	Do
you want to stop the test automatically at a pre-set time	step 43
you want to inject bit errors	step 48

43 To determine if a stop time has been set, type

>SETSTOP link_no STATUS

and press the Enter key.

where

link_no
is the number of the link (0 to 15) on which the HSL C7BERT is running

If the response is	Do
Link nn: Stop time set at: time	step 44
Link nn: No stop time has been set	step 45
anything else	step 78

44 To clear the stop time, type

>SETSTOP link_no CLEAR

and press the Enter key.

where

link_no
is the number of the link on which the HSL C7BERT is running

If the response is	Do
Stop time cleared	step 45
anything else	step 78

45 To set the new stop time, type

>SETSTOP link_no SET day hours minutes

and press the Enter key.

where

link_no
is the number of the link (0 to 15) on which the HSL C7BERT is running

day
is the day on which you want the test to stop automatically (MON, TUE, WED, THU, FRI, SAT, or SUN)

Running a C7BERT for high-speed links (continued)

hours
is the hour at which you want the test to stop automatically (0 to 23)

minutes
is the minute at which you want the test to stop automatically (00 to 59)

Example input:

```
>SETSTOP  3  SET  MON  10  30
```

Note: The example entry sets the stop time for link 3 on Mondays at 10:30 a.m.

If the response is	Do
Link nn: Stop time set at: 19xx/yy/zz hh:mm:00.000 ddd	step 46
anything else	step 78

46 Determine if the stop time is correct.

If the stop time is	Do
correct	step 47
incorrect	step 44

47 Wait until the stop time.

Go to step 59.

48 To display HSL C7BERT results, type

```
>QUERY  link_no  PR
```

and press the Enter key.

where

link_no
is the number of the link that you want to test (0 to 15)

Example of a MAP response:

```
Link 1: C7BERT query
Run Time     :      1224   Err Free Secs:      1133
Tx Frames    :     32538   Rx Sync Errs :         0
Rx Frames    :     32580   Rx Bad Frames:         1
Rx Bit Errors:         0   Rx Bits      :  66673662
Bit Err Rate : 1 x 10– 8
```

If the response is	Do
a display of test statistics	step 49
anything else	step 78

Running a C7BERT for high-speed links (continued)

49 Record the number of Rx bit errors.

Note: In the example in step 48, the number of bit errors received appears to the right of Rx bit errors.

50 To inject bit errors, type

>INJERR link_no

and press the Enter key.

where

link_no
is the number of the link you tested in step 39

Example of a MAP response:

```
injerr 1
```

If the response is	Do
Link 1: INJECT ERROR completed	step 51
Link n:Failed - C7BERT is not active on this link	step 39
anything else	step 78

51 To display the result of injecting bit errors, type

>QUERY link_no PR

and press the Enter key.

where

link_no
is the number of the link that you want to test (0 to 15)

Example of a MAP response:

```
Link  1: C7BERT query
Run Time     :      1134   Err Free Secs:      1133
Tx Frames    :     32568   Rx Sync Errs :         0
Rx Frames    :     32570   Rx Bad Frames:         1
Rx Bit Errors:         1   Rx Bits      :  66670792
Bit Err Rate : 1 x 10– 8
```

If the response is	Do
a display of test statistics	step 52
anything else	step 78

Running a C7BERT for high-speed links (continued)

52 Determine the result of injecting bit errors.

Note: In the example in step 51, the number of bit errors received appears to the right of Rx Bit Errors.

53 Subtract the result of the HSL C7BERT recorded in step 49 from the result obtained in step 51. This action checks for correct bit error rate (BER) circuit operation.

If the difference is	Do
1	step 42
anything else	step 78

54 To determine if periodic reports have been requested, type

>REPORT link_no STATUS

and press the Enter key.

where

link_no
is the number of the link (0 to 15) on which the HSL C7BERT is running

If the response is	Do
Link nn: Automatic query reporting active at: mm times per hour	step 55
Link nn: Automatic query reporting is not active	step 56
anything else	step 78

55 To clear the previous report interval, type

>REPORT link_no OFF

and press the Enter key.

where

link_no
is the number of the link on which the HSL C7BERT is running

MAP response:

```
Link nn: Automatic query reporting has been terminated
```

56 To set the number of reports per hour, type

>REPORT link_no ON number

and press the Enter key.

where

Running a C7BERT for high-speed links (continued)

link_no
is the number of the link (0 to 15) on which the HSL C7BERT is running

number
is the number of reports per hour (1 to 12)

Example input:

```
>REPORT  1  ON  6
```

If the response is	Do
Link nn: Report interval set at: nn times per hour	step 57
anything else	step 78

57 Determine if the report interval is correct.

If the interval is	Do
correct	step 42
not correct	step 55

58 To stop the HSL C7BERT, type

```
>STOP  link_no
```

and press the Enter key.

where

link_no
is the number of the link (0 to 15) on which the HSL C7BERT is running

Note: The STOP command overrides any preset stop time without warning.

If the response is	Do
Link 1: C7BERT stopped	step 59
anything else	step 78

59 Give the results to the personnel responsible for the next level of support. Your next step depends on the instructions received from your next level of support.

If	Do
the far-end DS-1 loopback is established	step 61
the local loopback is established	step 60

Running a C7BERT for high-speed links (continued)

If	Do
an intermediate loopback is established	step 62

60 To remove the local loopback, type

>PMLOOP LOCOFF link_no

and press the Enter key.

where

link_no
is the number of the link you tested (0 to 15)

If the response is	Do
`pmloop off` and more tests are required	step 22
`pmloop off` and you want to exit from C7BERT	step 68
anything else	step 78

61 To remove the far-end DS-1 ESF loopback, type

>CARLOOP STOP link_no

and press the Enter key.

where

link_no
is the number of the link you tested (0 to 15)

If the response is	Do
`Link n: DS-1 ESF OFF complete` and more tests are required	step 22
`Link n: DS-1 ESF OFF complete` and you want to exit C7BERT	step 68
anything else	step 78

62 Tell personnel at the intermediate point to remove the intermediate loopback.

If you want to	Do
run more tests	step 22

Running a C7BERT for high-speed links (continued)

If you want to	Do
exit from C7BERT	step 68

63 To enter the PM level of the MAP display, type

>PM

and press the Enter key.

64 To post the HLIU, type

>POST HLIU dliu_no

and press the Enter key.

65 To enable the HST to scan for control codes, type

>LOOPBK E

and press the Enter key.

If the response is	Do
`loopbk passed`	step 66
anything else	step 78

66 Wait for the far end to finish testing. When far-end testing is complete, clear the loopback state. Type

>LOOPBK C

and press the Enter key.

If the response is	Do
`loopbk passed`	step 67
anything else	step 78

67 To enter the C7LKSET level of the MAP display, type

>MAPCI;MTC;CCS;CCS7;C7LKSET

and press the Enter key.

If	Do
more tests are required	step 22
you want to exit C7BERT	step 68

68 To quit the C7BERT level of the MAP display, type

>QUIT

and press the Enter key.

69 To activate the link on which the HSL C7BERT was running, type

>ACT link_no

Running a C7BERT for high-speed links (continued)

and press the Enter key.

where

link_no
is the number of the link (0 to 15)

If the ACT command	Do
passed	step 70
failed	step 78

70 Determine the synchronization state of the link.

Note: The synchronization state appears under the Sync Stat header of the MAP display.

If the synchronization state is	Do
Sync	step 77
anything else	step 71

71 Wait 8 min, then continue the procedure.

72 Determine the synchronization state of the link.

If the synchronization state is	Do
SysB, and you have not asked the far-end office to activate the link	step 74
SysB, and you have asked the far-end office to activate the link	step 73

73 Use office records to determine which far-end office connects to the linkset posted in step 4.

74 Contact the far-end office. Tell the personnel there that you will reactivate the link.

75 Tell personnel at the far-end office to activate the link.

76 To activate the link from your end, type

```
>ACT  link_no
```

and press the Enter key.

where

link_no
is the number of the link you activated in step 69

If the ACT command	Do
passed	step 77

Running a C7BERT for high-speed links (end)

If the ACT command	Do
failed	step 78

77 To uninhibit the link, type

`>UINH link_no`

and press the Enter key.

where

link_no
is the number of the link you activated in step 69

If the UINH command	Do
passed	step 79
failed	step 78

78 For additional help, contact the personnel responsible for the next level of support.

79 You have completed this procedure.

Scheduling an automatic REx test

Application

Use this procedure to schedule a routine exercise (REx) test for a link interface module (LIM).

Definition

The REx test schedule must include the LIMs that are new in the system.

Common procedures

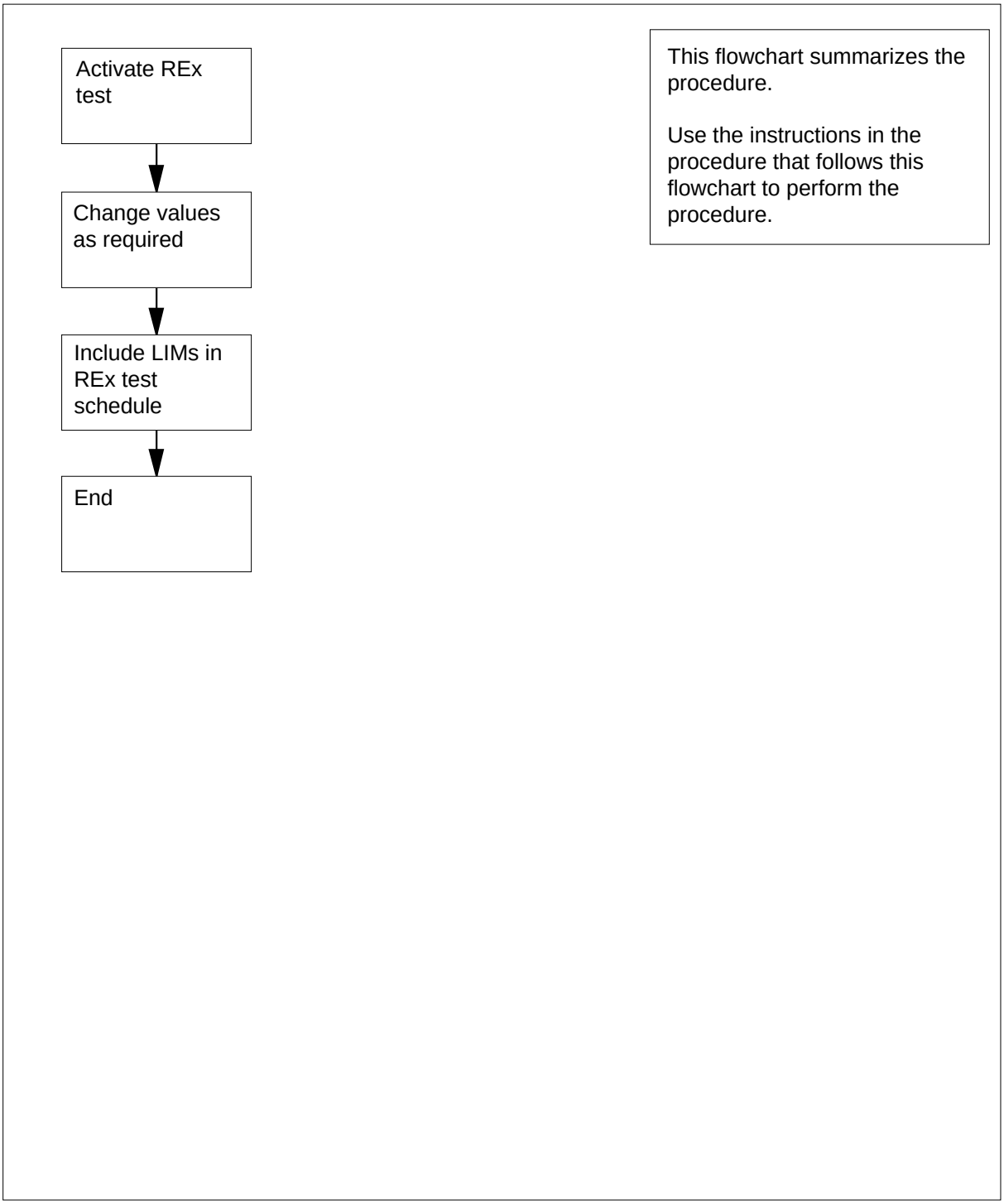
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Scheduling an automatic REx test (continued)

Summary of Scheduling an automatic REx test



Scheduling an automatic REx test (continued)

Scheduling an automatic REx test

At the MAP terminal

1 To access table OFCVAR, type

>TABLE OFCVAR

and press Enter.

2 To position on office parameter NODEREXCONTROL, type

>POSITION NODEREXCONTROL

and press Enter.

Example of a MAP response:

```
NODEREXCONTROL Y 1 30 3 30
```

Note: In the example, Y indicates the activation of the REx test. 1 30 is the start time of the REx test on the 24-h clock. 3 30 is the end time of the REx test on the 24-h clock.

3 To display the fields and tuples, type

>LIST

and press Enter.

Example of a MAP response:

PARMNAME	PARMVAL
NODEREXCONTROL	Y 1 30 3 30

4 To specify that you want to change office parameter NODEREXCONTROL, type

>CHANGE

and press Enter.

MAP response:

```
ENTER Y TO
CONTINUE PROCESSING
OR N TO QUIT
```

5 To continue to process, type

>Y

and press Enter.

Example of a MAP response:

```
PARMVAL: Y 1 30  3 30
```

6 To activate automatic REx testing, and enter a new value for office parameter NODEREXCONTROL, type

>Y h1 m1 h2 m2

Scheduling an automatic REx test (continued)

and press Enter.

where

h1 m1
is the start time of the REx test on the 24 h clock, for example, 02 30

h2 m2
is the end time of the REx test on the 24 h clock, for example, 04 30

Note: The value in NODEREXCONTROL must allow enough time to test all the LIMs that you want to test. Add 30 minutes to the parameter of all LIMs.

Example input:

```
>Y 02  30  04  30
```

Example of a MAP response:

```
TUPLE TO BE CHANGED:
NODEREXCONTROL       Y 02 30 04 30
ENTER Y TO CONFIRM, N TO REJECT, OR E TO EDIT.
```

7 To confirm the change, type

```
>Y
```

and press Enter.

Example of a MAP response:

```
TUPLE CHANGED
```

8 To quit from the table editor and return to the CI level of the MAP display, type

```
>QUIT
```

and press Enter.

9

CAUTION
Possible loss of service
Do not isolate nodes on the F-bus of the LIM you are testing. If you isolate any of the nodes on the F-bus of the LIM you are testing, the REx test will not proceed.

To post the LIM that you want to include in the REx test, type

```
>MAPCI;MTC;PM;POST  LIM  lim_no
```

and press Enter.

where

lim_no
is the number of the first LIM that you will post (0 to 16)

Scheduling an automatic REx test (end)

10 To include the posted LIM in the REx test schedule, type

>REX ON

and press Enter.

Example of a MAP response:

```
LIM x UNIT y has been included in the REX Schedule.
```

11 The procedure is complete.

Scheduling ISUP trunk audits

Application

Use the following procedure to schedule ISDN user part (ISUP) trunk audits.

Definition

ISUP trunk audits switch units with CCS7 and trunk test position (TTP) improvements for trunks that use CCS7 signaling (ISUP trunks). To correct state mismatches, the trunk audit runs on all ISUP trunks one time a day. In table OFCENG, office parameter CIRCUIT_QUERY_AUDIT_START_TIME specifies ISUP trunk audit time.

