

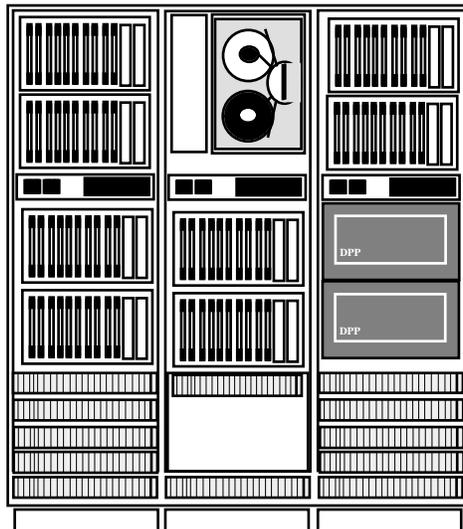
297-1001-537

DMS-100 Family

Distributed Processing Peripheral

Recovery and Routine Maintenance Guide

BCS35 and up Standard 01.02 December 1993



DMS-100 Family

Distributed Processing Peripheral

Recovery and Routine Maintenance Guide

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About this document

This document describes the recovery and routine maintenance procedures for the Distributed Processing Peripheral (DPP).

Applicability of this document

Northern Telecom (NT) software releases are called batch change supplements (BCS) and are identified by a number, for example, BCS35.

This document applies to DMS-100 Family offices with BCS35. Unless the document is revised, it also applies to offices with software releases greater than BCS35.

How to identify the software in your office

The *Office Feature Record D190* lists your current BCS and its NT feature packages. To view similar information on screen, enter the following command string at a Maintenance Administration Position (MAP) terminal.

```
PATCHER;INFORM LIST;LEAVE
```

How the DPP documentation package is organized

This document is part of the DPP documentation package supporting Northern Telecom's DPP products. The DPP documentation package is a subset of the DMS-100 Family library.

Documents in the DPP documentation package

The DMS-100 Family library is structured in numbered layers, each of which is associated with a Northern Telecom product. The DPP documentation package is in the 297-1001 layer.

The list of DPP documents follows.

Document	Title
297-1001-019	<i>Distributed Processing Peripheral (DPP) Product Guide</i>
297-1001-543	<i>DPP Alarm Clearing and Performance Monitoring Guide</i>
297-1001-536	<i>DPP Card Replacement Guide</i>
297-1001-331	<i>DPP Administration Guide</i>
297-1001-537	<i>DPP Recovery and Routine Maintenance Procedures</i>

How the DPP documents relate to other documents

DPP documents are intended to be used with other documents in the DMS-100 Family library.

To understand the contents of the DPP documents, other documents in these layers may help:

- DMS-100 basic documents in the 297-1001 layer
- DPP documents in the 297-1001 layer

Where to find information

Documents helping you understand this manual, or the tasks it describes, are referenced in the text.

These documents, and other related manuals, follow.

Note: More than one version of these documents may exist. To determine which version of a document applies to the BCS in your office, check the *Northern Telecom Publications Master Index, 297-1001-001*.

Document	Title
297-1001-001	<i>Master Index of Practices</i>
GFXINDEX	<i>General Feature Description Index of Documents</i>
297-1001-112	<i>Modular Documentation System (MDS)</i>
297-1001-128	<i>AMA - Bellcore Format</i>
297-1001-310	<i>Table Editor Reference Manual</i>
297-1001-821	<i>DMS Menu Commands Reference (covers DPP commands)</i>
297-1001-820	<i>DMS NonMenu Commands Reference</i>
297-1001-013	<i>Device Independent Recording Package (DIRP) Product Guide</i>
297-1001-345	<i>DIRP Administration Guide</i>
297-1001-175	<i>DIRP Planning and Engineering Guide</i>
297-1001-345	<i>DIRP Administration Guide</i>
297-1001-574	<i>DIRP Recovery Procedures</i>
297-1001-572	<i>DIRP Routine Maintenance Guide</i>
297-1001-356	<i>DIRP Translation Guide</i>
297-1001-510	<i>Log Report Manual</i>
297-1001-451	<i>Customer Data Schema (contains the five DPP translations tables)</i>
297-1001-513	<i>Input/Output Devices (IOD) Man-Machine Interface Description</i>

NT and BNR trademarks and the products they represent

The following chart lists all NT and BNR trademarks that occur in this document, and associates them with the products they represent.

Trademark	Product
DMS	<i>Digital multiplex system</i> telephone switching equipment
DMS SuperNode	telecommunications switching equipment
MAP	<i>Maintenance and administration position</i> telephone communication equipment

What precautionary messages indicate

In this document, caution, danger and warning messages indicate potential risks, as identified in the following chart.

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

Examples of the precautionary messages follow.



CAUTION

Calls are dropped when line group controller is busied.

Manually removing the line group controller from service removes all its subtending peripheral modules from service. All calls in progress are dropped.



DANGER

Risk of electrocution

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



WARNING

Backplane connector pins may become damaged.

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

How commands, parameters, and responses are represented

In this document, commands, parameters, and responses are represented according to the following conventions.

Input prompt (>)

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

Type the command that follows the input prompt and press the carriage return key.

Capital letters

Capital letters represent commands, fixed parameters, and responses that appear at a MAP.

Enter the command or fixed parameter exactly as it appears on the page.

Lowercase letters

Lowercase letters represent variables.

For commands and parameters, enter the letters or numbers that the variable represents. In most instances, the name that is used for the variable indicates clearly what you must enter. Where it does not, further explanations are provided.

In responses (which are presented in capital letters), lowercase letters represent a range of values.

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

Examples of command syntax used in this document	
Step	Action
1	Post the card in the inactive unit.
<i>input></i>	>POST unit_no card_no state
<i>parameters></i>	where unit_no is the number of the inactive unit (0 or 1) card_no is the number of the card you replaced (22-27) state is the state of the unit in which you wish to replace the card (Insv, SysB, ManB or Offl)
<i>Example input></i>	For example: >POST 7 1 INSV
<i>Example output></i>	CARD 7 IS POSTED IN UNIT 1 OF MSB16

Introduction to recovery

DPP error, recovery, and log message procedural descriptions

The individual message descriptions and procedures vary in length and content, but the overall format is the same for each message procedure sheet.

Each error message and recovery procedure is divided into the following six areas. Figure 1-1 provides a sample procedure sheet .

**Figure 1-1
DPP error recovery and log message procedure sheet - sample**

[1]	message as printed on the terminal	Applicable system version I.D.(s) (BCS level)
	where: variable data (where applicable)	
	cause: reason the message appeared	
[2]	Alarm Level: Critical Major Minor N/A	Level 0, 1, 2, 3, or, response/information, and what primary action is caused by the alarm (message); processor switch, disk mode switch, disk mode non-redundant.
	Corresponds to	ERRMAP message, alarm and level as defined at system start-up (default values).
	ERRMAP entry: System Default:	Type: _____ Level: _____
[3]	Customer-Selected Alarm Level:	As entered by the User during execution of the ERRMAP command (make entries with an erasable marker). Type: _____ Level: _____
[4]	Other Alarm Indications:	Reflects the conditions at the Switch and Status Panel and any audible chimes (where equipped).
	Default:	Status Panel: _____ Audible: _____ As defined for the system at start-up time.
	Customer-Selected:	Status Panel: _____ Audible: _____ Reflects the conditions as entered by the User during execution of the ERRMAP command.
[5]	System Recovery Action:	
	1. Resulting stable-state condition of the system after execution of the internal recovery routines.	
[6]	Craftsperson Activity:	
	1. Procedures to clear the condition(s) that produced the message.	

[1] Message introduction

The first area contains the message format as it would appear at the system maintenance terminal, or equivalent. To the extreme right of the message line is the applicable DPP system version(s) of the message. The DPP system version is identified as either BCS25, BCS26, or so forth.

Immediately following the message output format is a description of any variable (numeric) field data. This data is depicted by lower case letters, such as, xx or yy.

The first area ends with a brief description of the condition which caused the message to appear.

[2] Alarm indications

Alarm levels, if any, associated with the message appear in this area. The first entry shows the action the DPP system automatically takes due to the condition or situation which caused the message. Such actions could include a processor switch, session terminated, disk drive system made non-redundant, or N/A (Not Applicable).

Messages which do not produce an error (alarm) indication are also identified in this area. Such messages are response messages and information-only messages. For these messages, monitor the frequency of occurrence (repetition) over a period of time before taking corrective action.

If there is a corresponding ERRMAP (Error Map) entry for the (log message), the entry appears in this area. Refer to Error Indicators, ERRMAP (Error Map) Command for information on the Error Map and on using the ERRMAP commands.

The system default levels shown are those defined at start-up time, before specific site data have been entered.

[3] Customer-selected alarm levels

This user completes this area and should make appropriate entries in the space(s) provided to reflect the 3-level alarm (assignments) structure he established at the site. Since this structure is user-selectable and changeable, record these entries with an erasable marker.

[4] Other alarm indications

This area is for noting what type, if any, audible and/or visual alarms are provided. This area also provides a section for the user to reflect the 3-level alarm (assignments) structure he established at the site. Since this structure is user-selectable and changeable, record these entries with an erasable marker.

[5] System recovery action

This area provides a brief statement of actions the DPP automatically takes to clear the error condition. This information defines the conditions after the system has completed the resident recovery program routines. The completion of these programs causes a stable state configuration. Any transitory or temporary states are omitted. For information only and log messages, this area is designated as N/A. A brief statement of action is included where applicable, for example, session terminated, processor switch, or input rejected.

[6] Craftsperson activity

This area provides the activities and procedures for the Craftsperson to correct the error. Detailed procedures, such as the steps for Power Supply replacement, are provided in other parts of this Practice and are referenced in the procedures.

DPP system operation

Overview

The DPP allows data acquisition, storage, formatting, and forwarding from the DMS-100. The DPP accepts billing data from the DMS-100 which temporarily stores the collected data on hard disk. When requested, the DPP retrieves, reformats, and sends the stored data to the HOC. Data collected by the DPP includes call records for billing, statistics, and maintenance. The data are stored in different files on disk drives for easy retrieval controlled by the HOC located at the central collection point, as shown in Figure 2-1. Figures 2-2, 2-3, and 2-4 show a block diagram of the DPP and its interconnected systems on an information flow level.

Figure 2-1
Simplified block diagram of DPP operation

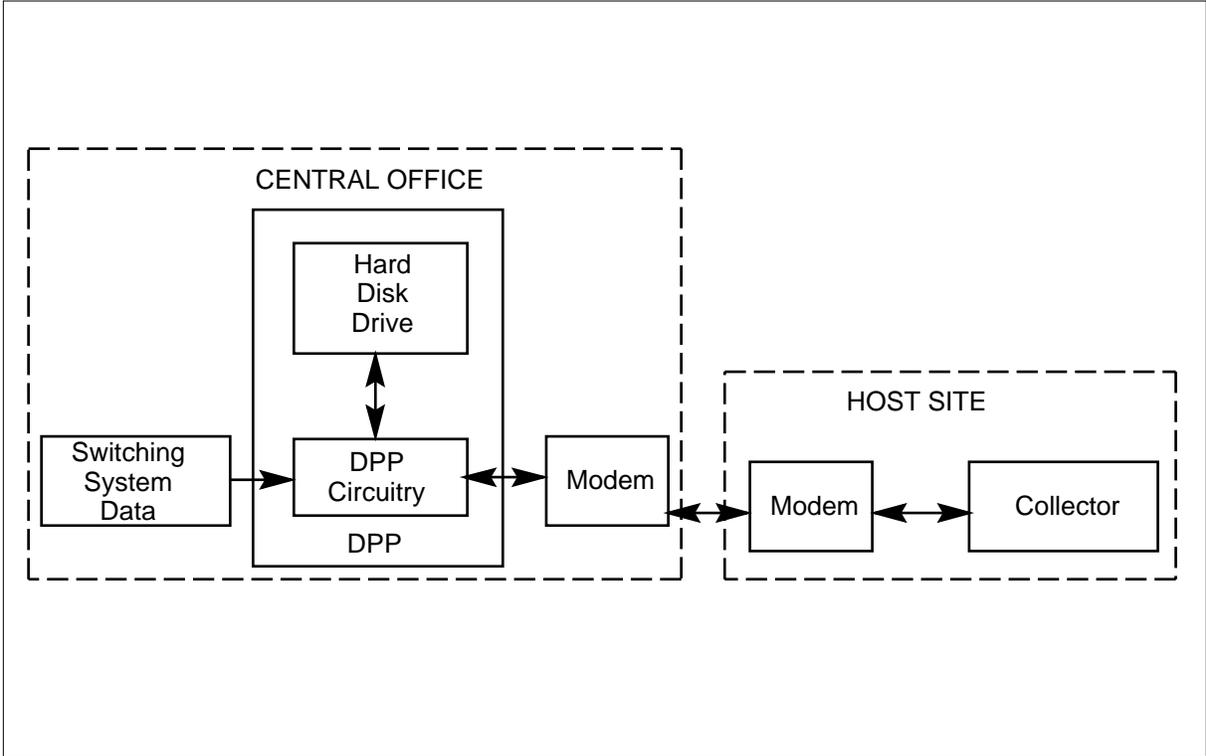
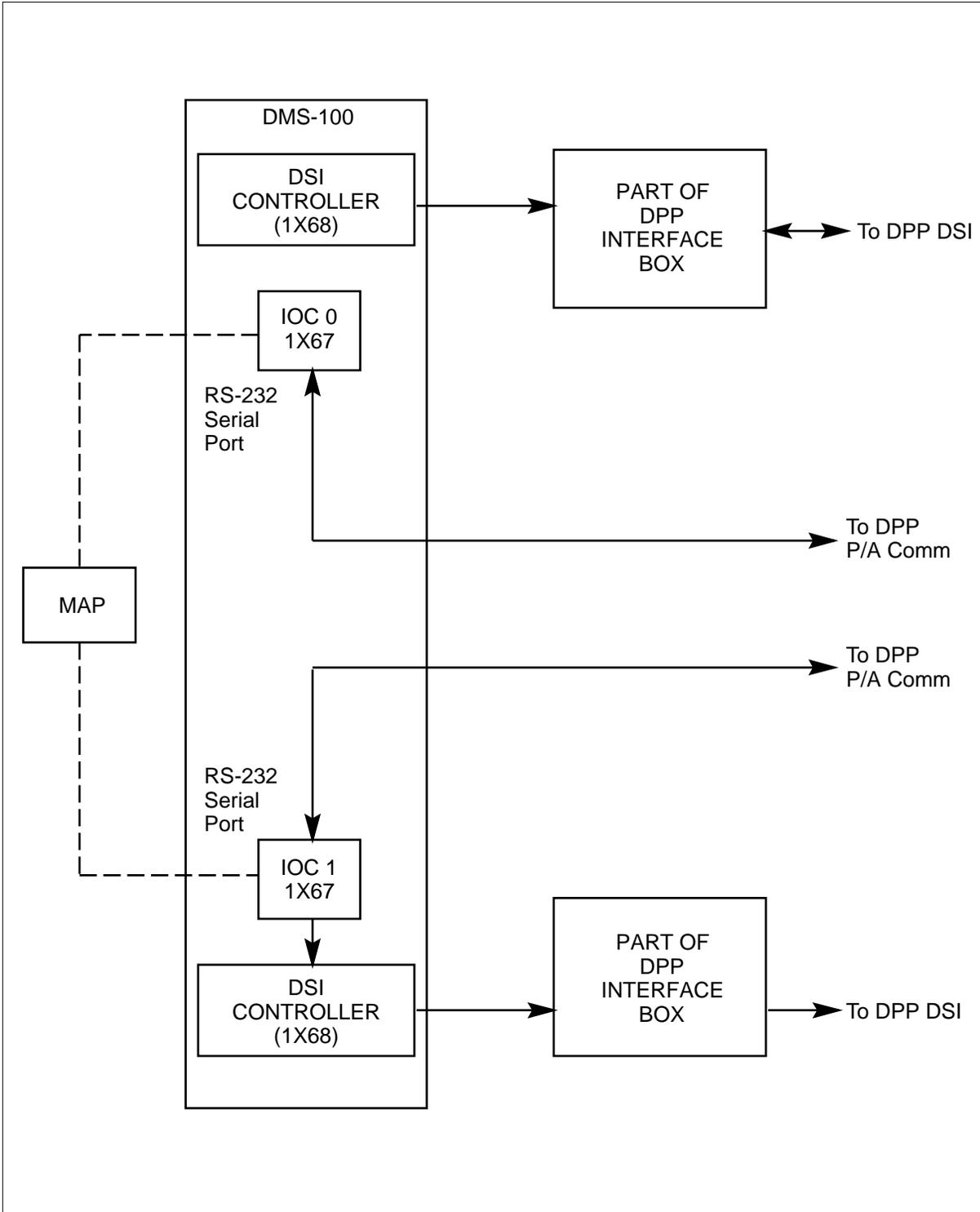


Figure 2-2
DPP data paths (sheet 1 of 3)



2-4 DPP system operation

Figure 2-3
DPP data paths (sheet 2 of 3)

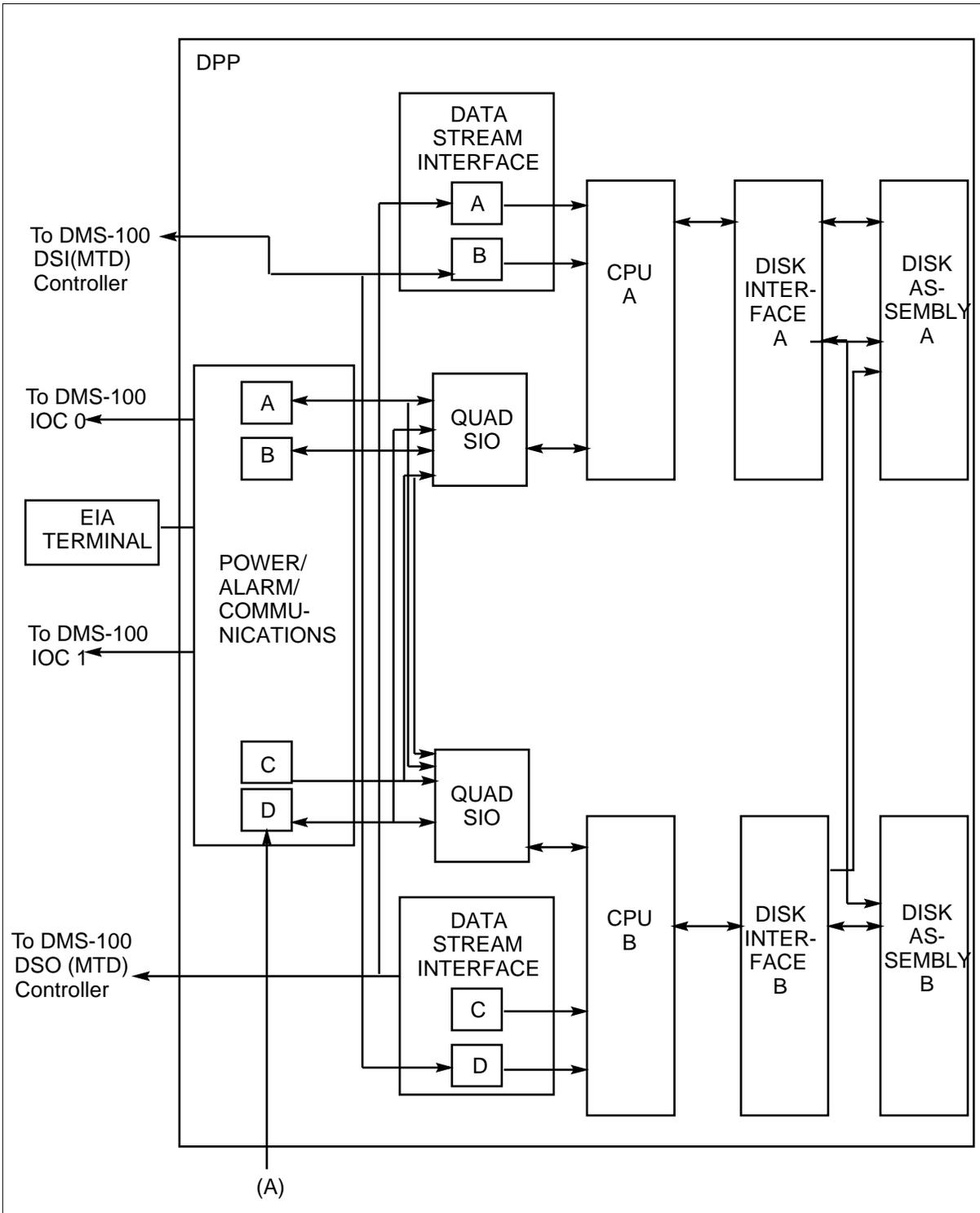
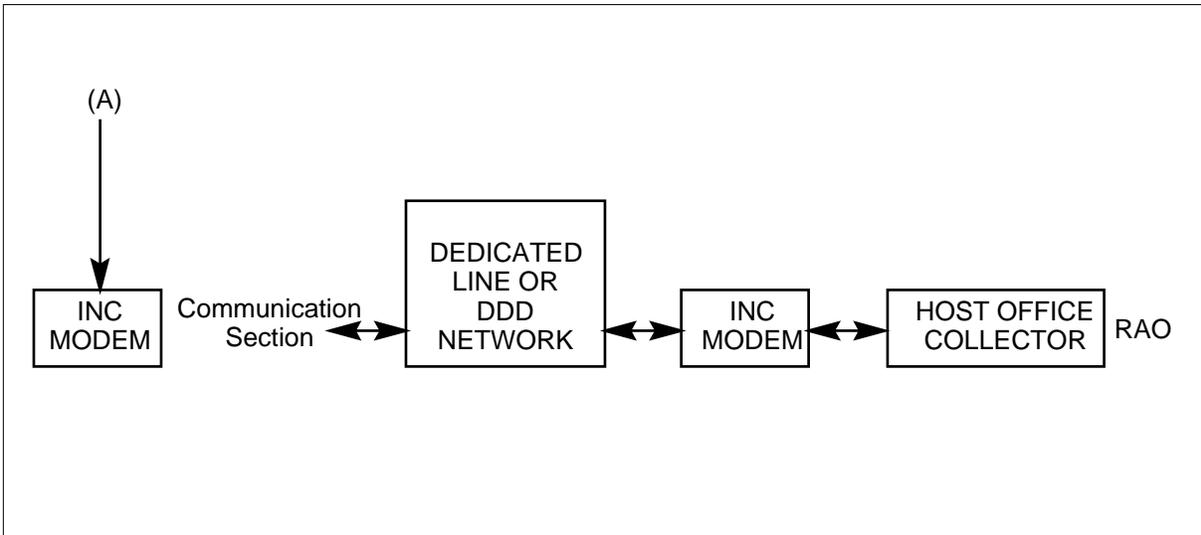


Figure 2-4
DPP data paths (sheet 3 of 3)



Collecting and storing data

MTD and storage type output signals from the DMS-100 are routed from the active DMS-100 MTD port, through the interface box, to the DPP DSI PCAs. The DSI PCAs have their own microprocessor and software program to emulate MTD functions. These functions require two-way communication between the DPP and the DMS-100. The DSI software receives the commands that are normally sent to the MTDs, and responds with the status and strobe signals normally sent back to the DMS-100. The DSI receives call record data blocks, processes them and forwards them to the active processing unit.

When data blocks are received from the DMS-100, a signal is sent to the active processing unit to take the data block. Under processor (DMA) control, the data block is transferred through the data bus and assigned to a buffer. The buffer used depends on whether the block contains test or call record data. Test data blocks may be read back to the DMS-100, but not to disk. The DPP software program stores test blocks on the DSI PCA. A six-block buffer in the main CPU holds call records where validation occurs.

During the validation checks, all criteria relative to validation, thresholds, and alarms are used in examining the data block. If a call record, a group of call records, or the entire block does not meet the validation requirements, an exception report is printed out as a log message. In extreme cases, a processor alarm is generated.

Validated call records are loaded into a disk buffer for each call record type. These buffers are located on the Disk Interface PCA. When a buffer is full, it is written to disk, while the other buffer is made available to receive call records.

Ribbon cables send data, plus write commands from the Disk Interface PCA to the Disk Crossover PCA and both disk drives. Identical data is written to the primary disk, then to the secondary disk, providing redundancy to enhance the integrity of the billing data.

Data storage

The disks provide an intelligent data storage system by recording different types of information in separate files. Files for record storage are divided as follows:

MAINF informational files used by the Collector containing a summary of polling sessions.

PRIMARY primary AMA call record files. Contains unpolled AMA call record files.

SECONDARY secondary AMA call record files. Contains polled AMA call record files.

EXCCRD exception call record file. Contains corrupted blocks of data.

LOGCRD contains LOG call record files..

SITE DATA contains site data entered by site personnel at start-up.

REPORT STATISTICS contains statistical data on DPP operation.

PROGRAM FILES contains the DPP program files.

These files are standard on the DPP, whether or not they are used. Data received from the DMS-100 is recorded in the appropriate file on the disk.

To guard against data loss if power loss, data from the DMS-100 is written to disk every two minutes under low, or normal, traffic conditions. The transfer rate is increased accordingly as traffic conditions warrant. If a power fault causes a system outage, billing data may be retrieved from the disk. The restored buffer, partially loaded, continues to receive call records until full, at which time it is permanently transferred to disk.

Note: The statistics file is not updated by the storage of call records on disk. That is, if a statistical report is requested, call records held in temporary storage on disk are not included in the printout. File statistics are updated only when those call records are permanently on disk.

Disk file system

The disk drives provide an off-line medium for data storage unaffected by power outage. Data remains on disk, as secondary AMA data, even after polling by the HOC. Due to the large storage capacity of disks, several days of records are accommodated on the disk, available as backup records to retrieve at a later time, if necessary. When certain threshold values are reached, or if additional storage space is required, files are removed from disk. Sufficient disk capacity allows several days storage while polling problems are resolved, so that no data is lost.

The DPP uses a redundant disk configuration which can operate in either a prime or only mode. The prime mode is the normal operating mode for the disk system. In the prime mode, data is written to both disks; first to the prime disk, then the standby disk. In the only mode, data is written to only one disk. The only mode is used when either disk drive is unavailable due to a fault, or some maintenance condition.

The DPP disk system consists of multiple files. The maximum number of files is 192 for 70 and 140 Mbyte disk drives, 383 for 380 Mbyte disk drives, and 511 for 760-Mbyte disk drives. These files can be displayed by use of the LSTDIR ALL command. For more information concerning the LSTDIR command, consult 297-1001-821.

The total number of files divides into two categories: static, and dynamic. Dynamic files are usually large, while most static files are small. Most dynamic files are data files, consisting of (AMA), exception (EXC), and log records. Each of these files has an index file associated with it. Static files are stand-alone files, which are primarily various index files that are used for the management of data, statistics, site data, program, boot, and other files.

Due to DPR buffer limitations, only 14 files can be open (reading from or writing to) at one time. This is further divided into seven dynamic and seven static files. Since only seven dynamic files may be open at one time, this is the total number of data files that may be polled from or written to at one time. The data files may have a maximum of 255 versions, after which it rolls back to restart the count at version 1, with the previous version 1 deleted.

Note: File versions containing primary data are not deleted.

The maximum number of AMA blocks in any one file version is disk-size dependent, as follows:

- 72- and 140-Mbyte disk drives 945 blocks/version
- 380-Mbyte w/o 56K polling 3836 blocks/version
- 380- and 760-Mbyte w/56K polling 4780 blocks/version

The index file tracks the data file versions. It may contain up to 56 (72-, 140-, and 380-Mbyte disk drives; 200 for 380-Mbyte w/56K polling and 760-Mbyte) versions. Each version of the index file consists of 9 bytes as follows:

Table 2-1 Byte structure of index files	
Byte	Description
1	Version number
2-3	Total number of blocks
4-5	Number of blocks to be polled
6, 7, 8	Starting sequence number
9	Days to delete

The total number of bytes in an index file is:

- 1 504 if there are 56 versions per index file; 9 bytes times 56 versions
- 2 1800 if there are 200 versions per index file; 9 bytes times 200 versions

The other static files (statistics, site data, program) are accumulated in 512 byte increments and put on disk.

Each DPP disk file has a number which represents the number of days left before the file is deleted. This number is used for the message journal files and secondary (polled) call record data files. The number is entered into the file upon creation of the file on the disk. After the file has been polled, the number is decremented by one at 1 a.m. of each day. The file is deleted when:

- the (down) count reaches zero, or,
- when it is the oldest file on disk with AMA storage exceeding 90%, or with AMA file versions exceeding 56, (or 200)

Disk storage capacity recovery

When a disk full condition exists, the DPP does not write over stored primary data. Instead, it switches to an only disk mode and continues writing data to the other disk. When this disk becomes full, an EOT signal is sent to the DMS-100. The DMS-100 attempts to access the second interface. The second interface also returns an EOT to the DMS-100 and a critical alarm is generated.

Note: To determine what percentage of the disk has been used, see the DISK USAGE command in 297-1001-821.

Note: The total disk capacity for the DPP is 95 percent of total disk space available. When total disk capacity (AMA data=100 percent disk usage) is referred to throughout this section in relation to AMA files, it refers to 95 percent of the actual DPP disk capacity.

The ERRMAP and log messages in the following chart are active at the specified disk percent used levels. See Table 2-2 for more information. Refer to 297-1001-543 for corrective procedures.

Table 2-2 ERRMAP and log messages for DPP without 56K polling		
Disk usage	ERRMAP entry	Corresponding log message
70%	SECND FILES DEL	SECONDARY FILES DELETED NO SECONDARY FILE TO DELETE
90%	LOG FILES DEL	LOG FILES DELETED
99%	RESERV DSK FULL	OFF-LINE DISK HAS UNPOLLED DATA
Both Disks Full	BOTH DISKS FULL	BOTH DISKS FULL

Table 2-3 ERRMAP and log messages for DPP with 56K polling		
Disk usage	ERRMAP entry	Corresponding log message
70%	DSK 70% PRIMARY	DISK USE > 70% PRIMARY DATA
90%	DSK 90% PRIMARY	DISK USE > 90% PRIMARY USE
99%	DSK STORE LIMIT	OFF-LINE DISK HAS UNPOLLED DATA
Both Disks Full	DSK STORE LIMIT	BOTH DISKS FULL

Note: To determine what percentage of the disk has been used, see the DISK USAGE command in 297-1001-821.

In extreme conditions, for instance, if it is impossible to conduct a polling session at the appointed time, the DPP uses a specific set of recovery activities designed to serve the integrity of the primary AMA data in compliance with the Bellcore recommendations in TR-TSY-000385. These actions are discussed in the following paragraphs.

70% disk occupancy

Without disk capacity enhancement

When disk occupancy reaches 70% of maximum disk storage, the oldest secondary (previously polled) AMA file is deleted so that this occupancy is

reduced to the 70% threshold. As new primary files are added to storage, the oldest secondary files continue to be deleted. If all secondary files are deleted and disk occupancy remains at 70% or above, a minor alarm is raised.

With Disk Capacity Enhancement

When the amount of primary data on the disks reaches 70% of total storage capacity, a minor alarm is raised. No secondary data is deleted from storage at this point.

90% disk occupancy

Without disk capacity enhancement

When the 90% disk occupancy threshold level is reached, all message journal (LOG) files are deleted to provide additional space for AMA records. If primary data occupancy then continues to exceed the 90% threshold, a major alarm is generated.

With disk capacity enhancement

When occupancy reaches 90% of maximum disk capacity, the oldest secondary file is deleted so that occupancy is reduced to below the 90% threshold. As new primary files are added to the disk, the oldest secondary files have been removed, the message journal files are deleted. If primary data occupancy continues to exceed the 90% threshold, a major alarm is generated.

100% disk occupancy

When occupancy reaches 100%, the DPP disks mode drops to a nonredundant or ONLY mode. The active disk stops writing data and the standby disk does not clear but overwrites data to accept new primary AMA data. This cleared standby disk then becomes the active disk. Each hour, a major alarm and log message are generated to notify personnel that the DPP is in the ONLY mode.

In the extreme case that the second disk should be 100% full, and end-of-tape (EOT) status is generated by the DPP. This causes the DMS-100 to switch to the Data Stream Interface. The DPP responds with another EOT status, forcing the DMS-100 to continue writing to an optional parallel file. At this point, the DPP alarm is raised to critical status. In compliance with Bellcore requirements that primary data not be overwritten, no new data can be written to the DPP disk at this point.

Collecting data from a DPP in the nonredundant mode requires extraordinary polling procedures, which are described in the *DPP System Maintenance Reference Manual*, 297-1001-5290.

To poll the AMA data in sequence, manually change the DPP disk mode back to the original full disk. The polling session then takes the oldest primary AMA data from the first full disk. At this time, any incoming AMA data from the DMS-100 is written to a special reserved area of the disk from which AMA data is being polled. The polling session ends when all primary AMA data has been read from the first full disk. To poll the second disk, a manual disk mode change to the second disk must be performed, and another polling session initiated. Any AMA data is written on a special reserved area of the second disk.

To poll the second disk, manually change the disk mode to the second disk and initiate another polling session. Any AMA data is written on a special reserved area of the second disk.

If AMA data is being written at a consistent rate, several disk mode changes and polling sessions may be required to poll all of the primary data. After all primary AMA data has been polled from the second disk, manually perform the following actions to return the DPP to its normal operation:

- 1 change disk mode to first disk
- 2 change DPP disk operation to prime mode
- 3 clear all alarms

Disk drives overview

Disk drive system description

The DPP uses two hard (fixed) 5-1/4 inch disk drives in the lower left corner of each processor chassis. These drives are mounted on brackets (Fig. 3-1). In the 380- and 760-Mbyte drive, the controller is an integral part of the disk drive assembly. For the 72- and 140-Mbyte disk drives, ribbon cables are factory installed between the disk controller PCA and disk drive unit.

The DPP is configured as a disk-based system. That is, the main programs for system operation are resident on disk. The programs are automatically retrieved from disk and loaded to the Extended Memory (DRAM) PCA and the 56K Interface (if equipped) upon power-up. Programs are retained on disk as archives in case the processor(s) require a reboot. The DPP system can be downloaded with new programs from the DMS-100.

Disk drive start-up

When the DPP system is powered up, either during initial installation or after maintenance, closely watch the printouts. These messages provide information as to the initial condition of the DPP and direct the next course of action. Two important printouts may occur within the first 60 seconds.

The first is:

S/W LOADED (The main program is successfully loaded from disk to processor RAM and primary system functions can begin.)

The second is:

DISK MODE: (This message defines the DPP's ability to access the disk drives. Disk mode operating conditions are defined in Table 3-1).

where:

xx = AO = A ONLY
= AP = A PRIME
= BO = B ONLY
= BP = B PRIME
= NONE = NO Disk Mode

Note: The S/W LOADED message cannot print if DISK MODE: NONE is printed.

3-2 Disk drive overview

Figure 3-1
Disk drive mounting details (typical)

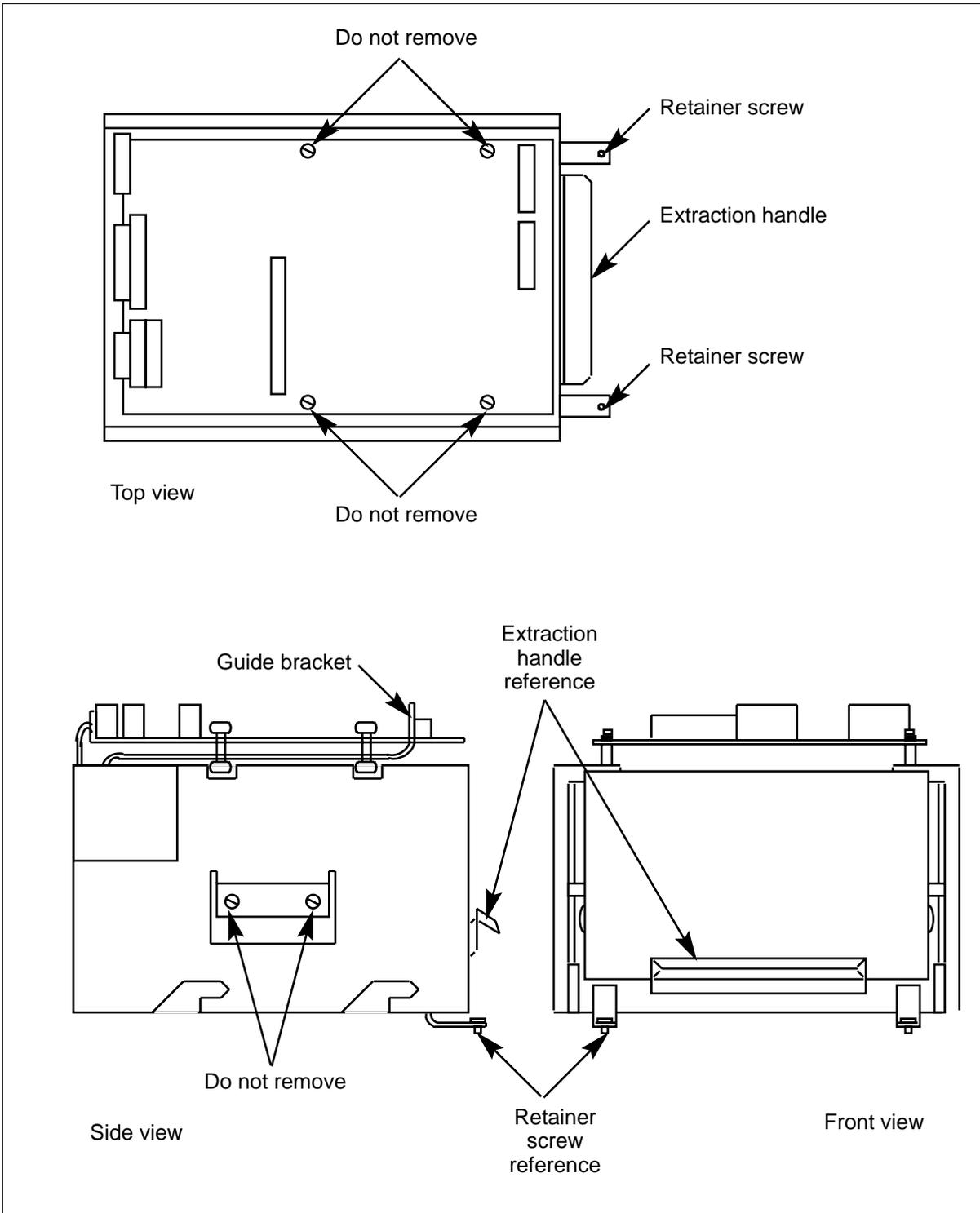


Table 3-1 Disk drive modes	
Mode	Description
AO	A ONLY The DPP processors read data from and write data to the disk in the A processor chassis ONLY.
AP	A PRIME The DPP processor writes duplicate information to both disks (A and B). The disk in the A chassis is the PRIME disk and the active processor reads data from that disk and accesses the disk in the B chassis at about the same time; writes to the PRIME unit first.
BO	B ONLY The DPP processors read data from and write data to the disk in the B processor chassis ONLY.
BP	B PRIME The DPP processor writes duplicate information to both disks (A and B). The disk in the B chassis is the PRIME disk and the active processor reads data from that disk and accesses the disk in the A chassis at about the same time; writes to the PRIME unit first.
NONE ¹	NO MODE The DPP can't access any disk for read or write functions. This indicates: <ul style="list-style-type: none"> a. a failure to set up the disk mode at the factory (initial installations) b. a hardware failure such as improper installation cabling, rough handling of the disk drive assembly, or a PCA failure.
Notes: Note 1: S/W LOADED message cannot appear if the disk mode is NONE.	

