

# DEC Network Integration Server 600

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## Installation and Service Manual

Order Number: EK-A0543-IN.001

This manual shows how to install and test the DEC Network Integration Server 600 hardware system. It includes problem solving procedures and describes how to remove and replace DEC Network Integration Server 600 components. It also contains important safety information.

It must be read by service personnel who install the DEC Network Integration Server 600 and perform problem solving procedures.

**Revision Information:** This is a new manual.

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## How to Use This Manual

This manual describes how to install and service the DEC Network Integration Server 600 (DECNIS 600) hardware.

### Required Skills

All procedures described in this manual must be performed by a **service person**.

A service person must have experience of installing and servicing network hardware, and be trained so that they are aware of:

- Hazards to which they are exposed in performing a task inside a service access area of a system.
- Precautions they need to take to minimize danger to themselves and other people.

Do not attempt the procedures in this manual unless you are a service person.

This manual also assumes that users are familiar with networking hardware. Users are required to have some knowledge and experience of:

- Local Area Networks (LANs)
- Wide Area Networks (WANs)
- IP (if using the IP protocols)
- X.25 (if using the X.25 protocols)
- DECnet/OSI
- NCL (Network Control Language)

## Structure

This manual is divided into four parts:

- Part I contains all of the information that you need to install the DECNIS 600:
  - Chapter 1 describes the preparations you need to make before installing the DECNIS 600 unit.
  - Chapter 2 shows how to install the DECNIS 600.
  - Chapter 3 shows how to install Network Interface Cards into a system that is powered down.
  - Chapter 4 shows how to power up and test the installed system.
- Part II shows you how to upgrade and remove the system:
  - Chapter 5 shows how to install additional Network Interface Cards without powering down the system.
  - Chapter 6 shows how to install a processor card and a memory card.
  - Chapter 7 shows how to remove Network Interface Cards from the system.
  - Chapter 8 shows how to remove the DECNIS 600 unit.
- Part III contains information that you need for solving DECNIS 600 hardware problems:
  - Chapter 9 describes how to identify a problem.
  - Chapter 10 describes how to locate a faulty component in the system.
  - Chapter 11 describes how to replace the faulty component.
- Part IV contains DECNIS 600 reference information:
  - Appendix A describes the displays and codes shown on the DECNIS 600.
  - Appendix B specifies the electrical, environmental, and physical requirements of the DECNIS 600.
  - Appendix C describes DECNIS 600 specifications for installations in the United Kingdom.
  - Appendix D shows how to dump the system.

## Associated Documentation

### Product Documentation

The DECNIS 600 hardware documentation set consists of this manual and the following documents:

- *DEC Network Integration Server 600 Configuration Card*  
This card includes system identification information and contacts. It also specifies the load host(s) for the DECNIS 600.
- Network Interface Card *Cabling Instructions and Specifications* card  
A *Cabling Instructions and Specifications* card is provided with each Network Interface Card. The card shows how to install the cables associated with a Network Interface Card and includes product information that is specific to the Network Interface Card.
- Network Interface Card *Problem Solving* card  
A problem solving card is provided with each Network Interface Card. The card contains problem solving procedures specific to the Network Interface Card.
- Network Interface Card *Configuration Card*  
A configuration card is provided with each Network Interface Card. The card includes information about the Network Interface Card lines and ports.

### Software Documentation

For information about the DECNIS 600 software, refer to:

- *DEC Network Integration Server Introduction*
- *DEC Network Integration Server Installation* card
- *DEC Network Integration Server Configuration*
- *DEC Network Integration Server Management*
- *DEC Network Integration Server Event Messages*
- *DEC Network Integration Server Problem Solving*

## Conventions

The following conventions are used in this manual:

*Italics*            This indicates variable information.

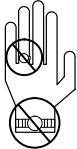
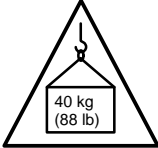
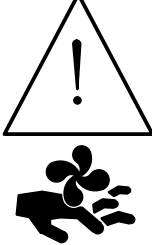

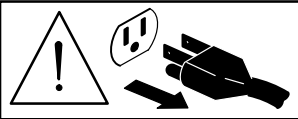
## Terminology

DECNIS 600	DEC Network Integration Server 600.
LED	Light Emitting Diodes. This abbreviation is used to describe the indicators on the DECNIS 600.
NIC	Network Interface Card.

## Safety Symbols

Figure 1 shows the safety symbols used in this manual.

Figure 1 Safety Symbology

Symbol	Description
	<p><b>Danger – High Current</b></p> <p>Do not wear metal objects.</p>
	<p><b>Warning</b></p> <p>The maximum weight of the DECNIS 600 is 40 kg (88 lb). <b>At least two</b> people are required to lift the system.</p>
	<p><b>Caution – Rotating Fans</b></p> <p>After powering down the DECNIS 600, wait <b>at least</b> 30 seconds before removing the fan tray.</p>
	<p><b>Electrostatic Sensitive Devices</b></p> <p>Antistatic equipment must be attached before handling.</p>
	<p><b>Caution</b></p> <p>Power down the DECNIS 600 before attempting the procedure marked with this symbol.</p>

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# Part I

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## Installing the System

Part I contains all of the information that you need to install the DECNIS 600:

- Chapter 1 describes the preparations you need to make before installing the DECNIS 600 unit.
- Chapter 2 shows how to install the DECNIS 600.
- Chapter 3 shows how to install Network Interface Cards into a system that is powered down.
- Chapter 4 shows how to power up and test the installed system.



# 1

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## Preparing to Install the System

This chapter describes the preparations you need to make before installing the DECNIS 600.

### 1.1 Tasks

Follow the procedures in Sections 1.2 to 1.6 to:

1. Plan a site for the DECNIS 600.
2. Prepare a rack (or cabinet) for the DECNIS 600.
3. Check that the site fulfills electrical requirements for the DECNIS 600.
4. Check the contents of the kit.
5. Check that you have the necessary tools available.
6. Check that two or more people are available to lift the DECNIS 600 from its packaging and into the rack.

### 1.2 Planning a Site

Before you start the installation, plan and prepare the site for the DECNIS 600 so that:

- The site fulfills all electrical and environmental requirements for the DECNIS 600. Appendix B describes these requirements.
- A rack is available and all rack requirements are fulfilled. Section 1.3 describes these requirements.
- The correct length of cabling is available for connecting the DECNIS 600 to other equipment, for example, a modem.
- The site can accommodate plans to expand the system. For example, if you require a Network Interface Card that uses a distribution panel, you should allow room for the distribution panel in the rack or in a rack nearby.

The dimensions of a Network Interface Card and its distribution panel (if used) are specified on the *Cabling Instructions and Specifications* card. The dimensions of the DECNIS 600 are shown in Section B.3.

## 1.3 Rack Requirements

The rack that you use for the DECNIS 600 must fulfill the requirements in Section 1.3.1 to Section 1.3.4.

### 1.3.1 Dimensions

The DECNIS 600 can be installed in one of the following:

- NEP Hard Metric 600 mm rack
- Standard 19 inch rack

For example, the unit can be installed in the Digital *H9A00* rack.

If you use the DECNIS 600 support brackets that are supplied as part of the kit, the front and rear mounting rails on your rack or cabinet must be at least 47.63 cm (18.75 in) and no more than 80 cm (31.5 in) apart.

### 1.3.2 Stability

Make sure that the rack is stable:

- Extend any stabilizers available on the rack.
- If the rack has wheels, take one of the following actions to prevent them rolling:
  - Jack the rack onto its feet (if available)
  - Apply the brakes (if available)
  - Wedge the wheels
  - Remove the wheels
- If possible, bolt the rack to the floor to prevent it from moving.

### 1.3.3 Power

If power is available from an outlet in the rack, check that sufficient power is available to the DECNIS 600. Table B-1 shows the power requirements for the DECNIS 600.

If power is available from an outlet outside the rack, for example, a wall socket, check that the power cord from the DECNIS 600 reaches the outlet. The power cord for the DECNIS 600 is 2 m (6.5 ft) long.

### 1.3.4 Access

The following access is required so that the unit can be unpacked and installed:

- Remove any door on the front of the rack, or secure the door open.
- Clear a space of approximately 2 m (6.5 ft) at the front of the rack.

You will also need access to the rear of the rack to install the support brackets. If possible, remove the rear door. If the rear of the rack is against a wall, make sure that you can gain access from the front of the rack.

### 1.3.5 Position of the DECNIS 600

The DECNIS 600 can be installed in any position in the rack that satisfies the following requirements:

- The position must conform to the published safety standard EN60950, UL1950, CSA 950. This standard specifies important information about the stability of rack mounted equipment.
- The position must satisfy the environmental requirements specified in Appendix B.

If other equipment is installed in the rack, you should also check that the DECNIS 600 does not affect the environmental requirements of that equipment. For example, the DECNIS 600 should not be installed in a position that restricts the air flow required for cooling other equipment.

## 1.4 Kit Contents

Figure 1–1 shows the contents of the kit as they are packed in the DECNIS 600 carton.

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**Note**

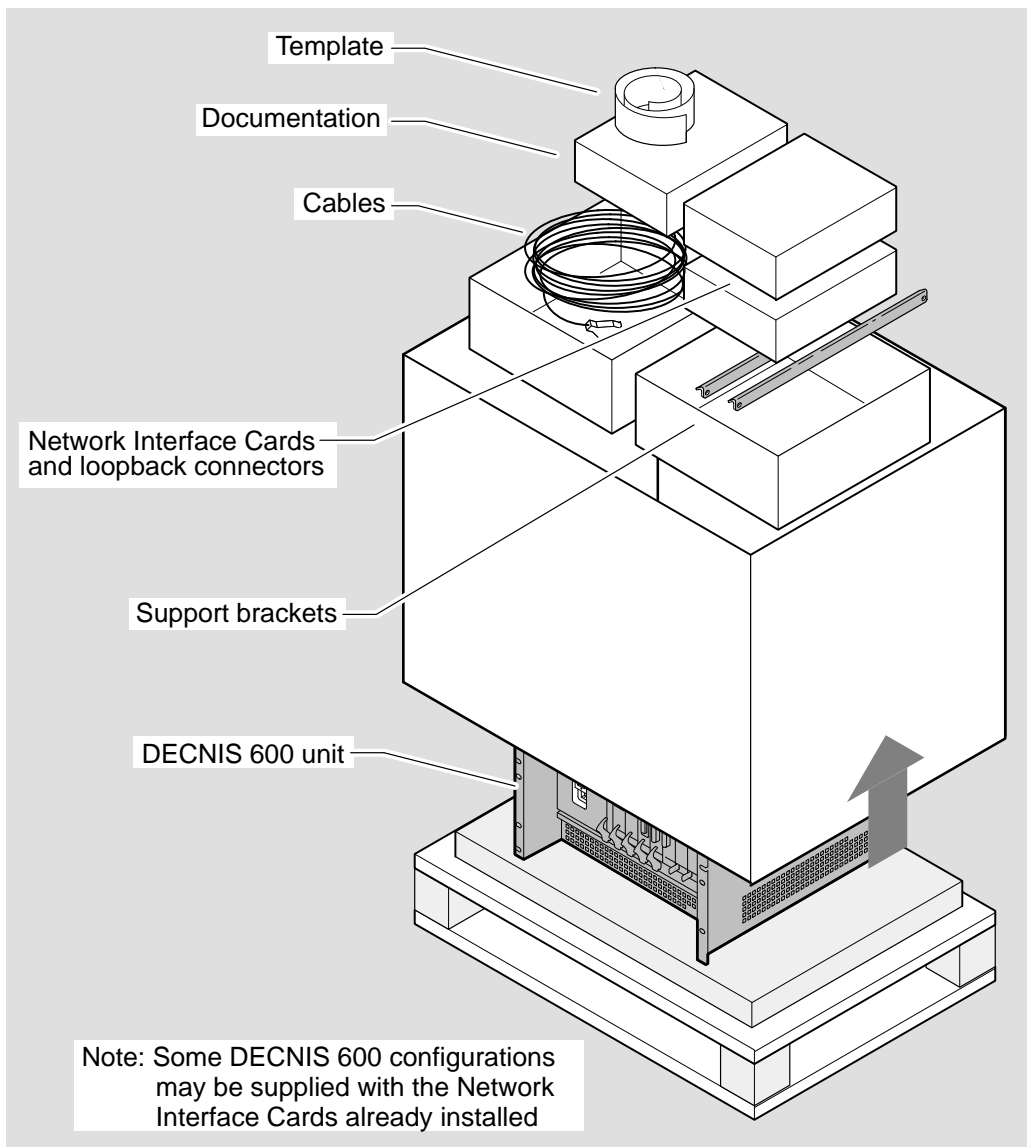
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When you unpack the DECNIS 600, save the packaging materials and carton in case you need to return any items.

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If there are any items missing from the kit, or if any of the contents are damaged, contact your Digital representative.

**Figure 1-1 Kit Contents**



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## 1.5 Tools

Make sure you have the following equipment available:

- Template

The template is supplied with the DECNIS 600 kit. The markings on the template correspond to the metric and imperial fixing holes on the DECNIS 600 unit and on the support brackets.

- Support brackets

Support brackets are supplied with the DECNIS 600 kit. These brackets will fit all racks with front and rear vertical mounting rails that are at least 47.63 cm (18.75 in) and no more than 80 cm (31.5 in) apart. Section 2.4 describes how to fit the support brackets.

- Screwdrivers

You need the following screwdrivers for the DECNIS 600 installation:

- A Number 1 or Number 2 crosspoint screwdriver
- A 3 mm (  $\frac{1}{8}$  in) flat blade screwdriver

## 1.6 People

**At least two** people are required to lift the DECNIS 600 from its packaging and into the rack.

The maximum weight of the DECNIS 600 with each slot occupied is **40 kg (88 lb)**. Each person must be capable and satisfied that they are able to lift their share of the weight.





# 2

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## Installing the DEC Network Integration Server 600

This chapter describes how to unpack the DECNIS 600 and install it in a rack.

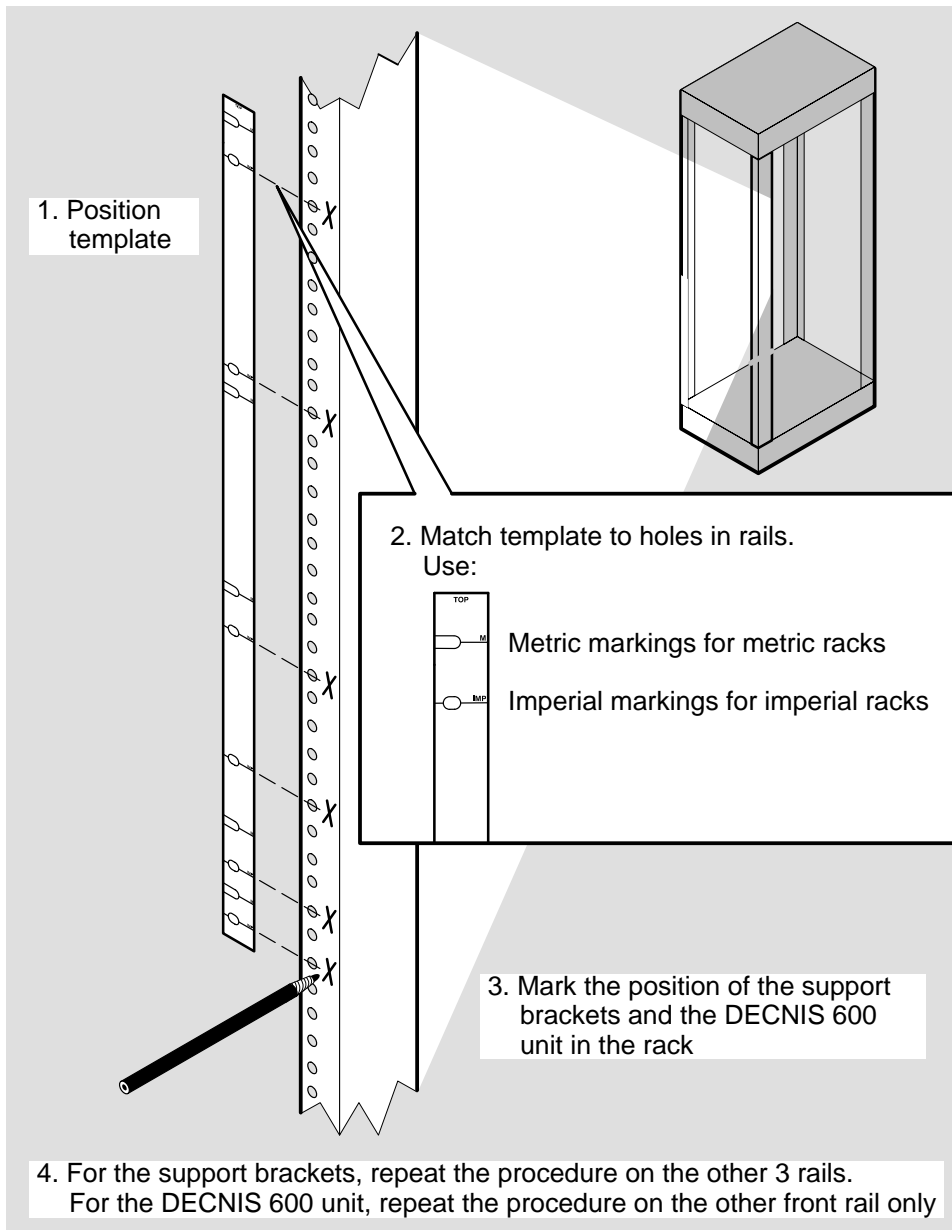
### 2.1 Tasks

Sections 2.2 to 2.6 show you how to:

1. Mark the position of the system in the rack
2. Install the clip nuts in the rack
3. Install the support brackets
4. Lift the system into the rack
5. Attach and tighten the screws

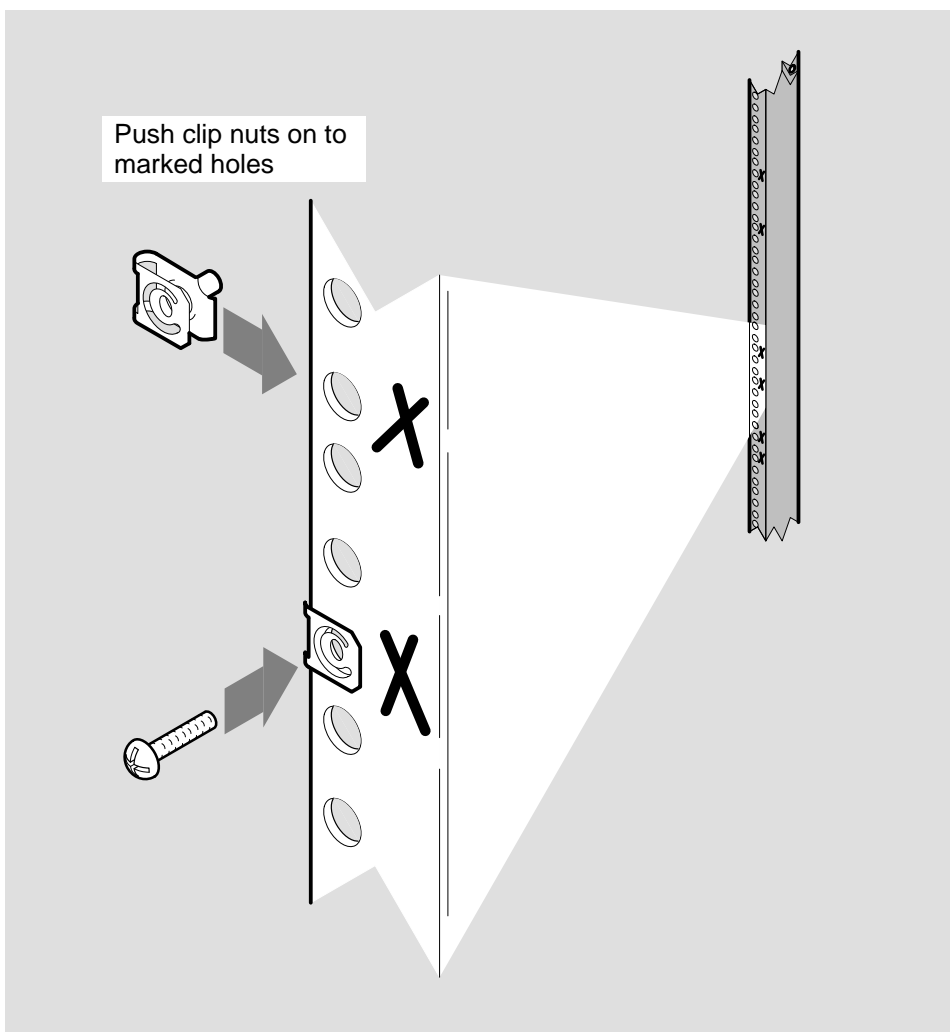
Section 2.7 describes what to do next.

## 2.2 Mark a Position in the Rack



LKG-5636-911

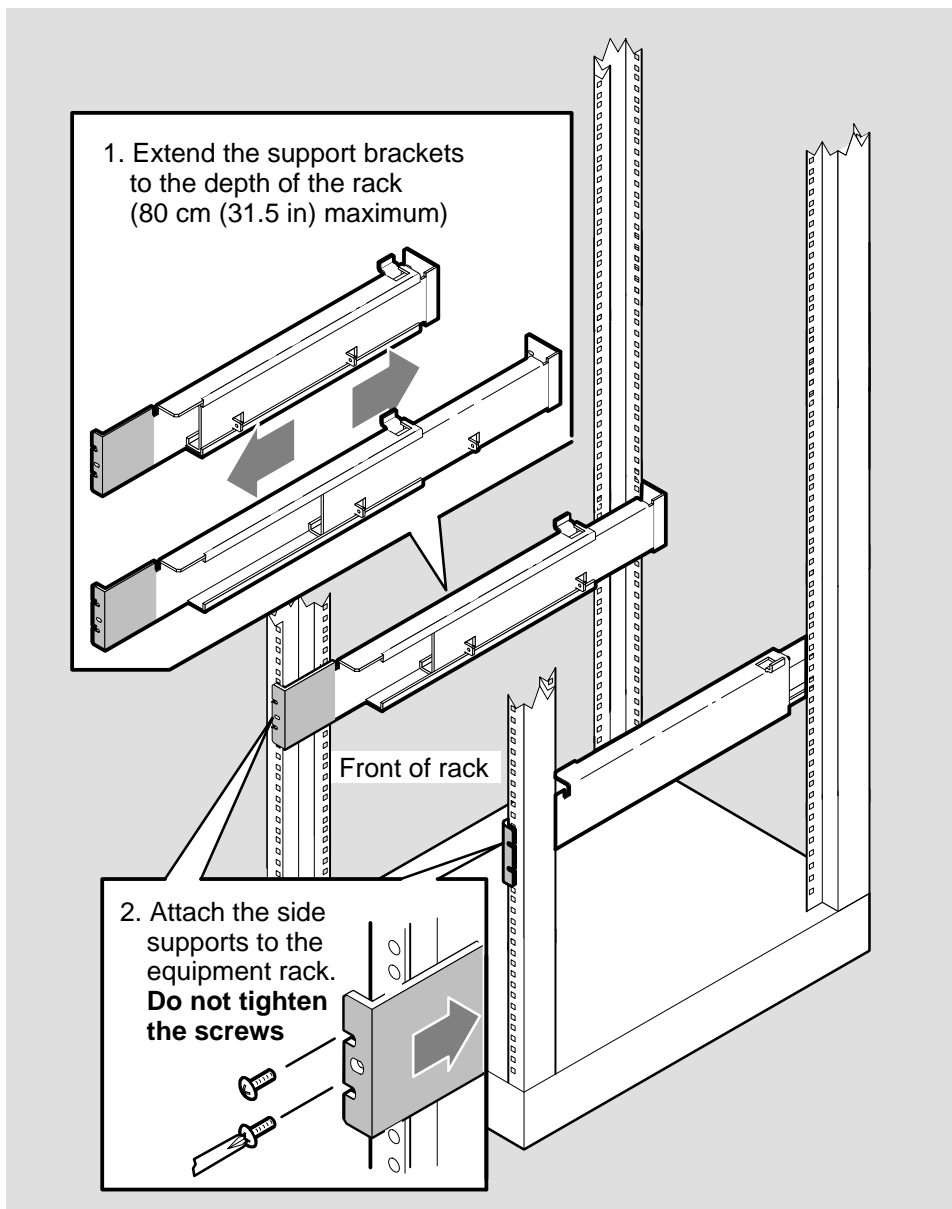
## 2.3 Install the Clip Nuts



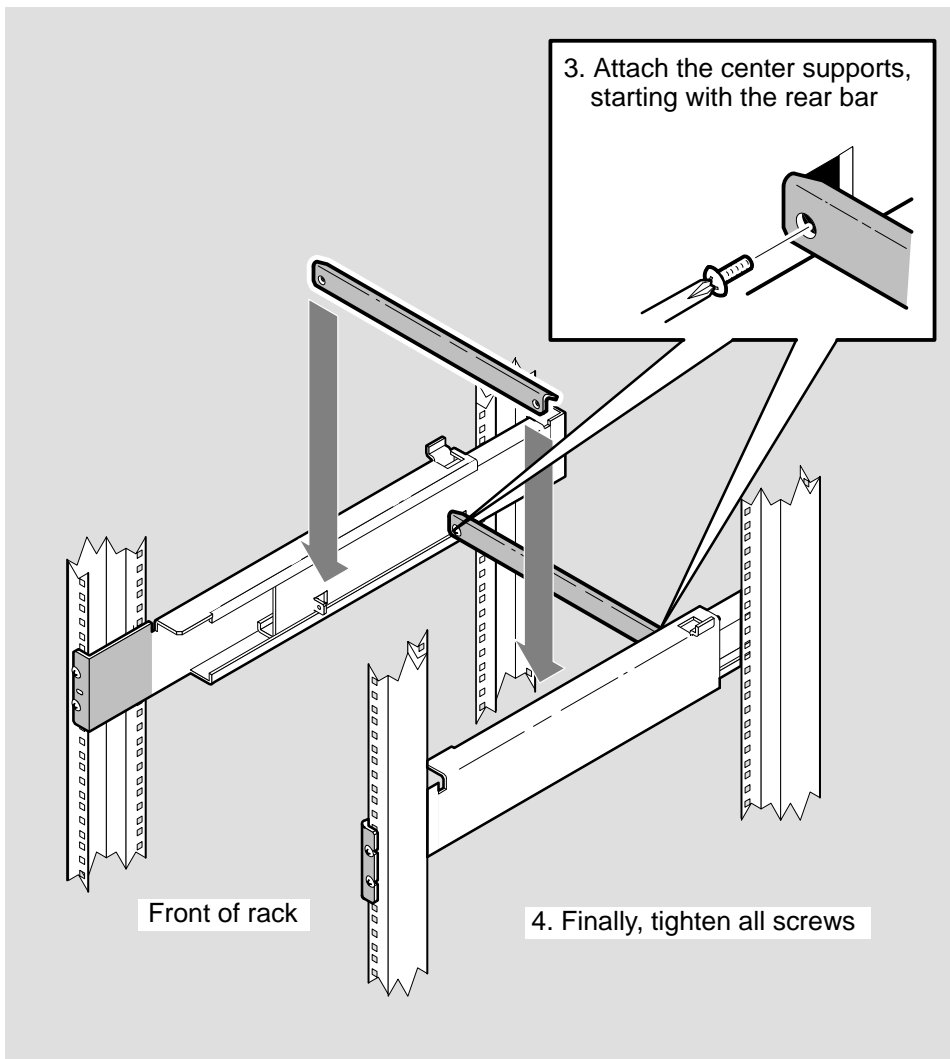
LKG-5637-911

If the nuts and screws supplied with the DECNIS 600 are not suitable for your rack, use appropriate fittings. Make sure that these are installed in the correct position before installing the unit.

## 2.4 Install the Support Brackets



LKG-5638-911

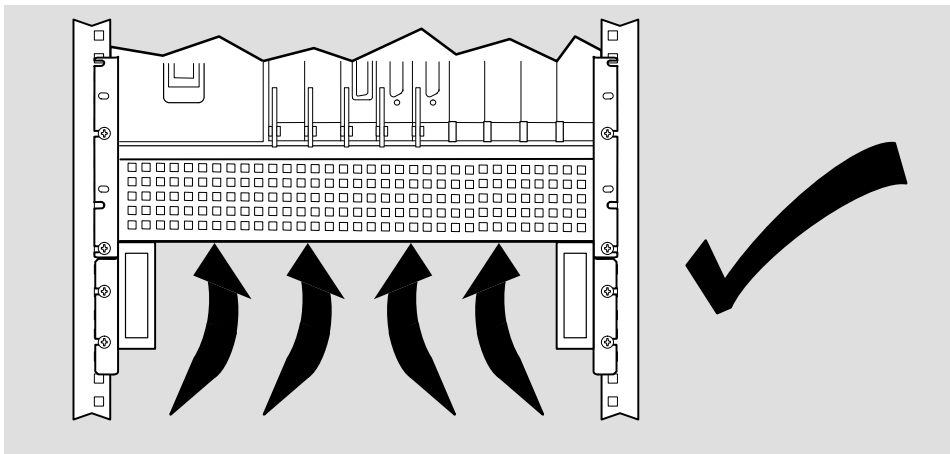
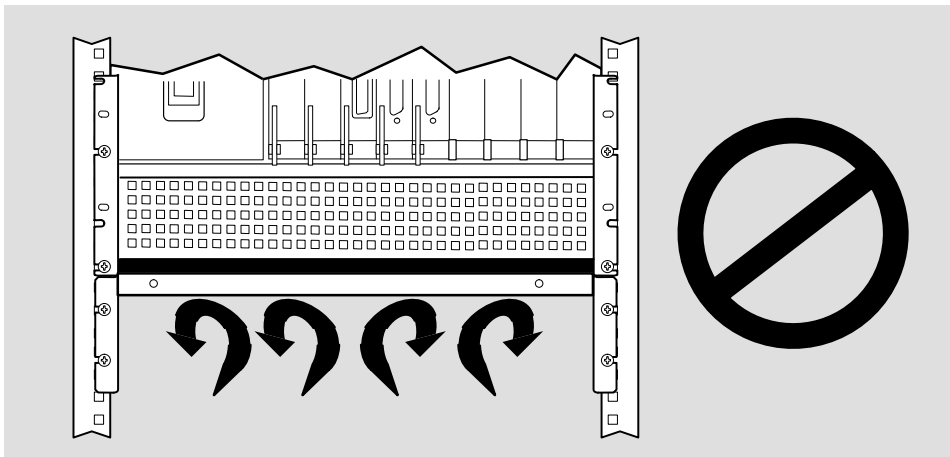


LKG-5639-911

The DECNIS 600 support brackets are designed to provide support for the DECNIS 600 unit and should remain in the rack after the installation is complete.

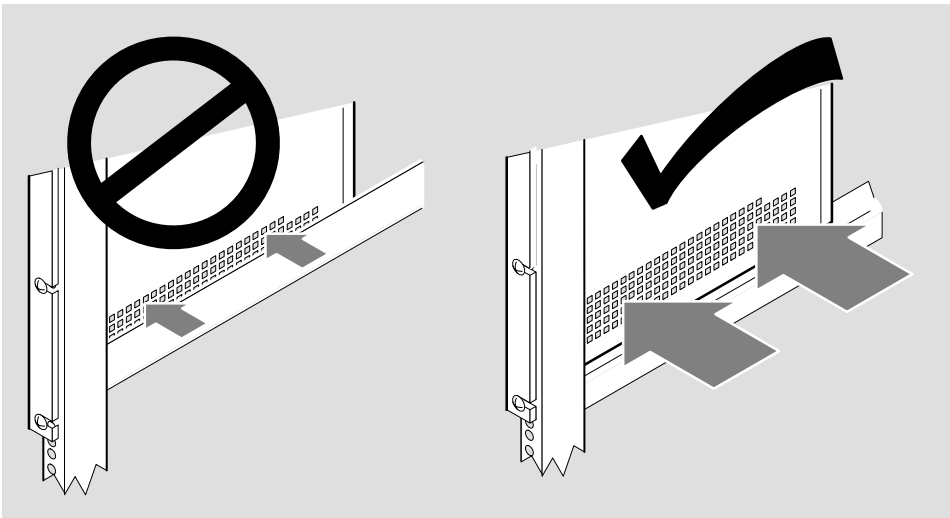
If the DECNIS 600 support brackets do not fit your rack, you can use brackets or shelving supplied with your rack. However, make sure that:

- The rack brackets or shelves do not extend underneath the DECNIS 600 unit and block the vents on the bottom of the unit:



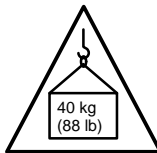
LKG-5640-911

- The rack brackets or shelves do not cover the sides of the DECNIS 600:



LKG-6119-921

## 2.5 Lift the System into the Rack



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### Warning

---

The maximum weight of the DECNIS 600 is 40 kg (88 lb). **At least two** people are required to lift the system. Each person must be competent and satisfied that they are able to lift their share of the weight.

---

---

### Avertissement

---

Le poids maximal du DECNIS 600 est de 40 kg. Au moins deux personnes sont requises pour soulever le système. Chaque personne doit être convaincue de pouvoir soulever sa part du poids.

---

---

### Warnung

---

Der DECNIS 600 wiegt maximal 40 kg. Zum Anheben des Systems sind mindestens zwei Personen erforderlich.

---

---

### Attenzione

---

Il massimo peso del DECNIS 600 è di 40 kg. Sono richieste almeno due persone per sollevare il sistema. Entrambe devono essere certe di poter sollevare la propria parte di peso.

---

---

### Aviso

---

El peso máximo del DECNIS 600 es de 40 kg, por lo que son necesarias al menos dos personas para levantar el sistema.

---



---

**Aviso**

---

O peso máximo do DECNIS 600 é de 40 kg (88 lb). São necessárias, no mínimo, duas pessoas para levantar o sistema. Cada pessoa deve estar apta a levantar a sua parte do peso do sistema.

---

---

**Waarschuwing**

---

Het maximumgewicht van de DECNIS 600 is 40 kg (88 lb). Er zijn minimaal twee personen nodig om het systeem op te tillen. Deze personen moeten fit zijn en in staat hun deel van het gewicht te dragen.

---

---

**Advarsel**

---

Den maksimale vægt af DECNIS 600 er 40 kg og der bør være mindst to personer til at løfte systemet.

---

---

**Varoitus**

---

DECNIS 600 painaa enintään 40 kg. Järjestelmän nostamiseen tarvitaan vähintään kaksi ihmistä.

---

---

**Advarsel**

---

DECNIS 600 veier inntil 40 kg, og bør løftes av minst to personer.

---

---

**Varning**

---

DECNIS 600 väger maximalt 40 kg (88 lb). Minst två personer krävs för att lyfta maskinen. Varje person måste vara medveten om maskinens vikt och säker på att klara att lyfta den.

---

---

### אזהרה

---

המשקל המירבי של DECNIS 600 הוא 40 קילוגרם. לפחות שני אנשים נדרשים לשם הרמת המערכת. כל אדם המשתתף בהרמת המערכת חייב להיות משוכנע ביכולתו לשאת את חלקו בעומס המשקל.

---

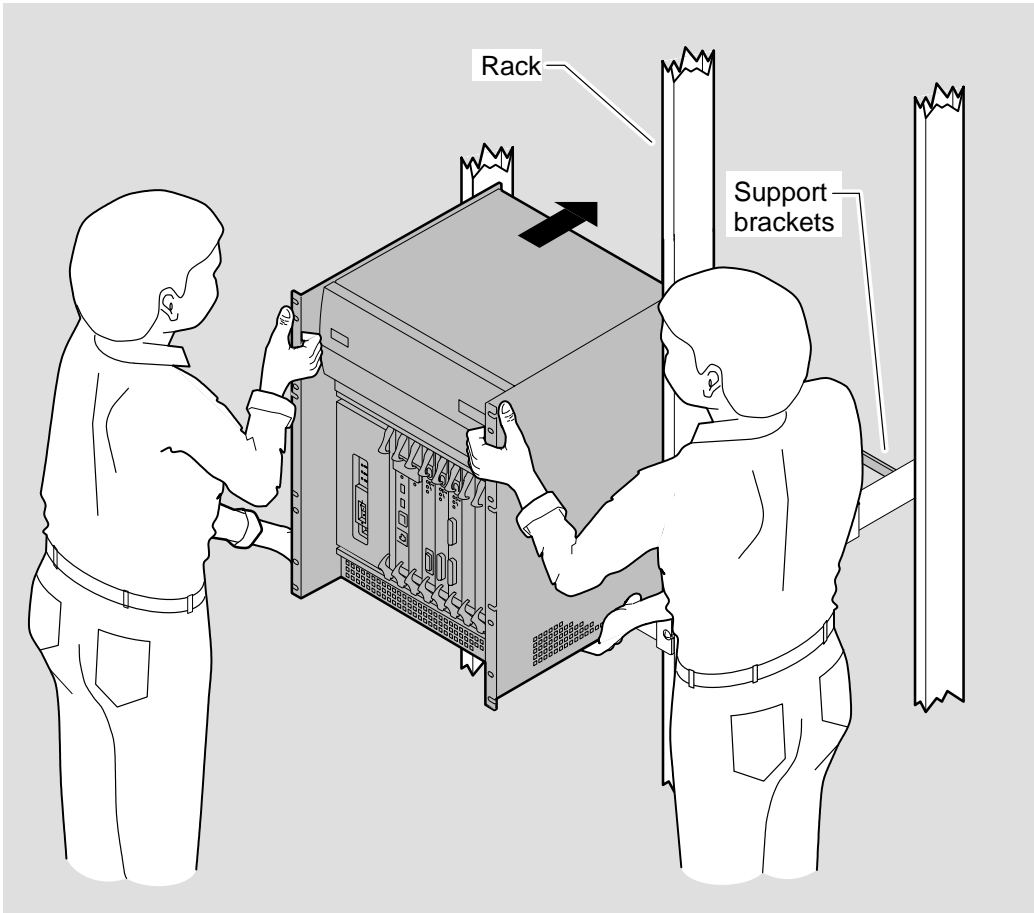
---

### 注意

---

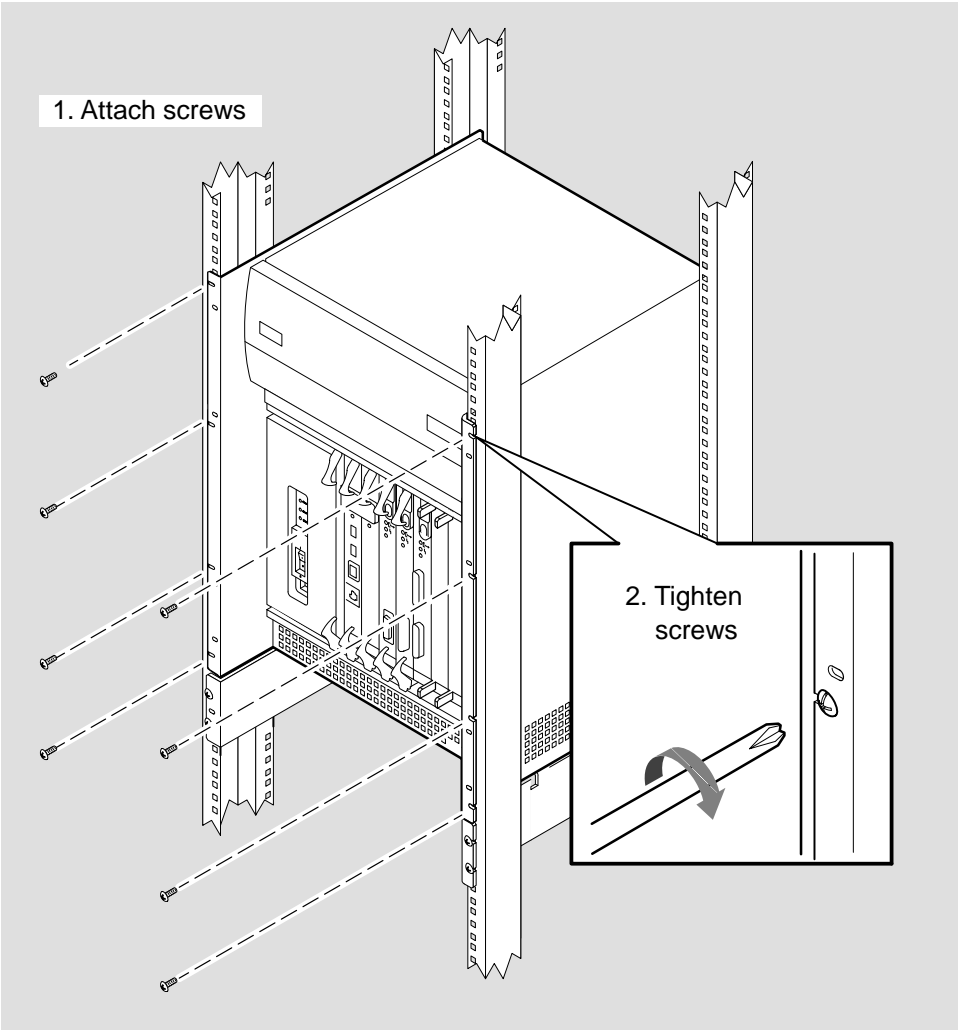
DECNIS600 の最大重量は 40kg です。  
このシステムは非常に重いため、移動する場合は最低 2 名以上で協力し、慎重に運んでください。

---



LKG-5678-911

## 2.6 Attach the Screws



LKG-5641-911

## 2.7 What to Do Next

If your DECNIS 600 system is supplied with its Network Interface Cards already installed, you should now:

1. Follow the instructions on each of the *Cabling Instructions and Specifications* cards provided for the Network Interface Cards. The cards show how to install a distribution panel (if one is included as part of the Network Interface Card kit) and attach the communications cables.
2. Go to Section 3.9 for instructions on how to enable each Network Interface Card and Section 3.10 for details of what to do next.

If your DECNIS 600 system does not have any Network Interface Cards installed, go to Chapter 3 for instructions on how to install the Network Interface Cards.

**Do not power up the system until the Network Interface Cards have been installed.**



---

## Installing the Network Interface Cards

This chapter shows how to install a Network Interface Card into the DECNIS 600 when it is powered down.

Some DECNIS 600 configurations are supplied with the Network Interface Cards already installed. If your system arrives with all cards installed, follow the procedures in Sections 3.7 to 3.10 only.

If you want to install a Network Interface Card in a running system, refer to Chapter 5.

### 3.1 Tasks

Complete the procedures in Sections 3.2 to 3.9 to:

1. Prepare to install the Network Interface Card
2. Check that the system is switched off
3. Attach the static protection equipment
4. Remove the slot cover
5. Install the Network Interface Card
6. Install the distribution panel (if included as part of the Network Interface Card kit)
7. Attach the communications cables
8. Enable the Network Interface Card

## 3.2 Preparation

Before you begin the installation procedure, check the contents of the Network Interface Card kit. The *Cabling Instructions and Specifications* card for the Network Interface Card lists the contents of the kit.

---

### Note

---

Do not remove the Network Interface Card from its antistatic packaging until you have completed the procedures in Section 3.4. The packaging protects the card from damage caused by static discharge.

---

When you unpack the kit, keep all of the packaging in case you need to remove and replace the Network Interface Card.

If any part of the kit is missing or damaged, contact your local Digital representative.

### 3.2.1 Tools

You will need the following tools for the Network Interface Card installation:

- Antistatic kit that includes an antistatic wrist strap and antistatic mat
- A 3 mm (  $\frac{1}{8}$  in) flat blade screwdriver

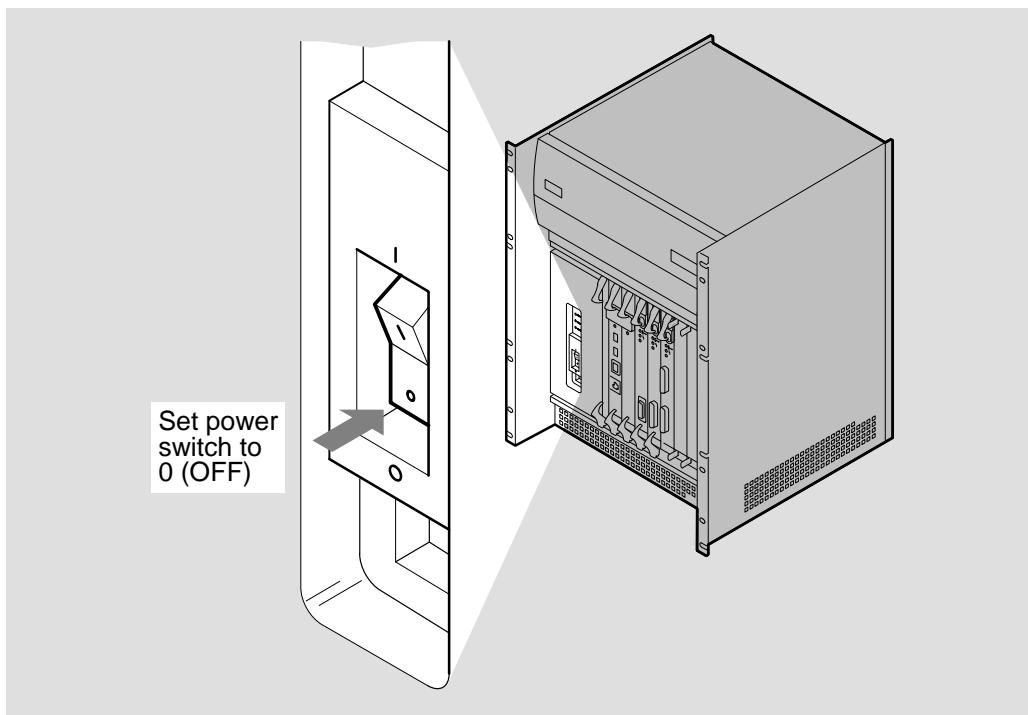
### 3.2.2 Network Interface Card Position

The Network Interface Cards can be installed in slots 3 to 9 in any order. However, each time that a Network Interface Card is moved to a different slot, the software configuration utilities must be run (see the software configuration documentation for more information). For this reason, Digital recommends that Network Interface Cards remain in the same slot wherever possible.

Management of the DECNIS 600 may be made easier if Network Interface Cards of the same type are grouped together. Management of several network systems may also be made easier if the organization of line configurations are consistent. For example, LAN cards could be installed from slot 9 towards slot 3, and WAN cards from slot 3 towards slot 9.

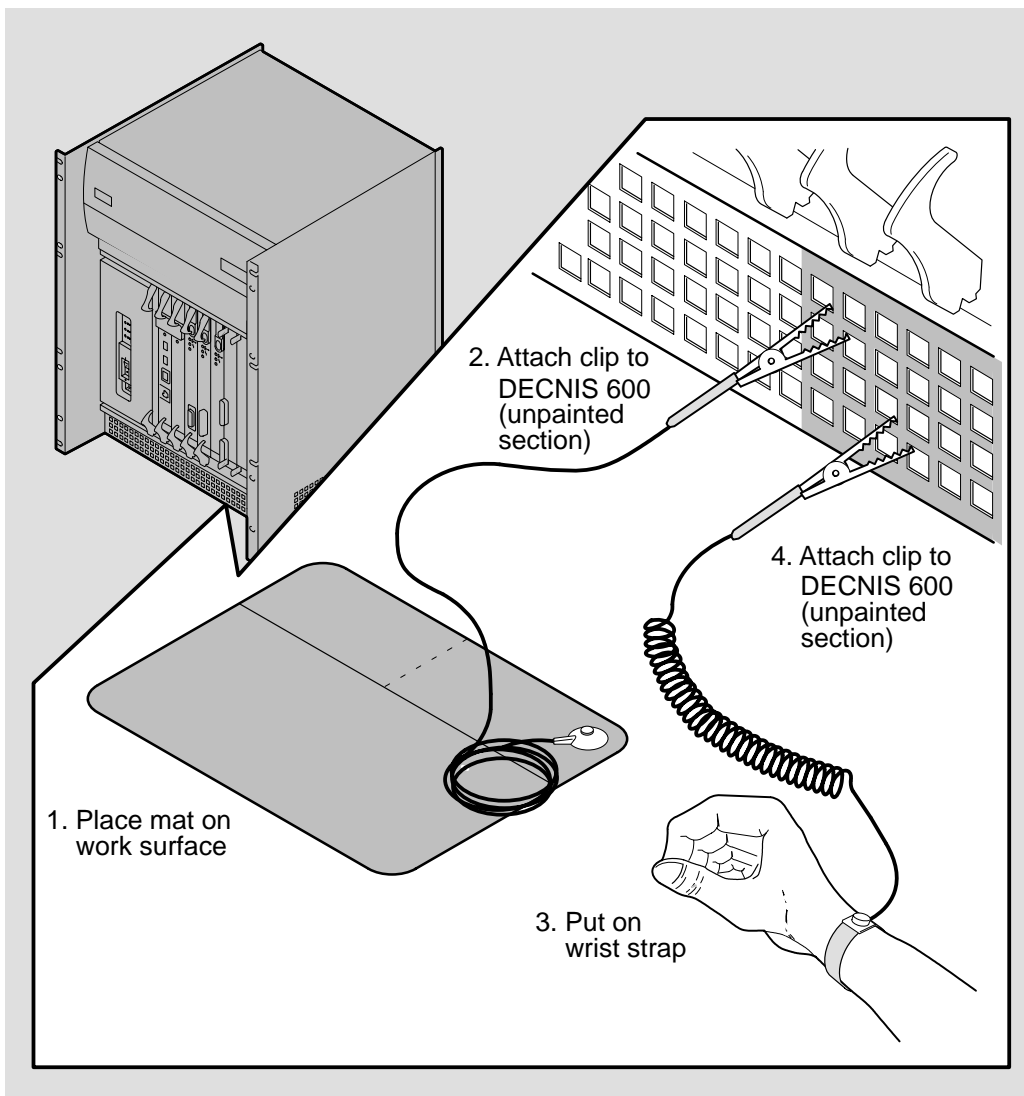


### 3.3 Check the System Is Switched Off



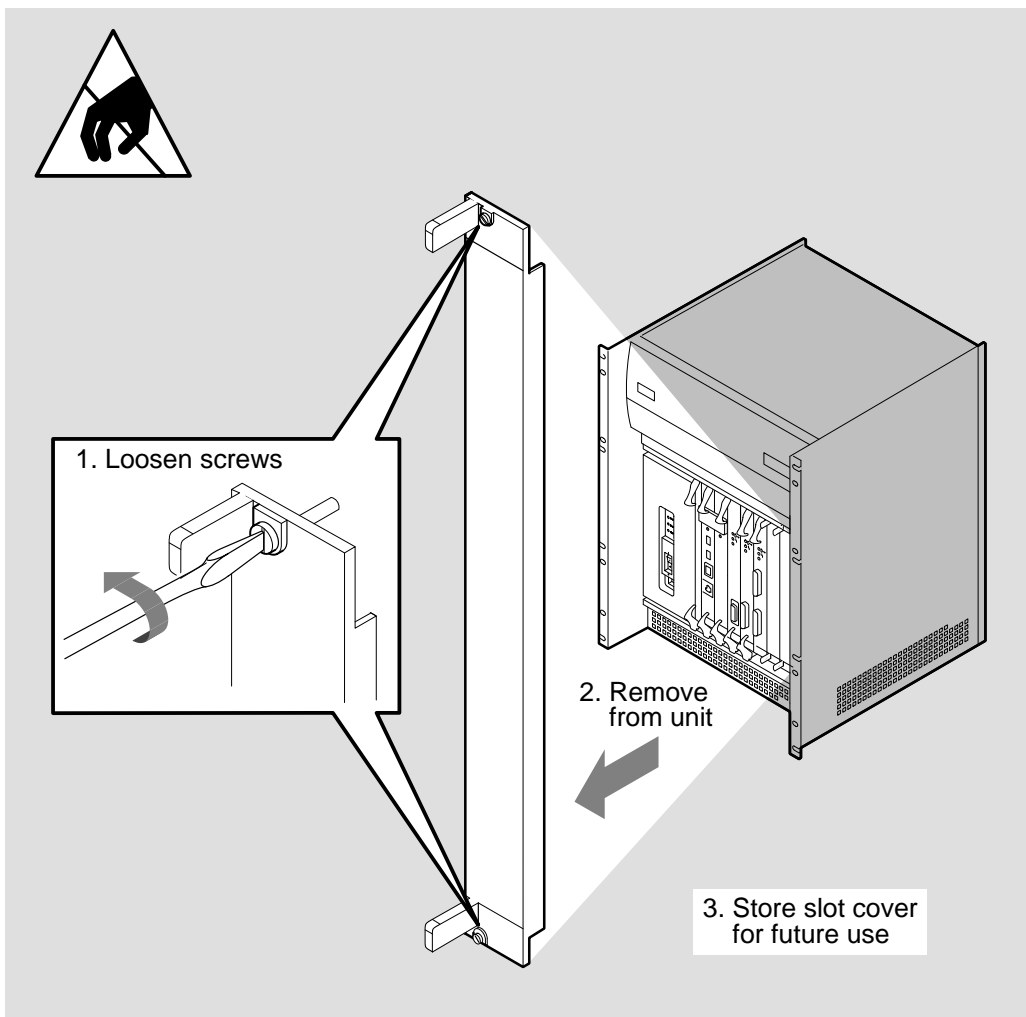
LKG-5642-911

### 3.4 Attach the Static Protection Equipment



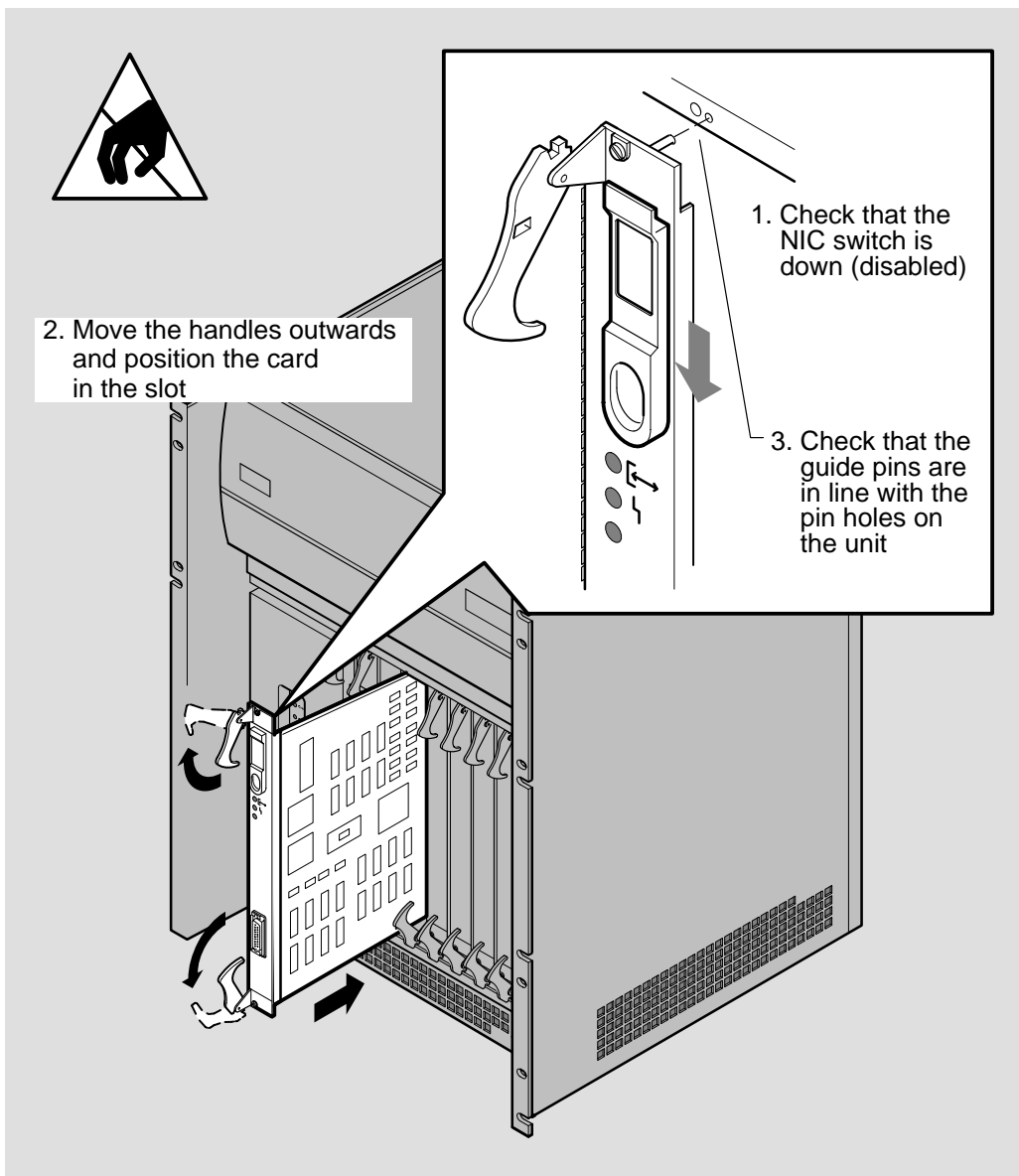
LKG-5643-911

### 3.5 Remove the Slot Cover



LKG-5644-911

### 3.6 Install the Card into the System

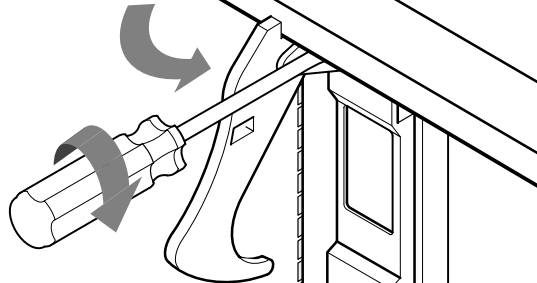


LKG-5645-911



4. GENTLY slide the card into the unit, locating the pins in the holes

5. Move handles inward to seat card into unit



6. Secure screws.

**Do not overtighten**  
**Max. torque =**  
**4.95 cm kg (4.3 in lb)**

Note: If there is any resistance, gently remove the card and locate its position again

LKG-5646-911

### **3.7 Install the Distribution Panel**

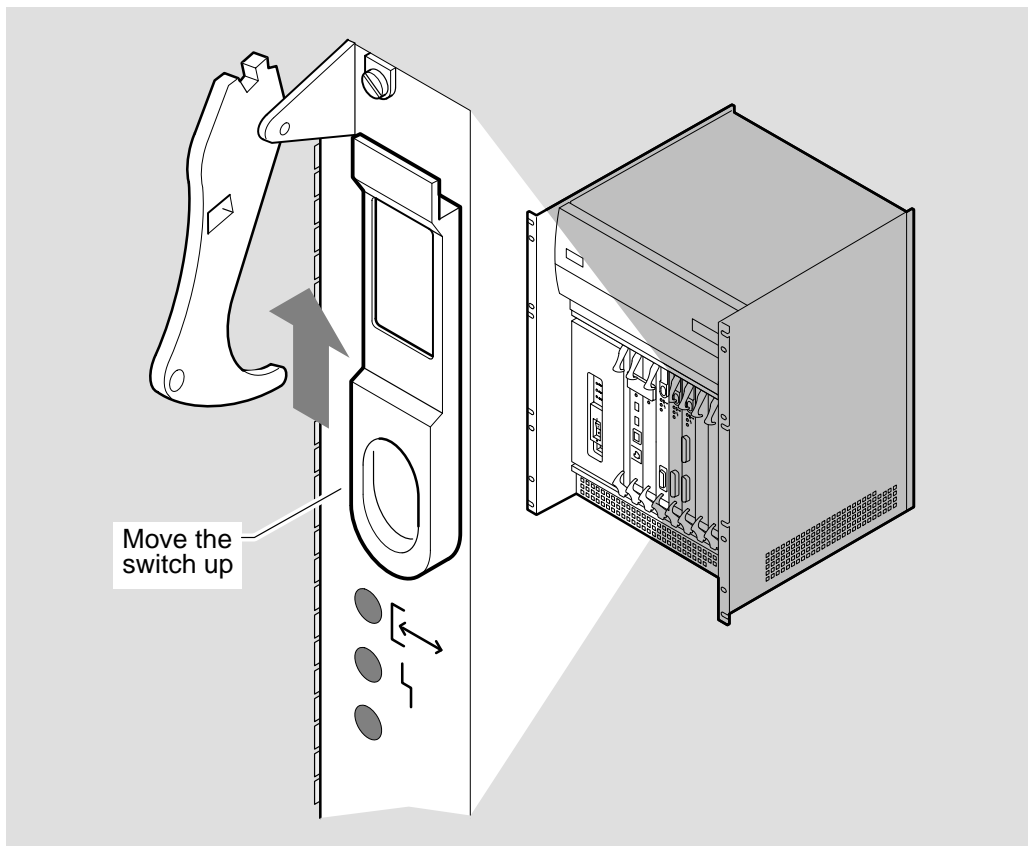
If a distribution panel is included as part of the Network Interface Card kit, install the panel in the rack before you install the communications cables.

