DECsystem 5900

Mass Storage Drawer Installation Manual

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Preface

Product Description

The DECsystem 5900 is a computer system designed for server applications, including file servers, compute-servers, and network servers. It is a midrange system that uses a modular approach, based on industry standard, 47.5 cm (19 in) rack mount components.

DECsystem 5900 servers use a high-performance single-board computer based on the MIPS R3000A 40-MHz processor. The DECsystem 5900 comes in a single-cabinet configuration that contains a power controller, one or two CPU drawers, and up to four additional mass storage drawers.

Document Description

This manual describes the installation of a mass storage drawer (an "upgrade") into the DECsystem 5900. It will be packaged with an upgrade kit to provide step by step instructions for Digital Services employees.

This manual is to be used in conjunction with the *DECsystem 5900 Pocket Service Guide, EK-D590A-PS.*

Any service or upgrades needed inside the DECsystem 5900 cabinet must be done by a Digital Service representative or an authorized self-maintenance customer.

Audience

The *DECsystem 5900 Mass Storage Drawer Installation Manual* is for use only by Digital Services Employees or self-maintenance customers who are receiving a mass storage drawer upgrade for installation.

Document Structure

The *DECsystem 5900 Mass Storage Drawer Installation Manual* contains three chapters, as follows:

Chapter 1	Overview This chapter provides an overview of the mass storage drawer installation procedures.
Chapter 2	Mass Storage Drawer Installation This chapter contains step by step procedures for the installation and testing of the mass storage drawer.
Chapter 3	Drawer Configuration/Setting SCSI IDs This chapter contains information needed to alter the factory configuration of the drawer and to set the SCSI IDs of devices. Since drawers will be configured at the factory, this should only be necessary in exceptional circumstances.

Conventions Used in This Document

The *DECsystem 5900 Mass Storage Drawer Installation Manual* uses the following conventions:

Convention	Indicates
boldface type	User input.
Caution	Information to prevent damage to equipment or software. Read these carefully.
italic type	Important information, variables, and complete titles of manuals.
Note	General information about the current topic.
Return	Press that key.

1

Mass Storage Drawer Installation

WARNING

- **Only qualified service personnel should remove or install a mass storage drawer.**
- **Extend the stabilizer bar to balance the system before pulling out any drawer.**
- **At least two people are required for installing a mass storage drawer. A mass storage drawer weighs 110 pounds when fully populated, 63 pounds with no storage devices (includes brackets). It is recommended that all storage devices be removed from a mass storage drawer *before* either lifting into or out of the enclosure. See Section 1.6 and Section 1.9 for details.**

Caution

- Static electricity can damage integrated circuits. Always use a grounded wrist strap and a grounded work surface (29–26246) when working with the internal parts of a computer system.
- Procedures in this document assume that ULTRIX has been shut down first; shut down ULTRIX in an orderly fashion before you install a mass storage drawer (or any FRU) in the DECsystem 5900.
- Turn off the system switch (Enable Power On Switch) and the main circuit breaker before installing a mass storage drawer.

The general steps for installing a mass storage drawer are listed below. Each is covered in detail in the referenced section of this chapter.

Because of the weight of a fully loaded mass storage drawer, the steps involve removal of all devices before lifting it into place, and replacement of the devices after installation.

1. Unpack the upgrade shipment (Section 1.1)
2. Consult customer to determine location and configuration of the drawer (Section 1.2)
3. Turn off the system (Section 1.3)
4. Remove filler panel(s) (Section 1.4)
5. Assemble mass storage drawer slides (Section 1.5.1)
6. Install assembled slides in the cabinet (Section 1.5.2)
7. Remove devices from the drawer (Section 1.6)
8. Extend the stabilizer bar to balance the system (Section 1.7)
9. Install the drawer in the cabinet (Section 1.8)
10. Replace devices in the drawer (Section 1.9)
11. Reconnect all internal power and signal cables (Section 1.6)
12. Set the device IDs if necessary (Section 2.2)
13. Push in and secure the drawer (Section 1.10)
14. Retract the stabilizer bar (Section 1.7)
15. Connect the external power cable and bus (Section 1.11)
16. Turn on the system (Section 1.12)
17. Reconfigure drawer(s) if necessary (Section 2.1)
18. Reset SCSI device IDs if necessary (Section 2.2)
19. Run acceptance tests (Section 1.13)
20. Modify ULTRIX (Section 1.14)

1.1 Unpacking the Upgrade Shipment

To begin the installation, unpack the mass storage drawer and check to see that it has arrived with slide assemblies. The external SCSI and power cables for all drawers are present in the DECsystem 5900 when it is originally shipped from the factory (whether or not drawer slots were filled at that time), so all external cabling for the drawer should be already installed in the cabinet.

Section 1.1.1 lists the accessory kit contents for a mass storage drawer upgrade shipment with no additional options or accessories.

1.1.1 Accessory Kit Contents

Mass storage drawer assembly
Drawer slides and accessories
SCSI cable
SCSI jumper
SCSI terminal
Filler panels for removable media slots
Tie-wraps
Screws
Product conversion label
DECsystem 5900 Mass Storage Drawer Installation Manual (this manual)

1.2 Consult Customer to Determine Configuration and Location

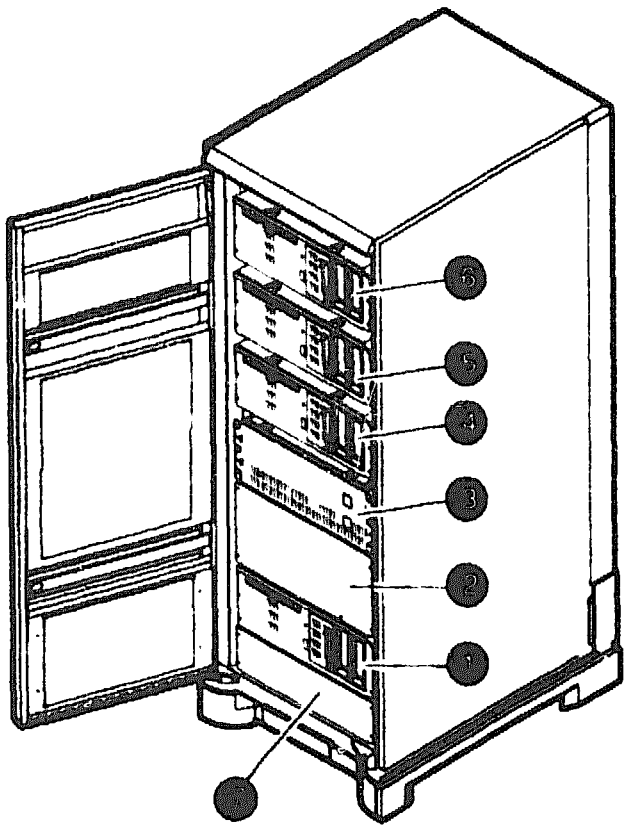
1.2.1 Drawer Slot Location

Before proceeding with the mass storage drawer installation, consult the customer or system manager to determine the drawer's location in the DECsystem 5900 cabinet. The slots in the DECsystem 5900 are labeled consecutively, starting with slot 0 on the bottom. The power controller is located in the rear of slot 0.

Original versions of the DECsystem 5900 are shipped with the CPU drawer in slot 3, the first mass storage drawer in slot 4, and subsequent mass storage drawers in slots 5, 1, and 6, in that order. It is recommended that this sequence be followed for mass storage upgrades.

(See Figure 1–1).

Figure 1–1 Slots and Suggested Location of Drawers



- Slot 1 (may contain a mass storage drawer or other options; if empty, it will be covered by a filler panel)
- Slot 2 (left empty for dual CPU upgrade; covered by filler panel)
- Slot 3 (original CPU drawer)
- Slot 4 (original mass storage drawer)
- Slot 5 (may contain a mass storage drawer or other options; if empty, it will be covered by a filler panel)
- Slot 6 (may contain a mass storage drawer or other options; if empty, it will be covered by a filler panel)
- Slot 0 (covered by a filler panel in front, contains power controller in rear)

1.2.2 Drawer Configuration

The mass storage upgrade for a DECsystem 5900 is a mass storage drawer ordered by the customer as an add-on expansion/upgrade. All devices ordered in the upgrade are installed in the drawer at the factory. The drawer should be fully configured at the factory as well, and all SCSI IDs should be set.

Determine what configuration is to be used on the mass storage drawer you are installing, and check to ensure that the drawer was configured that way at the factory. If it is necessary to alter the configuration, see Section 2.1.

There are two versions of the mass storage drawer (referred to as version 1 and version 2 in this manual). The following table will help to distinguish between them.

Table 1–1 Mass Storage Drawer Versions

Distinguishing Features	Version 1	Version 2
Power switch on drawer front	Yes	No
Top cover	Two sections with screws	One-piece
Exposed fans on rear of drawer	No	Yes
Front details:	Figure 1–18	Figure 1–19
Rear details:	Figure 1–15	Figure 1–16

Each mass storage drawer may be configured in one of two ways:

1. Single bus configuration (Section 2.1.1.1)
2. Split bus configuration (Section 2.1.1.2)

1.3 Powering Down the System

Caution

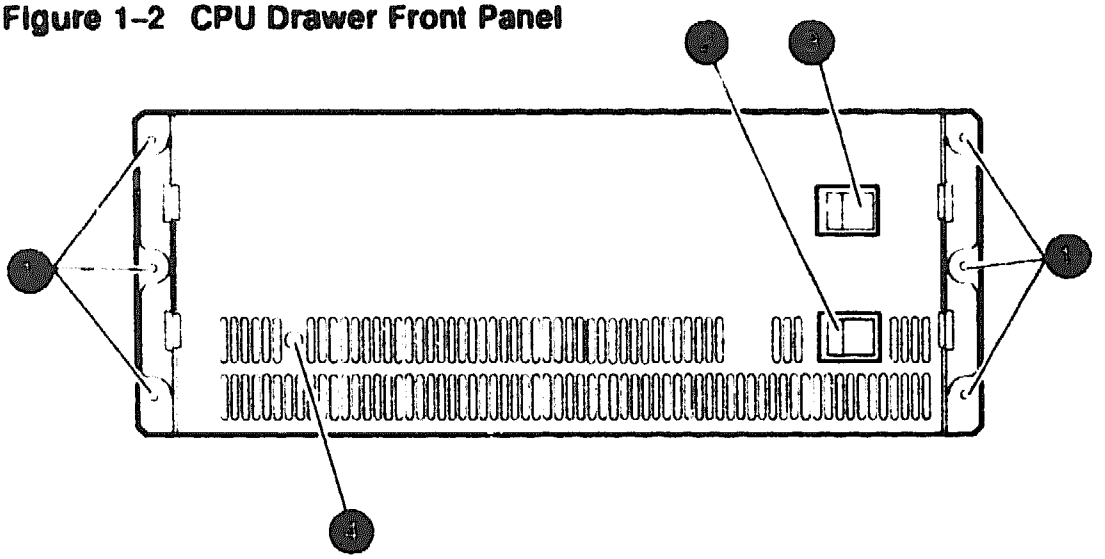
Prior to powering down the DECsystem 5900, ULTRIX must be shut down in an orderly fashion by the customer/system manager.

