

IBM INSTALLATION INSTRUCTIONS

ADD FC 4630 (Field Install 3590) and Convert 3494 Model L10 to Model L12 Tape Library

Document Number 05H7507 EC C70672

SSD, Tucson

Written by: J. Devine
Checked by: P. Abbott / J. Dowell
Approved by: S. Nunn
Support/DPCE Review by: L. Lawson
Status: Field Use

Note: Install this Field Feature Bill Material (FFBM) only on the 3494 Model L10 Tape Library Dataserver for which it was shipped.

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Before Install (Sections 1 through 8)

1.0 Machines Affected

This FFBM affects the 3494 Model L10 that requires the conversion to a Model L12.

2.0 Prerequisites / Concurrent / Companion

3494 Library Manager microcode must be at level LM516.09 or higher.

3.0 FFBMs To Be Installed

3.1 Conversion Hardware

FFBM	Description
05H7507	Hardware and Instructions

3.2 One 3590 Drive Unit Installation

Note: The following FFBM will be supplied if the TOTAL of feature code 4630 ("Field Install Drive") ordered on this conversion MES equals ONE.

FFBM	Description
05H7509	Cover Assembly

3.3 Two 3590 Drive Unit Installation

Note: The following FFBM will be supplied if the TOTAL of feature code 4630 ("Field Install Drive") ordered on this conversion MES equals TWO.

FFBM	Description
05H7510	Cover Assembly

3.4 3490E F1A Removal

Note: The following FFBM will be supplied if F1A drive(s) are present in the frame.

FFBM	Description
09L4903	Bracket Hardware

3.5 Interface Cable(s)

Note: *The following FFBM will be supplied once per feature code 4630 ordered on this conversion MES. Maximum quantity to be supplied is two. Installation of the cable(s) will be covered within the 3590 Maintenance Information manual at the time of drive installation.

FFBM	QTY	Description
05H9916	1*	3590 Model B1A Interface Cable

3.6 3590 Accessory Hardware

Note: The following FFBM is not required if the current Tape Library Dataserver already has another 3590 model B1A installed somewhere within the current subsystem.

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Otherwise, it will be supplied once (regardless of the quantity of 3590 model B1As to be installed) for this 3494 control unit.

FFBM	Description
05H7543	3590 Model B1A Accessory Hardware

4.0 Preparation

Check all items listed on the bill of material to determine that all parts have been received.

5.0 Programming Updates

None

6.0 Purpose and Description

6.1 Purpose

Provides the necessary hardware to convert the 3494 control unit from Model L10 to Model L12.

6.2 Description

1. Provides the necessary hardware required to remove the presently installed 3490E mounting hardware, and then prepare the machine for installation of the 3590 mounting hardware.
2. First 3590 model B1A installations will be provided with a *3590 B1A Accessories FFBM*. Installation of this hardware will be covered in the 3590 MI at the time of drive installation.

3. If a 3590 model B1A is already installed somewhere else within this 3494 subsystem, these **duplicate** parts should be disposed of as follows:
 - a. The extra cartridges should be given to the customer.
 - b. All other parts should be retained for local branch office disposition.

7.0 Installation Time

7.1 3490E Removal

Warning: Two service representatives will be required to complete physical removal of the 3490E.

Note:

Machine Hours	System Hours	CE Hours
2.0	0.0	2.0

7.2 3494 Control Unit Conversion

Machine Hours	System Hours	CE Hours
1.3	0.0	1.5

7.3 3590 Model B1A Install

Warning: Two service representatives will be required to complete physical installation of the 3590 B1A.

Note: *The following installation times pertain to the installation of ONE 3590 B1A. Use the listed installation time for EACH 3590 model B1A to be installed.

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Record the actual time (code 20 complete). See Section 15.0, step 3 on page 23.

Machine Hours	System Hours	CE Hours
1.8*	0.0	1.8*

8.0 Special Tools, Materials, and/or Procedures Required

NAME	IBM PN
3490 Drive Installation Tool	50G0407

Install (Sections 9, 10, and 11)

9.0 Safety

9.1 Safety Notice

Check the following safety items and correct as needed.

1. All safety engineering changes (ECs) have been installed correctly.
2. The location or list of engineering change announcements (ECAs) is accessible.
3. No obvious non-IBM changes have been made.

10.0 Details Of Installation

10.1 Subsystem power

- ___ 1. Ask the operator to complete or cancel jobs in the queue.
- ___ 2. Ask the operator to vary all library devices offline.
Note: In an HA1 environment, ensure that you are on the ACTIVE Library Manager before proceeding. Ensure that the standby Library Manager is enabled.
- ___ 3. Place the library manager in **Offline** mode.
- ___ 4. Place the library in **Pause** mode.
- ___ 5. Switch off power to the FC 3000 control unit by using the power switch at the front of the control unit. The green LED will turn to amber when power off is complete (power off will take approximately one minute to complete).

- ___ 6. When you are ready to start this installation, use the library Unit Power switch on the library operator panel to power the library down.

To remove a 3490E CxA drive, go to section 10.2, "Remove 3490E CxA Drive."

To remove a 3490E F1A drive and FC 3000 control unit, go to section 10.4, "Remove 3490E F1A Drive(s) and Control Unit Hardware" on page 12.

10.2 Remove 3490E CxA Drive

Note: If the 3490E CxA drive is already removed, proceed to Section 10.5, "Add Conversion Hardware" on page 18.