The *Cabling Instructions and Specifications* card for the Network Interface Card describes how to install the distribution panel.

### **3.8 Attach the Communications Cables**

Follow the procedures on the *Cabling Instructions and Specifications* card to attach all communications cables for the Network Interface Card.

### 3.9 Enable the Network Interface Card



LKG-5647-911

The Network Interface Card switch enables the card so that it is automatically powered up and tested when the DECNIS 600 is powered up.

### 3.10 What to Do Next

Complete the following steps:

- Follow the procedures in Chapter 4 to power up and test the installed system.
- Complete the Network Interface Card *Configuration Card* and place it in the pocket inside the DECNIS 600 documentation binder.
- Store the packaging in a safe place in case you need to remove the Network Interface Card from the system. In particular, it is important to keep the antistatic bag.
- Store any removed slot covers for future use. Each slot in the DECNIS 600 **must** either contain a card or be covered with a slot cover so that the system cooling fans and temperature sensors can operate correctly.



# 4

---

## Testing the Installed System

This chapter describes how to power up and check the installed system.

### 4.1 Tasks

Follow the procedures in Sections 4.2 to 4.5 to:

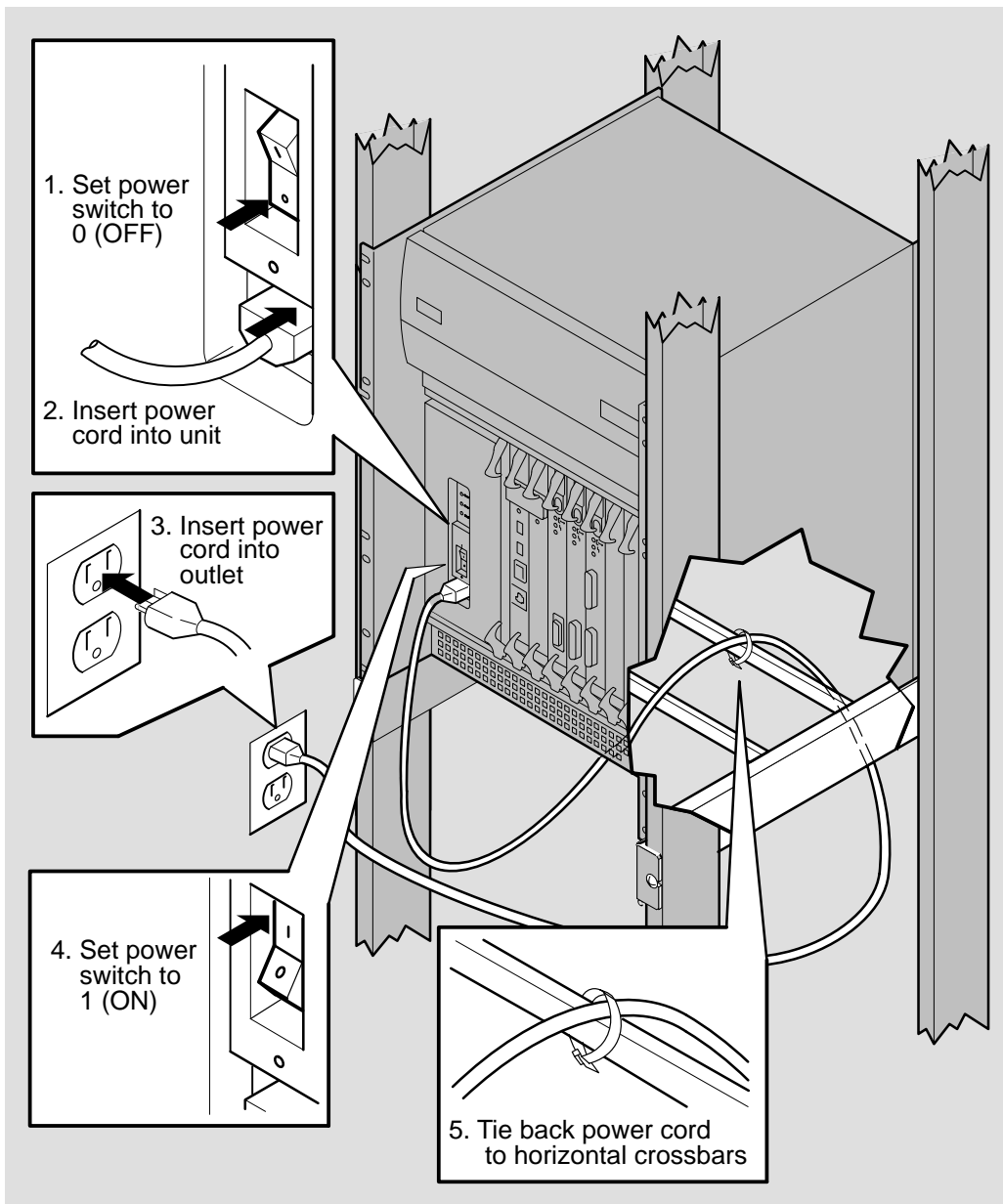
1. Check the Network Interface Card installations
2. Power up the system
3. Monitor the power module LEDs
4. Monitor the system displays and LEDs

### 4.2 Check the Network Interface Card Installations

Before you power up the DECNIS 600, check that:

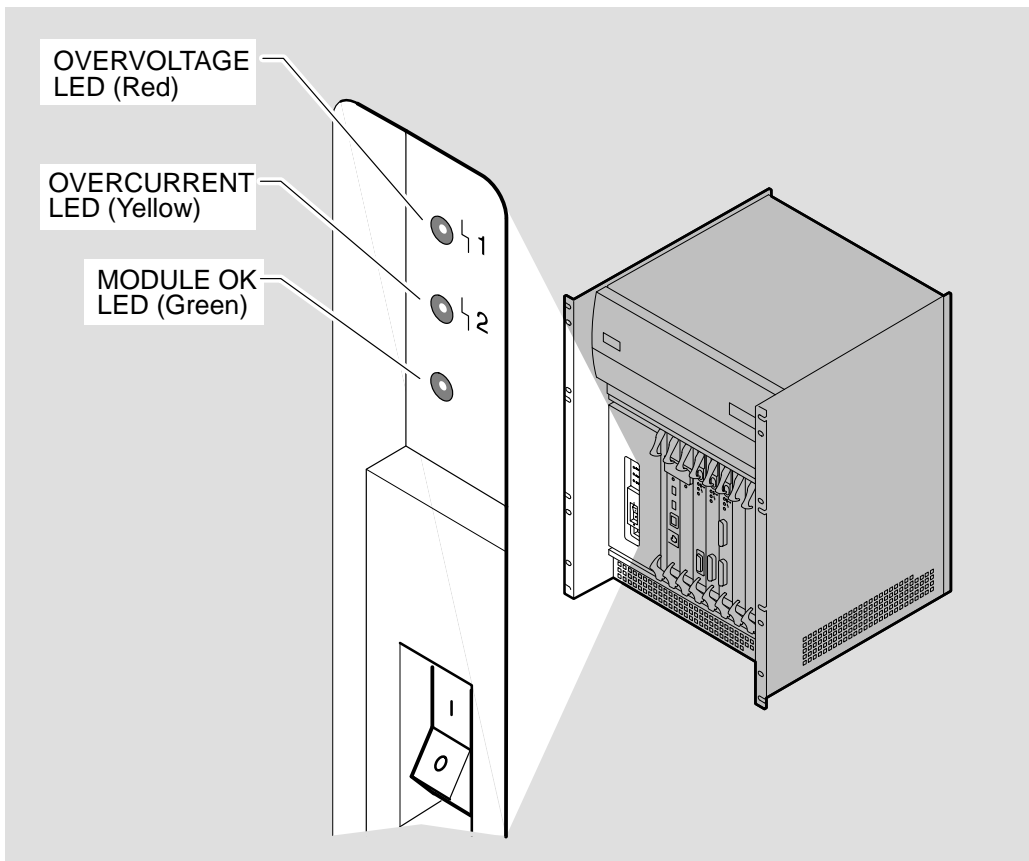
1. The Network Interface Cards are installed correctly and enabled.
2. The communications cables are installed correctly. Refer to the *Cabling Instructions and Specifications* card for details of how to install the cables.

### 4.3 Power Up the System



LKG-5648-911

## 4.4 Monitor the Power Module LEDs



LKG-5649-911

The MODULE OK LED should light approximately one second after power up. Check Table 4-1 for the state displayed by the LEDs and then take the corresponding action.

**Table 4–1 Power Module LED States**

<b>LED State</b>	<b>Action</b>
MODULE OK	Go to Section 4.5 to monitor the other displays on the unit.
No LEDs lit within 5 seconds of power up	Complete the following: <ol style="list-style-type: none"><li>1. Move the power switch to 0 (OFF)</li><li>2. Unplug the power cable from the power outlet</li></ol> Then follow the procedures in Section 10.3.
OVERVOLTAGE	Power down the DECNIS 600 and follow the procedures in Chapter 9.
OVERCURRENT	Power down the DECNIS 600 and follow the procedures in Chapter 9.

## 4.5 Monitor the System Displays and LEDs

On power up, the DECNIS 600 automatically tests each module and then tests the operation of the installed system:

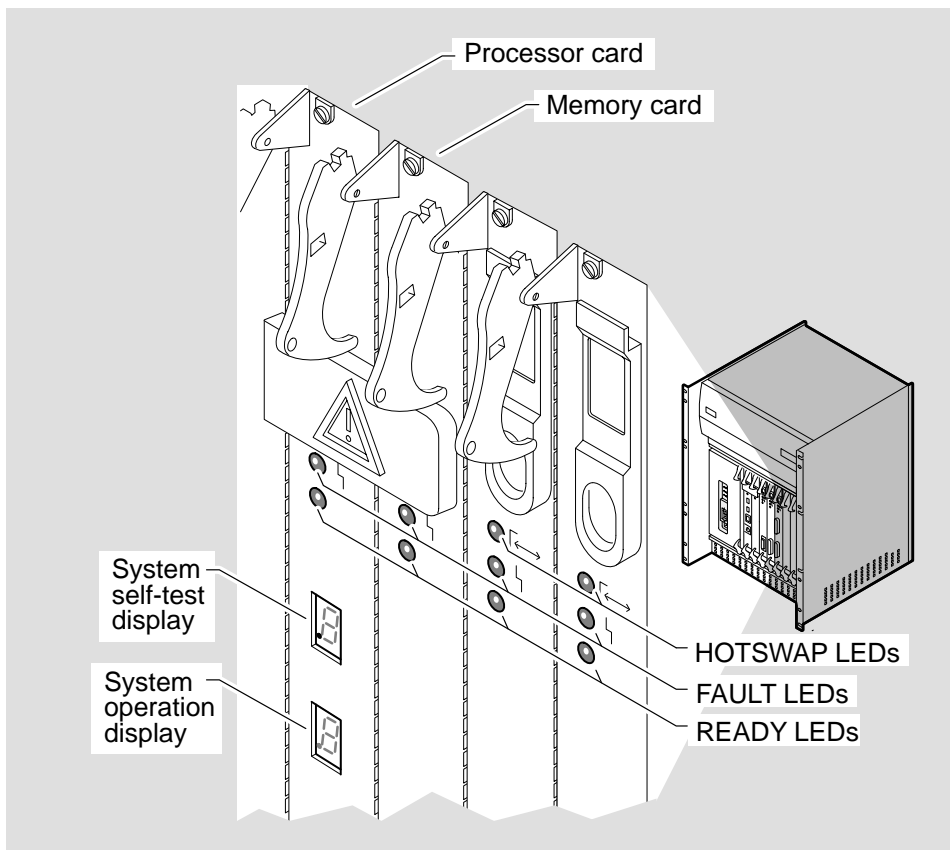
### 1. **Module self-test**

The DECNIS 600 activates a module self-test on each card that is installed and enabled. The module self-test checks the card for faults.

### 2. **System self-test**

When each card has completed its module self-test, the DECNIS 600 runs a system self-test. This test checks that each card can interact with the rest of the system. It then runs a diagnostic check to test the operation of the whole system.

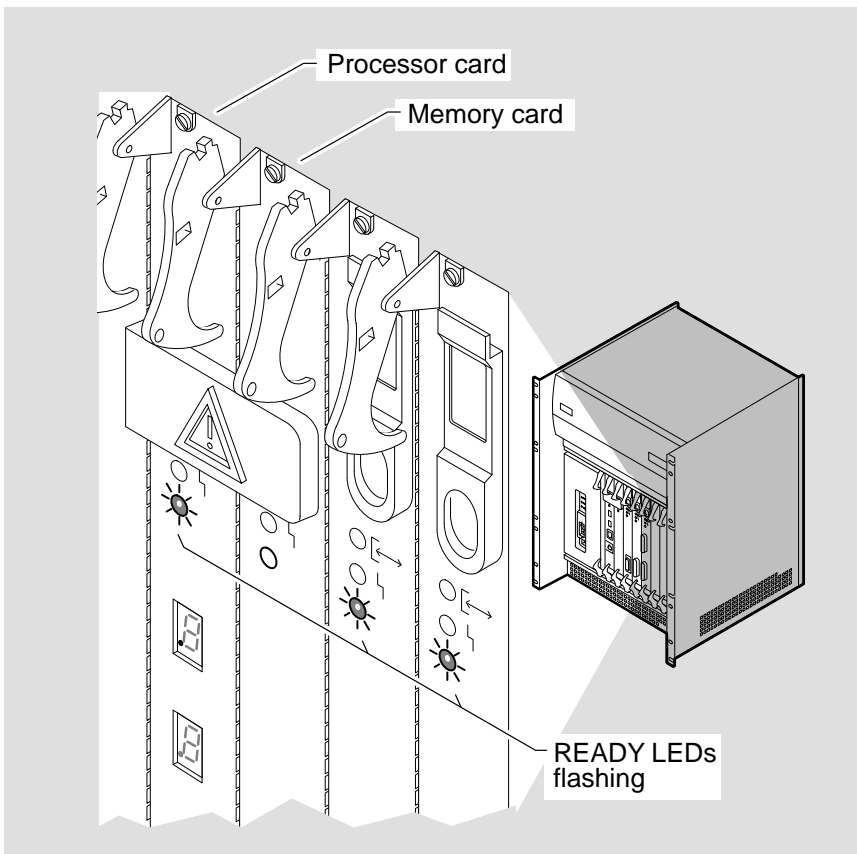
The progress of these tests is shown on the system displays located on the processor card and on the card LEDs:



LKG-5651-911

On power up, testing takes place in the following order:

1. The READY LEDs on the processor card and Network Interface Cards flash on and off (one flash per second), indicating that the cards are running module self-test:

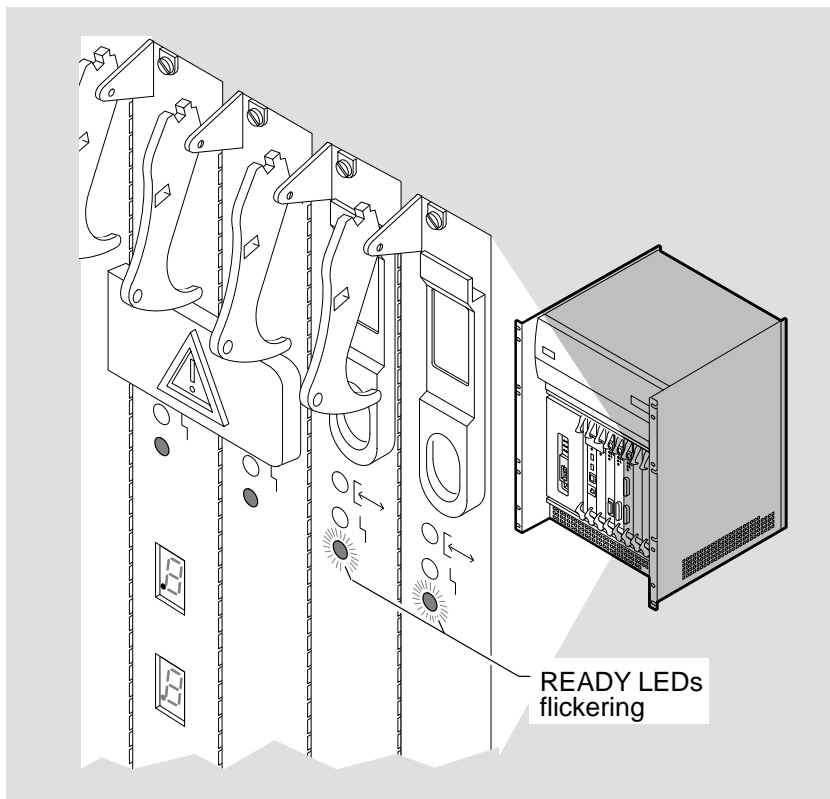


LKG-5652-911

The memory card is not tested (no LEDs lit) until the processor card has successfully completed its module self-test.

When the processor card has passed module self-test, its READY LED remains lit and the memory card starts module self-test. The memory card's READY LED flashes (one flash per second) to indicate that testing is in progress.

2. As soon as the memory card has passed module self-test and its READY LED remains lit, the Network Interface Cards interact with it as part of their module self-test. At this point, their READY LEDs flicker (8 flashes per second):

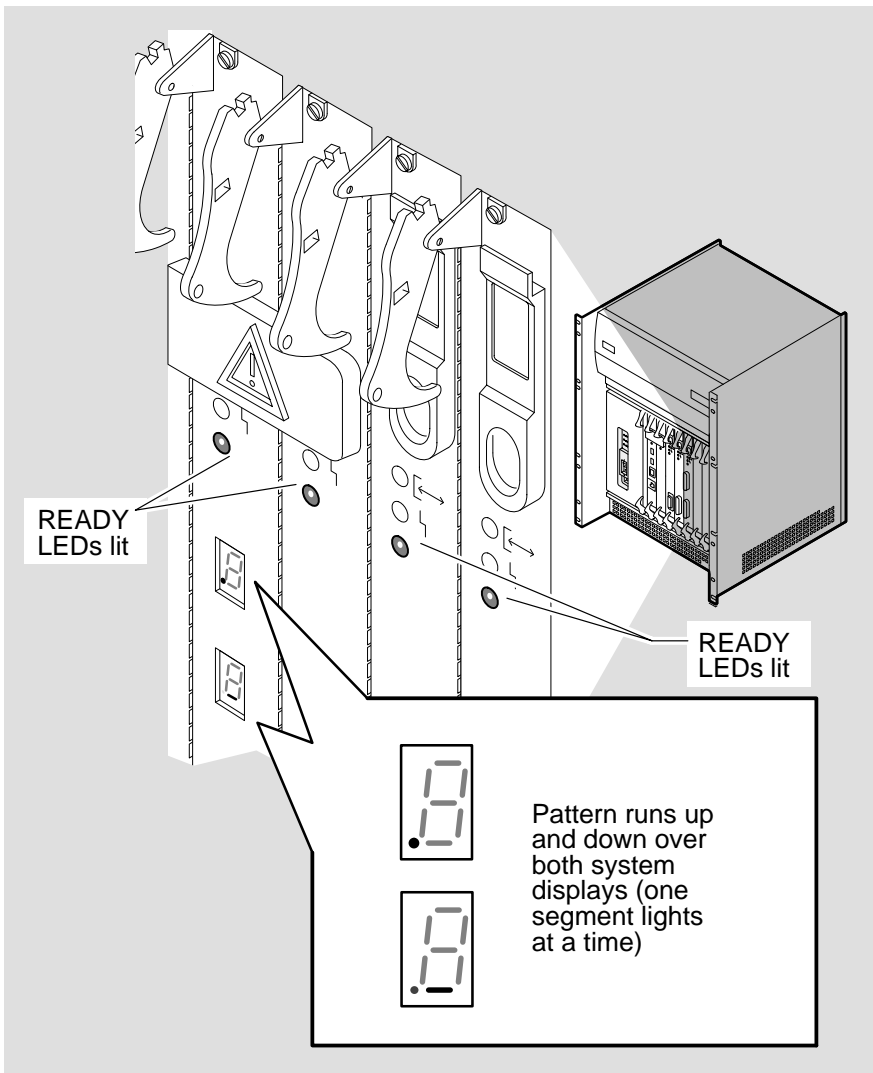


LKG-5653-911

When a Network Interface Card has successfully completed its module self-test, its READY LED remains lit.

**If the FAULT LED is lit on any of the cards, refer to Section 4.7.**

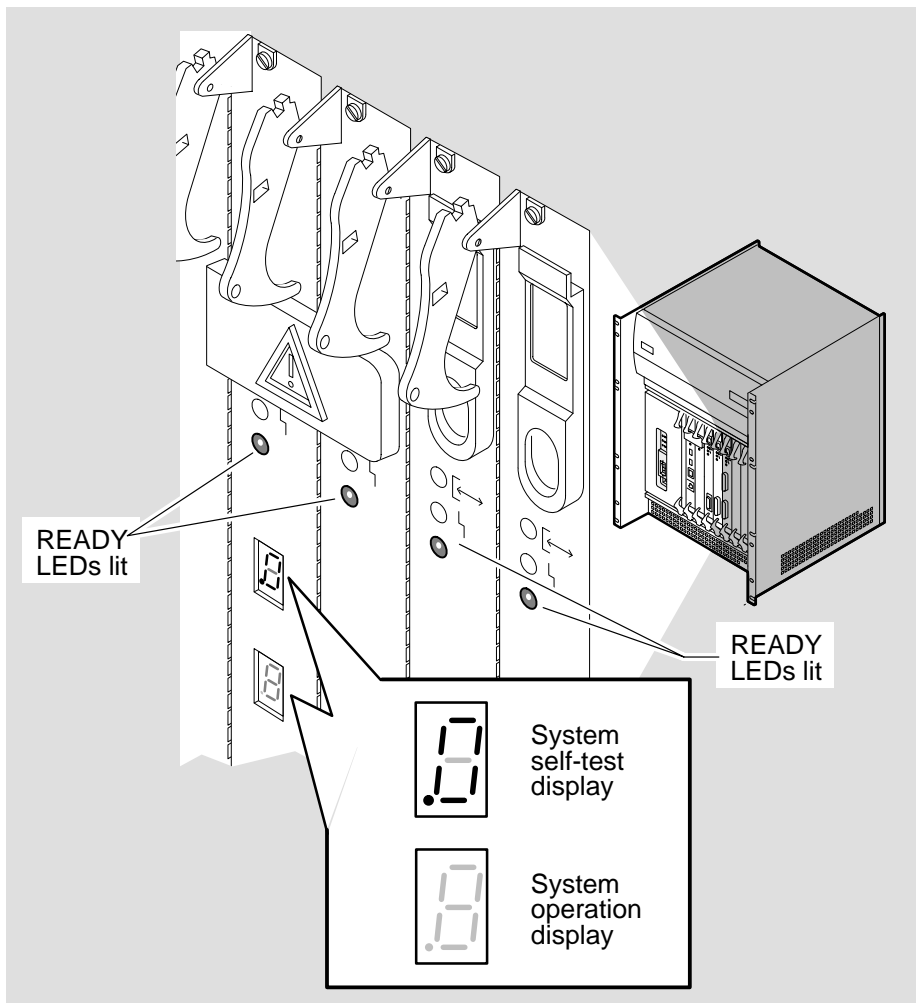
3. The DECNIS 600 then tests the whole system, including all Network Interface Cards that pass module self-test. The displays on the processor card show that the system self-test is in progress:



LKG-5654-911



4. When testing is complete, the system self-test display shows the value 0 to indicate that no faults were found and the system operation display shows the progress of load operations (see Section 4.6):




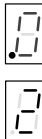

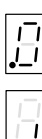
LKG-5655-911

If the system self-test display shows the value 1 or 2, or if it does not display a value, follow the procedures in Section 9.2.

## 4.6 Loading the DECNIS 600

If the system testing is successful, the DECNIS 600 automatically sends a load request over its circuits. The system operation (lower) display on the processor card shows the progress of the load.

For example, the following sequence of codes is shown on the system operation display if the software is already installed and the load is successful:

Display Code	Description
	The value 7 in the lower display indicates that the DECNIS 600 is sending a load request over all circuits in an attempt to find a load host.
	The value 2 in the lower display indicates that the DECNIS 600 is loading a load host and is loading software. This code is displayed while the load is taking place.
	The value 4 in the lower display indicates that the software is loaded.
 Circling pattern	A circling pattern (two segments light at a time) in the lower display indicates that the software is running successfully.

LKG-5656-911

Figure A-2 shows all of the codes that are displayed on the system operation display. If the displayed codes indicate that the system is loaded, or waiting to load, refer to Section 4.8 for details of what to do next. If the displayed codes indicate that there is a problem, refer to Section 9.2 for problem solving procedures.

## 4.7 What to Do if Things Go Wrong

Check Table 4-2 for LED state shown and take the corresponding action.

**Table 4-2 Problems at Power Up**

Symptom	Action
Processor card FAULT LED lit	Follow the procedures in Section 10.6.
Memory card FAULT LED	Follow the procedures in Section 10.7.
No LEDs lit on Network Interface Card	Card is not enabled, may be faulty or have faulty connections. Refer to Section 3.9 to enable card. If problem persists, go to Section 10.10.
Network Interface Card FAULT LED	A diagnostic error was found on the Network Interface Card. Go to Section 10.9.
Network Interface Card FAULT and READY LEDs lit	Network Interface Card is in the ATTENTION state. A diagnostic error was found on the card or cables associated with it. Go to Section 10.9.
Network Interface Card READY LED continuously flashing	Network Interface Card not configured. Refer to the software documentation for details of how to configure the card.

## 4.8 What to Do Next

When the system displays show that the DECNIS 600 is running successfully:

1. Complete the *DEC Network Integration Server 600 Configuration* card and the Network Interface Card configuration cards.
2. If the software is not installed, follow the procedures on the *DEC Network Integration Server Installation* card to install the software.



# Part II

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## Upgrading and Removing the System

Part II shows you how to upgrade and remove the system:

- Chapter 5 shows how to install additional Network Interface Cards without powering down the system.
- Chapter 6 shows how to install a processor card or memory card.
- Chapter 7 shows how to remove Network Interface Cards from the system.
- Chapter 8 shows how to remove the DECNIS 600 unit.



# 5

---

## Adding Network Interface Cards to a Running System

This chapter shows how to install a Network Interface Card in a running DECNIS 600 system. Using this procedure, you can:

- Install a new Network Interface Card into a previously unused slot without powering down the system. The card performs a module self-test and, if it passes, is available for use by the software.
- 'Hotswap' or replace a Network Interface Card while the system is running.

To hotswap a Network Interface Card:

1. Follow the procedures in Chapter 7 to remove the Network Interface Card.
2. Follow the procedures in this chapter to install a new Network Interface Card in the same slot.

---

### Note

---

Before you hotswap a Network Interface Card, consult the documentation for the software you are using with the DECNIS 600. The hotswap procedure may affect the state of the Network Interface Card software.

---

## 5.1 Tasks

Follow the procedures in Sections 5.2 to 5.9 to:

1. Prepare to install the Network Interface Card
2. Attach the static protection equipment
3. Remove the slot cover that covers the system slot
4. Install the card in the system
5. Install the distribution panel (if supplied)
6. Attach the communications cables
7. Enable the Network Interface Card
8. Monitor the Network Interface Card LEDs

## 5.2 Preparation

Before you begin the installation procedure, check the contents of the Network Interface Card kit. The *Cabling Instructions and Specifications* card for the Network Interface Card lists the contents of the kit.

---

### Note

---

Do not remove the Network Interface Card from its antistatic packaging until you have completed the procedures in Section 3.4. The packaging protects the card from damage caused by static discharge.

---

When you unpack the kit, keep all of the packaging in case you need to remove and replace the Network Interface Card.

If any part of the kit is missing or damaged, contact your local Digital representative.

Before you start, **do not power down the system.**



### 5.2.1 Tools

You will need the following tools for the Network Interface Card installation:

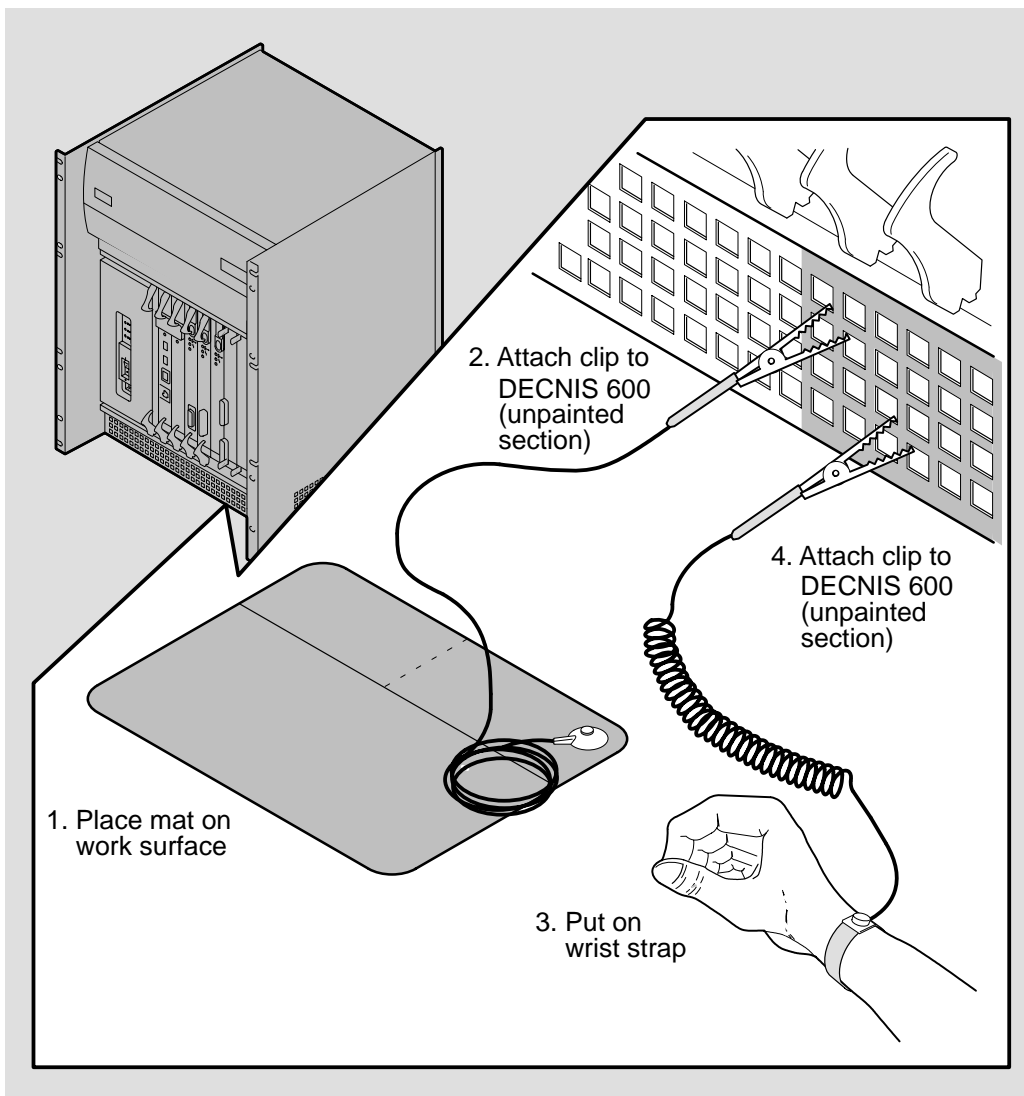
- Antistatic kit that includes an antistatic wrist strap and antistatic mat
- 3 mm (  $\frac{1}{8}$  in) flat blade screwdriver

### 5.2.2 Network Interface Card Position

The Network Interface Card can be installed in slots 3 to 9 in any order. However, each time that a Network Interface Card is moved to a different slot, the software configuration utilities must be run (see the software configuration documentation for more information). For this reason, Digital recommends that Network Interface Cards remain in the same slot wherever possible.

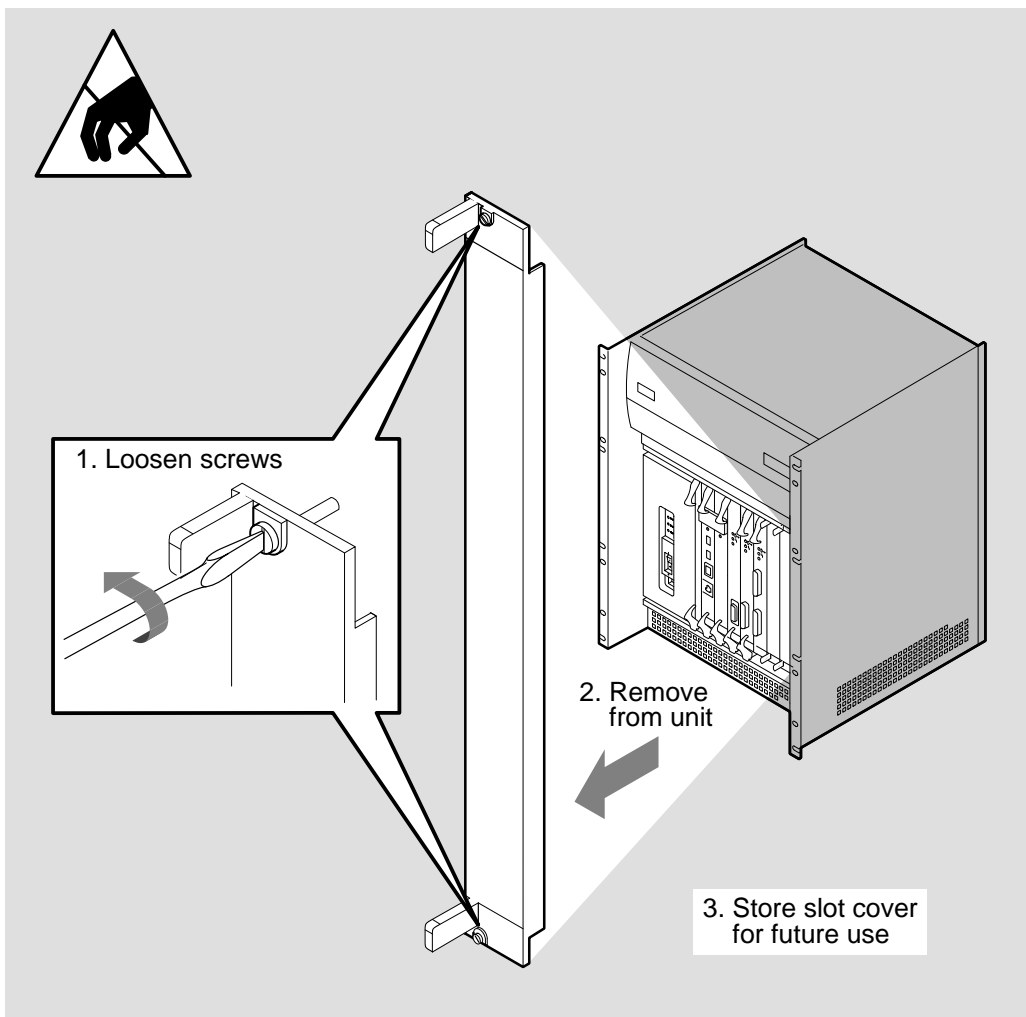
Management of the DECNIS 600 may be made easier if Network Interface Cards of the same type are grouped together. Management of several network systems may also be made easier if the organization of line configurations are consistent. For example, LAN cards could be installed from slot 9 towards slot 3, and WAN cards from slot 3 towards slot 9.

### 5.3 Attach the Static Protection Equipment



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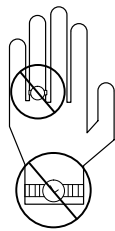
## 5.4 Remove the Slot Cover



LKG-5644-911

## 5.5 Install the Card into the System

Remove the Network Interface Card from its antistatic packaging and complete the steps shown in the diagrams on the following pages.



\_\_\_\_\_ **Danger—High Current** \_\_\_\_\_

Do not wear metal objects.

\_\_\_\_\_ **Danger—Courants Élevés** \_\_\_\_\_

Ne portez pas d'objets métalliques.

\_\_\_\_\_ **Gefahr—Hohe Stromstärken** \_\_\_\_\_

Tragen Sie keine Metall-Gegenstände an Händen und Armen.

\_\_\_\_\_ **Pericolo—Corrente elettrica elevata** \_\_\_\_\_

Non indossare oggetti metallici.

\_\_\_\_\_ **Peligro—Corriente eléctrica de alta intensidad** \_\_\_\_\_

No llevar ningún objeto metálico.

\_\_\_\_\_ **Perigo—Corrente Elevada** \_\_\_\_\_

Não usar objetos metálicos.

\_\_\_\_\_ **Gevaar—Hoge Stroom** \_\_\_\_\_

Draag geen metalen voorwerpen.

\_\_\_\_\_ **Fare—Stærkstrøm** \_\_\_\_\_

Pas på metalobjekter.

\_\_\_\_\_ **Vaara: voimakas sähkövirta** \_\_\_\_\_

Älä käytä metalliesineitä.

\_\_\_\_\_ **Fare—Sterkstrøm** \_\_\_\_\_

Ta av eventuelle metallgjenstander.

\_\_\_\_\_ **Fara—högström** \_\_\_\_\_

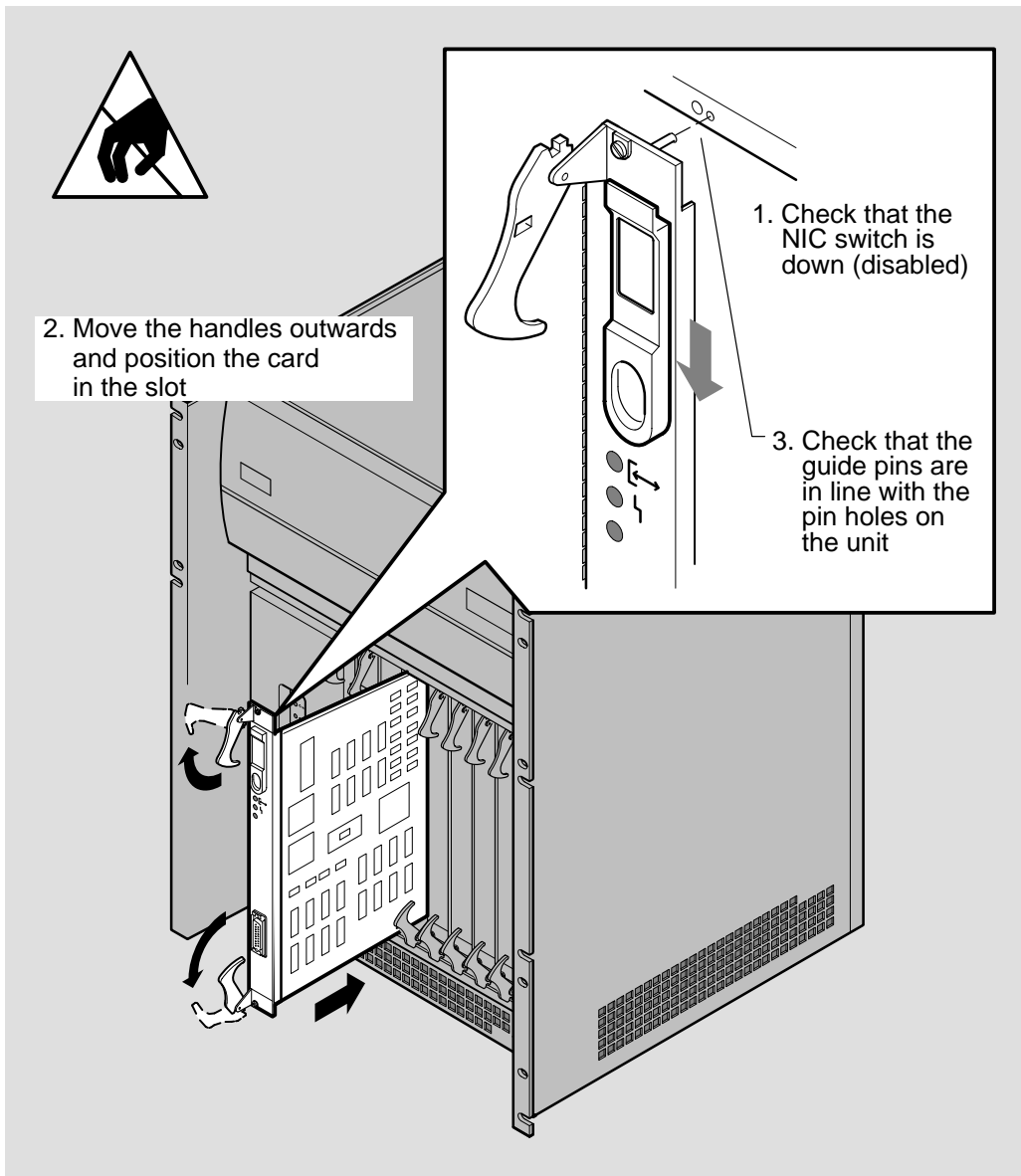
Bär inga metallföremål.

\_\_\_\_\_ **סכנת התחשמלות** \_\_\_\_\_

אין לשאת עצמים ממתכת.

\_\_\_\_\_ **高電流注意** \_\_\_\_\_

金属製のものを身につけていると危険です。身につけている金属物はすべてはずしてください。

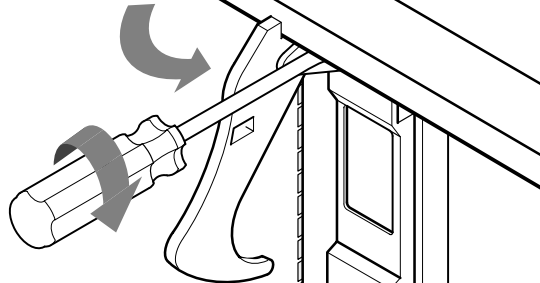


LKG-5645-911



4. GENTLY slide the card into the unit, locating the pins in the holes

5. Move handles inward to seat card into unit



6. Secure screws.

**Do not overtighten**  
**Max. torque =**  
**4.95 cm kg (4.3 in lb)**

Note: If there is any resistance, gently remove the card and locate its position again

LKG-5646-911

## **5.6 Install the Distribution Panel**

If a distribution panel is included as part of the Network Interface Card kit, install the panel in the rack before you install the communications cables.

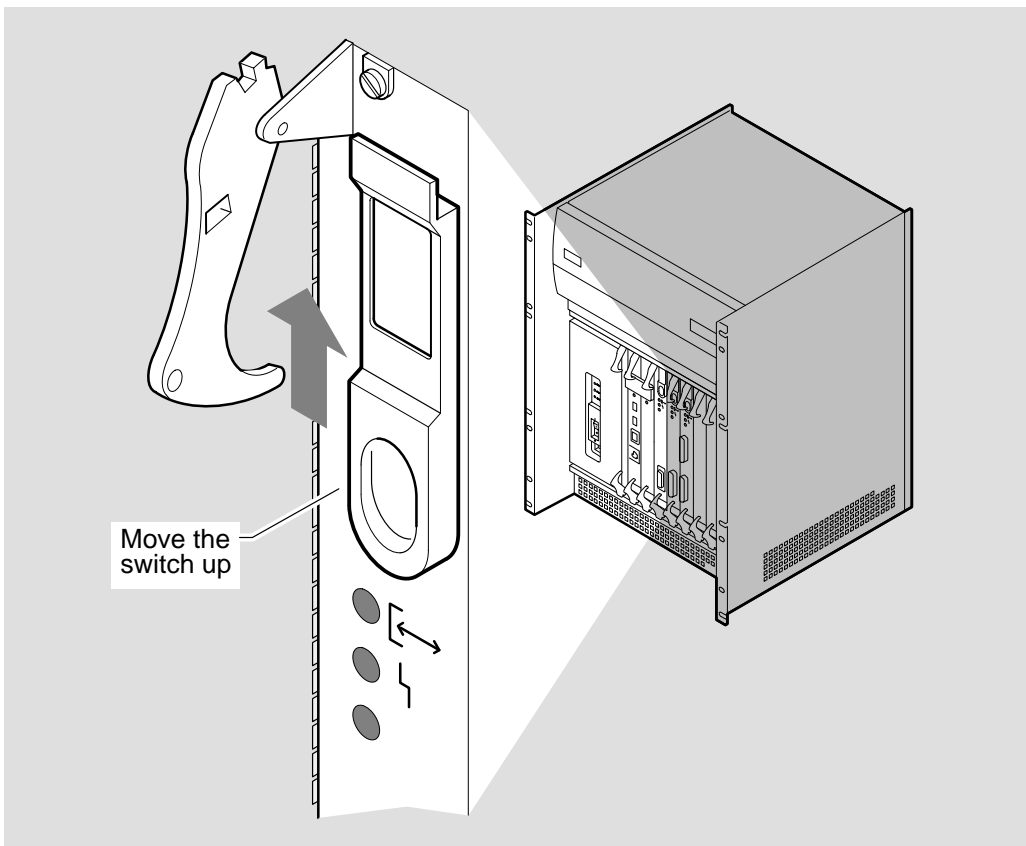
The *Cabling Instructions and Specifications* card for the Network Interface Card describes how to install the distribution panel.

## **5.7 Attach the Communications Cables**

Follow the procedures on the *Cabling Instructions and Specifications* card to attach all communications cables for the Network Interface Card.



## 5.8 Enable the Network Interface Card

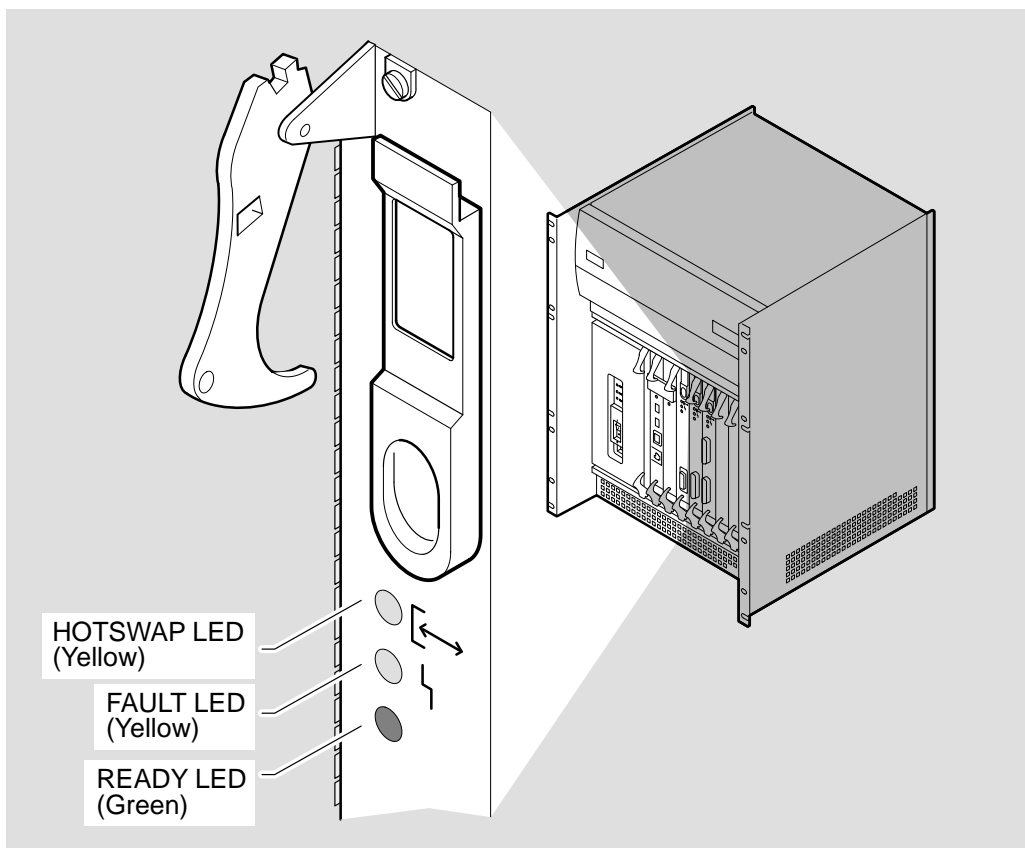


LKG-5647-911

When you enable the Network Interface Card, a module self-test is activated. This test detects any faults on the Network Interface Card and checks that the Network Interface Card can interact with the running system.

The module self-test can also be used to provide loopback testing on a Network Interface Card. The Network Interface Card *Problem Solving* card describes how to run a loopback test by fitting a loopback connector and enabling the card.

## 5.9 Monitor the Network Interface Card LEDs




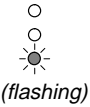
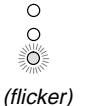



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The progress and results of the module self-test are shown on the Network Interface Card LEDs:

1. The READY LED flashes (one flash per second). This indicates that the module self-test is in progress.
2. The READY LED flickers (eight flashes per second). This indicates that the Network Interface Card has passed its module self-test and is waiting to load. Refer to Section 5.11.

If the FAULT LED or HOTSWAP LED is lit, or there are no LEDs lit on the Network Interface Card, refer to Figure 5-1.

**Figure 5–1 Network Interface Card States**

NIC LEDS	State	Action
	No LED lit	Either: – The card is not installed correctly – There is a fault on the card or the slot  Follow the procedures in Section 5.10.
 (flashing)	Testing in progress	The module self-test is running on the card (1 flash per second).
 (flicker)	Loading	The Network Interface Card is either waiting to load or the software is loading. Refer to Section 5.11.
	FAULT	The module self-test has failed. There may be a fault on the Network Interface Card.  Follow the procedures in Section 5.10.
	ATTENTION	The Network Interface Card is running, but not all ports on the card are usable.  Follow the procedures in Section 5.10.
	HOTSWAP	The Network Interface Card is disabled (switch is down). Follow the procedures in Section 5.8 to enable the card.

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## 5.10 What to Do if Things Go Wrong

Check Table 5–1 for the Network Interface Card state and take the corresponding action.

**Table 5–1 Network Interface Card Installation Problems**

LED State	Action
No LEDs lit on Network Interface Card	Complete the following steps: <ol style="list-style-type: none"><li>1. Check that the Network Interface Card is installed correctly. The Network Interface Card must be inserted into the DECNIS 600 and the handles moved inwards so that the card is seated in the correct position. See Section 5.5.</li><li>2. Follow the procedures in Section 10.10.</li></ol>
FAULT or ATTENTION	Complete the following steps: <ol style="list-style-type: none"><li>1. Check that all of the cables are installed correctly. Follow the procedures on the <i>Cabling Instructions and Specifications</i> card for the Network Interface Card.</li><li>2. Follow the procedures in Section 10.9.</li></ol>

## 5.11 What to Do Next

Complete the following steps:

- Complete the Network Interface Card *Configuration Card* and place it in the pocket inside the DECNIS 600 documentation binder.
- Configure the software system as necessary. Refer to the software configuration documentation for your load-host system.
- Store the packaging in a safe place in case you need to remove the Network Interface Card from the system. In particular, it is important to keep the antistatic bag.
- Store any removed slot covers for future use. Each slot in the DECNIS 600 **must** either contain a card or be covered by a slot cover so that the system cooling fans and temperature sensors can operate correctly.



# 6

---

## Installing Upgraded Processor or Memory Cards

This chapter describes how to remove the processor card and memory card and install new cards into the DECNIS 600 unit.

### 6.1 Tasks

Complete the procedures in Sections 6.2 to 6.11 to:

1. Prepare for the installation
2. Power down the system
3. Attach the static protection equipment
4. Remove the protective cover
5. Remove the processor card or memory card
6. Install the new processor card or memory card
7. Replace the protective cover
8. Power up the system
9. Monitor the card displays
10. Monitor the system displays

## 6.2 Preparation

Remove the cardboard packaging from the processor card or the memory card.

---

**Note**

---

Do not remove the card from its antistatic packaging until you have completed the procedures in Section 6.4. The packaging protects the card from damage caused by static discharge.

---

When you unpack the kit, keep all of the card packaging in case you need to remove and replace the card.

### 6.2.1 Tools

Make sure you have the following available:

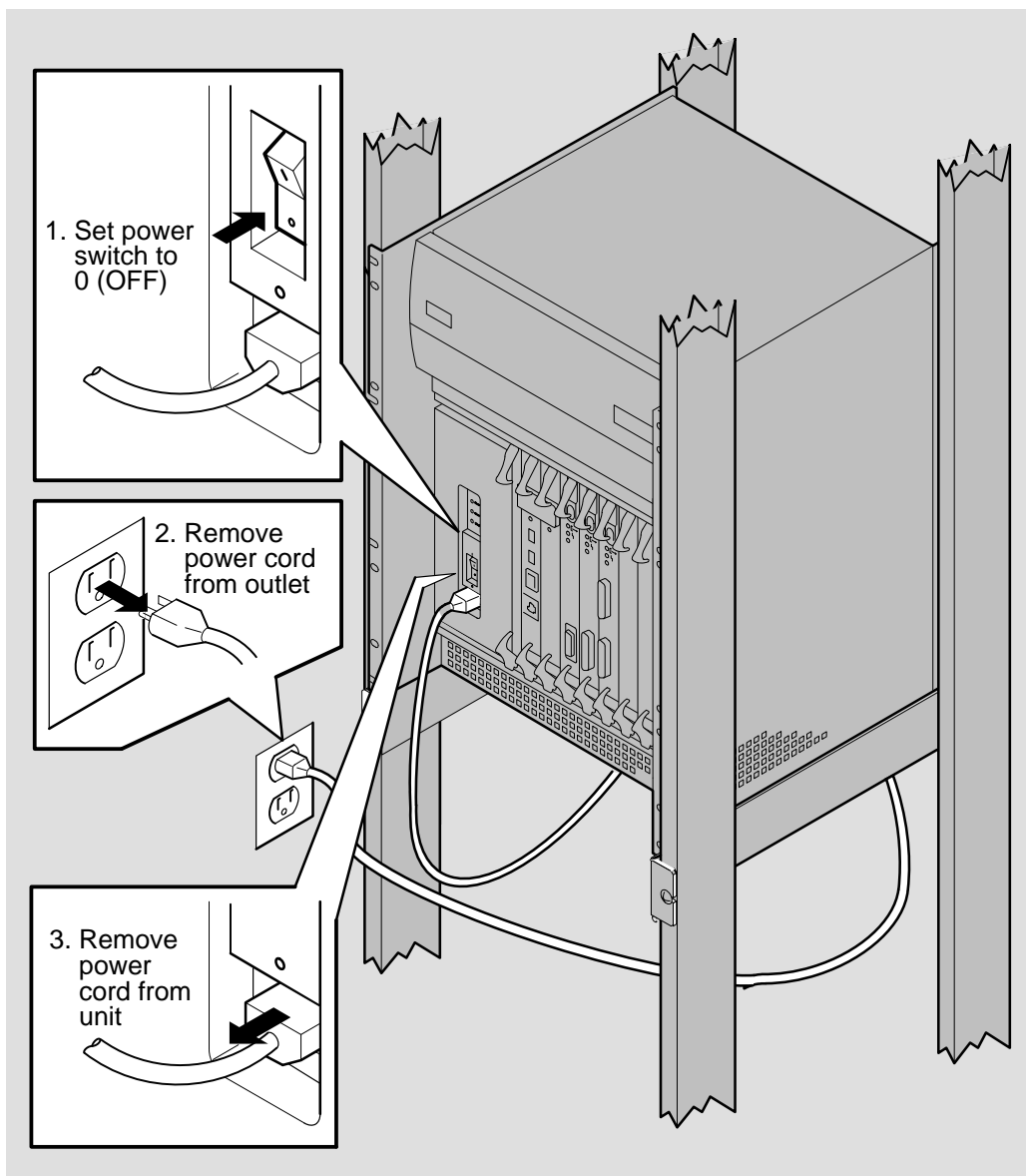
- Antistatic kit that includes an antistatic wrist strap and antistatic mat
- A 3 mm (  $\frac{1}{8}$  in) flat blade screwdriver

### 6.2.2 Card Position

The processor card and the memory card must be installed in slots 1 or 2.

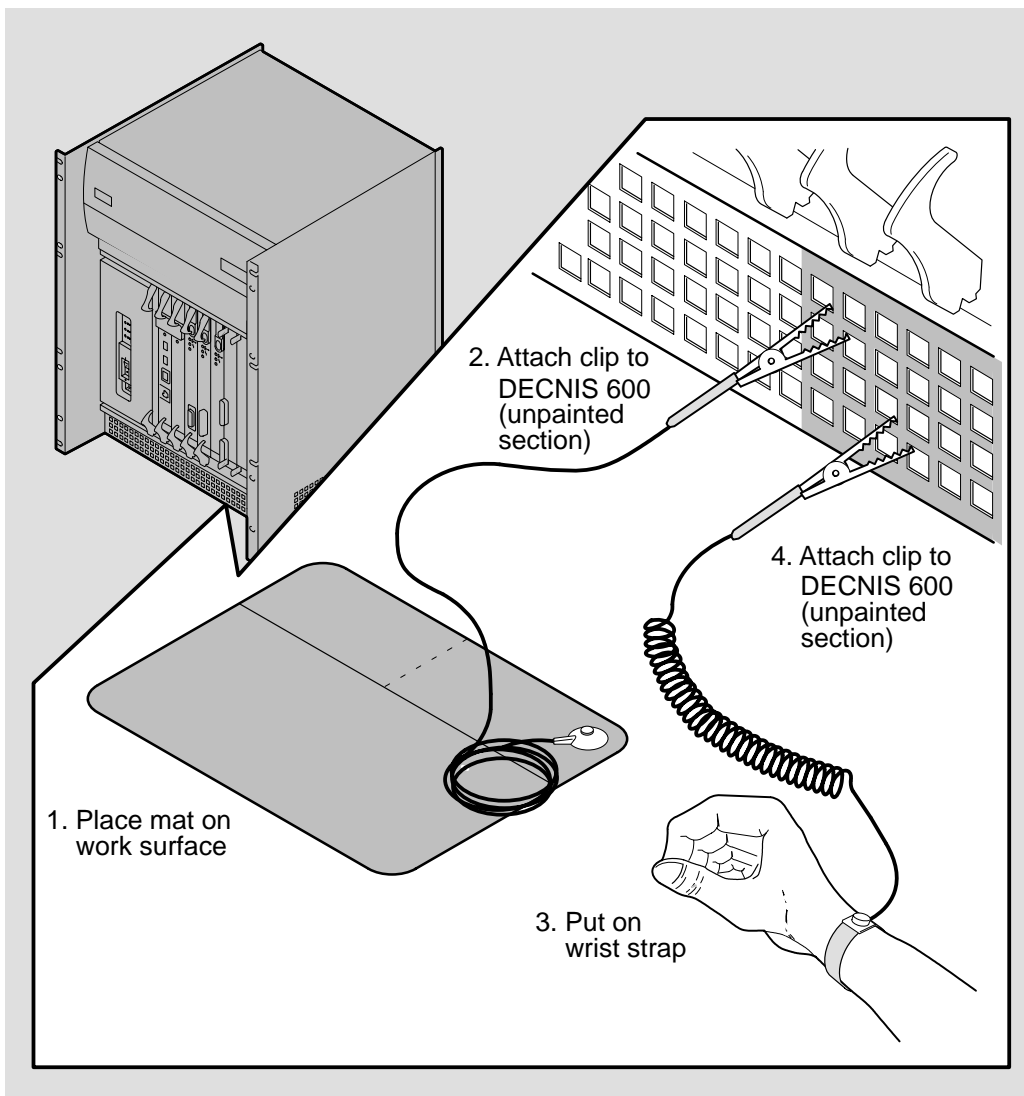


## 6.3 Power Down the System



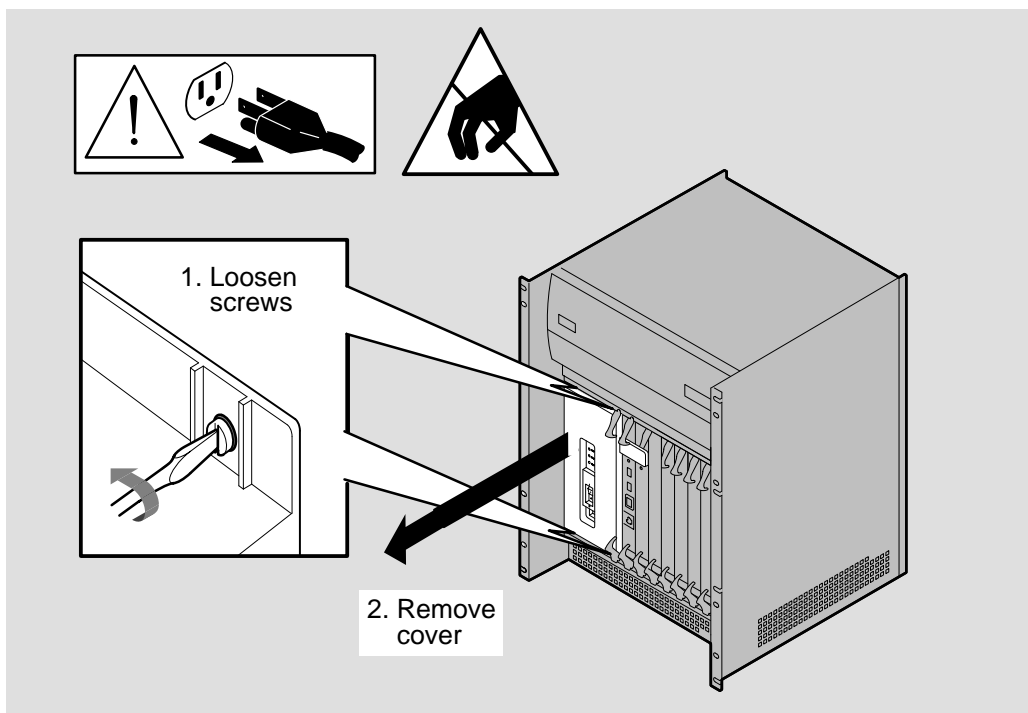
LKG-5661-911

## 6.4 Attach the Static Protection Equipment



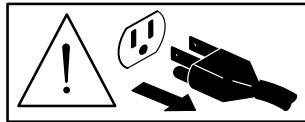
LKG-5643-911

## 6.5 Remove the Protective Cover



LKG-5662-911

## 6.6 Remove the Processor Card or Memory Card



---

### Caution

---

Power down the DECNIS 600 before attempting these procedures.