To turn off the system:

- Turn off the system power switch (Enable Power On Switch) on the front of the CPU drawer. (See Figure 1–2.)

- Turn off the circuit breaker on the power controller. (See Figure 1–3.)

Figure 1–2 CPU Drawer Front Panel



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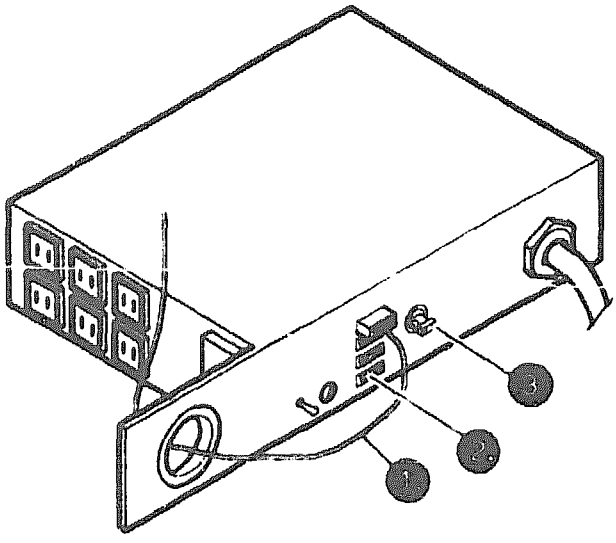
1. 5/16 hex screws that secure the drawer to the shipping restraints
2. CPU drawer power switch (should normally be left On)
3. System power switch (Enable Power On Switch)
4. LED power indicator

Figure 1–3 Power Controller



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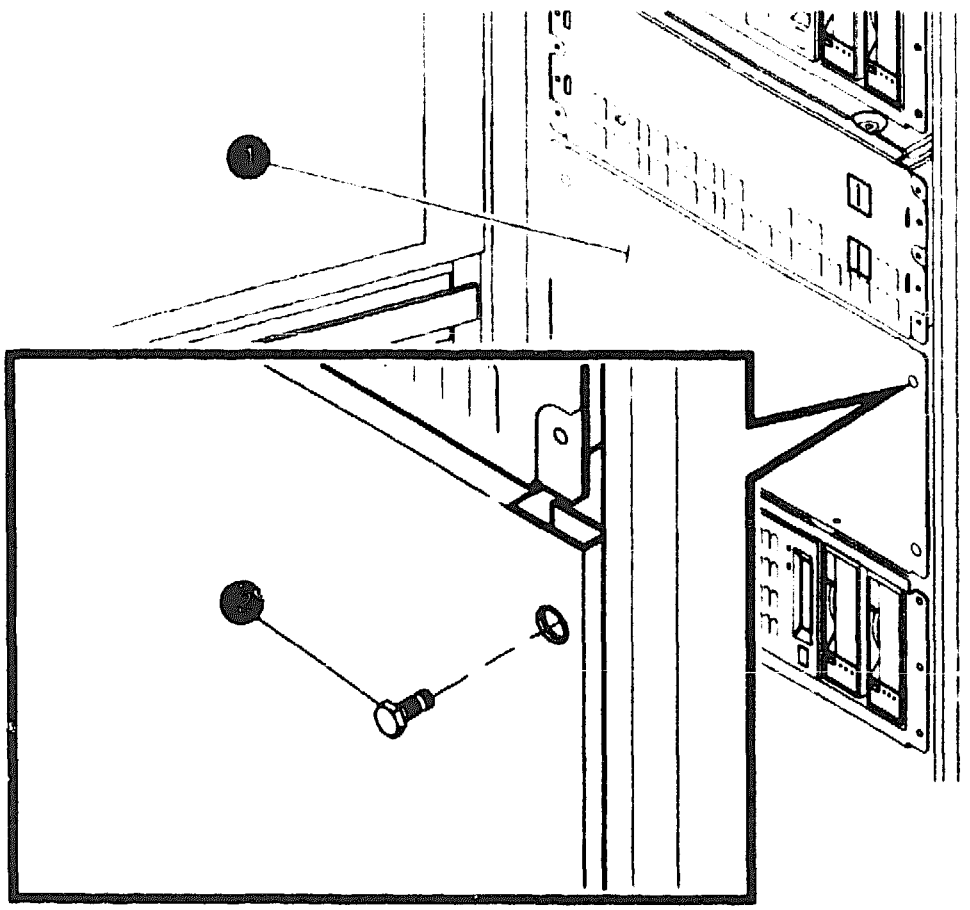
1. Remote power sequence cable (to CPU drawer)
2. Remote sequence connectors
3. Circuit breaker

1.4 Removing Filler Panel(s)

Slots in the DECsystem 5900 enclosure front that contain no drawers will be covered with a filler panel. Slot 0, which contains the power controller (accessed through the rear of the enclosure), has a filler panel as well.

Filler panels are attached to the front cabinet rails by means of four hex screws, two on each side. Remove the filler panels for slots being filled by inserting a screwdriver through the access holes and removing the hex screws (see Figure 1–4). Save the panel for future use by storing it in the accessory kit.

Figure 1–4 Removing Filler Panel(s)



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1. Filler panel
2. Hex screw

1.5 Mass Storage Drawer Slides

1.5.1 Assembling Mass Storage Drawer Slides

Use the following procedures to assemble mass storage drawer slides. (See Figure 1–5.) To become familiar with the slides and their assembly, observe the location of slides and angle brackets on an installed mass storage drawer before beginning.

1. Extend the new slides (to be installed) until the spring tabs latch them open.
2. Place the slides on a worksurface with the *inside* (drawer side) facing down.
3. Assemble the slide angle brackets, one to the rear and one to the front of the bottom slide section. The screws attaching the slide to the front angle bracket are inserted by positioning the slide so that the screws may be inserted one by one through the access hole from the inside of the slide.

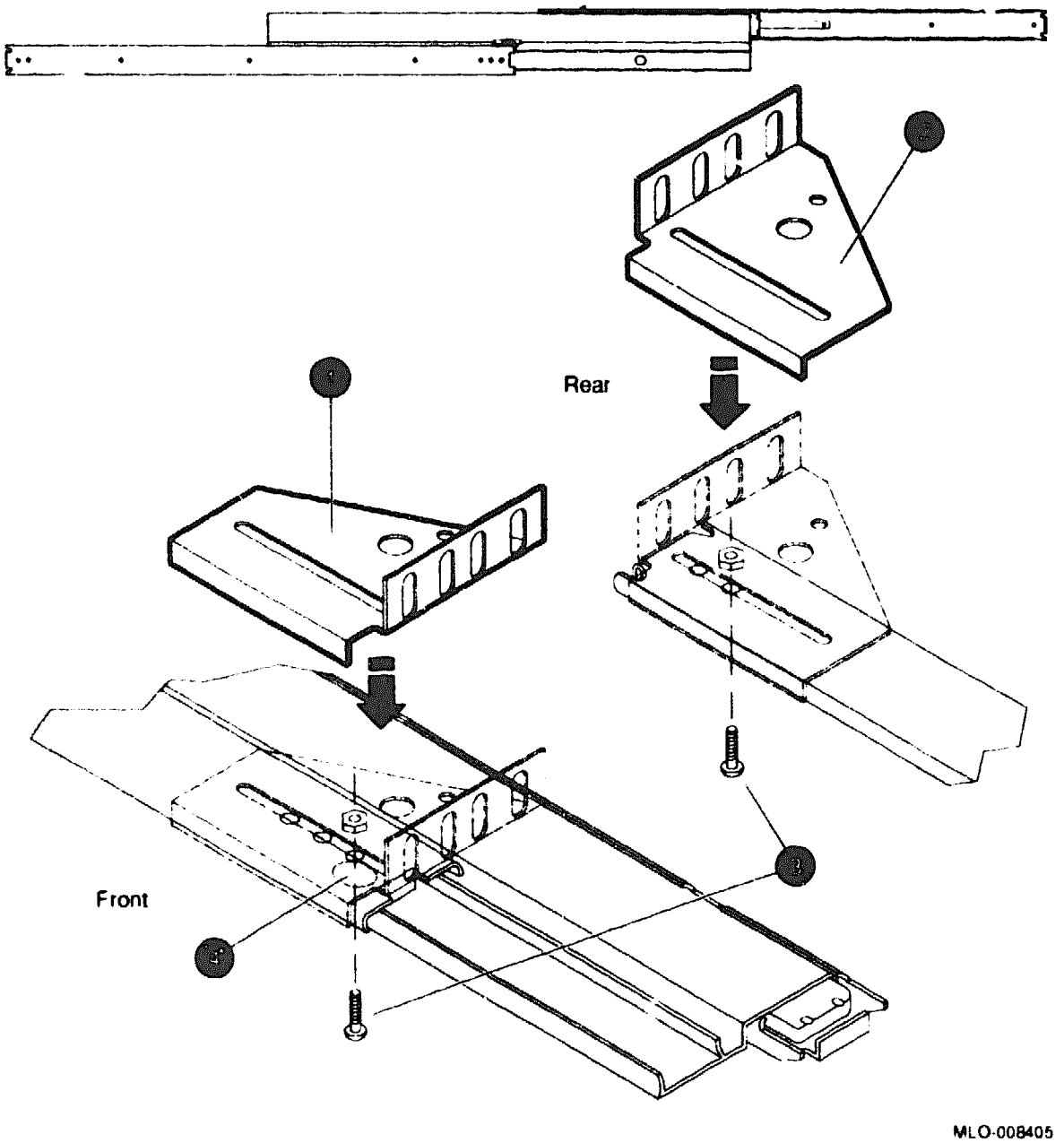
Note

Leave the angle brackets loosely assembled for ease of installation on the cabinet rails

The small shelf on each angle bracket should engage the bottom of the slide, and the four slots on each angle bracket should extend upward and align with the extreme front and rear edges of the bottom slide section.

If slots do not extend upward while the shelf is engaged on the bottom of the slide *and* align with the ends, you have the wrong angle brackets for that location; check an installed mass storage drawer for reference.