Common procedures

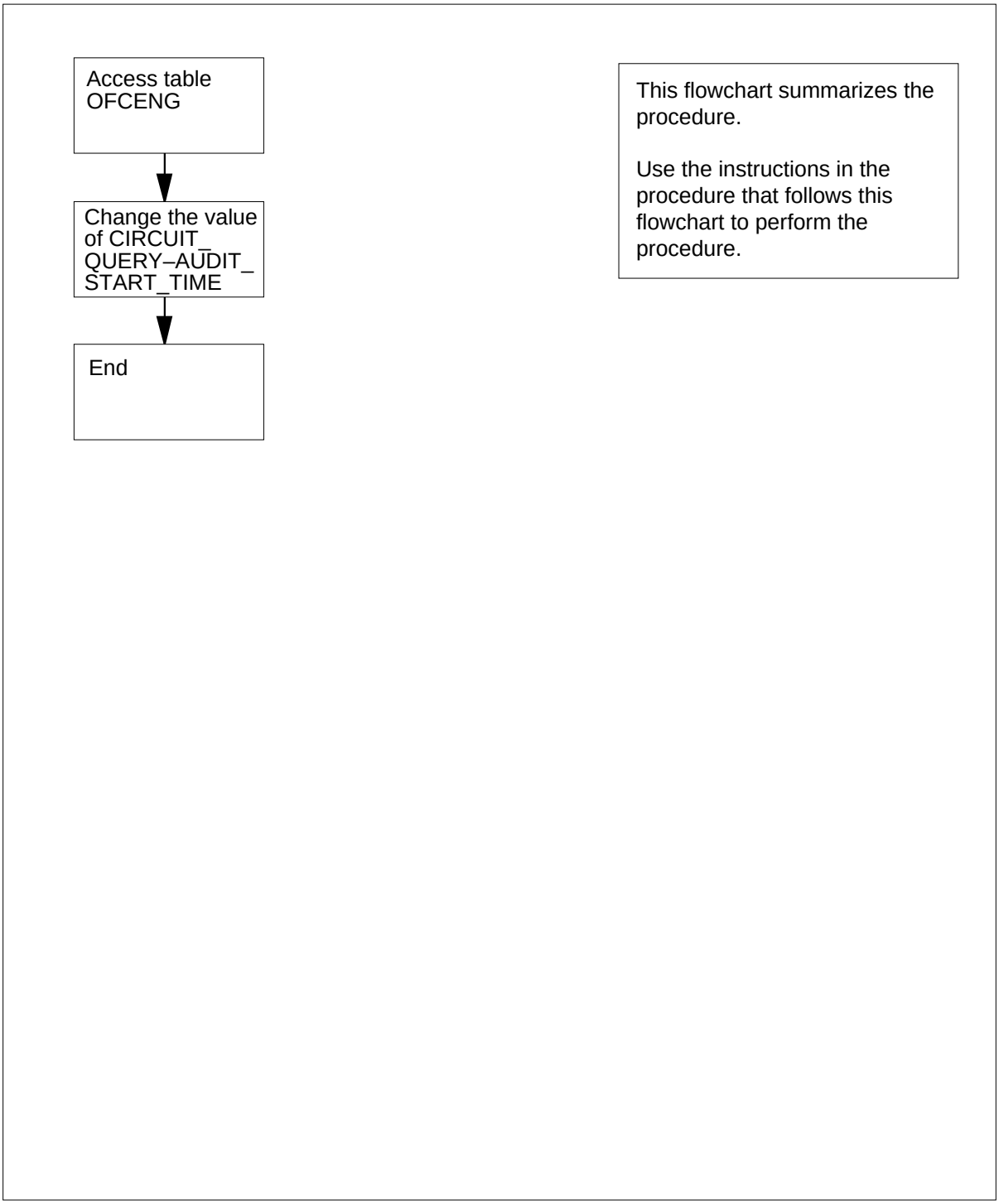
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Scheduling ISUP trunk audits (continued)

Summary of Scheduling ISUP trunk audits



Scheduling ISUP trunk audits (continued)

Scheduling ISUP trunk audits

At the MAP terminal

1

CAUTION
Possible loss of service
Ensure table TRKSGRP is datafilled to include the ISUP trunks on which you want to perform the audit before you run the ISUP audit. For more information on table TRKSGRP, refer to the data schema section of the *Translations Guide*.

To access table OFCENG, type

>TABLE OFCENG

and press Enter.

Example of a MAP response:

```
TABLE: OFCENG
```

Note: Access to table OFCENG is restricted. If access is denied, contact your next level of support.

2 To position on office parameter CIRCUIT_QUERY_AUDIT_START_TIME, type

>POSITION CIRCUIT_QUERY_AUDIT_START_TIME

and press Enter.

Example of a MAP response:

```
CIRCUIT_QUERY_AUDIT_START_TIME  2 0
```

3 To display the tuple with headers, type

>LIST

and press Enter.

Example of a MAP response:

```
PARMNAME                    PARMVAL
CIRCUIT_QUERY_AUDIT_START_TIME  2 0
```

Note: In the MAP example, 2 0 is the current ISUP trunk audit start time in hours (0 to 23) and minutes (0 to 59).

4 Decide if you want to change the ISUP trunk audit start time.

If the ISUP trunk audit start time	Do
does not require change	step 8

Scheduling ISUP trunk audits (end)

If the ISUP trunk audit start time	Do
requires change	step 5

5

CAUTION
Possible loss of service or system degradation
Ensure the new ISUP trunk audit start time is set during off-peak hours. The audit can generate many CCS7 messages that can result in degraded service.

To enter a new ISUP trunk audit start time, type

>CHANGE 2 new_value

and press Enter.

where

new_value
is the time you want the ISUP trunk audit to start. Use the format hh mm (hours and minutes), where hh is a number from 0 to 23 and mm is a number from 0 to 59.

Example of a MAP response:

```
TUPLE TO BE CHANGED:
    CIRCUIT_QUERY_AUDIT_START_TIME   2 15
 ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

6 To confirm the change, type

>Y

and press Enter.

Example of a MAP response:

```
TUPLE CHANGED
```

Note: The value will apply when the audit that uses the old value runs one time. In other words, the next audit will run at the old time; the new time is for the audit of the next day.

7 To quit from the table, type

>QUIT

and press Enter.

8 The procedure is complete.

Setting up an ISUP per-call continuity test

Application

Use this procedure to install an ISDN user part (ISUP) per-call continuity test.

Definition

A per-call continuity test validates the speech part of a trunk that has CCS7 signaling.

Note: The change to table TRKSGRP does not occur until the trunk busies and returns to service.

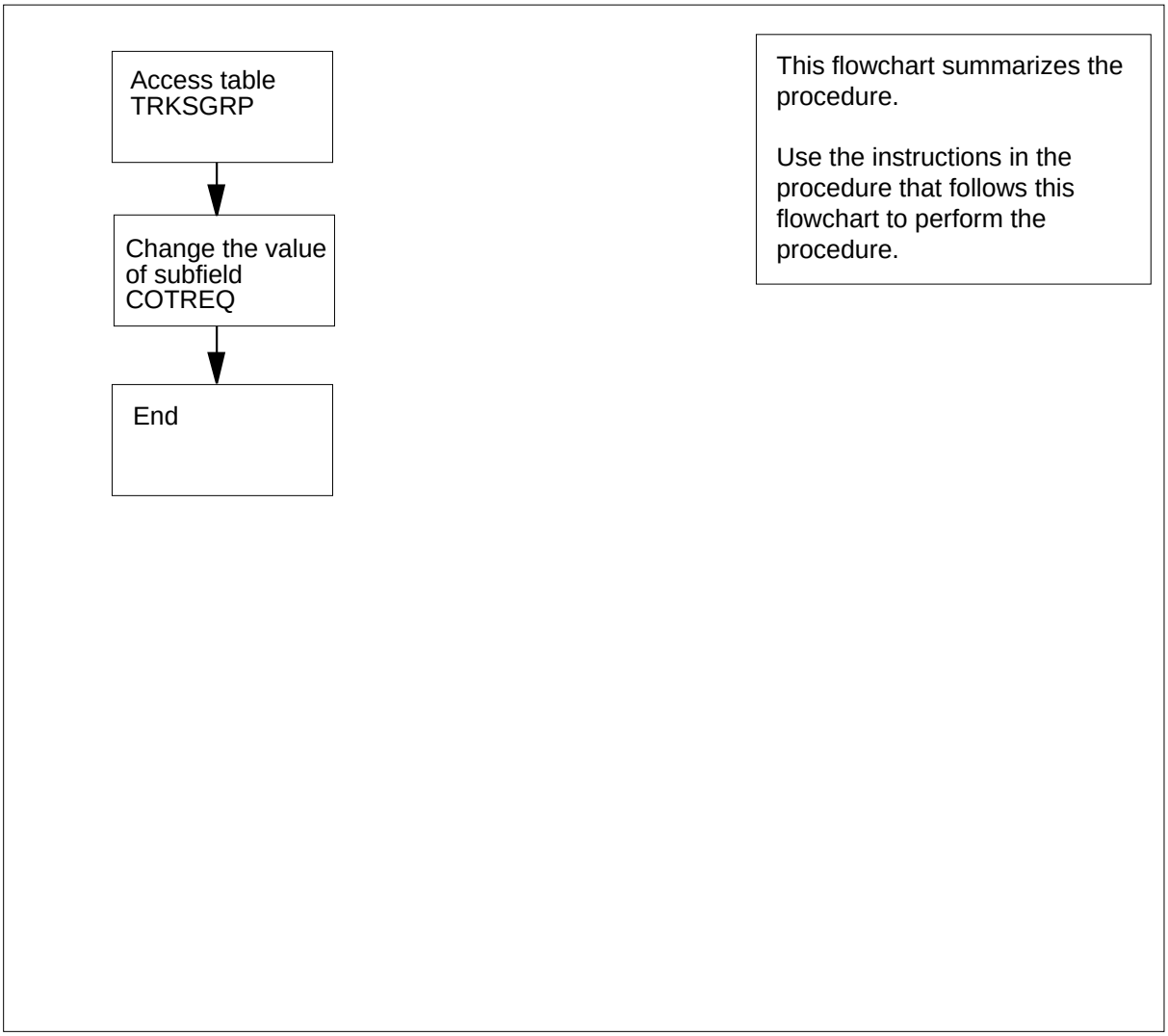
Common procedures

There are no common procedures.

Action

Setting up an ISUP per-call continuity test (continued)

Summary of Setting up an ISUP per-call continuity test



Setting up an ISUP per-call continuity test

CAUTION
Possible loss of service
Ensure that table TRKSGRP is datafilled to include the ISUP trunks needed to perform the audit. Run the ISUP audit. For more information on table TRKSGRP, refer to the data schema section of the *Translations Guide*.

Setting up an ISUP per-call continuity test (continued)

At the MAP terminal

1 To access table TRKSGRP, type

>TABLE TRKSGRP

and press Enter.

2 To position on the trunk subgroup that you want to install the ISUP per-call continuity test, type

>POSITION subgroup_name subgroup_no

and press Enter.

where

subgroup_name
is the common-language location identifier (CLLI) name of the subgroup

subgroup_no
is the number of the subgroup (0 or 1)

Example of a MAP response:

```
   BRABRAEOIS 0     DS1SIG
C7UP OG N N UNEQ NONE Q764 THRH 100 DMSNODE NIL $
```

3 To indicate that you want to change the tuple, type

>CHANGE

and press Enter.

Example of a MAP response:

```
CARDCODE:   DS1SIG
```

4 Press Enter until the MAP response is COTREQ.

Example of a MAP response:

```
COTREQ: 0
```

5 To specify the percentage of calls that you want performed for the per-call continuity test, type

>new_value

and press Enter.

where

new_value
is the percentage of calls on this trunk that the ISUPper-call continuity test will perform (0 to 100)

6 Press Enter until the MAP response is OPTION.

MAP response:

```
OPTION:
```

Setting up an ISUP per-call continuity test (end)

7 To indicate that you changed the tuple, type

>$

and press Enter.

Example of a MAP response:

```
TUPLE TO BE CHANGED:
    BRABRAEOIS 0         DS1SIG
 C7UP OG N N UNEQ NONE Q764 THRL 50 DMSNODE NIL $
 ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

8 To confirm the change, type

>Y

and press Enter.

9 To quit from the table, type

>QUIT

and press Enter.

10 The procedure is complete.

Setting up the signaling link marginal performance report

Application

The signaling link marginal performance report (SLMPR) is present in offices that have the CCS7-MTP/SCCP feature (functionality group NTX041AB).

Definition

The SLMPR identifies signaling links in which the following faults occurred in the last hour:

- signaling unit errors
- negative acknowledgements
- automatic changeovers to alternate signaling links

This report also lists links with faults that exceed the threshold set in table OFCVAR.

To produce the SLMPR, the system software obtains peg counts from registers C7SUERR, C7NACKRX, and C7AUTOCO. The peg counts are in operational measurements (OM) group C7LINK1. The software prints the peg counts in log report CCS198.

The report indicates if faults exceed one of the thresholds set in table OFCVAR. If office parameter C7_SLMPR_ALARM_ON of table OFCVAR is ON, a linkset small alarm raises for the link. The location of the link is the CCS level of the MAP display.

Note: If the report will include a signaling link, the link must assign option SLMPR through datafill in table C7LINK, field LINKOPT. Refer to the *Translations Guide* for more information.

Example data from the SLMPR appears below. In the example, the numbers under the SU header are the signaling unit errors. The numbers under NACK are the negative acknowledgements. The numbers under AUTOCOV are the changeovers to alternate signaling links. The numbers with an asterisk (*) exceeded the threshold set in table OFCVAR.

```
CCS198  Apr 10  19:00:00  2636  INFO
   Signaling Link Marginal Performance Report
   Link             SU      NACK    AUTOCOV
   C7LKSET1 1       120     403*    2
   C7LKSET1 3       570*    169     1
   C7LKSET2 2       168     65      1
```

Setting up the signaling link marginal performance report (continued)

Common procedures

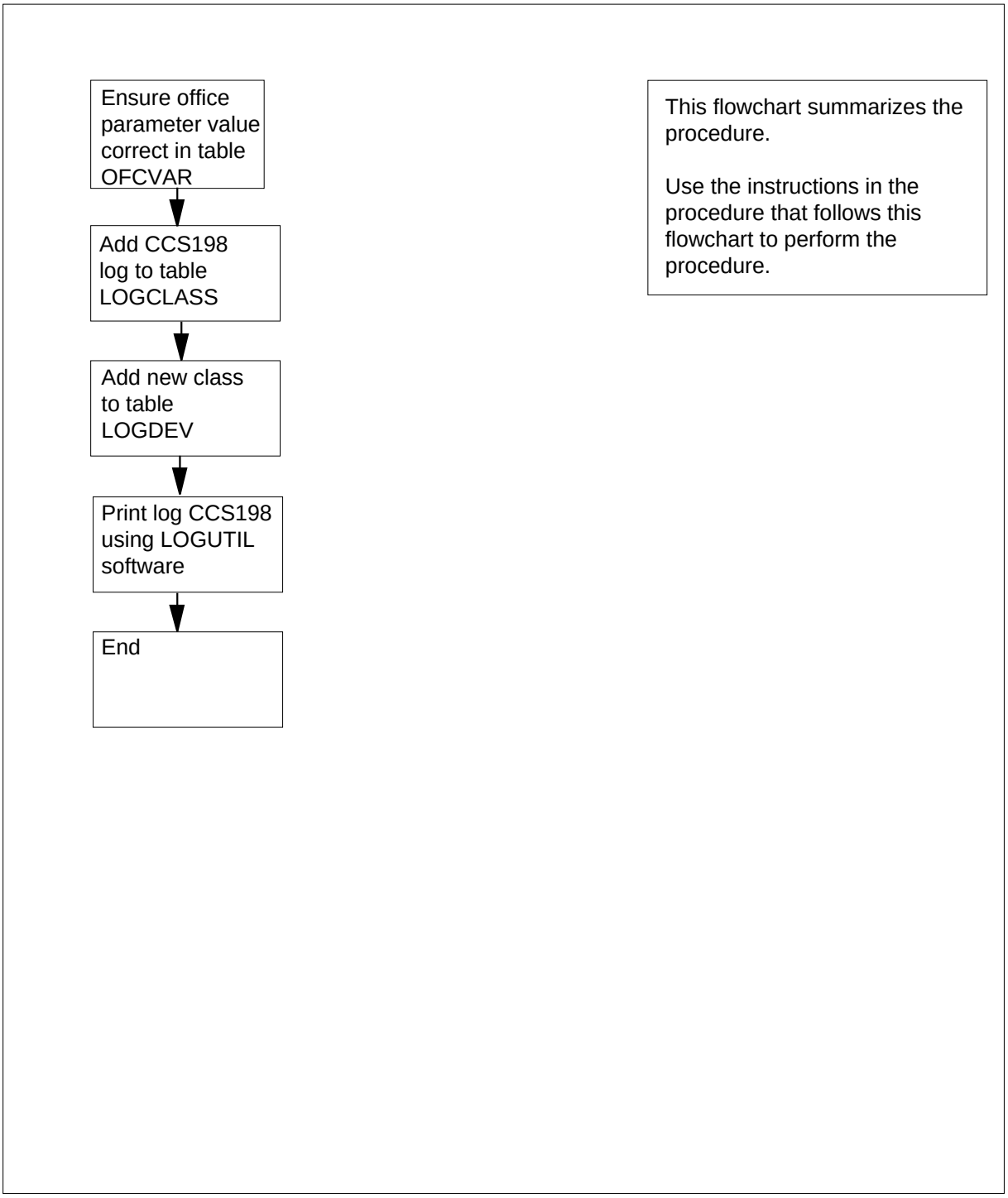
There are no common procedures.

Action

This procedure contains a flowchart and a list of steps required to perform the procedure.

Setting up the signaling link marginal performance report (continued)

Summary of Setting up the signaling link marginal performance report



Setting up the signaling link marginal performance report (continued)

Setting up the signaling link marginal performance report

At the MAP terminal

1 To access the CM level of the MAP display, type

>MAPCI;MTC;CM

and press Enter.

2 Determine if the computing modules (CM) have a synchronized status.

3 To quit from the CM level of the MAP, type

>QUIT ALL

and press Enter.

4 To access table OFCVAR, type

>TABLE OFCVAR

and press Enter.

5 To position on the office parameter C7_SLMPR_ALARM_ON, type

>POSITION C7_SLMPR_ALARM_ON

and press Enter.

Example of a MAP response:

```
C7_SLMPR_ALARM_ON        N
```

6 Determine the value of the office parameter.

If the value	Do
is Y	step 9
is N	step 7

7 To change the value of the field to Y, type

>CHANGE 2 Y

and press Enter.

Example of a MAP response:

```
TUPLE TO BE CHANGED:
C7_SLMPR_ALARM_ON        Y
ENTER Y TO CONFIRM, N TO REJECT or E TO EDIT.
```

8 To confirm the command, type

>Y

and press Enter.