---

---

### Atención

---

Desconectar el DECNIS 600 antes de realizar estos procedimientos.

---

---

### Advarsel

---

Slå av strømtilførselen til DECNIS 600 før du utfører disse oppgavene.

---

---

### Atenção

---

Desligar o DECNIS 600 antes de efectuar estes procedimentos.

---

---

### Vorsicht

---

Schalten Sie den DECNIS 600 ab, bevor Sie diese Arbeiten ausführen.

---

---

### Avvertenza

---

Spegnere il DECNIS 600 prima di eseguire queste procedure.

---

---

**HUOM:**

---

Sammuta virta DECNIS 600:sta ennen kuin ryhdyt näihin toimenpiteisiin.

---

---

**Voorzichtig**

---

Schakel de DECNIS 600 uit voordat u deze procedures probeert uit te voeren.

---

---

**Varning**

---

Slå av strömmen på DECNIS 600 innan dessa procedurer utförs.

---

---

**Advarsel**

---

Sluk for DECNIS 600 før disse operationer påbegyndes.

---

---

**Attention**

---

Veillez couper l'alimentation du DECNIS 600 avant d'effectuer ces procédures.

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**זהירות**

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יש לנתק את DECNIS 600 מזרם החשמל לפני ביצוע פעולות אלו.

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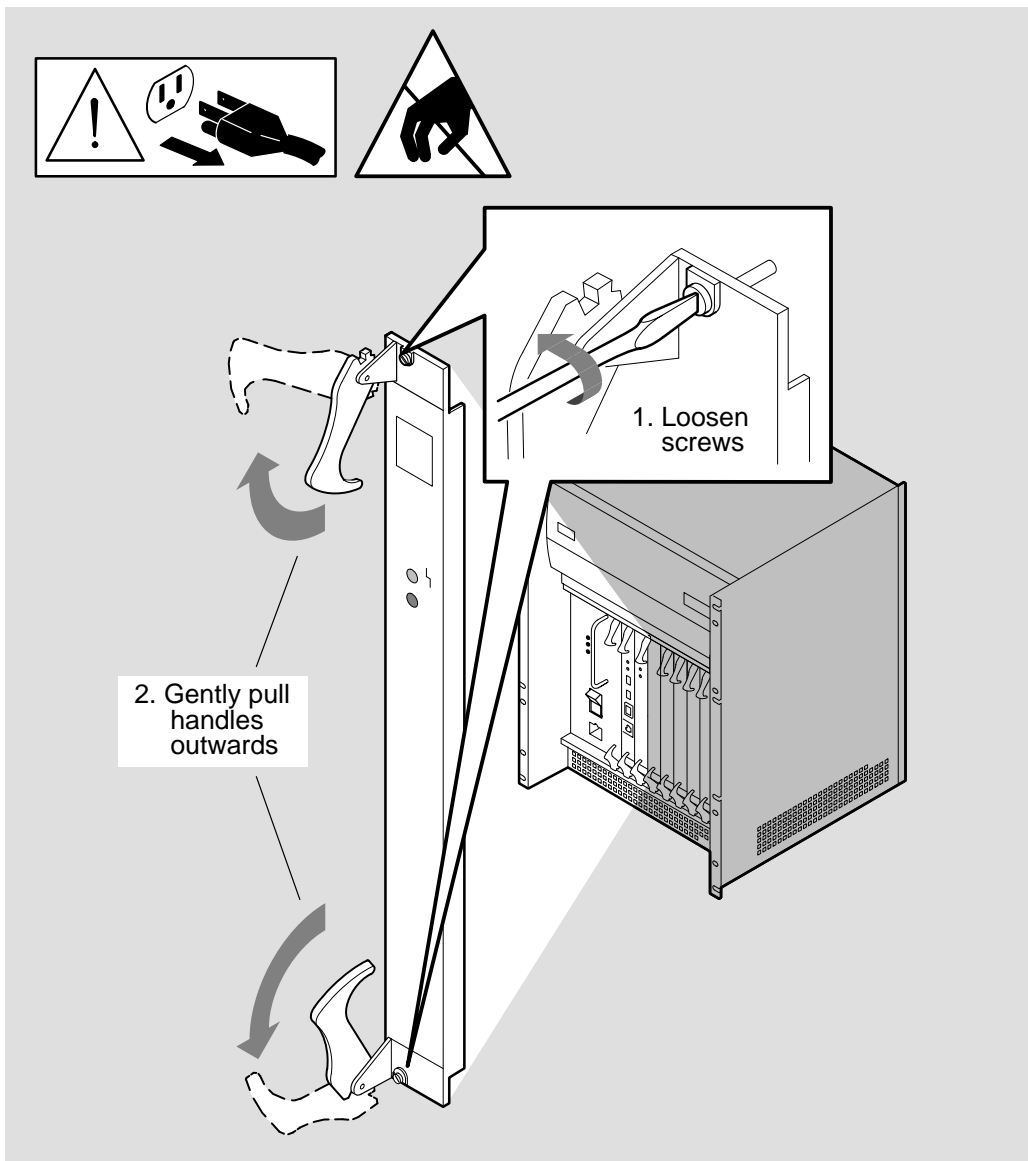
---

**注意**

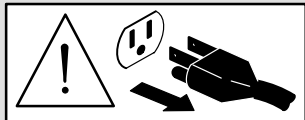
---

これらの作業をはじめる前に、必ず DECNIS 600 の電源を切ってください。

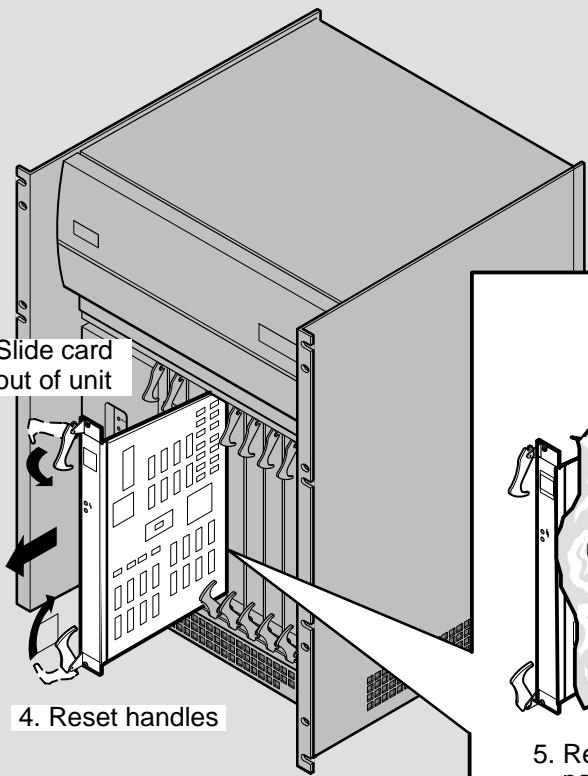
---



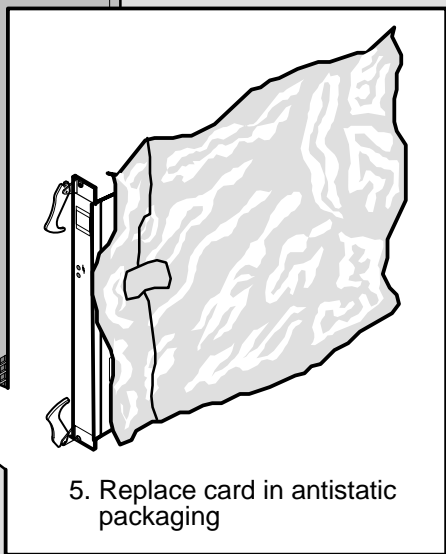
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3. Slide card out of unit



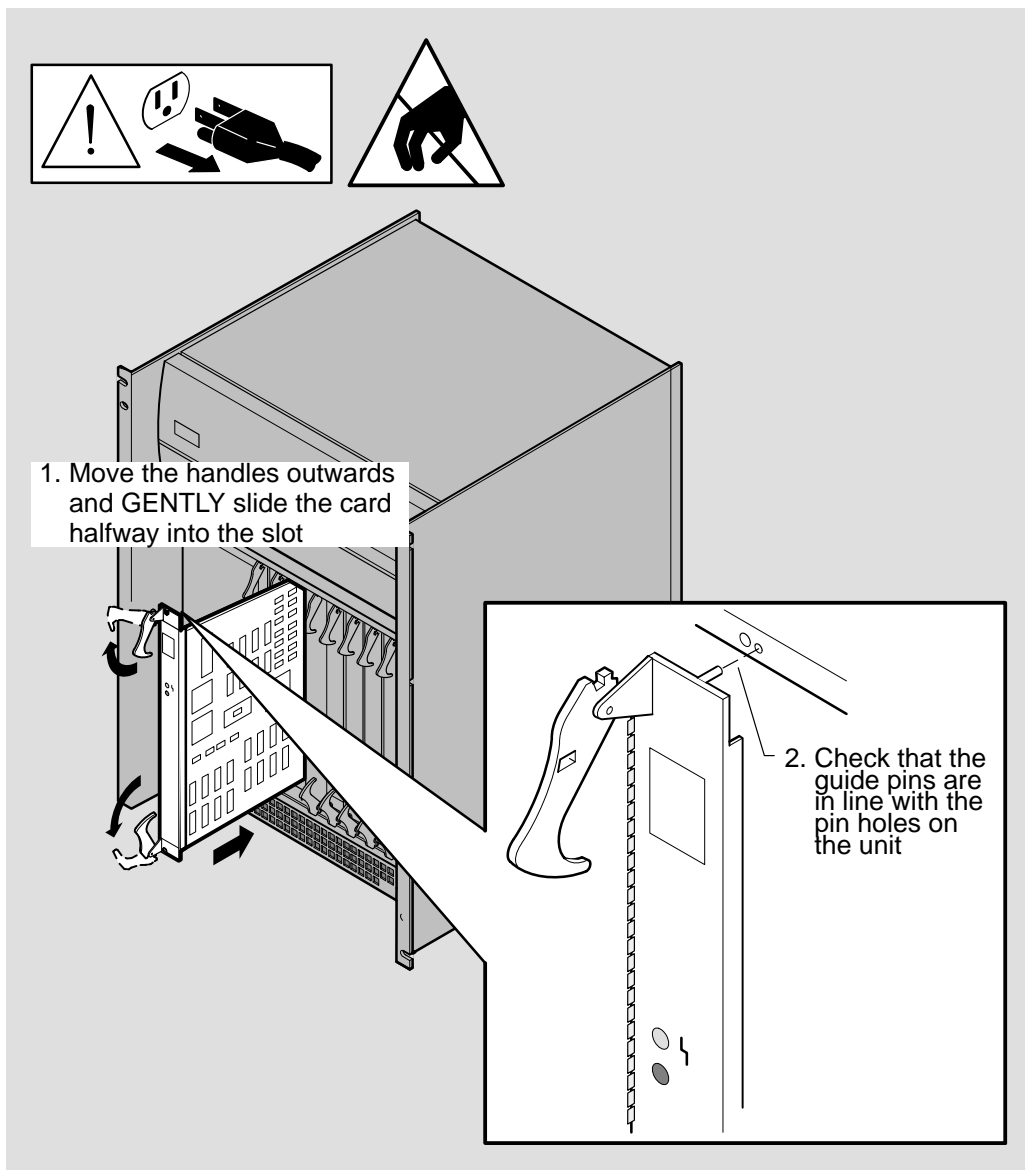
4. Reset handles



5. Replace card in antistatic packaging

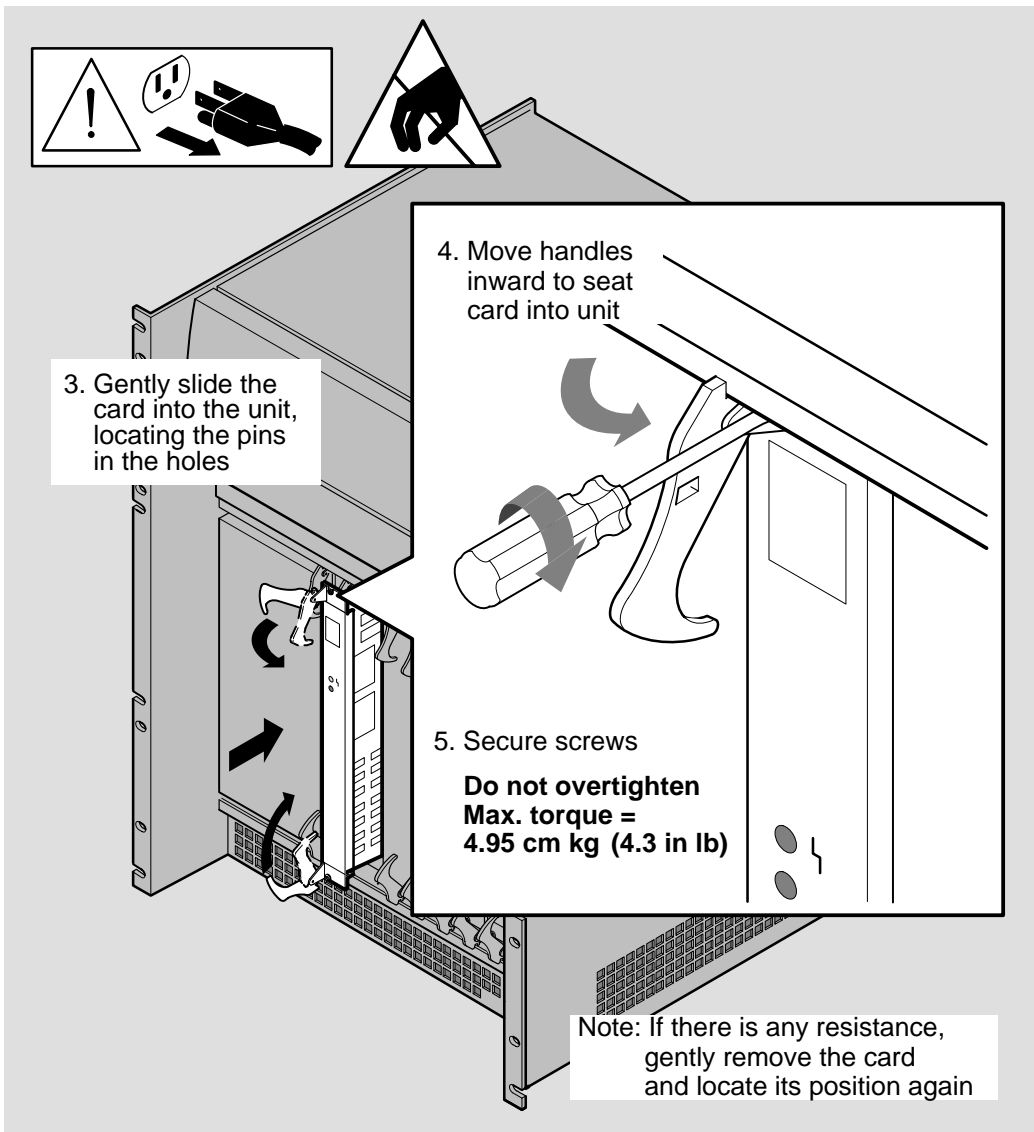
LKG-5664-911

## 6.7 Install the New Processor Card or Memory Card



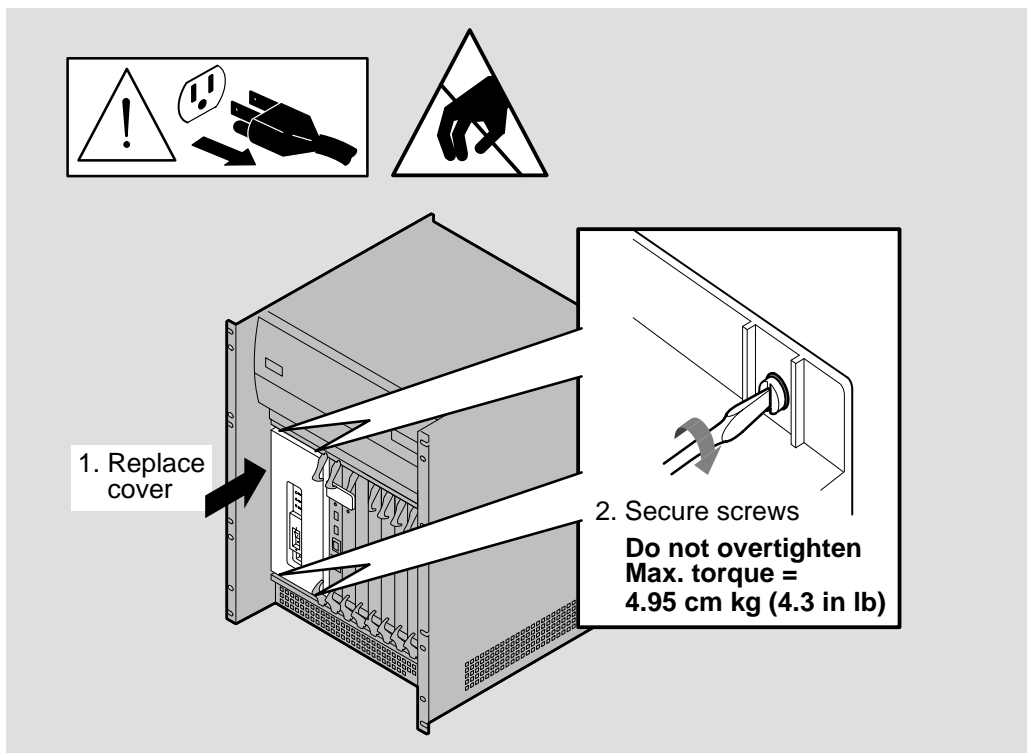
LKG-5665-911





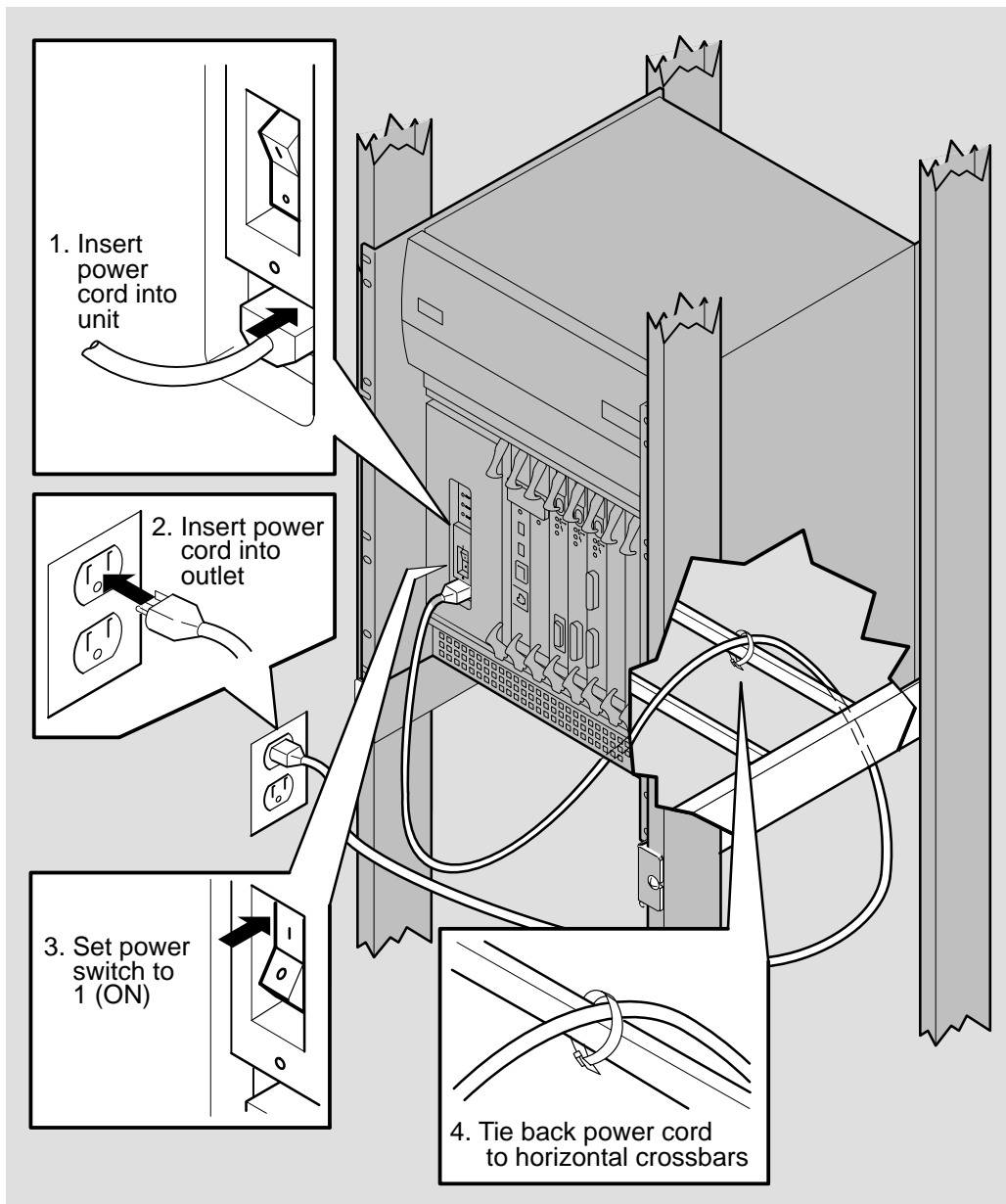
LKG-5666-911

## 6.8 Replace the Protective Cover



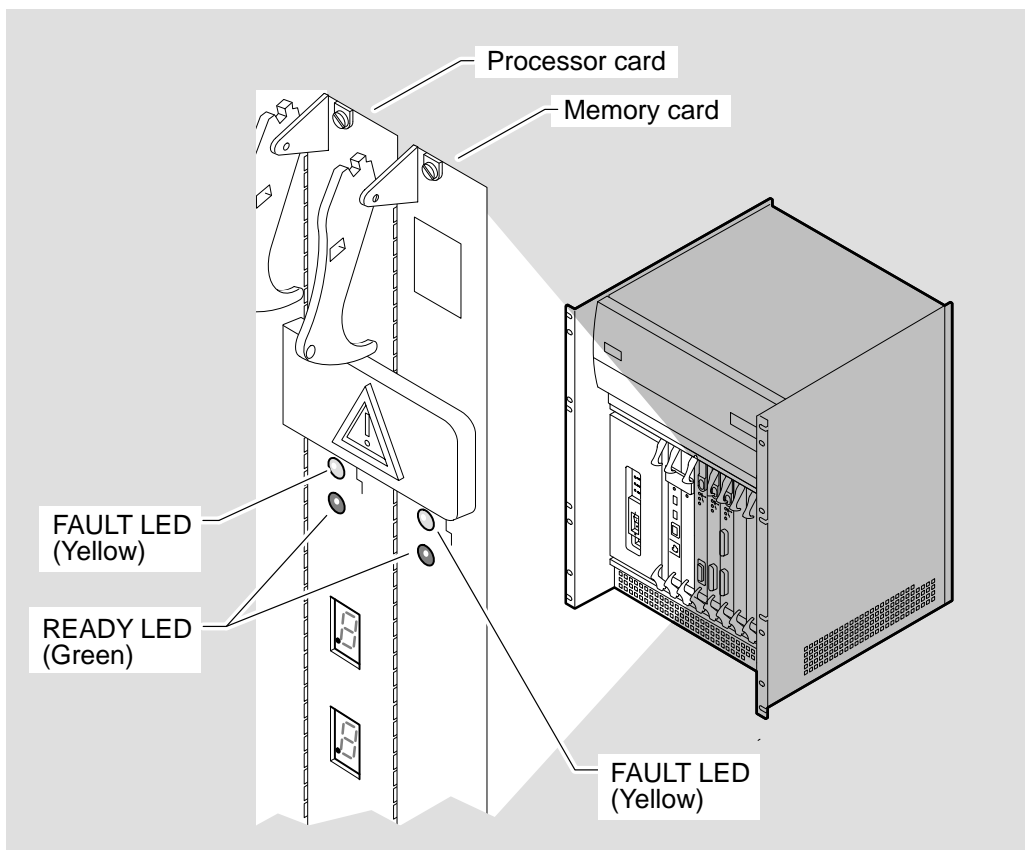
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## 6.9 Power Up the System



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## 6.10 Monitor the Card LEDs



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



On power up, the READY LED on the processor card flashes (one flash per second). This indicates that the card is running its module self-test.

After 30–40 seconds, its READY LED should remain lit to indicate that the test was successful. Then, the memory card starts its module self-test and its READY LED flashes (one flash per second).

The DECNIS 600 activates a module self-test on the processor card, memory card, and the Network Interface Cards each time that the system is powered up.

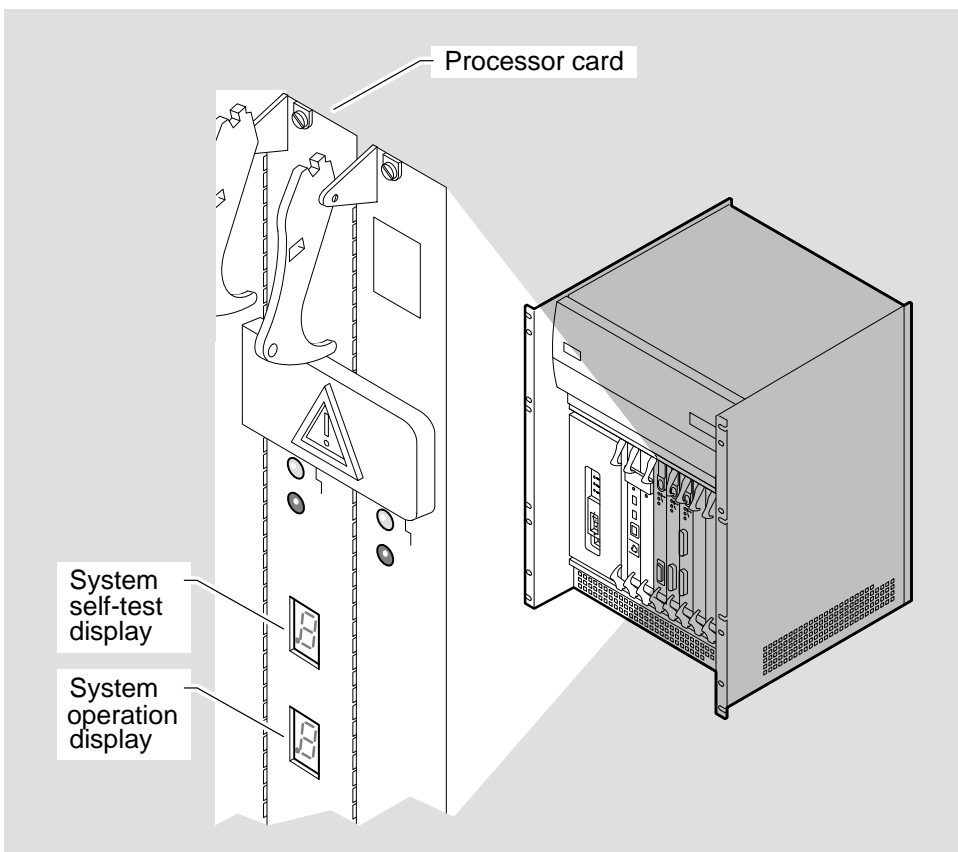
Check Figure 6–1 for the LED state displayed on the processor card and memory card and details of what to do next.

**Figure 6–1 Processor Card and Memory Card LED States**

LEDs	State	Action
	READY	<p>The module self-test was successful and the card is running.</p> <p>Follow the procedures in Section 6.11.</p>
 <i>(No LEDs lit)</i>	Card waiting or disabled	<p>Possible causes:</p> <ul style="list-style-type: none"> <li>– The card is waiting to run its module self-test. See Section 6.10.</li> <li>– The card is not installed correctly. See Section 6.12.</li> <li>– There is a fault on the card or with the slot. See Section 6.12.</li> </ul>
 <i>Flashing (1 flash per second)</i>	Testing in progress	<p>The module self-test is running on the card.</p>
	FAULT	<p>The module self-test has failed.</p> <p>Follow the procedures in Section 6.12.</p>

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## 6.11 Monitor the System Displays



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Appendix A describes the codes shown on the two system displays. If the displays indicate that there is a problem with the DECNIS 600 system, follow the procedures in Chapter 9 to identify and solve the problem.

## 6.12 What to Do if Things Go Wrong

Check Table 6–1 for the LED state displayed and take the corresponding action.

**Table 6–1 Processor Card and Memory Card Installation Problems**

LED State	Action
No LEDs lit	Complete the following: <ol style="list-style-type: none"><li>1. Check that the power cord is connected and that the power module LEDs show that there is power to the unit. See Section 4.4.</li><li>2. Check that the card is installed correctly. The card must be inserted into the DECNIS 600 and the handles moved inwards so that the card is seated in the correct position. See Section 6.7.</li><li>3. The card may be faulty or there may be a problem with the slot. Follow the procedures in Chapter 9.</li></ol>
FAULT	The card has failed its module self-test. Remove the card and replace it with a new processor card or memory card. If there is still a problem, follow the procedures in Chapter 9.





# 7

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## Removing Network Interface Cards

This chapter describes how to remove a Network Interface Card from a DECNIS 600 running system.

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### Note

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If you want to hotswap a Network Interface Card, consult the documentation for the software you are using with the DECNIS 600 before you remove the card. The hotswap procedure may affect the Network Interface Card software.

---

### 7.1 Tasks

Complete the procedures in Sections 7.2 to 7.7 to:

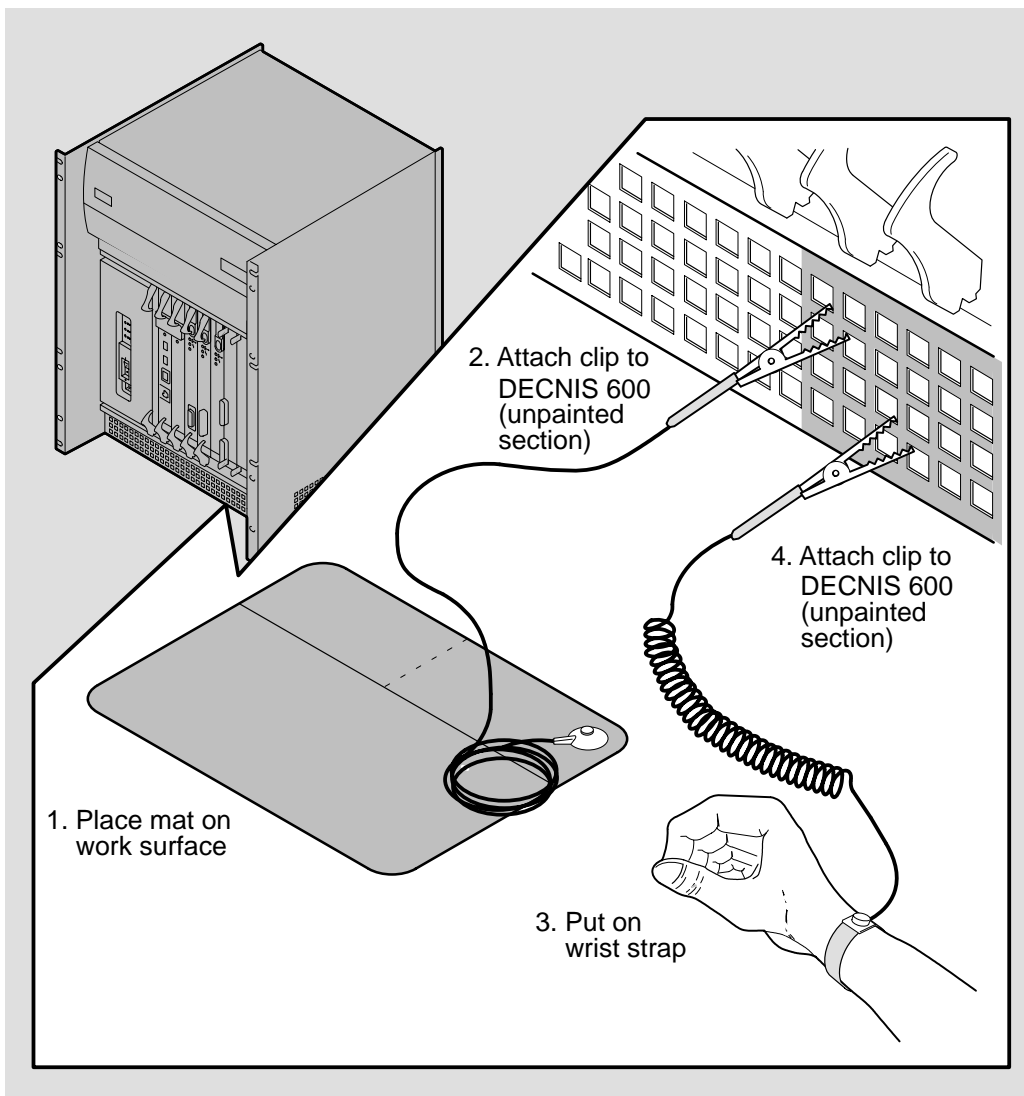
1. Prepare to remove the card
2. Attach the static protection equipment
3. Disable the Network Interface Card
4. Detach the communications cables
5. Remove the Network Interface Card
6. Replace the slot cover

### 7.2 Preparation

Make sure you have the following available:

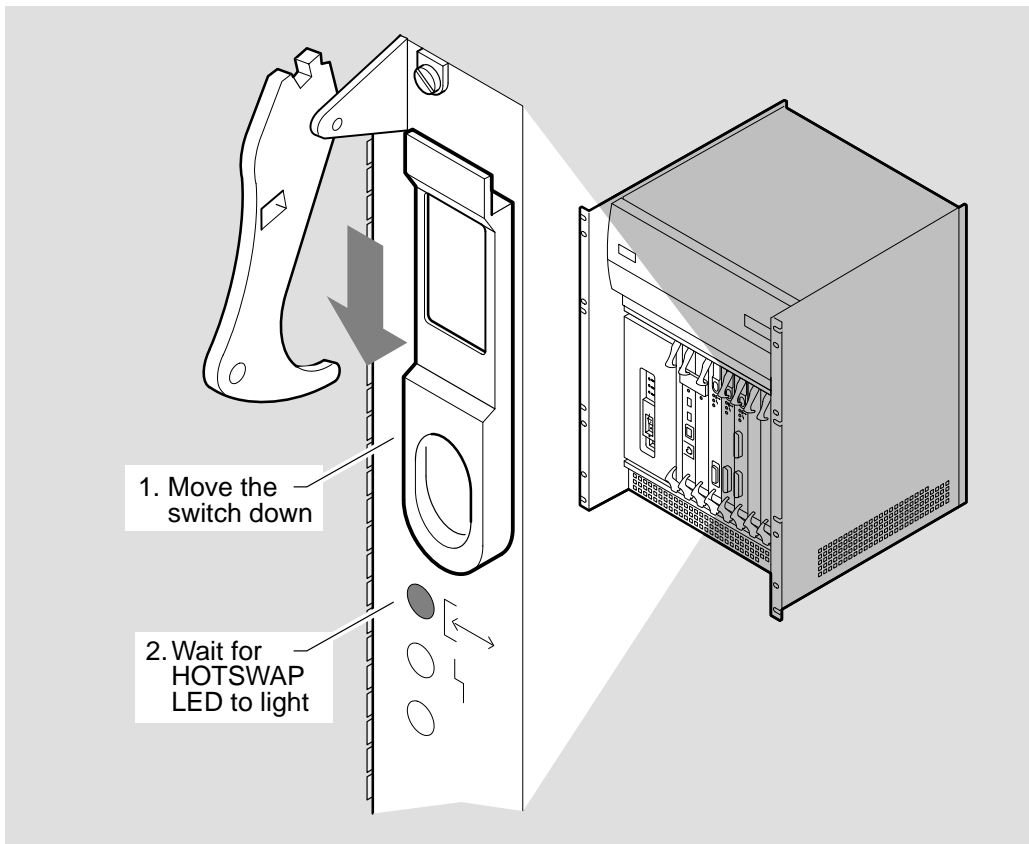
- Antistatic kit that includes an antistatic wrist strap and antistatic mat
- A 3 mm (  $\frac{1}{8}$  in) flat blade screwdriver
- Antistatic bag and packaging for the Network Interface Card

### 7.3 Attach the Static Protection Equipment



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## 7.4 Disable the Network Interface Card



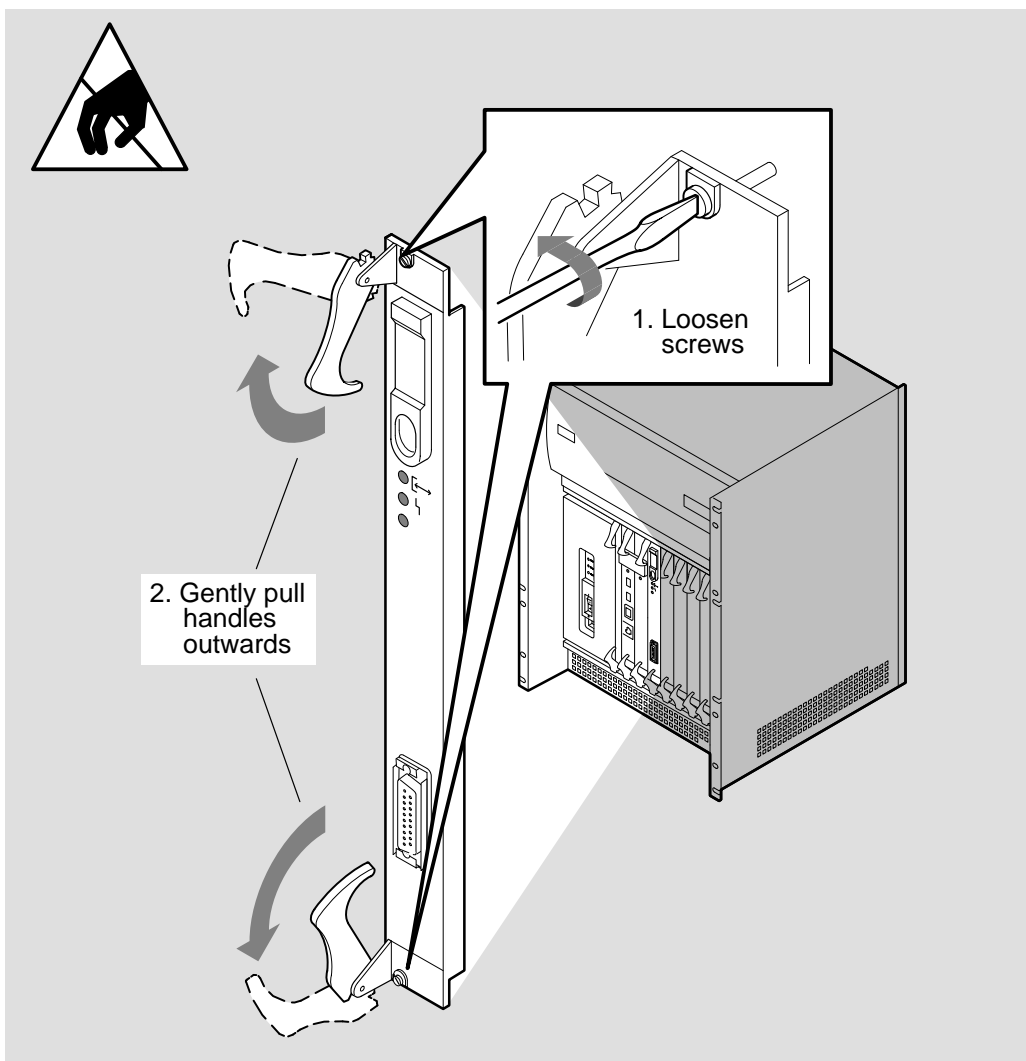
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## 7.5 Detach the Communications Cables

When the HOTSAP LED is lit, you can remove all cables connected to the Network Interface Card ports. Follow the procedures on the *Cabling Instructions and Specifications* card for the Network Interface Card.

Note that if the Network Interface Card has a separate distribution panel, you must also remove the cables from the panel. See the *Cabling Instructions and Specifications* card for more information.

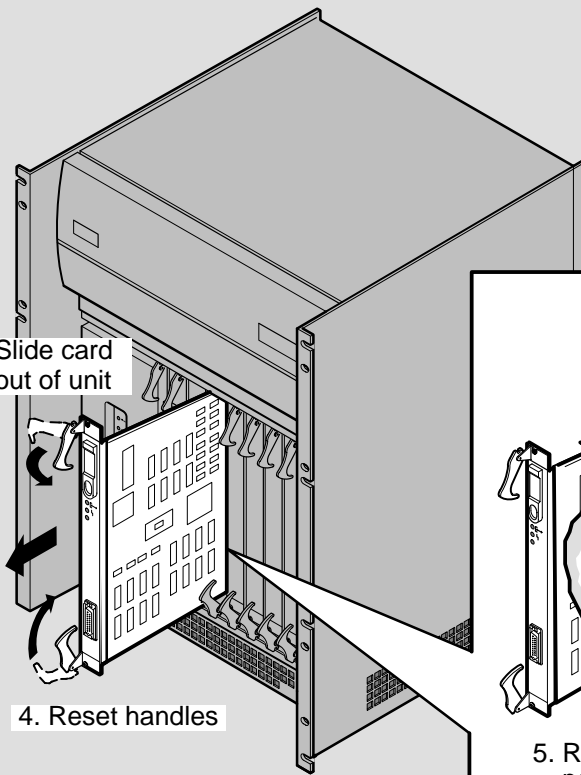
## 7.6 Remove the Network Interface Card



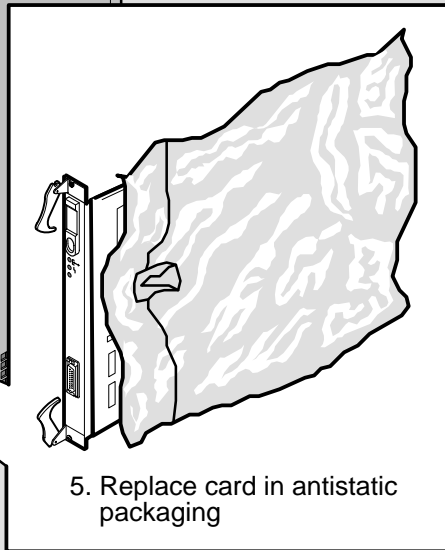
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3. Slide card out of unit



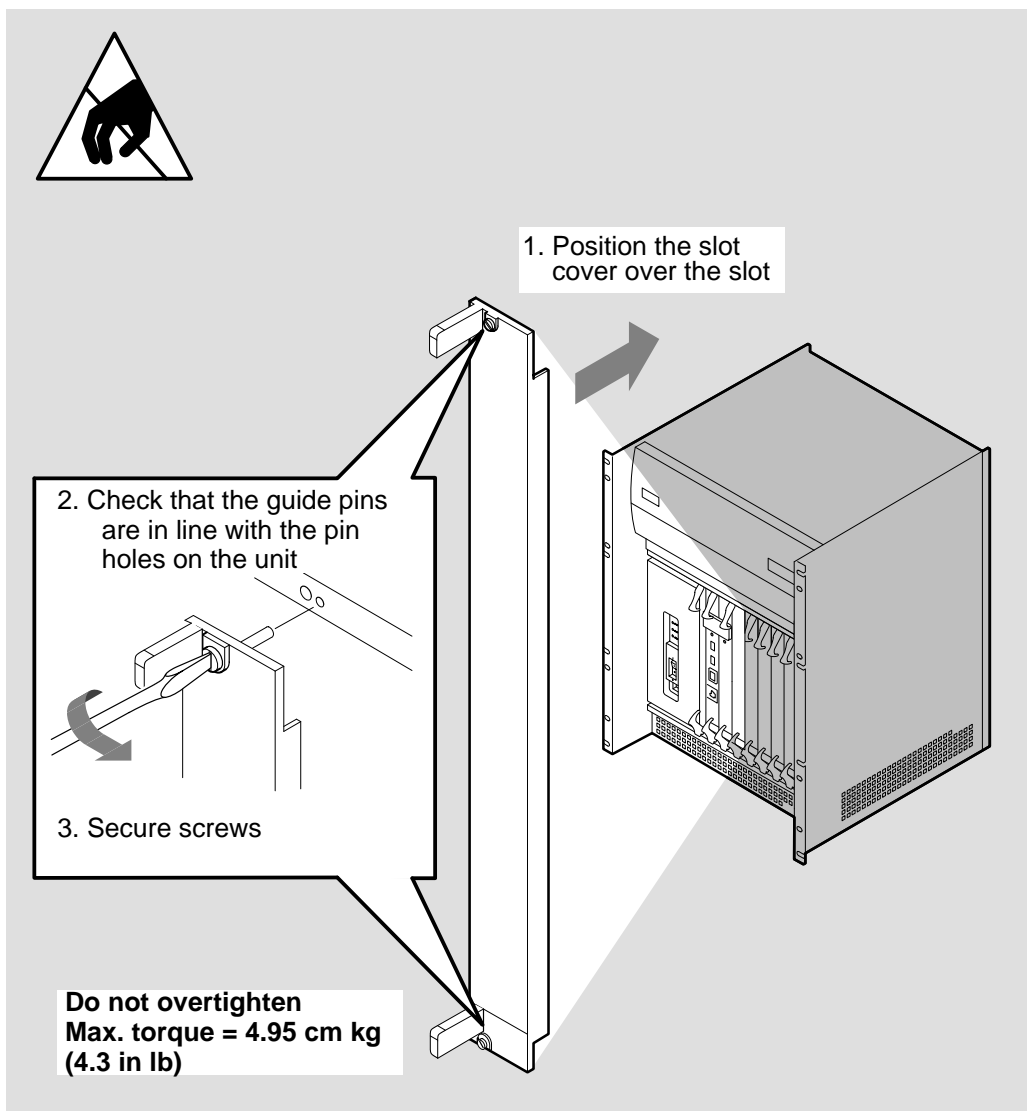
4. Reset handles



5. Replace card in antistatic packaging

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## 7.7 Replace the Slot Cover



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# 8

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## Removing the System

This chapter describes how to remove the DECNIS 600 system from its rack.

### 8.1 Tasks

Complete the procedures in Sections 8.2 to 8.6 to:

1. Prepare to remove the system
2. Power down the system
3. Support the system and remove the screws
4. Remove the system
5. Replace the system in its packaging

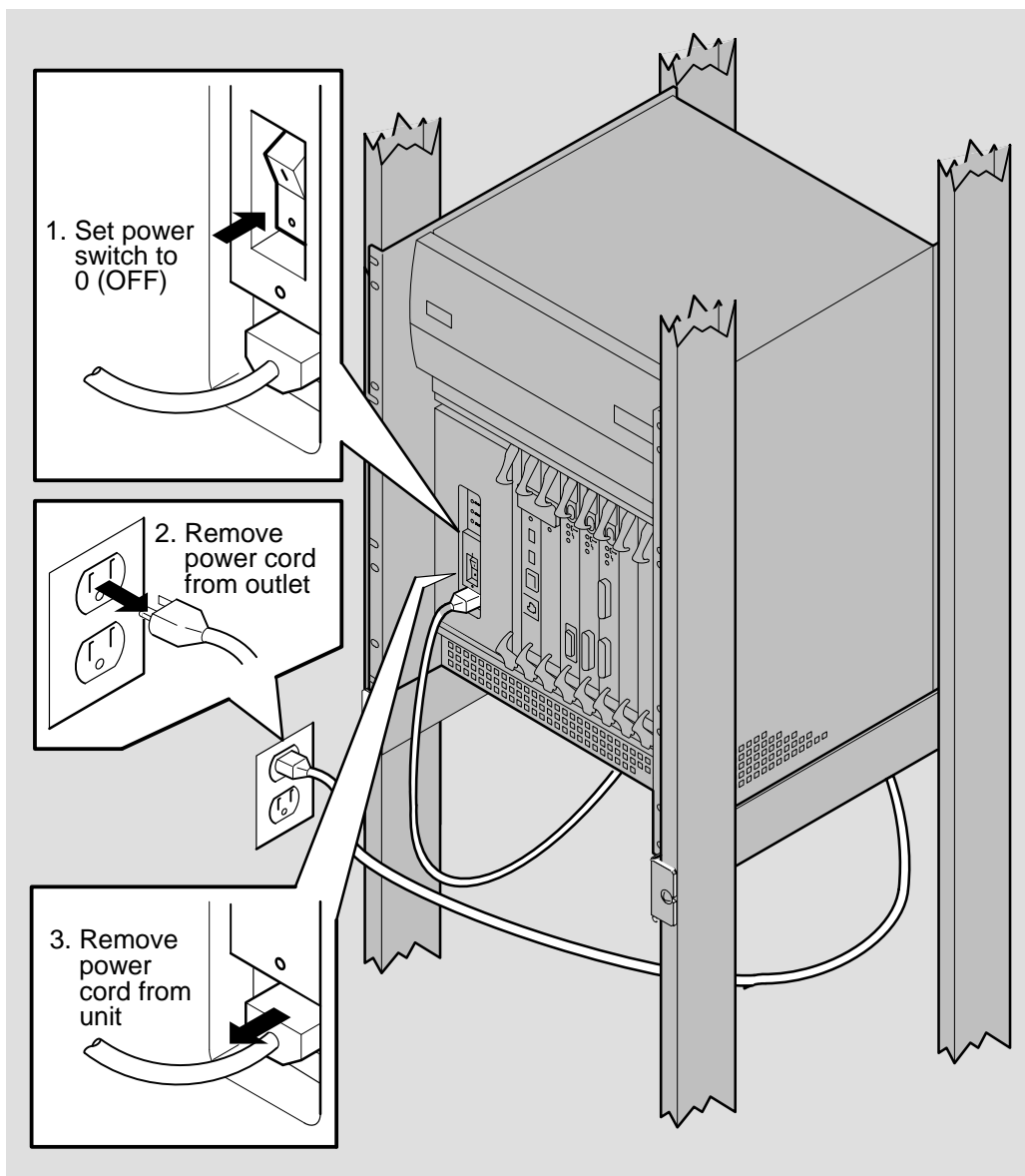
### 8.2 Preparation

The maximum weight of the DECNIS 600 is 40 kg (88 lb). **At least two** people are required to lift it out of the rack. Each person must be competent and satisfied that they are able to lift their share of the weight.

You will need the following screwdriver to remove a system installed with the supplied fittings:

- A Number 1 or Number 2 crosspoint screwdriver

## 8.3 Power Down the System



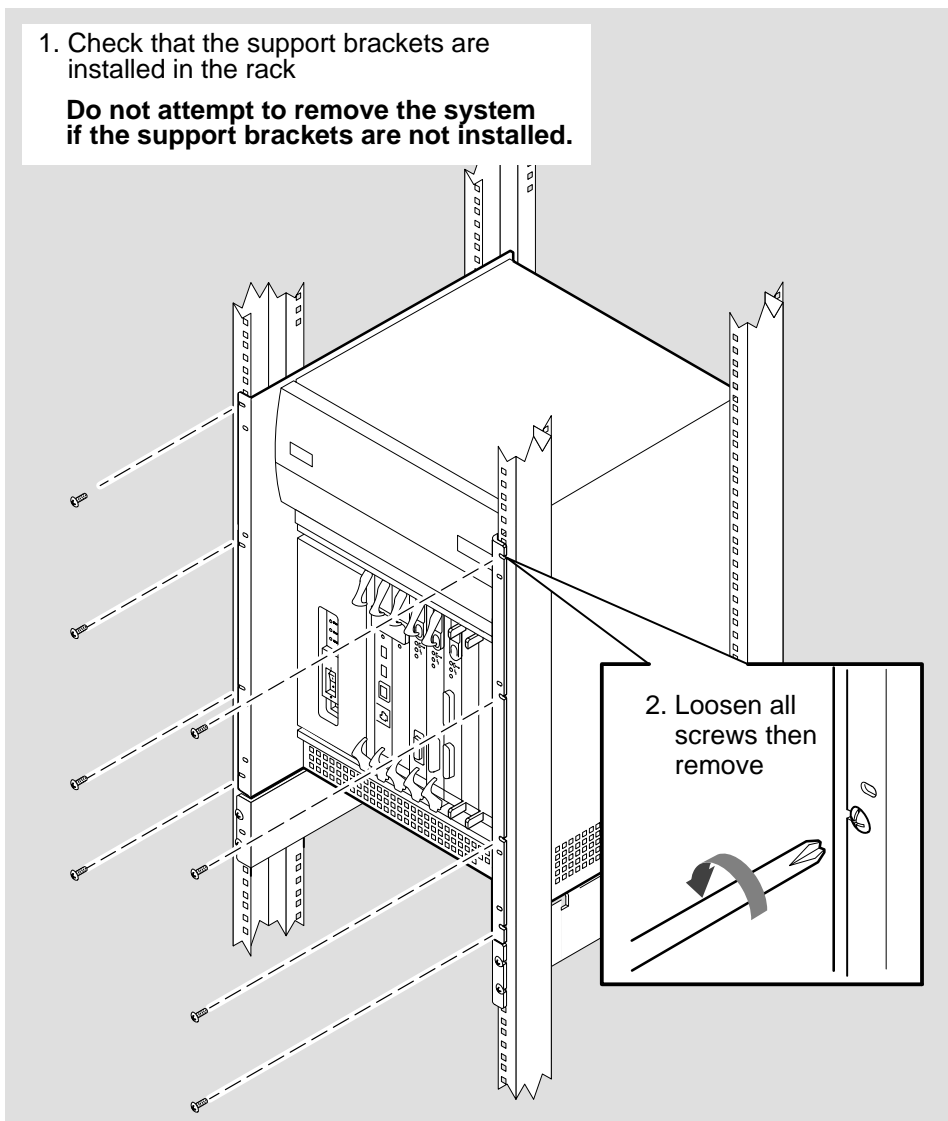
LKG-5661-911



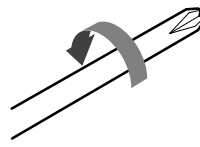
## 8.4 Support the System and Remove the Screws

1. Check that the support brackets are installed in the rack

**Do not attempt to remove the system if the support brackets are not installed.**



2. Loosen all screws then remove

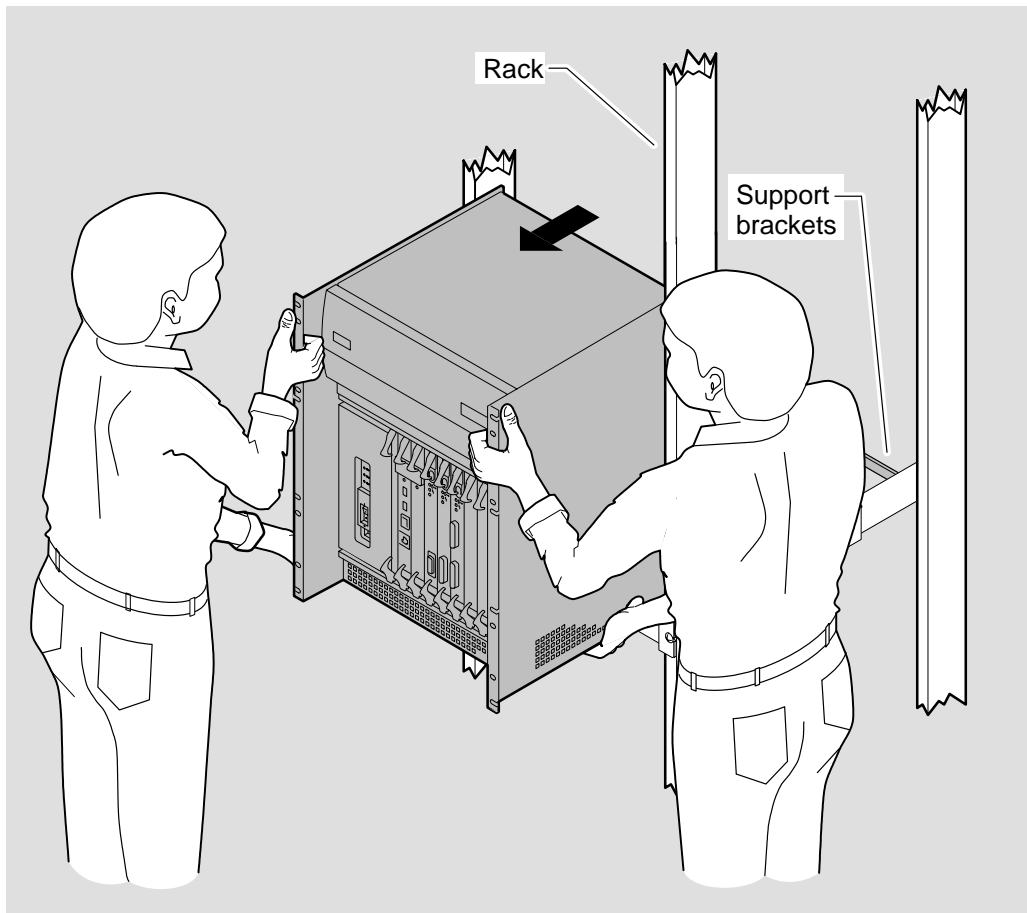


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## 8.5 Remove the System

### Warning

The maximum weight of the DEC Network Integration Server 600 is 40 kg (88 lb). **At least two** people are required to lift the system. Each person must be competent and satisfied that they are able to lift their share of the weight.



