DMS-10 and DMS-100 Families

Billing Media Converter II

Automatic Message Accounting Transmitter
1997 Quick Reference Guide

BMCA001 and up   02.01   Standard   July 1997

Your guide to:

- **Maintenance commands**
- **Index Corruption Maintenance**
- **Replacement procedures**
- **PCA switch setting and jumper options**

This Quick Reference Guide applies to all EMC chassis (metal front door panels) Automatic Message Accounting Transmitter (AMAT) style Billing Media Converter II (BMC II) systems.

Other style BMC II systems cannot use this Quick Reference Guide.

AMAT BMC II systems can be identified by the information on their rear panel labels.

Catalog Number or Model Number:

NT8M0xxE   (EMC Chassis models)

NORTEL
NORTHERN TELECOM

DMS-10 and DMS-100 Families

Billing Media Converter II

Automatic Message Accounting Transmitter
1997 Quick Reference Guide

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Publication history

May 1996

Standard 01.01.

First standard issue.

July 1997

Standard 02.01.

- Integrated the new Quick Reference Guide template into this document.
- Added the 1 and 2 GB disk drives to the BMC AMAT Front View figure in *BMC II AMAT Figures*.
- Added DMS-10 and DMS-100 software and firmware files reference tables to *BMC II AMAT Figures*.
- Modified *Maintenance Commands* with commands left out of first issue:
  — DELFILE f v1 v2
  — LSTDIR ALL SORT
  — LSTDIR FILE f v1 v2
  — IDXMAINT DIR CLOSED t LAST v
  — IDXMAINT DIR CLOSED t NEXT v
  — IDXMAINT EXAMINE t HDR s
  — IDXMAINT EXAMINE LOG DATE d
  — IDXMAINT EXAMINE LOG HOUR x
  — IDXMAINT EXAMINE LOG MSG n
  — BX25PARM t
  — BX25PARM t v
  — BX25PARM PRIHDR
  — BX25PARM PRIHDRx
  — DMSO p aa
  — DMSP xxxx
  — SETTERM TIMEOUT
  — SETTERM TIMEOUT x
  — DELETE f v1:v2.

- Added notes concerning the necessity to execute the LINIT and SIT-DAT WRITE commands after modification of the value of a command in the *CP Commands* and *Site Dependent Data Commands* subsections of the *Maintenance Commands*.
- Added a disk capacity and related number of total tracks available table to the *Disk Commands* subsection of *Maintenance Commands*.
- Moved listing for VALPARM LOGHDR command from *Site Data Commands* subsection to *Testing Commands* subsection of *Maintenance Commands*.
- Added a CMD and STA code descriptions table to the *TEC/DSI Commands* subsection of *Maintenance Commands*.
- Removed the Bus Terminator PCA from the list of valid PCAs in the *Miscellaneous PCA Replacement Procedure*.
- Modified the *Disk Drive Replacement Procedure* section to support the 1 GB (Turbo and Non-Turbo) and 2 GB (Turbo only) disk drive systems
- Modified the BMC AMAT disk drive options table to reflect the proper option settings for the 380 MB Non-Turbo disk drives and the new 1 and 2 GB disk drives in the *Disk Drive Replacement Procedure*.

- Added notes regarding the location of the defect map and HEAD and CYLINDERS out of range to step 9 of the *Install replacement disk drive procedure* in the *Disk Drive Replacement Procedure*.
- Added note concerning the placement of the J5 jumper to step 8 of the *Disk Crossover PCA Replacement Procedure*.
- Added the following to the *PCA Switch and Strap Settings*:
  — CPU LED display codes table
  — EPROM PCA table
  — 56K Interface PCA table
  — Disk Interface PCA table
  — SCSI Interface PCA table
  — DSI PCA table
  — TEC PCA table.

- Modified statements in various sections concerning firmware to verify filename and release level prior to installation of replacement PCA.
- Modified PCA options statements in various sections to refer to the *PCA Switch and Strap Settings* to verify settings prior to installation.
- Modified the start-up activity steps of various sections to indicate that Turbo BMC and Non-Turbo BMC with 1 GB disk drive users should wait for the CP S/W Loaded message to print.
- Modified the command sequence used to clear alarms on the standby processor in various sections.
- Corrected various minor format and content errors throughout the document.

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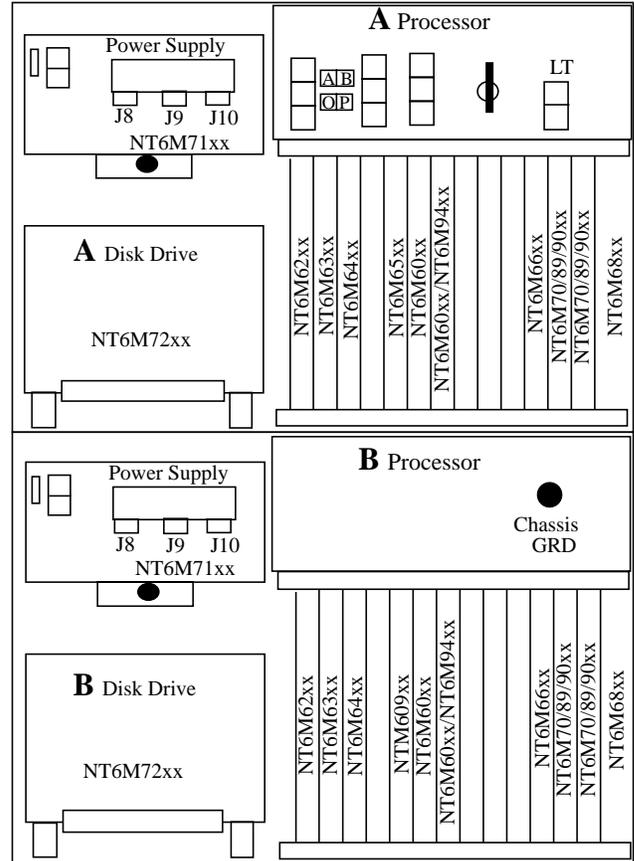
NT6M62xx	Central Processor Unit (CPU) with DMA PCA
NT6M63xx	EPROM PCA
NT6M64xx	DRAM with Extended Memory PCA
NT6M65xx	Error Control II PCA
NTM609xx	Error Control Jumper PCA
NT6M60xx	Quad Serial Input/Output (SIO) PCA
NT6M94xx	56Kbps Interface PCA (Turbo)
NT6M66xx	Disk/SCSI Interface PCA
NT6M70xx	Data Stream Interface (DSI) PCA (DMS-100 systems only)
NT6M89xx	Tape Emulation Card (TEC) PCA (DMS-10 systems only)
NT6M90xx	TEC PCA (DCO* systems only)
NT6M68xx	Bus Terminator PCA
NT6M71xx	Power Supply
NT6M72xx	Disk Drive: AA - 72MB; BA - 140MB; CA - 30MB; DA - 380MB; DD - 380MB Turbo; EA - 760MB; GA - 1GB; and HA - 2GB

NT6M72xx	Disk Crossover PCA (Non-Turbo)	
NT6M93xx	SCSI Crossover PCA (Turbo)	These packs are located in the back of the BMC
NT6M84xx	Power/Alarm Communication PCA	
NT6M48xx	56 Kbps Crossover PCA	
NT6M56xx	Fan Filter PCA	
NT6M54xx	56 Kbps Mounting Panel	

* DCO is a registered trademark of Siemens Stromberg-Carlson.

Figure 2
DMS-10 Non-Turbo with 5 1/4" disk drives - Side View

J1 - Polling link 1 BX.25
J2 - Software Download
J3 - SDI TTY
J4 - Maintenance TTY
J5 - Not Used
J6 - Polling link 2 BX.25
J7 - Not Used
J8 - Not Used
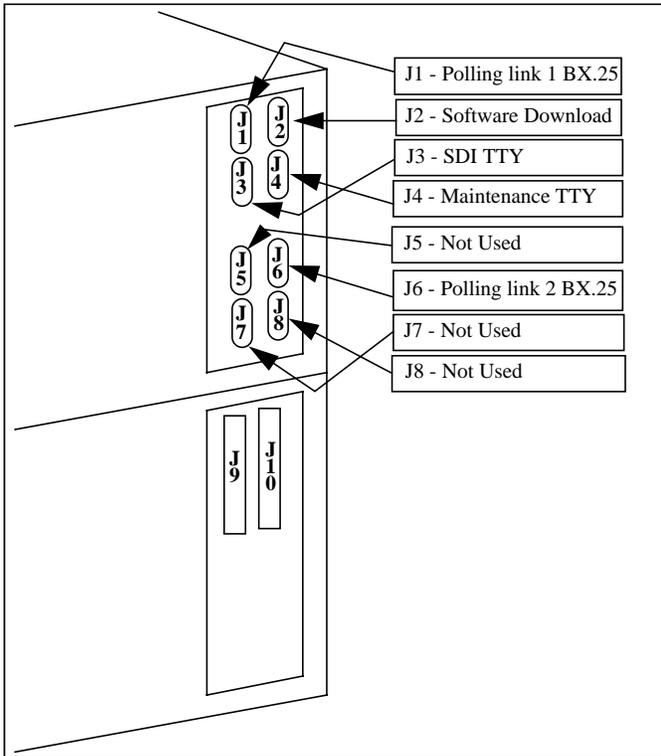
Figure 3
DMS-10 Turbo (any) or Non-Turbo with 3 1/2" disk drives - Side View

J1 - Not Used
J2 - Software Download
J3 - SDI TTY
J4 - Maintenance TTY
J5 - Not Used
J6 - Not Used
J7 - Not Used
J8 - Not Used
J11 - Polling link 1 BX.25/56k max
J12 - Polling link 2 BX.25/56k max
J13 - Polling link 1 BX.25/9600 max
J14 - Polling link 2 BX.25/9600 max
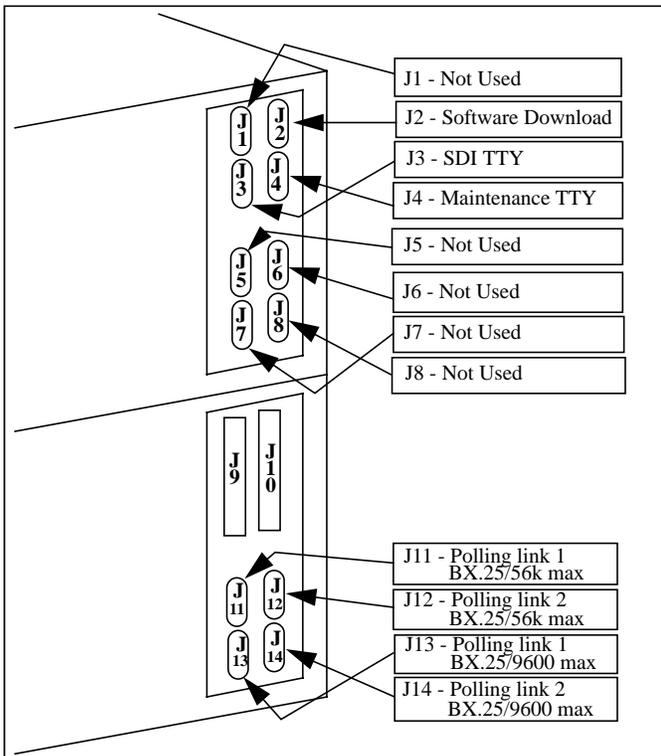
Figure 4
DMS-100/DCO Non-Turbo with 5 1/4" disk drives - Side View

J1 - Polling link 1 BX.25

J2 - Software Download

J3 - Maintenance TTY

J4 - Maintenance TTY

J5 - Polling link 2 BX.25

J6 - Maintenance TTY

J7 - Not Used

J8 - Not Used
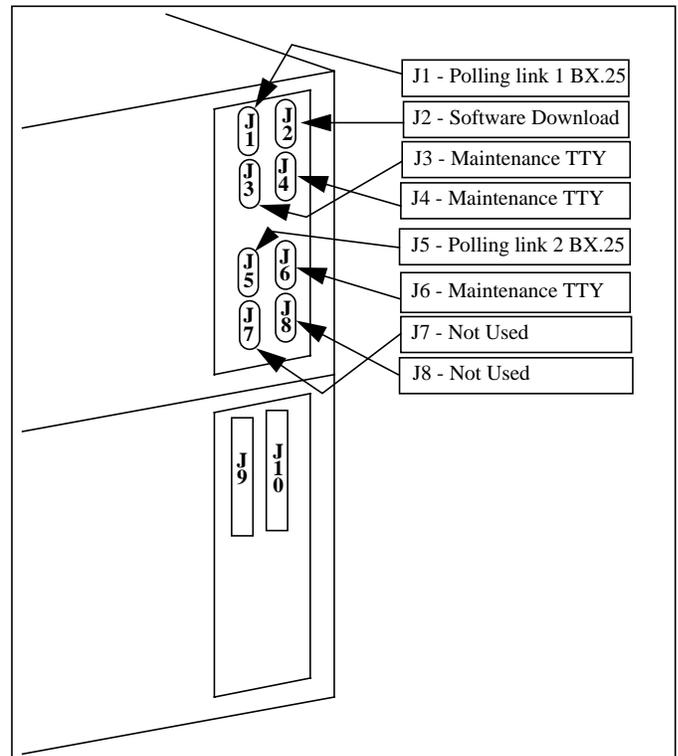
Figure 5
DMS-100 Turbo (any) or Non-Turbo with 3 1/2" disk drives - Side View

