INSTALLATION INSTRUCTIONS

3590 Model B1A/E1A Drive Microcode and Hardware Update FBM

Document Number 35L0385 EC F23223B

SSD - Tucson

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Status: Field Use

Before Installation (Sections 1 through 8)

1.0 Machines Affected

3590 Model B1A/E1A approved for this FBM.

2.0 Prerequisites

None

3.0 FBM to be Installed

If this is part of the 3494 FBM, the parts will be supplied by one of the following FBMs:

35L0369	09L5135
35L0370	09L5136
35L0371	09L5137
35L0819	35L0144

4.0 Preparation

Refer to the **PROC** section in the *IBM 3590 Tape Subsystem Models B11/B1A E11/E1A MI* shipped with this FBM.

5.0 Programming Updates

None.

6.0 Purpose and Description

6.1 Purpose

This FBM is to update the 3590 model B1A/E1A with a microcode level that will improve the performance of the drive and eliminate exposure to future problems.

6.2 Description

Provide the following:

- Instructions to update the code on the tape drives and update hardware and device drivers if necessary.
- Maintenance Information manuals
- Drive microcode levels (Base IA_429, Ultra IB_7F7, Exx IC_901).

7.0 Installation Time

Machine Hours	CE Hours	# of CEs
1*	1.5	1

* Add 0.4 hour for each additional drive.

8.0 Special Tools and/or Materials Required

None.

Installation (Sections 9, 10, and 11)

9.0 Safety

Not applicable.

10.0 Details of Installation

Note: Base, ULTRA, EXX diskettes and FMR are supplied. Please ensure that the correct diskette is used.

Ultra and Exx drives attached to Axx controllers and/or VTS subsystems will be at a different code level than SCSI-attached drives.

__ 1. Have the customer vary the drives or drive unit offline.

__ 2. Proceed to Section 10.1, “Updating Microcode” if this tape device is attached to an AS/400 host, or a host that does not contain a diskette reader; OR

__ 3. Proceed to Section 10.2, “Updating Microcode From SP2 Using TAPEUTIL” on page 6 if this tape device is attached to a Power Parallel SP2 host; OR

__ 4. Proceed to Section 10.3, “Updating Microcode From a Sun System Using TAPESRVC” on page 9 if this tape device is attached to a SUN host **that contains a diskette reader**; OR

__ 5. Proceed to Section 10.4, “Updating Microcode from RS/6000 by Using TAPEUTIL” on page 10 if this tape device is attached to a RISC System/6000 or some other host **that contains a diskette reader**.

10.1 Updating Microcode

__ 1. From the *CE Options* menu, choose **Microcode Update**.

__ 2. At the **Load FMR Tape** menu, load the FMR cartridge (PN 35L0764 for Base and Ultra drives; or PN 35L0757 for Exx drives), and choose **Tape Loaded**.

   a. The microcode checks to see if the FMR tape contains the microcode in the card pack.

   b. If the tape does not contain the EC level, it automatically copies the microcode to the FMR tape in case you need to restore the level later.

__ 3. Choose **Unload Drive**.

__ 4. Press the **RESET** push button or select the **RESET** option to activate the microcode.

__ 5. Record the EC level and link level of the microcode in “Microcode EC Level History Log” in the **PROC** section of the *IBM 3590 Tape Subsystem Model B11, B1A, E11 and E1A MI*.

__ 6. Save the FMR cartridge for future use; it may be used to update the rest of the 3590 drives within the tape device rack/library installation.

Proceed to section10.5, “3590 Drive Cleaner Block Removal” on page 12.

10.2 Updating Microcode From SP2 Using TAPEUTIL

You may require information or assistance from the customer during this process.

This procedure downloads microcode to the tape drive from a file or diskette. This diskette must be in AIX/UNIX format. The Microcode Load utility is only supported on the IBM 3590 Tape Drive.

__ 1. Insert the correct microcode diskettes for your system (Base: PN 35L0216; Ultra: PN 35L0765; Exx: PN 35L0758) supplied with this EC in the control unit workstation (CWS) diskette reader.