Activities in response to disk mode message(s)

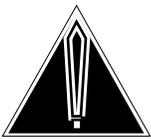
Analyze the conditions above in relation to the printout obtained. Further action may be required to obtain optimum disk drive performance. Return to the procedure for the message originally printed and resume Craftsperson Activity, or proceed to Disk Drive Recovery Procedure.

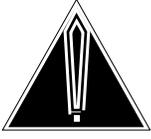
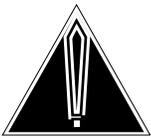
Disk drive procedures

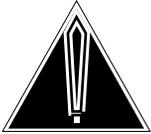
Disk drive recovery procedure

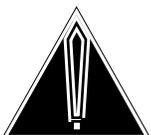
Use the following procedure when the disk drive(s) are malfunctioning. If a message indicates a disk drive has malfunctioned, remember to wait a few minutes to see if the message repeats, or if another disk malfunction occurs. The problem may be transitory, in which case there is nothing wrong.

This “procedure” is divided over a series of individual procedures. The first procedure determines if the disk system is actually at fault. Subsequent procedures proceed through mode changes, initialization, formatting, and disk drive replacement.

Procedure 4-1 Disk drive procedures - fault determination		
Step	Description	Notes
1	Enter: (at the terminal) >DISK MODE (cr) System response = AO = A ONLY BO = B ONLY AP = A PRIME BP = B PRIME NONE = No Mode If disk system status is nonredundant, either disk in the ONLY mode, go to step 2.	Determine the current disk operating mode. If the disk system mode shows either disk in the PRIME mode, there is no fault, procedure complete. Monitor the terminal for any disk error message repeats.
2	Enter: (at the terminal) >DISK MODE xx (cr) ¹ where: xx = AP = A PRIME = BP = B PRIME	Attempt to make the disk system redundant. (if from the AO mode) (if from the BO mode)
<div style="display: flex; align-items: center; justify-content: center;">  <div> <p>CAUTION</p> <p>Subsequent procedures call for the disk commands which may cause a loss of data if improperly executed. Make sure the operational disk drive is in DISK ONLY mode before entering commands.</p> </div> </div>		
3	Reinitialize the disk - (Procedure 4-5 for the recommended procedure; Procedure 4-6 for the alternate procedure). This can take several hours, depending on disk size and the DISK INIT parameter selection. Use the short initialization activity followed by the DISK DEFMAP procedure in most cases. When the initialization activity (and DISK DEFMAP procedure) are complete, go to step 4. ²	380-Mbyte disk drives w/o 56KB polling; defaults to "short init" procedure; no "long init" permitted. The DISK DEFMAP activity is not allowed for DPP systems equipped with the 380- or 760-Mbyte disk drives. Return to this point when complete.
4	Attempt to make the disk mode redundant - (Procedure 4-4: make disk prime). If this is unsuccessful, go to step 5 or 6 as conditions warrant.	See Table 4-1 for the allowed disk drive mode changes.
<p>(continued)</p>		

Procedure 4-1 Disk drive procedures - fault determination (continued)		
Step	Description	Notes
	 <p>CAUTION Use the FORMAT command ONLY when in direct contact with NT field support personnel. This command may cause a loss of data. Perform the DISK FORMAT procedure during a period of low data gathering activity (low traffic) to avoid data losses.</p>	
5	Reformat the suspect disk - (Procedure 4-2) this procedure lasts 20 to 30 minutes. If this procedure is unsuccessful, go to step 6. If this procedure is successful, repeat steps 3 and 4.	If necessary, see the disk error procedure sheet for the command to reformat the disk.
6	Set the parameters for the disk drive - (Procedure 4-7). If this procedure is unsuccessful, return to step 5. If this procedure is successful, repeat steps 3 and 4.	Valid for 72-, 140-, and 380- Mbyte disk drives only, without 56KB polling; no NT6M94AA PCA mounted in slots A7 and B7.
7	If mode change to PRIME cannot be performed successfully, follow the procedure for replacing disk drive.	See Procedure 4-8 and Procedure 4-9 to replace a disk drive.
	 <p>CAUTION This disk command may cause a loss of data. Perform the DISK FORMAT procedure during a period of low data gathering activity (low traffic) to avoid data losses.</p>	
<p>Notes:</p> <p>Note 1: Wait for the MODE xx response to this message; the time for the mode change varies, depending on disk size and input traffic load. If the disk system status has not changed to redundant, (disk selected in the key sequence above is now PRIME mode), go to step 3.</p> <p>Note 2: Initialization is not allowed for DPP systems equipped with:</p> <ul style="list-style-type: none"> a. 380-Mbyte disk drives with the 56KB polling feature; if an NT6M94AA or BA PCA is mounted in slot A7 of the DPP processor chassis, disk initialization is not permitted. b. 760-Mbyte disk drives, all instances. 		
End		

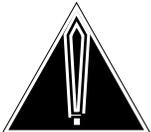
Procedure 4-2 Disk drive procedures - format disk drive		
Step	Description	Notes
	 <p>CAUTION This disk command may cause a loss of data. Perform the DISK FORMAT procedure during a period of low data gathering activity (low traffic) to avoid data losses.</p>	
1	<p>Enter: (at the terminal)</p> <p>>DISK FORMAT x (cr) where: x = drive = A = disk drive A = B = disk drive B</p> <p>Proper response = FORMAT DONE For BCS29 w/56K polling, response = DISK FORMAT STARTED</p> <p>(After completion of the FORMAT operation, the FORMAT DONE message is output.)</p>	<p>Make sure the operational disk drive is in DISK ONLY mode before entering this command.</p> <p>For any other response, see the procedure for that message and perform the activities listed.</p>
2	<p>Once this activity is complete, return to the message procedure you left and continue the activities.</p>	

Procedure 4-3 Disk drive procedures - make disk system ONLY mode		
Step	Description	Notes
	 <p>CAUTION This action may cause a loss of data. Verify your action with technical assistance personnel.</p>	
1	<p>Enter: (at the terminal)</p> <p>>DISK MODE xx (cr) where: xx = disk mode= AO = A ONLY = BO = B ONLY</p> <p>Proper response = DISK MODE: AO or DISK MODE: BO</p>	
2	<p>Once this activity is complete, return to the message procedure you left and continue the activities.</p>	

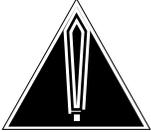
Procedure 4-4
Disk drive procedures - make disk system PRIME mode

Step	Description	Notes
	 <p>CAUTION This disk command may cause a loss of data if the wrong disk is selected to be made PRIME. Make certain that the disk that is in the ONLY mode is the one selected to be made PRIME mode.</p>	
1	<p>Enter: (at the terminal)</p> <p>>DISK MODE xx (cr) where: xx = disk mode= AP = A PRIME = BP = B PRIME</p> <p>Proper response = DISK MODE: AP or DISK MODE: BP</p>	<p>(from disk mode AO) (from disk mode BO)</p>
2	<p>Once this activity is complete, return to the message procedure you left and continue the activities.</p>	

Procedure 4-5
Disk drive procedures - recommended initialization

Step	Description	Notes
	 <p>CAUTION These disk commands may cause a loss of data. Make sure the operational disk drive is in DISK ONLY mode before entering commands.</p>	
1	<p>Enter: (at the terminal)</p> <p>>DISK INIT 1x (cr) where: x = drive = A = disk drive A = B = disk drive B</p> <p>Proper response =INIT COMPLETE</p> <p>Messages indicating bad tracks may print; this is normal.</p>	<p>Causes the disk drive specified by "x" to be initialized using the short init procedure.</p> <p>For any other response, see the procedure for that message and perform the activities listed. (See notes 4 and 5)</p>
(continued)		

Procedure 4-5		
Disk drive procedures - recommended initialization (continued)		
Step	Description	Notes
2	<p>Enter: (at the terminal)</p> <p>>DISK DEFMAP x (cr) where: x = drive = A = disk drive A = B = disk drive B</p> <p>System response is a prompt:</p> <pre>ENTER HEAD AND CYLINDER # FROM DEFECT MAP ENTER "Q" TO EXIT HEAD>xx (cr) CYLINDER>xx (cr)</pre> <p>Continue entering HEAD and CYLINDER numbers until the end of the disk manufacturer's bad track map.</p> <p>(For any response other than the HEAD and CYLINDER prompts, see the procedure for that message and perform the activities listed.)</p>	<p>Obtain the disk manufacturer's bad track map.</p> <p>Enter a space before the digits to prevent MAP menu commands from being activated.</p> <p>Enter the HEAD No. "xx", 1 or 2 digits, from the disk manufacturer's bad track map. Enter the CYLINDER No. "xx", 1 to 3 digits, from the disk manufacturer's bad track map.</p>
3	<p>Once this procedure is complete, return to the message procedure you left and continue the activities.</p>	
<p>Notes:</p> <p>Note 1: This procedure is recommended for most disk maintenance situations where the manufacturer's bad track map is available on site. After initialization, this bad track data should be entered using the DISK DEFMAP command.</p> <p>Note 2: This is the default selection for DPP systems equipped with 380-Mbyte disk drives, without the 56K polling feature (no NT6M94AA mounted in slot A7 of the DPP processor chassis).</p> <p>Note 3: This selection is not valid for DPP systems equipped with:</p> <ol style="list-style-type: none"> 380-Mbyte disk drives with the 56K polling feature; if an NT6M94AA PCA is mounted in slot A7 of the DPP processor chassis, disk initialization is not permitted. 760-Mbyte disk drives, all instances. <p>Note 4: go to step 2 only if your DPP system is equipped with 72-Mbyte or 140-Mbyte disk drives.</p> <p>Note 5: If your DPP system is equipped with 380-Mbyte disk drives, but no 56K polling, return to the message procedure you were in and continue the activities listed.</p>		
End		

Procedure 4-6 Disk drive procedures - alternate initialization		
Step	Description	Notes
	 <p>CAUTION These disk commands may cause a loss of data. Make sure the operational disk drive is in DISK ONLY mode before entering commands.</p>	
1	<p>Enter: (at the terminal)</p> <p>>DISK INIT 0x (cr) where: x = drive = A = disk drive A = B = disk drive B</p> <p>Proper response =INIT COMPLETE</p>	<p>Causes the disk drive specified by "x" to be initialized using the long init procedure.</p> <p>For any other response, see the procedure for that message and perform the activities listed.</p>
2	<p>Enter: (at the terminal)</p> <p>>DISK DEFMAP x (cr) where: x = drive = A = disk drive A = B = disk drive B</p> <p>System response is a prompt:</p> <pre>ENTER HEAD AND CYLINDER # FROM DEFECT MAP ENTER "Q" TO EXIT HEAD>xx (cr) CYLINDER>xx (cr)</pre> <p>Continue entering HEAD and CYLINDER numbers until the end of the disk manufacturer's bad track map.</p> <p>(For any response other than the HEAD and CYLINDER prompts, see the procedure for that message and perform the activities listed.)</p>	<p>Obtain the disk manufacturer's bad track map.</p> <p>Enter the HEAD No. "xx", 1 or 2 digits, from the disk manufacturer's bad track map. Enter the CYLINDER No. "xx", 1 to 3 digits, from the disk manufacturer's bad track map.</p>
(continued)		

4-8 Disk drive procedures

Procedure 4-6 Disk drive procedures - alternate initialization		
Step	Description	Notes
3	Once this procedure is complete, return to the message procedure you left and continue the activities.	
<p>Notes:</p> <p>Note 1: This procedure may take up to four hours, during which time the disk system is in a non-redundant mode. This procedure should only be used if the manufacturer's bad track map is not available on site.</p> <p>Note 2: If this procedure is chosen, and the bad track map is available, enter the bad track map upon completion of the initialization process.</p> <p>Note 3: This selection is not valid for DPP systems equipped with:</p> <ul style="list-style-type: none"> a. 380-Mbyte disk drives without 56K polling feature; defaults to the "short init" procedure, no "long init" permitted. b. 380-Mbyte disk drives with the 56K polling feature; if an NT6M94AA PCA is mounted in slot A7 of the DPP processor chassis, disk initialization is not permitted. c. 760-/1700-Mbyte disk drives, all instances. 		
End		

Procedure 4-7 Disk drive procedures - set disk drive parameters		
Step	Description	Notes
	 <p>CAUTION These disk commands may cause a loss of data. Make sure the operational disk drive is in DISK ONLY mode before entering commands.</p>	
1	Enter: (at the terminal) >DISK PARAM Disktype (cr) where: Disktype = 5 - 9 5 = VERTEX V170 as a 72 (6909 tracks) 6 = MAXTOR XT1085 as a 72 (6909 tracks) 7 = MAXTOR XT1140 as a 140 (13770 tracks) 8 = 380 MB as a 380 9 = Other (see step 2)	Consult with technical assistance personnel before entering this command to be certain that the values are correct for this application. PRIAM and VERTEX are equivalent names. For disktype 5 or 6 or 7 or 8 continue with step 3.
2	Enter: (at the terminal) >DISK PARAM 9 Pulse Period Mode Head Cylinder RWC Cylinder Interleave Sector (cr) where:	If Disktype = 9, use the modified command entry as shown.
(continued)		

Procedure 4-7**Disk drive procedures - set disk drive parameters** (continued)

Step	Description	Notes																																																											
	Pulse = Integer = Step pulse width in microseconds. Period = Integer = Step period times in microseconds. Mode = 0, 1, 2, = Step mode. Head = 0 - 8 = Number of heads. Cylinder = 1 - 65,535 = Number of cylinders. RWCCylinder = 1 - 65,535 = Number of RWC Cylinders. Interleave = 1 - 16 = Interleave factor. Sector = HARD = Hard sector disk type. = SOFT = Soft sector disk type.																																																												
	The values for this command input are in the site configuration specifications for the particular office. Consult with technical assistance personnel before entering this command to make sure the values are correct.																																																												
	<table border="1"> <thead> <tr> <th rowspan="2">DISK PARAMETER COMMAND</th> <th colspan="4">DISK TYPE</th> </tr> <tr> <th>V170</th> <th>XT1085</th> <th>XT1140</th> <th></th> </tr> </thead> <tbody> <tr> <td>PROMPT</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(Size; in Megabytes)</td> <td>(72M)</td> <td>(72M)</td> <td>(140M)</td> <td>(380M)³</td> </tr> <tr> <td>SPW (Pulse)</td> <td>3</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>SPR (Period)</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>SPM (Mode)</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>HED (Head)</td> <td>7</td> <td>7</td> <td>15</td> <td>15</td> </tr> <tr> <td>CYL (Cylinder)</td> <td>987</td> <td>987</td> <td>918</td> <td>918</td> </tr> <tr> <td>RWC (RWC Cylinder)</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>ILV (Interleave)</td> <td>4</td> <td>4</td> <td>1</td> <td>1</td> </tr> <tr> <td>H/S (Sector)</td> <td>S</td> <td>S</td> <td>S</td> <td>S</td> </tr> </tbody> </table> <p style="text-align: center;">V = VERTEX, XT = MAXTOR</p>		DISK PARAMETER COMMAND	DISK TYPE				V170	XT1085	XT1140		PROMPT					(Size; in Megabytes)	(72M)	(72M)	(140M)	(380M) ³	SPW (Pulse)	3	1	1	1	SPR (Period)	1	0	0	0	SPM (Mode)	0	0	0	0	HED (Head)	7	7	15	15	CYL (Cylinder)	987	987	918	918	RWC (RWC Cylinder)	0	0	0	0	ILV (Interleave)	4	4	1	1	H/S (Sector)	S	S	S	S
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End																																																													

DISK PARAMETER COMMAND	DISK TYPE			
	V170	XT1085	XT1140	
PROMPT				
(Size; in Megabytes)	(72M)	(72M)	(140M)	(380M) ³
SPW (Pulse)	3	1	1	1
SPR (Period)	1	0	0	0
SPM (Mode)	0	0	0	0
HED (Head)	7	7	15	15
CYL (Cylinder)	987	987	918	918
RWC (RWC Cylinder)	0	0	0	0
ILV (Interleave)	4	4	1	1
H/S (Sector)	S	S	S	S

V = VERTEX, XT = MAXTOR

Notes:

Note 1: For DPP Systems with 380-Mbyte disk drives, the parameter information is already loaded on the disk. If the PARAM (PARAM) command is used, use Disktype = 8.

Note 2: Consult with technical assistance personnel before entering DISK PARAMs to determine what type disk drive is in the DPP System before attempting to enter disk PARAM information.

Note 3: In the event the system "prompts" for parameter data for a 380-Mbyte disk, use the same values as for a 140-Mbyte disk.

End

Table 4-1 Allowed disk drive unit mode changes			
Initial Mode	Final Mode	Allowed yes/no	Remarks/conditions
A PRIME	A ONLY	Y	
A PRIME	B PRIME	Y	
A PRIME	B ONLY	Y	
A ONLY	A PRIME	Y	Allowed if the B disk is initialized.
A ONLY	B PRIME	N	
A ONLY ¹	B ONLY ¹	Y	
B PRIME	B ONLY	Y	
B PRIME	A PRIME	Y	
B PRIME	A ONLY	Y	
B ONLY	B PRIME	Y	Allowed if the A disk is initialized.
B ONLY ¹	A ONLY ¹	Y	
B ONLY	A PRIME	N	
No Mode	A ONLY	Y	Allowed if the A disk is initialized.
No Mode	B ONLY	Y	Allowed if the B disk is initialized.
A ONLY	No Mode	Y	Changes A disk to uninitialized, stores A disk status on A disk. If B disk was initialized, it also changes to uninitialized; B disk status stored on B disk.
B ONLY	No Mode	Y	Changes B disk to uninitialized, stores B disk status on A disk. If A disk was initialized, it also changes to uninitialized; A disk status stored on A disk.
Notes:			
Note 1: This change is to be used for specific DISK FULL recovery procedures only. Contact NT if it becomes necessary to use this mode change.			
End			

Replacing disk drive

Note: The following procedure is for replacing the A disk drive; use the same procedure for replacing the B disk drive by transposing the A and B references.

The status of the disk drives changes to B ONLY immediately when the main processor determines that the A disk drive has a non-recoverable fault condition. Verify the status of the disk drives by entering the DISK (cr) and MODE (cr) key sequence at the maintenance terminal. Make sure that the B processor is in the ONLY mode by depressing the B processor control, then the O control on the Switch and Status Panel and turn the mode switch key. Examine the printouts on the maintenance terminal for verification of the status change.

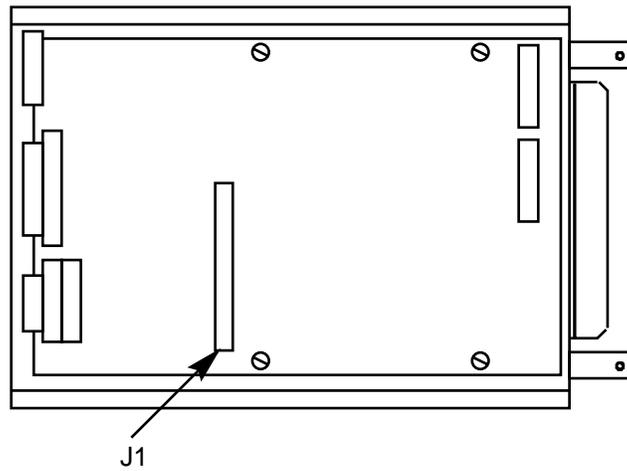
The only tool needed is a small flatblade screwdriver. See Procedure 4-8 and Procedure 4-9 for the disk drive replacement procedure.

Power up the new disk drive once it is fully installed. See Table 4-1 for allowed disk drive mode changes. See Figure 4-1 during the replacement procedure.

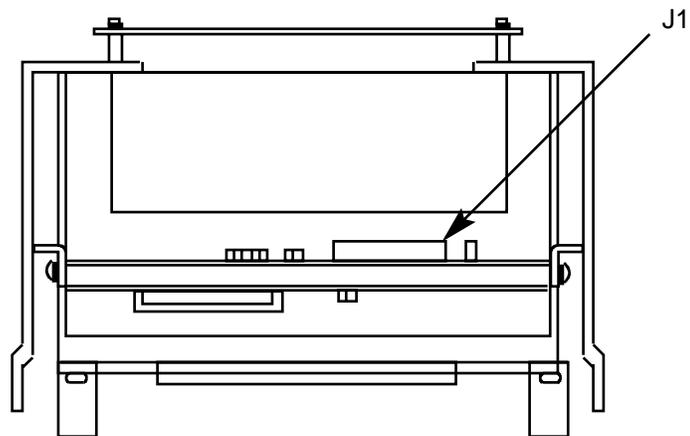
Procedure 4-8 Disk drive replacement procedure - removing the faulty disk drive		
Step	Description	Notes
	 <p>CAUTION Since all circuit assemblies in the DPP system are static sensitive, be careful handling them.</p>	
1	Remove the front panel of the DPP. See Figure 7-2. Once removed, put the front panel in a safe place to avoid damage; bending and scratching.	Loosen the four screws located on the left and right hand sides of the front panel; carefully remove the front panel.
2	<p>Make sure that the other processor and disk drive are in the ONLY mode of operation. The other processor is defined as that processor that does not have the failing disk drive in the same chassis.</p> <p>Enter: (at the terminal)</p> <p>>DISK MODE (cr)</p> <p>If the disk mode is AP or BP,</p> <p>Enter: (at the terminal)</p> <p>>DISK MODE AO (cr) or >DISK MODE BO (cr)</p>	<p>See Switch and Status Panel Operation, Figure 7-1.</p> <p>Determine the current disk operating mode: Response = AO = A ONLY BO = B ONLY AP = A PRIME BP = B PRIME</p> <p>Make the disk in the A chassis ONLY mode if the B21 disk is suspect. Make the disk in the B chassis ONLY mode if the A21 disk is suspect.</p>
3	Power down the processor side with the faulty disk drive. Note: Leave disk drives untouched for at least 30 seconds after power down. Vibration during power down may damage the disk drive.	Depress the O portion of the red rocker switch in the upper left corner of the Power Supply until it clicks into place.
4	Remove -48 V dc C.O. power.	Remove the -48 V dc source for the chassis at the DMS-100 fuse panel; disk drive in this chassis is now disabled.
5	Disconnect disk power by removing connector plug P8 from the power supply.	Pull down gently; fold the cable back out of the way.
(continued)		

Procedure 4-8 Disk drive replacement procedure - removing the faulty disk drive (continued)		
Step	Description	Notes
6	Remove the 2 screws from the disk drive handle mount.	See Figure 3-1 for the location of the screws.
7	Grasp the disk drive in the front at the bottom, by the handle, and pull straight forward until it stops.	
8	Begin lifting up as you pull forward. Keep one hand under the disk drive to maintain support.	As it continues forward out of its mounting position, the disk drive rides up on its retaining pins.
9	Continue pulling forward slowly until a ribbon cable connector, J1, appears on the top of the disk drive assembly.	Connector is located near the rear of the disk drive assembly. See Figure 4-1.10
10	Disconnect the ribbon cable from J1; use the pull tab attached.	Hold the cable out of the way to prevent damage. Note direction of Brown stripe (PIN 1).
11	Remove the disk drive from the chassis.	Place the disk drive on an antistatic surface to avoid damage to the PCA on the bottom. Attach the disk drive manufacturer's bad track map for this disk drive for future maintenance activity requirements. (This does not apply to 380- or 760-Mbyte disks; no bad track maps issued.)
<p>Notes:</p> <p>Note 1: For DPP Systems with 380-Mbyte disk drives, the parameter information is already loaded on the disk. If the PARAM (PARM) command is used, use Disktype = 8.</p> <p>Note 2: Consult with technical assistance personnel before entering DISK PARAMs to determine what type disk drive is in the DPP System before attempting to enter disk PARAM information.</p> <p>Note 3: In the event the system "prompts" for parameter data for a 380-Mbyte disk, use the same values as for a 140-Mbyte disk.</p>		
End		

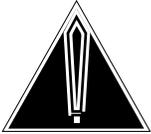
Figure 4-1
Disk drive connector J1, location

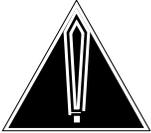


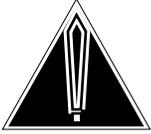
a. Top View, 72- and 140-Mbyte disk drives



b. Rear View, 380-Mbyte disk drive

Procedure 4-9 Disk drive replacement procedure - installing the replacement disk drive		
Step	Description	Notes
	 <p>CAUTION Since all circuit assemblies in the DPP system are static sensitive, be careful handling them.</p>	
1	Keeping the disk drive level, slide it into position far enough to reconnect the ribbon cable at J1. Connect the ribbon cable. Note: As you view the W22-P1 ribbon cable, the brown conductor must be on the left. The disk drive cannot operate if this cable is reversed.	Make sure there are no obstructions in the path of the disk drive before installation. Clear any obstacles before attempting to install the disk drive.
2	Continue sliding the disk drive into its mounting position, until it begins a downward motion.	Allow the disk drive to lower itself into place and continue pushing inward until it is fully seated. Watch for obstructions.
3	Replace the two screws removed in step 6 in Procedure 4-8 .	Tighten the screws; do not bear down to tighten.
4	Reconnect the disk power cable by inserting plug to connector, P8 to J8.	Same one removed in step 4 in Procedure 4-8.
5	Restore -48 V dc C.O. power.	Reconnect the -48 V dc power source at the DMS-100 fuse panel.
6	Apply power to the processor card file.	Press the 1 portion of the red rocker switch in the upper left corner of the power supply until it clicks into place. Wait for start-up activity to end and message "S/W loaded." before proceeding. Note: Locate the bad track map for the new disk drive and keep it handy in case initialization of the disk is required. The bad track map for 380- and 760-MByte disk drives is written on the disk; there is no paper copy to include with the disk drive.
7	Return the processor to PRIME mode. Make the processor that was made ONLY in step 2 in Procedure 4-3 the PRIME processor.	See Switch and Status Panel Operation, .
(continued)		

Procedure 4-9 Disk drive replacement procedure - installing the replacement disk drive (continued)		
Step	Description	Notes
8	<p>Make the disk system redundant; make the ONLY disk, PRIME mode.</p> <p>Enter: (at the terminal)</p> <p>>DISK MODE xx (cr) where: xx = disk mode= AP = A PRIME = BP = B PRIME</p> <p>If the disk system does not achieve redundancy, see Notes below and step 12; otherwise, go to step 9 for some "finish up" activities.</p>	<p>Make the ONLY disk PRIME mode. This one has the newest polling data on it.</p> <p>Proper response = DISK MODE AP (or) DISK MODE BP</p>
9	<p>Return to the message procedure sheet that referred to this procedure; finish the Craftperson activity listed.</p>	
10	<p>When all maintenance activities are complete, be sure to replace the front panel of the DPP.</p>	<p>Carefully line up the four captive screws of the front panel with their mounting holes. Tighten the captive screws; but do not bear down.</p>
<div style="display: flex; align-items: center;">  <div> <p>CAUTION</p> <p>This disk command may cause a loss of data. Perform the DISK FORMAT procedure during a period of low data gathering activity (low traffic) to avoid data losses.</p> </div> </div>		
11	<p>Enter: (at the terminal)</p> <p>>DISK FORMAT x (cr) where: x = drive = A = disk drive A = B = disk drive B</p> <p>Proper response = FORMAT DONE</p> <p>For BCS29 w/56K polling, response = DISK FORMAT STARTED</p> <p>After success completion of the FORMAT operation, the FORMAT DONE message is output.</p> <p>Once this activity is complete, go to step 12.</p>	<p>Only if it is determined through contact with NT, that it is absolutely necessary. Make sure the operational disk drive is in DISK ONLY mode before entering this command.</p> <p>Note: The format command is not valid for 380 Mbyte disks w/o 56K polling.,</p>
<p>(continued)</p>		

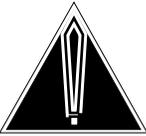
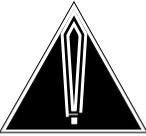
Procedure 4-9 Disk drive replacement procedure - installing the replacement disk drive (continued)		
Step	Description	Notes
12	Reinitialize the new disk. Select either the recommended procedure (steps 13-15) or the alternate procedure (steps 16-17.)	After initialization activities are complete, go to step 17.
	 <p>CAUTION These disk commands may cause a loss of data. Make sure the operational disk drive is in DISK ONLY mode before entering commands. (See notes 5 - 7).</p>	
13	Enter: (at the terminal) (Must be in direct mode). >DISK INIT 1x (cr) where: x = drive = A = disk drive A = B = disk drive B Proper response = INIT COMPLETE Messages indicating bad tracks may print; this is normal.	Causes the disk drive specified by "x" to be initialized using the short init procedure. For any other response, see the procedure for that message and perform the activities listed. (See notes 8 and 9.)
14	Enter: (at the terminal) >DISK DEFMAP x (cr) where: x = drive = A = disk drive A = B = disk drive B System response is a prompt: ENTER HEAD AND CYLINDER # FROM DEFECT MAP ENTER "Q" TO EXIT HEAD>xx (cr) CYLINDER>xx (cr) Continue entering HEAD and CYLINDER numbers until the end of the disk manufacturer's bad track map. (For any response other than the HEAD and CYLINDER prompts, see the procedure for that message and perform the activities listed.)	Obtain the disk manufacturer's bad track map. Enter the HEAD No. "xx", 1 or 2 digits, from the disk manufacturer's bad track map. Enter the CYLINDER No. "xx", 1 to 3 digits, from the disk manufacturer's bad track map. (Space before xx digits will prevent MENU items from being activated).
(continued)		

Procedure 4-9 Disk drive replacement procedure - installing the replacement disk drive (continued)		
Step	Description	Notes
17	Once this procedure is complete, return to the message procedure you left and continue the activities.	
<p>Notes:</p> <p>Note 1: If the disk system attains the PRIME mode, return the processor system to the PRIME mode. Make the processor that is on the ONLY mode presently the PRIME processor. See Switch and Status Panel Operation for the procedure to change processor modes.</p> <p>Note 2: For 72- and 140-Mbyte disk drives, if the disk system does not become redundant, check the voltages to the disk drive on the Disk II Crossover PCA. At connector J4, attach one lead of the meter to pin 2 or 4 for ground, attach the other lead to either pin 1 or pin 3; read 8.5 V dc, +/- .25 V dc.</p> <p>Note 3: If the voltages are proper, and the disk system does not achieve redundant operation, call for technical assistance. (For the procedure, input command, to change disk modes, see the Craftperson Activity section of the procedure sheet for the error message that was originally presented.)</p> <p>Note 4: If the change of disk drives solves the problem, and local procedures indicate that the faulty disk drive is to be returned, and it is a 72- or 140-Mbyte disk drive, be sure to ship its bad track map along with it.</p> <p>Note 5: This procedure is recommended for most disk maintenance situations where the manufacturer's bad track map is available on site. After initialization, this bad track data should be entered using the DISK DEFMAP command.</p> <p>Note 6: This is the default selection for DPP systems equipped with 380-Mbyte disk drives, without the 56K polling feature (no NT6M94AA mounted in slot A7 of the DPP processor chassis).</p> <p>Note 7: This selection is not valid for DPP systems equipped with: 380-Mbyte disk drives with 56K polling feature, or 760-Mbyte disk drives, all instances; if an NT6M94AA PCA is mounted in slot A7 of the chassis, disk initialization is not permitted.</p> <p>Note 8: Proceed only if your DPP system is equipped with 72-Mbyte or 140-Mbyte disk drives.</p> <p>Note 9: If your DPP system is equipped with 380-Mbyte disk drives, but no 56K polling, return to the message procedure you were in and continue the activities listed.</p> <p>Note 10: This procedure may take up to four hours, during which time the disk system is in a non-redundant mode. This procedure should only be used if the manufacturer's bad track map is not available on site.</p> <p>Note 11: If this procedure is chosen, and the bad track map is available, enter the bad track map upon completion of the initialization process.</p> <p>Note 12: This selection is not valid for DPP systems equipped with:</p> <ol style="list-style-type: none"> 380-Mbyte disk drives without 56K polling feature; defaults to the "short init" procedure, no "long init" permitted. 380-Mbyte disk drives with the 56K polling feature; if an NT6M94AA PCA is mounted in slot A7 of the DPP processor chassis, disk initialization is not permitted. 760-Mbyte disk drives, all instances. <p>Note 13: If changing the A disk in a turbo DPP, set the options correctly on the drive or the system will crash.</p>		
End		

Procedures 4-10 through 4-38 provide the procedures for the disk condition and disk file error messages. Procedures 4-39 through Procedure 4-60 provide the procedures for disk drive hardware errors.

Table 4-2	
Disk condition and disk file error messages - index	
Message	Page
AMACRD FILE yyyyyy ERROR: ee (w/56K polling)	4-81
AMACRD FILE yyyyyy ERROR: ee (w/o 56K polling)	4-81
AMAIDX FILE FULL (w/o 56K polling)	4-70
AMAIDX FILE yyyyyy ERROR: ee (w/56K polling)	4-81
AMAIDX FILE yyyyyy ERROR: ee (w/o 56K polling)	4-81
BAD AMAIDX FILE	4-22
BAD EXCIDX FILE	4-22
BAD LOGIDX FILE	4-22
BOOTCP FILE yyyyyy ERROR: ee (w/56K polling)	4-72
BOOTFL FILE yyyyyy ERROR: ee (w/56K polling)	4-81
BOOTFL FILE yyyyyy ERROR: ee (w/o 56K polling)	4-81
BOTH DISKS FULL	4-25
DISK BUFFER NOT AVAILABLE	4-25
DISK COMMAND xx ATTEMPTED WHILE DISK BUSY	4-26
DISK MODE ALARM	4-30
DISK MODE: NONE	4-31
DISK QUEUE ERROR	4-35
DISK USE > xx% (w/o 56K polling)	4-36
DISK USE > xx% PRIMARY DATA (w/ or w/o 56K polling)	4-38
DISK VS NOT FOUND (w/o 56K polling)	4-39
DISK: BACKUP FAILED	4-44
DISK: BOTH DISKS CONTAINED PREFERRED STATUS	4-47
DPPxxx FILE yyyyyy ERROR: ee (w/56K polling)	4-81
DSK MSG xx:	4-50
EXCCRD FILE yyyyyy ERROR: ee (w/56K polling)	4-81
EXCCRD FILE yyyyyy ERROR: ee (w/o 56K polling)	4-75
EXCIDX FILE yyyyyy ERROR: ee (w/56K polling)	4-81
(continued)	

Table 4-2 Disk condition and disk file error messages - index	
Message	Page
EXCIDX FILE yyyyyy ERROR: ee (w/o 56K polling)	4-75
EXCIDX FILE FULL (w/o 56K polling)	4-57
FILE READ FAILED (w/o 56K polling)	4-52
FORMAT NOT ALLOWED	4-53
INIT NOT ALLOWED (w/o 56K polling)	4-55
INVALID ADDR	4-58
LOGCRD FILE yyyyyy ERROR: ee (w/56K polling)	4-81
LOGCRD FILE yyyyyy ERROR: ee (w/o 56K polling)	4-81
LOGIDX FILE FULL (w/o 56K polling)	4-70
LOGIDX FILE yyyyyy ERROR: ee (w/56K polling)	4-81
LOGIDX FILE yyyyyy ERROR: ee (w/o 56K polling)	4-81
MAINF FILE yyyyyy ERROR: ee (w/56K polling)	4-81
MANIF FILE yyyyyy ERROR: ee (w/o 56K polling)	4-81
NO DISK ON LINE	4-59
NO DISK PARAMETERS	4-61
PARTIAL FILE DELETED	4-63
PROLONGED FILE BUSY CLEARED	4-64
SCSI: INTERRUPT FROM INVALID DEVICE (w/56K polling)	4-65
SCSI: INTERRUPT WHILE IDLE (w/56K polling)	4-66
SITDAT FILE yyyyyy ERROR: ee (w/56K polling)	4-81
SITDAT FILE yyyyyy ERROR: ee (w/o 56K polling)	4-81
TDYSTS FILE yyyyyy ERROR: ee (w/56K polling)	4-81
TDYSTS FILE yyyyyy ERROR: ee (w/o 56K polling)	4-81
TIME OUT	4-68
WRITE TO DISK FAILED	4-68
YDYSTS FILE yyyyyy ERROR: ee (w/56K polling)	4-81
YDYSTS FILE yyyyyy ERROR: ee (w/o 56K polling)	4-81
End	

Procedure 4-10 Disk condition and disk file error messages - procedures			
1	(log message) BAD AMAIDX FILE, or, (log message) BAD EXCIDX FILE, or, (log message) BAD LOGIDX FILE, or,	where: = AMA (toll data) = EXC (exception) = LOG (log messages)	= corruption of the AMA index file. Call record data sent to Collector may be invalid = corruption of the exception index file = corruption of message index file
cause: corruption of the named index file.			
2	Alarm Level: Minor; no processor switch (If 3 consecutive messages appear, alarm is MAJOR.)	Reason Code = 04 Corresponds to ERRMAP entry: DSK INDEX ERROR System Default: Type: Minor	Level: 0
3	Customer-Selected Alarm Level	Type:	Level:
4	Other Alarm Indications	Default: Status Panel: Minor Customer-Selected Status Panel:	Audible: Minor Audible:
5	System Recovery Action	No processor switch	
6	Craftsperson Activity	Recreate the index file.	
<div style="display: flex; align-items: center; justify-content: center;">  <div style="margin-left: 10px;"> <p>CAUTION</p> <p>This command may cause loss of data or duplicate data.</p> </div> </div>			
Enter: (at the terminal)			
<div style="display: flex; align-items: center; justify-content: center;">  <div style="margin-left: 10px;"> <p>CAUTION</p> <p>If you are unfamiliar with this command, contact technical assistance personnel before proceeding.</p> </div> </div>			
(continued)			

Procedure 4-10**Disk condition and disk file error messages - procedures** (continued)

>IDXMAINT CREATE DIR FType Version

Primary (cr)

where: FType = File Type
 = AMA
 = LOG
 = EXC

Version = 1 - 255 = starting
 program version
 number of this data
 file.