Example of a MAP response:

```
TUPLE CHANGED
```

Setting up the signaling link marginal performance report (continued)

9 To quit from table OFCVAR, type

>QUIT

and press Enter.

10 To create OM class C7SLMPR, type

>OMCLASS C7SLMPR SINGLE

and press Enter.

11 To add group C7LINK1 to class C7SLMPR, type

>OMACCGRP C7SLMPR ADD GROUP C7LINK1

and press Enter.

12 To delete all registers from group C7LINK1, type

>OMACCFLD C7SLMPR C7LINK1 DELETE ALL

and press Enter.

13 To add field C7SUERR, type

>OMACCFLD C7SLMPR C7LINK1 ADD FIELD C7SUERR

and press Enter.

14 To add field C7NACKRX, type

>OMACCFLD C7SLMPR C7LINK1 ADD FIELD C7NACKRX

and press Enter.

15 To add field C7AUTOCO, type

>OMACCFLD C7SLMPR C7LINK1 ADD FIELD C7AUTOCO

and press Enter.

16 To access table OMACC, type

>TABLE OMACC

and press Enter.

17 To position on tuple C7SLMPR to read the class schedule, type

>POSITION C7SLMPR

and press Enter.

18 To display the tuple with headers, type

>LIST

and press Enter.

Example of a MAP response:

```
CLASS        ENABLED     WHEN
--------------------------
C7SLMPR        N         AUTO
```

Setting up the signaling link marginal performance report (continued)

19 Determine the value of field ENABLED.

If the value of field ENABLED	Do
is Y	step 20
is N	step 21

20 If each hour CCS198 log reports are necessary, then the WHEN field needs to change. Change the REP subfield from AUTO to HOURLY. The STARTUP subfield will be C00.

Example of a MAP response:

```
CLASS        ENABLED     WHEN
----------------------------
C7SLMPR        Y      HOURLY C00
```

To confirm the editing of the tuple, type

>Y

and press Enter.

Example of a MAP response:

```
TUPLE CHANGED:
```

Go to step 24.

21 To change the value to Y, type

>CHANGE 2 Y

and press Enter.

Example of a MAP response:

```
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

22 To confirm the command, type

>Y

and press Enter.

Example of a MAP response:

```
TUPLE CHANGED:
```

23 To quit from table OMACC, type

>QUIT

and press Enter.

24 To access table LOGCLASS, type

>TABLE LOGCLASS

Setting up the signaling link marginal performance report (continued)

and press Enter.

25 To go to the end of the table LOGCLASS, type

>BOTTOM

and press Enter.

Example of a MAP response:

```
DPAC    102 0   0   N   –1  Y
```

26 To determine the number of the last class in the table, type

>LIST

and press Enter.

Example of a MAP response:

```
REPNAME CLASS   THRESHLD    SUPPRESS    TUNITS  SYSLOG
-------------------------------------------------------
DPAC 102    0       0           N           –1      Y
```

Note: In the MAP response, the number of the last class is the last number in the CLASS column.

27 To add the CCS198 log to a new class in the table, type

>ADD

and press Enter.

Example of a MAP response:

```
REPNAME:
```

28 To enter the log name and report number, type

>CCS198 0

and press Enter.

Example of a MAP response:

```
CLASS:
```

29 To enter the new class number (1 greater than the last class listed in the table, as noted in step 26), type

>new_class_number

and press Enter.

where

new_class_number
is the number of a new class

Example of a MAP response:

```
THRESHLD:
```

Setting up the signaling link marginal performance report (continued)

30 To enter the threshold number for the messages that will print, type

>0

and press Enter.

Example of a MAP response:

```
SUPPRESS:
```

31 To specify that the log or report output is free from suppression, type

>N

and press Enter.

Example of a MAP response:

```
TUNITS:
```

32 To enter the time units for a threshold report, type

>0

and press Enter.

Example of a MAP response:

```
SYSLOG:
```

33 To respond to the MAP prompt, type

>N

and press Enter.

Example of a MAP response:

```
TUPLE TO BE ADDED:
 CCS    198       1        0         N        0        N
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

34 To confirm the changes, type

>Y

and press Enter.

35 To quit from the table, type

>QUIT

and press Enter.

36 To access table LOGDEV, type

>TABLE LOGDEV

and press Enter.

Example of a MAP response:

```
TABLE: LOGDEV
```

Setting up the signaling link marginal performance report (continued)

37 To specify that you want to add a new class to a printer, type

>ADD

and press Enter.

Example of a MAP display:

```
DEV:
```

38 To specify the printer that the log will travel to, type

>printer

and press Enter.

where

printer
is the name of the printer that will print the log.

Note: The name assigned in table TERMDEV must identify the printer.

Example of a MAP response:

```
ALT:
```

39 To specify an alternate printer in case the printer specified in step 38 fails, type

>printer2

and press Enter.

where

printer2
is the name of an alternate printer that will print the log

Note: If an alternate printer is not available, enter NIL.

Example of a MAP response:

```
CLASSES:
```

40 To specify a new class (1 greater than the last class listed in the table as noted in step 26), type

>`(new_class_number)'

and press Enter.

where

new_class_number
is the number of a new class

Example input:

`(1)'

Example of a MAP display:

```
FORMAT:
```

Setting up the signaling link marginal performance report (continued)

41 To specify standard log format, type

>STD

and press Enter.

Example of a MAP response:

```
PRIORITY:
```

42 To specify that message priority is not important, type

>N

and press Enter.

Example of a MAP response:

```
GUAR:
```

43 To specify that a guaranteed device is not necessary, type

>N

and press Enter.

Example of a MAP response:

```
TUPLE TO BE ADDED:
STD N   N   RP061   NIL   (1)
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

44 To confirm the changes, type

>Y

and press Enter.

45 To quit from table LOGDEV, type

>QUIT

and press Enter.

46 To access the LOGUTIL software, type

>LOGUTIL

and press Enter.

47 To start to print log CCS198 on the printer, type

>STARTDEV printer_name

and press Enter.

where

printer_name
is the printer you specified in table LOGDEV in step 38 or step 39

48 To quit from the LOGUTIL software, type

>QUIT

and press Enter.

Setting up the signaling link marginal performance report (end)

Go to step 49.

49 The procedure is complete.

Softkey information does not download to the ADSI set

Application

Use this procedure to determine why softkey information does not download to the subscriber set.

Definition

A complaint indicates that the Analog Display Services Interface (ADSI) set of the subscriber does not contain downloaded softkey definitions. As a result, the softkeys on the set do not function correctly.

Common procedures

There are no common procedures.

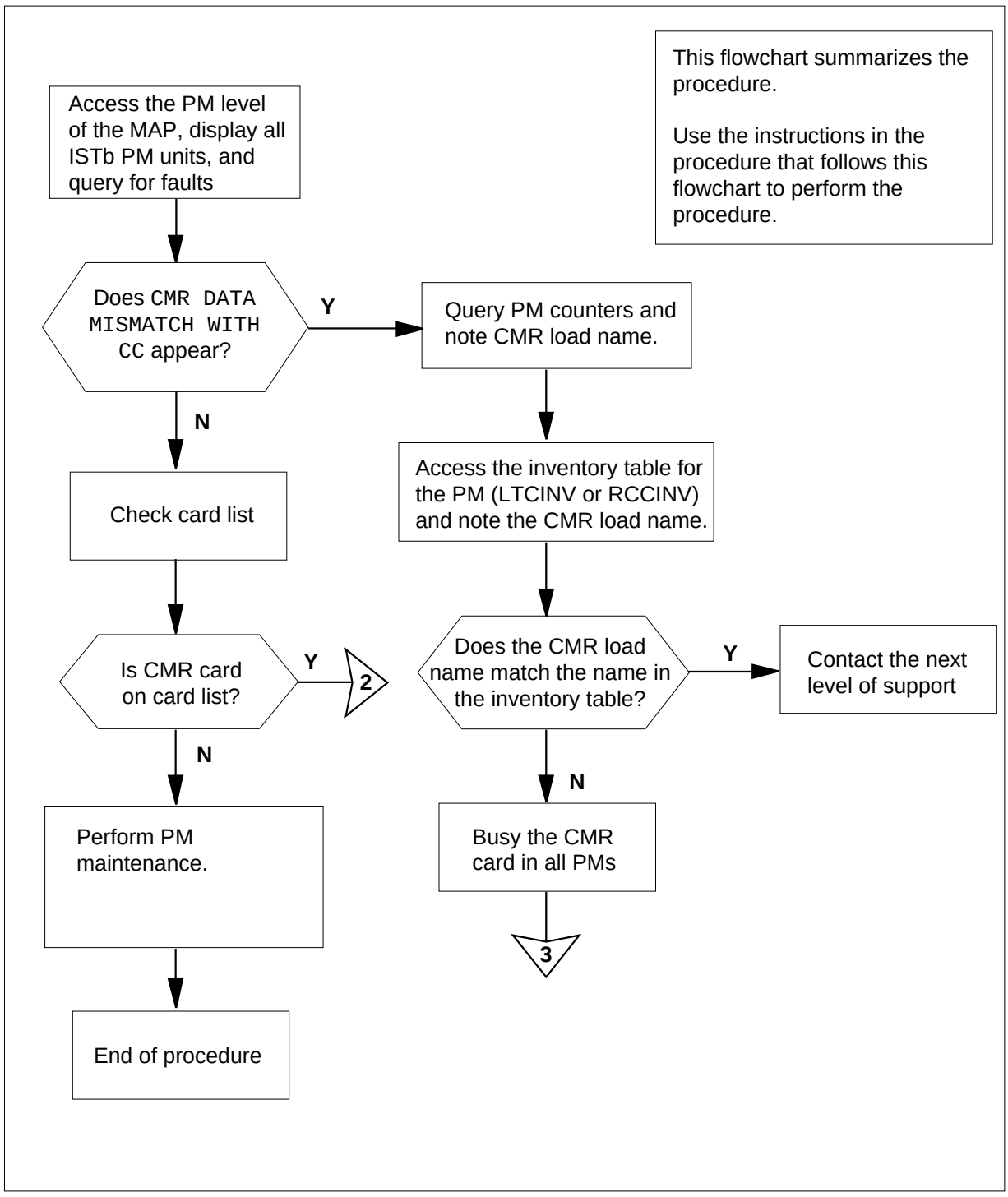
Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Note: The CLASS modem resource (CMR) card NT6X78 can go out of service in the active unit. If the card goes out of service, the operating company personnel can busy, replace, load, and return the card to service. The operating company personnel do not need to execute these operations on the whole unit.

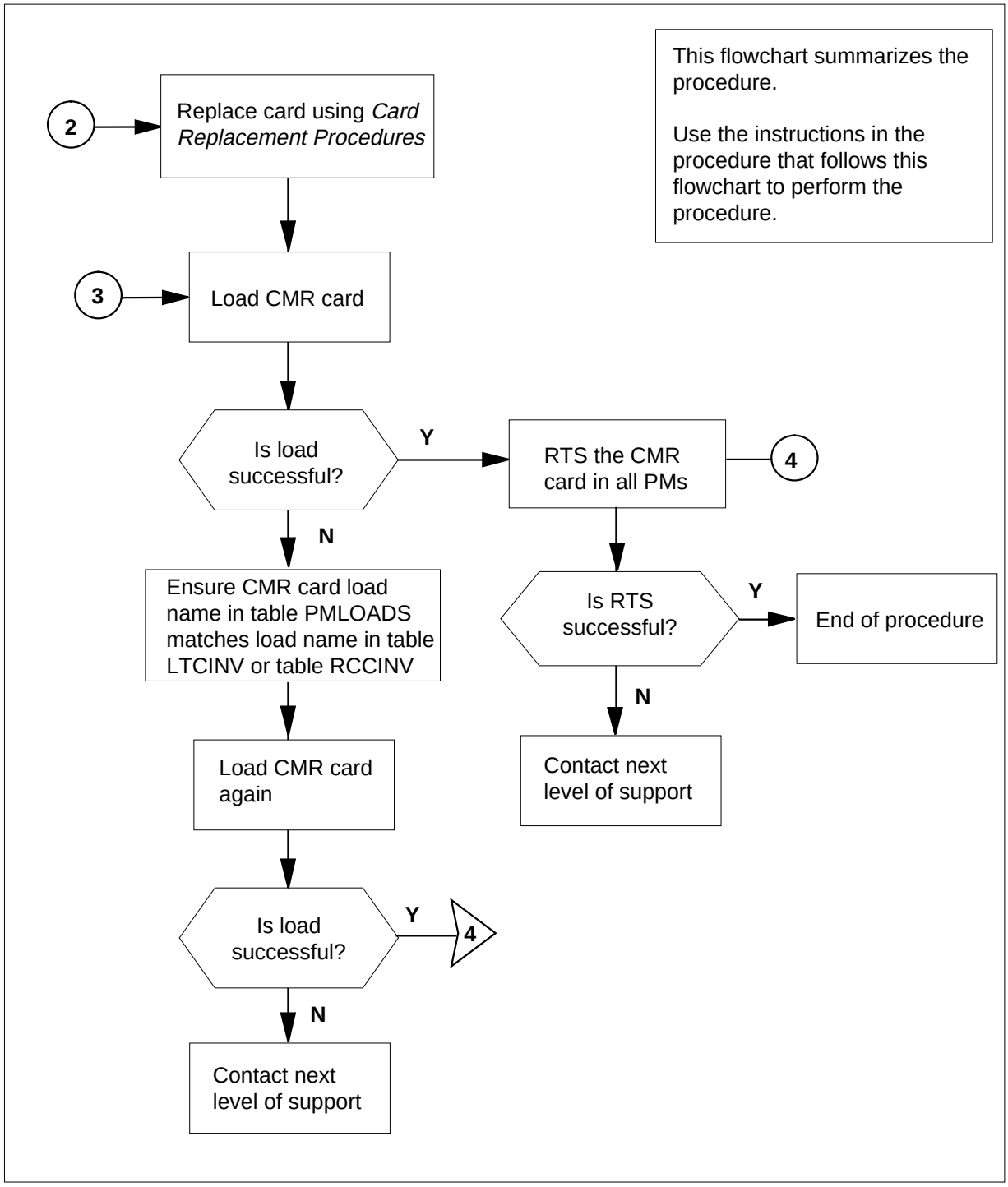
Softkey information does not download to the ADSI set (continued)

Summary of how Softkey information does not download to the ADSI set



Softkey information does not download to the ADSI set (continued)

Summary of Softkey information does not download to the ADSI set (continued)



Softkey information does not download to the ADSI set (continued)

Softkey information does not download to the ADSI set

At the MAP terminal:

1 To access the PM level of the MAP display, type

>MAPCI;MTC;PM

and press Enter.

2 To display all the ISTb PMs, type

>POST **ISTB**

and press Enter.

3 To check for fault indicators, type

>QUERYPM FLT

and press Enter.

If response	Do
is CLASS MODEM RESOURCE CARD NT6X78 OUT OF SERVICE	step 4
CMR DATA MISMATCH WITH CC	step 8
CMR LOAD MISMATCH WITH INVENTORY TABLE	step 11
is other than listed here	step 18

4 Check the card list for the CMR card.

The following card list is a standard message that refers to a CMR card that is out of service.

