R215F Expander Addenda to Customer Hardware Information

Order Number EK–249AC–AD–003

This document provides information for installing and operating the R215F expander.

The information is divided into four parts: *R215F Expander Addendum for MicroVAX II Systems*, *R215F Expander Addendum for MicroVAX 3300/3400 Systems*, *R215F Expander Addendum for MicroVAX 3500/3800 Systems*, and *R215F Expander Addendum for DECsystem 5400 Pedestal Systems (210QS)*.

Please add the appropriate addendum to your *Customer Hardware Information* binder.

NOTE: *See the Preface for a list of systems that require installation of an expander by a Digital service representative or a qualified self-maintenance customer.*

The postpaid Reader's Comments form at the end of this document requests your critical evaluation to assist in preparing future documentation.

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ML–S1214

FCC NOTICE: The equipment described in this manual generates, uses, and may emit radio frequency energy. The equipment has been type tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such radio frequency interference when operated in a commercial environment. Operation of this equipment in a residential area may cause interference, in which case the user at his own expense may be required to take measures to correct the interference.

This document was prepared using VAX DOCUMENT, Version 1.1.

Preface

Before installing a Digital system, review the system warranty. The terms of your warranty agreement with Digital may require that a qualified Digital service representative install your system. Contact your local Digital representative if you have any questions.

You may install the R215F expander on the following systems:

- MicroVAX 3300

- MicroVAX 3400

- DECsystem 5400 210QS

- MicroVAX II, if the system is based on Digital Storage System Interconnect (DSSI) and the system and expander are factory configured

- MicroVAX 3500, if the system is DSSI-based and the system and expander are factory configured

- MicroVAX 3800, if the system and expander are factory configured

A Digital service representative or a qualified self-maintenance customer must install the expander on the following systems, if the expander is added to a previously installed system and the system and expander are not factory configured.

- MicroVAX II

- MicroVAX 3500

- MicroVAX 3800

Conventions

The following conventions are used in the addenda.

Convention	Meaning
Key	A terminal key used in text and examples. For example, Break indicates that you press the Break key on your terminal keyboard.
NOTE	Provides general information about the current topic.
CAUTION	Provides information to prevent damage to equipment or software.
WARNING	Provides information to prevent personal injury.

R215F Expander
Addendum for MicroVAX II Systems

This addendum tells you how to operate an R215F
expander installed on MicroVAX II systems.

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1 Introduction

The R215F expander provides additional mass storage capacity for your MicroVAX II system. Up to three RF-series Integrated Storage Elements (ISEs) can be included in the expander. An ISE is an intelligent storage device that contains its own controller.

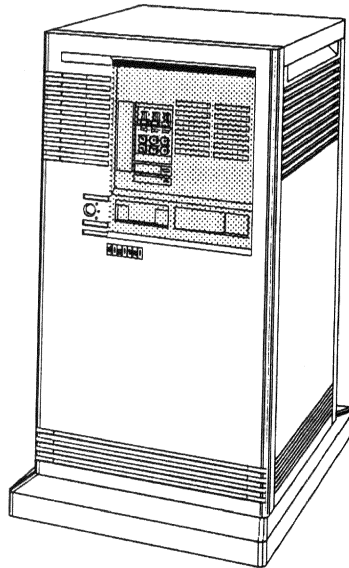The following procedures are covered in this addendum.

- Operating the window controls on the front panel of the expander
- Removing and attaching the front panel
- Turning on the expanded system
- Operating RF-series ISEs
- Operating the controls on the expander's power supply

2 Operating the Sliding Window

The front of the R215F expander has a removable front panel that restricts access to the on/off switch and controls on the operator control panel (OCP).

Figure 1 shows the expander with the front panel attached.
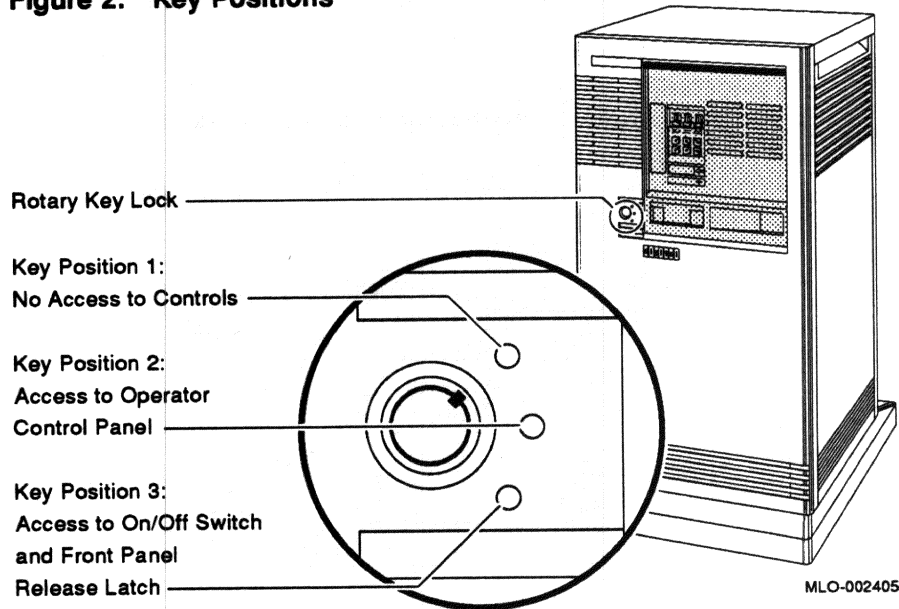
Figure 1: R215F Expander

MLO-002404

The front panel has a sliding window controlled by a three-position rotary lock. You can lock the window in one of three positions: closed, partially open, and fully open. Each position limits access to controls behind the window. When the window is locked in any of its three positions, you can still raise it to a higher position. However, you cannot lower it beyond the locked position without using the key.

To open the window, turn the key to position 2 or 3, then slide the window down. To close the window, slide the window up, then turn the key to lock the window in position.
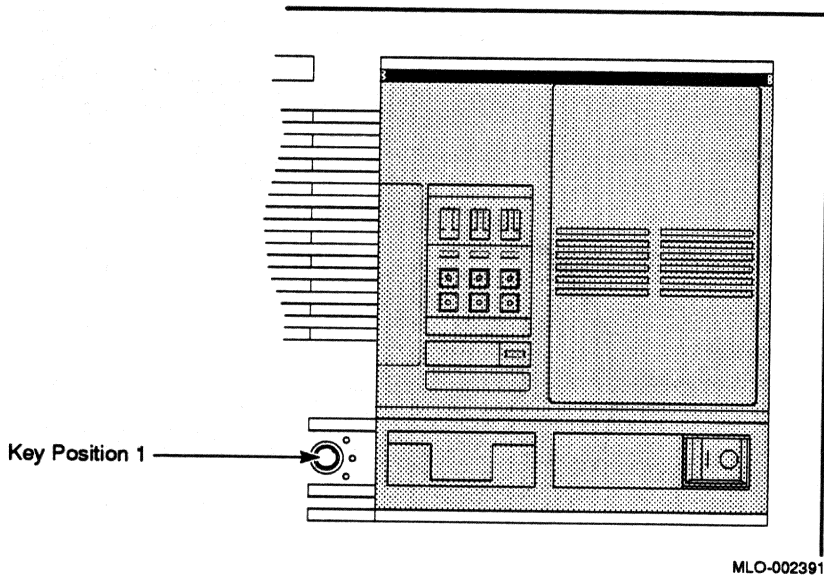
Figure 2 shows the three key positions and the controls accessible in each position.

Figure 2: Key Positions

Rotary Key Lock ——————————————

Key Position 1:
No Access to Controls ——————

Key Position 2:
Access to Operator
Control Panel ——————

Key Position 3:
Access to On/Off Switch
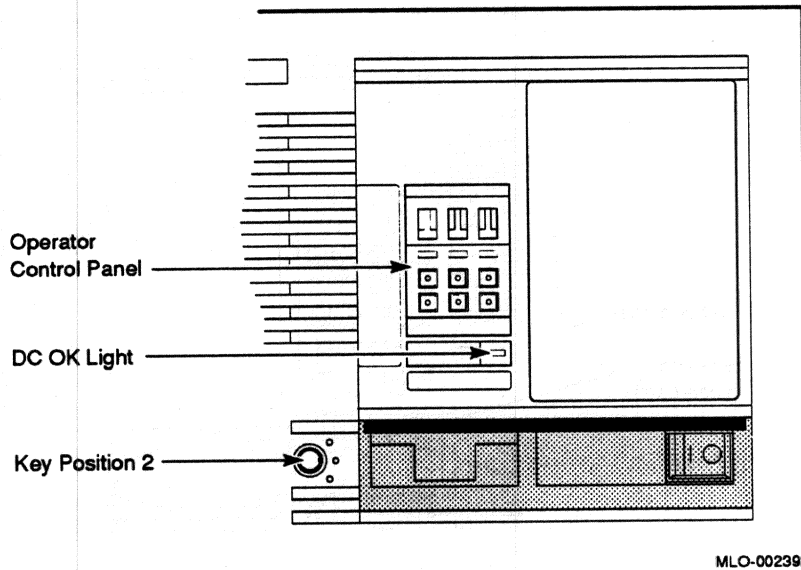and Front Panel
Release Latch ——————

MLO-002405

When the window is up and the key is turned to position 1, the window is locked in the closed position. You cannot use any controls when the window is closed, but lights indicating power to the expander and activity on the ISEs are visible through the window. Figure 3 shows the closed window and key position.

Figure 3: Sliding Window Closed
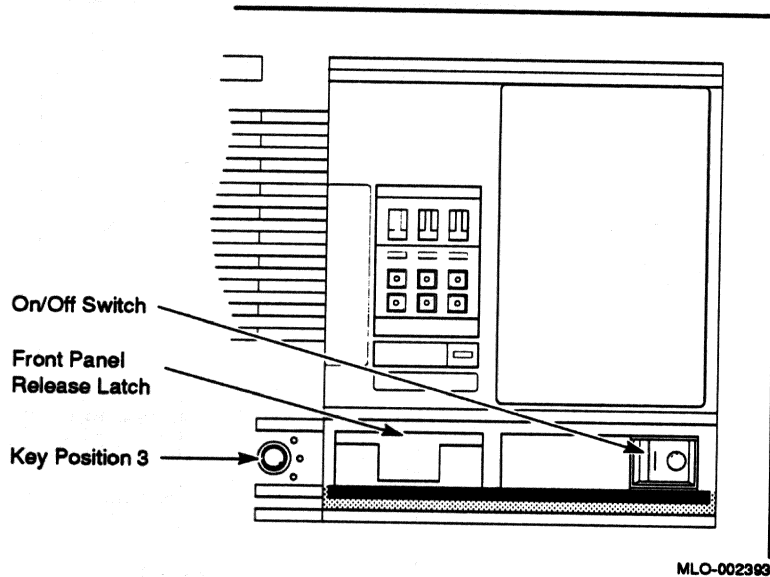
Key Position 1

MLO-002391

When the key is turned to position 2, you can open the window partially, as shown in Figure 4. You can operate the controls on the operator control panel (OCP).

Figure 4: Window Partially Open

Operator
Control Panel

DC OK Light

Key Position 2

MLO-002392

When the key is turned to position 3, you can open the window fully, as shown in Figure 5.

Figure 5: Window Fully Open

On/Off Switch

Front Panel
Release Latch

Key Position 3

MLO-002393

When the window is fully open, you can turn the expander on and off and
you can release the latch that locks the front panel.
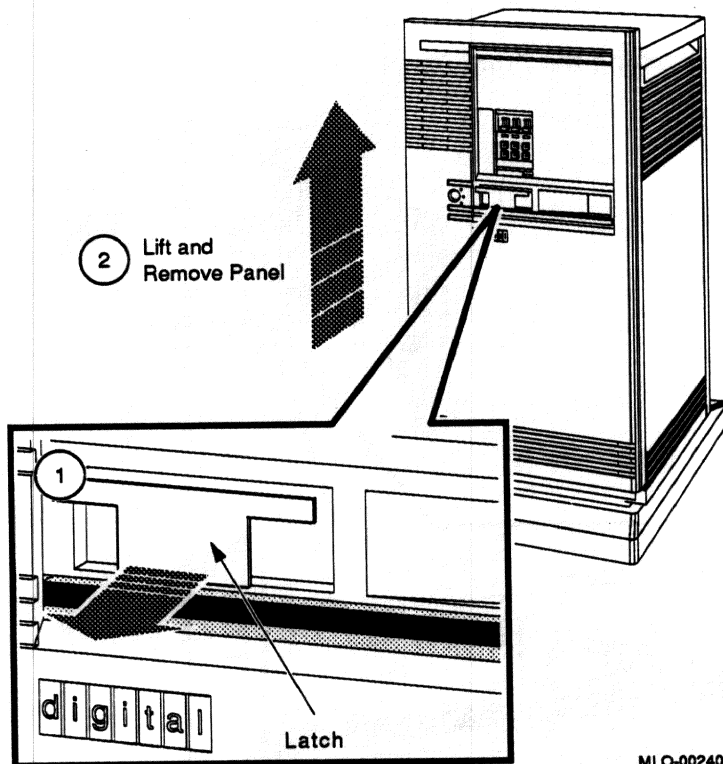
3 Removing and Attaching the Front Panel

You must remove the front panel to use controls on the power supplies.

NOTE: *The window on the front panel must be fully open to remove and
attach the front panel.*

Remove the front panel as follows.

1. Insert the key in the lock on the front panel. Turn the key clockwise to the bottom position.

2. Slide the window down.

3. Pull out the latch. See Figure 6.

4. Lift the front panel up and then out.
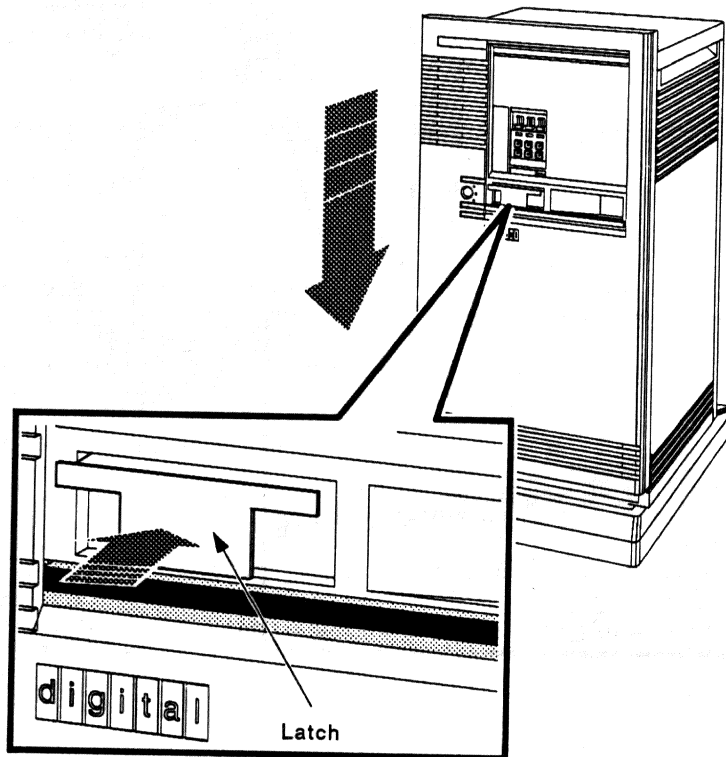
Figure 6: Removing the Front Panel

Lift and
Remove Panel

Latch

digital

MLO-002406

NOTE: *The window on the front panel must be fully open to attach the front panel.*

Attach the front panel as follows.

1. Pull out the latch on the front panel.

2. Holding the panel with both hands, place it flush against the front of the enclosure, about an inch above the bottom. See Figure 7.

3. Insert the hooks on the panel in the slots on the enclosure. Then slide the panel down until it locks in place.

4. Secure the panel by pushing in the latch.

Figure 7: Attaching the Front Panel

Latch

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4 Turning On the Expanded System

Turn on your expanded system as follows.

1. Turn on your console terminal and wait until it has performed its self-tests successfully.

2. Set the on/off switches on the MicroVAX and R215F enclosures to on (1).

   The on/off switches should glow orange.

CAUTION: *Turning off your system without following the shutdown procedure described in your operating system manuals may result in loss of data. The operating systems available for MicroVAX systems are VMS, ULTRIX–32, and VAXELN.*

Once you complete the recommended shutdown procedure, you can turn off your system by setting the on/off switches on the MicroVAX system and the expander to off (0).

5 Operating RF-Series Integrated Storage Elements

The R215F expander can contain up to three RF-series integrated storage elements (ISEs).

When your system has multiple ISEs, Digital recommends that you separate them according to function. For example, if your system has two ISEs you may want to use them as follows.

- ISE 0 contains the operating system and applications installed on the system.

- ISE 1 contains work areas for each user with an account on the system.

The storage capacities and other specifications for RF-series ISEs are listed in your system *Technical Information* manual.

Controls for the ISEs are located on the operator control panel (OCP), behind the sliding window on the front of the expander. To access the OCP, turn the key to position 2 or 3 and slide down the window. Figure 8 shows the OCP on the expander.

Figure 8: Operator Control Panel
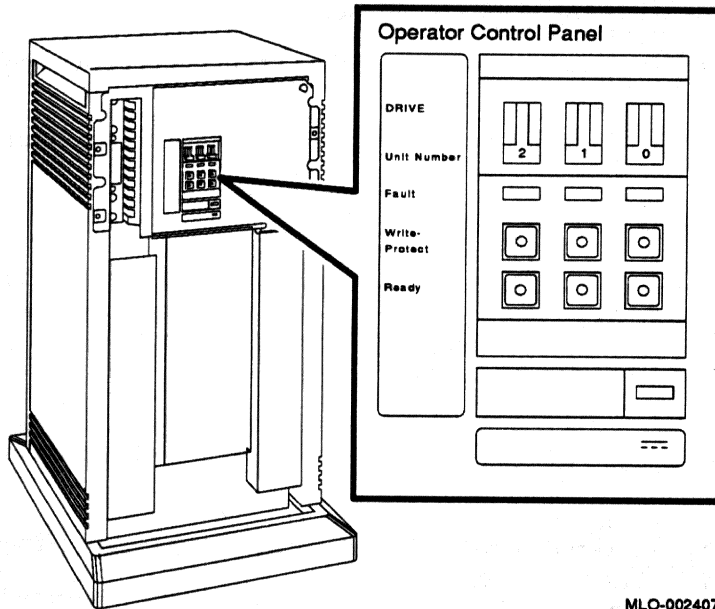
MLO-002407

The OCP has the following controls and indicators for each of the three possible ISEs.

- Unit ID plug
- Fault light
- Write-Protect button
- Ready button

Unit ID plugs identify the unit numbers of ISEs in the expander. The ISEs are properly numbered by your Digital service representative during installation.

NOTE: *Reassigning a Unit ID plug on MicroVAX systems using the KFQSA storage adapter may require reprogramming the KFQSA adapter by a Digital service representative.*

Table 1 lists the function of each of the controls for the RF-series ISEs.

Table 1: RF-Series Controls and Indicators

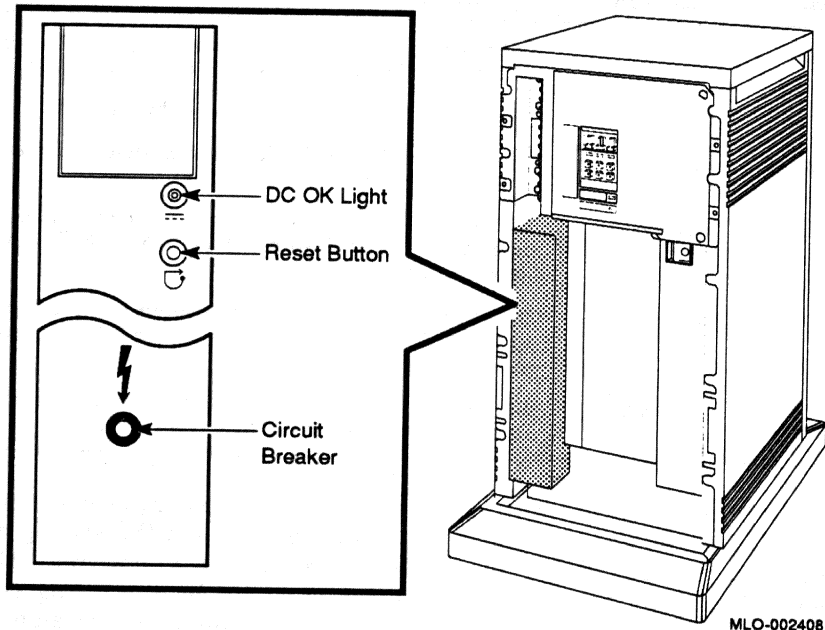| Control	Position	Function
Fault	Lit	Indicates an error condition within the ISE. The light is on temporarily during power-up (normal condition).
	Not lit	Indicates an error-free condition within the ISE.
Write-Protect	In (lit)	ISE is write-protected. Prevents system software from writing on the ISE.
	Out (not lit)	ISE is not write-protected. Normal position for software operation. System software is free to read or write information on the ISE.
Ready	Out (lit)	ISE is on-line. When the ISE is available for use, the green light in the switch is on. When the ISE is being used, the green light is off.
	In (not lit)	ISE is off-line and cannot be accessed. The green light cannot be lit when the Ready button is in.

