XD88F14/17/18/19
Mass Storage F-kit
Installation

WARNING

*The following Installation Instructions are for use by qualified personnel only. To avoid personal injury, **do not** perform any servicing other than those contained in these Installation Instructions unless you are qualified to do so.*

ABOUT THE XD88F14/17/18/19 F-KITS

XD88F14

This F-kit contains a 1.2-Mbyte flexible disk drive. This this installation instruction will explain how to add a 1.2-Mbyte flexible disk drive to a XD88 with no flexible disk drive previously installed.

XD88F14 options include:

S0	Onsite product installation
49	Lease Option

XD88F17

This F-kit contains a 300-Mbyte hard disk. This installation instruction will explain how to remove the current hard disk from an XD88 and replace it with the 300-Mbyte hard disk.

XD88F17 options include:

S0	Onsite product installation
49	Lease Option

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XD88F18

This F-kit contains a 600-Mbyte hard disk. This installation instruction will explain how to remove the current hard disk from an XD88 and replace it with the 600-Mbyte hard disk.

XD88F18 options include:

S0	Onsite product installation
49	Lease Option

XD88F19

This F-kit contains a 600-Mbyte hard disk. This installation instruction will explain how to install the 600-Mbyte hard disk in a XD88 Option 42 that previously did not have a hard disk.

Before installing a XD88F19, you must:

- Have a XD88 Workstation already containing a 600-Mbyte system hard disk (either as a standard option or by ordering XD88F18)
- Have a XD88 Option 42 attached to your XD88 Workstation.

XD88F19 options include:

S0	Onsite product installation
49	Lease Option

ABOUT THIS MANUAL

The XD88F14/17/18/19 Installation Guide contains the steps required to install a XD88F14, XD88F17, XD88F18, or XD88F19 into a XD88. This manual contains the following steps:

- Step 1: System Backup
- Step 2: Compute Module Front Cover removal/replacement
- Step 3: Power Switch and EMI Shield removal/replacement
- Step 4: Mass Storage Subassembly removal/replacement
- Step 5: Installing the F-kits

When installing the strapping to the hard disk drives or the flexible disk drive, refer to the Section *Device Strapping and Addressing* at the end of this manual.

Please read through the instructions in this manual and become familiar with the procedures before you begin.

RELATED DOCUMENTATION

- *XD88 Field Service Manual*
- *UTek V System Administrator's Guide,*
- *XD88F42 Compute Module Expansion Upgrade Instructions*

ELECTROSTATIC PROTECTION OF MICROCIRCUITS

This product contains components that are highly sensitive to electrostatic discharge. To prevent damage to such components and to maintain product reliability, **DO NOT** touch or remove the circuit boards or components from the compute modules until the following conditions are met.

SAFE HANDLING OF STATIC-SENSITIVE COMPONENTS

Handle all static-sensitive components, and boards containing static-sensitive components (such as hard disk drives, floppy disk drives, or controller boards) in a static safeguarded environment capable of controlling static charge on conductive materials, people, and non-conductive materials. Static protected areas include non-static table tops, non-static floor mats, and grounding wrist straps for persons working with static-sensitive parts, boards, or equipment.

TRANSPORTATION OF STATIC-SENSITIVE COMPONENTS

Transport all static-sensitive components and boards in static-shielded containers/packages. To be "static shielded," a container must protect its contents from static discharge and electronic fields.

TOOL REQUIREMENTS

Unless a specific assembly procedure is given, perform assembly by following the disassembly procedure in reverse order using the following tools:

- Tools common to a service repair kit
- #15 torix screwdriver tip

STEP 1: SYSTEM BACKUP

Before installing do a 0 level backup of your XD88 workstation using the procedures found in *Section P5* of the *UTek V System Administrator's Guide*.

STEP 2: FRONT COVER REMOVAL/REPLACEMENT

Use the following procedure to remove the Compute module front cover and sub-panel. Reinstall the cover and sub-panel by reversing this procedure.

1. Shutdown the workstation. See *Section P3* of the *UTek V System Administration's Guide* for the proper shutdown procedure.