- ___ 1. Before attempting to de-install a 3490E, ensure that you have the packing material BM 12F1411 on hand.
- ___ 2. To remove a 3490E CxA, follow the procedure in "De-Installing the 3490E in the **INST** section of the *IBM 3490 Magnetic Tape Subsystem Enhanced Capability Models C10, C11, C1A, C22 and C2A MI*.
- ___ 3. Remove the 3490E-to-ARTIC adapter cable.
- ___ 4. Upon completion of the drive removal procedure, turn the the drive and the cable over to the customer.
- ___ 5. From the point where the 3490E and its control unit cover were previously installed, remove the RFI seals from around the frame.

Go to section 10.3, "Remove 3490E CxA Drive Unit Hardware" on page 10.

10.3 Remove 3490E CxA Drive Unit Hardware

See Figure 1 on page 11 when performing the following steps.

- 1. Remove cartridges from the rear wall. Set aside for future installation.

Note: If appropriate, and if additional clearance is required, remove the side cover. Set the cover to the side for later reinstallation.

- 2. Remove the four screws **1** that hold the upper 5x20 storage array **2**, and then remove the storage array.

- 3. Remove the six screws **3** that hold the 19" bracket **5** to the RFI panel. Discard

the screws per Section 14.0, "Parts Disposition" on page 23.

- 4. Remove the twenty-two screws **4** that hold the 19" bracket to the frame. Discard the screws per Section 14.0, "Parts Disposition" on page 23.

- 5. Remove the 19" bracket, and discard it per Section 14.0, "Parts Disposition" on page 23.

Note: The following steps will be performed from the rear of the drive unit.

- 6. Remove the four screws **8** that hold the tailgate bracket **9**. Discard all parts per Section 14.0, "Parts Disposition" on page 23.

Go to section 10.5, "Add Conversion Hardware" on page 18.

