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MAINTENANCE AND SERVICE GUIDE
COMPAQ LTE 5000 FAMILY OF PERSONAL COMPUTERS

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Chapter 1. Product Description

1.1 Computer Features and Models

The Compaq LTE 5000 Family of Personal Computers introduces a new generation of performance notebook computers with advanced modularity, Pentium processors with 64-bit architecture, PCI local bus graphics, and extensive multimedia support. This full-function family of notebook computers allows desktop functionality and connectivity via an optional expansion base.



Figure 1-1. Compaq LTE 5000 Personal Computer with Optional MultiBay-ISA Expansion Base

1.1.1 Computer Features

The Compaq LTE 5000 Family of Personal Computers has the following standard features:

- o Extensive multimedia support with integrated 16-bit digital stereo audio (Microsoft Windows Sound System and SoundBlaster Pro compatible), dual speakers, microphone, full motion video support, optional CD-ROM drive, and optional MPEG and TV Video Adapter
- o 75, 90, 100, 120, 133, or 150-MHz Intel Pentium processor with 64-bit architecture

- o 8 or 16 MB of RAM, expandable to 72 or 80 MB
- o 512 KB of 64-bit write-back, synchronous, level-2 cache memory available on the LTE5400 model; 256 KB of 64-bit write-back, synchronous, level-2 cache memory available on all other models
- o Upgradable flash ROM BIOS
- o High-performance 32-bit PCI local bus graphics with hardware-assisted Motion Video Acceleration (MVA)
- o Color TFT VGA or SVGA, CSTN VGA or SVGA, or CTFT 1024 x 768 display panels
- o Keyboard with built-in EasyPoint II pointing device and mouse buttons
- o Removable hard drive
- o MultiBay modular device bay that supports a CD-ROM drive, a second hard drive, a second battery pack, or diskette drive, and a full-length ISA slot that allows addition of an ISA expansion board (ISA slot available with MultiBay ISA Expansion Base only)
- o Two Type III PC Card (PCMCIA) slot that supports one Type III, two Type I, or two Type II PC Cards, LAN connection or data/fax modem
- o Infrared port for IrDA wireless data transfer, printing, and drive synchronization
- o Ports and connectors for external equipment (see Section 1.3)
- o Preinstalled software
- o Security features
- o Desktop functionality available with the optional Compaq LTE 5000 MultiBay Expansion Base or MultiBay ISA Expansion Base.

1.1.2 Computer Models

The Compaq LTE 5000 Family of Personal Computers is available in the models shown in Table 1-1.

Table 1-1. Compaq LTE 5000 Family of Personal Computers Models

Model	Processor	Display	Hard Drive	CD-ROM Drive
LTE 5000 Model 510 CSTN	Pentium/75	10.4-inch CSTN/VGA	510 MB	Optional
LTE 5000 Model 810 CSTN	Pentium/75	11.3-Inch CSTN/SVGA	810 MB	Optional
LTE 5000 Model 810 CTFT	Pentium/75	10.4-Inch CTFT/VGA	810 MB	Optional
LTE 5100 Model 810 CTFT	Pentium/90	10.4-Inch CTFT/SVGA	810 MB	Optional
LTE 5100 Model	Pentium/90	10.4-Inch	810 MB	Yes

810 CD CTFT		CTFT/SVGA		
LTE 5150 Model 810 CSTN 800 x 600	Pentium/100	11.3-inch CTFT/SVGA	810 MB	Yes
LTE 5200 Model 1350 CTFT	Pentium/120	10.4-inch CTFT/SVGA	1.35 GB	Optional
LTE 5250 Model 810 CTFT 800 x 600	Pentium/120	10.4-inch CTFT/SVGA	810 MB	Yes
LTE 5280 Model 810 CTFT 800 x 600	Pentium/120	11.3-inch CTFT/SVGA	810 MB	Yes
LTE 5280 Model 1350 CTFT 800 x 600	Pentium/120	11.3-inch CTFT/SVGA	1.35 GB	Yes
LTE 5300 Model 1350 CTFT 800 x 600	Pentium/133	12.1-inch CTFT/SVGA	1.35 GB	Yes
LTE 5300 Model 2160 CTFT 800 x 600	Pentium/133	12.1-inch CTFT/SVGA	2.16 GB	Yes
LTE 5380 Model 2160 CTFT 1024 x 768	Pentium/133	12.1-inch CTFT/10 X 7	2.16 GB	Yes
LTE 5400 Model 2160 CTFT 800 x 600	Pentium/150	12.1-inch CTFT SVGA	2.16 GB	Yes

1.1.3 Preinstalled Software

The computer can have either Windows 3.1 or Windows 95 installed.

Windows 3.1 Software Components

The following software is preloaded if Windows 3.1 is installed:

- o MS-DOS 6
- o Microsoft Windows 3.1
- o Cirrus GD-754x Video Driver
- o TEAC CD-40E CD-ROM Driver and CD Audio Player for DOS
- o ESS Audio Driver and Audio Clip Library
- o Compaq Sound System Version 1.70
- o Compaq Network Interface Drivers

- o Compaq PCMCIA 3.14
- o Logitech Mouse Ware 6.46
- o PUMA TranXit Version 1.03
- o Microsoft Video for Windows 1.10e (Runtime version)
- o Machine Check Version 1.1 (MACHCHK.SYS)
- o SystemSoft Suspend-To-Disk Utility 2.20.00 (OVMAKFIL.EXE)
- o Compaq Supplementary Programs
- o Microsoft Supplementary Programs
- o SAFETY & COMFORT GUIDE
- o COMPAQ DICTIONARY
- o COMPAQ USER'S GUIDE
- o ONLINE OPTIONS CATALOG
- o Compaq Diagnostics for Windows 1.05
- o CompuServe WinCIM (1.4/1.2/1.31D/1.31F)
- o America Online for Windows (North America only)

Windows 95 Software Components

The following software is preloaded if Windows 95 is installed:

- o Cirrus Logic GD-754x Video Driver
- o TEAC CD-40E CD-ROM Driver
- o Compaq PCMCIA 3.14 Installer for Windows 95
- o Logitech Mouse Ware 6.50
- o Machine Check Version 1.1 (MACHCHK.SYS)
- o SystemSoft Suspend-To-Disk Utility 2.20.00 (OVMAKFIL.EXE)
- o Microsoft Infrared Monitor and Direct Cable Connect
- o SAFETY & COMFORT GUIDE
- o COMPAQ DICTIONARY
- o COMPAQ ONLINE USER'S GUIDE
- o ONLINE OPTIONS CATALOG

1.1.4 Intelligent Manageability

Intelligent Manageability combines innovative hardware technology with PC

LAN management tools from Compaq and other leading vendors to make Compaq portable computers easier to inventory, troubleshoot, and protect.

Asset Management

AssetControl is asset management software designed to cut the time and cost of conducting a physical inventory of personal computers, key components, and monitors. AssetControl is preinstalled on portable computers, key components, and monitors that support the Video Electronics Standards Association Data Display Channel (VESA DDC) and Extended Display Identification Data (EDID) standards.

AssetControl features make it easy and inexpensive to maintain an accurate, up-to-date inventory. Detailed inventory information, including manufacturer, model, serial number, asset tag, and ROM revision level can be viewed, printed, or saved electronically using Compaq Insight Personal Edition or Compaq Insight Manager.

Compaq Insight Personal Edition refers to Intelligent Manageability software that diagnoses portable computer hardware, monitors the internal system temperature and IntelliSafe hard drive, and then displays a prefailure warning message on detecting a system temperature or hard drive fault.

Compaq Insight Manager refers to Information Manageability software that helps manage servers and personal computers on a network. Compaq Insight Manager features intelligent monitoring and alerting, remote maintenance, and visual control of network resources.

Fault Management

Fault Management is a utility designed to help prevent the loss of critical data. This feature is available only in the 2.16GB DFP (SMART system compliant drives). Fault Management has the following features:

- o SMART (IntelliSafe) hard drive - Constantly monitors hard drive activity to predict failures before they occur.
- o Temperature sensing - Hardware and software that tracks the internal temperature of the computer and displays a warning message when the normal range is exceeded.

Compaq Insight Personal Edition displays a pop-up message to notify you when a hard drive or system temperature fault is detected. If the computer is connected to a network managed by Compaq Insight Manager, fault notices are also sent to the network management application.

Security Management

The security management utility provides a set of security features to protect the computer and data from unauthorized access.

- o Passwords - Prevents unauthorized access to information stored on the computer or network.
- o Drive security - Prevents starting the computer from the diskette drive and reading information from the diskette drive.
- o Device disabling - Prevents unauthorized data transfer over fax/modems, serial ports, parallel ports, and infrared ports.

1.1.5 Security Features

The computer has the following security features:

- o Ability to secure drives in the dedicated hard drive bay and computer MultiBay
- o Ability to secure the computer and either MultiBay Expansion Base to an immovable object with an optional cable lock
- o Ability to establish power-on and setup passwords and to disable ports and devices from the Security menu in Computer Setup

1.1.6 Power Management

Power Management offers three levels of power conservation:

- o High: Provides the maximum amount of power conservation and the maximum battery operating time from a single charge.
- o Medium: Provides a balance between performance and battery life (factory default).
- o Custom: Conserves power according to user-specified timeout settings.

The conservation level sets the timeouts for Standby (Suspend), Hibernation, drives, and screens. Use the Fn+F7 hotkeys to toggle off and on the power management settings in Computer Setup and Windows Power Properties.

Selecting to disable the infrared port under the Security menu also conserves power.

Chapter 1.2 Computer Options

The options that are available from Compaq for the computer are described in the following sections.

1.2.1 MultiBay Expansion Base and MultiBay ISA Expansion Base

The MultiBay Expansion Base and the MultiBay ISA Expansion Base provide two additional MultiBay device bays, two PC Card Type III slots, integrated Ethernet, integrated stereo speakers, and computer I/O port replication. The expansion bases are described in Section 1.5. When the computer is docked in an expansion base, the total system functionality includes:

- o Support for up to three MultiBay devices simultaneously
- o Overall system support for up to four hard drives or two diskette drives
- o Up to three CD-ROM drives installed as follows:
 - Three CD-ROM drives: The two in the expansion base must be used for data; the CD-ROM drive in the computer can then be used for audio or data.

- Two CD-ROM drives: You can have one in the expansion base and one in the computer; either drive can be data or audio. If both drives are in the expansion base, they must be for data only.
 - One CD-ROM drive: It can be either data or audio and in either the computer or expansion base.
- o Two Type III PC Card slots
 - o Overall system support for up to four PC cards
 - o Charging of up to four battery packs

The MultiBay ISA Expansion Base provides the same functionality as the MultiBay Expansion Base, with the following additional features:

- o One ISA Expansion slot allows ability to add a full-length ISA expansion board
- o Additional ventilation exhausts on both sides of the expansion base for increased ventilation
- o High performance stereo speakers and new audio bass ports on both sides of the expansion base for "PremierSound" CD-quality audio

1.2.2 System Memory Options

The main memory subsystem supports a minimum standard 8 MB or 16 MB of DRAM, expandable to a maximum of 72 or 80 MB. The minimum standard DRAM is integrated on the processor board. The upgrade DRAM is accomplished with memory expansion boards that are available in 8, 16, 32, and 64 MB increments. The memory expansion boards require no special tools for installation and can be installed by the inexperienced user. System memory can be upgraded according to the schedule in Table 1-2:

Table 1-2. Memory Upgrade Schedule

Base Memory	Memory Expansion Board	Total Memory
8/16 MB	None	8/16 MB
8/16 MB	8 MB	16/24 MB
8/16 MB	16 MB	24/32 MB
8/16 MB	32 MB	40/48 MB
8/16 MB	64 MB	72/80 MB

1.2.3 Mass Storage Options

The following mass storage options are available for the computer:

- o 3.5-inch 1.44 MB Diskette Drive
- o 510 MB IDE Hard Drive
- o 810 MB IDE Hard Drive
- o 1.35 GB IDE Hard Drive
- o 2.16 GB w/DFP IDE Hard Drive
- o 2.16 GB IDE Hard Drive

Diskette Drive

The computer uses a 3.5-inch diskette drive that is enclosed in a module that fits into the MultiBays of the computer or the MultiBay Expansion Base and the MultiBay ISA Expansion Base. The diskette drive is a three-mode type that is compatible with 1.44 MB, 1.2 MB and 720K AT drive types. The system supports a maximum of two diskette drives: one in the computer, one in the MultiBay Expansion Base. When using Windows 95, real mode drivers must be used for a diskette drive in the expansion base. For more information see "Solving Diskette and Diskette Drive Problems" in Chapter 2.

Hard Drive

The computer supports an IDE hard drive in the dedicated hard drive bay. Cable select technology is employed for device 0/device 1 (master/slave) selection. The hard drive can be locked in place with the hard drive security screw installed adjacent to the hard drive release on the bottom of the computer. See Appendix C for information on using Compaq LTE Elite hard drives in the computer.

1.2.4 CD-ROM Drive

The modular, 2x, 4x, and 6x CD-ROM drives are available from Compaq as a standard model or an option for the computer or either expansion base. The CD-ROM drive is compatible with industry-standard CD-ROM disc media and formats. It can read:

- o CD-Digital Audio
- o CD-ROM Mode 1 and Mode 2
- o CD-ROM/XA Mode 2 (Form 1 and Form 2)
- o CD-I Mode 2 (Form 1 and Form 2)
- o Video CD
- o Photo CD (single and multisession)
- o ISO 9660 and High Sierra

1.2.5 MPEG and TV Video Adapter

The MPEG and TV Video Adapter option is supported with the computer and both expansion bases. This option provides an MPEG decoder for high quality digital video playback with Windows scaling and interleaved stereo audio, S-Video I/O for laser disc quality playback video, and composite video supporting the NTSC/PAL formats.

1.2.6 Miscellaneous Options

The following options for the computer are also available from Compaq:

- o AC Adapter
- o Automobile Adapter
- o NiMH Battery Pack
- o Battery Fastcharger
- o Enhanced III External Keyboard
- o Compaq Mouse
- o Carrying Case
- o MultiBay Device Carrying Case
- o MultiBay Hard Drive Adapter

AC Adapter

The AC Adapter supplies DC voltage to the system DC-to-DC converter for use by the system to operate and/or charge the installed battery pack(s). The adapter provides sufficient power to charge each main battery pack in 1.5 hours or less with the system off. The adapter also powers the Battery Fastcharger.

