COMPAQ

Flat Panel Monitor Rackmount (TFT450R)

User Guide

First Edition (December 1998)
Part Number 332657-021
Compaq Computer Corporation

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About This Guide

This guide is designed to be used as step-by-step instructions for installation and as a reference for operation, troubleshooting, and future upgrades.

Text Conventions

This document uses the following conventions to distinguish elements of text:

Keys	Keys appear in boldface. A plus sign (+) between two keys indicates that they should be pressed simultaneously.
USER INPUT	User input appears in a different typeface and in uppercase.
FILENAMES	File names appear in uppercase italics.
Menu Options, Command Names, Dialog Box Names	These elements appear in initial capital letters.
COMMANDS, DIRECTORY NAMES, and DRIVE NAMES	These elements appear in uppercase.
Type	When you are instructed to *type* information, type the information **without** pressing the **Enter** key.
Enter	When you are instructed to *enter* information, type the information and then press the **Enter** key.

Symbols in Text

These symbols may be found in the text of this guide. They have the following meanings.

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 information.

IMPORTANT: Text set off in this manner presents clarifying information or specific instructions.

NOTE: Text set off in this manner presents commentary, sidelights, or interesting points of information.

Symbols on Equipment

These icons may be located on equipment in areas where hazardous conditions may exist.

Any surface or area of the equipment marked with these symbols indicates the presence of electrical shock hazards. Enclosed area contains no operator serviceable parts.
WARNING: To reduce the risk of injury from electrical shock hazards, do not open this enclosure.

Any RJ-45 receptacle marked with these symbols indicates a Network Interface Connection.
WARNING: To reduce the risk of electrical shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.

Any surface or area of the equipment marked with these symbols indicates the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists.
WARNING: To reduce the risk of injury from a hot component, allow the surface to cool before touching.

Power Supplies or Systems marked with these symbols indicate the equipment is supplied by multiple sources of power.

WARNING: To reduce the risk of injury from electrical shock, remove all power cords to completely disconnect power from the system.

Rack Stability

WARNING: To reduce the risk of personal injury or damage to the equipment, be sure that:

- The leveling jacks are extended to the floor.
- The full weight of the rack rests on the leveling jacks.
- The stabilizing feet are attached to the rack if it is a single rack installations.
- The racks are coupled together in multiple rack installations.
- A rack may become unstable if more than one component is extended for any reason. Extend only one component at a time.

Getting Help

If you have a problem and have exhausted the information in this guide, you can get further information and other help in the following locations.

Compaq Technical Support

You are entitled to free hardware technical telephone support for your product for as long you own the product. A technical support specialist will help you diagnose the problem or guide you to the next step in the warranty process.

In North America, call the Compaq Technical Phone Support Center at 1-800-OK-COMPAQ[1]. This service is available 24 hours a day, 7 days a week.

Outside North America, call the nearest Compaq Technical Support Phone Center. Telephone numbers for world wide Technical Support Centers are

[1] For continuous quality improvement, calls may be recorded or monitored.

listed on the Compaq website. Access the Compaq website by logging on to the Internet at http://www.compaq.com.

Be sure to have the following information available before you call Compaq:

- Technical support registration number (if applicable)
- Product serial number (s)
- Product model name(s) and numbers(s)
- Applicable error messages
- Add-on boards or hardware
- Third-party hardware or software
- Operating system type and revision level
- Detailed, specific questions

Compaq Website

The Compaq website has information on this product as well as the latest drivers and Flash ROM images. You can access the Compaq website by logging on to the Internet at http://www.compaq.com.

Compaq Authorized Reseller

For the name of your nearest Compaq authorized reseller:

- In the United States, call 1-800-345-1518.
- In Canada, call 1-800-263-5868.
- Elsewhere, see the Compaq website for locations and telephone numbers.

Chapter 1

Introduction

The Flat Panel Monitor Rackmount (TFT450R) is a convenient rack mount system for easy monitor storage and access. Use the fixed position mounting bracket to affix the monitor to the front of your rack for constant access.

The retractable assembly occupies 2Us of Compaq rack space and can be used with all Compaq Rack Series servers. The fixed mounting bracket assembly occupies 8Us of Compaq rack space and can be used with all Compaq Rack Series servers.

The Compaq TFT450 Flat Panel Monitor has a 14.5-inch (36.83 cm) flat panel screen with an active matrix, thin-film transistor (TFT) liquid crystal display (LCD). It supports resolutions up to 1024 x 768, and has typical viewing angles of 120 degrees horizontally and 100 degrees vertically.

Monitor Features

The monitor features include:

- 14.5-inch (36.83 cm) viewable area display
- On-Screen Display (OSD) adjustments in five different languages:
  - English
  - Dutch
  - French
  - German
  - Spanish
- Fault Management and Asset Control

- Automatic scanning with screen expansion
- 1024 x 768 (XGA) resolution
- Wide viewing angle to allow viewing from a standing position or moving side-to-side
- Energy Saver feature
- Programmable sleep mode timer
- Compliant with the following regulated specifications:
  - Swedish MPR II 1990
  - EPA Energy Star
  - European Union CE Directives
  - Swedish TCO 1992

Graphics Driver

This monitor may require a graphics driver (and/or .INF file) that is compatible with your computer's graphics adapter. Compaq has created a Universal Driver Manager (UDM) release that supports all Compaq QVision, S3, Cirrus Logic, and Matrox graphics adapters found on Compaq products. The UDM eases graphic driver deployment across Compaq platforms ensuring cross-compatibility and backward-compatibility. The resulting solution enables you to manage and control ongoing software maintenance costs. The UDM is available on the Support Software CD for Compaq products and the Compaq website (www.compaq.com).

Chapter 2

Installing the Monitor

Installing the Retractable Tray

The TFT450R retractable tray attaches to the mounting brackets with sliding rails to allow storage and easy access of the monitor.

To install the retractable tray:

1. Determine the rack position of the TFT450R retractable tray from the printed report generated by the Rack Builder software.
2. Use the template to mark the attachment points for the mounting brackets and rear cage nuts on the front and rear of the rack frame.
3. Mark the rack at the top of the template to help align the next component.

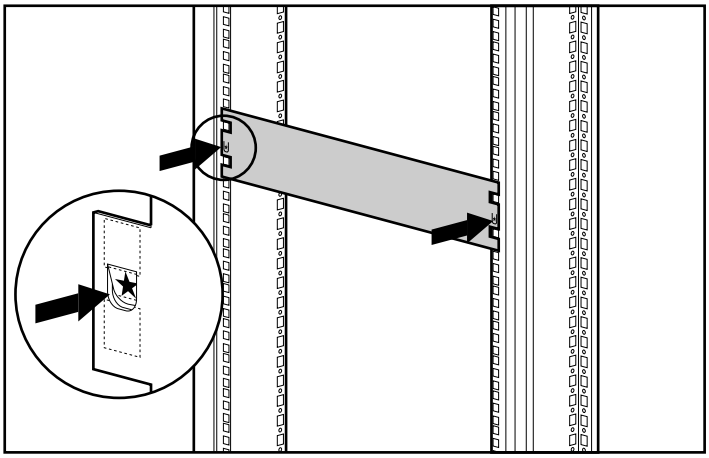


Figure 2-1. Measuring with the 2U template

4. Insert cage nuts on the rear of the rack in each of the holes marked using the template.
5. Insert a rail mounting bracket into the rack and hook the tabs into the appropriate holes in the rear of the rack, aligning the screw holes at the front of the rack.