Figure 1–5 Assembling Mass Storage Drawer Slides



1. Front angle bracket
2. Rear angle bracket
3. Screws
4. Access hole for inserting front angle bracket screws

1.5.2 Installing Assembled Slides in Cabinet

The DECsystem 5900 is shipped from the factory with U-nut clips in place on the cabinet rails at the proper position for all mass storage drawer slides. If these have been removed, or were not installed, the placement of drawers may be determined by counting the holes in the cabinet rails, beginning on the top and counting down. The placement of drawers is as follows (slides occupy four holes numbers on both the front and rear cabinet rails):

Table 1–2 Drawer Locations on the Cabinet Rails

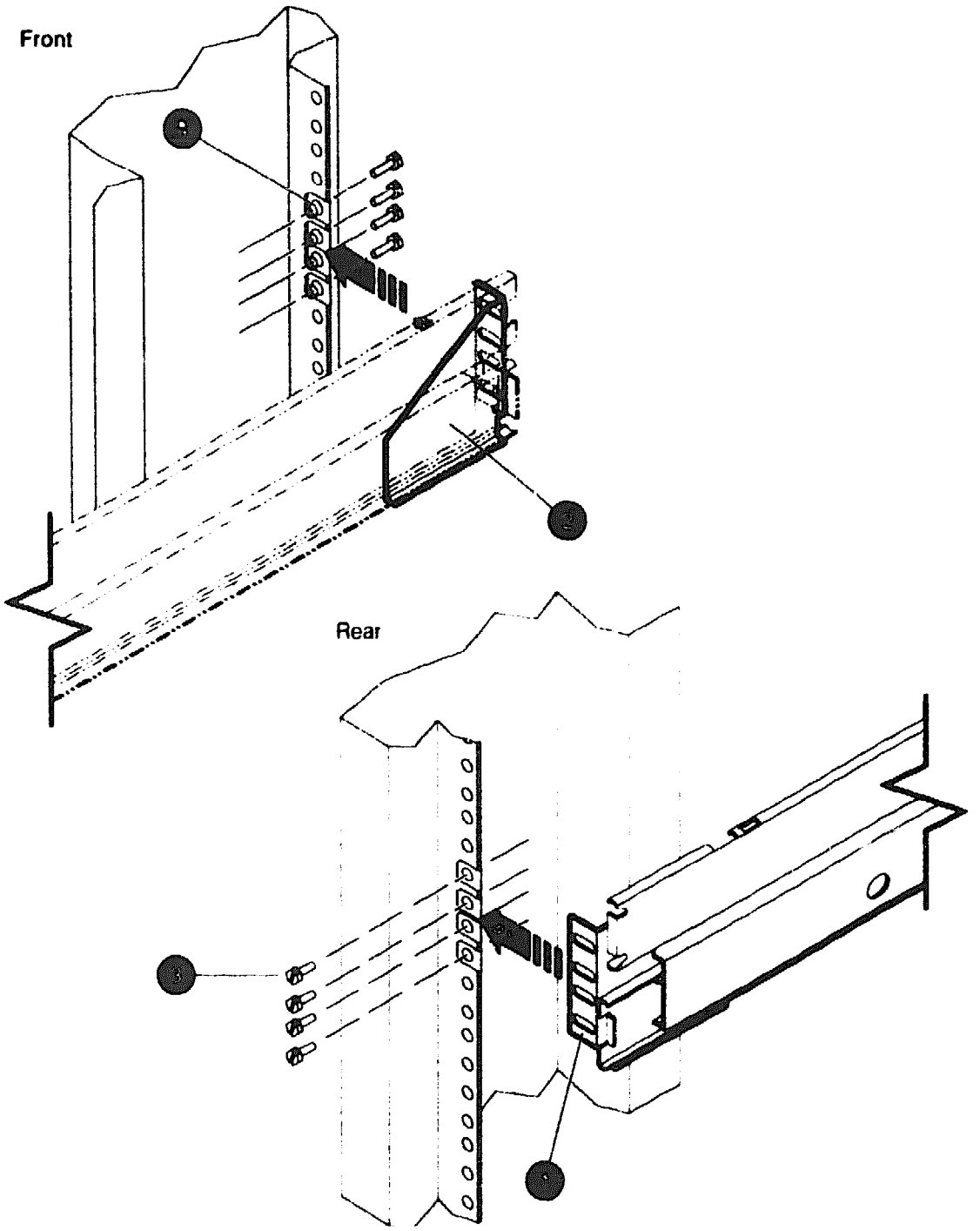
Cabinet Slot	Typical Application	Hole Numbers (From the Top)
6	mass storage	5-8
5	mass storage	20-23
4	mass storage	35-38
3	CPU	50-53
2	CPU	65-68
1	mass storage	80-83
0	power controller	N.A.

To install assembled slides, place the slides at the desired location for the mass storage drawer and attach them squarely and firmly to the cabinet, using the four screws and U-nuts for *each* angle bracket as depicted in Figure 1–6. Refer to an installed mass storage drawer for details.

Caution

Once the angle brackets and slides are aligned perfectly to the cabinet rails and set to the correct length, firmly tighten the screws holding the slides to the angle brackets.

Figure 1–6 Installing Mass Storage Drawer Slides



- Rear angle bracket
- Front angle bracket
- Screws
- U-nuts

1.6 Removing Devices from the Drawer

Due to the weight of a fully populated mass storage drawer, it is recommended that the SCSI devices be removed from the drawer prior to lifting or installing it. In order to do this, the cover must be removed.

To facilitate lifting the drawer into place, remove the devices using the following steps.

1. Open the mass storage compartment cover. See Section 1.6.1.1 for mass storage drawer version 1; Section 1.6.2.1 for version 2.
2. Note the position of each device within the drawer to be installed, and which power and SCSI connector goes with which device. It may be helpful to mark the cables and devices as you disconnect them.
3. Disconnect the power and internal SCSI cables from the devices; remove all brackets containing storage devices from the drawer (do not remove the devices from their brackets). See Section 1.6.1.2 for mass storage drawer version 1; Section 1.6.2.2 for version 2.
4. Close the mass storage compartment cover.

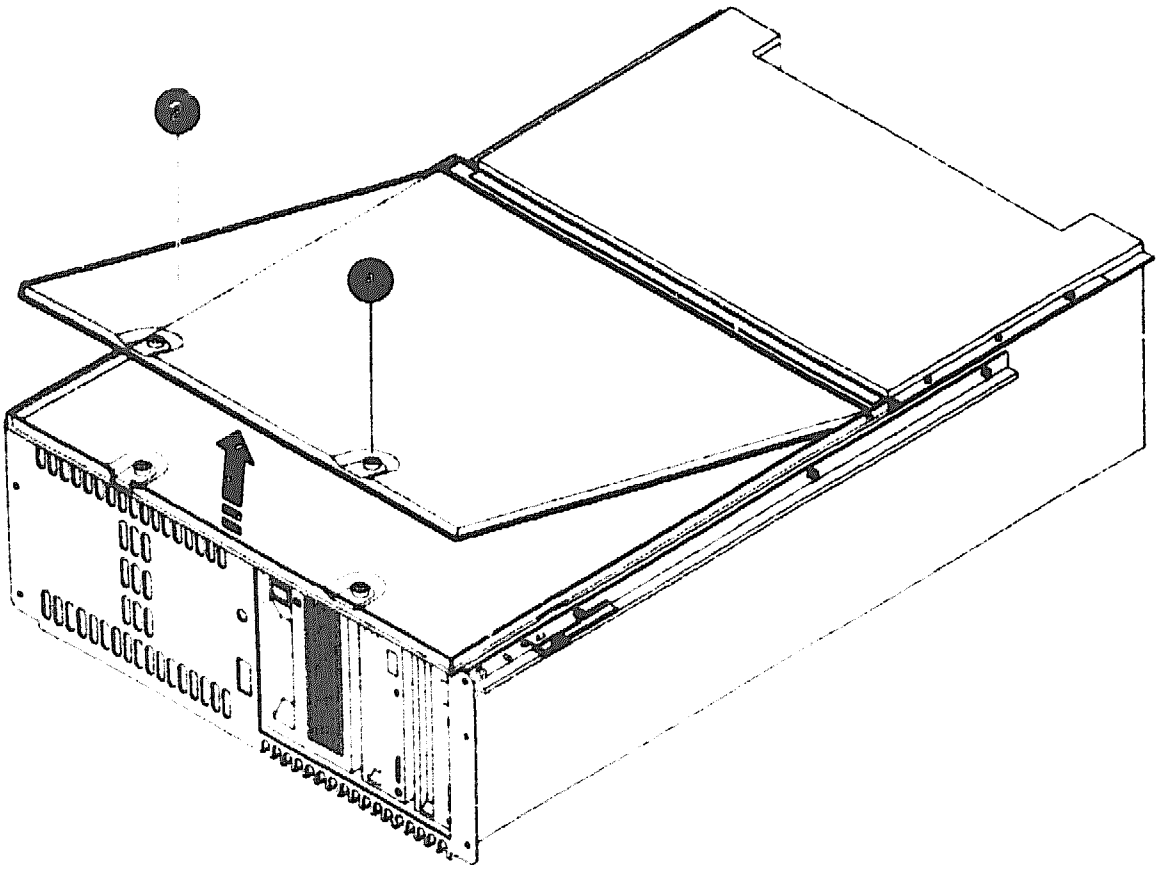
1.6.1 Mass Storage Drawer Version 1

1.6.1.1 Opening/Closing Mass Storage Drawer Version 1

Mass storage drawers are opened differently depending upon the version; the drawers may be identified by differing top covers as follows.

Version 1 mass storage drawers are opened by loosening quarter turn captive screws on the top front cover of the drawer, and raising the cover. To close the compartment, lower the cover and push down on the captive screws. See Figure 1–7.

Figure 1–7 Opening the Version 1 Mass Storage Compartment



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1. Quarter turn captive screws
2. Cover

1.6.1.2 Removing/Replacing Devices in Mass Storage Drawer Version 1

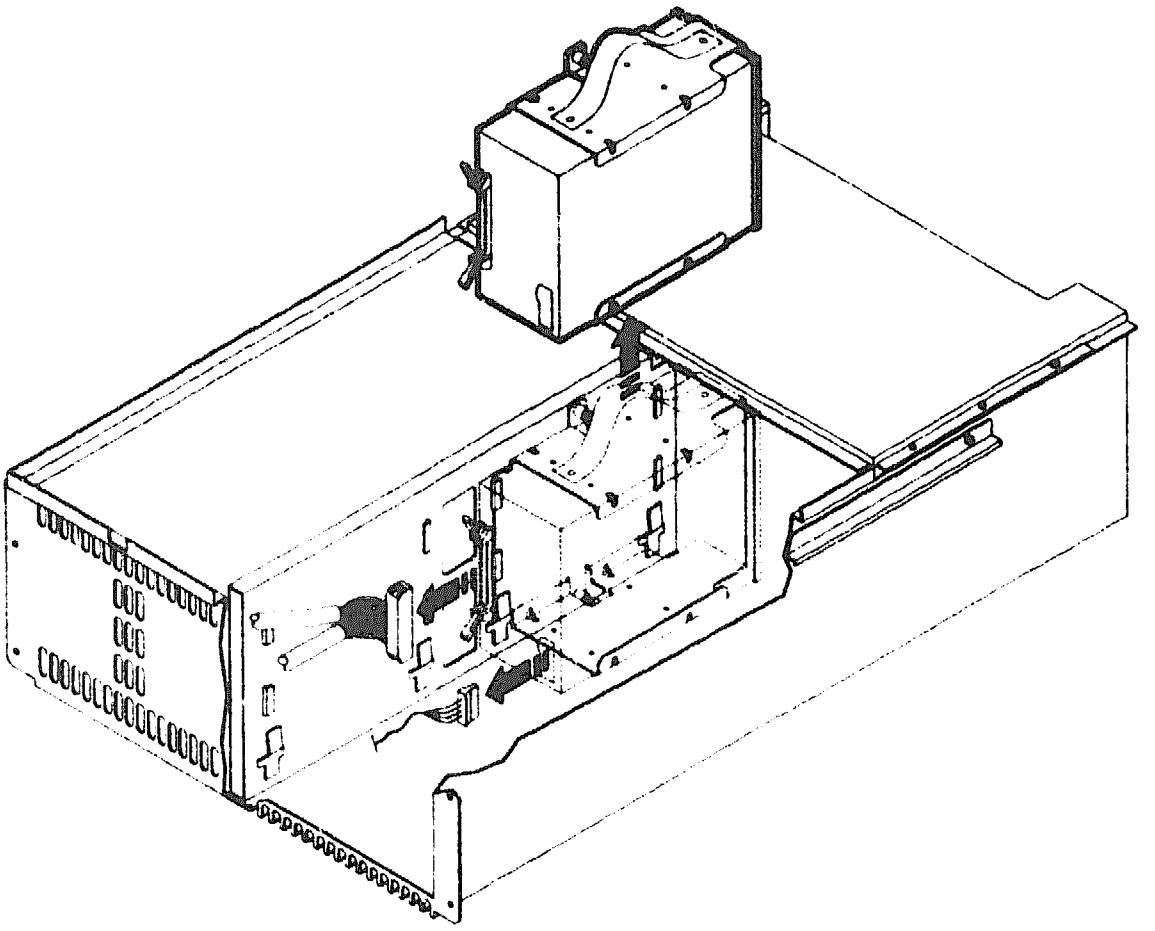
To remove a drive bracket (and device it contains) from the version 1 mass storage drawer, disconnect the power and internal SCSI leads. You may find it helpful to loosen the bracket and slide it up slightly to access the power and internal SCSI leads before disconnecting them.