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## 8.6 Replace the System in its Packaging

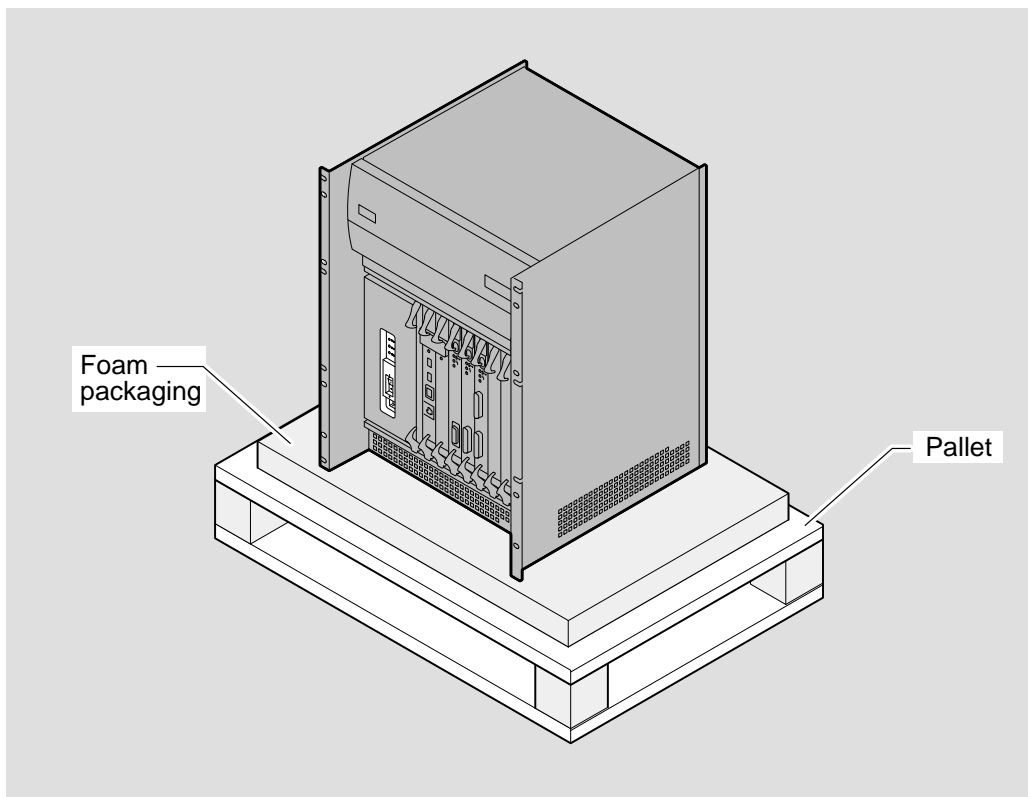
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### Warning

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The maximum weight of the DECNIS 600 is 40 kg (88 lb). **At least two** people are required to lift the system. Each person must be competent and satisfied that they are able to lift their share of the weight.

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# Part III

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## Problem Solving

Part III contains information that you need for solving DECNIS 600 hardware problems:

- Chapter 9 describes how to identify a problem.
- Chapter 10 describes how to locate a faulty component in the system.
- Chapter 11 describes how to replace the faulty component.



# 9

---

## Identifying the Problem

Problem solving information for the DECNIS 600 is divided into hardware problems, Network Interface Card problems, software problems, and event messages:

- This part of the manual describes how to identify and solve DECNIS 600 hardware problems.
- The *Problem Solving* card for each Network Interface Card shows how to isolate Network Interface Card specific faults and check communication lines.
- The *DEC Network Integration Server Problem Solving* manual describes how to isolate and solve software problems.
- *DEC Network Integration Server Event Messages* is an online text file that lists the event messages generated by the DECNIS 600 and tells you what to do when an event is generated. Events can indicate faults with the hardware, software, and the Network Interface Cards.

If you are not sure whether the problem can be isolated to, for example, the DECNIS 600 or a Network Interface Card, start with the procedures in this manual. The procedures will help you to determine where the problem lies.

Where problems overlap, you may be referred to other problem solving documentation. For example, for problems that can usually be isolated to the software, this manual refers you to the software problem solving documentation before it suggests ways that you can check the hardware.

## 9.1 Preparation

Make sure that the following information and equipment is available:

- **Configuration Information**

For some procedures, you will need the following information:

- Load host node name(s)
- DECNIS 600 Ethernet address(es)
- Slot numbers for Network Interface Cards
- Details of the link associated with each slot

This information is included on the *DEC Network Integration Server 600 Configuration Card* and the configuration cards for the Network Interface Cards.

- **Loopback Connectors**

For some tests you will need a loopback connector. Each Network Interface Card kit includes a loopback connector for the card and its cables. For more information, refer to the *Cabling Instructions and Specifications* card for the Network Interface Card.

- **Static Protection Equipment**

For some problem solving procedures you will need an antistatic kit that includes an antistatic wrist strap and antistatic mat. Section 3.4 shows how to attach the static protection equipment.

## 9.2 How to Identify the Problem

The amount of information that you have about your problem determines how you identify the problem and use this part of the manual:

- If the software is loaded, or was loaded when the problem occurred, check event messages. The *DEC Network Integration Server Event Messages* text file describes events logged by the DECNIS 600. The event message may indicate a fault with the DECNIS 600, for example, an overtemperature problem. You can use this information to refer to the relevant section in Chapter 10.



- If the DECNIS 600 reboots, you can use NCL (Network Control Language) to find out more information about the problem. Log on to a host system, start NCL, and enter the following command:

```
NCL> SHOW NODE server HARDWARE LAST REBOOT REASON
```

where *server* is the name for the DECNIS 600.

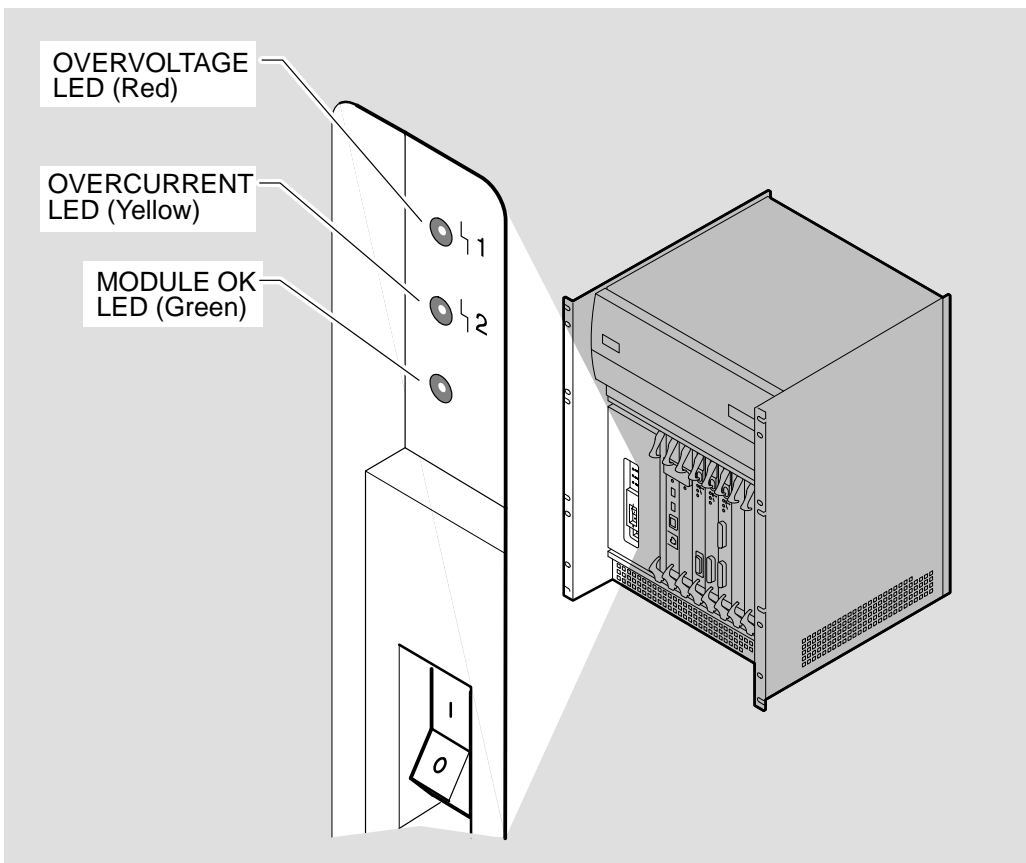
The displayed information gives the reason for the last reboot. If the information indicates a hardware problem, refer to the relevant section in Chapter 10. For example, if the information indicates an overtemperature problem, follow the procedures in Section 10.3.

- If the DECNIS 600 is powered up and the LEDs or displays indicate a fault, refer to Sections 9.2.1 to 9.2.3 to identify the problem and find out what to do next.

If there are no LEDs lit on the DECNIS 600, or if you are not sure where the problem lies, power up the system and start at Section 9.2.1.

### 9.2.1 Monitor the Power Module

There are three LEDs on the power module:



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The MODULE OK LED should light approximately one second after power up. Check the LEDs:

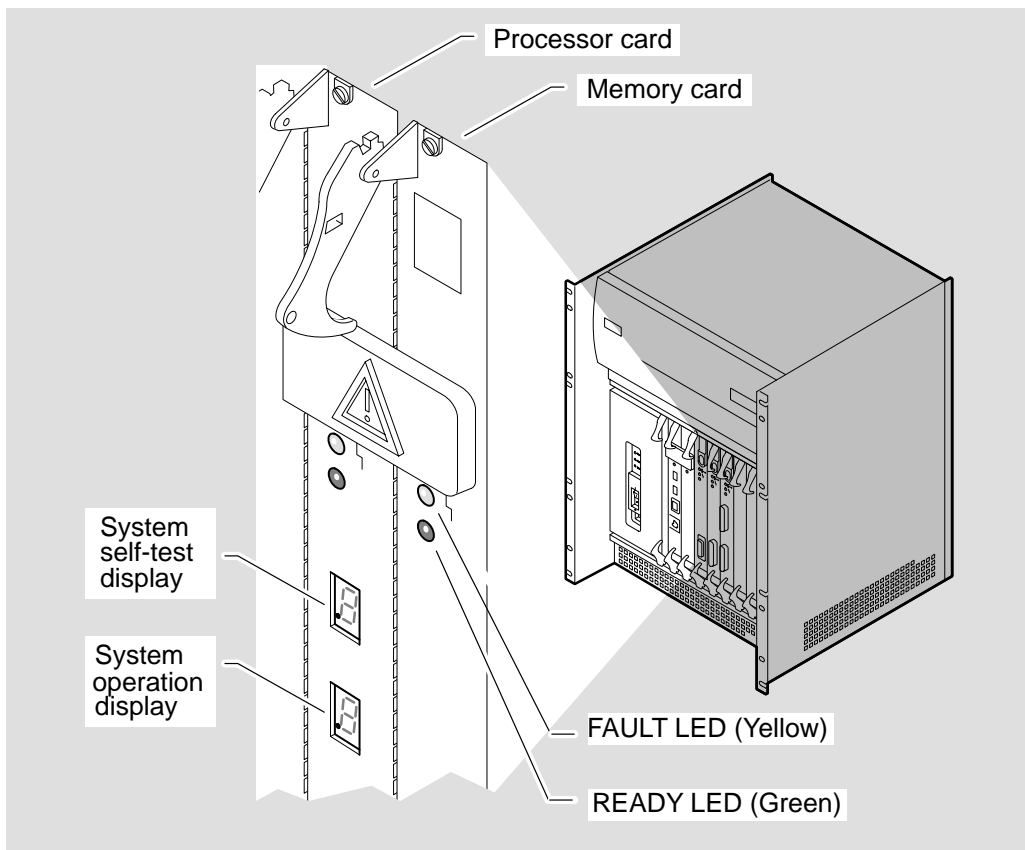
- If the MODULE OK LED is lit, go to Section 9.2.2 to monitor the system displays.
- If the MODULE OK LED is not lit, check Table 9–1 for the symptoms and take the corresponding action.

**Table 9–1 Power Module Problems**

<b>Symptom</b>	<b>Possible Problem</b>	<b>Action</b>
DECNIS 600 does not power up. No LEDs are lit on system.	Power is not reaching the DECNIS 600.	Go to Section 10.2.
DECNIS 600 shuts down. No LEDs are lit on shutdown.	DECNIS 600 overtemperature or power module fault.	Go to Section 10.3.
OVERVOLTAGE LED lit.	Power module or backplane assembly fault.	Go to Section 10.4.
OVERCURRENT LED lit.	Overcurrent detected on DECNIS 600.	Go to Section 10.5.

## 9.2.2 Monitor the Processor Card and Memory Card

There are two LEDs on the processor card and memory card, and two 7-segment displays on the processor card:



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The **FAULT LED** indicates that the card has failed its module self-test. The **READY LED** indicates that the testing has not detected any faults on the card.

The system self-test display on the processor card indicates the progress and result of the DECNIS 600 diagnostic testing that is run when the system is powered up.

The system operation display on the processor card shows the operating state of the DECNIS 600. For example, it indicates when the system is loading.

Appendix A describes all of the codes shown on the system displays. Table 9–2 describes the LED states and codes shown on the processor card and memory card when a problem or fault is detected.

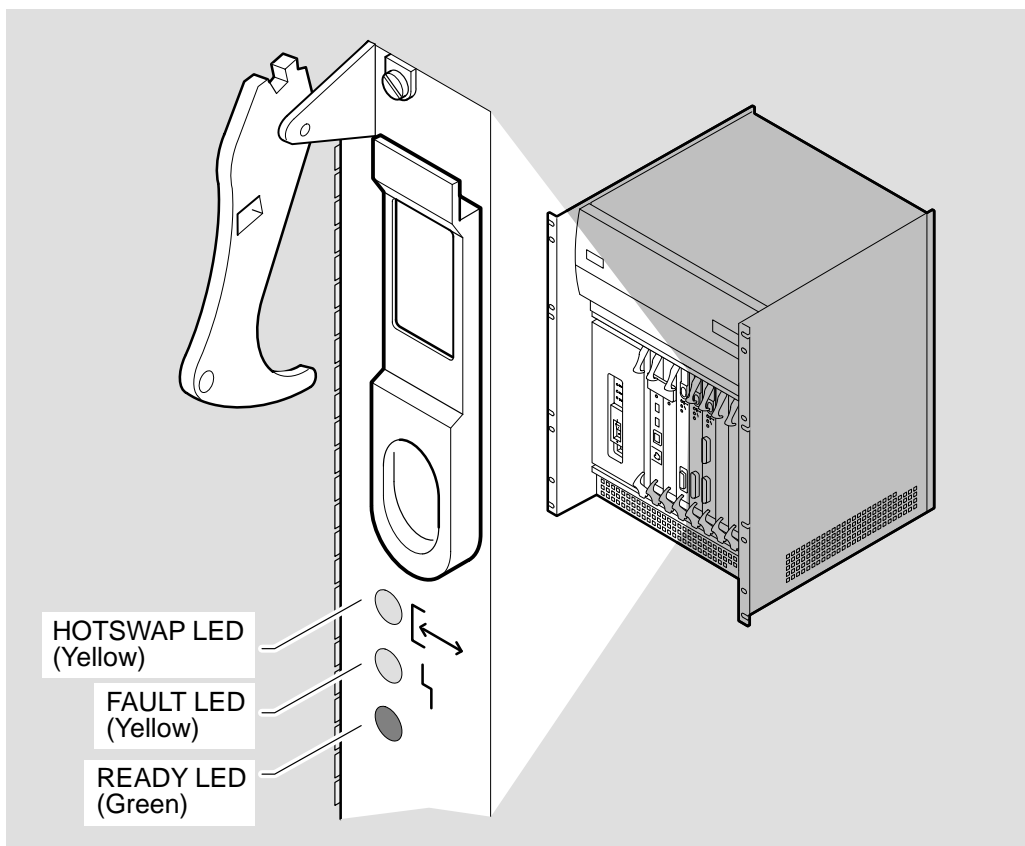
**Table 9–2 Processor Card and Memory Card Problems**

Symptom	Possible Problem	Action
Processor card FAULT LED lit. Decimal point on system self-test (upper) display lit, but no values shown.	Processor card has failed its module self-test.	Go to Section 10.6.
Memory card FAULT LED lit. All Network Interface Cards waiting (flashing READY LEDs).	Memory card has failed its module self-test.	Go to Section 10.7.
System self-test (upper) display shows value 2.	DECNIS 600 system fault.	Go to Section 10.8.
System self-test (upper) display shows value 1.	At least one Network Interface Card has failed its module self-test and the system is running without using it. The FAULT LED on the failed Network Interface Card should be lit.	Go to Section 10.9.
System operation (lower) display values alternate between 3 and 7 for more than 5 minutes.	System cannot load.	Go to Section 10.11.
System operation (lower) display shows value 0.	No circuits are available for loading.	Go to Section 10.12.

If the processor card and memory card do not indicate any faults, refer to Section 9.2.3 to check the state of the Network Interface Cards.

### 9.2.3 Monitor Network Interface Card LEDs

There are three LEDs on each Network Interface Card:



As the DECNIS 600 runs its diagnostic tests and loads the software, the Network Interface Card LEDs flash and flicker. When testing is complete and the processor card shows that the software is loaded and running, the READY LED on each Network Interface Card should be lit constantly.

If the READY LED on a Network Interface Card is not lit, refer to Table 9-3 to check the state of the Network Interface Card and take the action shown in the corresponding column.

**Table 9–3 Network Interface Card Problems**

<b>Symptom</b>	<b>Possible Problem</b>	<b>Action</b>
No LEDs lit on Network Interface Card	Faulty card or connections.	Go to Section 10.10.
READY LED continuously flashing	Network Interface Card not configured.	Refer to the software documentation for details of how to configure the Network Interface Card.
Network Interface Card FAULT LED lit	A diagnostic error was found on the Network Interface Card.	Go to Section 10.9.
Network Interface Card FAULT and READY LEDs lit	Network Interface Card is in the ATTENTION state. A diagnostic error was found on the card or with the cables associated with it.	Go to Section 10.9.

#### **9.2.4 Monitor the Software**

If the DECNIS 600 displays do not indicate a fault with the unit but you have problems communicating with the DECNIS 600 from a host node, refer to Section 10.13 for details of what to do.





# 10

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## Locating the Faulty Component

Use this chapter in the following way:

1. Turn to the section that identifies the problem. (Chapter 9 helps you to identify the problem by listing possible symptoms.)
2. Follow the diagnostic flowcharts on the lefthand pages. Section 10.1 describes how to use the flowcharts.
3. Refer to the corresponding notes on the opposite page. The notes will provide you with an answer to a question on the flowchart or will provide you with a possible solution to the problem.

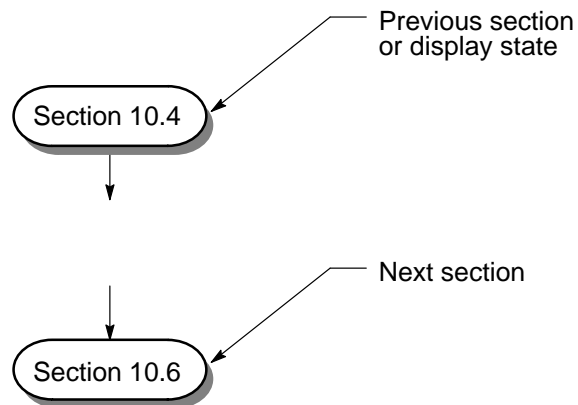
If the problem is not solved, go to the next step on the flowchart.

## 10.1 How to Use the Flowcharts

This chapter uses flowcharts to show the sequence of steps you take for locating the faulty component. These flowcharts use three types of boxes:

1. Reference box

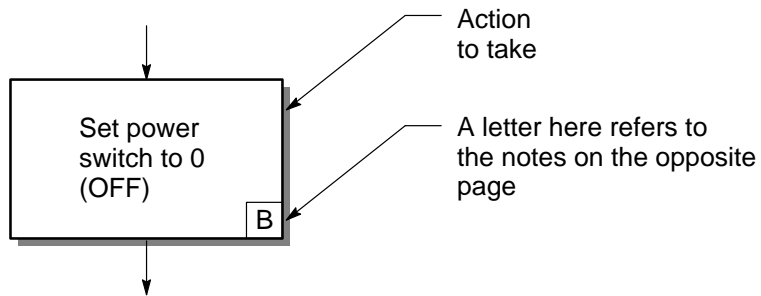
This box specifies the starting point and continuation point on a flowchart.



LKG-5521-911

2. Action box

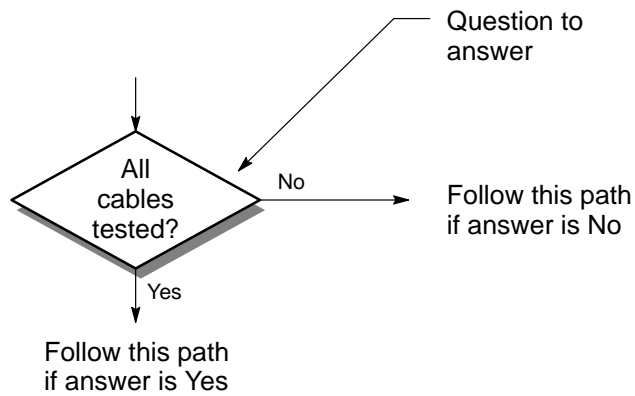
This box indicates what to do next.



LKG-5522-911

3. Question box

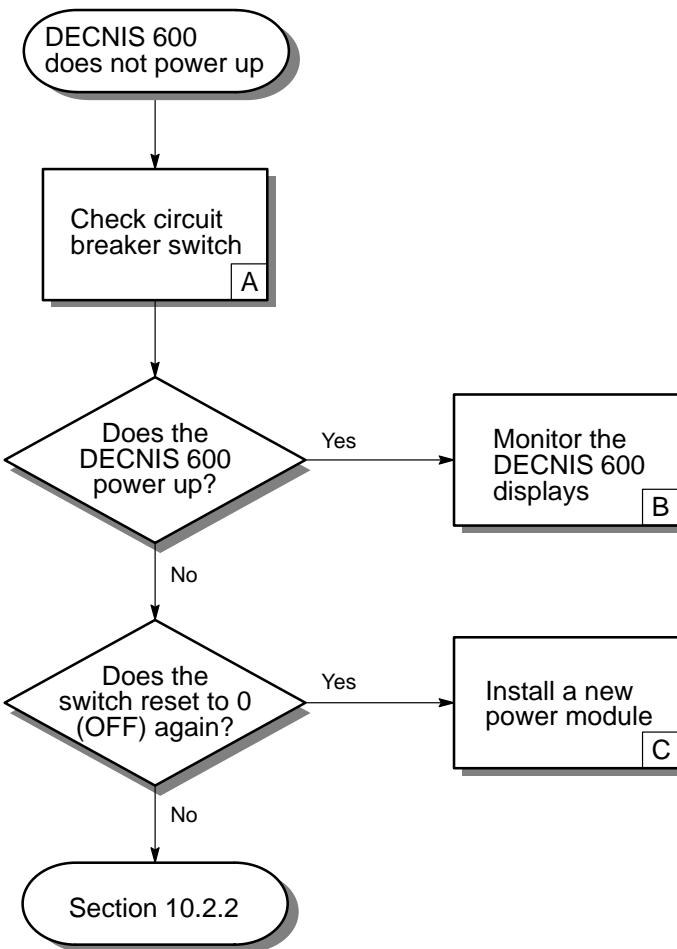
This box prompts you to answer a question, and follow the appropriate path.



LKG-5523-911

## 10.2 System Does Not Power Up

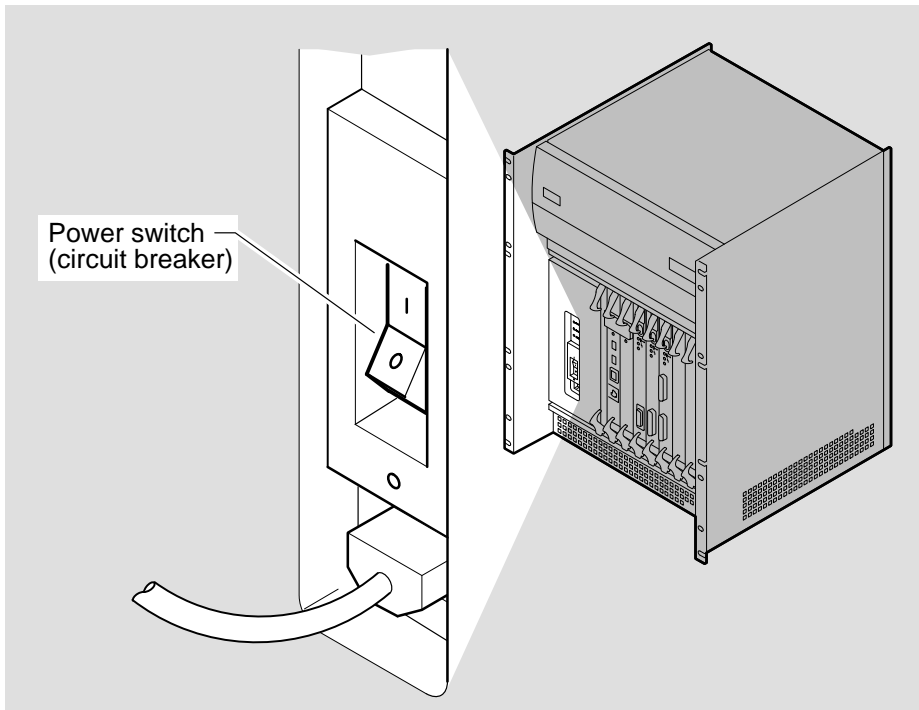
### 10.2.1 Check the Circuit Breaker



LKG-5524-911

## Notes

- A. The power switch on the DECNIS 600 is also a circuit breaker. If the switch is set to 0 (OFF), set it to 1 (ON) to power up the system:

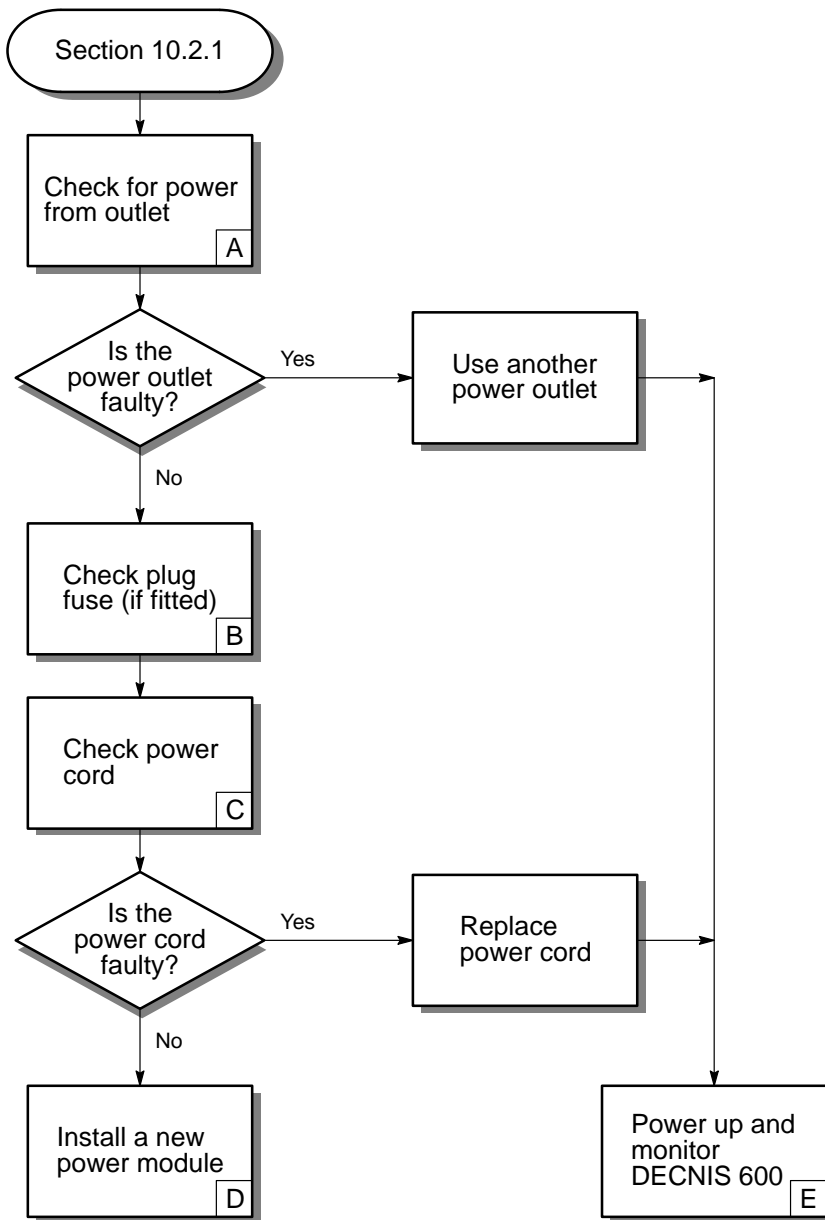


LKG-5682-911

- B. Refer to Section 9.2 for details of the LEDs and display codes shown on the DECNIS 600.
- C. If the DECNIS 600 immediately sets the circuit breaker switch to 0 (OFF) again, there may be a problem with the power module. Complete the following:
1. Replace the power module with a new power module (see Section 11.1).
  2. Power up the DECNIS 600.

If the problem persists with the new power module, contact Digital Services.

## 10.2.2 Check the Power Outlet and Cable



LKG-5525-911

## Notes

- A. Plug in another piece of electrical equipment (for example, a light) at the power outlet. If the outlet is faulty, use another power outlet for the DECNIS 600.

If the DECNIS 600 is installed in a rack that provides a power outlet for the system, also check that:

- Power is supplied to the rack.
- The power supply from the rack meets the specifications described in Appendix B.

- B. If a fuse is fitted in the plug, replace it with a new fuse, power up the DECNIS 600, and monitor the displays. If the power module's LEDs do not light, power down the unit again and go to the next step on the flowchart.

- C. Use the DECNIS 600 power cord on another piece of Digital equipment, for example, a terminal that you know is working. If the equipment does not work, contact Digital Services for a new power cord.

- D. Complete the following:

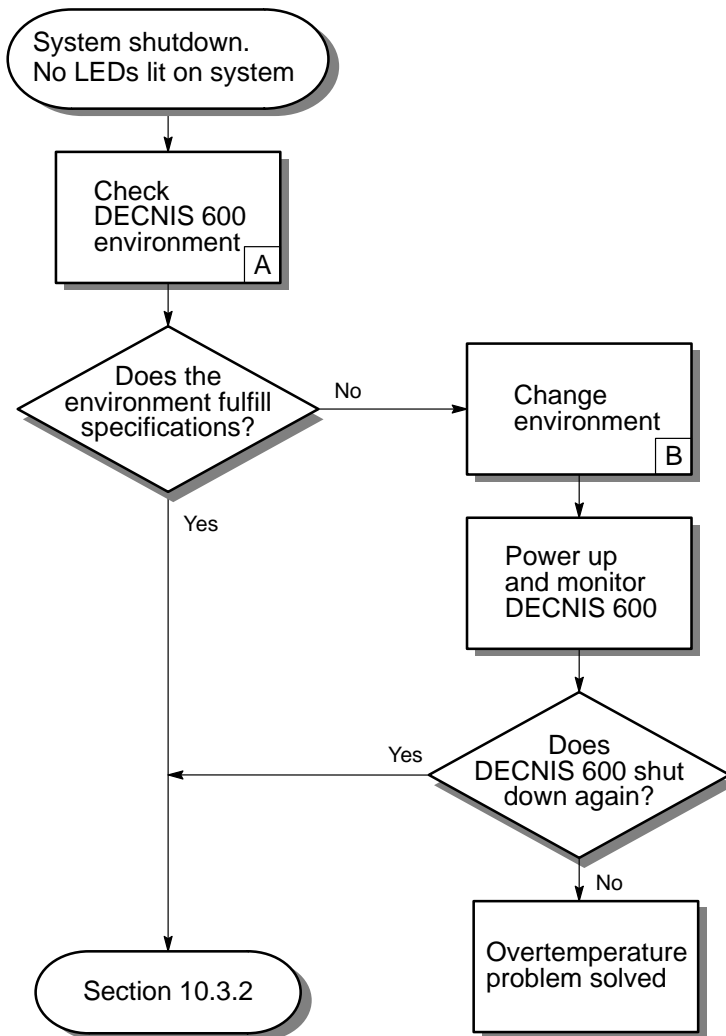
1. Replace the power module with a new power module (see Section 11.1).
2. Power up the DECNIS 600.

If the DECNIS 600 does not power up with the new power module, contact Digital Services.

- E. Refer to Section 9.2 for details of the LEDs and display codes shown on the DECNIS 600.

## 10.3 Overtemperature Problem

### 10.3.1 Check the Environment



LKG-5526-911

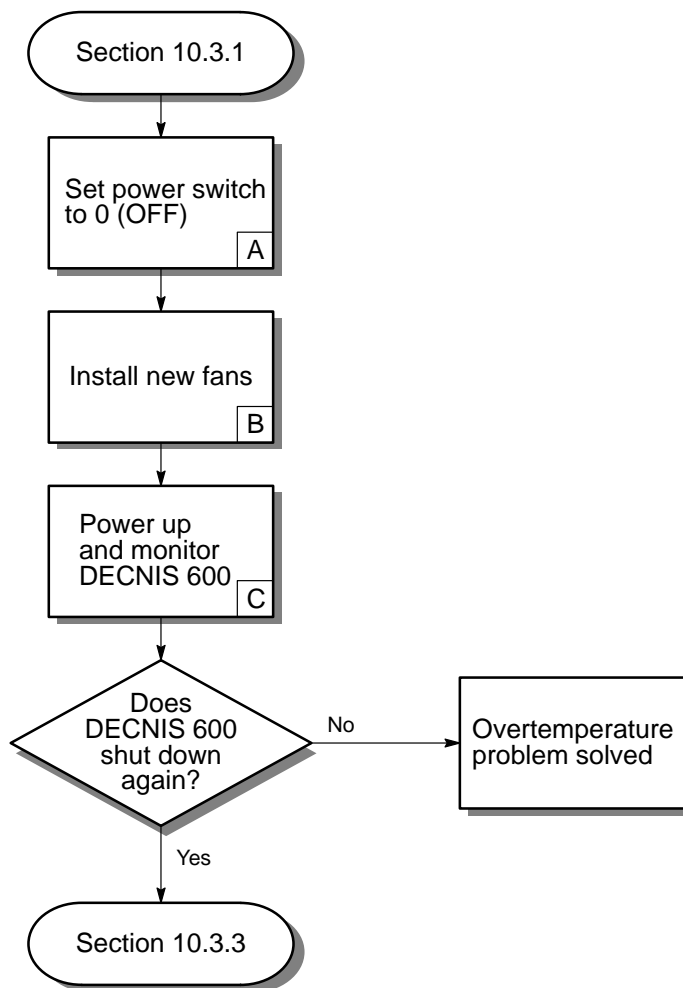


**Notes****A. Check that:**

- The environment for the DECNIS 600 meets the specifications described in Appendix B.
- The air vents on the DECNIS 600 are not covered or restricted.

**B. Refer to Appendix B for DECNIS 600 environmental and electrical information and Chapter 1 for DECNIS 600 site and rack information.**

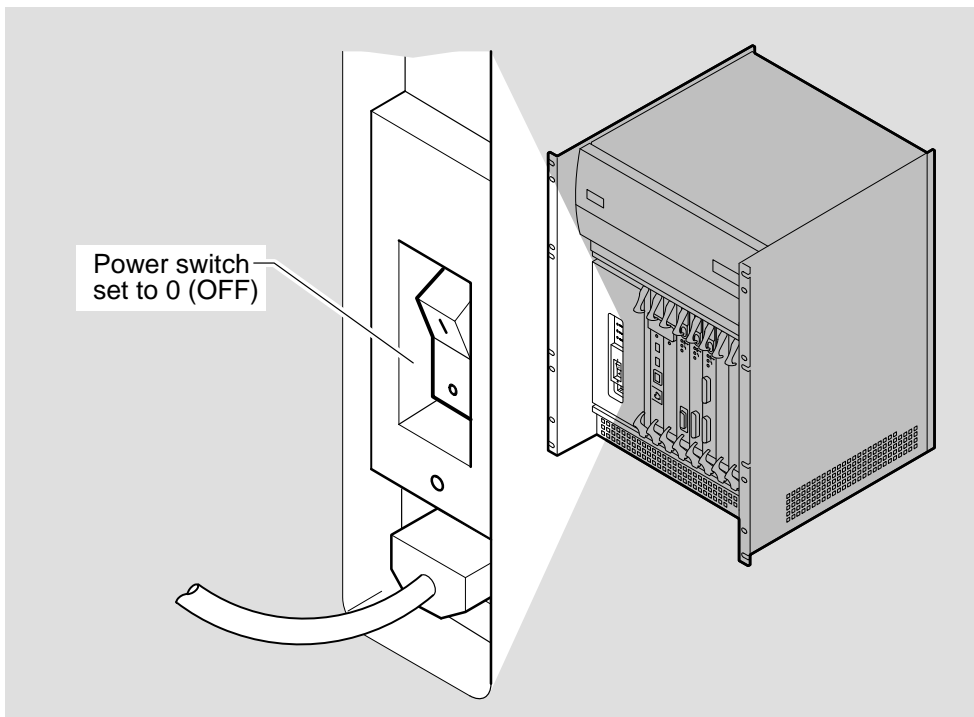
### 10.3.2 Check the Fans



LKG-5527-911

## Notes

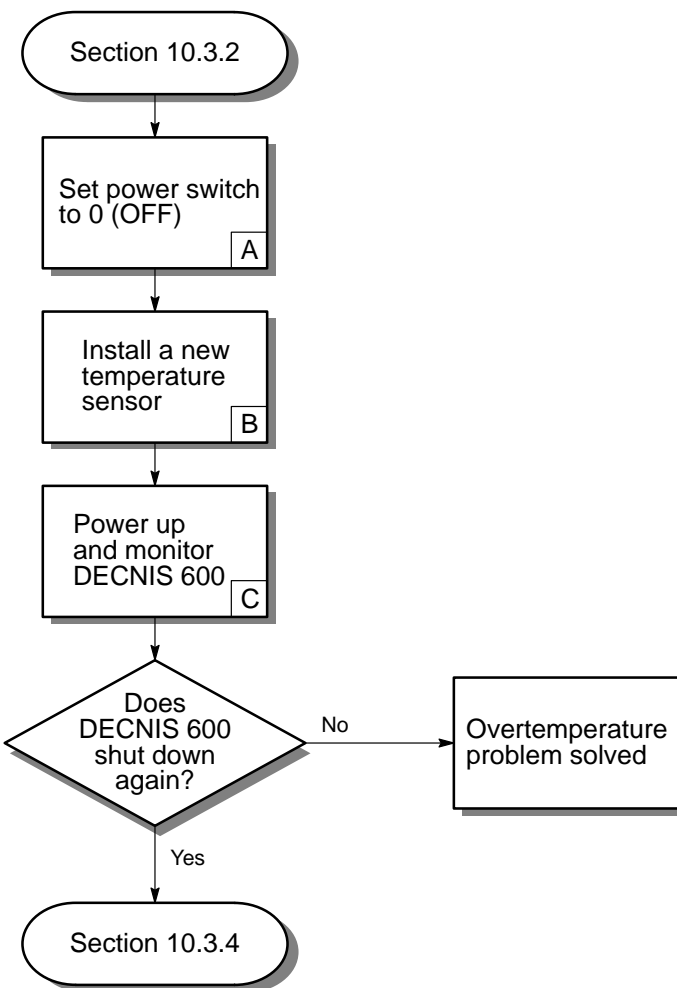
A. Set the power switch to 0 (OFF):



LKG-5683-911

- B. The overtemperature problem may be caused by fans not working, or working too slowly. Take one of the following actions to replace **both** fans:
- Complete the procedures in Section 11.2 to install a new fan tray. (This component includes new fans.)
  - Complete the procedures in Section 11.3 to install new fans.
- C. Monitor the displays and LEDs on the DECNIS 600 (see Section 9.2) and, if the software is loaded, monitor event messages logged by the system. If there is still an overtemperature problem, the system logs overtemperature warning messages before shutting down. Refer to the software documentation for more information.

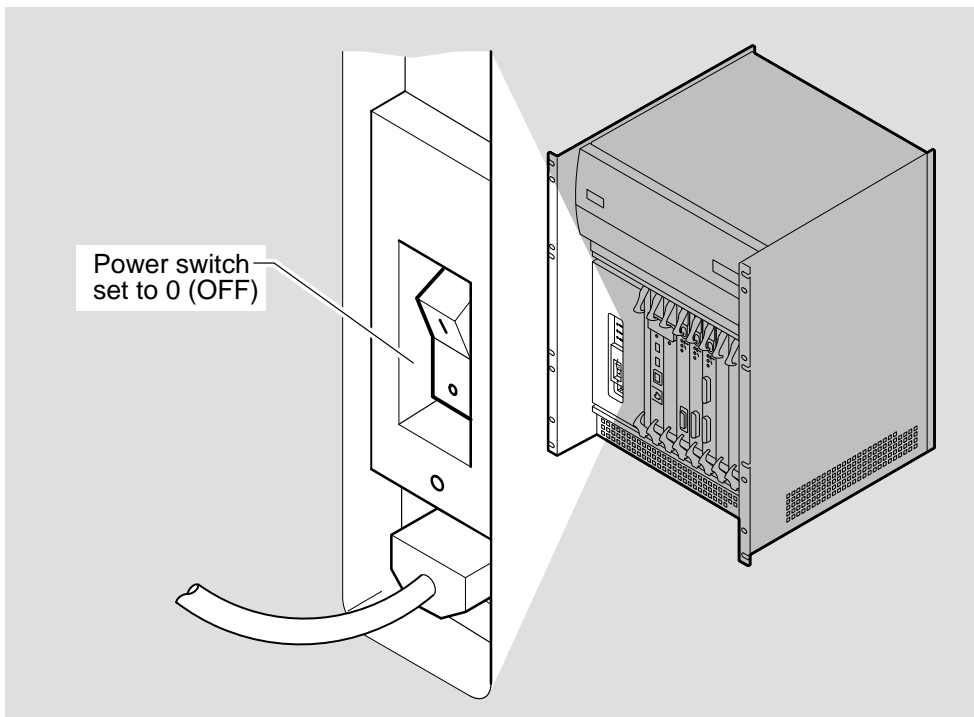
### 10.3.3 Check the Temperature Sensor



LKG-5528-911

## Notes

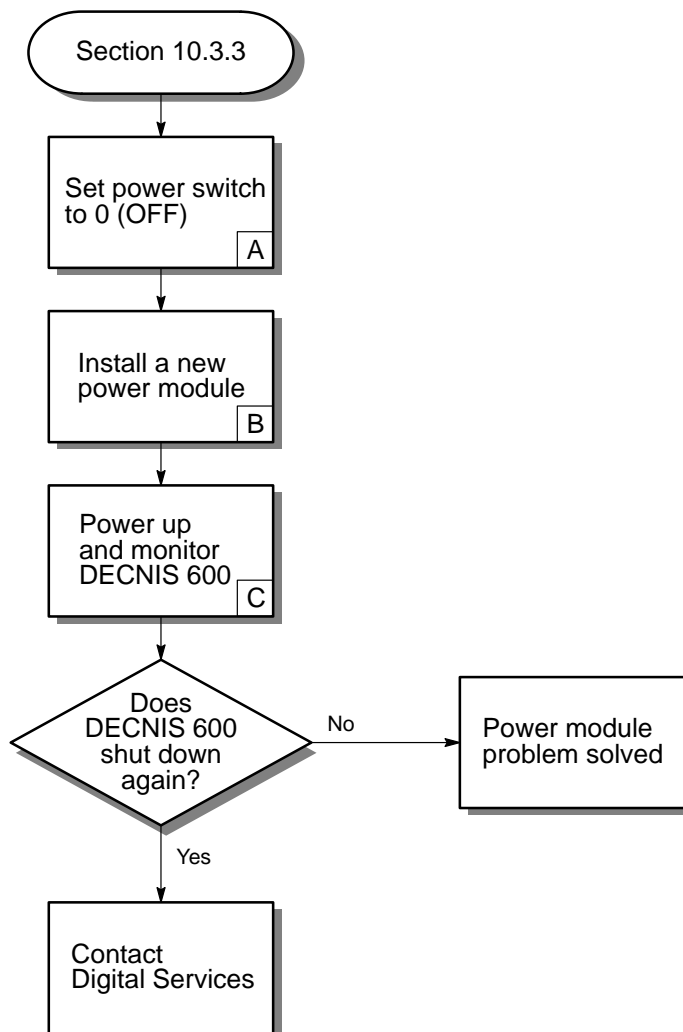
- A. Set the power switch to 0 (OFF):



LKG-5683-911

- B. The problem may be caused by a faulty temperature sensor. Follow the procedures in Section 11.4 to remove the sensor and install a new one.
- C. Monitor the displays and LEDs on the DECNIS 600 (see Section 9.2) and, if the software is loaded, monitor event messages logged by the system. If there is still an overtemperature problem, the system logs overtemperature warning messages before shutting down. Refer to the software documentation for more information.

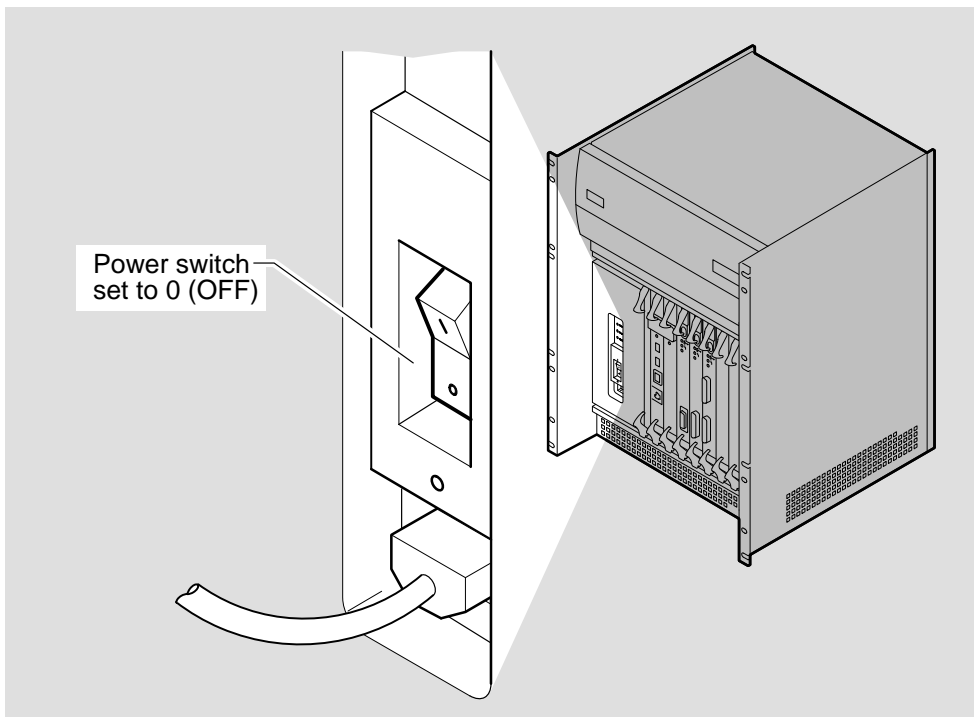
### 10.3.4 Check the Power Module



LKG-5529-911

## Notes

- A. Set the power switch to 0 (OFF):

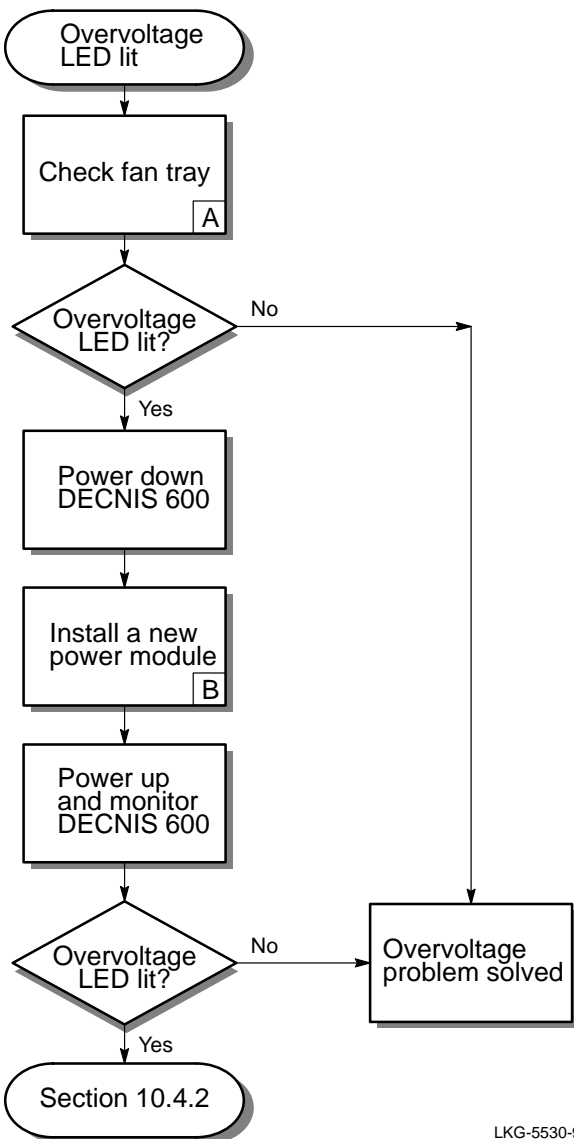


LKG-5683-911

- B. The problem may be caused by a faulty power module. Follow the procedures in Section 11.1 to remove the power module and install a new one.
- C. Monitor the displays and LEDs on the DECNIS 600 (see Section 9.2) and, if the software is loaded, monitor event messages logged by the system. If there is still an overtemperature problem, the system logs overtemperature warning messages before shutting down. Refer to the software documentation for more information.

## 10.4 Power Module Overvoltage

### 10.4.1 Check Fan Tray and Power Module



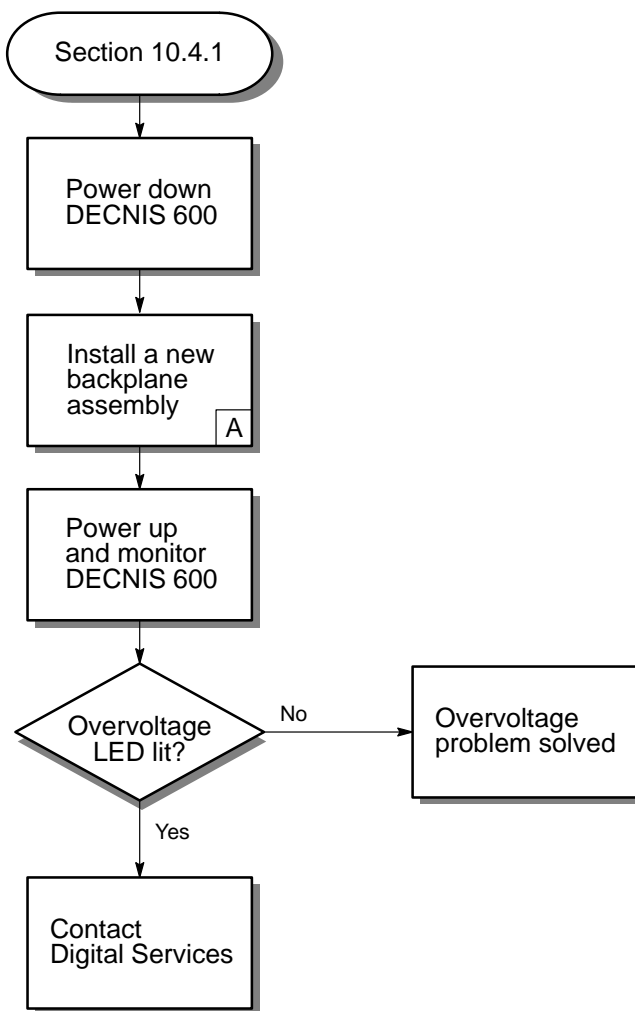
LKG-5530-911



**Notes**

- A. Check that the fan tray is installed correctly and that the screws are secure (see Section 11.2.3).
- B. There may be a problem with the power module. Follow the procedures in Section 11.1 to remove the power module and install a new power module.

## 10.4.2 Check Backplane Assembly



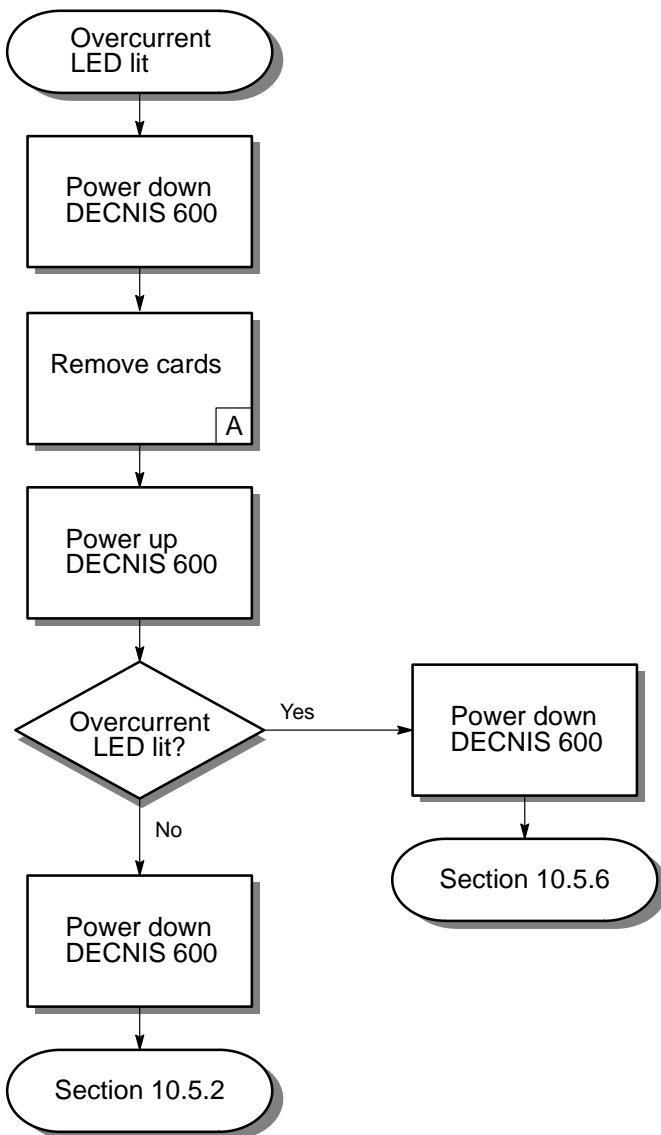
LKG-5531-911

**Notes**

- A. Follow the procedures in Section 11.5 to remove the backplane assembly and install a new backplane assembly.

## 10.5 Power Module Overcurrent

### 10.5.1 Check DECNIS 600 Unit



LKG-5532-911

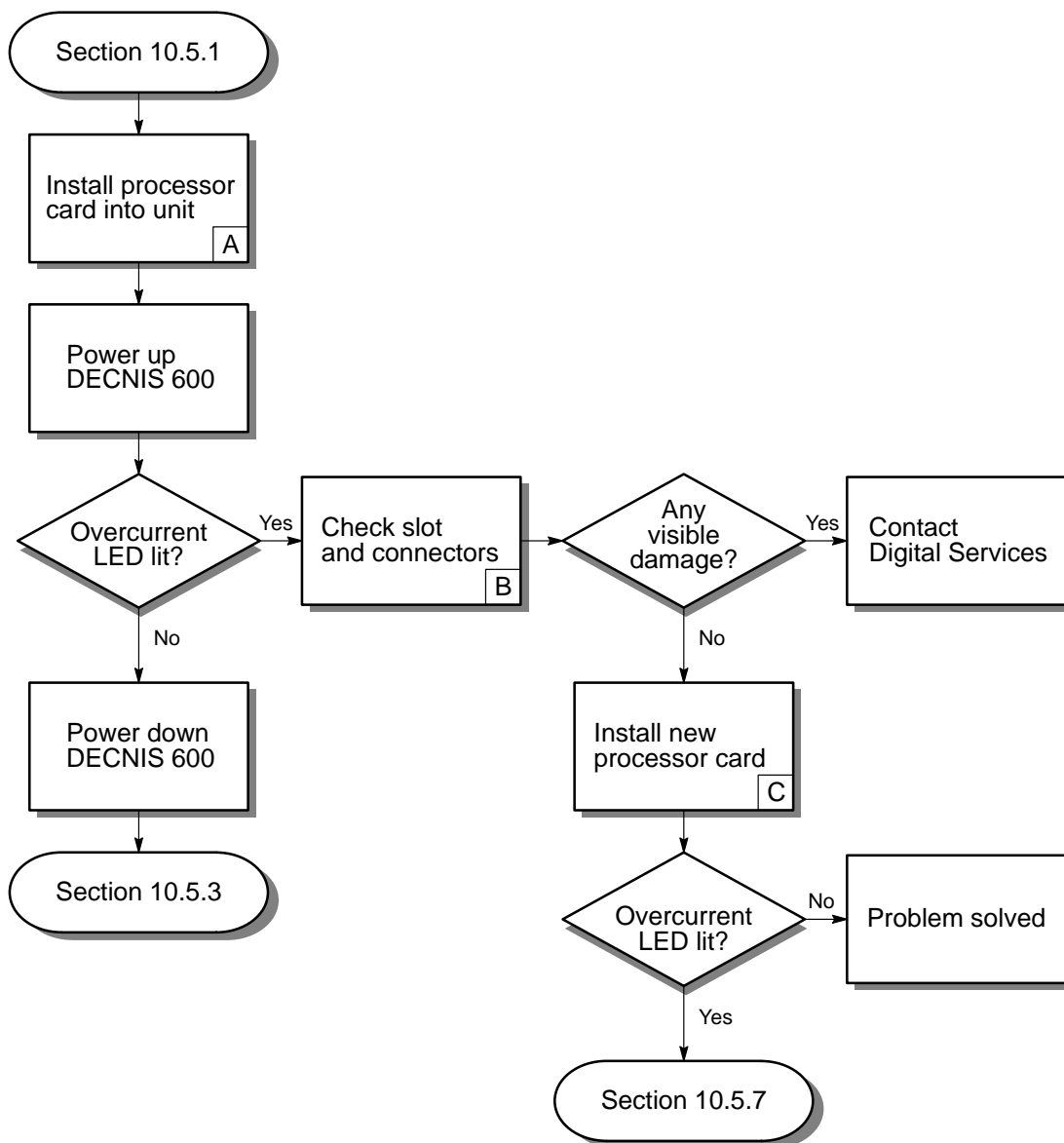
**Notes**

A. Complete the following:

1. Follow the procedures in Chapter 6 to remove the processor card and memory card.
2. Follow the procedures in Chapter 7 to remove the Network Interface Cards.

If your system includes a Network Interface Card that is connected to a distribution panel, you do not need to remove the panel from the rack.

