



Communications Technology Solutions

CBM Of America, Inc.

CBMTN2244 Tape Drive

Installation Guide

With Replacement Procedures For The
TN2097 40 Megabyte
Tape Drive

CBM of America TN2097 40 Meg Tape Drive Replacement Procedure

Summary:

The CBM TN2244 4mm DAT Tape Drive replaces the Lucent manufactured TN2097 40 Megabyte Tape Drive. The TN2097 has been manufacturer discontinued and replacement units and media are no longer commercially available. Included with the CBM TN2244 Tape Drive is a 4mm DAT Datatek/CBM Transition Release Tape Build 94. The release tape has been built in the image of the 40 Megabyte Tape to ensure compatibility with ECPU equipped nodes. It is important that this tape be stored in a secure location, as it will be needed to recover a node in the event of a crashed or defective disk drive. The CBM TN2244 Tape Drive operates in either 40 Megabyte or 4mm DAT mode depending on the position (In or Out) of the DDS button on the face of the drive. When operating in 4mm DAT mode, the blue LED is illuminated. Pushing the DDS button returns the device to 40 Megabyte mode and closes the LED. This Tape Drive is fully compatible with ECPU and CCM equipped nodes and can be used as a replacement for the TN2233.

Note: The TN2244 has shipped with all jumpers and switches configured for use with CCM and ECPU equipped nodes and should not be altered. The TN2244 ships with jumper 6 installed which provides SCSI bus termination.

Important:

This document details the procedures to follow when dealing with the following scenarios:

- Replacing the TN2097 on a stable node (Procedure One).
- Recovering a TN2244 equipped node that has a crashed or defective disk drive running build 95 and higher (Procedure Two).

Both procedures require the utilization of the original 4mm DAT Datatek/CBM Transition Release Tape that shipped with the CBM TN2244.

Typically, loading release software from the TN2097 took approximately 60 minutes. Utilizing the CBM TN2244 Tape drive takes approximately 5 minutes.

CBM of America TN2097 40 Meg Tape Drive Replacement Procedure

Procedure One:

This procedure must be executed to facilitate the replacement of the TN2097 with CBM TN2244 Tape Drive.

Requirements:

CBM TN2244 Tape Drive.

Datatek/CBM Transition Release Tape Build 94.

Node Identifier.

Valid Registration Key.

Applicability: All configurations.

Switch: CC0: Enabled (State: Active).

Status: Port A terminal screen displays the CC0> prompt.

1. Back up the current database to both Starkeeper and the TN2097 where applicable.
2. Back up the current database to the active disk and shutdown the node by executing the following commands:

```
CC0> backup active
```

```
Switch: CC0: Diag.
```

```
CC0> stop
```

```
LOADER> mon
```

```
MONITOR>
```

3. Remove the TN2097 and install the CBM TN2244 Tape Drive in the slot formerly occupied by the TN2097. Verify that the blue LED on the CBM TN2244 Tape Drive is NOT illuminated. If the blue LED is illuminated, push the DDS Mode button on the face of the CBM TN2244 Tape Drive.
4. Load the Datatek/CBM Transition Tape by executing the following command:
...
MONITOR> **dcc t/1 p/0**

(Continued on following page)

CBM of America TN2097 40 Meg Tape Drive Replacement Procedure Continued

5. Toggle the DDS mode button on the CBM TN2244 illuminating the blue LED. The blue LED indicates that the CBM TN2244 Tape Drive will now be operating in 4mm DDS mode.

Switch: CC0: Enabled (State: Active).

6. Boot the Node by entering '**boot**' from the MONITOR prompt.
7. From the CC0 prompt execute a 'change node' command. When prompted: **DDS TAPE DRIVER [yes, no: +(yes)]**: enter '**yes**'.
8. Execute an '**init controller**' command. This will reboot the CC and apply the DDS setting.
9. Using a write enabled blank 4mm tape, execute a '**backup tape 0**' command.
10. Operation complete.

NOTE: These instructions should be kept with the Generic Release Tape and the Release Key.

Should you require any further information, please contact CBM of America, Inc at 800-881-8202 Ext. 4 or Email (Bob Bucco) rbucco@cbmusa.com

CBM of America Node Recovery Procedure

Procedure Two:

This procedure should be executed following the replacement of a crashed or defective disk drive on a CBM TN2244 equipped Node. **Note: If you are running a Build higher than 94, the procedure will require the higher build tape as well as the Datatek/CBM Transition Build 94 Tape.**

Requirements:

CBM TN2244 Tape Drive.