2. Open the door located at the top of the Compute Module.

3. Unlatch the front cover by squeezing the two tabs located in the top surface, inside the disk drive door; see **Figure 1**. Then pull the front covers away from the Compute Module. Lift the panel off the bottom tab slots and set it aside.
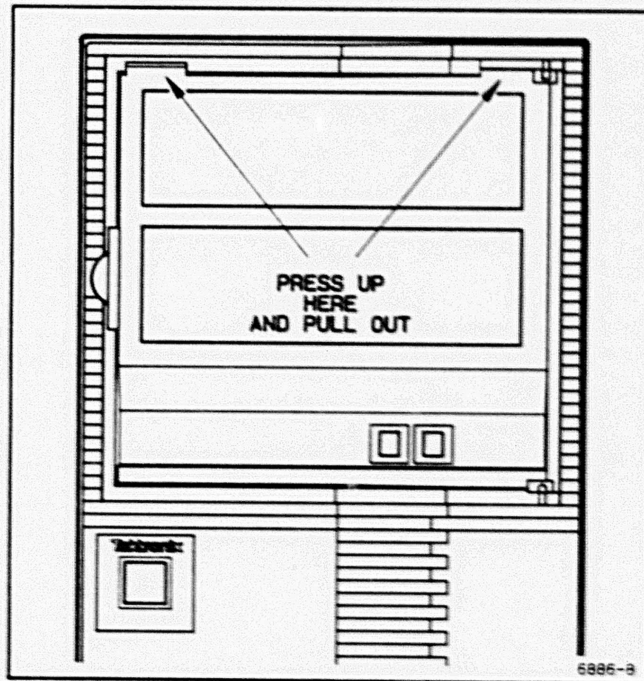

Figure 1. Removing the Compute Module Front Cover.

STEP 3: FRONT EMI SHIELD REMOVAL/REPLACEMENT

1. Pull off the power switch knob and set it aside; see **Figure 2**.
2. Remove the front EMI shield from the front of the module by removing six (6) screws and carefully pulling out on the handle, while guiding the shield around the streamer tape drive; see **Figure 3**.
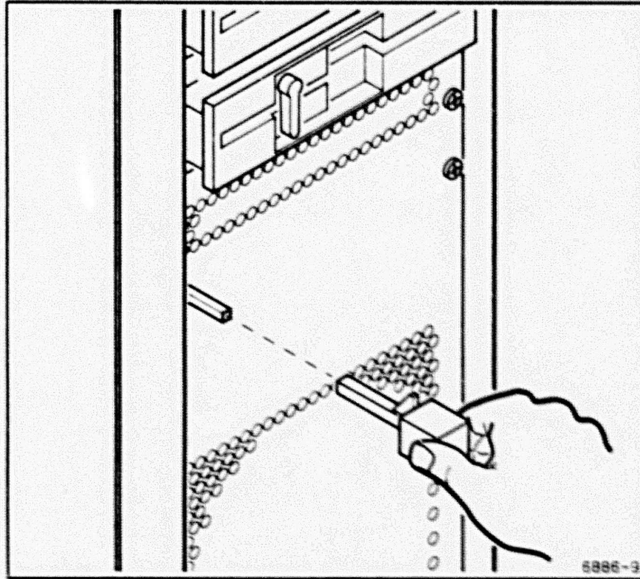

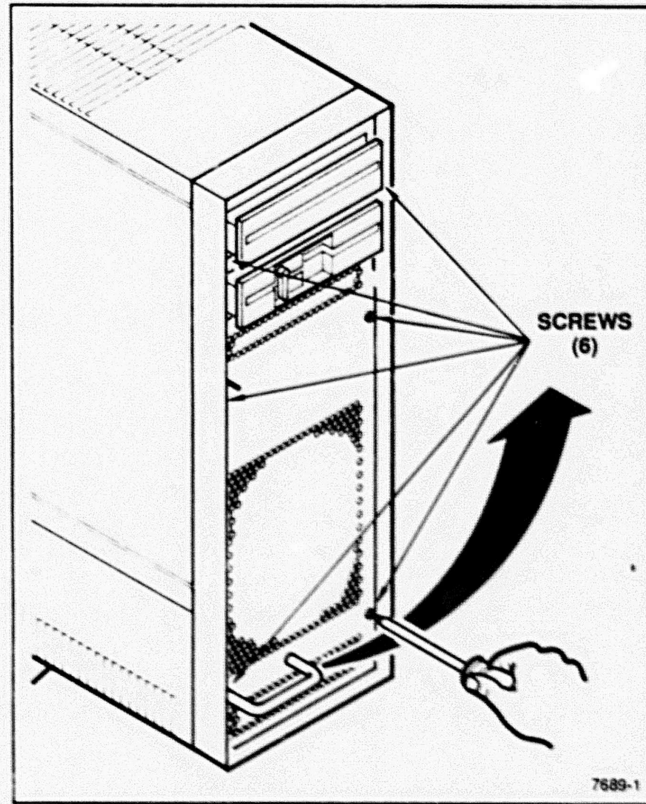**Figure 2. Removing the Power Switch Knob and Shaft.**

Figure 3.   Removing the Front EMI Shield.

STEP 4: REMOVING THE MASS STORAGE SUBASSEMBLY

Use the following steps to remove the Mass Storage Subassembly from the Compute Module chassis.   Reinstall the assembly by reversing this procedure.

CAUTION

If the subassembly contains a flexible disk drive, use caution during handling to avoid damage to the controller board mounted directly beneath the flexible disk drive.