J1 - Maintenance TTY

J2 - Software Download

J3 - Maintenance TTY

J4 - Maintenance TTY

J5 - Maintenance TTY

J6 - Maintenance TTY

J7 - Not Used

J8 - Not Used

J11 - Polling link 1
BX.25/56k max

J12 - Polling link 2
BX.25/56k max

J13 - Polling link 1
BX.25/9600 max

J14 - Polling link 2
BX.25/9600 max
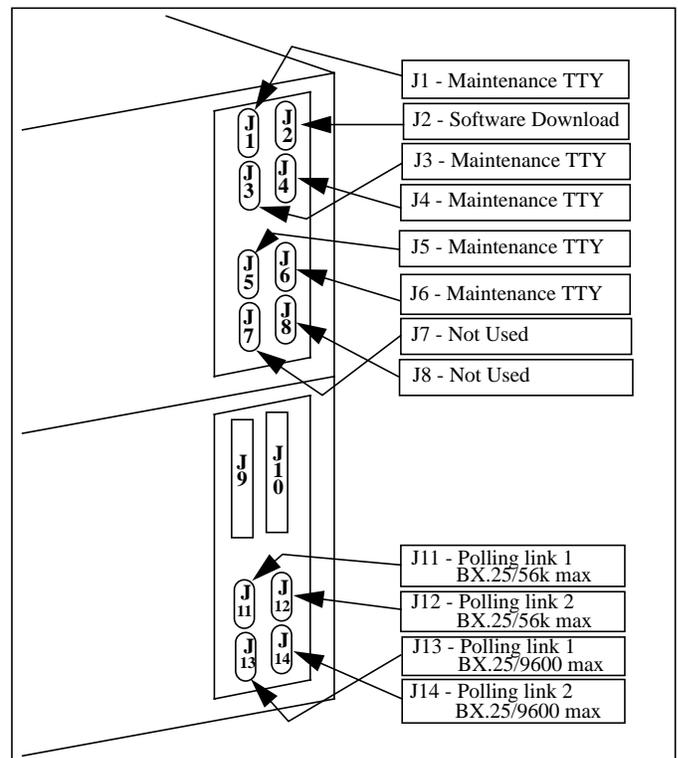
Table 1
DMS-10 BMC AMAT software and firmware files

Dash	Product	Main Software	CP Software	CP Firmware	Boot Firmware	Disk Firmware	TEC Firmware
n/a	3.5" 1 GB Turbo	02AR02	943205	Note 1	6M6370-01	6M6627-02	135TEC-0
001S	5.25" 380-760 MB Turbo	001-DMXS05-00 05/06/92	001-CPTA02-00	Note 1	001-BBS005-0	BIGDA8	135TEC-0
n/a	3.5" 1 GB Non-Turbo	02AP02	943205	Note 1	6M6370-01	6M6627-02	135TEC-0
001G	5.25" 30-140 MB Non-Turbo	DMXG0G 04/30/92	n/a	n/a	001BBN010	105D03	135TEC-0
001G	5.25" 380 MB Non-Turbo	DMXG0G 04/30/92	n/a	n/a	001BBN010	D01D6J-00	135TEC-0

Note 1: NT6M94AA (firmware - 001-CPFA9B) non-compression only. NT6M94BA (firmware - 6M9451-04, CPFC04) non-compression and compression.

Note 2: All BMC AMAT system types use the same polling format, BX.25. These systems also all use LSSGR for call record format and PC (ASYNC at a maximum speed of 9600 baud) for download format.

Note 3: This chart does not represent the baseline for system operation. The file names listed above are the most current release available at the time of publication for the various BMC AMAT system types.

Table 2
DMS-100 BMC AMAT software and firmware files

Dash	Product	Main Software	CP Software	CP Firmware	Boot Firmware	Disk Firmware	DSI Firmware
n/a	3.5" 2 GB Turbo	06AS05	943106	Note 4	6M6371-01	6M6627-02	137TEC-1
n/a	3.5" 1 GB Turbo	06AR05	943106	Note 4	6M6371-01	6M6627-02	137TEC-1
001R	5.25" 380-760 MB Turbo	001-DMCR05-00 06/09/92	001-CPPA08-00	Note 4	001-BBR001-0	BIGDA8	137TEC-1
n/a	3.5" 1 GB Non-Turbo	06AP05	943106	Note 4	6M6371-01	6M6627-02	137TEC-1
001H	5.25" 72-140 MB Non-Turbo	001-DMCH0J-00 06/19/92	n/a	n/a	001BBN010	105D03	137TEC-1
001H	5.25" 380 MB Non-Turbo	001-DMCH0J-00 06/19/92	n/a	n/a	001BBN010	D01D6J-00	137TEC-1

Note 4: NT6M94AA (firmware - 001-CPFA9B) non-compression only. NT6M94BA (firmware - 6M9451-04, CPFC04) non-compression and compression.

Note 5: All BMC AMAT system types use the same polling format, BX.25. These systems also all use LSSGR for call record format and PC (ASYNC at a maximum speed of 9600 baud) for download format.

Note 6: This chart does not represent the baseline for system operation. The file names listed above are the most current release available at the time of publication for the various BMC AMAT system types.

Table 3
DCO BMC AMAT software and firmware files

Dash	Main Software	Boot Firmware	Disk Firmware	TEC Firmware
001N	DCON12 8/26/93	001BBN010	105D03	163TEC-0 01/24/89

Note 7: BMC AMAT systems compatible with DCO Switching Systems all use Non-Turbo polling speeds (maximum baud rate of 9600) and contain 5 1/4" disk drives with a capacity of 30, 72, or 140 MBs.

Note 8: All BMC AMAT system types use the same polling format, BX.25. These systems also all use LSSGR for call record format and PC (ASYNC at a maximum speed of 9600 baud) for download format.

Note 9: This chart does not represent the baseline for system operation. The file names listed above are the most current release available at the time of publication for the various BMC AMAT system types.

Maintenance Commands

Alarm Commands

Command Name	Explanation
ERRMAP	Displays a list of available alarms with active alarms noted on the active processor.
DOS S ERRMAP	Displays a list of available alarms with active alarms noted on the standby processor.
ERRMAP ALARMS	Displays a list of active alarms on active and standby processors.
ERRMAP ee ttttttt l	Changes specified alarm parameters. **ee** - Event #: **1-99** **ttttttt** - Alarm type: **INHIBIT**, **MINOR**, **MAJOR**, and **CRITICAL** **l** - level of alarm: **0-3**.

Note: Use the **SITDAT WRITE** command to save modified alarm parameters to disk.

RSERR nn	Resets alarms on the active processor. **nn** - event # or **00** for all active side alarms.
DOS S RSERR nn	Resets alarms on the standby processor. **nn** - event # or **00** for all standby side alarms.

Boot Commands

Command Name	Explanation
DOS LA xxxxxx yy	Appends a program name to boot list. **xxxxxx** - program name **yy** - program version on disk.
DOS LB	Loads program files listed in the boot file to active processor.
DOS LD	Deletes the last file name in boot file.
DOS LL	Lists the contents of the boot file.
DOS S DOS LB	Loads program files listed in the boot file to standby processor.

CP Commands

Note: Whenever the value of a CP command is modified (i.e., the CP
INTERFACE value for link 1 is changed from RS232 to V35), the
LINIT and **SITDAT WRITE** commands must be issued, to initialize
the CP with the new value and save the new value to disk, respectively.
The **LINIT** command should not be issued during polling.

Command Name	Explanation
CP BOOT ACT	Loads the contents of the BOOTCP file to the active CP.
CP BOOT ADD xxxxxx nn	Appends a new file name to the BOOTCP file. **xxxxxx** - file name **nn** - version number.
CP BOOT DELETE	Removes the last file name in the BOOTCP file.
CP BOOT LIST	Displays the contents of the BOOTCP file.
CP BOOT STDBY	Loads the contents of the BOOTCP file to the standby CP.
CP CLOCK	Examines the CP clock source.

CP CLOCK l ssssssss	Changes the clock source.
	l - link #: **1** or **2**
	ssssssss - clock source.
	  INTERNAL - BMC uses its own transmit clock.
	  EXTERNAL - BMC uses an external clock.

Note: link 1 - J11 for 56K polling, J13 for 1200-9600 baud polling.
link 2 - J12 for 56K polling, J14 for 1200-9600 baud polling.

CP INTERFACE	Examines the CP interface used for polling
CP INTERFACE l yyyy	Changes the CP interface. **l** - link #: **1** or **2**. **yyyy** - **RS232;** for 1200-9600 baud OR **yyyy** - **V35**; must use for 56k polling.
CP LOOP ACT	Performs loop test between MP and CP on the active side.
CP LOOP STDBY	Performs loop test between MP and CP on the standby side.
CP TEST ACT	Performs a series of tests on active CP.
CP TEST STDBY	Performs a series of tests on standby CP.
CP VS ACT	Displays the firmware/software versions of active CP.
CP VS STDBY	Displays the firmware/software versions of standby CP.

Note: All **CP** commands are for Turbo BMCs and Non-Turbo BMCs
equipped with 3 1/2" disk drives only.

Disk Commands

Command Name	Explanation
DISK DEFMAP x	Enters the defective tracks for 30-140 MB disk drives (Non-Turbo BMCs). Bad track information comes with disks. **x** - disk drive**: A** or **B**.
DISK FORMAT x	Formats the specified disk drive. This operation takes several minutes. **x** - **A** or **B**.

Note: Do not use the DISK FORMAT command for 380 MB Non-Turbo disk drives.

⚠ **CAUTION**
The **DISK FORMAT** command will erase all data from specified disk drive. Should not be done during high traffic on Non-Turbo BMC systems with 5 1/4" disks.

DISK INIT 1x	Performs a short init on a specified disk. **x** - disk drive: **A** or **B**

Note: Do not use the **DISK INIT** command on Turbo BMCs and Non-Turbo BMCs equipped with 3 1/2" disk drives.

DISK MODE	Displays the current disk mode.
DISK MODE xy	Changes current disk mode. **x** - Primary disk: **A** or **B** **y** - **O**: No standby disk on-line. OR **P**: Standby disk on-line.

⚠ **CAUTION**
The **DISK MODE** command can over write needed data. This operation takes several minutes.

DISK PARAM	Displays choice of disk types used for Non-Turbo BMCs equipped with 5 1/4" disk drives. Enter **1-9** depending on the disk type used.
DISK RESTART	Perform a reset on the SCSI I/F PCA.

Note: The **DISK RESTART** command is for Turbo BMCs and Non-Turbo BMCs equipped with 3 1/2" disk drives only.

DISK VS	Displays the disk firmware version.
DISK USAGE	Displays the number of tracks used / total tracks available. Refer to Table 4.

Table 4
Disk drive size and related number of tracks

Disk Size	Total Tracks	Disk Size	Total Tracks
30 MB	2961	380T MB	9705
72 MB	6909	760T MB	18,342
140 MB	13,770	1 GB	15,258
380 MB	9452	2 GB	30,517

File Manipulations Commands

Command Name	Explanation
CLSACT i	Closes open file. **i** - file id # from LSTACT.
DELFILE f v	Deletes a specified file version.
DELFILE f v1 v2	Deletes a range of versions of a specified file. **f** - filename. **v** - file version (Range: **1-255** or **0** for latest version). **v1** - start of range of versions: **1**-**255**. **v2** - end of range of versions: **1**-**255**, must be greater than v1.
Example: **>DELFILE AMACRD 3 150**	Deletes filename AMACRD versions 3 to 150.
DMPFILE f v b c	Used to output a specified number of blocks from a specified file for examination. **f** - filename. **v** - file version #. **0** is the latest version. (**0-255**) one version at a time. **b** - Specifies starting block range (**0-999,999**). **c** - Specific number of blocks to dump. Range: **0-9,999**. **0** specifies all blocks.
LSTACT	Display a list of all currently open files.
LSTDIR ACT i	Lists the directory entry for the active file specified. **i** - file id # from LSTACT.
LSTDIR ALL	Lists all files in disk directory.
LSTDIR ALL SORT	Lists all files in disk directory and sorts them in alphabetical order.
LSTDIR FILE f v	Lists the directory entry of a specified file.

Command Name	Explanation
LSTDIR FILE f v1 v2	Lists directory entry of a specified file for a range of versions. **f** - filename. **v** - file version (Range: **1-255** or **0** for latest version). **v1** - start of range of versions: **1**-**255**. **v2** - end of range of versions: **1**-**255**, must be greater than v1.

Index Maintenance Commands

Command Name	Explanation
IDXMAINT CLOSE	Close file currently open for read.
IDXMAINT CHECK t	Check the index file.
IDXMAINT CREATE DIR t v	Creates a new index file with primary data only.
IDXMAINT CREATE DIR t v s	Creates a new index file with secondary and primary data.
IDXMAINT CREATE FILE t	Closes open call record file and opens new file.
IDXMAINT DELETE t	Delete oldest secondary file from disk and updates the index. **t** - file type: **AMA**, **LOG**, or **EXC**. **v** - version # to begin index. **s** - first sequence # to be primary.
IDXMAINT DIR CLOSED t v	Displays the closed files on the disk.
IDXMAINT DIR CLOSED t LAST v	Displays the closed files on the disk, starting from version number variable (**v**) specified to the end of the index.

Note: The **IDXMAINT DIR CLOSED t LAST v** command is available only on Turbo BMCs and Non-Turbo BMCs equipped with 3 1/2" disk drives.

IDXMAINT DIR CLOSED t NEXT v	Displays the closed files on the disk, starting from the next version number to the end of the index.

Note: The **IDXMAINT DIR CLOSED t NEXT v** command is available only on Turbo BMCs and Non-Turbo BMCs equipped with 3 1/2" disk drives.

IDXMAINT DIR OPEN t	Displays the open file being written to on disk.

Command Name	Explanation
IDXMAINT EXAMINE t f s	Displays a selected block from BMC disk by sequence number.
IDXMAINT EXAMINE t HDR s	Displays the block header for the selected sequence number.
IDXMAINT EXAMINE LOG DATE d	Displays a log message specified by date. **d** - day of month: **0**-**31**.
IDXMAINT EXAMINE LOG HOUR x	Displays a log message specified by time. **x** - time: **0**-**24**.
IDXMAINT EXAMINE LOG MSG n	Displays a log message specified by log number. **n** - log number: **0**-**255**.
IDXMAINT EXAMINE t NEXT r	To continue to display a selected range of blocks from BMC disk.
IDXMAINT SUMMARY t	Displays summary of indexed files. **t** - file type: **AMA**, **LOG**, or **EXC**. **f** - format: **ASCII** (LOGS only), **EBCDIC, HEX**, or **PACKED** (AMA Blocks). **r** - # of blocks to view: **1-255**. **s** - selected sequence #: **0** to **999999**. **v** - # of versions to be displayed: **1-200**.

Miscellaneous Commands

Command Name	Explanation
ACR	Restore AC clock after an AC power failure.

Note: Use only if the optional AC clock feature is used for BMC.

Command Name	Explanation
BYE	Logs off this terminal.
RSCMD	Stop currently printing command output.

Polling Link Adjustment Commands

Command Name	Explanation
LINIT	Aborts any active polling session and initializes the polling links.
LNKDSC	Causes DTR to drop for 5 seconds and aborts a polling session in progress.

Note: Immediately follow LNKDSC with the LINIT command.

Processor Activity Command

Command Name	Explanation
SWACT x	Change current active processor (A to B or B to A). **x** - optional entry: **FORCE**
	Resets any alarms on the standby processor and then performs the processor switch.