The Write-Protect button controls whether the system can write data to the ISE. The system can read from the ISE regardless of the setting of the Write-Protect button. When the Write-Protect button is out (not lit), the system can write to the ISE. Your system disk (the ISE containing system software) and ISEs containing work areas for users should be write-enabled, the normal operating setting.

If you want to write-protect an ISE containing data that you do not want changed or erased, set the Write-Protect button to in (lit).

6 Controls and Indicators on the Power Supply

The power supply has a circuit breaker and DC OK light, as shown in Figure 9.

Figure 9: Power Supply

MLO-002408

- Circuit breaker — The circuit breaker trips to protect the expander from current overloads. When tripped, the circuit breaker is in the out position.

  To reset the breaker, set the on/off switch on the expander to off (0), press the circuit breaker to the in position, and set the on/off switch to on (1).

- DC OK light — When lit, the DC OK light indicates that the voltages are within the correct operating range. When unlit, there is a problem with the power supply. Turn off the expander and call your Digital service representative.

R215F Expander
Addendum for MicroVAX 3300/3400 Systems

This addendum tells you how to install and operate
an R215F expander on MicroVAX 3300 and MicroVAX
3400 systems.

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Installation

This section tells you how to install an R215F expander on MicroVAX 3300 and MicroVAX 3400 systems. The Operation section tells you how to operate the expander on MicroVAX 3300 and MicroVAX 3400 systems.

The expander provides room for up to three additional RF-series Integrated Storage Elements (ISEs) for your MicroVAX system. An ISE is an intelligent storage device that handles device operations internally, rather than through a controller.

Depending on whether you are installing the expander as an add-on unit to a previously installed MicroVAX system, or as a factory-configured unit with a new MicroVAX system, the installation procedures differ.

NOTE: *If you are installing a new MicroVAX 3300 or MicroVAX 3400 system with the expander, install the MicroVAX system first. Use the instructions provided in the system Installation manual. When you complete step 6, Connect Additional Devices to the System, return to this document and begin installing the expander.*

If you are installing a factory-configured expander with a new MicroVAX 3300 or MicroVAX 3400 system, skip step 5 in this document, Number the Integrated Storage Elements, as that step was completed at the factory.

Installing the expander includes the following steps.

1. Verifying site preparation
2. Unpacking your shipment
3. Positioning the expander
4. Connecting the DSSI cable
5. Numbering the integrated storage elements
6. Connecting the power cables
7. Turning on the system
8. Attaching the front panels

1 Verify Site Preparation

The system *Site Preparation* manual describes the physical, environmental and electrical requirements for your system. The installation instructions that follow assume your site meets the installation requirements listed in that document.

NOTE: *Expanded MicroVAX 3400 systems require a separate circuit for the expander.*

If you are installing the expander as an add-on unit to a previously installed MicroVAX 3300 or MicroVAX 3400 system, shut down the MicroVAX system according to the shutdown procedure described in your operating system software manual.

CAUTION: *Turning off your MicroVAX system without following the shutdown procedure described in your operating system manual may result in loss of data. The operating systems available for MicroVAX systems are VMS, ULTRIX–32 and VAXELN.*

Once you complete the recommended procedure, you can turn off your MicroVAX system by setting the on/off switch on the MicroVAX enclosure to off (0).

2 Unpack Your Shipment

NOTE: *Save all packing materials if you plan to reship the expander.*

Unpack the R215F expander according to the instructions on the carton. Figure 1 shows the contents of the shipping carton (minus this and the other documents).

Figure 1: Shipping Carton Contents

DSSI Cable

System Power Cable

Screwdriver

Keys to Front Panel

Unit ID Plugs

Front Panel

Hand Holds

Expander Unit

Serial Number Label
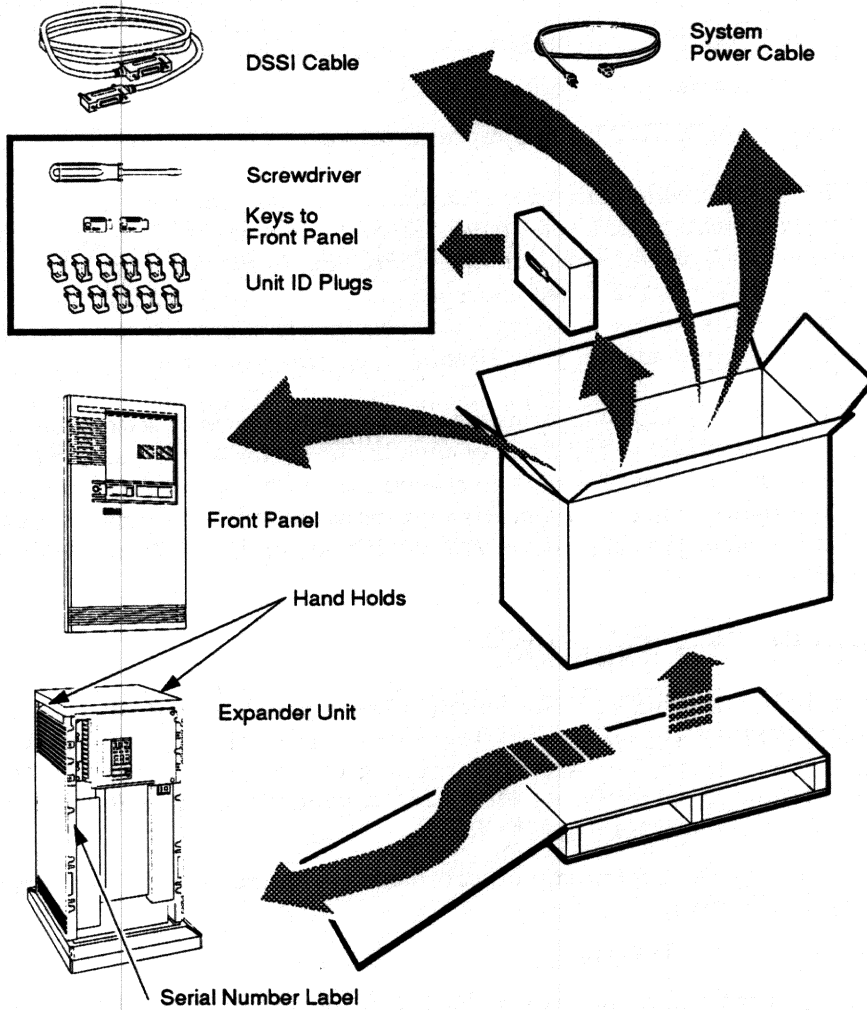
MLO-001854

Before installing the expander, unpack all cartons and check the contents against the shipping list to ensure you received everything you ordered.

If any item is missing or damaged:

- Contact your delivery agent.

- Contact your DIGITAL sales representative.

CAUTION: *Before continuing the installation, verify that your expander's power requirements match your power source. The correct voltage for the expander is listed on the serial number label next to the power supply. See Figure 1. If the voltage listed matches your power source, continue the installation. If the voltage does not match your power source, do not continue the installation, and contact your Digital sales representative.*

NOTE: *Release the shipping brackets according to the instructions on the yellow labels attached to the front of the R215F enclosure: Loosen, but do not remove, the six orange screws to release the shipping brackets from the ISEs. Then tighten the six orange screws after the shipping brackets release. After you complete that procedure, remove the yellow labels from the front of the enclosure.*

3 Position the Expander

The installation instructions that follow assume you correctly followed the unpacking instructions on the carton.

CAUTION: *Moving or operating the R215F expander without releasing the shipping brackets may damage the ISEs.*

After unpacking the expander, you can move it into position in two ways, as shown in Figure 2:

- You can roll it sideways.

- You can gently slide or walk it backward or forward by gripping the handholds on the side of the expander enclosure.

WARNING: *Each enclosure weighs between 50 kg (110 lb) and 64 kg (140 lb), depending on the options installed. Use two or more people to move the enclosures.*

Position the expander to the left of the MicroVAX system, as shown in Figure 2.

Figure 2: Moving the Expander into Place

Figure 2: Moving the Expander into Place

MLO-001855

During installation, leave a few inches of space behind the expander and MicroVAX enclosures for routing cables underneath. Once installation is complete, you can place the base of the enclosures directly against a wall. No rear ventilation clearance is required.

4 Connect the DSSI Cable

CAUTION: *Make sure the on/off switch on both enclosures is set to off (0).*

An external Digital Storage System Interconnect (DSSI) cable connects the MicroVAX system and the R215F expander.

The following instructions describe how to connect the DSSI cable.

1. Remove the DSSI terminator from the DSSI port on the MicroVAX enclosure as shown in Figure 3.

   Squeeze the spring clips at the bottom and top of the terminator as you pull it straight out of the port.

Figure 3: Removing the DSSI Terminator

MLO-001856

2. Attach the DSSI terminator to the lower DSSI port on the R215F expander as shown in Figure 4.

   Check that the terminator is oriented properly (the DIGITAL logo is on the right). Push the terminator onto the port. The spring clips should lock the terminator in place.

Figure 4: Attaching the DSSI Terminator

MLO-001857

3. Find the 2.74 m (9 ft) cable labeled BC21M–09 that was shipped with the expander.
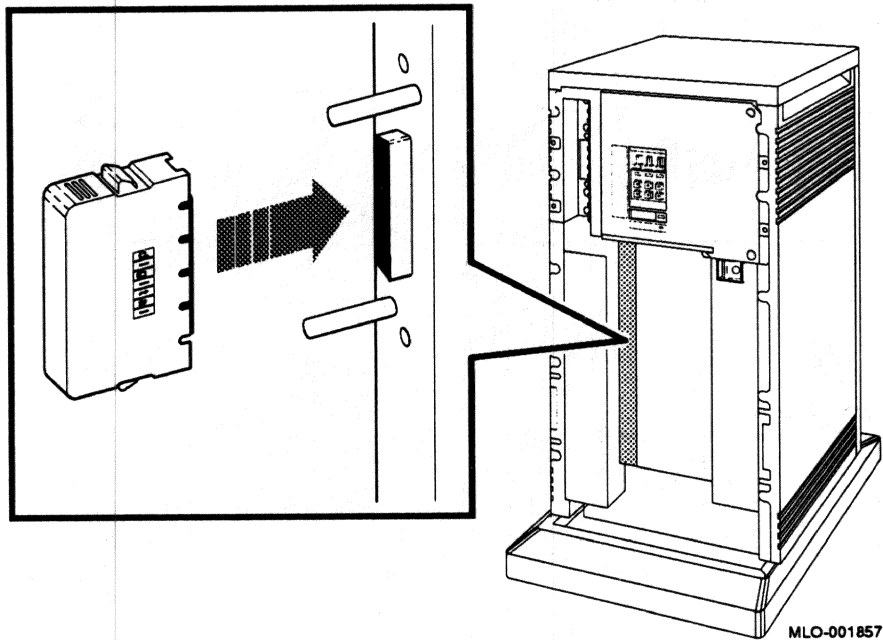
4. Feed either end of the cable under the MicroVAX enclosure from the back or side. Then plug the cable into the DSSI port by fitting the cable connector over the two guide pins as shown in Figure 5.

    First tighten the screws by hand, then use the screwdriver shipped with the expander to secure the connection. Do not overtighten.

5. Feed the opposite end of the cable under the R215F enclosure from the back or side. Than plug the cable into the upper DSSI port by fitting the cable connector over the two guide pins as shown in Figure 5.

    First tighten the screws by hand, then use the screwdriver shipped with the expander to secure the connection. Do not overtighten.

Figure 5: Connecting the DSSI Cable

MLO-001858

NOTE: *If you need to remove a DSSI cable, loosen the screws on the connector and then pull the connector straight out by pulling the two screw heads simultaneously.*

5 Number the Integrated Storage Elements (ISEs)

If you are installing. a factory-configured R215F expander that was delivered with your MicroVAX 3300 or MicroVAX 3400 system, ignore this step and skip to step 7 (the RF-series ISEs in the expander were numbered properly at the factory).

If you are installing the expander as an add-on unit to a previously installed MicroVAX 3300 or MicroVAX 3400 system, you should number the ISEs in the expander as described below.

You will use numbered Unit ID plugs to identify the unit numbers of the ISEs in your system. Figure 6 shows the ID plugs on the operator control panel (OCP) of a MicroVAX 3300 system.

Figure 6: Unit ID Plugs
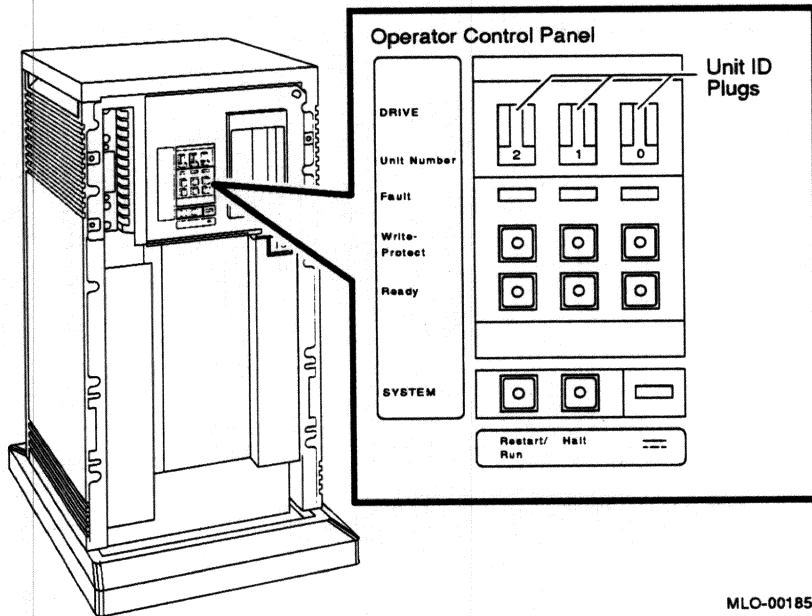
MLO-001859

1. Find the 11 spare Unit ID plugs that were shipped with your expander.

   The spare plugs are numbered 0 to 7 and three are blank.

2. Assign unit numbers to the ISEs by inserting the numbered Unit ID plugs in the OCP on the expander as shown in Figure 7.

   Use the following rules for numbering the ISEs:

   - Do not duplicate unit numbers for the ISEs: You can have only one ISE identified as drive 1, one ISE as 2, and so on.

   - An expanded MicroVAX 3300 system can have up to four RF71 ISEs or up to five RF30 ISEs. An expanded MicroVAX 3400 system can have up to six RF-series ISEs.

   - By convention, the ISEs are numbered in increasing order from right to left, starting with 0.

   - If your expander has only two ISEs, insert a blank Unit ID plug in the leftmost slot as shown in Figure 7.

Figure 7: Inserting Unit ID Plugs

MLO-002457

To insert a Unit ID plug, align the two center prongs with the two center slots and push the plug in. To remove a Unit ID plug, grasp it firmly and pull it straight out.

6 Connect the System Power Cables

Do not proceed unless you verified that your R215F expander's power requirements match your power source. The correct voltage for the expander is listed on the serial number label on the left side of the enclosure next to the power supply (see Figure 1).

If the voltage listed matches your power source, continue the installation. If the voltage does not match your power source, do not continue the installation and contact your Digital sales representative.

CAUTION: *Operating the expander with incorrect voltage can damage it.*

Connect the system power cables as follows.

NOTE: *If you are installing the expander as an add-on unit to a previously installed MicroVAX system, ignore the instruction for attaching the power cable to the MicroVAX enclosure as that cable is already in place.*

1. Make sure the on/off (1/0) switches on the MicroVAX and R215F enclosures are set to off (0) and that all devices connected to the MicroVAX system are turned off.

2. Find the power cables for the MicroVAX system and the expander. A power cable is shipped with each unit.

3. Make sure the male end of each power cable matches the wall outlet. Several types of power cables are shown in Figure 8.

Figure 8: Power Cables

100 - 125 V

200 - 250 V

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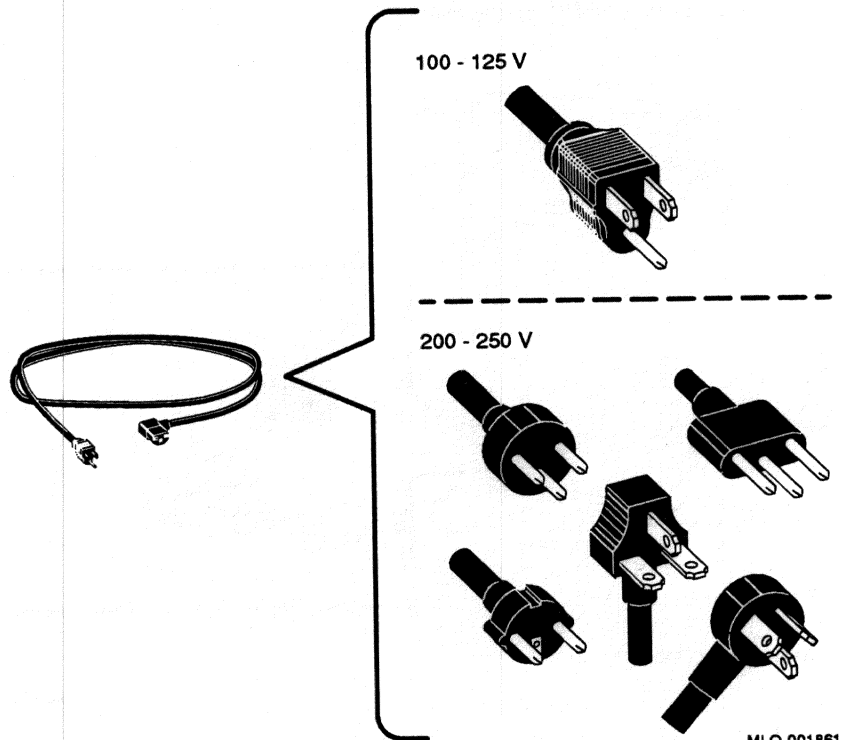
4. Feed the female end of the expander cable under the R215F enclosure from the rear and connect it, as shown in Figure 9.

Repeat step 4 with the second cable for the MicroVAX system. Figure 9 shows how to attach the power cable to a MicroVAX 3300 enclosure. Figure 10 shows how to attach the power cable to a MicroVAX 3400 enclosure.

5. Plug the male end of each power cable into its wall outlet.

NOTE: *Expanded MicroVAX 3400 systems require a separate circuit for the expander.*

Figure 9: Connecting the Power Cable to the Expander Enclosure or a MicroVAX 3300 Enclosure

To Outlet

Feed Power Cable
Under Rear of Unit

MLO-001862

Figure 10: Connecting the Power Cable to a MicroVAX 3400 Enclosure

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7 Turn On the Expanded System

You are now ready to turn on your expanded MicroVAX system, and to select a language if the system is new.

Turn on your system as follows.

1. Make sure the system and console baud rates are the same.

2. Turn on your console terminal and wait until it performs its self-tests successfully.

3. Set the on/off switches on the MicroVAX and R215F enclosures to on (1).

    The on/off switches should glow orange.

Select a Language

The first time you turn on your system you must select a language. The language you select controls only the language of the console program, which is a part of MicroVAX firmware in the CPU. MicroVAX firmware lets you give commands to the system and generates error messages if errors occur. CPU firmware is described in your system *Technical Information* manual.

Within a few moments of turning on your system, your console terminal should display the Language Selection Menu shown in Figure 11.

Figure 11:   Language Selection Menu

```
KA640-A T3.4-2 VMB 2.3

 1) Dansk
 2) Deutsch (Deutschland/Österreich)
 3) Deutsch (Schweiz)
 4) English (United Kingdom)
 5) English (United States/Canada)
 6) Español
 7) Français (Canada)
 8) Français (France/Belgique)
 9) Français (Suisse)
10) Italiano
11) Nederlands
12) Norsk
13) Português
14) Suomi
15) Svenska
 (1..15):
```

Select a language by typing the number corresponding to your choice and pressing Return .

NOTE: *On some older terminals that do not support multiple languages, the Language Selection Menu does not appear and the system defaults to English.*

After you select a language, the system runs its power-on self-tests. Within a few moments, your console terminal should display a series of numbers as the system tests itself. Figure 12 shows that display after a successful power-on test.

Figure 12: Example of a Successful Power-On Test

```
KA640-A T3.4-2, VMB 2.3

Performing normal system tests.
41..40..39..38..37..36..35..34..33..32..31..30..29..28..27..26..
25..24..23..22..21..20..19..18..17..16..15..14..13..12..11..10..
09..08..07..06..05..04..03..
Tests completed.
Loading system software.
No default boot device is set.

Devices:
--DIA0 (RF30)
--MUA0 (TK70)
--ESA0 (08--00--2B----08--E7--A4)
--DEVICE? [ESA0]:
```

If the self-tests do not start or fail to complete successfully as shown in Figure 12, your system may have a problem. Refer to your system *Troubleshooting and Diagnostics* manual for instructions.

If the self-tests complete successfully, set the Power-Up Mode switch on the MicroVAX CPU cover panel to the Run position, indicated by an arrow, and shown in Figure 13. That setting saves the language you selected.