__ 2. Copy the contents of the diskette to a file on the CWS by typing **cp /dev/rfd0 /tmp/3590.fmr** at the prompt.

__ 3. Copy the file /tmp/3590 to the SP2 node that has the 3590 attached.

- __ a. Connect to the target node by typing **ftp nodeid**.
- __ b. Enter a Name and a Password when prompted.
- __ c. Set Binary mode by typing **binary**.
- __ d. Transfer the file by typing **put /tmp/3590.fmr /tmp/3590.fmr**.
- __ e. Quit the connection by typing **quit**.

__ 4. On the drive operator panel, verify that the drive is Online.

__ 5. Verify that the drive is unloaded.

__ 6. Verify that the drive is **NOT IN USE** by another host.

__ 7. Connect to the target node by typing **telnet nodeid**.

Enter a login id and a password when prompted.

__ 8. Start the tape utility program on the target node by typing **tapeutil** at the prompt.

__ 9. Choose Tape Drive Service Aids from the menu by typing **9** and pressing enter.

__ 10. Choose **Microcode load** from the following panel then press **Enter**.

```
IBM Tape Device Service Aid Menu                                  700000

 Select One of the Service Aids to be performed

  Force Microcode Dump
    Perform a microcode dump of the system. The dump is stored in
    the device.
    After the dump is performed it must be read using Read Dump.
  Read Dump
    Transfer a dump from the tape device to a host file, diskette or
    a tape cartridge.
  Microcode load
    Download microcode from host file or diskette to tape device via
    SCSI bus.
  Error Log Analysis
    Analyze system error log for device.
```

__ 11. Select a **Device** and press **F7=Commit** from the following panel. You must press **F7=Commit** after selecting the drive.

```
IBM Tape Device Selection Menu.                                   900000

 Select One of the devices listed below.

 NAME        LOCATION     TYPE

 rmt2        00-05-01-10  IBM 3590 Tape Drive and Medium Changer
 rmt3        00-05-01-30  IBM 3590 Tape Drive and Medium Changer









F3=Cancel           F7=Commit           F10=Exit
```

__ 12. Enter the filename **/tmp/3590.fmr** in the source field.

You must press **F7=Commit** after entering the filename.

```
Prompting for Srce File for Operation on rmt3 located at 00-05-01-30
                                                                B00000

Please enter the following fields...

  Enter Filename:                                  /tmp/3590.fmr


F1=Help             F2=Refresh          F3=Cancel           F4=List
F5=Reset            F7=Commit           F10=Exit
```

__ 13. While the microcode load takes place, the display shows

```
"Operation running, please stand by"
```

The drive display shows some **LDNG TAPE** status messages at the bottom of the display.

__ 14. When the microcode load completes, the initiator display shows

```
Operation completed successfully!
```

The drive performs a soft power-on reset (restart the code).

__ 15. Press **F10** to exit the microcode load.

__ 16. Press **q** to quit tapeutil.

__ 17. Press **Ctrl+]** to get a telnet> prompt, then type **quit** to stop the TELNET session.

__ 18. Remove the diskette from the diskette reader.

__ 19. You may now create an FMR cartridge from a scratch tape or update the account FMR cartridge using the process presented in the **PROC** section of the *IBM 3590 Tape Subsystem Models B11, B1A, E11, and E1A MI*.

Proceed to section10.5, “3590 Drive Cleaner Block Removal” on page 12.

10.3 Updating Microcode From a Sun System Using TAPESRVC

You may require information or assistance from the customer during this process.

You must be signed on as **su root** user to run this procedure. This will require a password from the customer. Newer levels of the tape device driver have removed this requirement.

This procedure downloads microcode to the tape drive from a file or diskette. This diskette must be in AIX/UNIX format. The Microcode Load utility is only supported on the IBM 3590 Tape Drive.

__ 1. On the drive operator panel, verify that the drive is Online.

__ 2. Verify that the drive is unloaded.

__ 3. Verify that the drive is **NOT IN USE** by another host.

__ 4. Insert the microcode diskettes (Base: PN 35L0216; Ultra PN 35L0765; Exx: PN 35L0758) supplied with this EC into the system diskette reader.