Completely loosen the captive set screw located at the top of the bracket, and gently pull up on the bracket handle, sliding the bracket and the device it contains straight up. If it sticks, carefully use a screwdriver to pry up on the bracket without touching the device. See Figure 1–8.

To replace or install a drive bracket containing a device in the mass storage drawer, reverse the above procedures.

Figure 1–8 depicts the removal of a drive bracket and device from one position in the drawer; others may be oriented a different way, but are removed in essentially the same manner.

Figure 1–8 Removing a Drive Bracket from the Version 1 Mass Storage Drawer



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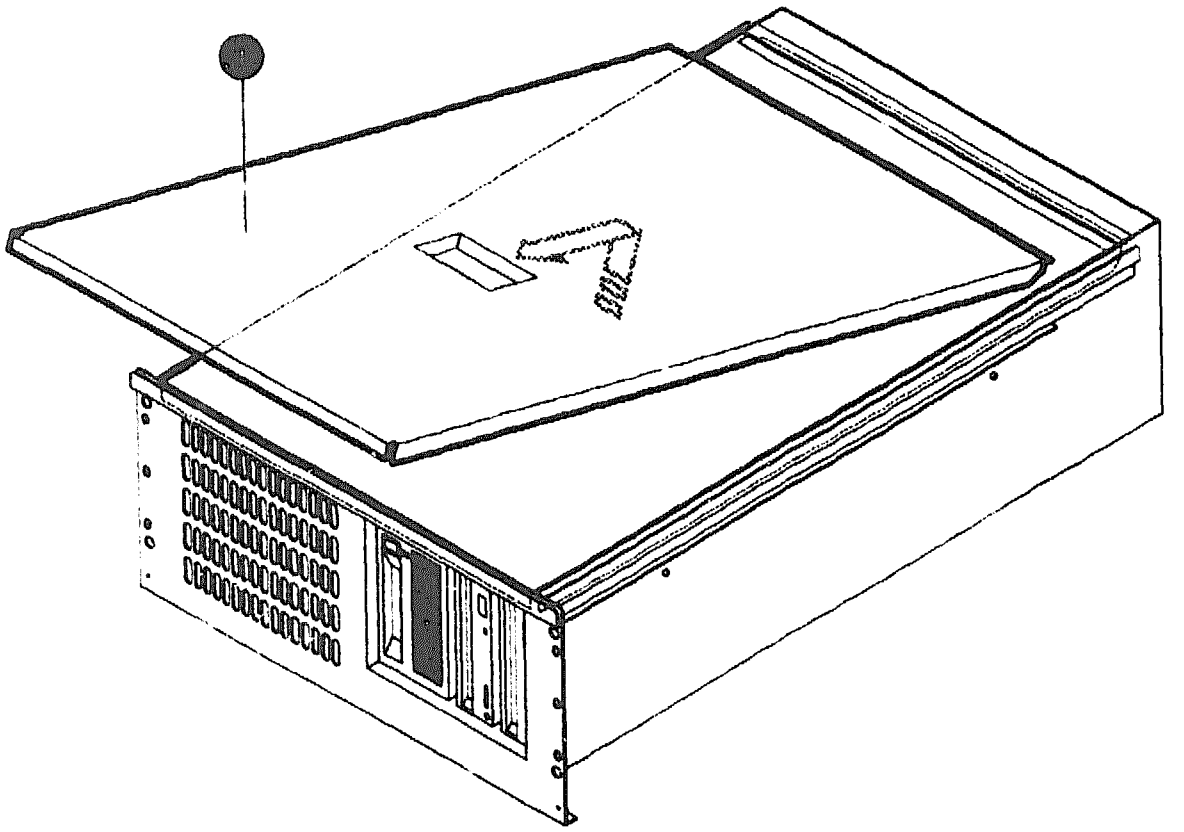
1.6.2 Mass Storage Drawer Version 2

1.6.2.1 Opening/Closing Mass Storage Drawer Version 2

Version 2 mass storage drawers are opened by pulling up on an indented handle and removing the entire cover (there are no screws). To close the compartment, replace the cover and push down firmly to ensure that it seats into the flashing. See Figure 1–9.

Figure 1–9 Opening the Version 2 Mass Storage Compartment



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● Cover

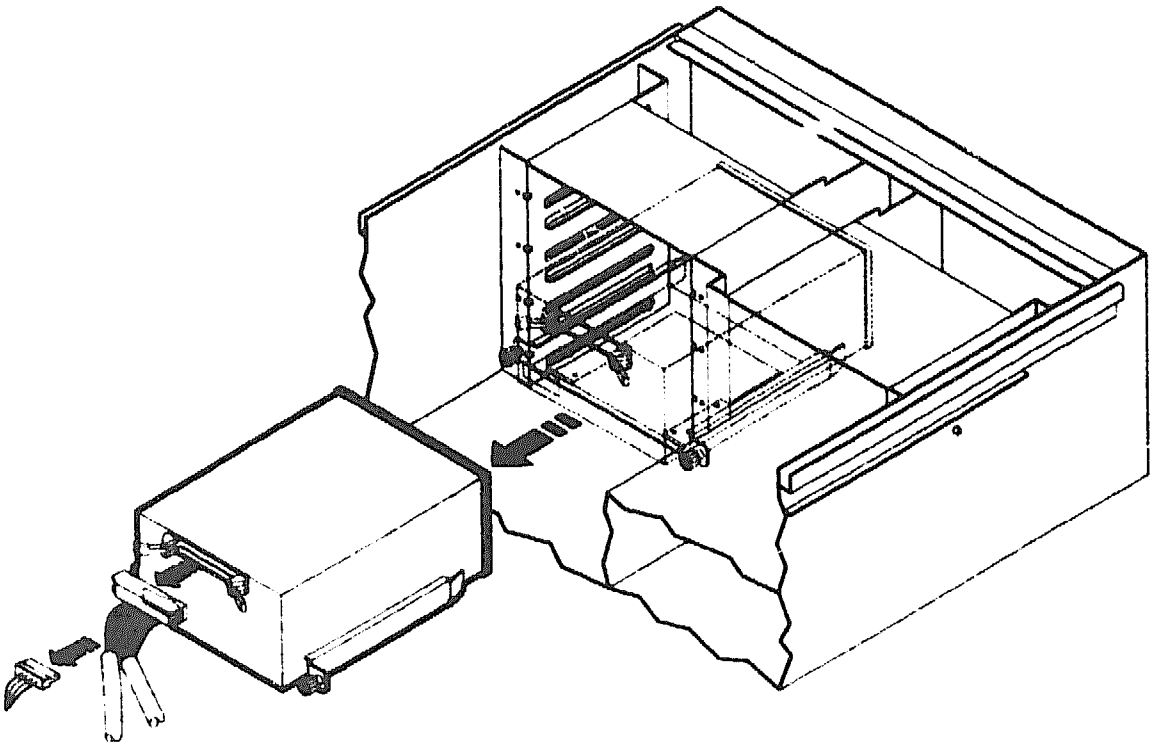
1.6.2.2 Removing/Replacing Devices in Mass Storage Drawer Version 2

To remove a drive bracket (and the device it holds) from a version 2 mass storage drawer, disconnect the power and internal SCSI leads, then loosen the two captive screws on the bracket, and slide the bracket and device out. See Figure 1–10. Note the orientation of the connectors to the bracket before removal so that you can mount the replacement in the same manner.

To replace or install a drive bracket containing a device in the mass storage drawer, reverse the above procedures.

Figure 1–10 depicts the removal of a drive bracket and device from one position in the drawer; others may be oriented a different way, but are removed in essentially the same manner.

Figure 1–10 Removing a Drive Bracket from the Version 2 Mass Storage Drawer



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1.7 Balancing the System

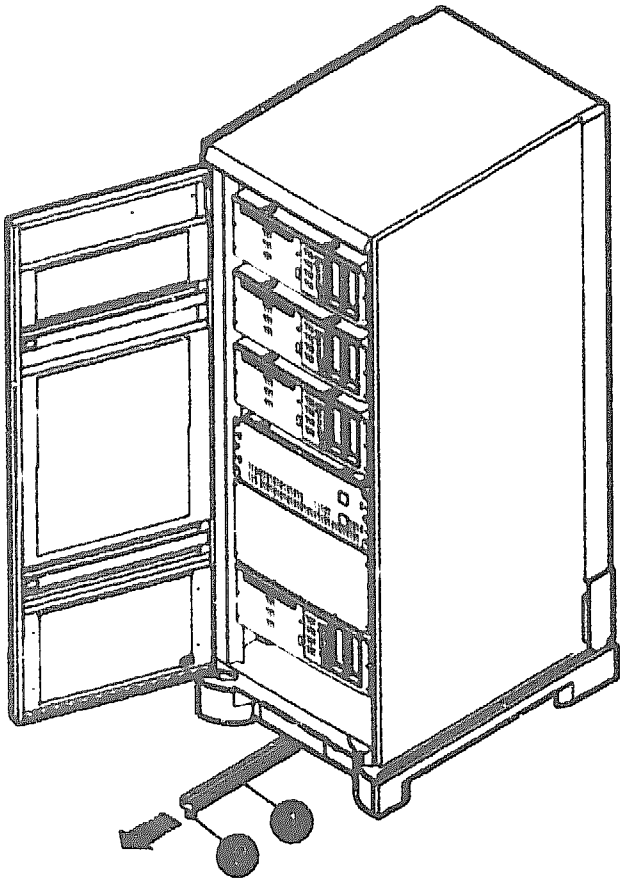
WARNING

Before installing or pulling out either the CPU or a mass storage drawer, the stabilizer bar located at the bottom front of the enclosure must be extended to balance the DECsystem 5900.