Datatek/CBM Transition Release Tape Build 94.

Node Identifier.

Valid Registration Key.

Applicability: All configurations.

Switches: CC0: DIAG.

Status: Port A terminal screen displays the MONITOR> prompt.

1. Verify that the blue LED on the CBM TN2244 Tape Drive is NOT illuminated. If the blue LED is illuminated, push the DDS Mode button on the face of the CBM TN2244 Tape Drive. Following the instructions detailed in your BNS-2000 Node Reference Guide, install the included Transition Release Tape. This documentation can be found in Addendum A of this manual.

Disregard the 'setuprel' command in Procedure

3-8 Step 5. It is not necessary with the Transition Tape.

2. Push the DDS Mode button on the TN2244 and verify that the blue LED is illuminated.

Switch: CC0: Enabled (State: Active).

3. Boot the Node by entering '**boot**' from the MONITOR prompt.
4. From the CC0 prompt execute a 'change node' command. When prompted: **DDS TAPE DRIVER [yes, no: +(yes)]:** enter 'yes'.
5. Execute an '**init controller**' command. This will reboot the CC and apply the DDS setting

(Continued on following page)

CBM of America Node Recovery Procedure Continued

6. Remove the Build 94 tape, insert the 4mm tape that contains the latest backup data, and execute a **'retr tape 0'** command to retrieve the current backup.
7. Following the instructions detailed in your BNS-2000 Node Reference Guide, install the latest build tape. This documentation can be found in Addendum B of this manual.

Note: Disregard the 'setuprel' command in Procedure 7-5 Step 4a. Step 4b of Procedure 7-5 will query the user as to which kind of system: CCM or ECPU. In all cases enter 'c' for CCM regardless of whether the Node is equipped with an ECPU or CCM controller.

8. Operation complete.

NOTE: These instructions should be kept with the Generic Release Tape and the Release Key.

Should you require any further information, please contact CBM of America, Inc. at 800-881-8202 Ext. 4 or Email (Bob Bucco) rbucco@cbmusa.com

CBM of America TN2097 40 Meg Tape Drive Replacement Procedure

Addendum A

PROCEDURE 3-8. Loading Release Software to Disk 0 (continued)

For a CCM system, enter the following commands:

```
MONITOR> dcc st/1 p/15
Begin verify
MONITOR> dcc st/2 p/0
Begin verify
MONITOR>
```

NOTE: In a CCM system, standard cabling connects the tape to the secondary SCSI port, indicated by the "st" used with the **dcc** commands.

For an ECPU system, enter the following commands:

```
MONITOR> dcc t/4 p/15
Begin verify
MONITOR> dcc t/1 p/0
Begin verify
MONITOR>
```

NOTE: When a disk or tape is accessed, after a power-up or a system reset, a message similar to the following may appear after the **dcc** commands are entered:

```
sense: 70 00 06 00 00 0f 00 14 00 00 00 00 28 00 00 .
```

Ignore this information.

If the disk or tape cannot be accessed, an error message,

Primary Tape/Disk not ready (n),

appears in place of **Begin verify** ; refer to the *Messages Reference*.

When the **MONITOR>** prompt reappears after the second **dcc** command, loading the software to disk 0 is complete.

3. Remove the release tape by pressing the eject button on the tape drive to disengage the tape from the drive mechanism.
4. Return the tape to its protective case.

PROCEDURE 3-8. Loading Release Software to Disk 0 (continued)

5. For an ECPU system, set up the release file system by entering the following command sequence.

NOTE: This step will take about 30 minutes to complete.

```
MONITOR> boot
LOADER> run
. . .
<DBG> :c
. . .
<STARTUP> $ sh
INFO: This file system contains compressed files.
      Run setuprel to set up the release before rebooting.

Entering the stand-alone shell

MINI-SH: What can I do for you?
UTILITY> setuprel
. . .
The release is ready to run. Enter the reboot command.
UTILITY>
```

PROCEDURE 3-9. Registering the Release Software

Application: All configurations.

Switches: CC0: ENABL.

NOTE: Ignore the following message if it appears:

Incorrectly formatted data received from the Switch Module.