1. Remove the front cover and EMI shield as previously described.
2. Remove the two screws securing the fixed disk cover (located at the rear of the Compute Module), then remove the cover; see **Figure 4**.
3. Pull the subassembly tray part way out of the frame, until the fan is exposed; see **Figure 5**.
4. Unplug the fan power cables from the Backplane board at J5.
5. Unplug all cabling connecting the peripherals to the Backplane board. Note cable placement.
6. Pull the subassembly completely out of the chassis and lay it top side down on a bench.
7. Disconnect the SCSI and power cables from the hard disk drive.
8. To remove the currently installed hard disk from the subassembly, turn the subassembly over and remove the eight appropriate holding screws, two on each side of the housing and four on the bottom; see **Figure 6**.
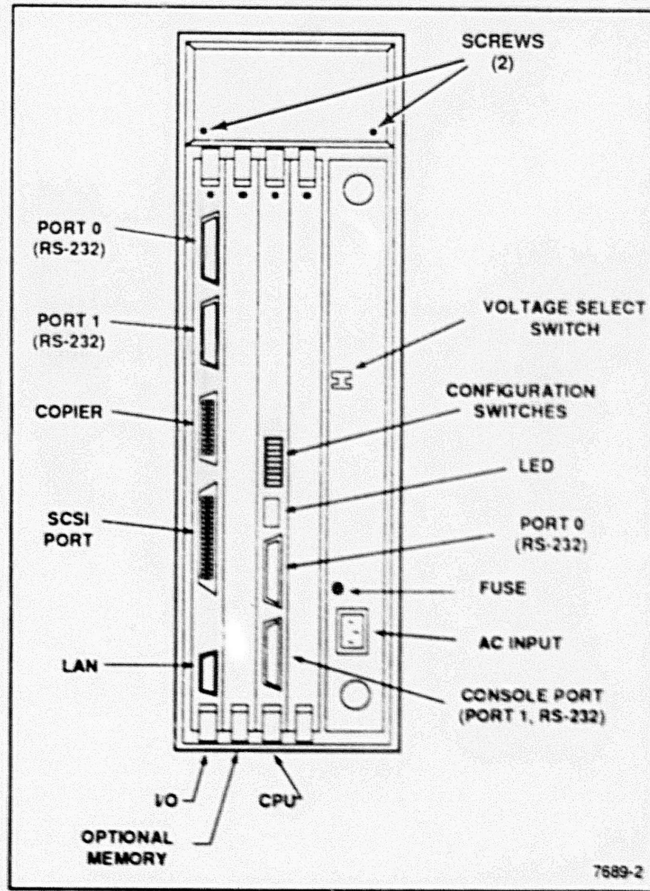9. Once the screws are removed, lift the subassembly off of the hard disk.

Figure 4. Mass Storage Subassembly Rear Mounting Screws.

Guide cabling through here.

J8 GROUND
CONNECTOR

J7 GROUND
CONNECTOR

J4 POWER
CONNECTOR

* This cabling may be left
connected, while removing
Mass Storage Tray.