Program Version Commands

Command Name	Explanation
CP VS ACT	Displays the active CP software program and firmware version IDs.
CP VS STDBY	Displays the standby CP software program and firmware version IDs.

Note: **CP** commands are for Turbo BMCs and Non-Turbo BMCs equipped with 3 1/2" disk drives only.

DISK VS	Displays the disk firmware version ID.
DOS S VS	Displays the standby processor software program and firmware version IDs.
VS	Displays the active processor software program and firmware version IDs.
TECMAINT SHOW x VS	Displays the active processor firmware version ID for the selected TEC/DSI.
DOS S TECMAINT SHOW x VS	Displays standby processor firmware version ID for the selected TEC/DSI. **x** - TEC/DSI Port ID: **1** or **2**. **1** - TEC/DSI in slot A13. **2** - TEC/DSI in slot A12.

Site Dependent Data Commands

Note: Whenever the value of a Site Dependent Data command is modified (i.e., the BAUD rate for link 1 is changed from 2400 to 9600), the **LINIT** and **SITDAT WRITE** commands must be issued, to initialize the CP with the new value and save the new value to disk, respectively. The **LINIT** command should not be issued during polling.

Command Name	Explanation
AMAHRS	Displays hour boundaries currently assigned.
AMAHRS ss ee ii	Set the time interval to verify that AMA records have been received from the Switching System. **ss** - two digit start time (**00-23**). **ee** - two digit end time (**00-23**). **ii** - interval in minutes of no blocks before an alarm (**00-60**).

Command Name	Explanation

Note: If all of the parameters in the **AMAHRS ss ee ii** command are set to **00**, the NO BLOCK LAST HOUR alarm is disabled.

AMATPSW	Examine the AMAT Password.
AMATPSW tttt iiiiii	Change AMAT password. **tttt** - 4 digit sensor type. **iiiiii** - 6 digit sensor ID.
BAUD	Displays current polling baud rate for links 1 and 2.
BAUD a rrrr	Change polling baud rate for links 1 and 2. **a** - link: **1** or **2**. **rrrr** - baud rate: **1200/2400/4800/ 9600/56K**.

Note: link 1 - J11 for 56K polling, J13 for 1200-9600 baud polling. link 2 - J12 for 56K polling, J14 for 1200-9600 baud polling.

BX25PARM t	Displays the value of the selected BX.25 timer.
BX25PARM t v	Changes the value of the selected BX.25 timer. **t** - BX.25 timer: 　**R20** - restart request transmission; default: **03**. 　**R22** - restart reset response; default: **03**. 　**T20** - restart request response; default: **180**. 　**T22** - reset request response; default: **80**. 　**T24** - window status transmission; default: **150**. **v** - timer value: **1-255**.
BX25PARM PRIHDR	Displays the AMATPS setting.
BX25PARM PRIHDRx	Changes the AMATPS setting. **x** - **1** for 1986 AMATPS or **2** for 1990 AMATPS.

Note: The **BX25PARM PRIHDR** command is only valid for Turbo BMCs and Non-Turbo BMCs equipped with 3 1/2" disk drives.

COLLPSW	Displays current collector password.
COLLPSW # tttt iiiiii	Modifies the collector password. **#** - Collector Password #: **1** or **2** **tttt** - 4 hex character office type. **iiiiii** - 6 character office id.

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DMS-10 ONLY

DMSO p aa	Reactivates remote DMS-10 terminals.
DMSP	Displays DMS-10 password.
DMSP xxxx	Changes DMS-10 password. **xxxx** - four-character password.

Command Name	Explanation
DMST	Displays DMS-10 LOG terminal assignments.
DMST p aa	Changes the DMS-10 LOG terminal assignments. **p** - Terminal position: **1-6**. **aa** - DMS-10 SDI terminal number: **00-99** or **D** (deletes assigned terminal).
DSPSSO	Displays current DMS-10 HSO/SSO status.
SSO OFF	Change DMS-10 HSO/SSO sensor data to suppressed.
SSO ON	Change DMS-10 HSO/SSO sensor data to preserved.

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Command Name	Explanation
PSWD A nnnnnn p	Add new user password to system.
PSWD uC nnnnnn p	Change a currently assigned password or priority level.
PSWD uD	Delete the selected user number password (#: 0-9) **u** - user number. **nnnnnn** - 6 character alphanumeric password. **p** - priority **1-3** (**1** - lowest, **3** - highest).
PSWD L	Displays the user passwords and the associated priority level.
SITDAT READ	Reads (restores) the site data parameters from the BMC disk and over writes the main memory (RAM).
SITDAT WRITE	Updates (saves) the site data parameters from memory to disk.
SETTERM TIMEOUT	Displays the length of time that no activity can take place before the BMC automatically logs off the terminal.
SETTERM TIMEOUT x	Change automatic terminal timeout value. **x** - minutes: **1-120** or **00** to disable timeout.
TDIF	Displays allowable time difference, between BMC and HOC.
TDIF m s	Change allowable time difference. **m** - **0-59** minutes. **s** - **0-59** seconds.
VALPARM BLOCKS	Displays the minimum number of blocks required to close AMACRD file when a polling session starts.

Command Name	Explanation
VALPARM BLOCKS x	Changes the minimum number of blocks. **x** - **1-199** (default: **200**).
VALPARM INVALID	Displays invalid block quantity threshold value currently assigned.
VALPARM INVALID b	Change invalid block quantity threshold. **b** - number of blocks: **0-65535**.

Statistics Commands

Command Name	Explanation
AMATSTAT	Displays a summarized status report of AMAT records on BMC disks.
CLRSTATS	Clears today's statistics file reports.
REPORT tttt pppp	Displays a compiled list out of a selected statistical file available on the BMC disk. **tttt** - type: **AMA, DISK**. **pppp** - period: **TDAY, YDAY**.
REPORT MNT1	Displays maintenance report of call record information.
REPORT MNT2	Displays maintenance report of BX.25 Communications.
REPORT MNT3	Displays maintenance report of disk capacity alarms.
SESSION REPORT	Displays last or current polling session report.
SESSION STATUS	Displays current status of polling.

System Clock Commands

Command Name	Explanation
CLK	Display time of active processor.
DOS S CLK	Display time of standby processor.
SETCLK yy mm dd hh mm ss day	Set or change the time on the BMC clock. **yy** - year: (**00-99**) **mm** - month: (**01-12**) **dd** - day: (**01-31**) **hh** - hour: (**00-23**) **mm** - minutes: (**00-59**) **ss** - seconds: (**00-59**) **day** - day: (**MON, TUE, WED, THU, FRI, SAT, SUN**)

TEC/DSI Function Commands

Note: The response to the following commands begins with either a B0 or B2. B0 refers to the TEC/DSI PCA is slot 13. B2 refers to the TEC/DSI PCA in slot 12.

Command Name	Explanation
TECMAINT SHOW x a	Displays the argument of the selected TEC/DSI port on the active processor.

DOS S TECMAINT SHOW x a	Displays the argument of the selected TEC/DSI port on the standby processor.
	 x - TEC/DSI Port ID: **1** or **2**.
	    1 - TEC/DSI in slot A13.
	    2 - TEC/DSI in slot A12.
	 a - argument: **ERROR, STATUS** or **VS**.
	    ERROR: error count since the last rewind. CRC: Cyclic Redundancy Check, PAR: Parity, COMM: TEC/DSI communication failures.
	    STATUS: Last command, status, and number of blocks received.
	    VS: Firmware version ID.

Table 5
Valid status values for CMD and STA bytes

CMD	Description	STA	Description
01	Write	01	Busy
02	Read	02	Ready
03	Erase	04	Write enabled
04	Back space	08	At load point
05	File mark	10	End of tape
06	Rewind	20	Rewind
+08	Tape operation in process	40	Alarm
+10	DMA timeout	80	On-line
+20	DMA or CMD error		
+40	DMA in process		
Note: The other codes are combinations of the above listed codes.			

Testing Commands

Command Name	Explanation
DOS S DPRTST	Performs a Dual-Ported RAM test on the standby processor.
DOS S TEST	Performs a built-in-test on the standby processor
TEST	Performs a built-in-test on the active processor.

Command Name	Explanation
VALPARM LOGHDR	Displays current status of the log header; either enabled or disabled.
VALPARM LOGHDR xxx	Enables or disables the display of the block header as they are written to disk. **xxx** - **ON** log header display ENBLED. OR **xxx** - **OFF** log header display DISABLED.

User Security Commands

Command Name	Explanation
MPRI C c x	Change user priority of a selected command.
MPRI E c	Displays the user priority of the selected command. **c** - command to be changed. **x** - priority level: **1-3**.
PSWD A nnnnnn p	Add new user password to system.
PSWD uC nnnnnn p	Change a currently assigned password or priority level.
PSWD uD	Delete the selected user number password 0-9. **u** - user number. **nnnnnn** - 6 character alphanumeric password. **p** - priority: **0-3** (**0** - lowest, **3** - highest).
PSWD L	Displays the user passwords and the associated priority level.

Note: If the value of the **PSWD** command is changed, the **LINIT** and **SITDAT WRITE** commands must be entered afterwards to initialize the CP with the new value and to save the new value to disk, respectively. **LINIT** should not be issued during a polling session.

SETTERM TIMEOUT	Displays the length of time that no activity can take place before the BMC automatically logs off the terminal.
SETTERM TIMEOUT x	Change automatic terminal timeout value. **x** - minutes: **1-120**. OR **x** - **00** to disable timeout.

Note: If the value of the **SETTERM TIMEOUT** command is changed, the **LINIT** and **SITDAT WRITE** commands must be entered afterwards to initialize the CP with the new value and to save the new value to disk, respectively. **LINIT** should not be issued during a polling session.

Monitor Level Commands

Command Name	Explanation

Note 1: These commands are used for certain tasks to be performed on the BMC unit CPU when the BMC software is not running.

Note 2: The **DD** commands are for Non-Turbo BMCs equipped with 5 1/4" disk drives only. Turbo BMCs and Non-Turbo BMCs equipped with 3 1/2" disk drives use the commands starting with the prefix "**DISK**", as if software was running.

DD FORMAT x
Format the specified disk drive.
x - **A** or **B**: disk drive.

Format takes several minutes.

Note: Do not use the **DD FORMAT x** command for 380 MB Non-Turbo disk drives.

CAUTION
The **DD FORMAT x** command erases all data from the specified disk. Should not be done during high traffic.

DD VS
Disk Version.

DD MOD
Displays the current disk mode.

DD MOD xy
Change the current disk mode.
x - Primary disk: **A** or **B**
y - **O**: No standby disk on-line.
        OR
y - **P**: Standby disk on-line.

DD INIT 1x
Perform a short initialization procedure on the specified disk.
x - Primary disk: A or B.

DD PARM
Displays choice of disk types used for Non-Turbo BMCs. Enter **1-9** depending on the disk type used.

DELETE f v
Deletes a specified file version.

DELETE f v1:v2
Deletes a range of versions of a specified file.
f - filename.
v - file version (Range: **1-255** or **0** for latest version).
v1 - start of range of versions: **1**-**255**.
v2 - end of range of versions: **1**-**255**, must be greater than v1.

Example:
>DELETE AMACRD 3 150
Deletes filename AMACRD versions 3 to 150.

DOS
Displays the processor status.
Response: **yz>**
y - processor currently being communicated with: **A** or **B**.
z - status of processor being communicated with: **A** - active, **S** - standby, **O** - only, or **U** - unused.

Command Name	Explanation
DOS LA xxxxxx yy	Append a program name to boot list. **xxxxxx** - program name. **yy** - program version on disk.
DOS LB	Load program files listed in the boot file to active processor.
DOS LD	Deletes the last file name in boot file.
DOS LL	List the contents of the boot file.
DOS VS	Displays the active processor firmware version ID.
DOS S DOS VS	Displays the standby processor firmware version ID.
DOS TEST	Performs a built-in-test on the active processor.
DOS S DOS TEST	Performs a built-in-test on the standby Processor.

Note: The **DUSE** command is for Non-Turbo BMCs equipped with 5 1/4" disk drives only. Turbo BMCs and Non-Turbo BMCs equipped with 3 1/2" disk drives use the **DISK USAGE** command.

DUSE	Displays the number of tracks used / total tracks available.

STIMyymmddhhmmssw	Set or change time on the BMC clock. **yy** - year (**00-99**) **mm** - month (**01-12**) **dd** - date (**01-31**) **hh** - hour in 24-hour (**00-23**) **mm** - minutes (**00-59**) **ss** - seconds (**00-59**) **w** - **1-7**: **1** for Monday, **7** for Sunday.
XDIR	List all files in disk directory.

Guide to Index Corruption Recovery

This procedure describes a methodology for recognizing and recovering from index file corruption which may be experienced with the BMC II AMAT system. Index file corruption can occur for a variety of reasons. This procedure neither catalogs nor explains all those reasons; rather, it offers practical advice for identifying and correcting certain types of index file corruption should it occur.

This procedure enumerates the following topics:

- Types of index file corruption addressed in this document.
- How to recognize index file corruption.
- How to recover from index file corruption.

For each type of index file corruption discussed, the procedure to recognize it is first given, followed by the appropriate recovery procedure. This follows the natural flow of troubleshooting. Commands and responses for the AMAT BMC are given.

This document will address the following types of index file corruption:

- Version number missing from index, but is on disk.
- Sequence numbers not incrementing properly.
- AMAIDX OPEN ERROR:03.

Version number missing from index, but is on disk

Version numbers within the index are always supposed to be *sequential and contiguous*. That is, they should start from a low version number and increment by one, without skipping any numbers (i.e., 07, 08, 09, 10, etc.). *If a version number is missing from the index, but the AMACRD file is actually on disk, then corruption has occurred*.

Recognition

AMACRD files missing from the index can be observed by displaying and comparing listings of the AMACRD files in the index to those in the directory.

1. Display the summary of AMACRD files in the index.
2. Display the closed AMACRD files in the index.
3. Display the open AMACRD file in the index.
4. Display the AMACRD files in the directory.

Additionally check for error messages, such as BAD AMAIDX FILE, and/or the presence of alarms.

Example
Version 82 is missing from the index but the AMACRD file version 82 is in fact on the disk. Therefore the index is corrupt and must be fixed, as shown in the following figure.