The system is balanced by extending the stabilizer bar located at the bottom front, as depicted in Figure 1–11.

- If the leveler is tightened down to the floor, raise it by hand so that the bar may be moved.
- Pull the stabilizer bar out until it stops.
- Screw the leveler down firmly by hand.
- To retract the bar, reverse the procedures.

Figure 1–11 Stabilizing the Enclosure



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1. Stabilizer bar
2. Leveler foot

1.8 Installation of Drawer in the Cabinet

1.8.1 Installation of the Version 1 Drawer

Use the following procedures to install the version 1 mass storage drawer. To install the slides the mass storage drawer rides on, see Section 1.5.

WARNING

Before installing or pulling out either the CPU or a mass storage drawer, the stabilizer bar located at the bottom front of the enclosure must be extended to balance the DECsystem 5900. See Section 1.7.

WARNING

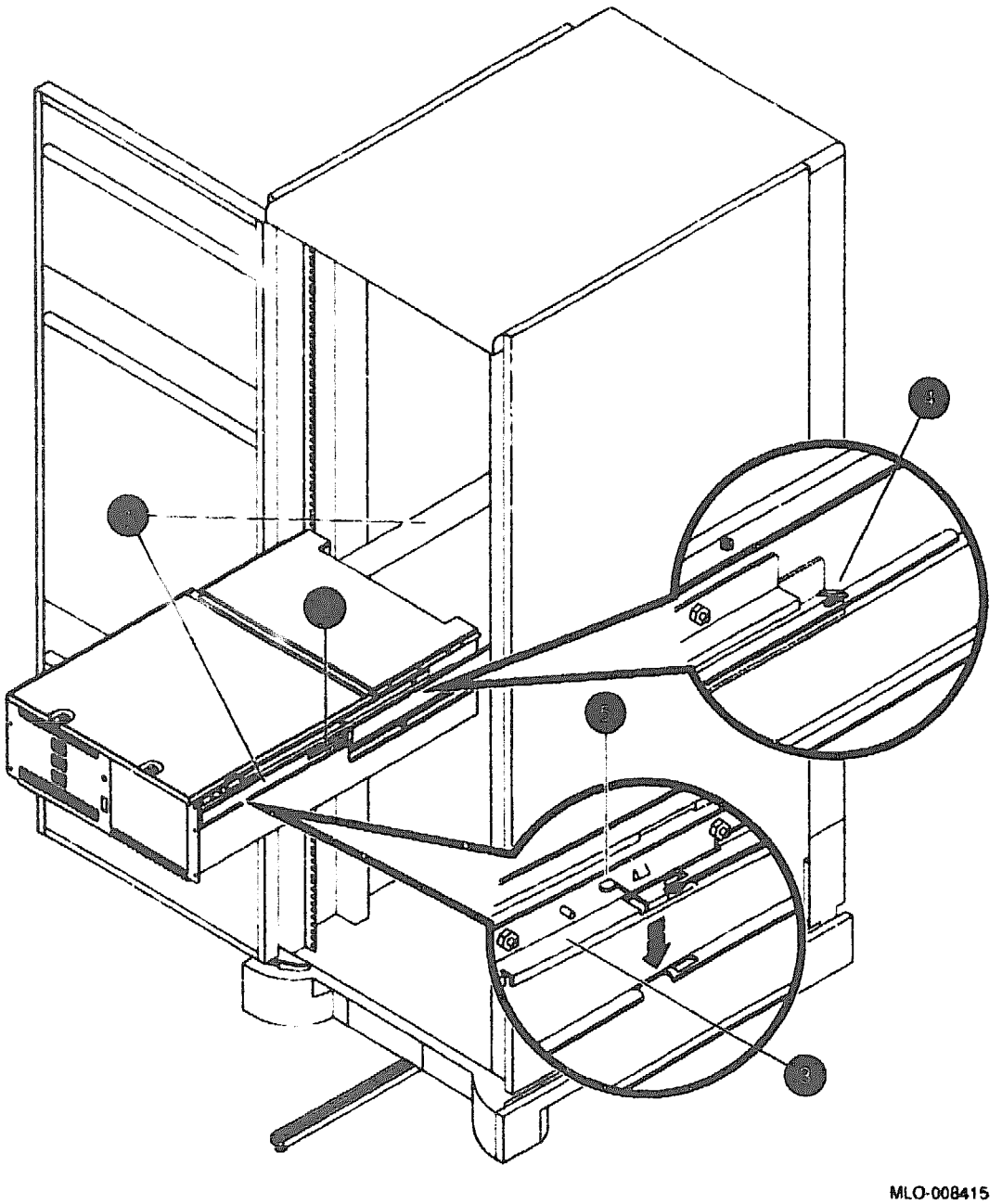
At least two people are required to remove or replace a drawer in the DECsystem 5900.

1. Pull out the drawer slides from the cabinet until the slides lock and the spring tabs are out; you will be resting the entire drawer on these open slides, so be sure they are firmly locked in place.
2. With your partner on one side of the drawer and you on the other, lift it up and place the "lip" on the side of the drawer on top of the slides; tilt the back down very slightly and move the drawer back into the "notch" (now locked in place near the front of the enclosure on the top of the slide).
3. Both of you should push down on the drawer release tab (located on the side of the drawer on the top front corner) on your respective sides while gently maneuvering the tab into its corresponding hole in the slide.

   You will hear/feel a "click" when each release tab engages.

See Figure 1–12.

Figure 1–12 Installing the Version 1 Mass Storage Drawer



1. Slides
2. Drawer lip
3. Drawer release tab
4. Spring tab
5. Notch

1.8.2 Installation of the Version 2 Drawer

Use the following procedures to install the version 2 mass storage drawer. To install the slides the mass storage drawer rides on, see Section 1.5.

WARNING

Before installing or pulling out either the CPU or a mass storage drawer, the stabilizer bar located at the bottom front of the enclosure must be extended to balance the DECsystem 5900. See Section 1.7.

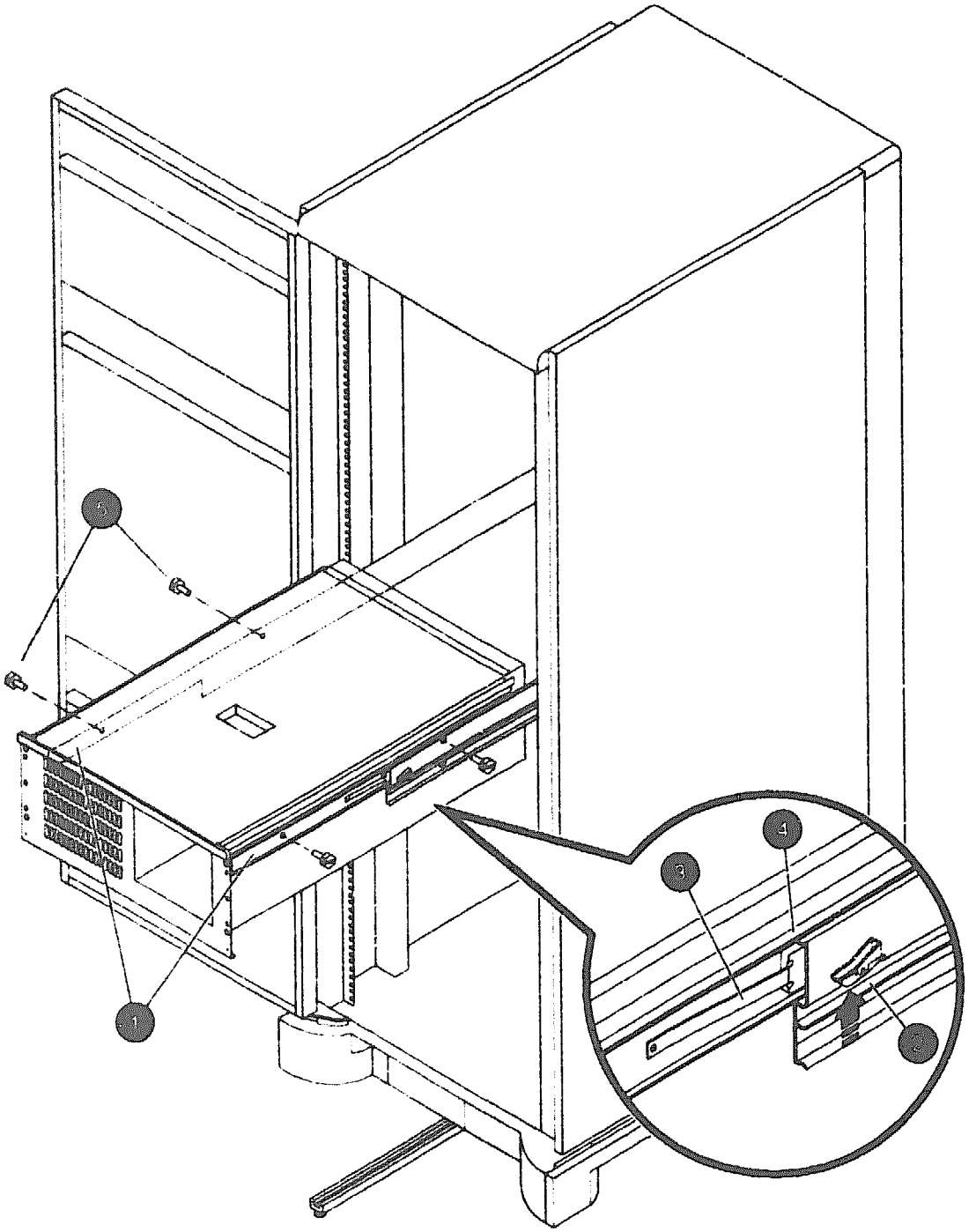
WARNING

At least two people are required to remove or replace a drawer in the DECsystem 5900.

1. Pull out the drawer slides from the cabinet until they catch in the partially extended position.
2. Reach under the front of the middle slide and trip the catch upward so that the slides may be fully extended.
3. While holding the catch up, extend the slides until they lock and the spring tabs are out; you will be resting the entire drawer on these open slides, so be sure they are firmly locked in place.
4. With your partner on one side of the drawer and you on the other, lift it up and place the "lip" on the side of the drawer on top of the slides. Line the holes in the side of the drawer up with those on the inner part of the slide.
5. Attach the foremost hole on the extended portion of the slide to the front drawer hole with a hex screw.
6. Press in on the slide tab and close the drawer slowly until the rear slide hole is exposed (it should be lined up with the rear drawer hole at this point).
7. Attach the rear slide hole to the drawer with a hex screw.

See Figure 1–13.

Figure 1–13 Installing the Version 2 Mass Storage Drawer



1. Slides
2. Slide catch
3. Spring tab
4. Drawer lip
5. Hex screws

1.9 Replacing the Devices in the Drawer

WARNING

A stable step ladder or stool is required to service the upper drawers in a DECsystem 5900.

