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Maintenance & Service Guide

Compaq TFT450 Flat Panel Monitor

First Edition (January 1998)
Part Number 170436-001

Compaq Computer Corporation

preface

This *Maintenance & Service Guide* is a troubleshooting guide that can be used for reference when servicing the Compaq TFT450 Flat Panel Monitor. Only authorized technicians trained by Compaq should attempt to repair this equipment.

Compaq Computer Corporation reserves the right to make changes to the Compaq TFT450 Flat Panel Monitor without notice.

Symbols and Conventions

The following words and symbols mark special messages throughout this guide:



WARNING: Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or loss of life.



CAUTION: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of data.



Text set off in this manner presents commentary, sidelights, clarifying information, or specific instructions.

Technician Notes



WARNING: Only authorized technicians trained by Compaq should attempt to repair this equipment. All troubleshooting and repair procedures are detailed to allow only subassembly/module level repair. Because of the complexity of the individual components and subassemblies, no one should attempt to make repairs at the component level or to make modifications to any printed wiring board. Improper repairs can create a safety hazard. Any indications of component replacement or printed wiring board modifications may void any warranty.



CAUTION: To properly ventilate your monitor, you must provide at least 3 inches (7.6 cm) of clearance at the back of the monitor.



CAUTION: The monitor is designed to be electrically grounded. To ensure proper operation, plug the AC power cord into a properly grounded AC outlet only.

System Serial Number

The serial number is displayed on the monitor's back panel.

Locating Additional Information

The following documentation is available to support the monitor:

- *User's Guide*
- Compaq Service Advisories and Bulletins
- Compaq QuickFind
- *Compaq Service Quick Reference Guide*

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chapter **1**

REMOVAL AND REPLACEMENT PROCEDURES

This chapter provides removal and replacement assembly procedures for the Compaq TFT450 Flat Panel Monitor.

1.1 Electrostatic Discharge

A discharge of static electricity from a finger or other conductor may damage system boards or other electrostatic-sensitive devices. This type of damage may reduce the life expectancy of the devices.

1.1.1 Preventing Electrostatic Discharge

To prevent electrostatic damage, observe the following precautions:

- Avoid hand contact by transporting and storing products in electrostatic-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at electrostatic-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching an electrostatic-sensitive component or assembly.

1.1.2 Grounding Methods

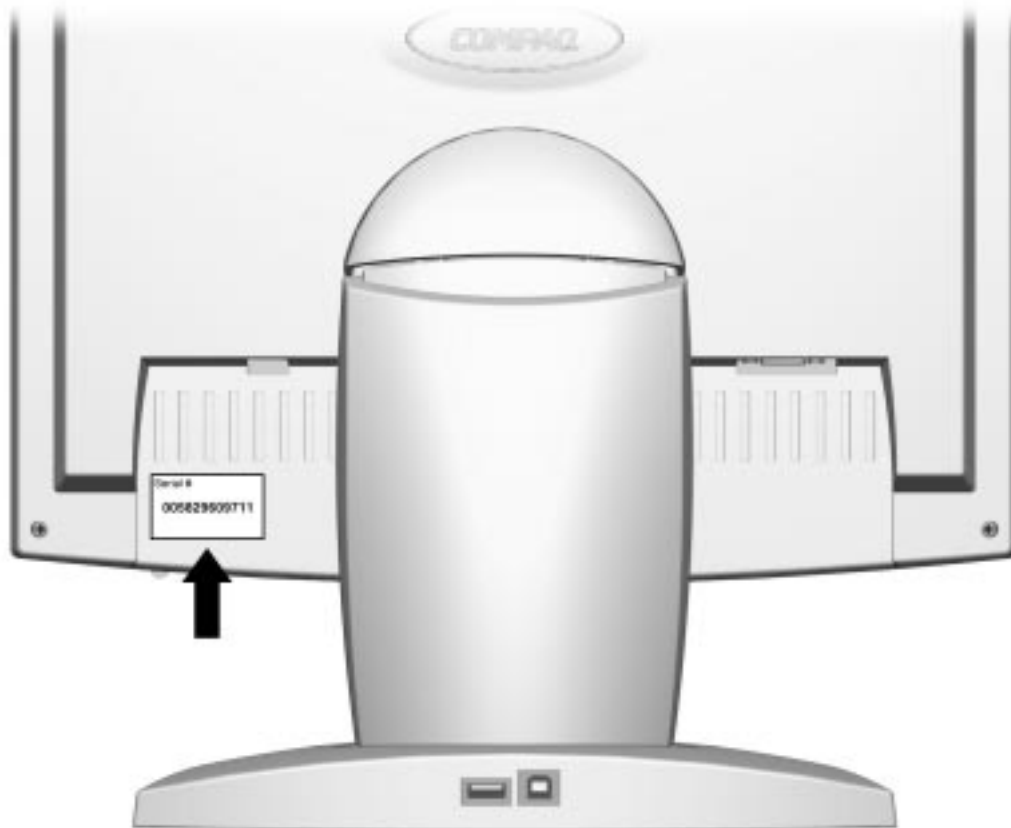
There are several methods for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts.

- Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm +/- 10 percent resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.
- Use heelstraps, toestraps, or bootstraps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
- Use conductive field service tools.
- Use a portable field service kit with a folding electrostatic-dissipating work mat.

- ✎ If you do not have the suggested equipment for proper grounding, or if you need more information on static electricity or assistance with product installation, contact a Compaq authorized service provider.

1.2 Serial Number

The monitor serial number should be given to Compaq when requesting information or ordering spare parts. The serial number is displayed on the monitor's rear enclosure.



Locating the serial number

1.3 Features



- 14.5-inch (36.8–cm) viewable display area
- Screen customizing adjustments displayed on-screen in five different languages: English, Dutch, French, German, and Spanish
- Universal Serial Bus pass-through interface—plug and play connectors for use with USB peripherals (mouse, keyboard, etc.)
- Plug and play capability, if supported by your system
- Fault Management and AssetControl
- Tilt and swivel base
- Removable base for flexible mounting solutions
- Automatically synchronizes with full screen expansion
- 1024 × 768 maximum resolution
- Wide viewing angle to allow viewing from a sitting or standing position, or moving side-to-side
- Energy Saver feature
- Programmable sleep mode timer

1.4 Front Bezel Assembly Controls and LEDs

The controls and LEDs located on the monitor's front bezel assembly are identified below.