Figure 13: Setting the Power-Up Mode Switch
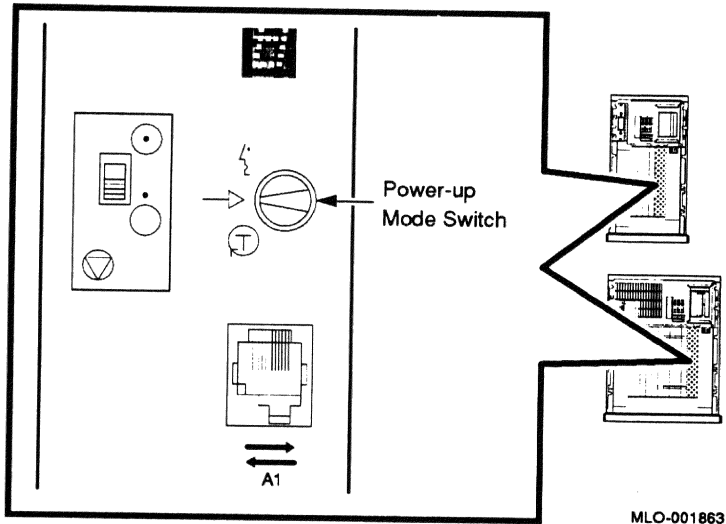
Power-up
Mode Switch

A1

MLO-001863

8 Attach the Front Panels

The final step of the installation is attaching the front panels of the R215F
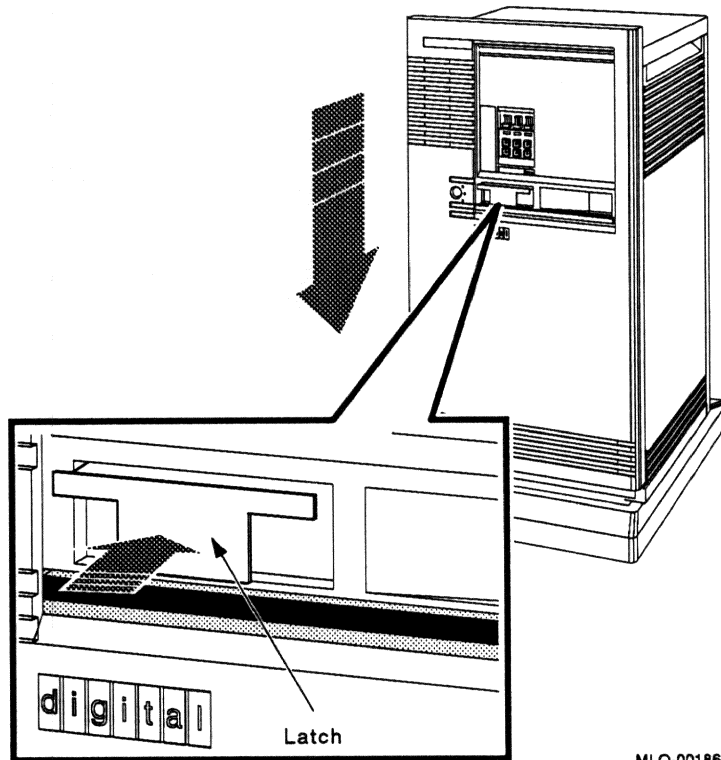and MicroVAX enclosures.

NOTE: *The window on each front panel must be open to attach the panel. Instructions for operating the window control are provided in the Operation section of this addendum.*

Attach the front panels according to the following procedure and as shown in Figure 14.

Figure 14: Attaching the Front Panels

MLO-001864

1. Pull out the latch on the front panel.

2. Holding the panel with both hands, place it flush against the front of the enclosure, about an inch above the bottom.

3. Insert the hooks on the panel in the slots on the enclosure. Then slide the panel down until it locks in place. Secure the panel by pushing in the latch.

9 After Installation

You should now read your system *Operation* manual to learn how to use your system. You must know how to operate the system controls and the TK-series tape drive before you install system software or run diagnostic software. System software and diagnostic software are shipped in tape cartridges.

Information on operating the R215F expander's RF-series integrated storage elements (ISEs) and the controls on the operator control panel (OCP) is provided in the Operation section of this addendum.

Digital strongly recommends that you now run the diagnostic software supplied with your system. If you installed a new MicroVAX 3300 or MicroVAX 3400 system, Digital recommends that you run the diagnostic software before you install system software. If you installed the expander as an add-on unit, you should still run the diagnostic software to test your expander's ISEs.

The diagnostics verify your system's configuration and check to see if each device is working properly. The diagnostic software is on a tape cartridge labeled MV DIAG CUST TK50. Your system *Troubleshooting and Diagnostics* manual describes how to run the diagnostic software.

Operation

1 Introduction

The R215F expander provides additional mass storage capacity for your MicroVAX 3300 or MicroVAX 3400 system. Up to three RF-series Integrated Storage Elements (ISEs) can be included in the expander. An ISE is an intelligent storage device that handles device operations internally, rather than through a controller.

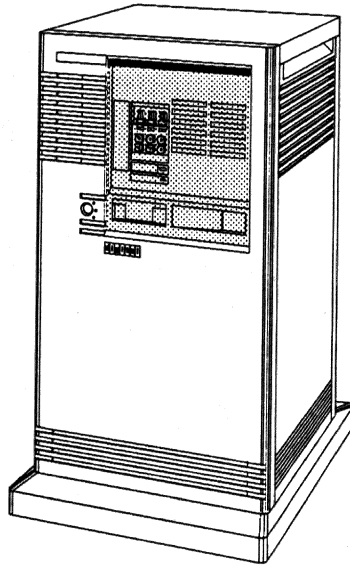The following procedures are covered in this part of the addendum.

* Operating the window controls on the front panel of the expander

* Removing and attaching the front panel

* Turning on the expanded system

* Operating RF-series ISEs

* Operating the controls on the expander's power supply

2 Operating the Sliding Window

The front of the R215F expander has a removable front panel that restricts access to the on/off switch and controls on the operator control panel (OCP).

Figure 1 shows the expander with the front panel attached.
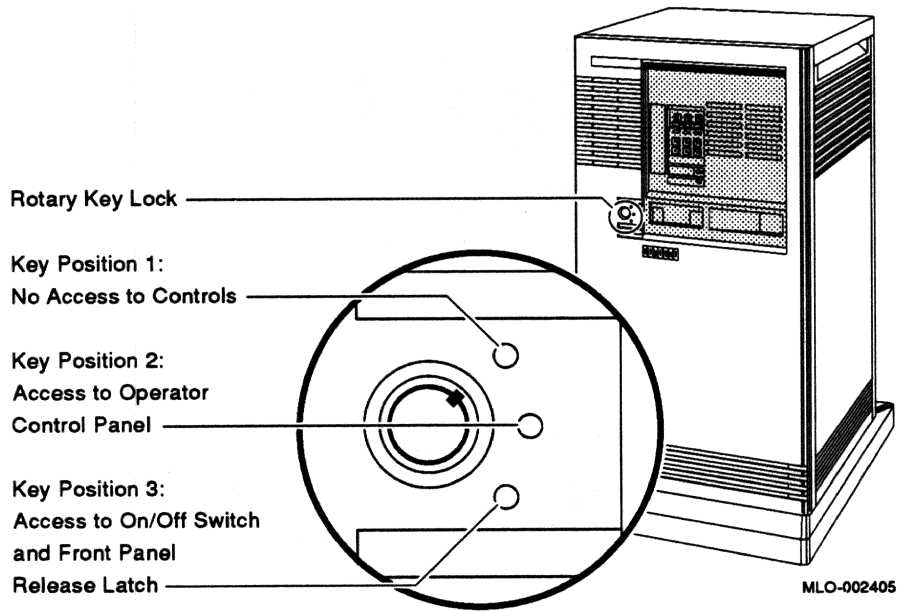
Figure 1: R215F Expander

MLO-002404

The front panel has a sliding window controlled by a three-position rotary lock. You can lock the window in one of three positions: closed, partially open, and fully open. Each position limits access to controls behind the window. When the window is locked in any of its three positions, you can still raise it to a higher position. However, you cannot lower it beyond the locked position without using your key.

To open the window, turn the key to position 2 or 3, then slide the window down. To close the window, slide the window up, then turn the key to lock the window in position.
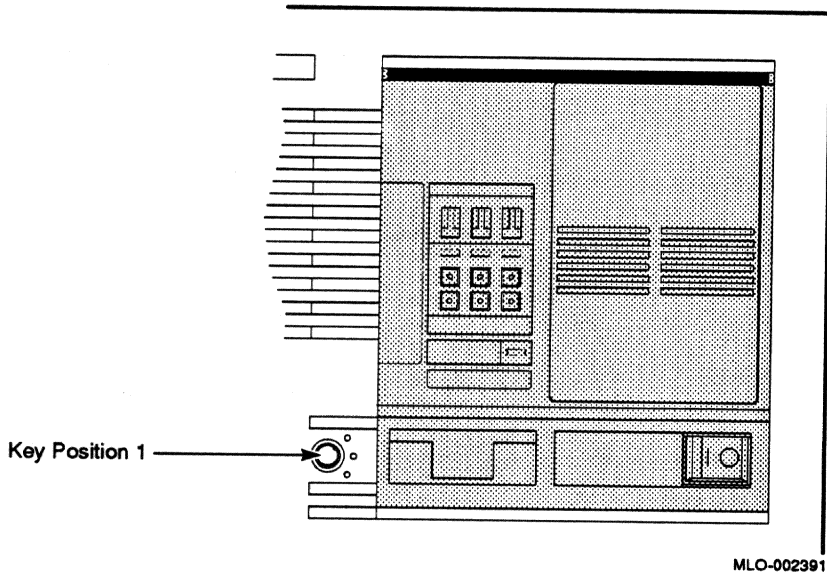
Figure 2 shows the three key positions and the controls accessible in each position.

Figure 2: Key Positions

Rotary Key Lock ——————————————

Key Position 1:
No Access to Controls ——————————

Key Position 2:
Access to Operator
Control Panel ——————————

Key Position 3:
Access to On/Off Switch
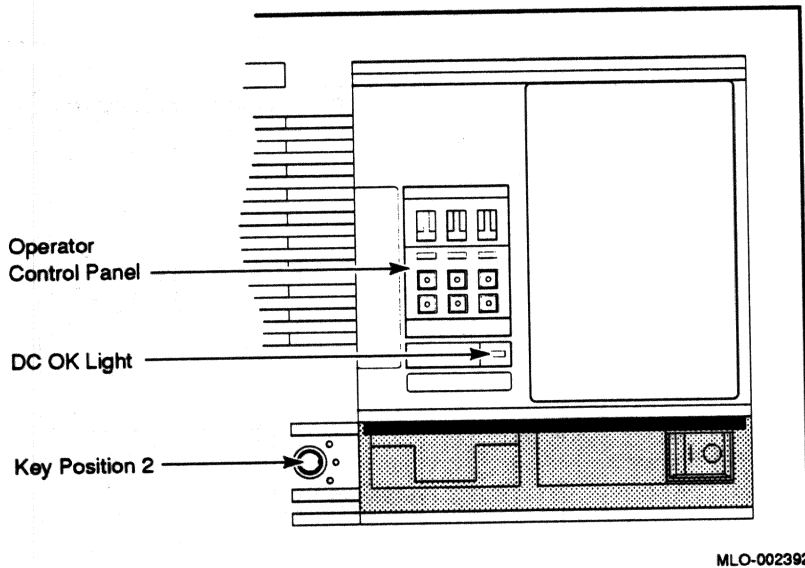and Front Panel
Release Latch ——————————

MLO-002405

When the window is up and the key is turned to position 1, the window is locked in the closed position. You cannot use any controls when the window is closed, but lights indicating power to the expander and activity on the ISEs are visible through the window. Figure 3 shows the closed window and key position.

Figure 3: Sliding Window Closed
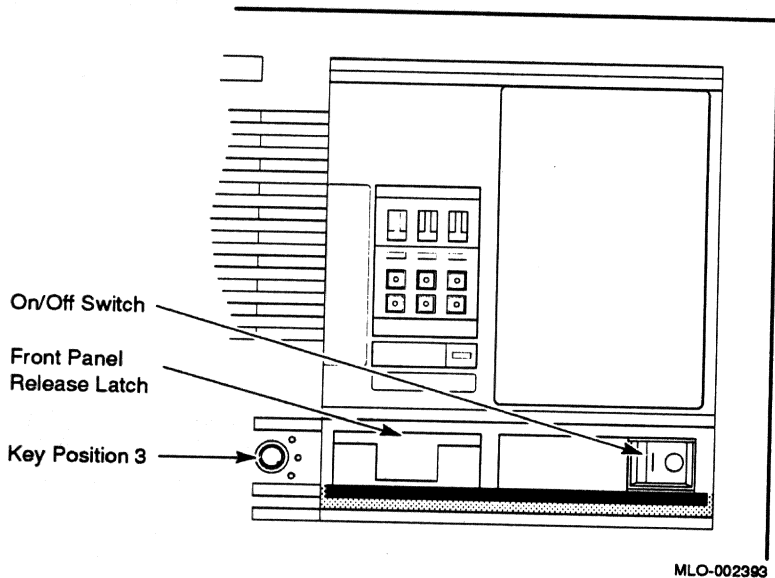
Key Position 1

MLO-002391

When the key is turned to position 2, you can open the window partially, as shown in Figure 4. You can operate the controls on the operator control panel (OCP).

Figure 4: Window Partially Open

Operator
Control Panel

DC OK Light

Key Position 2

MLO-002392

When the key is turned to position 3, you can open the window fully, as
shown in Figure 5.

Figure 5: Window Fully Open

On/Off Switch

Front Panel
Release Latch

Key Position 3

MLO-002393

When the window is fully open, you can turn the expander on and off and you can release the latch that locks the front panel.
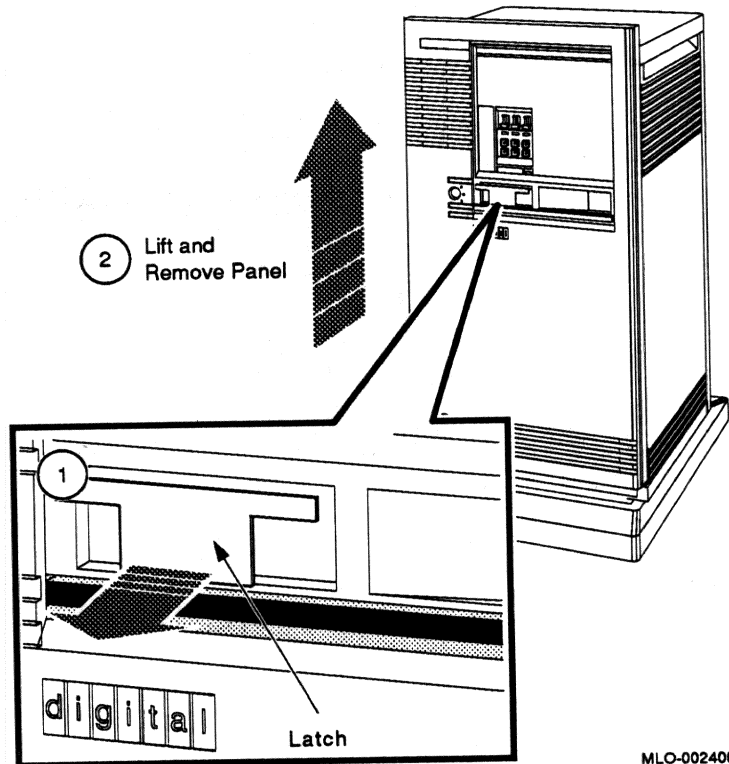
3 Removing and Attaching the Front Panel

You must remove the front panel to use controls on the power supplies.

NOTE: *The window on the front panel must be fully open to remove and attach the front panel.*

Remove the front panel as follows.

1. Insert the key in the lock on the front panel. Turn the key clockwise to the bottom position.

2. Slide the window down.

3. Pull out the latch. See Figure 6.

4. Lift the front panel up and then out.
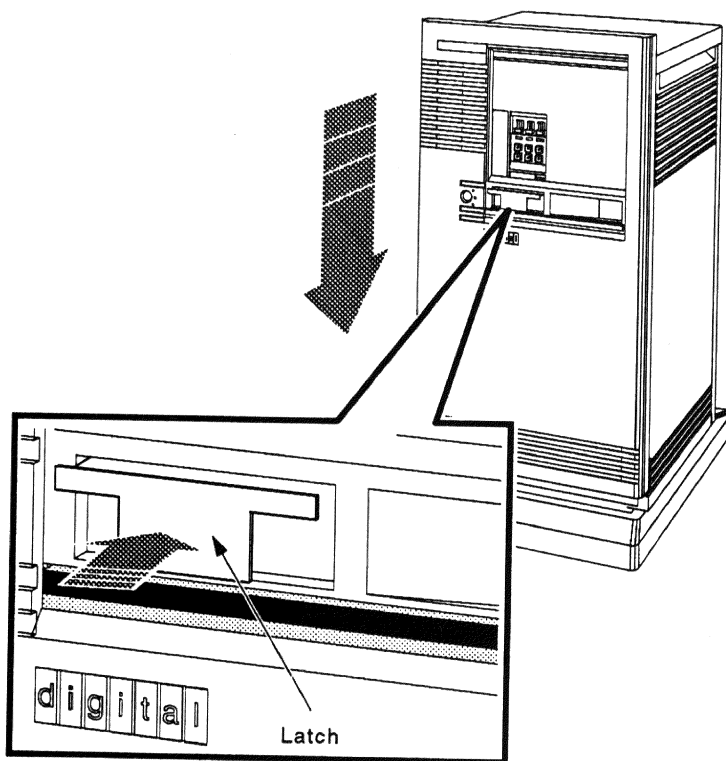
Figure 6: Removing the Front Panel

MLO-002406

NOTE: *The window on the front panel must be fully open to attach the front panel.*

Attach the front panel as follows.

1. Pull out the latch on the front panel.

2. Holding the panel with both hands, place it flush against the front of the enclosure, about an inch above the bottom. See Figure 7.

3. Insert the hooks on the panel in the slots on the enclosure. Then slide the panel down until it locks in place.

4. Secure the panel by pushing in the latch.

Figure 7: Attaching the Front Panel

MLO-001864

Latch

4 Turning On the Expanded System

Turn on your system as follows.

1. Turn on your console terminal and wait until it performs its self-tests successfully.

2. Set the on/off switches on the MicroVAX and R215F enclosures to on (1).

   The on/off switches should glow orange.

CAUTION: *Turning off your system without following the shutdown procedure described in your operating system manuals may result in loss of data. The operating systems available for MicroVAX systems are VMS, ULTRIX–32 and VAXELN.*

Once you complete the recommended shutdown procedure, you can turn off your system by setting the on/off switches on the MicroVAX and R215F enclosures to off (0).

5 Operating RF-Series Integrated Storage Elements

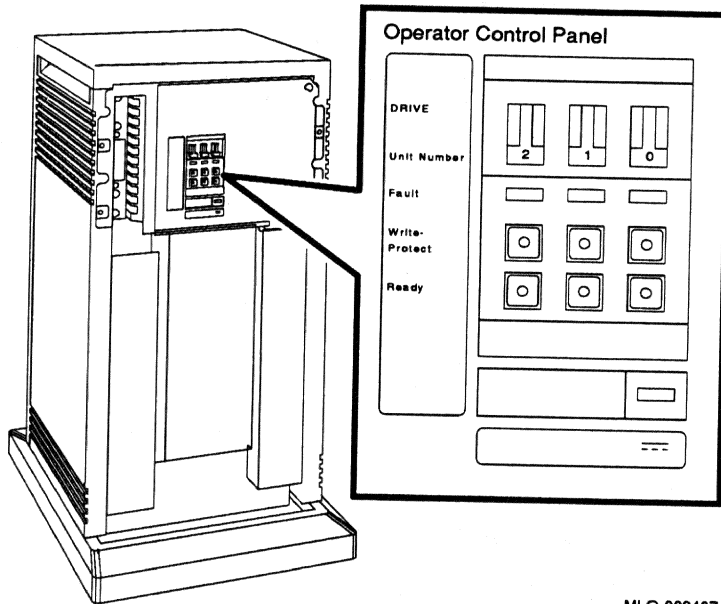The R215F expander can contain up to three RF-series integrated storage elements (ISEs).

When your system has multiple ISEs, Digital recommends that you separate them according to function. For example, if your system has two ISEs, you may want to use them as follows.

- ISE 0 contains the operating system and applications installed on the system.

- ISE 1 contains work areas for each user with an account on the system.

The storage capacities and other specifications for RF-series ISEs are listed in your system *Technical Information* manual.

Controls for the ISEs are located on the operator control panel (OCP), behind the sliding window on the front of the expander. To access the OCP, you must turn the key to position 2 or 3 and slide the window down. Figure 8 shows the OCP on the expander.

Figure 8: Operator Control Panel

MLO-002407

The OCP has the following controls and indicators for each of the three possible ISEs.

- Unit ID plug
- Fault light
- Write-Protect button
- Ready button

Unit ID plugs identify the unit numbers of ISEs in the expander. Instructions for numbering ISEs are provided in the Installation section of this addendum.

NOTE: *If you change the Unit ID plugs while the system is turned on, you must turn off the system and then turn it back on for the new plug positions to take effect.*

Table 1 lists the function of each of the controls for the RF-series ISEs.