1. Obtain the software registration key from 1-800-WE-2-CARE; see the **Technical Assistance and Node Registration** preface for details.
2. If the console displays the **CC0>** prompt, go to step 3.
If the port A console displays the **MONITOR>** prompt, enter the **boot** command to go to the **CC0>** prompt.
3. At the **CC0>** prompt, enter the **install registration** command.
4. Enter the key when prompted. The following screen appears:

```
<Product Name> Node Registration Process

Please call 1-800-WE2-CARE to register your <Named> product and
obtain a software registration key which will permit you to continue
the <Product> installation process. Non-USA customers should
contact their supplier.

Node Identifier: 83931
Software Release Number: 3VS6.0
Software Build Number: 35

Please provide your Node Identifier, Software Release Number, Software
Build Number, and any associated Feature Package Activation Identifiers
to the Customer Assistance Center (CAC) Specialist.

The CAC will provide you with a software registration authorization key
which you will enter at the "Please Enter Key:" prompt.

Please Enter Key: 333h-2u2-3333
```

The standard timeout applies to the **install registration** command. If you do not enter the key within 2 minutes, the message **Timeout on Input** appears. If this happens, re-enter the command.

If the key entered does not match the key internally generated by the release software, a message appears asking you to enter the key again. There are several possible reasons for failure of the key; see the following table.

PROCEDURE 3-9. Registering the Release Software (continued)

Reason	Action	Explanation
Incorrect entry	Try again	The install registration command gives you two chances before terminating; you can always start over
Misunderstood key	Call 1-800-WE-2-CARE again to confirm the key	
Wrong serial number	Use Node Identifier number from the screen display and call 1-800-WE-2-CARE again	Number on the CCM or SCSI/DKI module label may not match the number stored in PROM

To exit from the screen without entering a key, press .

- Press when prompted to confirm that the feature packages should be installed.

```
Installing the <Named> feature package.
```

```
Confirm [yes, no: +(yes)]: yes 
```

```
The installation of the <<named> feature package is complete.
```

```
.  
.
.
```

SCREEN 3-1. Feature Package Installation Screen

After confirmation of each feature package the following screen appears.

```
The following feature packages are installed on this node:
```

- <Named Feature Package>
- <Named Feature Package>
- <Named Feature Package>

```
This node is now registered. Please continue installation procedures.
```

```
CC0>
```

SCREEN 3-2. Feature Package Installation Confirmation

The system is now operational and all commands are enabled.

PROCEDURE 3-10. Creating the Standby File System

Application: All configurations.

Switches: CC0: ENABL; CC1: DISAB.

Timing Note: Creating the standby file system takes about 5 minutes.

1. Go to the utility shell and then enter the **copystby** command to create the standby file system on the active disk.

```
CC0> utilsh
UTILITY> copystby
. . .
*** Creation of standby file system complete. ***
UTILITY>
```

2. When the standby file system is complete, type **exit** at the **UTILITY>** prompt to return to the **CC0>** prompt.

PROCEDURE 3-11. Copying Release Software From Disk 0 to Disk 1

Application: Dual Control Computer configurations.

Switches: CC0: ENABL; CC1: DISAB.

Requirements: The port A console displays the **CC0>** prompt.

Timing Note: Disk-to-disk copying takes 5 to 10 minutes.

1. Use the following command sequence to copy the release software from disk 0 to disk 1.

```
CC0> initialize standalone
. . .
MINI-SH: What can I do for you?
UTILITY> dupdisk
. . .
UTILITY>
```

2. At the **UTILITY>** prompt, enter the **reboot** command and at the **Are you sure?** prompt, type **y**.

NOTES: Disk 1 now contains a copy of disk 0 including the software registration and feature packages. Control Computer 1 will use the CCM or SCSI/DKI serial number (node identifier) of Control Computer 0 (CC0). It is not necessary to repeat the software registration procedure on Control Computer 1 (CC1).

Starting and Verifying the Active Control Computer

Use the appropriate procedure to start (boot) the active Control Computer (CC0). The booting procedure verifies that the Control Computer can boot to the operations prompt and that the SCSI buses in a dual Control Computer configuration are functioning properly.

When the system is initially brought on line, the Switch module in cabinet 0, slot A, is automatically configured and enabled as active in the database. The standby switch is configured and should be restored.

NOTE: Ignore the following error message if it appears while booting:

```
REPORT ERROR: config: switch and configuration data inconsistent,
slot=B.
```

When the node is booted, file system checks are automatically run on the active file system. If a problem is found during these checks, it is fixed, and then the node automatically reboots.

If the node has dual Control Computers, either Control Computer can boot from either disk.

PROCEDURE 3-12. Verifying Control Computer 0 as Active

Application: All configurations.

Switches: CC0: ENABL; CC1: DISAB.

Status: The port A console displays the **CC0>** prompt.

1. Enter the **dstat cc** command at the **CC0>** prompt. The output of the **dstat** command includes information about the Control Computer. **Active Disk 0** confirms that Control Computer 0 is active and has booted from disk 0.