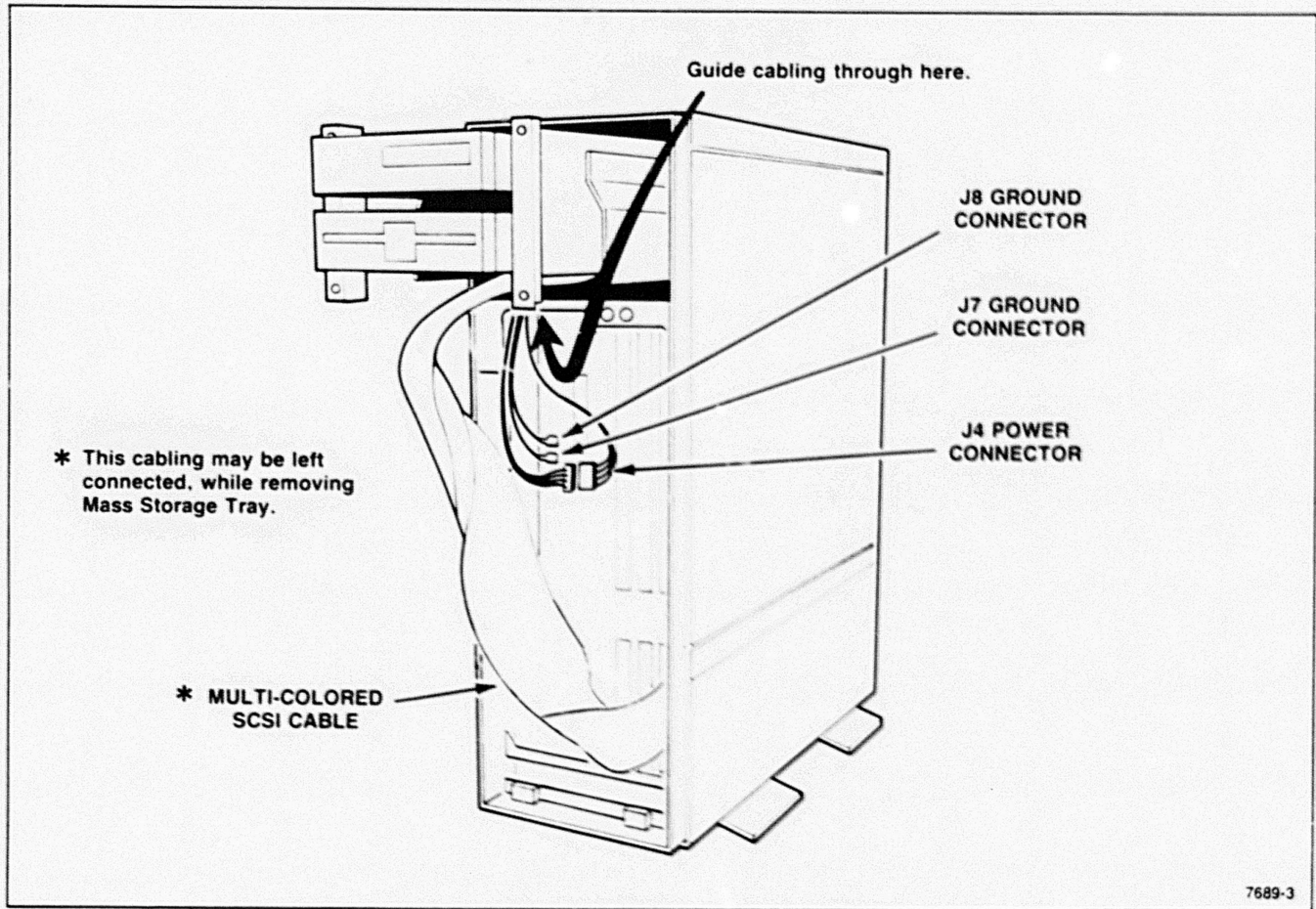* MULTI-COLORED
SCSI CABLE

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Figure 5. Mass Storage Subassembly Cables.

STEP 5: INSTALLING THE F-KITS

INSTALLING THE XD88F14

Refer to **Figure 6** when performing this procedure.

CAUTION

Be careful not to pinch or damage wires.

1. Verify that the flexible disk controller board is set to SCSI Address 01. See **Table 1** in *Device Strapping and Addressing* later in this manual

2. Verify that the terminators are removed form the flexible disk drives and the flexible disk controller board.

3. Turn the Mass Storage Subassembly upside down on your workbench.

4. Attach the insulator for the flexible disk controller board (**342-0877-xx**) to the subassembly. See **Figure 6** for the flexible disk drive location.

5. Slide the flexible disk drive controller board (**670-9804-xx**) between the two fingers on the front edge of the subassembly and position it over the appropriate standoffs.

6.   Attach the flexible disk controller board to the chassis with 2 screws (**211-0722-xx**) at the rear of the board. The fingers on the subassembly secure the front of the board.

7. Turn the Mass Storage Subassembly on its side with the streamer tape drive to your left.

8. Position the flexible disk drive (**119-2400-xx**) in the appropriate chamber and secure with four screws (**211-0294-xx**).