```
        QUERYPM FLT
        CLASS MODEM RESOURCE CARD NT6X78
        OUT OF SERVICE
        Replace the Cards in the Card List
        and applicable Paddleboards (i.e. 6X12) :
Site Flr RPos Bay_id  Shf  Description    Slot   EqPEC
HOST  01  D02 LGE  00  18  LGC : 000      13     6X78
```

5 Check the card list for the CMR card.

If CMR card	Do
is on card list	step 6
is not on card list	step 7

6 Use the *Card Replacement Procedures* manual to replace the CMR card.

7 Perform PM maintenance.

Softkey information does not download to the ADSI set (continued)

8 Use the QUERYPM CNTRS command to determine the CMR load name.

>querypm CNTRS

and press Enter.

Example of a MAP response:

```
Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0.
Unit 0:
RAM Load: ECL05AY
EEPRom Version: AC01
EEPRom Load: Loadable: MX77NF02, Executable: MX77NF02
CMR LOAD: CMR03A
UP: MX77AA
Unit 1:
RAM Load: ECL05AY
EEPRom Version: AC01
EEPRom Load: Loadable: MX77nf02, Executable: MX77NF02
CMR LOAD: CMR03A
UP: MX77AA
```

Note: In this example, the CMR load name is CMR03A.

9 To access the inventory table for the PM (LTCINV or RCCINV), type

>Table LTCINV

and press Enter.

10 Compare the CMR load name in the PM and the CMR load name in the inventory table.

If CMR load name in PM	Do
matches the CMR load name in the inventory table	step 18
does not match the CMR load name in the inventory table	step 11

11

CAUTION
Loss of Service
A BSY of the CMR card on the active unit of the PM affects CLASS services. CLASS services that use the card cannot function.

To busy the CMR card, type

>bsy **UNIT unit_no CMR**

and press the Enter key.

where

Softkey information does not download to the ADSI set (continued)

unit_no
is the number of the PM unit (0 or 1)

Note: CMR is an optional parameter that means to busy only the CMR card

12 To load the CMR card, type

`>LOADPM UNIT unit_no CC CMR`

and press Enter.

where

unit_no
is the number of the PM unit (0 or 1)

Note: CMR is an optional parameter that means to load only the CMR card.

Follow the directions in the table.

If	Do
the loading completes correctly	step 13
CMR FAILED TO LOAD. TASK ABORTED WHILE LOADING CMR	step13
CMR FILE CMRXXX NOT FOUND ON DEVICE INDICATED IN TABLE PMLOADS *Note:*CMRXXX is the CMR load name.	step 13
FAILED TO OPEN CORRECTLY	step 13

13 Verify that the CMR card can load. To use the QUERYPM CNTRS command to determine the CMR load name, type

`>QUERYPM CNTRS`

and press Enter.

Example of a MAP response:

Softkey information does not download to the ADSI set (continued)

```
Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0.
Unit 0:
RAM Load: ECL05AY
EEPRom Version: AC01
EEPRom Load: Loadable: MX77NF02, Executable: MX77NF02
CMR LOAD: CMR03A
UP: MX77AA
Unit 1:
RAM Load: ECL05AY
EEPRom Version: AC01
EEPRom Load: Loadable: MX77nf02, Executable: MX77NF02
CMR LOAD: CMR03A
UP: MX77AA
```

Note: In this example, the CMR load name is CMR03A.

14 Ensure that the CMR card load name in table PMLOADS matches the load name in table LTCINV or table RCCINV.

15 To load the CMR card again, type

`>LOADPM UNIT unit_no CC CMR`

and press Enter.

where

unit_no
is the number of the PM unit (0 or 1)

If load	Do
passes	step 16
fails	step 18

Note: CMR is an optional parameter that means to load only the CMR card.

16 To return the CMR card to service, type

`>RTS UNIT unit_no CMR`

and press Enter.

where

unit_no
is the number of the PM (0 or 1)

CMR
is an optional parameter that means to return to service only the CMR card

The following card list is a standard message for a CMR card failure.

Softkey information does not download to the ADSI set (end)

```
        RTS Failed, TESTALL
        Diagnostic TESTALL failed.
        Fail message received from PM
        Replace the Cards in the Card List
        and applicable Paddleboards (i.e. 6X12) :
Site Flr RPos Bay_id  Shf  Description    Slot   EqPEC
HOST  01  D02 LGE  00  18  LGC : 000      13     6X78
```

If RTS	Do
passes	step 19
fails and the CMR card is on the card list	step 17

17 Use the following information to determine the next step in this procedure.

If	Do
a first-time replacement of the CMR card	step 6
replaced CMR card already	step 18

18 For additional help, contact the person responsible for the next level of support.

19 The procedure is complete

Testing an SPM carrier

Application

Use this procedure to test the DMS-Spectrum Peripheral Module (SPM) carrier connection using the MAP procedures.

Definition

Perform the specific steps located in the action section to test a faulty SPM carrier.

Common procedures

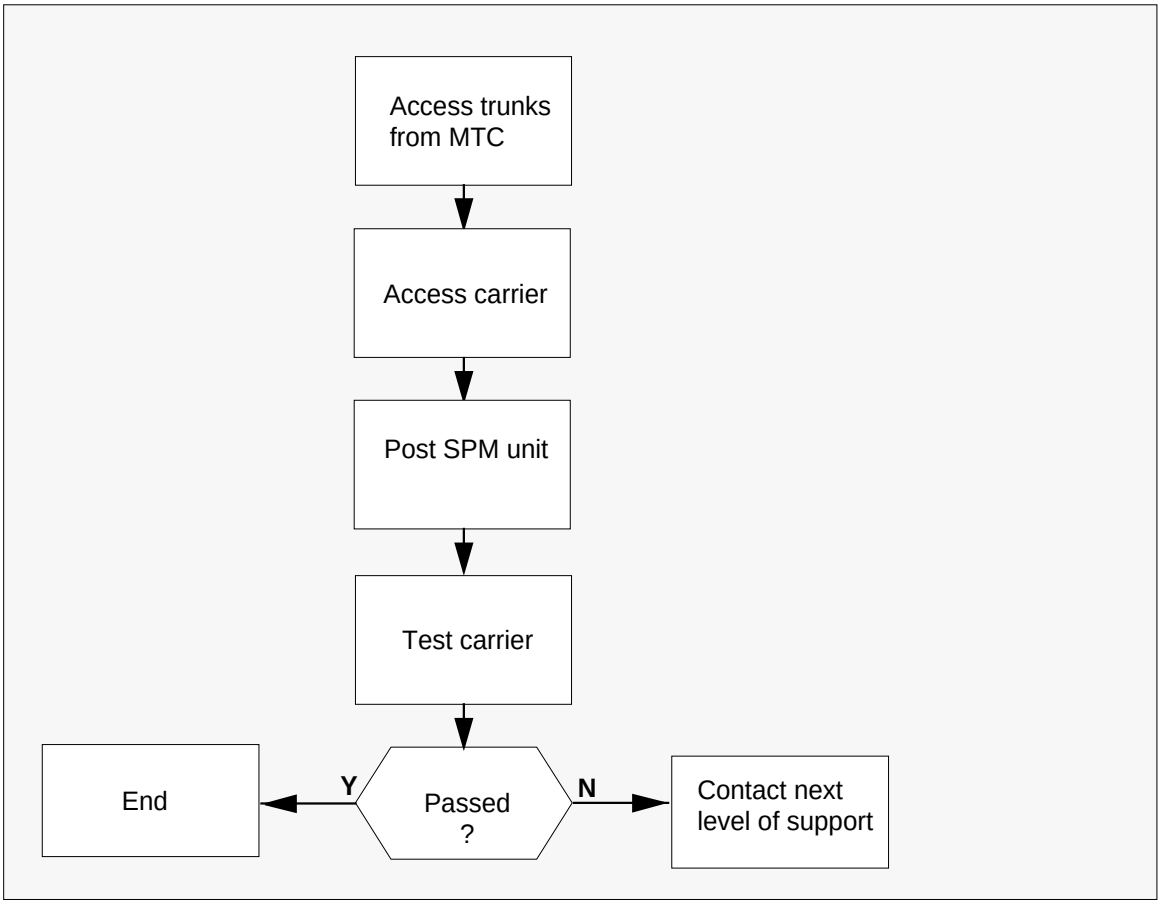
None

Action

This procedure contains a summary flowchart and a list of specific steps. Use the flowchart as an overview of the procedure. Follow the specific steps to perform the procedure.

Testing an SPM carrier (continued)

Summary of how to activate a test of the SPM carrier



How to activate a test of the SPM carrier

At the MAP terminal

1 Access the PM screen level of the MAP display by typing

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

and pressing the Enter key.

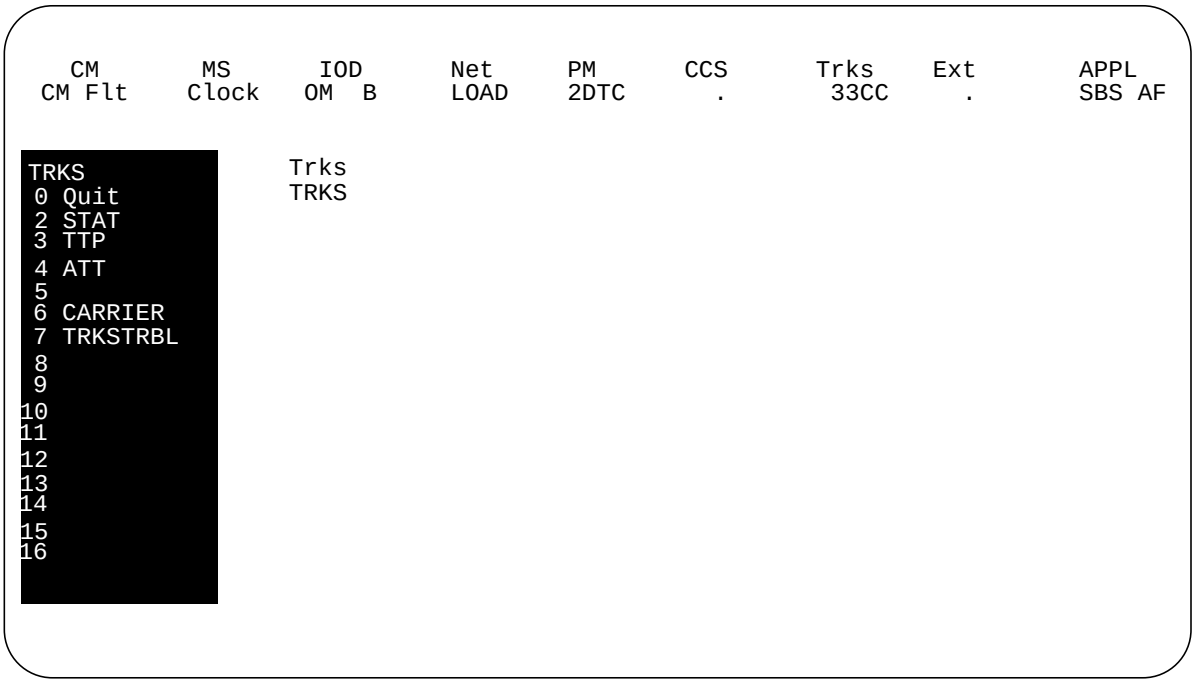
2 Access the trunks level by typing

```
>TRKS
```

and pressing the Enter key.

The following is an example of an TRKS screen.

Testing an SPM carrier (continued)



3 Select the carrier by typing

>CARRIER

and pressing the Enter key.

The following is an example of a Carrier screen.

Testing an SPM carrier (continued)

```
   CM       MS      IOD      Net       PM      CCS        Trks     Ext      APPL
   .         .       .        .        .        .          .       .         .


CARRIER            CLASS  ML  OS  ALM  SYSB  MANB  UNEQ  OFFL  CBSY  PBSY  INSV
 0 Quit            TRUNKS  4   0   17   13    22     0    100     9     0    38
 2 Post            TIMING  2   0   2    0     0      0     0      0     0     2
 3
 4
 5                 CARRIER
 6
 7
 8
 9
10
11 Disp
12
13
14
15
16
17
18

    14:12 >
```

4 Access the SPM screen by typing

>POST SPM spm_no

and pressing the Enter key.

where

spm_no
is the number of the SPM (0 to 63)

The following is an example of a posted screen.

Testing an SPM carrier (continued)

```
   CM      MS     IOD     Net      PM     CCS        Trks    Ext     APPL
   .        .      .       .        .      .          .       .       .


POST            CLASS  ML  OS  ALRM  SysB  ManB  UNEQ  OFFL  CBSY  PBSY  INSV
 0 Quit         TRUNKS  0   0   0     0     0     0     0     0     0     1254
 2 Post         TIMING  2   0   2     0     0     0     0     0     0        2
 3              HSCARR  0   0   0     0     0     0     0     0     0      358
 4               OC3S
 5 Loop          N  CLASS   SITE  SPM  OC3RM  OC3S  STS3L  CKT  STATE  TR  MA
 6 Tst_          0  HSCARR  HOST    0    0      0       –     1   INSV   ..  ..
 7 Bsy_          1  HSCARR  HOST    0    1      0       –     2   INSV   ..  ..
 8 RTS_
 9 Offl_          SIZE OF POSTED SET  :  94              MORE...
10
11 Disp
12 Next
13
14 Detail
15 ListAlm_
16
17 Perfmon
18

    14:17 >
```

Alternatively, if you know the SPM carrier circuit number, you can post it directly by typing

>POST SPM spm_no ckt_no

and pressing the Enter key.

where

spm_no
is the number of the SPM (0 to 63)

ckt_no
is the number of the circuit (0 to 181)

5 Test the carrier by typing the following:

>TST carrier_no

and pressing the Enter key.

where

carrier_no
is the number of the carrier (0 to 4)

The following is an example of a posted screen with the test results.

Testing an SPM carrier (end)

```
   CM      MS     IOD     Net      PM     CCS        Trks    Ext     APPL
   .        .      .       .        .      .          .       .       .


POST            CLASS  ML  OS  ALRM  SysB  ManB  UNEQ  OFFL  CBSY  PBSY  INSV
 0 Quit         TRUNKS  0   0   0     0     0     0     0     0     0     1254
 2 Post         TIMING  2   0   2     0     0     0     0     0     0        2
 3              HSCARR  0   0   0     0     0     0     0     0     0      358
 4               OC3S
 5 Loop          N  CLASS   SITE  SPM  OC3RM  OC3S  STS3L  CKT  STATE  TR  MA
 6 Tst_          0  HSCARR  HOST    0    0     0       –     1   INSV   ..  ..
 7 Bsy_          1  HSCARR  HOST    0    1     0       –     2   INSV   ..  ..
 8 RTS_
 9 Offl_          SIZE OF POSTED SET  : 4
10
11 Disp
12 Next
13          Tst
14 Detail   HSCARR 0 Test : Request has been submitted
15 ListAlm_ HSCARR 0 Test : Test passed.
16
17 Perfmon
18

    14:17 >
```

6 If the carrier did not pass the test, contact the personnel responsible for the next level of support.

7 You have completed this procedure. Return to the CI level of the MAP screen by typing

>QUIT ALL

and pressing the Enter key.

Testing an SPM CEM

Application

Use this procedure to test the NTLX82BA common equipment module (CEM) for the DMS-Spectrum Peripheral Module (SPM) using the MAP procedures.

Definition

Perform the specific steps located in the action section to test a faulty CEM.

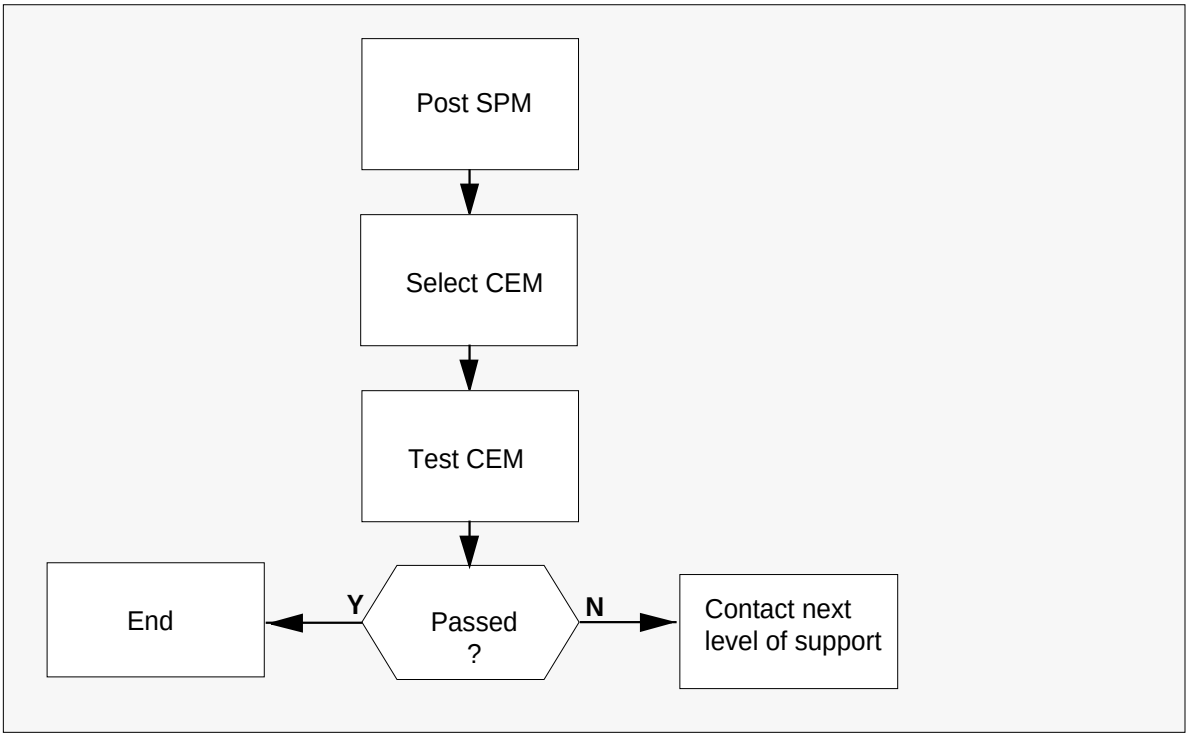
Common procedures

None

Action

This procedure contains a summary flowchart and a list of specific steps. Use the flowchart as an overview of the procedure. Follow the specific steps to perform the procedure.

Summary of how to test the SPM CEM



Testing an SPM CEM (continued)

How to test the SPM CEM

At the MAP terminal:

1 Access the PM screen level of the MAP display by typing

>MAPCI;MTC;PM

and pressing the Enter key.

2 Access the SPM screen by typing

>POST SPM spm_no

and pressing the Enter key.

where

spm_no
is the number of the SPM (0 to 63)

The following is an example of an SPM screen. This example may not reflect your SPM screen.

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


SPM                          SysB    ManB    OffL    CBsy    ISTb    InSv
 0 Quit          PM            0       0       0       0       0       1
 2 Post_         SPM           0       0       0       0       0       1
 3 ListSet
 4 ListRes     SPM 11 INSV  Loc: Site HOST Floor 2 Row A  FrPos 0
 5 Trnsl
 6             Shlf0 SL A Stat  Shlf0 SL A Stat  Shlf1 SL A Stat  Shlf1 SL A Stat
 7             DSP 2  1 A Insv  CEM 1  8 I Insv  VSP 2  1 A Insv  --- -  8 - ----
 8             DSP 0  2 A Insv  OC3 0  9 A Insv  --- -  2 - ----  VSP 6  9 A Insv
 9             DSP 1  3 I Insv  OC3 1 10 I Insv  --- -  3 - ----  --- - 10 - ----
10             DSP 3  4 I Insv  --- - 11 - ----  --- -  4 - ----  --- - 11 - ----
11 Disp_       --- -  5 - ----  --- - 12 - ----  --- -  5 - ----  --- - 12 - ----
12 Next        --- -  6 - ----  VSP 4 13 A Insv  --- -  6 - ----  --- - 13 - ----
13 Select_     CEM 0  7 A Insv  VSP 5 14 A Insv  --- -  7 - ----  --- - 14 - ----
14 QueryPM
15 ListAlm_
16
17
18

   14:12 >
```