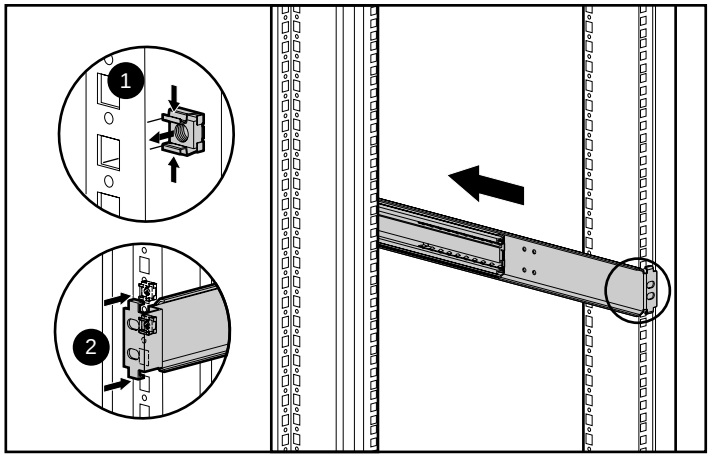


Figure 2-2. Inserting the cage nuts and attaching the rail mounting bracket

6. Attach the mounting bracket to the front of the rack using two M6 screws. The tabs on the front of the mounting bracket help to align it with the front of the rack frame.

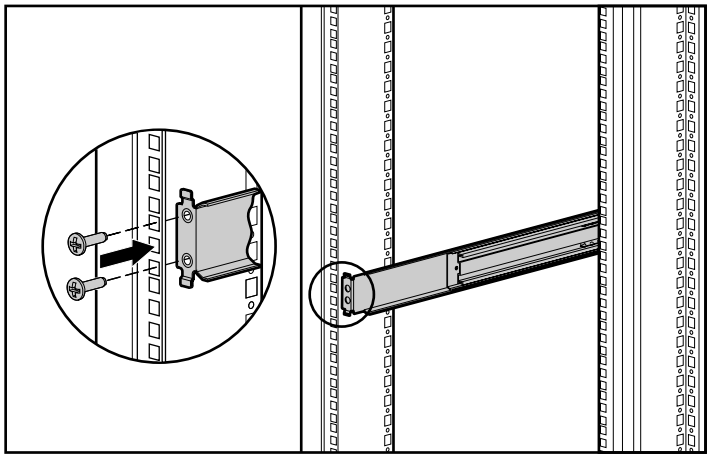


Figure 2-3. Attaching the mounting bracket to the front of the rack

7. Attach the Latch Bracket to each mounting bracket with the latch receptacle (located in the center of the latch bracket) facing the front of the rack.
8. Slide bracket over lower guide tab, then align thumbscrew with the lower hole of each rail and push in.
9. Turn to tighten.

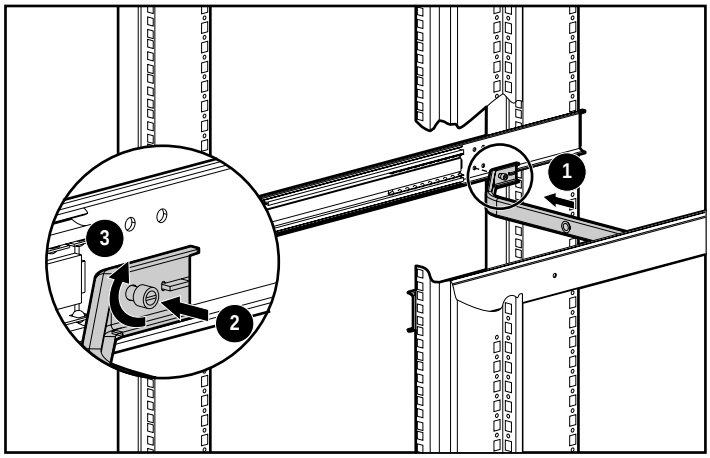


Figure 2-4. Attaching the latch bracket

CAUTION: To reduce the risk of damage to the monitor, be sure that it remains stable at all times.

10. Tilt the monitor up. Make sure that the monitor power cord and monitor signal cable are properly seated in the plastic guides on the rear of the monitor. Remove the plastic strip from the tape and affix to the AC adapter then secure the AC adapter to the tray.

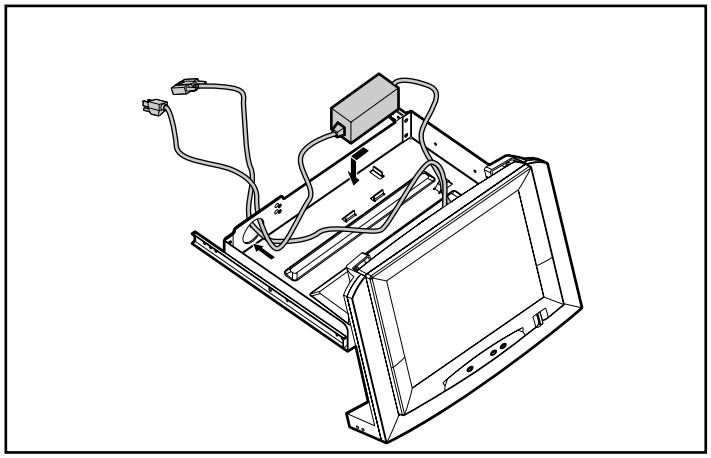


Figure 2-5. Mounting the AC adapter

11. Secure the cord and cable under the tabs in the bottom of the tray.
12. Attach the AC power cord to the AC adapter.
13. Thread the monitor signal cable and AC power cord through the hole in the rear of the tray.
14. Set the cables back into the tray and tilt the monitor down to its flush position.
15. Fully extend the slide rails on the retractable tray assembly, then align. Slide the tray assembly in until it locks into place.