Primary = Disk sequence num-
 ber of first unpolled
 block.

Use this command to create an index file directory starting at a specific version number and ending at a data file open for write. Index files store all of the closed versions of a file type. All blocks in the new index file, beginning with the disk sequence number indicated by primary are marked to poll. If no data file is open for write, all 255 possible versions are examined for inclusion in the index file. If 56 versions (72- and 140-Mbyte disks; 200 versions for 380-Mbyte with 56K polling and 760-Mbyte) are found to exist, the process is terminated.¹

Create a new file for writing records.

(continued)

Procedure 4-10

Disk condition and disk file error messages - procedures (continued)

Check the specified index file.

Enter: (at the terminal)

>IDXMAINT CHECK FType (cr)

where: FType = File Type
= AMA
= LOG
= EXC

(Ftype entered must be the same as the file created in step b.)

Response: GOOD FType FILE or
BAD FType FILE

where: FType = File Type
= AMA
= LOG
= EXC

If response is GOOD, procedure is complete. If response is BAD, go to step e.

Verify that data is going to disk.

Enter: (at the terminal)

>IDXMAINT DIR OPEN FType (cr)²

where: FType = File Type
= TOL
= LOG
= EXC

Call for technical assistance.

Notes:

Note 1: An Index file can only contain 55 closed files and 1 open file. There can be numbers from 0 to 255, but only 56 files stored on disk.

Note 2: If this command is entered a second time, the number of blocks in the open file should increase.

End

Procedure 4-11 Disk condition and disk file error messages - procedures		
1	(log message) BOTH DISKS FULL	cause: printed when the amount of disk space for storing AMA data has reached 100 percent of available space.
2	Alarm Level: two disks 100% = Critical no processor switch	Reason Code = 08 Corresponds to ERRMAP entry: BOTH DISKS FULL (w/56K polling) DSK STORE LIMIT (w/o 56K polling) System Default: Type: Critical Level: 0
3	Customer-Selected Alarm Level	Type: Level:
4	Other Alarm Indications	Default: Status Panel: Critical Audible: Critical Customer-Selected Status Panel: Audible:
5	System Recovery Action	System has already set disk status nonredundant.
6	Craftsperson Activity	See Procedure 4-61, Polling Disks from a Non-Redundant Mode, for the procedure to alleviate this condition. (Call for technical assistance if doubt arises at any step.)

Procedure 4-12 Disk condition and disk file error messages - procedures		
1	(log message) DISK BUFFER NOT AVAIL- ABLE	cause: no disk buffer is available when attempting to write statistical data to files on disk.
2	Alarm Level: No processor switch	Reason Code = N/A Corresponds to ERRMAP entry: STAT FILE ERROR System Default: Type: Minor Level: 0
3	Customer-Selected Alarm Level	Type: Level:

Procedure 4-12 Disk condition and disk file error messages - procedures (continued)			
4	Other Alarm Indications	Default: Status Panel: Minor	Audible: Minor
		Customer-Selected Status Panel:	Audible:
5	System Recovery Action	None; (input is rejected).	
6	Craftsperson Activity	Retry input at a later time.	

Procedure 4-13 Disk condition and disk file error messages - procedures				
1	<pre>(log message) DISK COMMAND xx AT- TEMPTED WHILE DISK BUSY DISK JOB: yy, PARAMETERS: aa bb cc(1) cc(2) cc(3) dd(1) dd(2) SIDE z</pre>	<p>where:</p> <p>Disk Command = xx = the first two letters of DISK COMMAND are a two letter code for the disk command that was being transferred to or carried out by the OMTI disk controller</p> <p>Disk Job = yy = a two letter code for the disk job in progress. = CK = check for ready</p> <p>Directory updates after dynamic relocation:</p> <p>After a directory track has been relocated: D0 = read prime D1 = seek prime D2 = seek standby D3 = write prime D4 = write standby</p>		
(continued)				

Procedure 4-13**Disk condition and disk file error messages - procedures** (continued)

After a data track has been relocated:
 D5 = seek prime D6 = seek standby D7 = write prime
 D8 = write standby

Formats: FA = A FB = B

Relocate track from prime; - used by backup:
 L1 = read prime L2 = seek prime L3 = seek standby
 L4 = write prime L5 = write standby

Assign disk parameters.:
 PA = To A PB = To B RC = recalibrate

Reads: RA = from A RB = from B

From prime:
 R1 = read prime = R2 = read standby (if read prime failed)

Relocate track from standby (if standby succeeded)
 R3 = read standby R4 = seek prime R5 = seek standby
 R6 = write prime R7 = write standby

Backup track - used by backup:
 T1 = seek prime T2 = seek standby T3 = read prime
 T4 = write standby

Writes: WA = To A WB = To B
 To both when redundant:
 W1 = seek prime W2 = seek standby W3 = write prime
 W4 = write standby

Parameters = aa bb cc(1) cc(2) cc(3) dd(1) dd(2)
 aa = quantity of sectors involved, (in Hex).
 bb = drive unit number, (in Hex).
 cc(1) cc(2) cc(3) = logical sector number, (in Hex).
 dd(1) dd(2) = buffer address, (in Hex).

Side = z = indicates one of two redundant sides.
 A = disk A B = disk B

cause: printed when the SCSI (Small Computer System Interface) bus handler of the DPP Disk Interface is called to initiate a disk operation and a previous SCSI bus cycle is still in progress.

(continued)

Procedure 4-13**Disk condition and disk file error messages - procedures** (continued)

Change the disk mode to PRIME mode.

Enter: (at the terminal)

>DISK MODE xx (cr)

where: xx = disk mode

= AP = A PRIME
(from disk mode AO)

= BP = B PRIME
(from disk mode BO)

Proper response = DISK MODE: AP

or

DISK MODE: BP

- i. For any other response, see the procedure for that message and perform the activities listed.
- ii. If successful, procedure complete. (If unsuccessful, go to step d.)

Switch processors.

**CAUTION**

This action may cause a loss of data.

- i. See Switch and Status Panel Operation, Figure 7-1.
- ii. Repeat steps b and c. (If unsuccessful, go to step e.)
- iii. If successful, change the Disk Xover PCA associated with A or B, the one that's failing.

Replace the suspect disk drive.

- i. See Disk Drive Procedures, Replacing Disk Drive .
- ii. Repeat steps b, c, and d. (If unsuccessful, go to step f.)

Call for technical assistance.

End

Procedure 4-14 Disk condition and disk file error messages - procedures		
1	DISK MODE ALARM	cause: disk system found to be nonredundant at hour boundary. fault caused disk system to become nonredundant. one disk is 100% full; system becomes nonredundant to use second disk for additional primary data.
<div style="display: flex; align-items: center; justify-content: center;">  <div> <p>CAUTION</p> <p>Use extreme care before proceeding under this condition; call technical assistance if you are unsure which procedure to follow.</p> </div> </div>		
2	Alarm Level: Disk mode non-redundant	Reason Code = 34 Corresponds to ERRMAP entry: DISK MODE ALARM System Default: Type: Major Level: 0
3	Customer-Selected Alarm Level	Type: Level:
4	Other Alarm Indications	Default: Status Panel: Major Audible: Major Customer-Selected Status Panel: Audible:
5	System Recovery Action	Based on the corresponding disk error message.
6	Craftsperson Activity	See the disk message printed when condition first occurred for more definitive information of the condition. i. See the procedure sheet for any disk error messages that appear. ii. Do any Craftsperson activity procedures in the associated disk error procedure sheets. (If unsuccessful, go to step b). Call for technical assistance.
End		

Procedure 4-15		
Disk condition and disk file error messages - procedures		
1	DISK MODE:	cause: a. response to manual request for current DISK MODE status and neither disk A or B has been initialized.
2	Alarm Level: No selected disk mode.	Reason Code = N/A Corresponds to ERRMAP entry: DISK MODE ALARM System Default: Type: Major Level: 0
3	Customer-Selected Alarm Level	Type: Level:
4	Other Alarm Indications	Default: Status Panel: Audible: Customer-Selected Status Panel: Audible:
5	System Recovery Action	None; response to keyboard request, normal on system restart. None: normal on system restart. (w/o 56K polling)
6	Craftsperson Activity	a. Switch processors. i. See Switch and Status Panel Operation, Figure 7-1 . ii. If disk activity starts, go to step b. iii. If no disk activity starts, go to step c. b. If disk activity starts, a disk mode message should print. Examine the printout and proceed as follows: i. If the disk mode is other than DISK MODE: NONE (that is, AP, BP, AO, or BO), replace the Disk Interface PCA in slot 11 in the standby chassis. See Printed Circuit Assembly Replacement in <i>297-1001-536: DPP Card Replacement</i> . ii. After changing Disk Interface PCA, switch processors. If disk mode is still NONE, go to step iv
(continued)		

Procedure 4-15

Disk condition and disk file error messages - procedures (continued)

iii. Put the disk system in PRIME mode, if necessary.

- Enter: (at the terminal)

>DISK MODE xx (cr)

where: xx = disk mode

= AP = A PRIME

(from disk mode AO)

= BP = B PRIME

(from disk mode BO)

Proper response = DISK MODE: AP

or

DISK MODE: BP

- For any other response, see the procedure for that message and perform the activities listed.

iv. If unsuccessful after PCA replacement and processor switch, go to step c. Return the original PCA to its position before proceeding.

c.If no disk activity starts, determine the last known disk mode.

Check the printouts for the last disk mode.

- If the disk mode was AO or BO, remove that disk (or pull the power plug from the power supply, P8), to protect the data on that disk.

▪ go to step d.

- If the disk mode was AP or BP , remove either disk (or pull the power plug from the power supply, P8) to protect the data on that disk.

▪ go to step d.

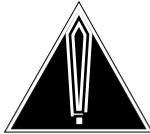
d.Replace disk with a spare disk drive (if available).

Install the spare disk drive.

(continued)

Procedure 4-15**Disk condition and disk file error messages - procedures** (continued)

- ii. See Disk Drive Procedures, Replacing Disk Drive, Procedures 4-8 and 4-9. Call technical assistance if help is needed.
- iii. Go to step e when disk is installed.
- e. Enter the correct parameters for your disk drive.
 - i. To set disk particular parameters for the disk type in the system, see Procedure 4-7.
 - ii. go to step f.
- f. Reinitialize the disk. See Procedure 4-5.

**CAUTION**

Improper performance of this procedure may cause a loss of data. Make sure the operational disk drive is in DISK ONLY mode before entering commands.

- i. The recommended procedure shown in Procedure 4-5. Once this procedure is complete, go to step g (go to the next step ONLY if both disks are to be erased of all data).
- ii. The alternate procedure shown in Procedure 4-6.
- iii. If only one disk in system, go to step j.
- g. Set the parameters for the other disk (if still in system).
 - i. To set disk parameters, see Procedure 4-7.
 - ii. go to step h.
- h. Reinitialize the disk.

(continued)

Procedure 4-15

Disk condition and disk file error messages - procedures (continued)

i. The recommended procedure shown in Procedure 4-5. (Once this procedure is complete, go to step i.)

ii. The alternate procedure shown in Procedure 4-6.

i. Change the disk to PRIME mode.

Enter: (at the terminal)

>DISK MODE xx (cr)

where: xx = disk mode

= AP = A PRIME
(from disk mode AO)

= BP = B PRIME
(from disk mode BO)

Proper response = DISK MODE: AP
or
DISK MODE: BP

i. For any other response, see the procedure for that message and perform the activities listed.

j. Do this step only if system is operating with a single disk. Select a disk mode by typing:

>DISK MODE xx (cr)

where xx =

AO = A only

BO = B only (whichever disk is in the system)

Proper response = DISK MODE: AO
or
DISK MODE: BO

- For any other response, see the procedure for that message and perform activities listed.

k. If both disks have been totally erased during this procedure, it will be necessary to reload site data entry values (such as BVAL, BAUD). Call for technical assistance if required.

End

Procedure 4-16		
Disk condition and disk file error messages - procedures		
1	(log message) DISK QUEUE ERROR	cause: output if no free command nodes are available.
2	Alarm Level:	Reason Code = 29 Corresponds to ERRMAP entry: DSK DPR, QUE ERR (w/o 56K polling) DSK CARD HW ERR (w/56K polling) System Default: Type: Major Level: 2
3	Customer-Selected Alarm Level	Type: Level:
4	Other Alarm Indications	Default: Status Panel: Major Audible: Major Customer-Selected Status Panel: Audible:
5	System Recovery Action	Retry.
6	Craftsperson Activity	a. 1st occurrence - none. b. Call for technical assistance if the problem persists.
End		

Procedure 4-17 Disk condition and disk file error messages - procedures		
1	DISK USE > xx% (w/o 56K polling)	where: xx = disk use percent (decimal point value). cause: output anytime disk usage reaches 70, 90, or 100% of capacity.
2	Alarm Level:	Reason Code = 05 Case 1: disk mode redundant a. primary AMA data has reached 70% of capacity, there is a Minor alarm only; secondary AMA and LOG data is not deleted. b. primary AMA data has reached 90% of capacity, there is a Major alarm, after all secondary AMA and LOG data has been deleted. (one disk is made off-line, and the ONLY disk is used to store all incoming data). c. primary AMA data has reached 99% of capacity, there is a Critical alarm.
(continued)		

Procedure 4-17 Disk condition and disk file error messages - procedures (continued)			
<p>Case 2: disk mode non-redundant; one disk already at maximum AMA capacity and the other disk is operating in the ONLY mode. On the ONLY disk, which is currently the ONLY disk available to accept incoming data:</p> <ol style="list-style-type: none"> a. primary AMA data has reached 70% of capacity, there is a Minor alarm only. b. primary AMA data has reached 90% of capacity, there is a Major alarm. c. primary AMA data has reached 99% of capacity, there is a Critical alarm, it is no longer possible to store additional data; EOT is returned to the DMS-100 (see BOTH DISKS FULL message procedure). <p>Corresponds to ERRMAP entry: SECND FILES DEL (at the 70% level)</p> <p>LOG FILES DEL (at the 90% level)</p> <p>BOTH DISKS FULL (at the 100% level) (w/o 56K polling)</p> <p>DSK STORE LIMIT (at the 100% level) (w 56K polling)</p> <p>System Default: Type: See Alarm Level Level:</p>			
3	Customer-Selected Alarm Level	Type:	Level:
4	Other Alarm Indications	Default: Status Panel:	Audible:
		Customer-Selected Status Panel:	Audible:
5	System Recovery Action	System performs disk recovery procedure; sets DISK MODE ONLY when one disk reaches 100% full.	
6	Craftsperson Activity	See Procedure 4-61, Polling Disks from a Non-Redundant Mode, to alleviate this condition. (Call for technical assistance if doubt arises at any step.)	
End			

Procedure 4-18 Disk condition and disk file error messages - procedures	
<p>1</p> <p>DISK USE > xx% PRIMARY DATA (w/ or w/o 56K polling)</p>	<p>where: xx = disk use percent (decimal point value).</p> <p>cause: output anytime disk usage for primary AMA data reaches 70, 90, or 99 percent of capacity.</p>
<p>2</p> <p>Alarm Level:</p>	<p>Reason Code = 05</p> <p>Case 1: disk mode redundant</p> <ol style="list-style-type: none"> a. primary AMA data has reached 70% of capacity, there is a Minor alarm only; secondary AMA and LOG data is not deleted. b. primary AMA data has reached 90% of capacity, there is a Major alarm, after all secondary AMA and LOG data has been deleted. c. primary AMA data has reached 99% of capacity, there is a Critical alarm, one disk is made off-line, and the ONLY disk is used to store all incoming data. <p>Case 2: disk mode non-redundant; one disk already at maximum AMA capacity and the other disk is operating in the ONLY mode. On the ONLY disk, which is currently the ONLY disk available to accept incoming data:</p> <ol style="list-style-type: none"> a. primary AMA data has reached 70% of capacity, there is a Minor alarm only. b. primary AMA data has reached 90% of capacity, there is a Major alarm. c. primary AMA data has reached 99% of capacity, there is a Critical alarm, it is no longer possible to store additional data; EOT is returned to the DMS-100 (see BOTH DISKS FULL message procedure). <p>Corresponds to ERRMAP entry: DSK 70% PRIMARY (w/ or w/o 56K polling)</p> <p>DSK 90% PRIMARY (w/ or w/o 56K polling)</p> <p>BOTH DISKS FULL (100% primary)</p> <p>DSK STORE LIMIT (100% primary) (w/56K polling)</p>
<p>(continued)</p>	

Procedure 4-19 Disk condition and disk file error messages - procedures (continued)			
3	Customer-Selected Alarm Level	Type:	Level:
4	Other Alarm Indications	Default: Status Panel: Minor	Audible: Minor
		Customer-Selected Status Panel:	Audible:
5	System Recovery Action	Defaults are set to no bad track mapping and small file size for AMA, LOG, and EXC files.	
6	Craftsperson Activity	Check if the disk firmware version is correct. Enter: (at the terminal) >DISK VS (cr) Proper response = D01D6I-00:3/10/89 this is the active disk (firmware version for any BCS using 380 Mbyte disks w/o 56K polling; verify that there have been no version updates since the original DPP installation. If there have been, substitute the new version number in the proper response. i. If the VERSION number is not correct, there is a disk system problem. go to step h. ii. If the disk VERSION is correct, perform the following: - Switch processors. <ul style="list-style-type: none"> ▪ See Switch and Status Panel Operation, Figure 7-1 . ▪ After processor switch activity ends, go to step b. 	

Procedure 4-19**Disk condition and disk file error messages - procedures** (continued)

Check if the disk firmware version is correct for this processor.

Enter: (at the terminal)

>DISK VS (cr)

Proper response =

D01D6I-00:3/10/89

this is the active disk (firmware version for any BCS using 380 Mbyte disks w/o 56K polling; verify that there have been no version updates since the original DPP installation. If there have been, substitute the new version number in the proper response.

If the VERSION number is not correct, there is a problem in the MSGROM. go to step c.

Power cycle the standby processor.

- i. Power down the standby processor.
 - See Power Supplies, Procedure 17-1 in *297-1001-536: DPP Card Replacement Guide*.
 - After the disk drive has stopped completely; power up the processor.
 - After power up activity has ceased, go to step d.

Perform a processor switch via input command.

Enter: (at the terminal)

>SWACT (cr)

- i. After processor switch activity ceases, go to step e.

Procedure 4-19

Disk condition and disk file error messages - procedures (continued)

Check to see if the problem message repeats.

Enter: (at the terminal)

>DISK VS (cr)

Proper response =

D01D6I-00:3/10/89

this is the active disk (firmware version for any BCS using 380 Mbyte disks w/o 56K polling; verify that there have been no version updates since the original DPP installation. If there have been, substitute the new version number in the proper response.

Procedure 4-19**Disk condition and disk file error messages - procedures** (continued)

- i. If the message does not repeat, procedure complete.
- ii. Report this incident to NT as soon as possible.
- iii. If the problem appears on both processors, and did not go away when the power is cycled, go to step f.

Check if the DPP system software version is correct.

Enter: (at the terminal)

>VS (ACT) (cr)

Proper response =

D01D6I-00:3/10/89

this is the active disk (firmware version for any BCS using 380 Mbyte disks w/o 56K polling; verify that there have been no version updates since the original DPP installation. If there have been, substitute the new version number in the proper response.

- i. If the proper response is not obtained, load the correct software to the DPP system.
 - Contact technical assistance to perform this activity.
- ii. Repeat the DISK VS and VS ACT commands to verify that the versions are compatible.
 - If the versions are correct, procedure complete.
 - If the versions are not correct, go to step g.

Replace the Disk Interface PCA in slot 11 of the standby chassis.

Verify with Tech. Assistance which EPROMs to use. Change the EPROM chips on the Disk Interface PCA in A11 and B11.

- i. See Replacing EPROM Integrated Circuits (Where Necessary), EPROM Precautions, and EPROM Installation Procedure, in *297-1001-536: DPP Card Replacement Guide*.¹

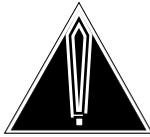
	<p>ii. Repeat the DISK VS and VS command inputs to verify that the versions are now compatible.</p> <ul style="list-style-type: none">- If the versions are correct, procedure complete.- If the versions are not correct, go to step h.
	<p>See Printed Circuit Assembly Replacement in 297-1001-536: <i>DPP Card Replacement Guide</i>.</p> <p>If unsuccessful after PCA replacement and restart, go to step i. Return the original PCA to its position before proceeding.</p> <p>Replace the disk drive in the active processor chassis.</p>
	<p>i. See Disk Drive Procedures, Replacing Disk Drive .</p> <p>ii. Repeat the DISK VS and VS ACT command inputs to verify that the versions are now compatible.</p> <ul style="list-style-type: none">- If the versions are correct, procedure complete.- If the versions are not correct, go to step j. <p>Call for technical assistance.</p>
Notes:	
Note: It may be necessary to reformat the disk if the disk program is changed.	
End	

Procedure 4-20 Disk condition and disk file error messages - procedures	
1	<p>DISK: BACKUP FAILED</p> <p>cause: printed upon termination due to a failure of the disk backup operation. Backup operation attempted as a result of an ONLY to PRIME disk mode change request. Printed for the following reasons:</p> <ul style="list-style-type: none">disk not properly initializedfaulty Disk Interface PCAfaulty disk drivefaulty +12 V dc supply from the power supply.
(continued)	

Procedure 4-20

Disk condition and disk file error messages - procedures (continued)

) Change the disk to PRIME mode.
Enter: (at the terminal)
>DISK MODE xx (cr)
where: xx = disk mode
= AP = A PRIME
(from A ONLY)
= BP = B PRIME
(from B ONLY)
Proper response = DISK MODE: AP
or
DISK MODE: BP
i. For any other response, see the procedure for that message and perform the activities listed.
ii. If successful, procedure complete. (If unsuccessful, go to step c.)
Switch processors.



CAUTION

This action may cause a loss of data.

i. See Switch and Status Panel Operation, Ch. 1 in *297-1001-536: DPP Card Replacement Guide*.

ii. Repeat steps a and b. (If successful, go to step d. If unsuccessful, go to step e.)

Replace the Disk Interface PCA in slot 11 of the standby chassis.

i. See Printed Circuit Assembly Replacement in *297-1001-536: DPP Card Replacement Guide*.

ii. If unsuccessful after PCA replacement and restart, go to step e. Return the original PCA to its position before proceeding.

Replace the disk drive.

(continued)

<p>Procedure 4-20 Disk condition and disk file error messages - procedures (continued)</p>	
	<p>i. See Disk Drive Procedures, Replacing Disk Drive.</p> <p>ii. Repeat steps a and b. (If unsuccessful, go to step g.)</p> <p>Replace the Power Supply (the one with the faulty +12 V dc supply).</p> <p>i. See Power Supplies, Replacing Power Supply for Maintenance.</p>
	<p>ii. Once the Power Supply replacement is complete, return to step a and proceed.</p> <p>iii. If any difficulties arise, proceed immediately to step g.</p> <p>Call for technical assistance.</p>
<p>Notes: Note 1: If the failure is because the PRIME disk has a read error, the backup operation will fail. In this case, all secondary call record data should be removed from the disk. Do this only if the Collector (data collection/polling) facility approves first.</p>	
<p>End</p>	

<p>Procedure 4-21 Disk condition and disk file error messages - procedures</p>	
<p>1 (log message) DISK: BOTH DISKS CONTAINED PREFERRED STATUS</p>	<p>cause: printed when:</p> <p>the Disk Interface is going through initialization; both disks are found to contain status data indicating that each disk should be the only on-line and active disk.</p> <p>a new disk is placed into the DPP system and a CPU switch occurs. (The default is disk A ONLY mode.)</p>
<p>2 Alarm Level: No disk mode switch</p>	<p>Reason Code = 27</p> <p>Corresponds to ERRMAP entry: DISK ER MESSAGE</p> <p>System Default: Type: Minor Level: 0</p>
<p>(continued)</p>	

Procedure 4-21 Disk condition and disk file error messages - procedures (continued)			
3	Customer-Selected Alarm Level	Type:	Level:
4	Other Alarm Indications	Default: Status Panel: Minor	Audible: Minor
		Customer-Selected Status Panel:	Audible:
5	System Recovery Action	None	
6	Craftsperson Activity	<p>Verify through earlier printouts to determine which disk was active previously. If it can be determined that disk B was active, in the following procedure, transpose B for A and A for B. If A was active previously, or it cannot be determined which disk was active, proceed as follows:</p> <p>Check the current disk mode.</p> <p>Enter: (at the terminal)</p> <p style="padding-left: 40px;">>DISK MODE (cr)</p> <p style="padding-left: 80px;">Proper response =</p> <p style="padding-left: 120px;">DISK MODE: AO = A ONLY</p> <p style="padding-left: 120px;">DISK MODE: BO = B ONLY</p> <p>i. For any other response, see the procedure for that message and perform the activities listed.</p> <p>ii. Enter: (at the terminal)</p> <p style="padding-left: 40px;">>IDXMAINT SUMMARY AMA (cr)</p> <p>- This verifies that the AMA (call record) data is proper on the disk.</p> <ul style="list-style-type: none"> ▪ Contact the Collector and check the sequence number (or check printouts) to verify that the sequence number is correct. <p>iii. If successful, go to step b. (If unsuccessful, go to step c.)</p>	
(continued)			

Procedure 4-21**Disk condition and disk file error messages - procedures** (continued)

Try to put the ONLY disk drive in PRIME mode.

i. Change the disk to PRIME mode.

Enter: (at the terminal)

>DISK MODE xx (cr)

where: xx = disk mode

= AP = A PRIME

(from A ONLY)

= BP = B PRIME

(from B ONLY)

Proper response = DISK MODE: AP

or

DISK MODE: BP

ii. For any other response, see the procedure for that message and perform the activities listed.

iii. If successful, procedure complete. (If unsuccessful, go to step c.)

Switch processors. Repeat steps a and b.

i. If successful, replace the Disk Interface PCA in slot 11 of the standby chassis.

ii. See Printed Circuit Assembly Replacement in *297-1001-536: DPP Card Replacement Guide*. (If successful, procedure complete.)

iii. If unsuccessful after PCA replacement and restart, go to step d. Return the original PCA to its position before proceeding.

Repeat steps b and c.

i. If successful, procedure complete. (If unsuccessful, go to step e.)

Call for technical assistance.

End

Procedure 4-22**Disk condition and disk file error messages - procedures** (continued)**6** Craftsperson Activity

a. If the DPP system can boot itself up, clear the alarms and monitor the printouts for the cause of the error.

Enter: (at the terminal, to clear all alarms in the active processor)

>RSERR ACT 00 (cr)

Proper response =
ALL ALARMS CLEARED

Enter: (at the terminal, to clear all alarms in the standby processor)

>RSERR STDBY 00 (cr)

Proper response =
ALL ALARMS CLEARED

(Monitor the System for a reoccurrence.)

(RSERR command clears active event/device alarms after the alarm is no longer present.)

where: Event = Optional Entry = Device/Event No. of alarm (2 digits) as indicated by the output of the ERRMAP (see the following) command. An event parameter entry of 00, or no entry, clears all active alarms.

i. If alarms do not clear, check the printouts/displays for any other alarms/error messages.

b. See the error messages that print out.

i. See the procedure sheet for the error messages that appear.

ii. Do any Craftsperson activity procedures in the associated error procedure sheets. (If unsuccessful, go to step c.)

c. Call for technical assistance.

End

Procedure 4-25 Disk condition and disk file error messages - procedures (continued)					
3	Customer-Selected Alarm Level	Type:	Level:		
4	Other Alarm Indications	Default: Status Panel:	Audible:		
		Customer-Selected Status Panel:	Audible:		
5	System Recovery Action	Termination of requested disk operation.			
6	Craftsperson Activity	a. Determine the current disk mode. i. Enter: (at the terminal) >DISK MODE (cr) Proper response = DISK MODE: AO DISK MODE: BO DISK MODE: AP DISK MODE: BP (If the INIT NOT ALLOWED message prints again, go to step c.) ii. If the disk system is in PRIME (AP or BP) mode, do not continue, a PRIME mode disk cannot be initialized. iii. If the disk system is in ONLY (AO or BO) mode, enter the correct disk INIT command; go to step c. iv. For any other response, see the procedure for that message and perform the activities listed.			
		b. Reattempt the initialization procedure.			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; width: 15%;"></td> <td> CAUTION Improper performance of this procedure may cause data loss. Make sure the operational disk drive is in DISK ONLY mode before entering commands. </td> </tr> </table>					CAUTION Improper performance of this procedure may cause data loss. Make sure the operational disk drive is in DISK ONLY mode before entering commands.
	CAUTION Improper performance of this procedure may cause data loss. Make sure the operational disk drive is in DISK ONLY mode before entering commands.				
(continued)					

Procedure 4-25**Disk condition and disk file error messages - procedures** (continued)

- i. The recommended procedure is Procedure 4-5.
 - ii. The alternate procedure is Procedure 4-6. (When init activity is complete, go to step d.)
- c. Change the disk to PRIME mode.
Enter: (at the terminal)

>DISK MODE xx (cr)

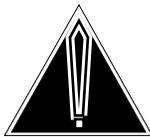
where: xx = disk mode

= AP = A PRIME
(from A ONLY)

= BP = B PRIME
(from B ONLY)

Proper response = DISK MODE: AP
or
DISK MODE: BP

- i. For any other response, see the procedure for that message and perform the activities listed.
 - ii. If successful, procedure complete. (If unsuccessful, go to step e.)
- d. Switch processors.
- i. See Switch and Status Panel Operation, Ch. 7 in *297-1001-536: DPP Card Replacement Guide*.
 - ii. Repeat steps b, c, and d. (If unsuccessful, go to step f.)
- e. Replace the Disk Interface PCA in slot 11 of the standby chassis.

**CAUTION**

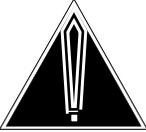
Since all circuit assemblies in the DPP are static sensitive, be careful handling them.

(continued)

Procedure 4-26 Disk condition and disk file error messages - procedures (continued)			
4	Other Alarm Indications	Default: Status Panel:	Audible:
		Customer-Selected Status Panel:	Audible:
5	System Recovery Action	None	
6	Craftsperson Activity	a.Reboot the system. - Enter: (at the terminal) >DOS LB (cr) (used to load program files into memory) System response: S/W LOADED (for each file loaded.) i. Wait for reboot activity to stop, examine the printouts/displays for error indications. b.If message repeats, or if the problems persist, call for technical assistance.	
End			

Procedure 4-27 Disk condition and disk file error messages - procedures			
1	(log message) NO DISK ON LINE	cause: printed when a disk job attempts to select the PRIME or STANDBY disk drive unit before either of the disk drive unit(s) have been put on line.	
2	Alarm Level: No disk mode change	Reason Code = 27 Corresponds to ERRMAP entry: DISK ER MESSAGE System Default: Type: Minor Level: 0	
3	Customer-Selected Alarm Level	Type:	Level:
(continued)			

Procedure 4-27 Disk condition and disk file error messages - procedures (continued)			
4	Other Alarm Indications	Default: Status Panel: Minor	Audible: Minor
		Customer-Selected Status Panel:	Audible:
5	System Recovery Action	None	
6	Craftsperson Activity	a.Switch processors.	
<div style="border: 1px solid black; padding: 5px;">  <p>CAUTION This action may cause data loss.</p> </div>			
<p>i. Press the RESET button on the CPU PCA.</p> <p>ii. After all CPU reset activity stops, if no disk has on-line status, go to step b.</p> <p>b.Reset the CPU that is online.</p> <p>i. Wait for processor switch activity to stop; then go to step c.</p> <p>c.Request the current disk operating mode.</p> <p>i. Enter: (at the terminal)</p> <p style="text-align: center;">>DISK MODE (cr)</p> <p style="text-align: center;">Proper response =</p> <p style="text-align: center;">DISK MODE: AO DISK MODE: BO DISK MODE: AP DISK MODE: BP</p> <p>For any other response, see the procedure for that message and perform the activities listed.</p> <p>ii. If disk mode is AP or BP, procedure complete.</p> <p>iii. If disk mode is AO or BO, go to step d.</p>			
(continued)			

Procedure 4-28 Disk condition and disk file error messages - procedures (continued)			
3	Customer-Selected Alarm Level	Type:	Level:
4	Other Alarm Indications	Default: Status Panel:	Audible:
		Customer-Selected Status Panel:	Audible:
5	System Recovery Action	None	
6	Craftsperson Activity	a. Enter the correct parameter(s) for your disk drive.	
<div style="border: 1px solid black; padding: 5px; display: inline-block;">  <p style="margin: 0;">CAUTION These disk commands may cause data loss. Make sure the operational disk drive is in DISK ONLY mode before entering commands.</p> </div>			
<ul style="list-style-type: none"> <li style="margin-left: 40px;">i. To set disk particular parameters for the disk type used in the system, see Procedure 4-7. <li style="margin-left: 40px;">ii. Once complete, go to step b. <p style="margin-left: 20px;">b. Initialize the disk.</p> <ul style="list-style-type: none"> <li style="margin-left: 40px;">i. The recommended procedure is Procedure 4-5. <li style="margin-left: 40px;">ii. The alternate procedure is Procedure 4-6. (When init activity is complete, go to step c.) 			
(continued)			

<p>Procedure 4-28 Disk condition and disk file error messages - procedures (continued)</p>	
<p>c. Change the disk mode to PRIME mode. Enter: (at the terminal) >DISK MODE xx (cr) where: x = drive = A = disk drive A = B = disk drive B Proper response = FORMAT DONE</p> <p>i. For any other response, see the procedure for that message and perform the activities listed. ii. If successful, procedure complete. (If unsuccessful, go to step d.)</p> <p>d. Replace the disk drive.</p> <hr/> <p>i. See Disk Drive Procedures, Replacing Disk Drive, Procedure 4-9. ii. Repeat steps a, b, and c. (If unsuccessful, go to step e.)</p> <p>e. Call for technical assistance.</p>	
<p>End</p>	

<p>Procedure 4-29 Disk condition and disk file error messages - procedures</p>	
<p>1</p>	<p>PARTIAL FILE DELETED cause: an incomplete file was successfully deleted. The file was incomplete due to a failed abort or downloading session.</p>
<p>2</p>	<p>Alarm Level: N/A Reason Code = N/A Corresponds to ERRMAP entry: N/A System Default: Type: N/A Level: N/A</p>
<p>3</p>	<p>Customer-Selected Alarm Level Type: Level:</p>
<p>4</p>	<p>Other Alarm Indications Default: Status Panel: Audible: Customer-Selected Status Panel: Audible:</p>

Procedure 4-31
Disk condition and disk file error messages - procedures (continued)

- 6** **Craftsperson Activity**
- a. Verify the position of the address strap on both of the disk drives.
 - i. Make any corrections necessary based on the information in the table.
 - ii. Return to this point when any corrections are complete.
 - iii. If the message does not repeat, procedure complete.
 - iv. If the message repeats, go to step b.
 - b. Switch processors.
 - c. Replace the SCSI Interface PCA in slot 11 of the standby chassis.



CAUTION

Since all circuit assemblies in the DPP are static sensitive, be careful handling them.

- i. See Printed Circuit Assembly Replacement in *297-1001-536: DPP Card Replacement Guide*.
- ii. Switch processors. If message does not repeat, procedure complete.
- iii. If the problem is not cleared after PCA replacement and restart, go to step c. Return the original PCA to its position before proceeding and go to step d.
- d. Call for technical assistance.

End

Procedure 4-32
Disk condition and disk file error messages - procedures

- 1** SCSI: INTERRUPT WHILE IDLE (w/56K polling) cause: the SCSI Controller received an interrupt from an invalid source. Probably caused by an incorrectly strapped disk drive.