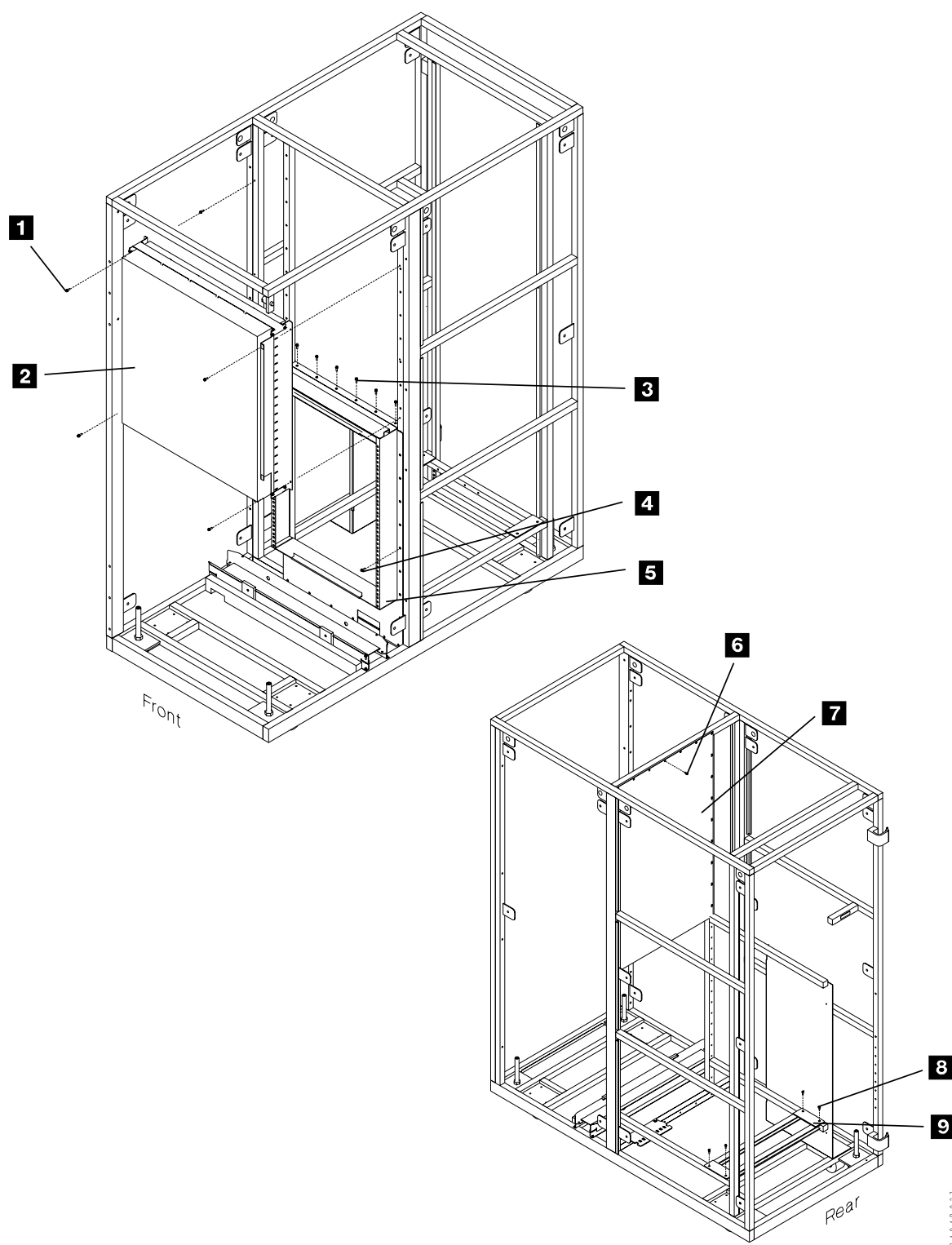


Figure 1. 3490E Drive Mounting Hardware Removal

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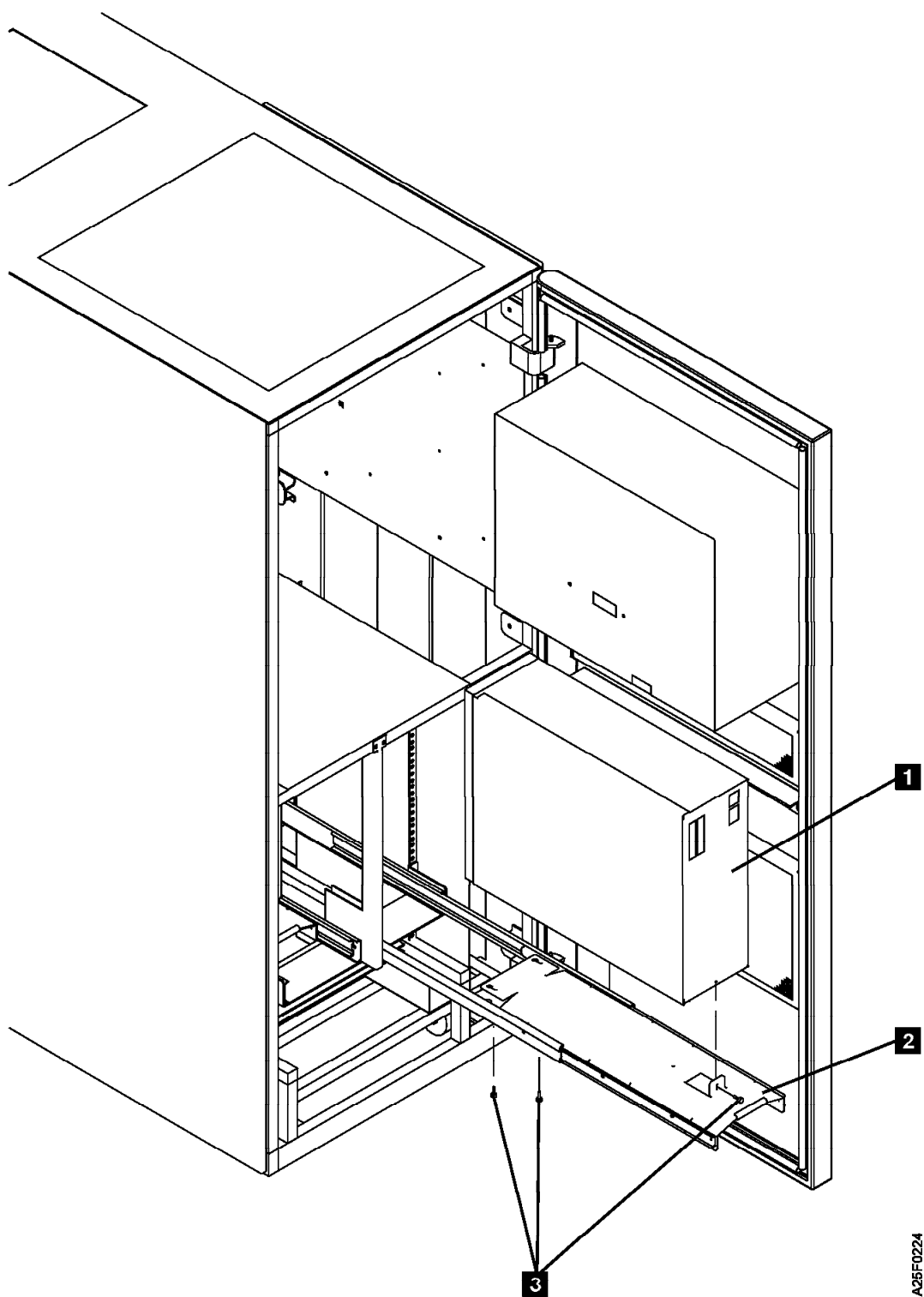
10.4 Remove 3490E F1A Drive(s) and Control Unit Hardware

10.4.1 Remove F1A Drive

Refer to "Removing a 3490E" in the **INST** Section of the *IBM 3490E Tape Subsystem Models F01, F11, FC0 and F1A MI*; follow the steps in "Common Procedures for Removing All 3490E" and "Remove or Relocate the Library Model F11 or Model F1A".

Refer to Figure 2 on page 13 for the following steps.