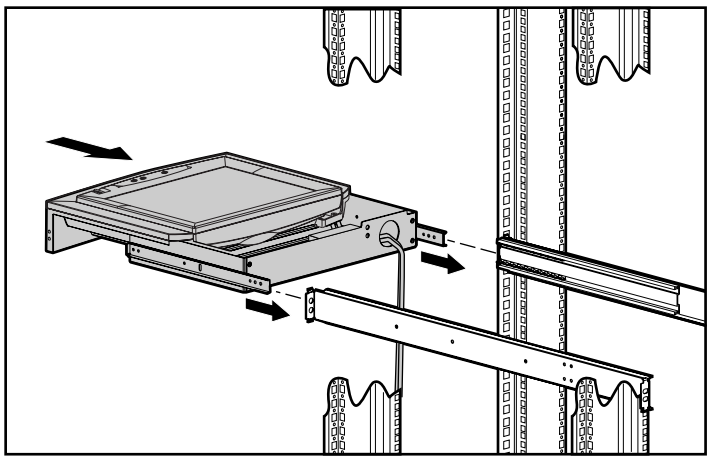


Figure 2-6. Inserting the retractable tray into the rack

Attaching the Cable Management Arm

The cable management arm attaches to the rear of the tray on the right side. From the rear of the rack:

1. Line up the thumbscrews in the cable management arm with the holes in the retractable tray.
2. Push in the thumbscrews.
3. Tighten the thumbscrews.

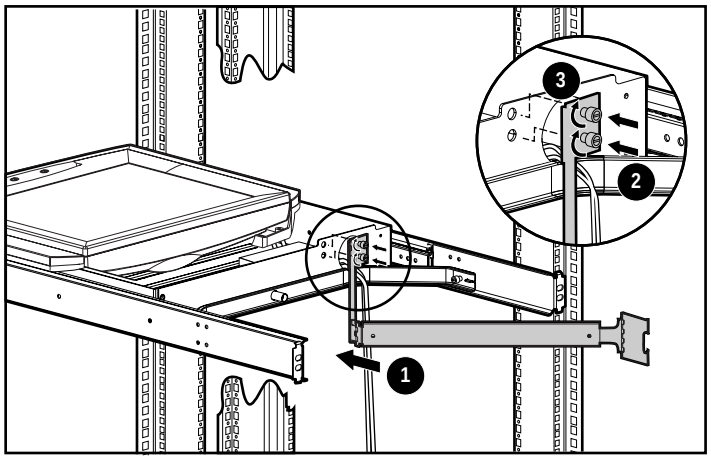


Figure 2-7. Attaching the cable management arm to the retractable tray

4. Align the cable management arm with the cage nuts previously installed in the rear of the rack.

5. Attach using two M-6 screws.

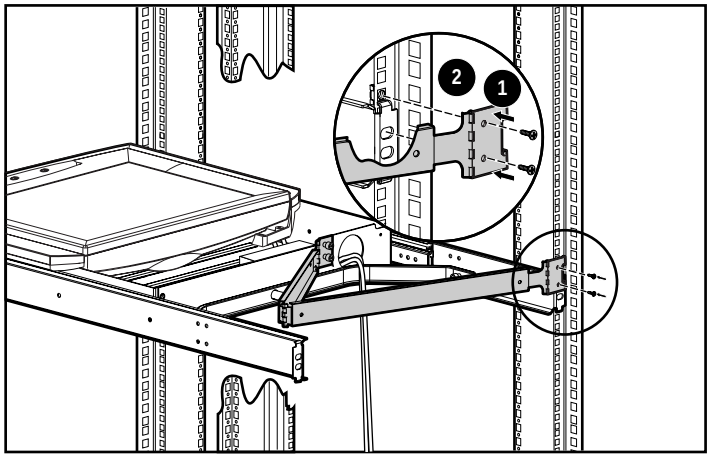


Figure 2-8. Attaching the cable management arm to the rear of the rack

6. Route the cables along the cable management arm; secure using the 4 fasteners provided.

Using the Sliding Shelf

To store the monitor:

1. Tilt it back so that it rests flat in the retractable tray.
2. Slide the tray into the rack until the latch is engaged.

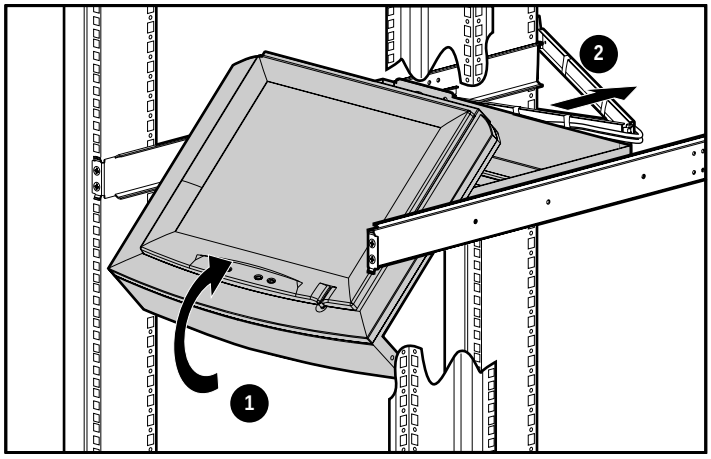


Figure 2-9. Using the retractable tray

To access the monitor:

1. Push in on the plastic frame to release.
2. Pull out until the tray is fully extended.

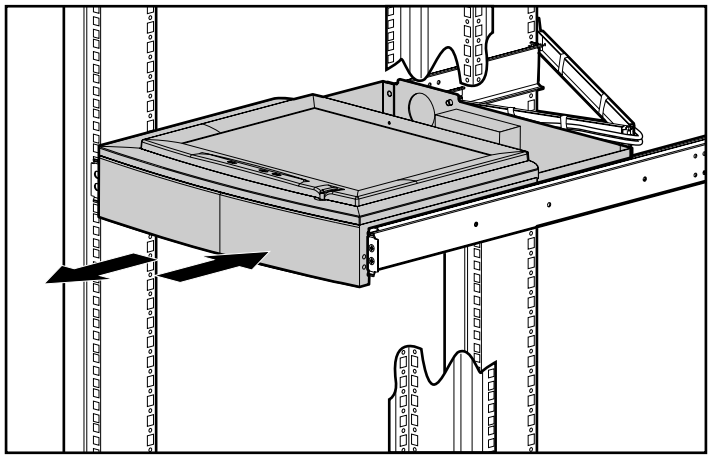


Figure 2-10. Accessing the monitor

3. Tilt the monitor up to desired viewing angle.

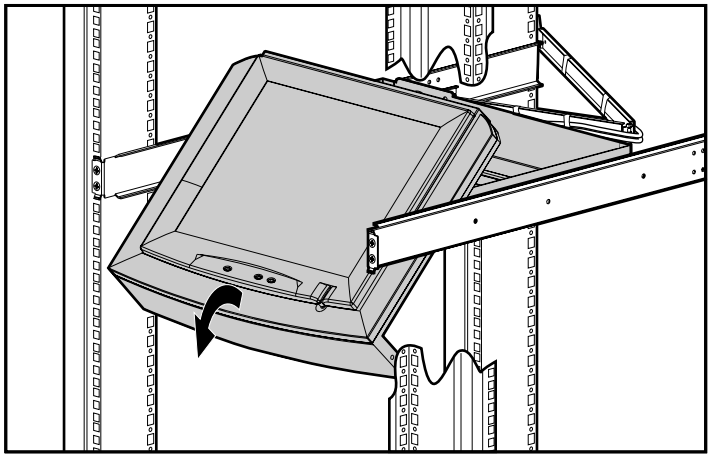


Figure 2-11. Setting the monitor viewing angle

Removing the TFT450R

To remove the TFT450R from the rack:

1. Detach cables from the cable management arm.
2. Remove the cable management arm.
3. Fully extend the tray at the front of the rack and firmly hold the TFT450R while pushing in on the metal release levers on each of the mounting brackets.
4. Pull the tray straight out and remove.