NOTE: For single Control Computer configurations, software installation is complete.

2. For dual Control Computer configurations, go to monitor mode and boot Control Computer 0 from its secondary disk.

```
CC0> stop
. . .
LOADER> monitor
. . .
MONITOR> boot s
. . .
CC0>
```

3. Enter the **dstat cc** command at the **CC0>** prompt. The output of the **dstat** command verifies that Control Computer 0 has booted from active disk 1.

PROCEDURE 3-12. Verifying Control Computer 0 as Active (continued)

4. Go to monitor mode.

```
CC0> stop
. . .
LOADER> monitor
. . .
MONITOR>
```

5. Enter the **boot** command at the **MONITOR>** prompt to boot Control Computer 0 from its primary disk. When the **CC0>** prompt appears, Control Computer 0 is active.

MRC Firmware

This section describes interactions with the MRCIO and the MRCM boards. To avoid using two terms, MRC is used to indicate MRCM or MRCIO, depending on which hardware is present in your node. Labels and prompts for MRCM boards are "MRCM"; and for MRCIO boards, "MRC". These boards arrive from the factory with their firmware loaded in an electrically erasable programmable read-only memory (EEPROM). Because the MRC firmware is already loaded, the release software supplied on tape might be a different version.

NOTE: The release versions of the software do not need to match. Check your release letter for the correct version of the MRC firmware; the letter will state if the firmware should be downloaded. If you have questions, call 1-800-WE-2-CARE.

PROCEDURE 3-13. Loading MRC Firmware

Application: Configurations with an MRCIO or MRCM.

Switches: CC0: ENABL; CC1: ENABL.

Requirements: Run the **MRC load** command from port M only; during execution of the command, ports A and B are disabled. Automatic recovery must be set to *off*.

Timing Note: The **load** command takes about 10 minutes to execute at the default baud rate of 9600 bps.

CAUTION: Loading (or reloading) destroys the old version of the MRC firmware and any configuration data previously entered, such as port parameters.

See the *Commands Reference* for more detailed explanations of the commands used in this procedure.

PROCEDURE 3-13. Loading MRC Firmware (continued)

1. Normally, port M is connected to a secure modem for remote access. To execute the **load** command, however, connect a local console to port M through a null-modem adapter; any remote console may be disconnected during the **load** sequence and must be reconnected (dialed in) after the download is complete.
2. Use the commands shown in the following screen to go to the standalone utility shell.

```
MRC> set recovery off
MRC> connect active
WARNING: Connection of port M to active controller will result in the
         disconnection of Console A from the active Control Computer.
         Continue (y/n): y
CC0> init standalone
. . .
MINI-SH: What can I do for you?
UTILITY>
```

3. To verify that the file containing the firmware is present, use the **cd** command to change to the proper directory and the **ls** command to list the file. The MRC firmware is in the *download* directory; the full path name of the file is */download/mrcm* for the MRCM; and *download/mrcio*, for the MRCIO.

For the MRCIO, enter the following:

```
UTILITY> cd /download
UTILITY> ls mrcio
mrcio
UTILITY>
```

For the MRCM, enter the following:

```
UTILITY> cd /download
UTILITY> ls mrcm
mrcm
UTILITY>
```

PROCEDURE 3-13. Loading MRC Firmware (continued)

4. Use the attention signal to enter MRC mode and the **load** command to load the firmware. The following screen will appear. Respond to the prompts as shown, except for the program file name.

NOTE: *For the MRCM, the following response should be typed:*

```

Program file name: mrcm
    
```

For the MRCIO, the following response should be typed:

```

Program file name: mrcio
    
```

```

UTILITY>  
MRC> load
WARNING: Program file to be loaded must be in a directory on a control
computer. Continuing load removes the current program in the MRC.
. . .
Continue (y/n): y

                MRC Loader
INFO: 0 = CC0, 1 = CC1, a = active CC, s = standby CC
From control computer [0,1,a,s: +(s)]: a
. . .
Control Computer must be in the directory containing the MRC program file.
Use <ESC> <ESC> to toggle between the MRC monitor and control computer.
Continue (y/n): y

Program file name: [depends on MRC hardware; see NOTE above]
INFO: Load proceeding > > > > > > > > > > > > > > > > > > > > > > > >
. . .
MRC>
    
```

The (>) symbols show the progress of the download and self-test. This takes about 10 minutes at the default rate of 9600 baud. The self-test is then repeated. The EEPROM test should pass during the second self-test; if it fails, see the **Node Troubleshooting** chapter.