## 10.5.2 Check the Processor Card

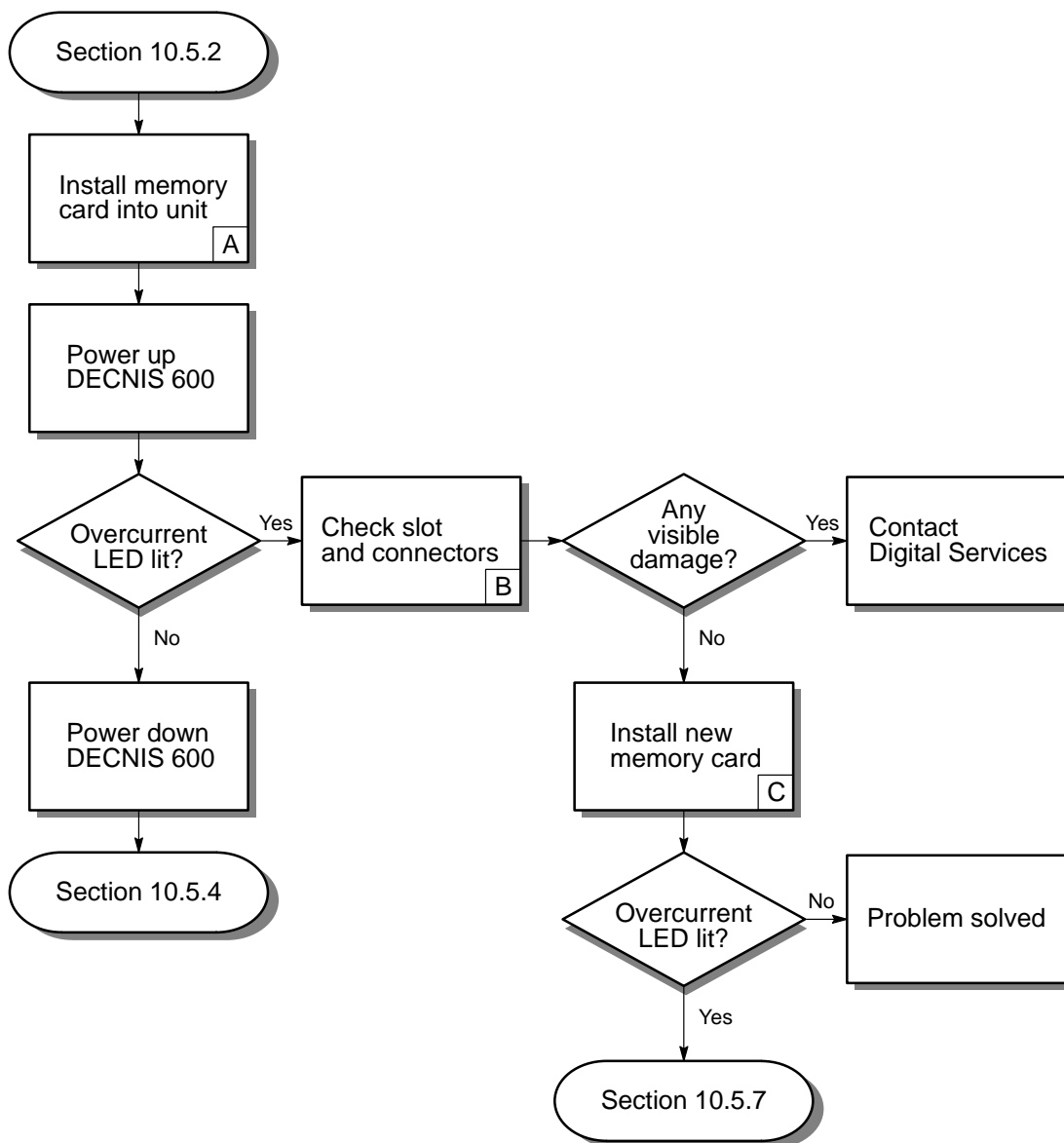


LKG-5533-911

**Notes**

- A. Follow the procedures in Chapter 6 to install the removed processor card back in its slot. Make sure that it is seated in the slot and connected to the backplane.
- B. There may be a problem with the processor card or with its slot. To isolate the problem:
  - 1. Power down the DECNIS 600.
  - 2. Follow the procedures in Sections 6.4 to 6.6 to remove the processor card.
  - 3. Look for damage to the slot, for example, bent pins on the backplane connectors. If the slot is damaged, place the processor card in its antistatic packaging and contact Digital Services.If the slot does not appear to be damaged, go to the next step on the flowchart.
- C. Follow the procedures in Chapter 6 to install a new processor card. Then power up the DECNIS 600 and monitor the displays.

### 10.5.3 Check the Memory Card



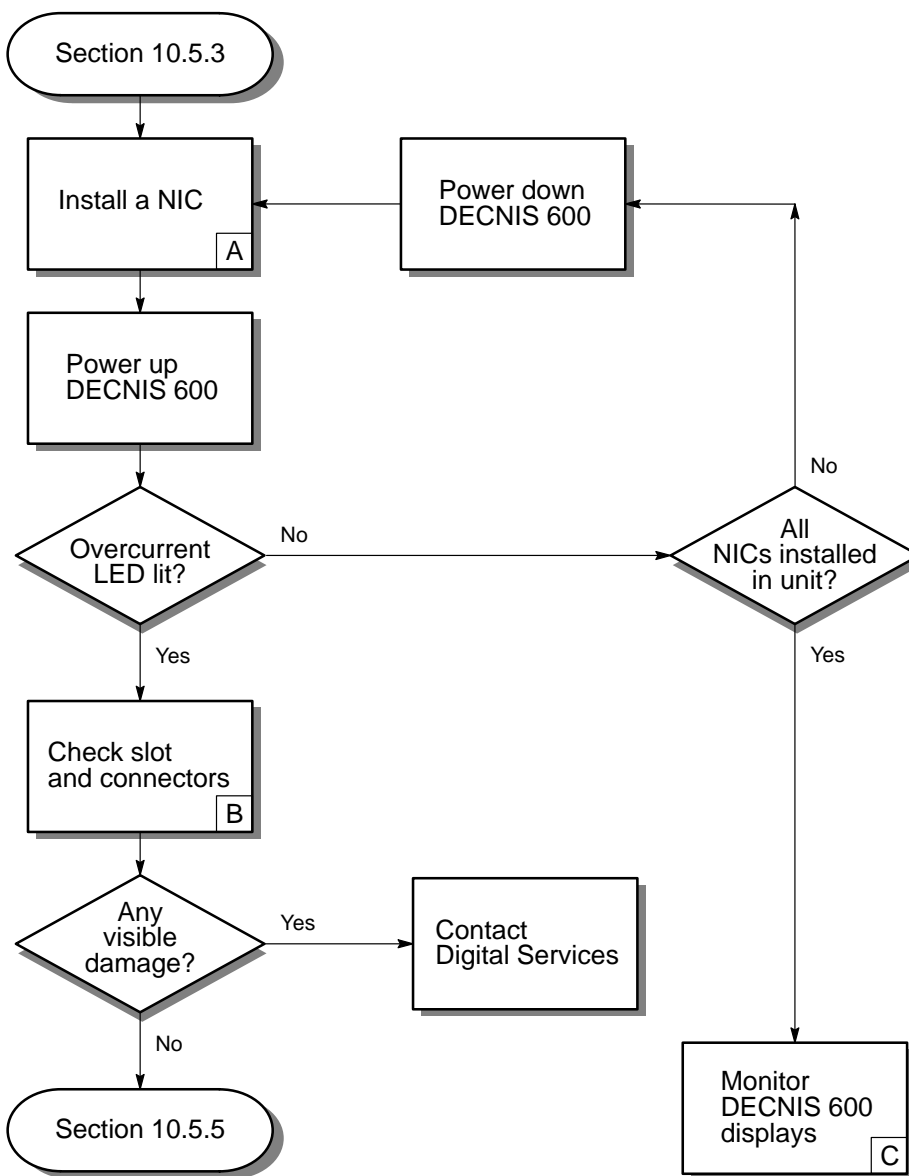
LKG-5534-911



**Notes**

- A. Follow the procedures in Chapter 6 to install the removed memory card back in its slot. Make sure that it is seated in the slot and connected to the backplane.
- B. There may be a problem with the memory card or with its slot. To isolate the problem:
  - 1. Power down the DECNIS 600.
  - 2. Follow the procedures in Sections 6.4 to 6.6 to remove the memory card.
  - 3. Look for damage to the slot, for example, bent pins on the backplane connectors. If the slot is damaged, place the memory card in its antistatic packaging and contact Digital Services.If the slot does not appear to be damaged, go to the next step on the flowchart.
- C. Follow the procedures in Chapter 6 to install a new memory card. Then power up the DECNIS 600 and monitor the displays.

## 10.5.4 Check the Network Interface Cards



LKG-5535-911

**Notes**

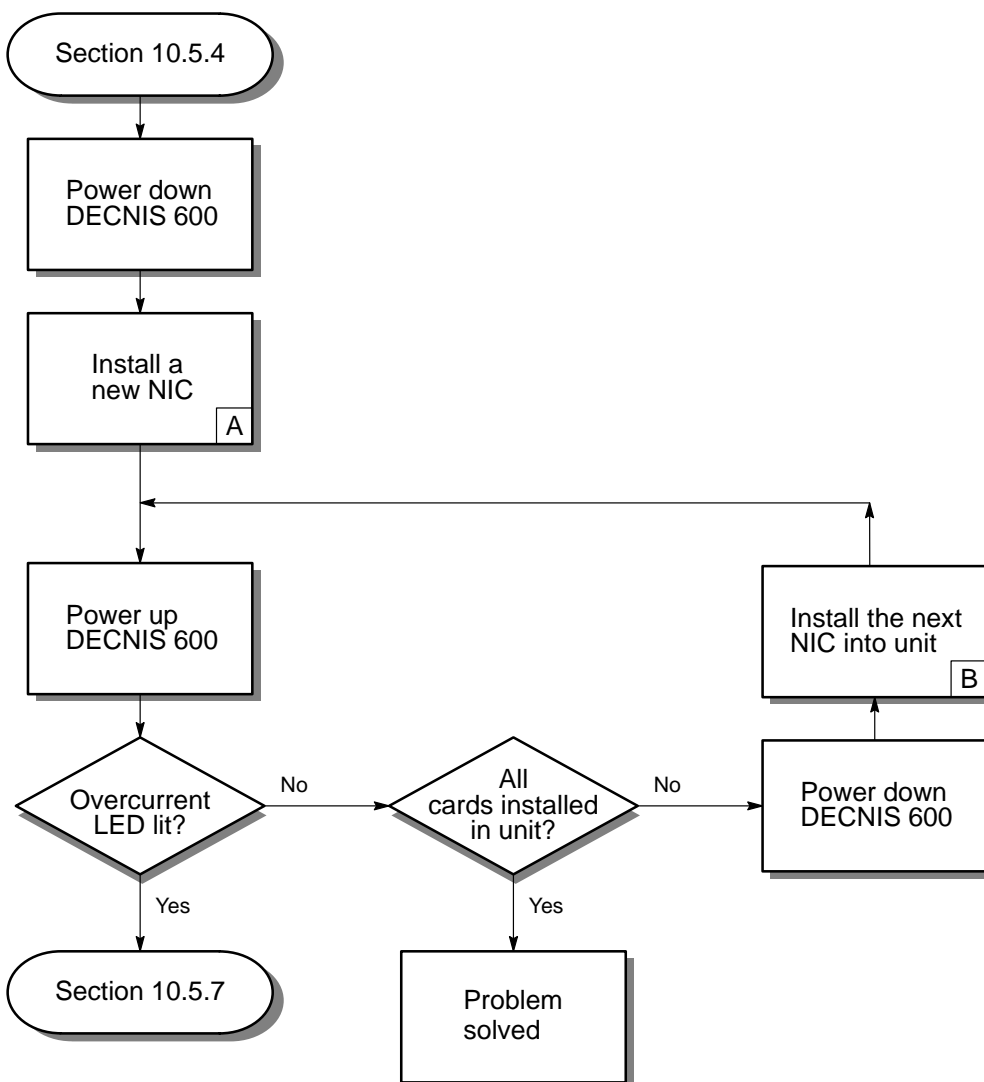
- A. Install one of the Network Interface Cards back into its slot. Follow the procedures in Chapter 3. Make sure that the card is enabled.
- B. There may be a problem with the slot containing the card you installed last:
  - 1. Power down the system.
  - 2. Remove the Network Interface Card from the DECNIS 600 unit.
  - 3. Look for damage to the slot. If it appears to be damaged, report the problem to Digital Services.

If the slot does not appear to be damaged, go to the next step on the flowchart.

- C. Refer to Section 9.2 for details of the LEDs and display codes shown on the DECNIS 600.

If the problem occurs again, it could indicate an intermittent fault. Contact Digital Services.

## 10.5.5 Replace the Network Interface Card

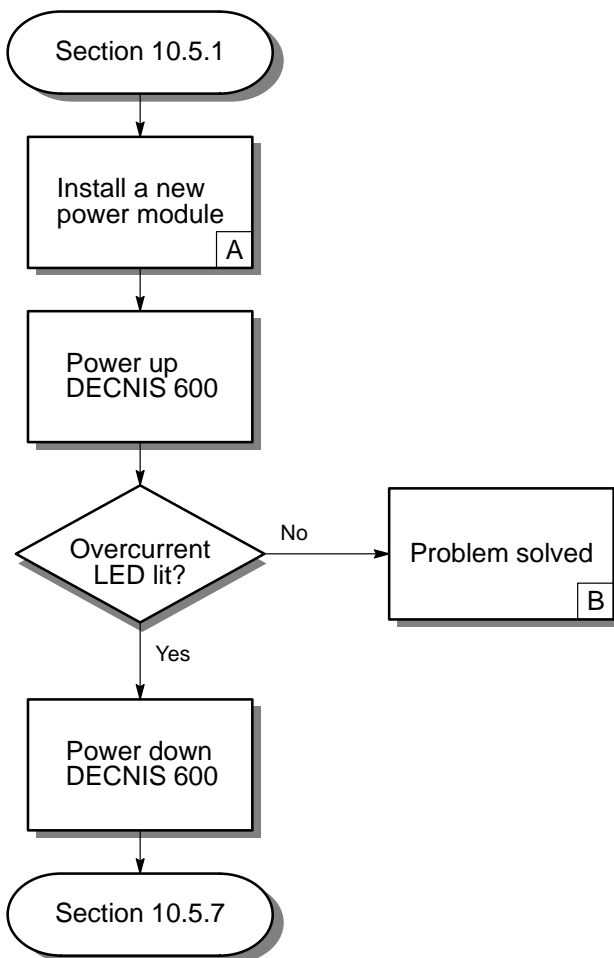


LKG-5536-911

**Notes**

- A. The card that you last installed in the DECNIS 600 unit may be faulty. Follow the procedures in Chapter 5 to install a new Network Interface Card in the same slot.
- B. Install one of the Network Interface Cards back into its slot. Follow the procedures in Chapter 3. Make sure that the card is enabled.

## 10.5.6 Check Power Module

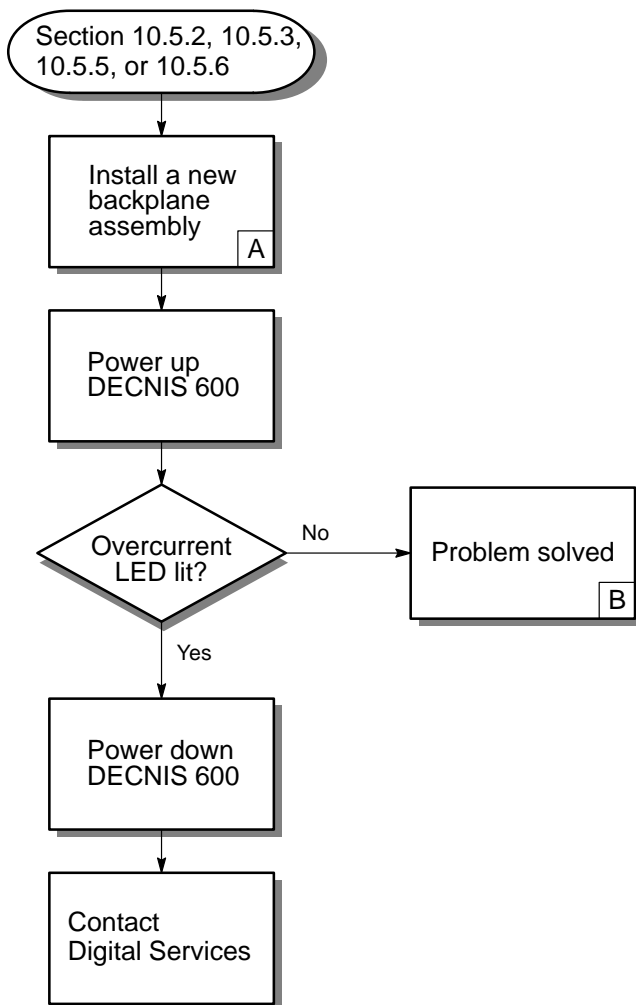


LKG-5537-911

**Notes**

- A. Power down the DECNIS 600 and follow the procedures in Section 11.1 to remove the power module and replace it with a new power module.
- B. Install the removed cards back into the DECNIS 600 unit:
  - 1. Power down the DECNIS 600.
  - 2. Follow the procedures in Chapter 6 to install the processor card and the memory card.
  - 3. Follow the procedures in Chapter 3 to install the Network Interface Cards.

## 10.5.7 Check the Backplane Assembly



LKG-5538-911

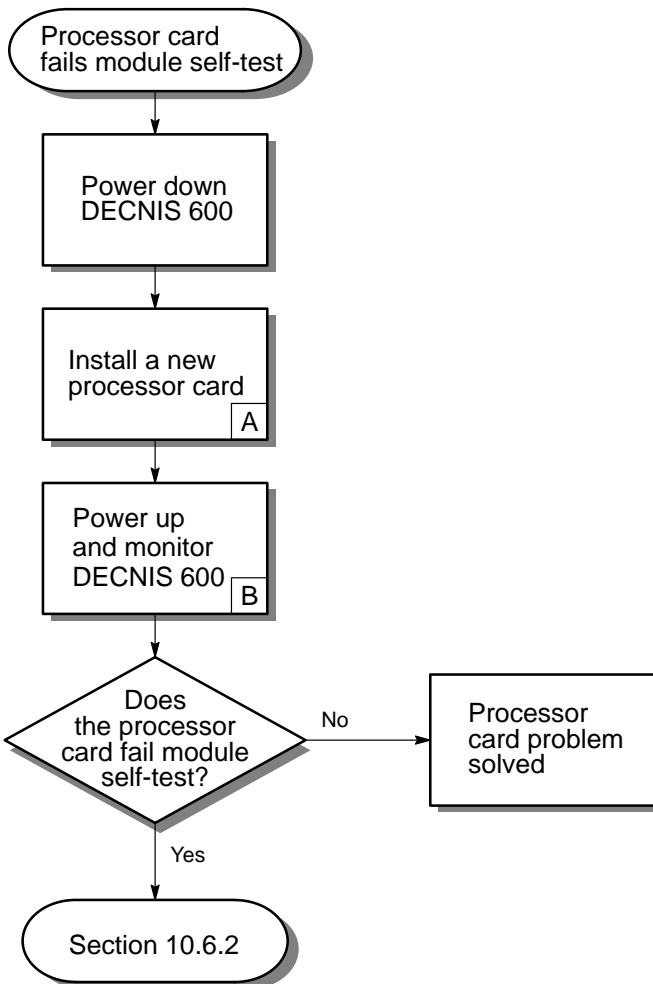


**Notes**

- A. There may be a problem with the backplane assembly, for example, bent pins on the backplane connectors. Follow the procedures in Section 11.5 to remove the backplane assembly and install a new one.
- B. Install any removed cards back into the system:
  - 1. Power down the DECNIS 600.
  - 2. Follow the procedures in Chapter 6 to install the processor card and the memory card.
  - 3. Follow the procedures in Chapter 3 to install the Network Interface Cards.

## 10.6 Processor Card Fault

### 10.6.1 Check Processor Card

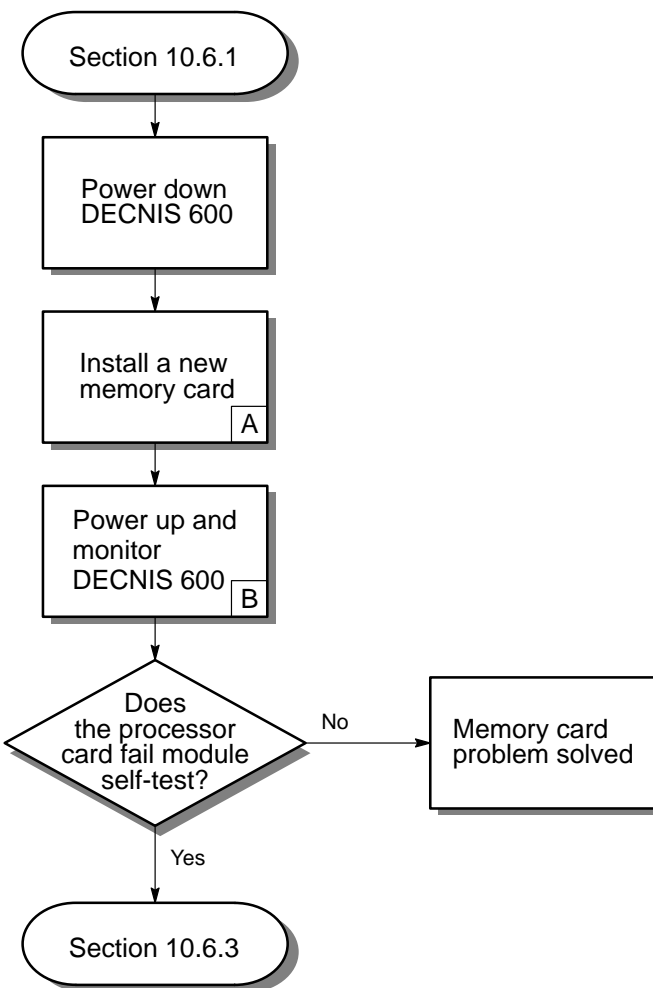


LKG-5539-911

**Notes**

- A. Follow the procedures in Chapter 6 to remove the processor card and install a new processor card.
- B. Monitor the system displays on the processor card. Section 9.2 describes the displays and codes shown when the DECNIS 600 is powered up.

## 10.6.2 Check Memory Card

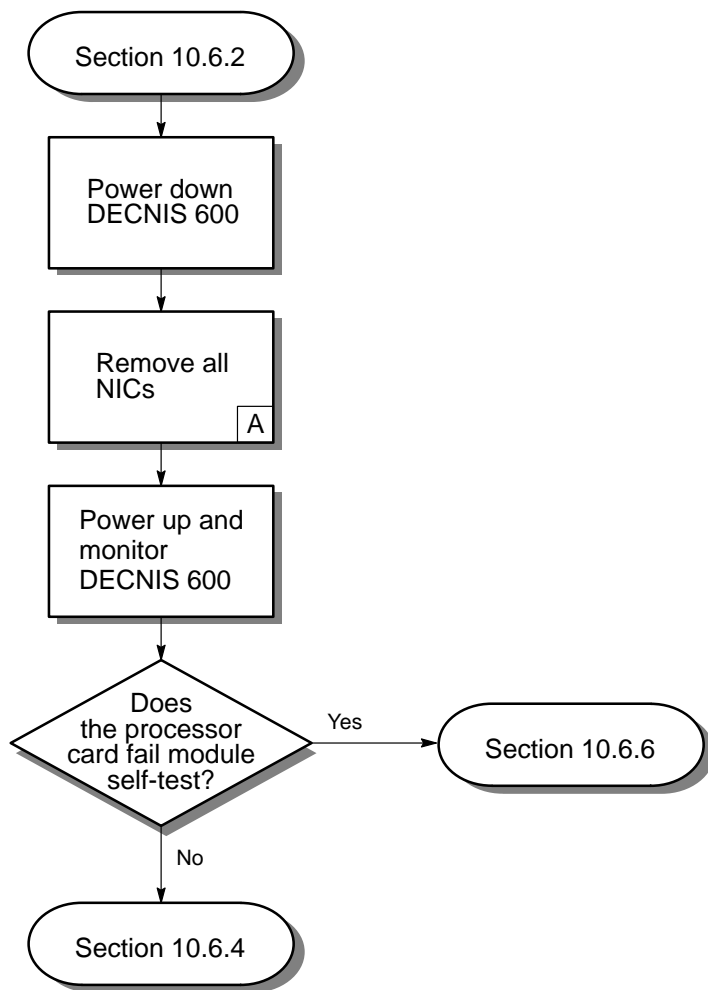


LKG-5540-911

**Notes**

- A. Follow the procedures in Chapter 6 to remove the memory card and install a new memory card.
- B. Monitor the system displays on the processor card. Section 9.2 describes the displays and codes shown when the DECNIS 600 is powered up.

### 10.6.3 Remove Network Interface Cards

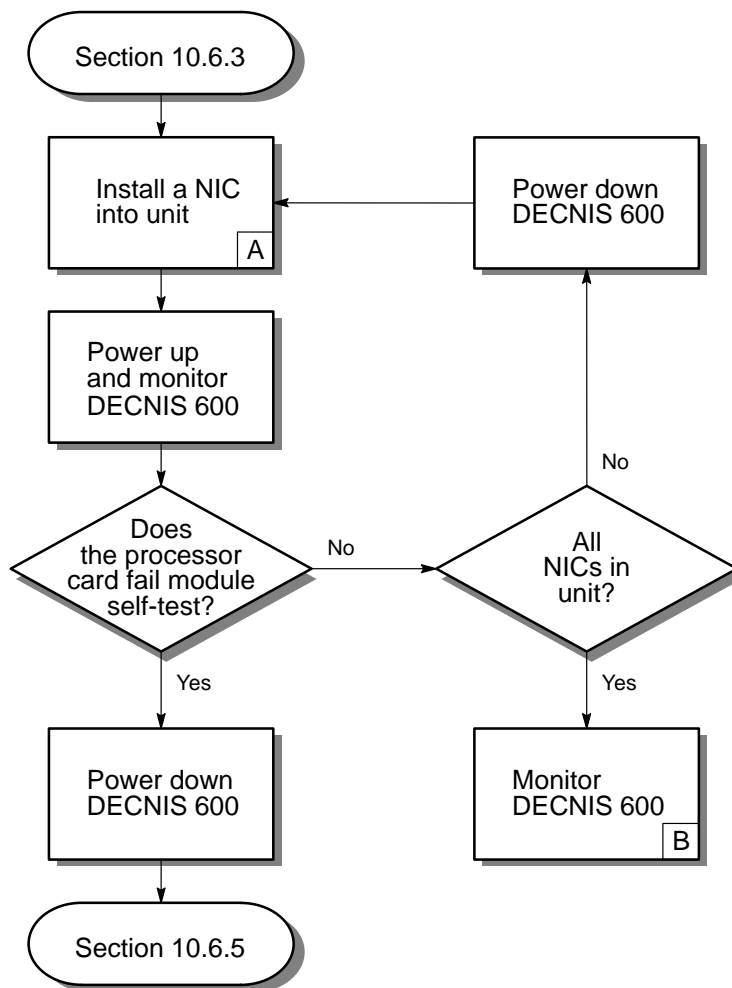


LKG-5541-911

**Notes**

- A. Follow the procedures in Chapter 7 to remove the Network Interface Cards.  
Note that if your system includes a Network Interface Card that is connected to a distribution panel, you do not need to remove the panel from the rack.

## 10.6.4 Check Network Interface Cards



LKG-5542-911

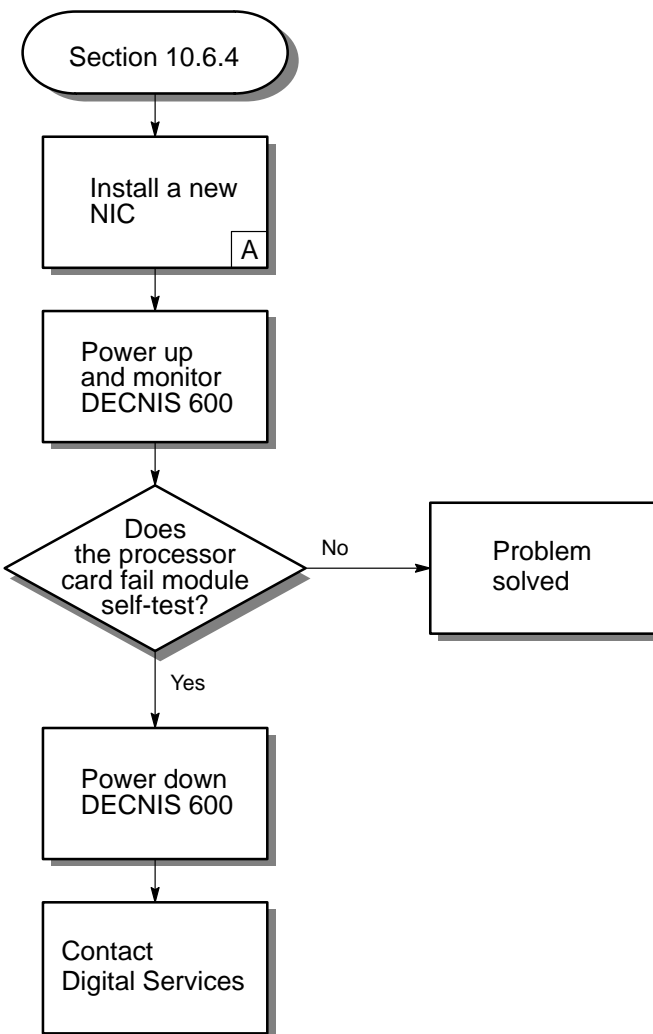


**Notes**

- A. Install one of the Network Interface Cards back into its slot. Follow the procedures in Chapter 3. Make sure that the card is enabled.
- B. Refer to Section 9.2 for details of the LEDs and display codes shown on the DECNIS 600.

If the problem occurs again, it could be an intermittent fault. Contact Digital Services.

## 10.6.5 Replace Network Interface Card

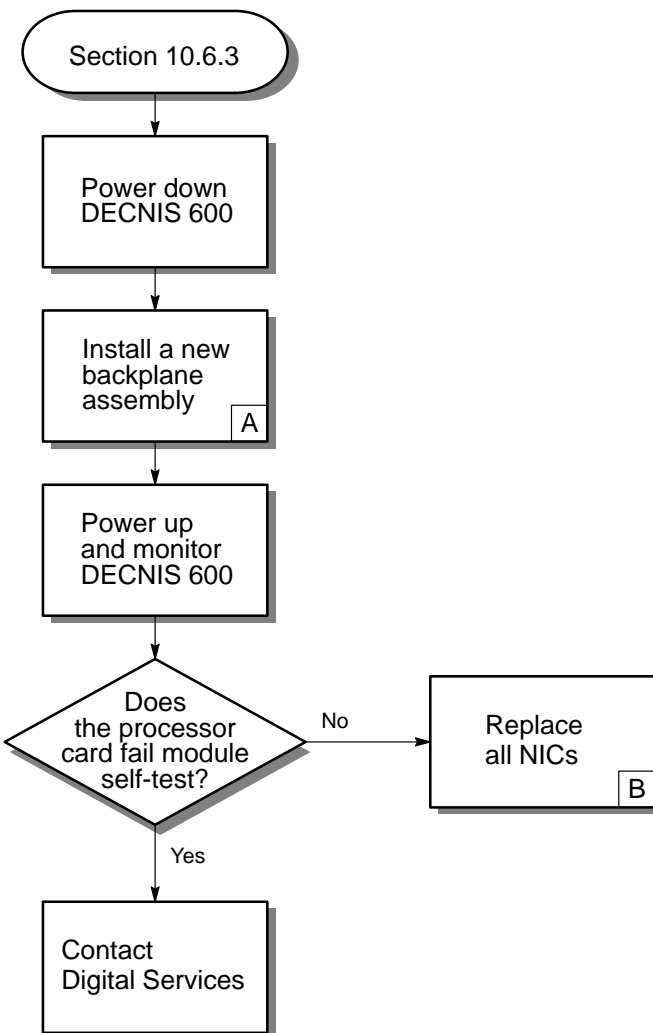


LKG-5543-911

**Notes**

- A. There may be a problem with the Network Interface Card you last installed. Follow the procedures in Chapter 7 to remove the card and Chapter 3 to install a new Network Interface Card.

## 10.6.6 Check Backplane Assembly



LKG-5544-911

**Notes**

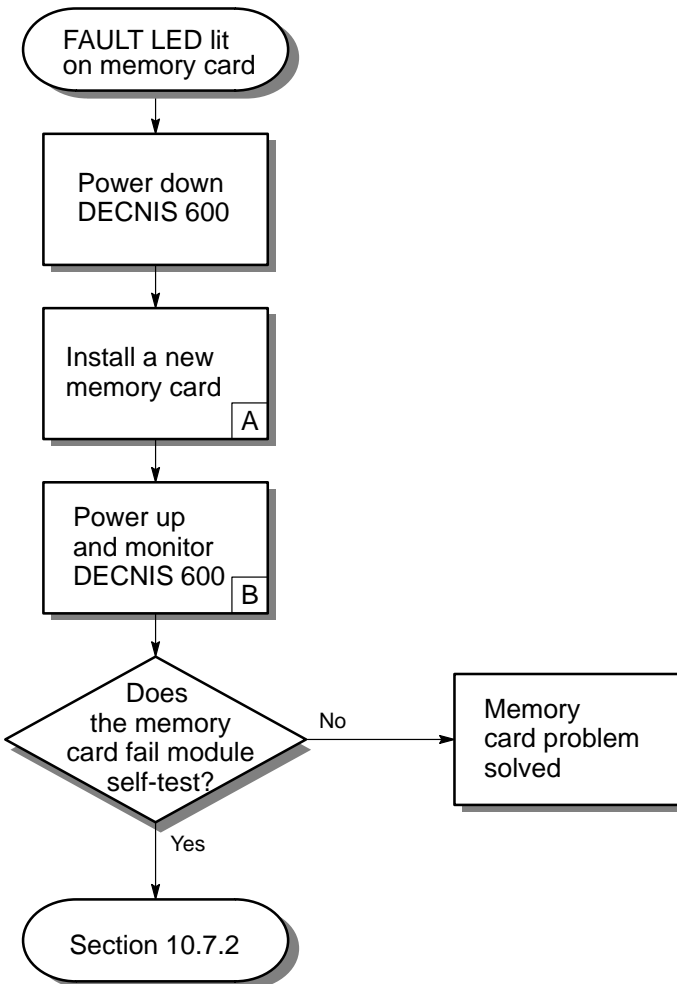
- A. There may be a problem on the backplane assembly, for example, bent pins on the connectors. Follow the procedures in Section 11.5 to remove the backplane assembly and install a new one.
- B. Install the removed Network Interface Cards back into the unit. Follow the procedures in Chapter 5.

Monitor the displays on the DECNIS 600. Section 9.2 describes the DECNIS 600 LEDs and the display codes shown on the unit.

If the problem occurs again, contact Digital Services.

## 10.7 Memory Card Fault

### 10.7.1 Check Memory Card

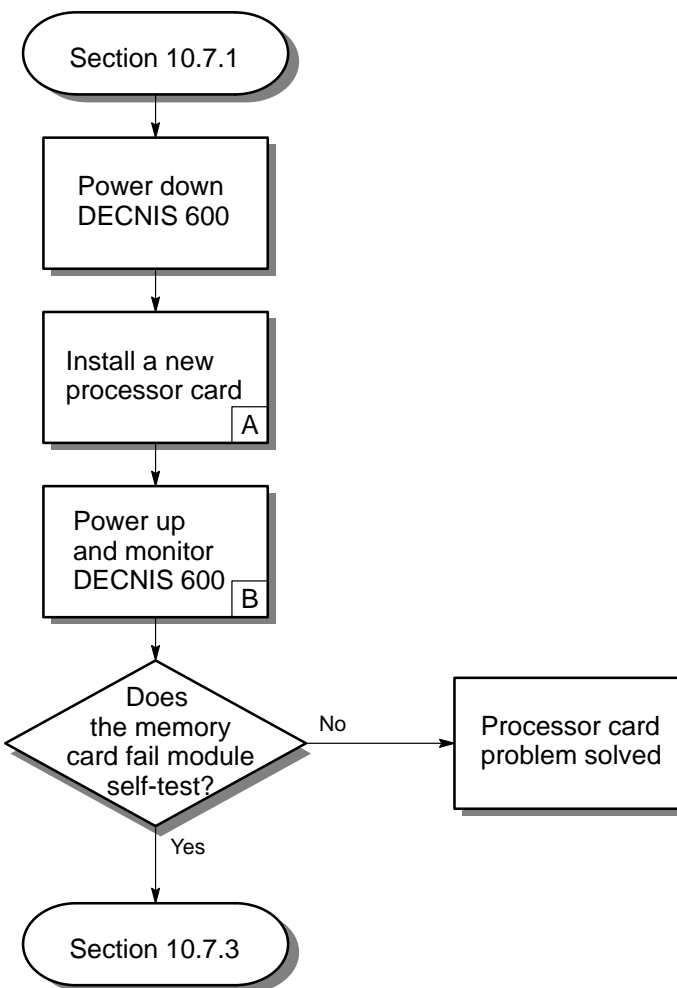


LKG-5562-911

**Notes**

- A. Follow the procedures in Chapter 6 to remove the memory card and install a new memory card.
- B. Monitor the LEDs on the memory card (see Section 9.2).

## 10.7.2 Check Processor Card



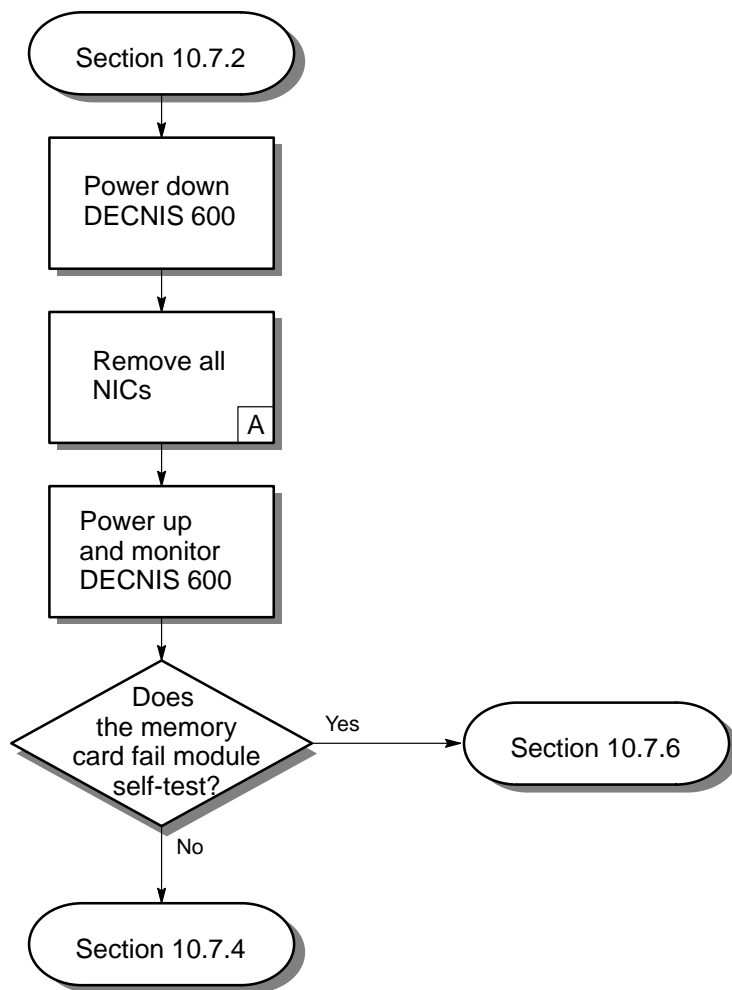
LKG-5563-911



**Notes**

- A. Follow the procedures in Chapter 6 to remove the processor card and install a new processor card.
- B. Monitor the LEDs on the memory card (see Section 9.2).

### 10.7.3 Remove Network Interface Cards

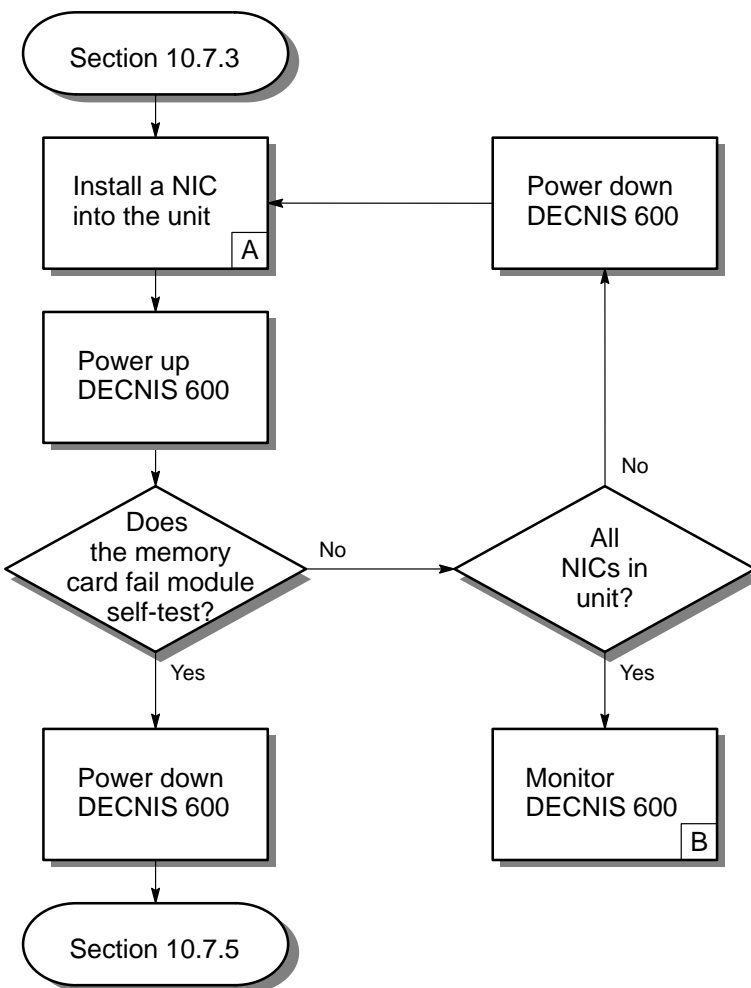


LKG-5564-911

**Notes**

- A. Follow the procedures in Chapter 7 to remove the Network Interface Cards.  
If your system includes a Network Interface Card that is connected to a distribution panel, you do not need to remove the panel from the rack.

## 10.7.4 Check Network Interface Cards



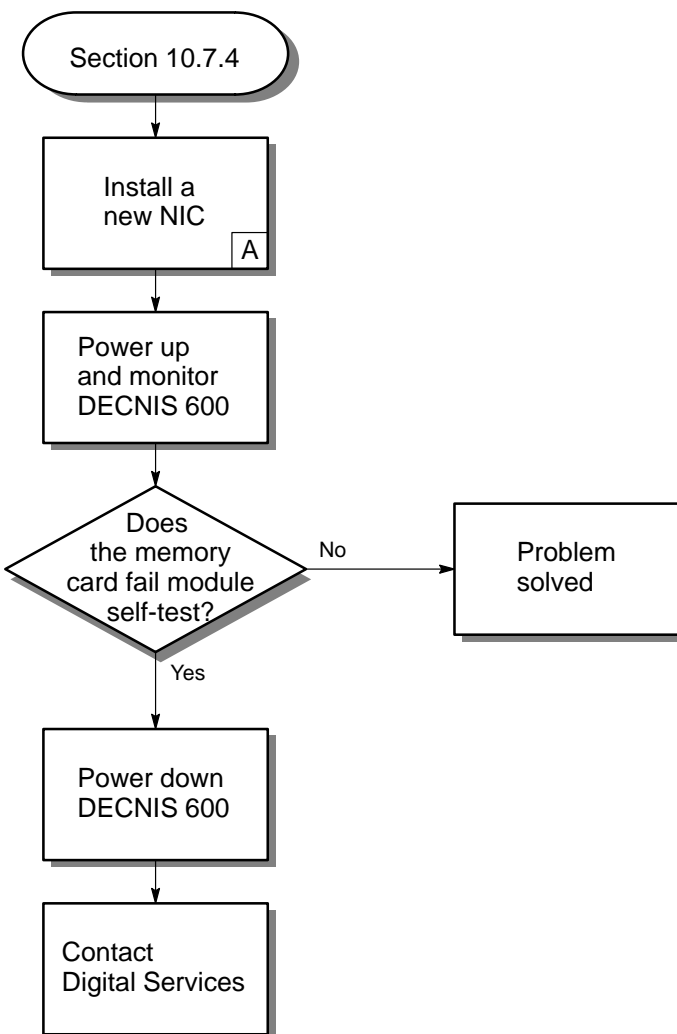
LKG-5565-911

**Notes**

- A. Install one of the Network Interface Cards back into its slot. Follow the procedures in Chapter 3. Make sure that the card is enabled.
- B. Refer to Section 9.2 for details of the LEDs and display codes shown on the DECNIS 600.

If the problem occurs again, it could be an intermittent fault. Contact Digital Services.

## 10.7.5 Replace Network Interface Card

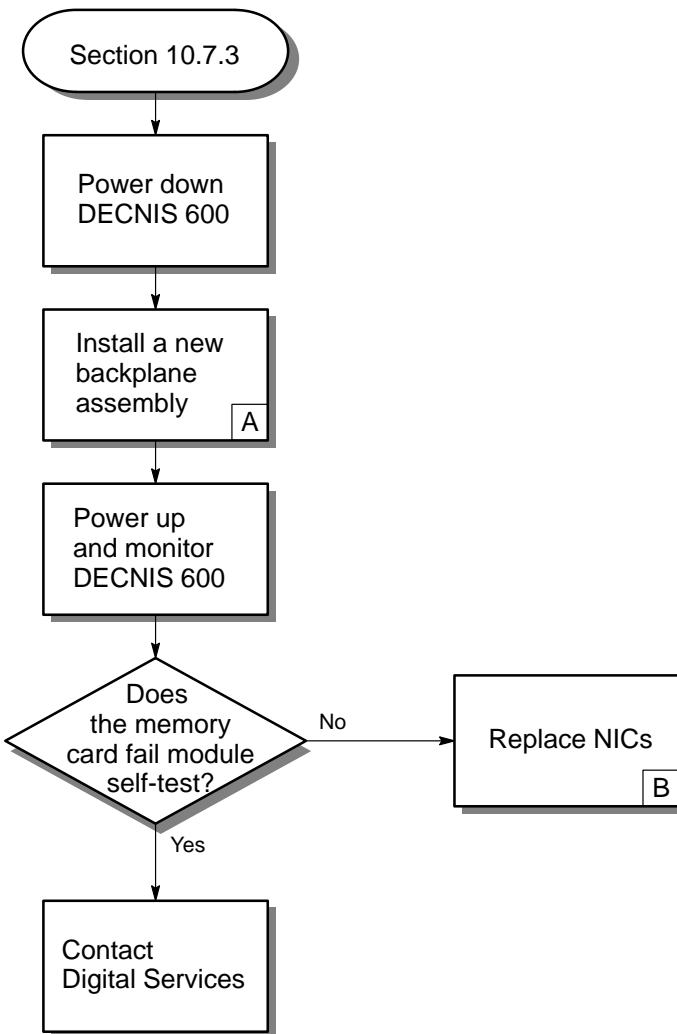


LKG-5566-911

**Notes**

- A. There may be a problem with the Network Interface Card you last installed. Follow the procedures in Chapter 7 to remove the Network Interface Card and Chapter 3 to install a new Network Interface Card.

## 10.7.6 Check Backplane Assembly



LKG-5567-911



**Notes**

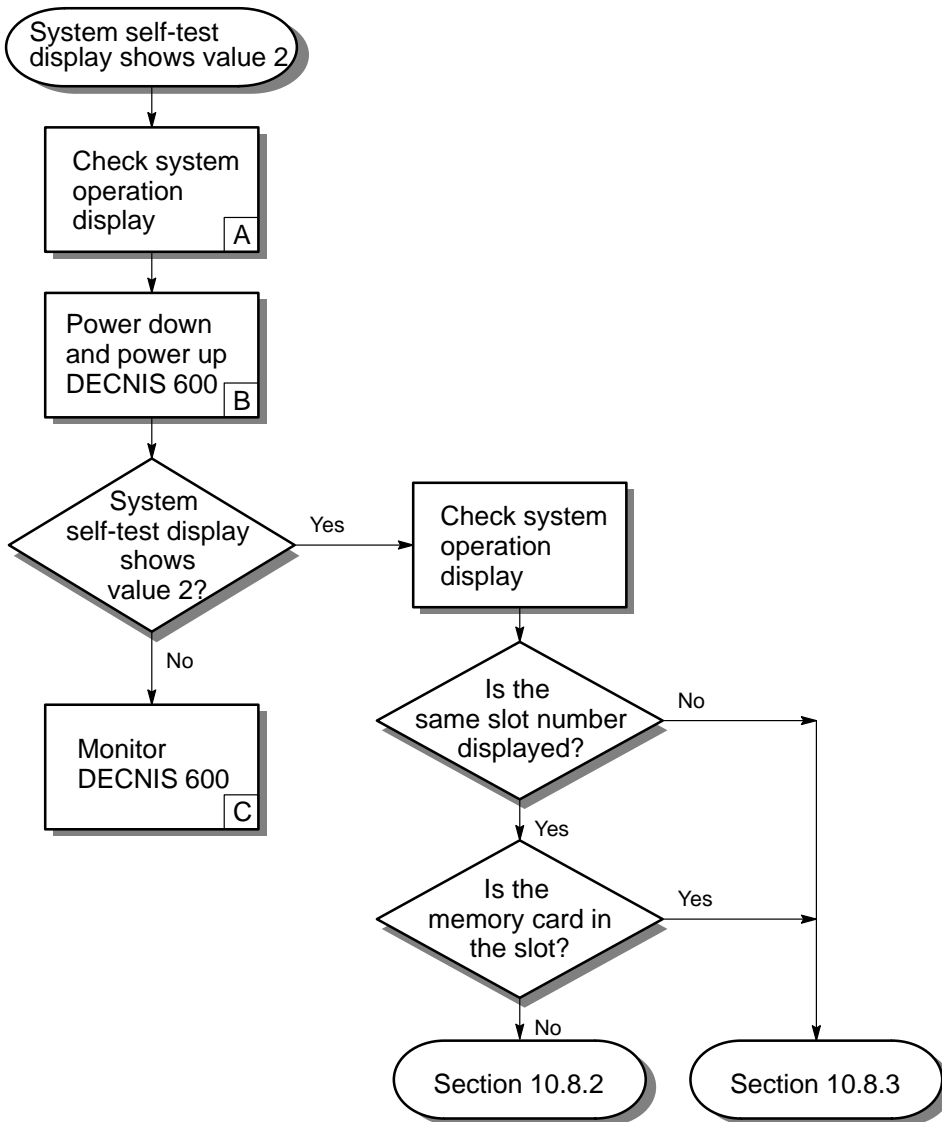
- A. There may be a problem on the backplane assembly, for example, bent pins on the connectors. Follow the procedures in Section 11.5 to remove the backplane assembly and install a new one.
- B. Install the removed Network Interface Cards back into the unit. Follow the procedures in Chapter 5.

Monitor the displays on the DECNIS 600. Section 9.2 describes the DECNIS 600 LEDs and the display codes shown on the unit.

If the problem occurs again, contact Digital Services.

## 10.8 System Fault

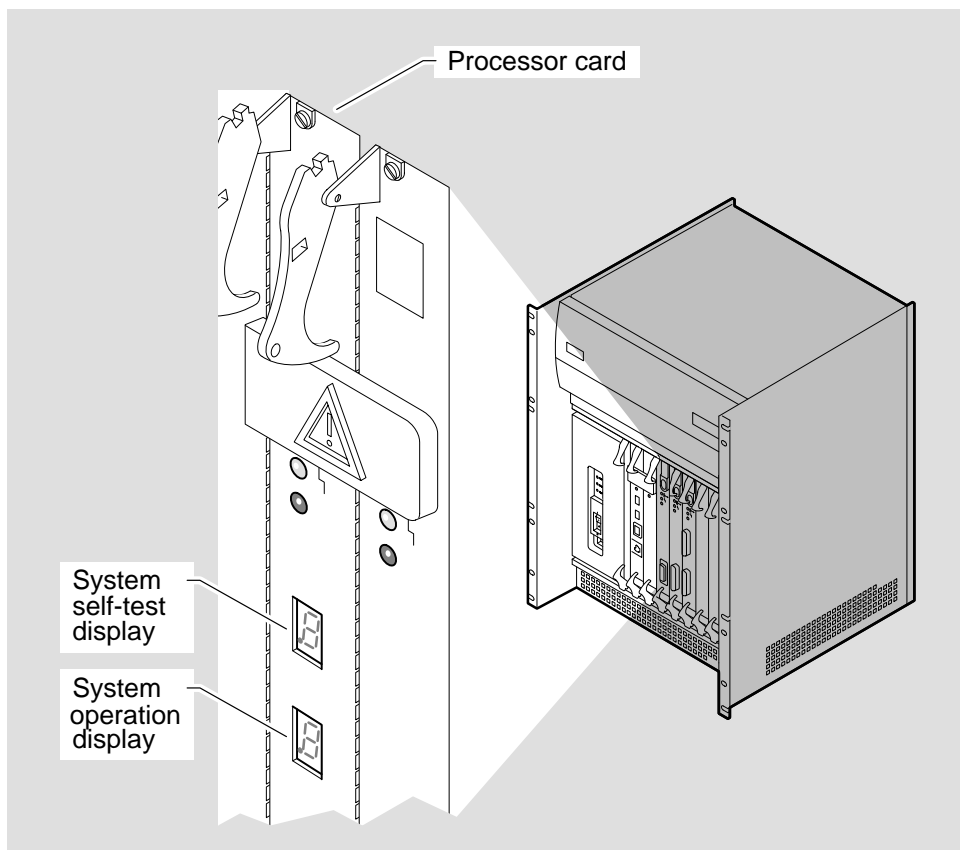
### 10.8.1 Check System Operation Display



LKG-5545-911

## Notes

- A. Check the system operation display on the processor card:

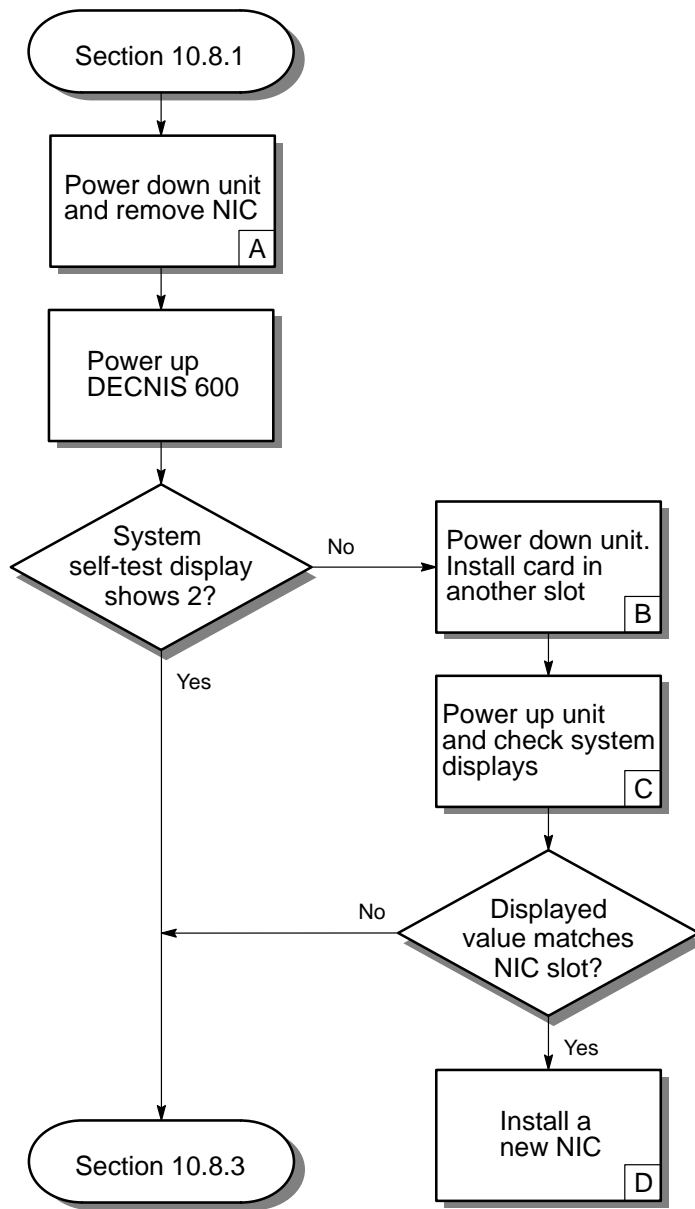


LKG-5671-911

The system operation (lower) display shows the slot number of the card that could be causing the problem. Note the number, and then go to the next step on the flowchart.

- B. Power down the DECNIS 600, power it up again, and then monitor the processor card displays.
- C. Monitor the displays on the DECNIS 600 (see Section 9.2). If the problem occurs again, it could indicate an intermittent fault on the DECNIS 600. Contact Digital Services.

## 10.8.2 Check Network Interface Card

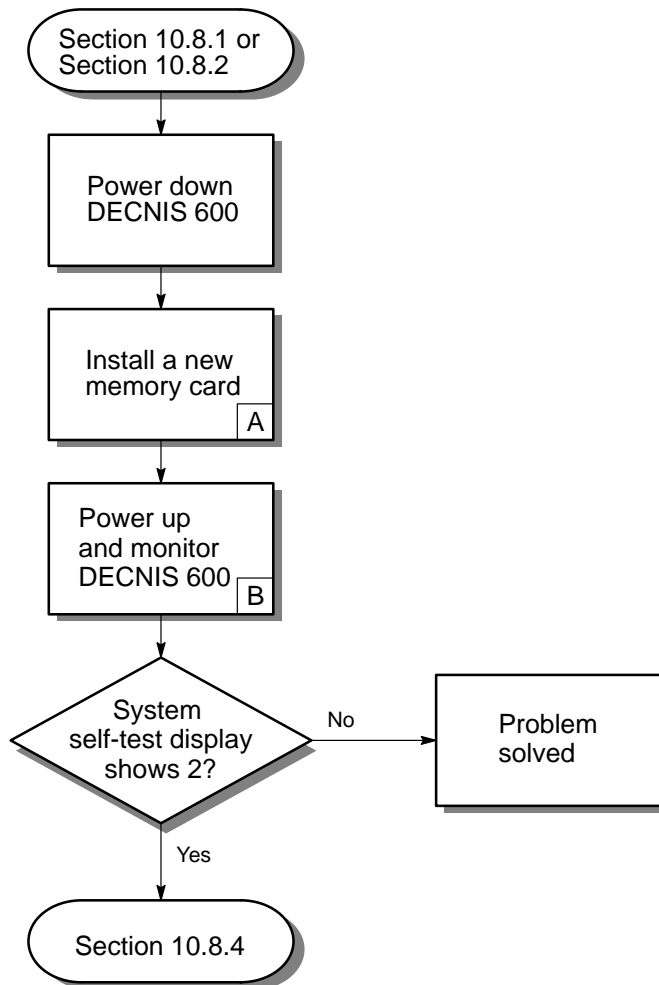


LKG-5546-911

## Notes

- A. Follow the procedures in Chapter 7 to remove the Network Interface Card from the system, and place it on the antistatic mat.
- B. There may be a problem with the Network Interface Card. To isolate the fault, install the Network Interface Card in another slot (see Chapter 3).
- C. Power up the unit and monitor the system displays on the processor card:
  - If the system self-test (upper) display shows the value 2, check the system operation (lower) display:
    - If the displayed value matches the slot number for the Network Interface Card, for example, if the display shows the value 5 and the Network Interface Card is installed in slot 5, the fault can be isolated to the Network Interface Card.
    - If another value is displayed on the system operation display, it indicates that the fault is associated with other components in the unit. The Network Interface Card is not faulty.  
Follow the corresponding path on the flowchart.
  - If the system self-test (upper) display shows another value (not 2), it could indicate an intermittent problem. Contact Digital Services.
- D. Follow the procedures in Chapter 7 to remove the Network Interface Card and Chapter 5 to install a new Network Interface Card.