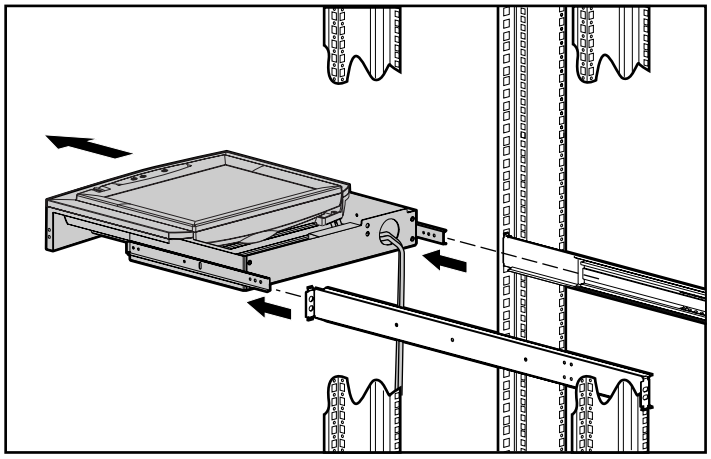


Figure 2-12. Removing the retractable tray from the rack

Using the Fixed Mounting Bracket

1. Determine the best rack position for the fixed mounting bracket from the printed report generated by the Rack Builder software.
2. Use the template to mark the attachment points for the mounting bracket.

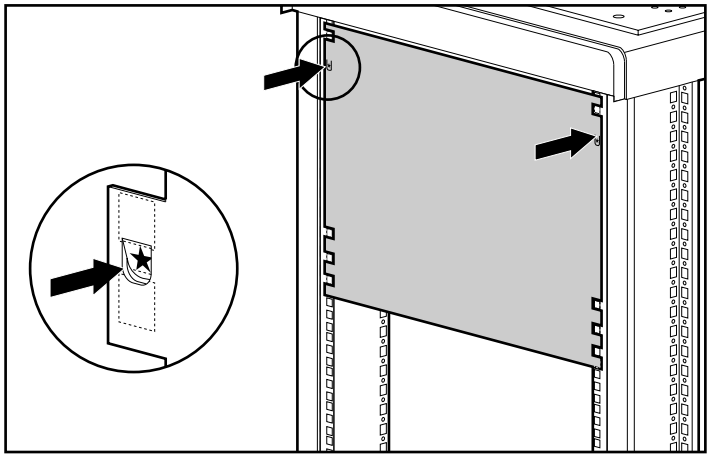


Figure 2-13. Measuring with the 8U template

3. Insert all cage nuts.
4. Turn the tray over and set it on the edge of a flat, non-abrasive, unobstructed surface.

> **CAUTION**: To reduce the risk of damage to the monitor, be sure that it remains stable at all times.

5. Tilt the monitor out and remove the four screws securing the bracket to the monitor. Retain these screws for use in step 11.
6. Remove it from the tray.

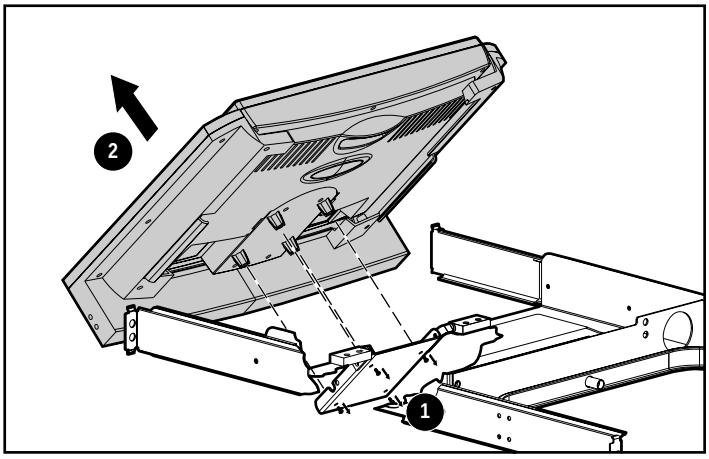


Figure 2-14. Removing the monitor from the tray

7. Turn the monitor over and set it on a flat, non-abrasive, unobstructed surface.
8. Remove the four screws securing the plastic frame to the monitor.
9. Remove the plastic frame.

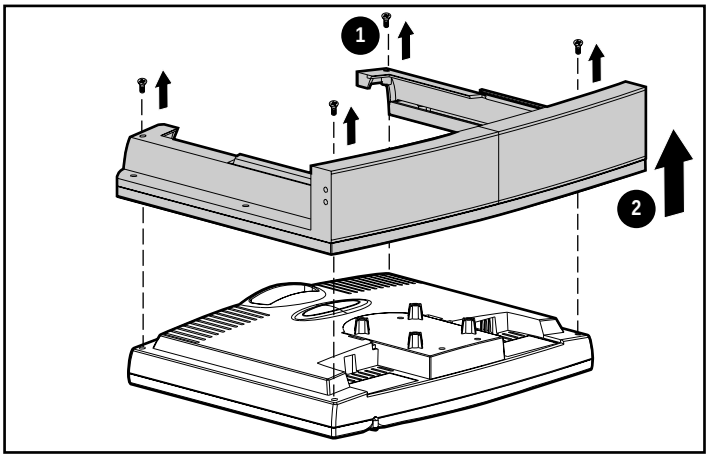


Figure 2-15. Removing the plastic frame

10. Insert four screws (part no. 125275-003) into the empty holes to secure the back of the monitor.

CAUTION: To reduce the risk of damage to the monitor, do no attempt to move it until these 4 screws are in place.

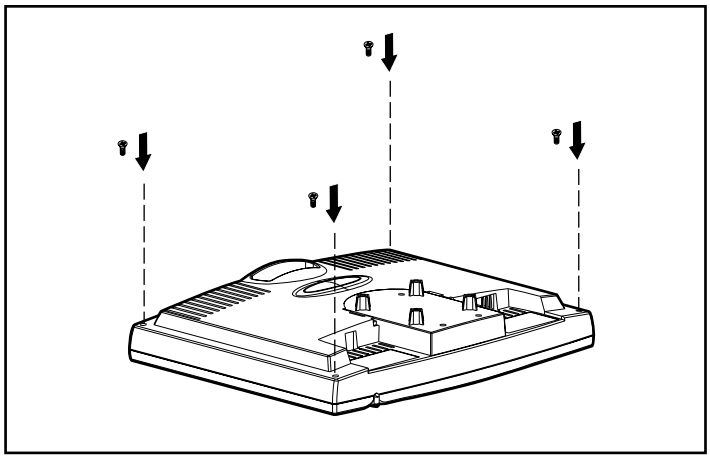


Figure 2-16. Inserting the monitor case screws

11. Place the fixed bracket on top of the monitor and secure it with the four screws retained from Step 5. Be sure that the monitor signal cable and AC Power cord are plugged into the monitor.