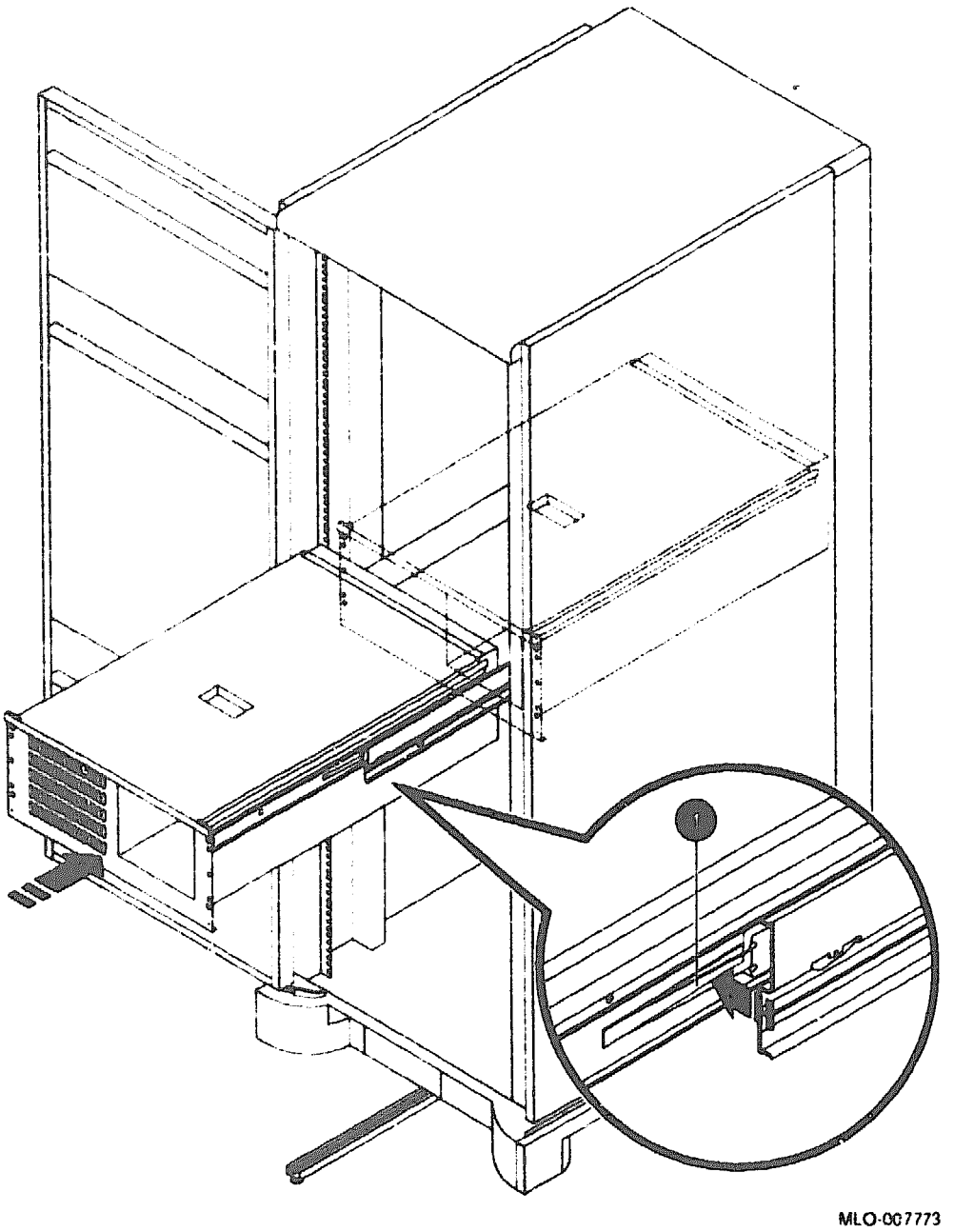
1. Open the mass storage compartment cover (see Section 1.6).
2. Replace all brackets and devices in the exact location noted in Section 1.6.
3. Reconnect the internal power and SCSI cables as they were (see Section 1.6).
4. Close the mass storage compartment cover.

1.10 Pushing In and Securing the Drawer

To push in the mass storage drawer, follow the procedures below. See Figure 1–14.

1. Simultaneously push in and hold both the spring tabs on the slides (one on the outside of each slide).
2. Push in on the front of the drawer until it is flush with the front drawer bracket (which are attached to the cabinet rails).
3. There is no need for hex screws on the front of the drawer; the six holes are for use in the future to secure the drawer to shipping restraint brackets if the system is to be shipped.

Figure 1–14 Pushing In Mass Storage Drawer



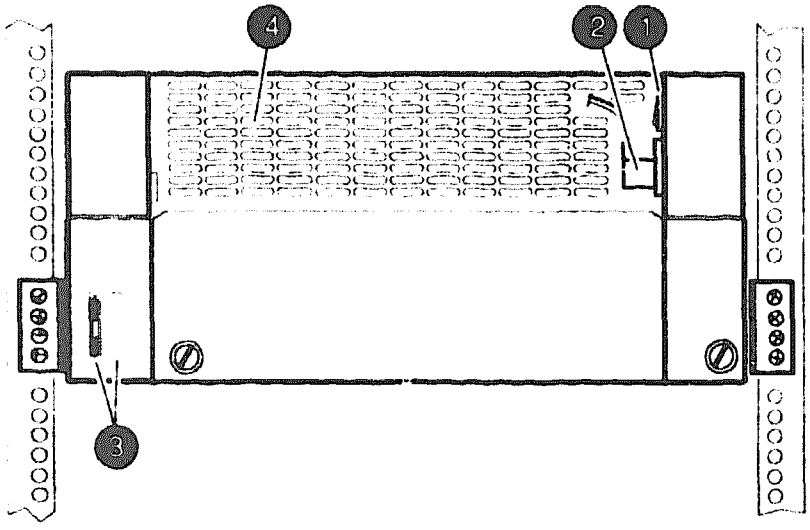
1 Spring tab

1.11 Connecting Power and SCSI Cables

After securing the drawer in the cabinet, connect the external power and SCSI cables to the receptacles. See Figure 1–15 for the version 1 mass storage drawer, Figure 1–16 for version 2, and Figure 1–17 for the CPU drawer.

1. Plug the power cord into the back of the drawer; the correct cord was put in place by the factory, and should be tie-wrapped and hanging next to the back of the drawer; the other end is plugged into the power controller.
2. Connect one end of the SCSI cable to the mass storage drawer.
3. If you are installing a new SCSI cable, tie-wrap it with the others along the cabinet rail and route it along the CPU drawer cable arm.
4. Connect the other end of the SCSI cable to one of the SCSI ports on the back of the CPU drawer; either the built-in SCSI port or a PMAZ SCSI adapter. (The appropriate port will vary according the the particular configuration of the DECsystem 5900; if in doubt, check with the customer or system manager.)

Figure 1–15 Version 1 Mass Storage Drawer Rear Panel



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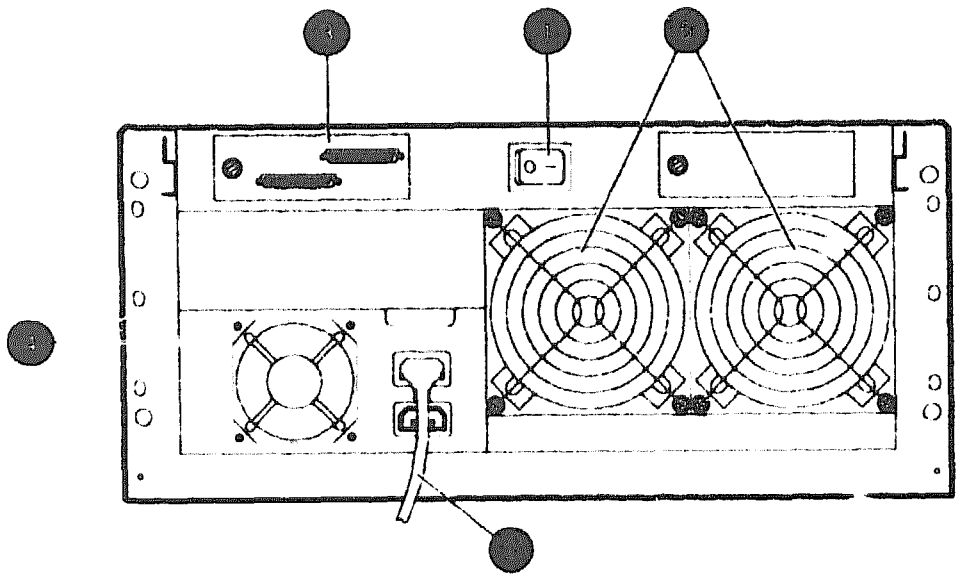
1. Power switch (should normally be left "On"–see Section 1.3)
2. Power cable that connects to main power controller
3. SCSI bus(ses) that connect to the CPU drawer and/or SCSI terminator

● Air inlet

See Section 2.1 for information on drawer configuration and Section 2.2 for setting SCSI IDs.

Figure 1–16 Version 2 Mass Storage Drawer Rear Panel



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● Power switch (should normally be left On)

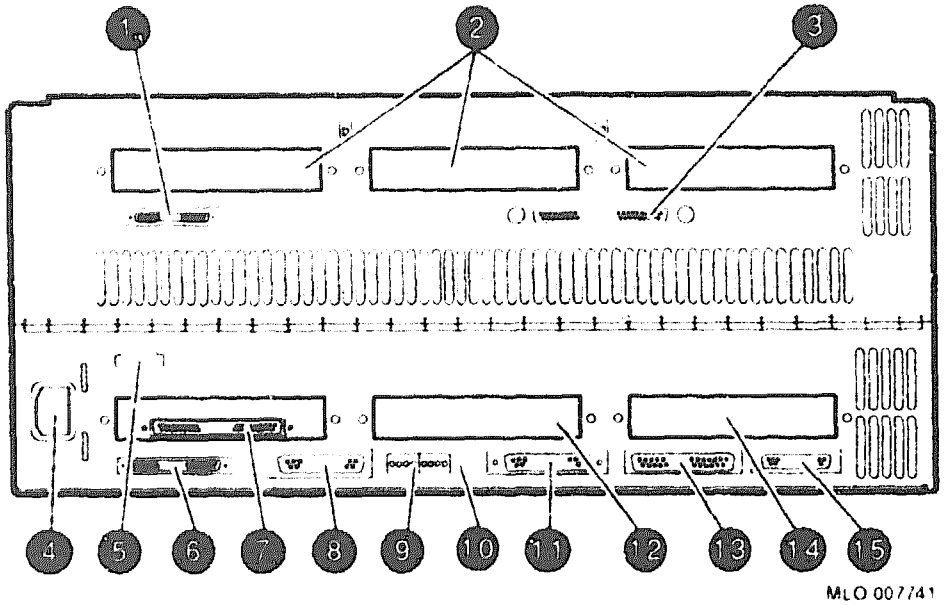
● Power cable that connects to main power controller