9. Attach the power cable (**174-1029-xx**) to the flexible disk drive (orange connector to the flexible disk drive).

10. Attach the 3M cable (**174-1340-xx**) to the flexible disk drive.

11. Attach the cables from the flexible disk drive to the flexible disk controller board.

12. Attach SCSI cable to the controller board that is coming from the streamer tape drive. Pin 1 goes to pin 1.

13. Re-assemble the Mass Storage Subassembly back into the CEM module.

14. Re-assemble the front EMI shield and front cover.
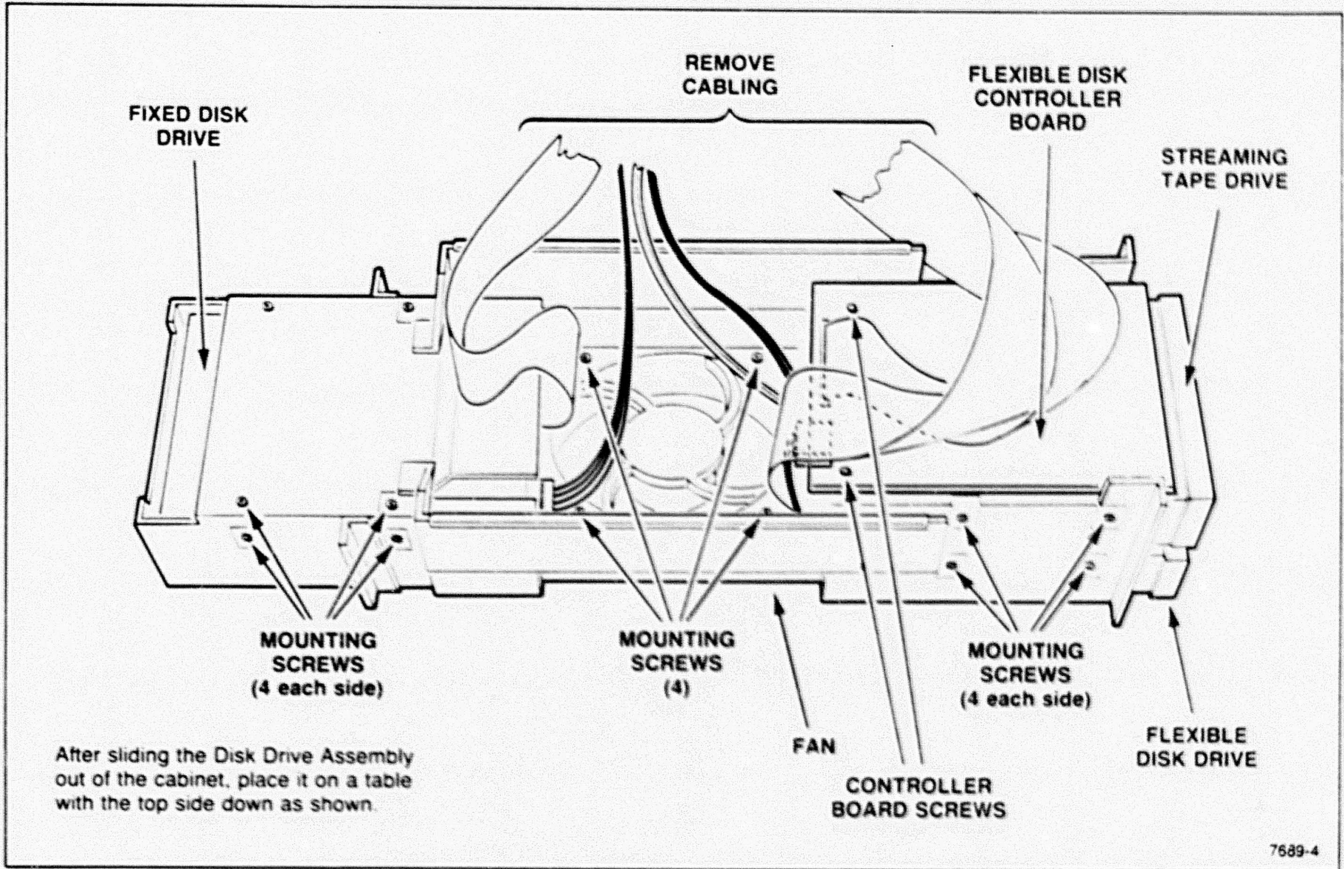
15. Restore the 0 level backup.

Figure 6. Magnetic Peripheral Subassemblies.

INSTALLING THE XD88F17 and the XD88F18

Refer to **Figure 6** when performing this procedure.

CAUTION

Be careful not to pinch or damage wires.

1. Verify that the 300-Mbyte (XD88F17) or the 600-Mbyte (XD88F18) hard disks is set to SCSI Address 00. See **Table 1** in *Device Strapping and Addressing* later in this manual

2. Verify that the terminators **have not** been removed. This hard disk drive must have the terminators installed.

3. Turn the Mass Storage Subassembly upside down on your workbench.

4. Position the hard disk drive (*see note*) in the appropriate chamber and secure with eight screws (**211-0722-xx**).

NOTE

The part number for 300-Mbyte hard disk for XD88F17 is 119-3123-01

The part number for 600-Mbyte hard disk for XD88F18 is 119-3607-00

5. Re-attach the power cable.

6. Attach the SCSI cable to the hard disk drive. Brown wire toward the power connector.

7. Dress the SCSI and power cables to the left of the subassembly chassis and secure it with a cable tie.

8. Re-assemble the Mass Storage Subassembly back into the CEM module.

9. Re-assemble the front EMI shield and front cover.

10. Restore the 0 level backup.

INSTALLING THE XD88F19

Refer to **Figure 6** and **Figure 7** when performing this procedure.