5. Reconnect to the active Control Computer and reboot.

PROCEDURE 3-13. Loading MRC Firmware (continued)

```

MRC> connect active
WARNING: Connection of port M to active control computer will result in the
disconnection of Console A from the active control computer.
Continue (y/n): y
UTILITY> reboot
Are you sure? y
. . .
CC0>

```

6. Use the MRC attention signal to go back to MRC mode.
7. Reconfigure changed MRC parameters using the MRC **set** command.
8. Disconnect the port M console and put back the original configuration (this may be remote). The port A console should then display the **CC0>** prompt.
9. Reconfigure any other changed port parameters with the **enter node** or **change node** operations command.

Starting the Standby Control Computer

To ensure that Control Computer 1 can be booted from disk 1, use the following procedures to perform a Control Computer switchover and to boot disk 1.

PROCEDURE 3-14. Performing a Control Computer Switchover

Application: Dual Control Computer configurations with a MRC.

Requirements: The database has been saved to the standby using the **backup standby** command.

Switches: CC0: ENABL; CC1: ENABL.

Status: The port A console displays the **CC0>**

1. At the **CC0>** prompt, enter to go the **MRC>** prompt.
2. Use the following command sequence to make the standby Control Computer active.

```

MRC>
. . .
MRC> set recovery off

```

The MRC **switchover** command transfers the former standby Control Computer to active status.

PROCEDURE 3-14. Performing a Control Computer Switchover (continued)

```
CC0> stop
. . .
LOADER>  
MRC> switchover
. . .
CC1>
```

NOTE: Ignore status messages such as: **Standby booting**, **Active failed**, or **Standby failed**. If you type the **switchover** command too quickly after the restore, you may get the following message: **WARNING: Standby Control Computer 1 is failed. Continue switchover (y/n):.**

Type **y** and press .

REPORT ERROR:stat: Improperly formatted info received from switch module.

3. Connect to the active controller.

```
MRC> connect active
```

4. Check the status of Control Computer 0.

```
CC1>  
MRC> connect 0
SC0>
```

The **sc0>** prompt indicates that Control Computer 0 is the standby Control Computer.

5. Switch control again.

PROCEDURE 3-14. Performing a Control Computer Switchover (continued)

```

SC0> [Escape] [Escape]
MRC> connect 1
CC1> stop
. . .
LOADER> [Escape] [Escape]
MRC> switchover
. . .
CC0> [Escape] [Escape]
MRC> set recovery on

```

The `CC0>` prompt indicates that the switchover was successful and Control Computer 0 is again the active Control Computer.

To ensure that Control Computer 1 can boot from disk 1, its primary disk, use the following procedure.

PROCEDURE 3-15. Starting Control Computer 1 as Standby on Disk 1

Application: Dual Control Computer configurations only.

Switches: CC0: ENABL; CC1: ENABL.

Status: The port A console displays the `CC0>` prompt.

1. Use the MRC attention signal, `[Escape] [Escape]`, to go to the `MRC>` prompt.
2. Use the MRC **connect standby** or **connect 1** command to connect to Control Computer 1.
 - If the `MONITOR>` prompt appears, go to step 4 and boot Control Computer 1 as standby.
 - If the `SC1>` prompt appears:
 - a. Move the controller mode switch for Control Computer 1 to DIAG.
 - b. Use the **stop** operations command and the **monitor** loader mode command to go to monitor mode before booting.
 - c. Move the controller mode switch for Control Computer 1 back to ENABL.
3. Use the **boot p** monitor mode command to boot Control Computer 1 from disk 1. The `SC1>` prompt indicates that Control Computer 1 has booted as standby.

PROCEDURE 3-15. Starting Control Computer 1 as Standby on Disk 1 (continued)

```
MONITOR> boot p
***Trying to Boot from Primary Disk***
. . .
SC1>
```

4. Verify that the standby Control Computer can also boot from disk 0:
 - a. Move the controller mode switch for Control Computer 1 (CC1) to DIAG.
 - b. Type the following command sequence:

```
SC1> stop
. . .
LOADER> monitor
. . .
MONITOR> boot s
. . .
***Trying to Boot from Secondary Disk***
. . .
LOADER> run
. . .
SC1> stop
. . .
LOADER> monitor
. . .
MONITOR>
```

- c. Move the controller mode switch for Control Computer 1 back to ENABL.
 - d. Type the **boot** command at the **MONITOR>** prompt. The **SC1>** prompt returns.