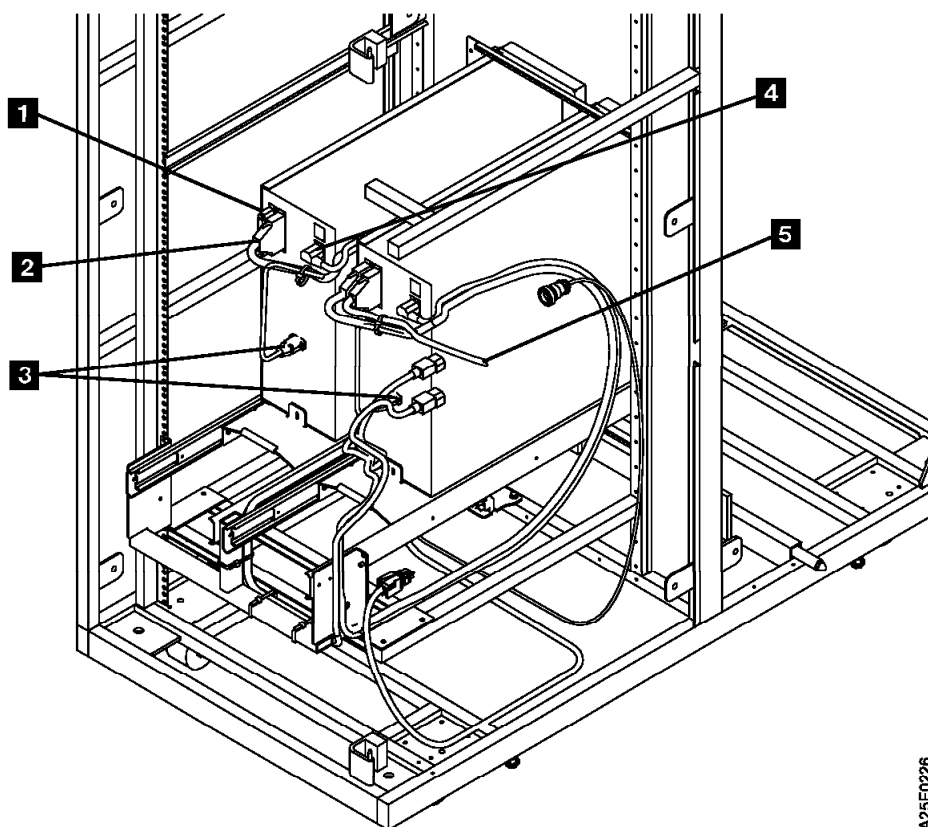
- 1. Remove safety lanyards (not shown) from slide rails.
- 2. Pull the slide assembly with the attached platform **2** and drive **1** back to the extended position.
- 3. Refer to "Installing Model F1A SCSI Cables" in the **INST** section of the *IBM 3490E Tape Subsystem Models F01, F11, FC0 and F1A MI* for guidance in removing cables. Untie and unclamp the following:
 - a. power cord
 - b. SCSI cables
 - c. RS-422 Library Manager cables.
- 4. Refer to Figure 3 on page 14 and Table 1 on page 14. Disconnect the power cord **4**, SCSI cable **2**, and RS-422 Library Manager cable **3** from the rear of the F1A drive.



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Figure 2. 3490E Model F1A Removal from L10 Frame

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Figure 3. Cable Routing—Model F1A

Table 1. Cable Items

Key	Item
1	SCSI Fast/Wide Terminator.
2	SCSI cable from drive 2 to drive 1. The other end is routed between the drives and terminates at drive 1.
3	RS-422 cables from each drive to the L10 frame breakout box.
4	Power cable (drive 2 shown). Each drive has a power cable that plugs into the PCC.
5	SCSI cable from drive 1 to host system.

- 5. Refer to Figure 2 on page 13. Remove the drive from the platform by removing two screws **3** from the bottom of the tray and one screw **3** from the rear of the drive. Set aside for disposition as defined by 14.0, "Parts Disposition" on page 23.
- 6. If both drives are to be removed, repeat steps 1 through 6 for the other drive.
- 7. Upon completion of the drive removal procedure, turn the the drive and the cable over to the customer.

10.4.2 Remove F1A Mounting Hardware

Refer to Figure 4 for the following steps.

1. Remove the inner slide and platform assembly **6** from the outer slide rails **1** mounted on the rack. Set aside for disposition as defined in 14.0, "Parts Disposition" on page 23.
2. Remove the remainder of the two slide assemblies **1** from the front and rear slide mount brackets by removing four screws **2** on each slide. Set aside for disposition as defined in 14.0, "Parts Disposition" on page 23.
3. If both drives are being removed, repeat steps 1 and 2 for the second drive.

Refer to Figure 5 on page 16 for the next two steps.

4. Remove the slide support brackets **2** and **5**. Set aside for disposition as defined in 14.0, "Parts Disposition" on page 23.
5. Remove the front firewall cover **7** and 16 screws from the frame.

If an FC 3000 control unit is in the L10 frame, go to section 10.4.3, "Remove FC 3000 Control Unit" on page 17

If an FC 3000 control unit is not in the L10 frame, remove the control unit mounting tray, slides, and support brackets from the L10 frame. Then, go to section 10.5, "Add Conversion Hardware" on page 18.