Table 1: RF-Series Controls and Indicators

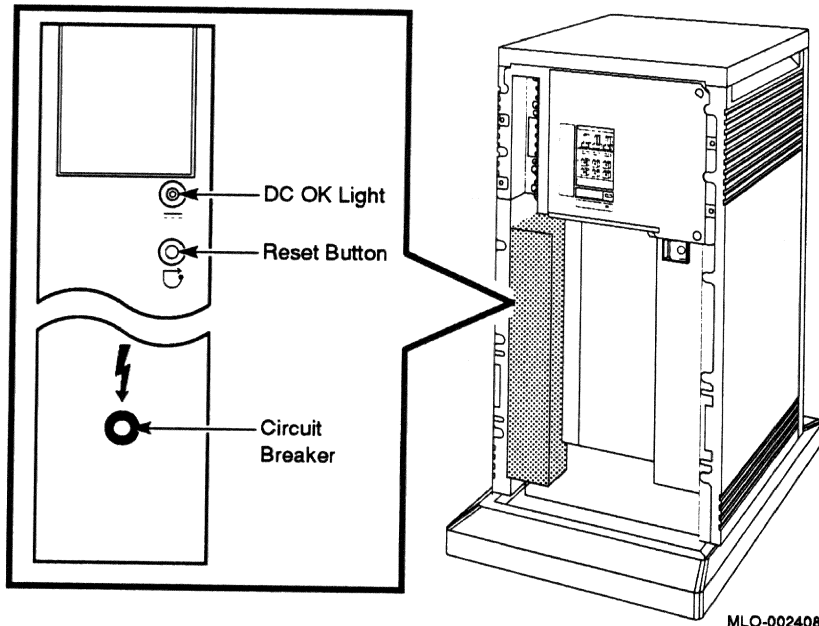| Control	Position	Function
Fault	Lit	Indicates an error condition within the ISE. The light is on temporarily during power-up (normal condition).
	Not lit	Indicates an error-free condition within the ISE.
Write-Protect	In (lit)	ISE is write-protected. Prevents system software from writing on the ISE.
	Out (not lit)	ISE is not write-protected. Normal position for software operation. System software is free to read or write information on the ISE.
Ready	Out	ISE is on-line. When the ISE is available for use, the green light in the switch is on. When the ISE is being used, the green light is off.
	In	ISE is off-line and cannot be accessed. The green light cannot be lit when the Ready button is in.

The Write-Protect button controls whether the system can write data to the ISE. The system can read from the ISE regardless of the setting of the Write-Protect button. When the Write-Protect button is out (not lit), the system can write to the ISE. Your system disk (the ISE containing system software) and ISEs containing work areas for users should be write-enabled, the normal operating setting.

If you want to write-protect an ISE containing data that you do not want changed or erased, set the Write-Protect button to in (lit).

6 Controls and Indicators on the Power Supply

The power supply has a circuit breaker and DC OK light, as shown in Figure 9.

Figure 9: Power Supply

MLO-002408

- Circuit breaker — The circuit breaker trips to protect the expander from current overloads. When tripped, the circuit breaker is in the out position.

  To reset the breaker, set the on/off switch on the expander to off (0), press the circuit breaker to the in position, and set the on/off switch to on (1).

- DC OK light — When lit, the DC OK light indicates that the voltages are within the correct operating range. When unlit, there is a problem with the power supply. Turn off the expander and call your Digital service representative.

R215F Expander Addendum for MicroVAX 3500/3800 Systems

This addendum tells you how to install and operate an R215F expander on MicroVAX 3500 and MicroVAX 3800 systems.

Installation instructions are provided for a factory-configured expander shipped with a new MicroVAX 3800 system or a DSSI-based MicroVAX 3500 system.

Contents

Installation

Operation

Figures

Tables

Installation

This section tells you how to install an R215F expander on factory configured MicroVAX 3800 and DSSI-based MicroVAX 3500 systems. The Operation section tells you how to operate the expander on MicroVAX 3500 and MicroVAX 3800 systems.

The expander provides up to three RF-series Integrated Storage Elements (ISEs) for your MicroVAX system. An ISE is an intelligent storage device that contains its own controller.

Install the MicroVAX system first, using the instructions provided in your system *Installation* manual. After you complete step 6, Connect Additional Devices to the System, return to this document and begin installing the expander.

NOTE: *Installation of the expander as an add-on unit to a previously installed MicroVAX system must be performed by a Digital service representative or qualified self-maintenance customer.*

Installing the expander includes the following steps.

1. Verifying site preparation

2. Unpacking your shipment

3. Positioning the expander

4. Connecting the DSSI cable

5. Connecting the power cables

6. Turning on the expanded system

7. Attaching the front panels

1 Verify Site Preparation

The system *Site Preparation* manual describes the physical, environmental and electrical requirements for your system. The installation instructions that follow assume your site meets the installation requirements listed in that document.

NOTE: *Expanded MicroVAX systems require a separate circuit for the expander.*

2 Unpack Your Shipment

NOTE: *Save all packing materials if you plan to reship the R215F expander.*

Unpack the expander according to the instructions on the carton. Figure 1 shows the contents of the shipping carton (minus this and the other documents).

Before installing the expander, unpack all cartons and check the contents against the shipping list to ensure you received everything you ordered.
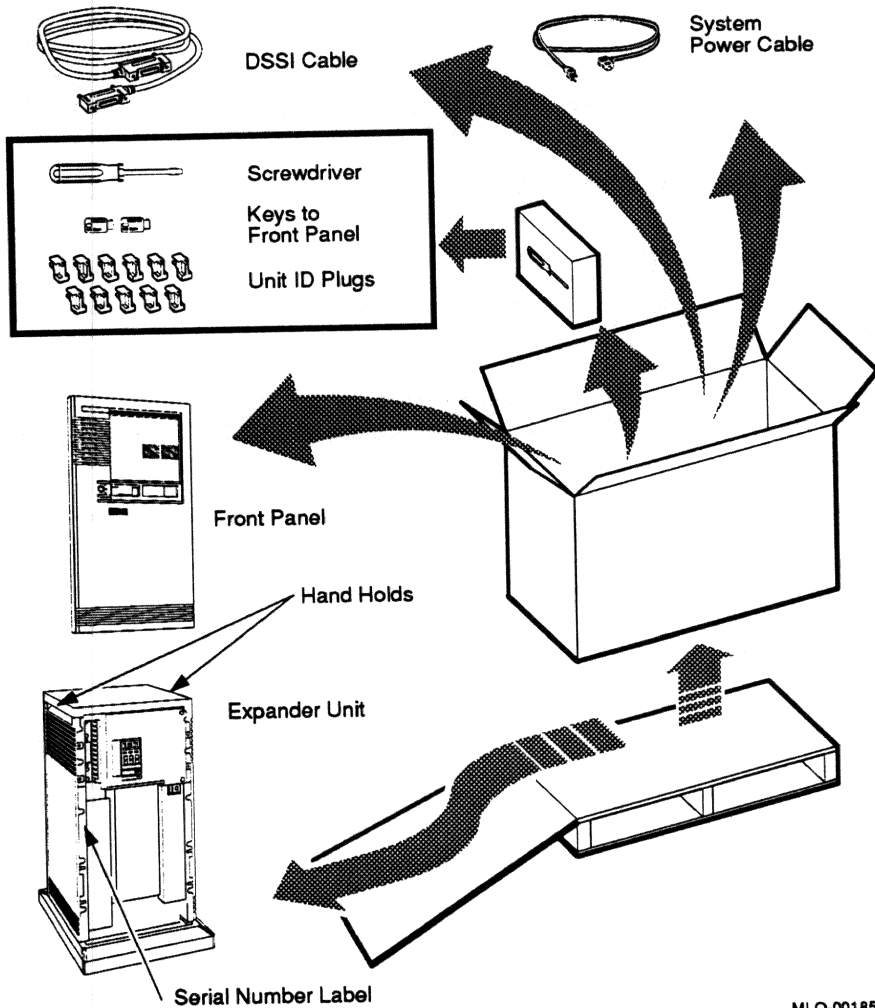
If any item is missing or damaged:

*   Contact your delivery agent.

*   Contact your Digital sales representative.

CAUTION: *Before continuing the installation, verify that your expander's power requirements match your power source. The correct voltage for the expander is listed on the serial number label next to the power supply (see Figure 1). If the voltage listed matches your power source, continue the installation. If the voltage does not match your power source, do not continue the installation and contact your Digital sales representative.*

NOTE: *Release the shipping brackets according to the instructions on the yellow labels attached to the front of the R215F enclosure: Loosen, but do not remove, the six orange screws to release the shipping brackets from the ISEs. Then tighten the six orange screws after the shipping brackets release. When you complete that procedure, remove the yellow labels from the front of the enclosure.*

Figure 1: Shipping Carton Contents

DSSI Cable

System Power Cable

Screwdriver

Keys to Front Panel

Unit ID Plugs

Front Panel

Hand Holds

Expander Unit

Serial Number Label

MLO-001854

3 Position the Expander

The installation instructions that follow assume you correctly followed the unpacking instructions on the carton.

CAUTION: *Moving or operating R215F expander without releasing the shipping brackets may damage the ISEs.*

After unpacking your expander, you can move it into position in two ways, as shown in Figure 2:

* You can roll it sideways.

* You can gently slide or walk it backward or forward by gripping the handholds on the side of the enclosure.

WARNING: *Each enclosure weighs between 50 kg (110 lb) and 64 kg (140 lb), depending on the options installed. Use two or more people to move the enclosures.*

Position the expander to the left of the MicroVAX system as shown in Figure 2.

Figure 2: Moving the Expander into Place

Expander

System

Rolls Left to Right

Slides Front to Back
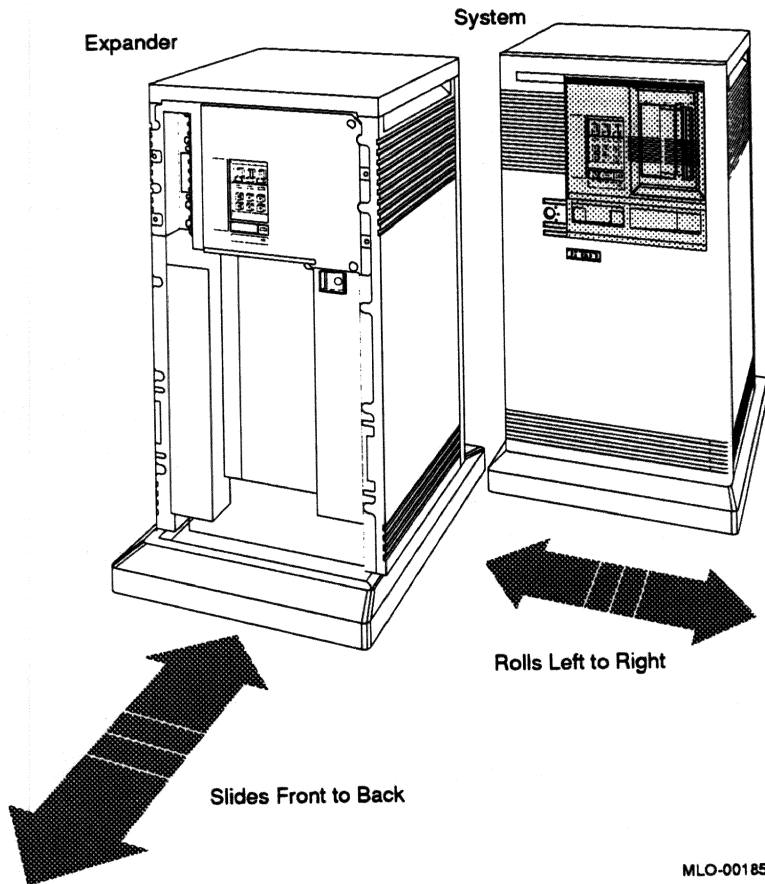
MLO-001855

During installation, leave a few inches of space behind the R215F and MicroVAX enclosures for routing cables underneath. Once installation is complete, you can place the base of the enclosures directly against a wall. No rear ventilation clearance is required.

4 Connect the DSSI Cable

**CAUTION:** *Make sure the on/off switch on both enclosures is set to off (0).*

An external Digital Storage System Interconnect (DSSI) cable connects the MicroVAX system and the R215F expander.

Connect the DSSI cable as follows.

1. Remove the DSSI terminator from the DSSI port on the MicroVAX enclosure as shown in Figure 3.

   Squeeze the spring clips at the top and bottom of the terminator as you pull it straight out of the port.
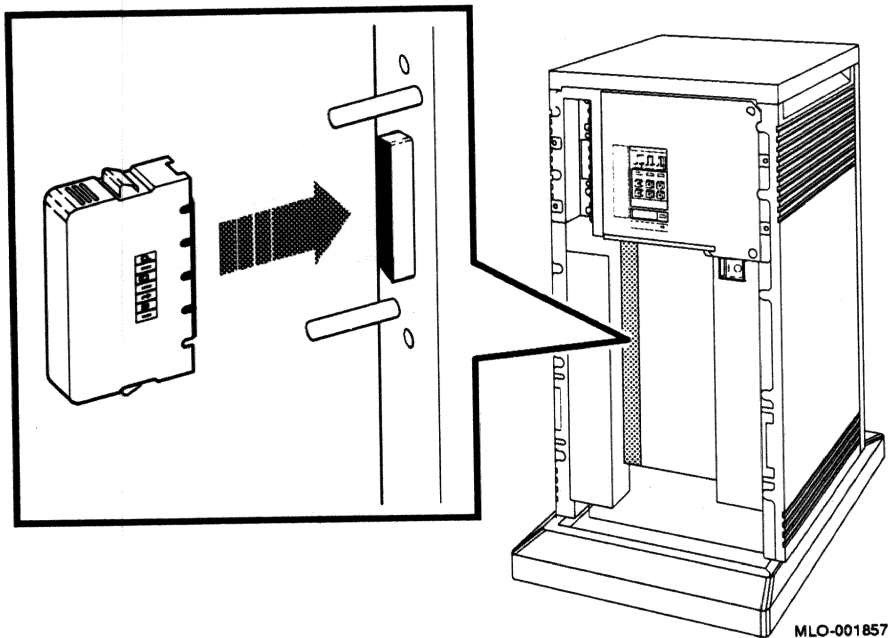
Figure 3: Removing the DSSI Terminator

MLO-001856
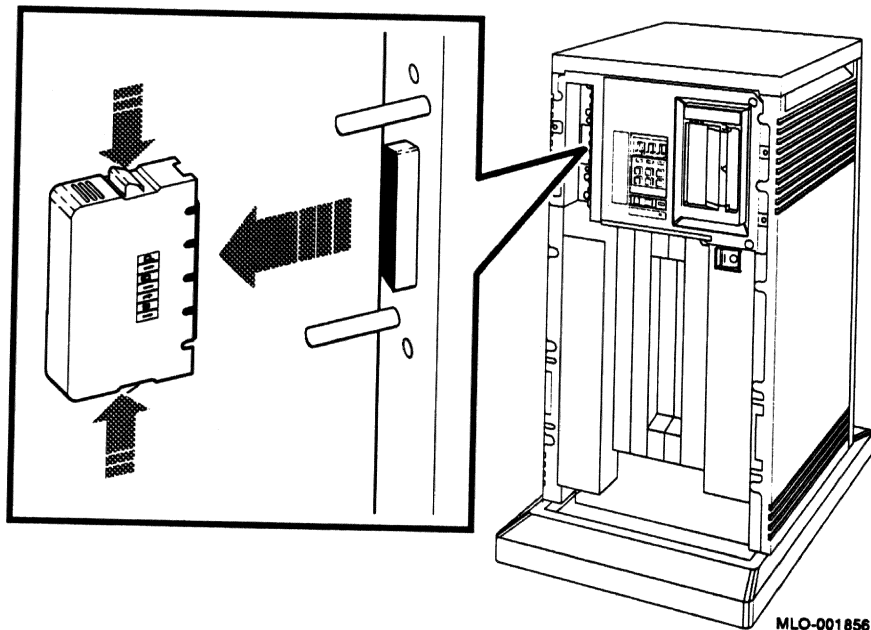
2. Attach the DSSI terminator to the lower DSSI port on the expander as shown in Figure 4.

   Check that the terminator is oriented properly (the DIGITAL logo is on the right). Then push the terminator onto the port. The spring clips should lock the terminator in place.

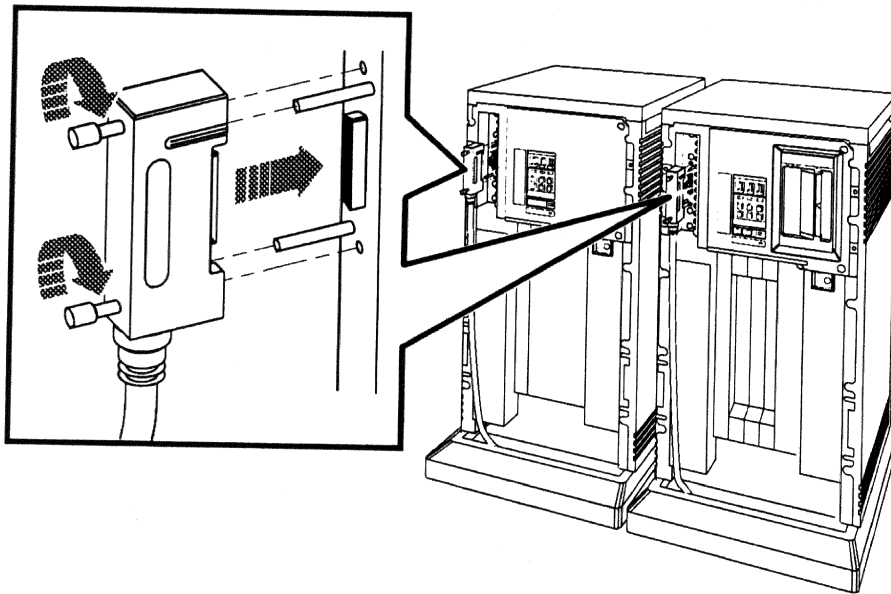**Figure 4: Attaching the DSSI Terminator**

MLO-001857

3. Find the 2.74 m (9 ft) cable labeled BC21M–09 that was shipped with the expander.

4. Feed either end of the cable under the MicroVAX enclosure from the back or side. Then plug the cable into the DSSI port by fitting the cable connector over the two guide pins on the DSSI port as shown in Figure 5.

   First tighten the screws by hand, then use the screwdriver shipped with your expander to secure the connection. Do not overtighten.

5. Feed the opposite end of the cable under the R215F enclosure from the back or side. Then plug the cable into the upper DSSI port by fitting the cable connector over the two guide pins on the DSSI port as shown in Figure 5.

   First tighten the screws by hand, then use the screwdriver shipped with your expander to secure the connection. Do not overtighten.

Figure 5: Connecting the DSSI Cable

MLO-001858

NOTE: *If you need to remove a DSSI cable, loosen the screws on the connector and then pull the connector straight out by pulling the two screw heads simultaneously.*

5 Connect the System Power Cables

Do not proceed unless you verified that your expander's power requirements match your power source. The correct voltage for the expander is listed on the serial number label on the left side of the enclosure next to the power supply (see Figure 1).

If the voltage listed matches your power source, continue the installation. If the voltage does not match your power source, do not continue the installation and contact your Digital sales representative.

CAUTION: *Operating an R215F expander with incorrect voltage can damage it.*

Connect the system power cables as follows.

1. Make sure the on/off (1/0) switches on the MicroVAX and R215F enclosures are set to off (0) and that all devices connected to the MicroVAX system are turned off.

2. Find the power cables for the MicroVAX system and the expander. A power cable is shipped with each enclosure.

3. Make sure the male end of each power cable matches its wall outlet. Several types of power cables are shown in Figure 6.

Figure 6: Power Cables

100 - 125 V

200 - 250 V

MLO-001861
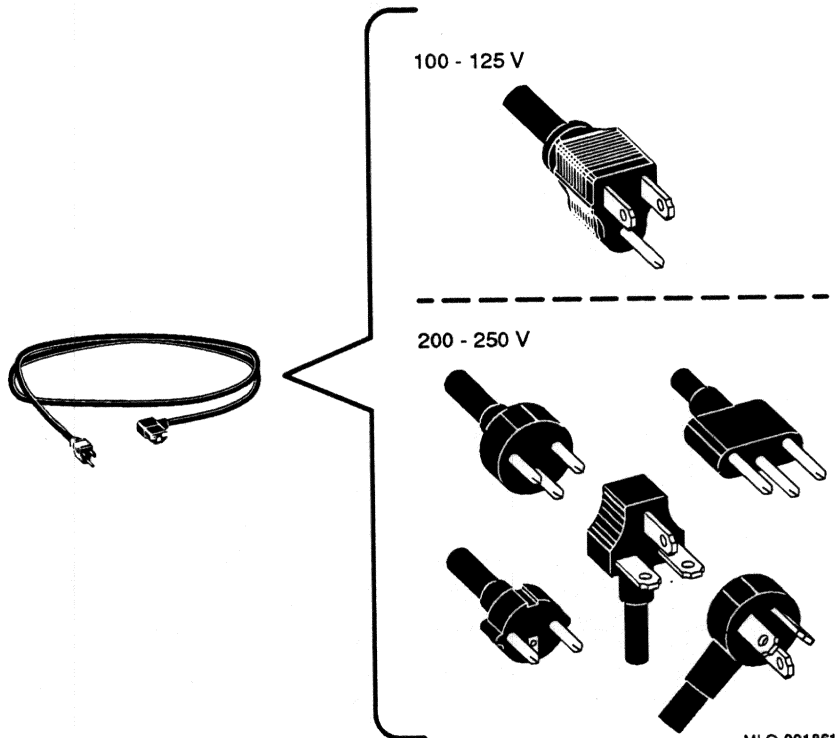
4. Feed the female end of the MicroVAX cable under the MicroVAX enclosure from the rear and connect it, as shown in Figure 7.