● SCSI bus(ses) that connect to the CPU drawer and/or SCSI terminator

● Power supply

● Fans

Figure 1–17 CPU Drawer Rear Panel



1. Not used
2. TURBOchannel Extender Module slots
3. TURBOchannel Extender I/O (connected to 7)
4. Ac power receptacle
5. Remote power sequence connector
6. System module SCSI port
7. TURBOchannel Extender Adapter module (in option slot 0, connected to 3)
8. Standard Ethernet
9. Diagnostic LEDs
10. Halt switch
11. System console port
12. TURBOchannel option slot 1
13. Communications port
14. TURBOchannel option slot 2
15. Not used

1.12 Powering Up the System

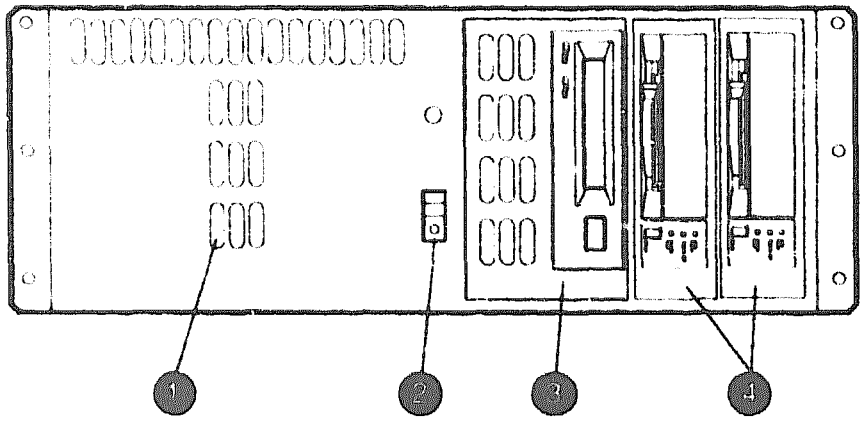
1.12.1 Power Controller

Turn on the circuit breaker on the power controller (located in the rear of the cabinet, on the bottom, see Figure 1–3).

1.12.2 Mass Storage Drawer

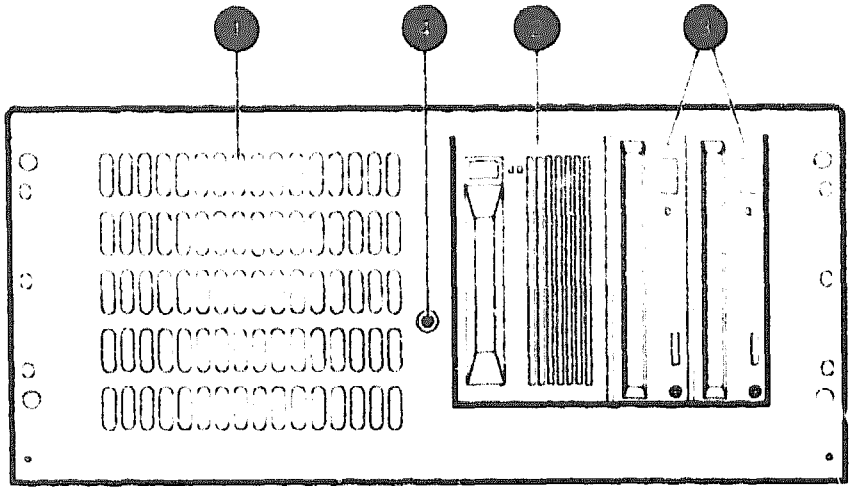
Switch the mass storage drawer power switch on the rear of the mass storage drawer "On", if it has been switched off. (See Figure 1–15 or Figure 1–16.). Mass storage drawer version 1 also has a power switch on the front of the drawer which must be switched "On" (see Figure 1–18). Version 2 (Figure 1–19) does *not* have a power switch on the front but uses and LED to indicate "On".

Figure 1–18 Mass Storage Drawer Version 1 Front Panel



1. Air inlet
2. Power switch–may have green LED to indicate "Power on"
3. Optional full-height removable media device (TLZ04 shown)
4. Optional half-height removable media devices (TZ30s shown)

Figure 1–19 Mass Storage Drawer Version 2 Front Panel



1. Air inlet
2. Optional full-height removable media device (TLZ04 shown)
3. Optional half-height removable media devices (RRD42s shown)
4. LED

1.12.3 CPU Drawer/System

There are two power switches on both the front of the CPU drawer, an Enable Power On Switch (system power switch) for the entire DECsystem 5900, and a CPU drawer power switch (the lower of the two switches) for the CPU drawer only. Make sure both are switched "On". Turn on the upper system power switch first.

See Figure 1–2.

1.13 Acceptance Testing for the Mass Storage Upgrade

There are some major steps that you should take to verify that the system can 'see' all the devices connected to it, that is, there are no configuration or cabling problems, and that any new devices added to the system are functionally in good operating condition.

Note

The following is only a list of steps to take for acceptance testing; for more detailed information consult the *DECsystem 5900 Service*

Guide, EK-D590A-PS, and the *DECsystem 5900 Installation Guide*, EK-D590A-IN.

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1. Turn on the system and observe the Power-Up-Self-Test (POST). No errors should occur on the console. The Kbd and Pntr messages are not errors. This will test internal system components, such as CPU, caches, memory and TURBOchannel adapters only.

2. Use the cnfg utility to make sure that you can see all the devices on the system. Using the cnfg x command (where x = the TURBOchannel slot), make sure that the system can recognize all the devices on the SCSI busses and that there are no SCSI ID conflicts.

   If you cannot see all the devices, check the ID settings of the devices on that bus and make sure they are properly connected to the bus. Remember that *each* SCSI bus can have only *one* device with a 0, 1, 2, 3, 4, 5, or 6 ID connected.

3. Run the scsi/cntl (SCSI controller), scsi/sdiag (send diagnostic) and the scsi/target tests (test SCSI devices) on the SCSI controller(s) and newly added SCSI devices. The following are examples of the console commands to invoke these tests:

   t 3/scsi/cntl
   t 3/scsi/sdiag *scsi_id* **[d] [u] [s]**
   t 3/scsi/target *scsi_id* **[w]** */loops/*

Caution

The */w/* parameter on the scsi/target test may cause data loss; use it only on disk devices which have no data on them, or use a scratch tape on tape devices.

Note

scsi id = SCSI id # of device you wish to test.
[d] [u] = optional parameters for specific drive(s), refer to service guide for drive.
[s] = suppress error message display

[loops] = Specify the optional l parameter to have the test repeat up to 9 times. For example, **t 1/scsi/target 3 l 4** will run the scsi target test on device three on TURBOchannel slot one for four passes.

1.14 Modifying ULTRIX to Utilize the Added Devices

These steps will vary with the scope of the changes to the system configuration that have been made during the mass storage drawer upgrade. Depending on the site, you and/or the customer/system manager should consult ULTRIX documentation on rebuilding the kernal and file specification for more details on adding devices.

2

Drawer Configuration/Setting SCSI IDs

WARNING

Before installing or pulling out either the CPU or a mass storage drawer, the stabilizer bar located at the bottom front of the enclosure must be extended to balance the DECsystem 5900. See Section 1.7.

2.1 Mass Storage Drawer Configuration

Note

The information contained in this section is needed *only* if the factory configuration of the mass storage drawer must be altered. A synopsis of this information is on the label located on the mass storage drawer cover.

A mass storage drawer has the capability to split SCSI devices between two SCSI controllers. Devices in the mass storage drawer must be configured and connected before turning on the system.

All mass storage drawers in the DECsystem 5900 are ordered in a specific factory-installed configuration as specified by the customer/system manager (this includes mass storage upgrades ordered at a later date).

There are two cabling configuration choices available:

1. single bus configuration (Section 2.1.1.1)
2. split bus configuration (Section 2.1.1.2)

2.1.1 Altering the Factory-Set Configuration

The customer/system manager may wish to alter the configuration of a mass storage drawer; the options and tradeoffs are listed below. Configurations are depicted in Figure 2–1 and Figure 2–2 (version 1), and Figure 2–3 Figure 2–4 (version 2).

Table 2–1 Configuration Option Choices/Advantages

Configuration Option	Advantages
Single bus	Maximizes devices per SCSI controller.
Split bus	Improves processing speed and efficiency for increased I/O loads.

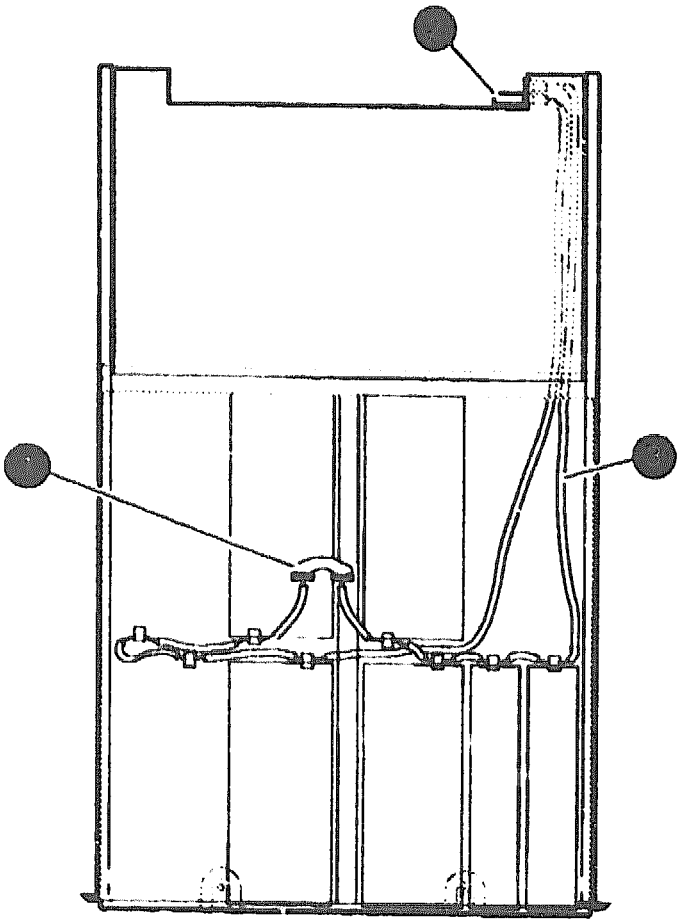
2.1.1.1 Single Bus Configuration

For a single bus configuration, you must install a jumper between the internal SCSI cables in the mass storage drawer. The jumper connects the two busses in a mass storage drawer; the resulting single bus configuration is terminated on the rear of the drawer on the connection next to the SCSI signal input. See Figure 2–1 and Figure 2–3.

