DECsystem 5900

StorageServer 100 Installation Guide

Order Number: EK–D59SS–IN.A01

S1925

This document was prepared using VAX DOCUMENT, Version 2.1.

Contents

3 Assembling and Installing the Rackmount Slide Assembly

4 Installing the Rackmounted StorageServer 100

A Related Documents

Figures

Tables

Page vi is a blank page

Preface

Product Description

The StorageServer 100 provides an economical way to access a large amount of traditionally *offline* information such as archival or backup files, or records that were previously stored on paper or microfilm.

The StorageServer 100 contains multifunctional optical drives. The drives can operate in either rewritable mode or write-once mode, depending on the type of disk that is inserted into the drive. The StorageServer 100 software is designed to use the drives with rewritable disks only. The data on the disks can be written and erased repeatedly.

The StorageServer 100 is a small, compact autochanger that contains the following:

* An autochanger mechanism (moves disks in and out of storage slots within the cabinet)

* Two 5.25-inch optical disk drives

* A mail slot used to insert and remove disks

* Storage slots for 32 optical disks

* Total storage capacity of 20.8 Gbyte

* A Smail Computer Systems Interface (SCSI)

Document Description

This guide describes how to install the StorageServer 100 on the DECsystem 5900.

Any service or upgrades must be done by a Digital service representative, or a qualified self-maintenance customer.

Audience

This document is intended only for Digital service personnel and qualified self-maintenance customers.

Document Structure

This guide contains instructions to install the StorageServer 100. The book has four chapters and an appendix:

* Chapter 1 describes how to prepare the DECsystem 5900 for the installation of the StorageServer 100.

* Chapter 2 describes how to remove and reinstall mass storage drawers.

* Chapter 3 describes how to assemble and install the rackmounted slide assembly.

* Chapter 4 describes how to install the StorageServer 100 inside the DECsystem 5900 cabinet.

* Appendix A contains a list of related documents.

Conventions

The *StorageServer 100 Installation Guide* uses the following conventions:

Convention	Indicates
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 the named key.
Warning	Information to prevent personal injury.

1

Preparing the DECsystem 5900

This chapter contains procedures that must be completed before you install the StorageServer 100.

Both the rear and front doors of the DECsystem 5900 cabinet should be opened.

1.1 Balancing the System
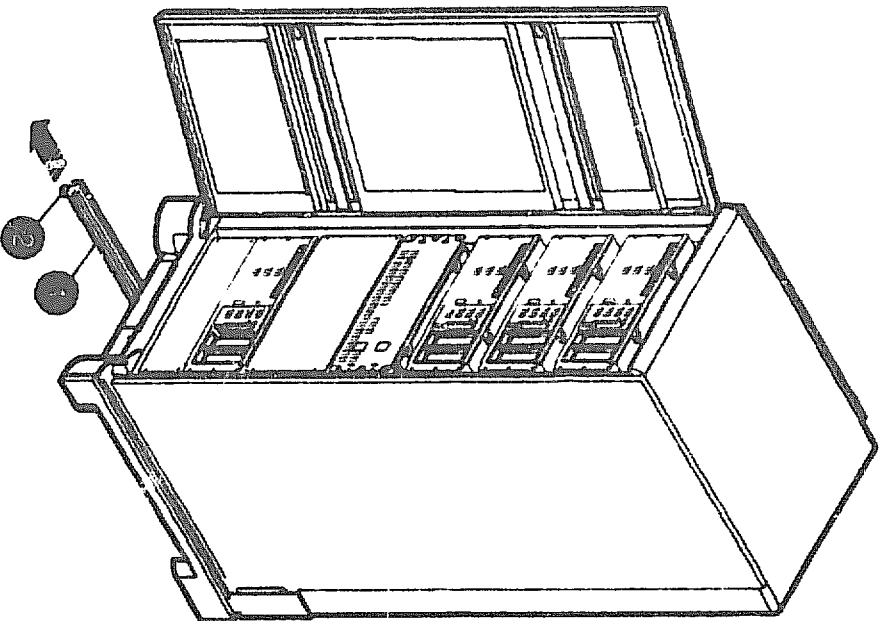
———————————————— **Caution** ————————————————

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.

Balance the system by extending the stabilizer bar located at the bottom front, as depicted in Figure 1–1.

1. If the leveler foot is tightened down to the floor, raise it by turning it counterclockwise.

2. Pull the stabilizer bar out until it stops.

3. Screw the leveler foot down firmly by turning it in a clockwise direction.

Figure 1–1 Stabilizing the Enclosure

MLO-007752

❶ Stabilizer bar

❷ Leveler foot

1.2 Turning Off the System

Before you attempt to do anything to alter the DECsystem 5900 system's configuration, turn off the system.

_____ Caution _____

ULTRIX must be shut down by the system manager before you turn off the DECsystem 5900.

To turn off the system:

1. Turn off the Enable Power On switch, which is the upper switch located on the front of the CPU drawer. For dual CPU configurations, turn off the Enable Power On switch on both CPUs.

2. Turn off the circuit breaker on the power controller located at the rear of the cabinet on the bottom.

2

Removing and Reinstalling Mass Storage Drawers

This chapter describes how to remove and reinstall mass storage drawers in the DECsystem 5900 cabinet.

When installing the StorageServer 100 under the following conditions, it can be necessary to move a mass storage drawer and then reinstall it:

- The DECsystem 5900 is configured with a single CPU, and slot 1 has a mass storage drawer in it.

- The DECsystem 5900 is configured with dual CPUs, and slot 5 or 6 has a mass storage drawer in it.

2.1 Locating a Slot for the StorageServer 100 in the DECsystem 5900 Cabinet

_____ **Note** _____

A step ladder or stool is required to service the upper drawers in a DECsystem 5900 (slots 5 and 6). Two people are needed to complete the removal or the installation of a mass storage drawer.

_____

The StorageServer 100 can be installed in two possible locations on the DECsystem 5900:

- When there is only one CPU, the StorageServer 100 occupies slots 1 and 2.

- When there is a second optional CPU in slot two, the StorageServer 100 occupies slots 5 and 6.

There are only six slots available in the DECsystem 5900. Figure 2–1 is typical of slot arrangements found in DECsystem 5900 systems.

Figure 2–1 DECsystem 5900 Slot Arrangement
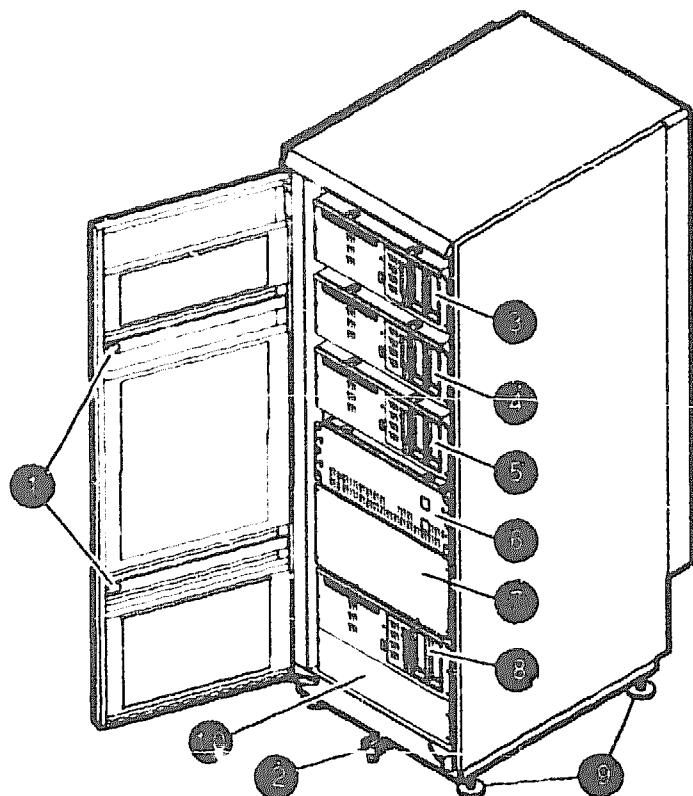
MLO-007649

① Slot 1—mass storage drawer

② Slot 2—empty slot reserved for second optional CPU

③ Slot 3—CPU drawer

④ Slot 4—mass storage drawer

⑤ Slot 5—mass storage drawer

⑥ Slot 6—mass storage drawer

⑦ Stabilizer bar

⑧ Screw-down leveling feet

⑨ Door latches

2.2 Locating Drawers on the DECsystem 5900 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 at the top and counting down.

Table 2–1 shows the placement of drawers on the cabinet rails.

Table 2–1 Drawer Locations on Cabinet Rails

Slot	Typical Application	Hole Numbers from the Top
6	Mass storage drawer	5-8
5	Mass storage drawer	20-23
4	Mass storage drawer	35-38
3	CPU drawer	50-53
2	CPU drawer	65-68
1	Mass storage drawer	80-83
0	Power controller	N/A
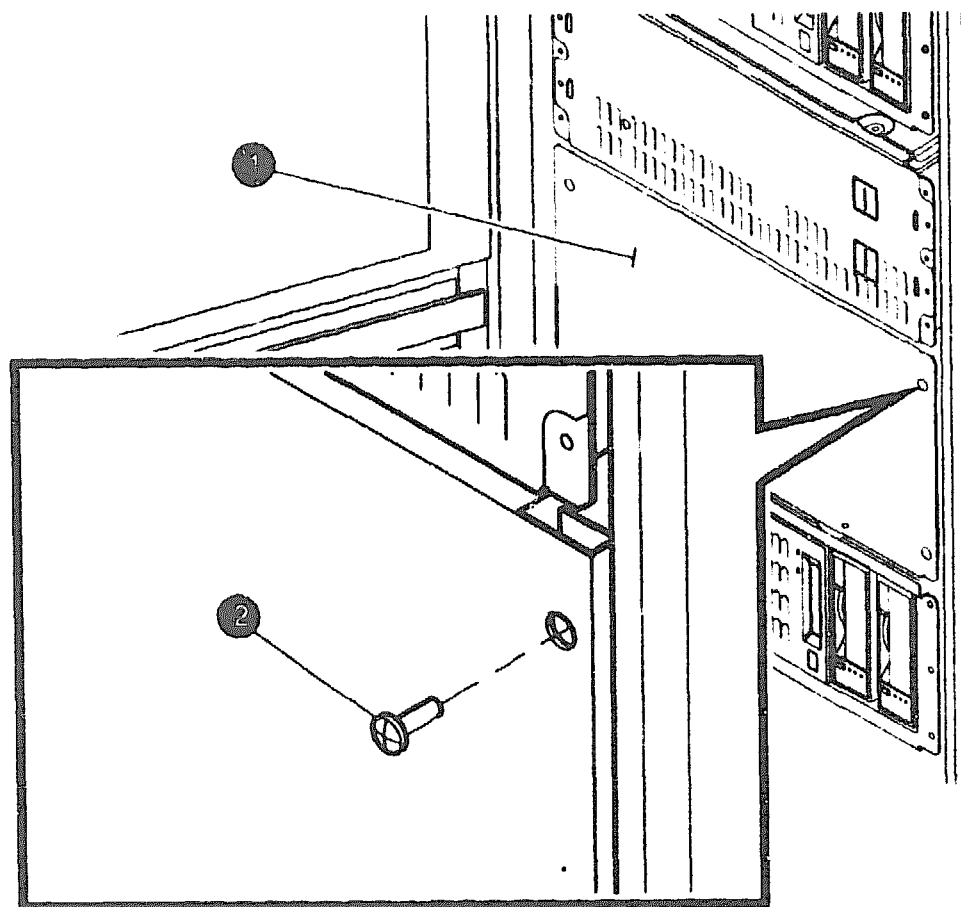
Determine the new location of the mass storage drawer, using Table 2–1. Locate the holes that you are going to use for securing the slides to the cabinet rails and mark them.

2.3 Removing and Installing Drawer Filler Panels

Filler panels cover the fronts of empty slots in the DECsystem 5900 cabinet. Slot 0, which contains the power controller (accessed through the rear of the H9A00 enclosure), has a filler panel as well. Filler panels are attached by means of four hex screws, two on each side (Figure 2–2).

To remove the filler panel, remove the screws and lift the panel off the cabinet (Figure 2–2).

Figure 2-2 Removing a Filler Panel

MLO-008350

① Filler panel

② Hex screw

_____ Note _____

Save any filler panel that you remove for future use.

Reverse the procedure to install the filler panel.

2.4 Removing Mass Storage Drawers

If you do not have to move any mass storage drawers (see Section 2.1) continue on to Chapter 3, Assembling and Installing the Rackmount Slide Assembly.

2.5 Removing Shipping Brackets

Attached to the rear panel of a mass storage drawer, there may still be a shipping bracket that was not removed during the installation.

2.5.1 Removing Shipping Brackets from Mass Storage Drawer 1

On the rear panel of a mass storage drawer, there may still be a lower rear plate attached to the panel that was not removed during the installation, along with two retainer brackets. The shipping bracket's components:

- Lower rear panel

- Two retainer brackets

If the shipping bracket was removed, continue on to Section 2.5.3. If the shipping bracket on the rear of the mass storage drawers has not been removed, complete the following steps:

1. Loosen the two slotted captive screws holding the lower rear plate of the shipping bracket (Figure 2–3 shows the location of the screws), and remove the plate. There is a bracket on each rail that also has to be removed (Figure 2–4).

2. Loosen and remove the two hex slotted bracket screws on each inside wall. Figure 2–4 shows the lower rear plate removed and the four bracket screws.

3. Remove the retainer brackets (see Figure 2–3 and Figure 2–4). (Be sure to save the retainer brackets and the lower rear plate along with the other shipping materials for possible relocation or shipment of the DECsystem 5900.)