   Repeat step 4 with the second cable for the expander. Figure 8 shows how to attach the power cable to the expander.

5. Plug the male ends of the power cables into their wall outlets.

NOTE: *Expanded MicroVAX systems require a separate circuit for the expander.*

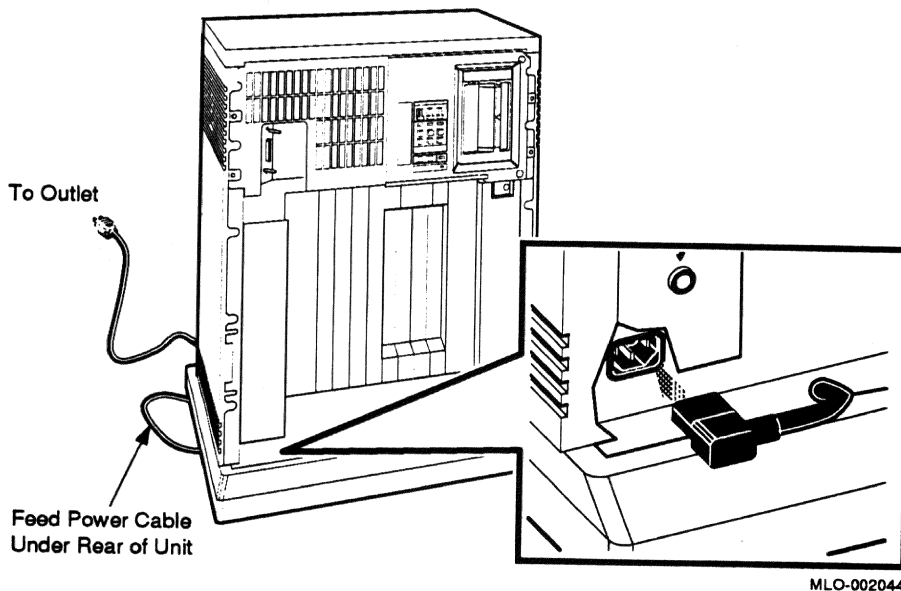**Figure 7: Connecting the Power Cable to the MicroVAX Enclosure**

To Outlet

Feed Power Cable
Under Rear of Unit

MLO-002044

Figure 8: Connecting the Power Cable to the Expander Enclosure

To Outlet

Feed Power Cable
Under Rear of Unit

MLO-001862
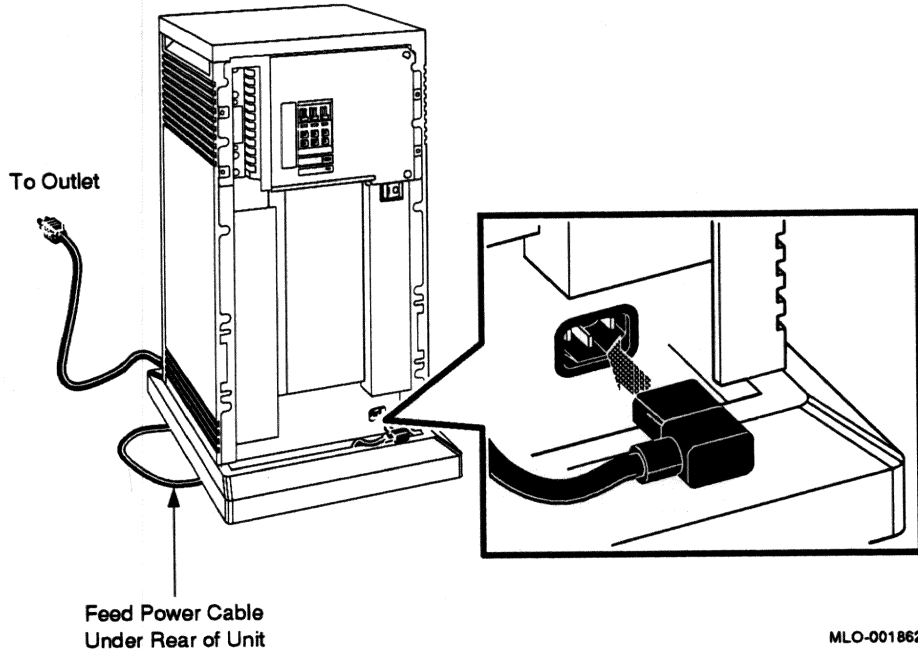
6 Turn On the Expanded System

You are now ready to turn on your expanded MicroVAX system, and to select a language if the system is new.

Turn on your system as follows.

1. Make sure the system and console baud rates are the same.

2. Turn on your console terminal and wait until it performs its self-tests successfully.

3. Set the on/off switches on the MicroVAX and R215F enclosures to on (1).

    The on/off switches should glow orange.

Select a Language

The first time you turn on your MicroVAX system you must select a language. The language you select controls only the language of the console program, which is a part of the firmware in the CPU. CPU firmware lets you give commands to the system and generates error messages if errors occur. CPU firmware is described in your system *Technical Information* manual.

Within a few moments of turning on your system, your console terminal should display the Language Selection Menu. Figure 9 shows the Language Selection Menu for a MicroVAX 3800 system. MicroVAX 3500 systems display a different version of that menu.

Figure 9:   Language Selection Menu for MicroVAX 3800 Systems

```
KA655-A V5.3 VMB 2.7
 1) Dansk
 2) Deutsch (Deutschland/Österreich)
 3) Deutsch (Schweiz)
 4) English (United Kingdom)
 5) English (United States/Canada)
 6) Español
 7) Français (Canada)
 8) Français (France/Belgique)
 9) Français (Suisse)
10) Italiano
11) Nederlands
12) Norsk
13) Português
14) Suomi
15) Svenska
  (1..15):
```

Select a language by typing the number corresponding to your choice and pressing Return .

NOTE: *On some older terminals that do not support multiple languages, the Language Selection Menu does not appear and the system defaults to English.*

After you select a language, the system runs its power-on self-tests. Within a few moments, your console terminal should display a series of numbers as the system tests itself. Figure 10 shows that display after a successful

power-on test for a MicroVAX 3800 system. MicroVAX 3500 systems have a similar display for a successful power-on test.

**Figure 10: Example of a Successful Power-On Test for MicroVAX 3800 Systems**

```
KA655-A V5.3, VMB 2.7

Performing normal system tests.
40..39..38..37..36..35..34..33..32..31..30..29..28..27..26..25..
24..23..22..21..20..19..18..17..16..15..14..13..12..11..10..09..
08..07..06..05..04..03..
Tests completed.
Loading system software.
No default boot device is set.

Devices:
--DUA0  (RF71)
--MUA0  (TK70)
--XQA0  (08-00-2B-08-E7-A4)
--DEVICE? [XQA0]:
```

If the self-tests do not start or fail to complete successfully as shown in Figure 10, your system may have a problem. Refer to your system *Troubleshooting and Diagnostics* manual for instructions.

If the self-tests complete successfully, set the Power-Up Mode switch on the MicroVAX CPU cover panel to the Run position, indicated by the arrow, and shown in Figure 11. That setting saves the language you selected.

Figure 11: Setting the Power-Up Mode Switch

MLO-001863
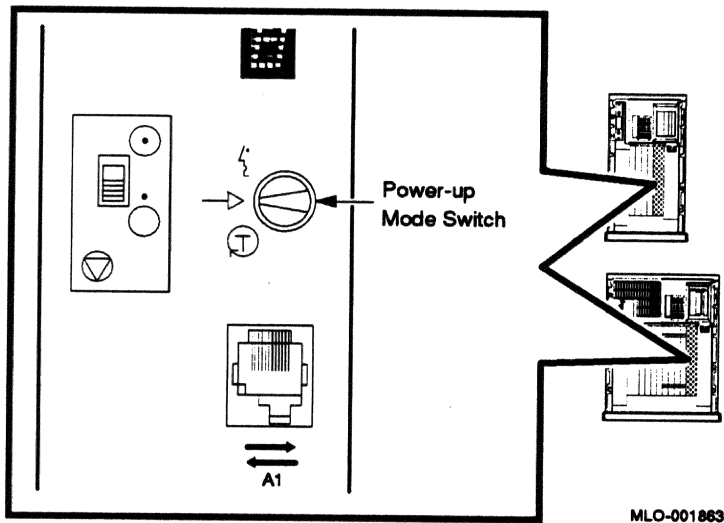
## 7 Attach the Front Panels

The final step of the installation is attaching the front panels of the R215F and MicroVAX enclosures.

NOTE: *The window on each front panel must be fully open to attach the panel. Instructions for operating the window control are provided in the Operation section of this addendum.*

Attach the front panels according to the following procedure and as shown in Figure 12.

Figure 12: Attaching the Front Panels
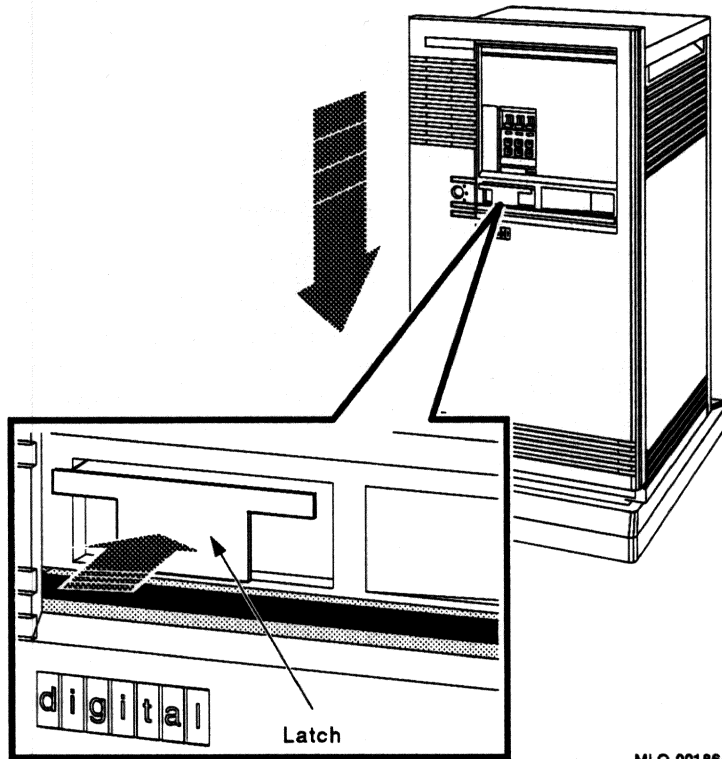
MLO-001864

1. Pull out the latch on the front panel.

2. Holding the panel with both hands, place it flush against the front of the enclosure, about an inch above the bottom.

3. Insert the hooks on the panel in the slots on the enclosure. Then slide the panel down until it locks in place. Secure the panel by pushing in the latch.

8 After Installation

You should now read your system *Operation* manual to learn how to use your expanded system. You must know how to operate the system controls and the TK-series tape drive before you install system software or run diagnostic software. System software and diagnostic software are shipped on tape cartridges.

Information on operating the R215F expander's RF-series integrated storage elements (ISEs) and the controls on the operator control panel (OCP) is in the Operation section of this addendum.

Digital strongly recommends that you now run the diagnostic software supplied with your system before you install system software.

The diagnostics verify your system's configuration and check to see if each device is working properly. The diagnostic software is on a tape cartridge labeled MV DIAG CUST TK50. Your system *Troubleshooting and Diagnostics* manual describes how to run the diagnostic software.

Operation

1 Introduction

The R215F expander provides additional mass storage for your MicroVAX system. Up to three RF-series Integrated Storage Elements (ISEs) can be included in the expander. An ISE is an intelligent storage device that handles device operations internally, rather than through a controller.

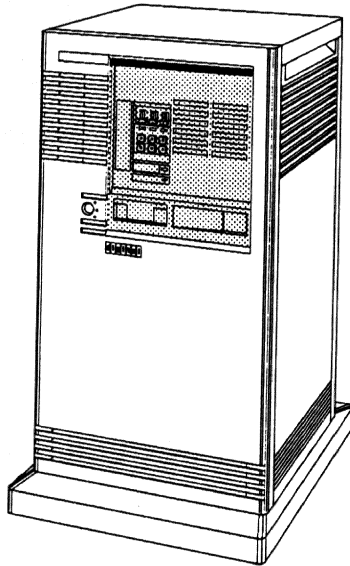The following procedures are covered in this section of the addendum.

- Operating the window controls on the front panel of the expander
- Removing and attaching the front panel
- Turning on the expanded system
- Operating RF-series ISEs
- Operating the controls on the expander's power supply

2 Operating the Sliding Window

The front of the R215F expander has a removable front panel that restricts access to the on/off switch and controls on the operator control panel (OCP).

Figure 1 shows the expander with the front panel attached.
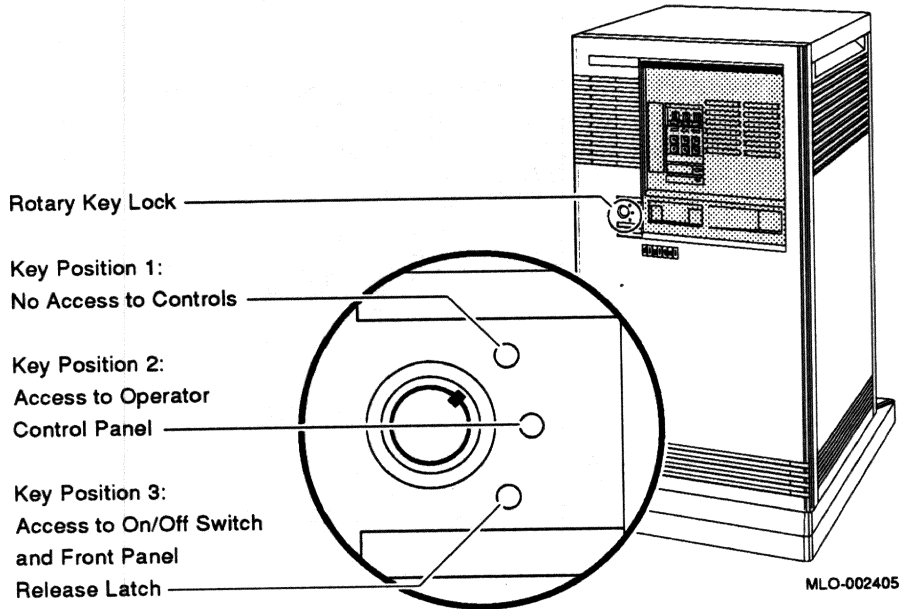
Figure 1: R215F Expander

MLO-002404

The front panel has a sliding window controlled by a three-position rotary lock. You can lock the window in one of three positions: closed, partially open, and fully open. Each position limits access to controls behind the window. When the window is locked in any of its three positions, you can still raise it to a higher position. However, you cannot lower it beyond the locked position without using the key.

To open the window, turn the key to position 2 or 3, then slide the window down. To close the window, slide the window up, then turn the key to lock the window in position.
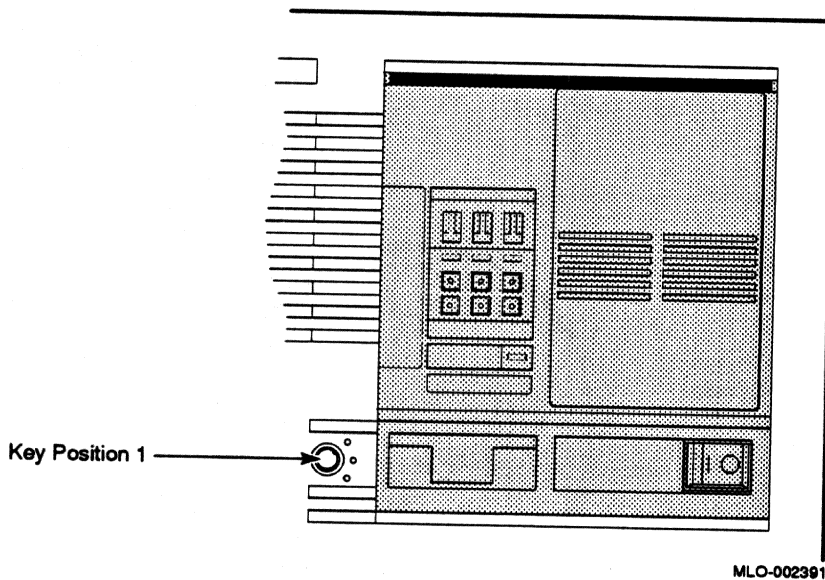
Figure 2 shows the three key positions and the controls accessible in each position.

Figure 2: Key Positions

Rotary Key Lock

Key Position 1:
No Access to Controls

Key Position 2:
Access to Operator
Control Panel

Key Position 3:
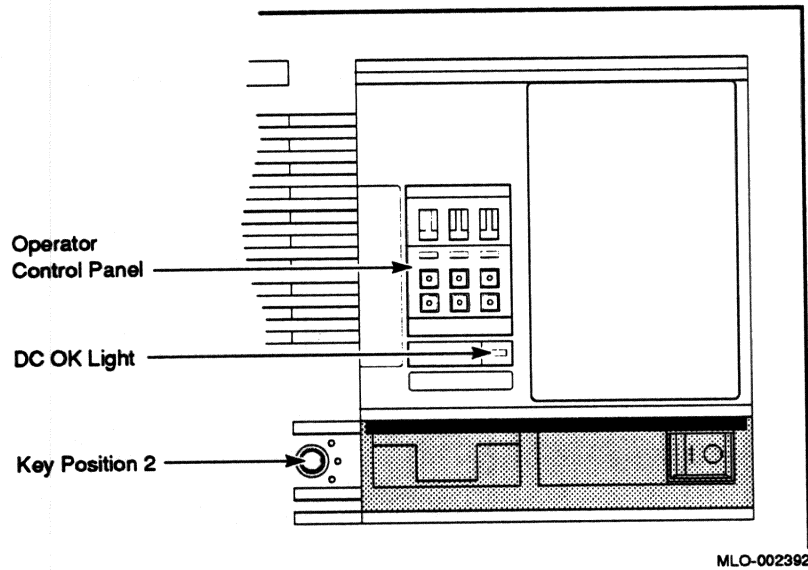Access to On/Off Switch
and Front Panel
Release Latch

MLO-002405

When the window is up and the key is turned to position 1, the window is locked in the closed position. You cannot use any controls when the window is closed, but lights indicating power to the expander and activity on the ISEs are visible through the window. Figure 3 shows the closed window and key position.

Figure 3: Sliding Window Closed
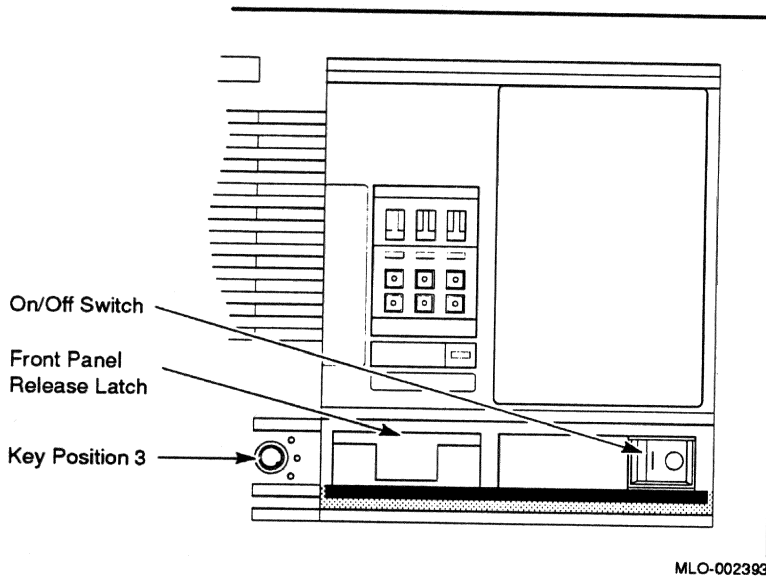

Key Position 1

MLO-002391

When the key is turned to position 2, you can open the window partially, as shown in Figure 4. You can operate the controls on the operator control panel (OCP).

Figure 4: Window Partially Open

Operator
Control Panel

DC OK Light

Key Position 2

MLO-002392

When the key is turned to position 3, you can open the window fully, as shown in Figure 5.

