

top **and** higher at the bottom, adjust Red vertical pot to correct the error.

If Red is higher than Green at the top **and** bottom, *or* lower than Green at the top **and** bottom, this is most likely caused by Red not being centered correctly and can be corrected with the centering adjustment (*User's Guide*, Section 5.5.11).

If the Red height pot does not completely eliminate the difference in height between Red and Green, balance the error at the top and bottom. Too much of an error at the top or bottom makes convergence procedures harder to accomplish.

5. Repeat Steps 2 and 3 above for Blue while hiding Red.
6. Recheck all Geometry and Convergence settings (*see User's Guide*) and readjust wherever necessary.

To adjust the horizontal size coils (*see Figure 3-7*):

1. Continue to use Test Pattern 5, X-hatch.
2. Hide Blue. View Red and Green.
3. If Red is outside of Green on both sides, or inside of Green on both sides, use a Delrin .100 hex alignment tool to adjust the Red horizontal size coil to correct the error. If Red is outside of Green on one side and inside of Green on the other side, this is most likely caused by Red not being centered correctly and can be corrected with the centering adjustment (*User's Guide*, Section 5.5.11).

If the Red horizontal size coil does not completely eliminate the size error between Red and Green, balance the error on both sides to allow for easier convergence.

4. Repeat Steps 2 and 3 above for Blue while hiding Red.
5. Recheck all Geometry and Convergence settings and readjust wherever necessary.
6. Replace the electronic module and rear cover.

3.11 Software Updating

The Model 220 software resides in Flash Memory and is updated via the projector's serial Port A. To perform an update, a disk containing the updated Boot Software (boot.hex) and/or System Software (zsys.hex) and a PC with Windows 3.1 (avoid Windows 95 at this time) is required to perform update.

Boot Manager Software and System Software are separate products. Each may be updated independently. The System Software will depend on a specific version of the Boot Manager. Refer to the System Software release bulletin for Boot Manager version dependencies.

To perform software upgrade:

1. Verify that the projector circuit breaker is off. Use a Null Modem cable to connect a PC to the projector's Serial Port A.
2. Start Windows 3.1.
3. Click on the terminal icon from the Accessories Directory.
4. From the Terminal menu, select Settings-Terminal Emulation and click on DEC-VT-100(ANSI). Select OK.
5. Under Settings choose Terminal Preferences.
6. Under Terminal Preferences the following selections are appropriate; Terminal Modes=Sound, CR->CR/LF=Both off, Columns=80, Cursor=Block & Blink, Terminal Font=Fixedsys 15, Translation=None, Show Scroll Bars=On, Buffer Lines=100, Use Function Arrow & Control Keys for Windows=Off. Select OK.
7. Under Settings select Text Transfer=Standard Flow Control. Select OK.
8. Under Settings select Communications and choose; Connector=select the PC port being used, Baud Rate=9600 or 19200 (depending on the System Controller Switch block Pos 4-see note below this step), Data Bits=8, Stop Bits=1, Parity=None, Parity Check=Off, Carrier Detect=Off, Flow Control=XON/XOFF. Select OK.

NOTE: Switch position 4 on the switch block at the card edge of the System Controller (see *Figure 5-1*) controls the baud rate for Serial Port A for the Boot Manager and System Software. Down=9600, Up=19200. Ensure the other SCB switches (1, 2, and 3) are in the Down position.

9. Turn the projector circuit breaker on while depressing and holding down the service mode switch on the SCB (see *Figure 5-1*) for at least 5 seconds or until "Boot Manager" appears on the terminal monitor. The Power On LED stays Red.
10. The following should be displayed on the Windows Terminal screen (where x.x.0 is the currently loaded Boot Manager version (e.g. 0.9.0 or 1.1.0).


```
-Boot Manager Ver x.x.0 (Service Mode Startup)
-Copyright (c) 1994 Hughes JVC Technology
-Command: _
```
11. Verify that the Boot Manager version is correct. If it is necessary to update the Boot Manager, perform the following steps. If the Boot Manager is already up to date, skip to Step 12 to update the System Software.

11A. Enter the command "loadboot" at the prompt. You should see the following output:

Command: loadboot

Boot Manager software update procedure

WARNING: IMPROPER USE MAY MAKE THIS SYSTEM UNBOOTABLE (This warning relates to the Flash Memory updating that occurs in Step 11D. Do not turn projector power off while the Flash Memory is updating)

Memory buffer reset to 0xff

Begin your S-Record upload now (Esc to abort).