4. Place the screws, plate, and brackets with the rest of the materials in the Accessory Kit retained on site.

Figure 2-3 Mass Storage Drawer Lower Rear Plate
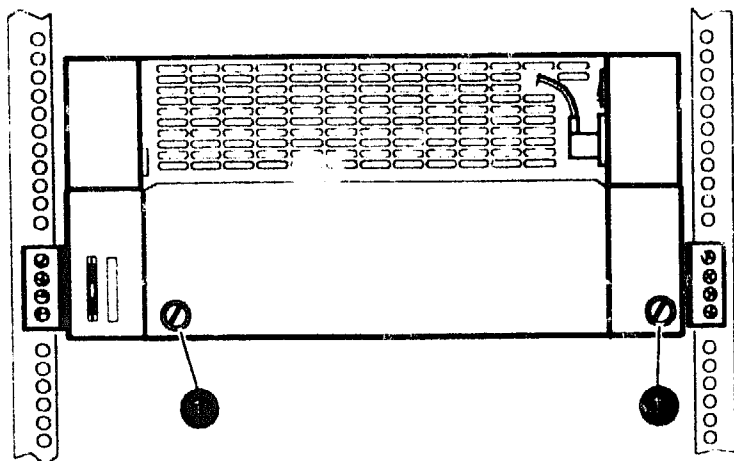
MLO-007747

❶ Slotted captive screws

Figure 2-4 Retainer Brackets
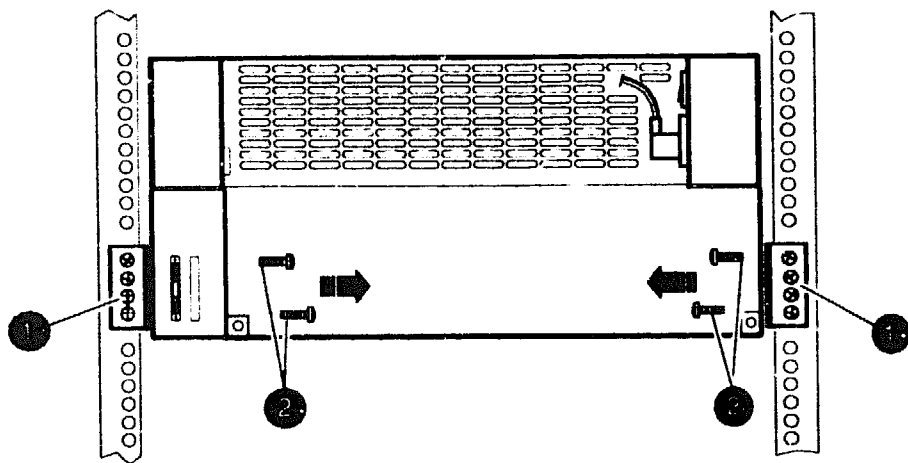
MLO-007688
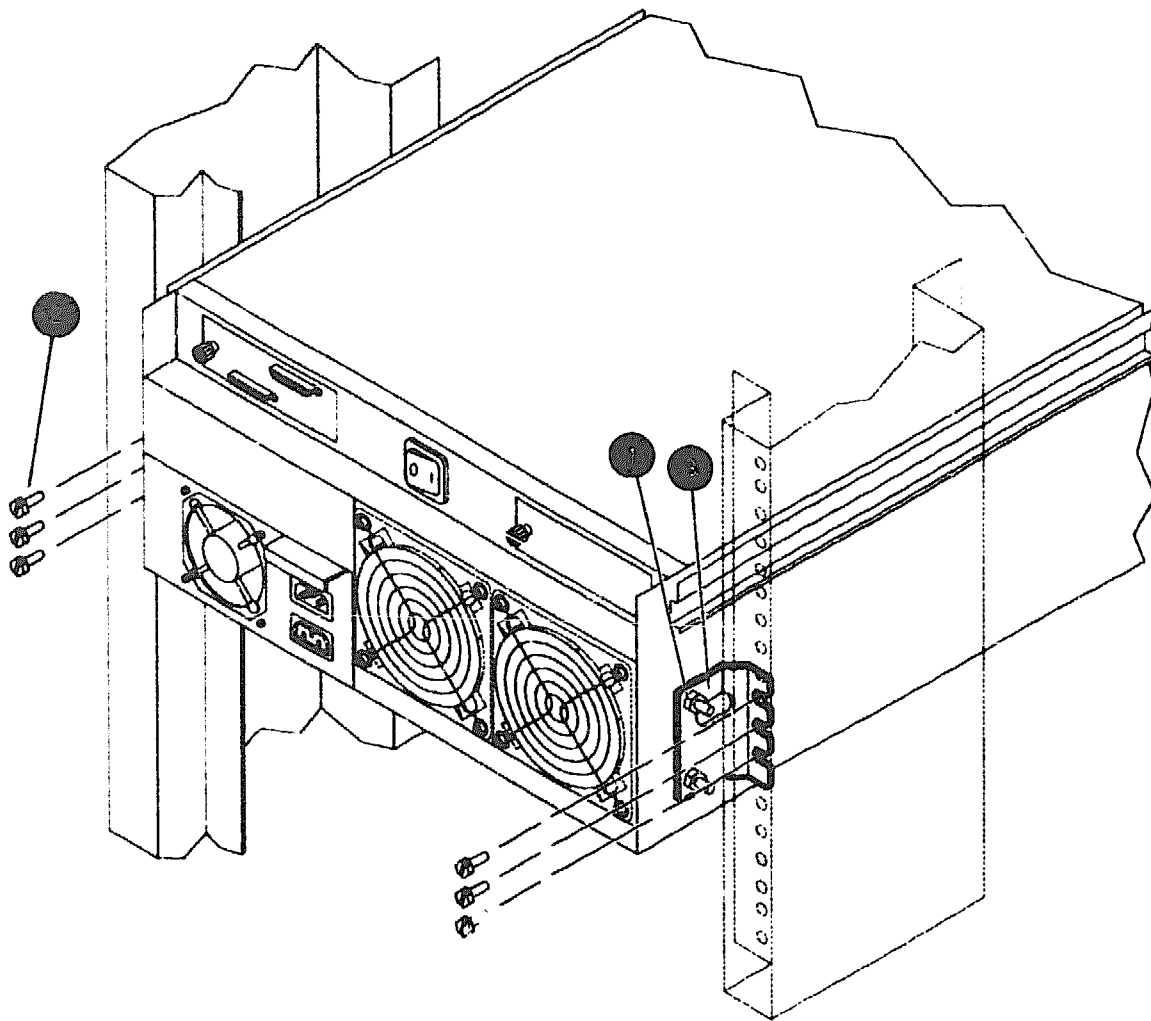
❶ Retainer racket

❷ Bracket hex screws

2.5.2 Removing Shipping Brackets from Mass Storage Drawer 2

The shipping bracket for the mass storage drawer 2 consists of two retainer brackets (see Figure 2–5). To remove the brackets complete the following procedure:

1. Remove the three screws that hold each bracket to the rear cabinet rails.

2. Remove the two hex nuts holding each bracket to the side of the drawer (see Figure 2–5).

3. Place the screws, nuts and the brackets with the rest of the materials in the Accessory Kit retained on site.

Figure 2–5 Shipping Bracket

MLO-008362

- Bracket hex nuts
- Bracket hex screws
- Bracket

2.5.3 Removing Devices from the Mass Storage Drawer

_____ Caution _____

A mass storage drawer weighs 110 pounds when fully populated, 63 pounds with no storage devices (includes brackets). All storage devices should be removed from a mass storage drawer *before* either lifting it into or out of the enclosure.

_____

For information that describes how to remove storage devices from a mass storage drawer, see the appropriate section in *DECsystem 5900 Enclosure Maintenance Manual*.

_____ Caution _____

Static electricity can damage integrated circuits. Use the wrist strap and antistatic mat found in the static-protective service kit (29–26246–00) when you work with the internal parts of a computer system.

_____

2.5.4 Identifying Mass Storage Drawers 1 and 2

There are two different mass storage drawer designs. You may encounter either or both versions in a particular DECsystem 5900. Use the information in Table 2–2 to identify the versions of the mass storage drawers.

Table 2–2 Identifying Mass Storage Drawers 1 and 2

Distinguishing Features	Mass Storage Drawer 1	Mass Storage Drawer 2
Power switch on drawer front	Yes	No
Top cover	Two sections with screws	One piece
Exposed fans on rear of drawer	No	Yes

For detailed information see *DECsystem 5900 Enclosure Maintenance Manual*.

2.5.5 Removing a Mass Storage Drawer 1

Use the following procedures to remove and reinstall a mass storage drawer 1:

—————————————— **Note** ——————————————

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

___

1. Remove all storage devices from the drawer; see the appropriate section in *DECsystem 5900 Enclosure Maintenance Manual*.

—————————————— **Note** ——————————————

Make detailed notes about the exact location from which you remove brackets and storage devices. Note the routing of any cords or cables that you disconnect. This is important for when you place the devices back in the mass storage drawer.

___

2. Clear a workspace for setting aside the unattached drawer on an antistatic mat.

3. Turn off the power to the mass storage drawer (using the switch on the front of the drawer).

4. Unplug all cables and busses from the back of the drawer, taking note of where each is attached for future reference.

5. Make sure that the stabilizer bar is pulled out (see Section 1.1).

6. Pull out the mass storage drawer as follows:

   a. Remove the six hex screws on the front of the drawer with either a screwdriver or 5/16-inch wrench (Figure 2–6 shows the location on a typical drawer).

—————————————— **Note** ——————————————

The screws are removed once, the first time the drawer is opened. You do not have to put the screws back.

___

Figure 2-6 Removing the Hex Screws from the Front Panel of the Drawer
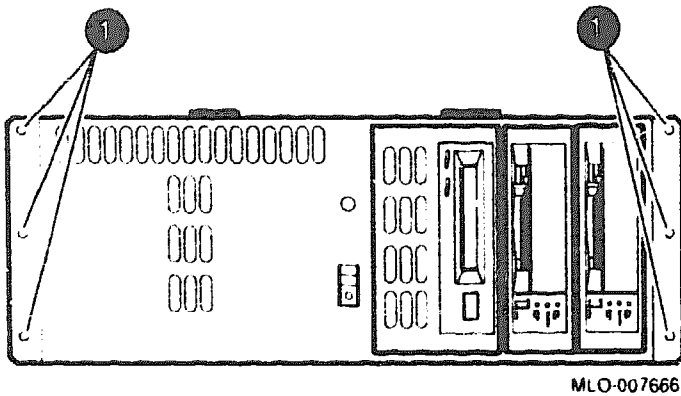
MLO-007666

❶ 5/16-inch hex screws

b. To slide the drawer out, grasp both sides of the drawer's front edge and slide the entire drawer forward from the enclosure until a "click" is heard. This means that the spring tab on either of the drawer's slides has sprung out slightly to engage and lock the drawer in position (see Figure 2–7).

c. Check to see that both sides are engaged; if not, pull the drawer out carefully until the remaining one engages.

d. Some mass storage drawers have a catch (highlighted in Figure 2–7) that must be pushed up to move the drawer out to the point where the spring tabs engage. Some drawers have spring tabs similar to that described in Section 2.6.5 and Figure 2–15.