Figure 5: Window Fully Open

On/Off Switch

Front Panel
Release Latch

Key Position 3

MLO-002393

When the window is fully open, you can turn the expander on and off, and you can release the latch that locks the front panel.
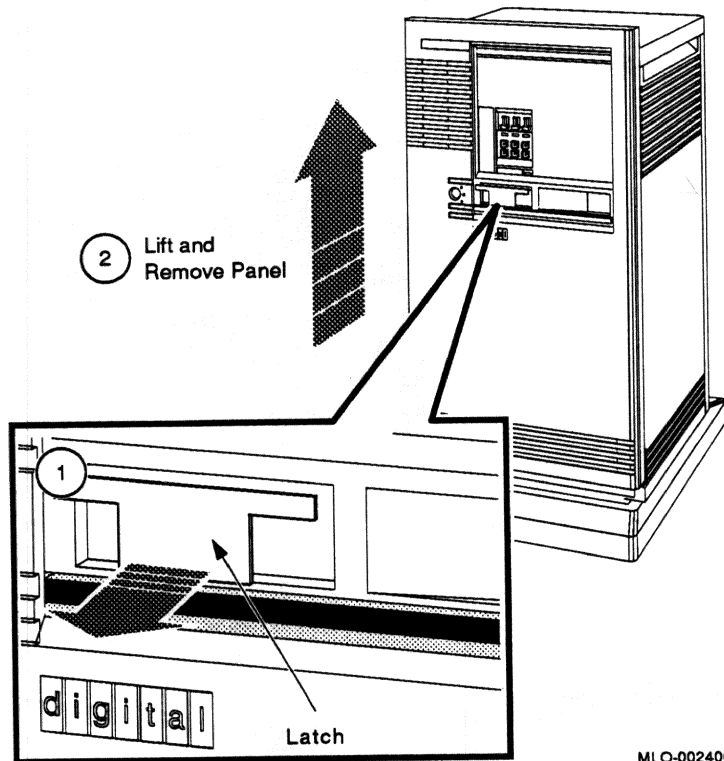
3 Removing and Attaching the Front Panel

You must remove the front panel to use controls on the power supplies.

NOTE: *The window on the front panel must be fully open to remove and attach the front panel.*

Remove the front panel as follows.

1. Insert the key in the lock on the front panel. Turn the key clockwise to the bottom position.

2. Slide the window down.

3. Pull out the latch. See Figure 6.

4. Lift the front panel up and then out.
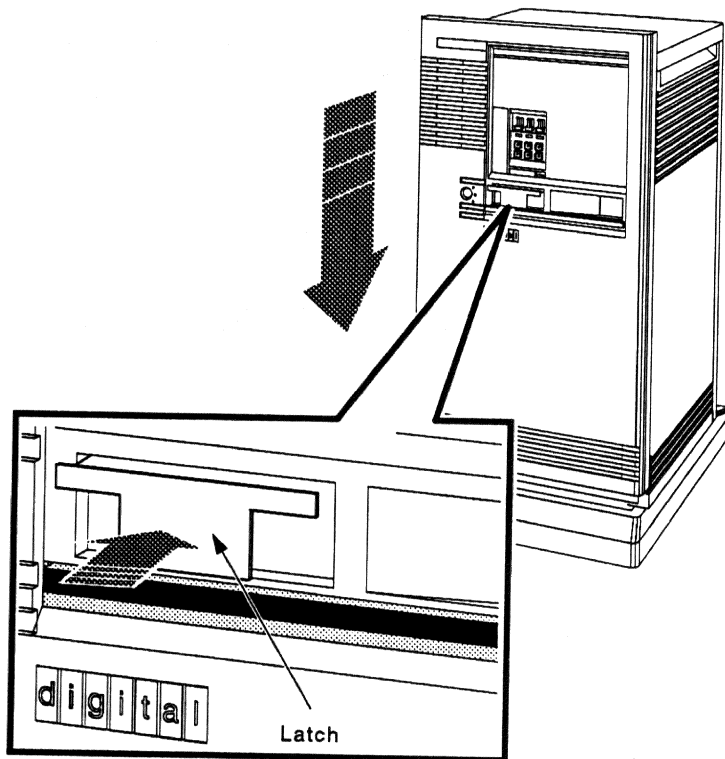
Figure 6: Removing the Front Panel

MLO-002406

NOTE: *The window on the front panel must be fully open to attach the front panel.*

Attach the front panel as follows.

1. Pull out the latch on the front panel.

2. Holding the panel with both hands, place it flush against the front of the enclosure, about an inch above the bottom. See Figure 7.

3. Insert the hooks on the panel in the slots on the enclosure. Then slide the panel down until it locks in place.

4. Secure the panel by pushing in the latch.

Figure 7: Attaching the Front Panel

Latch

MLO-001864

4 Turning On the Expanded System

Turn on your system as follows.

1. Turn on your console terminal and wait until it performs its self-tests successfully.

2. Set the on/off switches on the MicroVAX and R215F enclosures to on (1).

   The on/off switches should glow orange.

CAUTION: *Turning off your system without following the shutdown procedure described in your operating system manuals may result in loss of data. The operating systems available for MicroVAX systems are VMS, ULTRIX–32 and VAXELN.*

Once you complete the recommended shutdown procedure, you can turn off your system by setting the on/off switches on the MicroVAX and R215F enclosures to off (0).

5 Operating RF-Series Integrated Storage Elements

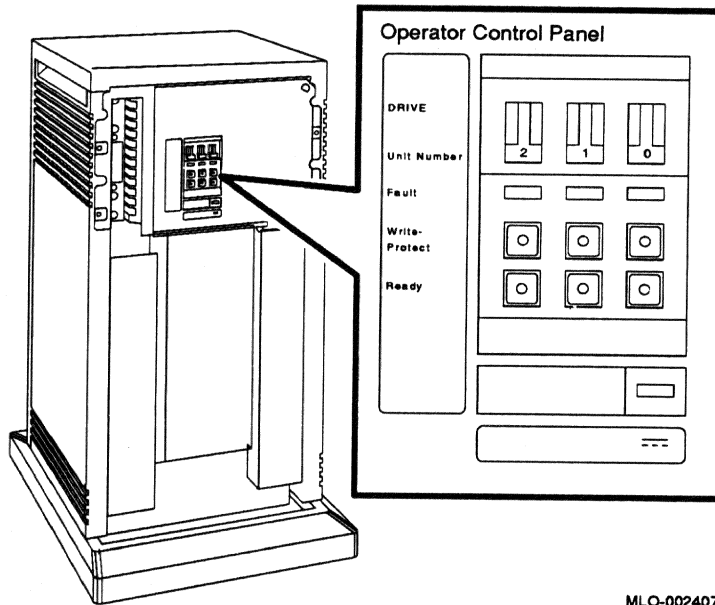The R215F expander can contain up to three RF-series integrated storage elements (ISEs).

When your system has multiple ISEs, Digital recommends that you separate them according to function. For example, if your system has two ISEs, you may want to use them as follows.

- ISE 0 contains the operating system and applications installed on the system.

- ISE 1 contains work areas for each user with an account on the system.

The storage capacities and other specifications for RF-series ISEs are listed in your system *Technical Information* manual.

Controls for the ISEs are located on the operator control panel (OCP), behind the sliding window on the front of the expander. To access the OCP, you must turn the key to position 2 or 3 and slide down the window. Figure 8 shows the OCP on the expander.

Figure 8: Operator Control Panel

Operator Control Panel

DRIVE

Unit Number 2 1 0

Fault

Write-
Protect

Ready

MLO-002407

The OCP has the following controls and indicators for each of the three possible ISEs.

- Unit ID plug

- Fault light

- Write-Protect button

- Ready button

Unit ID plugs identify the unit numbers of the ISEs in the expander. The ISEs are properly numbered at the factory.

NOTE: *Reassigning a Unit ID plug on MicroVAX systems using the KFQSA storage adapter may require reprogramming the KFQSA adapter by a Digital service representative.*

Table 1 lists the function of each of the controls for RF-series ISEs.

Table 1: RF-Series Controls and Indicators

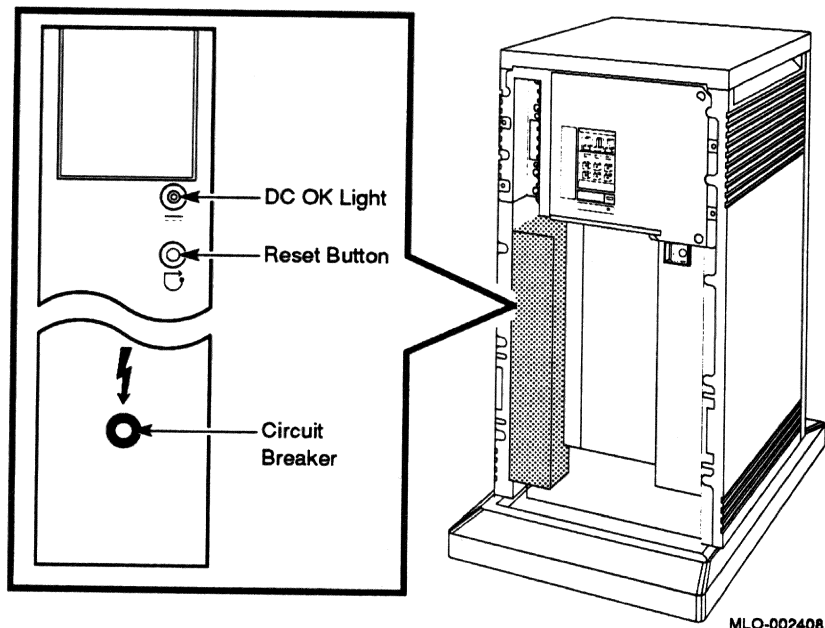| Control	Position	Function
Fault	Lit	Indicates an error condition within the ISE. The light is on temporarily during power-up (normal condition).
	Not lit	Indicates an error-free condition within the ISE.
Write-Protect	In (lit)	ISE is write-protected. Prevents system software from writing on the ISE.
	Out (not lit)	ISE is not write-protected. Normal position for software operation. System software is free to read or write information on the ISE.
Ready	Out	ISE is on-line. When the ISE is available for use, the green light in the switch is on. When the ISE is being used, the green light is off.
	In	ISE is off-line and cannot be accessed. The green light cannot be lit when the Ready button is in.

The Write-Protect button controls whether the system can write data to the ISE. The system can read from the ISE regardless of the setting of the Write-Protect button. When the Write-Protect button is out (not lit), the system can write to the ISE. Your system disk (the ISE containing system software) and ISEs containing work areas for users should be write-enabled, the normal operating setting.

If you want to write-protect an ISE containing data that you do not want changed or erased, set the Write-Protect button to in (lit).

6 Controls and Indicators on the Power Supply

The power supply has a circuit breaker and DC OK light, as shown in Figure 9.

Figure 9: Power Supply

MLO-002408

- Circuit breaker — The circuit breaker trips to protect the expander from current overloads. When tripped, the circuit breaker is in the out position.

  To reset the breaker, set the on/off switch on the expander to off (0), press the circuit breaker to the in position, and set the on/off switch to on (1).

- DC OK light — When lit, the DC OK light indicates that the voltages are within the correct operating range. When unlit, there is a problem with the power supply. Turn off the expander and call your Digital service representative.

R215F Expander
Addendum for DECsystem 5400 Pedestal Systems (210QS)

This addendum tells you how to install and operate an R215F expander on DECsystem 5400 210QS systems.

Contents

Installation

Operation

Figures

Tables

Installation

This section tells you how to install an R215F expander on DECsystem 5400 pedestal systems (210QS). The Operation section tells you how to operate the expander on DECsystem 5400 210QS systems.

The expander provides room for up to three additional RF-series Integrated Storage Elements (ISEs). An ISE is an intelligent storage device that handles device operations internally, rather than through a controller.

Depending on whether you are installing the expander as an add-on unit to a previously installed system, or as a factory-configured unit with a new system, the installation procedures differ.

NOTE: *If you are installing a new system with the expander, install the system first. Use the instructions provided in the system Installation manual. When you complete step 6, Connect Additional Devices to the System, return to this document and begin installing the expander.*

If you are installing a factory-configured expander with a new system, skip step 5 in this document, Number the Storage Elements, as that step was completed at the factory.

Installing the expander includes the following steps.

1. Verifying site preparation
2. Unpacking your shipment
3. Positioning the expander
4. Connecting the DSSI cable
5. Numbering the ISEs, if required
6. Connecting the power cables
7. Turning on the expanded system
8. Attaching the front panels

1 Verify Site Preparation

The system *Site Preparation* manual describes the physical, environmental and electrical requirements for your system. The installation instructions that follow assume your site meets the installation requirements listed in that document.

NOTE: *Expanded systems require a separate circuit for the expander.*

If you are installing the expander as an add-on unit to a previously installed system, shut down the system according to the shutdown procedure described in your operating system software manual.

CAUTION: *Turning off your system without following the shutdown procedure described in your operating system manual may result in loss of data. The operating system available for DECsystem 5400 is ULTRIX–32.*

Once you complete the recommended procedure, you can turn off your system by setting the on/off switch on the system enclosure to off (0).

2 Unpack Your Shipment

NOTE: *Save all packing materials if you plan to reship the R215F expander.*

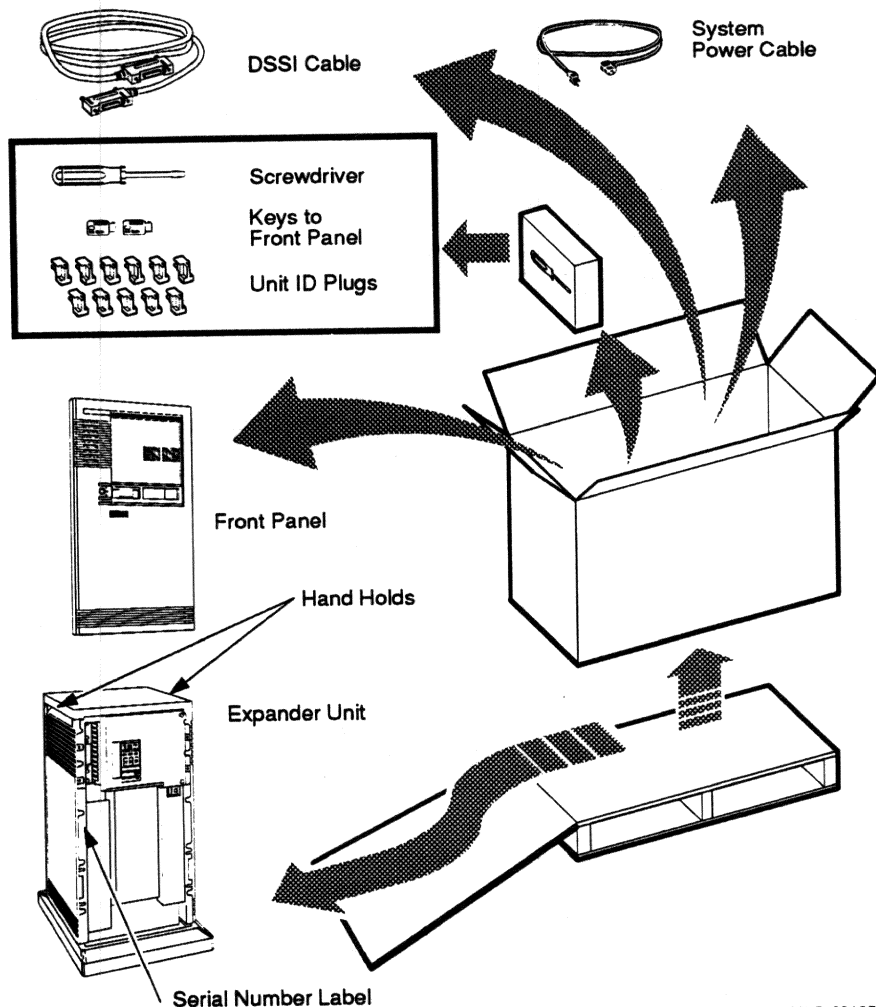Unpack the expander according to the instructions on the carton. Figure 1 shows the contents of the shipping carton (minus this and the other documents).

Before installing the expander, unpack all cartons and check the contents against the shipping list to ensure you received everything you ordered.

If any item is missing or damaged:

*   Contact your delivery agent.

*   Contact your DIGITAL sales representative.

Figure 1: Shipping Carton Contents

DSSI Cable

System
Power Cable

Screwdriver

Keys to
Front Panel

Unit ID Plugs

Front Panel

Hand Holds

Expander Unit

Serial Number Label

MLO-001854

CAUTION: *Before continuing the installation, verify that your expander's power requirements match your power source. The correct voltage for the expander is listed on the serial number label next to the power supply. See Figure 1. If the voltage listed matches your power source, continue the installation. If the voltage does not match your power source, do not continue the installation and contact your Digital sales representative.*

NOTE: *Release the shipping brackets according to the instructions on the yellow labels attached to the front of the R215F enclosure: Loosen, but do not remove, the six orange screws to release the shipping brackets from the ISEs. Then tighten the six orange screws after the shipping brackets release. When you complete that procedure, remove the yellow labels from the front of the enclosure.*

3 Position the Expander

The installation instructions that follow assume you correctly followed the unpacking instructions on the carton.

CAUTION: *Moving or operating the R215F expander without releasing the shipping brackets may damage the integrated storage elements (ISEs).*

After unpacking the expander, you can move it into position in two ways, as shown in Figure 2:

- You can roll it sideways.

- You can gently slide or walk it backward or forward by gripping the handholds on the side of the expander enclosure.

WARNING: *Each enclosure weighs between 50 kg (110 lb) and 64 kg (140 lb), depending on the options installed. Use two or more people to move the enclosures.*

Position the expander to the left of the system, as shown in Figure 2.

Figure 2: Moving the Expander into Place

Expander   System

Rolls Left to Right

Slides Front to Back
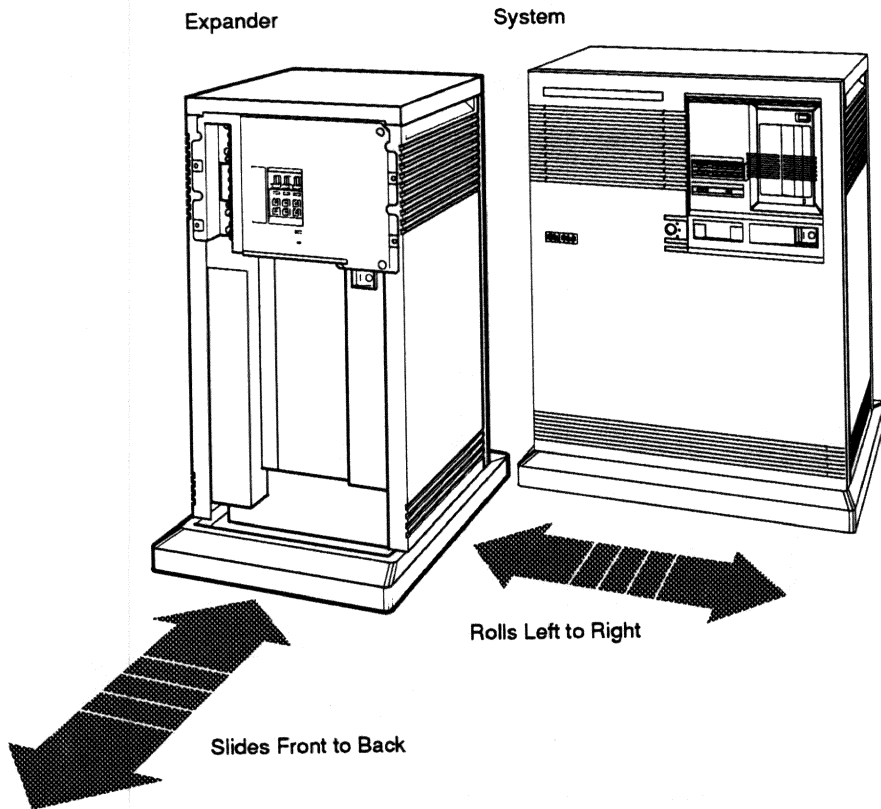
MLO-002549

During installation, leave a few inches of space behind the expander and system enclosures for routing cables underneath. Once installation is complete, you can place the base of the enclosures directly against a wall. No rear ventilation clearance is required.

4 Connect the DSSI Cable

**CAUTION:** *Make sure the on/off switch on both enclosures is set to off (0).*

An external Digital Storage System Interconnect (DSSI) cable connects the system and the R215F expander.

The following instructions describe how to connect the DSSI cable.

1. Remove the DSSI terminator from the DSSI port on the system enclosure as shown in Figure 3.

   Squeeze the spring clips at the bottom and top of the terminator as you pull it straight out of the port.

Figure 3: Removing the DSSI Terminator
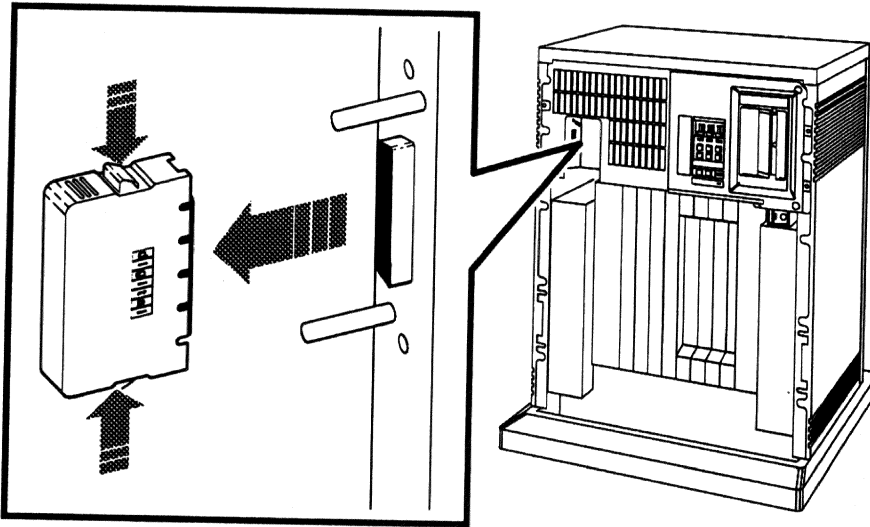
MLO-002550

2. Attach the DSSI terminator to the lower DSSI port on the expander enclosure as shown in Figure 4.

   Check that the terminator is oriented properly (the DIGITAL logo is on the right). Push the terminator onto the port. The spring clips should lock the terminator in place.