Automobile Adapter

The Automobile Adapter is used to charge the computer from an automobile battery. It also powers the Battery Fastcharger.

External Battery Fastcharger

The external Battery Fastcharger is available from Compaq and has the following features:

- o Two battery charge bays
- o Fast charging of one battery in 1.5 hours

- o Fast charging of two batteries in 3 hours

It requires the AC Adapter or Automobile Adapter for power.

Chapter 1.3 Computer External Components

The external components on the front and right sides of the computer are shown in Figure 1-2 and are described in Table 1-3.

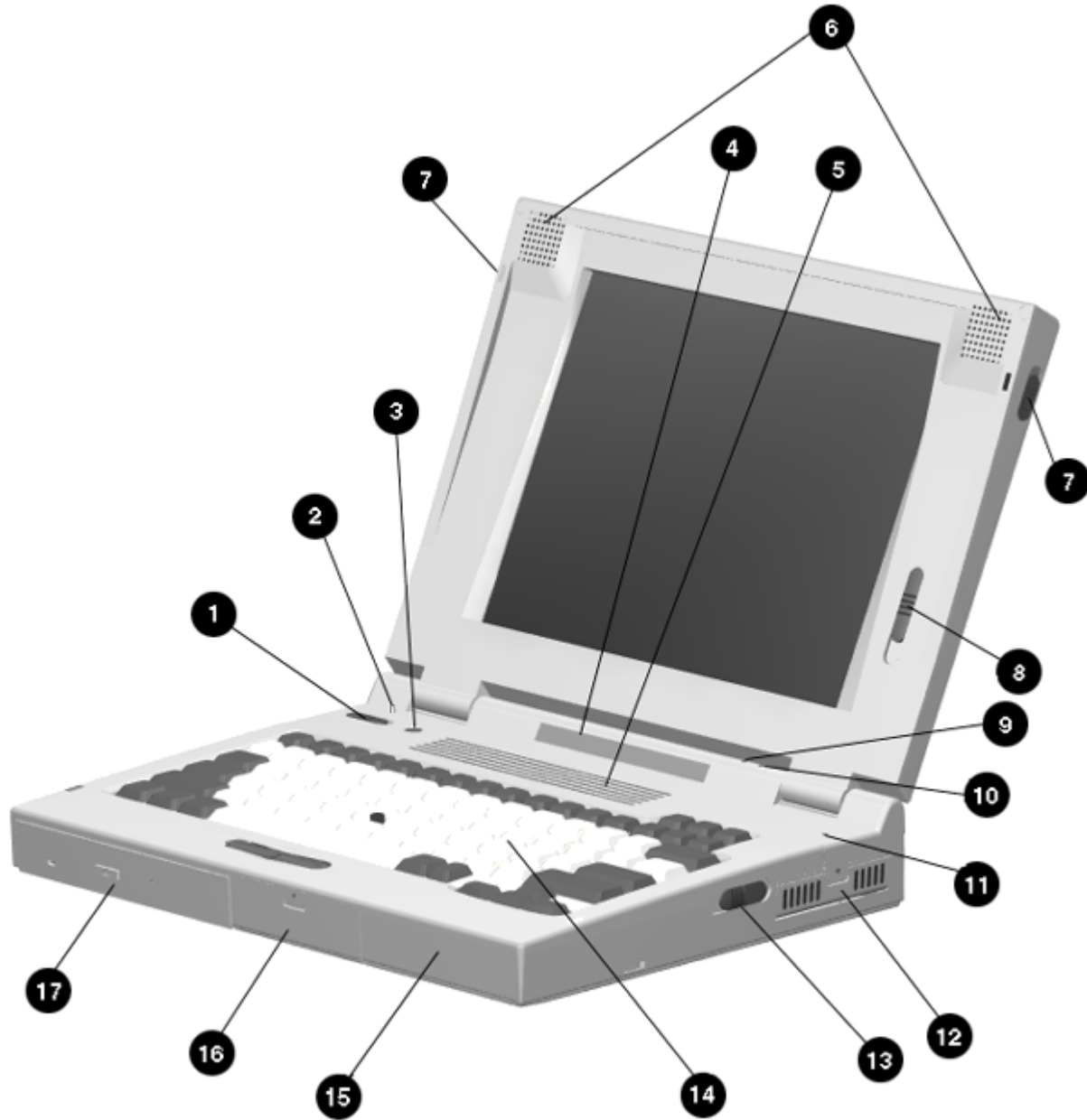













Figure 1-2. Computer Components - Front and Right Sides

Table 1-3. Computer Components - Front and Right Sides

Item	Component	Function
1	Power switch	Turns the power on and off.
2	Display switch	Turns display off and initiates beep if display is closed with computer on. When used with the standby button, restarts the computer.
3	Standby switch	Initiates/exits Standby. When used with the display switch, restarts the computer. When used with the Fn key, initiates Hibernation.
4	Status panel icons	<p>The computer is connected to an external power source.</p> <p>QuickLock/QuickBlank has been initiated. Type the power-on password on the blank screen to exit QuickLock/QuickBlank.</p> <p>Power Management is turned on. Run Computer Setup to view or change Power Management settings.</p> <p>A diskette drive in the MultiBay is being accessed.</p> <p>A hard drive in the dedicated hard drive bay or a hard drive or CD-ROM drive in the MultiBay is being accessed.</p> <p>An external monitor is actively displaying information.</p> <p>The built-in speakers on the front of the display or speakers or headphone connected to the computer or expansion base are turned on.</p> <p>Num lock is on, which enables the embedded numeric keypad.</p> <p>Caps Lock is on, which causes new text to be typed in uppercase letters.</p> <p>Scroll Lock is on, which causes the cursor to scroll by fields, rather than by lines.</p> <p>Battery gauges 1 and 2. Gauge 1 turns on if a battery pack is in the dedicated battery bay and shows the amount of charge in the battery pack. Gauge 2 turns on if a battery pack is in the MultiBay and shows the amount of charge in that battery pack.</p>

Item	Component	Function
1	Power switch	Turns the power on and off.
2	Display switch	Turns off and initiates beep if display is closed with computer on. When used with the standby button, restarts the computer.
3	Standby (Suspend) button	Initiates/exits Standby (Suspend). When used with the display switch, restarts the computer. When used with the Fn key, initiates Hibernation.
4	Status Panel Icons	<p> The computer is connected to an external power source.</p> <p> QuickLock/QuickBlank has been initiated. Type the Power-On Password on the blank screen to exit QuickLock/QuickBlank.</p> <p> Power Management is turned on. Run Computer Setup to view or change Power Management settings.</p> <p> A diskette drive in the MultiBay is being accessed.</p> <p> A hard drive in the dedicated hard drive bay or a hard drive or CD-ROM drive in the MultiBay is being accessed.</p> <p> An external monitor is actively displaying information.</p> <p> The built-in speakers on the front of the display or speakers or headphones connected to the computer or MultiBay Expansion Base are turned on.</p> <p> Num Lock is on, which enables the embedded numeric keypad.</p> <p> Caps Lock is on, which causes new text to be typed in uppercase letters.</p> <p> Scroll Lock is on, which causes the cursor to scroll by fields, rather than by lines.</p> <p> Battery gauges 1 and 2. Gauge 1 turns on if a battery pack is in the dedicated battery bay and shows the amount of charge in the battery pack. Gauge 2 turns on if a battery pack is in the MultiBay and shows the amount of charge in that battery pack.</p>
5	Ventilation intake	Intake vents provide proper airflow to help prevent the computer from overheating.
6	Stereo speakers	Built-in stereo speakers for PC and multimedia sound system.
7	Latch	Secures computer in a closed position; release to open.
8	Brightness control	Adjusts the brightness of the display.
	Contrast control (not shown)	Adjusts the contrast of the display (CSTN models)
9	Standby (Suspend) light (green)	Illuminates when power to the computer is turned on. Blinks to indicate computer is in Standby (Suspend).
10	Battery light (yellow)	Illuminates when a battery pack is charging; turns off when the battery pack is finished fast charging; blinks to indicate low battery.
11	Microphone	Built-in microphone for the Multimedia Sound System.
12	PC Card Slots	Accepts one Type III or two Type II or two Type I PC Cards (PCMCIA).

5	Ventilation intake	Intake vents provide proper airflow to help prevent the computer from overheating.
6	Stereo speakers	Built-in stereo speakers for PC and multimedia sound system.
7	Latch	Secures computer in a closed position; release to open.
8	Brightness control	Adjusts the brightness of the display.
	Contrast control (not shown)	Adjusts the contrast of the display (CSTN models).
9	Standby (suspend) light (green)	Illuminates when power to the computer is turned on. Blinks to indicate computer is in Standby (Suspend).
10	Battery light (yellow)	Illuminates when a battery pack is charging; turns off when the battery pack is fully charged; blinks to indicate low battery.
11	Microphone	Built-in microphone for the Compaq Sound System.
12	PC Card slots	Accepts one Type III or two Type II or two Type I PC Cards (PCMCIA).
13	Battery release	Releases a battery pack in the battery compartment.
14	Keyboard	Keyboard with EasyPoint II pointing device and pick buttons.
15	Battery compartment	Dedicated battery compartment for the main battery pack.
16	Hard drive bay	Dedicated hard drive bay.
17	MultiBay	Bay that supports multiple devices: CD-ROM drive, hard drive, battery pack, or diskette drive.

The external components on the rear and left sides of the computer are shown in Figure 1-3 and described in Table 1-4.

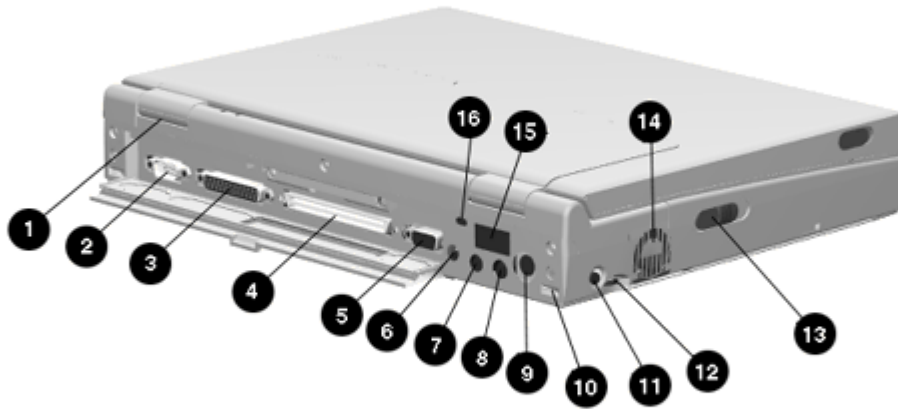


Figure 1-3. Computer Components - Rear and Left Sides

Table 1-4. Computer Components - Rear and Left Sides

Item	Component	Function
1	Serial number	Identifies the computer.
2	Serial connector	Connects optional serial devices.
3	Parallel connector	Connects optional parallel devices.
4	External options connector	Connects the expansion base or the optional Automobile Adapter.
5	External monitor connector	Connects an external monitor.
6	Power connector	Connects the AC Adapter or the optional Automobile Adapter.
7	Stereo speaker/headphone jack	Connects external speakers or headphones.
8	Stereo line in jack	Stereo line-in jack for CD player, tape deck, tuner, or other line level audio source.
9	Keyboard/mouse connector	Connects an external keyboard, numeric keypad, PS/2 mouse, or other pointing device.

10	Docking sensor	Access to a microswitch that initiates the docking scenario when the computer is being docked. Also serves as a guide for the MPEG Adapter.
11	Mono microphone jack	Connects a powered electric condenser microphone.
12	Volume control	Controls volume to the built-in speakers or to external speakers or headphones connected to the computer or MultiBay Expansion Base.
13	MultiBay device release	Releases a drive or battery pack from the MultiBay.
14	Ventilation exhaust	Exhaust vent for proper airflow to help prevent the computer from overheating.
15	Infrared port	Transfers data to another computer or external device that accepts IrDA format.
16	Security slot	Provision for an optional security cable lock to be attached to the computer.

Chapter 1.4 Design Overview - Computer

This section presents a design overview of the computer. The discussion is limited to the field replaceable parts. All replaceable parts are identified in Chapter 3, and removal/replacement procedures are presented in Chapter 5.

The computer is a traditional clamshell design with a display unit and system unit. The computer opens to reveal a backlighted LCD display and keyboard. The display is designed for a continuously adjustable tilt angle. The system unit houses the system board, processor board, power board, keyboard, I/O ports, operator controls and indicators, mass storage device bays, and battery bay.

The main components of the system unit include the following:

- o Processor (Intel Mobile Pentium 75 MHz, 90MHz, 100MHz, 120MHz, 133mhz, or 150 MHz)
- o System controller (OPTi 556/557/558N, OPTi 602A)
- o VGA controller (Cirrus CL-GD754x)
- o Keyboard controller (Intel 80C51SL)
- o PCMCIA controller (Cirrus 6722)

- o Super I/O (National 87334)
- o Audio controller (ESS688 or ESS1688)
- o Power controller (47P440AF)

The boards on which these controllers reside are identified in the sections that follow.

1.4.1 Display Unit

The display unit includes the following field replaceable components:

- o Display assembly
- o Display bezel with speakers
- o Release latches
- o Brightness control actuator
- o Contrast control actuator (CSTN models only)
- o Clutch assemblies
- o Compaq logo

Display Assembly

The display assembly is replaced as a complete unit that includes:

- o LCD panel
- o LCD inverter
- o Display bezel
- o Stereo speakers
- o Clutch assemblies
- o Release latches
- o Brightness control actuator
- o Contrast control actuator (CSTN models only)

NOTE: The display bezel, release latches, brightness/contrast control actuator(s), Compaq logo, and clutch assemblies can also be replaced individually. The speakers are permanently installed on the display bezel.