Figure 2-7 Pulling a Mass Storage Drawer Out of the Cabinet
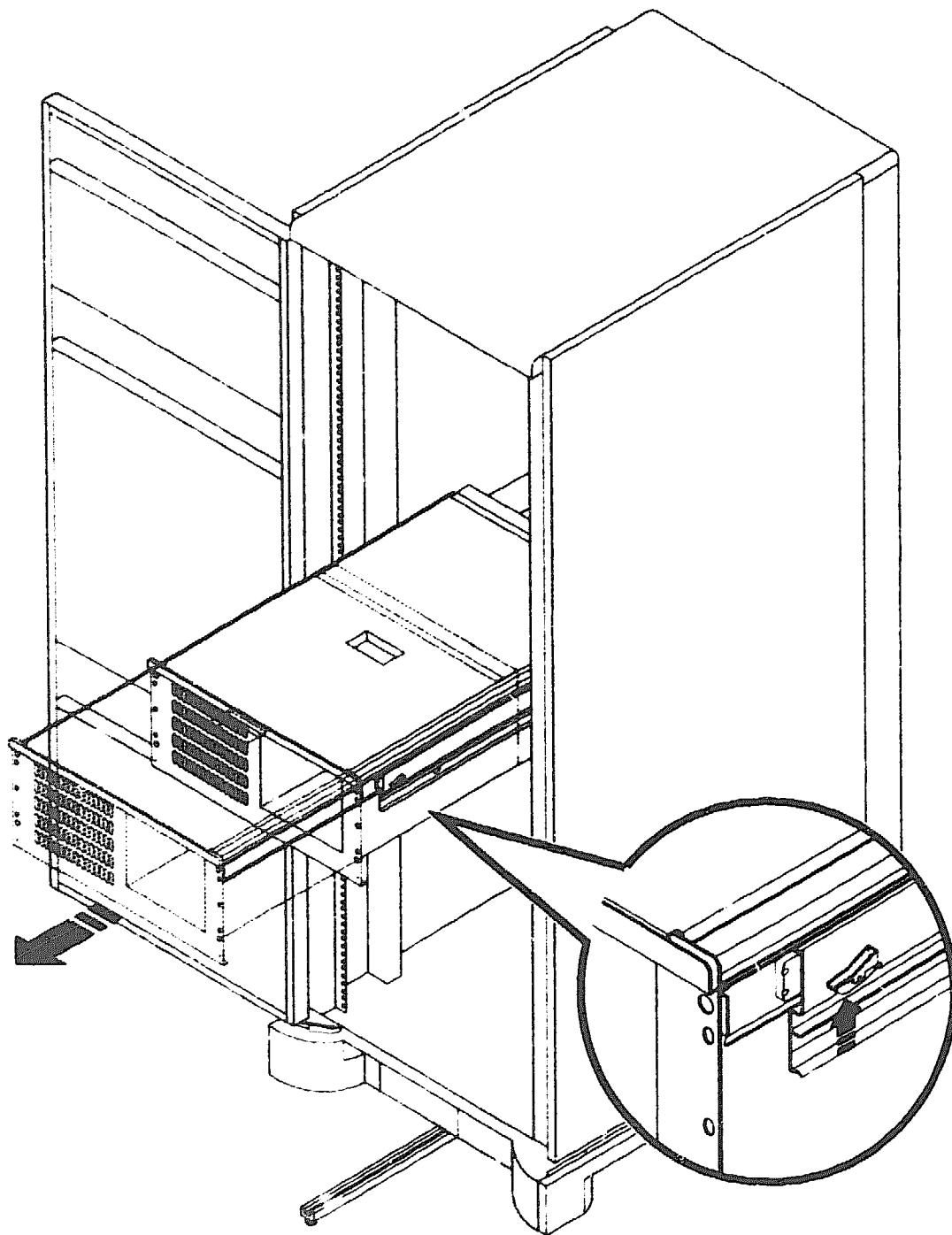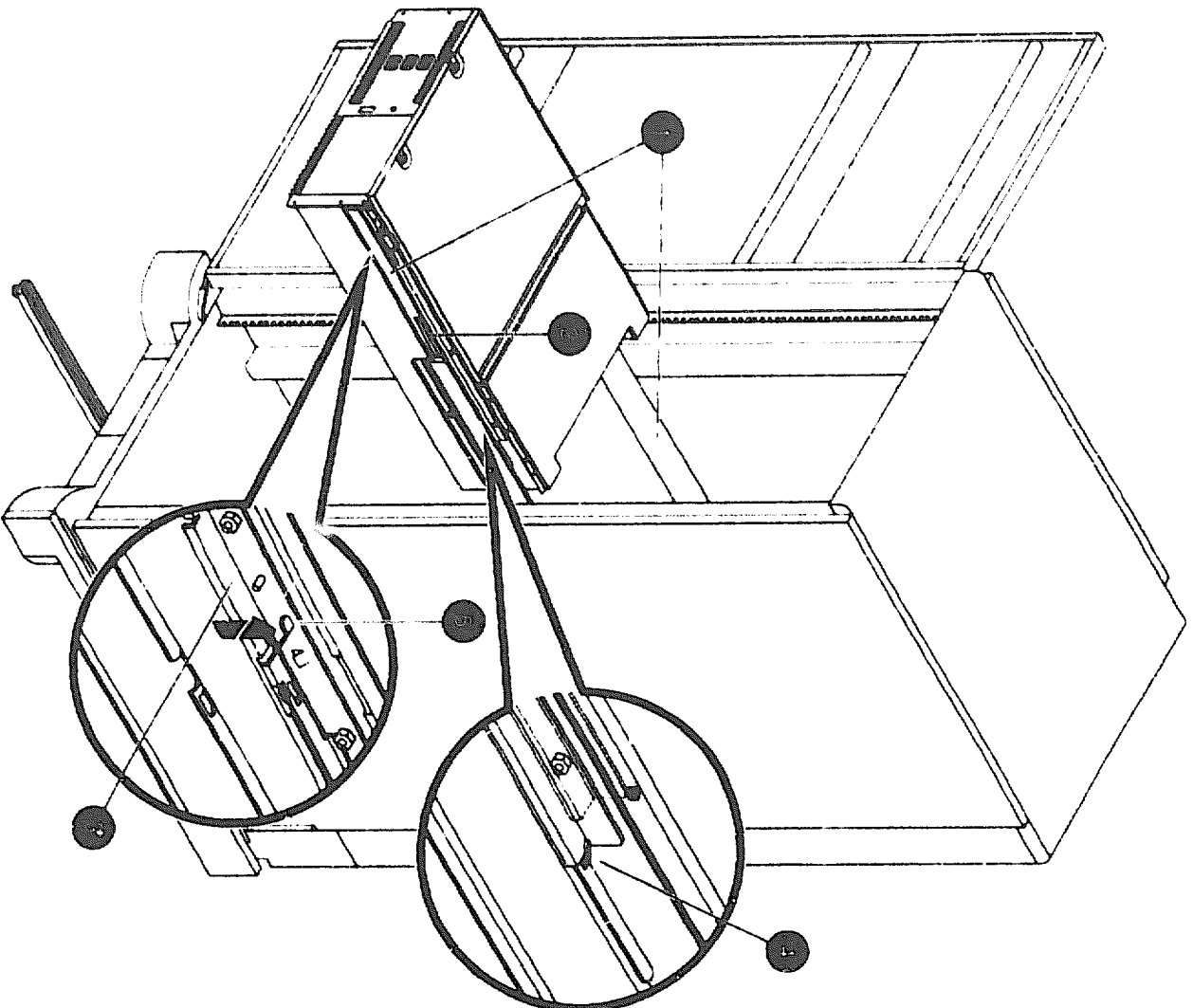
MLO-007772

7. Recruit another person to help lift the drawer off the slides.

8. With your partner on one side of the drawer and you on the other, push the ends of the drawer slides toward the rear, while pushing up on the drawer release tab (located on the side of the drawer on the top front corner (see Figure 2–8).

9. While holding the tabs up, lift up on the front of the drawer and slide the drawer forward out of the "notch" on the top of the slide, and lift it off the slide.

10. Place the drawer on the antistatic mat.

11. Push in the spring tabs on the outside of the drawer slides and move them back into the cabinet for safety.

12. Remove the four screws on the angle brackets that secure the slides to the cabinet rails. Put the slides, the screws, and the U-nuts aside.

Figure 2–8 Removing a Mass Storage Drawer 1

- ① Slides
- ② Spring tab
- ③ Drawer lip

MLO-00B4O4

2–14   Removing and Reinstalling Mass Storage Drawers

● Notch

● Drawer release tab

2.5.6 Removing a Mass Storage Drawer 2

Use the following procedures to remove the mass storage drawer 2:

_____ **Note** _____

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

_____

1. Remove all storage devices from the drawer; see the appropriate section in *DECsystem 5900 Enclosure Maintenance Manual*.

_____ **Note** _____

Make detailed notes about the exact location from which you remove brackets and storage devices. Note the routing of any cords or cables that you disconnect. This is important for when you place the devices back in the mass storage drawer.

_____

2. Clear a workspace for setting aside the unattached drawer on an antistatic mat.

3. Turn off the power to the mass storage drawer (using the switch on the front of the drawer).

4. Unplug all cables and busses from the back of the drawer, taking note of where each is attached for future reference.

5. Make sure that the stabilizer bar is pulled out (see Section 1.1).

6. Pull out the mass storage drawer as follows:

    a. Remove the ... screws on the front of the drawer with either a screwdriver or 5/16-inch wrench (Figure 2-9 shows the location on a typical drawer).

_____ __ _____ **Note** _____

The screws are removed once, the first time the drawer is opened. You do not have to put the screws back.

_____

Figure 2-9 Removing the Hex Screws from the Front Panel of the Drawer
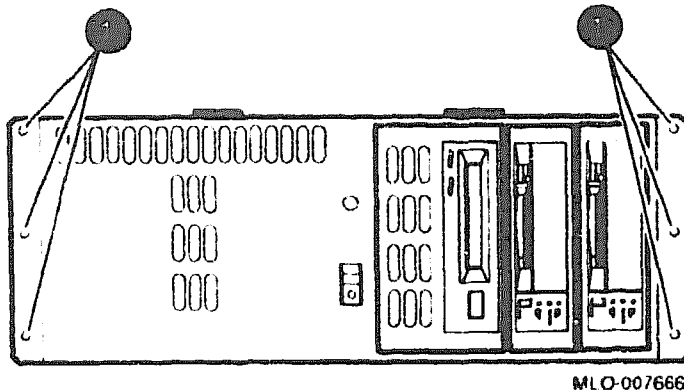
MLO-007666

❶ 5/16-inch hex screws

b. To slide the drawer out, grasp both sides of the drawer's front edge and slide the entire drawer forward from the enclosure until a "click" is heard. This means that the spring mechanism on either of the drawer's slides have sprung out slightly to engage and lock the drawer in position.

c. Check to see that both sides are engaged; if not, pull the drawer out carefully until the remaining one engages (see Figure 2-10).

d. Some mass storage drawers have a catch (highlighted in Figure 2-7) that must be pushed up to move the drawer out to the point where the spring tabs engage.

Figure 2-10 Pulling a Mass Storage Drawer Out of the Cabinet
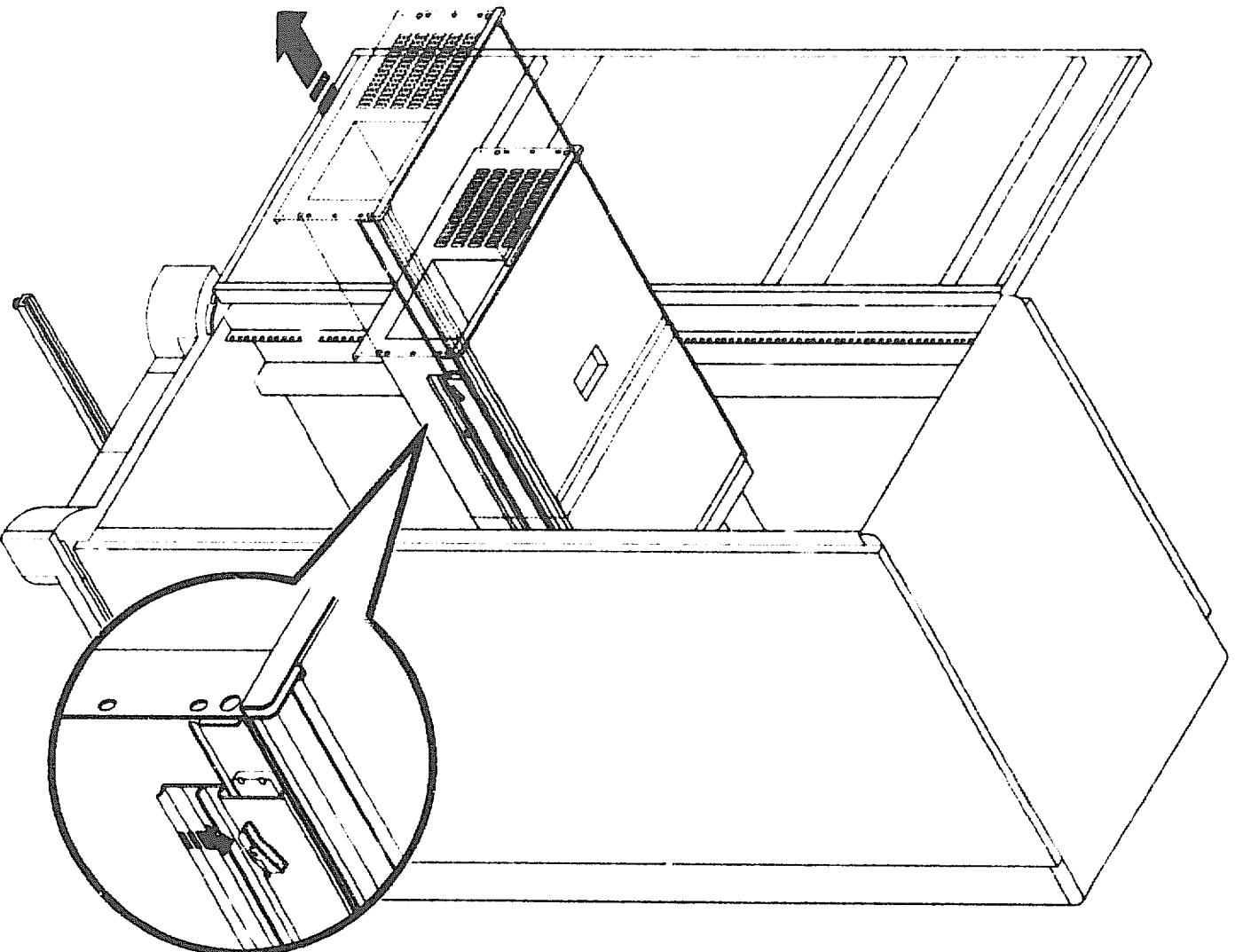
7. Reach under the front of the middle slide and trip the catch upward so that the slides may be fully extended.

MLO-0077/2

8. Press in on the slide tab and close the drawer slowly until the rear drawer slide hex screw is exposed (lined up with the hole in the slide).

9. Remove the rear drawer slide hex screw.

10. Trip the middle slide catch upward again, and while holding the catch up, extend the slides until they lock and the spring tabs are out (see Figure 2–11).

11. Remove the front drawer slide hex screw.

12. Recruit another person to help lift the drawer off the slides and set it aside in the space you cleared.

13. Remove the four screws and U-nuts on the angle brackets that secure the slides to the cabinet rails. Put the slides, the screws, and U-nuts aside.