Before installing a XD88F19, you must:

- Have a XD88 Workstation already containing a 600-Mbyte system hard disk (either as a standard option or by ordering XD88F18)
- Have a XD88 Option 42 attached to your XD88 Workstation.
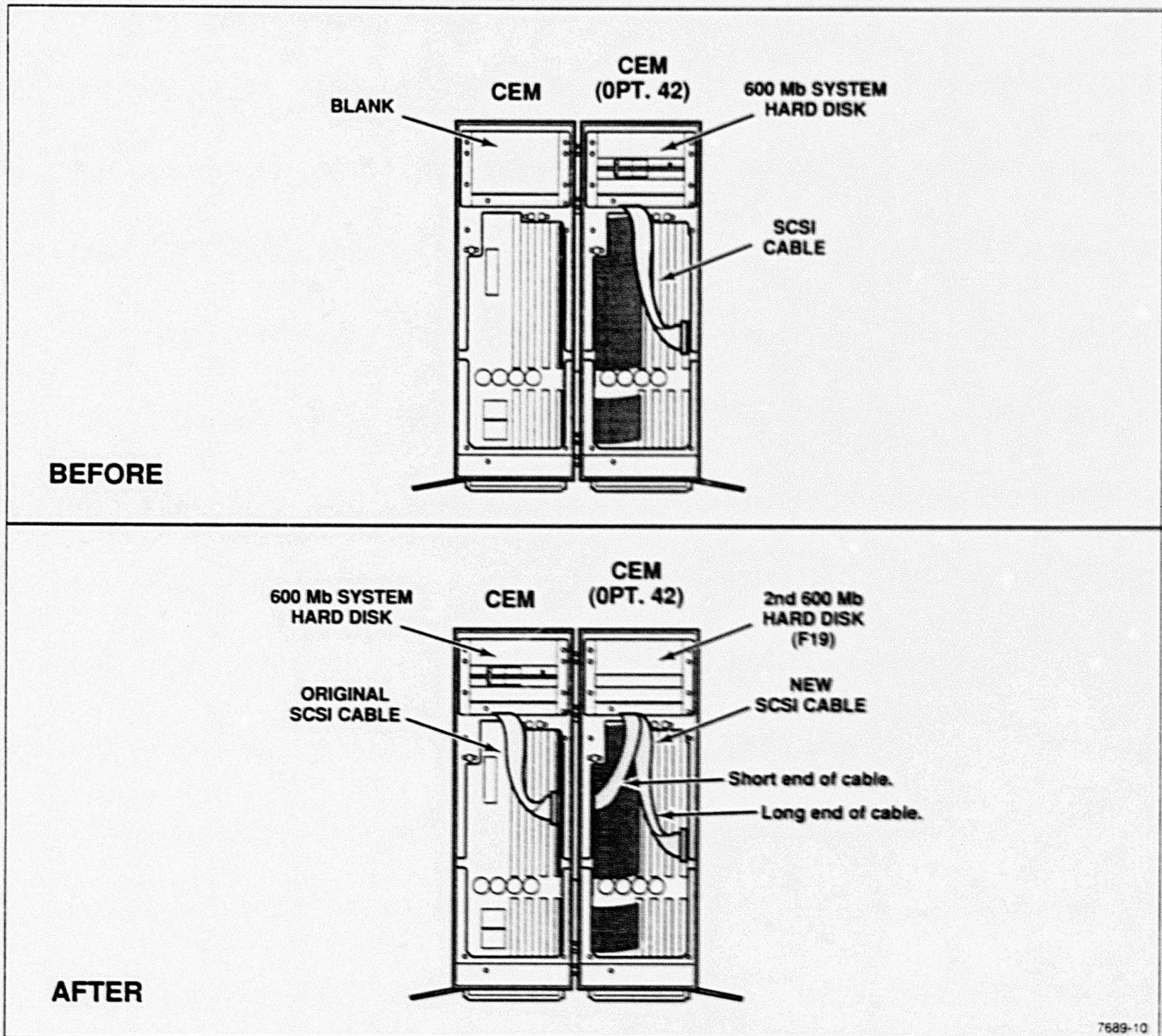
OVERVIEW OF PROCEDURE

The Mass Storage Subassembly for both the CEM and Opt. 42 CEM will be removed. The XD88F19 will be installed in the subassembly removed from the CEM. The subassembly originally removed from the CEM will be reassembled into the Option 42 CEM, and the subassembly originally removed from the Opt. 42 CEM will be reassembled into the CEM; see Figure 7.

CAUTION

Be careful not to pinch or damage wires.

1. Verify that the 600-Mbyte hard disk is set for SCSI address 03 before installing it into the CEM. See **Table 1** in *Device Strapping and Addressing* later in this manual.
2. Verify the terminators are removed from the 600-Mbyte hard disk.
3. Remove the Mass Storage Subassembly from the Opt. 42 CEM using the procedures in *Step 4* of this manual and temporarily set it aside. (The system hard disk is contained in this subassembly.)
4. Remove the Mass Storage Subassembly from the CEM using the procedures in *Step 4* of this manual. The XD88F19 will be assembled into this subassembly as follows:
    A. Turn the subassembly upside down on your workbench.
    B. Position the second 600-Mbyte hard disk drive (**119-3607-xx**) in the appropriate chamber and secure with eight screws (**211-0722-xx**); see **Figure 6**.
    C. Attach the middle connector of the SCSI cable (**174-1915-xx**) to the hard disk. Brown wire toward the power connector.
    D. Attach the power cable (**174-1762-xx**) to the hard disk.
    E. Dress the SCSI and power cables to the left of the subassembly chassis.
    F. Re-assemble this Mass Storage Subassembly into the Option 42 CEM; see **Figure 7**.
5. Assemble the Mass Storage Subassembly (originally removed from the Opt. 42 CEM) into the CEM; see **Figure 7**.