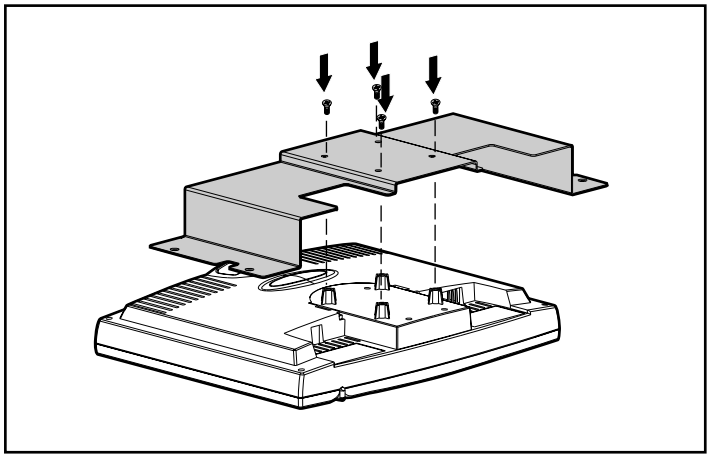


Figure 2-17. Attaching the fixed bracket

NOTE: There are fingers holes on each side of the bracket to allow future access for unplugging of the monitor cables.

12. Place the power supply tray onto the bracket on either side.

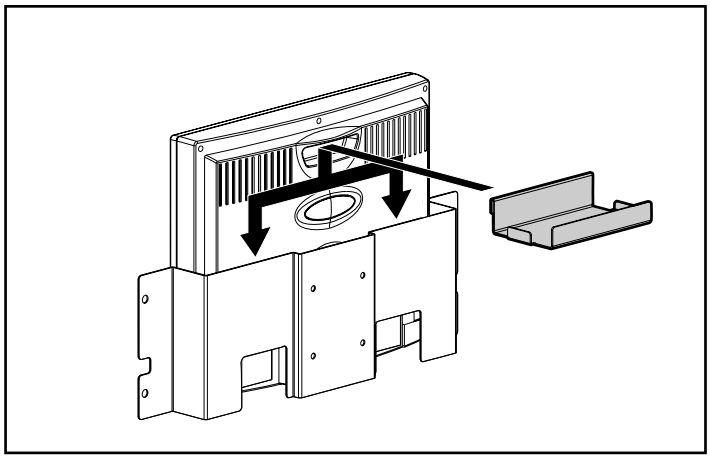


Figure 2-18. Placing the power supply tray

13. Hold the monitor with bracket at a slight angle.
14. Move the monitor into the rack.
15. Pull the monitor forward and align the holes with the markings on the rack.
16. Secure with four M6 screws.

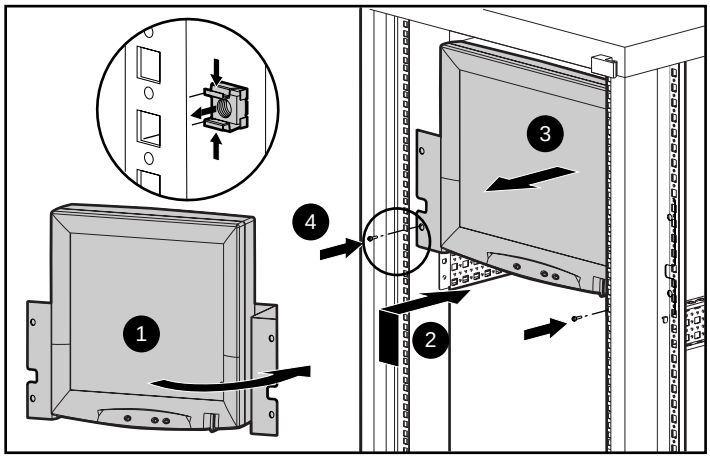


Figure 2-19. Attaching the fixed mounted monitor to the rack

17. Place the AC adapter on the onto the power supply tray.
18. Move the faceplate into position over the cage nuts and secure with four M6 screws.

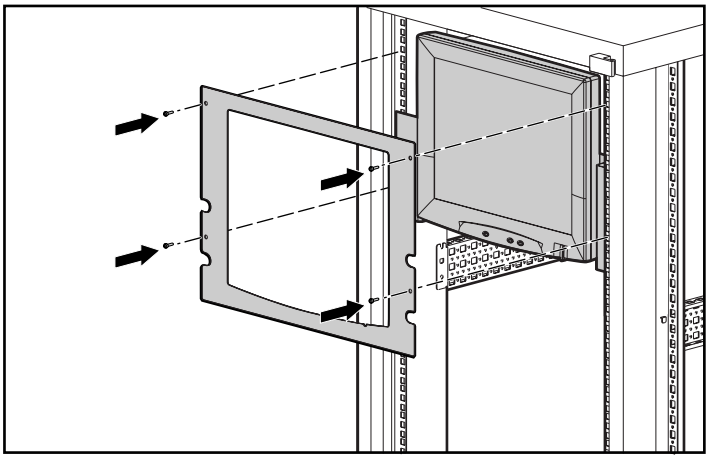


Figure 2-20. Attaching the faceplate

Using the Stabilizing Bracket

The Stabilizing Bracket allows you to secure your Flat Panel Monitor Rackmount (TFT450R) to the rack using thumbscrews.

Follow the procedures to install the Flat Panel Monitor Rackmount (TFT450R) Rack Option Kit but DO NOT install the lower, front screw in each of the rail mounting brackets and DO NOT install the Latch Bracket.

1. Attach the Stabilizing Bracket to the rack with the top hole aligned with the bottom hole of the rail mounting bracket using two M6 screws. If you are using the Stabilizing Bracket on an existing installation, remove the lower front screw from each rail mounting bracket.

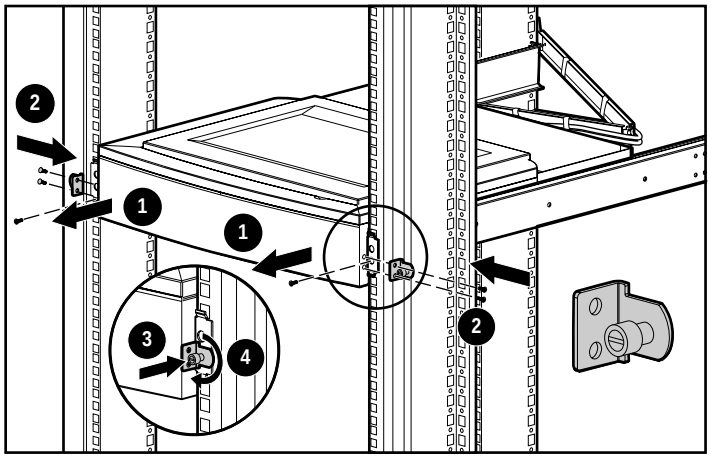


Figure 2-21. Attaching the stabilizing bracket

2. Attach the Stabilizing Bracket to each side of the plastic frame using two 8-32x1/4 screws.
3. Push the thumbscrew into the rack.
4. Turn the thumbscrew to tighten.