### 10.8.3 Check Memory Card

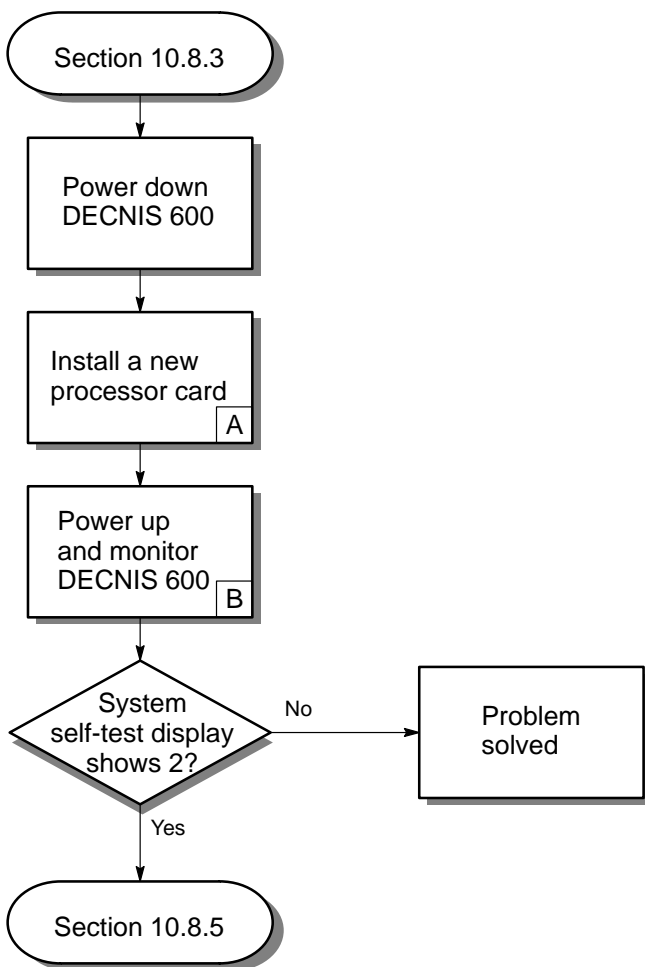


LKG-5547-911

**Notes**

- A. Follow the procedures in Chapter 6 to remove the memory card and install a new memory card.
- B. Monitor the system displays on the processor card. If the system self-test (upper) display shows the value 2, there is still a system fault.

## 10.8.4 Check Processor Card



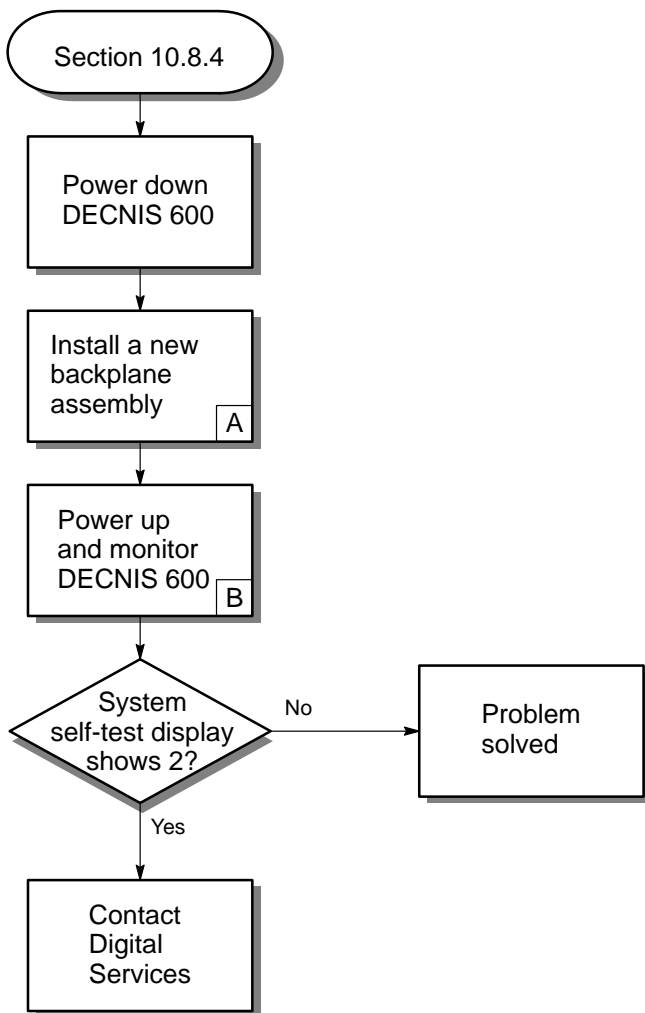
LKG-5548-911



**Notes**

- A. Follow the procedures in Chapter 6 to remove the processor card and install a new processor card.
- B. Monitor the system displays on the processor card. If the system self-test (upper) display shows the value 2, there is still a system fault.

## 10.8.5 Check Backplane Assembly



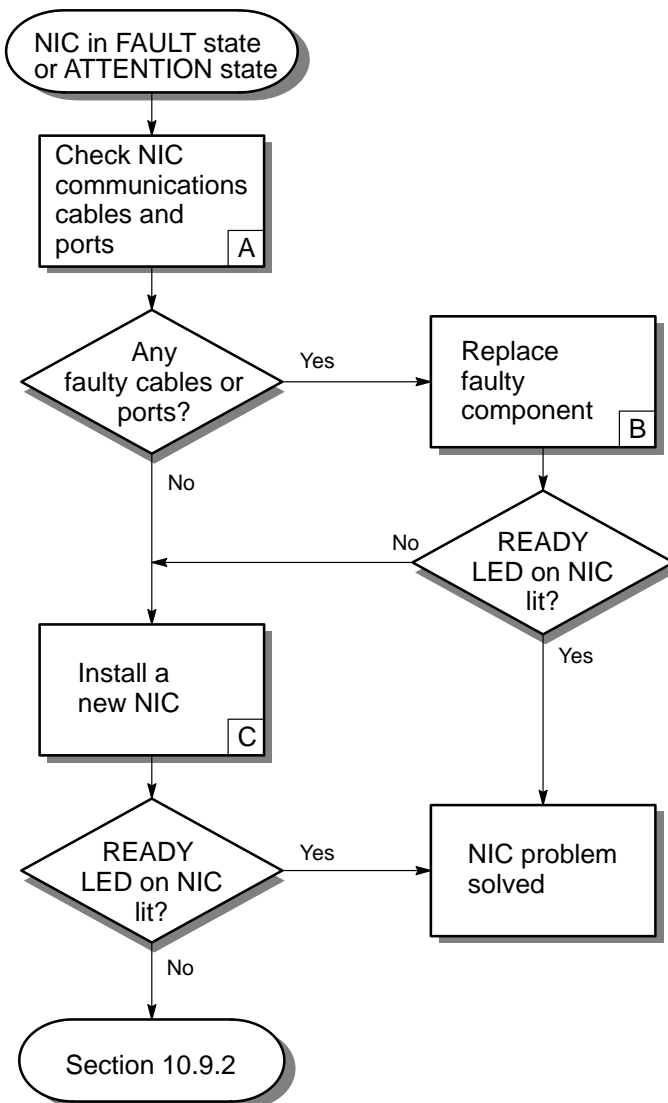
LKG-5549-911

**Notes**

- A. There may be a problem on the backplane assembly, for example, bent pins on the connectors. Follow the procedures in Section 11.5 to remove the backplane assembly and install a new one.
- B. Monitor the system displays on the processor card. If the system self-test (upper) display shows the value 2, there is still a system fault.

## 10.9 Network Interface Card Fault

### 10.9.1 Check Cables and Ports

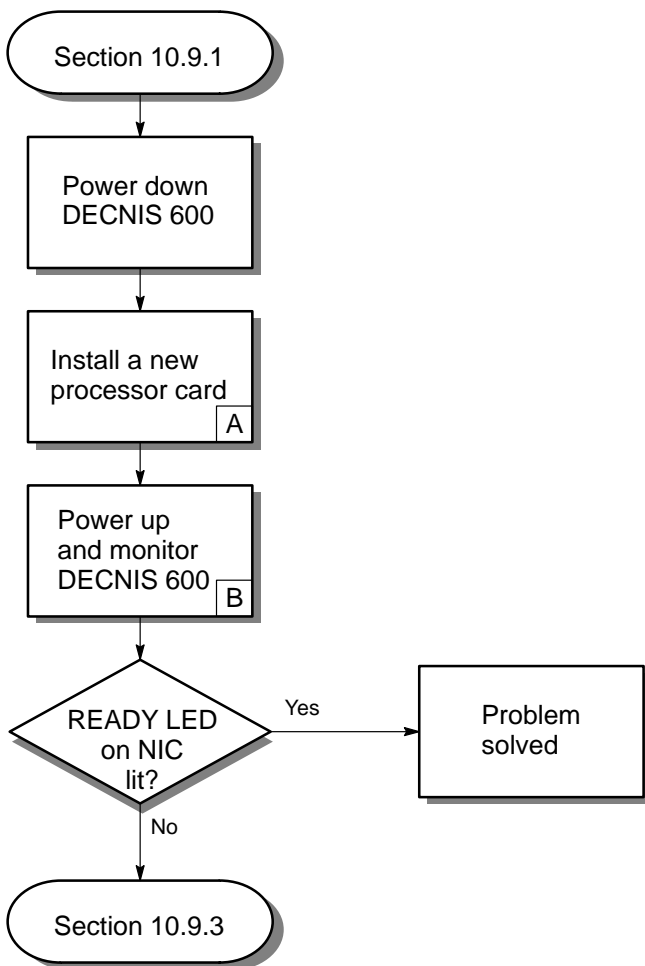


LKG-5550-911

**Notes**

- A. Follow the procedures on the *Problem Solving* card for the Network Interface Card.
- B. The *Cabling Instructions and Specifications* card for the Network Interface Card shows how to install the communications cables and distribution panel (if used) for the Network Interface Card.
- C. Follow the procedures in Chapter 7 to remove the Network Interface Card and Chapter 5 to install a new Network Interface Card.

## 10.9.2 Check Processor Card

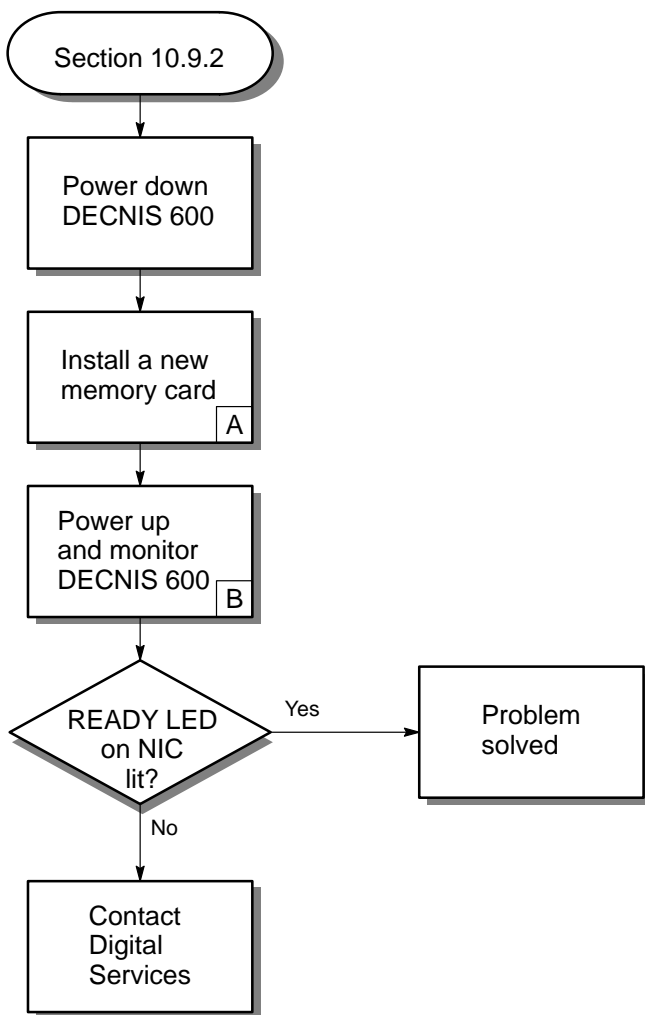


LKG-5551-911

**Notes**

- A. Follow the procedures in Chapter 6 to remove the processor card and install a new processor card.
- B. Section 9.2 describes the DECNIS 600 LEDs and the display codes shown on the unit.

### 10.9.3 Check Memory Card



LKG-5552-911

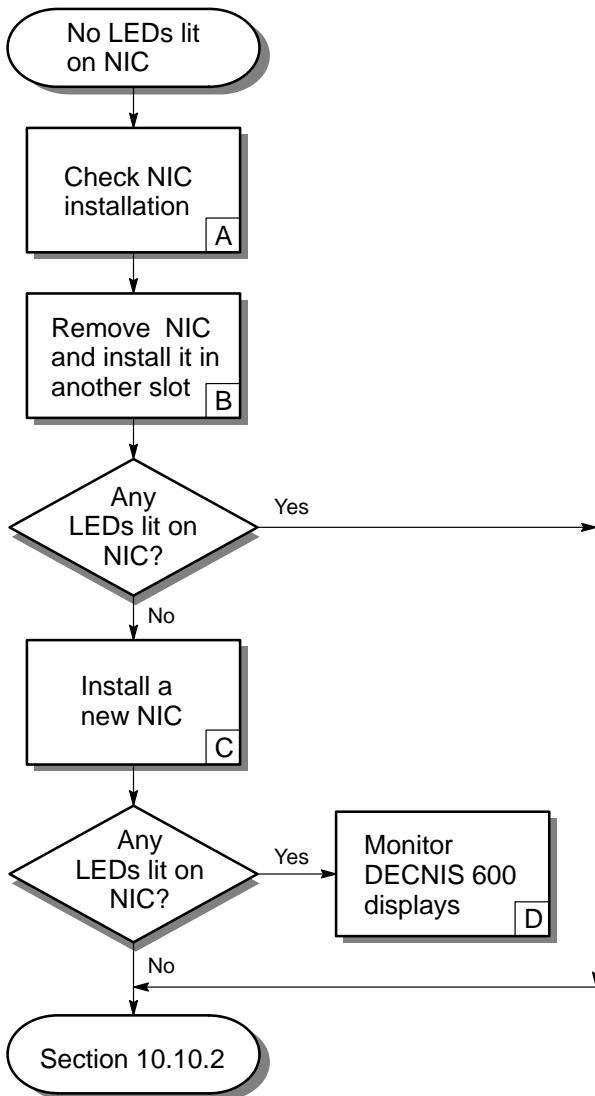


**Notes**

- A. Follow the procedures in Chapter 6 to remove the memory card and install a new memory card.
- B. Section 9.2 describes the DECNIS 600 LEDs and the display codes shown on the unit.

## 10.10 No LEDs Lit on Network Interface Card

### 10.10.1 Check Network Interface Card

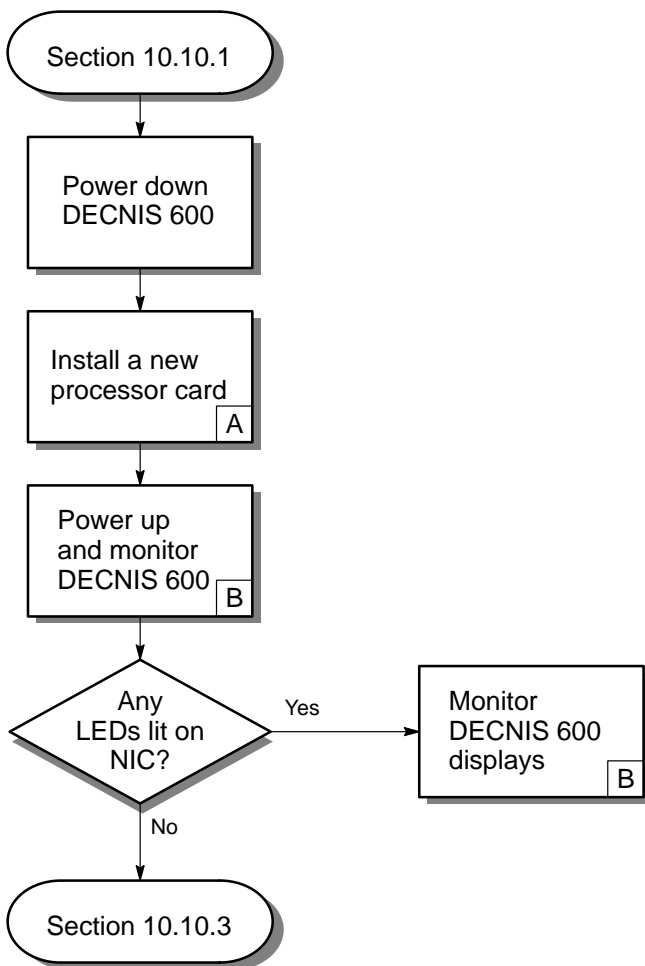


LKG-5553-911

**Notes**

- A. Check that:
- The Network Interface Card is installed correctly (see Chapter 3).
  - The DECNIS 600 is powered up (see Chapter 4).
- B. There may be a problem with the Network Interface Card or with its slot. To isolate the problem:
1. Follow the procedures in Chapter 7 to remove the Network Interface Card.
  2. Follow the procedures in Chapter 5 to install the card in another slot.
- C. Follow the procedures in Chapter 7 to remove the Network Interface Card and Chapter 5 to install a new Network Interface Card.
- D. Section 9.2 describes the Network Interface Card LEDs and the DECNIS 600 display codes shown on the unit.

## 10.10.2 Check Processor Card

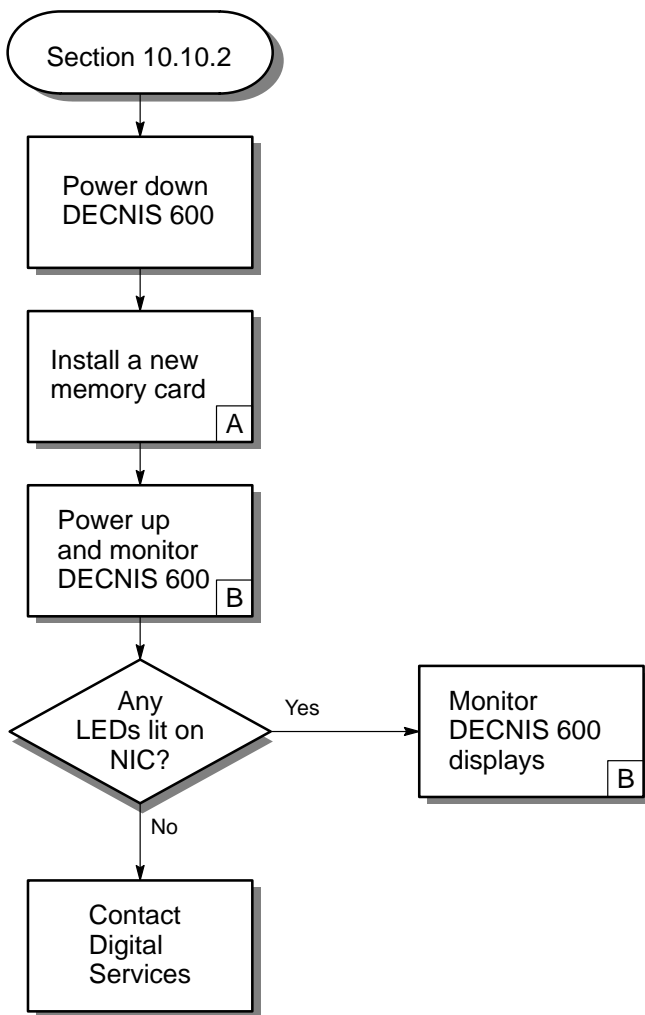


LKG-5554-911

**Notes**

- A. Follow the procedures in Chapter 6 to remove the processor card and install a new processor card.
- B. Section 9.2 describes the DECNIS 600 LEDs and the display codes shown on the unit.

### 10.10.3 Check Memory Card



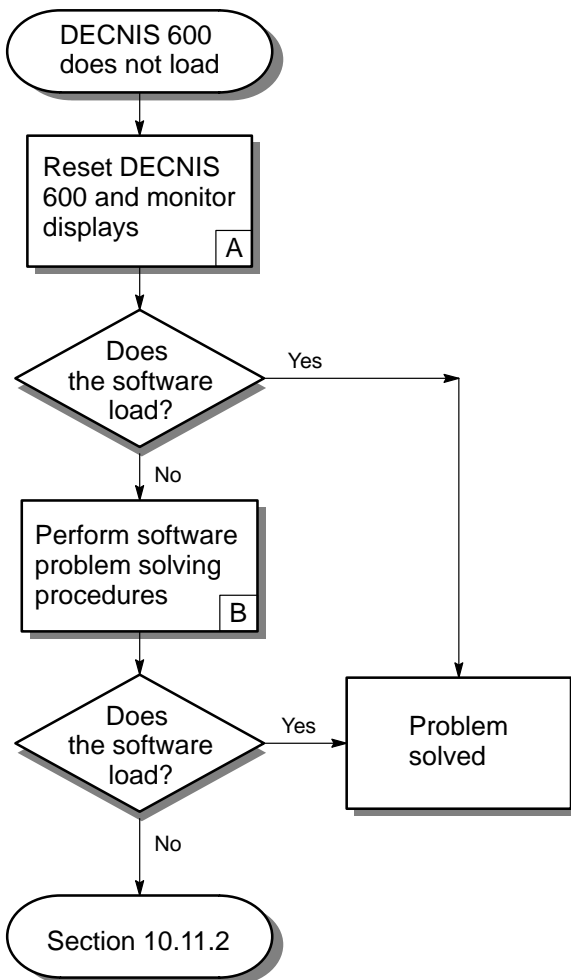
LKG-5555-911

**Notes**

- A. Follow the procedures in Chapter 6 to remove the memory card and install a new memory card.
- B. Section 9.2 describes the DECNIS 600 LEDs and the display codes shown on the unit.

## 10.11 Software Does Not Load

### 10.11.1 Check Software Configuration



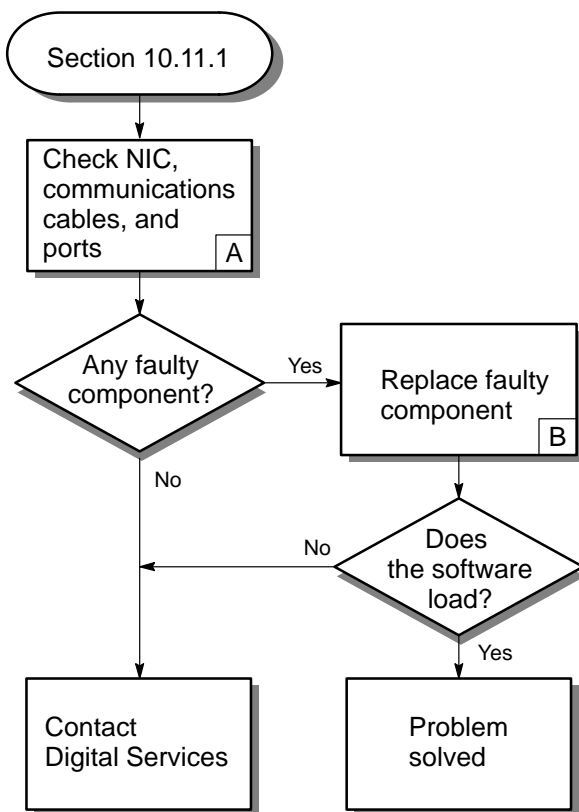
LKG-5556-911



**Notes**

- A. Complete the following:
  - 1. Set the power switch to 0 (OFF).
  - 2. Hold in the dump button (D1) on the processor card. Appendix D shows the location of the dump button.
  - 3. Set the power switch to 1 (ON) and continue to hold the dump button in for a further 5 seconds.
  - 4. Release the dump button.
  - 5. Refer to Section 9.2 to monitor the DECNIS 600 displays.
- B. The *DEC Network Integration Server Problem Solving* manual includes procedures for this problem. Complete the procedures and, if the problem persists, continue at the next step in the flowchart opposite.

## 10.11.2 Check Network Interface Cards and Cables



LKG-5557-911

## Notes

- A. There may be a fault on the Network Interface Card, its cables, or distribution panel (if used), that was not detected when the system was powered up.

Refer to the *DEC Network Integration Server 600 Configuration Card* to identify the line over which the DECNIS 600 is loaded. Then follow the procedures on the *Problem Solving* card for the Network Interface Card associated with that line.

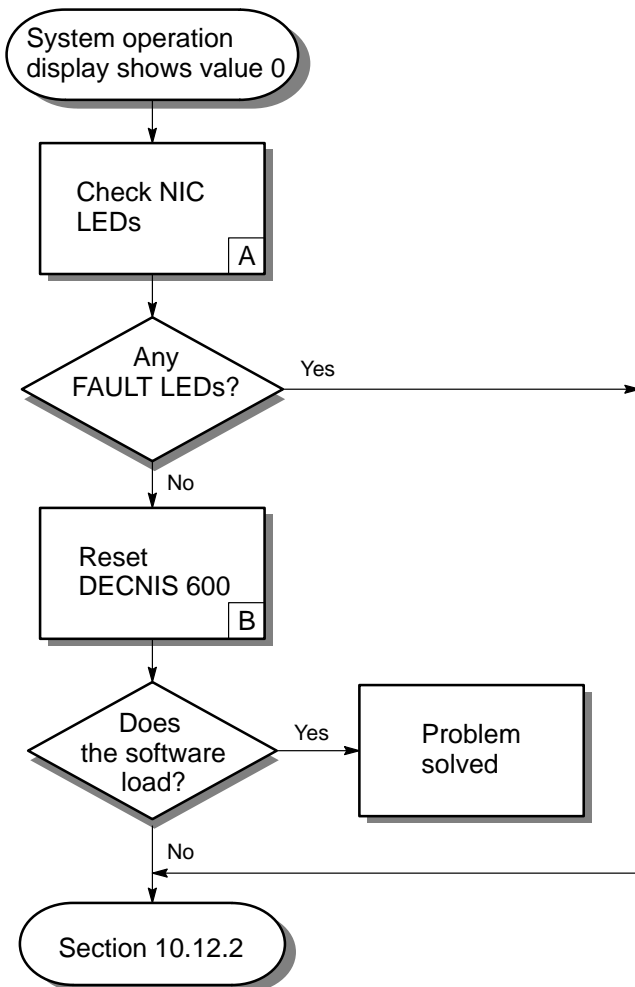
- B. Replace the faulty component:

- The Network Interface Card *Cabling Instructions and Specifications* card shows how to replace a distribution panel (if used) and communications cables.
- Chapter 7 shows how to remove a Network Interface Card and Chapter 5 shows how to install a new Network Interface Card.

Then monitor the displays (see Section 9.2). If the problem persists, contact Digital Services.

## 10.12 No Circuits Available for Loading

### 10.12.1 Monitor Network Interface Card LEDs

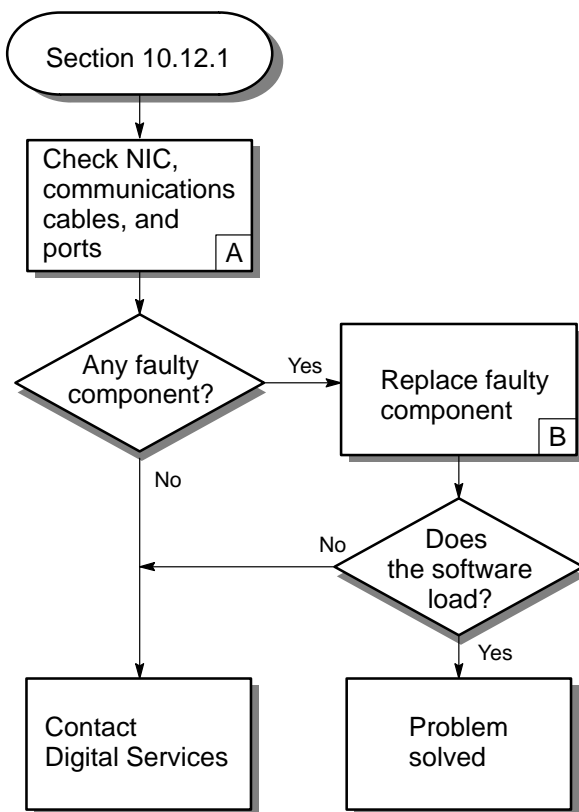


LKG-5558-911

**Notes**

- A. There could be a problem on the Network Interface Card used for loading the DECNIS 600. Check the LEDs on each Network Interface Card (see Section 9.2.3).
- B. Complete the following:
  - 1. Set the power switch to 0 (OFF).
  - 2. Hold in the dump button (D1) on the processor card. Appendix D shows the location of the dump button.
  - 3. Set the power switch to 1 (ON) and continue to hold the dump button in for a further 5 seconds (approximately).
  - 4. Release the dump button.
  - 5. Refer to Section 9.2 to monitor the DECNIS 600 displays.

## 10.12.2 Check Network Interface Cards and Cables



LKG-5559-911

## Notes

- A. There may be a fault on the Network Interface Card, its cables, or distribution panel (if used), that was not detected when the the system was powered up.

Refer to the *DEC Network Integration Server 600 Configuration Card* to identify the line over which the DECNIS 600 is loaded. Then follow the procedures on the *Problem Solving* card for the Network Interface Card associated with that line.

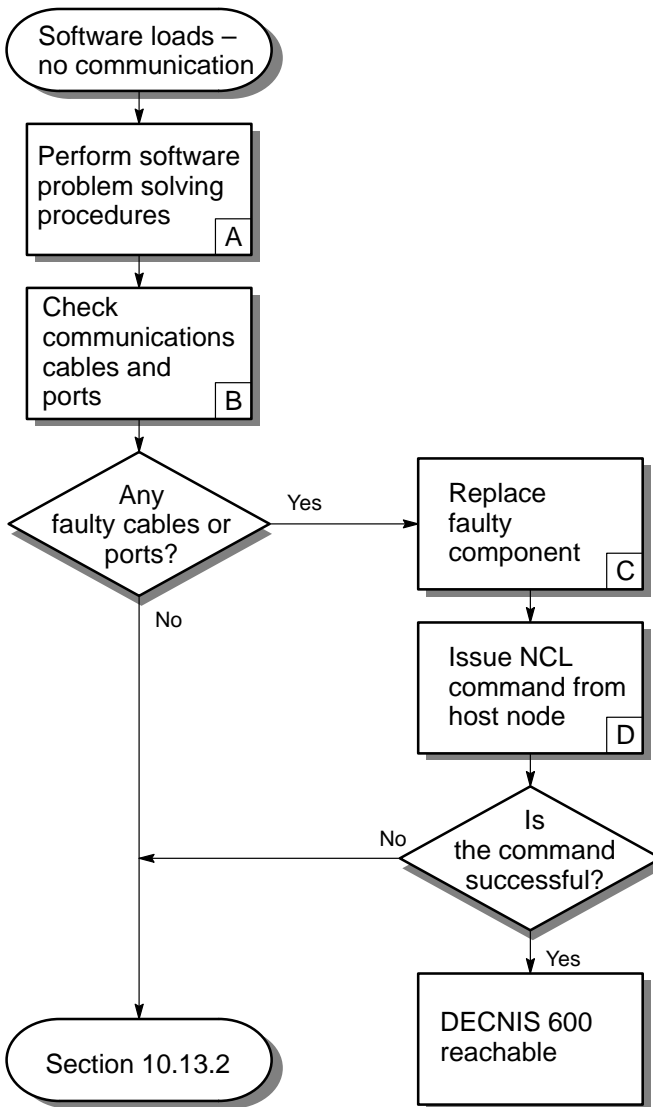
- B. Replace the faulty component:

- The Network Interface Card *Cabling Instructions and Specifications* card shows how to replace a distribution panel (if used) and communications cables.
- Chapter 7 shows how to remove a Network Interface Card and Chapter 5 shows how to install a new Network Interface Card.

Then monitor the displays (see Section 9.2). If the problem persists, contact Digital Services.

## 10.13 Software Loads But No Communication With the Host System

### 10.13.1 Check Software Configuration



LKG-5560-911



## Notes

A. Complete the problem solving procedures in the *DEC Network Integration Server Problem Solving* guide. The procedures in this guide check:

- The DECNIS 600 software configuration information
- The state of the link, circuits, and modems

If you complete the procedures and the problem can be isolated to the hardware, go to the next step on the flowchart.

B. Check the communication cables associated with the line that could be causing the problem (the software problem solving procedures should isolate the line).

There may be a fault with the communication cables or the distribution panel (if used), that could not be detected by the diagnostic tests when the system was powered up.

Follow the procedures on the Network Interface Card's *Problem Solving* card.

C. The Network Interface Card's *Cabling Instructions and Specifications* card shows how to replace the communications cables and distribution panel (if used).

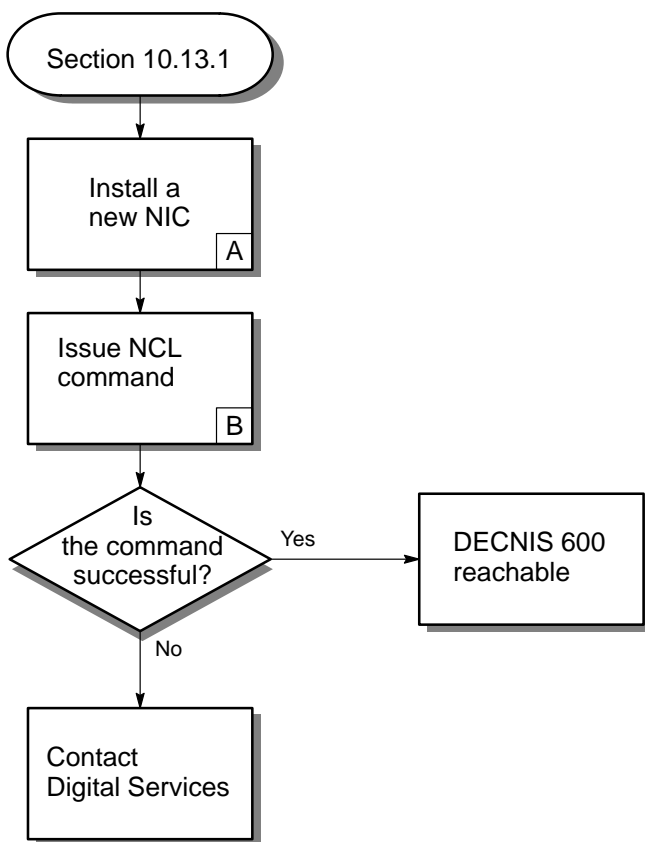
D. Enter the following NCL command at the host node:

```
NCL> SHOW NODE server ALL ATTRIBUTES
```

where *server* is the name for the DECNIS 600.

If the attributes for the DECNIS 600 are displayed, the command is successful.

### 10.13.2 Check Network Interface Card



LKG-5561-911

**Notes**

- A. Follow the procedures in Chapter 7 to remove the Network Interface Card and Chapter 5 to install a new Network Interface Card.
- B. Enter the following NCL command at the host node:

```
NCL> SHOW NODE server ALL ATTRIBUTES
```

where *server* is the name for the DECNIS 600.

If the attributes for the DECNIS 600 are displayed, the command is successful.



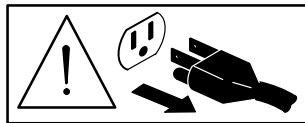
# 11

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## Removing and Replacing Faulty Components

This chapter describes how to remove and replace the following faulty components:

- Power module
- Fan tray
- Fans
- Temperature sensor
- Backplane assembly



---

**Caution**

---

Power down the DECNIS 600 before attempting these procedures.

---

---

**Attention**

---

Veillez couper l'alimentation du DECNIS 600 avant d'effectuer ces procédures.

---

---

**Vorsicht**

---

Schalten Sie den DECNIS 600 ab, bevor Sie diese Arbeiten ausführen.

---

---

**Avvertenza**

---

Spegnere il DECNIS 600 prima di eseguire queste procedure.

---

---

**Atención**

---

Desconectar el DECNIS 600 antes de realizar estos procedimientos.

---

---

**Atenção**

---

Desligar o DECNIS 600 antes de efectuar estes procedimentos.

---

---

**Voorzichtig**

---

Schakel de DECNIS 600 uit voordat u deze procedures probeert uit te voeren.

---

---

**Advarsel**

---

Sluk for DECNIS 600 før disse operationer påbegyndes.

---

---

**HUOM:**

---

Sammuta virta DECNIS 600:sta ennen kuin ryhdyt näihin toimenpiteisiin.

---

---

**Advarsel**

---

Slå av strømtilførselen til DECNIS 600 før du utfører disse oppgavene.

---

---

**Varning**

---

Slå av strömmen på DECNIS 600 innan dessa procedurer utförs.

---

---

**זהירות**

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יש לנתק את DECNIS 600 מזרם החשמל לפני ביצוע פעולות אלו.

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**注意**

---

これらの作業をはじめる前に、必ず DECNIS 600 の電源を切ってください。

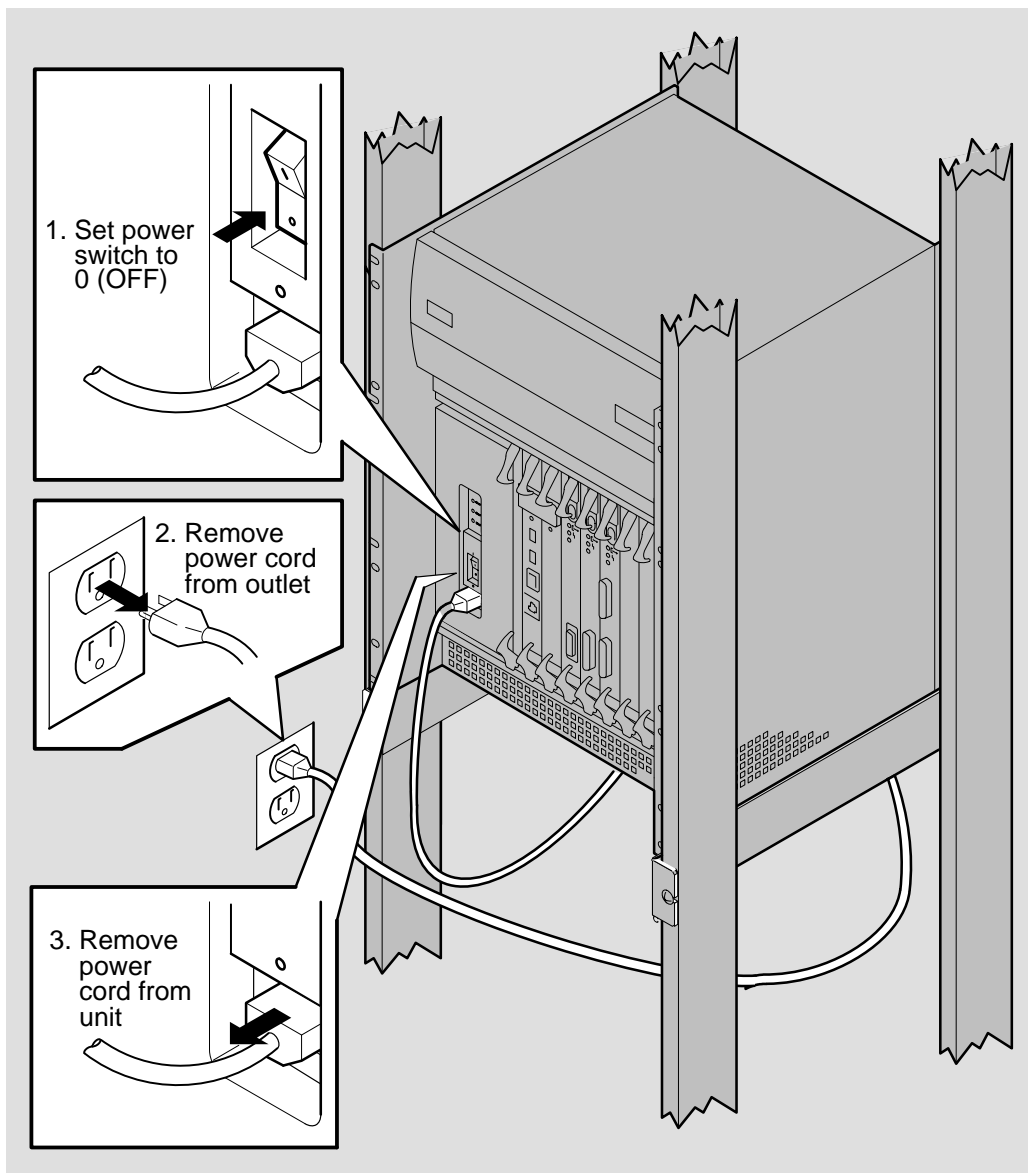
---

## **11.1 Power Module**

Complete the procedures in Sections 11.1.1 to 11.1.4 to remove and replace the power module.

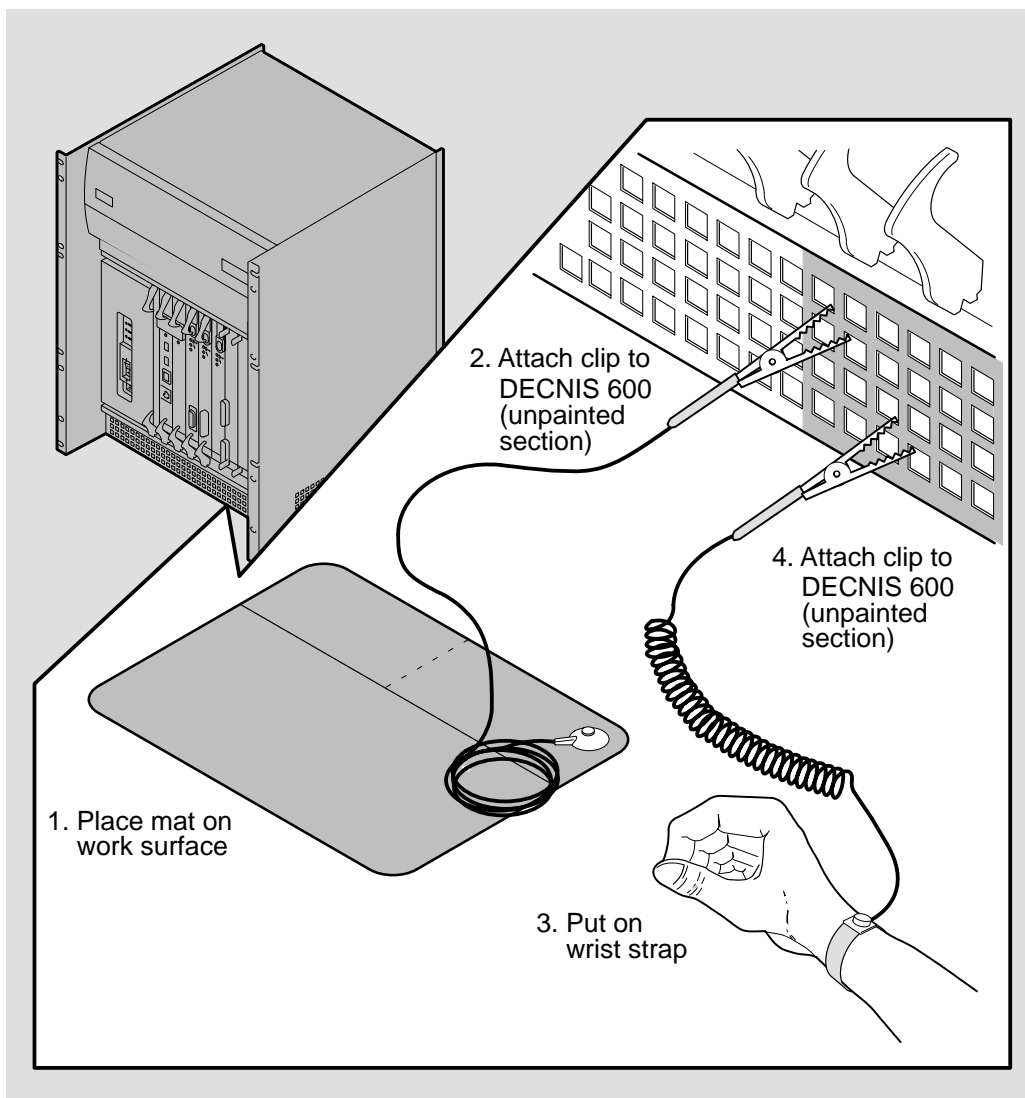


### 11.1.1 Power Down the System



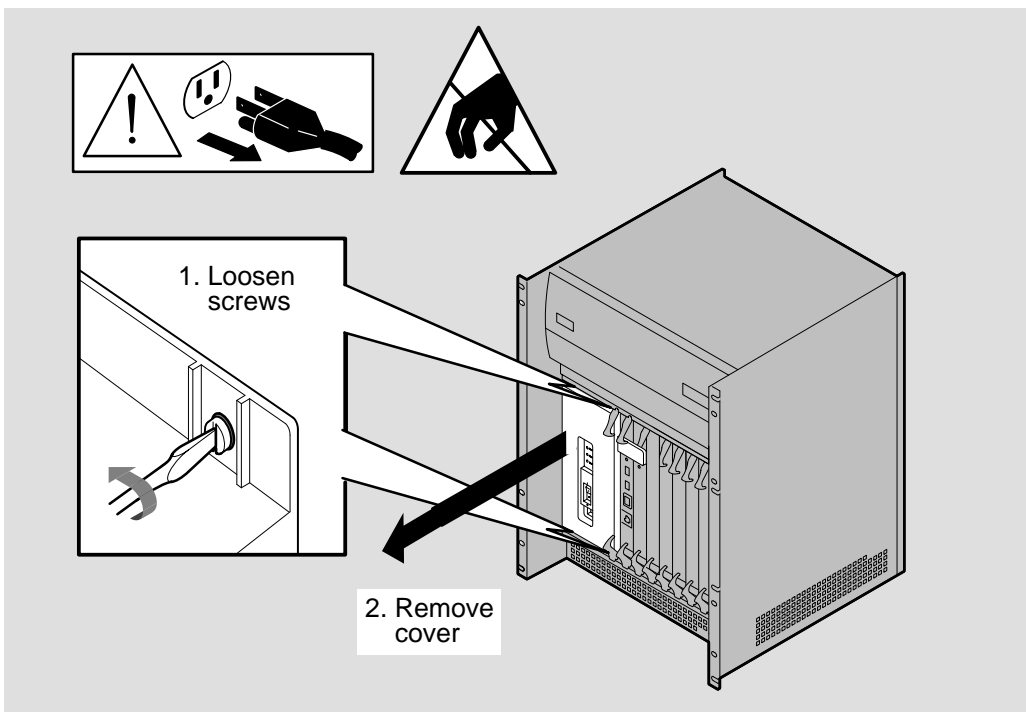
LKG-5661-911

## 11.1.2 Attach the Static Protection Equipment



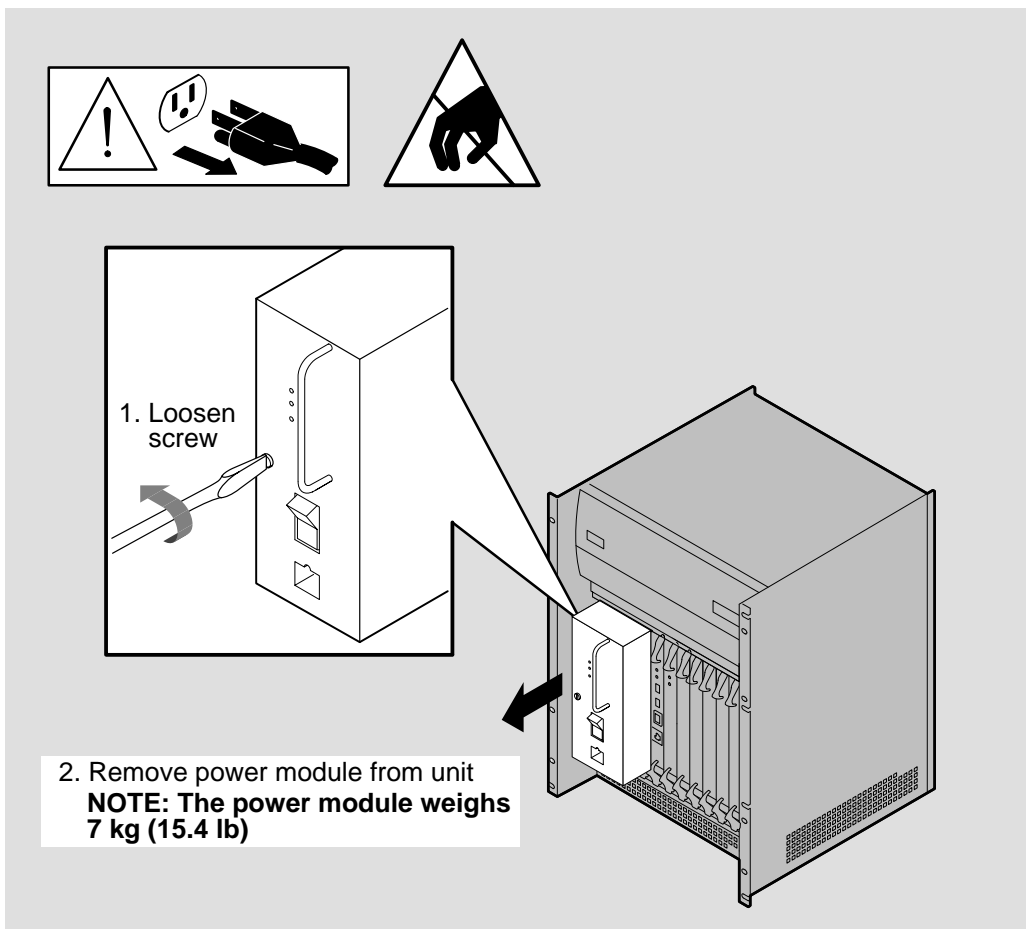
LKG-5643-911

### 11.1.3 Remove the Protective Cover



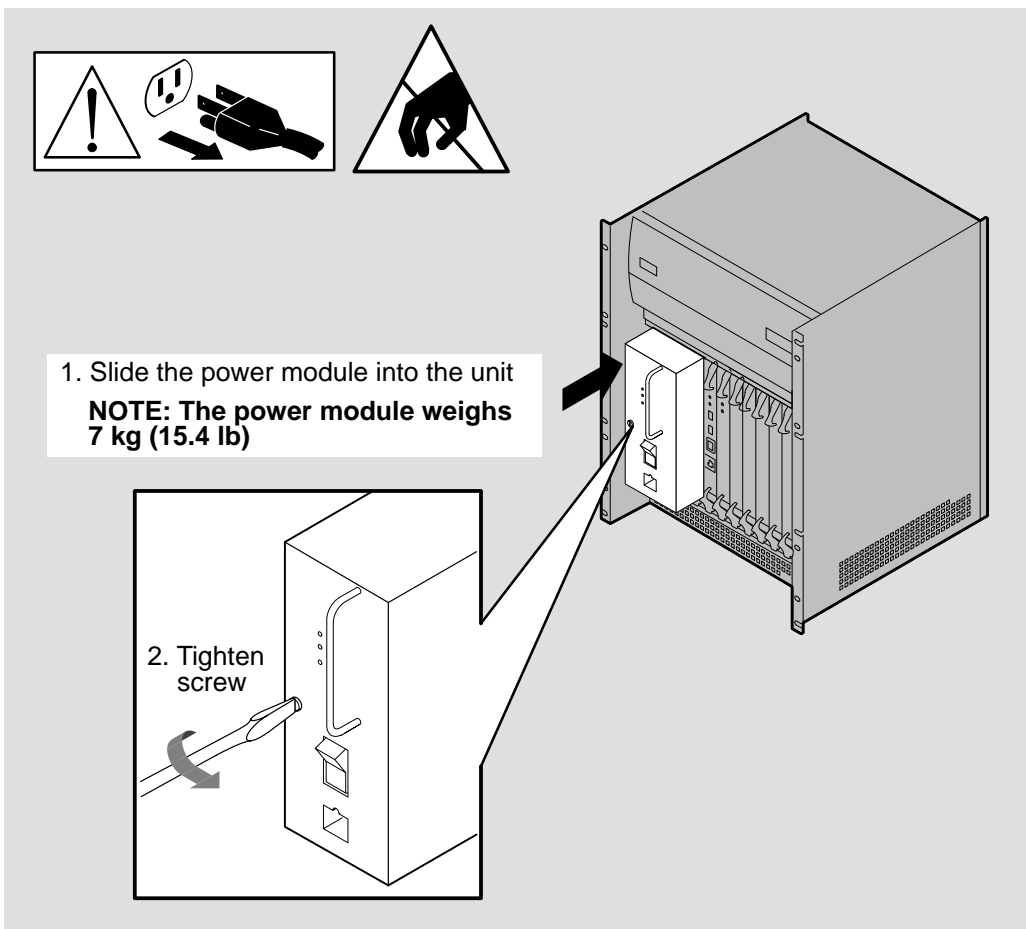
LKG-5662-911

### 11.1.4 Remove the Power Module



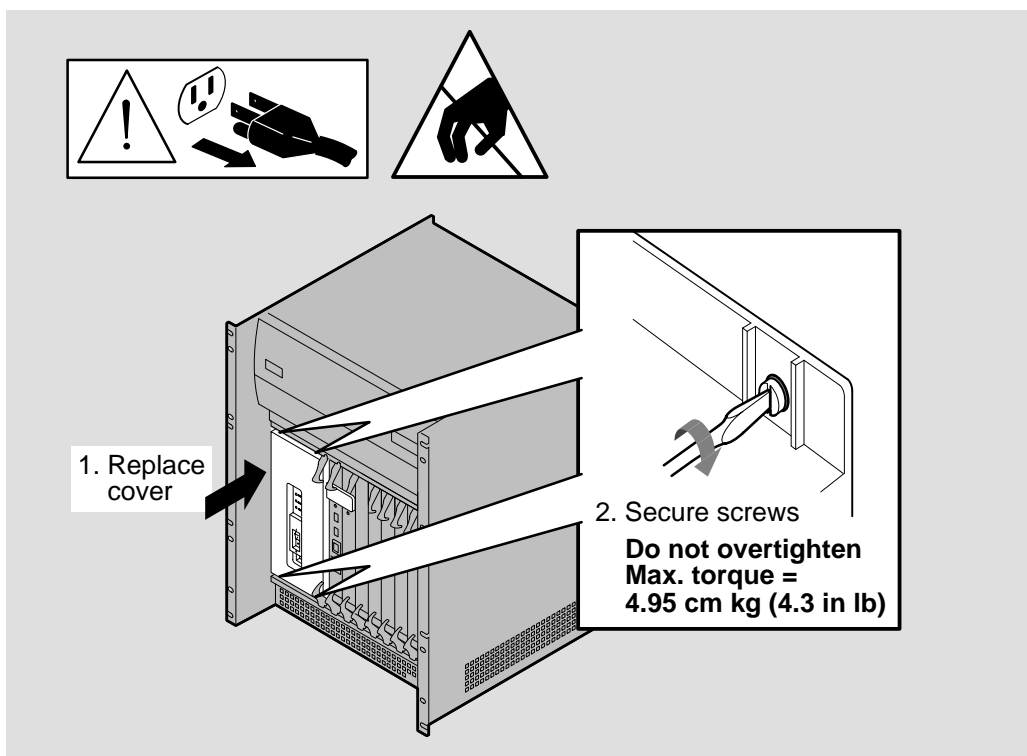
LKG-5685-911

### 11.1.5 Install a New Power Module



LKG-5686-911

### 11.1.6 Replace the Protective Cover



LKG-5667-911

### 11.1.7 Final Checks

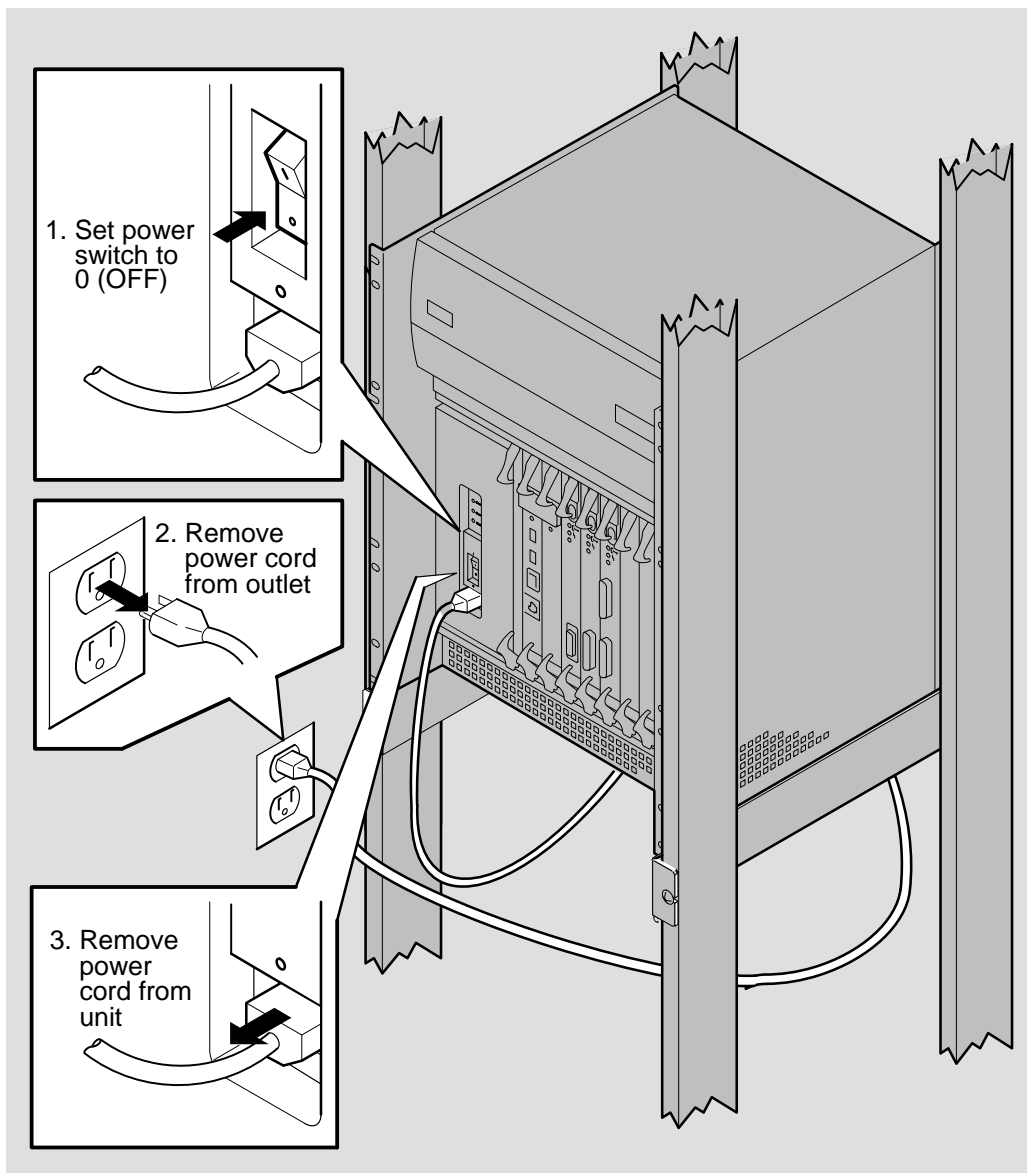
Before powering up the DECNIS 600 make sure that:

- The protective cover for the power module is installed.
- All cards are seated correctly and connected to the backplane assembly.

## **11.2 Fan Tray**

Complete the procedures in Sections 11.2.1 to 11.2.4 to remove and replace the fan tray.

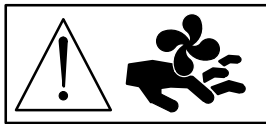
## 11.2.1 Power Down the System



LKG-5661-911



## 11.2.2 Remove the Fan Tray



---

### Caution—Rotating Fans

---

After powering down the DECNIS 600, wait **at least** 30 seconds before removing the fan tray.

---

---

### Attention—Ventilateurs

---

Après avoir coupé l'alimentation du DECNIS 600, veuillez attendre au moins 30 secondes avant de retirer le plateau des ventilateurs.

---

---

### Vorsicht—Rotierendes Gebläse

---

Warten Sie nach dem Abschalten des DECNIS 600 mindestens 30 Sekunden, bevor Sie die Gebläsevorrichtung entfernen.

---

---

### Avvertenza—Ventole rotanti

---

Dopo aver spento il DECNIS 600, attendere almeno 30 secondi prima di rimuovere l'alloggio della ventola.

---

---

### Precaución—Aspas giratorias

---

Después de desconectar el DECNIS 600, esperar al menos 30 segundos antes de sacar la bandeja del ventilador.

---

---

### Atenção—Ventoínhas Rotativas

---

Após desligar o DECNIS 600 aguardar, no mínimo, 30 segundos antes de retirar o tabuleiro da ventoínha.