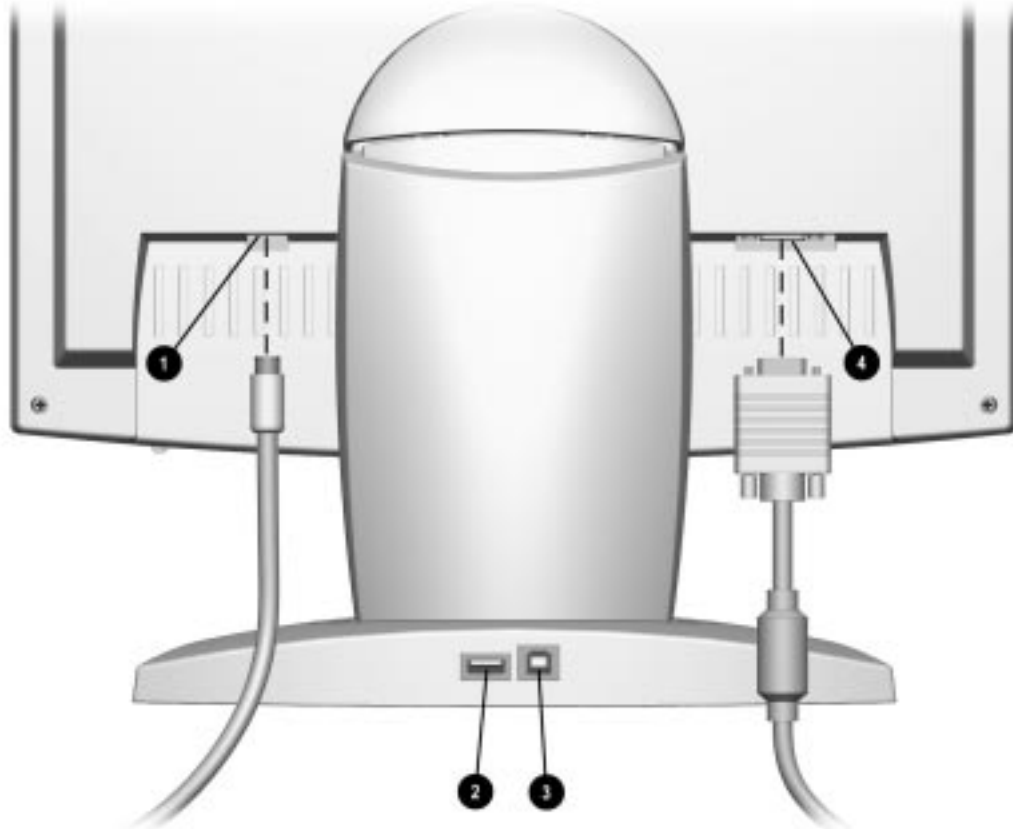


Front Bezel Assembly Controls

Front Bezel Assembly Controls		
No./Icon	Control	Function
①	 Menu Select button	1. Launches on-screen display. 2. Selects function adjustments. 3. Exits menus and on-screen display.
②	– Minus button	Selects and adjusts the functions.
③	+ Plus button	Selects and adjusts the functions.
④	 Power switch	Turns the monitor on and off.
⑤	Power LED	1. Green indicates monitor is turned on. 2. Yellow indicates suspend mode. 3. Amber indicates sleep mode. 4. Blinking Green/Amber indicates programmable sleep mode.

1.5 Rear Panel Connectors

The following illustration shows the rear panel connectors and the signal and power cables on the Compaq TFT450 Flat Panel Monitor. Each connector includes an icon to help you identify its function.



Rear Panel Connectors

Rear Panel Cable and Connectors		
No.	Cable/Connector	Function
❶	DC Power Cable	Connects the monitor to the AC adapter.
❷	USB* Connector	Connects a USB peripheral to the monitor.
❸	USB* Cable Connector	Connects the USB signal cable to the computer.
❹	Signal Cable	Connects the monitor to a computer.

*Universal Serial Bus connectors for USB peripherals such as a keyboard, mouse, etc., operate as a pass-through system. Your computer must have a USB host controller installed for USB-connected devices to operate.

1.6 Disassembly and Assembly Procedures

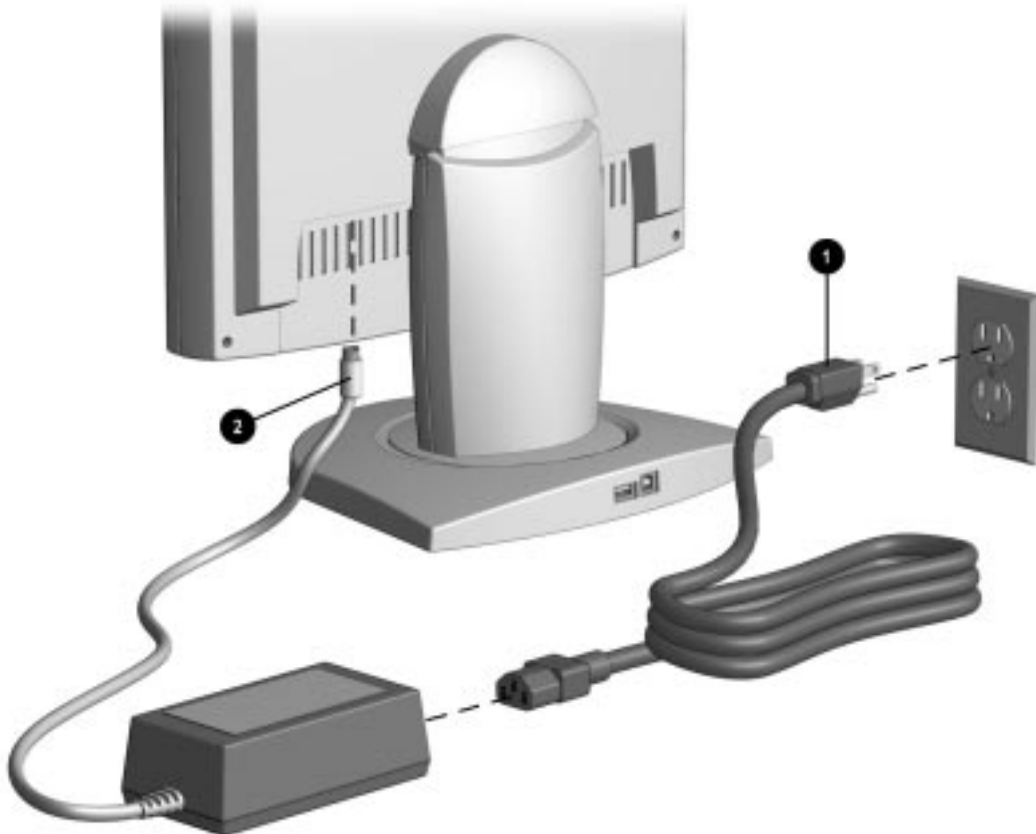
This section provides disassembly and assembly procedures for the Compaq TFT450 Flat Panel Monitor. Before you begin any of these procedures, be sure to turn off the power to the monitor, computer system, and other attached devices; then disconnect the power cable from the electrical outlet.



CAUTION: As you disassemble the monitor, be sure to place the screws in a safe place, and separate them according to their groupings.