6. Connect the SCSI cable from the CEM to one short end of the SCSI cable from the Opt. 42 CEM; see **Figure 7**.

7. Connect the longer end of this SCSI cable to the Option 42 Backplane board; see **Figure 7**.

8. Re-assemble the front EMI shield and front covers to the CEM and Opt. 42 CEM.

9. Restore the 0 level backup.

Figure 7. CEM and Opt. 42 CEM Configurations With XD88F19.

DEVICE STRAPPING AND ADDRESSING

UTek V will allow SCSI (device) address 01 through 06 to be arbitrarily assigned
to auxiliary hard disk, floppy disk, streaming tape, and cartridge tape drives. There
can be a combination of up to six auxiliary devices on this system; see **Table 1**.

Table 1
STANDARD UTek V DEVICE ADDRESSES

SCSI (device) Address	Device Description
00 *	System hard disk drive
01 **	System floppy disk drive (1.2-Mbyte)
02 **	System streaming tape drive
03	Auxiliary device
04	Auxiliary device
05	Auxiliary device
06	Auxiliary device
07 *	System (host)

*   Reserved SCSI (device) addresses.

** Factory default addresses. These addresses can be used as auxil-
iary device addresses if not used by the system for the devices
listed in this table.

Refer to *Section 4* and *Section 5* of the *UTek V System Administrator's Guide* for
information on how to format and initialize hard disks, and how to create device
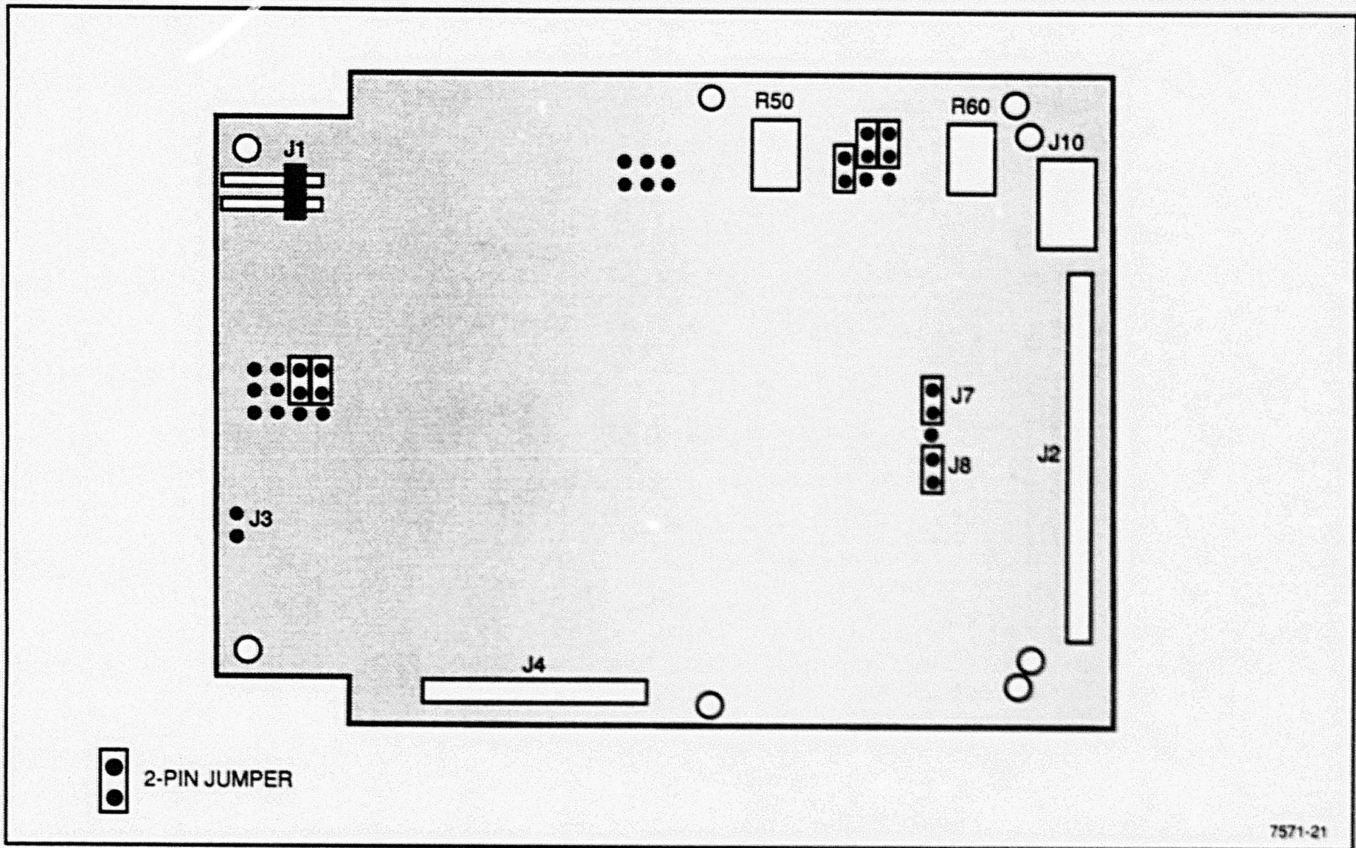special files.