Figure 2–11 Removing a Mass Storage Drawer 2
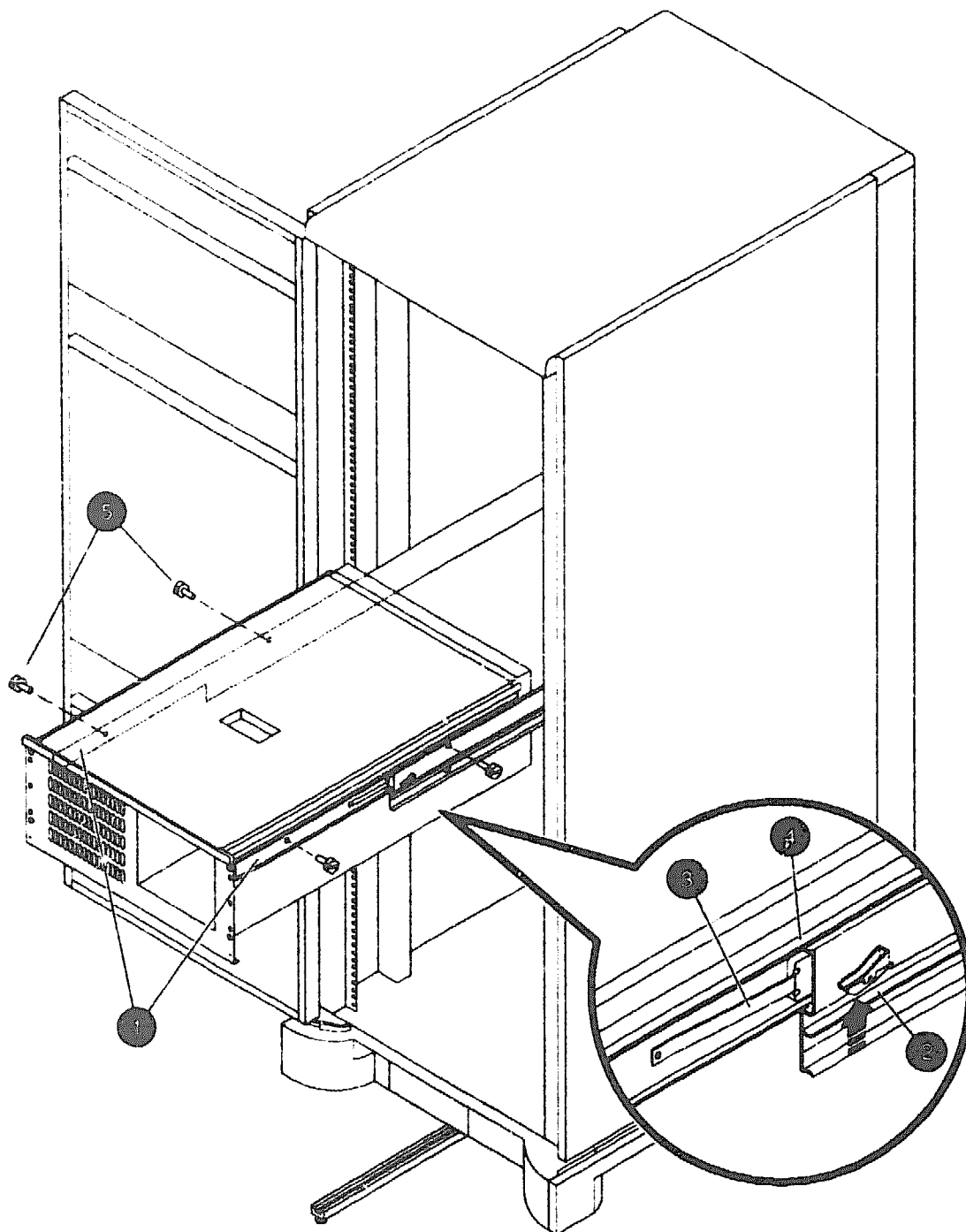
MLO-008414

🔘 Slides

- ● Slide catch
- ● Spring tab
- ● Drawer lip
- ● Hex screws

2.6 Reinstalling a Mass Storage Drawer and Slides

The following sections describe:

- • Reinstalling the slides in the cabinet
- • Reinstalling a mass storage drawer 1
- • Reinstalling a mass storage drawer 2

2.6.1 Reinstalling the Slides in the Cabinet

To install assembled slides, place the slides at the desired location (in Section 2.2 you marked the holes on the cabinet rails) 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 2–12.

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 2-12 Reinstalling Mass Storage Drawer Slides
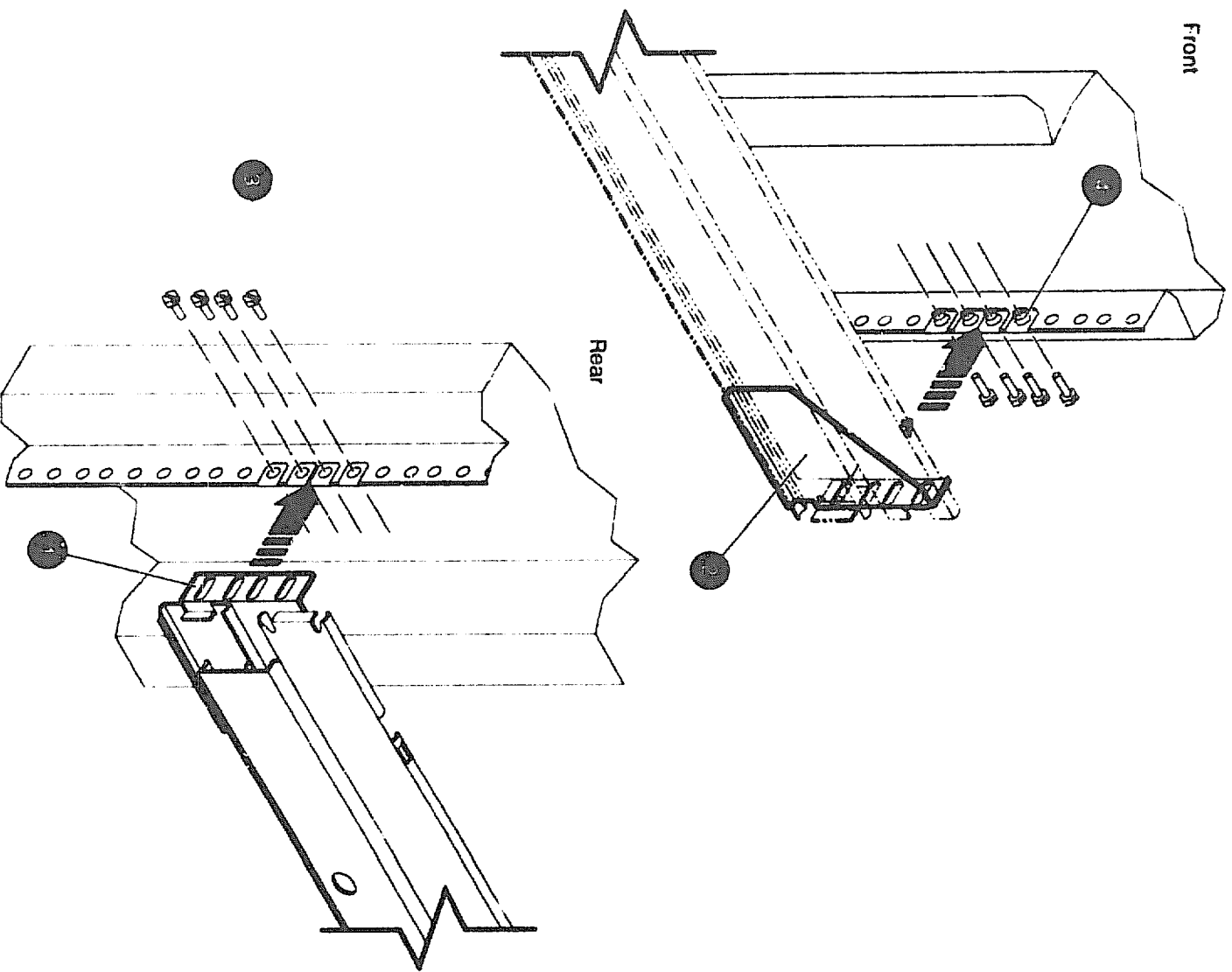
Front

Rear

MLO-008406

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

2.6.2 Reinstalling a Mass Storage Drawer 1

Use the following procedures to install the mass storage drawer 1:

_____ **Note** _____

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

_____

1. Make sure that the stabilizer bar is pulled out (see Section 1.1).

2. 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 (see Figure 2–13).

3. 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).

4. 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.

Figure 2-13 Reinstalling a Mass Storage Drawer 1
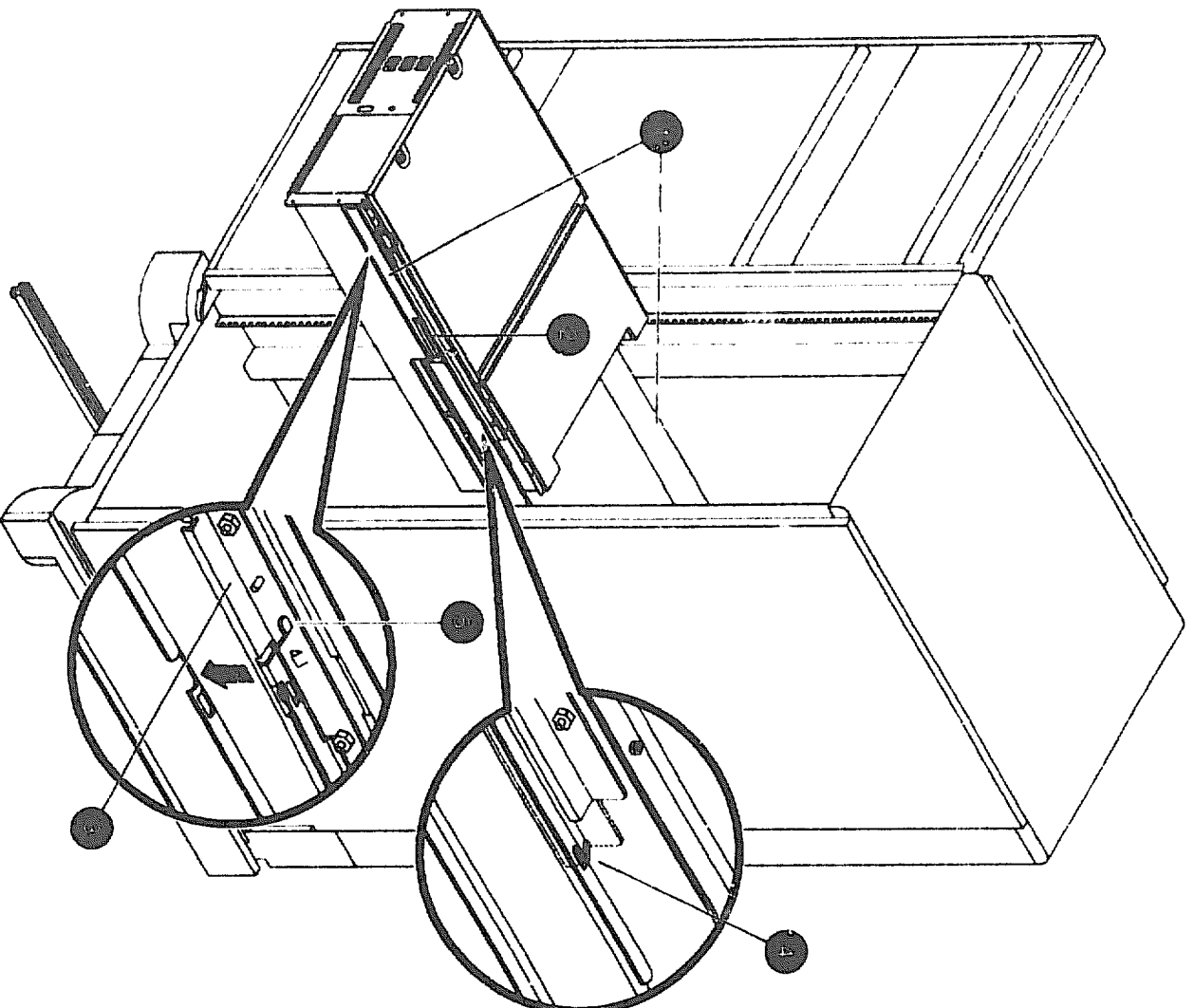
① Slides

② Spring tab

③ Drawer lip

MLO-007772

① Notch

② Drawer release tab

2.6.3 Reinstalling the Mass Storage Drawer 2

Use the following procedures to install the mass storage drawer 2:

_____ **Note** _____

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

_____

1. Make sure that the stabilizer bar is pulled out (see Section 1.1).

2. Pull out the drawer slides from the cabinet until they catch in the partially
    extended position (see Figure 2–14).

3. Reach under the front of the middle slide and trip the catch upward so that
    the slides may be fully extended.

4. 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.

5. 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 up the
    holes in the side of the drawer with those on the inner part of the slide.

6. Attach the foremost hole on the extended portion of the slide to the front
    drawer hole with a hex screw.

7. 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).

8. Attach the rear slide hole to the drawer with a hex screw.

Figure 2-14   Reinstalling a Mass Storage Drawer 2
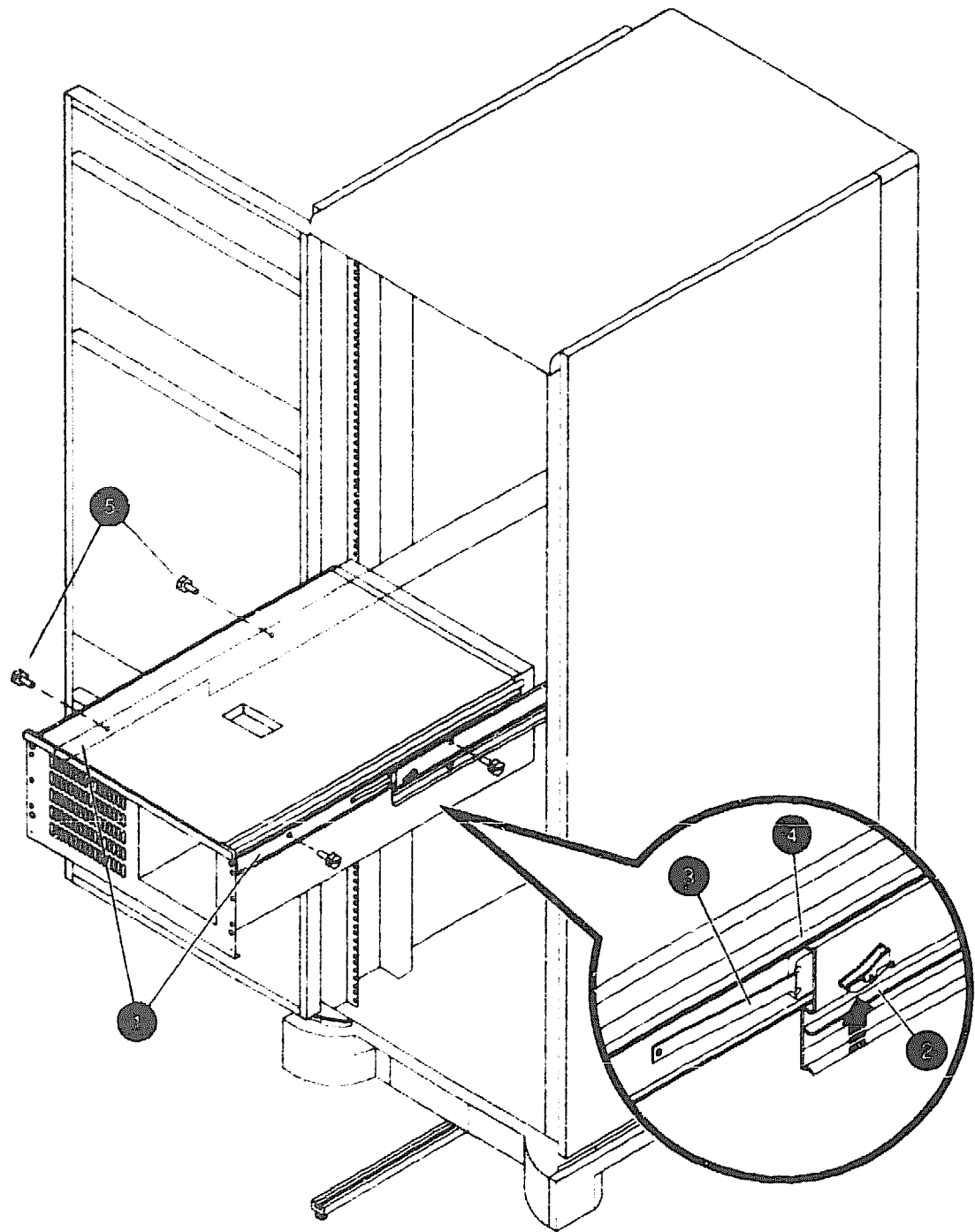
MLO-008416

⬤ Slides

- Slide catch
- Spring tab
- Drawer lip
- Hex screws

2.6.4 Replacing the Devices in the Drawer

1. Open the mass storage compartment cover.

2. Replace all brackets and devices in the exact location using the notes you made previously (see Section 2.5.3).

3. Reconnect and route the power and SCSI cables according to your notes.

4. Close the mass storage compartment cover.

2.6.5 Pushing In and Securing the Drawer

Push the drawer in and secure it as follows:

1. To push the drawer in, grasp both sides of the drawer's front edge and slide the entire drawer back into the enclosure until a "click" is heard. This means that the spring mechanism on either of the drawer's slides have sprung out slightly to engage and lock the drawer in position (see Figure 2–15).