Figure 6
Version number missing


```
    Corrupt AMAIDX file              AMACRD Files

    VS 81 (SECNDRY)  ───────────────►    vs 81

    VS 83 (SECNDRY)  ──────┐             vs 82

    VS 84 (PRIMARY)  ──────┼──────►      vs 83
                           │
                           └──────►      vs 84
```
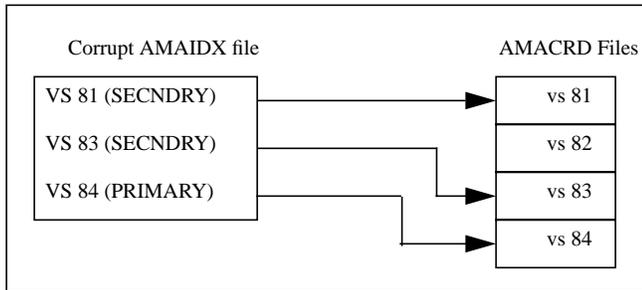
1. To display the summary of the AMACRD files in the index, enter the
   following command at the maintenance terminal:

   >IDXMAINT SUMMARY AMA (cr)

   System response:

   ```
   AMA FILE: 03 VSNS, 0003487 BLKS,  00000042 PRIMARY
   SEQ# 00000000 FIRST, 00003445 PRIM, 00003487 NEXT IN
   VS  81:  3451 BLKS,    6 PRIMARY, AMA SEQ #00000000
   ```

   Save this information. It will be used in a subsequent step.

2. To display the closed AMACRD files in the index, enter the following
   command at the maintenance terminal:

   >IDXMAINT DIR CLOSED AMA 200 (cr)

   System response:

   ```
   VS  81:  3451 BLKS, 6 PRIMARY,AMA SEQ #00000000
   VS  83:    36 BLKS,    36 PRIMARY, AMA SEQ #00003487
   END OF AMAIDX FILE
   ```

3. To display the open AMACRD file in the index, enter the following
   command at the maintenance terminal:

   >IDXMAINT DIR OPEN AMA (cr)

   System response:

   ```
   VS  84:     0 BLKS,     0 PRIMARY, AMA SEQ #00003523
   ```

   The discrepancy (a skipped version number) is evident in the listing of
   the closed AMACRD files in the index.

4. To display the AMACRD files in the directory, enter the following com-
   mand at the maintenance terminal:

   >LSTDIR FILE AMACRD 1 255 (cr)

   System response:

   ```
   00 AMACRD 60  81 95  263     0  1531
   01521201 00 0EE508 000000 003451

   00 AMACRD 60  82 95  349     0  1531
   01006C00 00 0EE507 003451 000036

   00 AMACRD 60  83 95  349     0  1531
   01000000 00 0EE509 003487 000036

   00 AMACRD 60  84 95  349     0  1531
   01000000 00 0EE509 003523 000000
   ```

In the example above, 81 is the AMACRD file version number, 000000 is the beginning block number of the version, and 003451 is the number of blocks in the version. Adding 000000 and 003451 should give you the beginning block number of the next version (003451).

Recovery

The AMA index must be rebuilt to "close the gap" caused by the missing index entry. Note that the AMACRD files versions are sequential and contiguous. They start at version 81, increment to version 82, then to version 83. This indicates that the AMA index file corruption can be fixed.

1. Identify the next sequence number of PRIMARY AMA in the index.
2. Delete the old AMA index file.
3. Create a new index file starting with the first block of PRIMARY AMA just located.
4. Display the summary of AMACRD files in the new index.
5. Display the closed AMACRD versions in the new index.

Graphically, the solution can be represented as shown in the diagram below:

Figure 7
Version number recovered
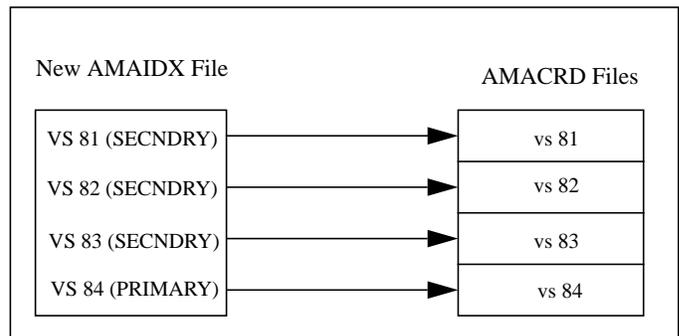
1. Identify the next sequence number of PRIMARY AMA in the index. Using the information from the previous IDXMAINT SUMMARY AMA command, it can be seen in the system response listed below that the first block of PRIMARY AMA is block number 3445 in AMACRD version 81.

```
AMA FILE:  03  VSNS, 0003487 BLKS,  00000042 PRIMARY
SEQ# 00000000 FIRST, 00003445 PRIM, 00003487 NEXT IN
VS 81:    3451,    6 PRIMARY, AMA SEQ #00000000
```

2. To delete the old AMA index file, enter the following command:

>DELFILE AMAIDX 1 255 (cr)

System response:

```
VERSION  03 DELETED
```

3. Create a new index file starting with the first block of PRIMARY AMA just located. Create a new AMA index file, starting with AMACRD file version 81, and starting at the first block of PRIMARY AMA in version 81 (block 3445). Enter the command (at the terminal):

>IDXMAINT CREATE DIR AMA 81 3445 (cr)

System response:

```
AMA FILE ESTABLISHED
GOOD AMAIDX FILE
```

4. Display the summary of AMACRD files in the new index. The pres-
   ence of the message, GOOD AMAIDX FILE, is positive indication that
   the new AMA index file was correctly created. This can be verified by
   displaying the summary of AMACRD files in the index. Enter the com-
   mand (at the terminal):

   >IDXMAINT SUMMARY AMA (cr)

   System response:

   ```
   AMA FILE:  04 VSNS,   00003487 BLKS, 00000078 PRIMARY
   SEQ# 00000000 FIRST,  00003445 PRIM, 00003523 NEXT IN
   VS  81:  3451 BLKS,       6 PRIMARY, AMA SEQ #00000000
   ```

   Note that the number of PRIMARY blocks in the new index has changed
   from 42 to 78. This is an increase of 36 blocks. This is correct because
   the index file now correctly includes version 82 (which contains 36
   blocks of PRIMARY AMA). *Since the BMC is actively collecting AMA
   data, the number of blocks in the index may increase by more than the
   indicated difference of 36 blocks.*

5. Display the closed AMACRD versions in the new index. Verification
   that the AMACRD versions are now in the proper order (sequential and
   contiguous) can be performed by displaying the closed AMACRD files
   in the index. Enter the command (at the terminal):

   >IDXMAINT DIR CLOSED AMA 200 (cr)

   System response:

   ```
   VS  81:  3451 BLKS,      6 PRIMARY, AMA SEQ #00000000
   VS  82:    36 BLKS,     36 PRIMARY, AMA SEQ #00003451
   VS  83:    36 BLKS,     36 PRIMARY, AMA SEQ #00003487
   ```

Sequence numbers not incrementing properly

Sequence numbers should always be *sequential and continuous*. They
should increment from a lower number toward a higher number and should
never decrement. The beginning sequence number for an AMACRD file
can be calculated by adding the **beginning block number** to the **number
of blocks** from the previous sequence number.

If version 106 of an AMACRD file has a starting sequence number of
602747 and contains 2968 blocks, then version 107 should have a starting
sequence number of 605715 (the sum of version 106's beginning sequence
number, 602747, plus the 2968 blocks in version 106).

Recognition

*If sequence numbers are decrementing instead of incrementing, or if the
sequence number is not the sum of the beginning sequence number of the
previous version and the number of blocks in the previous version, then
corruption has occurred.* Incorrectly incrementing sequence numbers may
be observed by displaying a listing of the closed AMACRD files in the
index. The system should also report BAD AMAIDX FILE.

1. Check the AMA Index File.
2. Display the summary of AMACRD files in the index.
3. Check that the sum of the beginning sequence number for a version and
   the blocks in that version correctly adds up to the next beginning
   sequence number.

Graphically, the problem can be represented as show in the diagram below:

Figure 8
Sequence numbers not incrementing
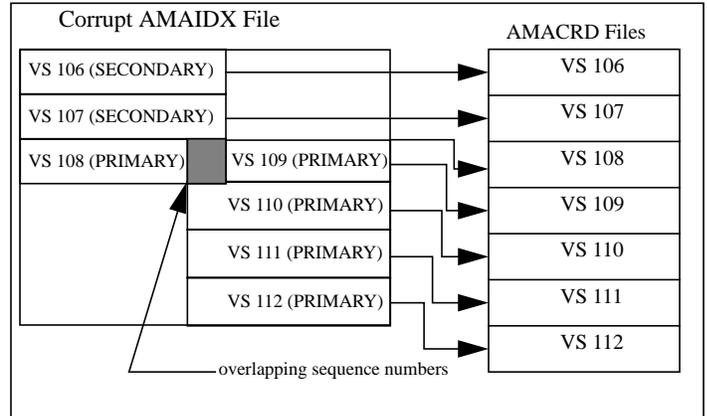
1. Check the AMA Index File. Have the BMC check the integrity of the AMA Index File. In this example, the execution of the following command will result with an error message which verifies that the AMA Index File is corrupt. Enter the command (at the terminal):

   >IDXMAINT CHECK AMA (cr)

   System response:

   ```
   BAD AMAIDX FILE
   ```

2. To display the summary of AMACRD files in the index, enter the following command at the maintenance terminal:

   >IDXMAINT DIR CLOSED AMA 200 (cr)

   System response:

   ```
   VS 106:  2968 BLKS, 99 DA SECNDRY, AMA SEQ #602747
   VS 107:  1698 BLKS, 99 DA SECNDRY, AMA SEQ #605715
   VS 108:  1335 BLKS,    49 PRIMARY, AMA SEQ #607413
   VS 109:  1389 BLKS,  1389 PRIMARY, AMA SEQ #608740
   VS 110:   304 BLKS,   304 PRIMARY, AMA SEQ #610129
   VS 111:   632 BLKS,   632 PRIMARY, AMA SEQ #610433
   VS 112:  1085 BLKS,  1085 PRIMARY, AMA SEQ #611065
   END OF AMAIDX FILE
   ```

3. Check that the sum of the beginning sequence number for a version and the blocks in that version correctly adds up to the next beginning sequence number. In this example, the sequence number for version number 109 is incorrect. Prior to (and after) version 109, the sequence numbers are incrementing properly. The sequence number for version 109, #608740, has incorrectly been incremented by only 1327 blocks. It *should* have incremented by 1335 blocks (sequence number 607413 for version 108 plus 1335 blocks in version 108 equals sequence number 608748 for version 109). Eight blocks of PRIMARY AMA appear to be missing in version 108.

   The effect is that the polling center won't be able to retrieve AMA starting at version 109, because there will be duplicate sequences in versions 108 and 109 (sequences 608740 through 608748). The actual AMA data in version 108, sequence numbers 608740 through 608748 will be different from the AMA data in version 109, sequence numbers 608740 through 608748, but the BMC will detect the duplicated sequence numbers and report, *BAD AMAIDX FILE.*

Recovery

To recover from this error, version 108 must be changed from PRIMARY to SECONDARY and the data retrieved from it in a DEMAND POLL. After the data center retrieves the data via demand poll, the old index (which contains the corrupt version 108) will be deleted, then a new index will be built starting with version 109 (which is not corrupt).

1. Delete the corrupt AMA index file.
2. Create a temporary AMA index that includes the corrupt AMACRD file. This forces the corrupt version into SECNDRY status.
3. Display the closed AMACRD files in the index.
4. Data center does a DEMAND POLL on the unpolled data in the corrupt version.
5. Delete the temporary AMA index file.
6. Create a new AMAIDX file starting with the first good sequence number containing PRIMARY AMA.
7. Delete the AMACRD files that were forced into SECNDRY status.
8. Display the closed AMACRD files in the new index.

Graphically, the solution can be represented as shown in the following diagram.

Figure 9
Sequence numbering corrected
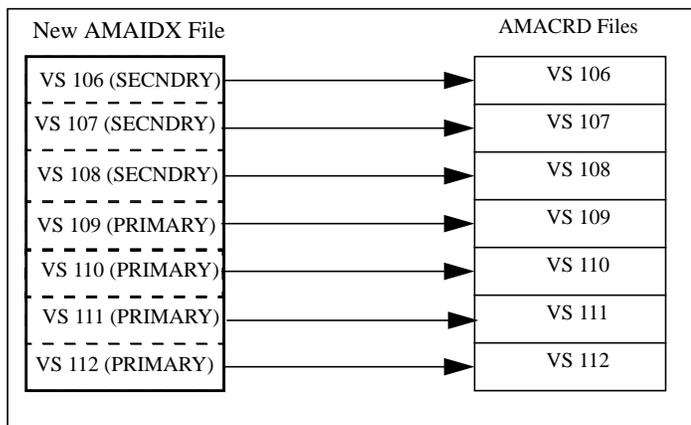
1. To delete the corrupt AMA index file, enter the following command:

   >DELFILE AMAIDX 1 255 (cr)

   System response:

   ```
   VERSION   03 DELETED
   ```

2. Create a temporary AMA index that includes the corrupt AMACRD file. This forces the corrupt version into SECNDRY status. Create a temporary AMA index file, starting at version 106 (which is already marked as SECNDRY) and ending at version 109 (version 109 becomes the first version containing PRIMARY AMA data). The effect is that the AMA data in version 108 is changed from PRIMARY to SECNDRY (versions 106 and 107 are already SECNDRY AMA, so they won't be affected). Enter the command (at the terminal):

   >IDXMAINT CREATE DIR AMA 106 608470 (cr)

   System response:

   ```
   AMA FILE ESTABLISHED
   BAD AMAIDX FILE
   ```

3. Display the closed AMACRD files in the index. Displaying the closed AMACRD files in the index shows that version 108 has been changed from PRIMARY to SECNDRY AMA. Enter the command (at the terminal):

>IDXMAINT DIR CLOSED AMA 200 (cr)

System response:

```
VS 106:  2968 BLKS, 99 DA SECNDRY, AMA SEQ #602747
VS 107:  1698 BLKS, 99 DA SECNDRY, AMA SEQ #605715
VS 108:  1335 BLKS,  99 DA SECNDRY, AMA SEQ #607413
VS 109:  1389 BLKS,  1389 PRIMARY, AMA SEQ #608740
VS 110:   304 BLKS,   304 PRIMARY, AMA SEQ #610129
VS 111:   632 BLKS,   632 PRIMARY, AMA SEQ #610433
VS 112:  1085 BLKS,  1085 PRIMARY, AMA SEQ #611065
END OF AMAIDX FILE
```

4. Data center does a DEMAND POLL on the unpolled data in the corrupt version. The data center should now be able to retrieve the previously unpolled data from version 108 by executing a DEMAND POLL, starting at sequence number 608699, for 49 blocks.