The following LCD panels are supported:

- o 10.4-inch (26.4 cm) CSTN VGA Display (640 x 480)
- o 11.3-inch (28.7 cm) CSTN SVGA Display (800 x 600)
- o 10.4-inch (26.4 cm) CTFT VGA Display (640 x 480)
- o 10.4-inch (26.4 cm) CTFT VGA Display (800 x 600)
- o 11.3-inch (28.7 cm) CTFT SVGA Display (800 x 600)
- o 12.1-inch (30.7 cm) CTFT SVGA (800 x 600)
- o 12.1-inch (30.7 cm) CTFT 1024 x 768 Display

Both LCD panels have a controllable backlight intensity that can be adjusted with a slide switch. The CSTN (dual scan) panels also have a slide switch for contrast control.

The LCD panel inverter cable plugs into an 8-pin connector on the processor board. The LCD cable plugs into a connector on the system board. The inverters and cables differ according to the display type and manufacturer and cannot be interchanged. All of the display cables are routed to the system unit in the vicinity of the clutches.

NOTE: It is important that these instructions be followed when replacement of any part requires removal of the display assembly.

Slide the display assembly back in place and replace all screws. The screws must be fully tightened to ensure that they do not touch the expansion base sensor located near the left hinge. Failure to properly seat the screws may prevent the unit from booting up.

NOTE: Use Fn+F4 hotkeys to switch between external, internal, and simultaneous display. (The CSTN 800 x 600 does not support simultaneous display.)

Display Bezel With Speakers

The display bezel attaches to the display unit with a snap action and is secured with a screw at each corner. Screw covers are installed over the screw heads. After removing these screws, use a Compaq bezel removal tool to separate the bezel from the display assembly. The display bezel can be removed without separating the display unit from the system unit.

The internal stereo speakers are 0.5-watt, 8-ohm, permanently installed in the top corners of the display bezel and are installed as a unit with cabling attached. The speaker cable is routed into the system unit and connects to a 4-pin connector adjacent to the 30-pin LCD connector on the system board. The CPU cover is easily removed from the system unit to access this connector.

NOTE: Use Fn+F5 hotkeys to toggle speakers/headphones off and on.

Release Latches

The release latches serve to lock the display and system units together when the computer is in the closed position. Each latch assembly consists of three parts:

- o Latch actuator
- o Latch hook
- o Latch spring

The release latch assembly is available as a field replaceable unit. The display bezel must be removed to replace the latch assemblies.

The release latches are mounted in the display unit back cover. The display bezel must be removed to access the latches. The latches snap into place and require a simple depression of a tab to be released from the display cover.

Brightness/Contrast Control Actuator(s)

The displays have a controllable backlight intensity that can be adjusted with a slide switch. The CSTN panels also have slide switch for contrast control. The actuators for these adjustments are available as field replaceable units.

The brightness/contrast control actuator(s) (contrast control actuator on CSTN displays only) are mounted on the display bezel with a snap action. The display bezel must be removed to allow the tabs on the back side of the actuator to be depressed for removal. When installing a display bezel, make certain the brightness/contrast actuator(s) aligns with the brightness/contrast control(s) in the display assembly.

Clutch Assemblies

The clutch assemblies provide the hinge function between the display unit and system unit and also provide continuous tension that allows the display unit to be positioned at any angle.

The clutch assemblies are available in pairs as field replaceable units. Each clutch assembly is mounted to the display unit with two screws and to the system unit with two screws. Removal and replacement of the clutch assemblies requires removal of the display bezel and the CPU cover (on the system unit).

Compaq Logo

The Compaq logo is installed on the back of the display unit. The location for the logo is indicated by an ellipse embossed in the cover. The logo is an adhesive-backed label that is available as a field replaceable unit. The label indicates which processor is installed in the computer.

1.4.2 System Unit

The system unit contains the following field replaceable units:

- o CPU cover
- o Internal microphone
- o Status panel
- o Processor board
- o Power board
- o Cooling fan
- o System board
- o Memory expansion board (optional)
- o Keyboard assembly
- o Auxiliary battery
- o Miscellaneous plastic parts

CPU Cover

The CPU cover is located above the keyboard and is secured in place with three screws on the rear panel of the system unit. Tabs on the front edge of the CPU cover engage slots across the top edge of the keyboard panel.

The CPU cover contains the actuators for the following:

- o Power switch
- o Standby (Suspend) button
- o Display switch

The CPU cover with all switch actuators installed is available as a field replaceable unit. The switch actuators are also available as field replaceable units.

The power switch actuator and spring and the standby (suspend) button actuator and spring are removed by squeezing the actuator tabs on the underside of the CPU cover and pushing the buttons out of their mounting hole. The display switch actuator simply snaps out of its mounting hole from the underside of the CPU cover.

The CPU cover must be removed to service any of the above described switch actuators. The cover also must be removed to disconnect any of the display unit cables from the system unit, to remove the display unit, to service the status panel, and to remove the keyboard assembly.

Internal Microphone

The internal microphone is supported by the audio subsystem and connects

to the system board. It is an omnidirectional condenser microphone with a standard sensitivity of 40dB. The microphone is mounted in a rubber boot to provide acoustic isolation and is mounted at the right side of the keyboard, under the CPU cover.

Status Panel

The status panel is located immediately below the LCD panel on the system unit. The panel displays a series of icons to indicate system status as described in Table 1-3.

The status panel also contains two status indicator lights. The right indicator light provides battery status; the left indicator light provides power-on and Standby (Suspend) status. Access to the display panel for service requires removal of the CPU cover. The status display is secured with two screws. The status panel cable plugs into an 8-pin connector on the processor board.

Processor Board

The processor board supports the following:

- o Processor
- o DC-to-DC converter is used only with processors that operate at higher than 75 MHz.
- o L2 cache
- o System RAM
- o System memory expansion connector
- o Power, display, and standby switches
- o Infrared serial port (IrDA)
- o Display panel configuration jumpers
- o Power-on password jumper

The computer supports 75, 90, 100, 120, 133-, and 150-MHz Mobile Pentium processors. The processor is soldered to the processor board, so replacement is accomplished by replacing the processor board. A heat sink on the processor and a cooling fan maintain an operating temperature within the limits specified by the CPU manufacturer and other components.

All I/O buffers operate at 3.3 volts. The 75-MHz processor core operates at 3.3 volts. The 150-MHz processor core operates at 3.1 volts. The 90-Mhz, 100mhz, 120-MHz, and 133-MHz processor cores operate at 2.9 volts. The 2.9 volts is provided by a DC-to-DC converter mounted on the processor board.

The processors are of a tape carrier package (TCP) design that has a high pin count, low profile, and reduced footprint. The processor is easily damaged, so the pins and body of the processor should not be touched.

The L2 cache is implemented as direct-mapped, write-back cache with a size of 256 KB.

The power switch, display switch, and standby (suspend) button are mounted on the processor board. They are operated by switch actuators mounted on the CPU cover.

The power switch turns system power on and off. When the switch is pushed to turn the power off, the system displays a warning message that all unsaved data will be lost. The shut down process is then completed by pressing Enter.

The display switch turns the display off and initiates a beep if the display is closed with the computer on. When used with the standby switch, the display switch initiates a system restart.

The standby (suspend) button initiates and exits Standby (suspend). As described above, the standby button, when used with the display switch, initiates a system restart. When used with the Fn key, the standby button initiates Hibernation.

The processor board contains 8 MB or 16 MB of onboard memory and can be expanded to 72 or 80 MB by adding a 64 MB memory expansion board. The memory expansion boards are available in 8, 16, 32, and 64 MB DRAM configurations. Each module is composed of two boards assembled together. The system ROM is shadowed in system memory.

The infrared subsystem (IrDA) provides two-way wireless communication using infrared as a transmission medium. Proper operation requires the communicating infrared ports to be within a 30-degree path and no more than three feet (1 meter) apart.

The processor board must be configured according to the display type. This is done by setting Jumpers JP2, JP3, and JP4 on the processor board. Use Table 1-5 to determine proper jumper settings for the display.

Table 1-5. Display Configuration Jumpers

Display Type	Jumper JP3	Jumper JP2	Jumper JP4
LTE 5000 10.4 in VGA CSTN	1-2	2-3	1-2
LTE 5000 10.4 in VGA CTFT	2-3	2-3	1-2
LTE 5000 11.3 in SVGA CSTN	1-2	2-3	2-3
LTE 5100 10.4 in SVGA CTFT	2-3	2-3	2-3
LTE 5200 10.4 in SVGA CTFT	2-3	2-3	2-3
LTE 5280 11.3 in SVGA CTFT	2-3	2-3	2-3
LTE 5300 12.1 in SVGA CTFT	2-3	2-3	2-3
LTE 5150 Rev. 4X 11.3 in SVGA CSTN	1-2	1-2	1-2
LTE 5150 Rev. 2X SVGA CSTN	2-3	1-2	1-2

LTE 5250 10.4 in SVGA CTFT	2-3	2-3	2-3
LTE 5380 12.1 in 1024 x 768 CTFT	2-3	1-2	1-2
LTE 5400 12.1 in 1024 x 768 CTFT	2-3	2-3	2-3
=====			

The power-on password jumper is also located on the processor board. To erase the power-on password, set jumper JP1 to pins 1 and 2; set JP1 to pins 2 and 3 for normal operation. See Chapter 2 for more details.

To remove and replace the processor board, you must first remove the CPU cover, EMI shield, keyboard, and display unit. The processor board is secured in place with two screws and is connected to the system board with two connectors.

System Board

There are three system boards for the computer: one to support the 75 MHz, 90 MHz and 120 MHz processors (LTE 5000, LTE 5100, and LTE 5200); one to support the 120 MHz, 100MHz, and 133 MHz processors (LTE 5280, LTE 5300, LTE 5150, and LTE 5250); and one to support the 133 MHz processor (LTE 5380) and 150MHz processor (LTE 5400). The system board supports the following:

- o System ROM (BIOS)
- o Graphics subsystem
- o Audio subsystem
- o PC Card subsystem
- o Diskette drive controller
- o RS-232 and IrDA serial ports
- o IDE interface
- o Fan connector
- o I/O connectors

The firmware components for the computer include:

- o System BIOS for the OPTi Viper Notebook chip set
- o ROM-based setup
- o MAXIMIZER Power Management for OPTi Viper
- o APM 1.1 BIOS
- o Plug and Play BIOS

- o PCI BIOS
- o Keyboard Controller Firmware for the Intel 80C51SL
- o VGA BIOS

The ROM-based setup has been translated into ten languages in addition to English. Messages that are displayed by the BIOS which require no user interaction are displayed in English. This includes POST warning messages, error messages, and runtime warnings and notifications. Messages that are displayed by the BIOS which require user interaction are translated into the same language as Setup.

The graphics controller interfaces with the system through the PCI bus. The controller provides backward compatible modes to support CGA, EGA, MGA, and HGA as well as all current VGA and SVGA modes. The controller supports the internal LCD panels as well as an external CRT and simultaneously supports the LCD and CRT (except for models with the 11.3-in CSTN SVGA display). The CRT interface is also routed to the either expansion base through the external options connector. For LCD only and LCD/CRT simultaneous display modes, the following panel and color resolutions are supported:

Table 1-6. Maximum Resolutions Supported

Display Type	Display Modes	Color Depth Supported
640 x 480 CTFT	640 x 480	256, 64K, 16M
800 x 600 CTFT	640 x 480, 800 x 600	256, 64K
640 x 480 CSTN	640 x 480	256, 64K
800 x 600 CSTN	640 x 480, 800 x 600	256
1024 x 768 CTFT	1024 x 768	256

The graphics controller also supports display of real-time video from the MPEG and TV Video Adapter at a rate of 30 frames per second (fps). It provides the capability to overlay the video in a Windows screen.

The computer has 1 MB of video DRAM soldered to the system board. There is no provision for adding additional video memory.

The graphics subsystem is designed to minimize the use of power at all times. When the system is idle for a set period of time, the controller is placed in the lowest power state. The LCD panel backlight and panel power are turned off during periods of inactivity after a timeout as determined by the user in Computer Setup. The system supports Energy Star monitors and allows the feature to be turned on/off from Computer Setup.

The computer supports an interface to an MPEG and TV Video Adapter that attaches to the rear of the computer. The adapter provides up to 30 fps of live video or MPEG video to the graphics controller for display on the LCD, a CRT, or a television. The MPEG and TV Video Adapter and CD-ROM

drive can be used simultaneously.

The audio subsystem is integrated into the system board. The system supports an internal microphone, stereo speakers, SoundBlaster PRO compatible audio, CD-ROM audio inputs, an external jack for headphones or speakers, microphone jack, and line-input jack. Line and CD-ROM inputs and the speaker outputs are passed through the external options connector and supported by both expansion bases.

The internal speakers are disabled when the computer is docked in the expansion base and when headphones or external speakers are installed.

The heart of the audio subsystem is the ESS1688 (ESS688 on Windows 3.1/Dos 6 units) AudioDrive ASIC that provides 16-bit stereo WAV audio, audio mixing, and FM music synthesis. The entire audio system connects directly to the ISA bus.

The ESS1688 is OPL3 compatible and compatible with SoundBlaster PRO and Microsoft Windows Sound System. It can record, compress, and play back sound and music at 8 or 16 bits up to 44 Khz.

The computer has one PC Card (PCMCIA) controller that supports a Type III PC card slot that supports either two Type II PC Cards or one Type III PC Card. A PC card door prevents contamination of the slot. The controller is Intel ExCA compatible and complies with the Berlin revision of the PCMCIA standard. The controller supports 5-V cards and all current Compaq PC Cards. A second PC Card controller is located in both expansion bases.

The diskette drive controller supports 720K, 1.2 MB, and 1.44 MB densities as well as automatic media detection. Diskette drives can be used in the computer MultiBay and the expansion bases. When using Windows 95, real mode drivers must be used for a diskette drive in the expansion base. For more information see "Solving Diskette and Diskette Drive Problems" in Chapter 2.

The PC87334 Super I/O contains two UARTs which are fully compatible with NS15450 and NS16550. Both ports support MIDI baud rates and one port also supports IrDA and HP SIR compliant signaling protocol. The two serial ports are configured as one RS- 232C serial port and one infrared (IrDA) port.

- o The standard RS-232 serial port has an 82550 compatible serial controller. The physical connector is a standard 9-pin D connector. The interface can be configured as COM1, COM2, COM3, or COM4.
- o The infrared communication is implemented with an 82550 compatible serial controller. The minimum data rate supported by the Infrared Port is 115K bits per seconds. The interface can be configured as COM1, COM2, COM3, or COM4.