__ 5. Type **volcheck** and press **Return**. The system prompt appears.

__ 6. Start the tape utility program by typing **/opt/stddutil/tapesrvc**.

__ 7. Choose **1: Select Tape Device** from the Service Utility menu and press Return.

```
+-----------------------------------------------------+
|                   SERVICE UTILITY                   |
|        IBM SCSI Tape Device Driver for SunOS        |
+-----------------------------------------------------+
 1: Select Tape Device        5: Force Dump
 2: Query Device Type         6: Store Dump
 3: Query Serial Number       7: Download Microcode
 4: Format Cartridge          Q: End Service Utility

Enter Selection:
```

__ 8. The following prompt is returned. If **0st** is the correct device, press Return. Otherwise type the path and the correct device.

```
Enter tape device special file [/dev/rmt/0st]:
```

__ 9. You will receive the following acknowledgment.

```
*** Tape device /dev/rmt/0st opened successfully.
```

__ 10. Choose **7: Download Microcode** from the Service Utility menu and press Return.

__ 11. The following prompt will be returned. If you are loading the microcode from the diskette reader, press Return. Otherwise enter the path and filename.

```
Enter microcode filepath [/vol/dev/aliases/floppy0]:
```

__ 12. While the microcode load takes place the initiator display shows:

```
*** Downloading ##### bytes at offset #####
```

The drive display shows some **LDNG TAPE** status messages on the display.

__ 13. When the microcode load completes the display indicates:

```
*** Microcode downloaded successfully (###### bytes)
```

The drive will perform a soft power-on reset.

__ 14. Type **q** and press Return to quit the SERVICE UTILITY.

__ 15. Type **eject** and press Return to eject the diskette from the diskette reader.

__ 16. You may now create an FMR cartridge from a scratch tape or update the account FMR cartridge using the process presented in the **PROC** section of the *IBM 3590 Tape Subsystem Models B11, B1A, E11, and E1A MI*.

Proceed to section10.5, “3590 Drive Cleaner Block Removal” on page 12.

10.4 Updating Microcode from RS/6000 by Using TAPEUTIL

You may require assistance from the customer during this process.

This procedure downloads microcode to the tape drive from a file or diskette. This diskette must be in AIX/UNIX format. The Microcode Load utility is only supported on the IBM 3590 tape drive.

__ 1. On the drive operator panel, verify that the drive is Online.

__ 2. Verify that the drive is unloaded.

__ 3. Verify that the drive is **NOT IN USE** by another host.

__ 4. Insert the microcode diskettes (Base: PN 35L0216; Ultra: PN 35L0765; Exx: PN 35L0758) supplied with this EC into the system diskette reader.

__ 5. Start the tape utility program by typing **tapeutil** at the prompt.

__ 6. Choose Tape Drive Service Aids from the menu by typing **9** and pressing Enter.

__ 7. Choose **Microcode load** from the following panel then press **Enter**.

```
IBM 3590 Tape Device Service Aid Menu                          700000


 Select One of the Service Aids to be performed

TOP
  Force Microcode Dump
    Perform a microcode dump of the system. The dump is stored in
    the device.
    After the dump is performed it must be read using Read Dump.
  Read Dump
    Transfer a dump from the tape device to a host file, diskette or
    a tape cartridge.
  Microcode load
    Download microcode from host file or diskette to tape device via
    SCSI bus.
  Error Log Analysis
    Analyze system error log for device.
F3=Cancel                              F10=Exit
```

__ 8. Select a **Device** and press **F7=Commit** from the following panel. You must press **F7=Commit** after selecting the drive.

```
IBM Tape Device Selection Menu.                                900000

 Select One of the devices listed below.

 NAME        LOCATION     TYPE

 rmt2        00-05-01-10  IBM 3590 Tape Drive and Medium Changer
 rmt3        00-05-01-30  IBM 3590 Tape Drive and Medium Changer

F3=Cancel           F7=Commit           F10=Exit
```

__ 9. If loading the microcode from the diskette reader, press **F7=Commit** from the following panel. Otherwise, enter the **path** and **filename** and press **F7=Commit**.

Enter the filename **./xxx.yyyy** in the source field where xxx.yyyy is the filename of the microcode file to be loaded. For example, type **./762.fmrz**.

You must press **F7=Commit** after entering the filename.

```
Prompting for Srce File for Operation on rmt3 located at 00-05-01-30
                                                               B00000

Please enter the following fields...

  Enter Filename:                                      /dev/rfd0 +/


F1=Help             F2=Refresh          F3=Cancel           F4=List
F5=Reset            F7=Commit           F10=Exit
```

__ 10. While the microcode load takes place, the display shows:

```
"Operation running, please stand by"
```

The drive display shows some **LDNG TAPE** status messages at the bottom of the display.