1.6.1 AC Adapter

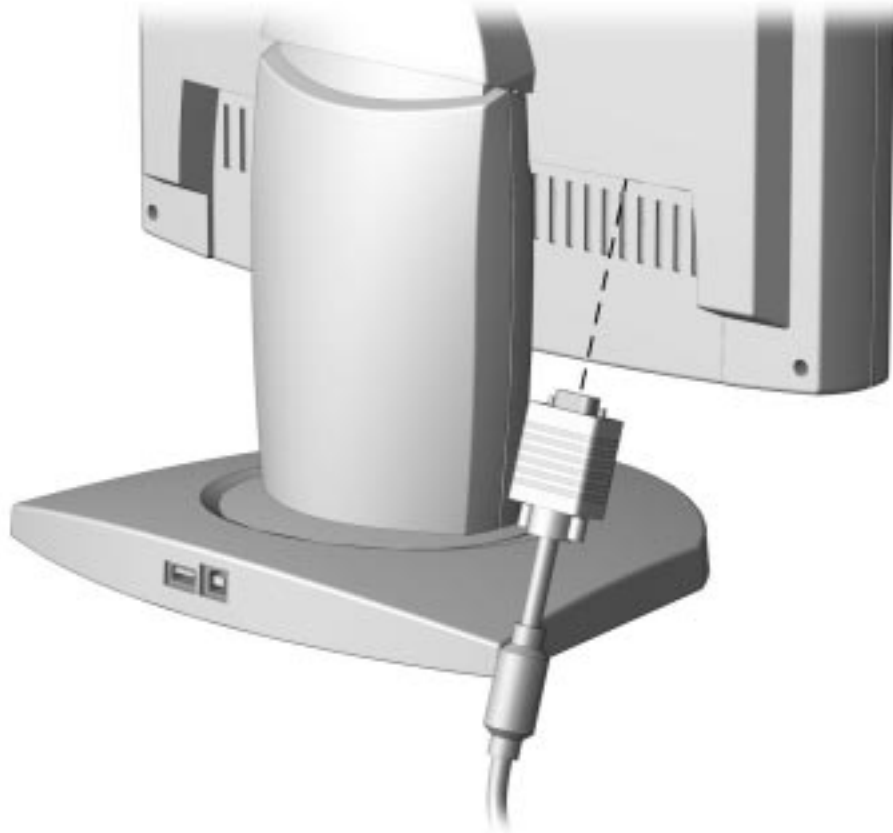
1. Before removing the AC Adapter (spare part no. 170427-001) from the monitor, disconnect the power cord ❶ from the wall socket.
2. Disconnect the AC Adapter connector ❷ from the monitor base.



Disconnecting the AC Adapter

To reconnect the AC adapter, reverse this procedure.

1.6.2 Disconnect the video connector from the monitor panel.

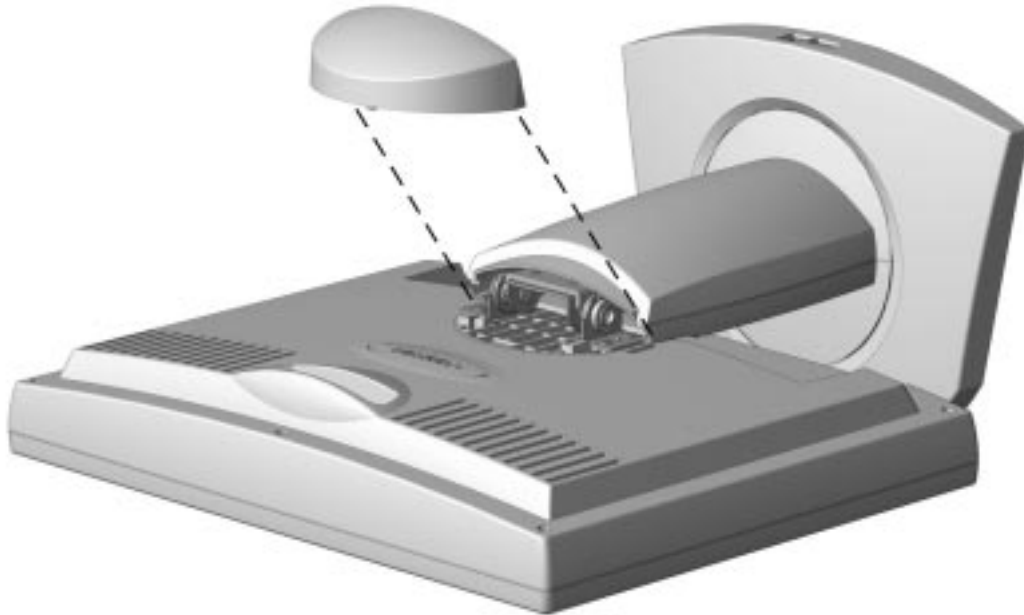


Disconnecting the video connector from the monitor

To replace the video connector, reverse this procedure.

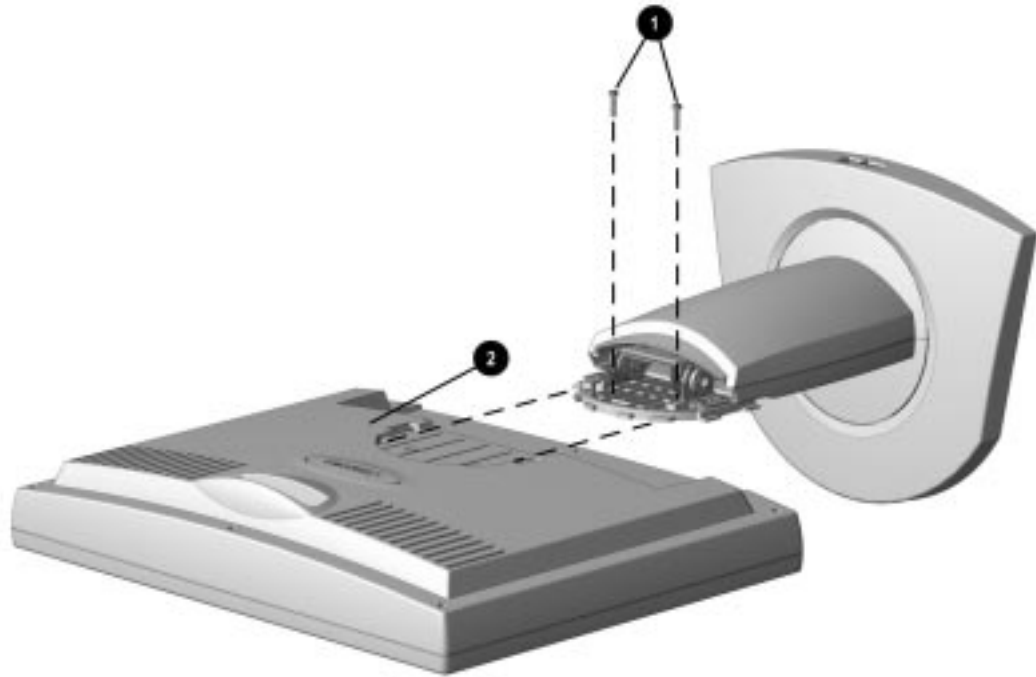
1.6.3 Monitor Panel

1. Lay the front bezel on a soft area to prevent it from getting scratched, defaced, or broken.
2. Grasp the base cap and gently press in the sides. Then lift up and pull off the base cap (spare part no. 170434-001).



Removing the base cap

3. Remove the two screws ❶ as shown below.

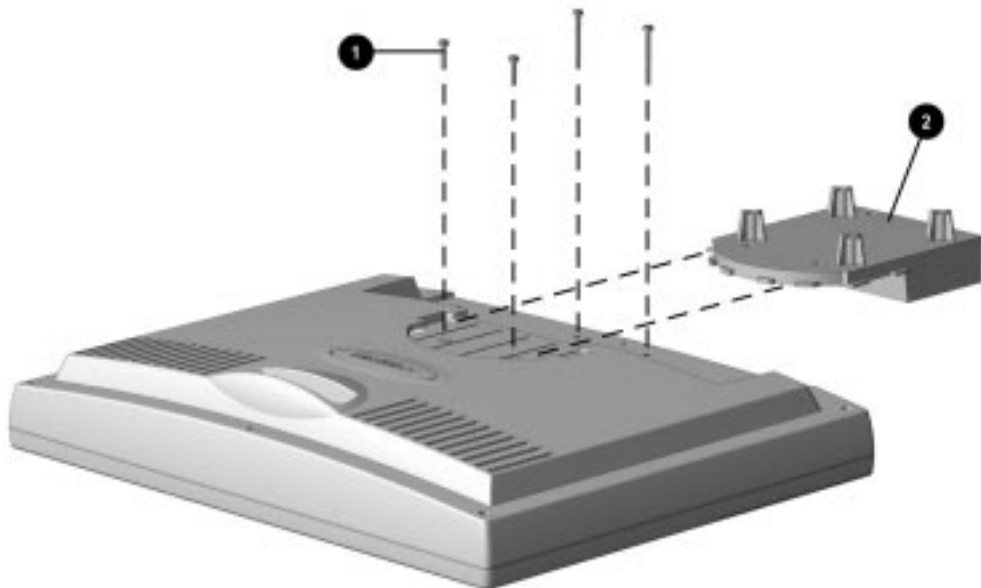


Removing the two screws and separating the monitor panel from the base

4. Slide the monitor ❷ from the monitor base (spare part no. 170418-001).

To replace the monitor back onto the monitor base, reverse this procedure.