Setting Up the Monitor

To set up the monitor, make sure that the power to the monitor, computer system, and other attached devices is turned off.

Be sure that one end of the monitor signal cable is connected to the rear panel of the monitor; then connect the other end to the 15- pin connector on the rear panel of the computer and tighten the screws.

CAUTION: Be sure the signal cable aligns with the 15-pin connector. Do not force the cable onto the connector or you may damage the signal cable.

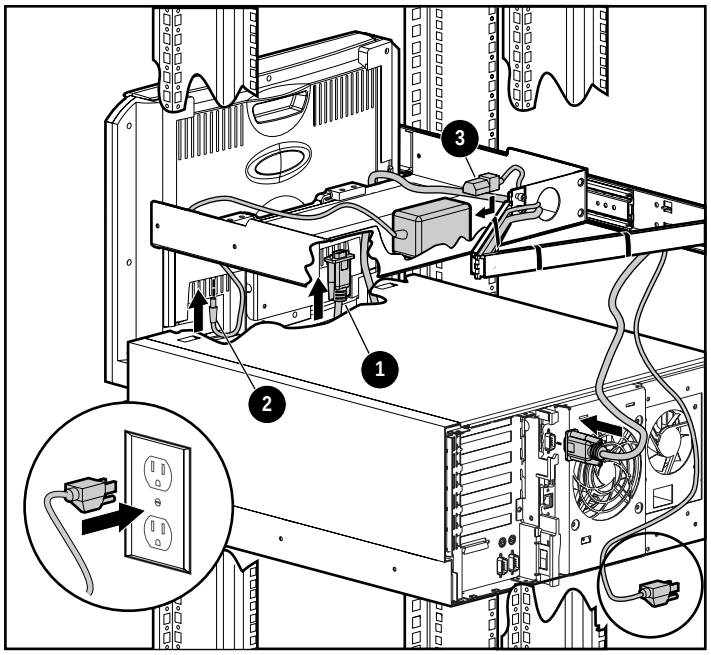


Figure 2-22. Connecting the cables

The monitor power cord that extends from the AC adapter into the back of the monitor must be connected.

One end of the AC power cord must be connected to the AC adapter and the other end to an electrical outlet that is easily accessible and close to the monitor.

CAUTION: : When connecting the monitor, be sure to sue the AC adapter supplied with the monitor. Failure to use this AC adapter may result in damage to the monitor.

WARNING: To reduce the risk of electric shock or damage to your equipment, do not disable the power cord grounding feature. This equipment is designed to be connect to a grounded (earthed) power outlet that is easily accessible to the operator. The grounding plug is an important safety feature.

CAUTION: Be sure that the power outlet you plug your power cord into is easily accessible and located as close to the equipment operator as possible. When you need to disconnect power to the equipment, be sure to unplug the power cord from the power outlet.

Chapter 3

Operating the Monitor

On-Screen Display Settings

The adjustments for screen settings are located in the on-screen display (OSD) and can be viewed in one of five available languages. The following table shows the functions at each level:

Table 3-1
On-Screen Display Functions

Menu Level 1	Menu Level 2	Menu Level 3
Brightness	Adjusts the brightness of the screen's backlights.	
Contrast	Adjusts screen contrast.	
Position	Horizontal Position Vertical Position Cancel Save and Return	Adjustment scale Adjustment scale
Digital Conversion	Clock Clock Phase Clock Phase File Cancel Save and Return	Adjustment scale Adjustment scale Adjustment scale

continued

Table 3-1
On-Screen Display Functions *continued*

Menu Level 1	Menu Level 2	Menu Level 3
Language	English Nederlands Francais Deutsch Espanol Cancel Save and Return	
Management	Full Screen Power Saver Mode Display Serial Number Timer Functions	ON OFF ON OFF ON OFF Displays Serial Number Clk & Timer Adj Menu (Programmable sleep mode)
Factory Reset	Resets the screen to its factory settings. Cancel/Reset	
Exit	Turns off the on-screen menu.	

Table 3-2
Front Control Panel

Number/Icon	Control	Function
	Menu Button	• Launches first and second level on-screen menus • Exits menus and on-screen display
	Minus Button	Selects and adjusts the functions
	Plus Button	Selects and adjusts the functions
	Power Switch	Turns the monitor on and off
	Power LED	• Green indicates monitor is turned on. • Yellow indicates suspend mode. • Amber indicates sleep mode. • Blinking Green/Amber indicates programmable sleep mode.

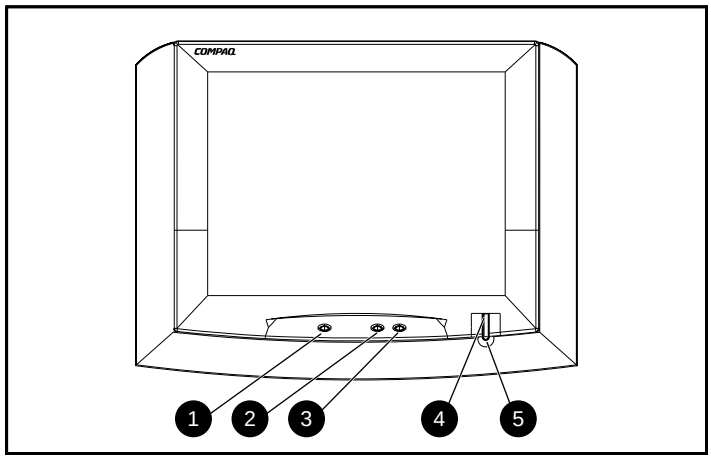


Figure 3-1. Front control panel

Adjusting the Settings

To launch the on-screen display Main Menu:

1. Press the Menu button on the monitor front panel. The Main Menu displays on the monitor screen.
2. To select a menu item, scroll down by pressing the Minus (-) button or scroll up, by pressing the Plus (+) button.
3. Press the Menu button again to select your choice. A second level menu with expanded menu items displays.
4. Use the Plus (+) or Minus (-) buttons to highlight your choice, then select *Save and Return*. To void any changes made, select *Cancel* instead of *Save and Return*.

   NOTE: The second level menu for Brightness and Contrast displays an adjustment screen. Use the Minus button to decrease and the Plus button to increase the screen brightness and contrast.

5. Access the third level menu by selecting a function, then pressing the Menu button. Adjust the third level menu displays using the same procedures as the second level.
6. To exit from the on-screen menu, select *Exit* from the Main Menu. If the display is a second or third level menu, select *Save and Return* or *Cancel*, then select *Exit* from the Main Menu.