11B. From the Windows Terminal Menu (normally in Accessories window), select "Transfers/Send Text File", then select "List Files of Type:All Files", and select the disk and/or directory with the Model 220 software. You should see a file named "boot.hex". Select this file and press the OK button to begin the upload.

11C. During upload, a progress indicator updates the number of records received. At the completion of the upload, the system will display the following (numerical values are for example only and depend on the Boot Manager version):

S-Records processed: 823

Upload Successful

Address Range: 0x00000000-0x00006687

Bytes Loaded: 26248

WARNING: FLASH WILL NOW BE UPDATED

Press Enter to continue, Esc to abort.

11D. The system has verified that the load module is correct and is ready to update the Flash. Press Enter to perform the update (press Esc now to abort the update with no changes). While the Flash memory is being updated (15-30 seconds), **DO NOT** turn off the projector circuit breaker or the machine could be made unbootable, requiring a new set of flash chips to be installed. When the update is complete, the system will display the following:

Reprogramming Flash Sector 0 1

Boot Manager software update successful

Command: _

The Boot software has been successfully updated. To restart the projector under control of the updated boot manager, enter the "reboot" command while depressing the service mode switch (*Figure 5-1*). The projector will now restart with the updated boot manager software. You should see the following displayed (where y.y.0 is the updated Boot Manager's version.

```
Boot Manager Ver y.y.0 (Service Mode
Startup)
Copyright (c) 1994-1996 Hughes-JVC
Technology
```

```
Command: _
```

12. To update the System Software from the Boot Manager prompt:

12A. Type in the command “loadsys” at the prompt. The following should be displayed:

```
Command: loadsys

System software update procedure
***WARNING: IMPROPER USE MAY MAKE THIS
SYSTEM UNBOOTABLE*** (NOTE: This warning
relates to the Flash Memory updating that
occurs in Step 12D below. Do not turn
projector power off while the Flash Memory
is updating.)

Memory buffer reset to Oxff

Begin your S-Record upload now (Esc to
abort)
```

12B. Select “Transfers/Send Text File” from the Windows Terminal Menu (normally in Accessories window). In the “Send Text File Dialog” box, select “List Files of Type: All Files” and select the disk and/or directory with the Model 220 software. Select file named “zsys.hex”. Press OK to start upload.

12C. During upload, a progress indicator updates the number of records received. When the upload is complete, the system will display the following (numerical values are for example only and depend on the System Software version):

```
S-Records processed:11282
Upload Successful
Address Range: 0x00020000-0x000781cf
Bytes Loaded:360912

***WARNING: FLASH WILL NOW BE UPDATED***

Press Enter to continue, Esc to abort
```

12D. At this point the system has verified that the load module is correct and is ready to update the Flash memory. Press Enter to perform the update (Esc will abort the update process with no changes). While the Flash is being updated (approx 15-30 seconds), DO NOT turn off the projector circuit breaker, this may make the machine unbootable, requiring a new set of flash chips to be installed. When the update is complete, the system will display the following:

```
Reprogramming Flash Sector 2 3 4 5 6 7 8 9
```

System software update successful

Command: _

The software update is complete. To restart the projector, type in the "reboot" command and press Enter. The projector will now restart with the updated System Software.

3.12 Cleaning Lenses, ILA[®] Assemblies and Mirrors

The projection lens is the only item that requires periodic cleaning. Other assemblies are covered to prevent dust entering or finger smudging. Cleaning may be needed for special circumstances such as replacing an assembly. Cleaning should only require removing excessive dust (use canned air such as "Office Duster" or "Aero Duster") or removing fingerprint smudges (use "Kodak Lens paper", or equivalent) from the projection lens. As much as possible, clean the optics only when absolutely necessary.

Projection Lens: Use lens paper and wipe the lens clean in a vertical motion from top to bottom. Use compressed air to blow excess dust from the lens. An optical lens cleaning solution can also be used to remove finger smudges.

ILA[®] Assembly: Clean the ILA[®] assembly faces with compressed air only. **Do not wipe the ILA assembly faces.**

CRT Faces: Use compressed air to blow dust off and lens paper to clean face.

Relay Lens: Same as Projection Lens.

Mirrors and Polarizing Beam Splitter Windows: The Optical Shield covers the Dichroic Mirror Assembly and Polarizing Beam Splitter windows. Normally cleaning is not needed. Clean only if absolutely necessary using compressed air. Do not wipe mirrors.