3 Access the CEM card by typing

>SELECT cem_no

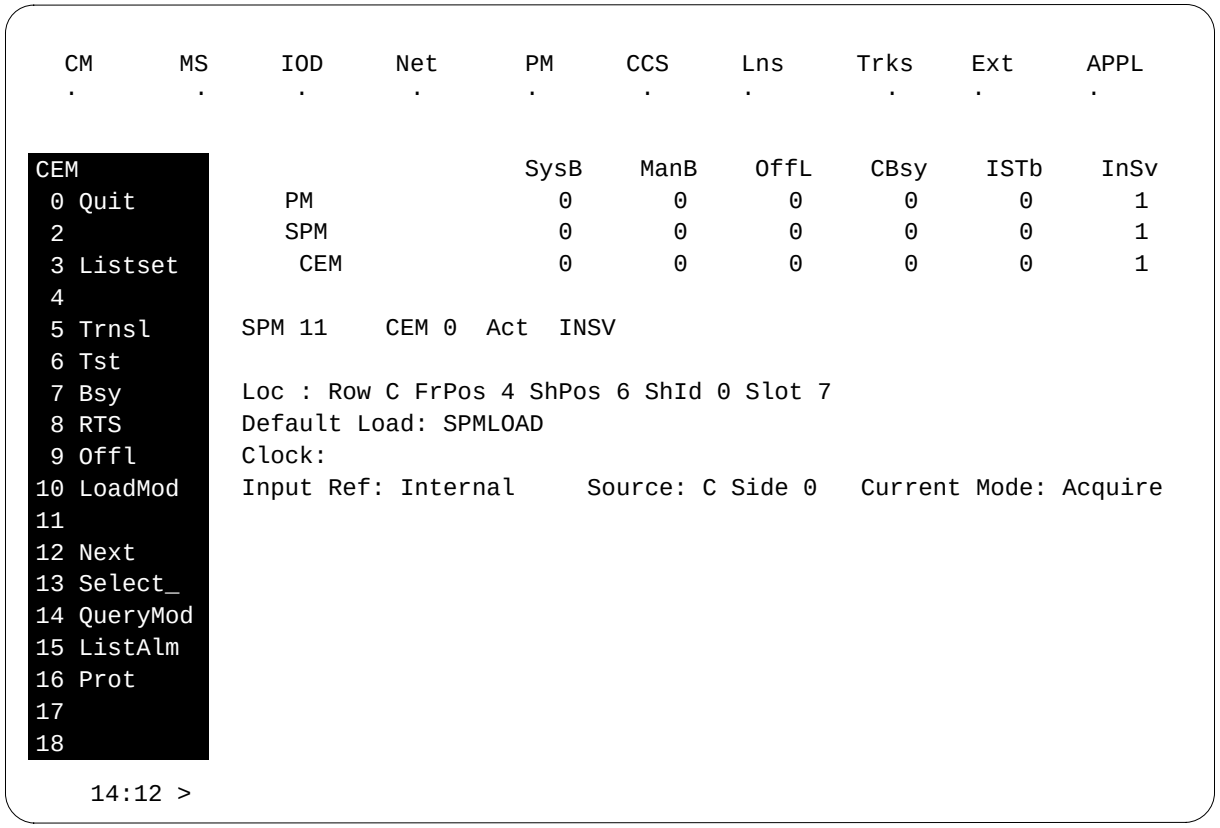
and pressing the Enter key.

where

cem_no
is the number of the CEM card (0 or 1)

The following is an example of a CEM screen:

Testing an SPM CEM (continued)



4 Start the CEM test by typing

>TST

and pressing the Enter key.

The following example shows a CEM screen with the test results.

Testing an SPM CEM (end)

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


CEM                                SysB    ManB    OffL    CBsy    ISTb    InSv
 0 Quit          PM                  0       0       0       0       0       1
 2               SPM                 0       0       0       0       0       1
 3 Listset        CEM                0       0       0       0       0       1
 4
 5 Trnsl       SPM 11    CEM 0  Act  INSV
 6 Tst
 7 Bsy         Loc : Row C FrPos 4 ShPos 6 ShId 0 Slot 7
 8 RTS         Default Load: SPMLOAD
 9 Offl        Clock:
10 LoadMod     Input Ref: Internal     Source: C Side 0   Current Mode: Acquire
11             Tst
12 Next        SPM 11 CEM 0 Test :  Request has been submitted.
13 Select_     SPM 11 CEM 0 Test :  Test passed.
14 QueryMod
15 ListAlm
16 Prot
17
18

    14:12 >
```

5 If the CEM did not pass the test, contact the personnel responsible for the next level of support.

6 You have completed this procedure. Return to the CI level of the MAP screen by typing

>QUIT ALL

and pressing the Enter key.

Testing an SPM DSP RM

Application

Use this procedure to test the NTLX63BA digital signal processor (DSP) resource module (RM) for the DMS-Spectrum Peripheral Module (SPM) using the MAP procedures.

Definition

Perform the specific steps located in the action section to test a faulty DSP RM.

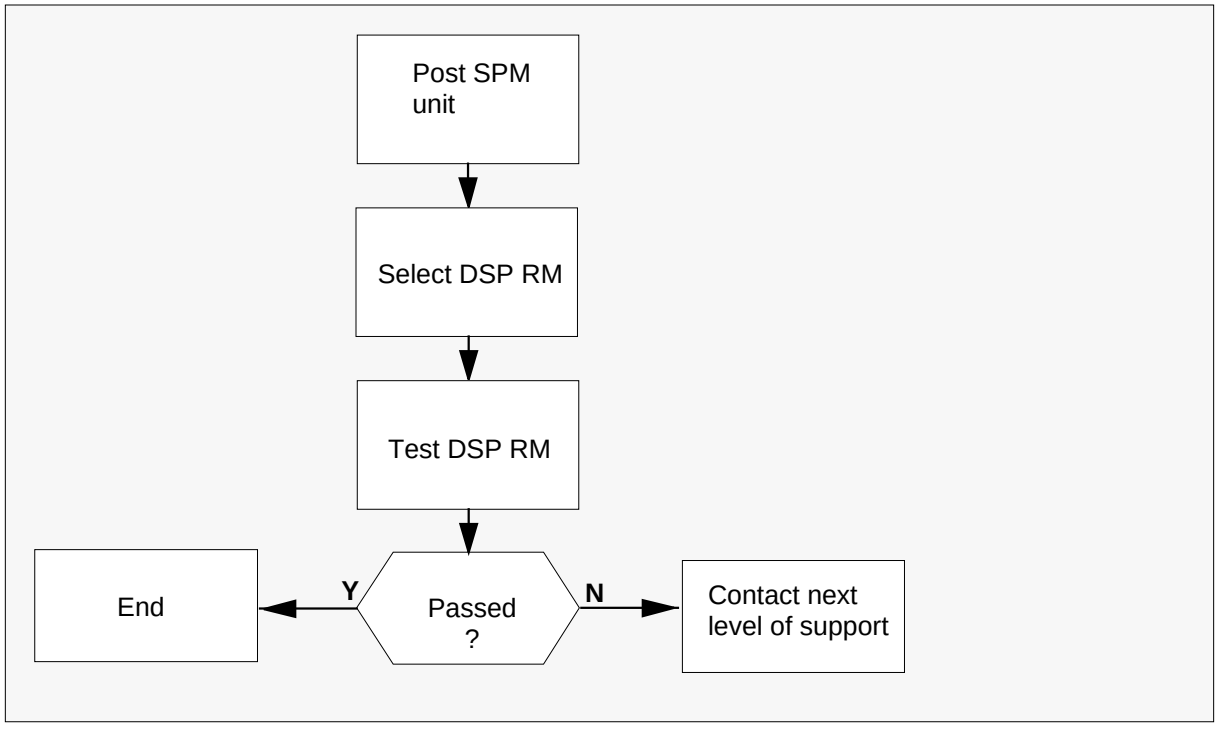
Common procedures

None

Action

This procedure contains a summary flowchart and a list of specific steps. Use the flowchart as an overview of the procedure. Follow the specific steps to perform the procedure.

Summary of how to activate a test of the SPM DSP RM



Testing an SPM DSP RM (continued)

How to activate a test of the SPM DSP RM

At the MAP terminal:

1 Access the PM screen level of the MAP display by typing

>MAPCI;MTC;PM

and pressing the Enter key.

2 Access the SPM screen by typing

>POST SPM spm_no

and pressing the Enter key.

where

spm_no
is the number of the SPM (0 to 63)

The following is an example of an SPM screen. This example may not reflect your SPM screen.

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


SPM                                SysB    ManB    OffL    CBsy    ISTb    InSv
 0 Quit          PM                  0       0       0       0       0       1
 2 Post_         SPM                 0       0       0       0       0       1
 3 ListSet
 4 ListRes    SPM 11 INSV  Loc: Site HOST Floor 2 Row A  FrPos 0
 5 Trnsl
 6            Shlf0 SL A Stat  Shlf0 SL A Stat  Shlf1 SL A Stat  Shlf1 SL A Stat
 7            DSP 2  1 A Insv  CEM 1  8 I Insv  VSP 2  1 A Insv  --- -  8 - ----
 8            DSP 0  2 A Insv  OC3 0  9 A Insv  --- -  2 - ----  VSP 6  9 A Insv
 9            DSP 1  3 I Insv  OC3 1 10 I Insv  --- -  3 - ----  --- - 10 - ----
10            DSP 3  4 I Insv  --- - 11 - ----  --- -  4 - ----  --- - 11 - ----
11 Disp_      --- -  5 - ----  --- - 12 - ----  --- -  5 - ----  --- - 12 - ----
12 Next       --- -  6 - ----  VSP 4 13 A Insv  --- -  6 - ----  --- - 13 - ----
13 Select_    CEM 0  7 A Insv  VSP 5 14 A Insv  --- -  7 - ----  --- - 14 - ----
14 QueryPM
15 ListAlm_
16
17
18

   14:12 >
```

3 Access the DSP card by typing

>SELECT DSP dsp_no

and pressing the Enter key.

where

dsp_no
is the number of the DSP (0 to 27)

Testing an SPM DSP RM (continued)

The following is an example of a DSP screen:

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


DSP                                SysB     ManB     OffL     CBsy     ISTb     InSv
 0 Quit          PM                   0        0        0        0        0        1
 2               SPM                  0        0        0        0        0        1
 3 ListSet         DSP                0        0        0        0        0        1
 4 ListRes
 5               SPM 11    DSP 0  Act  INSV
 6 Tst
 7 Bsy           Loc : Row A FrPos 0 ShPos 20 ShId 0 Slot 2  Prot Grp : 1
 8 RTS           Default Load: DSPLOAD                       Prot Role: Working
 9 Offl
10 LoadMod
11
12 Next
13 Select_
14 QueryMod
15 ListAlm
16 Prot
17
18

    14:12 >
```

4 Test the DSP by typing

>TST

and pressing the Enter key.

The following is an example of a DSP RM screen with the test submitted.

Testing an SPM DSP RM (end)

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


DSP                                 SysB    ManB    OffL    CBsy    ISTb    InSv
 0 Quit          PM                    0       0       0       0       0       1
 2               SPM                   0       0       0       0       0       1
 3 ListSet         DSP                 0       0       0       0       0       1
 4 ListRes
 5               SPM 11    DSP 0  Act  INSV
 6 Tst
 7 Bsy           Loc : Row A FrPos 0 ShPos 20 ShId 0 Slot 2  Prot Grp : 1
 8 RTS           Default Load: DSPLOAD                       Prot Role: Working
 9 Offl          Tst
10 LoadMod
11               SPM 11 DSP 0 Test   :  Request has been submitted.
12 Next          SPM 11 DSP 0 Test   :  Test passed.
13 Select_
14 QueryMod
15 ListAlm
16 Prot
17
18

   14:12 >
```

5 If the DSP RM did not pass the test, contact the personnel responsible for the next level of support.

6 You have completed this procedure. Return to the CI level of the MAP screen by typing

>QUIT ALL

and pressing the Enter key.

Testing an SPM OC3 interface module

Application

Use this procedure to test the DMS-Spectrum Peripheral Module (SPM) NTLX71BA OC3 interface module using the MAP procedures.

Definition

Perform the specific steps located in the action section to test a faulty OC3 interface module.

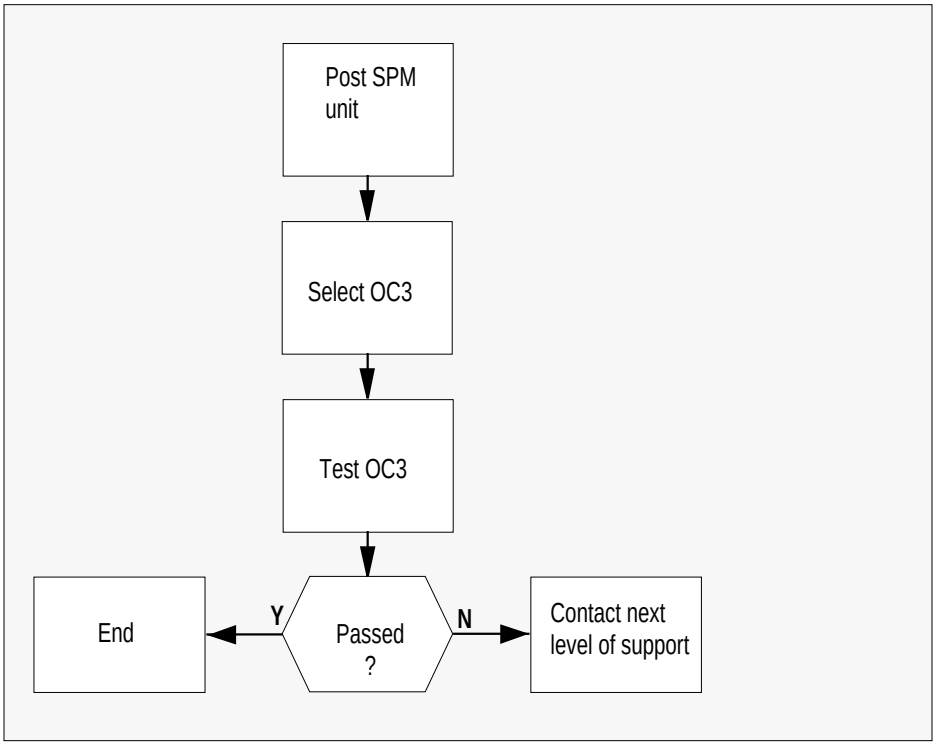
Common procedures

None

Action

This procedure contains a summary flowchart and a list of specific steps. Use the flowchart as an overview of the procedure. Follow the specific steps to perform the procedure.

Summary of testing an SPM OC3 interface module



Testing an SPM OC3 interface module (continued)

Testing an SPM OC3 interface module

At the MAP terminal:

1 Access the PM screen level of the MAP display by typing

>MAPCI;MTC;PM

and pressing the Enter key.

2 Access the SPM screen by typing

>POST SPM spm_no

and pressing the Enter key.

where

spm_no
is the number of the SPM (0 to 63)

The following is an example of an SPM screen. This example may not reflect your SPM screen.