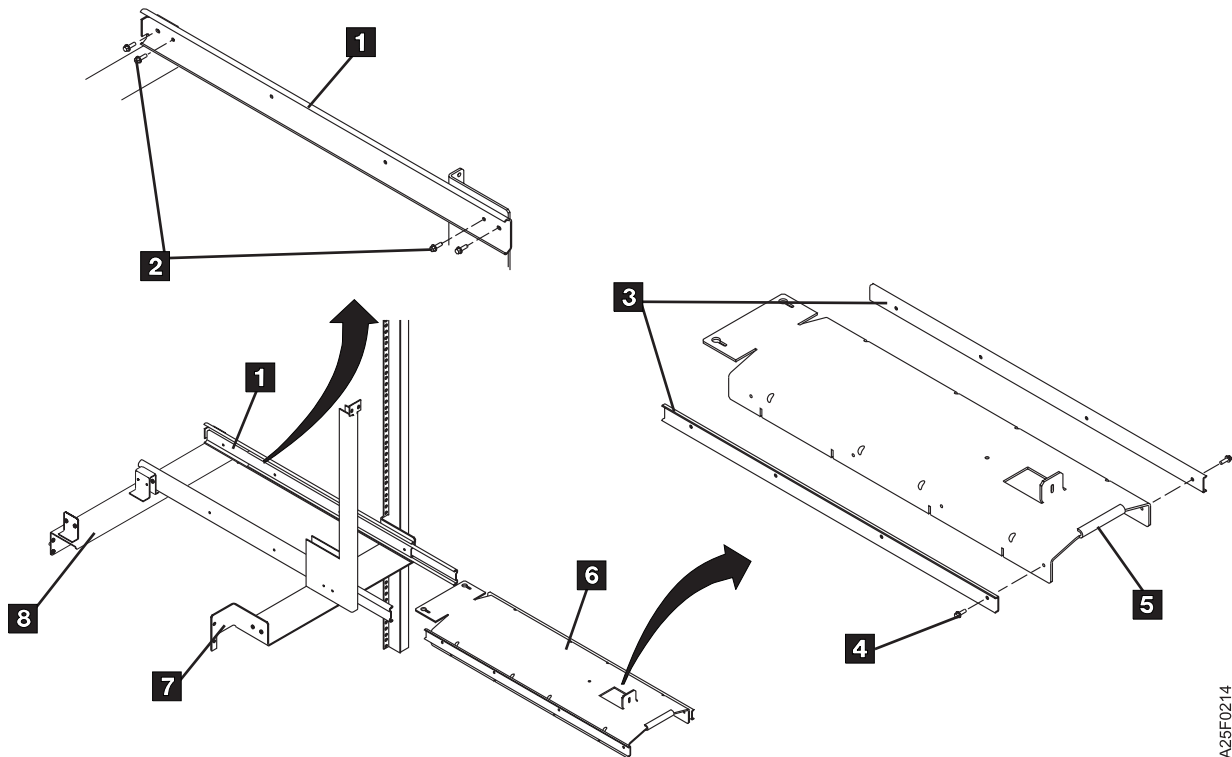


Figure 4. F1A Drive Mounting Hardware

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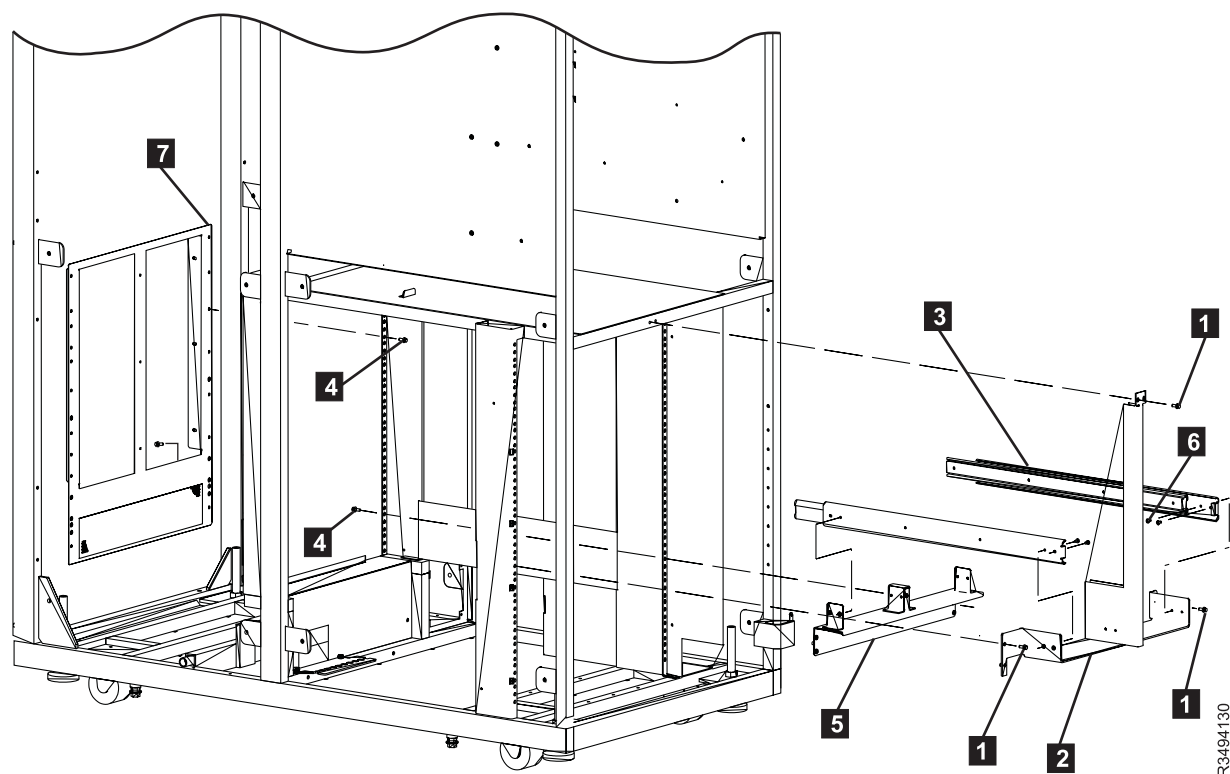


Figure 5. L10 Drive Mounting Hardware

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10.4.3 Remove FC 3000 Control Unit