2. Check to see that both sides are engaged; if not, push the drawer in carefully until the remaining one engages.

3. Put the six hex screws on the front of the drawer with either a screwdriver or 5/16-inch wrench (Figure 2–6 shows the location on a typical drawer).

Figure 2-15 Pushing In a Mass Storage Drawer
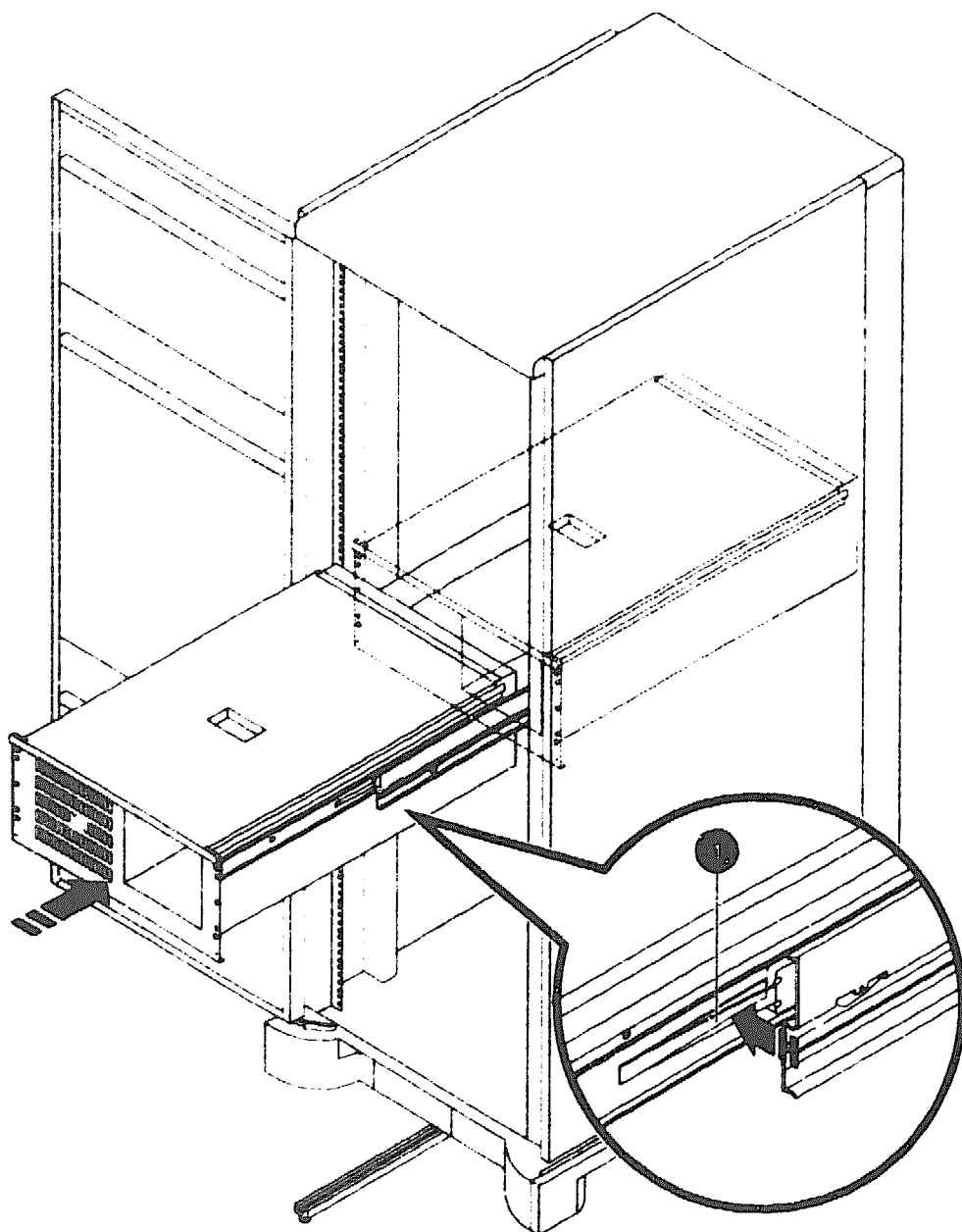
MLO-007773

● Spring tab

2.6.6 Connecting Power and SCSI Cables

After securing the drawer in the cabinet, connect the power and SCSI cables to the receptacles.

1. Plug the power cord into the back of the drawer.

2. Connect one end of the SCSI cable to the mass storage drawer.

3. Connect the other end of the SCSI cable to the same SCSI port it was connected to before the drawer was moved.

2.7 Turning On the System

To turn on the system you must complete the following procedures:

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

2. Turn on the mass storage drawer power switch(es):

   • Turn on the switch on the rear panel and the switch on the front panel of mass storage drawer 1.

   • Turn on the switch on the rear panel of mass storage drawer 2.

3. Turn on the CPU drawer switches:

   • Enable Power On switch (system), top switch

   • CPU drawer power switch, bottom switch

   Make sure both switches are turned on. Turn on the Enable Power On switch first.

2.8 Acceptance Testing for the Mass Storage Drawer

There are some steps that you should take to verify that the system can *see* all the devices connected to it; for instance, that there are no configuration or cabling problems, and that all devices in 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*, and the *DECsystem 5900 Installation Guide*.

_____

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. The POST will test internal system components, such as CPU, caches, memory and TURBOchannel adapters only.

2. Use the config 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 on newly installed disk devices which have no data on them, or use a scratch tape on tape devices.

   _____

Where:

scsi id	is the SCSI id # of the device you wish to test
[d] [u]	are the optional parameters for specific drive(s); refer to service guide for drive
[s]	is suppress error message display.
[loops]	specifies 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

3

Assembling and Installing the Rackmount Slide Assembly

_____ **Note** _____

Two stable step ladders or stools are required to service the upper drawers in a DECsystem 5900 (slots 5 and 6). Four people are needed to complete the installation of the StorageServer 100.

_____

This chapter describes how to assemble and install the rackmcunt slide assembly that supports the StorageServer 100 in the DECsystem 5900 cabinet.

3.1 Factory Installation of the Rackmount Slide Assembly

There are two configurations that have a factory installed rackmount slide assembly:

- When the DECystem 5900 is factory configured for one CPU (slot 3), the StorageServer 100, and possibly three mass storage drawers, the rackmount slide assembly is factory installed in slot 1.

  Install the StorageServer 100 in slots 1 and 2.

- When the DECystem 5900 is factory configured for dual CPUs (slots 2 and 3), the StorageServer 100, and possibly two mass storage drawers, the rackmount slide assembly is factory installed in slot 5.

  Install the StorageServer 100 in slots 5 and 6.

If the rackmount slide assembly is factory installed, continue on to Chapter 4, Installing the Rackmounted StorageServer 100.

3.2 Rackmount Assembly Kit and Required Tools

The Rackmount Assembly Kit is contained in a small box that is shipped along with the box containing the StorageServer 100.

The Rackmount Assembly Kit (7030279–0–DBP) consists of the following:

- Two slide assemblies

    a. Right slide assembly (70–30278–01) factory assembled with guide and bracket slide mounts

    b. Left slide assembly (70–20277–01) factory assembled with guide and bracket slide mounts

- Front bracket support (74–45538–01)

- Dress mid panel (74–5540–01)

- Two cross brackets (74–45534–01)

- One machine screw (90–06043–01 A)

- One hex self-locking nylon ins nut (90–07773–00)

- Eight kep nuts (90–6565–00 C)

- One flat nylon washer (90–06713–00 A)

- Six ring retainers (12–33963–03 A)

- One binder rivet (90–10413–01 B) (plastic)

- 14 U-nuts (90–07786–00 H)

- 14 hex screws (90–00061–47 A)

You will need the following tools:

- 5/16-inch wrench

- 3/8-inch open wrench

- T-15 TORX

- Flat head screwdriver

- Phillips screwdriver

3.3 Assembling the Slides

Complete the following steps to assemble the slide assembly:

1. Place a bracket slide mount on the front of the outside slide module of a slide (right) (see Figure 3–1).

    a. Align the first stud on the outer slide module and the hole at the front of the bracket.

    b. Align the second stud of the outer slide module with the second slot of the bracket.

2. Use two kep nuts and two washers to install the bracket on the slide as shown in Figure 3–1.

3. Place a bracket slide mount at the rear of the outside slide module (see Figure 3–1).

    a. Align the two studs on the outside slide module with the two slots on the bracket.

    b. The bracket should move freely at this point. Do not put any nuts on the studs.

4. Place the guide at the rear of the outside slide module, just to the left of the rear bracket slide mount (see Figure 3–1). It covers most of the rear bracket slide mount.

    a. Align the two lower holes on the guide with the two studs on the outside slide module (you have already aligned th. studs with the slots on the bracket slide mount).

    b. Use two kep nuts and two washers to secure the guide to the studs on the outside slide module (see Figure 3–1).

Figure 3–1 shows the components of a slide and a completed right slide.

Figure 3-1 Components of the Slide Assembly/Complete Slide Assembly
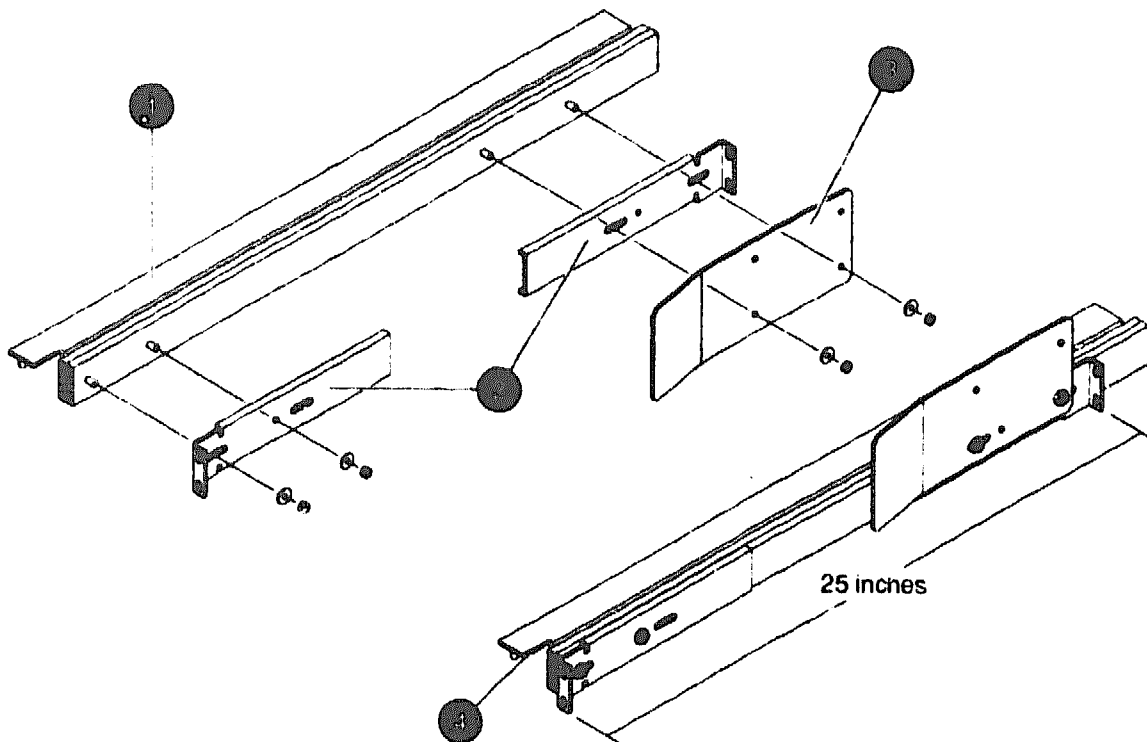
MLO-008401

- ❶ Slide assembly
- ❷ Bracket slide mount
- ❸ Guide
- ❹ Completed slide

5. Repeat steps 1 through 3 to assemble the second (left) slide.

The two slides (right and left) are assembled.

3.4 Installing the Slides

Complete the following steps to install a slide:

1. *Top/Front* with an arrow pointing to the front of the slide is printed on the top of each inside slide module. Position the slide so that the outside module is close to the wall of the cabinet when installing the rackmount slide assembly.

2. Align the two holes on the flanges at each end of the slide with the appropriate holes on the cabinet rails.

_____ **Note** _____

- Use hole 12 and hole 16 up from the bottom of the rails if slots 1 and 2 are to be used.