   This starting sequence number for the demand polling is calculated by using the original sequence number of version 108 (607413) and adding the blocks in version 108 (1335) to arrive at the correct next sequence number, 608748. From this sequence number, the 49 blocks of unpolled data in version 108 are subtracted (608748 minus 49) to arrive at the actual starting sequence number, 608699. This is where the data center should start the demand poll.

5. Delete the temporary AMA index file. After the data center confirms that they have successfully retrieved the previously unpolled 49 blocks from the BMC, remove the temporary AMA index file. This doesn't remove the AMA data (the AMACRD files), but it does remove the AMAIDX file. The following command removes the AMAIDX file, but a new one is built in a subsequent step (new AMAIDX file that is built contains the correct version numbers). Enter the command (at the terminal)>

>DELFILE AMAIDX 1 255 (cr)

System response:

```
VERSION   02 DELETED
```

6. Create a new AMAIDX file starting with the first good sequence number containing PRIMARY AMA. The following command creates a new AMA index, starting with version 109 as the first version having PRIMARY AMA data. All subsequent versions numbers in the index (110, 111 and 112 in the example above) will be PRIMARY AMA, and will be included in the new AMA index. The system should report, GOOD AMAIDX FILE, indicating that the new index was properly created. Create a new AMAIDX file starting with version 109 containing all PRIMARY data. Enter the command (at the terminal):

>IDXMAINT CREATE DIR AMA 109 (cr)

System response:

```
AMA FILE ESTABLISHED
GOOD AMAIDX FILE
```

7. Confirm that there is only one AMAIDX file on the disk. Enter the following command to check the disk to confirm that only one AMAIDX file exists.

```
>LSTDIR FILE AMAIDX 1 255 (cr)
```

System response:

```
00 AMAIDX 60 29 95..349 ....0  .4096  01000000 00
0EE509 003523 000009 01 FILE LISTED
```

8. Delete the AMACRD files that were forced into SECNDRY status. To delete the AMACRD files in versions 106 through 108, enter the following command at the maintenance terminal:

```
>DELFILE AMACRD 106 108 (cr)
```

After the data center has confirmed the integrity of the AMA data collected during the demand poll, the AMACRD files in versions 106, 107 and 108 (which contain SECNDRY data, and the duplicated sequence numbers in version 108) must be deleted.

9. To display the closed AMACRD files in the new index, enter the following command at the maintenance terminal:

```
>IDXMAINT DIR CLOSED AMA 200 (cr)
```

Displaying the closed AMACRD files in the new index confirms that only one AMA index file exists, and that it contains the correct versions numbers (109 through 112), as shown in the system response displayed below.

```
VS 109:  1389 BLKS,  1389 PRIMARY, AMA SEQ #608740
VS 110:   304 BLKS,   304 PRIMARY, AMA SEQ #610129
VS 111:   632 BLKS,   632 PRIMARY, AMA SEQ #610433
VS 112:  1085 BLKS,  1085 PRIMARY, AMA SEQ #611065
END OF AMAIDX FILE
```

AMAIDX OPEN ERROR:03

The BMC AMAT uses the AMAIDX file to manage data AMACRD data files on the disk. The error message, AMAIDX OPEN ERROR:03, occurs when an AMAIDX file is missing from the disk.

1. To examine available AMACRD files in the directory, enter the following command at the maintenance terminal:

```
>LSTDIR FILE AMACRD 1 255 (cr)
```

2. Note sequence number in the versions that are displayed in the system response shown below.

```
00 AMACRD 60 78 95 349 0 1531 01006C00 00 0EE509
063402 000076
00 AMACRD 60 79 95 349 0 1531 01000000 00 0EE509
063478 000076
00 AMACRD 60 80 95 349 0 1531 01000000 00 0EE509
063554 001980
00 AMACRD 60 81 95 263 0 1531 01521201 00 0EE508
000000 003451
00 AMACRD 60 82 95 349 0 1531 01006C00 00 0EE507
003451 000036
00 AMACRD 60 83 95 349 0 1531 01000000 00 0EE509
003487 000036
00 AMACRD 60 84 95 349 0 1531 01000000 00 0EE509
003523 001389
07 FILES LISTED
```

In the example above, the two-digit boldface number is the AMACRD file version number. The six-digit boldface number is the starting sequence number of the version.

3. Contact data center. Verify what sequence numbers have been com-

---

pletely processed and will not need to be repolled, as well as at what
sequence number the data center needs to start normal polling.

4. Determine which versions contain the sequence numbers obtained from
    the data center in step 3.

5. To create an AMAIDX containing the AMACRD versions the data
    center needs to poll, enter the following command:

    >IDXMAINT CREATE DIR AMA vvv nnnnnn (cr)

    where: vvv   -   starting version number
            nnnnnn - first primary block sequence number.

6. Display contents of new index using the following command:

    >IDXMAINT DIR CLOSED AMA 255 (cr)

    System response:

    ```
    VS 81: .3451 BLKS, 30 DA SECONDARY, AMA SEQ #000000
    VS 82: ....36 BLKS, 30 DA SECONDARY, AMA SEQ #0003451
    VS 83: ....36 BLKS, ....36 PRIMARY, AMA SEQ #0003487
    VS 84: ..1389 BLKS, ..1389 PRIMARY, AMA SEQ #003523
    END OF AMAIDX FILE
    ```

7. If any versions were left outside the index, these versions should remain
    on disk until data center can confirm the data will not need to be
    repolled. These versions MUST be deleted using the command in step
    8. Set up an appointment with customer to do this if necessary.

8. Any versions displayed in step 1 that were not included in the new
    AMAIDX, MUST be deleted using the following command:

    >DELFILE AMACRD 78:80 (cr)

9. Verify there is only one index in the directory using the following com-
    mand:

    >LSTDIR FILE AMAIDX 1 255 (cr)

    In the event there is more than one index, verify which index is active
    using the following command:

    >LSTDIR FILE AMAIDX (cr)

    System response:

    ```
    00 AMAIDX 60 81 95 263 0 1531 01521201 00 0EE508
    000000 000001
    ```

    Note the version number (81 in this example and delete any indices that
    are NOT needed.

10. Check validity of index using the following command:

    >IDXMAINT CHECK AMA (cr)

    System response:

    ```
    GOOD AMAIDX FILE
    ```

Miscellaneous PCA Replacement Procedure

The following PCAs can be replaced using this procedure:

- CPU with DMA (NT6M62xx)
- EPROM (NT6M63xx)
- DRAM with Extended Memory (NT6M64xx)
- Quad SIO (NT6M60xx)
- Disk Interface (NT6M66xx)
- DSI (NT6M70xx)
- TEC (NT6M89xx - DMS-10 only or NT6M90xx - DCO only).

Procedure 1
Miscellaneous PCA replacement

Step	Description
⚠	**CAUTION** Since all BMC PCAs are static sensitive, be careful when handling them. Wear a wrist grounding strap when working with the BMC.
⚠	**WARNING** Since the BMC is powered up during this procedure, observe all safety procedures for operations on live equipment.
1	To remove the front panel of the BMC II, loosen the four screws located on the left and right hand sides. Once removed, put the front panel in a safe place to avoid damage, bending and scratching.
2	Get the replacement PCA from the spares kit.
3	Remove the protective electrostatic bag and place it on a suitable, grounded surface.
4	Make sure the replacement PCA matches the faulty PCA's part number and has the correct revision level. Also, make sure the suspected faulty PCA is in the standby processor. Verify that any applicable firmware for the PCA is the same or with a higher release number. If not, contact the next level of support.
5	Place the processor unit with the suspected faulty PCA in the standby mode, by putting the **other** processor in the ONLY mode. The **other** processor is defined as that processor that does not have the suspected faulty PCA. At the Switch and Status Panel of the BMC: a. Press the A/B Select Switch to match the **other** processor. b. Press the O/P Mode Select Switch to **O**. c. Turn the Mode Switch to the right and release.
Note: This will create an alarm.	

Procedure 1
Miscellaneous PCA replacement

Step	Description
6	Enter the following commands to write the value 00 in the DRAM memory address 2204 for the off-line DSI/TEC PCAs: **>DOS S TECMAINT MEMWRITE 1 2204 00 (cr)** **>DOS S TECMAINT MEMWRITE 2 2204 00 (cr)**
7	Remove power from the standby BMC chassis by operation of the +8 V dc red rocker switch on the power supply. (A or B, the one with the suspected fault.)
8	Remove the suspected faulty PCA.
9	The replacement PCA option settings must be set to match the settings for that PCA listed in the *PCA Switch and Strap Settings* section before installation. ⚠ **CAUTION** Failure to set-up options correctly may cause an AMA loss.
10	Insert the spare PCA in the vacated card slot, making sure it is fully seated.
11	Put faulty PCA in the empty electrostatic bag.
12	Apply power to the BMC chassis by resetting the rocker switch in step 7 above. Wait for start-up activity to end and the message, **Software Loaded** or **S/W Loaded** to print. For Turbo BMCs and Non-Turbo BMCs equipped with 1 GB disk drives, wait for the **CP S/W Loaded** message to print.
13	To clear any alarms on the standby processor. At the maintenance terminal, enter: **>DOS S RSERR 00 (cr)** Alarms will clear on the standby processor if there are no faults.
14	Place the active processor unit in PRIME mode. At the Switch and Status Panel of the BMC: a. Press the A/B Select Switch to match the active processor. b. Press the O/P Mode Select Switch to **P**. c. Turn the Mode Switch to the right and release.
15	To clear all alarms on the active processor. At the maintenance terminal, enter: **>RSERR 00 (cr)** Alarms will clear if there are no faults.

Procedure 1
Miscellaneous PCA replacement

Step	Description
16	Switch Processors to make the standby active. At the maintenance terminal, enter: **>SWACT (cr)** The old standby is now the active processor. ⚠️ **WARNING** This should not be done at a high traffic period, it may cause a loss of AMA.
17	Verify replacement PCA has corrected original error.
18	When all maintenance activities are complete, be sure to replace the front panel of the BMC. Carefully line up the four captive screws of the front panel with their mounting holes. Tighten the captive screws; but do not bear down. The procedure is complete.

Disk Replacement Procedure

Removing the Faulty Disk Drive

Procedure 2
Remove faulty disk drive

Step	Description
	Note: The following procedure is for replacing the A disk drive; use the same procedure for replacing the B disk drive by transposing references to A and B disks.
	CAUTION Since all BMC PCAs are static sensitive, be careful when handling them. Wear a wrist grounding strap when working with the BMC.
	WARNING Since the BMC is powered up during this procedure, observe all safety procedures for operations on live equipment.
1	To remove the front panel of the BMC, loosen the four screws located on the left and right hand sides. Once removed, put the front panel in a safe place to avoid damage, bending and scratching.
2	For the side that is operating in an ONLY disk mode, make sure that the other processor is active. The **other** processor is defined as that processor that does NOT have the failing disk drive in its chassis. At the BMC Switch and Status Panel: a. Press the A/B Select Switch to match the **other** processor. b. Press the O/P Mode Select Switch to **O**. c. Turn the Mode Switch to the right and release. To determine the current disk mode, enter (at the terminal): **>DISK MODE (cr)** DISK MODE: AO A ONLY DISK MODE DISK MODE: BO B ONLY DISK MODE DISK MODE: AP A PRIME DISK MODE DISK MODE: BP B PRIME DISK MODE i.e., If the disk mode is AP or BP, and the disk in the A chassis is the suspected bad drive, change the disk mode to B ONLY: Enter (at the terminal) **>DISK MODE BO (cr)**
3	Disconnect disk A power by removing the connector plug P8 from the power supply on the A chassis. Pinch the release clips on P8 and pull it down gently.

Procedure 2
Remove faulty disk drive

Step	Description
⚠	**CAUTION** Wait at least 30 seconds before proceeding.
4	Remove the two screws from the disk drive handle mount.
5	Grasp the disk drive in the front at the bottom, by the handle, slightly lift and pull straight forward until the J1 ribbon cable connector can be viewed. Keep one hand under the disk drive to maintain support. *Note:* For 30 to 140 MB disk drives, the J1 connector is on the top of the disk drive assembly. For 380 MB, 760 MB, 1 GB, and 2 GB disk drives, the J1 connector is on the rear of the disk drive assembly.
6	Disconnect the ribbon cable from J1; use the cables pull tab. Note the direction of the brown stripe on the cable (PIN 1).
7	Remove the disk from the chassis. Place the disk on an anti-static surface. Fill out the disk drive fault analysis form and attach it to the disk drive

Installing the Replacement Disk Drive

⚠	**IMPORTANT WARNING** If changing the B disk in a Turbo BMC or a Non-Turbo BMC equipped with 380 MB or 1 GB disk drives, set the options correctly on the disk drive. Incorrect option settings will cause the disk to fail

Table 6
Disk drive options

Disk	Vendor	Jumper	Pins - B Disk	Pins - A Disk
2 GB	Seagate ST-32151N	J6	1-2 (IN)	J6 (OUT)
2 GB	Seagate ST-32430N	J5	5-6 (IN)	4-6 (IN) or OUT
1 GB	Seagate ST-31051N	J6	1-2 (IN)	J6 (OUT)
1 GB	Seagate ST-31230N	J5	5-6 (IN)	4-6 (IN) or OUT
760 MB	Maxtor	J2	9-10 (IN)	J2 (OUT)
760 MB	Imprimis	J4	5-6 (IN)	OUT
760 MB	Micropolis	J2	IDO (IN)	OUT
380 MB Turbo	Maxtor	N/A	JP35 (IN)	JP35 (OUT)

Table 6
Disk drive options

Disk	Vendor	Jumper	Pins - B Disk	Pins - A Disk
380 MB Non-Turbo	Maxtor	N/A	JP35 (OUT)	JP35 (OUT)

IMPORTANT NOTES:

For 30 to 140 MB disk drives, the P1 ribbon cables Brown stripe (PIN 1) must be toward the RIGHT, as viewed from the front.

For 30 to 140 MB disk drives, locate the manufacturer's Defective Track Map Listing and keep handy, for use later in this procedure.

If this cannot be found, contact Technical Support before proceeding.

For 380 and 760 MB disk drives, the P1 ribbon cables Brown stripe (PIN 1) must be toward the LEFT, as viewed from the front.