The parallel port support is integrated into the PC87334 Super I/O. The computer has one parallel port that can be configured to operate in compatible mode, enhanced modes 1.7 and 1.9 (EPP), and extended capabilities (ECP) mode (IEEE-1284 compatible). The default mode is the compatible mode. The physical connector is a standard 25-pin D connector. The parallel port interface can be configured as LPT1, LPT2, or LPT3.

When the computer is mounted in either expansion base, the system can

support up to four IDE hard drives. When using two hard drives in the computer, one of the hard drives is installed in the dedicated hard drive bay and the other in the MultiBay.

NOTE: The dedicated hard drive bay provides limited support for the Compaq LTE Elite hard drive. See Appendix C for details.

The hard drive remains powered off from Standby (Suspend) until the first access occurs. The hard drive is powered off during Standby (Suspend).

The cooling fan is mounted in the system unit on the left side at the ventilation exhaust port. Functioning as an exhaust fan, it provides air flow across the electronic components for cooling. The fan plugs into a 2-pin connector on the system board.

The I/O connector panel is an integral part of the system board. In addition to the I/O panel, the system board supports the following:

- o PC card rails and connectors
- o Battery bay contacts
- o Hard drive bay connector
- o MultiBay mass storage device connector
- o MultiBay battery contacts
- o Power board connectors
- o Processor board connectors
- o Fan connector
- o LCD panel connector
- o Speaker connector
- o Integrated microphone connector
- o External microphone connector
- o Volume control

The CPU cover, display unit, keyboard, processor board, and power board must be removed prior to removing the system board. The system board is secured with two screwlocks on the I/O connector panel, a standoff in the left rear corner, and three screws.

IMPORTANT: Correct positioning of the system board is essential for proper interconnect of the computer with either expansion base. When installing a system board, be sure the locating pins near the mounting screws properly engage the system board.

A connector on the rear of the computer interfaces with either expansion base to provide additional functionality. The expansion base replicates the following computer connectors:

- o Serial connector
- o Parallel connector
- o External monitor connector
- o PS/2-compatible mouse connector
- o Power connector
- o External keyboard connector
- o All audio connectors except mono microphone jack

Additional MultiBay Expansion Base and MultiBay ISA details are presented in Section 1.5.

Power Board

The power board is a DC-to-DC converter that provides the required voltages of +3.3 and +5 volts from one of the power sources (main battery pack, AC Adapter, or Automobile Adapter).

The power board is provided as a field replaceable unit. To remove and replace the power board, you must first remove the CPU cover, keyboard, and processor board. The power board connects to the system board with two connectors and is secured in place with one screw.

Keyboard

The keyboard is available as an assembly consisting of the following parts:

- o Keyboard
- o Keyboard bezel
- o Battery release
- o MultiBay device release
- o EasyPoint II controller

The battery release, MultiBay device release, and EasyPoint II controller are also available as replaceable units.

To remove the keyboard assembly, the CPU cover must be removed first. The keyboard ribbon cable (ZIF connector) and EasyPoint II controller cable must be disconnected. Three screws on the bottom on the system unit and four screws across the front (inside of the MultiBay and dedicated battery compartment) must then be removed to release the keyboard.

The battery release mechanism consists of the following parts:

- o Battery release actuator
- o Battery release spring
- o Battery release holder
- o Battery release hook
- o Battery release hook spring

All of these components are included in the Latches Kit.

The battery release spring maintains the mechanism in the latched state until the release actuator is pushed. This action retracts the release hook from the battery. The release hook spring ensures that the battery hook firmly engages the battery. The battery release holder serves as a mounting platform for the other release mechanism components. The release hook and release hook spring are fastened to the release holder with a screw. The release spring connects the release actuator to the holder. The holder is held to the bottom of the keyboard with two screws.

The MultiBay device release mechanism is very similar to the battery release mechanism and consists of the following parts:

- o MultiBay device release actuator
- o MultiBay release spring
- o MultiBay release holder
- o MultiBay release hook
- o MultiBay release hook spring
- o CD-ROM drive release bar

All of these components are included in the Latches Kit.

The MultiBay device release spring maintains the mechanism in the latched state until the release actuator is pushed. This action retracts the release hook from the diskette drive or hard drive. Pushing the release actuator also causes the CD-ROM drive release bar to eject a CD-ROM drive if one is installed. The release hook spring ensures that the release hook firmly engages the device in the MultiBay. The MultiBay release holder serves as a mounting platform for the other release mechanism components. The release hook and release hook spring are fastened to the release holder with a screw. The release spring connects the release actuator to the holder. The holder is held to the bottom of the keyboard with a screw and standoff.

The EasyPoint II controller supports the mouse buttons and the EasyPoint II pointing stick. It is mounted to the bottom of the keyboard assembly directly under the mouse buttons. The CPU cover and keyboard must be removed to gain access to the controller. Two screws hold the controller

to the keyboard. Once released, the flat cable can be disconnected from the ZIF connector on the underside of the controller.

MultiBay

The MultiBay accommodates the following devices:

- o Dual-speed, quad-speed, or 6x CD-ROM drive
- o Second hard drive
- o Second battery pack
- o 3.5-inch diskette drive

NOTE: The hard drive must be mounted in the MultiBay hard drive carrier before it can be installed into the MultiBay.

The computer must be turned off when inserting a drive (not the battery pack) or removing it from the MultiBay.

Chapter 1.5 Optional MultiBay Expansion Base and MultiBay ISA Expansion Base Features

The MultiBay Expansion Base and MultiBay ISA Expansion Base provide fully integrated desktop capabilities for the computer. The expansion base eliminates the need to disconnect external devices when you remove the computer from the expansion base. The optional expansion base has the following features:

- o Two MultiBay device bays
- o One serial port
- o One parallel port
- o PS/2 mouse port
- o External keyboard port
- o One SVGA CRT port
- o Ethernet RJ-45 and BNC ports
- o Two Type III PC Card slots
- o Audio line out, headphones out
- o Audio line in
- o IR interface for IrDA wireless operations
- o Battery charge indicators
- o Drive activity indicators

- o Security features
- o Stereo speakers
- o ISA expansion slot (MultiBay ISA Expansion Base)
- o High performance stereo speakers and new audio bass ports on both sides of the expansion base for Compaq PremierSound audio system (MultiBay ISA Expansion Base)

Chapter 1.6 MultiBay Expansion Base and MultiBay ISA Expansion Base Components

The external components on the front and right sides of the expansion base are shown in Figure 1-4 and described in Table 1-7.

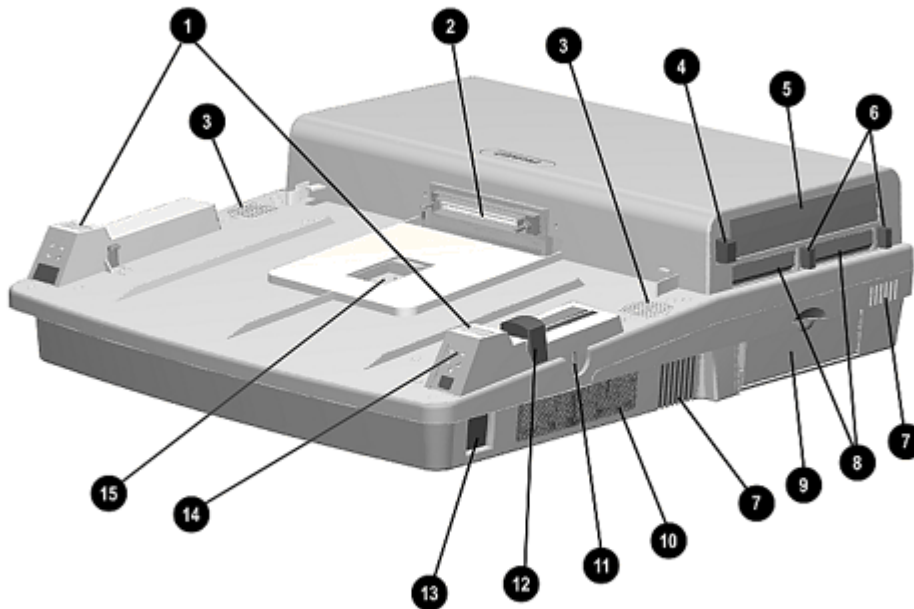


Figure 1-4. Expansion Base Components - Front and Right Sides (MultiBay-ISA Illustrated)

Table 1-7. Expansion Base Components - Front and Right Sides

Item	Description
1	Monitor support cover slots
2	External options connector
3	Stereo speakers (MultiBay Expansion Base model)

- 4 MultiBay II device release button
 - 5 MultiBay II
 - 6 PC Card release buttons
 - 7 Ventilation exhausts (MultiBay ISA Expansion Base model)
 - 8 PC Card slots
 - 9 ISA slot access door (MultiBay ISA Expansion Base model)
 - 10 Stereo speaker (MultiBay ISA Expansion Base model)
 - 11 Security cable slot
 - 12 Docking lever
 - 13 Audio bass port (MultiBay ISA Expansion Base model)
 - 14 Battery lights
 - 15 Docking aid
- =====

Additional components on the front of the expansion base and the components on the left side of the expansion base are shown in Figure 1-5 and described in Table 1-8.

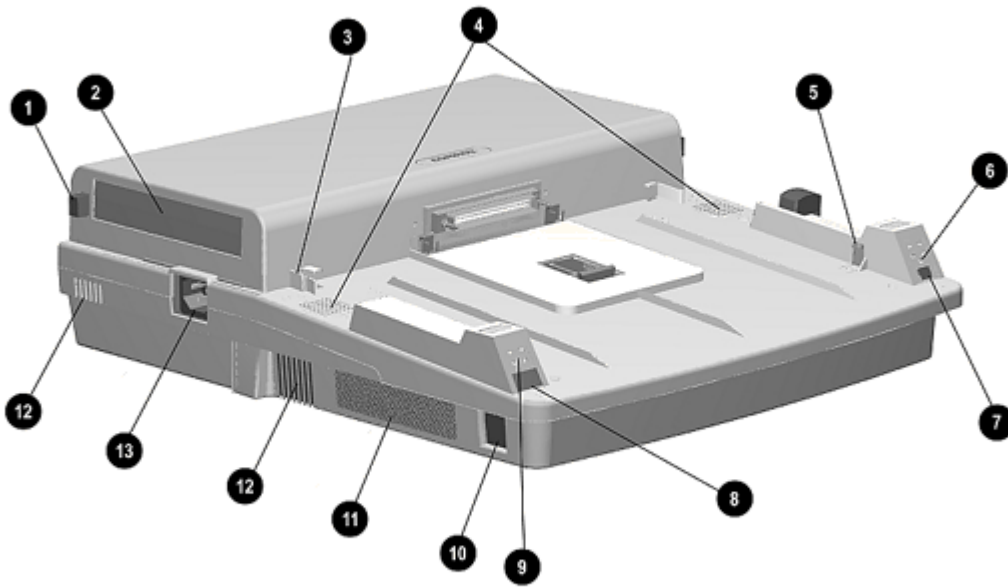


Figure 1-5. Expansion Base Components - Front and Left Sides (MultiBay-ISA Illustrated)

Table 1-8. Expansion Base Components - Front and Left Sides

Item	Description
1	MultiBay I device release button
2	MultiBay I
3	Docking sensor probe
4	Stereo speakers (MultiBay Expansion Base model)
5	Alignment guide
6	Power light
7	Power button
8	Infrared port
9	MultiBay drive lights
10	Audio bass port (MultiBay ISA Expansion Base model)
11	Stereo speaker (MultiBay ISA Expansion Base model)
12	Ventilation exhaust (MultiBay ISA Expansion Base model)

The external components on the rear panel of the expansion base are shown in Figure 1-6 and described in Table 1-9.

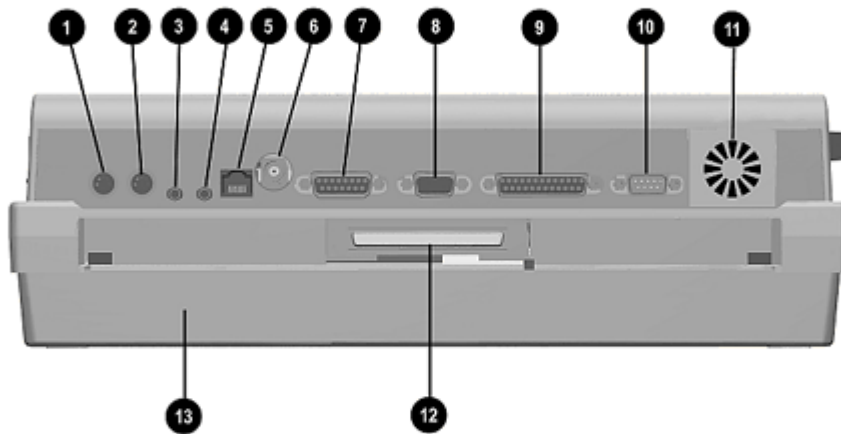


Figure 1-6. Expansion Base Components - Rear Panel (MultiBay-ISA Illustrated)

Table 1-9. Expansion Base Components - Rear Panel

Item	Description
1	External mouse connector
2	External keyboard connector
3	Stereo speaker/headphone jack
4	Stereo line in jack
5	Ethernet RJ-45 connector
6	Ethernet BNC connector
7	MIDI/Game connector
8	External monitor connector

9	Parallel connector
10	Serial connector
11	Auxiliary fan (MultiBay ISA Expansion Base model)
12	MPEG and TV Video Adapter connector
13	ISA slot cover (MultiBay ISA Expansion Base model)

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Chapter 1.7 Design Overview - MultiBay Expansion Base and MultiBay ISA Expansion Base

In addition to replicating the computer I/O panel and offering additional mass storage device bays, the expansion bases include the following:

- o Main board with integrated Ethernet
- o MultiBay connector board
- o Power supply
- o IrDA interface
- o Activity lights
- o MultiBays with ejectors
- o PC Card slots
- o ISA expansion board slot (MultiBay ISA Expansion Base model)
- o Computer docking mechanism

1.7.1 Main Board

The expansion base main board supports the following major components:

- o Ethernet controller (National DP83907)
- o PCMCIA controller (Cirrus 6722)
- o Super I/O (National 87334)
- o Power controller (TMP47P440AF)

The Ethernet controller supports an integrated 10MB/sec Ethernet subsystem with 10BaseT and 10Base2 interfaces. The Super I/O component supports the MultiBays.