- Use hole 25 and hole 29 from the top of the rails if slots 5 and 6 are to be used.

_____

3. Attach two U-nuts to the holes on the rails at each end.

4. Position the slide so that the cabinet rails are between the two flanges of the slide. Make sure that the flanges are firmly against the rails.

5. Use two hex screws at each end of the slide to secure the slide to the cabinet rails.

6. Complete these steps for each slide.

_____ **Note** _____

There are only 25 inches between the flange on the front bracket slide mount and the flange on the rear bracket slide mount. When the bracket slide mounts are secured to the rear rail of the cabinet, you may have to adjust the bracket so that the distance between the flanges is correct. To make the adjustment, loosen the nuts on the guide and then you can move the rear bracket slide mount as needed. Tighten the nuts after you have completed the adjustment.

_____

3.5 Completing the Installation of the Rackmount Slide Assembly

_____ **Note** _____
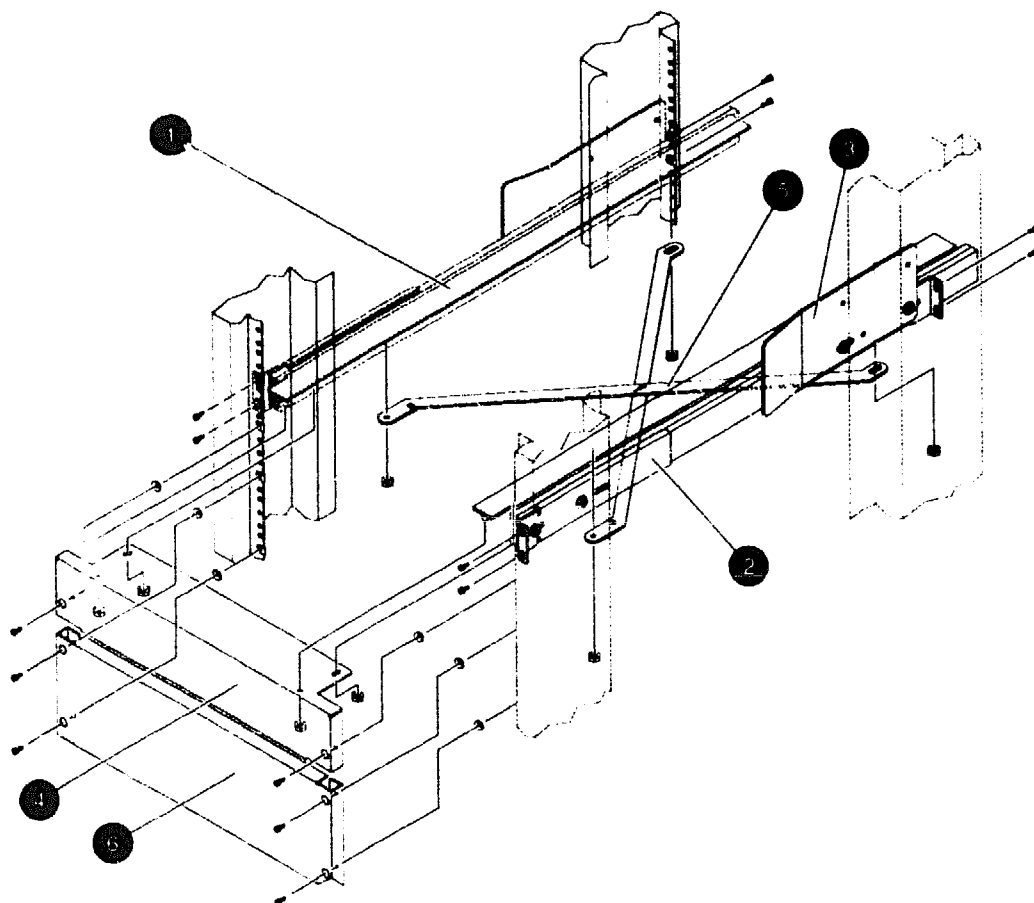
At least four people are required to complete the installation of the
rackmount slide assembly.

_____

Complete the following steps to install the rackmount slide assembly:

1. Assemble the cross bracket:

   a. Position the slats that make up the cross bracket, so that the three holes
      in the middle of both slats are aligned.

   b. Put the binder rivet in the large hole that will be closest to the rear of the
      cabinet when the cross bracket is installed.

      The holes are all aligned and the cross bracket is assembled.

2. Install the cross bracket:

   a. Position the bracket so that the slotted end is toward the rear.

   b. Align the holes at the ends of the cross bracket with the third and fourth
      studs (counting from the front to the rear of the inside slide module) on
      the bottom of each of the two inside slide modules. Use four kep nuts to
      secure the bracket to the inside slide modules (see Figure 3–2).

3. Install the front bracket support.

   a. Align the two holes on the front bracket support with studs 1 and 2
      (counting from the front to the rear of the slide) on the bottom of the of
      the slide assemblies (See Figure 3–2).

      The holes on the support and the studs on the slides are arranged so that
      there is only one way the support fits on the slides.

   b. Secure the support to the slide assemblies with four kep nuts.

Figure 3–2 shows how the rackmount slide assembly is assembled. Note where
the various components of the assembly are located.

Figure 3-2 Assembling and Installing the Rackmount Slide Assembly

MLO 0084C0

❶ Slide assembly

❷ Bracket slide mount

❸ Guide

❹ Front bracket support

❺ Cross bracket

❻ Dress mid panel

3.6 Installing the Dress Mid Panel

If you are installing the StorageServer 100 in slots 5 and 6 continue on to Chapter 4, Installing the Rackmounted StorageServer 100.

Before you install the StorageServer 100 in slots 1 and 2, you must remove the filler panel (see Section 2.3) that is located immediately below slot 1 (it covers slot 0). Replace it with the dress mid panel as follows (see Figure 3–2):

1. Align the two holes on each side of the dress mid panel with hole 8 and hole 2 on the cabinet rails.

2. Use four hex screws to secure the panel to the cabinet rails.

With the rackmount slide assembly installed, you are now ready to install the StorageServer 100 in the drawer.

4

Installing the Rackmounted StorageServer 100

————————————— **Note** —————————————

A step ladder or stool is required to service the upper drawers in a
DECsystem 5900 (slots 5 and 6).

————————————————————————————————

4.1 Preparing to Install the StorageServer 100

This section describes the steps that must be completed before the StorageServer
100 (RW100–DB) can be physically installed inside the cabinet of the DECsystem
5900.

————————————— **Note** —————————————

The installation of the StorageServer 100 requires four people.

————————————————————————————————

Complete the following steps to prepare the StorageServer 100 for installation:

1. The StorageServer 100 is shipped in a cardboard box. Move the box to its
   final destination before uncrating the StorageServer 100.

2. Use wire cutters or a knife to cut the shipping straps on the box.

3. Open the box. Remove the large foam blocks.

4. Remove the StorageServer 100 and the plastic bag that contains it from the
   box.

5. Remove the StorageServer 100 from the plastic bag and place the
   StorageServer 100 on its right side.

6. Locate the shipping bracket on the bottom of the device.

7. Use a T-15 TORX to remove the bracket screw.

8. Grasp the bracket at both ends and pull it straight out.

-------------------------- Note --------------------------

Save the bracket and screw in case you have to move or replace the StorageServer 100. Also save the plastic bag, the foam blocks and the box.

_____

9. Locate the machine screw, washer, and nut that you use to secure the StorageServer 100 to the cross bracket.

4.1.1 Removing the Access Latch

This section describes how to remove the access latch located on the top of the StorageServer 100. When the latch is removed you can see the hole on the bottom of the StorageServer 100 that must be aligned with the hole in the center of the cross bracket (see Figure 4–1).

1. Set the StorageServer 100 upright so that you can see the access latch on the top of the device.

2. Use a T-15 TORX to remove the two screws that secure the latch to the top of the StorageServer 100 and remove the access latch. Put the latch aside.

-------------------------- Note --------------------------

Look straight down into the StorageServer 100 and you can see the hole through which you put the screw that secures the device to the cross bracket.

_____

Figure 4–1 Installing the StorageServer 100 Inside the Cabinet
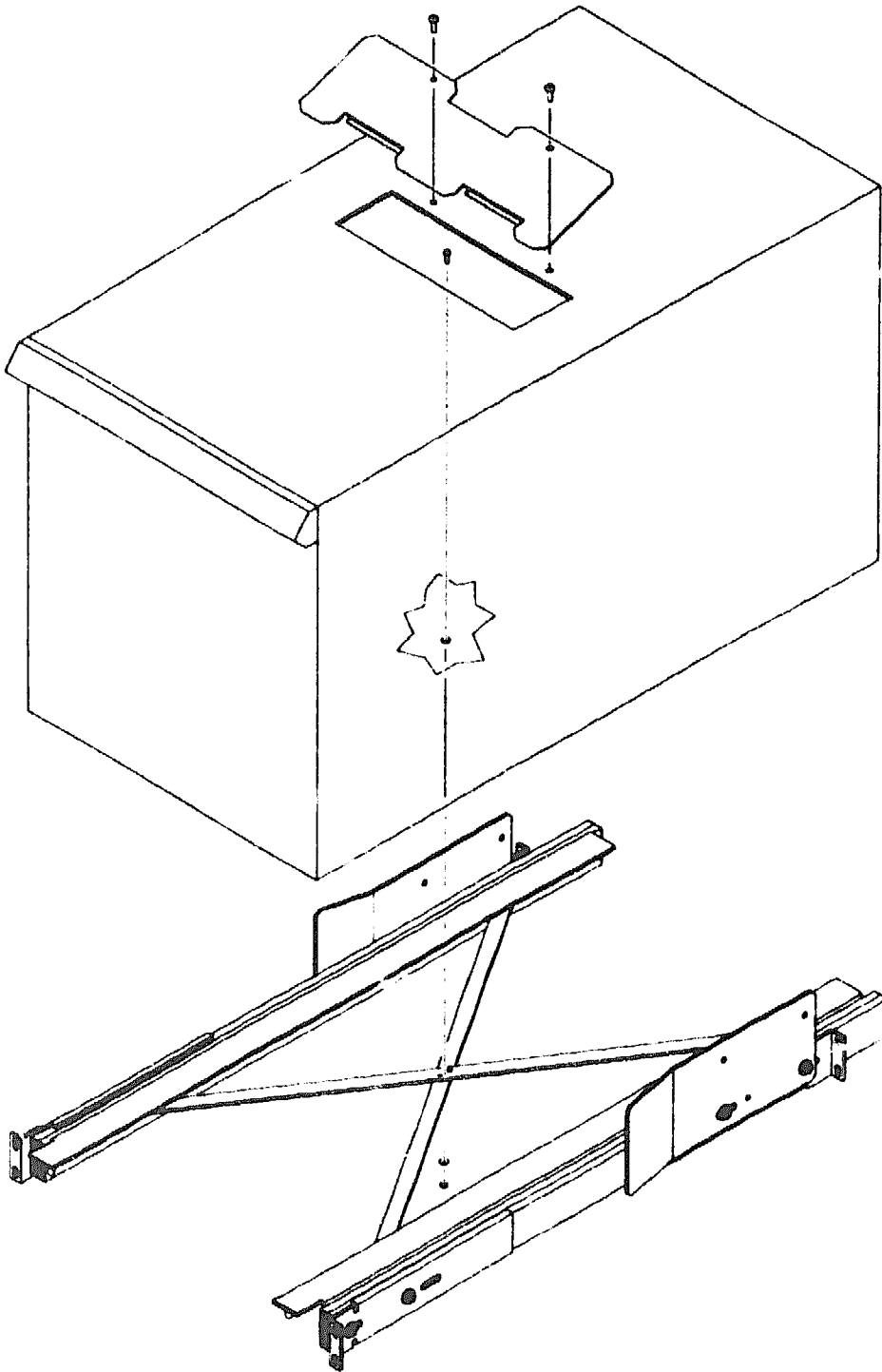
MLO 008398

4.2 Installing the StorageServer 100 in the Cabinet

Complete the following steps to install the StorageServer 100 in the appropriate slots:

_____ **Caution** _____

The stabilizer bar must be properly extended.

_____

1. Pull the slides approximately 12 inches out of the slot in which you are installing the StorageServer 100.

2. Place the StorageServer 100 on the slides so that the hole on the bottom of the server is aligned with the hole in the center of the cross bracket (see Figure 4–1).

   This may require that you adjust the position of the StorageServer 100 on the slides until the two holes are aligned.

3. Insert the screw through the holes by reaching into the StorageServer 100.

4. Place the washer and nut on the bottom of the screw. Use a small wrench to hold the nut, tighten the screw until approximately 1/8 inch of the thread protrudes out from the nut (see Figure 4–1).

5. Replace the access latch.

6. Push the device all the way into the cabinet.

4.3 Attach SCSI Cable and Power Cord to the StorageServer 100

The last part of the installation procedure is to attach the SCSI cable and the power cord.

Figure 4–2 highlights the three SCSI address IDs (3, 4, and 5) that the StorageServer 100 uses.

Figure 4-2 Rear Panel of the StorageServer 100

MLO-008399

1 Power cord

2 Power switch

3 Power connector

4 SCSI address select switches for drives 1 and 2

5 SCSI connector connected to SCSI port

6 Terminator connected to SCSI port

Refer to Figure 4–3 and follow these steps:

1. Open the rear door of the cabinet, if it is not already open.

2. Locate the SCSI cable (BC09D–09) shipped in the same box that contained the rackmount assembly kit.

3. Locate the two SCSI ports on the rear of the machine. One port has nothing plugged into it, and the other port has a terminator plugged in. Plug the 50-pin connector end of the SCSI cable into the available port. The 50-pin end is the one housed in plastic. (The other end is a metal connector with 68 pins.) The 50-pin connector is keyed so that it only attaches one way. Lock the wire brackets into the grooves on the sides of the connector.

4. Leave the 68-pin end of the SCSI cable disconnected for now. Instructions for connecting this end to a DECsystem 5900 are provided in Section 4.4.