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


SPM                                SysB     ManB     OffL     CBsy     ISTb     InSv
 0 Quit          PM                   0        0        0        0        0        1
 2 Post_         SPM                  0        0        0        0        0        1
 3 ListSet
 4 ListRes     SPM 11 INSV  Loc: Site HOST Floor 2 Row A  FrPos 0
 5 Trnsl
 6             Shlf0 SL A Stat  Shlf0 SL A Stat  Shlf1 SL A Stat  Shlf1 SL A Stat
 7             DSP 2  1 A Insv  CEM 1  8 I Insv  VSP 2  1 A Insv  --- -  8 - ----
 8             DSP 0  2 A Insv  OC3 0  9 A Insv  --- -  2 - ----  VSP 6  9 A Insv
 9             DSP 1  3 I Insv  OC3 1 10 I Insv  --- -  3 - ----  --- - 10 - ----
10             DSP 3  4 I Insv  --- - 11 - ----  --- -  4 - ----  --- - 11 - ----
11 Disp_       --- -  5 - ----  --- - 12 - ----  --- -  5 - ----  --- - 12 - ----
12 Next        --- -  6 - ----  VSP 4 13 A Insv  --- -  6 - ----  --- - 13 - ----
13 Select_     CEM 0  7 A Insv  VSP 5 14 A Insv  --- -  7 - ----  --- - 14 - ----
14 QueryPM
15 ListAlm_
16
17
18

   14:12 >
```

3 Access the OC3 card by typing

>SELECT oc3_no

and pressing the Enter key.

where

oc3_no
is the number of the OC3 card (0 or 1)

The following is an example of an OC3 screen.

Testing an SPM OC3 interface module (continued)

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


OC3                                  SysB     ManB     OffL     CBsy     ISTb     InSv
 0 Quit          PM                    0        0        0        0        0        1
 2               SPM                   0        0        0        0        0        1
 3 ListSet        OC3                  0        0        0        0        0        1
 4
 5             SPM 11    OC3 0  Act  INSV
 6 Tst
 7 Bsy         Loc : Row A FrPos 0 ShPos 6 ShId 0 Slot 9  Prot Grp : 1
 8 RTS         Default Load: OC3LOAD                      Prot Role: Working
 9 OffL
10 LoadMod
11
12 Next
13 Select_
14 QueryMod
15 ListAlm
16 Prot
17
18

    14:12 >
```

4 Test the OC3 by typing

>TST

and pressing the Enter key.

The following example shows an OC3 interface module screen with the test results.

Testing an SPM OC3 interface module (end)

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


OC3                              SysB    ManB    OffL    CBsy    ISTb    InSv
 0 Quit          PM                0       0       0       0       0       1
 2               SPM               0       0       0       0       0       1
 3 ListSet        OC3              0       0       0       0       0       1
 4
 5             SPM 11    OC3 0  Act  INSV
 6 Tst
 7 Bsy         Loc : Row A FrPos 0 ShPos 6 ShId 0 Slot 9  Prot Grp : 1
 8 RTS         Default Load: OC3LOAD                      Prot Role: Working
 9 OffL        Tst
10 LoadMod     SPM 11 OC3 0 Test : Request has been submitted.
11             SPM 11 OC3 0 Test : Test passed.
12 Next
13 Select_
14 QueryMod
15 ListAlm
16 Prot
17
18

    14:12 >
```

5 If the OC3 interface module did not pass the test, contact the personnel responsible for the

next level of support.

6 You have completed this procedure. Return to the CI level of the MAP screen by typing

>QUIT ALL

and pressing the Enter key.

Testing the DS-1 carrier states

Application

Use this procedure to test the DS-1 carrier states during the Common Channel Signaling 7 (CCS7) bit error rate test (C7BERT) for high-speed links (HSL).

Perform this procedure when you run C7BERT.

Definition

Test the DS-1 carrier transmit and receive ports on the HSL DS-1 paddle board (NTEX78AA) to check the carrier states at the local and remote office.

The DS-1 carrier can be in one of the following states:

- InSv (in service), which indicates that the carrier is not broken, the framing of the signal is correct, and the DS-1 cards receive idle asynchronous transfer mode (ATM) cells
- LOS (loss of signal), which indicates that the cards do not receive the DS-1 carrier signal
- LOF (loss of framing), which indicates that the cards receive the DS-1 carrier signal, but the framing of the signal is corrupted
- LCD (loss of cell delineation), which indicates that the DS-1 cards do not receive any ATM cells
- AIS (alarm indication signal), which indicates that a DS-1 carrier failure occured
- RAI (remote alarm indication), which indicates that a DS-1 carrier failure occured
- OOS (out of service), which indicates that a DS-1 carrier is not in service because of peripheral module (PM) failure or because the PM is not configured to bring the carrier into service

Common procedures

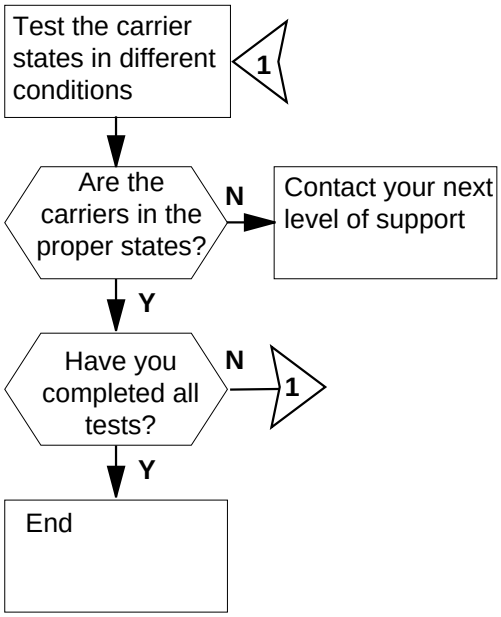
None

Action

This procedure contains a summary flowchart and a list of specific steps. Use the flowchart as an overview of the procedure. Follow the specific steps to perform the procedure.

Testing the DS-1 carrier states (continued)

Summary of Test the DS-1 carrier states



This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

Testing the DS-1 carrier states (continued)

Test the DS-1 carrier states

At the MAP display

1 Monitor the DS-1 carrier states at the C7BERT level. If the transmit (Tx) and receive (Rx) cables connect correctly to the DS-1 paddle board at the local and remote end, the carrier state for both cards should be InSv.

If the carrier states are	Do
InSv at the local end and InSv at the remote end	step 2
anything else	step 7

2 Pull the Tx cable at the local end and check the carrier states.

If the carrier states are	Do
RAI at the local end and LOS at the remote end	step 3
anything else	step 7

3 Pull the Rx cable at the local end and check the carrier states.

If the carrier states are	Do
LOS at the local end and LOS at the remote end	step 4
anything else	step 7

4 Plug in the Rx and Tx cables and pull out the Tx cable at the outgoing channel bank at the local end. Check the carrier states.

If the carrier states are	Do
RAI or any other alarm indicator for the local end and LCD at the remote end	step 5
anything else	step 7

Testing the DS-1 carrier states (end)

5 Pull out the Rx cable at the incoming channel bank at the local end. Check the carrier states.

If the carrier states are	Do
LCD at the local end and LCD at the remote end	step 6
anything else	step 7

6 Plug in the cables and check the carrier states.

If the carrier states are	Do
InSv at the local end and InSv at the remote end	step 8
anything else	step 7

7 For help, contact your next level of support.

8 You have completed this procedure. Return to the “Running a C7BERT for high-speed links" procedure.

Troubleshooting a customer-reported failure No FRIU alarms

Application

Use this procedure to clear faults when the following two conditions occur.

- The customer reports a service interruption.
- Frame relay interface unit (FRIU) alarms are not under the alarm banner on the MAP display.

Definition

FRIU alarms are not on the MAP banner. Post the FRIU and clear any alarms. Query traffic and perform loopback tests when no alarm exists for the posted FRIU.

Common procedures

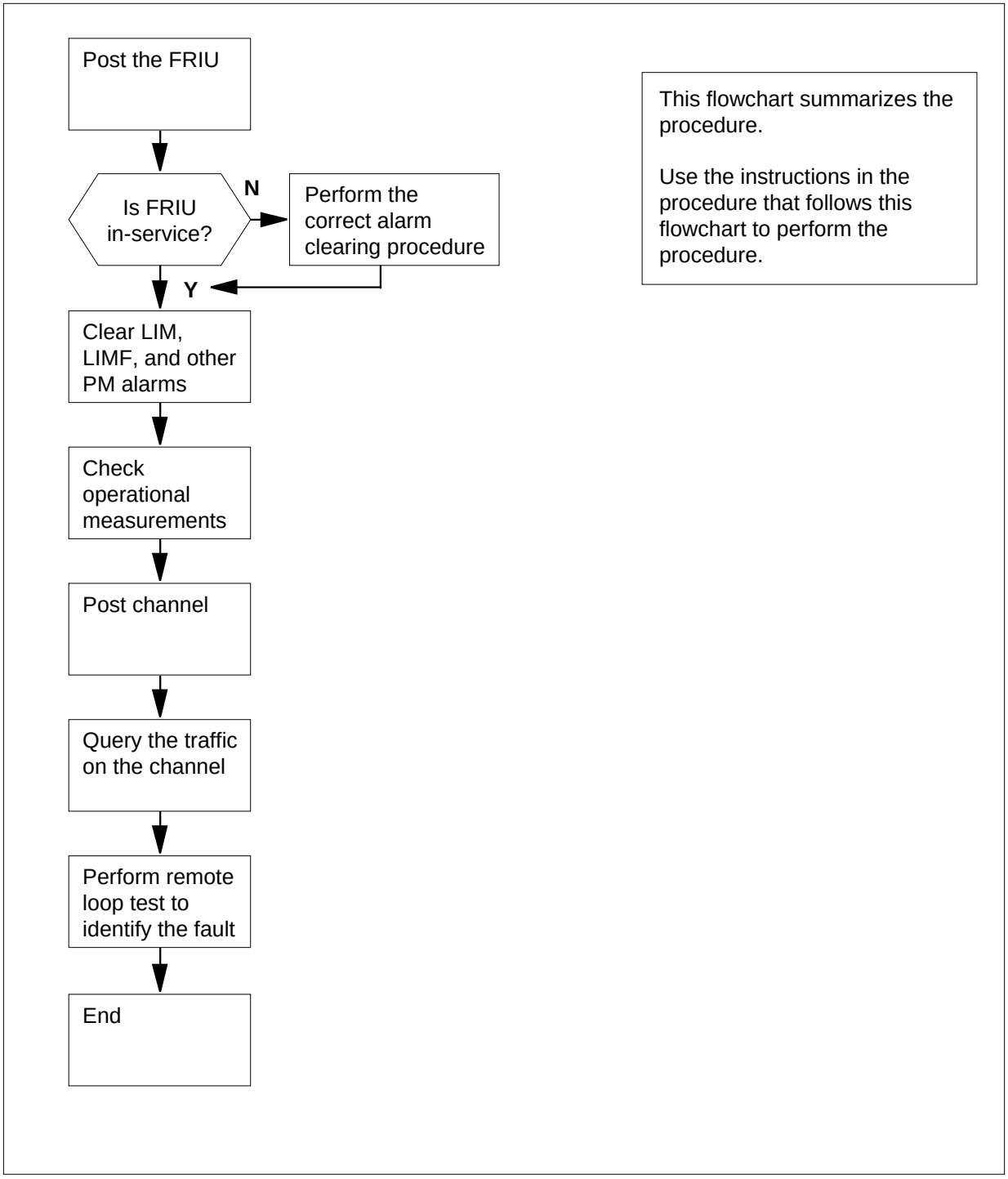
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a sumary of the procedure. Follow the steps to perform the procedure.

Troubleshooting a customer-reported failure
No FRIU alarms (continued)

Summary of Troubleshooting a customer reported failure - no FRIU alarms



Troubleshooting a customer-reported failure
No FRIU alarms (continued)

Troubleshooting a customer-reported failure- no FRIU alarms

At the MAP terminal

1 Obtain the directory number (DN) from the fault report.

2 To access the PVDNCI level of the MAP display, type

>PVDNCI

and press Enter.

Example of a MAP response

```
PVDNCI:
```

3 To identify the agent ID for the DN obtained from the fault report, type

>FRSDISP DN NO dir_no

and press Enter.

where

dir_no
is the DN obtained from the fault report

Example of a MAP response

```
PVDNCI:
DN 6132263770 belongs to FRS Agent 1
```

Note: The agent ID appears at the end of the response. In the example, the agent ID is 1.

4 To locate the FRIU and channel for the agent ID, type

>FRSDISP AGENT ID agent_no

and press Enter.

where

agent_no
is the agent ID obtained in step 3

Example of a MAP response

```
AGENT DN    NP   SPEED CONDEV AB CUSTOMER CONNECT TO
1 6132263770 NATL LS_1536KBS NIL N1        FRIU 5 7
```

Note: The FRIU number and channel assigned to this agent appear under the CONNECT TO header in the MAP response. In the example, the FRIU is 5 and the channel number is 7.

5 To return to the CI level of the MAP display, type

>QUIT

and press Enter.

Troubleshooting a customer-reported failure
No FRIU alarms (continued)

6 To access the PM level of the MAP display, type

>MAPCI; MTC; PM

and press Enter.

7 To post the FRIU identified in step 4, type

>POST FRIU friu_no

and press Enter.

where

friu_no
is the FRIU number obtained in step 4

If the FRIU	Do
is SysB	step 8
is SysB (NA)	step 8
is ManB	step 9
is ManB (NA)	step 9
is ISTb	step 10
is ISTb (NA)	step 8
is InSv (NA)	step 11
is InSv	step 13

8 Perform the procedure *Clearing a PM FRIU critical alarm (on an LPP)* in *Alarm and Performance Monitoring Procedures*. Do not return to this procedure.

9 Perform the procedure *Clearing a PM FRIU major alarm (on an LPP)* in *Alarm and Performance Monitoring Procedures*. Do not return to this procedure.

10 Perform the procedure *Clearing a PM FRIU minor alarm (on an LPP)* in *Alarm and Performance Monitoring Procedures*. Do not return to this procedure.

11 Determine from the MAP banner if any alarms are present under the PM header.

If alarms	Do
are present	step 12
are not present	step 13

12 Perform the correct alarm clearing procedures. Refer to *Alarm and Performance Monitoring Procedures*.

Troubleshooting a customer-reported failure
No FRIU alarms (continued)

13 Check the operational measurements (OM) that apply to DataSPAN. Look for high counts of cyclic redundancy test (CRC) errors in:

- OM group FRSAGENT, register PTERR for each involved agent
- OM group FRSPM, register PORTERR for each involved device
- OM group FRT1, register FRT1CRC for the involved carrier

For example, to check register FRT1CRC for OM group FRT1, type

>OMSHOW FRT1 ACTIVE 3

and press Enter.

Example of a MAP response

```
CLASS:  ACTIVE
START:1997/08/21 21:15:00 THU; STOP:1997/08/21 21:16:10 THU;
SLOWSAMPLES:         1;   FASTSAMPLES             7;

    INFO (FRT1OMINF)
     FRT1LCGA  FRT1RCGA  FRT1LOF   FRT1SBU
     FRT1MBU   FRT1CBU   FRT1BER   FRT1ES
     FRT1SES   FRT1UAS   FRT1AIS   FRT1CRC

 3 FRIU   29
           0        0         0         0
           0        0         0         0
           0        0         0         0
```

For more information on OMs, refer to *Operational Measurements Reference Manual*.

14 To post the access channel, type

>CARR;CHAN;POST chan_no

and press Enter.

where

chan_no
is the channel number that appeared in response to the PVDNCI command

Example of a MAP display

```
CARRIER                    Alarm   BER     ES   SES   UAS
 InSv                              <-9.     0     0   211


CHANNEL  1
         N

CHANNEL    1       ( 24  x DS0)
InSv /NoLMI
```

15 To check the traffic level on the access channel, type

>QTRAFFIC

Troubleshooting a customer-reported failure
No FRIU alarms (end)

and press Enter.

Example of a MAP response