CBM of America TN2244 Recovery Procedure

Addendum B

Upgrading to a New Software Build or to a Compatible Release

The following steps present the basic sequence of tasks for upgrading a BNS-2000 Release 4.0 system to a Release 5.0 system or to a later maintenance build of the release; or a *Datakit II* VCS Release 5.0 ECPU system to a Release 6.0 ECPU system, or to a later maintenance build of Release 6.0. This method does not include hardware upgrades.

TABLE 7-1. New Software Build Upgrade Checklist

√	Steps	Explanation
	1. Planning the Upgrade	The equipment and software must be available, configuration decisions made, and a new software registration key obtained before upgrading can begin.
	2. Preparing to Upgrade	The connection between the MRC and console must be checked, and the auto backup and recovery options must be disabled.
	3. Preserving the Database	The configuration database must be stored where it can be retrieved operationally, for normal operations or in case of difficulties. A report copy of the database should be generated.
	4A/4B. Upgrading the Software to a New Build or a Compatible Release Loading the Software Retrieving the Database Rebooting the Node	The application software is installed as required; see procedures in this chapter. The database is retrieved from disk, tape, or <i>StarKeeper II</i> NMS host storage, depending on your original software and hardware configuration. If using this technique for an upgrade from BNS-2000 Release 3.0 or 4.0 to Release 5.0 (Step 4A) or from <i>Datakit II</i> VCS Release 5.0 to Release 6.0 (Step 4B), a database upgrade (dbupgrd) is performed. When the node reboots, the hardware and software will provide service on the new build.
	5. Verifying the Database Against the Original	In this optional step, the report copy of the database is compared to the results of new reports to ensure that all of the installed trunks and modules are equivalent to the original capability. This step completes the upgrade process.

Step 1. Planning the Upgrade

The upgrade must be planned to insure that all the equipment is available to complete the upgrade. The software and tapes must be available, as well as sufficient staff and node outage time to perform the upgrade.

The following table gives an approximate time for each step and an indication of node outage, if applicable. Use this table for *planning* purposes only.

TABLE 7-2. Timing the Software Build Upgrade

Upgrading Step	Expected Time Intervals	
	Elapsed Time	Node Outage
1. Planning the Upgrade	Dependent on configuration	none
2. Preparing to Upgrade	Dependent on configuration	none
3. Preserving the Database Saving to tape Storing on disk Uploading to <i>StarKeeper</i> II NMS Generating a Database Report	2 to 6 minutes 1 minute 2 to 5 minutes varies	none none none none
4A. Upgrading the BNS-2000 Software to a New Build or Compatible Release Loading the software: single ECPU CC dual ECPU CC single CCM dual CCM Installing the software Upgrading the database (if required) Registering the software	80 minutes 80 minutes 5 minutes 10 to 20 minutes 2 to 20 minutes 6 to 30 minutes 2 to 5 minutes	none none none none yes none none
4B. Upgrading the <i>Datakit</i> II VCS Software to a New Build Loading the software: single CC dual CC Installing the software Upgrading the database (if required) Registering the software	50 minutes 50 minutes 4 to 20 minutes 6 to 30 minutes 2 to 5 minutes	none none yes none none
5. Verifying the Database Against the Original	varies	none

PROCEDURE 7-1. Obtaining the Software Registration Key

Requirements: A software registration key is needed during the final steps of upgrading.

1. Check to make sure that the information needed to register your node is up-to-date; see the appropriate table in the **Technical Assistance and Node Registration** preface.
2. At the **CC0>** prompt, enter **verify registration** or **dstat module** to obtain the serial number of the UN635B SCSI/DKI (ECPU system) or CCM (CCM system), usually in logical slot 78 for a BNS-2000 node or in slot 14 for a *Datakit II VCS* node.

This number is given in the **Node Identifier** field, and is necessary to obtain the software registration key that makes the node operational.

3. Call 1-800-WE-2-CARE to obtain the software registration key before you start to upgrade. Write down the key in the space provided in Table 2 of the **Technical Assistance and Node Registration** preface.

Step 2. Preparing to Upgrade

Before starting to upgrade, check the baud rate and the connection between the MRC and administration console, and disable the automatic database recovery and backup options.

PROCEDURE 7-2. Disabling Automatic Recovery and Autobackup

Application: BNS-2000 or *Datakit II VCS* node with MRC.

Requirements: Disable the auto backup and recovery options before upgrading or problems will occur during the installation procedures and software upgrade.

1. To disable the automatic recovery feature: at the **MRC>** prompt, enter **set recovery off**.

```

MRC> set recovery off
MRC [Escape] [Escape]
CC0>

```

2. To disable the automatic database backup for dual disk systems: at the **CC0>** prompt, use the **change node** command to set *autobackup* to *off*.