For 1 and 2 GB disk drives, the P1 ribbon cables are keyed to prevent improper installation.

Procedure 3
Install replacement disk drive

Step	Description
1	Keeping the disk drive level, slide it into position far enough to reconnect the ribbon cable at connector J1. Connect the ribbon cable to J1. **WARNING** The disk drive cannot operate if this cable is reversed. Reversal may also cause an AMA outage.
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.
3	Replace the two screws for the disk drive handle mount.
4	Reconnect the disk power cable by inserting the plug P8 into connector J8.
5	Return the processor to PRIME mode. On the status panel push the P rocker switch down and turn the MODE SWITCH key. The ONL lamp should go out. If replacing a 380 MB, 760 MB, 1 GB or 2 GB Turbo disk or a 1 GB Non-Turbo disk, go to step 6. If replacing a 30 to 380 MB Non-Turbo disk, go to step 7.
6	Attempt to make the disk system redundant by changing the ONLY disk mode to PRIME disk mode. Enter (at the terminal): **>DISK MODE xP (cr)** where **x** - currently active disk.

Procedure 3
Install replacement disk drive

Step	Description

	i.e., if DISK MODE is currently AO then type AP
	    if DISK MODE is currently BO then type BP.
	
	Proper responses for 380 MB, 760 MB, 1 GB and 2 GB Turbo disks and 1 GB Non-Turbo disks:
	
	`BACKUP STARTED`
	
	This may take minutes to hours depending on the disk size and usage. Use the DISK USAGE command to check disk usage.
	
	`BACKUP COMPLETE`
	`DISK MODE AP` (or) `DISK MODE BP`
	
	If replacing a 380 MB, 760 MB, 1 GB or 2 GB Turbo disk or a 1 GB Non-Turbo disk and the response is DISK NOT FOR-MATTED, go to step 10.
	
	If the BMC (AMAT) is a 30 to 380 MB Non-Turbo system, there will be no immediate response. Craftsperson on site should observe disk LED activity.
	
	If replacing a 380 MB Non-Turbo disk and the system responds with DISK NOT INITIALIZED, go to step 7.
	
	Otherwise, go to step 9.

7	Reinitialize the new disk. This is for 30 MB to 380 MB Non-Turbo disk drives only. **CAUTION** These disk commands may cause a loss of data. Make sure the operational disk drive is in an ONLY mode before enter-ing the following commands. Enter: (at the terminal) **>DISK INIT 1x (cr)** where: **x** - **A** for newly installed disk A - **B** for newly installed disk B. Proper response: `INIT COMPLETE` If the response is NO DISK PARAMETERS, go to step 11. For 380MB disks, go to step 6.
8	This is for 30 MB to 140 MB disk drives only. Enter in the defective track(s) from the disk manufacturer's defect (bad track) list. Enter: (at the terminal) **>DISK DEFMAP x (cr)** where: **x** - **A** for newly installed disk A - **B** for newly installed disk B.

Procedure 3
Install replacement disk drive

Step	Description

	System response is a prompt:
	
	`ENTER HEAD AND CYLINDER # FROM DEFECT MAP.`
	`ENTER Q TO EXIT`
	`HEAD>`
	
	Obtain the disk manufacturer's bad track map. Enter the HEAD No. xx (1 to 2 digits), from manufacturer's bad track map.

	Note 1: The defect map is located on a paper that accompanies each new disk. If this document is not with the disk, the information is printed on a label located under the PCA mounted on top of the disk drive. If the label contains no defect information, the disk has no defects to be mapped. After entering any available defect map data, the paper should be folded and kept with the newly installed disk drive.

	System response:
	
	`CYLINDER>`
	
	Enter the CYLINDER No. xxx (1 to 3 digits), from the disk manufacturer's bad track map.
	
	System response:
	
	`xx BAD TRACKS`
	`HEAD>`
	
	(xx - number of bad tracks masked out.)

	Note 2: If the response indicates either the HEAD or CYLINDER is out of range, the BAD TRACKS counter will not be incremented and the value entered is not needed for this application.
	Continue entering HEAD and CYLINDER numbers until the end of the disk manufacturer|s bad track map is reached. When done entering the bad tracks, enter Q at the HEAD> prompt, to exit the DEFMAP utility. System response: `DEFMAP DONE`
9	Restore BMC to redundant disk mode. Enter (at the terminal): **>DISK MODE (cr)** Proper response: `DISK MODE xP` (where x - A or B) When all maintenance activities are complete, be sure to replace the front panel of the BMC (AMAT). Carefully line up the four captive screws of the front panel with their mounting holes. Tighten the captive screws; but do not bear down. Make sure the Disk Drive Fault Analysis Sheet is completed and attached to the disk drive for return to Nortel for repair. The procedure is complete.

Procedure 3
Install replacement disk drive

Step	Description
10	380 MB, 760 MB, 1 GB and 2 GB Turbo or 1 GB Non-Turbo Disk Format This command is to be used when the BMC (AMAT)s response to the DISK MODE xP (x - A or B) command is DISK NOT FORMATTED ⚠ **CAUTION** These disk commands may cause a loss of data. Make sure the operational disk drive is in an ONLY mode before entering commands.

	Enter: (at the terminal)
	
	>DISK FORMAT x (cr)
	
	where: **x** - **A** for newly replaced disk A
	       - **B** for newly replaced disk B.
	
	Proper response:
	
	`DISK FORMAT STARTED`
	
	The format should take about 15-20 minutes. Proper response:
	
	`FORMAT DONE`
	
	If the response is FORMAT DONE, go to step 6. If DISK FORMT FAILS, switch processors and repeat step 10. If the DISK FORMAT fails on the other processor, call the next level of support.

11	Disk Parameters for 30 to 380 MB Non-Turbo Disk Drives. Enter: (at the terminal) **>DISK PARAM (cr)** Enter the number from the displayed list that describes the type of the replacement disk drive. If replacing a 30 to 380 MB Non-Turbo disk drive, go to step 7.

Disk Crossover PCA Replacement Procedure (NT6M72xx/6M93xx)

Procedure 4
Disk Crossover PCA replacement (NT6M72xx or NT6M93xx)

Step	Description
⚠	**CAUTION** Since all BMC PCAs are static sensitive, be careful when handling them. Wear a wrist grounding strap when working with the BMC.
⚠	**WARNING** Since the BMC is powered up during this procedure, observe all safety procedures for operations on live equipment.
1	Make sure no polling is occurring. Wait for a low traffic period, if possible.
2	Locate the failing Disk Crossover PCA and change the disk mode to the **other** disk ONLY mode, if necessary. The **other** disk is the one not in the same chassis as the suspected Disk Crossover PCA. Enter (at the terminal): **>DISK MODE xx (cr)** where: **xx** = disk mode = **AO** = A ONLY = **BO** = B ONLY Proper response: DISK MODE: AO (or) DISK MODE: BO
3	Place the BMC into an ONLY processor mode. The processor mode should be the same as the DISK mode. At the Switch and Status Panel of the BMC: a. Press the A/B Select Switch to match the active disk drive. b. Press the O/P Mode Select Switch to **O**. c. Turn the Mode Switch to the right and release.
4	Loosen the slotted screws which fasten the outer edges of the appropriate rear panel assembly to the cabinet.
5	Pull the rear panel away from the cabinet. Remove the front panel of the chassis to improve cooling, if necessary. Put the two panels in a safe place to prevent bending and scratching
6	Loosen the 2 screws at the top of the hinged card panel and the screw at the bottom of the hinged card panel. Let it swing slowly down from the top until it rests.

Procedure 4
Disk Crossover PCA replacement (NT6M72xx or NT6M93xx)

Step	Description
	Note: If the PCA at A15 is being replaced, use a Styrofoam block or another insulating material, about 1" x 1" x 0.5", to insulate the pins of the 16-pin cable on the P/A Comm PCA to prevent accidental shorting against the chassis.
7	Remove power cable (J4), then any cables and screws connected to the suspected PCA.
	Note: Observe the cable markings (identification) or attach labels to the cables for correct positioning for installation of replacement PCA.
	Gently pull the suspect PCA loose from its mounting position.
8	Verify (J5) jumper option is the same on the replacement PCA as the PCA that was removed.
	Note: The J5 jumper on the A chassis Disk Crossover PCA must be placed on pin A and the center pin. The J5 jumper on the B chassis Disk Crossover PCA must be placed on pin B and the center pin.
	WARNING Incorrect positioning of jumper may cause loss of AMA.
9	Mount the replacement PCA in the vacated position.
	Note: 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.
10	Reattach any cables removed in step 6 in reverse order.
	Note: Verify the cable markings (identification) or attach labels to the cables for correct positioning.
	WARNING Incorrect positioning of cables may cause loss of AMA.
11	Verify the repair by switching disk modes back to PRIME. Enter (at the terminal): **>DISK MODE xx (cr)** where: **xx** - disk mode: **AP** - A PRIME (if mode is A only) **BP** - B PRIME (if mode is B only). The BMC will begin a disk copy this may take several hours, depending on how much data and how large the disks are. Proper response: DISK MODE: AP (from disk mode AO) or DISK MODE: BP (from disk mode BO)

Procedure 4
Disk Crossover PCA replacement (NT6M72xx or NT6M93xx)

Step	Description
12	Remove the insulating material, if used. Route all wires and cables to avoid pinching or crimping when the rear panel is reinstalled.
13	Lift the hinged circuit assembly gate back to its vertical position and tighten the (2) screws loosened in step 5.
14	Replace the rear panel. Reinstall the slotted pan head screws previously removed in step 3.

Note: 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.

Step	Description
15	Clear any alarms on the BMC. At the maintenance terminal, enter: **>RSERR 00 (cr)** **>DOS S RSERR 00 (cr)** Alarms will stay clear on the BMC if there are no faults.
16	Place the active processor unit in PRIME mode. At the Switch and Status Panel of the BMC: a. Press the A/B Select Switch to match the active processor. b. Press the O/P Mode Select Switch to P. c. Turn the Mode Switch to the right and release.
17	When all maintenance activities are complete, be sure to replace the front panel of the BMC if removed. Carefully line up the four captive screws of the front panel with their mounting holes. Tighten the captive screws; but do not bear down. The procedure is complete.

Error Control II PCA Replacement Procedure (NT6M65xx)

Procedure 5
Error Control II PCA (NT6M65xx) replacement

Step	Description
⚠	**CAUTION** Since all BMC PCAs are static sensitive, be careful when handling them. Wear a wrist grounding strap when working with the BMC.
⚠	**WARNING** Since the BMC is powered up during this procedure, observe all safety procedures for operations on live equipment.
1	To remove the front panel of the BMC II, loosen the four screws located on the left and right hand sides. Once removed, put the front panel in a safe place to avoid damage; bending and scratching.
2	Get the replacement PCA from the spares kit.
3	Remove the protective electrostatic bag and place it on a suitable, grounded surface.
4	Make sure the replacement PCA matches the faulty PCA's part number and has the correct revision level. Also, make sure the suspected faulty PCA is in the standby processor. Verify that any applicable firmware for the PCA is the same or with a higher release number. Otherwise, contact your next level of support.
5	Place the B processor unit an ONLY mode. At the Switch and Status Panel of the BMC: a. Press the A/B Select Switch to **B.** b. Press the O/P Mode Select Switch **O.** c. Turn the Mode Switch to the right and release.
	Note: This will create an alarm: **ONLY MODE NON-REDUNDANT**
6	Enter the following commands to write the value 00 in the DRAM memory address 2204 for the off-line DSI/TEC PCAs: **>DOS S TECMAINT MEMWRITE 1 2204 00 (cr)** **>DOS S TECMAINT MEMWRITE 2 2204 00 (cr)**
7	Remove power from the standby chassis (A processor) by operation of the +8 V dc red rocker switch on the power supply.

Procedure 5
Error Control II PCA (NT6M65xx) replacement

Step	Description
8	On the Error Control II Jumper PCA in the B chassis (Slot 5), pull the toggle switch outward and lift the switch to the up position.
Note:	The CRIT will be the only lamp lit on the status panel.
	This switch serves a dual function. First, it removes the B chassis power-feed from the Error Control II PCA in the A chassis. Second, it locks the error control functions to the B chassis.
9	Remove the Error Control II PCA in the A chassis (slot 5).
10	Insert the spare Error Control II PCA in the A chassis (slot 5), making sure it is fully seated.
11	Put faulty PCA in the empty electrostatic bag.
12	Apply power to standby chassis (A processor) by operation of the +8 V dc red rocker switch on the power supply.
	Wait for start-up activity to end and the message, **Software Loaded** or **S/W Loaded** to print. For Turbo BMCs and Non-Turbo BMCs with 1 GB disk drives, wait for the **CP S/W Loaded** message to print.
13	Return the toggle switch on the Error Control II Jumper PCA in B5 to the down (LED off) position. This unlocks the Error Control functions. The B processor may print out this message: EC-IC-ALM (this is normal)
14	To clear any alarms on the standby processor. At the maintenance terminal, enter: **>DOS S RSERR 00 (cr)** Alarms will stay clear on the standby processor if there are no faults.
15	To clear any alarms on the active processor. At the maintenance terminal, enter: **>RSERR 00 (cr)** Alarms will clear if there are no faults.
16	Place the active processor unit in PRIME mode. At the Switch and Status Panel of the BMC: \ a. Press the A/B Select Switch to B. b. Make the O/P Mode Select Switch **P.** c. Turn the Mode Switch to the right and release.
17	When all maintenance activities are complete, be sure to replace the front panel of the BMC. Carefully line up the four captive screws of the front panel with their mounting holes. Tighten the captive screws; but do not bear down. The procedure is complete.