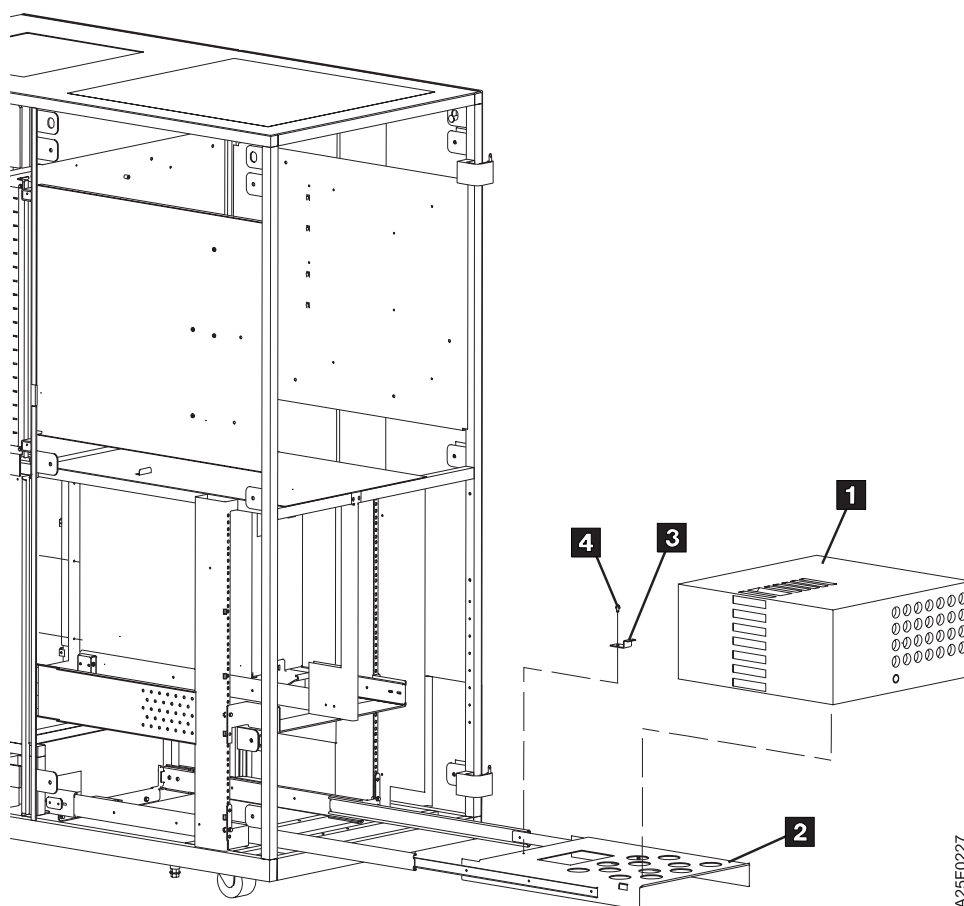
- 1. Refer to Figure 6. Pull the controller mounting tray **2** into the service position.

Note: Except where noted, set the following items aside for disposal as defined in section 14.0, "Parts Disposition" on page 23.

- 2. Disconnect OEMI and ESCON cables from the rear of the control unit.
- 3. Disconnect the SCSI cable(s) to the 3490E drive(s) from the rear of the control unit.

- 4. Disconnect the control unit-library manager RS-232 interface cable from the COM1 port of the control unit.
- 5. Disconnect the RS-232 adapter cable from the COM2 port of the control unit.
- 6. Disconnect the power cable and any other attachments.
- 7. Remove the clamp **3** and screw **4** from the mounting tray.
- 8. Remove the control unit **1** from the mounting tray.
- 9. Remove the mounting tray, slides, and support brackets from the frame.

Go to section 10.5, "Add Conversion Hardware" on page 18.



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Figure 6. 3494 Model L10 FC 3000 Controller Mounting Hardware

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10.5 Add Conversion Hardware

Note: In this installation procedure, pin holes are to be counted from **the bottom of the rack up** toward the top of the rack.

Pin holes are defined as the larger holes used by M5 or M6 screws that secure various brackets, and not the smaller holes used by M4 screws that installed the storage arrays and RFI panels.

See Figure 7 on page 20 when performing the following steps.

Note: Perform the following step from the front of the control unit.

- 1. Remove the front two screws **3** from the teach bracket **4**, and tilt the bracket up. Set the screws to the side for reinstallation in a future step.

Note: Perform the following step from the rear of the control unit.

- 2. Using the fourteen screws **6** (PN 1624776, supplied), install the appropriate new drive cover plate **5** or **9**:
 - a. FFBM 05H7509 (one drive installations) provides PN 05H4204 **9**.
 - b. FFBM 05H7510 (two drive installations) provides PN 05H1955 **5**.

Note: Perform the following steps from the front of the control unit.

- 3. Tilt the teach bracket **4** down, press it flush against the frame and secure with the two screws **3** removed in step 1.
- 4. Prepare to install the 19" bracket **8** (PN 05H1950, supplied).
 - a. Insert the bracket through the drive hole in the cover you just installed within step 2.

- b. Turn the bracket so that it lines up properly with the screw holes in the cover.

- 5. Using the four screws **7** (PN 1624776, supplied), secure the 19" bracket locating pin into pin hole location #21 (both left and right).

Refer to Figure 8 on page 21 for the next step.

- 6. **If you have removed a 3490E Model F1A drive from the L10 frame,**

- a. Install the 19" adapter bracket **3** (PN 08L6128, supplied) using four screws **4** (PN 1624776, supplied).
- b. Align the 19" adapter bracket with the rack mounting of the frame, such that the tabs from the 19" adapter bracket fall into the four holes along the side of the rack.