```
CHANNEL 1       (24   x DS0)
InSv /NoLMI
qtraffic
Traffic from  15:30:00 to 15:36:32
Frames Tx:         30 Frames Rx:        0  Abort Rx:     0
Port errors:    0 Invalid msg length:   0 Invalid DLCI:  0
```

16 Perform remote loop tests to identify the fault. Refer to *Routine Maintenance Procedures* to install and remove loops required for carrier and channel remote loopback tests.

17 The procedure is complete.

Troubleshooting a customer-reported failure No PM alarms

Application

- The customer reports service disruption.
- Peripheral module (PM) alarms are not under the alarm banner on the MAP display.

Definition

PM alarms are not on the MAP banner. Post the FRIU and clear any alarms. Instructions can require you to return channels to service. Query traffic and perform loopback tests when no alarms exist for the posted FRIU.

Common procedures

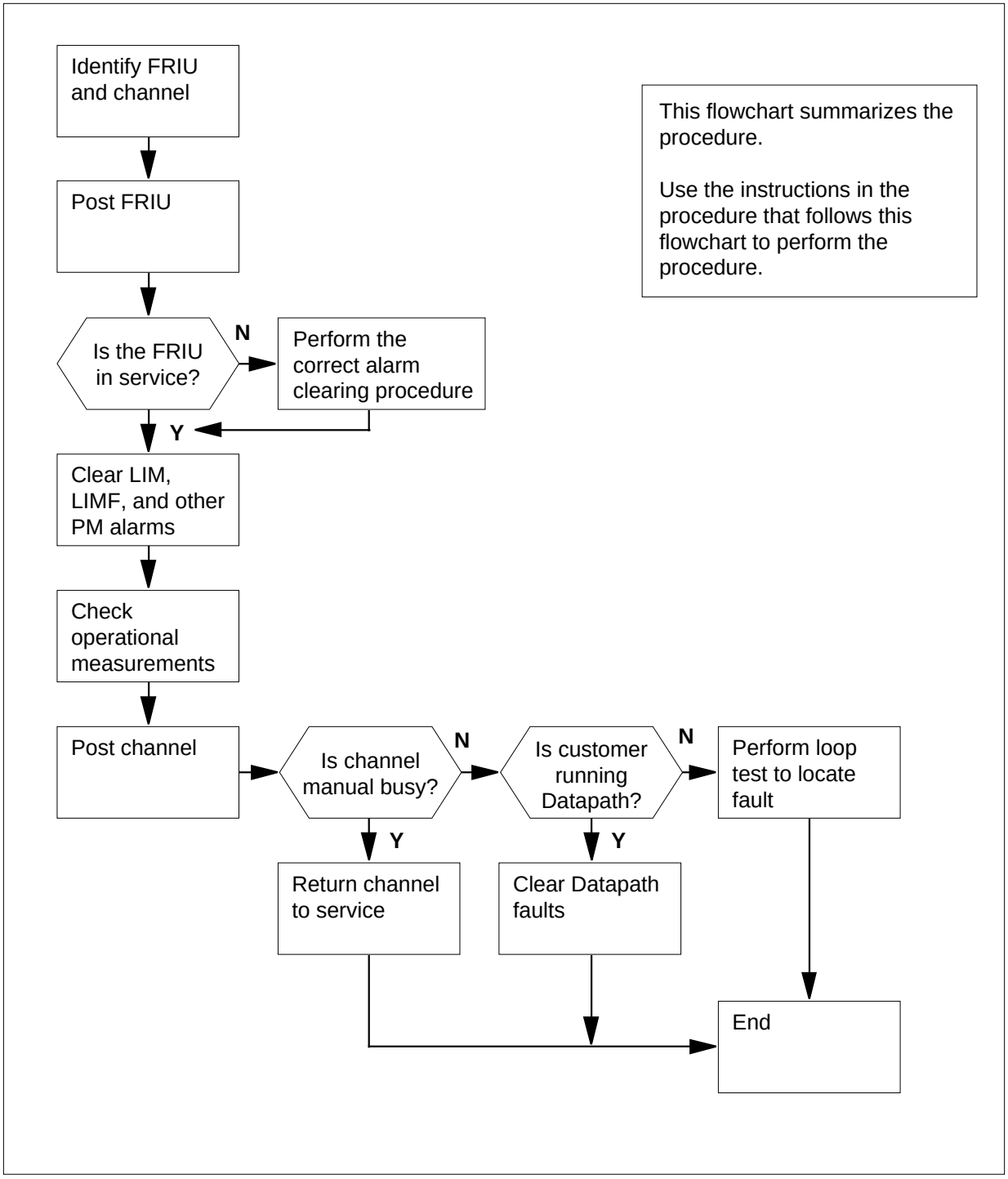
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Troubleshooting a customer-reported failure
No PM alarms (continued)

Summary of Troubleshooting a customer-reported failure - no PM alarms



Troubleshooting a customer-reported failure
No PM alarms (continued)

Troubleshooting a customer-reported failure—no PM alarms

At your current location

1 Determine the state of the channel.

If the channel state	Do
is not manual-busy	step 2
is manual-busy	step 22

At the MAP terminal

2 To access the PVDNCI level of the MAP display, type

>PVDNCI

and press Enter.

Example of a MAP response

```
PVDNCI:
```

3 To identify the agent ID for the DN obtained from the fault report, type

>FRSDISP DN NO dir_no

and press Enter.

where

dir_no
is the DN obtained from the fault report

Example of a MAP response

```
PVDNCI:
DN 6132263770 belongs to FRS Agent 1
```

Note: The agent ID appears at the end of the response. In the example, the agent ID is 1.

4 To locate the FRIU and channel for the agent ID, type

>FRSDISP AGENT ID agent_no

and press Enter.

where

agent_no
is the agent ID obtained in step 3

Example of a MAP response

```
AGENT DN    NP   SPEED CONDEV AB CUSTOMER CONNECT TO
1 6132263770 NATL LS_1536KBS NIL N1        FRIU 5 7
```

Troubleshooting a customer-reported failure
No PM alarms (continued)

Note: The FRIU number and channel assigned to this agent appear under the CONNECT TO header in the MAP response. In the example, the FRIU is 5 and the channel number is 7.

5 To return to the CI level of the MAP display, type

```
>QUIT
```

and press Enter.

6 To access the PM level of the MAP display, type

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

and press Enter.

7 To post the FRIU identified in step 4, type

```
POST  FRIU  friu_no
```

and press Enter.

where

friu_no
is the FRIU number obtained in step 4

If the FRIU	Do
is SysB	step 8
is SysB (NA)	step 8
is ManB	step 9
is ManB (NA)	step 9
is ISTb	step 10
is ISTb (NA)	step 8
is InSv (NA)	step 11
is InSv	step 11

8 Perform the procedure *Clearing a PM FRIU critical alarm (on an LPP)* in *Alarm and Performance Monitoring Procedures*. Do not return to this procedure.

9 Perform the procedure *Clearing a PM FRIU major alarm (on an LPP)* in *Alarm and Performance Monitoring Procedures*. Do not return to this procedure.

10 Perform the procedure *Clearing a PM FRIU minor alarm (on an LPP)* in *Alarm and Performance Monitoring Procedures*. Do not return to this procedure.

Troubleshooting a customer-reported failure
No PM alarms (continued)

11 Determine from the MAP banner if any alarms are present under the PM header.

If alarms	Do
are present	step12
are not present	step13

12 Perform the correct procedures to clear the alarm. Refer to *Alarm and Performance Monitoring Procedures*.

13 Check the operational measurements (OM) that apply to DataSPAN. Look for high counts of cyclic redundancy check (CRC) errors in:

- OM group FRSAGENT, register PTERR for each involved agent
- OM group FRSPM, register PORTERR for each involved device
- OM group FRT1, register FRT1CRC for the involved carrier

For example, to check register FRT1CRC for OM group FRT1, type

>OMSHOW FRT1 ACTIVE 3

and press Enter.

Example of a MAP response

```
CLASS:  ACTIVE
START:1997/08/21 21:15:00 THU; STOP:1997/08/21 21:16:10 THU;
SLOWSAMPLES:         1;   FASTSAMPLES              7;

    INFO (FRT1OMINF)
     FRT1LCGA  FRT1RCGA  FRT1LOF   FRT1SBU
     FRT1MBU   FRT1CBU   FRT1BER   FRT1ES
     FRT1SES   FRT1UAS   FRT1AIS   FRT1CRC

 3 FRIU   29
           0        0         0         0
           0        0         0         0
           0        0         0         0
```

For more information on OMs, refer to *Operational Measurements Reference Manual*.

14 To post the access channel, type

>CARR;CHAN;POST chan_no

and press Enter.

where

chan_no
is the channel number that appears in response to the PVDNCI command

Example of a MAP display:

Troubleshooting a customer-reported failure
No PM alarms (continued)

```
CARRIER                    Alarm   BER     ES   SES   UAS
 InSv                              <-9.     0     0   211


CHANNEL  1
         N

CHANNEL    1       ( 24  x DS0)
InSv /NoLMI
```

15 Determine the state of each channel.

If the channel state	Do
is ManB	step 16
is any other item, and the customer uses Datapath	step 22
is any other item, and the customer uses DDS	step 23

16 Select a manual-busy channel to return to service.

17 To post the channel, type

>POST chan_no

and press Enter.

where

chan_no
is the number of the channel that will return to service

18 To return the channel to service, type

>RTS

and press Enter.

19 Repeat steps 17 to 18 for each manual-busy channel.

Go to step 20.

20 Determine if the channels are in service.

If one or more channels	Do
are dot (.) (in service)	step 24
are any other items	step 21

21 Perform the correct procedure to clear the alarm. *Alarm and Performance Monitoring Procedures* describe alarm clearing procedures.

Troubleshooting a customer-reported failure
No PM alarms (end)

22 Perform Datapath procedures to clear faults. Refer to *DMS-100 DATAPATH Maintenance and Installation Guide*, 297-2121-223. Do not return to this procedure.

23 Perform remote loop tests to identify the fault. Refer to *Routine Maintenance Procedures* for procedures to install and remove loops required for carrier and channel remote loopback tests.

24 The procedure is complete.

VSLE session defaults to audio SLE

Application

Use this procedure to determine why the Visual Screen List Editing (VSLE) session defaults to audio Screening List Editing (SLE).

Definition

A subscriber complaint indicates that during a VSLE session, the subscriber receives audio announcements of feature status information. The subscriber receives the announcements rather than the visual display on the Analog Display Services Interface (ADSI) set.

Common procedures

There are no common procedures.

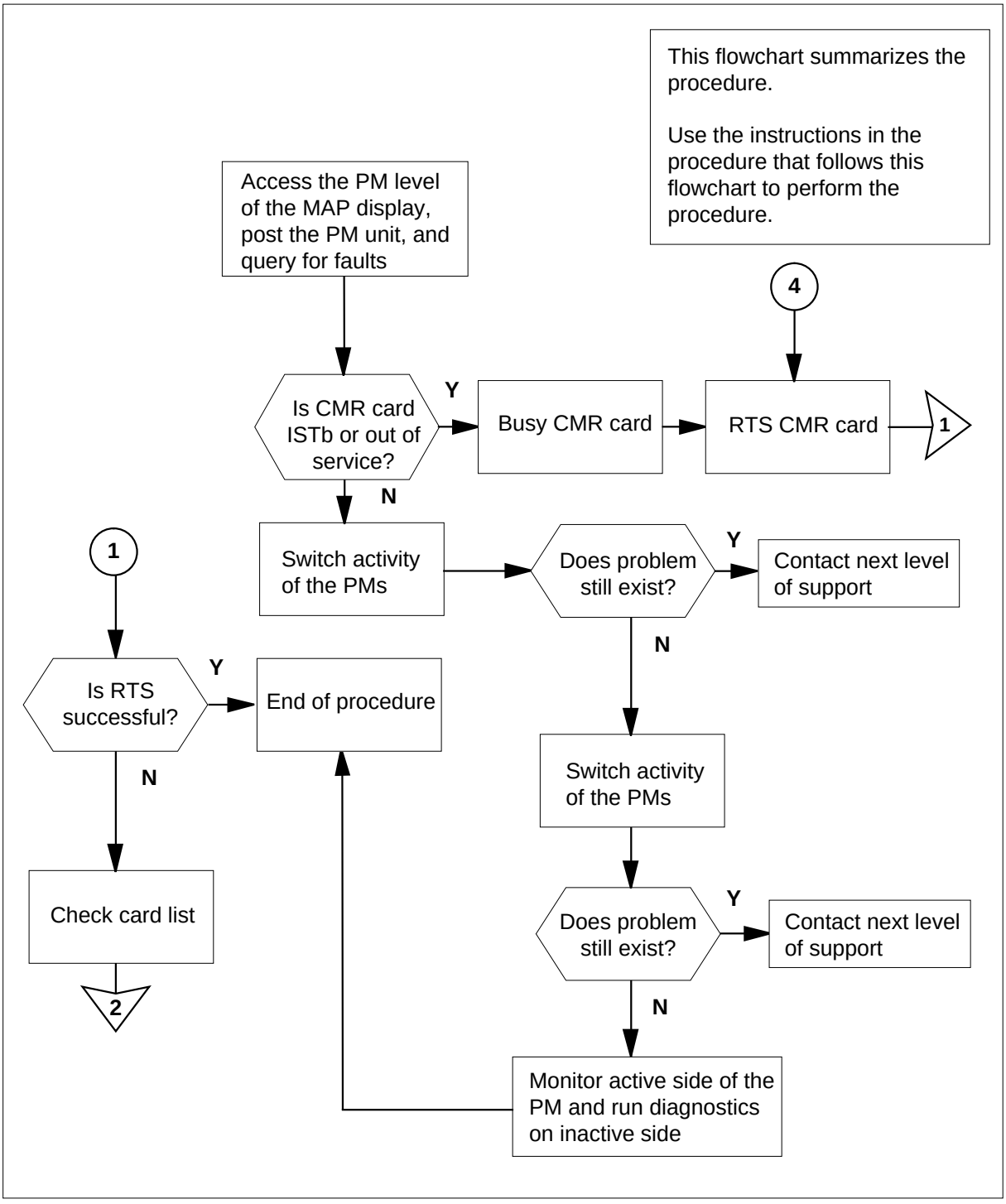
Action

This procedure contains a summary flowchart and list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Note: The CLASS modem resource (CMR) card NT6X78 can go out of service in the active unit. If the card goes out of service, the operating company personnel can busy, replace, load, and return the card to service. The operating company personnel do not need to execute these operations on the whole unit.

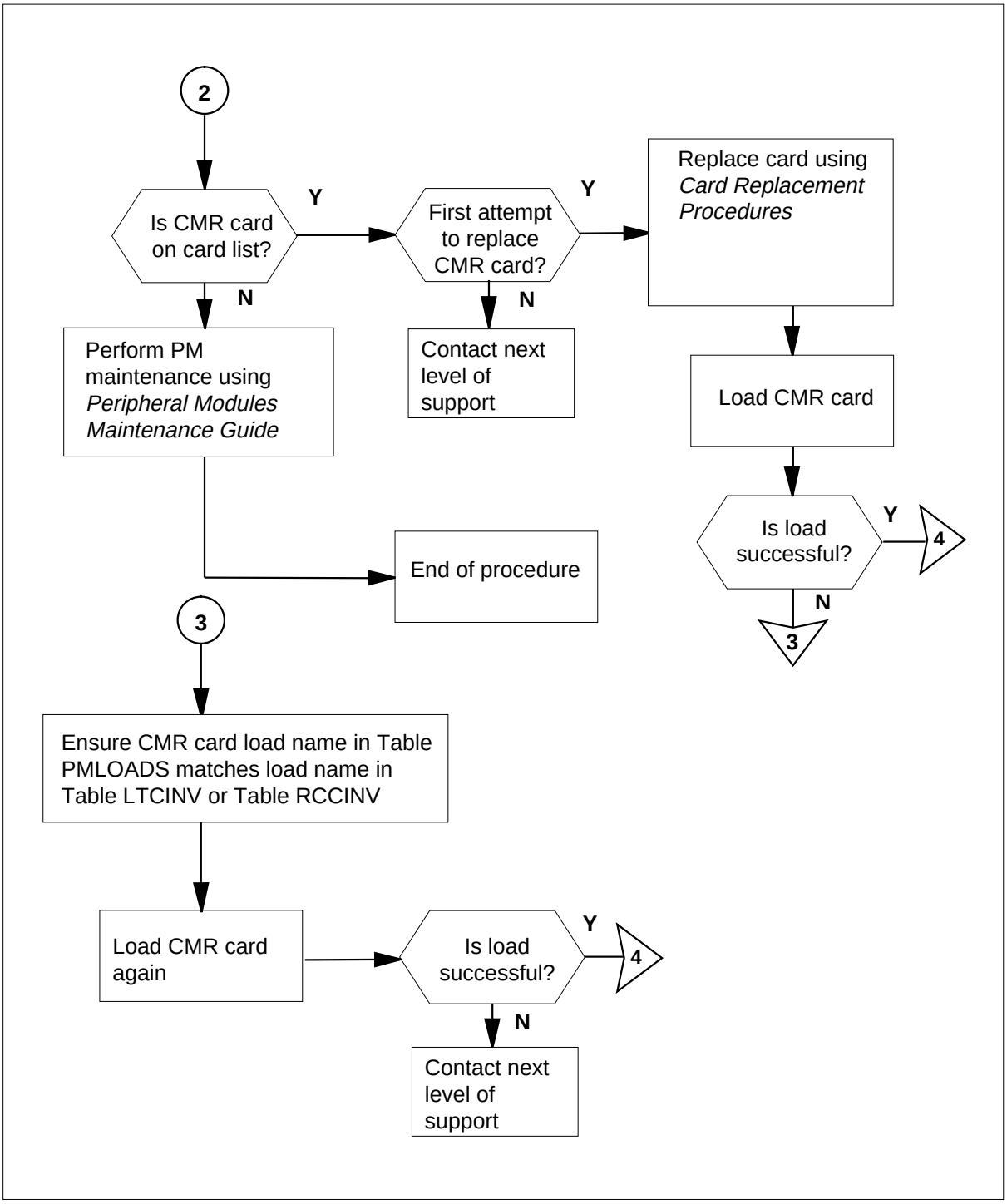
VSLE session defaults to audio SLE (continued)

Summary of VSLE session defaults to audio SLE



VSLE session defaults to audio SLE (continued)

Summary of VSLE session defaults to audio SLE (continued)



VSLE session defaults to audio SLE (continued)

VSLE session defaults to audio SLE

At the MAP terminal:

1 To access the PM level of the MAP display, type

`>MAPCI;MTC;PM`

and press Enter.

2 To post the peripheral module (PM) unit, type

`>POST pm_type pm_number`

and press Enter.

where

pm_type
is the PM type (LGC, LTC, RCC, SMS, or SMU)

pm_number
is the number of the PM (0 through 127)

3 To check for fault indicators in the CLASS modem resource (CMR) card, type

`>QUERYPM FLT`

and press Enter.

If CMR card	Do
is in-service trouble (ISTb) or out of service	step 6
is not ISTb or out of service	step 4

4 To switch activity of the unit in order to restore service quickly, type

`>SWACT`

and press Enter.

If SWACT passes and problem	Do
is present	step 22
is nt present	step 5

5 To switch activity back to the original unit, type

`>SWACT`

and press Enter.

If SWACT passes and problem	Do
is present	step 22
is not present	step 20

VSLE session defaults to audio SLE (continued)

6

CAUTION
Loss of Service
A BSY of the CMR card on the active unit of the PM affects CLASS services. CLASS services that use the card can not function.

To busy the CMR card, type

>BSY UNIT **unit_no** ***CMR***

and press Enter.

where

unit_no
is the number of the PM (0 or 1)

Note: CMR is an optional parameter that means to busy only the CMR card.

7 To return the CMR card to service, type

>RTS UNIT **unit_no** ***CMR***

and press Enter.

where

unit_no
is the number of the PM unit (0 or 1)

Note: CMR is an optional parameter that means to return the CMR card to service.

If RTS	Do
passes	step 23
fails	step 8

8 Examine the generated card list. The performance of one of the following steps depends on the card list.

The following card list is a standard message of a CMR card failure.

VSLE session defaults to audio SLE (continued)