Error Control II Jumper PCA Replacement Procedure (NTM609xx)

Procedure 6
Error Control II Jumper PCA (NTM609xx) replacement

Step	Description
⚠	**CAUTION** Since all BMC PCAs are static sensitive, be careful when handling them. Wear a wrist grounding strap when working with the BMC.
⚠	**WARNING** Since the BMC is powered up during this procedure, observe all safety procedures for operations on live equipment.
1	To remove the front panel of the BMC II, loosen the four screws located on the left and right hand sides. Once removed, put the front panel in a safe place to avoid damage; bending and scratching.
2	Get the replacement PCA from the spares kit.
3	Remove the protective electrostatic bag and place it on a suitable, grounded surface.
4	Make sure the replacement PCA matches the faulty PCA's part number and has the correct revision level. Also, make sure the suspected faulty PCA is in the standby processor. Verify that any applicable firmware for the PCA is the same or with a higher release number. Otherwise, contact your next level of support.
5	Place the A processor unit an ONLY mode. At the Switch and Status Panel of the BMC: a. Press the A/B Select Switch to **A.** b. Press the O/P Mode Select Switch **O.** c. Turn the Mode Switch to the right and release.
Note: This will create an alarm: **ONLY MODE NON-REDUNDANT**	
6	Enter the following commands to write the value 00 in the DRAM memory address 2204 for the off-line DSI/TEC PCAs: **>DOS S TECMAINT MEMWRITE 1 2204 00 (cr)** **>DOS S TECMAINT MEMWRITE 2 2204 00 (cr)**
7	Remove power from the standby chassis (B processor) by operation of the +8 V dc red rocker switch on the power supply.
8	Remove the Error Control II Jumper PCA in the B chassis (slot 5).

Procedure 6
Error Control II Jumper PCA (NTM609xx) replacement

Step	Description
9	Insert the spare Error Control II Jumper PCA in the B chassis (slot 5), making sure it is fully seated.
10	Put faulty PCA in the empty electrostatic bag.
11	Apply power to standby chassis (B processor) by operation of the +8 V dc red rocker switch on the power supply. Wait for start-up activity to end and the message, **Software Loaded** or **S/W Loaded** to print. For Turbo BMCs and Non-Turbo BMCs equipped with 1 GB disk drives, wait for the **CP S/W Loaded** message to print.
12	To clear any alarms on the standby processor. At the maintenance terminal, enter: **>DOS S RSERR 00 (cr)** Alarms will stay clear on the standby processor if there are no faults.
13	Place the active processor unit in PRIME mode. At the Switch and Status Panel of the BMC: a. Press the A/B Select Switch to **B.** b. Make the O/P Mode Select Switch **P.** c. Turn the Mode Switch to the right and release.
14	To clear any alarms on the active processor. At the maintenance terminal, enter: **>RSERR 00 (cr)** Alarms will clear if there are no faults.
15	When all maintenance activities are complete, be sure to replace the front panel of the BMC. Carefully line up the four captive screws of the front panel with their mounting holes. Tighten the captive screws; but do not bear down. The procedure is complete.

Power and Alarm Communications PCA Replacement Procedure (NT6M84xx)

Procedure 7
Power and Alarm Communications PCA (NT6M84xx)
replacement

Step	Description
⚠	**CAUTION** Since all BMC PCAs are static sensitive, be careful when handling them. Wear a wrist grounding strap when working with the BMC.
⚠	**WARNING** Since the BMC is powered up during this procedure, observe all safety procedures for operations on live equipment.
1	Make sure no polling is occurring. Wait for a low traffic period, if possible.
2	Remove the slotted screws that fasten the outer edges of the rear panel assembly to the cabinet.
3	Remove the front panel of the A chassis. Put the two panels in a safe place to prevent bending and scratching.
4	Remove the power from the PCA first by disconnecting (P11) located in the upper right quadrant. Remove the other cables. *Note:* Verify the cable markings (identification) or attach labels to the cables when removing them to facilitate replacement in the correct positions. Alarms may also activate and the BMC status panel lights will all be off. This is normal. Silence the alarm at the switching system and go to step 5.
5	Remove the screws that fasten the P/A Comm PCA. Gently remove the PCA from its mounting position.
6	The replacement PCA option settings must be set to match the settings for that PCA listed in the *PCA Switch and Strap Settings* section before installation. *Note:* Improper performance can be caused by incorrect settings, and produce fault-like symptoms in the BMC.
7	Mount the replacement assembly in the vacated position. *Note:* 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.
8	Reattach any cables removed in step 4 in reverse order.

Procedure 7
Power and Alarm Communications PCA (NT6M84xx)
replacement

Step	Description
	Note: Verify the cable markings (identification) or attach labels to the cables for correct positioning.
	⚠ **WARNING** Incorrect positioning of cables will cause alarms and communication problems.
9	Properly reroute all cables. Make sure all wires and cables are routed so they are not pinched or in contact with the arc of the fan blades.
10	To clear any alarms on the active processor. At the maintenance terminal, enter: **>RSERR 00 (cr)** Alarms will clear if there are no faults.
11	To clear any alarms on the standby processor. At the maintenance terminal, enter: **>DOS S RSERR 00 (cr)** Alarms will stay clear on the standby processor if there are no faults.
12	If BMC status panel shows processor is in ONL mode go to step 13, otherwise go to step 14.
13	Place the active processor unit in PRIME mode. At the Switch and Status Panel of the BMC: a. Press the A/B Select Switch to match the active processor. b. Press the O/P Mode Select Switch to **P**. c. Turn the Mode Switch to the right and release.
14	Verify replacement PCA has corrected original error.
15	Test the polling function on the Non-Turbo BMCs equipped with 30, 72, and 140 MB disk drives only.
16	When all maintenance activities are complete, be sure to replace the rear panel in its fully seated position and reinstall the slotted pan head screws previously removed. Also replace the front panel of the BMC if removed. Carefully line up the four captive screws of the front panel with their mounting holes. Tighten the captive screws; but do not bear down. The procedure is complete.

56K Crossover PCA Replacement Procedure (NT6M48xx)

Procedure 8
56K Crossover PCA (NT6M48xx) replacement

Step	Description
⚠	**CAUTION** Since all BMC PCAs are static sensitive, be careful when handling them. Wear a wrist grounding strap when working with the BMC.
⚠	**WARNING** Since the BMC is powered up during this procedure, observe all safety procedures for operations on live equipment.
1	Make sure no polling is occurring. Wait for a low traffic period, if possible, to execute the steps in this procedure.
2	Remove the slotted screws that fasten the outer edges of the B rear panel assembly to the cabinet.
3	Remove the front panel of the A chassis. Put the two panels in a safe place to prevent bending and scratching.
4	Remove the power from the 56K Crossover PCA first by disconnecting plug (P1). Then remove the other cables. *Note:* Verify the cable markings (identification) or attach labels to the cables when removing them to facilitate replacement in the correct positions. Alarms may also activate and the BMC status panel lights will all be OFF. This is normal. Silence the alarm at the switching system and go to step 5.
5	Remove the screws that fasten the 56K Crossover PCA. Gently remove the PCA from its mounting position.
6	Mount the replacement PCA in the vacated position. *Note:* 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.
7	Reattach any cables removed in step 4 in reverse order. *Note:* Verify the cable markings (identification) or attach labels to the cables for correct positioning.
⚠	**WARNING** Incorrect positioning of cables will cause alarms and communication problems.

Procedure 8
56K Crossover PCA (NT6M48xx) replacement

Step	Description
8	Properly reroute all cables. Make sure all wires and cables are routed so they are not pinched or in contact with the arc of the fan blades.
9	To clear any alarms on the active processor. At the maintenance terminal, enter: **>RSERR 00 (cr)** Alarms will clear if there are no faults.
10	To clear any alarms on the standby processor. At the maintenance terminal, enter: **>DOS S RSERR 00 (cr)** Alarms will stay clear on the standby processor if there are no faults.
11	After RSERR, alarms may reappear. Perform diagnostics on both the standby and active processors. Enter: (at the terminal) **>DOS S TEST (cr)** **>CP TEST STDBY (cr)** **>TEST (cr)** **>CP TEST ACT (cr)** *Note:* The tests will take several minutes to execute, and the program test is the last test to run. If all tests do not pass, use the BMC maintenance manual and/ or contact the next level of support.
12	Display all active alarms. Enter: (at the terminal) **>ERRMAP ALARMS (cr)** If active alarms are present, troubleshoot using the BMC maintenance manual and/or contact the next level of support.
13	Verify replacement PCA has corrected original error.
14	Test the polling function.
15	When all maintenance activities are complete, be sure to replace the rear panel in its fully seated position and reinstall the slotted pan head screws previously removed. Also replace the front panel of the BMC if removed. Carefully line up the four captive screws of the front panel with their mounting holes. Tighten the captive screws; but do not bear down. The procedure is complete.

Power Supply Replacement Procedure (NT6M71xx)

Procedure 9
Power Supply (NT6M71xx) replacement

Step	Description
⚠	**CAUTION** Since all BMC PCAs are static sensitive, be careful when handling them. Wear a wrist grounding strap when working with the BMC.
⚠	**WARNING** Since the BMC is powered up during this procedure, observe all safety procedures for operations on live equipment.
1	Remove the front panel of the BMC. If you are changing the A power supply remove only the A panel. If changing the B power supply, remove both the A and B front panels, this allows access to the Switch and Status Panel. Loosen the four captive screws on the left and right sides of the front panel; carefully remove the front panel. Put it in a safe place to avoid damage.
2	Put the processors into an Only mode. At the Switch and Status Panel of the BMC: a. Press the A/B Select Switch to: **A** - If you are changing out the B power supply **or** **B** - If you are changing out the A power supply b. Press the O/P Mode Select Switch to **O.** c. Turn the Mode Switch to the right and release.
3	Put the disk into an Only mode. Enter: (at the terminal) **>DISK MODE xx (cr)** where: **xx** - disk mode: **AO** - A ONLY (if you are changing out the B power supply). OR **BO** - B ONLY (if you are changing out the A power supply). Proper response: `DISK MODE: AO` (or) `DISK MODE: BO`

Procedure 9
Power Supply (NT6M71xx) replacement

Step	Description
4	Enter the following commands to write the value 00 in the DRAM memory address 2204 for the off-line DSI/TEC PCAs: **>DOS S TECMAINT MEMWRITE 1 2204 00 (cr)** **>DOS S TECMAINT MEMWRITE 2 2204 00 (cr)**
5	Power down the faulty power supply. Remove power from the standby chassis by operation of the +8 V dc red rocker switch on the power supply. Remove the -48 V dc source for the standby processor chassis at the main fuse panel; disk drive in this chassis is now disabled. ⚠ **WARNING** Removal of the incorrect -48 V dc source can cause loss of AMA. *Note:* This step will cause an alarm.
6	Remove the three connector plugs from the front of the power supply. Squeeze the side release clips and pull down gently; fold the cables back out of the way.
7	Loosen the slotted-head captive screw at the bottom of the power supply. Gently pull the power supply out of the chassis. Make sure the three connectors (and cables) are out of the way during removal of the power supply unit.
8	Install the replacement power supply. Make sure all cables and connectors are out of the way of the insertion path. Make sure the proper fuses are installed in the replacement power supply.
9	Gently slide the power supply into position until it is fully seated. Tighten the slotted captive screw until snugly in place; do not bear down. If any resistance, remove the power supply and check for obstructions. Remove the obstructions and reinsert the power supply.
10	Reconnect the three connectors removed in step 5 during the removal phase. Connect as follows: Pwr Sup Conn. a. J8 to P8 b. J9 to P9 c. J10 to P10
11	Restore the -48 V dc power source at the main fuse panel.

Procedure 9
Power Supply (NT6M71xx) replacement

Step	Description
12	Apply power to standby chassis by operation of the +8 V dc red rocker switch on the power supply.
	Wait for start-up activity to end and the message, **Software Loaded** or **S/W Loaded** to print. For Turbo BMCs and Non-Turbo BMCs equipped with 1 GB disk drives, wait for the **CP S/W Loaded** message to print.
13	Place the active processor unit in PRIME mode. At the Switch and Status Panel of the BMC:
	a. Depress the **P** side of the O/P Mode Select Switch. b. Turn the Mode Switch to the right and release.
14	Make the disk system redundant. At the maintenance terminal, enter:
	>DISK MODE xx (cr)
	where: **xx** - disk mode: **AP** - A PRIME (if mode is A only) **BP** - B PRIME (if mode is B only).
	The BMC will begin a disk copy, this may take several hours, depending on how much data is stored and the disk capacity.
	Proper response:
	`DISK MODE: AP` (from disk mode AO) or `DISK MODE: BP` (from disk mode BO)
15	To clear any alarms on the standby processor, enter at the maintenance terminal:
	>DOS S RSERR 00 (cr)
	Alarms will clear on the standby processor if there are no faults.
16	To clear any alarms on the active processor, enter at the maintenance terminal:
	>RSERR 00 (cr)
	Alarms will clear if there are no faults.
17	When all maintenance activities are complete, be sure to replace the front panel of the BMC, if removed. Carefully line up the four captive screws of the front panel with their mounting holes. Tighten the captive screws; but do not bear down.
	The procedure is complete.

56K Interface PCA Replacement Procedure (NT6M94xx)

Procedure 10
56K Interface PCA (NT6M94xx) replacement

Step	Description
⚠	**CAUTION** Since all BMC PCAs are static sensitive, be careful when handling them. Wear a wrist grounding strap when working with the BMC.
⚠	**WARNING** Since the BMC is powered up during this procedure, observe all safety procedures for operations on live equipment.
1	To remove the front panel of the BMC II, loosen the four screws located on the left and right hand sides. Once removed, put the front panel in a safe place to avoid damage; bending and scratching.
2	Get the replacement 56K Interface PCA from the spares kit.
3	Remove the protective electrostatic bag and place it on a suitable, grounded surface.
4	Make sure the replacement PCA matches the faulty PCA's part number and has the correct revision level. Also, make sure the suspected faulty PCA is in the standby processor. Verify that any applicable firmware for the PCA is the same or with a higher release number. Otherwise, contact your next level of support.
5	Place the processor unit with the suspected faulty PCA in the standby mode, by putting the **other** processor in the ONLY mode. The **other** processor is defined as that processor that does not have the suspected faulty PCA. At the Switch and Status Panel of the BMC: a. Press the A/B Select Switch to match the **other** processor. b. Press the O/P Mode Select Switch to **O**. c. Turn the Mode Switch to the right and release.
	Note: This will create an alarm.
6	Enter the following commands to write the value 00 in the DRAM memory address 2204 for the off-line DSI/TEC PCAs: **>DOS S TECMAINT MEMWRITE 1 2204 00 (cr)** **>DOS S TECMAINT MEMWRITE 2 2204 00 (cr)**

Procedure 10
56K Interface PCA (NT6M94xx) replacement

Step	Description
7	Remove power from the standby chassis (A or B; the one with the suspected fault) by operation of the +8 V dc red rocker switch on the power supply.
8	Remove the suspected faulty PCA.
9	The replacement PCA option settings must be set to match the settings for that PCA listed in the *PCA Switch and Strap Settings* section before installation.
⚠	**CAUTION** Failure to set-up options correctly may cause an AMA loss.
10	Insert the spare PCA in the vacated card slot, making sure it is fully seated.
11	Put faulty PCA in the empty electrostatic bag.
12	Apply power to the BMC chassis by operation of the +8 V dc red rocker switch, reversing step 7. Wait for start-up activity to end and the message, **CP S/W Loaded** to print.
13	To clear any alarms on the standby processor. At the maintenance terminal, enter: **>DOS S RSERR 00 (cr)** Alarms will stay clear on the standby processor if there are no faults.
14	After RSERR, alarms may reappear. The command, **CP TEST**, forces diagnostics which confirm whether the faults were corrected. Enter: (at the terminal) **>CP TEST STDBY (cr)** *Note:* The tests will take several minutes to execute, and the **program test** is the last test to run. If all tests do not pass, contact the next level of support.
15	Place the active processor unit in PRIME mode. At the Switch and Status Panel of the BMC: a. Press the A/B Select Switch to **B.** b. Make the O/P Mode Select Switch **P.** c. Turn the Mode Switch to the right and release.
16	To clear any alarms on the active processor. At the maintenance terminal, enter: **>RSERR 00 (cr)** Alarms will clear if there are no faults.