Note: Perform the following steps from the rear of the control unit.

- 7. Refer to Figure 7 on page 20. Use four screws **1** (PN 1624776, supplied) to install the slide mounting bracket **2** (PN 05H7446, supplied) locating pin into pin hole location #26 (both left and right).
- 8. On the lower right corner of the rear control unit door, check to see if the correct power rating label (PN 05H7609, supplied) is already in place. If appropriate, remove the old label (PN 05H4113), and replace with the new label.
 - a. The old label has *P/N 05H4113* in the lower left corner, and **NO REFERENCE** to *CU* nor *DU* power ratings.
 - b. The new label has *P/N 05H7609* in the lower left corner, and reflects *CU = 6 AMPS MAX* and *DU = 7 AMPS MAX* on the same label.

- ___ 9. Go to the **INST** section of the 3590 MI for instructions on installing the 3590 B1A drive, including checkout and host cabling.

___ 10. Go to the **INST** section of the 3494 MI for instructions on installing the control unit interface cables.

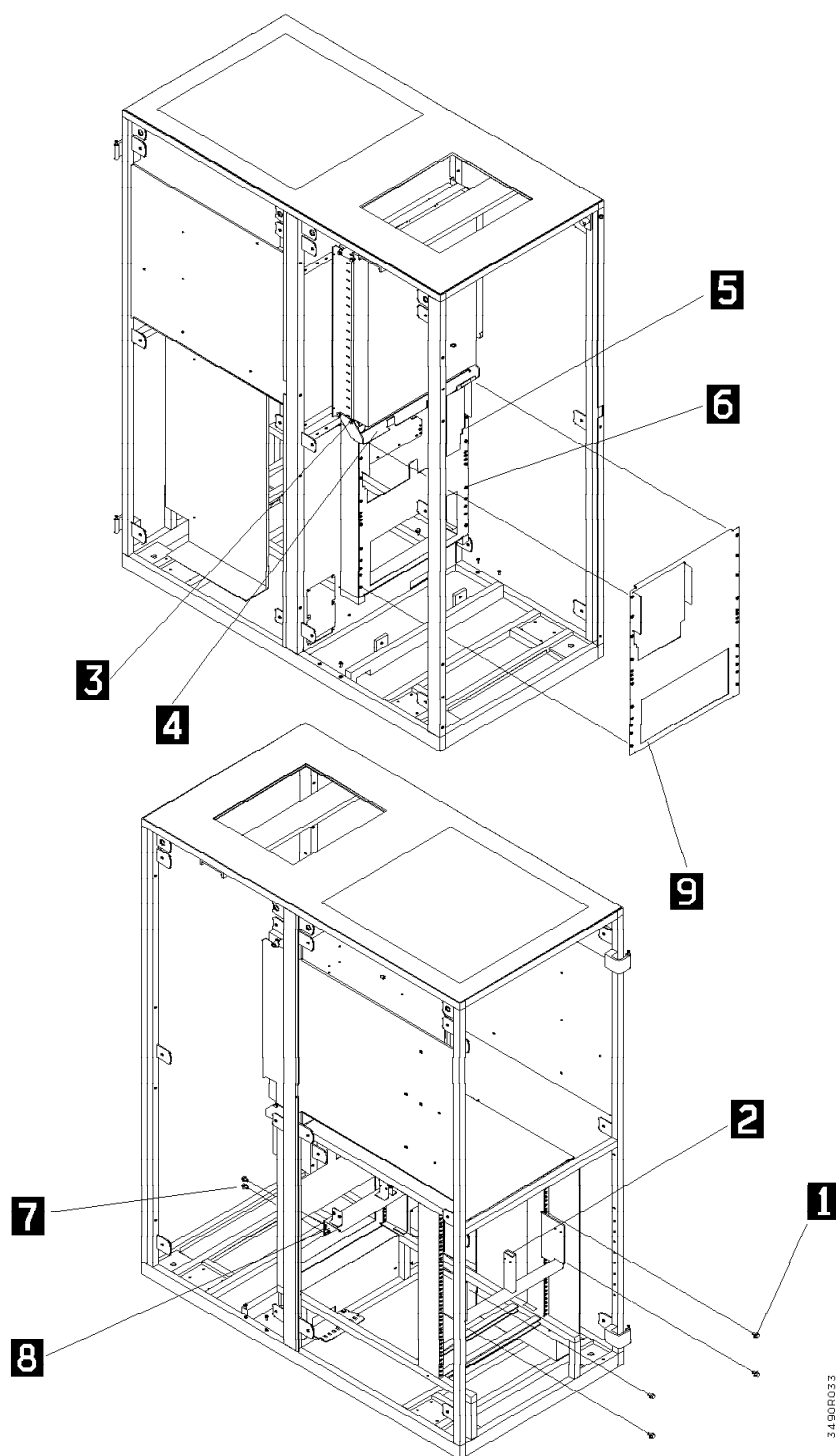
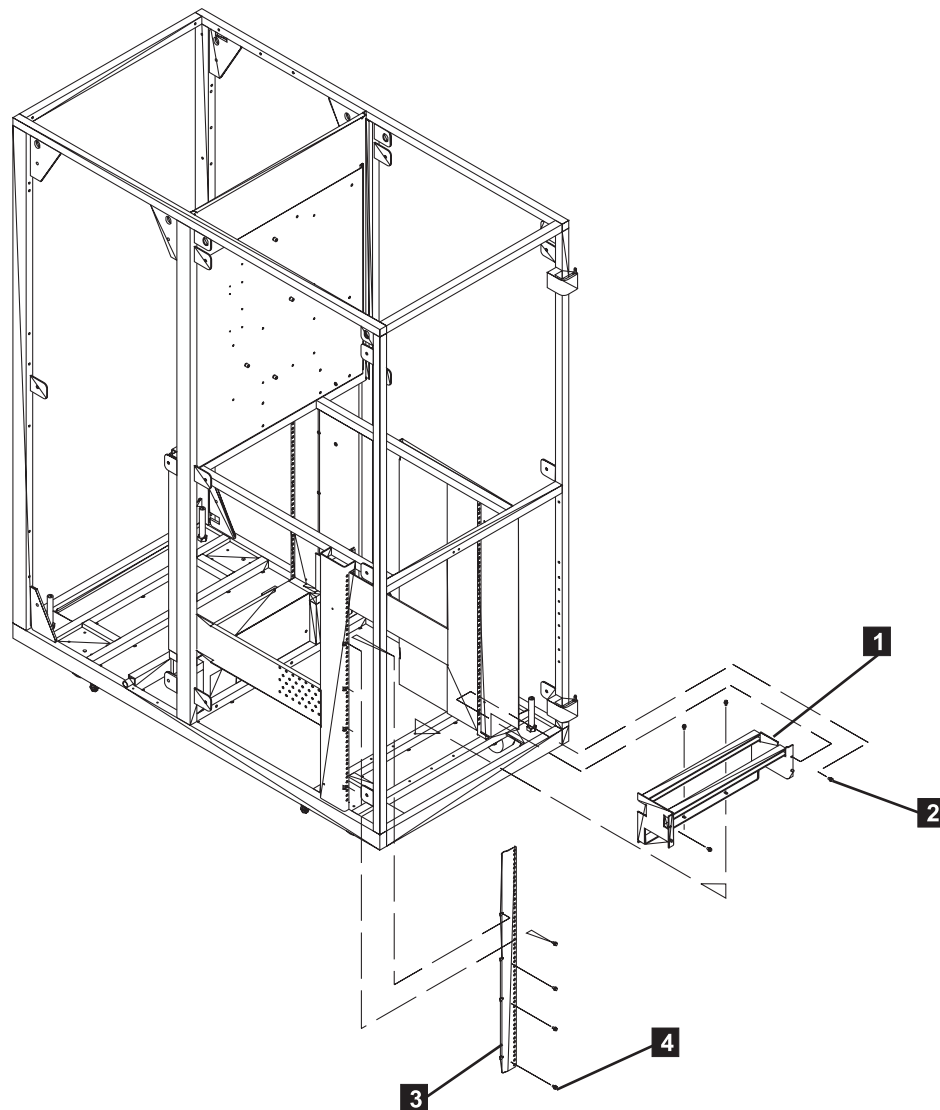