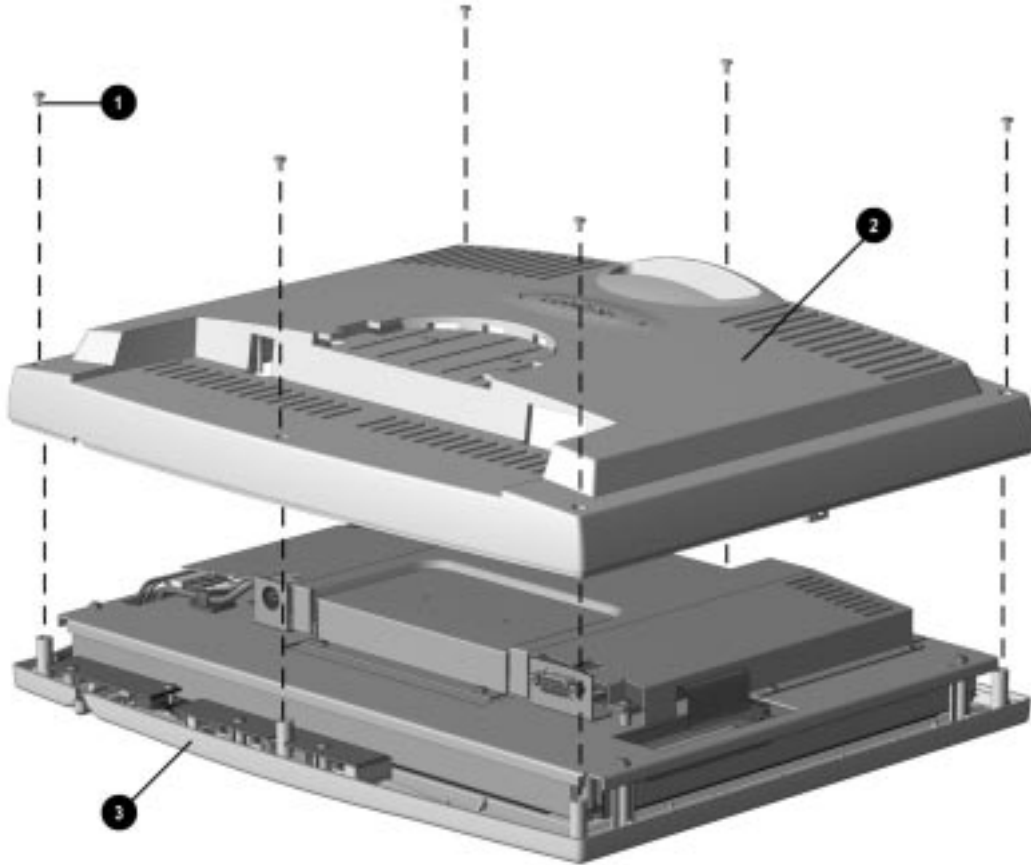
- ✎ If the mounting plate is installed, remove the 4 screws ❶ and slide the mounting plate ❷ from the monitor.



Removing the four screws and separating the monitor panel from the mounting plate

1.6.4 Rear Enclosure

1. Remove six screws ❶ from the rear enclosure.
2. Separate the rear enclosure ❷ (spare part no. 170419-001) from the monitor panel ❸.



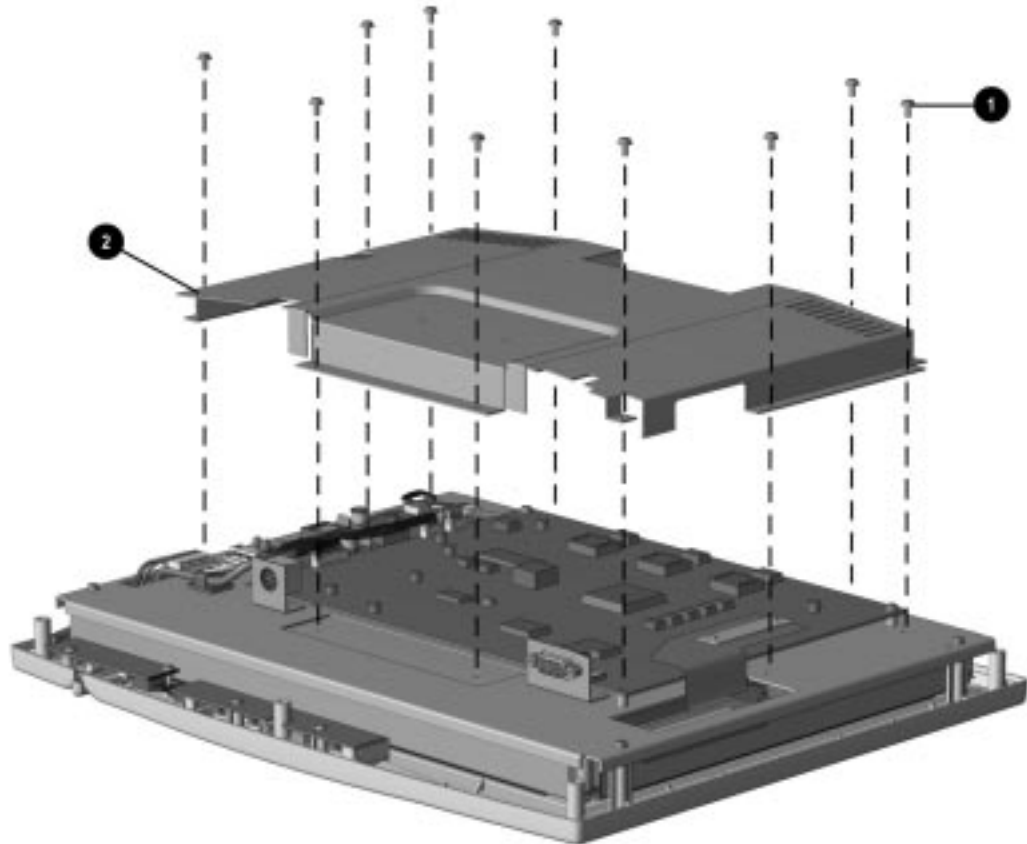
Removing the rear enclosure

To replace the rear enclosure, reverse this procedure.

- ✎ If you are replacing the protective cover only, skip the next few sections and turn to section 1.6.8, Front Bezel Assembly.