Programmable Sleep Mode

Programmable sleep mode is an energy-saving feature that enables you to set a time for the monitor to power on and off at the same time every day. To set the timer:

1. Press the Menu button on the monitor front panel to display the Main Menu.
2. Scroll down and highlight *Management*, then press the Menu button to select.
3. In Menu Level 2, scroll down and highlight *Timer Functions*, then press the Menu button to select.
4. In Menu Level 3, use the Minus or Plus buttons to select *Set Current Time*.

   NOTE: You must set the current local time before you reset the time for Display Sleep Time or Display ON Time.

5. Press the Menu button to enter the adjustment mode.
6. Press the Minus or Plus buttons to adjust the time.
7. Press the Menu button to lock the time chosen.
8. Repeat steps 4-7 to reset Display Sleep Time and Display ON Time.
9. When you are finished, select *Save and Return* to exit the menu.

Adjusting Picture Quality

Allow the monitor to warm up for 30 minutes before performing the following procedures. The picture image stabilizes after a warm-up period.

Optimizing Contrast

For best results, set your screen to a light background (such as the Windows Desktop) before adjusting the following settings:

1. Set the brightness control to its maximum settings.
2. Adjust the contrast setting until all colors are set to your preference.

Optimizing Digital Conversion

The Compaq TFT450 Monitor contains advanced circuitry that allows the flat panel screen to function in the same way as a standard monitor. Two controls in the on-screen display can be adjusted to improve image performance or digital conversion: Clock and Clock Phase. Increasing the Clock value increases the horizontal size of the image, and adjusting the Clock Phase focuses the display.

NOTE: Selecting some values of Clock and Clock Phase may cause the monitor to lose sync with the computer. If this occurs, continue adjusting the values until sync is regained. To restore the factory settings, select Reset from the Factory Reset menu in the on-screen display.

Display Resolutions

The display resolutions listed below are the most commonly used modes and are set as factory defaults. This monitor automatically recognizes these preset modes when they are requested by a software program and provides you with a properly sized and centered display.

Table 3-3
Display Resolutions

Preset Modes	Resolutions
1. Industry Standard	640 x 350 at 31.5 kHz/70 Hz
2. Industry Standard	640 x 480 at 31.5 kHz/60 Hz
3. VESA	640 x 480 at 37.5 kHz/75 Hz
4. VESA	640 x 480 at 43.3 kHz/85 Hz
5. Industry Standard	720 x 400 at 31.5 kHz/70 Hz
6. VESA	800 x 600 at 37.8 kHz/60 Hz
7. VESA	800 x 600 at 46.9 kHz/75 Hz
8. VESA	800 x 600 at 53.7 kHz/85 Hz
9. Macintosh	832 x 624 at 49.7 kHz/75 Hz
10. VESA	1024 x 768 at 48.4 kHz/60 Hz
11. VESA	1024 x 768 at 56.5 kHz/70 Hz
12. VESA	1024 x 768 at 60 kHz/75 Hz

User Modes

The video controller signal may occasionally call for a mode that is not present if you are not using a Compaq standard graphics adapter or you are not using a preset mode.

If this occurs, you may need to readjust the parameters of the monitor screen by using the on-screen display. User changes can be made to any or all of these modes and saved in memory. The monitor automatically stores the new setting, then automatically recognizes the new mode just as it does a preset mode. In addition to the 12 preset modes that can be changed and stored, there are 4 user modes that can be entered and stored.

To reset factory default settings, select *Reset* from the Factory Reset menu in the on-screen display, and the factory default resolutions replace the user changes that were made.

Energy Saver Feature

The energy saver feature has three different modes of operation:

- Full power
- Suspend
- Sleep

By selecting settings in the computer's Energy Saver utility, you are able to determine the length of the inactivity period before the monitor goes into suspend or sleep mode.

The following table describes the monitor's energy saver levels available during the different modes of operation.

Table 3-4
Energy Saver Levels

Mode	Power Usage	Description
Full Power	Less than 35 watts	ON = Normal operation Power LED is green.
Suspend	Less than 10 watts	Monitor screen is blanked. Backlights are turned off. Power LED turns yellow. Full power mode returns quickly.
Sleep	Less than 8 watts	Monitor screen is blanked. Backlights are turned off. Power LED turns amber. There is a brief warm-up period before returning to full power mode.
Programmable Sleep	Less than 8 watts	Monitor screen is blanked. Backlights are turned off. Power LED blinks green and amber. There is a brief warm-up period before returning to full power mode.

Refer to your computer manual for instructions on setting energy saver features (sometimes referred to as power management features).

NOTE: The energy saver features for monitors only work when connected to computers that have energy saver features.

Care and Maintenance

This section explains how to care for and maintain your Compaq monitor during normal everyday use.

Protecting the Monitor

To protect your monitor from overheating and other types of damage:

- Use only a power source and connection appropriate for this monitor, as indicated on the marking label/back plate.
- If an extension cord or power strip is used, make sure that the cord or strip is rated for the product and that the total ampere ratings of all products plugged into the extension cord or power strip do not exceed 80% of the extension cord or strip ampere ratings limit.
- Do not overload an electrical outlet, power strip, or convenience receptacle. The overall system load must not exceed 80% of the branch circuit rating. If power strips are used, the load should not exceed 80% of the power strip input rating.
- Install the monitor near an outlet that you can easily reach. Disconnect the product by grasping the plug firmly and pulling it from the outlet. Never disconnect it by pulling the cord.
- Unplug the monitor from the wall outlet before cleaning. Do no use liquid cleaners or aerosol cleaners.
- Slots and openings in the monitor are provided for ventilation. These openings must not be blocked or covered. Never push objects of any kind into these slots or other openings.
- Do not place plants on top of the monitor. Water or dirt from the plant may fall into the vents.
- Do not drop the monitor or place it on an unstable surface.
- Do not allow anything to rest on the power cord. Do not walk on the cord.
- Keep the monitor in a well-ventilated area, away from excessive light, heat, and moisture. Keep the monitor away from high capacity transformers, electric motors, and other strong magnetic fields.
- Do not open the monitor case or attempt to service this product yourself. Adjust only those controls that are covered by the operating instructions. If the monitor is not operating properly or has been dropped or damaged, contact your Compaq authorized dealer, reseller, or service provider.

Cleaning the Monitor

To clean the monitor:

1. Turn off the monitor and the computer.
2. Dust the monitor by wiping the screen and the cabinet with a soft, clean cloth.

If the screen requires additional cleaning, use any antistatic CRT screen cleaner.

CAUTION: Do not use benzene, thinner, ammonia, or any volatile substance to clean the monitor screen or cabinet. These chemicals may damage the monitor. Never use water to clean an LCD screen.

Shipping the Monitor

Keep the original packing box in a storage area in case you need to move or ship your monitor.