Figure 7. Install L10-L12 Conversion Hardware

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Figure 8. Lxx Conversion Brackets

11.0 Test Procedure

Warning: Selection of "Teach New" will erase the customer's data base. Therefore it is important that you DO NOT automatically select the default option when performing step 2.

- ___ 1. Power on the library.
- ___ 2. Select "Teach - Current Configuration" option on the Teach Pulldown Menu.
- ___ 3. If the 3494 subsystem will now contain **BOTH** 3490E AND 3590 drives, put the 3590 CE cartridge in cell 1A19. If a customer volume is in cell 1A19, move the customer volume to an unused storage cell. Do not put the customer volume in a high-capacity output cell or the error recovery cell.
- ___ 4. If the 3494 will now have only 3590 drives installed, replace the 3490E C.E. cartridge in cell 1A20 with the 3590 C.E. cartridge.

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| <p>___ 5. Reinstall the L10 side cover, if removed, and shut the rear door.</p> <p>___ 6. Power on the 3494 library. Refer to "Checkout" in the INST section of the <i>IBM 3494 Tape Library MI</i>.</p> | <p>___ 7. Run "Verify Installation" on the Service pulldown menu.</p> <p>___ 8. Run "Open Door Verification" on the Commands pulldown menu on the Library Manager Operator Action Bar.</p> |
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Go to Section 12.0, "Field Updating" on page 23.

After Installation (Sections 12 through 15)

12.0 Field Updating

None

13.0 Field Support Publications

None

14.0 Parts Disposition

All REMOVED PARTS are the property of the customer. All UNUSED PARTS are the property of IBM, and are to be processed as follows:

USA

Provide all UNUSED PARTS to the local branch office for their recovery and reclamation programs.

World Trade

Provide all UNUSED PARTS to the Country Central Stock per existing procedures.

15.0 Machine Records

- ___ 1. Fill out a QSAR (code 33 complete) against the 3494 serial number, and update all field records to reflect that the control unit has been field converted from sales model L10 to sales model L12; AND
 - ___ a. **CxA drive removed:** that FC 4630 has been installed, and that FC 9601 was removed; OR
 - ___ b. **F1A drive removed:** that FC 3000, FC 9632, and/or FC 9602 was removed.
- ___ 2. Using existing procedures, report installation and quality.
- ___ 3. Fill out a QSAR (code 20 complete) for each of the following:
 - a. Against the serial number of the 3490E model CxA or F1A, indicate the actual time for its removal.
 - b. Against the 3590 model B1A serial number, indicate the actual time involved in the installation of each of the 3590 model B1A(s).



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