PROCEDURE 7-3. Checking the MRC–Console Connection

Application: BNS-2000 or *Datakit II* VCS node with administration console port A connected to the MRC.

Requirements: The baud rate for port A must be set to 9600 bps before upgrading, or problems will occur during the installation procedures and software upgrade. The active Control Computer must be CC0.

1. These upgrade procedures assume that the administrative console used to perform the upgrade is connected to port A of the MRC.

If you are not sure that the console is connected to port A, see the appropriate figures in the **Node Installation** chapter for the physical location of the port A connector on the MRCM (AWJ16B I/O board) or for the physical location of the port A connector on the MRCIO.

2. If CC1 is the active Control Computer (CC1> prompt) then at the MRC prompt use the **switchover** command to force CC1 as the active Control Computer.

```
CC1> stop
. . .
LOADER> [Escape] [Escape]
MRC> switchover
. . .
CC0>
```

3. At the **MRC>** prompt, use the **dstat** command to check the current baud rate for port A.

```
CC0> [Escape] [Escape]
MRC> dstat
. . .
MRC>
```

4. If the baud rate is not 9600, enter **set a baud 9600** to configure the port A terminal.

Step 3. Preserving the Database

Before upgrading software, the database files need to be stored off the node.

WARNING: For nodes with session maintenance trunks, be sure **no reroutes** are in effect before preserving the database. The upgrade will fail if you are backing up a database for a node containing rerouted session maintenance trunks; see the *Session Maintenance Guide*.

PROCEDURE 7-4. Preserving the Database

Application: BNS-2000 or *Datakit II* VCS node.

Requirements: The required storage location is a data tape.

Timing Note: Backing up the database takes 2 to 6 minutes.

1. Enter the **sync** command to synchronize the database.
2. Back up the node configuration database to a blank, formatted 40MB tape or DDS tape; make sure the tape is write-enabled.
 - a. Insert the tape in tape drive 0 (ECPU system) or in the internal or external tape drive (CCM system); see the appropriate figures in **Chapter 3**.

Push the tape against the hinged flap that covers the drive opening until it snaps into place; the drive is designed to prevent improper insertion.

When the tape is properly seated, the red or yellow LED on the drive will light for about two minutes. During this time, the drive is initializing. Any attempt to access the tape before the initialization sequence completes will fail.
 - b. When the red or yellow LED goes out,

For an ECPU system: enter the **backup tape 0** command.

For a CCM system: enter the **backup tape 1** command.
 - c. Once the backup is complete, remove the tape from the drive, and label it.
3. Optionally, using the **backup host <address>** command, upload a second copy of the database files to a *StarKeeper II* NMS host.

For instructions on running the node software management tool (NDSWGMGMT) to upload and download the database, see the *StarKeeper II NMS Core System Guide*.
4. Optionally, using **verify** commands, generate a database report that can be used to check the upgraded database at the conclusion of the release upgrade. See the procedure for Generating a Node Configuration Database Report.

Step 4A. Upgrading BNS-2000 Software to a New Build or a Compatible Release

PROCEDURE 7-5. Upgrading a BNS-2000 Software Build or a Compatible Release

Application: To upgrade software from one build to a newer build of the release for a single Control Computer or for dual Control Computers with a MRC.

Requirements: The port A baud rate should be 9600 bps. The auto backup and recovery options are set to *off* and the database has been saved to tape or host.

Switches: CC0: ENABL; CC1: ENABL.

1. At the **CC0>** prompt, enter **dstat cc** to verify the following:
 - a. CC0 is active and the system is operating on the disk associated with CC0: disk 0.
 - b. The standby Control Computer is in service and in standby mode.
2. Use the **backup active** command to copy the current database to the backup partition on the disk.

```
CC0> backup active
CC0>
```

NOTE: The release software can be loaded onto the disk either from the local tape drive using steps 3 and 4 or it can be downloaded to the node via *StarKeeper II* NMS; see the *StarKeeper II* NMS documentation for specific instructions. If the software is downloaded from the *StarKeeper* system, skip steps 2 and 3 and continue this procedure at step 4 after the download is completed.

3. Insert the release tape containing the new build into tape drive 0 associated with Control Computer 0 (CC0) for the ECPU system; or into the single tape drive on the secondary SCSI bus on CC0 for the CCM system.

Make sure the tape is write-protected.

When the red or yellow LED goes out, continue with the next step.