__ 11. When the microcode load completes, the initiator display shows:

```
Operation completed successfully!
```

The drive performs a soft power-on reset (restart the code).

__ 12. Press **F10** to exit the microcode load.

__ 13. Press **q** to quit tapeutil.

__ 14. Remove the diskette from the diskette reader.

__ 15. You may now create an FMR cartridge from a scratch tape or update the account FMR cartridge using the procedure in the **PROC** section of the *IBM 3590 Tape Subsystem Models B11, B1A, E11, and E1A MI*.

10.5 3590 Drive Cleaner Block Removal

The 3590 B1A drives that are installed in this 3494 should have the cleaner blocks removed. All current manufactured 3590 drives are being build without cleaner blocks. This procedure does not have to be done at the same time as this FBM installation but in the interest of customer down time may be done concurrently.

Note: All time spent working on the 3590 drives should be recorded against 3590 ECA666 for cleaner blade/block removal.

Note: While performing the following, do **NOT** touch the head.

__ 1. The head brush must be checked and replaced if necessary. The brush has 5 rows of bristles all 5 rows must be the same height. The brush must put equal pressure on all parts of the head. It is OK for the brush to have the same curvature as the head as long as it has equal pressure across the head.

__ 2. Check the arm that the brush is mounted on for binds. Insure the arm is not binding and allows the brush to put full pressure on the head.

__ 3. Remove the cleaner blades **2** which consist of 2 screws **3** , top plate, cleaner block and bottom spacer. Leave the air hose **4** in the drive attached to the bottom head assembly plate. Do not plug or block the opening.

Note: New head assemblies do not have a place for cleaner blade or hose. If you install a new style head, a new inline hose connector **6** will be provided to eliminate the existing T-hose connector **5** .

__ 4. Carefully brush out loose debris from the lower compliant guide of the D bearings. **DO NOT TOUCH THE HEAD.**

Note: If required, the P/N for a new R/W Head Brush is P/N05H4667.

Go to section 10.6, “3590 Compressor Verification” on page 14.

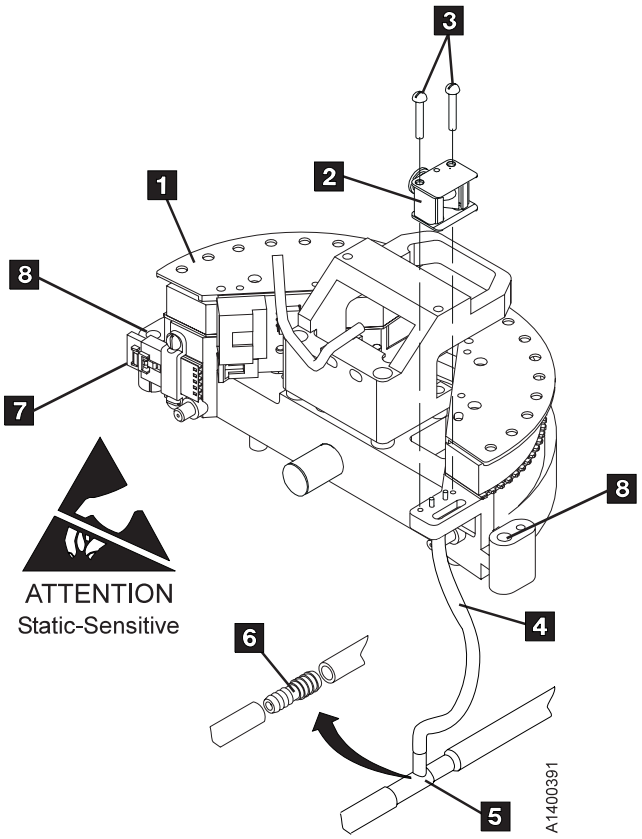

Figure 1. Cleaner Block Removal

10.6 3590 Compressor Verification

__ 1. Insert a 3590 cleaner cartridge into each 3590 drive. The drive will automatically test the pneumatics compressor. If the drive cannot automatically adjust the pressure, a FID2 04 or FID1 B0 will be displayed. If these FIDs are displayed, follow the 3590 Bxx MI instructions for these FIDs.

__ 2. When drive ejects the cleaner cartridge, remove the cartridge from drive.

Go to section 11.0, “Test Procedure.”