Figure 8. Strap settings for the Flexible Disk Controller Board.

Table 2
FLEXIBLE DRIVE CONTROLLER SCSI ADDRESS SETTINGS

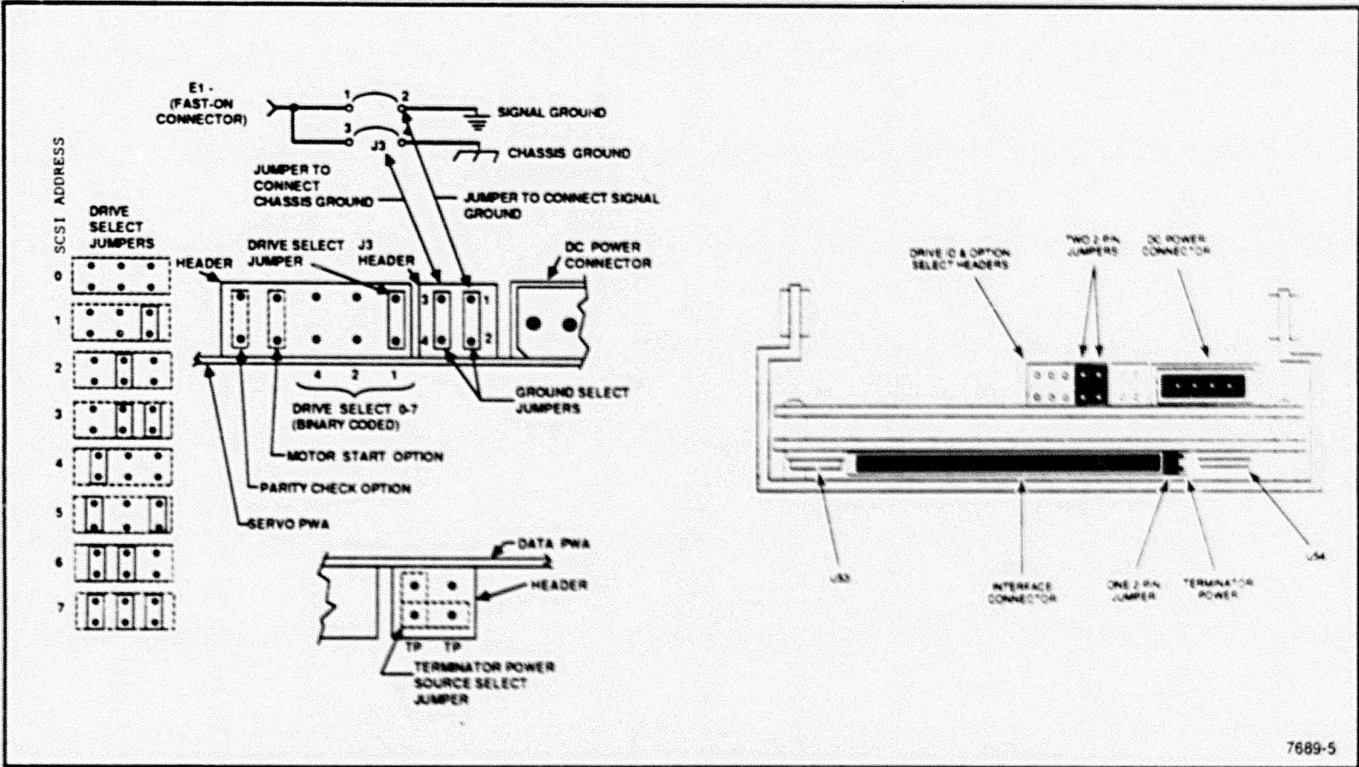| J5 Pins			SCSI
5-6	3-4	1-2	Device Address
0	0	0	00
0	0	1	01
0	1	0	02
0	1	1	03
1	0	0	04
1	0	1	05
1	1	0	06
1	1	1	07

Figure 9. Strap Locations for the 300-Mbyte Hard Disk Drive.

7689-5

Figure 10. Strap Locations for the 600-Mbyte Hard Disk Drive.