1.7.2 MultiBay Connector Board

The MultiBay connector board is mounted between the two MultiBays and serves to route the appropriate signals to the MultiBay connectors.

1.7.3 Power Supply

The power supply is an AC-to-DC converter that serves the same function as the AC adapter and DC-to-DC converter in the computer. It provides regulated DC power for all of the subsystems. The expansion base uses a standard AC power cord that connects directly to the power supply.

An external fan mounted on the power supply provides cooling. When the temperature of the power supply exceeds 104oF (40oC), the fan turns on. When the temperature drops below 104oF, the fan turns off.

The MultiBay ISA model has an auxiliary cooling fan mounted on the rear of the bottom case. The auxiliary fan remains active as long as power is applied to the MultiBay ISA Expansion Base.

1.7.4 IrDA Interface

The IrDA interface is mounted on the front left corner of the expansion base and shares a small PCB with the removable drive status lights. The board is mounted to the underside of the expansion base top cover with a single screw. The IrDA interface on the expansion base replicates the IrDA interface on the computer.

1.7.5 Activity Lights

The expansion base has two sets of activity lights.

Removable-Drive Lights

The removable-drive lights are installed on the front left of the expansion base and share a small PCB with the IrDA interface. The board is installed as a unit from the back side of the expansion base top cover. The status lights are identified in Figure 1-7 and described in Table 1-10.

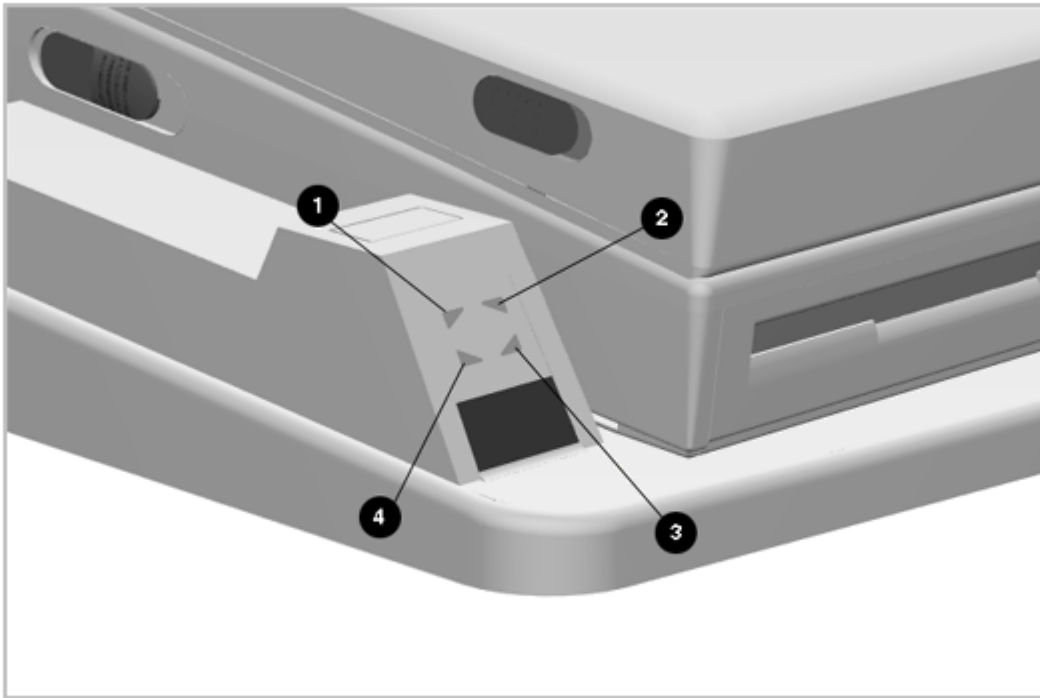


Figure 1-7. Removable Drive Lights

Table 1-10. Removable Drive Lights

Index	Function	Description
1	Computer diskette drive light	Diskette drive in computer MultiBay is being accessed
2	Computer hard drive/CD-ROM drive light	Hard drive or CD-ROM drive in computer is being accessed
3	MultiBay hard drive/CD-ROM drive light	Hard drive or CD-ROM in one of the expansion base MultiBays is being accessed.
4	MultiBay diskette drive light	Diskette drive in one of the expansion base MultiBays is being accessed

Battery Lights

The battery lights are installed on the front right of the expansion base and share a small PCB with the power button and power light. The board is installed as a unit from the back side of the expansion base top cover. The battery lights are identified in Figure 1-8 and described in Table 1-11.

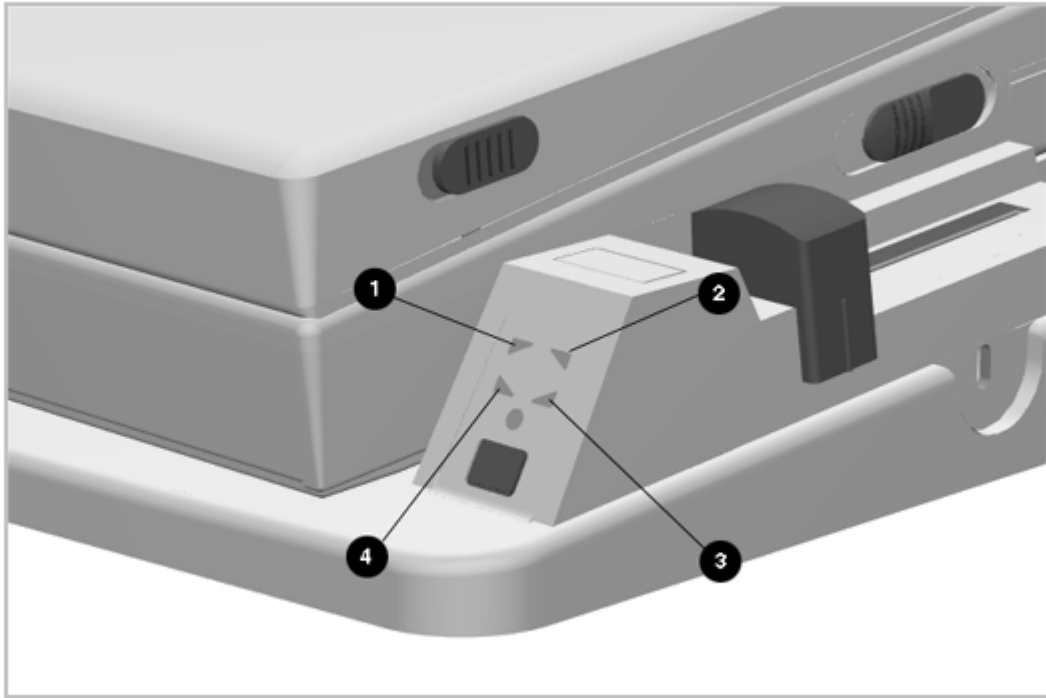


Figure 1-8. Battery Lights

Table 1-11. Battery Lights

Index	Function	Description
1	Computer MultiBay battery light	Status of battery pack in computer MultiBay
2	Computer battery light	Status of battery pack in computer battery compartment
3	MultiBay II battery light	Status of battery in MultiBay on the right side of the expansion base
4	MultiBay I battery light	Status of battery in MultiBay on the left side of the expansion base

1.7.6 MultiBays with Ejectors

Each expansion base has two MultiBays. Each MultiBay is removable as a unit with its ejector mechanism. The MultiBay is held to the expansion base cover with three screws. The MultiBays in the expansion base accommodate the same drives that are used by the computer and can be used

to charge batteries. MultiBay I will accept Compaq LTE Elite hard drives.

1.7.7 PC Card Slots

Each expansion base has two Type III PC Card slots that function similarly to the PC card slots on the computer. Each PC Card slot on the expansion base supports one Type I, one Type II, or one Type III PC Card. The only serviceable part of the PC card slots are the slot doors. The rails and connectors are incorporated into the main board.

1.7.8 Computer Docking Mechanism

The computer docking mechanism has a lever that protrudes from the right side of either expansion base and serves to aid in seating the computer when it is pushed toward the rear of the expansion base. The lever releases the computer from the expansion base when it is pushed toward the front of the expansion base.

1.7.9 ISA Expansion Board

The MultiBay ISA Expansion Base provides one slot for an 8- or 16-bit, full-length industry-standard (ISA) expansion board.

The following provisions must be considered when choosing the type of ISA expansion board to be installed in the expansion base:

- o The enhanced video performance of the Compaq LTE 5000 Family of Personal Computers drives an external monitor at resolutions up to 1024 x 768 x 256 colors and at selectable refresh rates up to 72 Hz, making the use of ISA graphics controller boards unnecessary. If an ISA graphics controller card is installed, the system will not operate. Graphics controller boards are not supported.
- o If a National NE2000 or compatible network ISA board is installed, the built-in ethernet connectors in the expansion base are disabled. To re-enable the built-in ethernet network feature, the NE2000 or compatible network ISA expansion board must be removed.

Two Network Interface Cards (NICs) can be enabled at one time as long as both are not NE2000 or compatible.

NOTE: NICs that have a default address of 300h require setup configuration changes because the built-in ethernet uses the 300h address.

- o Some Moving Picture Experts Group (MPEG) ISA boards cannot be installed as they require connection to the "feature connector" of the graphics controller. This feature connector is not provided on the MultiBay ISA Expansion Base. MPEG ISA boards with a standard video port (external monitor connector) that do not require connection to the feature connector on the graphics controller should function satisfactorily.

The Compaq MPEG and TV Video Adapter option provides enhanced MPEG capabilities for use with the Compaq LTE 5000 Family of Personal Computers. To achieve maximum MPEG functionality support, use the Compaq MPEG and TV Video Adapter option.

- o Due to the vast numbers of ISA expansion boards that are available, Compaq does not guarantee or support every ISA expansion board.

Refer to the documentation accompanying the ISA expansion board being installed for complete installation and configuration instructions.

Chapter 2. Troubleshooting

Chapter 2.0 Introduction

This chapter contains troubleshooting information for the computer. The basic steps in troubleshooting include:

1. Completing the preliminary steps listed in Section 2.1.
2. Running the Power-On Self-Test (POST) as described in Section 2.4.
3. Running the Computer Checkup (TEST) as described in Section 2.5.
4. Performing the recommended actions described in the diagnostic tables in Section 2.7 if you are unable to exercise POST or Computer Checkup or if the problem persists after running POST and Computer Checkup.

Adhere to the following guidelines when troubleshooting:

- o Complete the recommended actions in the order in which they are given.
- o Repeat POST and Computer Checkup after each recommended action until the problem is resolved and the error message does not return.
- o Once the problem is resolved, do not complete the remaining recommended actions.
- o Refer to Chapter 5 for any removal and replacement procedures that are recommended.

Chapter 2.1 Preliminary Steps

IMPORTANT: Use the AC adapter when running POST, Computer Setup, or Computer Checkup. A low battery condition could initiate Standby (Suspend) and interrupt the test.

Before running POST and Computer Checkup, complete the following steps:

1. If a power-on password has been established, type the password and press Enter.

NOTE: The key icon appears on the status display when the computer is turned on to indicate that QuickLock/QuickBlank has been initiated. Type the power-on password to exit QuickLock/QuickBlank. If the password is unknown, it must be cleared (see Section 2.2).

2. Run Computer Setup (Section 2.3).
3. Position the brightness control actuator and contrast control actuator (on selected models) in the center of their ranges and leave the

display open.

4. Turn off the computer and all external devices.
5. Disconnect any external devices that you do not want to test. If you want to use the printer to log error messages, leave it connected to the computer.

NOTE: If a problem only occurs when an external device is connected to the computer, the problem could be with the external device or its cable. Isolate the problem by running POST with and without the external device connected.

6. Use Advanced Diagnostics and loopback plugs in the serial and parallel connectors if you plan to test these ports. To run Advanced Diagnostics, complete the following steps:
 - a. Insert the Diagnostics diskette into the diskette drive and turn on the computer.
 - b. At the Welcome Screen, press Ctrl + A.
 - c. Press Enter to accept OK.
 - d. Select Computer Checkup (TEST).
 - e. Select Prompted Diagnostics after "Identifying System Hardware" completes.
 - f. Select Interactive Testing and follow the displayed instructions.

Refer to Chapter 3 for description and spare part number for the loopback plugs.

7. Ensure that the primary hard drive is installed in the computer.
8. Ensure that the battery pack is installed in the computer and the AC Adapter is connected to the computer and plugged into an AC power source.

After completing the preliminary steps, run POST (Section 2.4) and Computer Checkup (Section 2.5).

Chapter 2.2 Clearing the Power-On and Setup Passwords

The power-on password prevents use of the computer until the password is entered. The setup password prevents unauthorized changes to Computer Setup. To clear the passwords, you must remove and replace a jumper on the system board. If you do not know the passwords, use the following procedure to clear the password:

1. Complete the preparation for disassembly procedures in Section 5.3.
2. Remove the CPU cover as described in Section 5.5.

3. Move the jumper on JP1 (Figure 2-1) from pins 2 and 3 to pins 1 and 2.

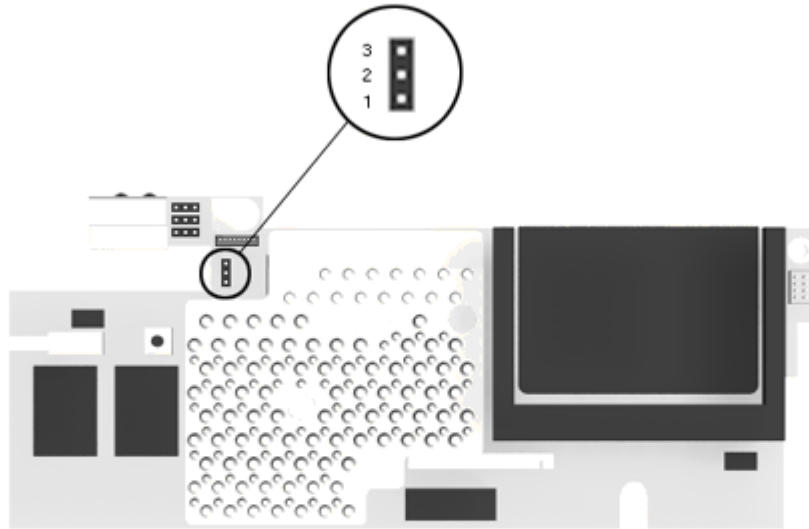


Figure 2-1. Password Jumper

4. Turn on the computer and run POST.
5. Turn off the computer and move the JP1 jumper to pins 2 and 3 for normal operation.