11.0 Test Procedure

__ 1. For each drive, verify the correct drive code level is installed, at the drive service panel select service. Select Microcode level, verify correct microcode level is installed. Select cancel twice to return to the main menu. If microcode level is down level update via FMR cartridge process.

__ 2. Run drive verification on at least one drive prior to returning to customer for use. Refer to "End of Call" in the **PROC** section of the *IBM 3590 Tape Subsystem Model B11, B1A, E11 and E1A MI*.

__ 3. Have the customer vary the drives online.

After Installation (Sections 12 through 15)

12.0 Field Updating

None.

13.0 Field Support Publications

None.

14.0 Parts Disposition

None.

15.0 Machine Records

__ 1. Fill out a QSAR (code 33 complete) against the appropriate machine serial number, and update all appropriate field records to reflect the installation of EC level F23223A.

__ 2. Using existing procedures, report installation and quality.

Appendix A. Device Drivers

Installing device drivers is the responsibility of the customer, and requires root access of the customer host system. The instructions below are provided to assist the customer in the process. The following Open Systems Device Drivers are being shipped with this FBM. They are the RS/6000 AIX (Atape) device driver and the Sun/Solaris IBMtape device driver. The AIX and Solaris drivers are used for operation of the Magstar 3590 'B' and 'E' models, the Magstar MP 3570 'B' and 'C' models, and the Magstar 3575 Tape Library Data Servers:

Part Number	Device Driver Description	Device Driver Level	Comments
35L0566 (WAS 35L0093)	AIX Tape Device Driver (Atape)	AIX Atape 4.6.2.0	supersedes Atape 4.5.9.0
35L0095 (WAS 09L5186)	IBM Tape Device Driver (IBMtape)	SUN IBMtape 4.0.3.0	supersedes IBMtape 4.0.2.8

Attention: For future reference, the device drivers may be obtained from the following internet sites: For the customer:

`ftp://ftp.software.ibm.com/storage/devdrvr/aix`

For the CE:

`http://snjlnt02.sanjose.ibm.com/tape/tapetec.nsf`

AIX 'Atape' Device Driver Changes in this level:

1. Updated SCSI timeout values for 3590/3570.
2. Fixed wrong SCSI command logged in errpt.
3. Fixed data count on fixed block transfer when retrying deferred error
4. Fixed report density command for 3590/B.

Solaris 'IBMtape' Device Driver Changes in this level:

1. Updated SCSI timeout values for 3590/3570
2. Added support for the 2108 San Data Gateway

A.1 Installing the New Device Drivers

A.1.1 AIX 'Atape' Driver

__ 1. Use the installp command for installation. Root authority is required. The software is always committed after installation.

__ 2. If a previous version of the Atape driver is installed, deinstall the current driver before installing the new version. De-install using the provided script: /usr/lpp/Atape/lpp.deinst.

__ 3. Use either smit or the following command to install the driver from diskette:

```
installp -acXd /dev/rfd0 Atape.driver
```

__ 4. Run 'cfgmgr' to configure supported tape devices.

If additional installation or configuration information is needed, refer to the *IBM SCSI Tape Drive, Medium Changer, and Library Device Drivers Installation and User's Guide* (GC35-0154).

A.1.2 Solaris 'IBMtape' Driver

__ 1. Root authority and system re-boot is required. Remove all special file entries under /dev/rmt. This will ensure that stale entries do not exist after the system is rebooted. New entries will be created when the system is rebooted. Use the 'rm' command as follows:

```
% rm /dev/rmt/*
```

__ 2. If a previous version of the IBMtape driver is installed, deinstall the current driver. Use 'pkgrm' as follows:

```
% /usr/sbin/pkgrm IBMtape
```

__ 3. Respond to pkgrm prompts. If one or more devices show busy, the processes using them must be terminated before proceeding.

__ 4. To load the new driver, mount the diskette using volume management services:

```
% /usr/bin/volcheck
```

__ 5. Use pkgadd to install the driver:

```
% /usr/sbin/pkgadd -d /vol/dev/aliases/floppy0 IBMtape
```

__ 6. Respond to pkgadd prompts. Shutdown and re-boot the host system. Note any changed device special file numbers.

If additional installation or configuration information is needed, refer to the *IBM SCSI Tape Drive, Medium Changer, and Library Device Drivers Installation and User's Guide* (GC35-0154).