(continued)

Procedure 4-34 Disk condition and disk file error messages - procedures (continued)		
2	Alarm Level: N/A	Reason Code = N/A Corresponds to ERRMAP entry: N/A System Default: Type: N/A Level: N/A
3	Customer-Selected Alarm Level	Type: Level:
4	Other Alarm Indications	Default: Status Panel: Audible: Customer-Selected Status Panel: Audible:
5	System Recovery Action	None; task is terminated.
6	Craftsperson Activity	a.Switch processors.
<div style="display: flex; align-items: center;">  <div> <p>CAUTION This action may cause data loss.</p> </div> </div>		
<ul style="list-style-type: none"> i. See Switch and Status Panel Operation. ii. Retry the task. iii. If the message does not repeat, procedure complete. (If unsuccessful, go to step b.) <p>b.Call for technical assistance.</p>		
End		

Procedure 4-35		
Disk condition and disk file error messages - procedures		
1	(log message) AMAIDX FILE FULL (log message) EXCIDX FILE FULL (log message) LOGIDX FILE FULL	cause: the index file designated contains 56 versions (72- and 140-Mbyte disks; 200 versions for 380-Mbyte with 56K polling and 760-Mbyte) and an attempt is made to create another "xxxCRD" file.
2	Alarm Level: No disk mode change	Reason Code = 07 Corresponds to ERRMAP entry: DSK INDEX ERROR System Default: Type: Minor Level: 0
3	Customer-Selected Alarm Level	Type: Level:
4	Other Alarm Indications	Default: Status Panel: Minor Audible: Minor Customer-Selected Status Panel: Audible:
5	System Recovery Action	LOGCRD file deleted automatically for LOGIDX files only.
6	Craftsperson Activity ¹	a.Remove any unpolled xxxCRD files: Enter: (at the terminal) >IDXMAINT DELETE FType (cr) where: FType = AMA = AMA files = EXC = Exception files Proper response = CR FILE DELETED followed by the file's statistics, or, if the file does not exist, or has call records not yet polled, the message: NO FILE AVAILABLE is output to the terminal. b.If there are files to be polled, contact HOC and arrange for a polling session. i. When the polling session is complete, go to step c.
(continued)		

Procedure 4-35**Disk condition and disk file error messages - procedures** (continued)

c. Fix the index.

Enter: (at the terminal)

>IDXMAINT CREATE DIR FType Version (cr)

where: FType = AMA = AMA files
= EXC = Exception files

Version = 1 - 255 = starting program version of the data file.

i. If any error messages appear, go to step e; otherwise, go to step d.

d. Remove the AMA files/versions from disk which do not appear in the Index file.

i. Coordinate this activity with the Collector to make sure the file/versions have been polled and it is all right to delete.

ii. The sequence numbers of the files to delete are lower than the newest one. However, if number 255 is on the list, look for a file number 00 or 01. The count wraps around for file number 255 plus 1.

iii. If there are any doubts about this procedure, contact NT immediately.

e. Call for technical assistance.

Notes:

Note 1: If EOT is sent to the DMS-100, the DPP DSIs are dismounted. Arrange for alternate recording media immediately. Then switch back to the DPP when this procedure is complete. Otherwise, the possibility of loss of AMA data is very high. Contact technical assistance personnel and initiate a polling session. Once complete, perform the following steps:

Note 2: Index files store all of the closed versions of file type. All versions in the new index file are marked for polling. If no data file is open for write, all 255 possible versions are examined for inclusion in the index file. If 56 versions (72- and 140-Mbyte disks, 380 Mbyte w/o 56K polling; 200 versions for 380-Mbyte with 56K polling and 760-Mbyte) are found to exist already, the process is terminated.

End

Procedure 4-36 Disk condition and disk file error messages - procedures		
Step	Action	Response
1	BOOTCP FILE yyyyyy ERROR: ee (w/56K polling)	where: yyyyyy = Operation that returned the error = CREATE = OPEN = WRITE = READ = CLOSE = SAVE = REQBUF = DELETE = DIRTRY ee = Operation Error Code = 00 = indicates file is closed = 01 = directory full = 02 = active file table full = 03 = no such file = 04 = file not closed = 05 = file not open = 06 = file expired = 07 = error writing last block = 08 = QIO error = 09 = file write protected = 10 = channel busy = 11 = end of file = 12 = file not open for reading = 13 = hardware error = 14 = illegal file ID = 15 = illegal buffer ID = 16 = buffer overflow = 17 = no more room on disk = 18 = empty file is closed = 19 = illegal file name cause: an error occurred accessing the 56K Interface boot list file during a 56K Interface download.
2	Alarm Level: Major	Reason Code = N/A Corresponds to ERRMAP entry: CP FAULT System Default: Type: Major Level: 1
3	Customer-Selected Alarm Level	Type: Level:
4	Other Alarm Indications	Default: Status Panel: Major Audible: Major Customer-Selected Status Panel: Audible:
5	System Recovery Action	System attempts a 56K Interface restart. If the 56K interface cannot successfully complete a restart, the alarm is upgraded to CP NOT AVAILABLE.
(continued)		

Procedure 4-36**Disk condition and disk file error messages - procedures** (continued)

Step	Action	Response
6	Craftsperson Activity	a. List the BOOTCP boot list file. b. The 56K Interface boot list file BOOTCP probably needs to be recreated; create the boot file. Enter: (at the terminal) >CP BOOT ADD (cr) i. Respond to the system FILE prompt with the file name. (Consult the office records for correct name for the file.) ii. Respond to the system VER prompt with the file version number to append. (Check the office records for the correct version number for the file.) iii. When finished entering all of the FILEs and VERSIONs in the boot list, go to step c. c. If the message repeats after completing step a and reattempting step b, call for technical assistance.
End		

Procedure 4-37 Disk condition and disk file error messages - procedures		
1	xxxxxxx FILE yyyyyy ERROR: ee (w/56K polling)	where: xxxxxx = File Name (file name is determined at time of creation for Comm processor software files; at time of implementation for patch files) where: yyyyyy = Operation that returned the error = CREATE = OPEN = WRITE = READ = CLOSE = SAVE = REQBUF = DELETE = DIRTRY ee = Operation Error Code = 00 = indicates file is closed = 01 = directory full = 02 = active file table full = 03 = no such file = 04 = file not closed = 05 = file not open = 06 = file expired = 07 = error writing last block = 08 = QIO error = 09 = file write protected = 10 = channel busy = 11 = end of file = 12 = file not open for reading = 13 = hardware error = 14 = illegal file ID = 15 = illegal buffer ID = 16 = buffer overflow = 17 = no more room on disk = 18 = empty file is closed = 19 = illegal file name cause: an error occurred accessing the specified file during the specified operation.
2	Alarm Level: Major	Reason Code = N/A Corresponds to ERRMAP entry: System Default: Type: Major Level: 1
3	Customer-Selected Alarm Level	Type: Level:
4	Other Alarm Indications	Default: Status Panel: Major Audible: Major Customer-Selected Status Panel: Audible:
5	System Recovery Action	Depending on the type of file and error, the system may take a number of different recovery actions.
(continued)		

Procedure 4-38

Disk condition and disk file error messages - procedures (continued)

- | | | |
|----------|-----------------------|--|
| 6 | Craftsperson Activity | <ul style="list-style-type: none">a. See the associated disk error message for more definitive information of the fault.<ul style="list-style-type: none">i. See the procedure sheet for other disk error messages that appear.ii. Do any Craftsperson activity procedures in the associated disk error procedure sheets. (If unsuccessful, proceed with step b.)b. Call for technical assistance. |
|----------|-----------------------|--|

End

Table 4-3	
Disk drive hardware error messages - index	
Message	Page
***** DISK ALARM x	4-79
DISK DPR FAULT	4-81
DISK NOT INITIALIZED (w/o 56K polling)	4-83
DISK NOT READY	4-85
DISK: BUS CONTROLLER FAILED SELF TEST (w/o 56K polling)	4-87
DISK: BUS CONTROLLER FAILED SELF TEST, DISK: x (w/56K polling)	4-87
DISK: BUS CONTROLLER INTERRUPT WHILE IDLE	4-90
DISK: BUS DATA TRANSFER BYPASSED (w/o 56K polling)	4-92
DISK: BUS ERROR (w/o 56K polling)	4-97
DISK: BUS ERROR, m (w/56K polling)	4-101
DISK: COMMAND ERROR (w/o 56K polling)	4-105
DISK: COMMAND ERROR, JOB: w (w/56K polling)	4-109
DISK: DMA INTERRUPT	4-114
DISK: FAILURE GOING ON LINE (w/o 56K polling)	4-115
DISK: MULTIPLE REASSIGN CONDITION (w/56K polling)	4-117
DISK: REASSIGN DATA NOT RECOVERED (w/56K polling)	4-118
DISK: RST-7 (w/o 56K polling)	4-119
DISK: x FAILURE (w/56K polling)	4-120
FORMAT FAILED	4-121
INIT FAILED (w/o 56K polling)	4-123
UNINITIALIZED SYSTEM OR BAD DISK (w/o 56K polling)	4-125
UNKNOWN DISK MESSAGE xx (w/56K polling)	4-126
xxxxxx BAD TRACKS (w/o 56K polling)	4-127
End	

Procedure 4-39		
Disk drive hardware error messages - procedures		
1	***** DISK ALARM x	<p>where: x = disk drive = A = disk drive A = B = disk drive B</p> <p>cause: message is printed to report that an alarm threshold value has been exceeded. Output for the following reasons:</p> <p>a. five consecutive non-recoverable disk errors on one side (A or B).</p> <p>b. three failed retries at resetting the SCSI (Small Computer System Interface) bus and reassigning disk parameters to the OMTI disk controller after a disk bus error.</p> <p>c. a non-recoverable disk error while the Disk Interface is retrieving data for initialization from a disk that had good status.</p> <p>d. five failed retries at updating sector zero on the same side.</p>
2	Alarm Level: disk mode switch	<p>Reason Code = 27</p> <p>Corresponds to ERRMAP entry: DISK WRITE FAIL DISK ERROR ALARM</p> <p>System Default: Type: Critical Level: 0</p>
3	Customer-Selected Alarm Level	Type: Level:
4	Other Alarm Indications	<p>Default: Status Panel: Critical Audible: Critical</p> <p>Customer-Selected Status Panel: Audible:</p>
5	System Recovery Action	Disk mode goes to non-redundant (one disk is now in ONLY mode).
6	Craftsperson Activity	a. Reinitialize the disk.
(continued)		

Procedure 4-39

Disk drive hardware error messages - procedures (continued)

- i. The recommended procedure is Procedure 4-5.
 - ii. The alternate procedure is Procedure 4-6. (When init activity is complete, go to step b.)
- b. Change the disk mode to PRIME mode.
Enter: (at the terminal)

>DISK MODE xx (cr)

where: xx = disk mode

= AP = A PRIME

= BP = B PRIME

Proper response = DISK MODE: AP

or

DISK MODE: BP

- I. For any other response, see the procedure for that message and perform the activities listed.
 - II. If successful, procedure complete.
 - III. If unsuccessful, go to step c.
- c. Switch processors.



CAUTION

This action may cause data loss.

- i. See Switch and Status Panel Operation Ch. 7 in *297-1001-536: DPP Card Replacement Guide*.
 - ii. Repeat steps a and b. (If unsuccessful, go to step d.)
- d. Check the +12 V dc supply from the Power Supply in the same chassis; if incorrect, replace the Power Supply.
- i. Replace the Power Supply (the one with the faulty +12 V dc supply).
 - ii. See Power Supplies in *297-1001-536: DPP Card Replacement Guide*.

(continued)

Procedure 4-39 Disk drive hardware error messages - procedures (continued)	
	<p>iii.. Once this procedure is complete, go to step c.) If the problem is cleared, repeat step a.</p> <p>iv. If the problem is not cleared, go to step e.</p> <p>e. Replace the disk drive.</p> <p>See Disk Drive Procedures, Replacing Disk Drive, Procedure 4-8.</p> <p>Repeat steps a and b. (If unsuccessful, go to step f.)</p> <p>f. Call for technical assistance.</p>
End	

Procedure 4-40 Disk drive hardware error messages - procedures		
1	(log message) DISK DPR FAULT	cause: output when an error is detected during the self-check (test) on the dual-ported RAM.
2	Alarm Level: Processor switch	Reason Code = 30 Corresponds to ERRMAP entry: DSK DPR, QUE ERR System Default: Type: Major Level: 2
3	Customer-Selected Alarm Level	Type: Level:
4	Other Alarm Indications	Default: Status Panel: Major Audible: Major Customer-Selected Status Panel: Audible:
5	System Recovery Action	Processor switch, if five or more occurrences in one hour are recorded.
6	Craftsperson Activity	a. If processors switched, replace the Disk Interface (SCSI Intf) PCA in slot 11 of the standby chassis. Otherwise, switch processors. Then replace Disk Interface (SCSI Intf) PCA in slot 11.
(continued)		

Procedure 4-40

Disk drive hardware error messages - procedures (continued)

- i. See Printed Circuit Assembly Replacement in *297-1001-536: DPP Card Replacement Guide*. Switch back to processor of new PCA.
- ii. If the problem is not cleared after PCA replacement and restart, go to step b. Return the original PCA to its position before proceeding.
- b. Replace the CPU PCA in slot 1 of the same chassis as step a.
 - i. See Printed Circuit Assembly Replacement in *297-1001-536: DPP Card Replacement Guide*.
 - ii. If the problem is not cleared after PCA replacement and restart, go to step c. Return the original PCA to its position before proceeding.
- c. Replace the Disk Drive.
 - i. See Disk Drive replacement procedure 4-8.
 - ii. If the problem is not cleared, go to step c.
- c. Call for technical assistance.

End

Procedure 4-41

Disk drive hardware error messages - procedures (continued)

- b. Change the disk mode to PRIME mode.

Enter: (at the terminal)

>DISK MODE xx (cr)

where: xx = disk mode

= AP = A PRIME

= BP = B PRIME

Proper response = DISK MODE: AP

or

DISK MODE: BP

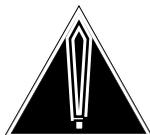
- i) For any other response, see the procedure for that message and perform the activities listed.
 - ii) If successful, procedure complete.
 - iii) If unsuccessful, go to step c.
- c. Switch processors.



CAUTION

This may cause a loss of data.

- i) See Switch and Status Panel Operation, Ch. 7 in *297-1001-536: DPP Card Replacement Guide*.
 - ii) Repeat steps a and b. (If unsuccessful, go to step d.)
- d. Replace the disk drive.

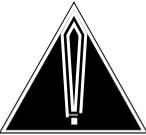


CAUTION

Since all circuit assemblies in the DPP are static sensitive, be careful handling them.

- i) See Disk Drive Procedures, Replacing Disk Drive, Procedure 4-8,
 - ii) Repeat steps a and b. (If unsuccessful, go to step e.)
- e. Call for technical assistance.

End

Procedure 4-42 Disk drive hardware error messages - procedures	
1 (log message) DISK NOT READY SIDE x	where: x = Side = A = (disk drive A) = B = (disk drive B) cause: printed when the system Disk Interface is going through initialization and the indicated drive unit does not return READY status after 30 seconds.
2 Alarm Level: Disk mode non-redundant	Reason Code = 30 Corresponds to ERRMAP entry: DISK ER MESSAGE System Default: Type: Minor Level: 0
3 Customer-Selected Alarm Level	Type: Level:
4 Other Alarm Indications	Default: Status Panel: Minor Audible: Minor Customer-Selected Status Panel: Audible:
5 System Recovery Action	Disk not undergoing initialization goes to disk ONLY mode.
6 Craftsperson Activity	a. Verify that the power input and other cabling on that chassis are correct. i) If incorrect, make any necessary corrections. Before moving the locations of any cables and/or connector arrangements, verify the cables' locations in the Site Configuration Specifications for the Office. Consult with technical assistance personnel before making any cabling changes. ii) Go to step b. b. Reinitialize the offline disk.
<div style="display: flex; align-items: center;">  <div> <p>CAUTION</p> <p>Improper performance of this procedure may cause a loss of data. Make sure the operational disk drive is in DISK ONLY mode before entering commands.</p> </div> </div>	
(continued)	

Procedure 4-42

Disk drive hardware error messages - procedures (continued)

Select:

- i) The recommended procedure is Procedure 4-5.
- ii) The alternate procedure is Procedure 4-6. (When init activity is complete, go to step c.) (If unsuccessful, go to step d.)

c. Change the disk mode to PRIME mode.

Enter: (at the terminal)

>DISK MODE xx (cr)

where: xx = disk mode

= AP = A PRIME

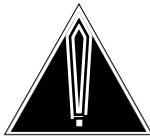
= BP = B PRIME

Proper response = DISK MODE: AP

or

DISK MODE: BP

- i) For any other response, see the procedure for that message and perform the activities listed.
 - ii) If successful, procedure complete. (If unsuccessful, go to step d.)
- d. Switch processors.



CAUTION

This action may cause a loss of data.

- i) See Switch and Status Panel Operation, Ch. 7 in *297-1001-536: DPP Card Replacement Guide*.
 - ii) Repeat steps a and b. (If unsuccessful, go to step e.)
- e. Replace the disk drive.



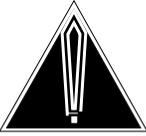
CAUTION

Since all circuit assemblies in the DPP are static sensitive, be careful handling them.

(continued)

Procedure 4-42 Disk drive hardware error messages - procedures (continued)	
	i) see Disk Drive Procedures, Replacing Disk Drive, Procedure 4-8. ii) Repeat steps a, b, and c. (If unsuccessful, go to step f.) f. Call for technical assistance.
End	

Procedure 4-43 Disk drive hardware error messages - procedures	
1 (log message) DISK: BUS CONTROLLER FAILED SELF TEST RETRY DOWN COUNT: xx, STATUS yy SIDE z (w/o 56K polling) DISK: BUS CONTROLLER FAILED SELF TEST, DISK: x (w/56K polling)	where: Retry down count = xx = value of the retry counter (in Hex) (Counter counts down from FF to 00) Status = yy = contents of NCR bus controller diagnostic status register. Side = z = A or B = disk drive A = disk drive B where: x = A = disk drive in A1A1 chassis = B = disk drive in A1A2 chassis cause: printed when the Disk Interface or the SCSI (Small Computer System Interface) bus controller fails its self test. Self test is done automatically after any bus reset.
2 Alarm Level: No change in disk mode	Reason Code = 27 Corresponds to ERRMAP entry: DISK ER MESSAGE System Default: Type: Minor Level: 0
3 Customer-Selected Alarm Level	Type: Level:
4 Other Alarm Indications	Default: Status Panel: Minor Audible: Minor Customer-Selected Status Panel: Audible:
(continued)	

Procedure 4-43 Disk drive hardware error messages - procedures (continued)		
5	System Recovery Action	DPP disk system reattempts self-test.
6	Craftsperson Activity	<p>a. Power down the suspect disk by pulling J8.</p> <p>i) Wait for drive to stop completely before continuing to step b.</p> <p>ii) Reapply power to the disk.</p> <p>iii) Wait for the (disk) system to perform self test.</p> <p>iv) Determine the current disk operating mode. Enter: (at the terminal)</p> <p style="text-align: center;">>DISK MODE (cr)</p> <p style="text-align: center;">Proper response = DISK MODE: AP or DISK MODE: BP</p> <p>v) If self test fails this second try, go to step b.</p> <p>b. Switch processors; then replace the Disk (SCSI Intf) Interface PCA in slot 11 of the standby chassis.</p> <hr/> <p>i) See Printed Circuit Assembly Replacement in <i>297-1001-536: DPP Card Replacement Guide</i>. Switch back to processor w/new Disk Interface.</p> <p>ii) If the problem is not cleared after PCA replacement and restart, go to step c. Return the original PCA to its position before proceeding.</p> <p>iii) If successful, go to step c. (If unsuccessful, go to step e.)</p> <p>c. Initialize the disk.</p>
<div style="display: flex; align-items: center;">  <div> <p>CAUTION</p> <p>Improper performance of this procedure may cause a loss of data. Make sure the operational disk drive is in DISK ONLY mode before entering commands.</p> </div> </div>		
(continued)		

Procedure 4-43**Disk drive hardware error messages - procedures** (continued)

Select:

- i) The recommended procedure is Procedure 4-5.
- ii) The alternate procedure is Procedure 4-6. (If unsuccessful, go to step e.) (When init activity is complete, go to step d.)

d. Change the disk mode to PRIME mode.

Enter: (at the terminal)

>DISK MODE xx (cr)

where: xx = disk mode

= AP = A PRIME

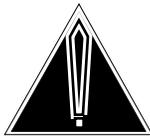
= BP = B PRIME

Proper response = DISK MODE: AP

or

DISK MODE: BP

- i) For any other response, see the procedure for that message and perform the activities listed.
 - ii) If successful, procedure complete. (If unsuccessful, go to step e.)
- e. Switch processors.

**CAUTION**

This action may cause a loss of data.

- i) See Switch and Status Panel Operation, Ch. 7 in *297-1001-536: DPP Card Replacement Guide*.
 - ii) Repeat steps b, c, and d. (If unsuccessful, go to step f.)
- f. Replace the disk drive.

(continued)

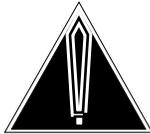
<p>Procedure 4-43 Disk drive hardware error messages - procedures (continued)</p>	
	<p>CAUTION Since all circuit assemblies in the DPP are static sensitive, be careful handling them.</p>
	<p>i) See Disk Drive Procedures, Replacing Disk Drive, Procedure 4-8.</p> <p>ii) Repeat steps c, d, and e. (If unsuccessful, go to step g.)</p> <p>g. Call for technical assistance.</p>
<p>End</p>	

<p>Procedure 4-44 Disk drive hardware error messages - procedures</p>	
<p>1 (log message) DISK: BUS CONTROLLER INTERRUPT WHILE IDLE AUXILIARY STATUS: xx, INTERRUPT STATUS yy</p>	<p>where: Auxiliary Status = xx = contents of the bus controller auxiliary status register, (in Hex). Interrupt Status = yy = contents of the bus interrupt status register, (in Hex).</p> <p>cause: printed when the Disk Interface or the SCSI (Small Computer System Interface) bus controller generates an unexpected interrupt.</p>
<p>2 Alarm Level: Possible disk mode change</p>	<p>Reason Code = 27</p> <p>Corresponds to ERRMAP entry: DISK ER MESSAGE</p> <p>System Default: Type: Minor Level: 0</p>
<p>3 Customer-Selected Alarm Level</p>	<p>Type: Level:</p>
<p>4 Other Alarm Indications</p>	<p>Default: Status Panel: Minor Audible: Minor</p> <p>Customer-Selected Status Panel: Audible:</p>
<p>5 System Recovery Action</p>	<p>None</p>
<p>(continued)</p>	

Procedure 4-44**Disk drive hardware error messages - procedures** (continued)

6 Craftsperson Activity

- a. If disk mode went to nonredundant, initialize the disk.

**CAUTION**

Improper performance of this procedure may cause a loss of data. Make sure the operational disk drive is in DISK ONLY mode before entering commands.

- i) The recommended procedure is Procedure 4-5.
 ii) The alternate procedure is Procedure 4-6. (When init activity is complete, go to step b.)

- b. Change the disk mode to PRIME mode.

Enter: (at the terminal)

>DISK MODE xx (cr)

where: xx = disk mode

= AP = A PRIME

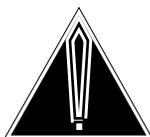
= BP = B PRIME

Proper response = DISK MODE: AP

or

DISK MODE: BP

- i) For any other response, see the procedure for that message and perform the activities listed.
 ii) If successful, procedure complete. (If unsuccessful, go to step c.)
- c. Switch processors.

**CAUTION**

This action may cause a loss of data.

- i) See Switch and Status Panel Operation, Ch. 7 in *297-1001-536: DPP Card Replacement Guide*.
 ii) Repeat steps a and b. (If successful, go to step d. If unsuccessful, go to step e.)
- d. Replace the Disk (SCSI Interface) PCA in slot 11 of the standby chassis.

(continued)

Procedure 4-44
Disk drive hardware error messages - procedures (continued)

- i) See Printed Circuit Assembly Replacement in *297-1001-536: DPP Card Replacement Guide*.
- ii) If the problem is not cleared after PCA replacement and restart, go to step e. Return the original PCA to its position before proceeding.

e. Replace the suspect disk drive.

- i) See Disk Drive Procedures, Replacing Disk Drive, Procedure 4-8.
- ii) Repeat steps a, b, and c. (If unsuccessful, go to step f.)

f. Call for technical assistance.

End

Procedure 4-45
Disk drive hardware error messages - procedures

<p>1 (log message)</p> <p>DISK: BUS DATA TRANSFER BYPASSED AUXILIARY STATUS: xx, INTERRUPT STATUS: yy STAGE: aa DRIVE: bb DISK COMMAND: cc dd(1) dd(2) ... dd(n) DISK JOB: ee, PARAMETERS: ff gg hh(1) hh(2) hh(3) kk(1) kk(2) SIDE z (w/o 56K polling)</p>	<p>where: Auxiliary Status = xx = contents of the bus controller Auxiliary Status Register, (in Hex). Interrupt Status = yy = contents of the bus Interrupt Status Register, (in Hex). Stage = aa = a two letter code indicating the state of the SCSI (Small Computer System Interface) bus cycle that the system Disk Interface was in when the error occurred.</p> <p>= ID = Idle = SL = Select = CM = Command = DT = Data = D2 = Data2 = RQ = Request = R2 = Request2 = ST = Status = MG = Message = DC = Disconnect</p>
--	--

(continued)

Procedure 4-45**Disk drive hardware error messages - procedures** (continued)

Drive = bb = the drive unit number (in Hex) ranging from 0 to 15, plus the two highest order bits have special meaning. The 80-bit ON indicates a data output was to occur. This occurs in writes and parameter assignments. The 40-bit ON indicates that this message normally would be suppressed, but the printing of error messages on all tries has been enabled. Normally, only the last try of any disk operation generates an error message.

Disk Command = cc = cc dd(1) dd(2) ...

dd(N):

the first two letters of DISK COMMAND are a two letter code for the disk command that was being transferred to or carried out by the OMTI disk controller.

Disk Job = ee

= a two letter code for the disk job in progress.

= CK = check for ready

Directory update after dynamic relocation:

After a directory track has been relocated:

D0 = read prime D1 = seek prime D2 = seek standby
D3 = write prime D4 = write standby

After a data track has been relocated:

D5 = seek prime D6 = seek standby D7 = write prime
D8 = write standby

Formats: FA = A

FB = B

Relocate track from prime; - used by backup:

L1 = read prime L2 = seek prime L3 = seek standby
L4 = write prime L5 = write standby

Assign disk parameters.:

PA = To A

PB = To B

RC = recalibrate

Reads: RA = from A

RB = from B

From prime:

R1 = read prime

R2 = read standby
(if read prime failed)

Relocate track from standby (if standby

succeeded)

R3 = read standby R4 = seek prime R5 = seek standby
R6 = write prime R7 = write standby

Backup track - used by backup:

T1 = seek prime

T2 = seek standby

T3 = read prime

T4 = write standby

(continued)

Procedure 4-45**Disk drive hardware error messages - procedures** (continued)

- | | | |
|----------|-----------------------|---|
| 6 | Craftsperson Activity | <p>If:</p> <ul style="list-style-type: none"> ▪ the message occurs more than three times in one hour, or, ▪ the disk mode goes to ONLY mode (non-redundant); perform the following steps: <p>a. Switch processors. If problem clears, replace the Disk (SCSI Intf) Interface PCA in slot 11 of the standby chassis</p> <hr style="width: 80%; margin-left: 0;"/> <p>i) See Printed Circuit Assembly Replacement in <i>297-1001-536: DPP Card Replacement Guide</i>.</p> <p>ii) If the problem is not cleared after PCA replacement and restart, go to step b. Return the original PCA to its position before proceeding.</p> <p>b. Reinitialize the disk that is off-line.</p> <p>Select:</p> <p>i) The recommended procedure is Procedure 4-5.</p> <p>ii) The alternate procedure is Procedure 4-6. (When init activity is complete, go to step c.)</p> <p>c. Change the disk mode to PRIME mode.
Enter: (at the terminal)</p> <p style="margin-left: 40px;">>DISK MODE xx (cr)
where: xx = disk mode</p> <p style="margin-left: 80px;">= AP = A PRIME
= BP = B PRIME</p> <p style="margin-left: 40px;">Proper response = DISK MODE: AP
or
DISK MODE: BP</p> <p>i) For any other response, see the procedure for that message and perform the activities listed.</p> <p>ii) If successful, procedure complete. (If unsuccessful, go to step d.)</p> <p>d. Switch processors.</p> |
|----------|-----------------------|---|

(continued)

Procedure 4-45

Disk drive hardware error messages - procedures (continued)

- i) See Switch and Status Panel Operation, Ch. 7 in *297-1001-536: DPP Card Replacement Guide*.
- ii) Repeat steps a, b, and c. (If unsuccessful, go to step e.)
- e. Call for technical assistance.

End

Procedure 4-46
Disk drive hardware error messages - procedures

- 1 (log message)
- ```

DISK: BUS ERROR (TIME
OUT)1
AUXILIARY STATUS: xx,
INTERRUPT STATUS: yy
STAGE: aa DRIVE: ee
DISK COMMAND: bb dd(1)
dd(2) ... dd(n)
DISK JOB: cc,
PARAMETERS: ff gg hh(1)
hh(2) hh(3) kk(1) kk(2)
SIDE z
(w/o 56K polling)

```
- where: **Auxiliary Status** = xx = contents of the bus controller Auxiliary Status Register, (in Hex).  
**Interrupt Status** = yy = contents of the bus Interrupt Status Register, (in Hex).  
**Stage** = aa = a two letter code indicating the state of the SCSI (Small Computer System Interface) bus cycle that the system Disk Interface was in when the error occurred.
- = ID = Idle                   = SL = Select   = CM = Command  
= DT = Data                 = D2 = Data2   = RQ = Request  
= R2 = Request2   = ST = Status   = MG = Message  
= DC = Disconnect
- Drive** = ee = the drive unit number (in Hex) ranging from 0 to 15, plus the two highest order bits have special meaning. The 80 bit ON indicates that a data output was to occur. This occurs in writes and parameter assignments. The 40 bit ON indicates that this message normally would be suppressed, but the printing of error messages on all tries has been enabled. Normally, only the last try of any disk operation generates an error message.
- Disk Command** = bb = the first two letters of DISK COMMAND are a two letter code for the disk command that was being transferred to or carried out by the OMTI disk controller.  
DMA Register Values = dd(1) dd(2) ... dd(n)
- Disk Job** = cc  
= a two letter code for the disk job in progress.  
= CK = check for ready  
Directory update after dynamic relocation:
- After a directory track has been relocated:  
D0 = read prime   D1 = seek prime   D2 = seek standby  
D3 = write prime   D4 = write standby
- After a data track has been relocated:  
D5 = seek prime                   D6 = seek standby  
D7 = write prime  
D8 = write standby
- Formats: FA = A                   FB = B
- Relocate track from prime; - used by backup:  
L1 = read prime   L2 = seek prime   L3 = seek standby  
L4 = write prime   L5 = write standby

(continued)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                  |                                                                                                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------|
| <p><b>Procedure 4-46</b><br/> <b>Disk drive hardware error messages - procedures</b> (continued)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                  |                                                                                                                     |
| <p>Assign disk parameters.:<br/> PA = To A<br/> PB = To B<br/> RC = recalibrate</p> <p>Reads: RA = from A RB = from B<br/> From prime:<br/> R1 = read prime R2 = read standby<br/> (if read prime failed)</p> <p>Relocate track from standby (if standby<br/> succeeded)<br/> R3 = read standby R4 = seek prime R5 = seek standby<br/> R6 = write prime R7 = write standby</p> <p>Backup track - used by backup:<br/> T1 = seek prime T2 = seek standby<br/> T3 = read prime<br/> T4 = write standby</p> <p>Writes: WA = To A WB = To B</p> <p>To both when redundant:<br/> W1 = seek prime W2 = seek standby W3 = write prime<br/> W4 = write standby</p> <p><b>Parameters</b> = ff gg hh(1) hh(2) hh(3) kk(1) kk(2)<br/> ff = quantity of sectors involved, (in Hex).<br/> gg = drive unit number, (in Hex).<br/> hh(1) hh(2) hh(3) = logical sector number, (in Hex).<br/> kk(1) kk(2) = buffer address, (in Hex).</p> <p><b>Side</b> = z = indicates one of two redundant sides.<br/> A = disk A B = disk B</p> <p>cause: printed when an error occurs during an SCSI<br/> (Small Computer System Interface) bus cycle<br/> between the SCSI bus controller and the OMTI<br/> disk controller.</p> |                                  |                                                                                                                     |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Alarm Level:<br>disk mode change | Reason Code = 27<br><br>Corresponds to ERRMAP entry: DISK ER MESSAGE<br><br>System Default:<br>Type: Minor Level: 0 |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Customer-Selected<br>Alarm Level | Type: Level:                                                                                                        |
| (continued)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                  |                                                                                                                     |

| <b>Procedure 4-46</b><br><b>Disk drive hardware error messages - procedures</b> (continued)                                                                                                                                                                                                                                   |                         |                                                                                                                                                                                                                                                                                              |                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>4</b>                                                                                                                                                                                                                                                                                                                      | Other Alarm Indications | Default:<br>Status Panel: Minor                                                                                                                                                                                                                                                              | Audible: Minor |
|                                                                                                                                                                                                                                                                                                                               |                         | Customer-Selected<br>Status Panel:                                                                                                                                                                                                                                                           | Audible:       |
| <b>5</b>                                                                                                                                                                                                                                                                                                                      | System Recovery Action  | None                                                                                                                                                                                                                                                                                         |                |
| <b>6</b>                                                                                                                                                                                                                                                                                                                      | Craftsperson Activity   | <p>If:</p> <ul style="list-style-type: none"> <li>▪ the message occurs more than three times in one hour, or,</li> <li>▪ the disk mode goes to ONLY mode (non-redundant); perform the following steps: <ul style="list-style-type: none"> <li>a. Initialize the disk.</li> </ul> </li> </ul> |                |
| <div style="border: 1px solid black; padding: 5px;">  <p><b>CAUTION</b><br/>Improper performance of this procedure may cause a loss of data. Make sure the operational disk drive is in DISK ONLY mode before entering commands.</p> </div> |                         |                                                                                                                                                                                                                                                                                              |                |
| <p>Select:</p> <ul style="list-style-type: none"> <li>i) The recommended procedure is Procedure 4-5.</li> <li>ii) The alternate procedure is Procedure 4-6. (When init activity is complete, go to step b.) (If unsuccessful, go to step c.)</li> </ul> <p>b. Change the disk mode to PRIME mode.</p>                         |                         |                                                                                                                                                                                                                                                                                              |                |
| <div style="border: 1px solid black; padding: 5px;">  <p><b>CAUTION</b><br/>This action may cause a loss of data.</p> </div>                                                                                                               |                         |                                                                                                                                                                                                                                                                                              |                |
| (continued)                                                                                                                                                                                                                                                                                                                   |                         |                                                                                                                                                                                                                                                                                              |                |

**Procedure 4-46**  
**Disk drive hardware error messages - procedures** (continued)

Enter: (at the terminal)

**>DISK MODE xx (cr)**

where: xx = disk mode

= AP = A PRIME

= BP = B PRIME

Proper response = DISK MODE: AP  
 or  
 DISK MODE: BP

- i) For any other response, refer to the procedure for that message and perform the activities listed.
- ii) If successful, procedure complete. (If unsuccessful, go to step c.)
- c. Switch processors.

- i) See Switch and Status Panel Operation.
- ii) Repeat steps a and b. (If successful, go to step d. If unsuccessful, go to step e.)
- d. Replace the Disk (SCSI Intf) Interface PCA in slot 11 of the standby chassis

- i) See Printed Circuit Assembly Replacement in *297-1001-536: DPP Card Replacement Guide*.
- e. Replace the suspect disk drive.

- i) See Disk Drive Procedures, Replacing Disk Drive, Procedure 4-8.
- ii) Repeat steps a and b. (If unsuccessful, go to step f.)
- f. Call for technical assistance.

**Notes:**

**Note 1:** (TIME OUT) is only included when an SCSI bus time out is declared by the Disk Interface. The AUXILIARY STATUS and the INTERRUPT STATUS fields contain FF(Hex) error message. (00 is the typical response for this type of message.)

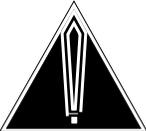
End





**Procedure 4-47**  
**Disk drive hardware error messages - procedures** (continued)

- 6      Craftsperson Activity                      If:
- the message occurs more than three times in one hour, or,
  - the disk mode goes to ONLY mode (non-redundant); perform the following steps:
- a. Initialize the disk.

|                                                                                   |                                                                                                                                                                                |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p><b>CAUTION</b><br/>Improper performance of this procedure may cause a loss of data. Make sure the operational disk drive is in DISK ONLY mode before entering commands.</p> |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

- Select:
- i) The recommended procedure is Procedure 4-5.
  - ii) The alternate procedure is Procedure 4-6. (When init activity is complete, go to step b.) (If unsuccessful, go to step c.)
- b. Change the disk mode to PRIME mode.

Enter: (at the terminal)

```
>DISK MODE xx (cr)
where: xx = disk mode
 = AP = A PRIME
 = BP = B PRIME
```

```
Proper response = DISK MODE: AP
 or
 DISK MODE: BP
```

- i) For any other response, see the procedure for that message and perform the activities listed.
  - ii) If successful, procedure complete. (If unsuccessful, go to step c.)
- c. Switch processors.
- i) See Switch and Status Panel Operation.
  - ii) Repeat steps a and b. (If successful, go to step d. If unsuccessful, go to step e.)
- d. Replace the Disk (SCSI Intf) Interface PCA in slot 11 of the standby chassis.

(continued)

**Procedure 4-47**

**Disk drive hardware error messages - procedures** (continued)

- i) See Printed Circuit Assembly Replacement in *297-1001-536: DPP Card Replacement Guide*.
- ii) If the problem is not cleared after PCA replacement and restart, go to step e. Return the original PCA to its position before proceeding.
- e. Replace the suspect disk drive.
  - i) See Disk Drive Procedures, Replacing Disk Drive.
  - ii) Repeat steps a and b. (If unsuccessful, go to step f.)
- f. Call for technical assistance.