Chapter 2.3 Running Computer Setup

The ROM-based Computer Setup displays the current system configuration and allows you to set system and power management parameters. These parameters are stored in CMOS, and a backup copy is saved in a parameter block in system flash ROM.

You can access Computer Setup by pressing F10 when the prompt appears after you turn on or restart the computer. The following configuration parameters can be changed in Computer Setup:

- o Date and time
- o Power conservation (when)

- o Power conservation (level)
- o PC Card slot power management
- o Hibernation on/off
- o Hibernation settings
- o Warning beep
- o Setup password
- o Diskette drive disable
- o Serial/IrDA ports disable
- o Parallel port disable
- o PC Card slots disable
- o Resume password on/off
- o Boot memory test
- o Keyboard numlock
- o Boot sequence
- o Boot display
- o Serial port settings
- o Infrared port settings
- o Parallel port settings
- o Power-on password
- o Diskette drive boot disable
- o NTSC/PAL
- o Windows 95 Power Properties
- o Lid closure notification
- o Advanced LPT mode

Computer Setup automatically recognizes and configures the system for new Compaq devices. It does this without prompting you for information about the devices. However, if you add a memory expansion board, the next time you turn on the computer a prompt appears notifying you of the new memory configuration.

The first Computer Setup screen displays current settings for the system, ports, and devices. The status bar at the bottom of the screen gives instructions for navigating and choosing options. The status bar also displays descriptions as you highlight menus and menu options.

NOTE: If the main system board is replaced, the serial number on this screen changes to 0 (zero).

Select one of the menus from the menu bar at the top of the screen to view or to change the following configuration settings:

- o Initialization startup preferences
- o Ports, including serial/infrared, parallel, Ethernet, and MPEG
- o Power, including Power Management and Hibernation
- o Security, including setup and power-on passwords and disabling devices

2.3.1 Initialization Menu

Select the Initialization menu to set the date and time and to change the initialization (startup) settings for running the POST memory tests, numlock on or off, the drive boot sequence, boot display, and lid closure notification.

NOTE: The boot sequence sets the order in which the system searches for a bootable drive to start the computer. Before changing the booting sequence, see "The Hard Drive Boot Sequence" in Appendix C for more information.

2.3.2 Ports Menu

Select the Ports menu to change the default input/output (I/O) addresses and interrupt requests (IRQs) for serial/infrared, parallel, and Ethernet ports, select PAL or NTSC for the optional MPEG video format, and enable Advanced LPT mode.

NOTE: If you select conflicting settings for the ports, the system automatically changes one of the settings.

2.3.3 Power Menu

Select the Power menu to enable or disable Power Management, PC Card slot power management (not available on LTE 5000, LTE 5100, and LTE 5200 models), low-battery warning beeps, and an external energy saving monitor. The factory default settings are:

- o Power Management Enabled While on Battery
- o Conservation Level Medium
- o Low-Battery Warning Beeps Enabled
- o External Energy Saving Monitor Disabled

This chapter contains typical error messages that you may encounter during the power-on self-test (POST). POST is a series of tests that run every time you turn on the computer. POST verifies that the system is configured and functioning properly. A successful POST is followed by one or two short beeps.

If you receive an error message listed below, follow the recommended action. If you receive an error message that is not listed, contact your Compaq authorized service provider. You may also want to run Computer Checkup from the Diagnostics diskette. Information about running Computer Checkup is presented later in this section.

If POST detects an error, one of the following events occurs:

- o A message with the prefix "WARNING" appears informing you where the error occurred. The system pauses until you press F1 to continue.
- o A message with the prefix "FATAL" appears informing you where the error occurred. After the message, the system emits a series of audible beeps. The system then stops.
- o The system emits a series of audible beeps. The system then stops.

Warning messages indicate a potential problem exists such as a system configuration error. When F1 is pressed, the system should resume. You should be able to correct problems that produce WARNING messages.

IMPORTANT: When a WARNING message includes the prompt to "RUN SCU," run Computer Setup. (Computer Setup replaces the SCU utility.)

Fatal errors emit a beep and may display a FATAL message. Fatal errors indicate severe problems, such as a hardware failure. Fatal errors do not allow the system to resume. Some of the Fatal error beep codes are listed at the end of this section.

Table 2-1. Warning Messages

Message	Description
Clock not ticking correctly	The real time clock is not ticking.
CMOS checksum invalid, run SCU	CMOS RAM information has been corrupted and needs to be reinitialized by running Computer Setup.
CMOS failure, run SCU	CMOS RAM has lost power and needs to be reinitialized by running Computer Setup.
Floppy controller failed	The diskette drive controller failed to respond to the reset command. Power down the system and check all appropriate connections. If the diskette drive controller continues to fail, you may need to replace the system board.

Floppy disk track 0 failed	The diskette drive cannot read track 0 of the diskette in the drive. Try another diskette. If the problem persists, you may need to replace the diskette drive.
Floppy information invalid, run SCU	The drive parameters stored in CMOS RAM do not match the diskette drives detected in the system.
Hard disk controller error	The hard drive controller failed to respond to the reset command. Check the drive parameters. Power down the system and check all appropriate connections.
Hardware information does not match video card, run SCU	The video adapter type specified in CMOS RAM does not match the installed hardware.
Keyboard controller failure	The keyboard failed the self-test command.
Keyboard failure	The keyboard failed to respond to the RESET ID command.
No interrupts from Timer 0	The periodic timer interrupt is not occurring.
RAM parity error at location xxxx	A RAM parity error occurred at the specified (hex) location.
ROM at xxxx (LENGTH yyyy) with nonzero checksum (zz)	An illegal adapter ROM was located at the specified address. An external adapter (such as a video card) may be causing the conflict.
Time/Date corrupt - run SCU	The time and date stored in the real time clock have been corrupted, possibly by a power loss.
Unexpected amount of memory, run SCU	The amount of memory detected by POST does not match the amount specified in CMOS RAM.
Hard disk xx failure (or error)	A failure or an error occurred when trying to access the hard drive.

Table 2-2. Fatal Error Messages

Message	Description	Beep Code
CMOS RAM test failed	A walking bit test of CMOS RAM location 0E (Hex) - 3F (Hex) failed.	3
DMA controller faulty	A sequential read/write of the transfer count and transfer address registers within the primary and secondary DMA controllers failed.	4
Faulty DMA page registers	A walking bit read/write of the 16 DMA controller page registers starting at location 80 Hex failed.	0

Faulty refresh circuits	A continuous read/write test of port 61h found that bit 4 (Refresh Detect) failed to toggle within an allotted amount of time.	1
Interrupt controller failed	A sequential read/write of various Interrupt Controller registers failed.	5
ROM checksum incorrect	A checksum of the ROM BIOS does not match the byte value at F000:FFFF.	2
RAM error at location xxxx	RAM error occurred during memory test.	None
Parity error at unknown location	Parity error occurred.	None

The following table lists some of the Fatal Error beep codes, along with the beep sequence (short, long, pause) and the meaning of the beeps.

Table 2-3. Fatal Error Beep Codes

Beep Code	Beep Sequence	Explanation	Remedy
0	S-S-S-P-S-S-L-P	The DMA page registers are faulty.	Replace system board.
1	S-S-S-P-S-L-S-P	The refresh circuitry is faulty.	Replace system board.
2	S-S-S-P-S-L-L-P	The ROM checksum is incorrect.	1. Flash the ROM 2. Replace system board.
3	S-S-S-P-L-S-S-P	The CMOS RAM test failed.	Replace system board.
4	S-S-S-P-L-S-L-P	The DMA controller is faulty.	Replace system board.
5	S-S-S-P-L-L-S-P	The interrupt controller failed.	Replace system board.
6	S-S-S-P-L-L-L-P	The keyboard controller failed.	Replace system board.
7	S-S-L-P-S-S-S-P	Graphics adapter is faulty.	Replace system board.
8	S-S-L-P-S-S-L-P	Internal RAM is faulty.	Replace processor board.

S = Short, L = Long, P = Pause

Chapter 2.5 Compaq Diagnostics

A Compaq Diagnostics diskette is supplied with the computer. Run the Diagnostics utilities when you want to view or test system information and installed or connected devices. The Diagnostics menu includes the following utilities:

- o Computer Checkup (TEST)
- o View System Information (INSPECT)

If you have a problem you cannot solve, run the Diagnostics utilities before you call for support. Run Computer Checkup and select to save the device list to a file and to print or to save the log of errors. Run the View System Information (INSPECT) utility and select to print or to save that information. Have the files or the printed information available when you call for support.

2.5.1 Computer Checkup (TEST)

Computer Checkup (TEST) determines whether the various computer components and devices are recognized by the system and are functioning properly. You can display, print, or save the information generated by Computer Checkup.

Follow these steps to run Computer Checkup:

1. Plug the computer into an external power source. (A low battery condition could interrupt the program.)
2. Turn on the external devices that you want to test. Connect the printer if you want to print a log of error messages.
3. Insert the Compaq Diagnostics diskette in drive A.
4. Turn on or restart the computer. The computer starts from drive A, and the Diagnostics Welcome screen appears.
5. Press Enter to continue. The Diagnostics menu appears.
6. Select Computer Checkup from the Diagnostics menu. A Test Option menu appears.
7. Select "View the Device List" from the Test Option menu. A list of the installed Compaq devices appears.
8. If the list of installed devices is correct, select OK. The Test Option menu appears.

NOTE: If the list is incorrect, ensure that any new devices are installed properly.

9. Select one of the following from the Test Option menu:

- o Quick Check Diagnostics. Runs a quick, general test on each device with a minimal number of prompts. If errors occur, they display when the testing is complete. You cannot print or save the error messages.
- o Automatic Diagnostics. Runs unattended, maximum testing of each device with minimal prompts. You can choose how many times to run the tests, to stop on errors, or to print or save a log of errors.
- o Prompted Diagnostics. Allows maximum control over testing the devices. You can choose attended or unattended testing, decide to stop on errors, or choose to print or save a log of errors.

10. Follow the instructions on the screen as the devices are tested. When testing is complete, the Test Option menu appears.

11. Exit the Test Option menu.

12. Exit the Diagnostics menu.

2.5.2 View System Information (INSPECT)

The View System Information (INSPECT) utility provides information about the computer and installed or connected devices. You can display, print, or save the information.

Follow these steps to run View System Information (INSPECT) from the Compaq Diagnostics diskette:

1. Turn on the external devices that you want to test. Connect the printer if you want to print the information.
2. Insert the Compaq Diagnostics diskette in drive A.
3. Turn on or restart the computer. The computer starts from drive A, and the Diagnostics Welcome screen appears.
4. Press Enter to continue. The Diagnostics menu appears.
5. Select View System Information (INSPECT) from the Diagnostics menu.
6. Select the item you want to view from the following list:

```
=====
System          Memory
ROM             Audio
Keyboard        Operating system
System ports    System files
System storage  Windows files
```

Graphics

=====

7. Follow the instructions on the screen to cycle through the screens, to return to the list and choose another item, or to print the information.

Chapter 2.6 Diagnostic Error Codes

Diagnostic error codes occur if the system recognizes a problem while running the Compaq Diagnostic program. These error codes help identify possibly defective subassemblies.

Tables 2-4 through 2-16 list possible error codes, a description of the error condition, and the action required to resolve the error condition.

IMPORTANT: Retest the system after completing each step. If the problem has been resolved, do not proceed with the remaining steps.

For assistance in the removal and replacement of a particular subassembly, see Chapter 5, "Removal and Replacement Procedures."

Table 2-4. Processor Test Error Codes

Error Code	Description	Recommended Action
101 - xx	CPU test failed	Replace the processor board and retest.
102 - xx	Coprocessor or Weitek Error	1. Run the Configuration and Diagnostics Utilities. 2. Replace the processor board and retest.
103 - xx	DMA page registers test failed	Replace the system board and retest.
104 - xx	Interrupt controller master test failed	
105 - xx	Port 61 error	
106 - xx	Keyboard controller self-test failed	
107 - xx	CMOS RAM test failed	
108 - xx	CMOS interrupt test failed	
109 - xx	CMOS clock test failed	

110 - xx	Programmable timer load data test failed	
113 - xx	Protected mode test failed	

114 - 01	Speaker test failed	1. Check system configuration. 2. Verify cable connections to speaker. 3. Replace the system board and retest.
=====		

Table 2-5. Memory Test Error Codes

Error Code	Description	Recommended Action
200 - xx	Memory machine ID test failed	The following steps apply to error codes 200 - xx and 202 - xx:
202 - xx	Memory system ROM checksum failed	1. Flash the system ROM and retest. 2. Replace the system board and retest.

203 - xx	Write/Read test failed	The following steps apply to error codes 203 - xx through 215 - xx:
204 - xx	Address test failed	1. Remove the memory module and retest. 2. Install a new memory module and retest.
211 - xx	Random pattern test failed	
214 - xx	Noise test failed	
215 - xx	Random address test failed	
=====		

Table 2-6. Keyboard Test Error Codes

Error Code	Description	Recommended Action
300 - xx	Failed ID Test	The following steps apply to error codes 300 - xx through 304 - xx:
301 - xx	Failed Self-test/ Interface Test	1. Check the keyboard connection. If disconnected, turn off the computer and connect the keyboard. 2. Replace the keyboard and retest.
302 - xx	Failed Individual Key Test	3. Replace the system board and retest.
304 - xx	Failed Keyboard Repeat Test	
=====		

Table 2-7. Parallel Printer Test Error Codes

Error Code	Description	Recommended Action
401 - xx	Printer failed or	The following steps apply to error

not connected codes 401 - xx through 403 - xx:

- | | | |
|----------|-----------------------------|-----------------------------------------------|
| 402 - xx | Failed Port Test | 1. Connect the printer. |
| 403 - xx | Printer pattern test failed | 2. Check power to the printer. |
| | | 3. Install the loopback connector and retest. |
| | | 4. Check port and IRQ configuration. |
| | | 5. Replace the system board and retest. |

Table 2-8. Diskette Drive Test

Error Code	Description	Recommended Action
600 - xx	Diskette ID drive types test failed	The following steps apply to error codes 600 - xx through 698 - xx:
601 - xx	Diskette format failed	1. Replace the diskette media and retest.
602 - xx	Diskette read test failed	2. Check and/or replace the diskette power and signal cables and retest.
603 - xx	Diskette write, read, compare test failed	3. Replace the diskette drive and retest.
604 - xx	Diskette random read test failed	4. Replace the system board and retest.
605 - xx	Diskette ID media failed	
606 - xx	Diskette speed test failed	
609 - xx	Diskette reset controller test failed	
610 - xx	Diskette change line test failed	
697 - xx	Diskette type error	
698 - xx	Diskette drive speed not within limits	
699 - xx	Diskette drive/media ID error	1. Replace media. 2. Run the Configuration and Diagnostics Utilities.