---

---

**Voorzichtig—Draaiende ventilator**

---

Wacht na het uitschakelen van de DECNIS 600 minimaal 30 seconden voordat u de kap van de ventilator verwijdert.

---

---

**Advarsel—Roterende ventilatorvinger**

---

Vent mindst 30 sekunder efter netspændingen er taget fra, før ventilatorskuffen tages ud.

---

---

**HUOM: PYÖRIVÄT TUULETTIMET**

---

Kun olet sammuttanut virran DECNIS 600:sta, odota ainakin puoli minuuttia ennen kuin poistat tuuletinalustan.

---

---

**Advarsel—Roterende vifter**

---

Vent minst 30 sekunder etter at strømmen er skrudd av, før du fjerner viftedeckslet.

---

---

**Varning—roterande fläkt**

---

Efter det att strømmen slagits av på DECNIS 600, vänta minst 30 sekunder med att ta bort fläktbehållaren.

---

---

**אזהרה - מאוררים בתנועה**

---

לאחר ניתוק DECNIS 600 מזרם החשמל, המתן לפחות 30 שניות לפני הסרת מגש המאוורר.

---

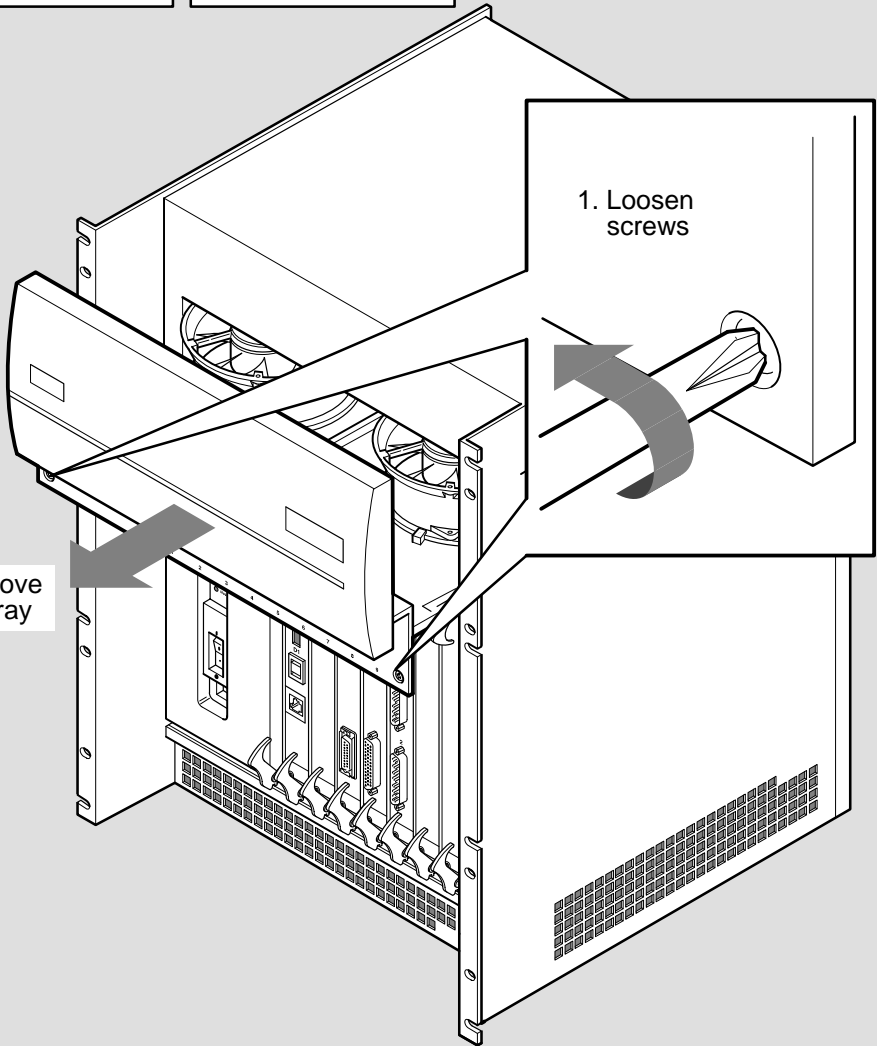
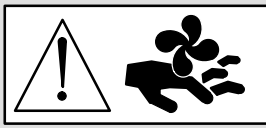
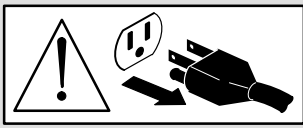
---

**ファン取扱い上の注意**

---

ファン・トレイを取り外すときは、電源を切った後 30 秒ほどしてファンの回転が完全に停止するまで待ってください。

---

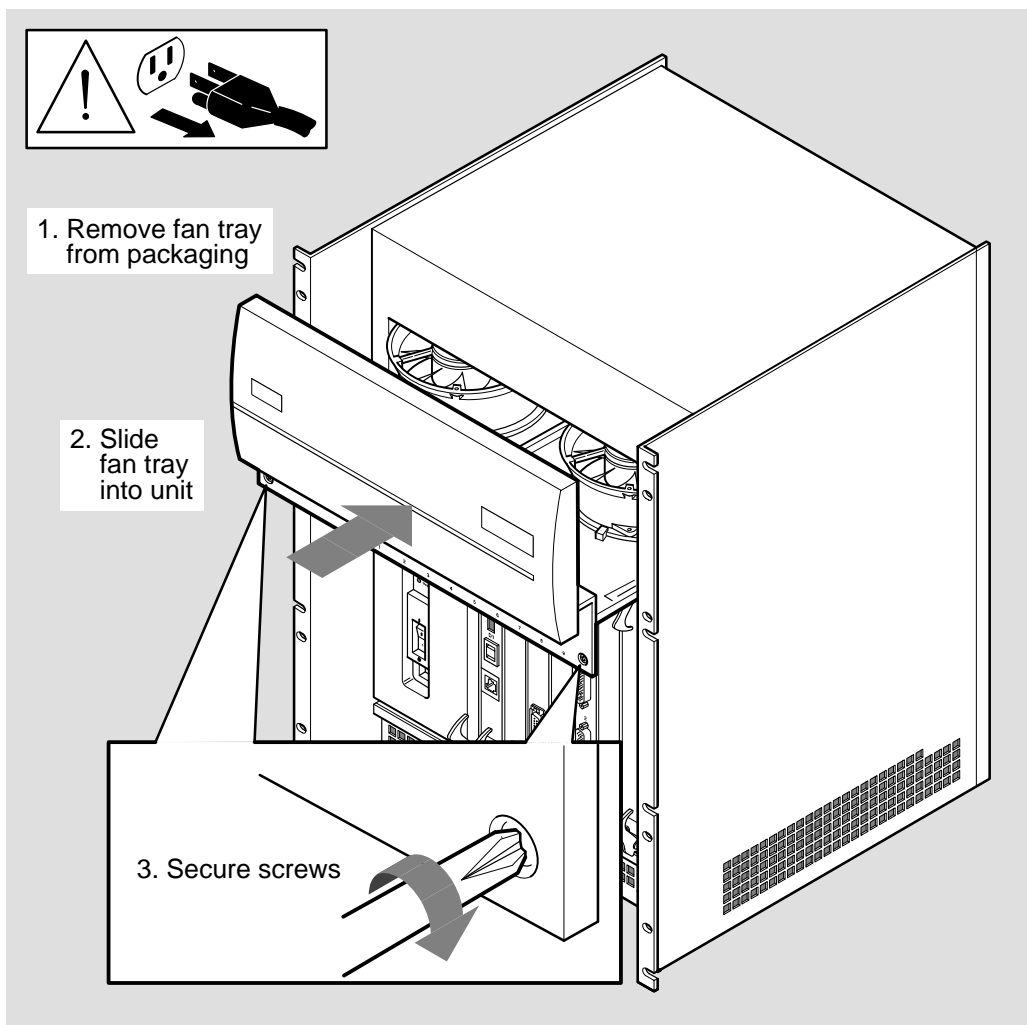


2. Remove fan tray

1. Loosen screws

LKG-5688-911

### 11.2.3 Install the New Fan Tray



LKG-5689-911

### 11.2.4 Final Checks

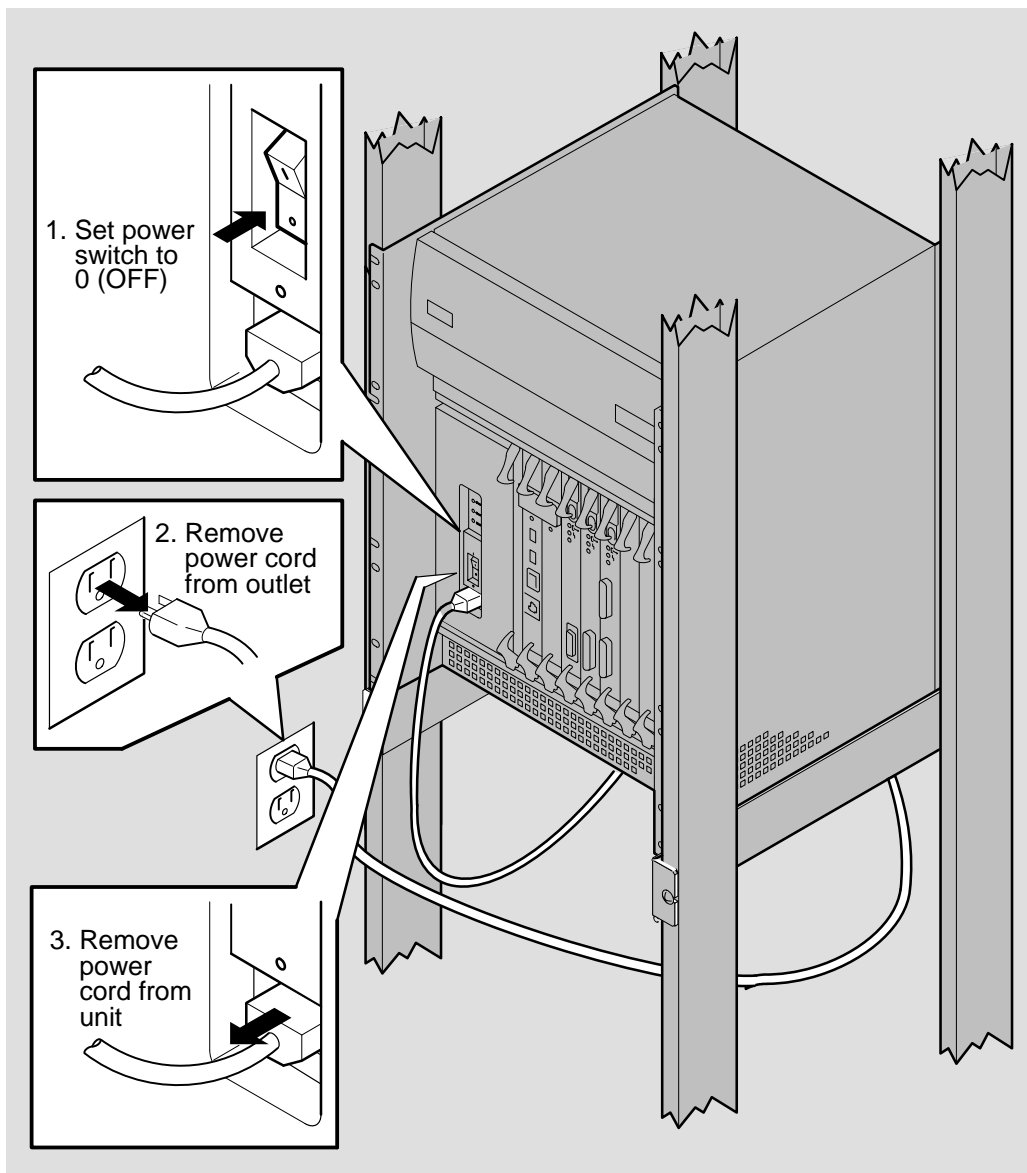
Before powering up the DECNIS 600 make sure that:

- The fan tray screws are secure.
- The protective cover for the power module is installed.

## **11.3 Fans**

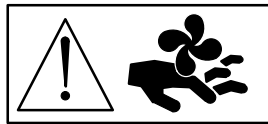
Complete the procedures in Sections 11.3.1 to 11.3.6 to remove and replace the fans.

### 11.3.1 Power Down the System



LKG-5661-911

### 11.3.2 Remove the Fan Tray



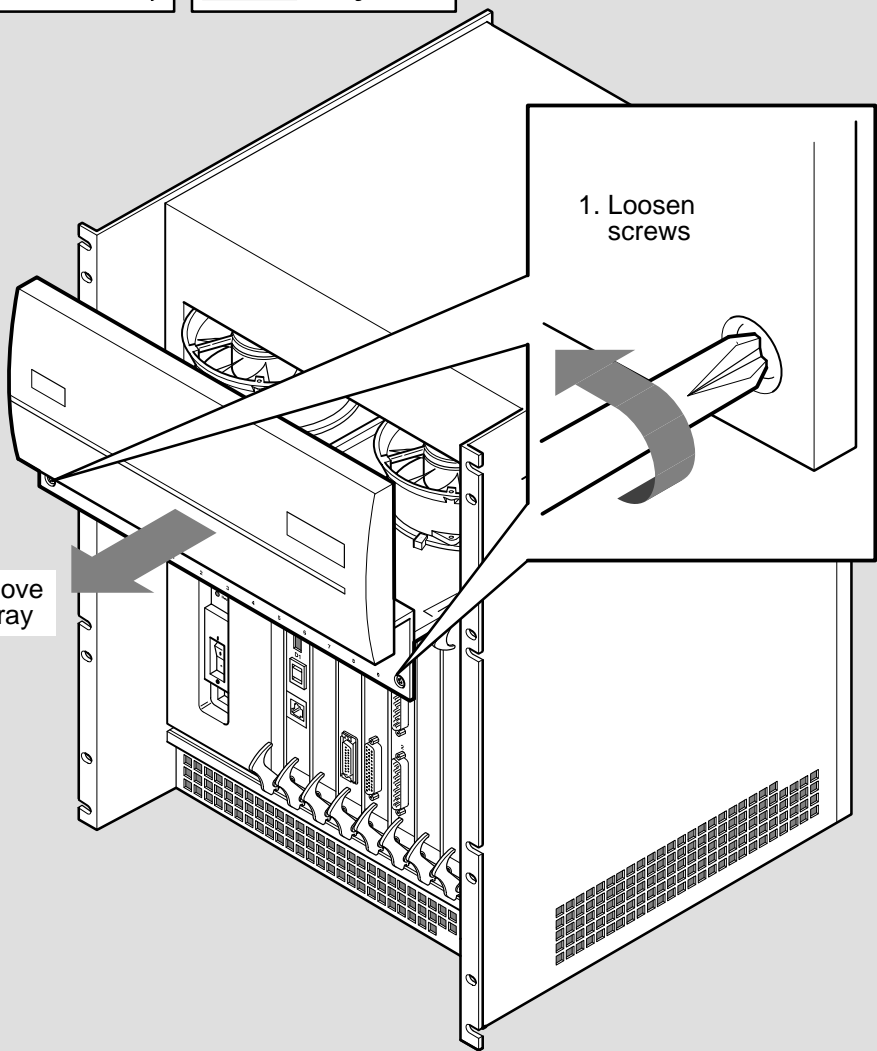
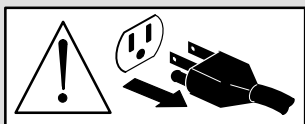
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#### Caution—Rotating Fans

---

After powering down the DECNIS 600, wait **at least** 30 seconds before removing the fan tray.

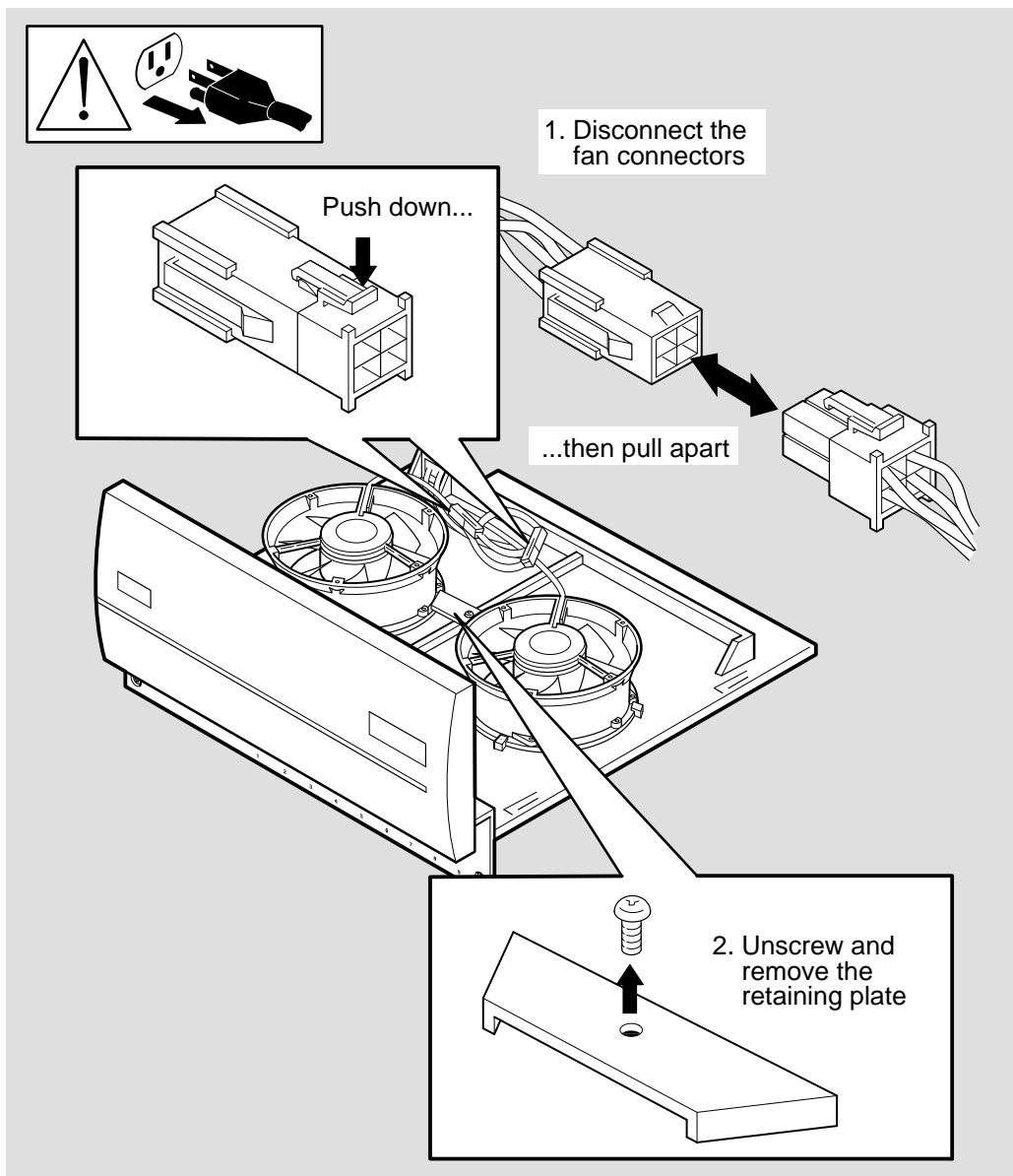
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LKG-5688-911

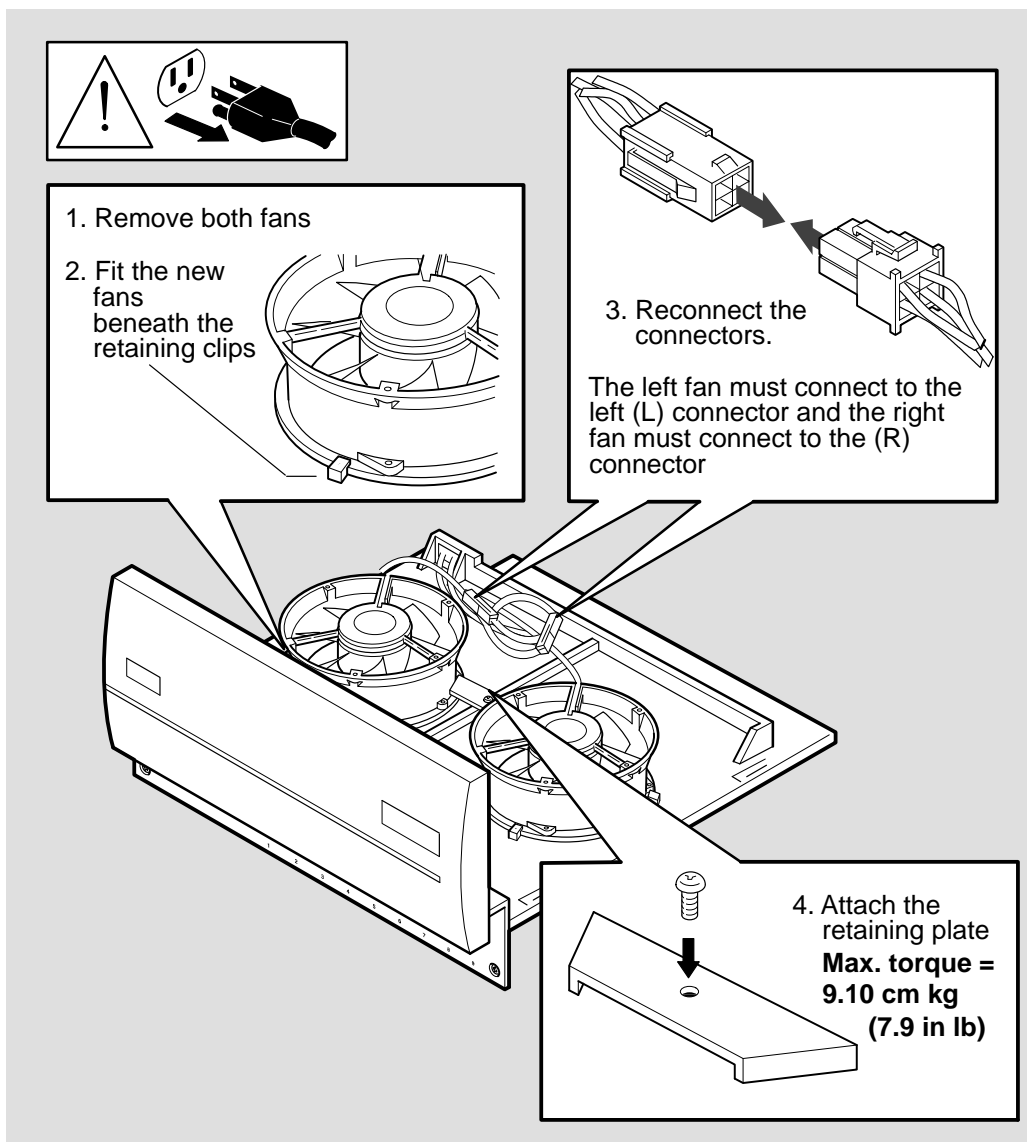


### 11.3.3 Disconnect the Fans



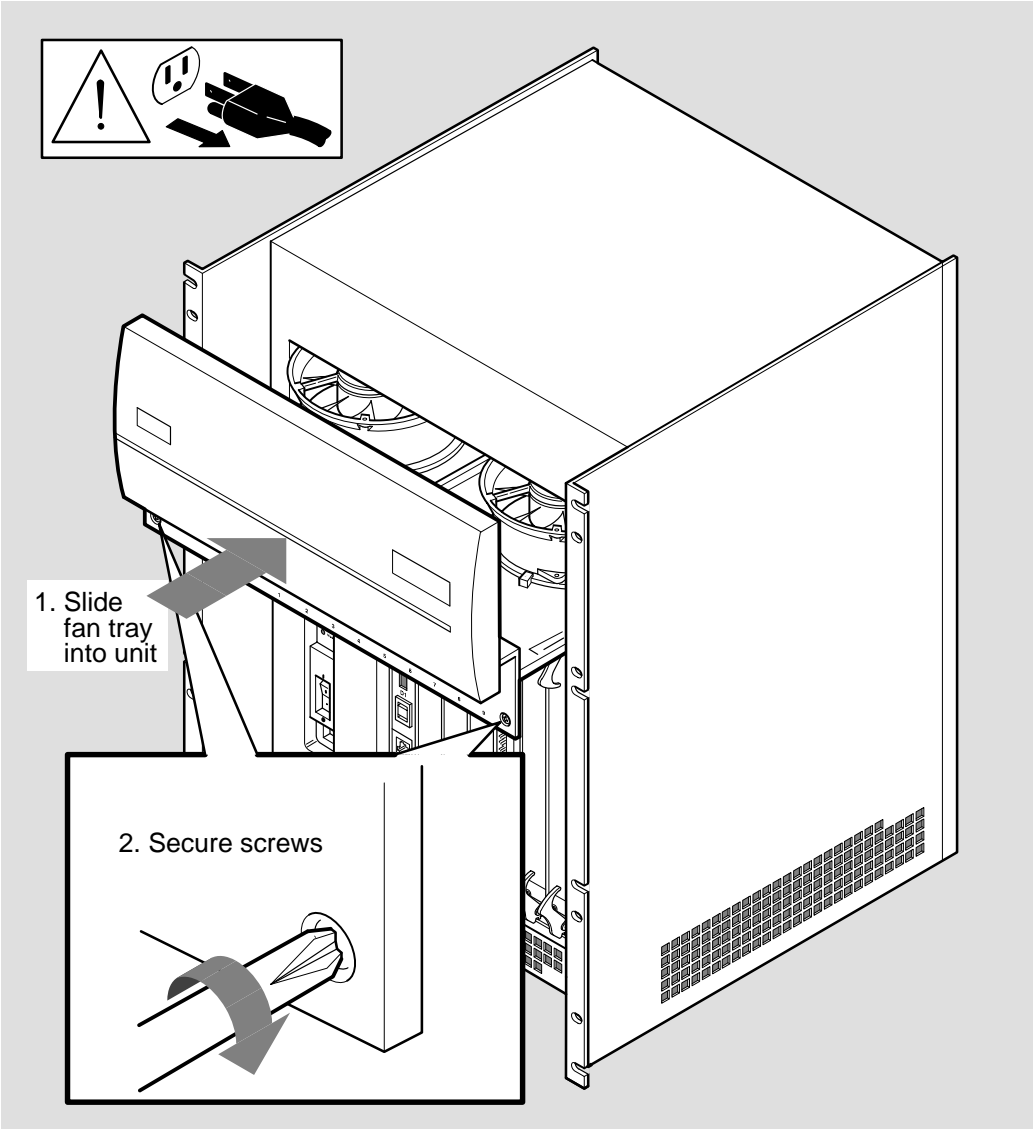
LKG-5690-911

### 11.3.4 Replace the Fans



LKG-5658-911

### 11.3.5 Install the Fan Tray



LKG-5691-911

### **11.3.6 Final Checks**

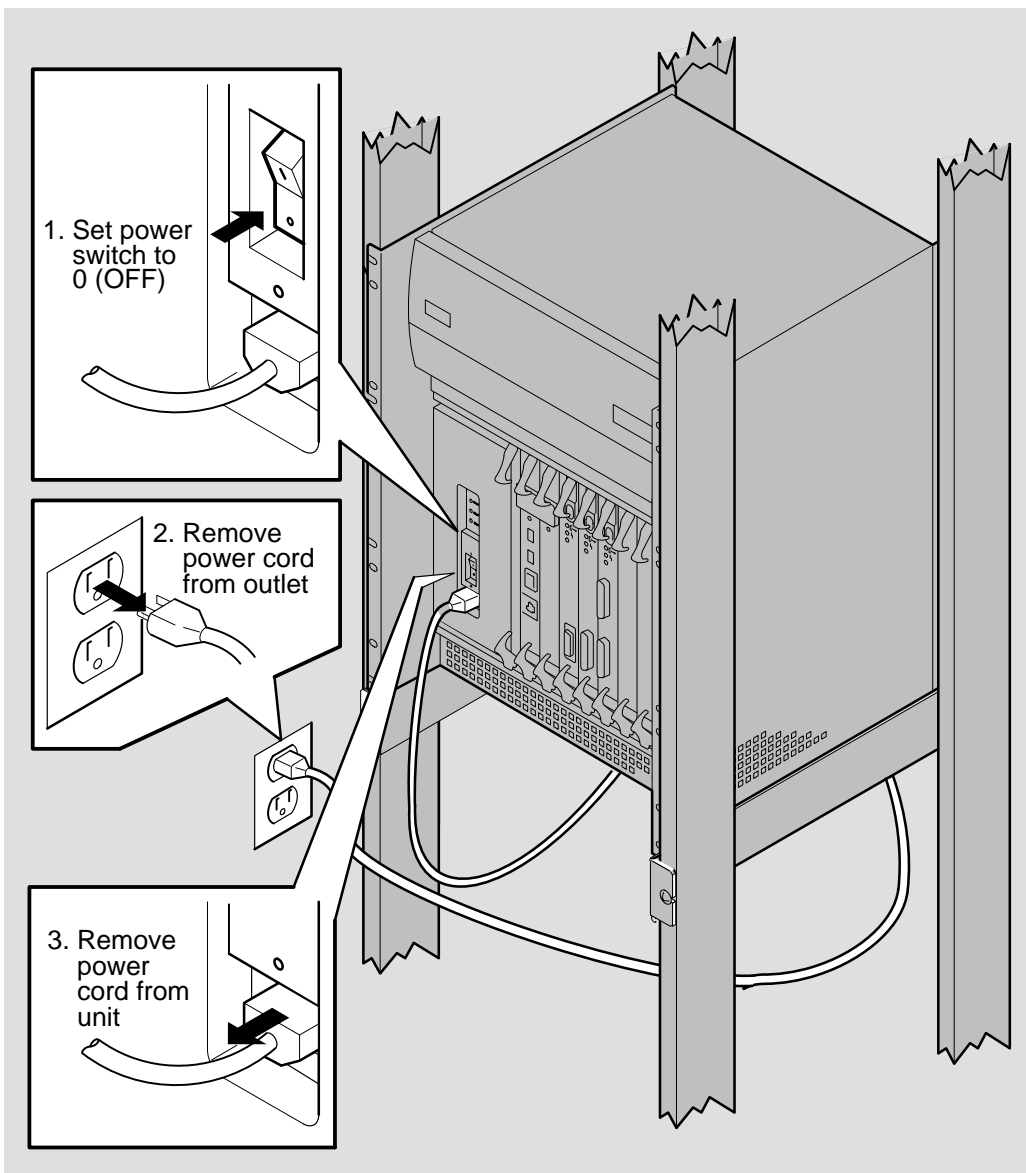
Before powering up the DECNIS 600 make sure that:

- The fan tray screws are secure.
- The protective cover for the power module is installed.

## **11.4 Temperature Sensor**

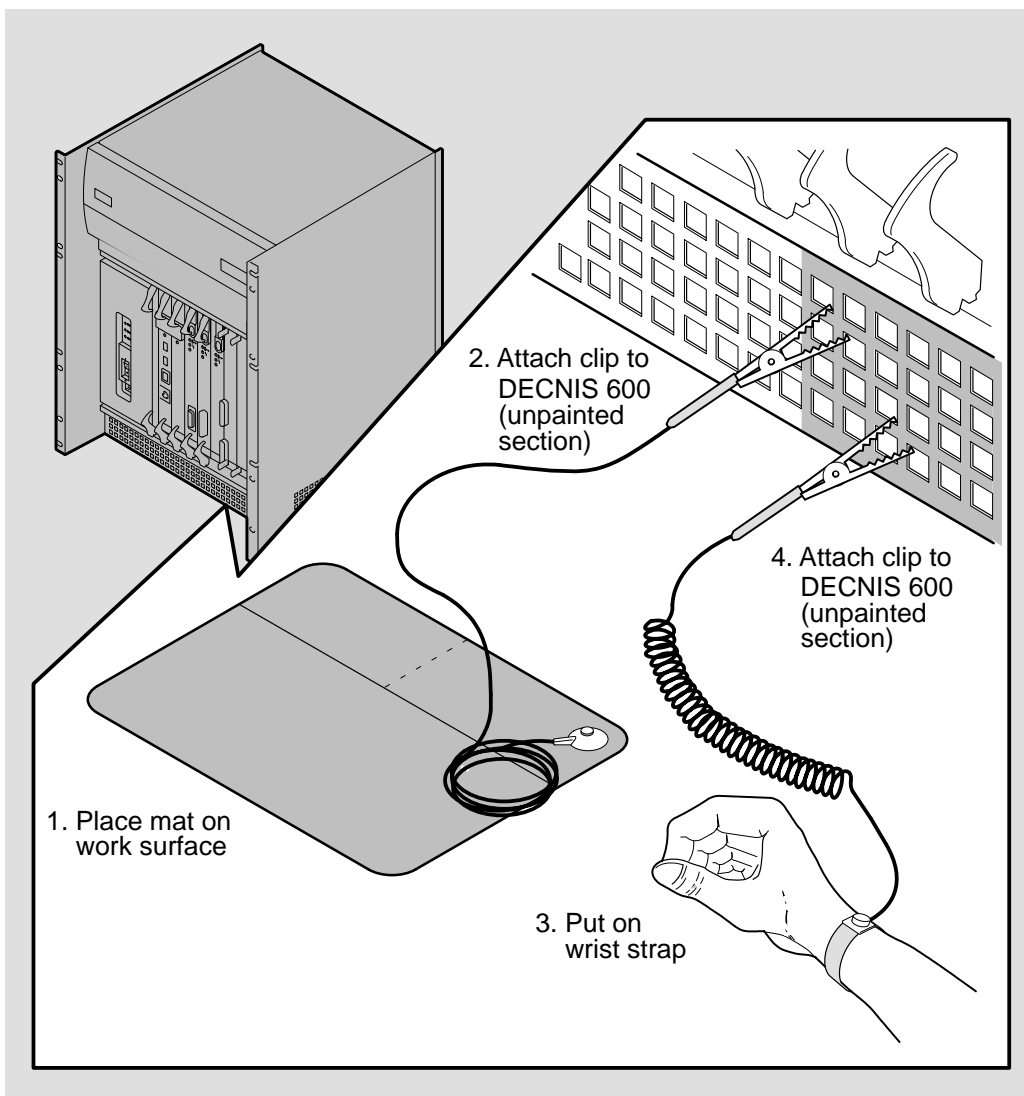
Complete the procedures in Sections 11.4.1 to 11.4.9 to remove and replace the temperature sensor in the DECNIS 600 unit.

### 11.4.1 Power Down the System



LKG-5661-911

## 11.4.2 Attach the Static Protection Equipment

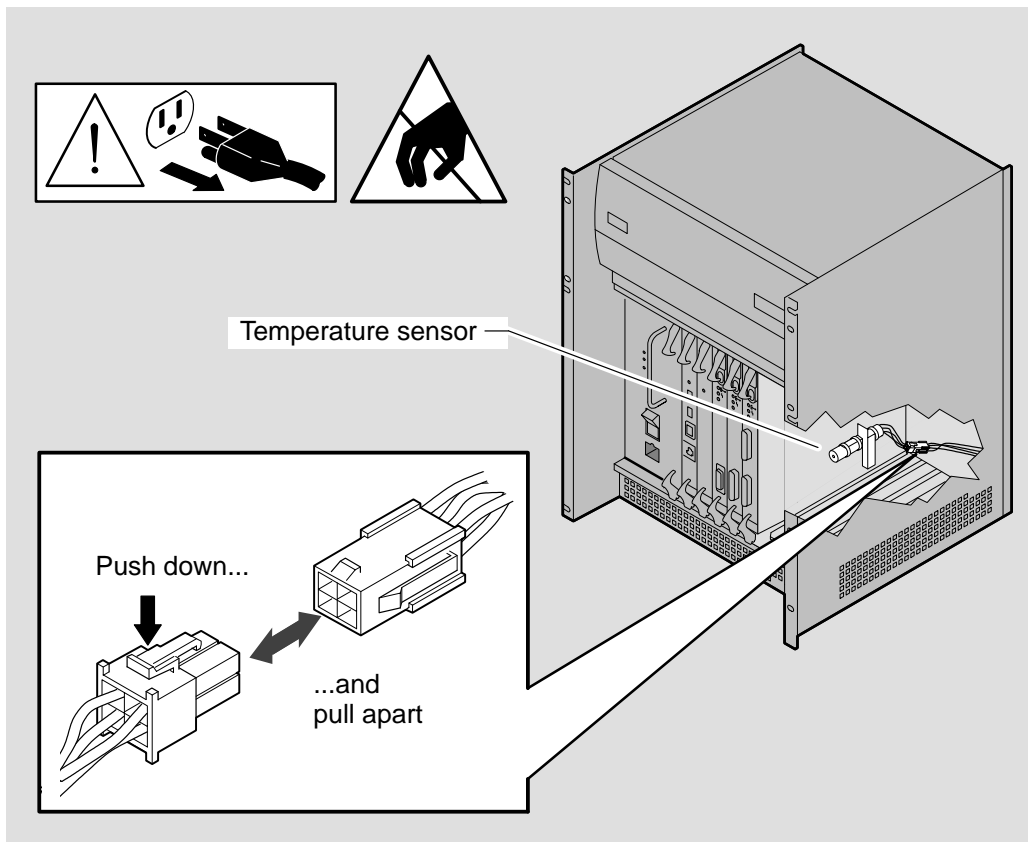


LKG-5643-911

### 11.4.3 Remove Network Interface Cards

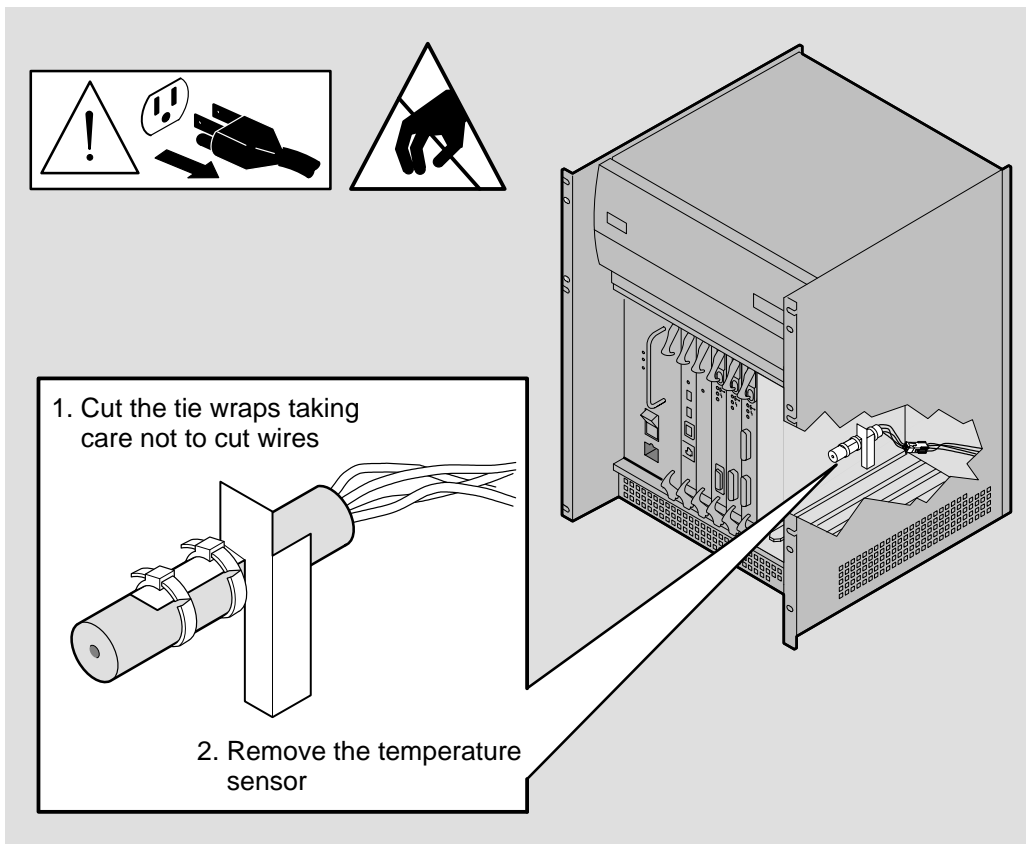
Follow the procedures in Section 7.6 to remove the Network Interface Card in slots 6 to 9. Place each card in its antistatic packaging.

### 11.4.4 Disconnect the Temperature Sensor



LKG-5692-911

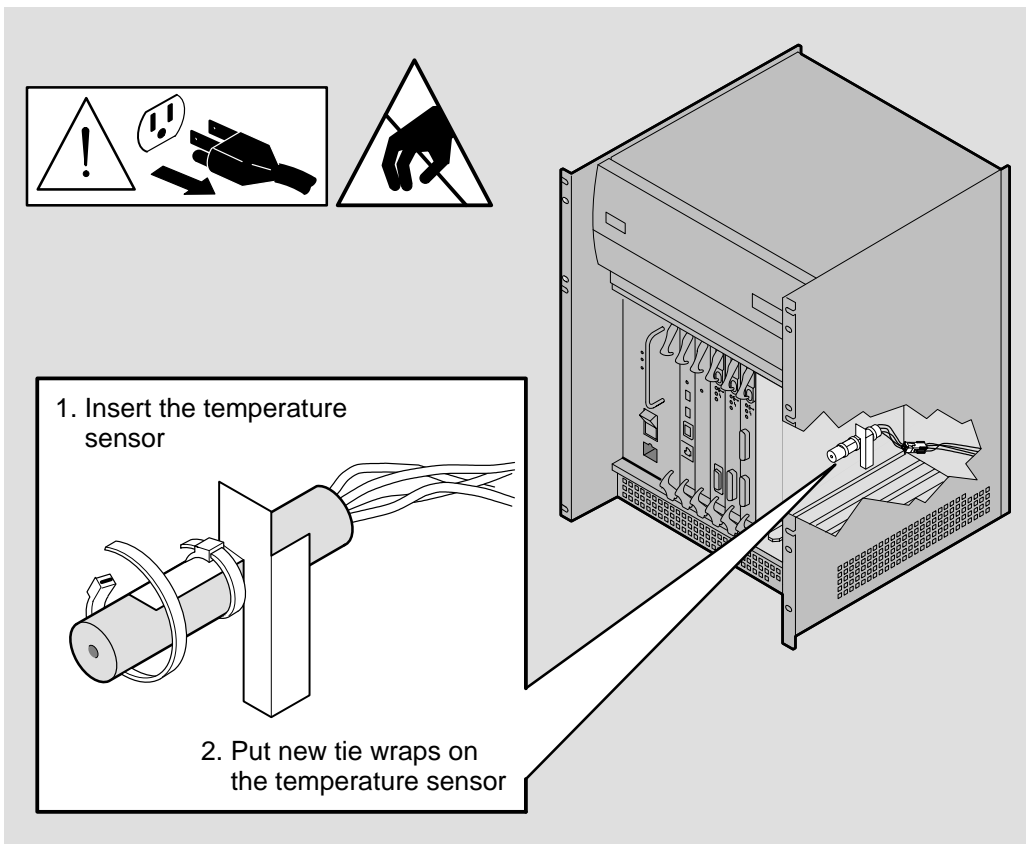
## 11.4.5 Remove the Temperature Sensor



LKG-5676-911

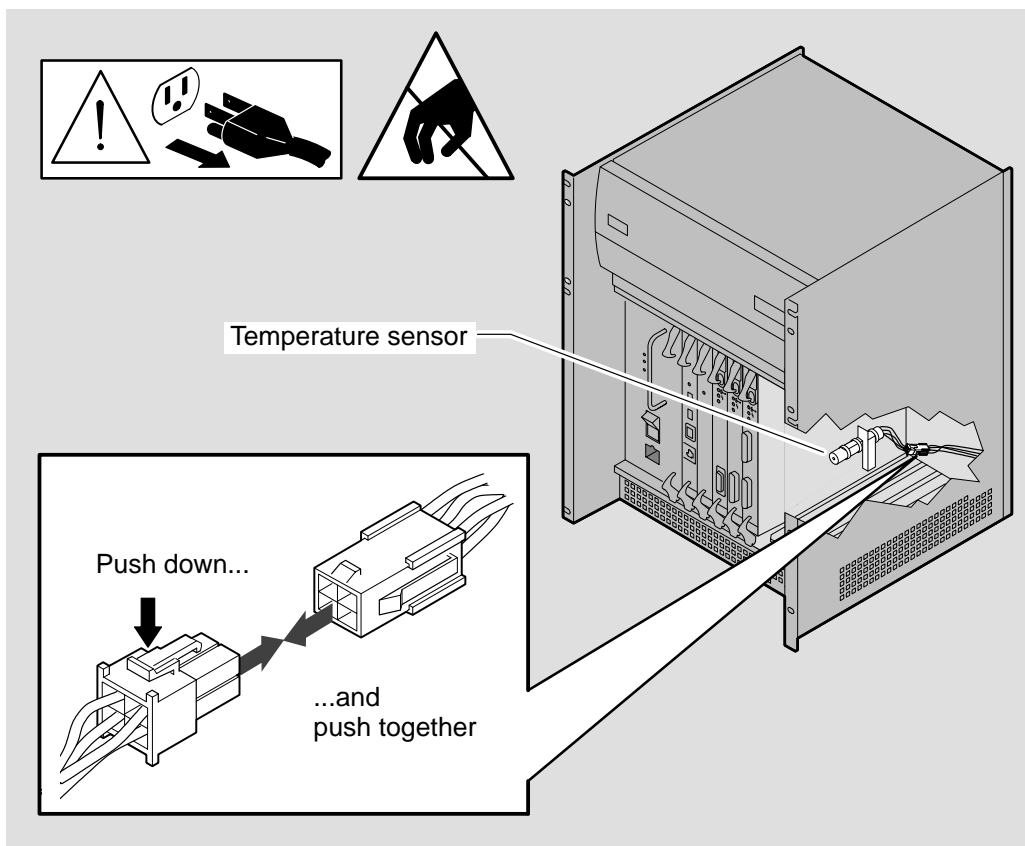


## 11.4.6 Install the New Temperature Sensor



LKG-5693-911

### 11.4.7 Connect the New Temperature Sensor



LKG-5694-911

### 11.4.8 Replace the Network Interface Cards

Follow the procedures in Chapter 3 to install the Network Interface Cards in slots 6 to 9.

### **11.4.9 Final Checks**

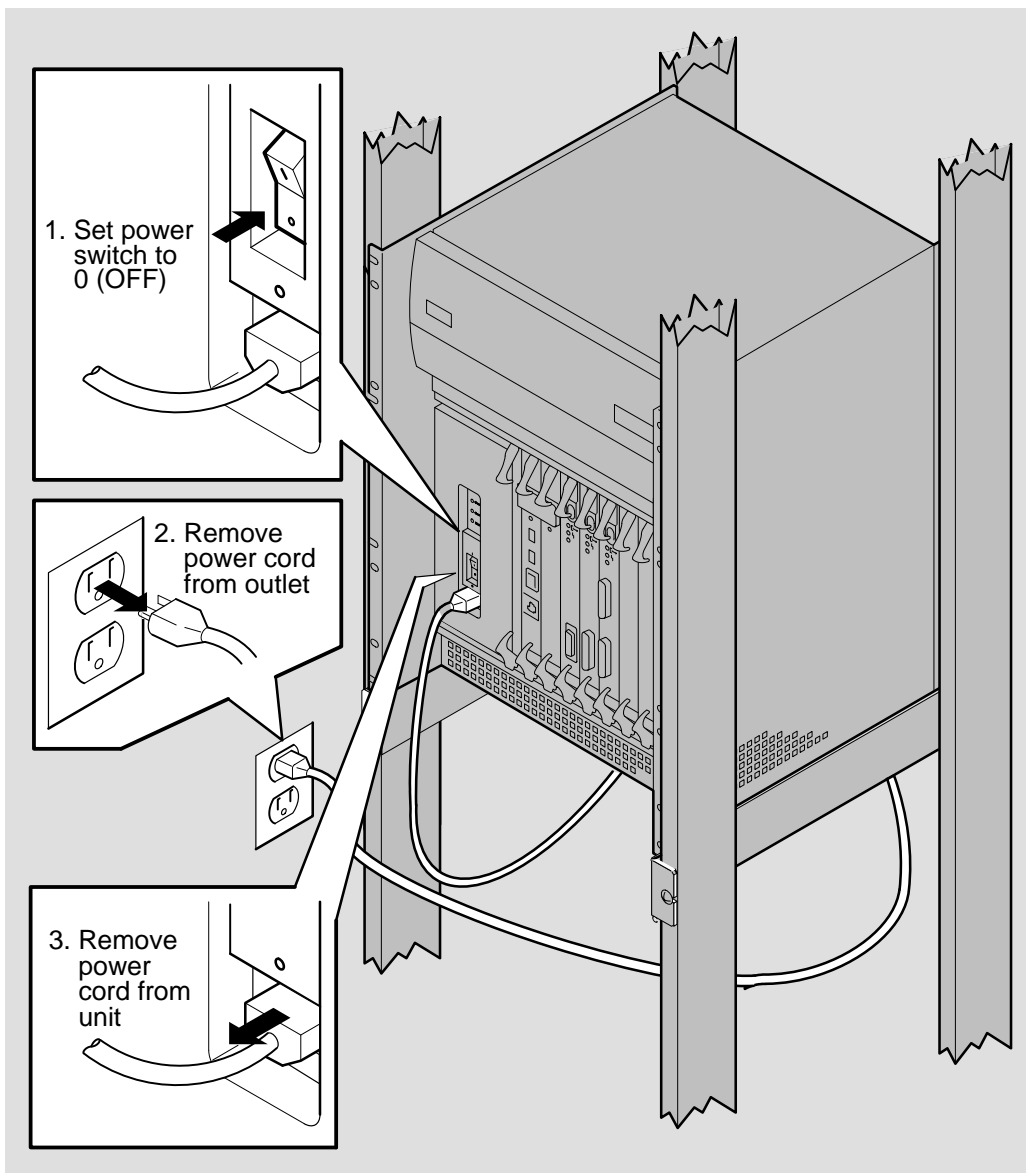
Before powering up the system, make sure that:

- All cards are seated correctly and connected to the backplane assembly.
- All communications cables are installed correctly. Refer to the *Cabling Instructions and Specifications* card for details.

## **11.5 Backplane**

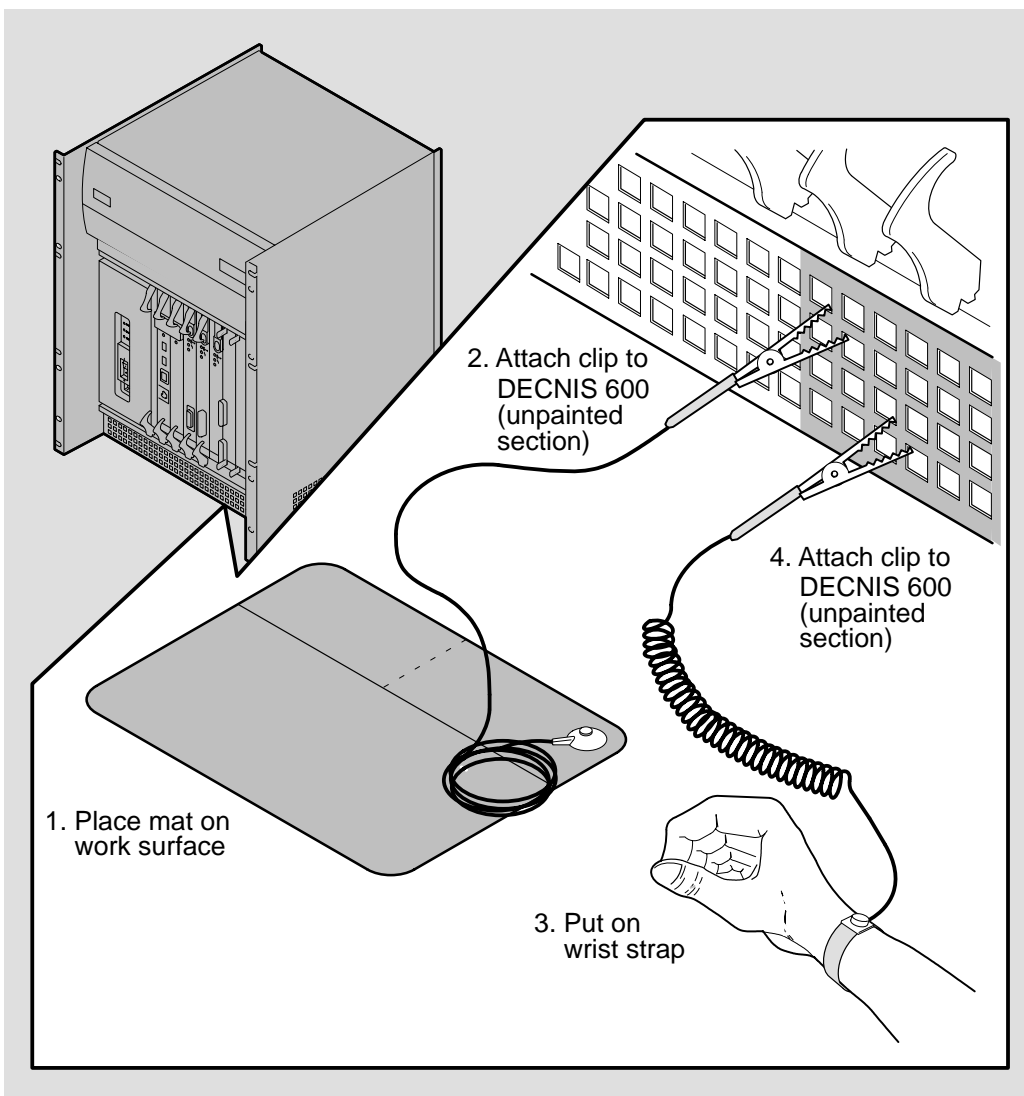
Complete the procedures in Sections 11.5.1 to 11.5.16 to remove and replace the backplane.

### 11.5.1 Power Down the System



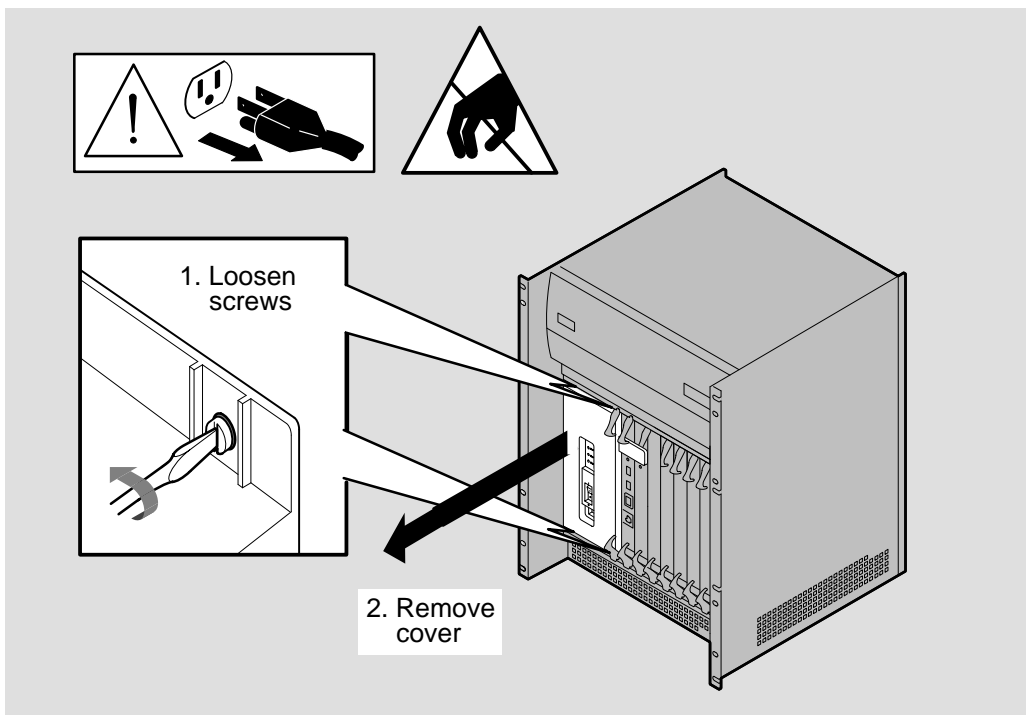
LKG-5661-911

## 11.5.2 Attach the Static Protection Equipment



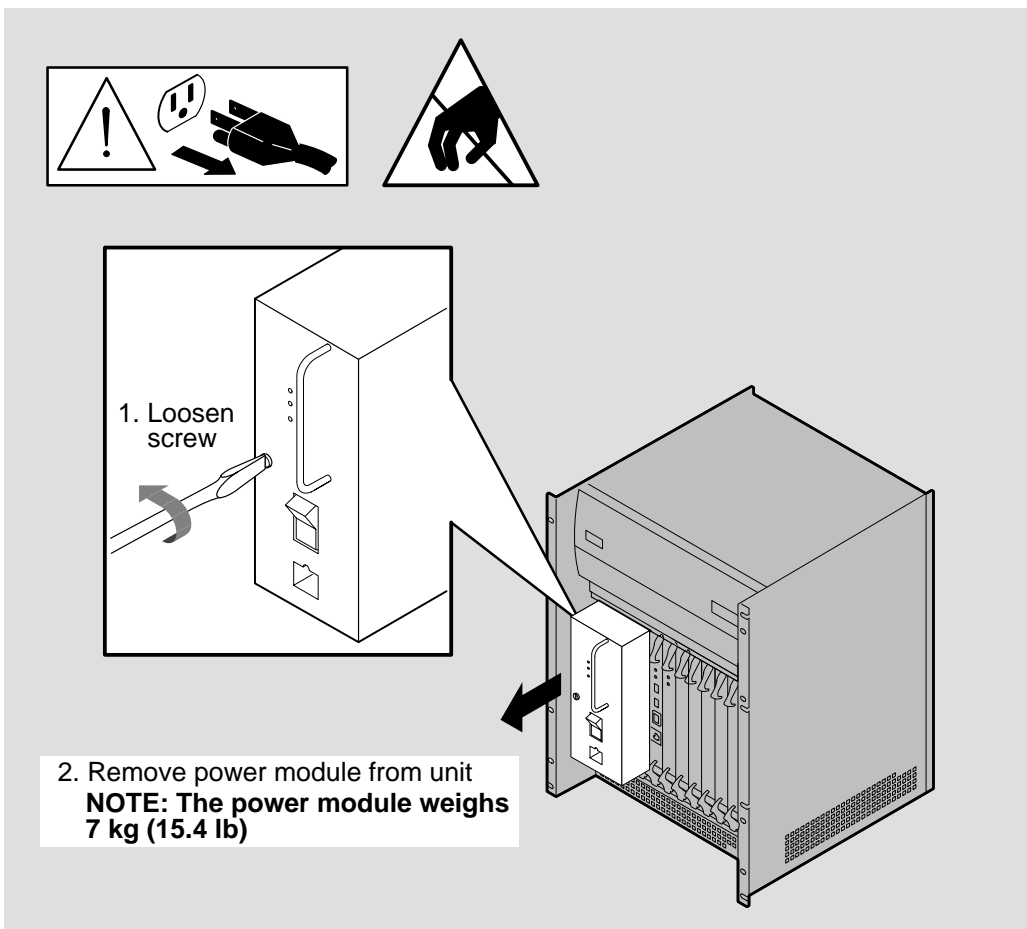
LKG-5643-911

### 11.5.3 Remove the Protective Cover



LKG-5662-911

## 11.5.4 Remove the Power Module



LKG-5685-911

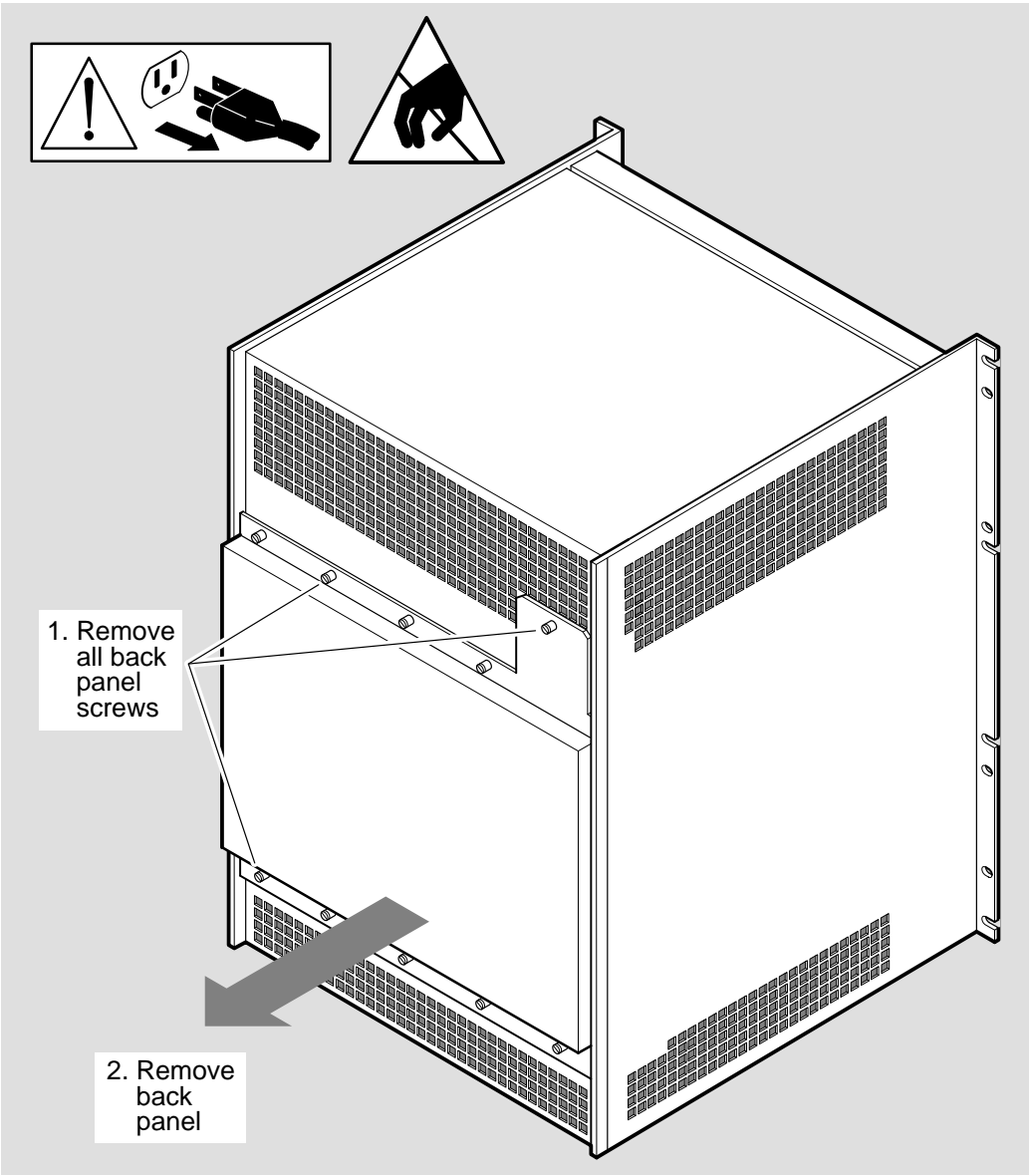
### **11.5.5 Remove the Cards**

Using static protection equipment, remove all cards:

1. Follow the procedures in Chapter 6 to remove the processor card and the memory card.
2. Follow the procedures in Chapter 7 to remove the Network Interface Cards.