End

**Procedure 4-48**  
**Disk drive hardware error messages - procedures**

1 (log message) DISK: COM-  
 MAND ERROR  
 DISK STATUS: cc,  
 ERROR CODE: aa(1)  
 aa(2) aa(3) aa(4)  
 DISK JOB: bb,  
 PARAMETERS: ww xx  
 YY(1) YY(2) YY(3)  
 zz(1) zz(2)  
 SIDE d  
 (w/o 56K polling)

where: **Disk Status** = cc = status byte returned by the bus controller during the status phase of the SCSI (Small Computer System Interface) bus cycle, (in Hex).  
**Error Code** = aa(1) aa(2) aa(3) aa(4) = error information bytes extracted from the disk controller by the REQUEST SENSE command, (in Hex).  
 for DPP systems with 380-MByte disk drives:  
 aa(1) = error code with validity bit, indicates the validity of the sector address. validity bit = bit #7.  
 bytes aa(2), aa(3), and aa(4) = sector addresses  
**Disk Job** = bb  
 = a two letter code for the disk job in progress.  
 = CK = check for ready

Directory update after dynamic relocation:  
 After a directory track has been relocated:  
 D0 = read prime D1 = seek prime D2 = seek standby  
 D3 = write prime D4 = write standby

After a data track has been relocated:  
 D5 = seek prime D6 = seek standby D7 = write prime  
 D8 = write standby

Formats: FA = A FB = B

Relocate track from prime; - used by backup:  
 L1 = read prime L2 = seek prime L3 = seek standby  
 L4 = write prime L5 = write standby

(continued)



|                                                                                             |                                                                                   |                                                                                                                                                                              |                |
|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Procedure 4-48</b><br><b>Disk drive hardware error messages - procedures</b> (continued) |                                                                                   |                                                                                                                                                                              |                |
| <b>4</b>                                                                                    | Other Alarm Indications                                                           | Default:<br>Status Panel: Minor                                                                                                                                              | Audible: Minor |
|                                                                                             |                                                                                   | Customer-Selected<br>Status Panel:                                                                                                                                           | Audible:       |
| <b>5</b>                                                                                    | System Recovery Action                                                            | Varies, depending upon the specific error type.                                                                                                                              |                |
| <b>6</b>                                                                                    | Craftsperson Activity                                                             | a. Initialize the disk.                                                                                                                                                      |                |
|                                                                                             |  | <b>CAUTION</b><br>Improper performance of this procedure may cause a loss of data.<br>Make sure the operational disk drive is in DISK ONLY mode<br>before entering commands. |                |
| (continued)                                                                                 |                                                                                   |                                                                                                                                                                              |                |

**Procedure 4-48**  
**Disk drive hardware error messages - procedures** (continued)

Select:

- i) The recommended procedure is Procedure 4-5.
  - ii) The alternate procedure is Procedure 4-6.  
(When init activity is complete, go to step b.)
- b. Change the disk mode to PRIME mode.  
Enter: (at the terminal)

**>DISK MODE xx (cr)**

where: xx = disk mode

= AP = A PRIME

= BP = B PRIME

Proper response = DISK MODE: AP  
or  
DISK MODE: BP

- i) For any other response, see the procedure for that message and perform the activities listed.
  - ii) If successful, procedure complete. (If unsuccessful, go to step c.)
- c. Verify that the power input and other cabling on that chassis are correct.
- i) If cabling is correct, go to step d.
  - ii) If incorrect, make any necessary corrections.<sup>1</sup>
  - iii) After making any necessary corrections, repeat steps a and b. If still unsuccessful, switch processors. Repeat steps A and B. If successful, go to step D. If unsuccessful, go to step E.
- d. Replace the Disk (SCSI Intf) Interface PCA in slot 11 of the standby chassis
- i) See Printed Circuit Assembly Replacement in *297-1001-536: DPP Card Replacement Guide*.
  - ii) If the problem is not cleared after PCA replacement and restart, go to step e. Return the original PCA to its position before proceeding.
- e. Replace the suspect disk drive.

(continued)

**Procedure 4-48**  
**Disk drive hardware error messages - procedures** (continued)



**CAUTION**  
Since all circuit assemblies in the DPP are static sensitive, be careful handling them.

- i) See Disk Drive Procedures, Replacing Disk Drive, Procedure 4-8.
- ii) Repeat steps a and b. (If unsuccessful, go to step f.)
- f. Call for technical assistance.

**Notes:**  
**Note 1:** Before moving the locations of any cables and/or connector arrangements, verify the locations of the cables in the Site Configuration Specifications for the particular Office. Consult with technical assistance personnel before making any cabling changes.

End

**Procedure 4-49**  
**Disk drive hardware error messages - procedures**

**1**     DISK: COMMAND ERROR,     this format valid for:

       COMMAND: x    JOB: w     a. 380-Mbyte disk drives w/56K polling; if an

       SECTOR<sup>1</sup>: ab cd ef gh     NT6M94AA PCA is mounted in slots A7 and B7 of

       DISK: y, z    SENSE: r, s     the DPP, then, 56K polling is equipped.

       (w/56K polling)             b. 760-Mbyte disk drives, all instances.

                                         where:

**w = Job** = Job name

                                             Read Redundant    Write Redundant

                                             Read Single        Write Single

                                             Backup             Read Disk Capacity

                                             Read Number     Reassign Bad Sector of

                                             Defects

                                         Format

(continued)

**Procedure 4-49**

**Disk drive hardware error messages - procedures** (continued)

**x = Command** = Command Name

|                    |                 |
|--------------------|-----------------|
| Format Unit        | Inquiry         |
| Mode Select        | Mode Sense      |
| Read Read Capacity |                 |
| Read Defect M      | Read Defect G   |
| Reassign Block     | Request Sense   |
| Seek Rezero Unit   |                 |
| Write              | Test Unit Ready |

**y = Disk** = Disk Drive indicates one of two redundant sides

A = disk A                      B = disk B

**z = Disk Drive Operating Mode**

Prime Standby  
Active Off-Line

|    |               |                     |
|----|---------------|---------------------|
| ab | Sector =      | Hex address         |
| cd | Logical Block | of a failed sector. |
| ef | Address       |                     |
| gh |               |                     |

**r, s = Sense** = Sense key and Code key pair returned from request sense. (If either of these fields is a two-digit hex value, the disk drive returned a vendor unique value for that field. Consult disk drive vendor supplied documentation for further details.)

Recoverable Error, Recoverable Read Error with ECC

Not Ready  
Drive Not Ready  
Drive Not Selected  
Illegal Function for Device Type

Medium Error,  
ID Field CRC Error  
Uncorrectable Error  
No ID Field Address Mark  
No Data Field Address Mark  
Block Not Found  
Seek Error  
Format Failed  
No Defect Spare Location Available

(continued)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                           |                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Procedure 4-49</b><br><b>Disk drive hardware error messages - procedures</b> (continued)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                           |                                                                                                                                          |
| <p>Hardware Error,<br/>         No Seek Complete<br/>         Write Fault<br/>         Drive Not Ready<br/>         Drive Not Selected<br/>         No Track Zero<br/>         No ID Field Address Mark<br/>         RAM Failure<br/>         SCSI Msg Reject Error<br/>         SCSI Hardware Error<br/>         Select Reselect Failed</p> <p>Illegal Request,<br/>         Primary Defect List Not Found<br/>         Invalid Block Address<br/>         Invalid Field in CDB<br/>         Invalid LUN<br/>         Invalid Field in Parameter List</p> <p>Unit Protection,<br/>         Write Protect<br/>         Medium Change<br/>         Power Up or Reset<br/>         Mode Select Change Condition</p> <p>Data Protect,<br/>         Write Protect</p> <p>Aborted Command,<br/>         Parity Error<br/>         Initiator Detected Error<br/>         Illegal Message</p> <p>cause: printed when a disk command fails</p> |                                           |                                                                                                                                          |
| <b>2</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Alarm Level:<br>Possible disk mode change | Reason Code = 27<br><br>Corresponds to ERRMAP entry: DISK ER MESSAGE<br><br>System Default:<br>Type: Minor                      Level: 0 |
| <b>3</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Customer-Selected<br>Alarm Level          | Type:                                      Level:                                                                                        |
| (continued)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                           |                                                                                                                                          |

| <b>Procedure 4-49</b><br><b>Disk drive hardware error messages - procedures</b> (continued)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                         |                                                 |                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------|----------------|
| <b>4</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Other Alarm Indications | Default:<br>Status Panel: Minor                 | Audible: Minor |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                         | Customer-Selected<br>Status Panel:              | Audible:       |
| <b>5</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | System Recovery Action  | Varies, depending upon the specific error type. |                |
| <b>6</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Craftsperson Activity   | a. Initialize the disk.                         |                |
| <div style="border: 1px solid black; padding: 5px;">  <p><b>CAUTION</b><br/>Improper performance of this procedure may cause a loss of data.<br/>Make sure the operational disk drive is in DISK ONLY mode before entering commands.</p> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                         |                                                 |                |
| <p>Select:</p> <ul style="list-style-type: none"> <li>i) The recommended procedure is Procedure 4-5.</li> <li>ii) The alternate procedure is Procedure 4-6.<br/>(When init activity is complete, go to step b.)</li> </ul> <p>b. Change the disk mode to PRIME mode.<br/>Enter: (at the terminal)</p> <p style="text-align: center;"><b>&gt;DISK MODE xx (cr)</b><br/>where: xx = disk mode<br/>= AP = A PRIME<br/>= BP = B PRIME</p> <p>Proper response = DISK MODE: AP<br/>or<br/>DISK MODE: BP</p> <ul style="list-style-type: none"> <li>i) For any other response, see the procedure for that message and perform the activities listed.</li> <li>ii) If successful, procedure complete. (If unsuccessful, go to step c.)</li> </ul> <p>c. Verify that the power input and other cabling on that chassis are correct.</p> <ul style="list-style-type: none"> <li>i) If cabling is correct, go to step d.</li> <li>ii) If incorrect, make any necessary corrections.<sup>2</sup></li> </ul> |                         |                                                 |                |
| (continued)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                         |                                                 |                |

**Procedure 4-49****Disk drive hardware error messages - procedures** (continued)

- iii) After making any necessary corrections, repeat steps a and b. If still unsuccessful, switch processors. Repeat steps A and B. If successful, to to step D. If unsuccessful, go to step E.
- d. Replace the Disk (SCSI Intf) Interface PCA in slot 11 of the standby chassis
  - i) See Printed Circuit Assembly Replacement in *297-1001-536: DPP Card Replacement Guide*.
  - ii) If the problem is not cleared after PCA replacement and restart, go to step e. Return the original PCA to its position before proceeding.
- e. Replace the suspect disk drive.
  - i) See Disk Drive Procedures, Replacing Disk Drive.
  - ii) Repeat steps a and b. (If unsuccessful, go to step f.)
- f. Call for technical assistance.

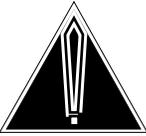
**Notes:**

**Note 1:** SECTOR data appears only if the disk drive returns a sector number as part of this output.

**Note 2:** Before moving the locations of any cables and/or connector arrangements, verify the locations of the cables in the Site Configuration Specifications for the particular Office. Consult with technical assistance personnel before making any cabling changes.

**End**

| <b>Procedure 4-50</b><br><b>Disk drive hardware error messages - procedures</b> |                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b>                                                                        | (log message) DISK: DMA<br>INTERRUPT DMA REGISTERS:<br>xx(1) xx(2) xx(3)<br>xx(4) xx(5) xx(6)<br>xx(7) | where: xx = DMA register data<br><br>cause: Disk Interface DMA controller generates an interrupt.                                                                                                                                                                                                                                                                                                                                    |
| <b>2</b>                                                                        | Alarm Level:<br>No disk mode change                                                                    | Reason Code = 27<br><br>Corresponds to ERRMAP entry: DISK ER MESSAGE<br><br>System Default:<br>Type: Minor                      Level: 0                                                                                                                                                                                                                                                                                             |
| <b>3</b>                                                                        | Customer-Selected<br>Alarm Level                                                                       | Type:                                      Level:                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>4</b>                                                                        | Other Alarm Indications                                                                                | Default:<br>Status Panel: Minor                      Audible: Minor<br><br>Customer-Selected<br>Status Panel:                                      Audible:                                                                                                                                                                                                                                                                          |
| <b>5</b>                                                                        | System Recovery Action                                                                                 | System performs self restart.                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>6</b>                                                                        | Craftsperson Activity                                                                                  | a. If the message repeats, switch processors and replace the Disk Interface (SCSI Intf) PCA in slot 11 of the standby chassis.<br><br>i) See Printed Circuit Assembly Replacement in <i>297-1001-536: DPP Card Replacement Guide</i> .<br><br>ii) If the problem is not cleared after PCA replacement and restart, go to step b. Return the original PCA to its position before proceeding.<br><br>b. Call for technical assistance. |

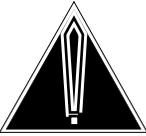
| <b>Procedure 4-51</b><br><b>Disk drive hardware error messages - procedures</b>                                                                                                                                                                                                                                                    |                                  |                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b>                                                                                                                                                                                                                                                                                                                           | DISK: FAILURE GOING ON<br>LINE   | cause: printed upon termination due to a failure of bringing a formerly off-line disk drive unit back on-line.                  |
| <b>2</b>                                                                                                                                                                                                                                                                                                                           | Alarm Level:<br>N/A              | Reason Code = N/A<br><br>Corresponds to ERRMAP entry: N/A<br><br>System Default:<br>Type: N/A                      Level: N/A   |
| <b>3</b>                                                                                                                                                                                                                                                                                                                           | Customer-Selected<br>Alarm Level | Type:                      Level:                                                                                               |
| <b>4</b>                                                                                                                                                                                                                                                                                                                           | Other Alarm Indications          | Default:<br>Status Panel:                      Audible:<br><br>Customer-Selected<br>Status Panel:                      Audible: |
| <b>5</b>                                                                                                                                                                                                                                                                                                                           | System Recovery Action           | Disk system is placed in disk ONLY mode.                                                                                        |
| <b>6</b>                                                                                                                                                                                                                                                                                                                           | Craftsperson Activity            | a. Initialize the disk.                                                                                                         |
| <div style="border: 1px solid black; padding: 5px;">  <p><b>CAUTION</b><br/>Improper performance of this procedure may cause a loss of data.<br/>Make sure the operational disk drive is in DISK ONLY mode before entering commands.</p> </div> |                                  |                                                                                                                                 |
| <p>Select:</p> <ul style="list-style-type: none"> <li>i) The recommended procedure is Procedure 4-5.</li> <li>ii) The alternate procedure is Procedure 4-6.<br/>(When init activity is complete, go to step b.)</li> </ul>                                                                                                         |                                  |                                                                                                                                 |
| <b>(continued)</b>                                                                                                                                                                                                                                                                                                                 |                                  |                                                                                                                                 |





|                                                                                             |                        |                                                                                                                                                                                                                            |
|---------------------------------------------------------------------------------------------|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Procedure 4-52</b><br><b>Disk drive hardware error messages - procedures</b> (continued) |                        |                                                                                                                                                                                                                            |
| <b>5</b>                                                                                    | System Recovery Action | None                                                                                                                                                                                                                       |
| <b>6</b>                                                                                    | Craftsperson Activity  | <ul style="list-style-type: none"> <li>a. See the Craftsperson Activities section for the DISK: COMMAND ERROR message.</li> <li>b. If those procedures do not clear the problem, call for technical assistance.</li> </ul> |
| End                                                                                         |                        |                                                                                                                                                                                                                            |

|                                                                                 |                                                         |                                                                                                                                                                                                                            |
|---------------------------------------------------------------------------------|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Procedure 4-53</b><br><b>Disk drive hardware error messages - procedures</b> |                                                         |                                                                                                                                                                                                                            |
| <b>1</b>                                                                        | DISK: REASSIGN DATA<br>NOT RECOVERED<br>(w/56K polling) | cause: this message follows a DISK: COMMAND ERROR message. The bad sector relocation has failed; data for this sector is lost.                                                                                             |
| <b>2</b>                                                                        | Alarm Level:<br>N/A                                     | Reason Code = N/A<br><br>Corresponds to ERRMAP entry: N/A<br><br>System Default:<br>Type: N/A                      Level: N/A                                                                                              |
| <b>3</b>                                                                        | Customer-Selected<br>Alarm Level                        | Type:                              Level:                                                                                                                                                                                  |
| <b>4</b>                                                                        | Other Alarm Indications                                 | Default:<br>Status Panel: N/A                      Audible: N/A<br><br>Customer-Selected<br>Status Panel:                      Audible:                                                                                    |
| <b>5</b>                                                                        | System Recovery Action                                  | None                                                                                                                                                                                                                       |
| <b>6</b>                                                                        | Craftsperson Activity                                   | <ul style="list-style-type: none"> <li>a. See the Craftsperson Activities section for the DISK: COMMAND ERROR message.</li> <li>b. If those procedures do not clear the problem, call for technical assistance.</li> </ul> |

| <b>Procedure 4-54</b><br><b>Disk drive hardware error messages - procedures</b>                                                                                                                                                                                                                                                                                                |                                     |                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b>                                                                                                                                                                                                                                                                                                                                                                       | DISK: RST-7<br>(w/o 56K polling)    | cause: Disk Interface CPU executes an illegal instruction.                                                                                  |
| <b>2</b>                                                                                                                                                                                                                                                                                                                                                                       | Alarm Level:<br>No disk mode change | Reason Code = 27<br><br>Corresponds to ERRMAP entry: DISK ER MESSAGE<br><br>System Default:<br>Type: Minor                      Level: 0    |
| <b>3</b>                                                                                                                                                                                                                                                                                                                                                                       | Customer-Selected<br>Alarm Level    | Type:                      Level:                                                                                                           |
| <b>4</b>                                                                                                                                                                                                                                                                                                                                                                       | Other Alarm Indications             | Default:<br>Status Panel: Minor                      Audible: Minor<br><br>Customer-Selected<br>Status Panel:                      Audible: |
| <b>5</b>                                                                                                                                                                                                                                                                                                                                                                       | System Recovery Action              | Disk system restarts task.                                                                                                                  |
| <b>6</b>                                                                                                                                                                                                                                                                                                                                                                       | Craftsperson Activity               | Replace the Disk Interface PCA in slot 11 of the chassis identified in the log message.                                                     |
| <div style="border: 1px solid black; padding: 10px;"> <div style="display: flex; align-items: center;">  <div> <p><b>CAUTION</b></p> <p>Since all circuit assemblies in the DPP are static sensitive, be careful handling them.</p> </div> </div> </div>        |                                     |                                                                                                                                             |
| <ol style="list-style-type: none"> <li>a. See Printed Circuit Assembly Replacement in 297-1001-536: <i>DPP Card Replacement Guide</i>.</li> <li style="padding-left: 20px;">i) If the problem is not cleared after PCA replacement and restart, go to step b. Return the original PCA to its position before proceeding.</li> <li>b. Call for technical assistance.</li> </ol> |                                     |                                                                                                                                             |
| <b>End</b>                                                                                                                                                                                                                                                                                                                                                                     |                                     |                                                                                                                                             |

| <b>Procedure 4-55</b><br><b>Disk drive hardware error messages - procedures</b> |                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------------------------------------------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b>                                                                        | DISK: x FAILURE<br>(w/56K polling) | where: x = specific device (that failed)<br>= PROCESSOR = EPROM = PRAM1<br>= SRAM = STACK = PC RANGE<br>= SRAM2<br><br>cause: disk interface has failed a major diagnostic routine.                                                                                                                                                                                                                                               |
| <b>2</b>                                                                        | Alarm Level:<br>Major              | Reason Code = N/A<br><br>Corresponds to ERRMAP entry: DSK CARD HW ERR<br><br>System Default:<br>Type: Major                      Level: 2                                                                                                                                                                                                                                                                                         |
| <b>3</b>                                                                        | Customer-Selected<br>Alarm Level   | Type:                                      Level:                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>4</b>                                                                        | Other Alarm Indications            | Default:<br>Status Panel: Major                      Audible: Major<br><br>Customer-Selected<br>Status Panel:                              Audible:                                                                                                                                                                                                                                                                               |
| <b>5</b>                                                                        | System Recovery Action             | Processor switch                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>6</b>                                                                        | Craftsperson Activity              | If the message repeats:<br>a. Replace the Disk Interface PCA in slot 11 of the suspected processor.<br><br><hr style="width: 20%; margin-left: 0;"/> i) See Printed Circuit Assembly Replacement in <i>297-1001-536: DPP Card Replacement Guide</i> .<br>ii) If unsuccessful after PCA replacement and restart, go to step b. Return the original PCA to its position before proceeding.<br><br>b. Call for technical assistance. |



**Procedure 4-56**

**Disk drive hardware error messages - procedures** (continued)

- i) For other responses, see the procedure for that message and perform the activities listed.
  - ii) If successful, go to step b. (If unsuccessful, go to step d.)
- b. Reinitialize the disk that is off-line.



**CAUTION**

Improper performance of this procedure may cause a loss of data. Make sure the operational disk drive is in DISK ONLY mode prior to entering commands.

Select:

- i) The recommended procedure is Procedure 4-5.
  - ii) The alternate procedure is Procedure 4-6. (When init activity is completed, go to step c.)
- c. Change the disk mode to PRIME mode.  
Enter: (at the terminal)

**>DISK MODE xx (cr)**

where: xx = disk mode

= AP = A PRIME

= BP = B PRIME

Proper response = DISK MODE: AP

or

DISK MODE: BP

- i) For any other response, see the procedure for that message and perform the activities listed.
  - ii) If successful, procedure complete. (If unsuccessful, go to step d.)
- d. Verify that the power input and other cabling on that chassis are correct.
- i) Correct as required.
    - Consult with technical assistance personnel before making any cabling changes.

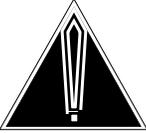
(continued)









| <b>Procedure 4-60</b><br><b>Disk drive hardware error messages - procedures</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                 |                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | xxxxxx BAD TRACKS<br>(w/o 56K polling)          | where: xxxxx = number of bad tracks.<br><br>cause: printed during: <ol style="list-style-type: none"> <li>a. initialization procedure, to show the number of bad tracks on the disk, detected by the mapping process.</li> <li>b. the DEFMAP procedure, to show the number of bad tracks entered by the Craftperson as indicated on the manufacturer's defect map.</li> </ol> |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Alarm Level:<br>Response (to DISK INIT command) | Reason Code = N/A<br><br>Corresponds to ERRMAP entry: N/A<br><br>System Default:<br>Type: N/A                      Level: N/A                                                                                                                                                                                                                                                 |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Customer-Selected Alarm Level                   | Type:                      Level:                                                                                                                                                                                                                                                                                                                                             |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Other Alarm Indications                         | Default:<br>Status Panel:                      Audible:<br><br>Customer-Selected<br>Status Panel:                      Audible:                                                                                                                                                                                                                                               |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | System Recovery Action                          | None; information message.                                                                                                                                                                                                                                                                                                                                                    |
| 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Craftperson Activity                            | Note the number of bad tracks; if more than 3% (or an average of 1 bad track per megabyte of disk drive space) of the total disk capacity, replace disk drive and then perform the following steps: <ol style="list-style-type: none"> <li>a. Initialize the disk.</li> </ol>                                                                                                 |
| <div style="border: 1px solid black; padding: 5px;"> <div style="display: flex; align-items: center;">  <div> <p><b>CAUTION</b></p> <p>Improper performance of this procedure may cause a loss of data. Make sure the operational disk drive is in DISK ONLY mode prior to entering commands.</p> </div> </div> <ol style="list-style-type: none"> <li>b. Replace the Disk (SCSI Intf) Interface PCA in slot 11 of the standby chassis</li> </ol> </div> |                                                 |                                                                                                                                                                                                                                                                                                                                                                               |
| (continued)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                 |                                                                                                                                                                                                                                                                                                                                                                               |

**Procedure 4-60**

**Disk drive hardware error messages - procedures** (continued)

- i) The recommended procedure is Procedure 4-5.
  - ii) The alternate procedure is Procedure 4-6.  
(When init activity is completed, go to step b.)
  - iii) for 70 Mbyte and 140 Mbyte disks, enter defective tracks from list sent by manufacturer. See the DISK DEFMAP command in procedure 4-5.
- c. Change the disk mode to PRIME mode.  
Enter: (at the terminal)
- >DISK MODE xx (cr)**  
where: xx = disk mode  
= AP = A PRIME  
= BP = B PRIME
- Proper response = DISK MODE: AP  
or  
DISK MODE: BP
- i) For any other response, see the procedure for that message and perform the activities listed.
  - ii) If successful, procedure complete. (If unsuccessful, go to step c.)



**CAUTION**

Since all circuit assemblies in the DPP are static sensitive, be careful handling them.

(continued)

**Procedure 4-60****Disk drive hardware error messages - procedures** (continued)

- iii) See Printed Circuit Assembly Replacement in *297-1001-536: DPP Card Replacement Guide*.
- iv) If the problem is not cleared after PCA replacement and restart, go to step d. Return the original PCA to its position before proceeding.
- d. Switch processors; repeat steps A and B. If successful, replace the suspect disk drive. If unsuccessful, go to step D.
  - i) See Disk Drive Procedures, Replacing Disk Drive.
  - ii) Repeat steps a and b. (If unsuccessful, go to step e.)
- e. Call for technical assistance.

**End**

## Polling disks from a non-redundant mode

The DPP normally stores AMA data simultaneously on both disks . However, if the DPP can't be polled, the disks fill up with AMA data. When both disks reach 95% full, the disk system goes to the nonredundant (ONLY) mode. The off-line disk is filled with AMA data that must be preserved and polled; the second disk writes over its data and continues to collect AMA data from the DMS-100. This procedure provides for polling the AMA data from both disks when the disk mode is ONLY (A or B) or non-redundant.

It is expected that the inability to poll the DPP disks has been corrected before this procedure is attempted. When this procedure is complete, the DPP system is in the normal, redundant, PRIME mode.

To shorten this procedure, coordinate this activity with the Collector site at a time of minimum call record (AMA) traffic from the DMS-100.

*Note:* This procedure must not be performed at DMS-100 to DPP block input rates that exceed four blocks per second.

Use Procedure 4-61 to poll the primary AMA data from both disks while in nonredundant mode caused by disks filling up with AMA data.

**Note: It is recommended that this be done during lowest traffic!**

| Procedure 4-61<br>Polling disks from a nonredundant mode |                                                                                                                      |                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step                                                     | Description                                                                                                          | Notes                                                                                                                                                                                                                                                                               |
| 1                                                        | Enter: (at the terminal)<br><br>>VALPARM LOGHDR ON (cr)<br>then<br>>SITDAT WRITE (cr)                                | Turn on the display of block headers as they are written to disk. This provides a visual indication of current AMA traffic.<br><br>Save to disk.                                                                                                                                    |
| 2                                                        | Enter: (at the terminal)<br><br>>DISK MODE (cr)<br><br>System response =<br><br>DISK MODE AO<br>(or)<br>DISK MODE BO | Determine the current disk mode. In order to poll the AMA data, a manual disk mode change back to the original disk must be performed. The original disk has the oldest AMA data. At this time, the disk mode is set for the second disk, which is collecting new primary AMA data. |

| <b>Procedure 4-61</b><br><b>Polling disks from a nonredundant mode</b> (continued) |                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step                                                                               | Description                                                                                                                | Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 3                                                                                  | Enter: (at the terminal)<br><br><b>&gt;IDXMAINT CREATE FILE AMA (cr)</b>                                                   | Write any remaining call records to the AMA data file.                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 4                                                                                  | Enter: (at the terminal)<br><br><b>&gt;LSTACT (cr)</b><br><br>System response =<br>FILE OPEN: ii ss tt bbbb<br>.<br>.<br>. | Display the currently active files. The active files on the current disk must be closed before switching disk modes.<br><br>where:<br>ii = ID of open file<br>ss = status of open file<br>tt = file type<br>bbbb = file block size                                                                                                                                                                                                                                            |
| 5                                                                                  | Enter: (at the terminal)<br><br><b>&gt;CLSACT ii (cr)</b><br><br>where:<br>ii = ID of file to close                        | The files identified (ii) by the output of step 4 must be closed. Continue entering this command for each of the files in the response.<br><br>Note: When executing the CLSACT command, it is possible that a disk file error may occur. For example, FILE CLOSE ERROR: 18, which is received for closing an empty file, has no impact and should be ignored. For any other error messages, see the procedure for that message and perform the Craftperson activities listed. |
| 6                                                                                  | Enter: (at the terminal)<br><br><b>&gt;LSTACT (cr)</b>                                                                     | Alternate between steps 5 and 6 until the response to the LSTACT command is:<br><br>0 FILES LISTED<br>Note: If a block header is received at any time before moving on to step 7, repeat steps 3, 4, 5, and 6 until all active files are closed                                                                                                                                                                                                                               |
| 7                                                                                  | Enter: (at the terminal)<br><br><b>&gt;DISK MODE AO (cr)</b><br>or<br><b>&gt;DISK MODE BO (cr)</b>                         | Change the disk mode to ONLY.<br><br>If the current mode is B ONLY<br><br>If the current mode is A ONLY                                                                                                                                                                                                                                                                                                                                                                       |
| (continued)                                                                        |                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| <b>Procedure 4-61</b><br><b>Polling disks from a nonredundant mode</b> (continued) |                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                      |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step</b>                                                                        | <b>Description</b>                                                                                                                                                                                                                                                                 | <b>Notes</b>                                                                                                                                                                                                                                                                                         |
|                                                                                    |  <p><b>CAUTION</b><br/>Do not change the disk mode to PRIME; this would cause one of the disks to write all of its data onto the other disk. All of the data on the other disk would be lost.</p> |                                                                                                                                                                                                                                                                                                      |
| <b>8</b>                                                                           | Enter: (at the terminal)<br><br><b>&gt;IDXMAINT CREATE FILE AMA (cr)</b>                                                                                                                                                                                                           | A new AMA file must be opened.                                                                                                                                                                                                                                                                       |
| <b>9</b>                                                                           | Enter: (at the terminal)<br><br><b>&gt;VALPARM LOGHDR ON (cr)</b><br>then<br><b>&gt;SITDAT WRITE (cr)</b>                                                                                                                                                                          | Turn on the display of block headers as they are written to disk for a visual indication of current AMA traffic.<br><br>Save to disk.                                                                                                                                                                |
| <b>10</b>                                                                          | Initiate a polling session.                                                                                                                                                                                                                                                        | Inform the Collector of your intentions. This session takes the oldest primary AMA data from the first disk. New AMA data, if received at this time, is saved on this disk. The polling session ends when all of the oldest primary AMA data has been read from this first disk.                     |
| <b>11</b>                                                                          | Enter: (at the terminal)<br><br><b>&gt;IDXMAINT DIR CLOSED AMA 56 (cr)</b><br>or<br><b>&gt;IDXMAINT DIR CLOSED AMA 200 (cr)</b>                                                                                                                                                    | (Optional step.) Enter this command if you wish to keep track of the AMA files to be polled.                                                                                                                                                                                                         |
| <b>12</b>                                                                          | Enter: (at the terminal)<br><br><b>&gt;IDXMAINT CREATE FILE AMA (cr)</b><br><b>IDXMAINT SUMMARY AMA (cr)</b>                                                                                                                                                                       | Write any remaining call records to the AMA data file. (Note 5)<br><br>Determine if there are any more AMA blocks to be polled. This is new data. Repeat step 10. After 3 attempts, if new data keeps coming in and this is lowest traffic, a tape must be cut from DIRP and sent in for processing. |
| (continued)                                                                        |                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                      |

| <b>Procedure 4-61</b><br><b>Polling disks from a nonredundant mode</b> (continued) |                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step                                                                               | Description                                                                                                                                           | Notes                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 13                                                                                 | Enter: (at the terminal)<br><br><b>&gt;LSTACT (cr)</b><br><br>System response =<br><br>FILE OPEN: ii ss tt bbbb<br>.<br>.<br>FILE OPEN: ii ss tt bbbb | Display the active files on the current disk. Close any active files on the current disk before switching disk modes.                                                                                                                                                                                                                                                                                                                        |
| 14                                                                                 | Enter: (at the terminal)<br><br><b>&gt;CLSACT ii (cr)</b><br><br>where:<br>ii = ID of file to close                                                   | where:<br>ii = ID of open file<br>ss = status of open file<br>tt = file type<br>bbbb = file block size<br><br>Note: When executing the CLSACT command, it is possible that a disk file error may occur. For example, FILE CLOSE ERROR: 18, which is received for closing an empty file, has no impact and should be ignored. For any other error messages, see the procedure for that message and perform the Craftperson activities listed. |
| 15                                                                                 | Enter: (at the terminal)<br><br><b>&gt;LSTACT (cr)</b>                                                                                                | The files identified (ii) by the output of step 4 must be closed. Continue entering this command for each of the files in the response.<br><br>Alternate between steps 13 and 14 until the response to the LSTACT command is:<br><br>0 FILES LISTED<br><br>NOTE: If a block header is received before moving on to step 16, repeat steps 13, 14, and 15 until all active files are closed.                                                   |
| 16                                                                                 | Enter: (at the terminal)<br><br><b>&gt;DISK MODE AO (cr)</b><br>or<br><b>&gt;DISK MODE BO (cr)</b>                                                    | Change the disk mode to ONLY.<br><br>If the current mode is B ONLY<br><br>If the current mode is A ONLY                                                                                                                                                                                                                                                                                                                                      |
| (continued)                                                                        |                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                              |

| <b>Procedure 4-61</b><br><b>Polling disks from a nonredundant mode</b> (continued) |                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step</b>                                                                        | <b>Description</b>                                                                                                                                                                                                                                                                 | <b>Notes</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                                    |  <p><b>CAUTION</b><br/>Do not change the disk mode to PRIME; this would cause one of the disks to write all of its data onto the other disk. All of the data on the other disk would be lost.</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>17</b>                                                                          | Enter: (at the terminal)<br><br><b>&gt;IDXMAINT CREATE FILE AMA (cr)</b>                                                                                                                                                                                                           | Open a new AMA file.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>18</b>                                                                          | Initiate a polling session.                                                                                                                                                                                                                                                        | Inform the Collector that the sequence numbers on this disk may be out of sequence with the numbers from the other disk. This session takes the oldest primary AMA data from the second disk. New AMA data, if received at this time, is saved on this disk. The polling session ends when all of the oldest primary AMA data has been read from this second disk.                                                                                                                                                                                               |
| <b>19</b>                                                                          | Enter: (at the terminal)<br><br><b>&gt;IDXMAINT DIR CLOSED AMA 56 (cr)</b><br>or<br><b>&gt;IDXMAINT DIR CLOSED AMA 200 (cr)</b>                                                                                                                                                    | (Optional step.) Enter this command if you wish to keep track of the AMA files that have to be polled.<br><br><b>NOTE:</b> If new AMA data has been written to both of the disks during these polling sessions, continue by repeating steps 10 through 19 to assure that all of the primary data on one of the disks has been polled. Several combinations of disk mode changes and polling sessions may be required to poll all of the primary data. To prevent billing data loss, continue this action until no AMA data is received during a polling session. |
| (continued)                                                                        |                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| <b>Procedure 4-61</b><br><b>Polling disks from a nonredundant mode</b> (continued) |                                                                                                                                                |                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step                                                                               | Description                                                                                                                                    | Notes                                                                                                                                                                                                                          |
| 20                                                                                 | a. If the current disk mode is AO:<br>Enter: (at the terminal)<br><br><b>&gt;DISK MODE BO (cr)</b><br>then<br><br><b>&gt;DISK MODE BP (cr)</b> | Change from disk ONLY mode to disk PRIME mode. Perform this step before any new AMA data is received. The present disk has no new AMA data. The command sequence preserves any new AMA data that may remain on the other disk. |
|                                                                                    | b. If the current disk mode is BO:<br>Enter: (at the terminal)<br><br><b>&gt;DISK MODE AO (cr)</b><br>then<br><br><b>&gt;DISK MODE AP (cr)</b> | The disk system is now back in the redundant mode.                                                                                                                                                                             |
| 21                                                                                 | Enter: (at the terminal)<br><br><b>&gt;VALPARM LOGHDR OFF(cr)</b><br>then<br><br><b>&gt;SITDAT WRITE (cr)</b>                                  | (Optional Step.) Turn off the display of block headers, if desired.<br><br><br>Save to disk.                                                                                                                                   |
| 22                                                                                 | Enter: (at the terminal)<br><br><b>&gt;ERRMAP ACT (cr)</b><br><br><b>&gt;ERRMAP STDBY (cr)</b><br>or<br><b>&gt;ERRMAP ALARMS (cr)</b>          | For the active processor.<br><br>For the standby processor.<br><br>Identify any current alarms due to the nonredundant disk condition.<br>- for both processors                                                                |
| (continued)                                                                        |                                                                                                                                                |                                                                                                                                                                                                                                |

| <b>Procedure 4-61</b><br><b>Polling disks from a nonredundant mode</b> (continued) |                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step</b>                                                                        | <b>Description</b>                                                                                                                                                                                 | <b>Notes</b>                                                                                                                                                                                                                                                                                                |
| <b>23</b>                                                                          | Enter: (at the terminal)<br><br><b>&gt;RSERR ACT xx (cr)</b><br><b>&gt;RSERR STDBY xx (cr)</b><br><br>where:<br>xx = device/event number of the alarm (taken from the ERR-MAP output).             | For the active processor.<br><br>For the standby processor.<br><br>Clear any alarms associated with the nonredundant disk condition. Examples of such alarms, as taken from the ERRMAP:<br><br>BOTH DISKS FULL<br>DISK MODE ALARM<br>RESERV DSK FULL<br>OFFLIN DSK FULL<br>DISK USE > 70%<br>DISK USE > 90% |
| <b>24</b>                                                                          | The DPP system should now be operating in a normal, redundant disk mode. For any other alarms, see the procedure for those messages in this section and perform the Craftperson activities listed. |                                                                                                                                                                                                                                                                                                             |
| <b>End</b>                                                                         |                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                             |

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# DPP Man-machine interface

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## DPP commands - an overview

The DPP supports an extensive set of commands and messages for maintaining the DPP. DPP messages inform you of important DPP events or errors. Then you can access the DPP commands and messages at the Maintenance Administration Position (MAP) terminal (from the DPP MAP level) and from the DPP Emergency Administration Terminal (EAT).