Table 2-9. Serial Test Error Codes

Error Code	Description	Recommended Action
1101 - xx	Serial port test failed	1. Check port configuration 2. Replace the system board and retest.

Table 2-10. Hard Drive Test Error Codes

Error Code	Description	Recommended Action
1701 - xx	Hard drive format test failed	The following steps apply to error codes 1701 - xx through 1736 - xx:
1702 - xx	Hard drive read test failed	1. Run the Configuration and Diagnostics Utilities and verify drive type.
1703 - xx	Hard drive write/read/compare test failed	2. Verify that all secondary drives have secondary drive capability (see Appendix C).
1704 - xx	Hard drive random seek test failed	3. Replace the hard drive and retest.
1705 - xx	Hard drive controller test failed	4. Replace the system board and retest.
1706 - xx	Hard drive ready test failed	
1707 - xx	Hard drive recalibration test failed	
1708 - xx	Hard drive format bad track test failed	
1709 - xx	Hard drive reset controller test failed	
1710 - xx	Hard drive park head test failed	
1715 - xx	Hard drive head select test failed	
1716 - xx	Hard drive conditional format test failed	
1717 - xx	Hard drive ECC * test failed	
1719 - xx	Hard drive power mode test failed	
1724 - xx	Network preparation test failed	
1736 - xx	Drive monitoring test failed	

* ECC = Error Correction Code

Table 2-11. Video Test Error Codes

Error Code	Description	Recommended Action
501 - xx	Video controller test failed	The following apply to error codes 501 - xx through 516 - xx:
502 - xx	Video memory test failed	1. Disconnect external monitor and test with internal LCD display.
503 - xx	Video attribute test failed	2. Check display jumpers on the processor board (see Chapter 5)
504 - xx	Video character set test failed	3. Replace the display assembly and retest.
505 - xx	Video 80 x 25 mode 9 x 14 character cell test failed	4. Replace the system board and retest.
506 - xx	Video 80 x 25 mode 8 x 8 character cell test failed	
507 - xx	Video 40 x 25 mode test failed	
508 - xx	Video 320 x 200 mode color set 0 test failed	
509 - xx	Video 320 x 200 mode color set 1 test failed	
510 - xx	Video 640 x 200 mode test failed	
511 - xx	Video screen memory page test failed	
512 - xx	Video gray scale test failed	
514 - xx	Video white screen test failed	
516 - xx	Video noise pattern test failed	
Error Code	Description	Recommended Action
2402 - xx	Video memory test failed	The following steps apply to error codes 2402 - xx through 2456 - xx:
2403 - xx	Video attribute test	1. Run the Configuration and

	failed	Diagnostics Utilities.
2404 - xx	Video character set test failed	2. Replace the display assembly and retest. 3. Replace the system board and retest.
2405 - xx	Video 80 x 25 mode 9 x 14 character cell test failed	
2406 - xx	Video 80 x 25 mode 8 x 8 character cell test failed	
2408 - xx	Video 320 x 200 mode color set 0 test failed	
2409 - xx	Video 320 x 200 mode color set 1 test failed	
2410 - xx	Video 640 x 200 mode test failed	
2411 - xx	Video screen memory page test failed	
2412 - xx	Video gray scale test failed	
2414 - xx	Video white screen test failed	
2416 - xx	Video noise pattern test failed	
2418 - xx	ECG/VGC memory test failed	

Error Code	Description	Recommended Action
2419 - xx	ECG/VGC ROM checksum test failed	The following steps apply to error codes 2402 - xx through 2456 - xx:
2421 - xx	ECG/VGC 640 x 200 graphics mode test failed	1. Run the Configuration and Diagnostics Utilities.
2422 - xx	ECG/VGC 640 x 350 16 color set test failed	2. Disconnect external monitor and test with internal LCD display.
2423 - xx	ECG/VGC 640 x 350 64 color set test failed	3. Check display jumpers on the processor board (see Chapter 5.)
2424 - xx	ECG/VGC monochrome text mode test	4. Replace the display assembly and retest.
		5. Replace the system board and retest.

	failed	
2425 - xx	ECG/VGC monochrome graphics mode test failed	
2431 - xx	640 x 480 graphics test failure	
2432 - xx	320 x 200 graphics (256 color mode) test failure	
2448 - xx	Advanced VGA Controller test failed	
2451 - xx	132-column Advanced VGA test failed	
2456 - xx	Advanced VGA 256 Color test failed	

2458 - xx	Advanced VGA BitBLT test	Replace the system board and retest.
2468 - xx	Advanced VGA DAC test	
2477 - xx	Advanced VGA data path test	
2478 - xx	Advanced VGA BitBLT test	
2480 - xx	Advanced VGA Linedraw test	

Table 2-12. Audio Test Error Codes

Error Code	Description	Recommended Action
3206 - xx	Audio System Internal Error	Replace the system board and retest.

Table 2-13. Pointing Device Interface Test Error Codes

Error Code	Description	Recommended Action
8601 - xx	Mouse test failed	The following steps apply to 8601 - xx and 8602 - xx:
8602 - xx	Interface test failed	1. Replace the EasyPoint II controller board and retest. 2. Replace the system board and retest.

Table 2-14. CD-ROM Test Error Codes

Error Code	Description	Recommended Action
3301 - xx	CD-ROM drive read test failed	The following steps apply to error codes 3301 - xx through 3305 - xx and 6600 - xx through 6623 - xx:
3305 - xx	CD-ROM drive seek test failed	1. Replace the CD and retest.
6600 - xx	ID test failed	2. Verify that the speakers are connected.
6605 - xx	Read test failed	3. Verify that drivers are loaded and properly installed.
6608 - xx	Controller test failed	4. Replace the CD-ROM drive and retest.
6623 - xx	Random read test failed	5. Replace the system board and retest.

Chapter 2.7 Troubleshooting Without Diagnostics

This section provides information about how to identify and correct some common hardware, memory, and software problems. It also explains several types of common messages that may be displayed on the screen. The following pages contain troubleshooting information on:

- o Audio
- o Memory
- o Battery/battery gauge
- o MultiBay ISA Expansion Base
- o CD-ROM drive
- o PC Card
- o Diskette/diskette drive
- o Pointing device
- o Hard drive
- o Power
- o Hardware installation
- o Printer
- o Infrared connection
- o Screen (LCD and CRT)
- o Keyboard/numeric keypad

2.7.1 Solving Minor Problems

Some minor problems and possible solutions are outlined in the following tables. If the problem appears related to a software application, check the documentation provided with the software.

Solving Audio Problems

Some common audio problems and solutions are listed in the following table.

Table 2-15. Solving Audio Problems

Problem	Probable Cause	Solution(s)
Computer beeps once after you turn it on.	This is typical; it indicates successful completion of the Power-On Self-Test (POST).	No action is required.
Computer does not beep after the Power-On Self-Test (POST).	Speaker volume is off or has been turned down.	If the speaker icon is not displayed on the status panel, Press Fn+F5 to turn the speaker on, then adjust the volume.
	Beeps have been turned off.	Run Computer Setup and turn on beeps.
Loss of audio	Moving hard drives between different LTE 5000 models	Download appropriate driver from Compaq.

Solving Battery and Battery Gauge Problems

Some common causes and solutions for battery problems are listed in the following table. The "Solving Power Problems" section in this chapter also may be applicable.

Table 2-16. Solving Battery and Battery Gauge Problems

Problem	Probable Cause	Solution(s)
Computer won't turn on when battery pack is inserted and power cord is unplugged.	Battery is discharged.	Connect the computer to an external power source and charge the battery pack. Replace the battery pack with a fully charged battery pack. Check the battery connectors on the system

board to verify they are evenly spaced and that they are not bent or broken.

Computer is beeping and battery light is blinking.	Battery charge is low.	<p>Immediately save any open file(s). Then do any one of the following:</p> <ul style="list-style-type: none"> o Connect the computer to an external power source to charge the battery pack. o Initiate Standby and replace the battery pack with a fully charged battery pack. o Turn the computer off or initiate Hibernation until you can find another power source or charge the battery pack.
----------------------------------------------------	------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Computer battery light blinks to indicate low battery condition, but computer does not beep.	Low battery beeps were turned off.	Run Computer Setup to turn on the low battery warning beeps.
----------------------------------------------------------------------------------------------	------------------------------------	--------------------------------------------------------------

Volume is turned off or turned down too low.	Press Fn+F5 to turn the speaker on and then adjust the volume.
----------------------------------------------	----------------------------------------------------------------

Problem	Probable Cause	Solution(s)
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Battery light doesn't light and battery pack won't fast charge.	Battery pack is already charged.	No action is necessary.
-----------------------------------------------------------------	----------------------------------	-------------------------

Battery pack was exposed to temperature extremes.	Allow time for the battery pack to return to room temperature.
---------------------------------------------------	----------------------------------------------------------------

Battery pack is at end of its life.	Replace battery pack.
-------------------------------------	-----------------------

While the computer is in Standby (Suspend), computer turns off	The battery pack was not replaced within 10 minutes. The battery pack must be replaced within 10 minutes to prevent loss of information.	Next time, initiate Standby, then remove the battery pack and replace it within 10 minutes.
----------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------

Auxiliary battery charge	Provide power (AC or
--------------------------	----------------------

	is low, or the auxiliary battery is at end of its life.	battery) to the computer; this charges the auxiliary battery. Replace the auxiliary battery.

You have to set the date and time every time you turn on the computer.	Auxiliary battery charge is low, or the auxiliary battery is at end of its life.	Provide power to the computer (AC or battery), which charges the auxiliary battery. Replace the auxiliary battery.

Battery charge does not last as long as expected.	Battery is being exposed to high temperatures or extremely cold temperatures.	Keep the battery pack within the recommended operating temperature range 50oF to 104oF (10oC to 40oC) or recommended storage range -4oF to 86oF (-20oC to 30oC). Recharge the battery pack.
	Battery has partially self-discharged.	Recharge the battery. Discharge the battery completely until the unit powers off, and then completely recharge it. Repeat this process every 30 days.
	Power management is disabled.	Set a power management level in Computer Setup.
	An external device or PC Card is draining the battery.	Turn off or disconnect external devices when not using them.
	Extensive modem usage.	Connect to external power source when using CD-ROM extensively.
	Extensive operation in DOS mode (power management is not implemented in DOS mode).	Avoid extensive operation in DOS mode.

Battery pack is warm to the touch after charging.	Normal warming has occurred due to charging.	No action is required.

Battery gauge is inaccurate.	The battery pack is new or has not been used for a long period.	Fully charge the battery pack until the battery light on the computer turns off. Condition the battery

pack by fully charging,
then fully discharging
until the unit powers
off, and then fully
recharging again.

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Solving CD-ROM Drive Problems

Some common causes and solutions for CD-ROM drive problems are listed in the following table.

Table 2-17. Solving CD-ROM Drive Problems

Problem	Probable Cause	Solution(s)
CD-ROM drive cannot read a compact disc.	Compact disc is upside down or is improperly inserted in the CD-ROM drive.	Open the CD loading tray, lay the compact disc in it (label side up), then close the tray.
CD-ROM drive does not work.	CD-ROM drive is not seated properly.	Shut down the computer, remove and reinsert the drive, then turn on the computer.
	CD-ROM drive was inserted while the computer was on, in Standby (Suspend), or in Hibernation.	Shut down computer; then turn it on again. The drive is initialized during power up.
No sound comes from a CD-ROM drive in the expansion base.	You have two CD-ROM drives in the expansion base and are trying to play an audio (music) CD on one of them.	Shut down the computer and remove one of the CD-ROM drives from the expansion base. If two CD-ROM drives are in the expansion base, neither can play audio (music) CDs.

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Solving Diskette and Diskette Drive Problems

Some common causes and solutions for diskette and diskette drive problems are listed in the following table.

Table 2-18. Solving Diskette and Diskette Drive Problems

Problem	Probable Cause	Solution(s)
Diskette drive icon does not turn on.	Diskette drive is not installed properly.	Remove the diskette drive and install it properly.
Cannot access diskette drive in	Real mode device drivers have not been loaded.	Remove the check marks from the docked and

expansion base when running Windows 95.

undocked configurations in Standard Floppy Disk Controller Properties to unload the protected mode drivers and then restart the computer.

Diskette drive icon stays on.

Diskette is damaged.

Run SCANDISK on the diskette. At the system prompt, enter SCANDISK A:

Diskette is incorrectly inserted.

Remove diskette and reinsert.

Software program is damaged.

Check the program diskettes.

Diskette drive cannot write to a diskette.

Diskette is write-protected.

Disable the diskette's write-protect feature or use a diskette that is not write-protected.

Computer is writing to the wrong drive.

Check the drive letter in the path statement.

Not enough space is left on the diskette.

Use another diskette.

Drive error has occurred.

Run Computer Checkup from the Compaq Diagnostics diskette.

Diskette is not formatted.

Format the diskette. At the system prompt, enter FORMAT A:

Diskette drive cannot read a diskette.

The wrong type of diskette is being used.

Use the type of diskette required by the drive.

Diskette has a bad sector.

Copy files to hard drive or another diskette. Reformat bad floppy.

Drive error has occurred.

Run Computer Checkup from the Compaq Diagnostics diskette.

Diskette is not formatted.

Format the diskette. At the system prompt, enter FORMAT A:

Cannot boot from diskette

Bootable diskette is not in drive A

Put the bootable diskette in drive A. If a diskette drive is in the computer MultiBay, that that is drive A.