5. Locate the power cord that is located at the rear of the drawer. Locate the yellow safety sticker covering the power plug on the rear of the StorageServer 100. Pull the sticker away and plug in the power cord.

6. Turn on the black power switch on the back of the machine, located next to the power cord.

Figure 4-3 Attaching the SCSI Cable and Power Cord to the StorageServer 100
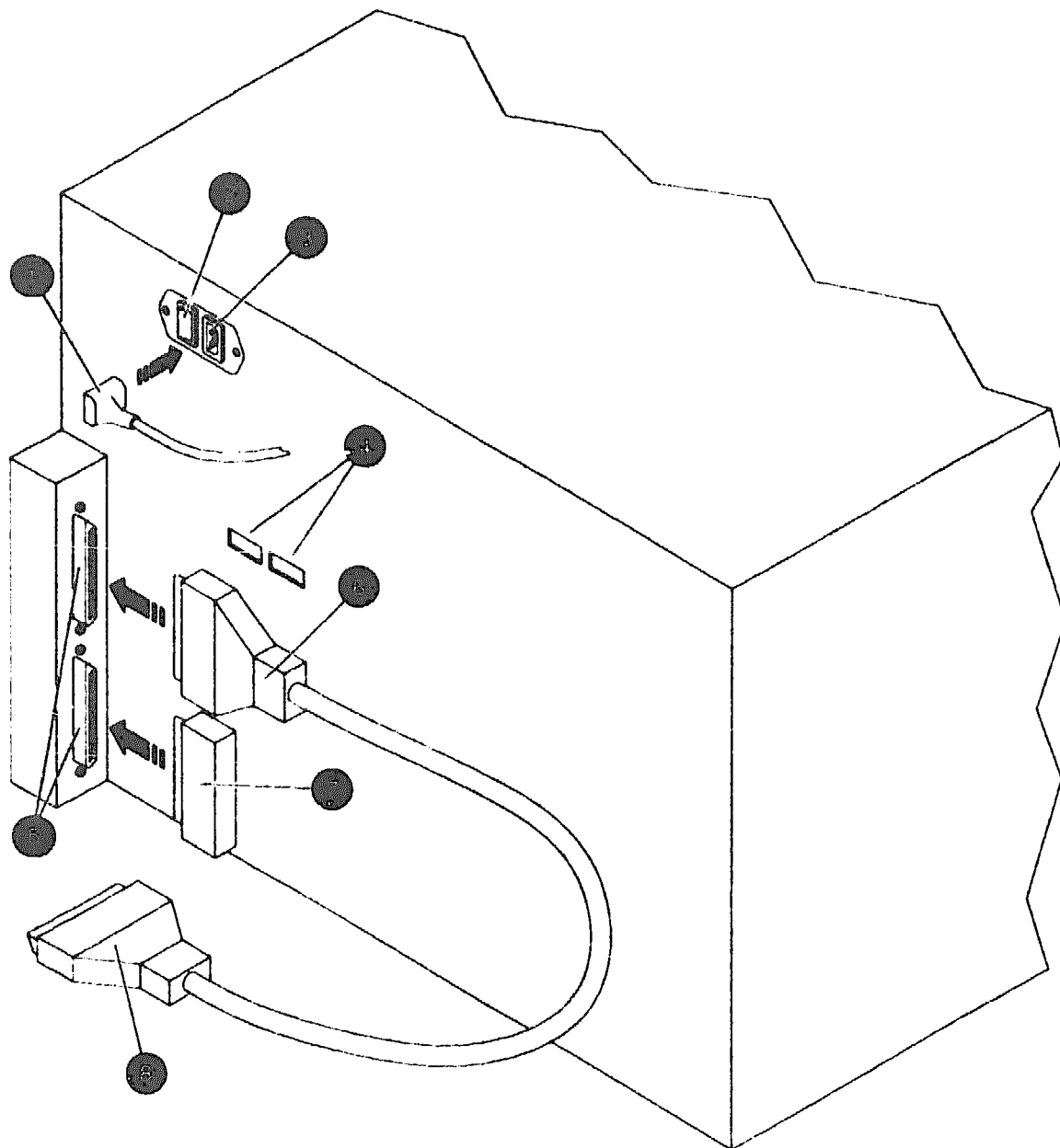
MLO-008402

❶ Power cord from the power controller

❷ Power switch

❸ Power connector

❹ SCSI ID address select switches

❺ SCSI ports

- 50-pin connector to the SCSI port on StorageServer 100

- Terminator

- 68-pin connector to the SCSI port on the DECsystem 5900

_____ **Note** _____

The terminator must remain plugged into the second SCSI port on the back of the StorageServer 100.

_____

4.4 Attaching the SCSI Cable to the DECsystem 5900

Each SCSI port on the back of a DECsystem 5900 computer is marked with the SCSI icon (see Figure 4–4):

Figure 4–4 SCSI Icon
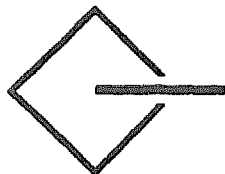
ZS-0557-MH

The DECsystem 5900 can have up to four SCSI controllers. There is a built-in system SCSI controller and up to three PMAZ TURBOchannel-based SCSI controllers. The StorageServer 100 will be connected to one of these PMAZ SCSI controllers and will use three SCSI ID's.

_____ **Note** _____

The 68-hole connector at the lower left hand corner of the DECsystem 5900 computer back panel is the base system SCSI port. It may be marked with the SCSI icon but it is not labeled with the option identifier PMAZ. This SCSI port is used to connect system devices to the DECsystem 5900. *Do not connect the StorageServer 100 SCSI cable to this port.*

_____

Due to possible performance issues, cable management problems, and cable length restrictions, the StorageServer 100 should be connected to a PMAZ SCSI controller by itself. This may require moving some SCSI devices to another SCSI controller. See Chapter 2, Removing and Reinstalling Mass Storage Drawers in this book, and for more information see the *DECsystem 5900 Enclosure Maintenance Manual.*

To connect the SCSI cable from the StorageServer 100 to the DECsystem 5900, refer to Figure 4–5 and follow these steps:

1. Look at the back of the DECsystem 5900 CPU enclosure and locate the lowest numbered available PMAZ option (marked with a SCSI icon and PMAZ–A identifier).

_____ **Note** _____

The option slots in the top (TURBOchannel Extender) are an extension of TURBOchannel slot 0. It is possible for 1 PMAZ to be in the TURBOchannel Extender (only *one* of any option can be placed in the TURBOchannel Extender.

_____

2. If all the PMAZ controllers have devices connected, another PMAZ should be added to the system or devices should be moved to make a PMAZ available for the StorageServer 100.

3. Plug the 68-pin connector end of the SCSI cable into the lowest-numbered available PMAZ SCSI port on the back of the DECsystem 5900. The connector is keyed so that it only attaches one way. The connector snaps in place with a spring loaded lock.

Figure 4-5   Connecting to the DECystem 5900

ZS-0559-MH
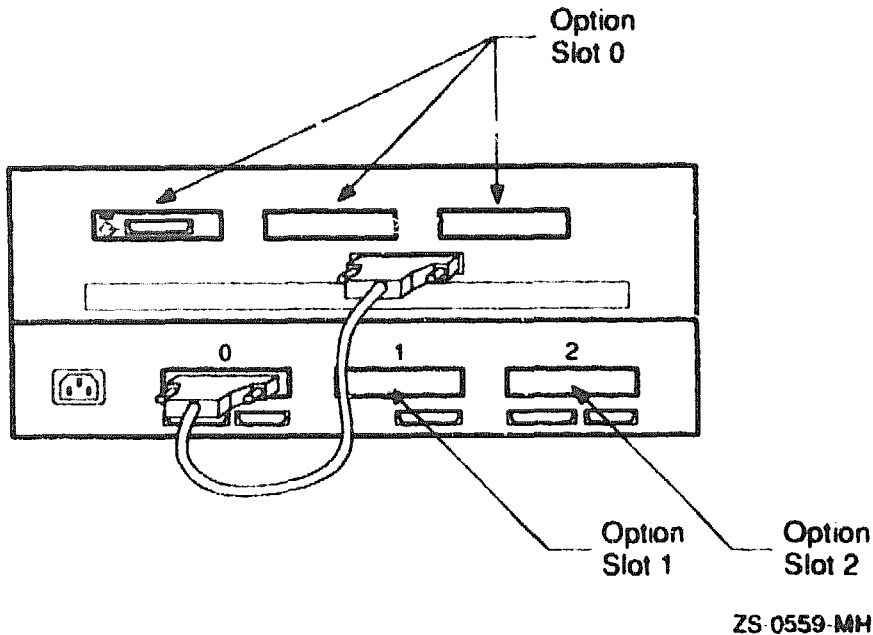
Your StorageServer 100 hardware is now installed.

4.5 Diagnostic Tests

Complete the following tests:

* Control Panel Diagnostic Test

  This will tell you if the StorageServer 100 is operational.

* The console command CNFG

  This will tell you if the DECsystem 5900 recognizes that the StorageServer 100 is connected to the system.

4.5.1 Power On Test

The power on test runs automatically when the StorageServer 100 operation switch is first switched on, and may also be initiated from the control panel. The power on test initiates a controller test, a power supply test, and a motor connection test. It then initializes the mechanism by setting RAM variables to default values, and moves the picker to its home position.

The control panel should display: READY.

If the control panel does not, but displays a message such as FAIL, refer to the section on diagnostic tests in *Optical Library User's Guide*.

4.5.2 Using the Console Command CNFG

Enter the following on the console:

`>>CNFG X`

where:

X   is the Turbo Channel Slot that is connected to StorageServer 100

X   equals 0, 1, or 2

The console display should be very similar to the following example:

```
1: PMAZ-AA  DEC      V5.3c    TCF0   (SCSI = 7)
   ------------------------------------------------------
   DEV   PID                VID        REV    SCSI DEV
   =====  ==================  ============  ======  ========
     3   C1701m             HP         5.34   MED
   rz4   5.25 MF Drv 000    HP         4.12   DIR
   rz5   5.25 MF Drv 000    HP       4.12   DIR
>>
```

If you *do not* see a similar display, refer to the section on diagnostic tests in *Optical Library User's Guide*.

4.6 Software Installation

At this point you have completed installing the StorageServer 100 hardware. To complete the installation and make the device operational, refer the system manager to *StorageServer 100, Installation Guide and Release Notes*. This document contains the information needed to install the StorageServer 100 software.

A

Related Documents

For option and system hardware part numbers, consult your Digital sales representative.

Not all documents are available in every country. Check with your Digital sales representative for availability.

Table A-1 lists the DECsystem 5900 online documents available on compact disc (Bookreader). Table A-2 lists associated documents available in printed form.

Table A-1   DECsystem 5900 Bookreader Documents

Titles
DECsystem 5900 Owner's Guide
DECsystem 5900 Site Preparation
DECsystem 5900 Installation Guide
DECsystem 5900 Service Guide

Table A-2   Related Printed Documents

Title	Order Number
DECsystem 5900 Customer Documentation	
DECsystem 5900 Customer Documentation Kit	EK D590A DK
DECsystem 5900 Owner's Guide	EK D590A OG
DECsystem 5900 Site Preparation	EK D590A-SP
Site Environmental Preparation Guide	EK CSEPG–MA

Table A–2 (Cont.) Related Printed Documents

Title	Order Number
Service Documentation	
DECsystem 5900 Installation Guide	EK-D590A-IN
DECsystem 5900 Service Guide	EK-D590A-PS
DECsystem 5900 Enclosure Maintenance Manual	EK-D590A-EN
DECsystem 5900 Illustrated Parts Breakdown (IPB)	EK-D590A-IP
RZxx Disk Drive Subsystem Pocket Service Guide	EK-RZxxD-PS
Optical Disk Library Service Manual	EK-STSOP-SV.A01
StorageServer 100	
Optical Library User's Guide	AA-PQ9RA-TE
StorageServer 100 Installation Guide and Release Notes	AA-PQ9PA-TE
SCSI	
Small Computer System Interface: An Overview	EK-SCSIS-OV
Small Computer System Interface: A Developer's Guide	EK-SCSIS-SP
ULTRIX	
Guide to Installing ULTRIX	AA-PBL0D-TE

Addendum to *DECsystem 5900 StorageServer 100 Installation Guide* EK–D59SS–IN.A01

EK–D59SS–AD.A01

June 1992

Read this document carefully *before* installing the StorageServer 100. The following sections contain some modifications to the instructions provided in the *DECsystem 5900 StorageServer 100 Installation Guide*

1 Modifications to Chapter 3, Assembling and Installing the Rackmount Slide Assembly

The following sections contain modifications to instructions in Chapter 3.

1.1 Installing the Slides (See page 3-5 in the DECsytem 5900 StorageServer 100 Installation Guide.)

Complete the following steps to install a slide:

1. *Top/Front* with an arrow pointing to the front of the slide is printed on the top of each inside section of the slide assembly. Position the slide so that the outside section is close to the wall of the cabinet when installing the rackmount slide assembly.

NOTE

   • Use hole 14 and hole 16 up from the bottom of the rails if slots 1 and 2 are to be used.

   • Use hole 27 and hole 29 down from the top of the rails if slots 5 and 6 are to be used.

2. Attach two U-nuts to the appropriate holes on the rails at each end.

3. Align the two holes on the flanges at each end of the slide with the appropriate holes on the cabinet rails.

4. Position the slide so that the cabinet rails are between the two flanges of the slide. Make sure that the flanges are resting firmly against the rails.

5. Use two hex screws at each end of the slide to secure the slide to the cabinet rails.

NOTE

   Both flanges should be resting firmly against the cabinet rails, with no space between the rails and the flanges.

6. Complete steps 1 to 5 for each slide.

NOTE

There are only 25 inches between the flange on the front bracket slide mount and the flange on the rear bracket slide mount. When the bracket slide mounts are secured to the rear rail of the cabinet, you may have to adjust the rear bracket so that the distance between the flanges is correct. To make the adjustment, loosen the nuts on the guide and then you can move the rear bracket slide mount as needed. Tighten the nuts securely after you have secured the bracket slide mounts to the cabinet rails.