- 4a. *For a BNS-2000 Release 3.0 ECPU system upgraded to a BNS-2000 Release 5.0 ECPU system:*

Load the compressed file system into the standby partition of the disk (partition 3). Then, reboot the controller on the standby partition (p/3:) to the standalone shell and execute a shell script to create a new file system in the staging partition (1). The staging partition will then contain the full release and uncompressed files.

PROCEDURE 7-5. Upgrading a BNS-2000 Software Build or a Compatible Release (continued)

Use the following command sequence to load the software release to disk.

NOTE: The **diskcopy** command copies the compressed release into the standby partition and executes for about 30 to 40 minutes. The **setuprel** command creates a new file system in the staging partition of the disk, copies all the release files to the new file system and uncompresses the compressed files. This command executes for about 30 minutes.

```

CC0> utilsh
UTILITY> diskcopy -e
> tp/b0t3p1 rdskp3
. . .
>  - 
UTILITY> stop
Are you sure? y
. . .
LOADER> run p/3:
. . .
UTILITY> setuprel
. . .
UTILITY> reboot
Are you sure? y
. . .
CC0>

```

4b. For a BNS-2000 Release 4.0 to a BNS-2000 Release 5.0 ECPU or CCM system:

Load the release from the tape to the Control Computer using the following **loadrel** command, as shown in the following screen.

This command will prompt you to specify the Control Computer and the tape drive containing the release tape; specify **0** for an ECPU system tape drive, and **1** for a CCM system tape drive.

PROCEDURE 7-5. Upgrading a BNS-2000 Software Build or a Compatible Release
(continued)

```
CC0> utilsh
MINI-SH: What can I do for you?
UTILITY> loadrel
Which controller is active (0 or 1, q to quit)? 0
Which tape drive contains the release tape (0 or 1, q to quit)? 1
Which kind of system: CCM or ECPU (c or e, q to quit)? c
. . .
The new release is ready to be installed.
UTILITY> exit
CC0>
```

NOTE: The **loadrel** command will execute for about 30 minutes (ECPU system) or 5-10 minutes (CCM system) as it copies the release from the tape to the staging partition of the disk.

5. Use the **backup active** command to copy the current database to the backup partition on the disk.

```
CC0> backup active
CC0>
```

6. Use the **dstat cc** command to verify that the release has been loaded into the staging partition and there is a backup in the **backup area**.
7. To boot the system from the new release, enter the **install release** command.

```
CC0> install release
CC0>
```

NOTE: The **install release** command takes 2 to 20 minutes depending on the number of modules that must be downloaded when new software is installed.

- a. If a database upgrade is not required, the node automatically copies the software to both disks, boots from the new release, and returns the **CC0>** prompt to the screen.
- b. If a database upgrade is required, the node boots to the standalone utility shell. To convert the database, enter the **dbupgrd** command. Then reboot the node, typing **y** for

PROCEDURE 7-5. Upgrading a BNS-2000 Software Build or a Compatible Release
(continued)

yes when prompted.

NOTE: If required, the **dbupgrd** command will take an additional 6 to 30 minutes to complete depending on the size of the database.

```
UTILITY> dbupgrd
. . .
UTILITY> reboot
Are you sure? yes
. . .
CC0>
```

NOTE: If **dbupgrd** fails, reboot the node on the original release until the problem can be corrected using the **install backout** command; see the procedure for Backing Out of a Software Build Upgrade on an Operational Node.

8. When the node has rebooted, use the **install registration** command procedure in the **Node Operations** chapter to register the release software.

CAUTION: In a dual Control Computer node, each controller may have to be registered separately, using the same software key, when the **install release** command is used.

9. In a dual Control Computer node, use the **change node** command to set auto backup to *on*.
10. Update the database backup on disk 0 to preserve the node registration and save the database.

```
CC0> sync
CC0> backup save 0
. . .
CC0>
```

11. Check the time using the **display time** command. If necessary, use the **set time** command to reset the time for Control Computer 0 (CC0), as follows.

PROCEDURE 7-5. Upgrading a BNS-2000 Software Build or a Compatible Release
(continued)

```
CC0> set time
TIME[HHMMSS] +(211109):
DATE[YYMMDD] +(960130):
CC0>
```

12. For a dual Control Computer system, reconnect to port M to enable automatic recovery.

```
CC0> [Escape] [Escape]
MRC> set recovery on
. . .
MRC> [Escape] [Escape]
CC0>
```

13. Use the **verify node** command to verify that the new release and build is active on the node.

14. Remove the release tape from the tape drive.

This completes the upgrade from one software build to another.