*Note:* The EAT accepts commands only in UPPERCASE letters.

## The MAP terminal

The DMS-100 connects to the DPP through the DPP level of MAP Command Interpreter (CI). The DPP MAP level is the standard tool for communicating with and maintaining the DPP. The MAP Terminal accommodates system administration, maintenance, and testing functions from a centralized location. Components of a MAP facility include:

- Visual Display Unit (VDU) with keyboard directly interfaces with the DMS-100.
- Voice Communications Module (VCM) facilitates voice communication over either 101 or talk lines.
- Test Jacks provide access for specialized test equipment not already integrated into the DMS-100.
- Alarm Panel provides a visual lamp display of alarms designated by class (major, minor, critical) to maintenance personnel.

The MAP VDU displays an ongoing status report covering all major subsystems of the DMS-100, including the CC, I/O devices, networking, and peripheral devices. The MAP VDU is driven by internal software in the DMS-100, which contains diagnostic routines. If a fault is detected, status information displays on the VDU. Refer to Figure 5-1 for MAP details.

At the IOD level of the MAP, menu item 1 selects the DPP level for which a data stream or DPP application must be specified as a parameter. See 297-1001-513 for more information on the DPP MAP level relative to the IOD MAP level.

## 5-2 DPP man-machine interface

From the command interpreter level of the MAP, the following command sequence telescopes to the DPP MAP level:

**MAPCI;MTC;IOD;DPP AMA**

**Figure 5-1**  
**DPP MAP display**

|      | CC        | CMC   | IOD  | Net     | PM     | CCS     | Trks    | Ext |
|------|-----------|-------|------|---------|--------|---------|---------|-----|
|      | •         | •     | •    | •       | •      | •       | •       | •   |
| 0    | Quit      |       | IOD: |         |        |         |         |     |
| 2    |           |       | IOC  | 0       | 1      | 2       | 3       |     |
| 3    | LSTDIR_   |       | STAT | •       | •      | •       |         |     |
| 4    | LSTACT_   |       |      |         |        |         |         |     |
| 5    | REPORT_   | DIRP: | •    | XFER: • | DVI: • | DPPP: • | DPPU: • |     |
| 6    | TEST_     | NOP:  | •    |         |        |         |         |     |
| 7    |           |       |      |         |        |         |         |     |
| 8    |           |       |      |         |        |         |         |     |
| 9    | IDXMAINT  |       |      |         |        |         |         |     |
| 10   | DSIMAIN   |       |      |         |        |         |         |     |
| 11   | ERRMAP_   |       |      |         |        |         |         |     |
| 12   | RSERR_    |       |      |         |        |         |         |     |
| 13   | CLK_      |       |      |         |        |         |         |     |
| 14   | VS_       |       |      |         |        |         |         |     |
| 15   | LINKTEST  |       |      |         |        |         |         |     |
| 16   | LoadDPP   |       |      |         |        |         |         |     |
| 17   | QueryDPP  |       |      |         |        |         |         |     |
| 18   | Reset IO_ |       |      |         |        |         |         |     |
|      | userid    |       |      |         |        |         |         |     |
| TIME | hh:mm     | MAP>  |      |         |        |         |         |     |

**Note:** Only one user can access the DPP MAP level a time. Trying to access the DPP MAP level while it is in use produces the following error message:

```
DPP AMATPS IN USE. USERNAME = user_name
```

where: user\_name = current user of DPP MAP level.

Two modes, MAP mode and DIRECT mode, are used from the DPP level of the MAP to access AMATPS/DPP commands.

- MAP mode. Two types of commands can be accessed in MAP mode:
  - DMS commands. These commands are checked for syntax by the CC and operated on by the DMS-100. These commands are LOADDPP, QUERYDPP, RESETIO, REVIVE, LINKTEST, and SMODE. The commands LOADDPP, QUERYDPP, and RESETIO can be accessed using the DPP menu level. For more information on these commands, refer to 297-1001-821.

- DPP commands. The DMS-100 checks these commands for syntax and sends them to the DPP for processing.
- DIRECT mode. In Direct mode, the DPP operates on commands sent directly to the DPP. Since the DMS-100 does not check for syntax, this mode is recommended only for experienced users. To enter the DIRECT mode for the DPP MAP level, enter the command SMODE. In the DIRECT mode, the MAP terminal simulates an EAT or Rover terminal.

Fault isolation is achieved by placing the MAP in the maintenance mode and observing the status display area at the top of the screen to determine which subsystem is at fault. The user then consults a menu display, entering the subsystem abbreviation to obtain the highest (least detailed) level display of the subsystem being examined. The fault is then isolated by focusing on the problem area through usage of a series of menu commands that provide increasingly detailed displays of the subsystem in question.

## DPP unit messages

The DPP outputs several messages that inform the operator of certain events or conditions that occur within the DPP. The DPP messages consist of DPP command response messages and log messages.

## DPP unit response messages

DPP response messages can be divided into two categories:

- DPP command response messages. These are output in response to DPP commands entered at the MAP or EAT. These messages indicate how a command has been processed.
- DPP condition response messages. These are output after certain tests have been run or particular conditions have arisen.

## DPP unit log messages

The DPP log messages are output in response to certain errors or conditions that exist in the DPP. These messages are incorporated into the DMS-100 log message DPP100. The DPP100 log message feature is implemented in feature package NTX243AA. The DPP log messages may also be accessed directly from the DPP.

Each DPP log message has an associated reason code appearing in the DPP100 log report format. This reason code is used as a reference in the DPP100 log report description. Refer to 297-1001-510 for more information about log reports.

## Short form maintenance commands

The DPP program includes short form commands primarily for use by maintenance and test personnel. Each command performs a function equal to that of another, longer DPP command. DPP operating personnel should be forewarned that the short form commands may only be issued from either

the MAP level in the DIRECT mode, or from the EAT. Under no conditions may any of these commands be issued in the normal MAP mode. For more detailed information on the short form maintenance commands, refer to 297-1001-821.

## SWACT processor changeover

The DPP provides an automatic processor changeover, occurring at 3:00 a.m. of each day, to test the integrity of the processor switch. Regardless of whether the A or B processor is currently in the active mode, the DPP automatically switches control to the standby processor unless there is an error condition. You may also manually activate a processor switch with the SWACT command, described in 297-1001-821.

A processor activity switch automatically occurs if an error condition causes the alarm level of the active processor to rise above that of the standby processor. When this occurs, watch the alarm display for both processors, and determine which set of alarms would be least hazardous for continued operation. If the processor with the higher alarm level is the desirable one to use, you can manually switch back to that processor using the SWACT FORCE command. This command produces a processor switch, preceded by a disabling of all alarms displayed by that processor. For more details on the SWACT FORCE command, see 297-1001-821.

*Note:* Automatic mode changes such as AP to BP or BP to AP occur only if the alarm level in the standby processor (the processor to which the switch is directed) is of a lower severity level than the active processor being switched from.

## Associating logs with ERRMAP messages

Table 5-1 lists ERRMAP entries and the associated DPP default alarms and levels. This table crossreferences the log messages corresponding to each ERRMAP entry.

Table 5-2 lists ERRMAP entries information which describes the conditions causing the ERRMAP entry to activate. Information defines how often a particular condition is tested, the method(s) required to reset (manual or system) the alarm, and an indication of the default alarm type and level.

The DPP uses the Man-Machine Language (MML) format for displaying commands and log messages. The MML format specifies the general form and content in accordance with Bell system specifications. With commands, the DPP supplies both the content and format; with log messages, the DMS-100 supplies the MML format. For further details concerning the MML Message Format, see the BELLCORE (Bell Communications Research) PUB 54100 - Bell System Specification of CCITT MML.

## Active and standby processor command modes

The DPP software program includes several commands allowing you to activate a command process for a specific DPP processor. You may direct the command activity to a specific processor by specifying ACT for the active processor, or STDBY for the standby processor. This feature is valuable in hastening the processing time to detect a system fault when you already know which processor has the fault. A list of the commands with this feature follows:

- TEST - initiate self-test routines
- VS - request software version
- CLK - Clock command; verify system time of day
- RSERR - reset error flags command
- ERRMAP - error map display command
- BOOT - download software from disk

For more information on using the active or standby mode for these commands, see 297-1001-821.

| <b>Table 5-1<br/>ERRMAP entries to log message cross-reference</b> |                                          |
|--------------------------------------------------------------------|------------------------------------------|
| <b>ERRMAP message, alarm, level (notes)</b>                        | <b>Associated log message(s) (notes)</b> |
| STANBY PROC N/A, MAJOR, 0                                          | STANBY PROC NOT AVAILABLE                |
|                                                                    | PROC FORCE SELECTED - NON REDUNDANT      |
|                                                                    | COMM DOWN TO STANBY PROC                 |
| NO BLK LAST HR, MINOR, 0                                           | NO BLOCK LAST HOUR                       |
| DSI STNBY FAIL, MINOR, 0                                           | B0 (or) B2 DSI COLD START                |
|                                                                    | B0 (or) B2 DSI COMM FAIL                 |
|                                                                    | B0 (or) B2 DSI DMA FAIL                  |
|                                                                    | B0 (or) B2 DSI TIME OUT                  |
|                                                                    | B0 (or) B2 DSI WARM START                |
|                                                                    | B0 (or) B2 DSI NOT READY                 |
| DSI PRIME FAIL, MAJOR, 1                                           | B0 (or) B2 DSI COLD START                |
|                                                                    | B0 (or) B2 DSI COMM FAIL                 |
|                                                                    | B0 (or) B2 DSI DMA FAIL                  |
|                                                                    | B0 (or) B2 DSI TIME OUT                  |
|                                                                    | B0 (or) B2 DSI WARM START                |
|                                                                    | B0 (or) B2 DSI NOT READY                 |
| D_RAM ERROR, MAJOR, 1                                              | D_RAM ERROR xx AT yyyy                   |
| SIO-1 FAILURE, MAJOR, 1                                            | A0 SIO TEST FAILED                       |
|                                                                    | A1 SIO TEST FAILED                       |
|                                                                    | A2 SIO TEST FAILED                       |
|                                                                    | A3 SIO TEST FAILED                       |
| SIO-2 FAILURE, MAJOR, 1                                            | A4 SIO TEST FAILED                       |
|                                                                    | A5 SIO TEST FAILED                       |
|                                                                    | A6 SIO TEST FAILED                       |
|                                                                    | A7 SIO TEST FAILED                       |
| 1 MMI LINK DOWN, MINOR, 0                                          | MMI LINK #x DOWN                         |
| 2 MMI LINKS DOWN, MAJOR, 0                                         | BOTH MMI LINKS DOWN                      |
| (continued)                                                        |                                          |

| <b>Table 5-1<br/>ERRMAP entries to log message cross-reference (continued)</b> |                                                                  |
|--------------------------------------------------------------------------------|------------------------------------------------------------------|
| <b>ERRMAP message, alarm, level (notes)</b>                                    | <b>Associated log message(s) (notes)</b>                         |
| ERROR CTL CONNFL, MAJOR, 0                                                     | EC-CF-ALM                                                        |
| ERROR CTL INCON, MAJOR, 0                                                      | EC-IC-ALM                                                        |
| DMA COMM FAIL, MAJOR, 2                                                        | DMA TIME OUT ALARM                                               |
| PROC STAT ALARM, MAJOR, 2                                                      | CTC MP-ST-ALM                                                    |
|                                                                                | CLK MP-ST-ALM                                                    |
|                                                                                | RAM PAGE a FAILURE/ADR:nnnn RD:xx WR:yy                          |
| PROG CKSUM ALM, MAJOR, 3                                                       | PROG CHKSUM ALM VAL=nn                                           |
| DSI DATA OVRFLO, CRITICAL, 0                                                   | DATA BUFFER EXCEEDED ALARM                                       |
|                                                                                | DSI BUFFER OVERFLOW xx BLOCKS                                    |
| EXCESS INV BLKS, MAJOR, 0                                                      | EXCESSIVE INVALID BLOCKS                                         |
|                                                                                | EXCESSIVE INVALID RECORDS                                        |
| EXCESS INV RECS, MAJOR, 0                                                      | CALL RECORD BLOCK FROM DSI INCORRECT                             |
|                                                                                | INVALID CALL RECORD FORMAT                                       |
| TAPE BLOCK LOST, MAJOR, 0                                                      | TAPE BLOCKS LOST = xxx                                           |
|                                                                                | BLOCK REJECTED: xxxxx BYTES                                      |
| NO CLK TIME SET, MINOR, 0                                                      | KEY "SETCLK", THEN ENTER DATE, TIME, AND DAY                     |
| PROM CKSUM FAIL, MAJOR, 3                                                      | PROM CHKSUM ALM VAL=nn                                           |
| RESERV DSK FULL, MAJOR, 0                                                      | OFF-LINE DISK HAS UNPOLLED DATA                                  |
| SECND FILES DEL, MINOR, 0                                                      | NO SECONDARY FILES TO DELETE                                     |
| LOG FILES DEL, MAJOR, 0                                                        | LOG FILES DELETED                                                |
| BOTH DISKS FULL, CRITICAL, 0<br>DSK STORE LIMIT, CRITICAL, 0                   | BOTH DISKS FULL<br>DISK DIRECTORY FULL<br>VERSION POOL EXHAUSTED |
| DSK 70% PRIMARY, MINOR, 0                                                      | DISK USE > 70% PRIMARY                                           |
| DSK 90% PRIMARY, MAJOR, 0                                                      | DISK USE > 90% PRIMARY                                           |
| DISK WRITE FAIL, MAJOR, 2                                                      | AMAIDX FILE FAILURE                                              |
|                                                                                | EXCIDX FILE FAILURE                                              |
|                                                                                | LOGIDX FILE FAILURE                                              |
| DISK INDEX ERROR, MINOR, 0                                                     | AMAIDX FILE FULL                                                 |
| (continued)                                                                    |                                                                  |

| <b>Table 5-1</b><br><b>ERRMAP entries to log message cross-reference</b> (continued)                                                   |                                          |
|----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| ERRMAP message, alarm, level (notes)                                                                                                   | Associated log message(s) (notes)        |
|                                                                                                                                        | EXCIDX FILE FULL                         |
|                                                                                                                                        | LOGIDX FILE FULL                         |
|                                                                                                                                        | BAD xxxIDX FILE                          |
| SITE FILE ERROR, MAJOR, 0                                                                                                              | INVALID SITE DATA FILE                   |
|                                                                                                                                        | NO SITE DATA ON DISK                     |
|                                                                                                                                        | SITDAT FILE yyyyyy ERROR: ee             |
| STAT FILE ERROR, MINOR, 0                                                                                                              | DISK BUFFER NOT AVAILABLE                |
|                                                                                                                                        | TDYSTS FILE yyyyyy ERROR: ee             |
| CP NOT AVAIL., MAJOR, 1<br>(If an NT6M94AA PCA is mounted in slots A7<br>and B7 of the DPP chassis, then, 56K polling is<br>equipped.) | BOOTCP FILE yyyyyy ERROR: ee             |
|                                                                                                                                        | CP ACTIVATE FAIL                         |
|                                                                                                                                        | CP AUDIT FAIL                            |
|                                                                                                                                        | CP BOOT LIST EMPTY                       |
|                                                                                                                                        | CP DATA ERR                              |
|                                                                                                                                        | CP DMA Test Failed                       |
|                                                                                                                                        | CP I/O FAILURE                           |
|                                                                                                                                        | CP LOAD FAIL                             |
|                                                                                                                                        | CP PRG Checksum Test Failed              |
|                                                                                                                                        | CP RAM Test Failed                       |
|                                                                                                                                        | CP RESTART FAIL                          |
|                                                                                                                                        | CP ROM CKSM ERR                          |
|                                                                                                                                        | CP ROM Checksum Test Failed              |
|                                                                                                                                        | CP SCC Loopback Test Failed on Channel x |
|                                                                                                                                        | CP TASK ERR                              |
|                                                                                                                                        | CP TIMEOUT                               |
|                                                                                                                                        | xxxxxx FILE yyyyyy ERROR: ee             |
| (continued)                                                                                                                            |                                          |

| <b>Table 5-1<br/>ERRMAP entries to log message cross-reference</b> (continued)                                           |                                                               |
|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| <b>ERRMAP message, alarm, level (notes)</b>                                                                              | <b>Associated log message(s) (notes)</b>                      |
| CP FAULT, MAJOR, 1 (If an NT6M94AA PCA is mounted in slots A7 and B7 of the DPP chassis, then, 56K polling is equipped.) | BOOTCP FILE yyyyyy ERROR: ee                                  |
|                                                                                                                          | CP ACTIVATE FAIL                                              |
|                                                                                                                          | CP AUDIT FAIL                                                 |
|                                                                                                                          | CP BOOT LIST EMPTY                                            |
|                                                                                                                          | CP DATA ERR                                                   |
|                                                                                                                          | CP DMA Test Failed                                            |
|                                                                                                                          | CP I/O FAILURE                                                |
|                                                                                                                          | CP LOAD FAIL                                                  |
|                                                                                                                          | CP PRG Checksum Test Failed                                   |
|                                                                                                                          | CP RAM Test Failed                                            |
|                                                                                                                          | CP RESTART FAIL                                               |
|                                                                                                                          | CP ROM CKSM ERR                                               |
|                                                                                                                          | CP ROM Checksum Test Failed                                   |
|                                                                                                                          | CP SCC Loopback Test Failed on Channel x                      |
|                                                                                                                          | CP TASK ERR                                                   |
|                                                                                                                          | CP TIMEOUT                                                    |
| DSK ERROR ALARM, CRITICAL, 0                                                                                             | xxxxxx FILE yyyyyy ERROR: ee                                  |
|                                                                                                                          | DISK TEST FAILED                                              |
|                                                                                                                          | DISK TEST FAILED                                              |
| DISK MODE ALARM, MAJOR, 0                                                                                                | *****DISK ALARM x                                             |
|                                                                                                                          | DISK MODE ALARM                                               |
| DSK DPR, QUE ERR, MAJOR, 2                                                                                               | DISK QUEUE ERROR                                              |
|                                                                                                                          | DISK DPR FAULT                                                |
|                                                                                                                          | DPR TEST FAILED: ADD: xxxx(Hex),<br>RD: yy(Hex), WRT: yy(Hex) |
| DSK CARD HW ERR, MAJOR, 2                                                                                                | PARITY ERROR: x DETECTED                                      |
|                                                                                                                          | DISK INTERFACE: x FAILURE                                     |
| DISK ER MESSAGE, MINOR, 0                                                                                                | DISK RST-7                                                    |
| (continued)                                                                                                              |                                                               |

| <b>Table 5-1</b><br><b>ERRMAP entries to log message cross-reference</b>              |                                                 |
|---------------------------------------------------------------------------------------|-------------------------------------------------|
| ERRMAP message, alarm, level (notes)                                                  | Associated log message(s) (notes)               |
|                                                                                       | NO DISK ON LINE                                 |
|                                                                                       | DISK: BOTH DISKS CONTAINED PREFERRED STATUS     |
|                                                                                       | DISK NOT READY SIDE x                           |
|                                                                                       | DISK: DMA INTERRUPT                             |
|                                                                                       | DISK: BUS CONTROLLER FAILED SELF TEST           |
|                                                                                       | DISK: BUS CONTROLLER FAILED SELF TEST, DISK: x  |
|                                                                                       | DISK: BUS CONTROLLER INTERRUPT WHILE IDLE       |
|                                                                                       | DISK: COMMAND ERROR                             |
|                                                                                       | DISK: DISK COMMAND xx ATTEMPTED WHILE DISK BUSY |
|                                                                                       | DISK: BUS ERROR                                 |
|                                                                                       | DISK: BUS ERROR, m                              |
|                                                                                       | DISK: BUS DATA TRANSFER BYPASSED                |
|                                                                                       | SCSI: INTERRUPT WHILE IDLE                      |
| <b>Notes:</b><br><b>Note:</b> Refer to Table 5-1 for a description of ERRMAP entries. |                                                 |
| End                                                                                   |                                                 |

| <b>Table 5-2</b><br><b>Description of ERRMAP entries</b> |                                                                                                                                                                                                      |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ERRMAP entry, type, level (notes)                        | Comments (notes)                                                                                                                                                                                     |
| STANBY PROC N/A, Major, 0                                | Cause: comm to the standby processor fails, or the processor status is non-redundant (processor ONLY mode).<br>a. standby processor is powered down.<br>b. standby processor is in the monitor mode. |
|                                                          | Test: on the minute boundary.                                                                                                                                                                        |
| (continued)                                              |                                                                                                                                                                                                      |

| <b>Table 5-2</b><br><b>Description of ERRMAP entries</b> (continued) |                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ERRMAP entry, type, level (notes)                                    | Comments (notes)                                                                                                                                                                                                                                         |
|                                                                      | Reset: a. automatically, when communication to the standby processor succeeds.<br>b. when the processor status becomes PRIME mode.                                                                                                                       |
|                                                                      | Notes: None                                                                                                                                                                                                                                              |
| NO BLK LAST PER, Minor, 0                                            | Cause: the DPP is not receiving blocks from the DMS-100 within a desired period of time.                                                                                                                                                                 |
|                                                                      | Test: on every boundary as set in AMAHRS command                                                                                                                                                                                                         |
|                                                                      | Reset: no automatic reset, alarm cleared by input of RSERR command.                                                                                                                                                                                      |
|                                                                      | Notes: no check is performed if current time is not within the AMAHRS hour checking range.                                                                                                                                                               |
| DSI STNBY FAIL, Minor, 0                                             | Cause: standby DSI PCA not connected or there has been a hardware failure.                                                                                                                                                                               |
|                                                                      | Test: a. tested 3 times an hour at 15, 35, and 55 minutes past the hour, B2 DSI port (PCA at A12 or B12)<br>b. tested 3 times an hour at 5, 25, and 45 minutes past the hour, B0 DSI port (PCA at A13 and B13).<br>c. manually by input of TEST command. |
|                                                                      | Reset: no automatic reset, alarm cleared by input of RSERR command.                                                                                                                                                                                      |
|                                                                      | Notes: None                                                                                                                                                                                                                                              |
| DSI PRIME FAIL, Major, 1                                             | Cause: active DSI PCA not connected, DSI time out, or there has ben a hardware failure.                                                                                                                                                                  |
|                                                                      | Test: a. tested 3 times an hour at 15, 35, and 55 minutes past the hour, B2 DSI port (PCA at A12 or B12).<br>b. tested 3 times an hour at 5, 25, and 45 minutes past the hour, B0 DSI port (PCA at A13 or B13).<br>c. manually by input of TEST command. |
| (continued)                                                          |                                                                                                                                                                                                                                                          |

| <b>Table 5-2</b><br><b>Description of ERRMAP entries</b> (continued) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ERRMAP entry, type, level (notes)</b>                             | <b>Comments (notes)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                                                      | <p>Reset: no automatic reset, alarm cleared by input of RSERR command.</p> <hr/> <p>Notes: receiving a block with an error block format causes and alarm message:<br/>B0 DSI TIME OUT<br/>or,<br/>B2 DSI TIME OUT<br/>depending on which DSI PCA is active, and there is an indication of EOT status.</p>                                                                                                                                                                                                        |
| D_RAM ERROR, Major, 1                                                | <p>Cause: parity error of D-RAM</p> <hr/> <p>Test: by DRAM PCA when parity error occurs (detected) whenever reading a byte from RAM.</p> <hr/> <p>Reset: no automatic reset, alarm cleared by input of RSERR command.</p> <hr/> <p>Notes: alarm set and message printed only once per occurrence</p>                                                                                                                                                                                                             |
| SIO-2 FAILURE, Major, 1                                              | <p>Cause: SIO-1 of terminal line 1 or polling link (if no 56K polling equipped) or download link fail.</p> <hr/> <p>Test: a. input of TEST command.<br/>b. when doing a processor switch</p> <hr/> <p>Reset: no automatic reset, alarm cleared by input of RSERR command.</p> <hr/> <p>Notes: a. alarm set and message printed only once per occurrence unless the alarm is reset by the RSERR command and the error condition still exists.<br/>b. test done by firmware to check availability of SIO chip.</p> |
| 1 MMI LINK DOWN, Minor, 0                                            | <p>Cause: loss of comm on one of the MMI Links to the DMS-100.</p> <hr/> <p>Test: every audit period (settable; typically every 3 minutes.)</p> <hr/> <p>Reset: no automatic reset, alarm cleared by input of RSERR command.</p> <hr/> <p>Notes: None</p>                                                                                                                                                                                                                                                        |
| (continued)                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| <b>Table 5-2</b><br><b>Description of ERRMAP entries</b> (continued) |                                                                                                                                                                                                                                                                              |
|----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ERRMAP entry, type, level (notes)</b>                             | <b>Comments (notes)</b>                                                                                                                                                                                                                                                      |
| 2 MMI LNKS DOWN, Major, 0                                            | Cause: loss of MMI comm to the DMS-100.                                                                                                                                                                                                                                      |
|                                                                      | Test: every audit period (settable; typically every 3 minutes.)                                                                                                                                                                                                              |
|                                                                      | Reset: no automatic reset, alarm cleared by input of RSERR command.                                                                                                                                                                                                          |
|                                                                      | Notes: None                                                                                                                                                                                                                                                                  |
| ERROR CTL CONNFL, Major, 0                                           | Cause: error control conflict caused by hardware faults in the error control II PCA.                                                                                                                                                                                         |
|                                                                      | Test: continuously checked.                                                                                                                                                                                                                                                  |
|                                                                      | Reset: alarm cleared immediately (automatically) if fault goes away.                                                                                                                                                                                                         |
|                                                                      | Notes: alarm is set by hardware logic.                                                                                                                                                                                                                                       |
| ERROR CTL INCON, Major, 0                                            | Cause: CPU (PCA) not responding to the error control II PCA,                                                                                                                                                                                                                 |
|                                                                      | Test: every half-second; must fail consecutively 16 times before an error is generated and alarm sets.                                                                                                                                                                       |
|                                                                      | Reset: if CPU starts responding to the error control II PCA, the error control II PCA clears the alarm.                                                                                                                                                                      |
|                                                                      | Notes: None                                                                                                                                                                                                                                                                  |
| DMA COMM FAIL, Major, 2                                              | Cause: DMA time out.                                                                                                                                                                                                                                                         |
|                                                                      | Test: checked every 16 milliseconds                                                                                                                                                                                                                                          |
|                                                                      | Reset: no automatic reset, alarm cleared by input of RSERR command.                                                                                                                                                                                                          |
|                                                                      | Notes: when a DSI transfers call record blocks through a DMA channel, DPP sets a time out value four times the regular DMA transfer time. At the end of the timer count down, a DMA time-out occurs if DMA has not generated an interrupt to indicate end of a DMA transfer. |
| (continued)                                                          |                                                                                                                                                                                                                                                                              |

| <b>Table 5-2</b><br><b>Description of ERRMAP entries</b> (continued) |                                                                                                                                                                        |
|----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ERRMAP entry, type, level (notes)</b>                             | <b>Comments (notes)</b>                                                                                                                                                |
| PROC STAT ALARM, Major, 2                                            | Cause: a. CTC (Counter Timer Chip) counter error.<br>b. bad error control I/O status byte (ERIOST), status bit 1 is set.                                               |
|                                                                      | Test: when performing processor switch.                                                                                                                                |
|                                                                      | Reset: no automatic reset, alarm cleared by input of RSERR command.                                                                                                    |
|                                                                      | Notes: a. this alarm can also be set by a RAM CHECK ERROR.<br>b. if alarm is set by 1 of the ERIOST, no message is printed.                                            |
| PROG CKSUM ALM, Major, 3                                             | Cause: static RAM software checksum error.                                                                                                                             |
|                                                                      | Test: a. checksum test is continuously performed by a scheduled call; one cycle runs about 6 minutes.<br>b. one-time test after booting down program from disk to RAM. |
|                                                                      | Reset: no automatic reset, alarm cleared by input of RSERR command.                                                                                                    |
|                                                                      | Notes: None                                                                                                                                                            |
| DSI DATA OVRFLO, Critical, 0                                         | Cause: input data buffer overflow when disk storage process is overloaded.                                                                                             |
|                                                                      | Test: buffer check on input block ready for processing. Error is detected when no buffers are available.                                                               |
|                                                                      | Reset: RSERR input clears the alarm; the alarm may be set again when another DSI block is received.                                                                    |
|                                                                      | Notes: alarm and message repeats for subsequent data blocks if DSI buffer over-flow condition does not clear.                                                          |
| EXCESS INV RECS, Major, 0                                            | Cause: receipt of the number of invalid blocks greater than specified system invalid block limit.                                                                      |
|                                                                      | Test: performed whenever a bad call record block occurs. (There is no periodic check.)                                                                                 |
| (continued)                                                          |                                                                                                                                                                        |

| <b>Table 5-2</b><br><b>Description of ERRMAP entries</b> (continued) |                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ERRMAP entry, type, level (notes)                                    | Comments (notes)                                                                                                                                                                                                                                                                                                              |
|                                                                      | Reset: no automatic reset, alarm cleared by input of RSERR command.<br><hr/> Notes: message and alarm set only once for each bad call record.                                                                                                                                                                                 |
| TAPE BLOCK LOST, Major, 0                                            | Cause: failure to transfer a data block from the DSI PCA to the main CPU.<br><hr/> Test: every time a block is received from the DMS-100.<br><hr/> Reset: cleared by input of RSERR command.<br><hr/> Notes: oversize BLOCK REJECTED message also sets this alarm.                                                            |
| NO CLK TIME SET, Minor, 0                                            | Cause: clock time lost due to power failure on the active processor.<br><hr/> Test: test and set every minute.<br><hr/> Reset: SETCLK resets and clears alarm. RSERR clears alarm before next minute check.<br><hr/> Notes: message and alarm are set and printed only once unless the alarm is reset with the RSERR command. |
| PROM CKSUM FAIL, Major, 3                                            | Cause: EPROM firmware checksum error.<br><hr/> Test: <ul style="list-style-type: none"> <li>a. checksum test is continuously performed in the main processor waiting loop.</li> <li>b. checked when performing a processor switch.</li> </ul> <hr/> Reset: cleared by input of RSERR command.<br><hr/> Notes: None            |
| RESERV DSK FULL, Major, 0                                            | Cause: when disk usage is greater than 99% and the disk mode drops to ONLY (non-redundant) mode.<br><hr/> Test: on every minute boundary.<br><hr/> Reset: clear up (poll) off-line disk and enter RSERR command.                                                                                                              |
| (continued)                                                          |                                                                                                                                                                                                                                                                                                                               |

| <b>Table 5-2</b><br><b>Description of ERRMAP entries</b> (continued) |                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ERRMAP entry, type, level (notes)</b>                             | <b>Comments (notes)</b>                                                                                                                                                                                                                                       |
|                                                                      | Notes: when disk usage reaches 99% of available space, disk system goes to ONLY (non-redundant) mode.                                                                                                                                                         |
| SECND FILES DEL, Minor, 0                                            | Cause: disk usage has exceeded 70% of available disk space.                                                                                                                                                                                                   |
|                                                                      | Test: on every minute boundary.                                                                                                                                                                                                                               |
|                                                                      | Reset: RSERR input command clears alarm; alarm is set at next minute if disk usage is greater than 70%                                                                                                                                                        |
|                                                                      | Notes: a. not checked and set if disk usage is greater than 90%; alarm LOG FILE DEL is set.<br>b. DPP starts deleting secondary data files when the disk usage is greater than 70%. When there are no more secondary data files to delete, this alarm is set. |
| LOG FILES DEL, Major, 0                                              | Cause: disk usage has exceeded 90% of available disk space.                                                                                                                                                                                                   |
|                                                                      | Test: on every minute boundary.                                                                                                                                                                                                                               |
|                                                                      | Reset: RSERR input command clears alarm; alarm is set at next minute if disk usage is greater than 90%                                                                                                                                                        |
|                                                                      | Notes: when disk usage exceeds 90% of available disk space, all LOG files are deleted at once.                                                                                                                                                                |
| BOTH DISKS FULL, Critical, 0<br>DSK STORE LIMIT, Critical, 0         | Cause: both disks are full.                                                                                                                                                                                                                                   |
|                                                                      | Test: on every minute boundary.                                                                                                                                                                                                                               |
|                                                                      | Reset: enter RSERR command to clear the alarm; alarm is set again on the minute boundary if both disks are still full.                                                                                                                                        |
|                                                                      | Notes: DSI PCA shows EOT (End-of-Tape) when both disks are full.                                                                                                                                                                                              |
| DSK 70% PRIMARY, Minor, 0                                            | Cause: disk has reached 70% of capacity with primary AMA data.                                                                                                                                                                                                |
|                                                                      | Test: on every minute boundary.                                                                                                                                                                                                                               |
| (continued)                                                          |                                                                                                                                                                                                                                                               |

| <b>Table 5-2</b><br><b>Description of ERRMAP entries</b> (continued) |                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ERRMAP entry, type, level (notes)                                    | Comments (notes)                                                                                                                                                                                                                                                                                                                                                                           |
|                                                                      | Reset: RSERR input command clears alarm; alarm is set at next minute if disk usage is still greater than 70%.<br><hr/> Notes: a. not checked and set if disk usage is greater than 90%; alarm LOG FILE DEL is set.                                                                                                                                                                         |
| DSK 90% PRIMARY, Minor, 0                                            | Cause: disk has reached 90% of capacity with primary AMA data.<br><hr/> Test: on every minute boundary.<br><hr/> Reset: RSERR input command clears alarm; alarm is set at next minute if disk usage is still greater than 90%.<br><hr/> Notes: a. not checked and set if disk usage is greater than 90%; alarm LOG FILE DEL is set.                                                        |
| DISK WRITE FAIL, Major, 2                                            | Cause: a. failure to create or open an index file.<br>b. failure to obtain a buffer for call record(s).<br>c. failure to write a call record block.<br><hr/> Test: alarm sets when one a, b, or c occurs.<br><hr/> Reset: RSERR command clears the alarm.<br><hr/> Notes: alarm and message set every time one of the above, a, b, or c, errors occurs.                                    |
| DISK INDEX ERROR, Minor, 0                                           | Cause: a. bad version or sequence number when creating a Index file using the IDXMAINT command.<br>b. the index file is full.<br><hr/> Test: a. no periodic check, tested when executing IDXMAINT command.<br>b. on system boot.<br>c. on processor switch.<br><hr/> Reset: RSERR command clears the alarm.<br><hr/> Notes: the alarm and message set and print whenever the error occurs. |
| SITE FILE ERROR, Major, 0                                            | Cause: site data file read/write error.                                                                                                                                                                                                                                                                                                                                                    |
| (continued)                                                          |                                                                                                                                                                                                                                                                                                                                                                                            |

| <b>Table 5-2</b><br><b>Description of ERRMAP entries</b> (continued) |                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ERRMAP entry, type, level (notes)</b>                             | <b>Comments (notes)</b>                                                                                                                                                                                                                                                                                                                    |
|                                                                      | Test: no periodic check; tested when:<br>a. invoking the commands SITDAT READ, SITDAT WRITE.<br>b. scheduled SITDAT read on every hour boundary.<br><hr/> Reset: cleared by RSERR command.<br><hr/> Notes: None                                                                                                                            |
| STAT FILE ERROR, Minor, 0                                            | Cause: statistic file create, open, delete, and read error occurs when:<br>a. executing REPORT command.<br>b. updating stats file every hour<br>c. closing statistic file at midnight every day.<br><hr/> Test: no periodic check; tested whenever a, b, or c above occurs.<br><hr/> Reset: cleared by RSERR command.<br><hr/> Notes: None |
| CP NOT AVAIL., Major, 1                                              | Cause: one of several CP error messages.<br><hr/> Test: every CP access<br><hr/> Reset: cleared by RSERR command.<br><hr/> Notes: refer to Table 5-1 for corresponding CP error messages.                                                                                                                                                  |
| CP FAULT, Major, 1                                                   | Cause: one of several CP error messages.<br><hr/> Test: every CP access<br><hr/> Reset: cleared by RSERR command.<br><hr/> Notes: refer to Table 5-1 for corresponding CP error messages.                                                                                                                                                  |
| DSK ERROR ALARM, Critical, 0                                         | Cause: disk interface sets the alarm by counting the errors, until the error count is greater than the threshold. The disk interface then decides to drop one of the error disks and sets the alarm.<br><hr/> Test: event driven test; test is performed by firmware.<br><hr/> Reset: cleared by RSERR command.                            |
| (continued)                                                          |                                                                                                                                                                                                                                                                                                                                            |

| <b>Table 5-2</b><br><b>Description of ERRMAP entries</b> (continued) |                                                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ERRMAP entry, type, level (notes)</b>                             | <b>Comments (notes)</b>                                                                                                                                                                                                                                                                         |
|                                                                      | Notes: None                                                                                                                                                                                                                                                                                     |
| DISK MODE ALARM, Major, 0                                            | Cause: change disk mode form PRIME to ONLY                                                                                                                                                                                                                                                      |
|                                                                      | Test: <ul style="list-style-type: none"> <li>a. disk mode check at hour boundary, if disk is found to be in ONLY mode, alarm is set.</li> <li>b. execute DISK MODE command to change disk mode to ONLY mode.</li> <li>c. show disk mode and disk mode is in ONLY mode, alarm is set.</li> </ul> |
|                                                                      | Reset: cleared by RSERR command; alarm sets on the next hour boundary check if disk mode is still ONLY.                                                                                                                                                                                         |
|                                                                      | Notes: None                                                                                                                                                                                                                                                                                     |
| DSK DPR, QUE ERR, Major, 2                                           | Cause: Disk DPR and disk QUEUE restart error.                                                                                                                                                                                                                                                   |
|                                                                      | Test: <ul style="list-style-type: none"> <li>a. no periodic check; performed by invoking TEST command or DPRTST command.</li> <li>b. when performing a processor switch.</li> </ul>                                                                                                             |
|                                                                      | Reset: cleared by RSERR command.                                                                                                                                                                                                                                                                |
|                                                                      | Notes: <ul style="list-style-type: none"> <li>a. DPRTST repeatedly sets and prints the alarm and message.</li> <li>b. CPU check only sets the alarm; no message is printed.</li> </ul>                                                                                                          |
| DISK CARD HW ERR, Major, 2                                           | Cause: one of several low-level CP error messages.                                                                                                                                                                                                                                              |
|                                                                      | Test: every CP access.                                                                                                                                                                                                                                                                          |
|                                                                      | Reset: cleared by RSERR command.                                                                                                                                                                                                                                                                |
|                                                                      | Notes: refer to Table 5-1 for corresponding CP error messages.                                                                                                                                                                                                                                  |
| DISK ER MESSAGE, Minor, 0                                            | Cause: one of several low-level CP error messages.                                                                                                                                                                                                                                              |
|                                                                      | Test: every disk data access.                                                                                                                                                                                                                                                                   |
| (continued)                                                          |                                                                                                                                                                                                                                                                                                 |

| <b>Table 5-2<br/>Description of ERRMAP entries</b> |                                                                |
|----------------------------------------------------|----------------------------------------------------------------|
| <b>ERRMAP entry, type, level (notes)</b>           | <b>Comments (notes)</b>                                        |
|                                                    | Reset: cleared by RSERR command.                               |
|                                                    | Notes: refer to Table 5-1 for corresponding CP error messages. |
| End                                                |                                                                |

## Automatic message accounting (AMA) messages

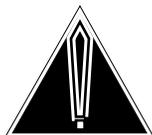
See the appendix for the AMA messages in this chapter. Procedures 6-1 through 6-10 provide the steps for the automatic message accounting (AMA) messages. Procedure 6-11 provides the procedure for recovering from polling an improper AMA data block.

| <b>Table 6-1<br/>AMA messages - index</b> |             |
|-------------------------------------------|-------------|
| <b>Message</b>                            | <b>Page</b> |
| AMAIDX FILE FAILURE                       | 6-11        |
| BX.25 INTER-TASK COMM ERROR               | 6-2         |
| EXCESSIVE INVALID BLOCKS                  | 6-4         |
| EXCESSIVE INVALID RECORDS                 | 6-4         |
| EXCIDX FILE FAILURE                       | 6-11        |
| INVALID CALL RECORD FORMAT                | 6-5         |
| LOGIDX FILE FAILURE                       | 6-11        |
| NO DATA ACCUMULATED                       | 6-8         |
| NO BLOCK LAST HOUR                        | 6-6         |
| STRCT CODE INDEX OUT OF RANGE             | 6-8         |
| UNSUPPORTED STRCT CODE xxxxxx             | 6-9         |
| xxx DUPLICATE BLOCKS REJECTED             | 6-10        |



**Procedure 6-1**  
**AMA messages - procedures** (continued)

**6**  
 (cont'd)



**CAUTION**

BOOT ACT command causes a temporary loss of MMI between the DMS-100 and DPP unit while the DPP unit is loading. When issued, wait two to five minutes before entering any other commands to allow the DPP load to complete and the MMI links to be restored.