1.6.5 EMI Shield

1. Remove the 10 screws ❶ from the EMI shield (spare part no. 170435-001).
2. Remove the EMI shield ❷.

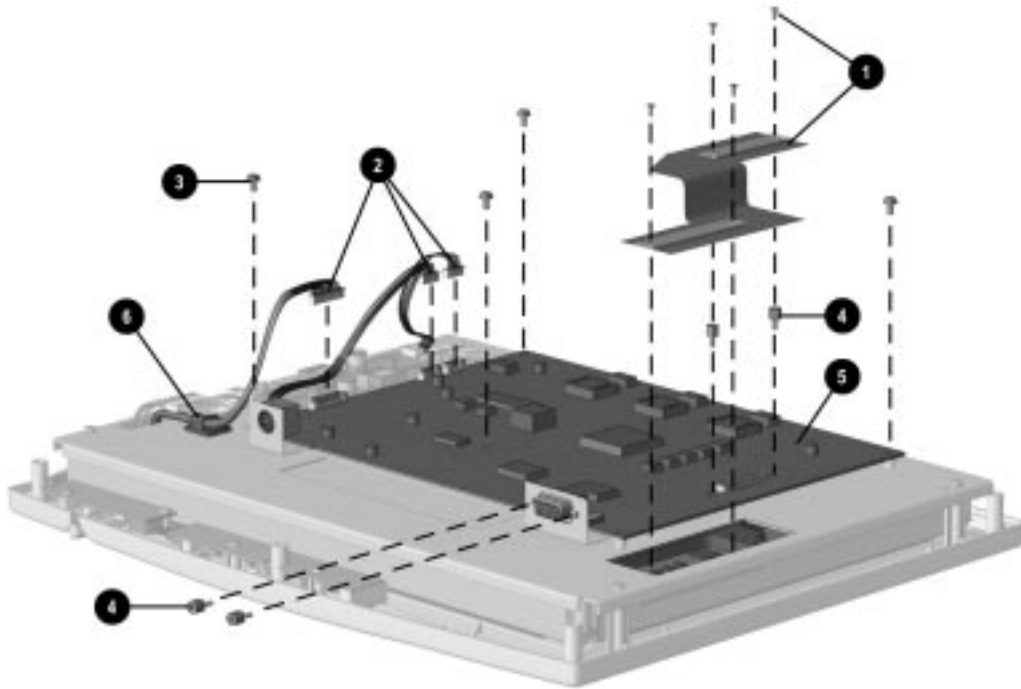


Removing the EMI shield

- ✎ When reinstalling the EMI shield, be sure to reapply the conductive tape in the correct positions.

1.6.6 Controller Board

1. Remove the four screws that secure the data cable ❶, then remove the cable.
2. Disconnect the three remaining cables ❷ (spare part kit no. 170424-001) from the PCB.
3. Remove four screws ❸ from the controller board.
4. Remove the four standoffs ❹.



Removing the screws and disconnecting the cables from the controller board

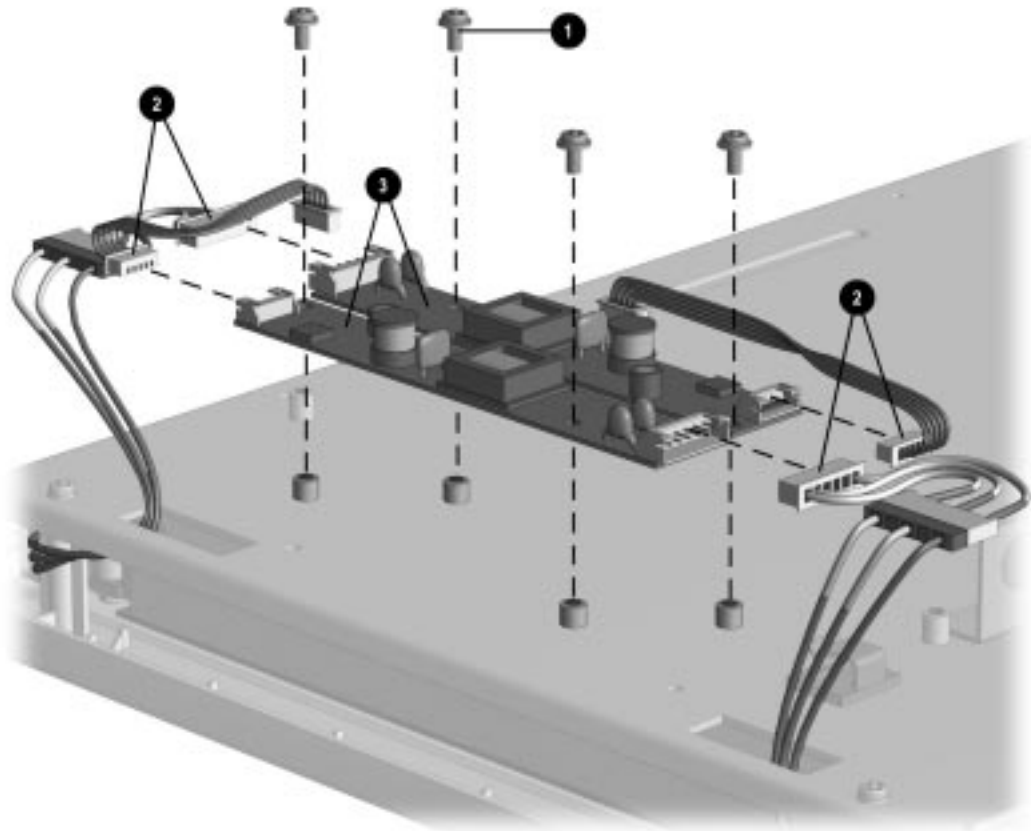
5. Remove the controller board ❺.

✂ When removing or replacing cables, disengage the cables from the cable clamp ❻.

To replace the controller board, reverse this procedure.

1.6.7 Inverter Boards

1. Remove two screws **1** from each inverter board (spare part no. 170432-001).
2. Disconnect the four cables **2** from the PCB.
3. Remove the inverter boards **3**.