**Figure 4: Attaching the DSSI Terminator**

MLO-001857
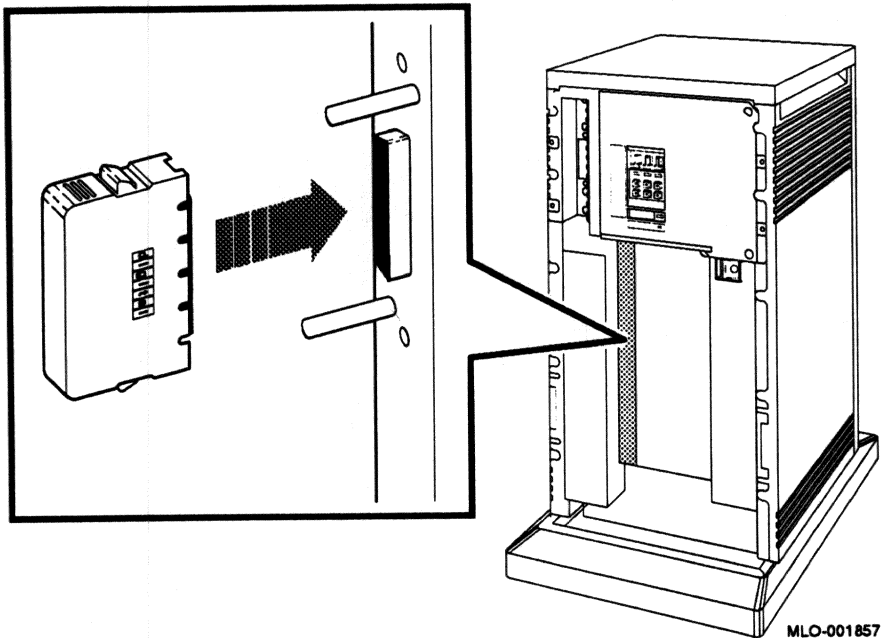
3. Find the 2.74 m (9 ft) cable labeled BC21M–09 that was shipped with the expander.

4. Feed either end of the cable under the system enclosure from the back or side. Then plug the cable into the DSSI port by fitting the cable connector over the two guide pins as shown in Figure 5.

   First tighten the screws by hand, then use the screwdriver shipped with the expander to secure the connection. Do not overtighten.

5. Feed the opposite end of the cable under the expander enclosure from the back or side. Then plug the cable into the upper DSSI port by fitting the cable connector over the two guide pins as shown in Figure 5.

   First tighten the screws by hand, then use the screwdriver shipped with the expander to secure the connection. Do not overtighten.

Figure 5: Connecting the DSSI Cable

MLO-003190
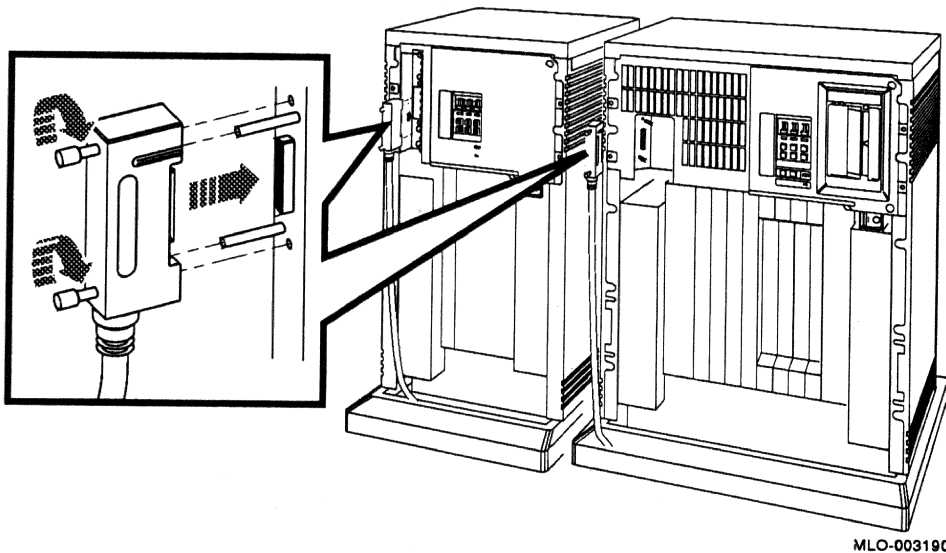
NOTE: *If you need to remove a DSSI cable, loosen the screws on the connector and then pull the connector straight out by pulling the two screw heads simultaneously.*
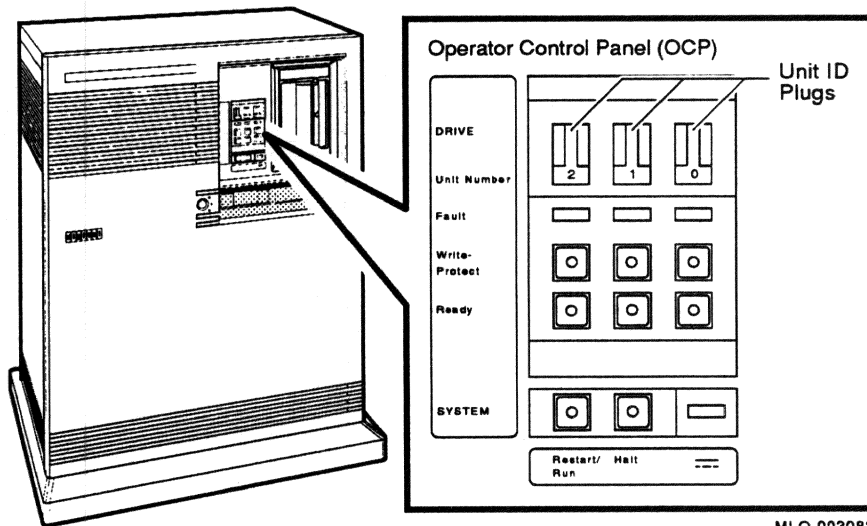
5 Number the Integrated Storage Elements (ISEs)

If you are installing a factory-configured R215F expander that was delivered with your system, ignore this step and skip to step 7 (the RF-series ISEs in the expander were numbered properly at the factory).

If you are installing the expander as an add-on unit to a previously installed system, you should number the ISEs in the expander as described below.

You will use numbered Unit ID plugs to identify the unit numbers of the ISEs in your system. Figure 6 shows the ID plugs on the operator control panel (OCP).

Figure 6: Unit ID Plugs

Operator Control Panel (OCP)

Unit ID Plugs

DRIVE

Unit Number

Fault

Write-Protect
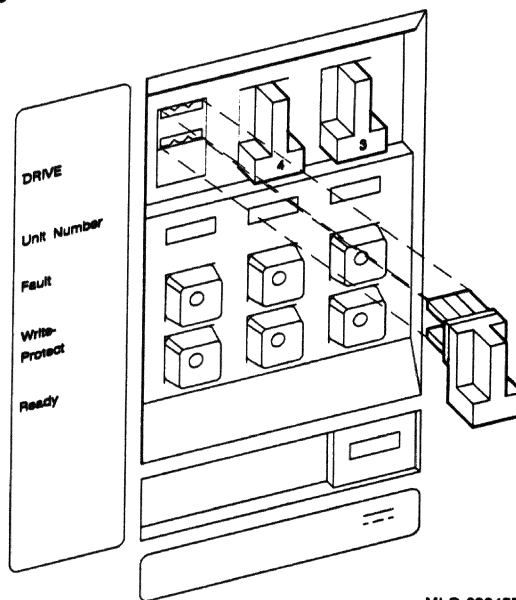
Ready

SYSTEM

Restart/Run   Halt

MLO-003082

1. Find the 11 spare Unit ID plugs that were shipped with your expander.

   The spare plugs are numbered 0 to 7 and three are blank.

2. Assign unit numbers to the ISEs by inserting the numbered Unit ID plugs in the OCP on the expander as shown in Figure 7.

   Use the following rules for numbering the ISEs:

   • Do not duplicate unit numbers for the ISEs: You can have only one ISE identified as drive 1, one ISE as 2, and so on.

   • An expanded system can have up to six RF-series ISEs.

   • By convention, the ISEs are numbered in increasing order from right to left, starting with 0.

   • If your expander has only two ISEs, insert a blank Unit ID plug in the leftmost slot as shown in Figure 7.

Figure 7: Inserting Unit ID Plugs

DRIVE

Unit Number

Fault

Write-
Protect

Ready

MLO-002457

To insert a Unit ID plug, align the two center prongs with the two center slots and push the plug in. To remove a Unit ID plug, grasp it firmly and pull it straight out.

6 Connect the System Power Cables

Do not proceed unless you verified that your R215F expander's power requirements match your power source. The correct voltage for the expander is listed on the serial number label on the left side of the enclosure next to the power supply (see Figure 1).

If the voltage listed matches your power source, continue the installation. If the voltage does not match your power source, do not continue the installation and contact your Digital sales representative.

CAUTION: *Operating the expander with incorrect voltage can damage it.*

Connect the system power cables as follows.

NOTE: *If you are installing the expander as an add-on unit to a previously installed system, ignore the instruction for attaching the power cable to the system enclosure as that cable is already in place.*

1. Make sure that the on/off (1/0) switches on the system and expander enclosures are set to off (0) and that all devices connected to the system are turned off.

2. Find the power cables for the system and the expander. A power cable is shipped with each unit.

3. Make sure the male end of each power cable matches the wall outlet. Several types of power cables are shown in Figure 8.

Figure 8: Power Cables

100 - 125 V

200 - 250 V
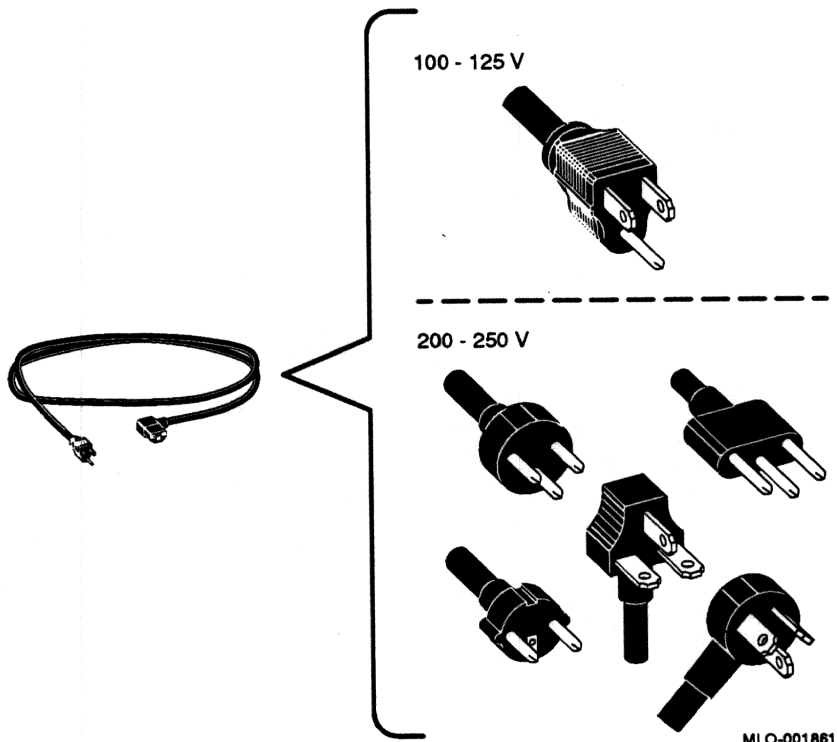
MLO-001861

4. Feed the female end of the expander cable under the expander enclosure from the rear and connect it, as shown in Figure 9.

   Repeat step 4 with the second cable for the system. Figure 10 shows how to attach the power cable to a system enclosure.

5. Plug the male end of each power cable into its wall outlet.

NOTE: *Expanded systems require a separate circuit for the expander.*
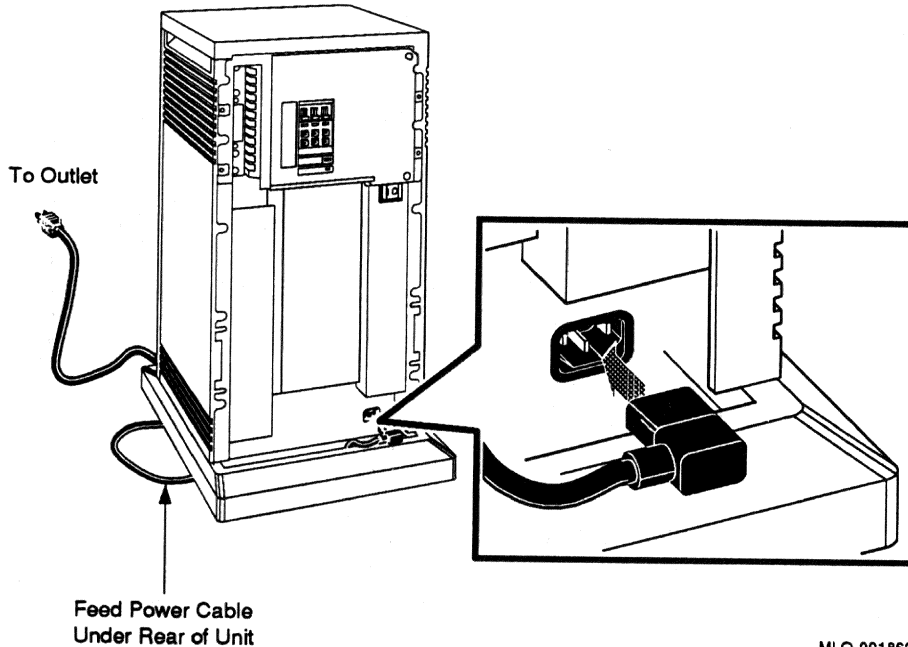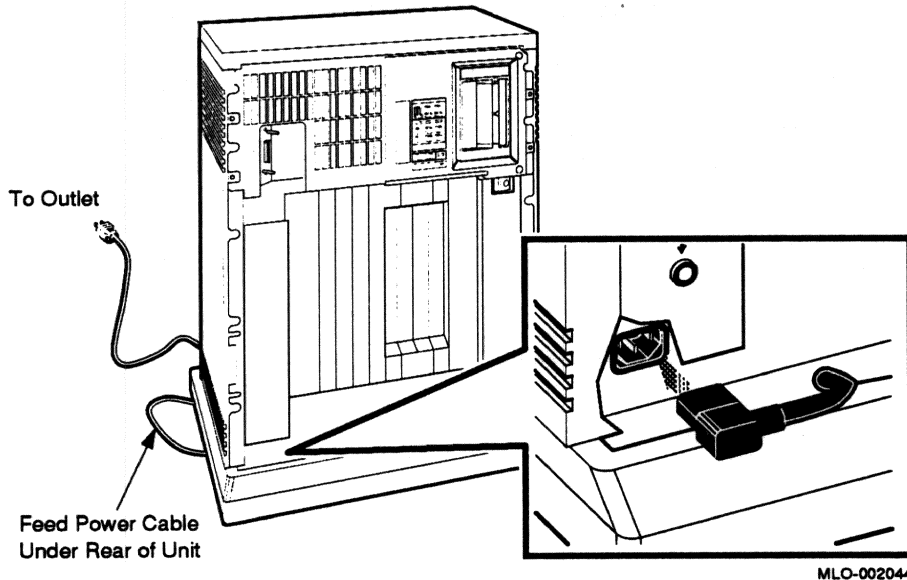
Figure 9: Connecting the Power Cable to the Expander Enclosure

To Outlet

Feed Power Cable
Under Rear of Unit

MLO-001862

Figure 10: Connecting the Power Cable to the System Enclosure

To Outlet

Feed Power Cable
Under Rear of Unit

MLO-002044

7 Turn On the Expanded System

You are now ready to turn on your expanded system, and to select a language if the system is new.

Turn on your system as follows.

1. Make sure the system and console baud rates are the same.

2. Turn on your console terminal and wait until it performs its self-tests successfully.

3. Set the on/off switches on the system and expander enclosures to on (1).

   The on/off switches should glow orange.

Select a Language

The first time you turn on your system you must select a language. The language you select controls only the language of the console program, which is a part of firmware in the CPU. The firmware lets you give commands to the system and generates error messages if errors occur. CPU firmware is described in your system *Technical Information* manual.

Within a few moments of turning on your system, your console terminal should display the Language Selection Menu shown in Figure 11.

Figure 11: Language Selection Menu

```
KN210-A Vn.n
 1) Dansk
 2) Deutsch (Deutschland/Österreich)
 3) Deutsch (Schweiz)
 4) English (United Kingdom)
 5) English (United States/Canada)
 6) Español
 7) Français (Canada)
 8) Français (France/Belgique)
 9) Français (Suisse)
10) Italiano
11) Nederlands
12) Norsk
13) Português
14) Suomi
15) Svenska
 (1..15):
```

Select a language by typing the number corresponding to your choice and pressing [Return].

NOTE: *On some older terminals that do not support multiple languages, the Language Selection Menu does not appear and the system defaults to English.*

After you select a language, the system runs its power-on self-tests. Within a few moments, your console terminal should display a series of numbers as the system tests itself. Figure 12 shows that display after a successful power-on test.

Figure 12: Example of a Successful Power-On Test

```
KN210-A Vn.n
Performing normal system tests.
49..48..47..46..45..44..43..42..41..40..39..38..37..36..35..34..
33..32..31..30..29..28..27..26..25..24..23..22..21..20..19..18..
17..16..15..14..13..12..11..10..09..08..07..06..05..04..03..
Tests completed.
Memory Size: 16777216 (0x1000000)
Ethernet Address: 08-00-2b-0c-c4-7a
>>
```

If the self-tests do not start or fail to complete successfully as shown in Figure 12, your system may have a problem. Refer to your system *Troubleshooting and Diagnostics* manual for instructions.

If the self-tests complete successfully, set the Operation switch on the system CPU cover panel to the Normal operation position, indicated by an arrow, and shown in Figure 13. That setting saves the language you selected.

Figure 13: Setting the Operation Switch
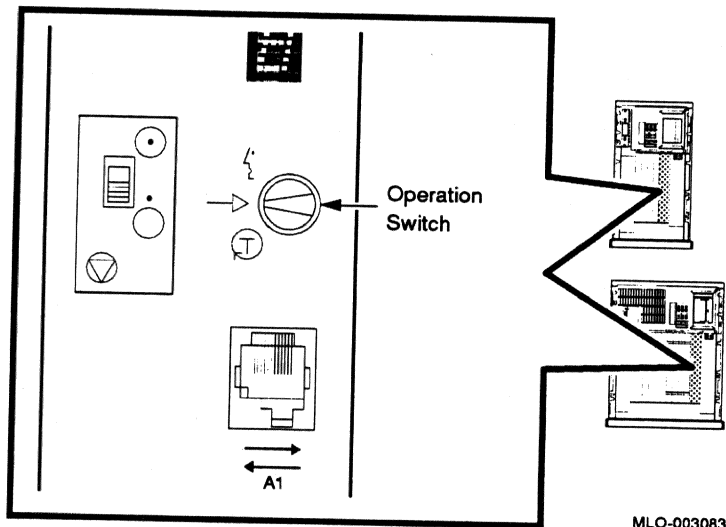
MLO-003083

8 Attach the Front Panels

The final step of the installation is attaching the front panels of the expander and system enclosures.

NOTE: *The window on each front panel must be open to attach the panel. Instructions for operating the window control are provided in the Operation section of this addendum.*

Attach the front panels according to the following procedure and as shown in Figure 14.

1. Pull out the latch on the front panel.

2. Holding the panel with both hands, place it flush against the front of the enclosure, about an inch above the bottom.

3. Insert the hooks on the panel in the slots on the enclosure. Then slide the panel down until it locks into place. Secure the panel by pushing in the latch.

Figure 14: Attaching the Front Panels
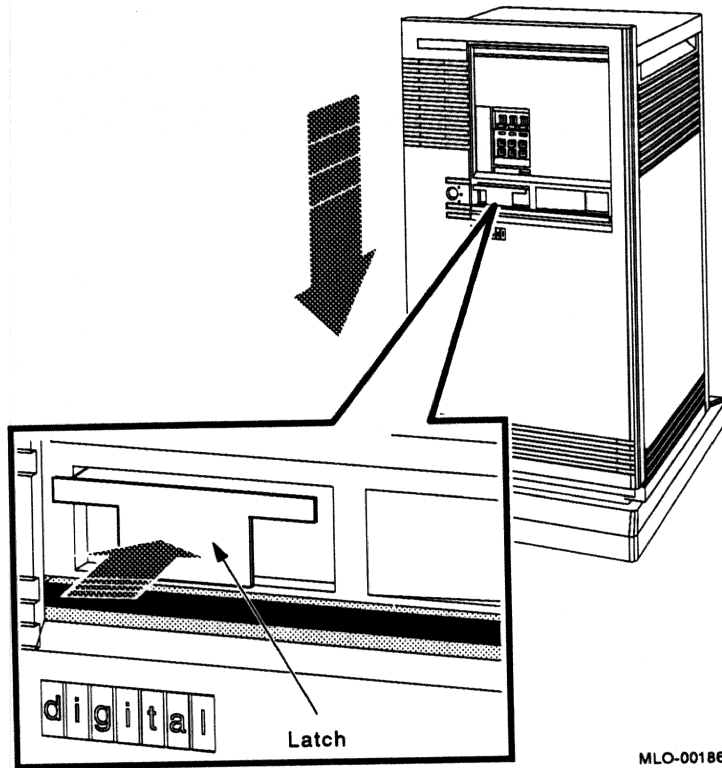
MLO-001864

9 After Installation

You should now read your system *Operation* manual to learn how to use your expanded system. You must know how to operate the system controls and the TK-series tape drive before you install system software or run diagnostic software. System software and diagnostic software are shipped in tape cartridges.