```
          RTS Failed, TESTALL
          Diagnostic TESTALL failed.
          Fail message received from PM
          Replace the Cards in the Card List
          and applicable Paddleboards (i.e. 6X12) :
Site Flr RPos Bay_id  Shf  Description    Slot   EqPEC
HOST  01  D02 LGE  00  18  LGC : 000      13     6X78
```

If CMR card	Do
is on the card list	step 11
is not on the card list	step 9

9 Perform PM maintenance on the PM currently posted and return to this point.

10 Go to step 23.

11 Use the following information to determine the next step in this procedure.

If	Do
a first-time replacement of the CMR card	step 12
replaced CMR card already	step 22

12 See *Card Replacement Procedures* and return to this point.

13 To load the CMR card in the PM, type

>LOADPM UNIT **unit_no CC** ***CMR***

and press Enter.

where

unit_no
is the number of the PM (0 or 1)

Note: Use the LOADPM command to load the CMR card separate from the PM.

If response	Do
is the loading completes correctly	step 17
is CMR FAILED TO LOAD. TASK ABORTED WHILE LOADING CMR	step 14
is CMR FILE CMR33A15 NOT FOUND ON DEVICE INDICATED IN TABLE PMLOADS *Note:*CMR33A15 is the CMR load name	step 14

VSLE session defaults to audio SLE (continued)

If response	Do
is FAILED TO OPEN CORRECTLY	step 14

14 Verify that the CMR card can load. To use the QUERYPM command to determine the CMR load name, type

>querypm CNTRS

and press Enter.

Example of a MAP response:

```
Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0.
Unit 0:
RAM Load: NLG32BU
ROM Load: XPMRKA02
CMR LOAD: CMR33AI5
CMR DEFINERS: 12
MP: 6X45BA/BB
SP: 6X45BA/BB
Unit 1:
RAM Load: NLG32BU
ROM Load: XPMRKA02
CMR LOAD: CMR33AI5
CMR DEFINERS: 12
MP: 6X45BA/BB
SP: 6X45BA/BB
```

Note: In this example, the CMR load name is CMR33AI5.

15 Ensure that the CMR card load name in Table PMLOADS matches the load name in Table LTCINV or Table RCCINV.

16 To load the CMR card again, type

>LOADPM UNIT unit_no CC CMR

and press Enter.

where

unit_no
is the number of the PM unit (0 or 1)

Note: CMR is an optional parameter that means to load only the CMR card.

If load	Do
passes	step 17
fails	step 22

17 To return the CMR card to service, type

>RTS UNIT **unit_no** ***CMR***

VSLE session defaults to audio SLE (end)

and press Enter.

where

unit_no
is the number of the PM (0 or 1)

Note: CMR is an optional parameter that means to return only the CMR card to service.

The following card list is a standard message that refers to a CMR card failure.

```
        RTS Failed, TESTALL
        Diagnostic TESTALL failed.
        Fail message received from PM
        Replace the Cards in the Card List
        and applicable Paddleboards (i.e. 6X12) :
Site Flr RPos Bay_id  Shf  Description    Slot   EqPEC
HOST  01  D02 LGE  00  18  LGC : 000      13     6X78
```

If RTS	Do
passes	step 23
fails but the CMR card is not on the card list	step 18
fails and the CMR card is on the card list	step 19

18 Perform PM maintenance on the PM currently posted. Go to step 23.

19 Go to step 23.

20 Use the following information to determine the next step in this procedure.

If	Do
a first-time replacement of the CMR card	step 12
replaced CMR card already	step 22

21 Monitor the active side of the PM and run diagnostics on the inactive side.

22 Go to step 23.

23 For additional help, contact the person responsible for the next level of support.

24 The procedure is complete.

Index

A

AMP connectors, 2x5
  SuperNode cabling
    Assembling Vol. 1, 1-43
APU
  Downloading software to Vol. 1, 1-520
attendant console problem
  Correct Vol. 1, 1-160
audio SLE defaulted to by VSLE session
  troubleshooting Vol. 2, 1-547
automatic line test failure
  Correcting Vol. 1, 1-164

B

BCLID link failure
  troubleshooting Vol. 1, 1-48
bulkhead gasket
  Replacing Vol. 2, 1-247
busy trunk circuits
  Monitoring Vol. 2, 1-88
  processing Vol. 2, 1-88

C

C7BERT
  Running Vol. 2, 1-423, Vol. 2, 1-455
C7TIMER
  Changing table entries Vol. 1, 1-138
call cutoff problem
  Correcting Vol. 1, 1-168
call processing busy (CPB)
  trouble locating Vol. 2, 1-16
Can't be called
  trouble locating and clearing Vol. 1, 1-58
Can't call out
  trouble locating and clearing Vol. 1, 1-93
card or assembly
  Returning in Canada Vol. 2, 1-404
  Returning in Germany Vol. 2, 1-408
  Returning in Japan Vol. 2, 1-411
  Returning in the United States Vol. 2, 1-415
card replacement procedures
  NT9X95 Vol. 2, 1-343
CCS alarms
  Prioritizing Vol. 2, 1-129
Clearing trouble on the SCAI link
  trouble locating Vol. 1, 1-145
continuity tests
  external
    performing Vol. 2, 1-92, Vol. 2, 1-97
  internal
    performing Vol. 2, 1-102, Vol. 2, 1-107
cooling unit assembly in a 42-in. cabinet
  Replacing Vol. 2, 1-250
cooling unit electronic module
  Replacing Vol. 2, 1-261
cooling unit fan
  Replacing
    CPC A0345301 Vol. 2, 1-271
    CPC A0381714, A0382103, or A0383325 Vol. 2, 1-281
cooling unit NTRX91AA
  Replacing Vol. 2, 1-291
cooling unit replacement Vol. 2, 1-153
  trouble locating and clearing Vol. 2, 1-153
CU voltage limiter and filter in a 28-in. cabinet
  Replacing Vol. 2, 1-294
cut
  trouble locating Vol. 2, 1-19

D

data error problem
Correcting Vol. 1, 1-174, Vol. 2, 1-510, Vol. 2, 1-520, Vol. 2, 1-524
D-channel
determine state Vol. 1, 1-395, Vol. 1, 1-399
restoring far-end service Vol. 2, 1-386
D-channel maintenance busy (DMB)
trouble locating Vol. 2, 1-21
D-channel, backup
manually switch Vol. 2, 1-80
D-channel, busy
returning to service Vol. 2, 1-390, Vol. 2, 1-395
D-channels
restoring far-end service Vol. 2, 1-381
Determine the location of the trouble
trouble locating Vol. 1, 1-410
Digital test access
trouble locating and clearing Vol. 1, 1-430, Vol. 1, 1-435
digital test unit trouble
Correcting Vol. 1, 1-183
disk drive unit
Replacing
14-in. Vol. 2, 1-228
8-in. or 5.25-in. Vol. 2, 1-211
DN incorrect or not displayed
troubleshooting Vol. 2, 1-5
door gasket
Replacing Vol. 2, 1-308
DRAM announcement trouble
Correcting Vol. 1, 1-195
DRAM sit tone trouble
Correcting Vol. 1, 1-204
DS-1 loopback
establish far-end office Vol. 1, 1-587
DS-1 PCM30 loopback
establish a far-end office Vol. 1, 1-593
DSCWID/SCWID subscriber
waiting call notification
failure Vol. 1, 1-549

E

E911 LDT and Line/ACD PSAP complaint
trouble locating and clearing Vol. 1, 1-557
E911 LDT PSAP complaint
trouble locating and clearing Vol. 1, 1-564
E911 LDT PSAP Operator Complaint
trouble locating and clearing Vol. 1, 1-573
E911 Line and ACD PSAP complaint
trouble locating and clearing Vol. 1, 1-580
EDRAM voice file trouble
Correcting Vol. 1, 1-211
EIU
Downloading software to Vol. 1, 1-524
enhanced network load datafill
Correcting Vol. 1, 1-220

F

fan in a 28-in. cabinet
Replacing Vol. 2, 1-311
fan in a 28-in. frame
Replacing Vol. 2, 1-317
fan in a 42-in. cabinet
Replacing Vol. 2, 1-323
free pay telephone service
line with
Correcting Vol. 1, 1-290

I

idle (IDL)
trouble locating Vol. 2, 1-28
incoming callers list
troubleshooting DNs Vol. 2, 1-2
installation busy (INB)
trouble locating Vol. 2, 1-37
ISUP per-call continuity test
Setting up Vol. 2, 1-487
ISUP trunk audits
Scheduling Vol. 2, 1-483

L

LIM
Returning to service Vol. 2, 1-419
LIM unit
Downloading software to Vol. 1, 1-529

line card
procedure for replacing Vol. 2, 1-333
procedure for reseating Vol. 2, 1-372
Replacing when missing Vol. 2, 1-339line
flux cancellation error
Correcting Vol. 1, 1-231
line loop detect error
Correcting Vol. 1, 1-237
line loopback problem
Correcting Vol. 1, 1-243
line module busy (LMB)
trouble locating Vol. 2, 1-40
line noise problem
Correcting Vol. 1, 1-249
line pad test problem
Correcting Vol. 1, 1-253
line ringing failure
Correcting Vol. 1, 1-257
line state
determine Vol. 1, 1-403
line synchronization loss
U-loop
Correcting Vol. 1, 1-261
line test failure
automatic
Correcting Vol. 1, 1-164
line test unit trouble
Correcting Vol. 1, 1-266
line that does not receive calls
Correcting Vol. 1, 1-275
line that does not ring
Correcting Vol. 1, 1-281
line transhybrid error
Correcting Vol. 1, 1-286
line transmission or reception
Correcting Vol. 1, 1-335
line with free pay telephone service
Correcting Vol. 1, 1-290
linkset, offline
Activating Vol. 1, 1-23
LIU7
Activate a loopback on Vol. 1, 1-9
Activating a loopback on Vol. 1, 1-2
Downloading software to Vol. 1, 1-533
Recovering if stuck Vol. 2, 1-137, Vol. 2, 1-145
lock out (LO)
trouble locating Vol. 2, 1-45
locked-out trunks
Correcting Vol. 1, 1-295logs
DIRP101
Reason 100 Vol. 1, 1-472
Reason 127 Vol. 1, 1-475
Reason 129 Vol. 1, 1-479
Reason 153 Vol. 1, 1-483
Reason 154 Vol. 1, 1-487
Reason 155 Vol. 1, 1-491
Reason 2 Vol. 1, 1-440
Reason 223 Vol. 1, 1-495
Reason 251 Vol. 1, 1-499
Reason 26 Vol. 1, 1-445
Reason 266 Vol. 1, 1-504
Reason 267 Vol. 1, 1-508
Reason 27 Vol. 1, 1-450
Reason 279 Vol. 1, 1-512
Reason 280 Vol. 1, 1-516
Reason 46 Vol. 1, 1-454
Reason 51 Vol. 1, 1-459
Reason 56 Vol. 1, 1-463
Reason 78 Vol. 1, 1-467
TRMS301
Responding to Vol. 2, 1-378
loopback
NTEX26AA paddleboard
Activate Vol. 1, 1-16
loopback on an LIU7
Activate Vol. 1, 1-9
Activating Vol. 1, 1-2

M

manual busy (MB)
trouble locating Vol. 2, 1-53
metallic test access trouble
Correcting Vol. 1, 1-300
metallic test unit trouble
Correcting Vol. 1, 1-304
missing telephone
Confirming Vol. 1, 1-156

N

no ANI on coin line condition
Correcting Vol. 1, 1-318
NT9X95
card replacement procedures Vol. 2, 1-343
NTEX26AA paddle board
loopback
Activate Vol. 1, 1-16
NTRX91AA
cooling unit
Replacing Vol. 2, 1-291

P

packet service unavailable (PSU)
trouble locating Vol. 2, 1-56, Vol. 2, 1-118
PCM level meter card trouble
Correcting Vol. 1, 1-329
peripheral module
Correct no response Vol. 1, 1-324
point-of-use power supply
procedure for replacing Vol. 2, 1-365
power supply
point-of-use
procedure for replacing Vol. 2, 1-365
PRI trunk, busy
returning to service Vol. 2, 1-399

R

release mismatch problems
Correcting Vol. 1, 1-346
Repair an NTBX63AA cooling unit on the bench top
trouble locating and clearing Vol. 2, 1-163
Repair FAN faults on an LCEI frame Vol. 2, 1-153
Repairing and replacing NT3X90AA cooling units
trouble locating and clearing Vol. 2, 1-169
Repairing and replacing NT3X90AB cooling units
trouble locating and clearing Vol. 2, 1-181
Repairing and replacing NT3X90AC cooling units
trouble locating and clearing Vol. 2, 1-191
REx test (automatic)
Scheduling Vol. 2, 1-478
REx test (automatic) schedule
Adding a LIM Vol. 1, 1-36
Adding an NIU Vol. 1, 1-39
Excluding a LIM Vol. 1, 1-602
Excluding an NIU Vol. 1, 1-605
REx test (manual)
Performing on an NIU Vol. 2, 1-123ringing
pretrip
Correcting Vol. 1, 1-364

S

signaling link marginal performance report (SLMPR)
Setting up Vol. 2, 1-491
signaling link occupancy
Estimating Vol. 1, 1-598
softkey information failure
troubleshooting Vol. 2, 1-502
softkey trouble
troubleshooting Vol. 1, 1-151
SuperNode cabling
2x5 AMP connectors
Assembling Vol. 1, 1-43

T

T1 trunks
Correcting
receive-level trouble Vol. 1, 1-340
supervision trouble Vol. 1, 1-374
transmission-level trouble Vol. 1, 1-390
test access line relay, stuck
Correcting Vol. 1, 1-370
Test the DS-1 carrier states
trouble locating and clearing Vol. 2, 1-530
throttling logs mechanism
Activating Vol. 1, 1-30
transmission test trunk trouble
Correcting Vol. 1, 1-379
transmission test unit trouble
Correcting Vol. 1, 1-385
TRMS301 logs
Responding to Vol. 2, 1-378
trouble locating
Clearing trouble on the SCAI link Vol. 1, 1-145
CPB line state Vol. 2, 1-16

CUT line state Vol. 2, 1-19
Determine the location of the trouble Vol. 1, 1-410
DMB line state Vol. 2, 1-21
IDL line state Vol. 2, 1-28
INB line state Vol. 2, 1-37
line card replacement procedure Vol. 2, 1-333
line card reseating procedure Vol. 2, 1-372
LMB line state Vol. 2, 1-40
LO line state Vol. 2, 1-45
MB line state Vol. 2, 1-53
procedure for replacing point-of-use power supply Vol. 2, 1-365
PSU line state Vol. 2, 1-56, Vol. 2, 1-118
trouble locating and clearing
Can't be called Vol. 1, 1-58
Can't call out Vol. 1, 1-93
Digital test access Vol. 1, 1-430, Vol. 1, 1-435
E911 LDT and Line/ACD PSAP complaint Vol. 1, 1-557
E911 LDT PSAP complaint Vol. 1, 1-564
E911 LDT PSAP Operator Complaint Vol. 1, 1-573
E911 Line and ACD PSAP complaint Vol. 1, 1-580
Repair an NTBX63AA cooling unit on the bench top Vol. 2, 1-163
Repair FAN faults on an LCEI frame Vol. 2, 1-153
Repairing and replacing NT3X90AA cooling units Vol. 2, 1-169
Repairing and replacing NT3X90AB cooling units Vol. 2, 1-181
Repairing and replacing NT3X90AC cooling units Vol. 2, 1-191
Test the DS-1 carrier states Vol. 2, 1-530
Troubleshooting a customer-reported failure Vol. 2, 1-534, Vol. 2, 1-540
trouble location
determining Vol. 1, 1-418
Troubleshooting a customer-reported failure
trouble locating and clearing Vol. 2, 1-534, Vol. 2, 1-540
trunks, ISDN PRI
determine state Vol. 1, 1-426

U

U-loop
line synchronization loss
Correcting Vol. 1, 1-261

V

voltage limiter and filter in a 28-in. cabinet
CU
Replacing Vol. 2, 1-294
VPU
Downloading software to Vol. 1, 1-540
VSLE session defaults to audio SLE
troubleshooting Vol. 2, 1-547

X

XLIU
Downloading software to Vol. 1, 1-544

DMS-100 Family

North American DMS-100

Trouble Locating and Clearing Procedures

Volume 2 of 2

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