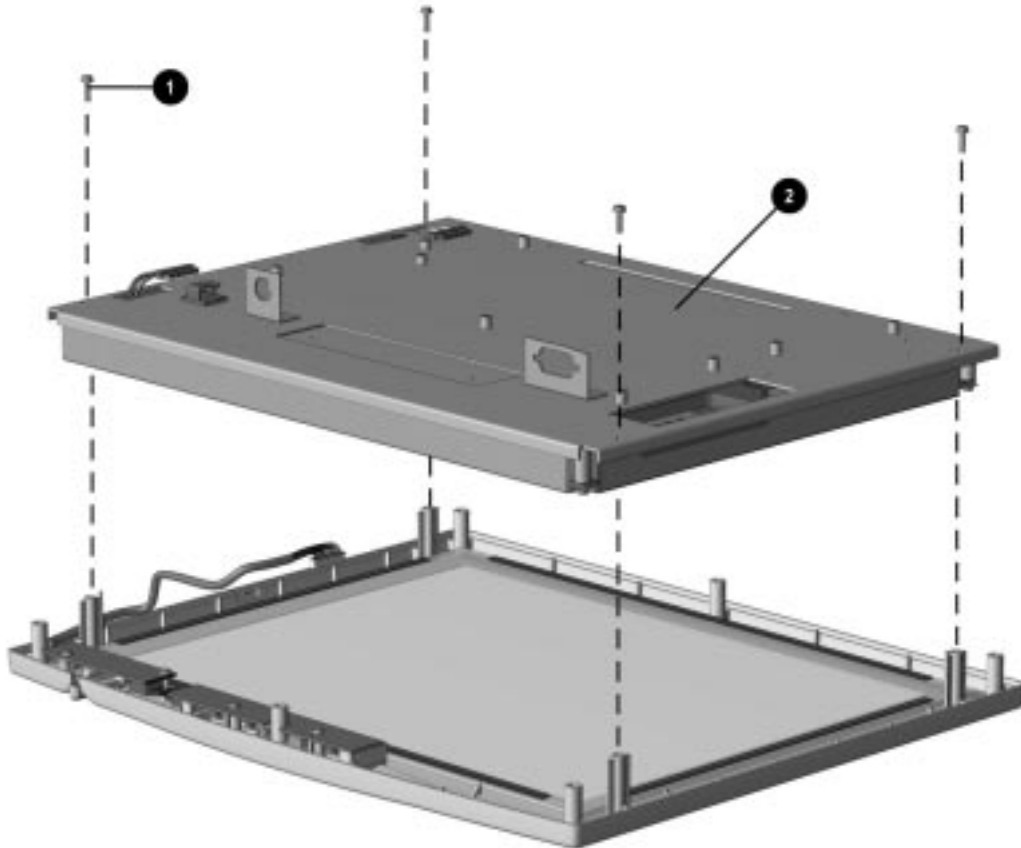


Removing the inverter board

- ✎ When replacing the cables, slide the cables through the slots in the LCD panel.

1.6.8 Front Bezel Assembly

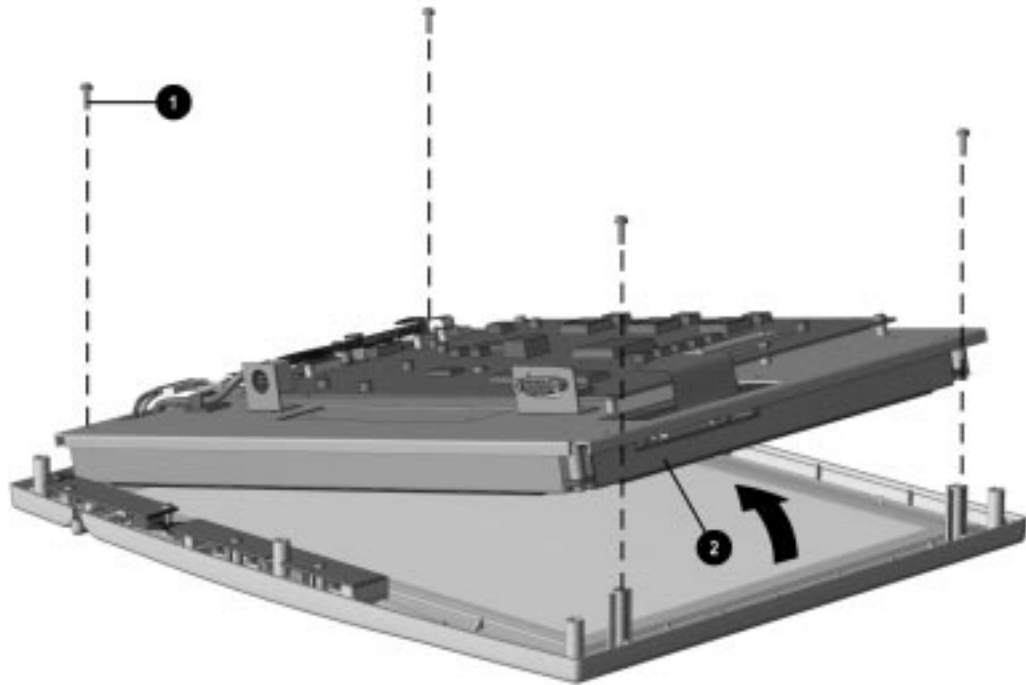
1. Remove four screws ❶ from the back of the bezel.
2. If you have removed the EMI shield, the controller board, and the inverter boards, lift off the LCD panel ❷ (spare part no. 170423-001).



Removing the front bezel assembly

To replace the front bezel assembly, reverse this procedure.

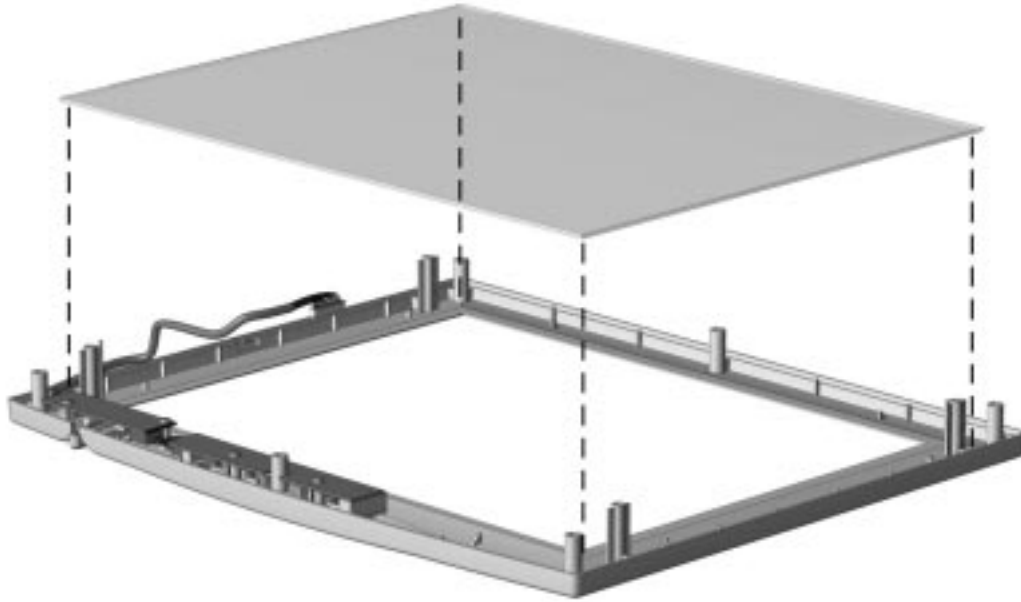
3. To only remove the protective cover, it is not necessary to remove the EMI shield, the controller board, inverter boards, or the cables from the LCD panel. Lift up the opposite end of the LCD panel and swing it over the front bezel assembly until it rests on the work surface.



Accessing the protective cover

1.6.9 Protective Cover

Lift the protective cover (spare part no. 170425-001) out of the front bezel assembly.