2.1.1.2 Split Bus Configuration

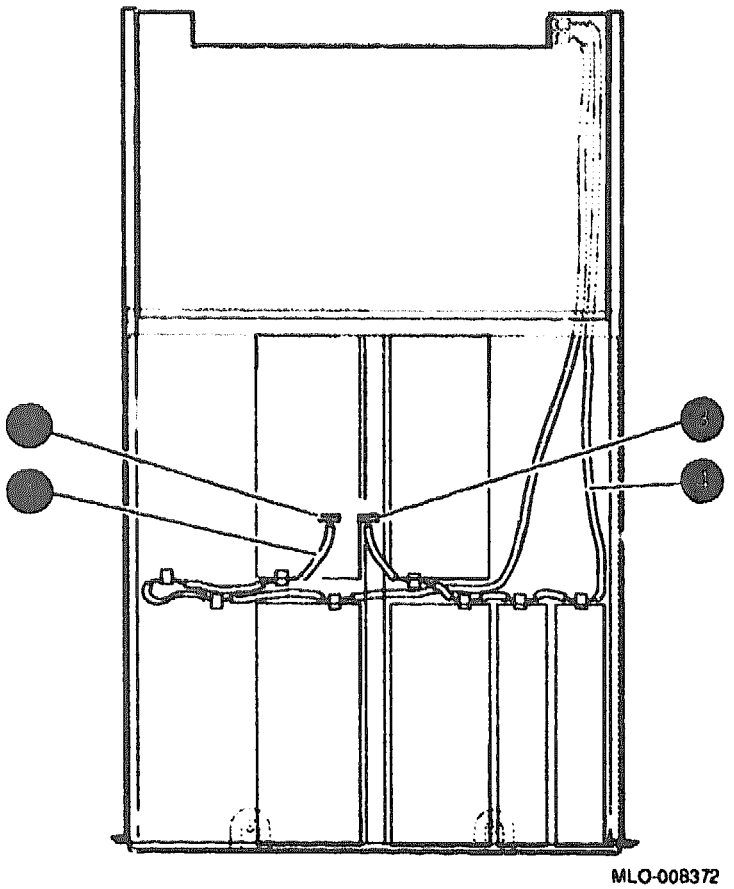
The split bus configuration uses both SCSI signal cables without a jumper. In this configuration both SCSI busses must be terminated at the end of each internal SCSI cable. See Figure 2–2 and Figure 2–4.

Figure 2–1 Version 1 Single Bus Configuration



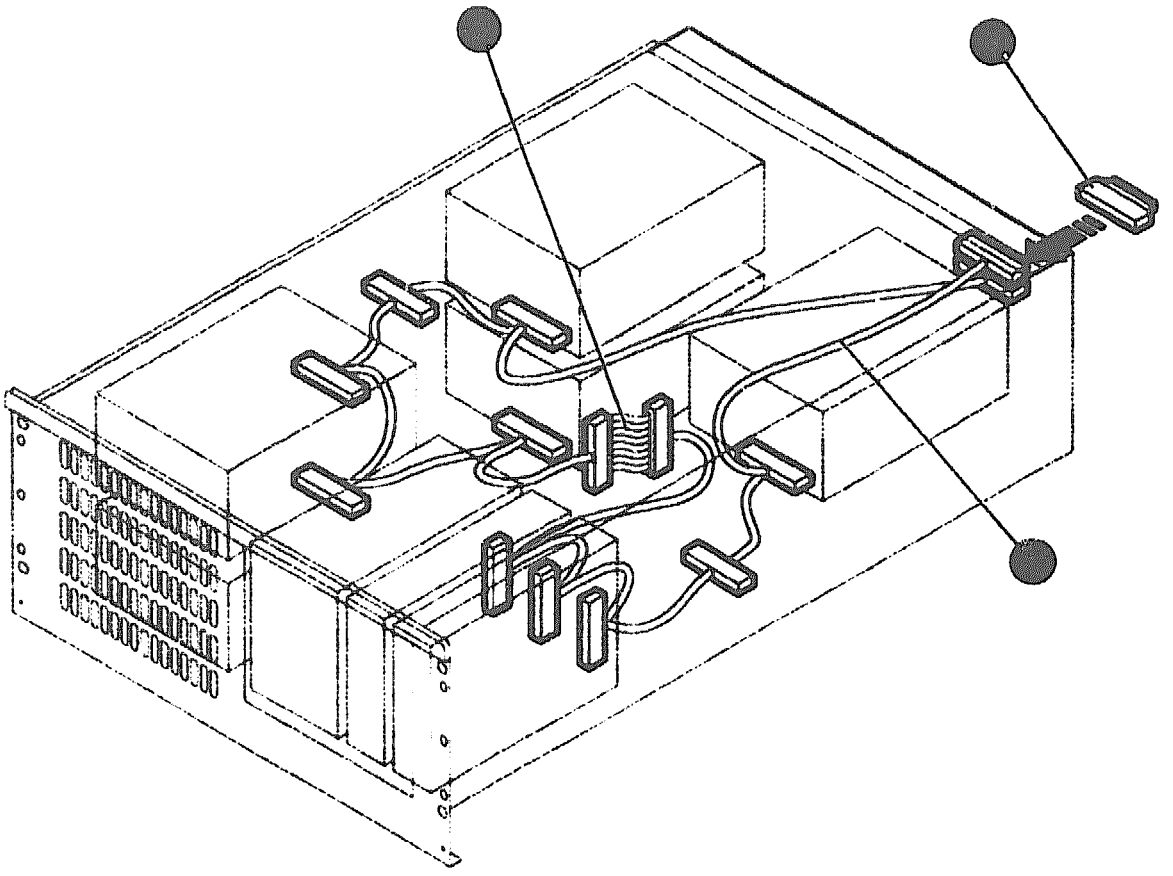
- Jumper
- Terminator
- Signal cable

Figure 2–2 Version 1 Split Bus Configuration



- Signal cable
- Terminator
- Terminator
- Signal cable

Figure 2–3 Version 2 Single Bus Configuration



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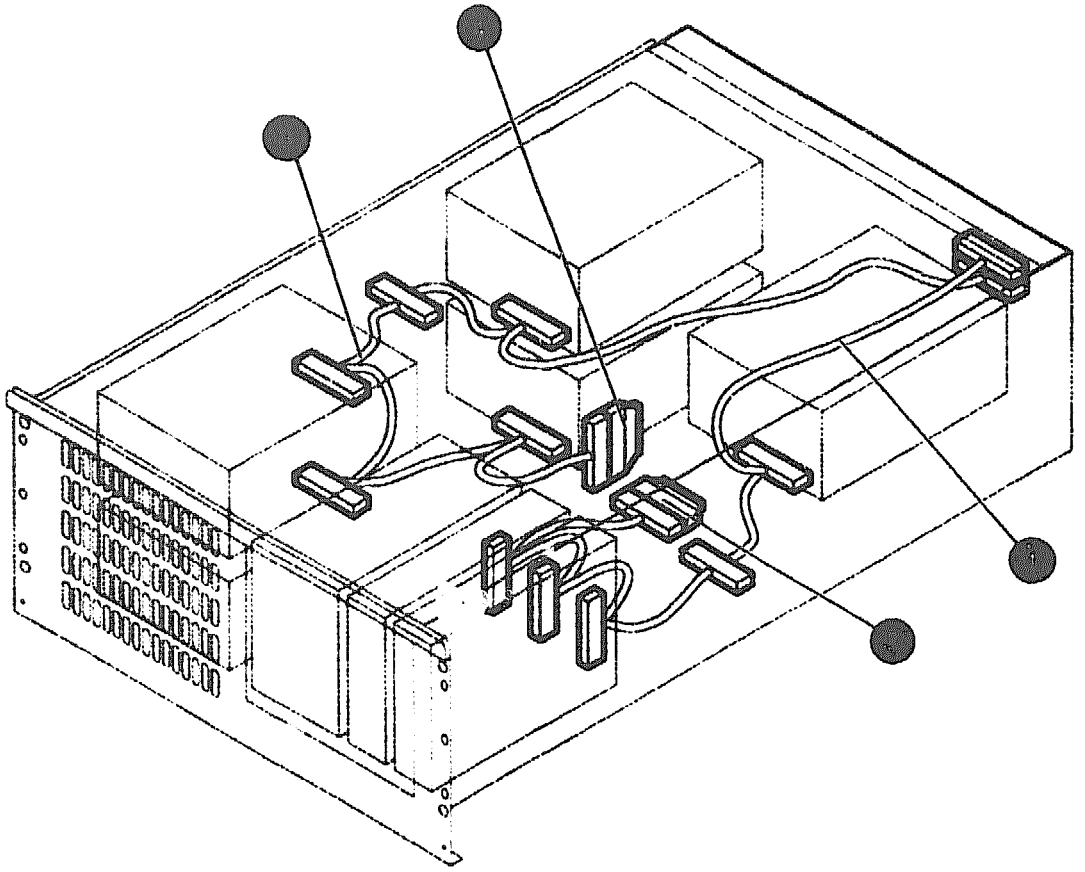
- Signal cable
- Jumper
- Terminator

Figure 2–4 Version 2 Split Bus Configuration



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- Signal cable
- Terminator
- Signal cable
- Terminator

2.2 SCSI IDs

Note

The information contained in this section is needed *only* if the factory set device SCSI IDs must be altered. A synopsis of this information is on the label located on the mass storage drawer cover.

2.2.1 Default SCSI Device IDs

SCSI default settings for the DECsystem 5900 are listed in Table 2–2. The settings listed give optimal performance on most systems.

Table 2–2 DECsystem 5900 SCSI Device ID Default Settings

Device	ID
CPU SCSI adapter	7
First removable device	5
Boot device or first device	0
Remaining devices, in order	1,2,3,4,6
Remaining removable devices	6,4,3,2,1

Note

No devices should ever use SCSI ID 7, as this is reserved for the CPU or PMAZ SCSI controller.

2.2.2 Setting SCSI IDs

Digital sets each SCSI device to a default SCSI ID setting before the equipment leaves the factory. These default settings should be changed *only* when there is a conflict with other SCSI IDs on the same SCSI bus.

When adding a SCSI device to the DECsystem 5900 (or reconfiguring a mass storage drawer) it may be necessary to change the ID of effected SCSI devices. The Digital Services engineer is responsible for changing the SCSI ID settings as part of the reconfiguration process.

Discuss the SCSI device ID options with the customer/system manager, and note the original configuration before altering the original device IDs.

When each SCSI device is added or reconfigured, a label should be placed on the device or bracket indicating the SCSI ID. This will help diagnose ID conflicts.

After changing SCSI IDs, appropriate tests should be run (see Section 1.13).

2.2.2.1 SCSI Jumpers and Switches

Varying means are employed (sets of switches, jumpers, incremental switch, programmed via front panel, and so on) to set the SCSI ID and parity, depending on the particular device. For the method employed, and the location of switches /jumpers on a particular device, see the appropriate device "User's Manual" and the label located on the underside of the mass storage drawer cover.

On devices with jumpers, the SCSI ID is set by inserting ("In") or removing ("Out") any of three jumpers in a specific combination. On devices with sets of switches, the SCSI ID is set by moving any or all of the switches to "On" or "Off". Incremental switches show a number which increments up or down when the switch is pushed.

Caution

To change SCSI ID switches, use a pen or small pointed object to move the jumper; do not use a pencil point. Graphite particles can damage the device.