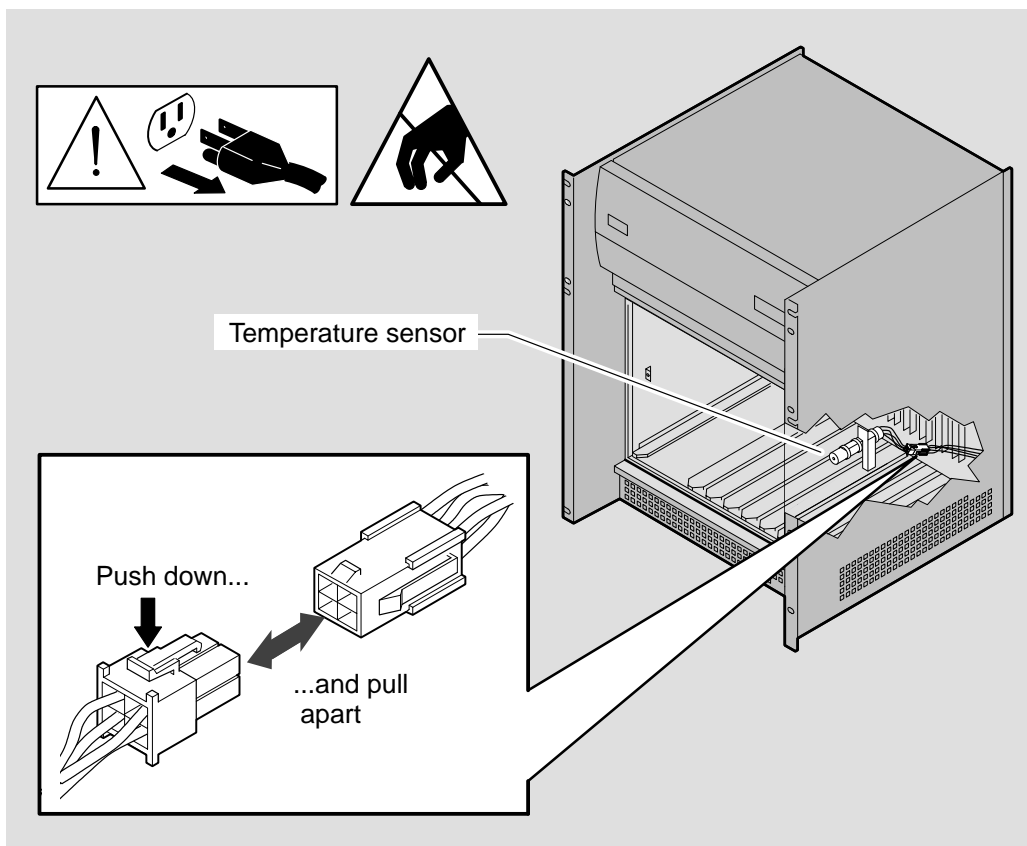


### 11.5.6 Remove the Back Panel



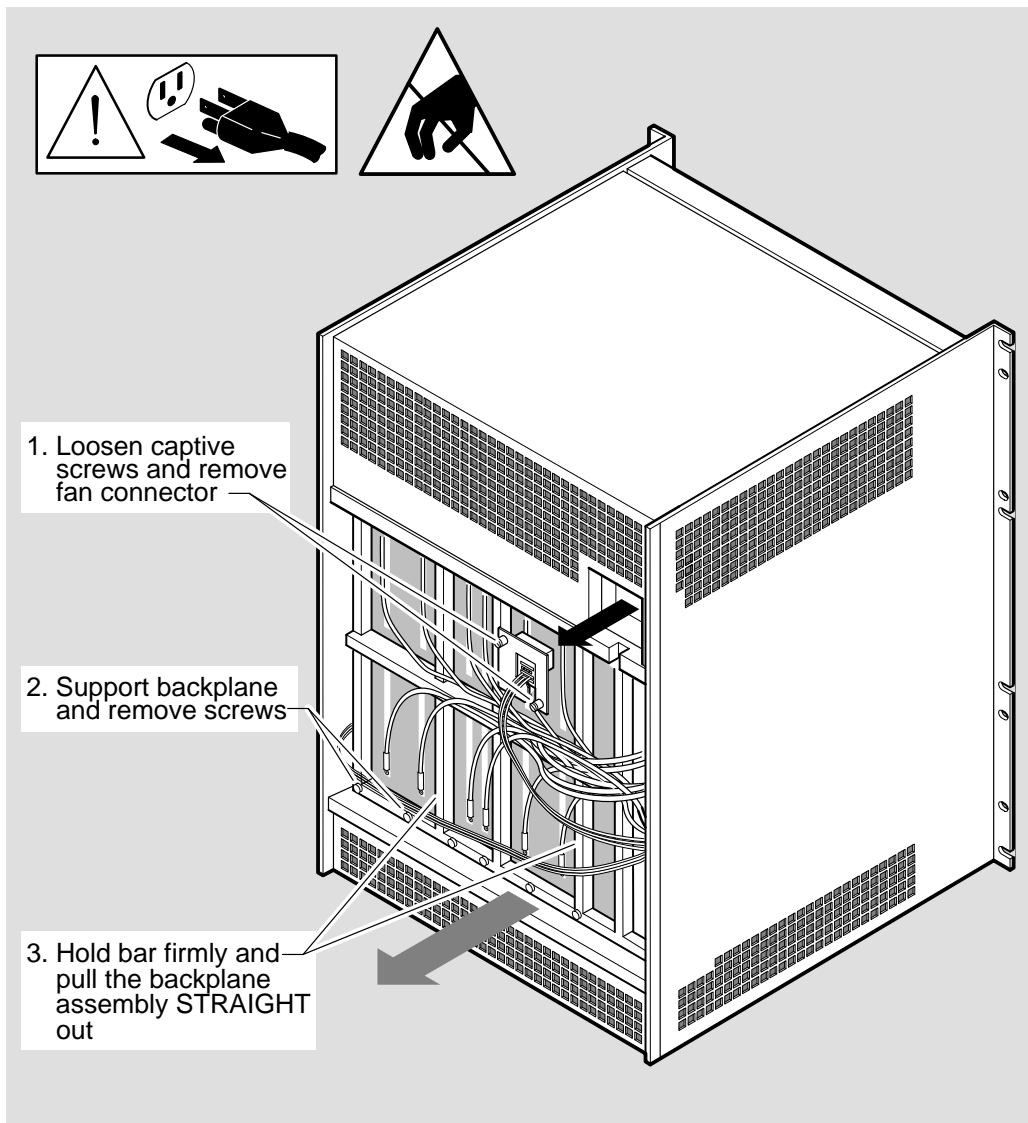
LKG-5695-911

### 11.5.7 Disconnect the Temperature Sensor



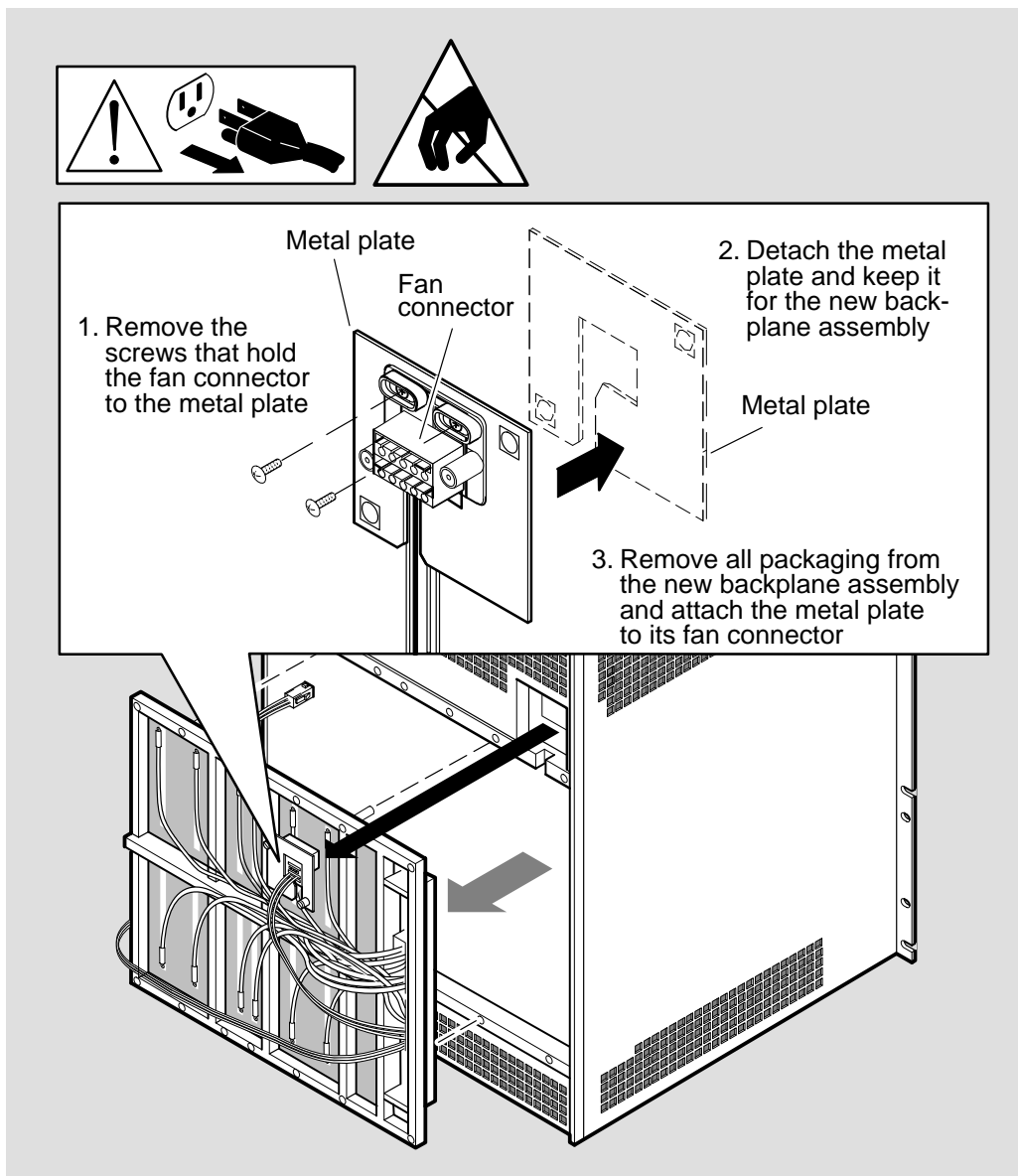
LKG-5650-911

## 11.5.8 Remove the Backplane Assembly



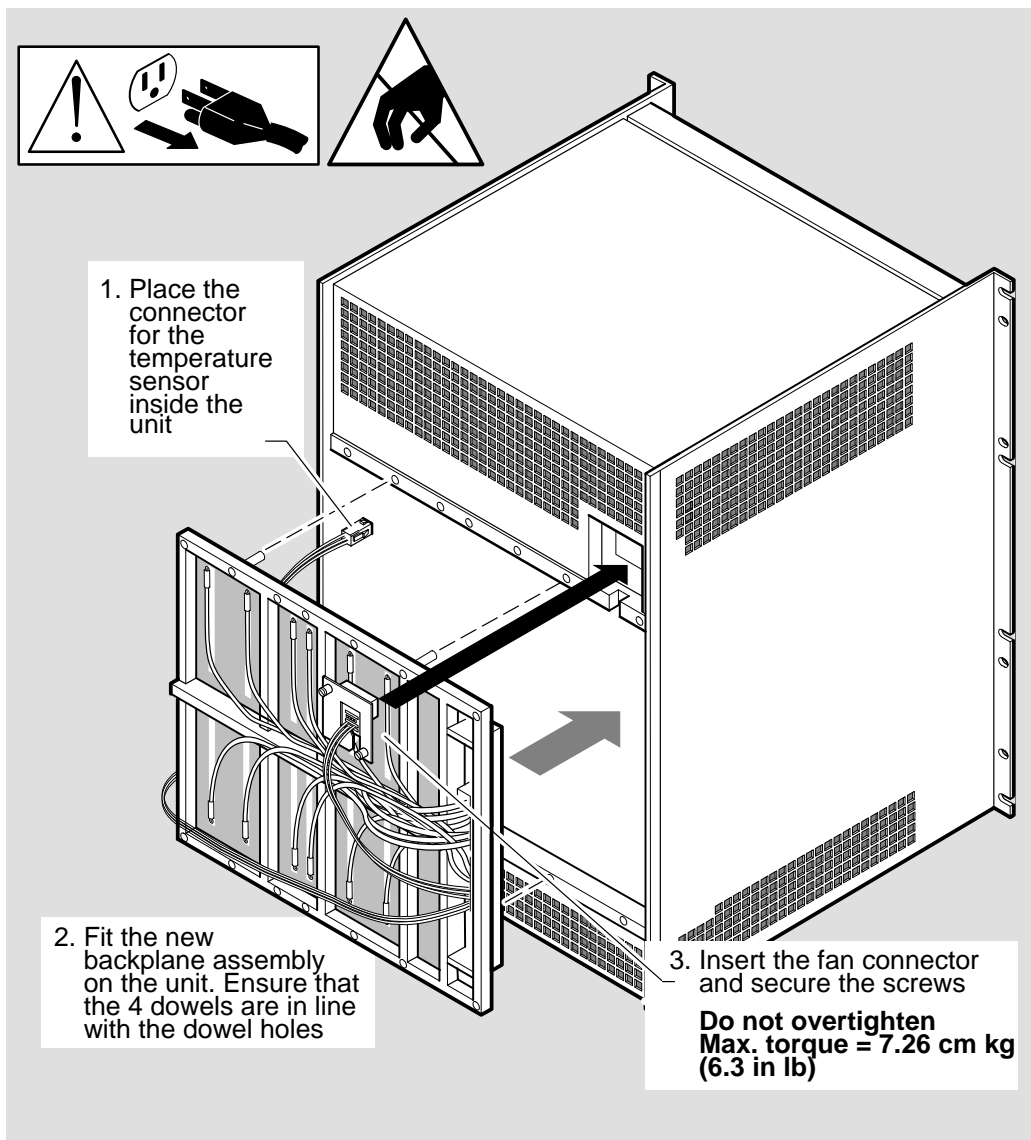
LKG-5696-911

## 11.5.9 Transfer the Fan Connector Plate



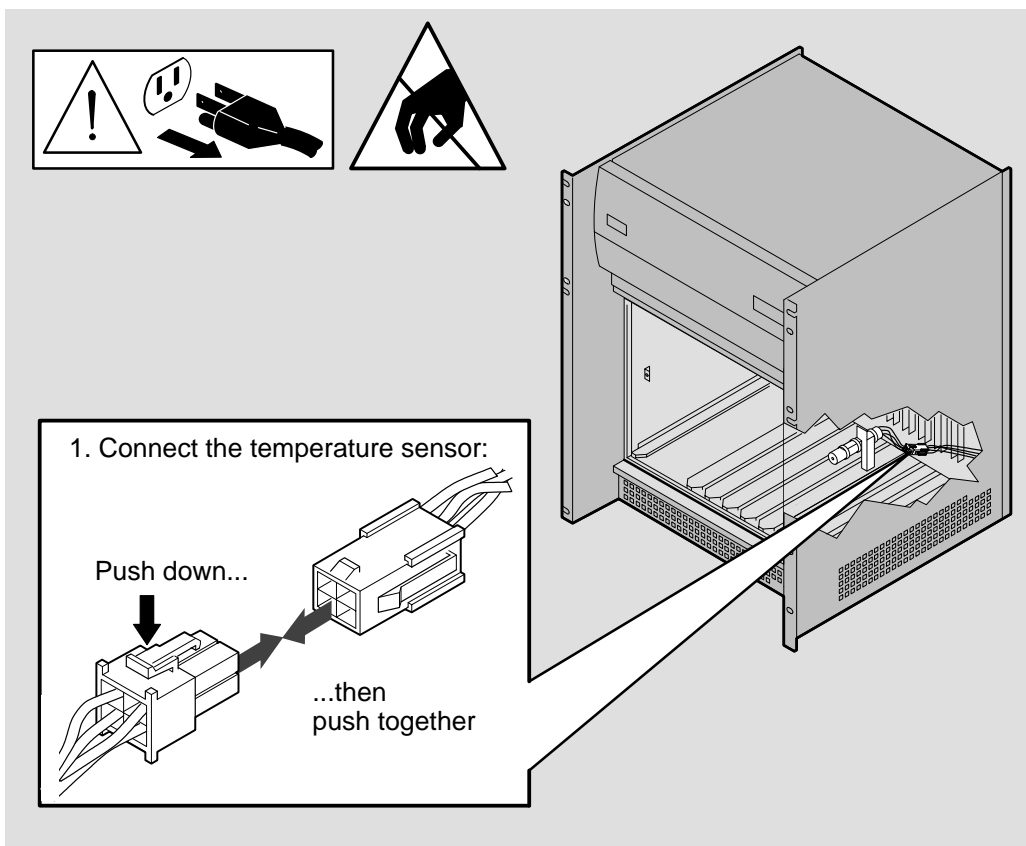
LKG-5697-911

### 11.5.10 Install the Backplane Assembly



LKG-5698-911

### 11.5.11 Connect the Temperature Sensor

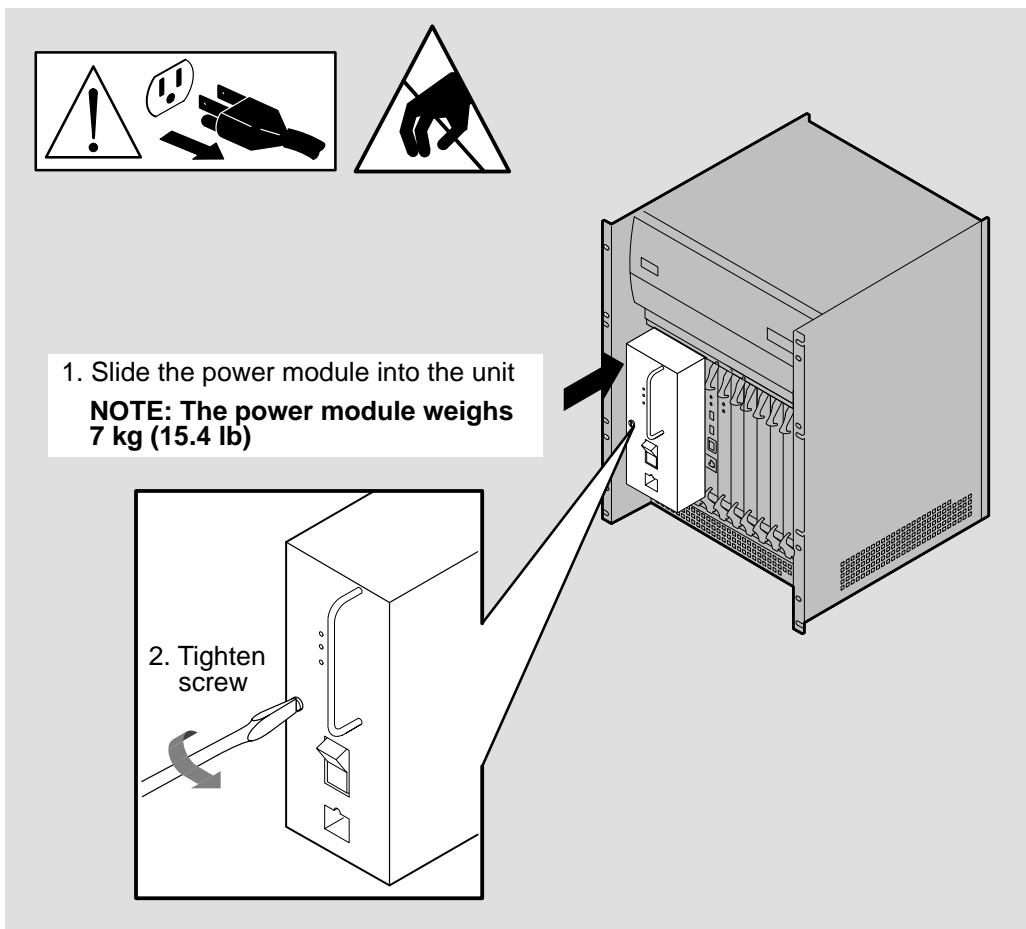


### **11.5.12 Install the Cards**

Install the processor card, memory card, and Network Interface Cards:

1. Follow the procedures in Chapter 6 to install the processor card and memory card.
2. Follow the procedures in Chapter 3 to install the Network Interface Cards.

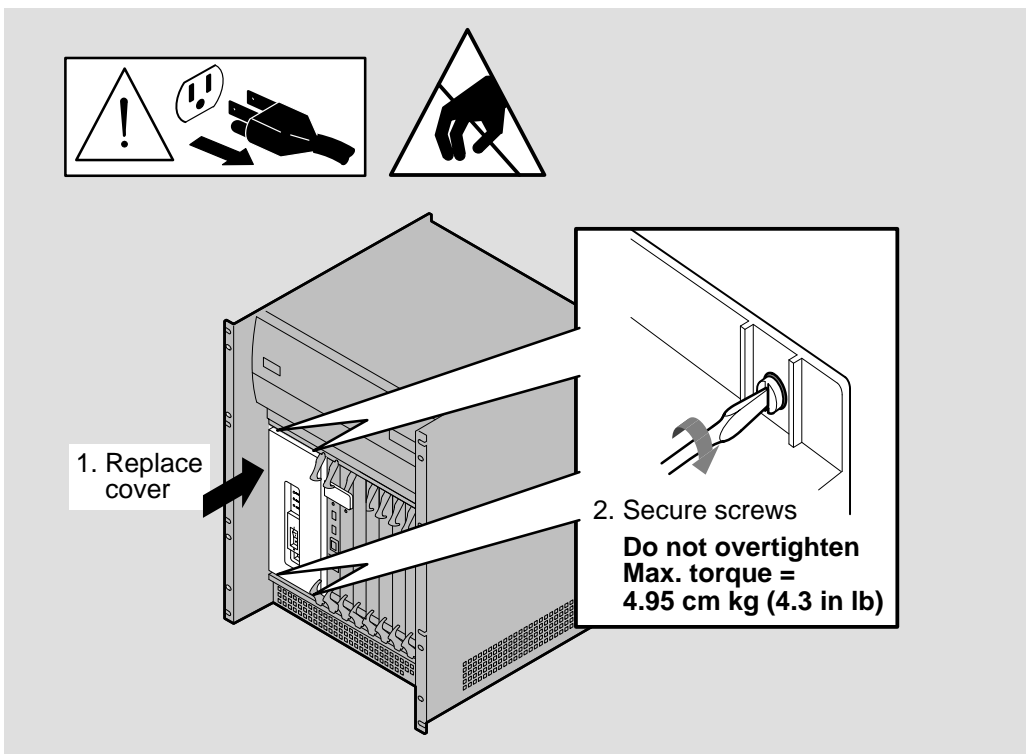
### 11.5.13 Install the Power Module



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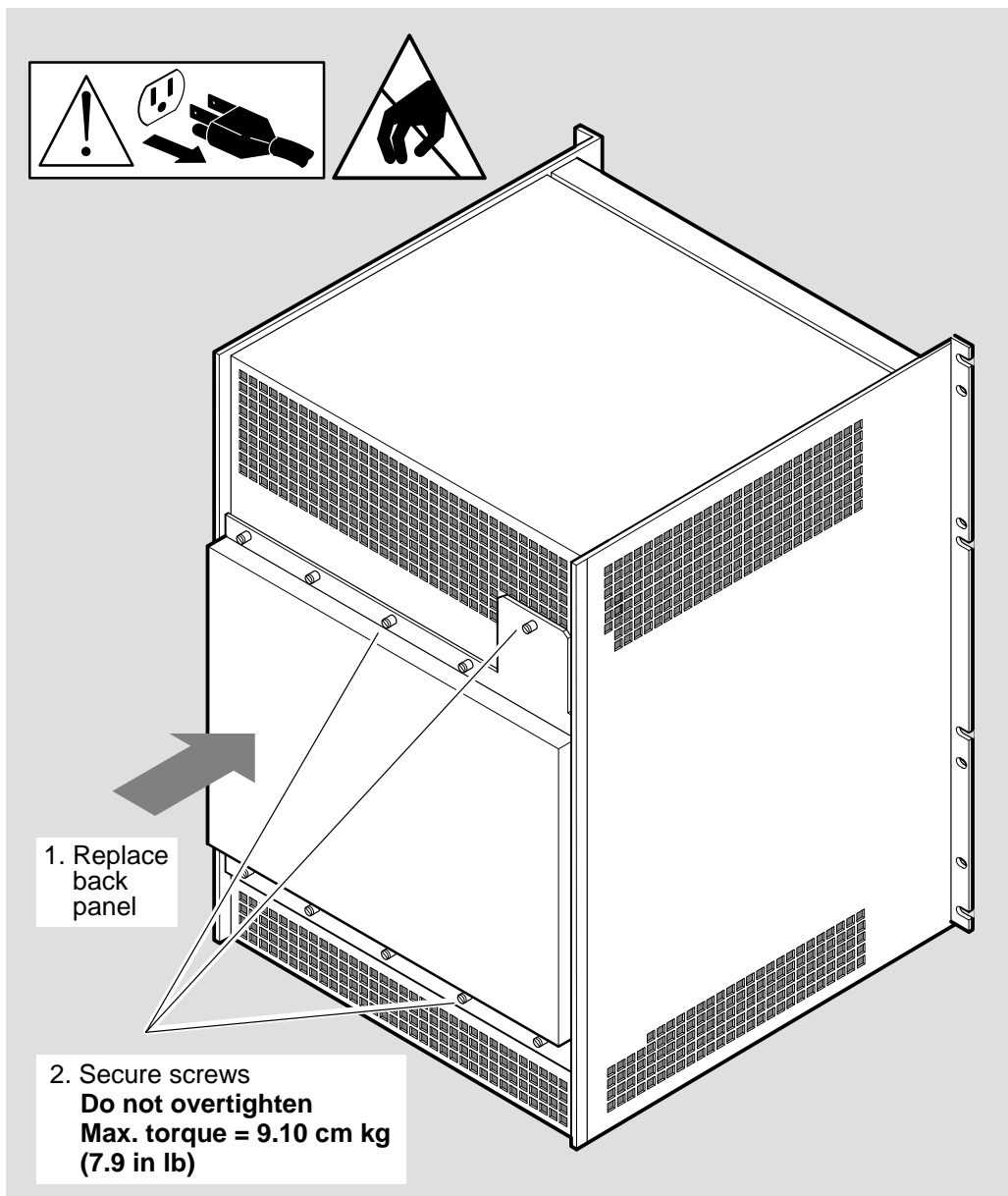


### 11.5.14 Replace the Protective Cover



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### 11.5.15 Replace the Back Panel



### 11.5.16 Final Checks

Before powering up the system make sure that:

- All communications cables are installed correctly. Refer to the *Cabling Instructions and Specifications* card for each Network Interface Card.
- The protective cover for the power module is installed.
- All cards are seated correctly and connected to the backplane assembly.



# Part IV

---

## Reference Information

Part IV contains DECNIS 600 reference information:

- Appendix A describes the displays and codes shown on the DECNIS 600.
- Appendix B specifies the electrical, environmental, and physical requirements of the DECNIS 600.
- Appendix C describes DECNIS 600 specifications for installations in the United Kingdom.
- Appendix D shows how to dump the system.



# A

---

## Display Codes

This appendix describes the DECNIS 600 LEDs and display codes:

- LEDs on the power module
- System displays on the processor card
- LEDs on the Network Interface Cards, processor card, and memory card

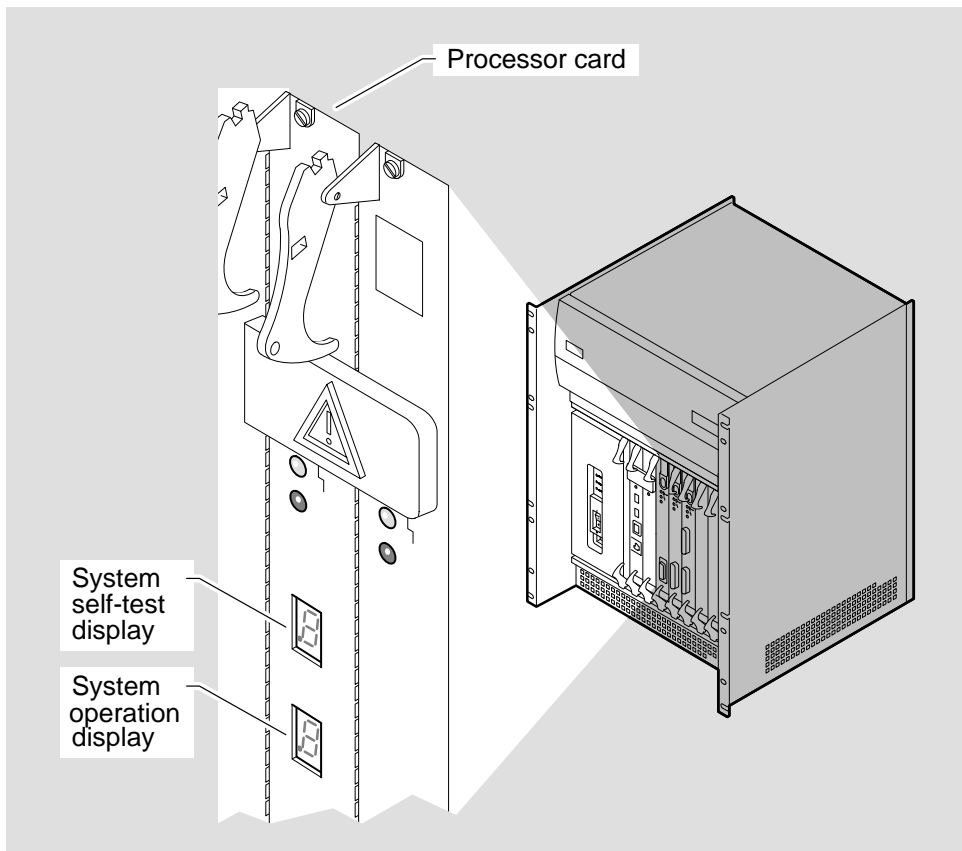
### A.1 Power Module LEDs

There are three LEDs on the power module. Table A-1 describes these LEDs.

**Table A-1 Power Display States**

LED	State	Description
Green	MODULE OK	This LED indicates that the power module is working within its specified limits.
Yellow	OVERCURRENT	This LED indicates that the current from one of the outputs on the power module has exceeded its maximum current limit. Follow the problem solving procedures in Chapter 9.
Red	OVERVOLTAGE	This LED indicates that the voltage from one of the outputs on the power module has exceeded its maximum voltage limit. Follow the problem solving procedures in Chapter 9.

## A.2 System Displays



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There are two system displays on the processor card:

- **System self-test display**  
This display indicates the progress and result of the system self-test. Refer to Section 4.5 for more information.
- **System operation display**  
This display indicates the operating state of the DECNIS 600.

Figure A-1 and Figure A-2 show the DECNIS 600 codes displayed on the system self-test display and the system operation display. If the displays indicate a problem, refer to Chapter 9.








**Figure A-1 System Self-Test Display Codes**

Display Code	Description
	<p>No power.</p>
<p>Pattern over both displays</p> 	<p>A pattern running up and down over both displays (one segment lights at a time) indicates that the system self-test is in progress.</p>
	<p>Check the LEDs on the processor card:</p> <ul style="list-style-type: none"> <li>– If the READY LED is flashing, this value indicates that the processor card is running its module self-test</li> <li>– If the FAULT LED is lit, or if there are no LEDs lit, the processor card has failed its module self-test</li> </ul>
	<p>The system has successfully executed all diagnostic testing on the hardware and no faults were discovered.</p>
	<p>At least one NIC has failed its module self-test and the system is running without it. Check the NIC LEDs for more information.</p> <p>The lower display shows a system operation code.</p>
	<p>There is a hardware fault on the system.</p> <p>The lower display shows the number of the slot that could be causing the problem.</p>
	<p>A memory card has not been installed in the system. The DECNIS 600 configuration must contain a memory card.</p>

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




**Figure A-2 System Operation Display Codes**

Display Code	Description
	<p>The upper display shows a system self-test display code.</p> <p>The value 0 in the lower display indicates that there are no load circuits available for the DECNIS 600.</p>
	<p>The upper display shows a system self-test display code.</p> <p>The value 1 in the lower display indicates that the DECNIS 600 is requesting a load from a specific load host. A request is always made to the host that last provided the load before it is broadcast on all circuits.</p>
	<p>The upper display shows a system self-test display code.</p> <p>The value 2 in the lower display indicates that the DECNIS 600 has located a load host and is loading the software. This code is displayed while the load is taking place.</p>
	<p>The upper display shows a system self-test display code.</p> <p>The value 3 in the lower display indicates that the DECNIS 600 is waiting before it sends another load request so that it avoids congestion at the load host. The load request will be re-issued in a few seconds.</p>
	<p>The upper display shows a system self-test display code.</p> <p>The value 4 in the lower display indicates that the software is loaded. This value is displayed for a few seconds before the circling pattern indicates that the software is running.</p>

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(continued on next page)

**Figure A-2 (Cont.) System Operation Display Codes**

Display Code	Description
  Circling pattern	<p>The upper display shows a system self-test display code.</p> <p>A circling pattern (two segments light at a time) in the lower display indicates that the software is running successfully.</p>
 	<p>The upper display shows a system self-test display code.</p> <p>The value 5 in the lower display indicates that the DECNIS 600 is requesting a dump to a specific dump host. A request is always made to the host that last loaded the software before it is broadcast on all circuits.</p>
 	<p>The upper display shows a system self-test display code.</p> <p>The value 6 in the lower display indicates that the DECNIS 600 has located a dump host and is dumping the contents of the system. When the dump is complete, the system self-test is run and the system reloads.</p>
 	<p>The upper display shows a system self-test display code.</p> <p>The value 7 in the lower display indicates that the DECNIS 600 is sending a load request over all circuits in an attempt to find a load host.</p>
 	<p>The upper display shows a system self-test display code.</p> <p>The value 9 in the lower display indicates that the DECNIS 600 is sending a dump request over all circuits in an attempt to locate a host that will accept the dump.</p>








LKG-5702-911

### **A.3 Module LEDs**

Figure A-3 shows the LED states that can be displayed on the cards. Note that the processor card and memory card LEDs do not have a HOTSWAP LED.

If the card LEDs indicate a problem, follow the procedures in Chapter 9.

**Figure A-3 Module LED States**

Card LEDs	State	Description
	No LEDs lit	Card is disabled. Possible causes: <ul style="list-style-type: none"> <li>– No power to unit</li> <li>– Card is waiting to run module self-test (memory card only)</li> <li>– Card is not installed correctly</li> <li>– Fault on card or in slot</li> </ul>
 (flashing)	Testing in progress	Module self-test is running on the card (1 flash per second).
 (flicker)	Loading	NIC is either waiting to load or loading the software.
	READY	The card has passed its module self-test.
	FAULT	The module self-test has failed. Possible causes: <ul style="list-style-type: none"> <li>– Fault on card</li> <li>– Cabling problem</li> <li>– Fault on DECNIS 600 unit</li> </ul>
	ATTENTION	The NIC is running, but not all ports on the card are usable. Possible causes: <ul style="list-style-type: none"> <li>– Fault on NIC</li> <li>– Cabling problem</li> <li>– Fault on DECNIS 600 unit</li> </ul>
	HOTSWAP	The NIC switch is down (NIC disabled) and the NIC can be removed from the system.

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# B

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## Electrical, Environmental, and Physical Information

This appendix specifies the electrical, environmental, and physical specifications for the DECNIS 600.

### B.1 Electrical Information

Table B-1 shows the electrical requirements for the DECNIS 600.

**Table B-1 Electrical Specifications**

Specification	120 V Range	240 V Range
Nominal voltage	100–120 Vrms	200–240 Vrms
Number of supply phases	1	1
Nominal line frequency	50–60 Hz	50–60 Hz
Power factor	0.95	0.85
Inrush current	90 A	90 A
Maximum input power consumption	929 VA	1038 VA
Maximum power available to system†	600 W	600 W
Maximum power dissipation	883 W	883 W
Maximum leakage current	1 mA at 264 Vrms	

---

†Including processor card, memory card, fan tray, and Network Interface Cards.

---

## B.2 Environmental Information

Table B–2 shows the environmental requirements for the DECNIS 600 unit and its components. If Network Interface Cards and distribution panels are stored separately, the same environmental specifications apply.

**Table B–2 Environmental Specifications**

Specification	Operating	Nonoperating
Maximum altitude	2438 m (8000 ft)	4877 m (16,000 ft)
Atmospheric pressure	750 mbar at 2438 m (8000 ft)	548 mbar at 4877 m (16,000 ft)
Temperature range See Note 1	10 to 45°C (50 to 113°F)	See Note 2
Relative humidity See Note 3	10% to 90%	10% to 90%

### Notes:

1. Reduce the maximum temperature specification by 1.8°C for each 1000 m (1°F for each 1000 ft) above sea level.
2. If you store the DECNIS 600 for longer than 60 days, it should be in a place that meets the DECNIS 600 operating specifications. If you store the DECNIS 600 for less than 60 days, it should be in a place that is between –40°C (–40°F) and 66°C (151°F) with relative humidity below 95%.
3. During the operation or storage of the DECNIS 600, the environment must be **noncondensing**.

### Ventilation

The DECNIS 600 cooling system is designed to be tolerant of various rack installation configurations. However, to provide adequate ventilation:

- Do not block off more than one of the unit's inlet air vents (lower grilles). If one vent is blocked, allow at least 5 cm (2 in) clearance around the remaining vents.
- Do not block off more than one of the unit's outlet air vents (upper grilles). If one vent is blocked, allow at least 10 cm (5 in) clearance around the other vent.
- Do not allow the cooling air entering the DECNIS 600 to rise above 45°C (113°F).



### Acoustics

Preliminary declared values for DECNIS 600 acoustics in accordance with ISO 9296 and ISO 7779 are:

	$L_{WA,d}$	$L_{pA,m}$ (bystander positions)
Idle/Operating	5.8 bels	43 dBA

Current values for specific configurations are available from Digital representatives.

### Schallemissionswerte

Vorläufige Werteangaben nach ISO 9296 und ISO 7779/DIN45635-19:

	Schalleistungspegel $L_{WA,d}$ B (A)	Schalldruckpegel $L_{pA,m}$ dB (A) (Zuschauerpositionen)
Leerlauf/Betrieb	5,8	43

Aktuelle Werte für spezielle Ausrüstungsstufen sind über die Digital Equipment Vertretungen erhältlich.

## B.3 Physical Information

Table B-3 shows the weight of DECNIS 600 components.

Figures B-1 and B-2 show the dimensions of the DECNIS 600.

**Table B-3 DECNIS 600 Weight Specifications**

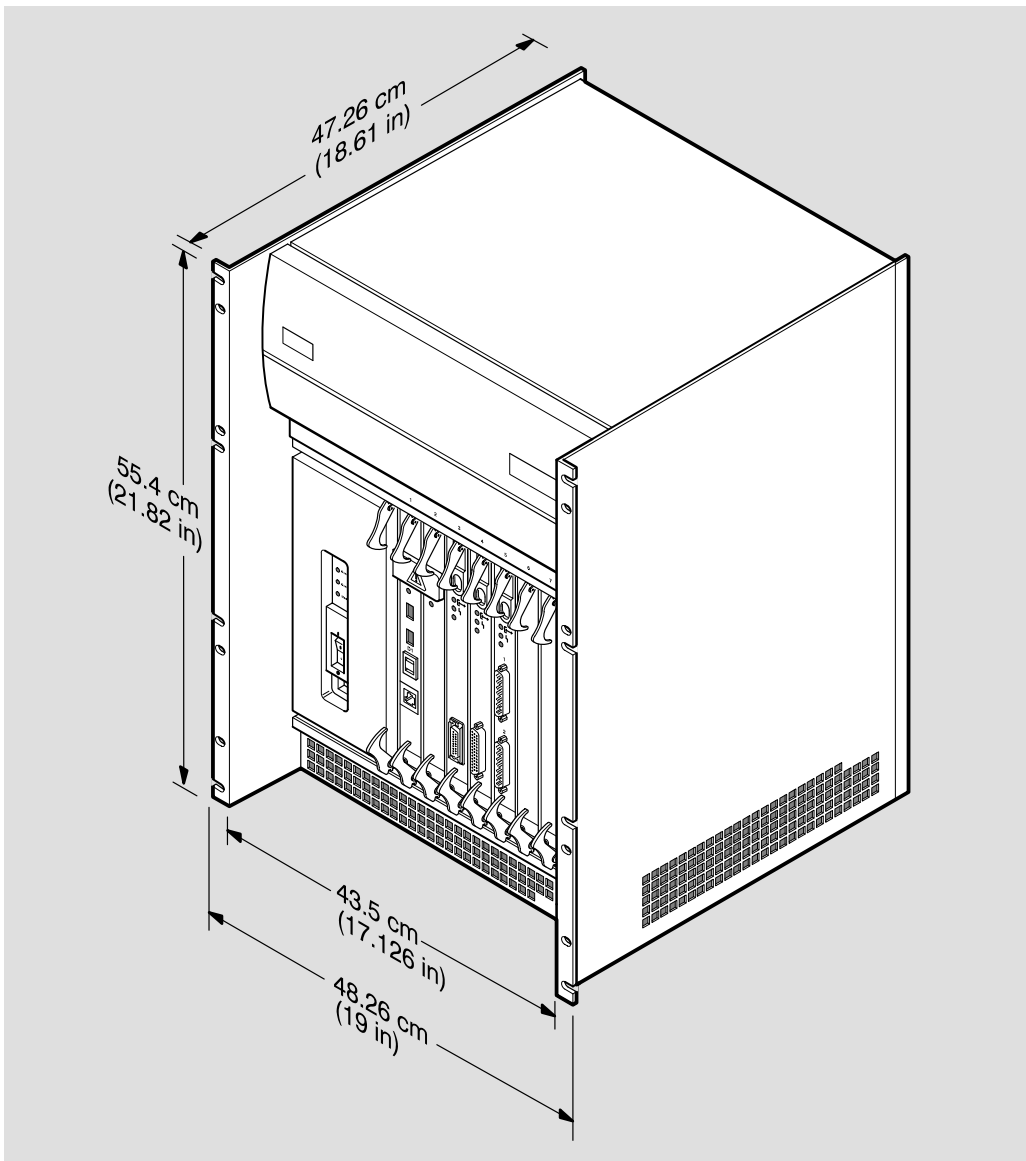
Component	Weight
DECNIS 600 unit including Network Interface Cards †	40 kg (88 lb) maximum
DECNIS 600 unit without Network Interface Cards ‡	33 kg (72 lb)
Network Interface Card	1 kg (2.2 lb)
Processor card	1 kg (2.2 lb)
Memory card	1 kg (2.2 lb)
Power module	7 kg (15.4 lb)
Fan tray	3.4 kg (7.5 lb)
Backplane	3 kg (6.6 lb)

†Including power module, fan tray, backplane assembly, processor card, memory card, and seven Network Interface Cards.

‡Including power module, fan tray, backplane assembly, processor card, and memory card.

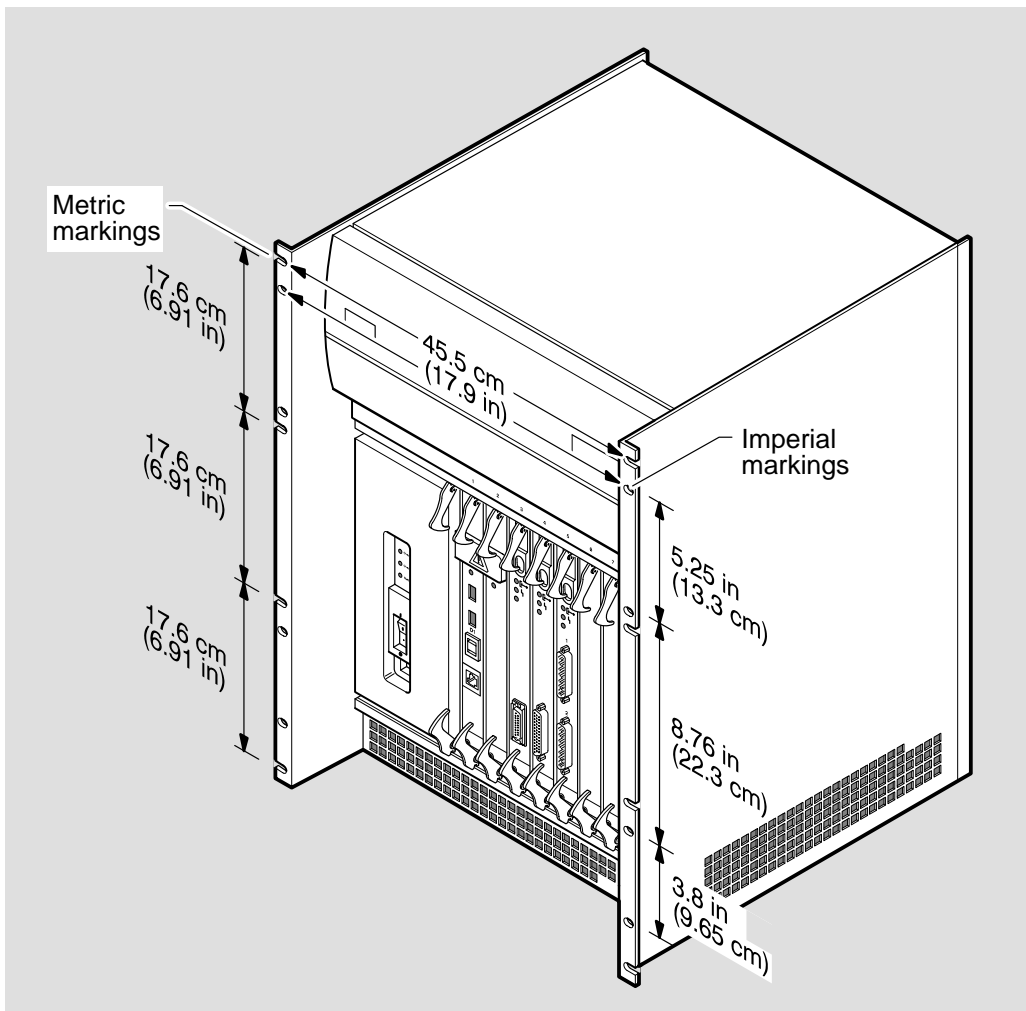
Refer to the Network Interface Card *Cabling Instructions and Specifications* card for more information about Network Interface Card and distribution panel specifications.

**Figure B-1 DECNIS 600 Physical Dimensions**



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Figure B-2 DECNIS 600 Frame Measurements



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# C

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## United Kingdom Specifications

This appendix is for use with DECNIS 600 installations in the United Kingdom (UK). It includes safety information for UK installations.

### C.1 Safety Warning for UK Installations Only

There is a safety label on each Network Interface Card that has ports connecting the DECNIS 600 to a Wide Area Network (WAN). This label is intended for users in the United Kingdom only.

The safety label states:

SAFETY WARNING. See instructions for use.

For ports that are marked with the safety label, the following warning applies:

————— **WARNING** —————

The ports indicated by the safety label do not provide isolation sufficient to satisfy the requirements of BS6301. Therefore, apparatus connected to these ports must comply with one of the following:

- The apparatus must be covered by OFTEL's General Approval NS/G/1234/J/100003. (All products supplied by Digital comply with this General Approval.)
- The apparatus must conform to BS6301.
- The apparatus must have previously been evaluated against British Telecom (Post Office) Technical Guides 2 or 26 and been given permission to attach.

Other usage will invalidate any approval given to this apparatus.

Interconnection directly, or by way of other apparatus, of ports marked by the safety label with other ports that are marked or not

so marked, may produce hazardous conditions on the network. Seek advice from a competent engineer before making any such connection.

---

## **C.2 Direct Connection to a Digital Circuit (PTT)**

The DECNIS 600 is approved for direct connection to a particular digital circuit, including interconnecting cables with mating connectors conforming to BS6623 part 1 and part 4.

## **C.3 Apparatus Between DECNIS 600 and a Digital Circuit (PTT)**

If any other apparatus, including cable or wiring, is to be connected between the DECNIS 600 and the point of connection to any particular digital circuit, then all the other apparatus must conform as follows:

1. The overall transmission characteristics of all the other apparatus shall be such as to introduce no material effect upon the electrical conditions presented to one another by the apparatus and the particular digital circuit.
2. All the other apparatus shall comprise only:
  - Apparatus approved (such apparatus may be subject to limitations on its use) for the purpose of connection between the apparatus and a particular digital circuit.
  - Cable or wiring complying with code of practice for the installation of apparatus covered by the standard or such other requirements as may be applicable.

## **C.4 DECNIS 600 Information for BABT Conformance**

The following warnings apply to the DECNIS 600:

\_\_\_\_\_ **Warning** \_\_\_\_\_

The connection to the telecommunications network must be disconnected before the mains plug is removed.

---

---

**Warning**

---

The connection to the telecommunications network is not to be hard wired.

---

## C.5 Power Module Information for BABT Conformance

The following warning applies to the power module:

---

**Warning**

---

Use only with apparatus whose approval number begins with the letters NS.

---

The following information and the specifications in Table C-1 apply to the power module:

- This product complies with BS6301.

**Table C-1 Power Module Output**

Output					
Volts dc	5	12	-12	2.1	24 (FAN 1 and 2)
Amps	90	8.3	-4.9	10	4

## C.6 Network Interface Card Information for BABT Conformance

Table C-2 shows the creepage and clearance information for DECNIS 600 Network Interface Cards that connect to a Wide Area Network (WAN). The creepage and clearance distances of  $x$  mm and  $y$  mm must be maintained between the Network Interface Card and the DECNIS 600 enclosure or any other component.

**Table C-2 Network Interface Card Clearance and Creepage Specifications**

<b>Clearance x mm</b>	<b>Creepage y mm</b>	<b>Maximum Voltage† Vrms or Vdc</b>
2.0	2.4 (3.8)‡	50
2.6	3.0 (4.8)‡	125
4.0	5.0 (8.0)‡	250
4.0	6.4 (10.0)‡	300

†Voltage used or generated by other parts of the DECNIS 600 system.

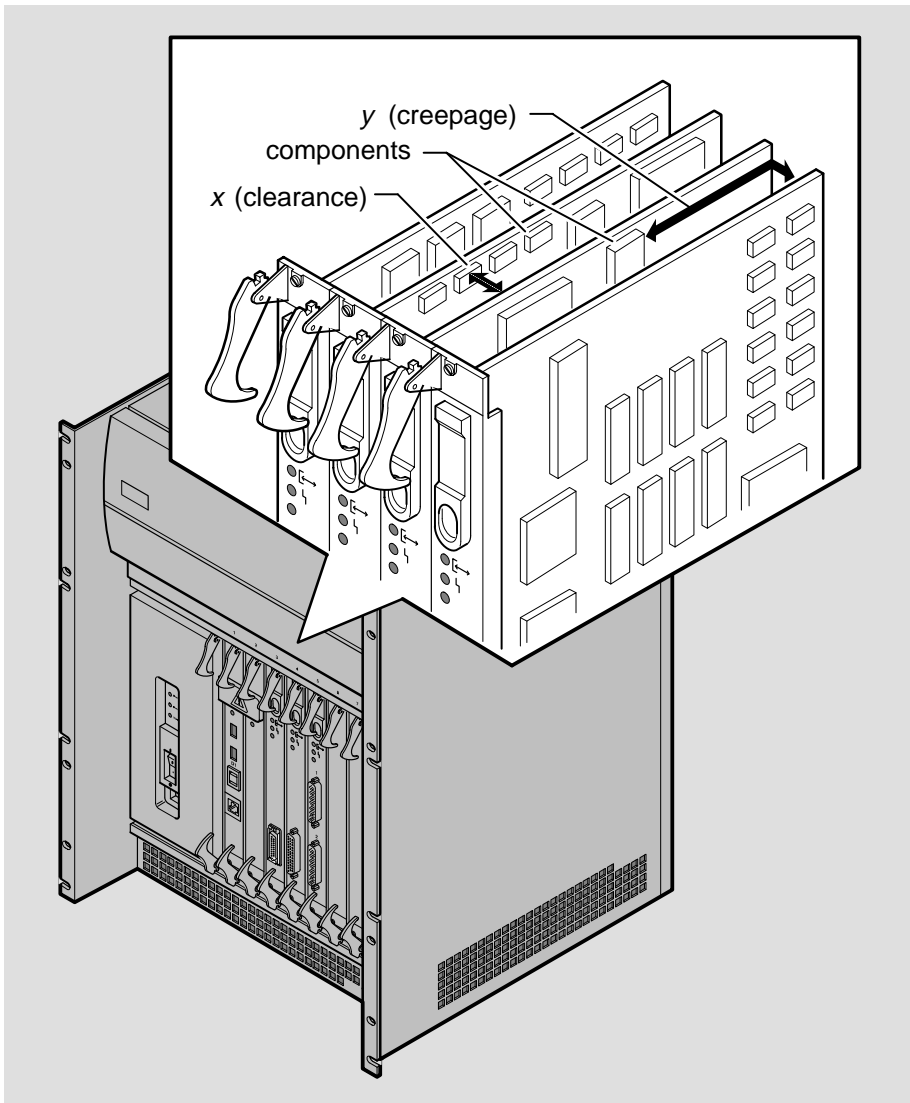
‡Creepage distance where the DECNIS 600 is subject to conductive pollution or dry nonconductive pollution which could become conductive due to condensation.

These distances can be checked by measuring between the adjacent parts as shown in Figure C-1. Clearance distance is shown by the identifier *x*, which is the shortest distance in air between two points. Creepage distance is shown by the identifier *y*, which is the path taken around the system between the same two points.

If you are in doubt, consult a competent telecommunications safety engineer for advice. Failure to install a Network Interface Card in accordance with these instructions will invalidate the BABT approval.



**Figure C-1 Network Interface Card Clearance and Creepage Distances**



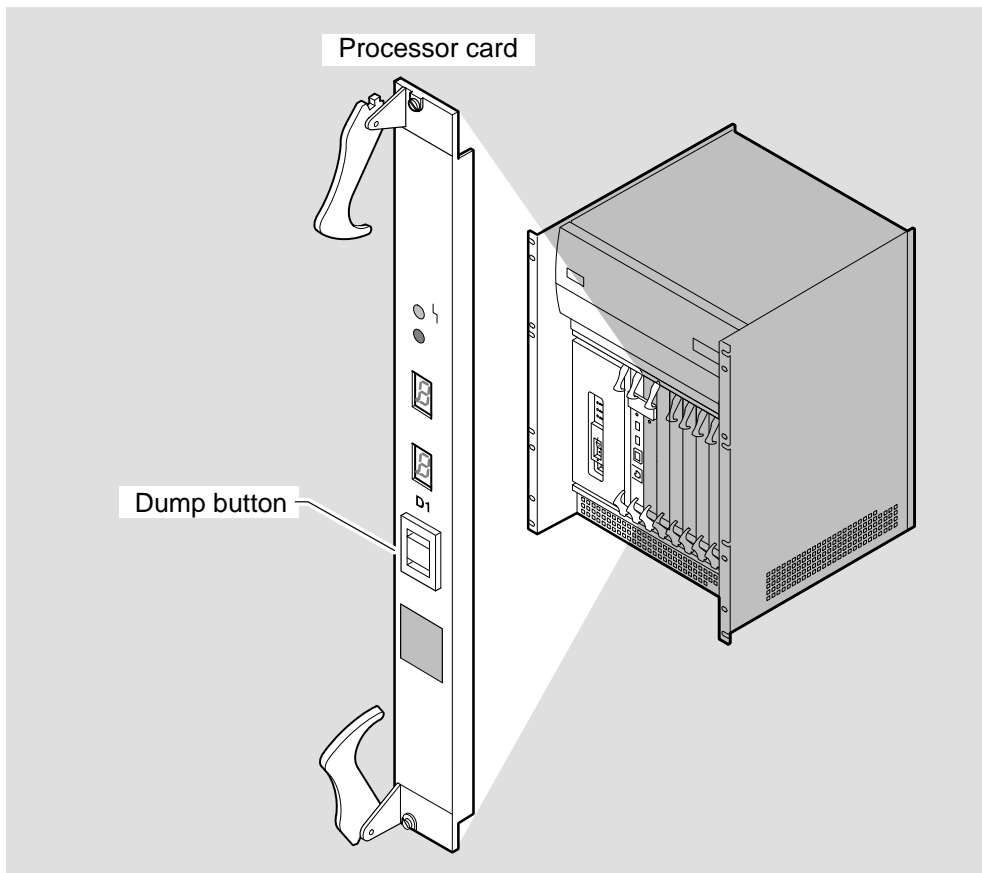
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# D

## Dumping the System

To dump the contents of the system to a load host, press the dump button on the processor card:



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