Removing the protective cover



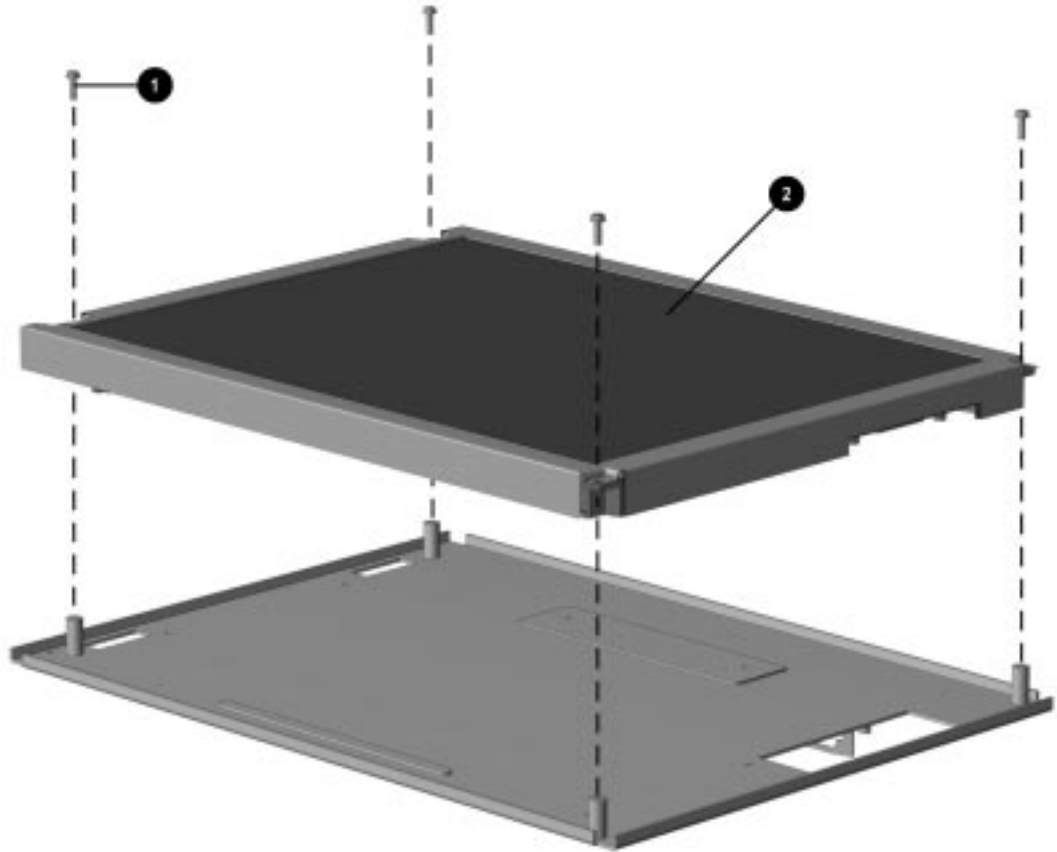
CAUTION: Never use water to clean an LCD screen. Use a dry, soft clean cloth or an antistatic CRT screen cleaner.

To replace the protective cover, clean any excess spacer tape from the LCD Panel. Peel the paper off the new spacer tape and place it on the LCD panel. Press the protective cover into place.

- ✎ The protective cover is smooth and shiny on one side, and has an antiglare coating on the other side. Position the smooth and shiny side of the protective cover facing the LCD panel.

1.6.10 TFT Liquid Crystal Display (LCD) Panel Assembly

1. Remove four screws ❶ from the viewing side of the TFT-LCD assembly.
2. Remove the LCD assembly ❷ (spare part no. 170423-001) from the inner shield.



Removing the TFT-LCD panel assembly

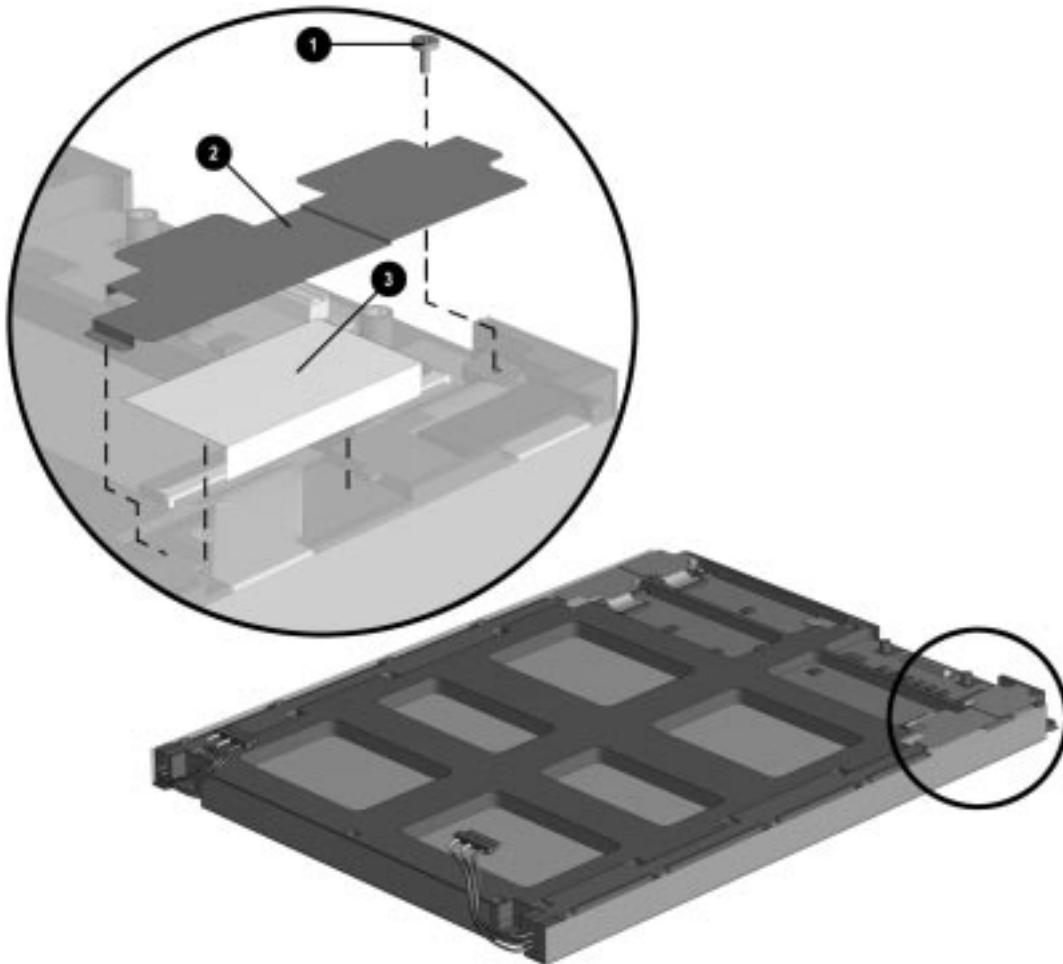
To replace the TFT-LCD panel assembly, reverse this procedure.



CAUTION: Never use water to clean an LCD screen. Use a dry, soft clean cloth or an antistatic CRT screen cleaner.

1.6.11 Backlights

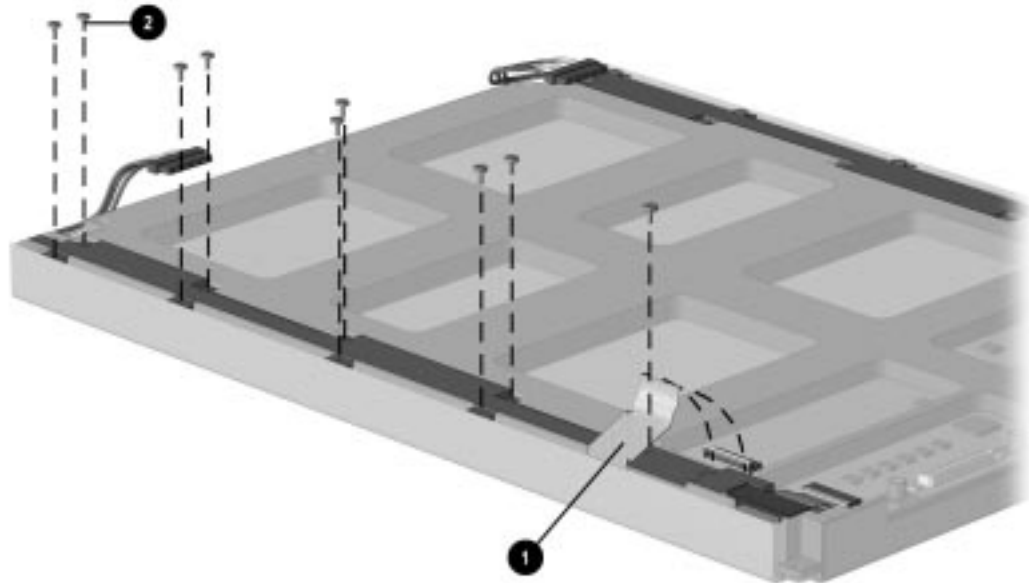
1. Remove the screw ❶ that secures the small metal cable shield.
2. Gently pull up on the small metal shield ❷* and slide it forward to remove.
3. Gently pull up the mylar shield ❸* and remove.