Procedure 10
56K Interface PCA (NT6M94xx) replacement

Step	Description
17	If alarm status shows active alarms, troubleshoot all alarm conditions. Enter: (at the terminal) **>TEST (cr)** **>DOS S TEST (cr)** *Note:* The tests will take several minutes to execute, and the **program test** is the last test to run.
18	Switch Processors to make the standby processor active. Enter: (at the terminal) **>SWACT (cr)** The standby processor becomes the active processor. ⚠ **WARNING** This should not be done during a high traffic period; it may cause loss of AMA.
19	Test the Active processor. Enter: (at the terminal) **>TEST (cr)** **>CP TEST ACT (cr)** **>DOS S TEST (cr)** **>CP TEST STDBY (cr)** *Note:* The tests will take several minutes to execute, and the program test is the last test to run.
20	Verify that the replacement PCA has corrected the original error.
21	When all maintenance activities are complete, be sure to replace the front panel of the BMC. Carefully line up the four captive screws of the front panel with their mounting holes. Tighten the captive screws; but do not bear down. The procedure is complete.

PCA Switch and Strap Settings

Note 1: Pin 1 is designated by a white dot on all of the PCAs. These tables list the factory default settings.

Note 2: Some of the PCAs listed in this section are no longer being manufactured. These PCAs are identified by an (MD) following the PCA's Product Equipment Code.

Table 7
NT6M62xx CPU PCA

Switch #	Position
S2	1 OFF
	2 OFF
	3 ON
	4 OFF
Jumpers	**Pin**
J3	1-2

Table 8
CPU LED display codes

LED	Alarm level	Notes
BLANK	N/A	Power failure
U.	N/A	Busak faulty
P.	N/A	Wait faulty
H.	N/A	Processor failed - halt
r.	N/A	Processor reset - initial start-up
L.	N/A	Clock faulty (also indicated by lack of decimal point)
E.	N/A	Invalid CPU response (also displayed whenever switch 3 on SW2 is in the OFF position
d.	Critical Level 3	Processor switch occurs
c.	Critical Level 2	Processor switch occurs
b.	Critical Level 1	Processor switch occurs
A.	Critical Level 0	Alarm only, no processor switch
9.	Major Level 3	Processor switch occurs
8.	Major Level 2	Processor switch occurs

Table 8
CPU LED display codes

LED	Alarm level	Notes
7.	Major Level 1	Processor switch occurs
6.	Major Level 0	Alarm only, no processor switch
5.	Minor Level 3	Processor switch occurs
4.	Minor Level 2	Processor switch occurs
3.	Minor Level 1	Processor switch occurs
2.	Minor Level 0	Alarm only, no processor switch
1.	N/A	Planned processor switch
≡.	N/A	All systems operational

Table 9
NT6M63CA EPROM PCA

Jumper	Pin		Jumper	Pin
P2	OUT		J14	2-3
P3	1-2		J15	1-2
P4	1-2		J16	2-3
P5	1-2		J17	1-2
P6	1-2		J18	2-3
J7	1-2		J19	1-2
J8	1-2		J20	2-3
J9	1-2		J21	OUT
J10	2-3		J22	IN
J11	1-2		J23	IN
J12	2-3		J24	1-2
J13	1-2			

Table 10
NT6M63CK, NT6M63DA, NT6M63DC, NT6M63FI, and
NT6M63FL EPROM PCA

Jumper	Pin		Jumper	Pin
P2	OUT		J14	2-3
P3	1-2		J15	1-2
P4	2-3		J16	2-3
P5	1-2		J17	1-2
P6	1-2		J18	2-3
J7	2-3		J19	1-2
J8	1-2		J20	2-3
J9	1-2		J21	OUT
J10	2-3		J22	OUT
J11	1-2		J23	OUT
J12	2-3		J24	2-3
J13	1-2			

Table 11
NT6M60BA Quad SIO (Slot 6), BMC set to INTERNAL timing
and Polling Modem set to EXTERNAL timing

Port Description	Jumper	Pin	Baud Selection
POLLING Link BX.25 (non-turbo)	J2 J3 J10	1-2 2-3 IN	Baud 1 (SW2)
DOWNLOAD Link ASYNC	J4 J5 J11	1-2 1-2 IN	Baud 2 (SW3)
SDI Port (DMS-10) Local TTY (DMS-100)	J6 J7 J12	1-2 1-2 IN	Baud 3 (SW4)
Local TTY	J8 J9 J13	1-2 1-2 IN	Baud 4 (SW5)

Table 12
NT6M60BA Quad SIO (Slot 6), BMC set to EXTERNAL timing
and Polling Modem set to INTERNAL timing

Port Description	Jumper	Pin	Baud Selection
POLLING Link	J2	2-3	Baud 1
BX.25	J3	2-3	(SW2)
	J10	OUT	
DOWNLOAD Link	J4	1-2	Baud 2
ASYNC	J5	1-2	(SW3)
	J11	IN	
SDI Port (DMS-10)	J6	1-2	Baud 3
	J7	1-2	(SW4)
Local TTY (DMS-100)	J12	IN	
Local TTY	J8	1-2	Baud 4
	J9	1-2	(SW5)
	J13	IN	

Note 3: ADDRESS SELECTION SW1 = A is required for SIO inserted into slot 6.

Note 4: For baud selection, use **Table 15**.

Table 13
NT6M60BA PTR SIO (Slot 7), BMC set to INTERNAL timing and
Polling Modem set to EXTERNAL timing

Port Description	Jumper	Pin	Baud Selection
(DMS-10 NOT USED)	J2	1-2	Baud 1
	J3	2-3	(SW2)
POLLING (DMS-100)	J10	IN	
POLLING (DMS-10)	J4	1-2	Baud 2
	J5	2-3	(SW3)
	J11	IN	
Local TTY (DMS-100)	J4	1-2	Baud 2
	J5	1-2	(SW3)
	J11	IN	
NOT USED	J6	1-2	Baud 3
	J7	1-2	(SW4)
	J12	IN	
NOT USED	J8	1-2	Baud 4
	J9	1-2	(SW5)
	J13	IN	

Table 14
NT6M60BA PRT SIO (Slot 7), BMC set to EXTERNAL timing and Polling Modem set to INTERNAL timing

Port Description	Jumper	Pin	Baud Selection
POLLING (DMS-100)	J2 J3 J10	2-3 2-3 OUT	Baud 1 (SW2)
POLLING (DMS-10)	J4 J5 J11	2-3 2-3 OUT	Baud 2 (SW3)
Local TTY (DMS-100)	J4 J5 J11	1-2 1-2 IN	Baud 2 (SW3)
NOT USED	J6 J7 J12	1-2 1-2 IN	Baud 3 (SW4)
NOT USED	J8 J9 J13	1-2 1-2 IN	Baud 4 (SW5)

Note 5: ADDRESS SELECTION SW1 = A is required for SIO inserted into slot 6.

Note 6: For baud selection, use **Table 15**.

Table 15
Baud Rate Reference

Rotary Switch Position	Asynchronous Rate	Synchronous Rate
0	50	800
1	75	1200
2	110	1760
3	134.5	2152
4	150	2400
5	300	4800
6	600	9600
7	1200	N/A
8	1800	NA
9	2000	NA
A	2400	N/A
B	3600	N/A
C	4800	N/A
D	7200	N/A

Table 15
Baud Rate Reference

Rotary Switch Position	Asynchronous Rate	Synchronous Rate
E	9600	N/A
F	N/A	N/A

Note: The **Asynchronous rate** is used for the SDI port, Local TTY and Download port. The **Synchronous** rate is used for the Polling port.

Table 16
NT6M84BA PWR/ALM Communications PCA, BMC set to INTERNAL timing and Polling Modem set to EXTERNAL timing

Switch	Jack,	Position
S1	J1, 1 OFF	5 OFF
	J2, 2 OFF	6 OFF
	J3, 3 OFF	7 OFF
	J4, 4 OFF	8 OFF
S2	J5, 1 OFF	5 OFF
	J6, 2 OFF	6 OFF
	J7, 3 OFF	7 OFF
	J8, 4 OFF	8 OFF

Jumper	Pin
J14	OUT
J15	2-3
J16	2-3
J17	2-3

Table 17
NT6M84BA PWR/ALM Communications PCA, BMC set to EXTERNAL timing and Polling modem set to INTERNAL timing

Switch	Jack,	Position
S1	J1, 1 ON	5 ON
	J2, 2 OFF	6 OFF
	J3, 3 OFF	7 OFF
	J4, 4 OFF	8 OFF
S2	J5, 1 ON	5 ON (DMS-100 ONLY)
	J6, 2 ON	6 ON (DMS-10 ONLY)
	J7, 3 OFF	7 OFF
	J8, 4 OFF	8 OFF

Jumper	Pin
J14	OUT
J15	2-3
J16	2-3
J17	2-3

Table 18
NT6M94xx 56K Interface PCA

Jumper	Pin
P2	OUT
P4	OUT
P5	OUT
P8	IN
P9	IN

Table 19
NT6M66AC (MD) or NT6M66AH Disk Interface PCA

Jumper	Pin
A	IN
R	IN

Table 20
NT6M66BA SCSI Interface PCA

Jumper	Pin
P1	IN
P4	IN
P5	IN
P6	OUT
P7	OUT
P8	IN
P9	IN
P11	IN

Note 7: The NT6M66CA SCSI Interface PCA does not have any switches or jumpers that must be set prior to installation.

Note 8: Tables 17, 18, and 19 indicate the factory jumper settings and should not be changed on-site.

Table 21
NT6M70AB DMS-100 DSI PCA

SLOT 12	
Switch #	**Position**
SW1	1 OFF
	2 ON
	3 ON
	4 OFF
	5 OFF
	6 OFF
	7 ON
	8 ON
	9 OFF
	10 ON
SW2	1 ON
	2 OFF
	3 OFF
	4 ON
SLOT 13	
Switch #	**Position**
SW1	1 OFF
	2 OFF
	3 ON
	4 OFF
	5 OFF
	6 OFF
	7 ON
	8 OFF
	9 OFF
	10 ON
SW2	1 ON
	2 OFF
	3 OFF
	4 ON

Table 22
NT6M70BD DMS-100 DSI PCA

SLOT 12	
Switch #	**Position**
SW1	1 OFF
	2 ON
	3 ON
	4 OFF
	5 OFF
	6 OFF
	7 ON
	8 ON
	9 OFF
SW2	1 ON
	2 OFF
	3 OFF
	4 ON

SLOT 13	
Switch #	**Position**
SW1	1 OFF
	2 OFF
	3 ON
	4 OFF
	5 OFF
	6 OFF
	7 ON
	8 OFF
	9 OFF
SW2	1 ON
	2 OFF
	3 OFF
	4 ON

Table 23
NT6M89AA DMS-10 TEC PCA

SLOT 12	
Switch #	**Position**
S1	1 OFF
	2 OFF
	3 OFF
	4 ON
	5 OFF
	6 OFF
	7 ON
	8 ON
SLOT 13	
Switch #	**Position**
S1	1 OFF
	2 OFF
	3 OFF
	4 ON
	5 OFF
	6 OFF
	7 OFF
	8 ON

Table 24
NT6M89AB and NT6M89BD DMS-10 TEC PCA

SLOT 12	
Switch #	**Position**
S1	1 ON
	2 OFF
	3 OFF
	4 ON
	5 OFF
	6 OFF
	7 ON
	8 OFF
SLOT 13	
Switch #	**Position**
S1	1 OFF
	2 OFF
	3 OFF
	4 ON
	5 OFF
	6 OFF
	7 ON
	8 OFF

Table 25
NT6M90xx 800 bpi DCO TEC PCA

SLOT 12	
Switch #	**Position**
S1	1 OFF
	2 ON
	3 OFF
	4 ON
	5 ON
	6 OFF
	7 ON
	8 OFF
	9 OFF
	10 OFF
S2	1 ON
	2 ON
	3 ON
	4 OFF
	5 ON
	6 OFF
	7 OFF
	8 OFF
	9 ON
	10 ON
SLOT 13	
Switch #	**Position**
S1	1 OFF
	2 OFF
	3 OFF
	4 ON
	5 ON
	6 OFF
	7 ON
	8 OFF
	9 OFF
	10 OFF
S2	1 ON
	2 ON
	3 ON
	4 OFF
	5 ON
	6 OFF
	7 OFF
	8 OFF
	9 ON
	10 ON

Table 26
NT6M90xx 1600 bpi DCO TEC PCA

SLOT 12	
Switch #	**Position**
S1	1 OFF
	2 ON
	3 OFF
	4 ON
	5 ON
	6 OFF
	7 ON
	8 OFF
	9 OFF
	10 OFF
S2	1 OFF
	2 OFF
	3 ON
	4 OFF
	5 ON
	6 OFF
	7 OFF
	8 OFF
	9 ON
	10 OFF
SLOT 13	
Switch #	**Position**
S1	1 OFF
	2 OFF
	3 OFF
	4 ON
	5 ON
	6 OFF
	7 ON
	8 OFF
	9 OFF
	10 OFF
S2	1 OFF
	2 OFF
	3 ON
	4 OFF
	5 ON
	6 OFF
	7 OFF
	8 OFF
	9 ON
	10 OFF

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DMS-10 and DMS-100 Families

Billing Media Converter II

Automatic Message Accounting Transmitter
1997 Quick Reference Guide

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