1.2 Completing the Installation of the Rackmount Slide Assembly (See page 3-6 in the DECsytem 5900 StorageServer 100 Installation Guide.)

To install the rackmount slide assembly complete the following steps in this order·

1. Assemble the cross bracket (see Figure 1:

   a. Position the slats that make up the cross bracket, so that the three holes in the middle of both slats are aligned.

   b. Put the binder rivet in the large hole that is closest to the slotted end of the cross bracket. Push the plunger on the rivet down to secure the rivet.

      The holes are all aligned and the cross bracket is assembled

2. Install the cross bracket·

   a. Position the bracket so that the slotted end is toward the rear of the cabinet

   b. Align the holes at the ends of the cross bracket with the third and fourth studs (counting from the front to the rear of the inside section of the slide assembly) on the bottom of each of the two inside sections. Use four kep nuts to secure the bracket to the inside sections of the slide assembly (see Figure 1).

3. Install the front bracket support.

   a. Attach a u-nut to hole 12 (counting up from the bottom of the rail) on both front cabinet rails if slots 1 and 2 are being used, or attach a u-nut to hole 25 (counting down from the top of the rail) on both front cabinet rails if slots 5 and 6 are being used.

   b. Put a hex screw in each of the two holes at the front of the support and use a ring retainer to anchor the screw. Do not tighten the hex screws at this time.

   c. Align the two holes on the top of the front bracket support with studs 1 and 2 (counting from the front to the rear of the slide) on the bottom of the slide assemblies (see Figure 1).

      The holes on the support and the studs on the slides are arranged so that there is only one way the support fits on the slides.

   d. Secure the support to the slide assemblies with four kep nuts. Tighten the the nuts securely

Figure 1 shows how the rackmount slide assembly is assembled. Note where the various components of the assembly are located.

Figure 1: Assembling and Installing the Rackmount Slide Assembly
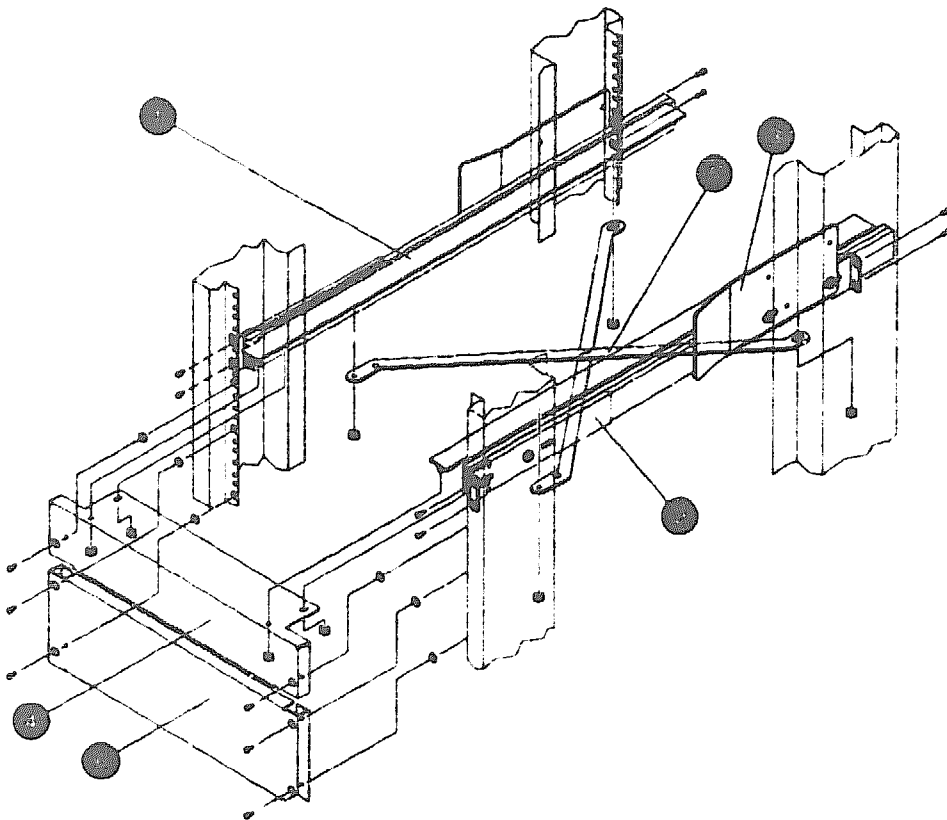
MLO-008400

- ⚫ Slide assembly
- ⚫ Bracket slide mount
- ⚫ Guide
- ⚫ Front bracket support
- ⚫ Cross bracket
- ⚫ Dress mid panel

At this point the rackmount slide assembly is complete, except if the StorageServer 100 is being installed in slots 1 and 2. To complete the installation in slots 1 and 2 see Section 1.3.

1.3 Installing the Dress Mid Panel (See page 3-8 in the DECsytem 5900 StorageServer 100 Installation Guide.)

If you are installing the StorageServer 100 in slots 5 and 6 continue on to Chapter 4, Installing the Rackmounted StorageServer 100.

Before you install the StorageServer 100 in slots 1 and 2, you must remove the filler panel that is located immediately below slot 1 (it covers slot 0). Replace it with the dress mid panel as follows (see Figure 1):

1. Attach u-nuts to hole 9 and hole 3 (counting up from the bottom of the rail) on both front cabinet rails.

3

2. Place four hex screws and ring retainers on the two holes on each side of the panel.

3. Align the two holes on each side of the dress mid panel with hole 9 and hole 3 on the cabinet rails.

4. Tighten the hex screws to secure the dress mid panel to the cabinet rails.

With the rackmount slide assembly installed, you are now ready to install the StorageServer 100 in the cabinet.

2 Modifications to Chapter 4, Installing the Rackmounted StorageServer 100

The following section contains modifications to instructions contained in Chapter 4.

2.1 Installing the StorageServer 100 in the Cabinet (See page 4-4 in the DECsytem 5900 StorageServer 100 Installation Guide.)

Complete the following steps to install the StorageServer 100 in the appropriate slots:

CAUTION

The stabilizer bar must be properly extended.

1. Pull the slides approximately 12 inches out of the slot in which you are installing the Storage-Server 100.

2. Place the StorageServer 100 on the slides so that the hole on the bottom of the server is aligned with the hole in the center of the cross bracket (see Figure 2).
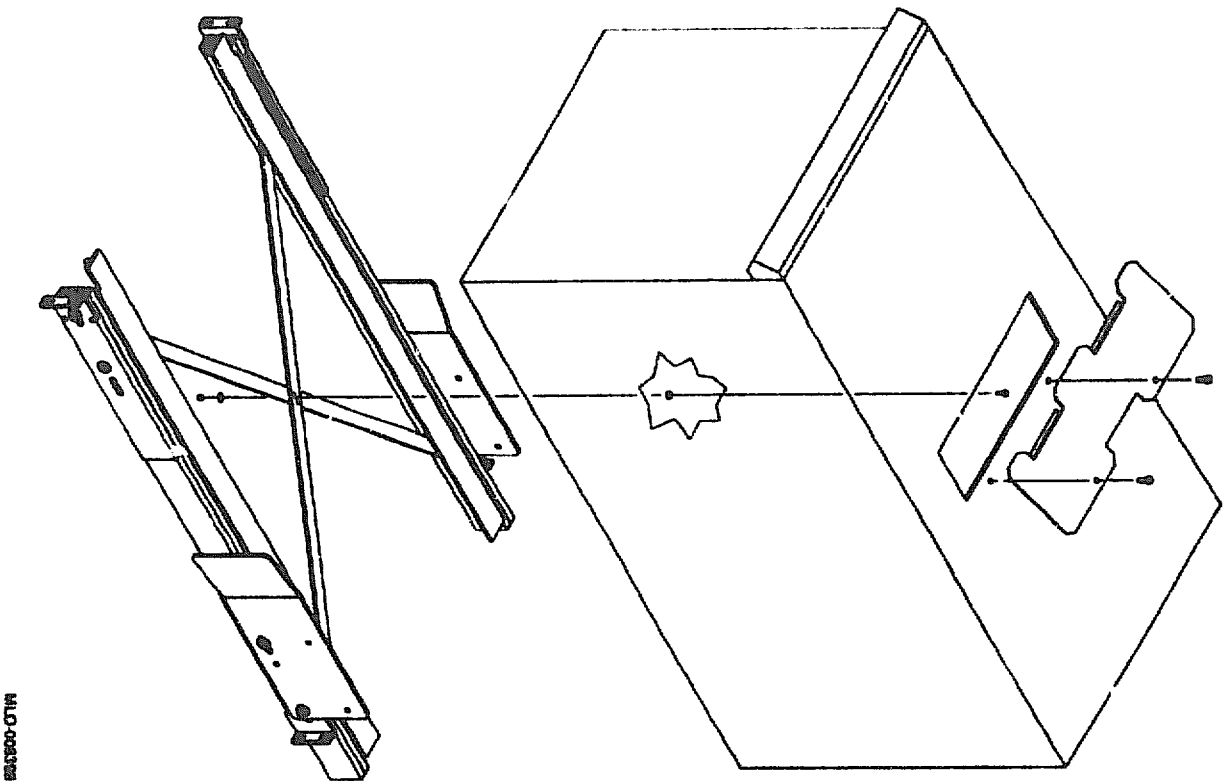
   This may require that you adjust the position of the StorageServer 100 on the slides until the two holes are aligned.

3. Insert the screw through the holes by reaching into the StorageServer 100.

4. Place the washer and nut on the bottom of the screw. Use a small wrench to hold the nut, tighten the screw until approximately 1/8 inch of the thread protrudes out from the nut (see Figure 2).

5. Replace the access latch.

6. Push the device all the way into the cabinet.

7. To secure the StorageServer 100 to the cabinet, tighten the hex screws on the front of the front bracket support.

NOTE

The screws will be located at hole 12 if the StorageServer 100 occupies slots 1 and 2, and at hole 25 if the StorageServer 100 occupies slots 5 and 6.

Figure 2: Installing the StorageServer 100 Inside the Cabinet

MLO-003789

5

3 Setting the SCSI IDs (This section is new and becomes Section 4.3 on page 4-4 in the DECsytem 5900 StorageServer 100 Installation Guide. Subsequent sections will be incremented by one.)

NOTE

The StorageServer 100 has two optical disk drives enclosed in its cabinet. Each drive must be assigned its own SCSI ID. In addition, the autochanger controller (picker) must be assigned aits own SCSI ID.

1. On the rear panel set the optical disk switches to the following settings (see Figure 3):

   * For optical disk drive 1 the setting is 4.

   * For optical drive 2 the setting is 5.

   The default settings are 4 and 5. The SCSI ID switches are 6, 7, and 8. Drive 1 switches are on the left as you view the numbers; drive 2 switches are on the right.

2. Use the front panel to set the SCSI ID for the autochanger controller (picker). The default setting is 3. Use the control panel to set the autochanger controller's (picker's) SCSI ID:

   a. Switch on the StorageServer 100 power.

   b. When the display shows READY, press the OPTION switch; TEST * is displayed.

   c. Press the NEXT switch; CONF * is displayed

   d. Press the NEXT switch; INFO * is displayed.

   e. Press the NEXT switch; SCSI ID is displayed.

   f. Press the ENTER switch; SCSI ID 3 is displayed.

   g. Press the NEXT switch until the address you want is displayed.

   h. Press the ENTER switch.

3. Apply the appropriate SCSI ID labels to the device.

Figure 3 shows rear panel of the StorageServer 100 and the SCSI ID switches for optical drive one set to 4, and the switches for drive two set to 5 (the default settings).

Figure 3: SCSI ID Switches on a Rackmount StorageServer 100
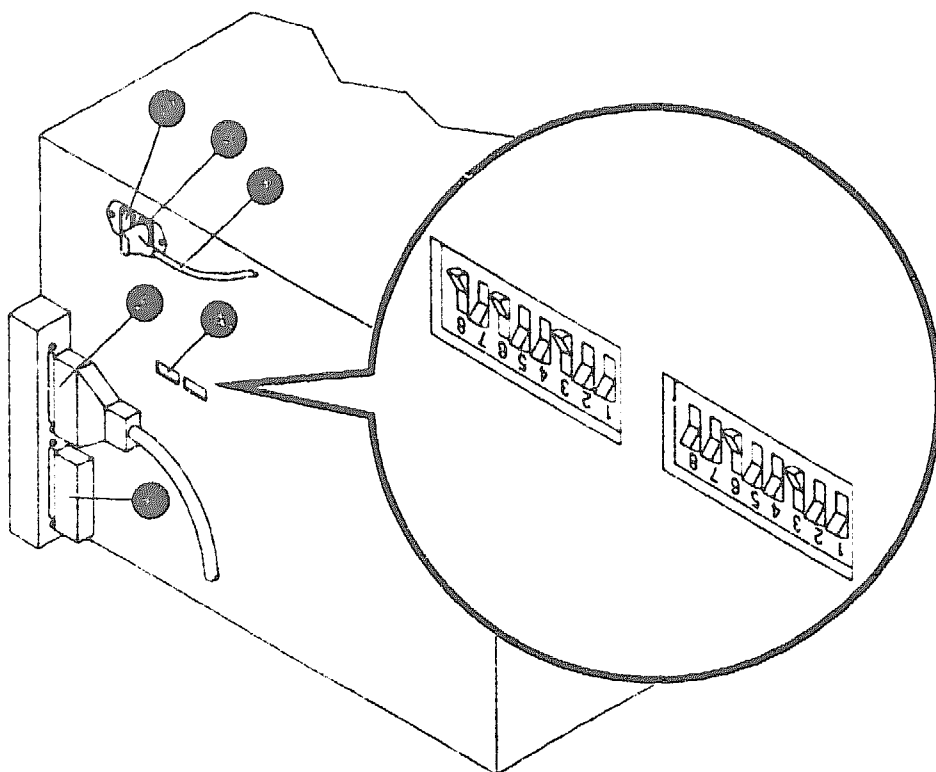
MLO-008399

- Power Cord
- Power Switch
- Power Connector
- SCSI address select switches for drives 1 and 2
- SCSI connector connected to SCSI port
- Terminator connected to SCSI port