Removing the small metal shield and mylar shield

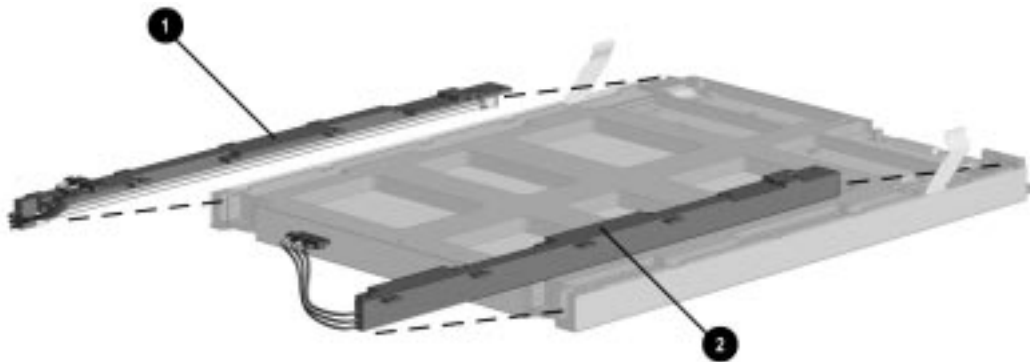
* Part of backlight spares kit, (spare part no. 170422-001).

4. Disconnect the left ribbon cable ❶.
5. Remove nine screws ❷.



Disconnecting the left cable and removing nine screws

6. Gently pull the backlights ❶❷ (spare part no. 170422-001) out of the LCD.



Removing the backlights

To replace the backlights, reverse this procedure.

- ✎ Both backlights must be replaced at the same time to maintain even lighting.
- ✎ Backlights are marked “top” and “bottom.” They are not interchangeable.

chapter 2

ILLUSTRATED PARTS MAP



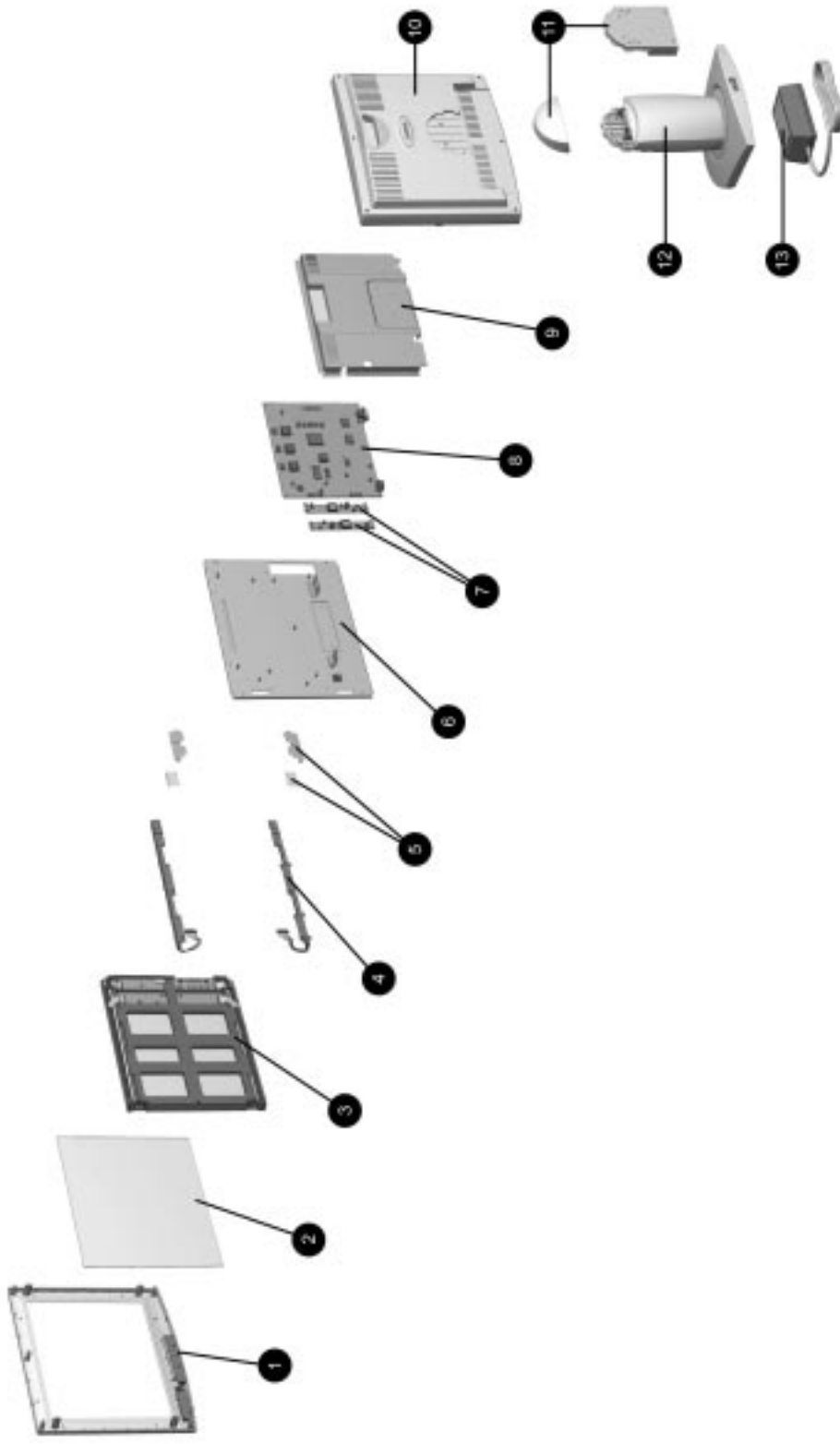
Compaq TFT450 Flat Panel Monitor

Compaq TFT450 Flat Panel Monitor

Description	Part Number
1. Front Bezel Assembly	170421-001
2. Protective Cover	170425-001
3. TFT-LCD Panel Assembly	170423-001
4. Backlights (2)	170422-001
5. Cable Shields (in cable kit)	170424-001
6. TFT Panel Shield**	n/a
7. Inverter Boards (2)	170432-001
8. Controller Board	170420-001
9. EMI Shield	170435-001
10. Rear Enclosure	170419-001
11. Miscellaneous Plastic Kit* (includes the mounting plate and base cap)	170430-001
12. Monitor Base	170418-001
13. AC Adapter	170427-001
14. Miscellaneous Cables*	170424-001
15. Video Cable *	170428-001
16. USB Cable *	170429-001
17. Miscellaneous Hardware Kit* (5 of each screw)	170426-001
18. Return Kit*	170408-001
19. Carton, Q-5 International*	170408-002

*Not included in the illustration

**This item is not spared



Illustrated Parts Map