- i) Enter: (at the terminal)

**>BOOT ACT (cr)**

loads the program files specified in the boot file into DPP memory. This command must be issued to a DPP CPU in the active mode.

System response:

list of file names and version numbers stored in the file BOOTFL, as they are loaded.

- ii) If the error message does not repeat, procedure complete.
- iii) If the error message repeats, go to step c. Switch processors. Repeat steps A & B. If successful, go to step c. If unsuccessful, go to step d.
- c. Replace the Disk (SCSI Intf) Interface PCA in slot 11 of the standby chassis.



**CAUTION**

Since all circuit assemblies in the DPP system are static sensitive, be careful handling them.

- i) See Printed Circuit Assembly Replacement in 297-1001-536: *DPP Card Replacement Guide*.
- ii) If unsuccessful after PCA replacement and restart, go to step d. Return the original PCA to its position before proceeding.
- d. Call for technical assistance.

**End**

6-4 Automatic message accounting (AMA) messages

| <b>Procedure 6-2<br/>AMA messages - procedures</b> |                                                                   |                                                                                                                                                                      |
|----------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b>                                           | (log message)<br>EXCESSIVE INVALID<br>BLOCKS<br>(w/o 56K polling) | cause: exception report printed whenever the daily count of invalid call record blocks reaches the threshold value specified by the VALPARM INVALID site data entry. |
| <b>2</b>                                           | Alarm Level:<br>No processor switch                               | Reason Code = 26<br><br>Corresponds to ERRMAP entry: EXCESS INVALID BLKS<br><br>System Default:<br>Type: Major                      Level: 0                         |
| <b>3</b>                                           | Customer-Selected<br>Alarm Level                                  | Type:                                      Level:                                                                                                                    |
| <b>4</b>                                           | Other Alarm Indications                                           | Default:<br>Status Panel: Major                      Audible: Major<br><br>Customer-Selected<br>Status Panel:                                      Audible:          |
| <b>5</b>                                           | System Recovery Action                                            | None                                                                                                                                                                 |
| <b>6</b>                                           | Craftsperson Activity                                             | Verify and correct the data coming into the DPP system from the DMS-100. Consult with technical assistance personnel before proceeding.                              |

| <b>Procedure 6-3<br/>AMA messages - procedures</b> |                                                 |                                                                                                                                                                |
|----------------------------------------------------|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b>                                           | (log message)<br>EXCESSIVE INVALID RE-<br>CORDS | cause: exception report printed whenever the daily count of invalid call records reaches the threshold value specified by the VALPARM INVALID site data entry. |
| <b>2</b>                                           | Alarm Level:<br>No processor switch             | Reason Code = 26<br><br>Corresponds to ERRMAP entry: EXCESS INVALID RECS<br><br>System Default:<br>Type: Major                                      Level: 0   |
| (continued)                                        |                                                 |                                                                                                                                                                |

| <b>Procedure 6-3</b><br><b>AMA messages - procedures</b> (continued) |                               |                                                                                                                                         |                |
|----------------------------------------------------------------------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>3</b>                                                             | Customer-Selected Alarm Level | Type:                                                                                                                                   | Level:         |
| <b>4</b>                                                             | Other Alarm Indications       | Default:<br>Status Panel: Major                                                                                                         | Audible: Major |
|                                                                      |                               | Customer-Selected Status Panel:                                                                                                         | Audible:       |
| <b>5</b>                                                             | System Recovery Action        | None                                                                                                                                    |                |
| <b>6</b>                                                             | Craftsperson Activity         | Verify and correct the data coming into the DPP system from the DMS-100. Consult with technical assistance personnel before proceeding. |                |
| <b>End</b>                                                           |                               |                                                                                                                                         |                |

| <b>Procedure 6-4</b><br><b>AMA messages - procedures</b> |                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |            |
|----------------------------------------------------------|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| <b>1</b>                                                 | INVALID CALL RECORD<br>FORMAT<br>(w/o 56K polling) | cause: printed when the third and fourth bytes of the associated RDW are not zero. Unformatted call records are in this category. Up to two invalid records per block are printed; all invalid records are counted, and this count is displayed in the AMA statistics report under the heading INVALID RECORD COUNT. The sum of the invalid record and invalid block counts is compared against the VALPARM INVALID threshold to determine if the EXCESS INV RECS (Major alarm, level 0) alarm should be generated. |            |
| <b>2</b>                                                 | Alarm Level:<br>N/A                                | Reason Code = N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            |
|                                                          |                                                    | Corresponds to ERRMAP entry: N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            |
|                                                          |                                                    | System Default:<br>Type: N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Level: N/A |
| <b>3</b>                                                 | Customer-Selected Alarm Level                      | Type:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Level:     |
| <b>(continued)</b>                                       |                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |            |

6-6 Automatic message accounting (AMA) messages

| <b>Procedure 6-4<br/>AMA messages - procedures</b> |                         |                                                                                                                                                                                                                                     |
|----------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>4</b>                                           | Other Alarm Indications | Default:<br>Status Panel: Audible:<br><br>Customer-Selected<br>Status Panel: Audible:                                                                                                                                               |
| <b>5</b>                                           | System Recovery Action  | The invalid records are stored on disk (exception file).                                                                                                                                                                            |
| <b>6</b>                                           | Craftsperson Activity   | a. Analyze the invalid call record printout to determine the discrepancy.<br><br>b. Call for technical assistance; the problem is in the DMS-100. Perform steps to make sure no unformatted call records are being sent to the DPP. |
| <b>End</b>                                         |                         |                                                                                                                                                                                                                                     |

| <b>Procedure 6-5<br/>AMA messages - procedures</b> |                                     |                                                                                                                                                                                            |
|----------------------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b>                                           | (log message)<br>NO BLOCK LAST HOUR | cause: output on the boundary if, for the past boundary no data blocks were received from the DMS-100 and the boundary is between the limits specified by the AMAHRS site data parameters. |
| <b>2</b>                                           | Alarm Level:<br>No processor switch | Reason Code = 28<br><br>Corresponds to ERRMAP entry:<br><br>System Default:<br>Type: Minor Level: 0                                                                                        |
| <b>3</b>                                           | Customer-Selected<br>Alarm Level    | Type: Level:                                                                                                                                                                               |
| <b>4</b>                                           | Other Alarm Indications             | Default:<br>Status Panel: Minor Audible: Minor<br><br>Customer-Selected<br>Status Panel: Audible:                                                                                          |
| <b>5</b>                                           | System Recovery Action              | Alarm, no processor switch.                                                                                                                                                                |
| (continued)                                        |                                     |                                                                                                                                                                                            |

**Procedure 6-5**  
**AMA messages - procedures**

- |          |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>6</b> | Craftsperson Activity | <p>a. Verify that data should be received at this time</p> <p>i) To examine the hour boundaries currently assigned,</p> <ul style="list-style-type: none"> <li>- Enter: (at the terminal)</li> </ul> <p style="margin-left: 40px;"><b>&gt;AMAHRS (cr)<sup>1</sup></b><br/>         Proper response = BLOCK CHECK<br/>         START xx END xx HOURS<br/>         where: xx = hour of day</p> <p>ii) To assign or change hour boundaries,</p> <ul style="list-style-type: none"> <li>- Enter: (at the terminal)</li> </ul> <p style="margin-left: 40px;"><b>&gt;AMAHRS Start Stop<sup>2</sup> (cr)</b><br/>         where:<br/>         Start = 00 - 23 = starting hour<br/>         (less than 24).<br/>         Stop = Start time minus 23 = stop-<br/>         ping hour (greater than starting hour<br/>         but less than 24).</p> <p style="margin-left: 40px;">If full time hourly block checks are<br/>         required, enter 00 for Start and 23<br/>         for Stop.</p> <p style="margin-left: 40px;">If no hourly block checks are re-<br/>         quired, enter 00 for Start and 00 for<br/>         Stop.</p> <p>b. If the message repeats during the next reporting<br/>         period, call for technical assistance. (Problem<br/>         may be in the DMS-100.)</p> |
|----------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Notes:**

**Note 1:** The AMAHRS (cr) entry and response allows the Craftsperson to determine that the AMA hours currently assigned are active for reporting purposes. If hours are not correct, go to step ii.

**Note 2:** Perform the SITDAT WRITE command immediately after completion of the AMAHRS data entry to save the new data to disk.

**End**



| <b>Procedure 6-7</b><br><b>AMA messages - procedures</b> (continued) |                         |                                                                                                                       |          |
|----------------------------------------------------------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------|----------|
| <b>4</b>                                                             | Other Alarm Indications | Default:<br>Status Panel:                                                                                             | Audible: |
|                                                                      |                         | Customer-Selected<br>Status Panel:                                                                                    | Audible: |
| <b>5</b>                                                             | System Recovery Action  | None                                                                                                                  |          |
| <b>6</b>                                                             | Craftsperson Activity   | a. 1st occurrence - none.<br>b. Call for technical assistance if the problem persists; problem may be in the DMS-100. |          |
| <b>End</b>                                                           |                         |                                                                                                                       |          |

| <b>Procedure 6-8</b><br><b>AMA messages - procedures</b> |                                                                         |                                                                                                                          |            |
|----------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------|
| <b>1</b>                                                 | (log message)<br>UNSUPPORTED STRCT CODE<br>xxxxxxx<br>(w/o 56K polling) | where: xxxxxx = structure code value<br><br>cause: the DPP does not support the structure code generated by the DMS-100. |            |
| <b>2</b>                                                 | Alarm Level:<br>N/A                                                     | Reason Code = N/A<br><br>Corresponds to ERRMAP entry: N/A<br><br>System Default:<br>Type: N/A                            | Level: N/A |
| <b>3</b>                                                 | Customer-Selected<br>Alarm Level                                        | Type:                                                                                                                    | Level:     |
| <b>4</b>                                                 | Other Alarm Indications                                                 | Default:<br>Status Panel:                                                                                                | Audible:   |
|                                                          |                                                                         | Customer-Selected<br>Status Panel:                                                                                       | Audible:   |
| - continued -                                            |                                                                         |                                                                                                                          |            |



| <b>Procedure 6-10</b><br><b>AMA messages - procedures</b> |                                                                                                                                      |                                                                                                                                                             |
|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b>                                                  | (log message)<br>AMAIDX FILE FAILURE,<br>or,<br>(log message)<br>EXCIDX FILE FAILURE.<br>or,<br>(log message)<br>LOGIDX FILE FAILURE | cause: printed when an attempt to update a record index file fails.                                                                                         |
| <b>2</b>                                                  | Alarm Level:<br>Processor switch occurs                                                                                              | Reason Code = 03<br><br>Corresponds to ERRMAP entry: DISK WRITE FAIL<br><br>System Default:<br>Type: Major                      Level: 2                    |
| <b>3</b>                                                  | Customer-Selected<br>Alarm Level                                                                                                     | Type:                                      Level:                                                                                                           |
| <b>4</b>                                                  | Other Alarm Indications                                                                                                              | Default:<br>Status Panel: Major                      Audible: Major<br><br>Customer-Selected<br>Status Panel:                                      Audible: |
| <b>5</b>                                                  | System Recovery Action                                                                                                               | Processor switch.                                                                                                                                           |
| <b>6</b>                                                  | Craftsperson Activity                                                                                                                | a. Manually verify and correct, if necessary, the index file.<br><br>b. Call for technical assistance to perform this activity.                             |

## Activities to recover from polling an improper AMA data block

Due to current Collector implementations, the Collector does not advance when it encounters an improper AMA data block. Each polling session attempts to poll for the standard 100 data block file. When an improper AMA data block is detected, the Collector disconnects the polling session. The next polling session disconnects at the same improper data block, just the same as the previous session. This stopping, restarting, and stopping at the same point effectively establishes an infinite loop condition.

The result of this condition, if left uncorrected, is a gradual approach to a both disks full condition. It is imperative to alleviate this condition as quickly as possible to avoid more serious problems.

### Indications that the problem has occurred

An examination of the DPP system LOG messages shows that a polling session has started. The following messages appear:

```
SES CON
FIL-PRI POLL ACCEPTED
AMA SEQ #nnnnnn
```

There is also an indication that the session disconnected without the following message:

```
FIL-POLL COMPLETED
```

The next polling session starts at the same AMA SEQ #nnnnnn as the previous session. This is a direct indication that polling is stuck on the last primary file version.

In some Collector implementations, the Collector logs some form of ILLEGAL BLOCK SEQUENCE # error.

Another indication is to examine the list of closed AMA files to verify that no new primary files are being changed to secondary status during subsequent polling sessions.

### Recovery procedure

Procedure 6-11 provides a method to:

- identify the improper AMA block(s)
- recreate the AMA index file, and
- mark the improper AMA blocks as secondary so that
  - primary block polling can proceed normally, and
  - poll the improper block(s) on a secondary demand poll basis.

| <b>Procedure 6-11</b><br><b>Polling an improper AMA data block - recovery procedure</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step                                                                                    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Notes                                                                                                                                                               |
| 1                                                                                       | <p>Find the Improper AMA Blocks that Caused Polling Stoppage</p> <p>Enter: (at the terminal)</p> <p><b>&gt;IDXMAINT DIR CLOSED AMA 56 (cr)</b><br/>(or)<br/><b>&gt;IDXMAINT DIR CLOSED AMA 200 (cr)</b></p> <p>System response = list of the closed AMA files.</p> <pre> VS 12:      5 BLKS,      29 DA SECNDRY,      AMA SEQ #013690 VS 13:     290 BLKS,     29 DA SECNDRY,      AMA SEQ #013695 VS 14:      17 BLKS,     29 DA SECNDRY,      AMA SEQ #013985 VS 15: 251 BLKS,       60      PRIMARY,      AMA SEQ #014002 VS 16:  5 BLKS,        5      PRIMARY,      AMA SEQ #014253 VS 17: 326 BLKS,     326      PRIMARY,      AMA SEQ #014258 VS 18: 222 BLKS,     222      PRIMARY,      AMA SEQ #014584                     </pre> | <p>Output a list of closed AMA files.<sup>1</sup></p> <p>The following output is shown for example purposes only; output for individual DPP systems will vary.</p>  |
| 2                                                                                       | <p>Calculate the Starting Point of the Primary AMA Block Sequence Number</p> <p>VS 16 starting AMA SEQ # -<br/>#014253 minus 60 = (SEQ #104193)</p> <p>Subtract the number of Primary BLKS remaining (60) in the first version that contains Primary BLKS (VS 15), from the AMA SEQUENCE NUMBER of the next version (VS 16) that contains Primary blocks.</p>                                                                                                                                                                                                                                                                                                                                                                               | <p>Locate the beginning sequence number of the first VS with Primary BLKS in the output, from step 1.</p> <p>Locate the last VS with SECNDRY BLKS, from step 1.</p> |
| 3                                                                                       | <p>Enter: (at the terminal)</p> <p><b>&gt;IDXMAINT EXAMINE AMA PACKED 14193 (cr)</b></p> <pre> AMA SEQ #014193 00 00 37 71 05 D9 22 00 12 12 11 06 00 00 NN . . . . . (to the end of the block)                     </pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>System response = Output of AMA data beginning at the specified sequence number.</p>                                                                             |
| (continued)                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                     |

6-14 Automatic message accounting (AMA) messages

| <b>Procedure 6-11</b><br><b>Polling an improper AMA data block - recovery procedure</b> (continued) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step                                                                                                | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Notes                                                                                                                                                                                                                                                                                                                                                              |
| <b>3</b><br>(cont'd)                                                                                | where:<br>Bytes 1-4 = 00 00 37 71 = 3771(H) = 14193(D) = block sequence number.<br>Bytes 5-6 = 0 D9 = 5D9(H) = 1497 (D) = Block size, in bytes, including the header.<br>Byte 7 = 22(H) = 34(D) = the number of AMA records in this block.<br>Byte 8 = Flag byte.<br>Bytes 9-12 = 12 12 11 06 = Month, day, hour, and minute that the block was created.<br>In this example:<br>(12) (12) (11) (06)<br>December 12 11 : 06 a.m.<br>Bytes 13-14= currently unused | Pay attention to the BLOCK SEQUENCE # and the CREATION DATE. The sequence number of each new block should be 1 greater than the previous one. The creation data field should logically be greater than the data field in the previous record. An out-of- sequence seq number is the primary reason for the rejection of a block by the Collector. <sup>2</sup>     |
| <b>4</b>                                                                                            | Example: 2 bad blocks were found starting at SEQUENCE # 14193<br><br>Enter: (at the terminal)<br><br><b>&gt;IDXMAINT CREATE DIR AMA 12 14193 (cr)</b>                                                                                                                                                                                                                                                                                                            | Create a new index file starting with the file version No. in the existing AMA index file and marking the first Primary block as the block after the 2 bad blocks found. (File version 12 was the first version listed in the output of step 1.) (AMA block seq No. 14253 is the first good AMA block found after the two preceding bad ones.) (14193 + 2 = 14195) |
| <b>5</b>                                                                                            | Enter: (at the terminal)<br><br><b>&gt;IDXMAINT DIR CLOSED AMA 56 (cr)</b><br>(or)<br><b>&gt;IDXMAINT DIR CLOSED AMA 200 (cr)</b><br><br>System response = list of the closed AMA files.                                                                                                                                                                                                                                                                         | Examine the newly created file.<br><br>The following output is shown for example only; output for individual DPP systems will vary.                                                                                                                                                                                                                                |
| (continued)                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                    |

| <b>Procedure 6-11</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                  |                                                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>Polling an improper AMA data block - recovery procedure</b> (continued)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                  |                                                                                                                |
| <b>Step</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Description</b>                                                               | <b>Notes</b>                                                                                                   |
| <b>5</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | VS 12: 5 BLKS, 30 DA SECNDRY,                                                    | AMA SEQ #013690                                                                                                |
| (cont'd)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | VS 13: 290 BLKS, 30 DA SECNDRY,                                                  | AMA SEQ #013695                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | VS 14: 17 BLKS, 30 DA SECNDRY,                                                   | AMA SEQ #013985                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | VS 15: 251 BLKS, 58 PRIMARY,                                                     | AMA SEQ #014002                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | VS 16: 5 BLKS, 5 PRIMARY,                                                        | AMA SEQ #014253                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | VS 17: 326 BLKS, 326 PRIMARY,                                                    | AMA SEQ #014258                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | VS 18: 222 BLKS, 222 PRIMARY,                                                    | AMA SEQ #014584                                                                                                |
| <b>6</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Request that the Collector operator initiate another series of polling sessions. | Monitor the log files for polling messages and the AMA index file to make sure polling is proceeding normally. |
| <p><b>Notes:</b></p> <p><b>Note 1:</b> The AMA data file with VS 15 is the file where polling has encountered an improper data block. It is the first primary file after a list of secondary files. Of the 251 blocks in this file, all but the last 60 have been correctly transferred to the Collector and marked as secondary. Since the Collector polls for 100 block increments, the range of the improper block starts with the 60 primary blocks in VS 15 and ends 100 blocks later. Proceed to step 2.</p> <p><b>Note 2:</b> When an out of sequence condition is detected, the block sequence No. used in the command, not the improper sequence number displayed in the block header, should be noted. Continue to examine blocks (repeat step 3 above) until the block sequence number in the block header matches the sequence number asked for in the command. (Also note this sequence number.) This block marks the end of the range of bad blocks found. These two noted sequence numbers mark the beginning and end of the range of bad blocks. The second number noted is used to create an AMA index file with the first Primary block equal to this sequence number.</p> |                                                                                  |                                                                                                                |
| <b>End</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                  |                                                                                                                |

## Collector demand poll of secondary data

Since the last two blocks in VS 15 (in our example) could not be polled, the Collector must initiate a SECONDARY polling session of these 60 blocks minus the two bad blocks .

From step No. 1, the Collector starts polling at block seq number 14193 for two blocks (60 minus the two bad blocks found). Notify the Collector operator that this SECONDARY data has never before been polled and should be treated as primary AMA data.

## Copying tape from parallel disk

If there is a DPP failure, you must copy a tape from a parallel disk. The procedures here show where to begin and end copying to avoid duplicating AMA records sent to the processing center.

There are two basic types of failures to consider to resolve the situation:

- 1 A DPP fault that causes both tape ports to fail. All data already sent to the DPP is still recoverable.
- 2 A DPP disk system fault that has made the stored data unrecoverable from the DPP. Also, whenever the active and standby tape ports fail, the parallel device should be demounted, and a new parallel device mounted. This insures that parallel data is retained.

### Recommended resolutions

In the first example, a DPP fault has caused both tape ports to go down. When a tape port fails and is rotated out of DIRP, a DIRP101 log is output stating what the last parallel block sequence number was and what the next parallel block number will be. Also when the tape ports are remounted, parallel block numbers are output. If these sequence numbers are used with the DIRPCOPY utility, all the data can be recovered without any duplicates or gaps. For more DIRPCOPY information, see 297-1001-821.

In the second example, a DPP disk system fault has made data previously collected and stored by the DPP inaccessible. In this case, recovering data without incurring duplicate data blocks is slightly more difficult, but can be accomplished. To recover AMA data from DIRP, when the DIRP block number is not known, follow Procedure 6-12.

**Procedure 6-12****Recover AMA data from DIRP - DIRP block number not known**

| Step                                                                                                                                                                                                                                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Notes                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| 1                                                                                                                                                                                                                                                | <p>Contact the data center and determine the time frame of the missing AMA, the sequence number of the last DPP block the data center received before the DPP outage, and the first sequence number received following the DPP outage. The sequence numbers referred to here are DPP reference numbers, not DMS or Data Center assigned numbers.</p> <p>At the MAP enter the following commands to see if the DPP sequence numbers are available to display from the DPP disk:</p> <p><b>&gt;MAPCI NODISP;MTC;IOD;DPPAMA</b></p> <p><b>&gt;RECORD START ONTO &lt;printer&gt;</b></p> <p><b>&gt;IDXMAINT EXAMINE AMA PACKED</b><br/><b>&lt;first seq number&gt;</b></p> <p><b>&gt;IDXMAINT EXAMINE AMA PACKED</b><br/><b>&lt;last seq number&gt;</b></p> <p>If the above commands are successful, the DPP outputs the requested AMA data blocks. If BOTH blocks, first and last, were printed out, continue to step 2. Any blocks not output by the IDXMAINT command must be provided by the data center before continuing.</p> | <p>The first seq number may not be available depending on the specific DPP fault.</p>                                           |
| 2                                                                                                                                                                                                                                                | <p>From each of the blocks of AMA data, one record is required. In one block, locate an "AA." Immediately following the "AA" is a Structure Code. Using an NTP, break the record down into the individual fields that make up a record. For BCS31 or above, use NTP 297-1001-830. For BCS30 and below, use NTP 297-1001-128. An example is below.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p>If NTP 297-1001-830 is not available, NTP 297-1001-128 can be used to decipher most records regardless of the BCS level.</p> |
| <pre> 07BA  0000  0040  0000  AA00  700C  043C  036C  0602  091C  036C 0602  091C  0021  3C00  000C  0200  000C  1C0C  1C00  0C60  2C82 0780  1C1C  0060  2C83  8579  2C00  0015  2C00  0000  000C  1010 301C  0000  0023  0C00  0838  8C </pre> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                 |
| (continued)                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                 |

| <b>Procedure 6-12</b>                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                     |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Recover AMA data from DIRP - DIRP block number not known</b> (continued) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                     |
| <b>Step</b>                                                                 | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Notes</b>                                                                                                                                        |
|                                                                             | Structure Code = 00700C<br>Call Code = 043C<br>ORIG NPA = 043C<br>ORIG Number = 820780C<br>TERM NPA = 00802C (note the zeros)<br>TERM Number = 8385792C<br>Connect Time = 0000152C<br>C = end of field<br><br>Break down a record from the other data block in the same manner.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                     |
| <b>3</b>                                                                    | <p>In this step, locate the Parallel Volume that was recording for the time frame to be recovered. If it is known which Parallel Volume was active, skip this step.</p> <p>At the MAP, enter:</p> <p><b>&gt;MAPCI;MTC;IOD;LISTDEV DDU</b></p> <p>For each DDU, enter the following:</p> <p><b>&gt;IOC#;CARD#;ALLOC</b></p> <p>At the MAP, enter:</p> <p><b>&gt;DSKUT</b></p> <p><b>&gt;LISTVOL &lt;parallel volume name&gt; ALL</b></p> <p><b>&gt;SHOWFL &lt;file name, from listvol&gt;</b></p> <p>If it is determined that the Parallel Volume that is needed to recover data from is the current active device, the volume must be CLOSED and removed from Table DIRPSSYS field PARVOL (for BCS32 and above, this table is called DIRPPOOL). Reference NTP 297-1001-312 for this procedure.</p> | <p>Note the IOC and CARD number of each DDU</p> <p># = the numbers noted above<br/>           Note the parallel volume names; example D000AMAP.</p> |
| (continued)                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                     |

| <b>Procedure 6-12</b>                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                            |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Recover AMA data from DIRP - DIRP block number not known</b> (continued) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                            |
| <b>Step</b>                                                                 | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Notes</b>                                                                                                                                                               |
|                                                                             | Do the above for each Parallel Volume and notice the "LAST MODIFIED" date and time of each file. Using these dates and times, locate the Parallel Volume collecting AMA during the time frame the data center is requesting.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                            |
| <b>4</b>                                                                    | <p>Locate the block number the data center last received. We require the record broken down in step 2 of the last block received by the data center.</p> <p>At the MAP, enter:</p> <p><b>&gt;DSKUT</b></p> <p><b>&gt;LISTVOL &lt;volume name&gt; ALL</b></p> <p><b>&gt;AMADUMP BC &lt;file name&gt;</b></p> <p><b>&gt;FILTER ADD &lt;structure code from step 2&gt;</b></p> <p>Example:</p> <p><b>&gt;FILTER ADD 00700</b><br/>         &gt;&gt;&gt;ADDING.... structure code 00700<br/>         code 00700<br/>         call code:</p> <p>Input:</p> <p><b>&gt;&lt;call code of the record&gt;</b></p> <p>The Filter function prompts you for numerous fields. Inputting the Call Code, Originating Number, and Connect Time should be sufficient to locate the data block. If you don't want to define all the other parameters prompted by the function, hit enter and the DMS continues to the next field, or hit a \$ to end the prompts. If a field contains zeros in any field, you must define that field with all the zeros included.</p> | <p>If the filename includes a special character, (a period or space), enclose the whole filename in single quotes.</p> <p>Enclose the structure code in single quotes.</p> |
| (continued)                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                            |

| <b>Procedure 6-12</b>                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                |
|-----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| <b>Recover AMA data from DIRP - DIRP block number not known</b> (continued) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                |
| <b>Step</b>                                                                 | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Notes</b>                                   |
|                                                                             | <p>Enter:</p> <p><b>&gt;FILTER DISPLAY &lt;structure code from add&gt;</b></p> <p>This outputs a record with all the fields you just defined. Make sure the filter is defined the same as the record. Note that an * is a wildcard, and matches any variable. Following the above record:</p> <p>a. If the Originating NPA was 602C, you must define the filter as either of the following:</p> <p style="padding-left: 40px;">ORIG NPA: 602*<br/>ORIG NPA: 602C</p> <p>If the ORIG NUMBER is 9422640C, then:</p> <p style="padding-left: 40px;">ORIG NUMBER: 9422640*<br/>ORIG NUMBER: 9422640C</p> <p>If the TERM NPA is 00602C: then:</p> <p style="padding-left: 40px;">TERM NPA: 00602*<br/>TERM NPA: 00602C</p> <p>If the TERM NUMBER is 8385792C then:</p> <p style="padding-left: 40px;">TERM NUMBER: 8385792*<br/>TERM NUMBER: 8385792C</p> <p>b. Make sure the connect time is the same, If the connect time of the record is 000015cC the filter must be either of the below:</p> <p style="padding-left: 40px;">CONNECT TIME: 0000152*<br/>CONNECT TIME: 0000152C</p> <p>c. Make sure all other defined fields are the same as the record. Remember * is a wildcard.</p> | <p>Enclose the structure in single quotes.</p> |
| (continued)                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                |

| <b>Procedure 6-12</b>                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |              |
|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <b>Recover AMA data from DIRP - DIRP block number not known</b> (continued) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |              |
| <b>Step</b>                                                                 | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Notes</b> |
|                                                                             | <p>Enter:</p> <p><b>&gt;FILTER ENABLE</b></p> <p><b>&gt;DUMP CALL DETAILS</b></p> <p>This filters through the entire Parallel File looking for the record defined. One record should match the data input into the FILTER. When the utility locates the record, the block number and the record is output, as shown below:</p> <p>&gt;&gt;&gt;BLOCK NO: 15<br/>*HEX ID: AA STRUCTURE CODE: 007000C CALL CODE:.....</p> <p>This is the last block received at the data center. To verify the entire block against the one the data center provided enter:</p> <p><b>&gt;DUMP CALL DETAILS &lt;block number&gt; 1</b></p> <p>Add 1 to the block number and that is the first block of AMA data that the data center has not received. Reference NTP 297-1001-128 or 297-1001-830.</p> |              |
| <b>5</b>                                                                    | <p>In this step, locate the last block the data center requires. We require the record that was broken down in step 2 that was the first block of data received after the DPP was recovered.</p> <p><b>&gt;FILTER DISABLE</b></p> <p><b>&gt;FILTER DELETE &lt;first structure code&gt;</b></p> <p>example: <b>&gt;FILTER DELETE 00700</b></p> <p><b>&gt;FILTER ADD &lt;structure code from step 2&gt;</b></p> <p>example: <b>&gt;FILTER ADD 00001</b></p> <p>response:<br/>&gt;&gt;&gt;adding .... structure code: 00001<br/>record code: 00001<br/>call code:</p>                                                                                                                                                                                                                  |              |
| (continued)                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |              |

| <b>Procedure 6-12</b><br><b>Recover AMA data from DIRP - DIRP block number not known</b> (continued) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                     |
|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| Step                                                                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Notes                                               |
|                                                                                                      | <p>Input:</p> <p><b>&gt;&lt;call code of record&gt;</b></p> <p>The Filter function prompts you for numerous fields. Inputting the originating number and connect time should be sufficient to locate the data block. If you don't want to define all the other parameters prompted by the function, hit enter and the DMS continues to the next field.</p> <p>Enter:</p> <p><b>&gt;FILTER DISPLAY &lt;structure code from ADD&gt;</b></p> <p>This outputs a record with all the fields just defined. Make sure the filter is defined the same as the record. Note that an * is a wildcard and matches any variable.</p> <p>a. If the Originating NPA was 602C, then the filter must be defined as either of the following:</p> <p style="padding-left: 40px;">ORIG NPA: 602*<br/>ORIG NPA: 602C</p> <p>If the ORIG NUMBER is 9422640C, then:</p> <p style="padding-left: 40px;">ORIG NUMBER: 9422640*<br/>ORIG NUMBER: 9422640C</p> <p>If the TERM NPA is 00602C: then:</p> <p style="padding-left: 40px;">TERM NPA: 00602*<br/>TERM NPA: 00602C</p> <p>If the TERM NUMBER is 8385792C then:</p> <p style="padding-left: 40px;">TERM NUMBER: 8385792*<br/>TERM NUMBER: 8385792C</p> | <p>Enclose the structure code in single quotes.</p> |
| (continued)                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                     |

**Procedure 6-12****Recover AMA data from DIRP - DIRP block number not known** (continued)

| Step        | Description                                                                                                                                                                                                                            | Notes                                                    |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
|             | <p>b. Make sure the connect time is the same,. If the connect time of the record is 000015cC the filter must be either of the below:</p>                                                                                               | <p>CONNECT TIME: 0000152*<br/>CONNECT TIME: 0000152C</p> |
|             | <p>c. Make sure all other defined fields are the same as the record. Remember * is a wildcard.</p>                                                                                                                                     |                                                          |
|             | <p>Enter:</p>                                                                                                                                                                                                                          |                                                          |
|             | <p><b>&gt;FILTER ENABLE</b></p>                                                                                                                                                                                                        |                                                          |
|             | <p><b>&gt;DUMP CALL DETAILS</b></p>                                                                                                                                                                                                    |                                                          |
|             | <p>This filters through the entire Parallel File looking for the record defined. One record should match the data input into the FILTER. When the utility locates the record, the block number and the record are output as below:</p> |                                                          |
|             | <p>&gt;&gt;&gt;BLOCK NO: 15</p>                                                                                                                                                                                                        |                                                          |
|             | <p>*HEX ID:AA STRUCTURE CODE 00001C CALL CODE....</p>                                                                                                                                                                                  |                                                          |
|             | <p>This is the first block received at the data center following the DPP recovery. To verify the data block against what the data center provided, enter:</p>                                                                          |                                                          |
|             | <p><b>&gt;DUMP CALL DETAILS &lt;block number&gt; 1</b></p>                                                                                                                                                                             |                                                          |
|             | <p>Subtract 1 from the block number, and that is the last block of AMA the data center has not received.</p>                                                                                                                           |                                                          |
| 6           | <p>Mount a tape on an MTD. See NTP 297-1001-118.</p>                                                                                                                                                                                   |                                                          |
| (continued) |                                                                                                                                                                                                                                        |                                                          |

| <b>Procedure 6-12</b><br><b>Recover AMA data from DIRP - DIRP block number not known</b> (continued) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step                                                                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 7                                                                                                    | <p>Copy the Parallel AMA file to the tape.</p> <p><b>&gt;DIRPCOPY AMA &lt;filename&gt; Tx</b><br/> <b>&lt;start&gt; &lt;length&gt;</b></p> <p>Example:</p> <p><b>&gt;DIRPCOPY AMA</b><br/> <b>DIRPPARALLEL_AMA T2 5400 100</b></p> <p>Depending on the length of the parallel file and the number of blocks to be copied, this activity can last a significant length of time. If a file has 10,000 blocks, it may take 2 hours to DIRPCOPY. For more information on DIRPCOPY, see NTP 297-1001-821</p> <p>.</p> | <p>filename = parallel file name; if the name includes special characters, it must be enclosed in single quotes.<br/>           DIRPPARALLEL_AMA, or<br/>           DIRPPPOOL AMA (BCS32 and above)<br/>           Tx = MTD, example T2 (not DPP MTD)<br/>           The MTD recovery may also need the use of STRTSYM in connection with the DIRPCOPY.<br/>           start = number from step 4<br/>           length = number from step 5 minus the start number<br/>           DIRPPARALLEL_AMA, or<br/>           DIRPPPOOL AMA (BCS32 and above)</p> |
| End                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

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# Routine maintenance

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## Procedures

Routine DPP system maintenance may include the following procedures:

- testing (and replacing, if necessary) the status and alarm lamps
- checking other indicator lamps
- checking system temperature alarms
- cleaning (and replacing, if necessary) the fans

## Status and alarm lamp maintenance

The lamps for the status and alarm indicators on the switch and status panel are special light bar devices, composed of four light emitting diodes (LEDs) in each lamp. Since these LEDs are individually powered, if one quadrant fails, the remaining quadrants will continue to operate and light the indicator.