Information on operating the R215F expander's RF-series integrated storage elements (ISEs) and the controls on the operator control panel (OCP) is provided in the Operation section of this addendum.

Digital strongly recommends that you now run the diagnostic software supplied with your system. If you installed a new system, Digital recommends that you run the diagnostic software before you install system

software. If you installed the expander as an add-on unit, you should still run the diagnostic software to test your expander's ISEs.

The diagnostics verify your system's configuration and check to see if each device is working properly. The diagnostic software is on a tape cartridge labeled MV DIAG CUST TK50. Your system *Troubleshooting and Diagnostics* manual describes how to run the diagnostic software.

Operation

1 Introduction

The R215F expander provides additional mass storage capacity for your system. Up to three RF-series Integrated Storage Elements (ISEs) can be included in the expander. An ISE is an intelligent storage device that handles device operations internally, rather than through a controller.

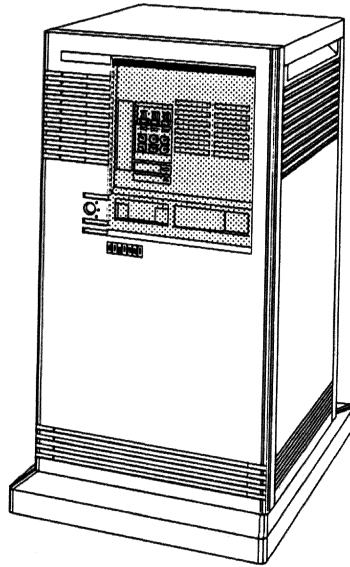The following procedures are covered in this part of the addendum.

- Operating the window controls on the front panel of the expander

- Removing and attaching the front panel

- Turning on the expanded system

- Operating RF-series ISEs

- Operating the controls on the expander's power supply

2 Operating the Sliding Window

The front of the R215F expander has a removable front panel that restricts access to the on/off switch and controls on the operator control panel (OCP).

Figure 1 shows the expander with the front panel attached.
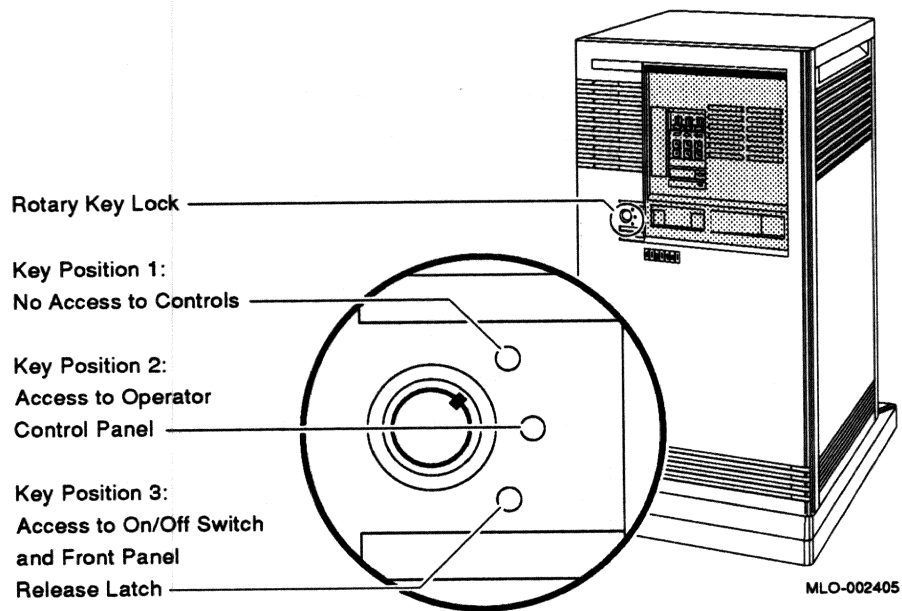
Figure 1: R215F Expander

MLO-002404

The front panel has a sliding window controlled by a three-position rotary lock. You can lock the window in one of three positions: closed, partially open, and fully open. Each position limits access to controls behind the window. When the window is locked in any of its three positions, you can still raise it to a higher position. However, you cannot lower it beyond the locked position without using your key.

To open the window, turn the key to position 2 or 3, then slide the window down. To close the window, slide the window up, then turn the key to lock the window in position.
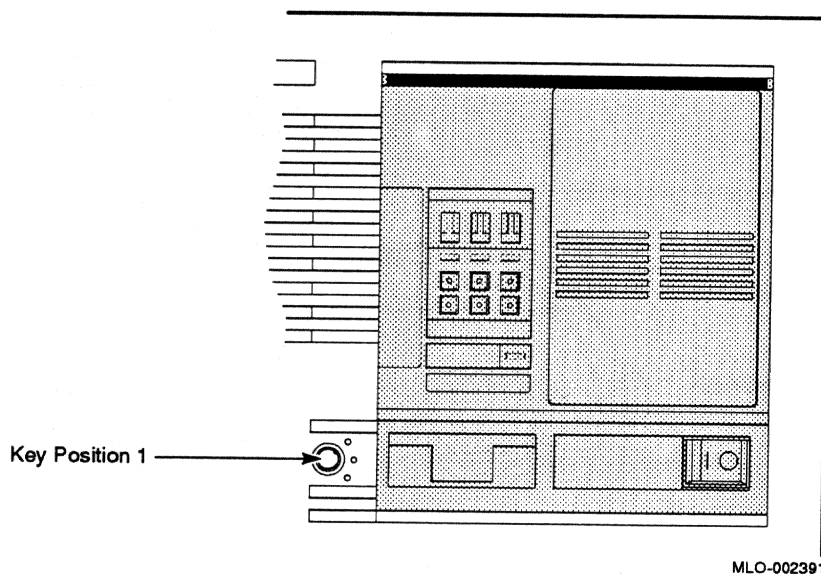
Figure 2 shows the three key positions and the controls accessible in each position.

Figure 2: Key Positions

Rotary Key Lock

Key Position 1:
No Access to Controls

Key Position 2:
Access to Operator
Control Panel

Key Position 3:
Access to On/Off Switch
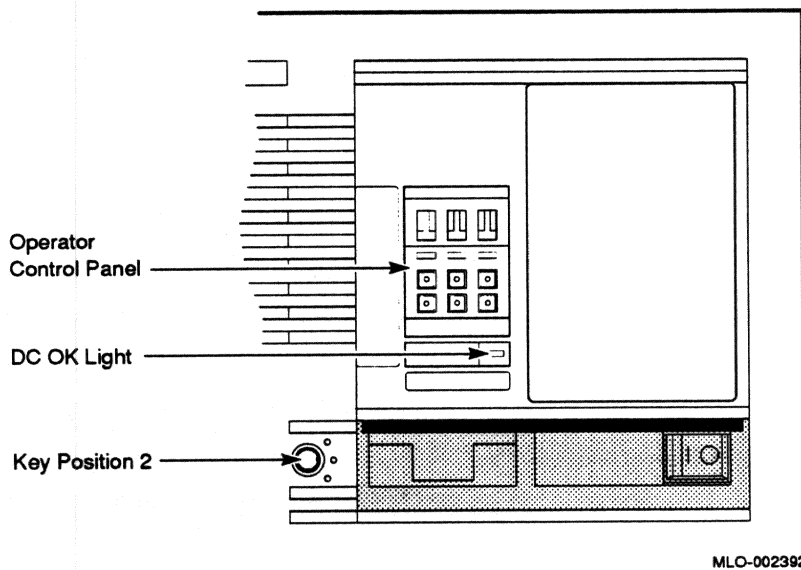and Front Panel
Release Latch

MLO-002405

When the window is up and the key is turned to position 1, the window is locked in the closed position. You cannot use any controls when the window is closed, but lights indicating power to the expander and activity on the ISEs are visible through the window. Figure 3 shows the closed window and key position.

Figure 3: Sliding Window Closed
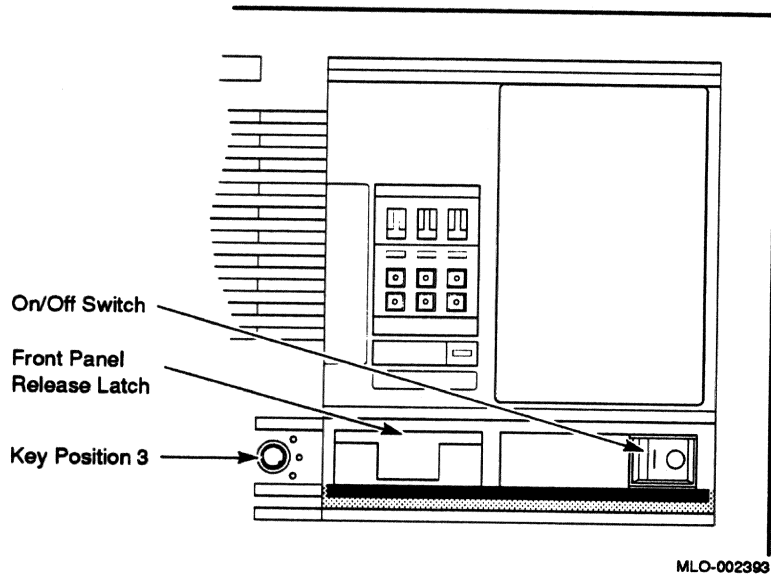

Key Position 1

MLO-002391

When the key is turned to position 2, you can open the window partially, as shown in Figure 4. You can operate the controls on the operator control panel (OCP).

Figure 4: Window Partially Open

Operator
Control Panel

DC OK Light

Key Position 2

MLO-002392

When the key is turned to position 3, you can open the window fully, as
shown in Figure 5.

Figure 5: Window Fully Open

On/Off Switch

Front Panel
Release Latch

Key Position 3

MLO-002393

When the window is fully open, you can turn the expander on and off and you can release the latch that locks the front panel.
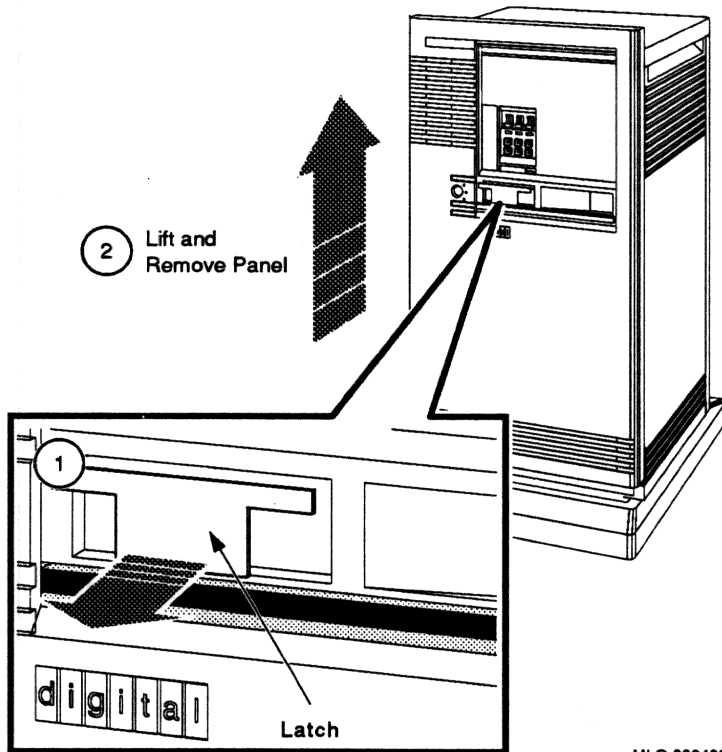
3 Removing and Attaching the Front Panel

You must remove the front panel to use controls on the power supplies.

NOTE: *The window on the front panel must be fully open to remove and attach the front panel.*

Remove the front panel as follows.

1. Insert the key in the lock on the front panel. Turn the key clockwise to the bottom position.

2. Slide the window down.

3. Pull out the latch. See Figure 6.

4. Lift the front panel up and then out.
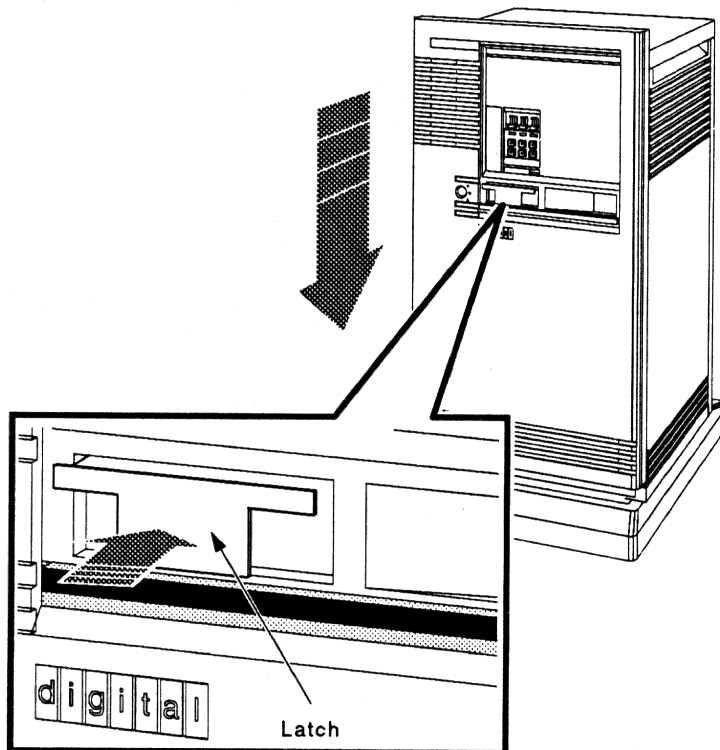
Figure 6: Removing the Front Panel

MLO-002406

NOTE: *The window on the front panel must be fully open to attach the front panel.*

Attach the front panel as follows.

1. Pull out the latch on the front panel.

2. Holding the panel with both hands, place it flush against the front of the enclosure, about an inch above the bottom. See Figure 7.

3. Insert the hooks on the panel in the slots on the enclosure. Then slide the panel down until it locks in place.

4. Secure the panel by pushing in the latch.

Figure 7: Attaching the Front Panel

Latch

MLO-001864

4 Turning On the Expanded System

Turn on your system as follows.

1. Turn on your console terminal and wait until it performs its self-tests successfully.

2. Set the on/off switches on the system and expander enclosures to on (1).

   The on/off switches should glow orange.

CAUTION: *Turning off your system without following the shutdown procedure described in your operating system manuals may result in loss of data. The operating system available for your system is ULTRIX–32.*

Once you complete the recommended shutdown procedure, you can turn off your system by setting the on/off switches on the system and expander enclosures to off (0).

5 Operating RF-Series Integrated Storage Elements

The R215F expander can contain up to three RF-series integrated storage elements (ISEs).
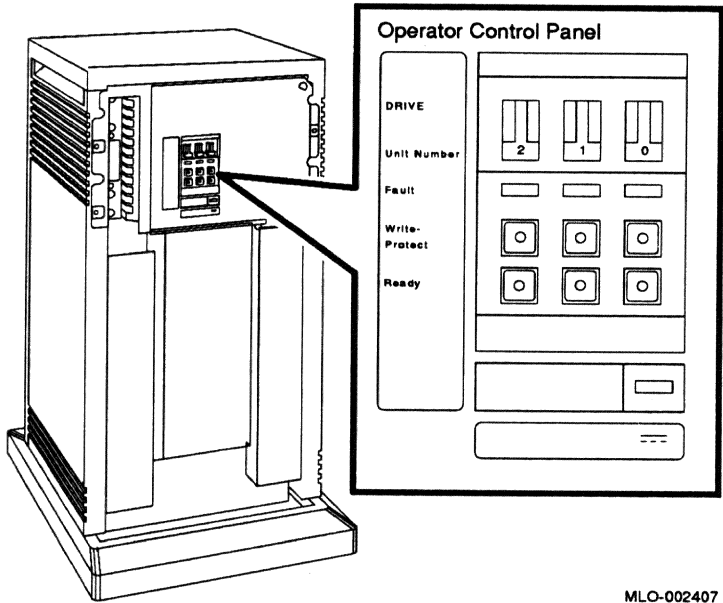
When your system has multiple ISEs, Digital recommends that you separate them according to function. For example, if your system has two ISEs, you may want to use them as follows.

- ISE 0 contains the operating system and applications installed on the system.

- ISE 1 contains work areas for each user with an account on the system.

The storage capacities and other specifications for RF-series ISEs are listed in your system *Technical Information* manual.

Controls for the ISEs are located on the operator control panel (OCP), behind the sliding window on the front of the expander. To access the OCP, you must turn the key to position 2 or 3 and slide the window down. Figure 8 shows the OCP on the expander.

Figure 8: Operator Control Panel

MLO-002407

The OCP has the following controls and indicators for each of the three possible ISEs.

- Unit ID plug

- Fault light

- Write-Protect button

- Ready button

Unit ID plugs identify the unit numbers of ISEs in the expander. Instructions for numbering ISEs are provided in the Installation section of this addendum.

NOTE: *If you change the Unit ID plugs while the system is turned on, you must turn off the system and then turn it back on for the new plug positions to take effect.*

Table 1 lists the function of each of the controls for the RF-series ISEs.

Table 1: RF-Series Controls and Indicators

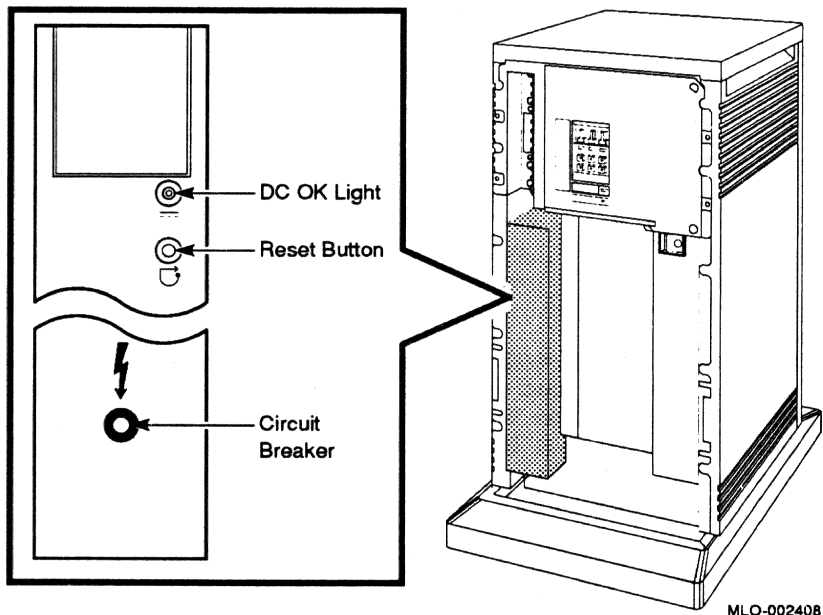| Control	Position	Function
Fault	Lit	Indicates an error condition within the ISE. The light is on temporarily during power-up (normal condition).
	Not lit	Indicates an error-free condition within the ISE.
Write-Protect	In (lit)	ISE is write-protected. Prevents system software from writing on the ISE.
	Out (not lit)	ISE is not write-protected. Normal position for software operation. System software is free to read or write information on the ISE.
Ready	Out	ISE is on-line. When the ISE is available for use, the green light in the switch is on. When the ISE is being used, the green light is off.
	In	ISE is off-line and cannot be accessed. The green light cannot be lit when the Ready button is in.

The Write-Protect button controls whether the system can write data to the ISE. The system can read from the ISE regardless of the setting of the Write-Protect button. When the Write-Protect button is out (not lit), the system can write to the ISE. Your system disk (the ISE containing system software) and ISEs containing work areas for users should be write-enabled, the normal operating setting.

If you want to write-protect an ISE containing data that you do not want changed or erased, set the Write-Protect button to in (lit).

6 Controls and Indicators on the Power Supply

The power supply has a circuit breaker and DC OK light, as shown in Figure 9.

Figure 9: Power Supply

DC OK Light

Reset Button

Circuit Breaker

MLO-002408

- Circuit breaker — The circuit breaker trips to protect the expander from current overloads. When tripped, the circuit breaker is in the out position.

  To reset the breaker, set the on/off switch on the expander to off (0), press the circuit breaker to the in position, and set the on/off switch to on (1).

- DC OK light — When lit, the DC OK light indicates that the voltages are within the correct operating range. When unlit, there is a problem with the power supply. Turn off the expander and call your Digital service representative.

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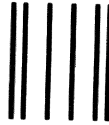☐ Sales

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