Appendix A

Regulatory Compliance Notices

Regulatory Compliance Identification Numbers

For the purpose of regulatory compliance certifications and identification, your Flat Panel Monitor Rackmount (TFT450R) is assigned a Compaq Series Number. The Compaq Series number for this product is: Series 643. The Flat Panel Monitor Rackmount (TFT450R) Series Number can be found on the product label, along with the required approval markings and information. When requesting certification information for this product, always refer to this Series Number. This series number should not be confused with the marketing name or model number for your Flat Panel Monitor Rackmount (TFT450R).

Federal Communications Commission Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures::

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help.

Declaration of Conformity for Products Marked with the FCC logo — United States Only

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For questions regarding your product, contact:

Compaq Computer Corporation
P. O. Box 692000, Mail Stop 530113
Houston, Texas 77269-2000

or call 1-800- 652-6672 (1-800-OK COMPAQ). (For continuous quality improvement, calls may be recorded or monitored.)

For questions regarding this FCC declaration, contact:

Compaq Computer Corporation
P. O. Box 692000, Mail Stop 510101
Houston, Texas 77269-2000

or call (281) 514-3333.

To identify this product, refer to the Part, Series, or Model number found on the product.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Compaq Computer Corporation may void the user's authority to operate the equipment.

Cables

Connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods in order to maintain compliance with FCC Rules and Regulations.

Canadian Notice (Avis Canadien

)This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

German Ergonomics Notice

Compaq Computers, when tested with the Compaq 643 Series monitors, were evaluated and found compliant to the requirements of ZH 1/618 (German Safety Regulations for Display Work Places in the Office Sector) in the Text Mode (720 x 400) using MS-DOS version 3.31 (or higher) and BASICA as published by Compaq Computer Corporation.

EPA Energy Star Compliance

Monitors that are marked with the Energy Star Logo meet the requirements of the EPA Energy Star program. As an Energy Star Partner, Compaq Computer Corporation has determined that this product meets the Energy Star guidelines for energy efficiency. Specific details on using the Energy Saving features can be found in the energy saver or power management section of the computer manual.

European Union Notice

Products with the CE Marking comply with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European Norms (in brackets are the equivalent international standards):

- EN55022 (CISPR 22) - Electromagnetic Interference
- EN50082-1 (IEC801-2, IEC801-3, IEC801-4) - Electromagnetic Immunity

- EN60950 (IEC950) - Product Safety

Japanese Notice

ご使用になっている装置にVCCIマークが付いていましたら、次の説明文をお読み下さい。

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

VCCIマークが付いていない場合には、次の点にご注意下さい。

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です　この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

Taiwanese Notice

警告使用者：

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Appendix B

Electrostatic Discharge

Precautions

To prevent damaging the system, be aware of the precautions you need to follow when setting up the system or handling parts. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

To prevent electrostatic damage, observe the following precautions:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-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 a static-sensitive component or assembly.

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 heel straps, toe straps, or boot straps 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 static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, have an Authorized Compaq Reseller install the part.

NOTE: For more information on static electricity, or assistance with product installation, contact your Authorized Compaq Reseller.

Appendix C

Power Cord Set Requirements

The power cord set meets the requirements for use in the country where you purchased your equipment. The voltage selection switch allows you to select the appropriate line voltage for your server.

Power cord sets for use in other countries must meet the requirements of the country where you use the server. For more information on power cord set requirements, contact your Authorized Compaq Dealer.

General Requirements

The requirements listed below are applicable to all countries:

- The length of the power cord must be at least 6.0 feet (1.8 m) and a maximum of 12 feet (3.7 m).
- The power cord set must be approved by an acceptable accredited agency responsible for evaluation in the country where the power cord will be used.
- The power cord set must have a minimum current capacity and nominal voltage rating of 10 A/125 volts AC, or 10A/250 volts AC, as required by each country's power system.
- The appliance coupler must meet the mechanical configuration of an EN60320/IEC 320 Standard Sheet C13 Connector, for mating with the appliance outlet on the computer.

Country-Specific Requirements

Use the following table to identify the appropriate accredited agency in your country.

Table C-1
Power Cord Set Requirements - By Country

Country	Accredited Agency	Applicable Note Numbers
Australia	EANSW	1
Austria	OVE	1
Belgium	CEBC	1
Canada	CSA	2
Denmark	DEMKO	1
Finland	SETI	1
France	UTE	1
Germany	VDE	1
Italy	IMQ	1
Japan	JIS	3
Norway	NEMKO	1
Sweden	SEMKO	1
Switzerland	SEV	1
United Kingdom	BSI	1
United States	UL	2

Notes:

1. Flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 mm^2 conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.
2. Flexible cord must be Type SVT or equivalent, No. 18 AWG, 3-conductor. Wall plug must be a two-pole grounding type with a NEMA 5-15P (15A, 125V).
3. Appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. Flexible cord must be Type VCT or VCTF, 3-conductor, 1.0 mm^2 conductor size. Wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7A, 125V) configuration.

Appendix D

Specifications

Compaq TFT 450 Flat Panel Monitor

Table D-1
Compaq TFT 450 Flat Panel Monitor

Display Type	14.5 in. Flat panel, Active matrix-TFT LCD	36.83 cm
Viewable Image Size	14.5 in. diagonal	36.83 cm
Face Treatment	Transparent protector with antiglare coating	
Maximum Weight (Unpacked)	13.2 lb	6.0 kg
Maximum Dimensions		
Height	15.60 in.	39.6 cm
Depth	8.58 in.	21.8 cm
Width	14.42 in	36.6 cm

continued

Table D-1
Compaq TFT 450 Flat Panel Monitor *continued*

Maximum Graphics Resolution	1024 x 768 at 75 Hz Refresh Rate	
Text Mode	740 x 400	
Dot Pitch	0.28 mm	
Horizontal Frequency	31.5 to 60 kHz	
Vertical Frequency	56.3 to 85 Hz	
Environmental Temperature Requirements		
Operating	41 to 95° F	5 to 35° C
Storage Temperature	-43 to 140° F	-20 to 60° C
Humidity (Non-Condensing)		
Operating	20 to 80%	
Non-Operating	5 to 95%	
Power Source	100-240 VAC, 50-60 Hz	
Power Consumption	< 35 watts	
Input Terminal	15-pin D-type connector with cable	

Color Display Values

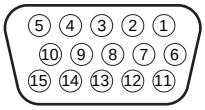
Table D-2
CIE* Chromaticity Coordinates

	x (+/- 0.030)	y (+/- 0.030)
Red	0.57	0.35
Blue	0.13	0.12
Green	0.28	0.59
White Point (6500 K)	0.31	0.35
Gamma: 2.2		

*Commission International d'Eclairage, 1931 Standard

Connector Pin Assignments

Table D-3
Signal Cable*

Connector	Pin	Signal
	1	Red Video
	2	Green Video/Sync on green
	3	Blue Video
	4	Open
	5	Return
	6	Red Gnd
	7	Green Gnd
	8	Blue Gnd
	9	Reserved (No Pin)
	10	Sync Return
	11	Open
	12	Bi-directional Data (SDA)
	13	H-Sync/Composite Sync
	14	V-Sync
	15	Data Clock (SCL)

* DDC Signals

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