Periodically test the Status and Alarm Lamps using the Lamp Test (LT) rocker switch on the front of the panel. Figure 7-1 shows the status panel.

## Other indicator lamps

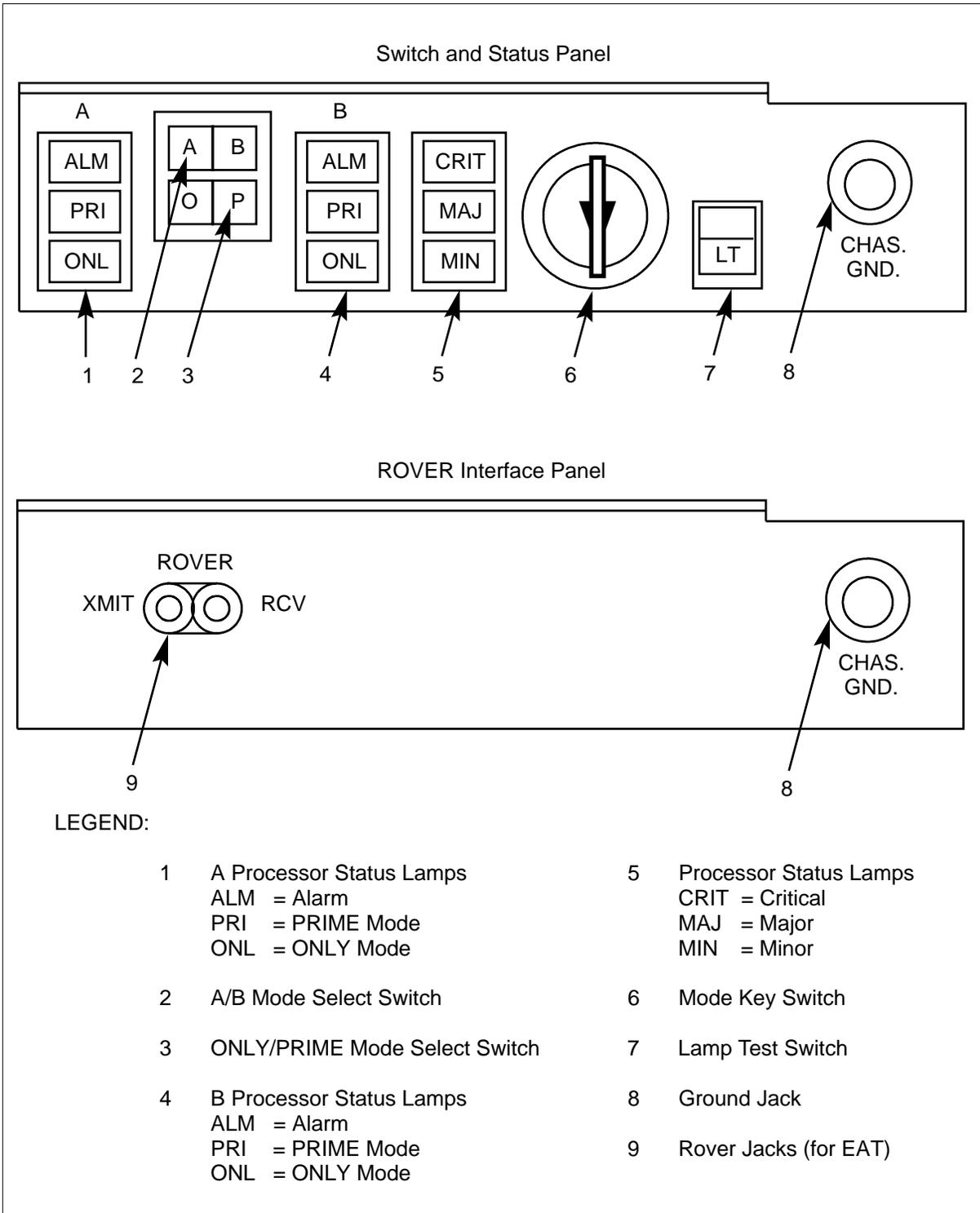
The red or green lamp on the Winchester disk drive is an LED and is not field replaceable.

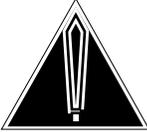
The LED on the Error Control II PCA (slot A5), Error Control II Jumper PCA (slot B5), and LED display on the CPU with DMA PCA (slots A1 and B1) are components of those PCAs and are also not field replaceable.

## Testing and replacing the Status and alarm lamp

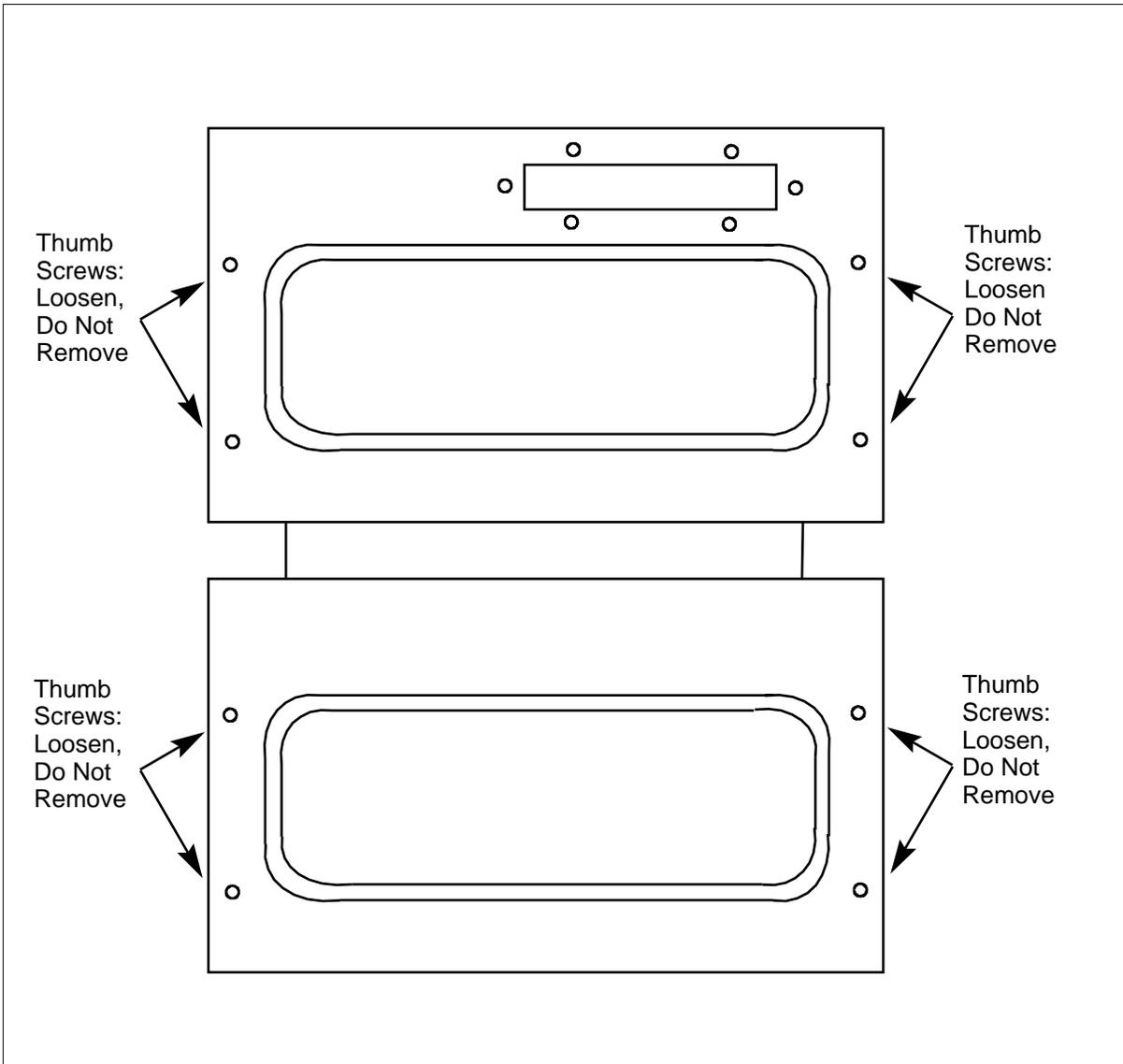
Use Procedure 7-1 to test and replace the status and alarm lamp.

**Figure 7-1**  
**DPP switch and status panel**



| <b>Procedure 7-1</b><br><b>Testing and Replacing the Status and Alarm Lamp</b>    |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                               |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>CAUTION</b><br>Only qualified maintenance personnel should replace the Status and Alarm lamp.                                                                                                                                                                                                                |                                                                                                                                                                               |
| Step                                                                              | Description                                                                                                                                                                                                                                                                                                     | Notes                                                                                                                                                                         |
| 1                                                                                 | Remove the front panel of the DPP, A chassis.                                                                                                                                                                                                                                                                   | See Figure 7-2.                                                                                                                                                               |
| 2                                                                                 | Note which lamps are already lit.                                                                                                                                                                                                                                                                               | The lamps reflect current DPP operating mode.                                                                                                                                 |
| 3                                                                                 | Press the spring-loaded switch to the LT position. If a lamp doesn't light, go to step 4; else procedure is complete; go to step 7.                                                                                                                                                                             | All lamps light; the lamp(s) showing current DPP status stay lit when the switch is released.                                                                                 |
| 4                                                                                 | Loosen the four captive screws on the left and right sides of the front panel; <b>carefully</b> remove the front panel.<br><br>Remove the defective lamp by wedging a screwdriver blade between the lamp body and the edge of the panel cut out. Use a back and forth motion until it releases from the socket. | Once removed, put the front panel in a safe place to avoid bending and scratching.<br><br>Place a finger on the side of the lamp opposite the blade and gently rock the lamp. |
| 5                                                                                 | Insert the new lamp.                                                                                                                                                                                                                                                                                            | Make sure the leads of the new lamp do not bend during insertion.                                                                                                             |
| 6                                                                                 | Press the Lamp Test rocker switch.                                                                                                                                                                                                                                                                              | Verify operation of the replacement lamp.                                                                                                                                     |
| 7                                                                                 | Replace the front panel on the A chassis.                                                                                                                                                                                                                                                                       |                                                                                                                                                                               |
| End                                                                               |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                               |

**Figure 7-2**  
**Removing DPP system front panel**



## System temperature sensor(s)

The system temperature sensors are located inside the power supplies. These sensors provide an early warning alarm indicating that the DPP is exceeding its recommended operating temperature. To test the external temperature alarm circuitry at the J16 connector on the input connector panel, short pins 7 and 8 together. Alarms are shown by the “CONV FAIL” lamp on the Frame Supervisory Panel (FSP) and the Office Alarm, if equipped.

## Testing temperature alarms

To test the external temperature alarm circuitry at the J16 connector on the input connector panel, short pins 7 and 8 together. Alarms are shown by the “CONV FAIL” lamp on the Frame Supervisory Panel (FSP) and the Office Alarm, if equipped.

*Note:* Test each chassis separately.

The DPP temperature alarm will activate given any of the following conditions:

- the external ambient temperature measured at the fan filter inputs on the rear of the DPP chassis inside the equipment bay exceeds 100°F, or
- any fan fails and the ambient temperature measured at the fan filter inputs on the rear of the DPP chassis inside the equipment bay approaches 100°F, or
- the fan filters become clogged blocking cooling air through the interior of the DPP.



### CAUTION

Continuous operation of the DPP under extreme heat conditions will degrade system operation.

After the temperature alarm is set, reduce the ambient temperature measured at the fan filter inputs on the rear of the DPP chassis inside the equipment bay to 80°F to reset the thermostat. Removing the DPP front covers and rear cabinet doors can speed the thermostat reset by allowing better air circulation.

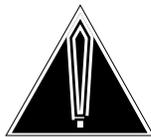
## Fans

There are three ventilation fans in the DPP. Two are on the rear of the A and B chassis. The third fan is inside the DPP in the B chassis behind the Rover Interface Panel.

### Cleaning the Fan foam filter

The two fans on the rear have a foam filter under the metallic screen. Clean this foam filter at least monthly, or as conditions warrant, using Procedure 7-2. The fan blades must still rotate during cleaning.

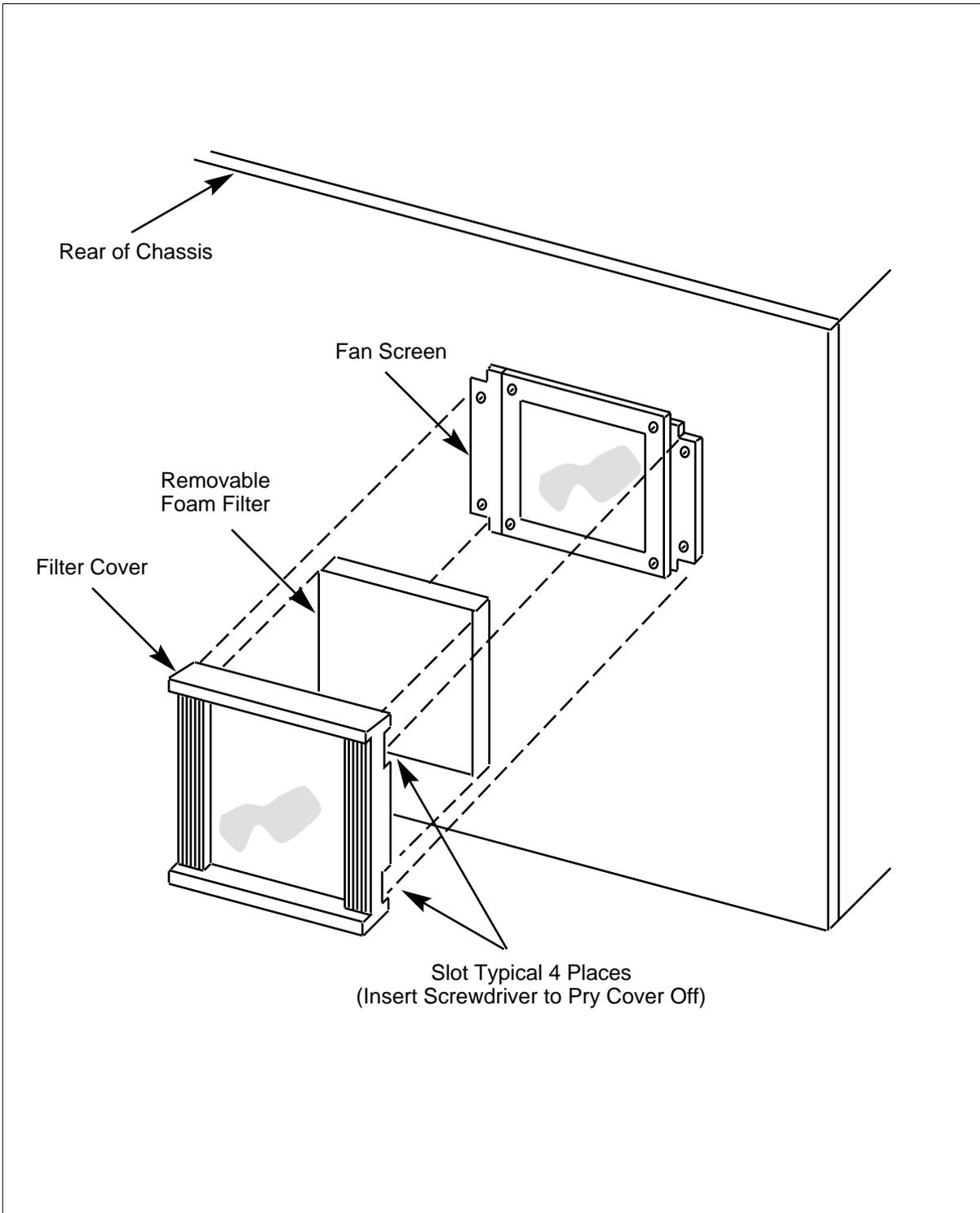
| <b>Procedure 7-2<br/>Cleaning the Fan Foam Filter</b> |                                                                                                                                                                |                                               |
|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| <b>Step</b>                                           | <b>Description</b>                                                                                                                                             | <b>Notes</b>                                  |
| 1                                                     | On the outside of the rear panel, insert a small, flat blade screwdriver between the lip of the filter and the rear panel sheet metal; pry up. See Figure 7-3. | There are four slots on the screen framework. |
| 2                                                     | Remove the foam filter and gently wash in warm water.                                                                                                          | Let the filter dry.                           |
| 3                                                     | Brush off any dust from the fan enclosure area.                                                                                                                |                                               |
| 4                                                     | Clean the fan filter screen with compressed air.                                                                                                               |                                               |
| 5                                                     | Make sure the foam filter is completely dry before reinstalling.<br>Go to step 4.                                                                              | Air flows to the interior of the DPP.         |
| 6                                                     | Place the foam filter and screen assembly over the fan opening.                                                                                                | Press into place.                             |
| 7                                                     | Repeat steps 1 - 6 for the other filter.                                                                                                                       |                                               |



#### **CAUTION**

The fan must operate during filter cleaning or replacement. Do not touch the rotating fan blades with the filter or your fingers !

**Figure 7-3**  
**Removing the Fan filter**



## The Cooling Fans at the rear

### Lubricating the fans

Since the fans have permanently lubricated bearings, they never need lubricating or oil servicing.

### Replacing the fans

Use Procedure 7-3 when replacing the cooling fans at the rear of the DPP chassis.

### Before replacing the fans

Before replacement, make sure the following conditions are met:

- The processor with the operational fan is in the **ONLY** mode of operation.
- A polling session has been completed; if possible, wait for a slow traffic period before fan replacement.

The following are available from NT: replacement foam filters, part no. 680-7859, replacement Fan Filter PCA fuses, 1/4 amp 8AG, part no. 680-9176-001, replacement Fan Bracket Assemblies, part no. NT6M55DA or NT6M55DD and, replacement Fan Filter PCAs, part no. NT6M56AB (may be NT6M56AD in some units. For the Filter PCA behind the Rover Interface Panel, use part no. NT6M56AB.

**Note: 2** Fuse operation (a blown fuse) usually indicates a failure. Check the fan and associated cabling for shorts before replacing the fuse.

| <b>Procedure 7-3</b><br><b>Replacing the Cooling fans</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                       |
|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step                                                      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Notes                                                                                                                                                                 |
|                                                           |  <p>Since all circuit assemblies, disk drives, and other hardware in the DPP are static sensitive, be cautious.</p> <p>Wear a wrist grounding strap when working with the DPP. Jacks at the lower right of the Rover Interface panel (B chassis) and the lower right of the Switch and Status Panel (A chassis) are provided to accept the banana plug connection on the end of a grounding strap.</p> |                                                                                                                                                                       |
|                                                           |  <p><b>WARNING</b></p> <p>Since the DPP is powered up during this procedure, observe all safety procedures for operations on live equipment.</p>                                                                                                                                                                                                                                                       |                                                                                                                                                                       |
| 1                                                         | Request a polling session from Collector personnel.                                                                                                                                                                                                                                                                                                                                                                                                                                     | Explain that maintenance activity is scheduled at the DPP as a precaution.                                                                                            |
| 2                                                         | Remove the front panel on the A chassis. See Figure 7-2.                                                                                                                                                                                                                                                                                                                                                                                                                                | Loosen the four captive screws on the left and right of the front panel and carefully remove it. Put it in a safe place to avoid damage.                              |
| 3                                                         | <p>At the Switch and Status Panel:</p> <p>a. Press the A/B processor. Select Switch to show the same as the processor with the operational fan.</p> <p>b. Make the P/O processor Mode Select Switch O.</p> <p>c. Turn the Mode Switch to the right.</p>                                                                                                                                                                                                                                 | <p>Make the processor with the operational fan the ONLY processor if it isn't already.</p> <p>See Figure 7-1.</p> <p>Turn it 45 degrees to the right and release.</p> |
| 4                                                         | Remove the rear panel of the chassis to be worked on.                                                                                                                                                                                                                                                                                                                                                                                                                                   | Figure 7-4 shows the eight screws to remove. Save the screws.                                                                                                         |
| 5                                                         | Remove the 2 screws securing the fan mounting bracket in the chassis. See Figure 7-4. Support the fan assembly with your hand while removing the two screws.                                                                                                                                                                                                                                                                                                                            | These 2 screws are on the outside of the chassis, in the upper left corner of the right hand panel, as from the rear.                                                 |
| (continued)                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                       |

| <b>Procedure 7-3</b><br><b>Replacing the Cooling fans</b> (continued)                                                                                                                                                                                                |                                                                             |                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step</b>                                                                                                                                                                                                                                                          | <b>Description</b>                                                          | <b>Notes</b>                                                                                                                                                         |
| 6                                                                                                                                                                                                                                                                    | Remove the fan mounting bracket from the chassis.                           | Slide the base of the bracket 1/2-inch to the left and then pull back 1-inch from the center of the chassis until the bracket is free of the chassis base.           |
| 7                                                                                                                                                                                                                                                                    | Disconnect the connector from the fan filter PCA.                           | Connector is on the fan filter PCA assembly on the bottom rear of the bracket.                                                                                       |
| 8                                                                                                                                                                                                                                                                    | Remove the fan.                                                             | With the bracket balanced on the lip of the DPP chassis, remove the four bolts in the corners of the bracket. Save the bolts.                                        |
| 9                                                                                                                                                                                                                                                                    | Mount the replacement fan.                                                  | With the bracket balanced on the lip of the chassis, reinstall the four bolts in the corners of the bracket. Use the same four bolts removed in step 8. <sup>1</sup> |
| 10                                                                                                                                                                                                                                                                   | Connect power to the fan.                                                   | Connect power cable to the Fan PCA assembly on the bottom rear of the chassis.                                                                                       |
| 11                                                                                                                                                                                                                                                                   | Install the fan mounting bracket.                                           | Push in 1-inch and to the right 1/2-inch; register and lock the slots on the bracket with the pins on the chassis base.                                              |
| 12                                                                                                                                                                                                                                                                   | Reinstall the two screws to secure the bracket in the chassis. <sup>1</sup> | From step 5.                                                                                                                                                         |
| 13                                                                                                                                                                                                                                                                   | Reinstall the rear panel of the chassis just worked on.                     | Use the screws saved in step 4.                                                                                                                                      |
| 14                                                                                                                                                                                                                                                                   | Clean the foam filter.                                                      | Follow the steps in General Procedures, Fan Foam Filter Maintenance.<br><br>MAKE SURE THE FAN FOAM FILTER IS TOTALLY DRY BEFORE REINSTALLING.                        |
| 15                                                                                                                                                                                                                                                                   | Reinstall the front panel on the A chassis.                                 | Snap the cover in place.                                                                                                                                             |
| <b>Notes:</b>                                                                                                                                                                                                                                                        |                                                                             |                                                                                                                                                                      |
| <b>Note 1:</b> When replacing the bolts, carefully align them before tightening to avoid stripping. Tighten the bolts, alternating until all are equally tight. Do not "cinch down" any one bolt until all are properly aligned; no binding or force needed to turn. |                                                                             |                                                                                                                                                                      |
| <b>End</b>                                                                                                                                                                                                                                                           |                                                                             |                                                                                                                                                                      |

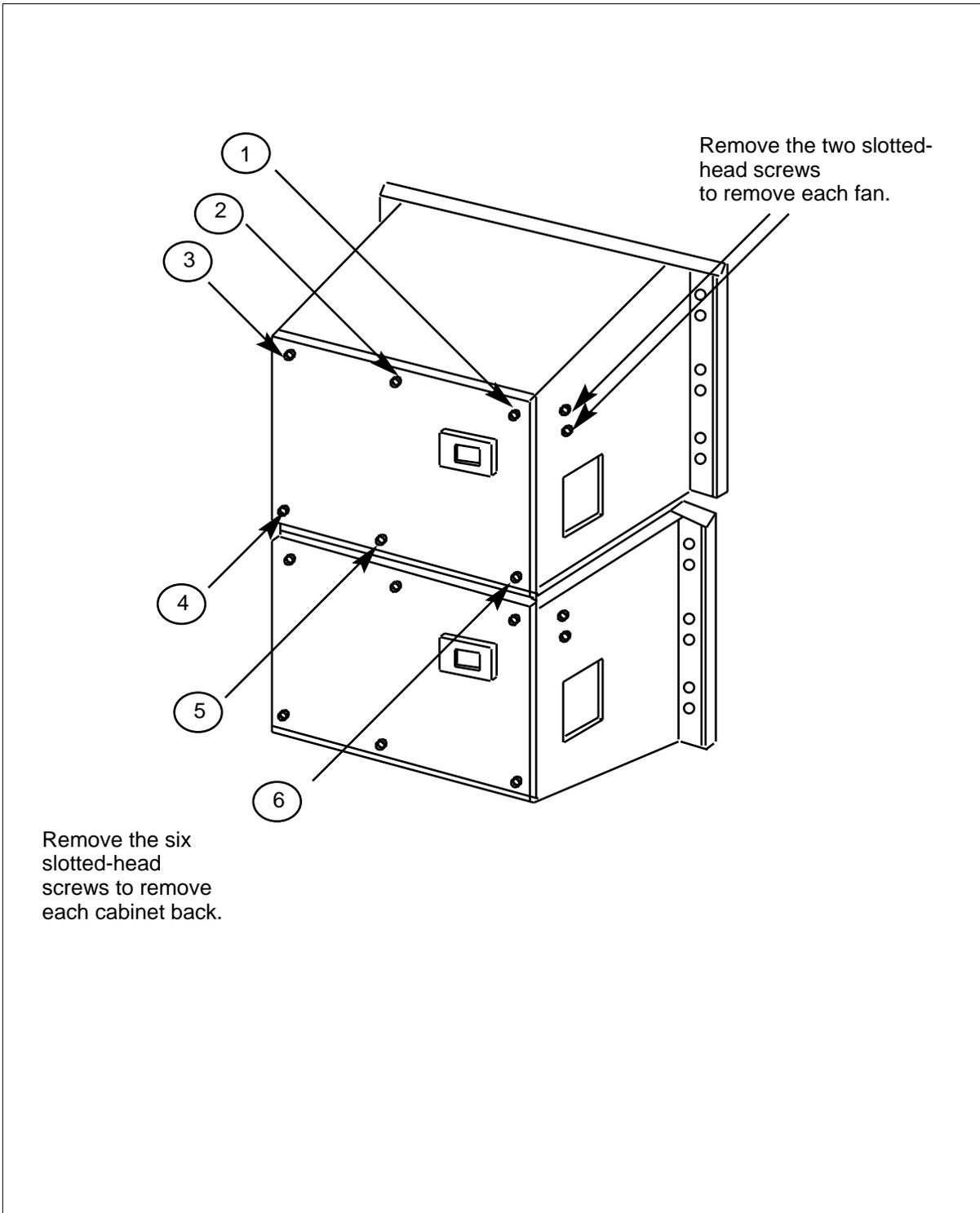
## **Replacing the Fan behind the Rover Interface Panel**

Use Procedure 7-4 to replace the fan behind the Rover Interface panel on the front of the lower processor chassis.

| <b>Procedure 7-4</b><br><b>Replacing the fan behind the rover interface panel</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step                                                                              | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Notes                                                                                                                                                                                                                                                                                                |
|                                                                                   |  <p>Since all circuit assemblies, disk drives, and other hardware in the DPP are static sensitive, be cautious.</p> <p>Wear a wrist grounding strap when working with the DPP. Jacks at the lower right of the Rover Interface panel (B chassis) and the lower right of the Switch and Status Panel (A chassis) are provided to accept the banana plug connection on the end of a grounding strap.</p> |                                                                                                                                                                                                                                                                                                      |
|                                                                                   |  <p><b>WARNING</b></p> <p>Since the DPP is powered up during this procedure, observe all safety procedures for operations on live equipment.</p>                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                      |
| 1                                                                                 | Request a polling session from Collector personnel.                                                                                                                                                                                                                                                                                                                                                                                                                                     | Explain that maintenance activity is scheduled at the DPP as a precaution.                                                                                                                                                                                                                           |
| 2                                                                                 | Remove the front panel on the A chassis. See Figure 7-2.                                                                                                                                                                                                                                                                                                                                                                                                                                | Loosen the four captive screws on the left and right of the front panel and carefully remove it. Put it in a safe place to avoid damage.                                                                                                                                                             |
| 3                                                                                 | <p>At the Switch and Status Panel:</p> <p>a. Press the A/B processor. Select Switch to show the same as the processor with the operational fan.</p> <p>b. Make the O/P processor Mode Select Switch O.</p> <p>c. Turn the Mode Switch to the right.</p>                                                                                                                                                                                                                                 | <p>Note: Skip this step if the processor mode is already AO.</p> <p>See Figure 7-1.</p> <p>Make the A processor the ONLY processor.</p> <p>Turn it 45 degrees to the right and release.</p>                                                                                                          |
| 4                                                                                 | <p>Remove the Rover Interface panel from the B chassis.</p> <p>Remove the two slotted screws from the panel to take it out of position.</p>                                                                                                                                                                                                                                                                                                                                             | <p>The Rover Interface panel is in the same position as the Switch and Status Panel on the A chassis. Hold this panel tightly since it comes loose. The ground jack wire connections and the Rover terminal wire connections are mounted on the back of the panel. Save the screws to use later.</p> |
| (continued)                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                      |

| <b>Procedure 7-4</b>                                                                                                                                                                                                                                               |                                                                                              |                                                                                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| <b>Replacing the fan behind the rover interface panel</b> (continued)                                                                                                                                                                                              |                                                                                              |                                                                                                       |
| <b>Step</b>                                                                                                                                                                                                                                                        | <b>Description</b>                                                                           | <b>Notes</b>                                                                                          |
| 5                                                                                                                                                                                                                                                                  | Remove the Fan Assembly.                                                                     | Look inside the space vacated by the Rover panel and locate the two screws securing the Fan Assembly. |
| 6                                                                                                                                                                                                                                                                  | Remove the two fan mounting screws that hold the fan assembly in place.                      | Save the screws for later use.                                                                        |
| 7                                                                                                                                                                                                                                                                  | Slide the fan assembly forward out of the chassis and disconnect the power cable.            |                                                                                                       |
| 8                                                                                                                                                                                                                                                                  | Remove the fan from the mounting bracket.                                                    | Lay the mounting bracket in safe place.                                                               |
| 9                                                                                                                                                                                                                                                                  | Remove the protective wire mesh screen from the fan.                                         | Clean the screen at this time, if needed.                                                             |
| 10                                                                                                                                                                                                                                                                 | Mount the screen on the replacement fan.                                                     |                                                                                                       |
| 11                                                                                                                                                                                                                                                                 | Mount the replacement fan in the position vacated by the faulty fan on the mounting bracket. | Use the screws from step 6.                                                                           |
| 12                                                                                                                                                                                                                                                                 | Position the mounting bracket in front of the chassis; reconnect the power cable.            |                                                                                                       |
| 13                                                                                                                                                                                                                                                                 | Slide the fan mounting bracket in until it is fully seated.                                  | Make sure there are no obstructions.                                                                  |
| 14                                                                                                                                                                                                                                                                 | Secure the fan assembly.                                                                     | Replace the two screws removed in step 6. Do not overtighten the screws. <sup>1</sup>                 |
| 15                                                                                                                                                                                                                                                                 | Mount the filler panel in the chassis.                                                       | Use the screws from step 4.                                                                           |
| 16                                                                                                                                                                                                                                                                 | Reinstall the front panels of the DPP.                                                       |                                                                                                       |
| <b>Notes:</b>                                                                                                                                                                                                                                                      |                                                                                              |                                                                                                       |
| <b>Note 1:</b> When replacing the screws, align carefully before tightening to avoid stripping. Tighten the screws, alternating until all are equally tight. Do not "cinch down" any one screw until all are properly aligned; no binding or force needed to turn. |                                                                                              |                                                                                                       |
| <b>End</b>                                                                                                                                                                                                                                                         |                                                                                              |                                                                                                       |

**Figure 7-4**  
**Removing DPP system rear panel and fan mounting screws**



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## Alphabetical listing of DPP messages

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### Symbols

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## 8-2 Alphabetical listing of DPP messages

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### Y

YDYSTS FILE yyyyyy ERROR: ee (w/o 56K polling), 4-79

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## List of terms

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### **AMA**

Automatic Message Accounting

An automatic recording system which documents all of the necessary billing data of subscriber-dialed long distance.

### **AMATPS**

AMA Teleprocessing System

An AMA data management system in the DMS-100 designed for use with BELLCORE AMA data. AMATPS consists of the DMS-100 Device Independent Recording Package (DIRP), the DPP, and a remote data collection center. The DMS-100 DIRP manages the flow of AMA data from the DMS-100 to the DPP. The DPP functions as the AMA data formatter (BCS25-28) and collector, and as the AMA transmitter. The remote polling center acts as the AMA data polling system.

### **BELLCORE**

Bell Communications Research

A group responsible for coordinating Bell Operating Company projects and setting guidelines for DMS-100s.

### **BPS**

Bits per second

### **CO**

Central Office

A switching office arranged for terminating subscriber lines and provided with equipment and trunks for establishing connections to and from other switching offices.

### **CC**

Central Control Complex

Comprises all Central Control functions of the DMS-100. It consists of the Central Message Controller, CPU, and Data Store.

**CPU**

Central Processor Unit

**CTC**

Counter Timer Circuit

A circuit on the DPP CPU PCA that handles vectored interrupts from various devices within the DPP that request access to the data bus for data transfer.

**DIRP**

Device Independent Recording Package

Software which automatically directs data from the various administrative and maintenance facilities to the appropriate recording devices.

**DMA**

Direct Memory Access

The use of special hardware for transferring data to and from memory to reduce the number of interrupts required for program data transfers.

**DPP**

Distributed Processing Peripheral

A peripheral device of the DMS-100 that functions as an AMA data collector and an AMA transmitter in the AMATPS of the DMS-100. The DPP collects AMA data from the DIRP, formats the data (BCS25-28), stores the data on its own internal disk, and transmits the data to a data collection center when polled by the collection center. The DPP performs the AMAT functions independently of the DMS-100, thereby off-loading the AMA T functions from the DMS-100 CC.

**DRAM**

Dynamic Random Access Memory

A Random Access Memory system that employs transistor capacitor storage cells. The logic state is stored in the capacitor and buffered by the transistor. The capacitive charge is only held for a short duration and must be refreshed at a periodic rate to maintain its programmed state.

**DSI**

Data Stream Interface

A circuit of the DPP that accepts AMA data from the DMS-100 MTDs. The DSI emulates a Magnetic Tape Drive on DMS-100 MTD Ports, duplicating all of the communications signals normally exchanged between the DMS-100 and an MTD.

**DTR**

Data Terminal Ready

A signal sent from a terminal device indicating to the host device its readiness to communicate.

**EAI**

Emergency Administrative Interface

A terminal port at the DPP to support the Emergency Administrative Terminal.

**EAT**

Emergency Administrative Terminal

A maintenance terminal connected directly to the DPP that is used for performing various maintenance functions on the DPP. The EAT connects to the DPP emergency administrative interface.

**EIA**

Electronic Industries Association

**EMI**

Electromagnetic Interference

Emissions given off by all electronic devices which may interfere with TV, radio, police radio, and other forms of electronic communication if emitting devices are not properly shielded.

**EOT**

End of Tape

A signal sent from an MTD to its host indicating that no more data should be recorded on the currently loaded tape.

**EPROM**

Erasable Programmable Read Only Memory

A read-only memory in which stored can be erased by ultraviolet light and reprogrammed.

**ESD**

Electro-Static Discharge

The passing of electrical energy from a statically charged body to a discharged body or ground. Statically charged bodies may store several thousand volts, which has potential to severely damage or even destroy static sensitive electronic components such as Metal Oxide Semiconductor devices.

## **HOC**

Host Office Collector

An AMA data collection center that polls Central Offices in its region on a prescheduled basis and compiles the collected data onto a magnetic tape. The tape is used by the Revenue Accounting Office for computing customer billing.

## **IC**

Integrated Circuit

A series of interconnected active and passive electronic devices integrated into a single semi-conductor substrate (typically silicone) or deposited on a single substrate, and capable of performing one or more complete electronic functions.

## **IOC**

Input/Output Controller

An equipment shelf which provides an interface between up to 36 Input/Output devices and the Central Message Controller. The IOC contains a Peripheral processor which independently performs local tasks, thus relieving the load on the CPU.

## **MAP**

Maintenance and Administrative Position

A group of components which provide a Man-Machine Interface between OTC personnel and the DMS-100 Family. A MAP consists of Visual Display Unit, voice communications module, testing facilities, and MAP furniture.

## **MODEM**

MODulator/DEModulator

A device which modulates and demodulates signals for transmission and reception, respectively, over communication facilities. A modem is used to permit digital signals to be sent out over analog lines.

## **PIO**

Port Input/Output

A device on the DPP CPU PCA that controls a communications bus between the DPP processors.

**RAM**

Random Access Memory

A static, read/write memory system in which information is stored in discrete, individually addressable locations such that access time is independent of location.

**SIO**

Serial Input/Output

Circuitry in the DPP that passes data from the DPP to external devices. The DPP employs four such circuits in its serial I/O PCA that provides communications paths between the DPP and DMS-100/DPP maintenance interface, the DPP EAT, and the remote polling center link (BCS25-28).





DMS-100 Family

# Distributed Processing Peripheral

*Recovery and Routine Maintenance Guide*

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