Diskette Boot is disabled in Computer

Run Computer Setup and enable Diskette Boot on

Hard drive release button on the bottom of the computer has not been pressed.	Press and hold release button while removing hard drive from the bay.
-------------------------------------------------------------------------------	-----------------------------------------------------------------------

=====

Solving Hardware Installation Problems

Some common causes and solutions for hardware installation problems are listed in the following table.

Table 2-20. Solving Hardware Installation Problems

Problem	Probable Cause	Solution(s)
A new device is not recognized as part of the computer system.	Cable(s) of new external device are loose or power cables are unplugged.	Ensure that all cables are properly and securely connected.
	Power switch of new external device is not turned on.	Turn off the computer, turn on the external device, then turn on the computer to integrate the device with the computer system.
	Device is not seated properly.	Turn off the computer and reinsert the device.
	ISA Card switches or jumpers are not set properly or conflict with other devices.	See ISA card documentation.

=====

Solving Infrared Connection Problems

Some common causes and solutions for infrared connection problems are listed in the following table.

Table 2-21. Solving Infrared Connection Problems

Problem	Probable Cause	Solution(s)
Cannot link with another computer.	Interrupt request (IRQ) conflict.	Check IRQ assignments for conflicts and reassign as necessary.
	Baud rate conflict.	Select the same baud rate for both computers.
Data transmission problem	Direct sunlight, fluorescent light, or flashing incandescent	Remove the interfering light sources.

light is close to the infrared connections.

Interference from other wireless devices.

Keep remote control units such as wireless headphones and other audio devices away from the infrared connections

Physical obstruction.

Do not place objects between the two units that will interfere with a line-of-sight data transmission.

Movement.

Do not move either unit during data transmission.

Orientation.

Adjust devices so that they point within 30 degrees of each other.

Distance.

Verify that devices are not more than 3 feet (1 m) apart.

=====

Solving Keyboard/Numeric Keypad Problems

Some common causes and solutions for keyboard/numeric keypad problems are listed in the following table.

Table 2-22. Solving Keyboard/Numeric Keypad Problems

Problem	Probable Cause	Solution(s)
Embedded numeric keypad on computer keyboard is disabled.	Num Lock function is not enabled.	Press the Fn+NumLk keys to enable the Num Lock function and embedded numeric keypad. The Num Lock icon on the status panel turns on.
Embedded numeric keypad is disabled and Num Lock function is on.	External numeric keypad is connected to the computer.	Disconnect the external numeric keypad from the computer.
Keyboard is locked.	You initiated QuickLock.	Enter your password to exit QuickLock.

Solving Memory Problems

Some common causes and solutions for memory problems are listed in the following table.

Table 2-23. Solving Memory Problems

Problem	Probable Cause	Solution(s)
Memory count during Power-On Self-Test (POST) is incorrect.	Optional memory expansion card is installed incorrectly, is incompatible with the computer, or is defective.	Ensure that the optional memory expansion card is installed correctly.
"Out of Memory" message is displayed on the screen or insufficient memory error occurs during operation.	System ran out of memory for the application.	Check the application documentation for memory requirements. Install additional memory.
	Memory is not configured correctly.	Reconfigure the memory using MS-DOS MemMaker. (See MS-DOS Help.)
	Too many TSR (terminate and stay resident) applications are running.	Remove from memory any TSR applications that you do not need.

Solving MultiBay ISA Expansion Base Problems

Some common MultiBay ISA Expansion Base causes and solutions are listed in the following table.

Table 2-24. Solving MultiBay ISA Expansion Base Problems

Problem	Probable Cause	Solution(s)
No external video using an ISA graphics controller card in the MultiBay ISA Expansion Base.	The ISA slot does not support graphics controller cards.	Plug the external monitor directly into the MultiBay ISA Expansion Base.
ISA slot not recognized by the LTE 5000 in the MultiBay ISA Expansion Base.	The ROM version in the computer may be below revision 4.02 (6/13/96)	Using the ROM by downloading the current ROMPaq diskette.

Solving PC Card Problems

Some common causes and solutions for PC Card problems are listed in the following table.

Table 2-25. Solving PC Card Problems

Problem	Probable Cause	Solution(s)
PC Card error messages appear when the computer is turned on.	The PC Card slot is disabled.	Run Computer Setup and enable the PC Card slots on the Security Menu.
When turned on, the computer does not beep when a PC Card is inserted.	Card is not inserted properly.	Ensure the card is inserted in the correct orientation.
	PC Card beeps are disabled.	Double-click the PC Card icon in the Control Panel, click the Global Settings tab, then enable PC Card sound effects.
	Speaker is turned off or volume is turned down.	Press Fn+F5 to turn the speaker on, then increase the volume.
	PC Card drivers are not installed.	Double click the Add New Hardware icon in the Control Panel for installation instructions.
		If PC Card or drivers are not compatible with Windows 95, install drivers and use the PC Card in MS-DOS mode.
	The PC Card slots are disabled.	Run Computer Setup and then select the Security menu to enable PC Card slots.
	Card or card driver is not supported.	Contact your Compaq authorized service provider for a list of PC Cards tested successfully in Compaq PC Card platforms.
The PC Card drivers (Socket Services, Card Services, Card ID) fail with error messages when the computer is turned on.	The PC Card slot is disabled.	Run Computer Setup and select the Security menu to enable PC Card slots.
PC Card modem, fax, or network card does not work.	Card is not fully inserted into the slot or is not inserted properly.	Ensure the card is inserted in the correct orientation.

	Telephone cord is not plugged in all the way.	Check and secure telephone connection.
	Necessary drivers are not installed (turned on).	Install drivers.
PC Card modem or fax card does not work.	You are trying to access the card using the wrong COM port.	See Chapter 8 to verify COM port.
	The card conflicts with a serial device.	See Chapter 8 to verify address.
	The card is not supported.	Use supported cards only.
Modem network PC Card does not work.	Network driver is not installed or is not set up properly.	Install driver.
	Telephone cord is not properly connected.	Verify telephone connection.
Memory or storage card does not work.	SRAM and flash memory cards require the memory card driver to be loaded (turned on).	Install driver.
	Flash memory cards require the Microsoft FlashFile System to be loaded.	
	Hard drives on flash mass storage cards require the PC Card ATA driver to be loaded.	
	You are trying to access the hard drive card using the wrong drive letter.	Double-click My Computer to verify the drive letter assigned to the card.
	The card is not supported.	Contact your Compaq authorized service provider for a list of PC Card cards tested successfully in Compaq PC Card platforms.

Solving Pointing Device Problems

Some common causes and solutions for EasyPoint II pointing device problems are listed in the following table.

Table 2-26. Solving Pointing Device Problems

Problem	Probable Cause	Solution(s)
External pointing device does not work.	Incorrect device driver or no device driver is installed.	Install the device driver and add to the AUTOEXEC.BAT file or CONFIG.SYS file.
	The device driver is not installed in Windows.	Install the device driver in Windows.
Integrated pointing device does not work.	An external pointing device is connected and the system has disabled the internal pointing device.	Initiate Standby and disconnect the external pointing device.
Cursor drifts during changes in operating temperatures or if constant pressure is applied to the internal pointing device.	The panastick technology can sometimes exhibit this behavior.	If the cursor starts drifting, stop using it for a few seconds. This will stop the cursor drift, and allow you to resume normal operation.

Solving Power Problems

Some common causes and solutions for power problems are listed in the following table. Also see "Solving Battery and Battery Gauge Problems" in this chapter.

Table 2-27. Solving Power Problems

Problem	Probable Cause	Solution(s)
Computer won't turn on and battery pack is not inserted.	Computer is not connected to a power source.	Insert battery or connect an external power source.
	Power cords to the external power source are unplugged.	Ensure that power cords connecting the computer and the external power source are plugged in properly.
	Power board is defective.	<ol style="list-style-type: none"> 1. See Table 2-27 and Figure 2-2 to check for proper voltages. 2. Replace power board and restart.
Computer turned off while it was left unattended and the power icon is off.	System initiated Hibernation due to a critical low-battery condition.	Replace the battery pack with a fully charged battery pack or connect the computer to an

external power source.
Then turn on the
computer.

System initiated
Hibernation after a
preset timeout.

Turn on the computer.

Computer initiated
Standby
automatically or
turned off
automatically when
it was docked in
expansion base.

The unit temperature was
exceeded.

Computer is in an
exceedingly hot
environment. Let the
computer cool down.

NOTE: The fan turns on
and off
automatically when
the computer
reaches certain
temperatures. This
is normal.

Fan may be blocked,
causing temperature to
exceed limits.

Make sure airflow vents
are not obstructed. If
problem persists, contact
your Compaq authorized
service provider.

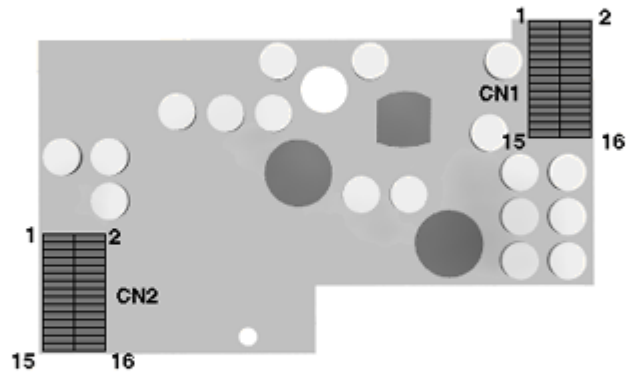


Figure 2-2. Power Board Signals

Table 2-28. Power Board Signals

Connector	Pins	Signal
CN1	1, 2, 3, 4	3.3 Volt output
	5	Enable 3.3 Volt output when high
	6, 7, 8, 9, 10, 11	GND
	12	Enable 5 Volt output when high
	13	+15 Volt output
	14, 15, 16	5 Volt output
CN2	1, 2, 3, 4	18 Volt input from AC Adapter
	5, 6, 7, 8, 9, 10	GND
	11, 12, 13, 14	11 - 17 Volt battery input
	15	Standby (low when computer is in standby)
	16	Not used

Solving Printer Problems

If you experience problems printing, run a printer self-test. Refer to the documentation provided with your printer for instructions. If the self-test fails, it is a printer-specific problem. Also refer to the printing section of your application documentation.

Table 2-29. Solving Printer Problems

Problem	Probable Cause	Solution(s)
Printer will not turn on.	The signal cable may not be connected properly, or the printer is unplugged.	Ensure that the signal cable is properly connected and that the power cord is connected to the electrical outlet.
Printer will not print.	Printer is not turned on or is off line.	Turn the printer on and set it to on line.
	The device drivers for your application are not installed.	Refer to the printer documentation to Install the correct printer driver.
	Printer that is set up for a network is not connected to the network.	Connect the printer to the network.
	Printer cable is too	Replace the cable.

long, unshielded, or defective.

Paper tray is empty.

Fill the paper tray with paper and set the printer to on line.

Printer prints garbled information.

Correct printer drivers are not installed.

Refer to the printer documentation to Install the correct printer driver.

Cable is not connected properly.

Ensure that the printer signal cable is properly connected to the computer.

Cable is defective.

Replace the printer cable and retest.
=====

Solving Screen Problems

This section lists some common causes and solutions for computer display and external monitor problems.

IMPORTANT: Verify that the display jumpers on the processor board are set properly for the display before proceeding with any troubleshooting.

You can perform a monitor self-test on an external VGA color or monochrome monitor by disconnecting the monitor from the computer. To do so, complete the following steps:

1. Turn off the monitor.
2. Turn off the computer.
3. Disconnect the monitor signal cable from the computer.
4. Turn on the monitor and allow it to warm up for one minute.

The screen should be white. A narrow black border may also appear on the left and right sides of the display. Either of these displays indicates that the monitor is working properly.

Table 2-30. Solving Screen Problems

Problem	Probable Cause	Solution(s)
Characters are dim.	The brightness or contrast (if applicable) control is not set properly.	Adjust the control(s) on the right side of the computer display.
	Computer screen is in	Tilt the display or move

	direct light.	computer.
Screen is blank.	You initiated QuickLock/QuickBlank.	Enter your password to exit QuickLock/QuickBlank.
	You may have another screen blanking utility installed.	Press any key and/or enter your password.
	Screen save was initiated after the Power Management timeout period of inactivity	Press any key or click the mouse.
	If an STN screen is used, brightness/contrast needs adjusting.	Use the control on the display to adjust the brightness/contrast.
	Standby was initiated.	Press the standby button to exit Standby.
	Display switch is stuck.	Tap the switch.
Computer screen is blank and the screen on an external monitor displays information.	Display was switched to the external monitor.	Press the Fn+F4 hotkey to display information on the computer screen.
Distorted or garbled characters on the screen are mixed with text.	The ANSI.SYS driver is not in the CONFIG.SYS file or the path is incorrect.	Add the ANSI.SYS driver to the CONFIG.SYS file. Add the following line: DEVICE=C:\ANSI.SYS
Garbled characters on internal display or flashing internal display when connected to external monitor.	You are using 800 x 600 or higher resolution on external display and have toggled back to internal display, which only supports 640 x 480 resolution.	Restart your computer. If simultaneous display is desired, use 640 x 480 resolution.
The image on the external monitor does not fill the screen.	You are using an external monitor and simultaneously displaying an image on the computer display.	This is typical; no action is required.
Small red, green, or blue spots appear on the computer TFT display.	Small spots, called on-pixels, often appear on TFT screens. Compaq limits the number of these on-pixels to 0.003 percent of the approximately 1 million transistors that are on a 10.4-inch display.	This is typical; no action is required.

When in MS-DOS mode, the image on the computer display does not fill the screen.

To maintain a high-quality image, the 800 x 600 models do not stretch the lower-resolution image of MS-DOS mode to fill the screen. This is inherent to display panel technology under a DOS environment.

Try FN + T to stretch the screen in DOS mode. If this doesn't work, download the latest ROM and video drivers from Compaq.

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Chapter 3. Illustrated Parts Catalog

Chapter 3.0 Introduction

This chapter provides an illustrated parts breakdown and a reference for spare part numbers for the Compaq LTE 5000 Family of Personal Computers, MultiBay Expansion Base, and MultiBay ISA Expansion Base.

Chapter 3.1 Computer System Major Components

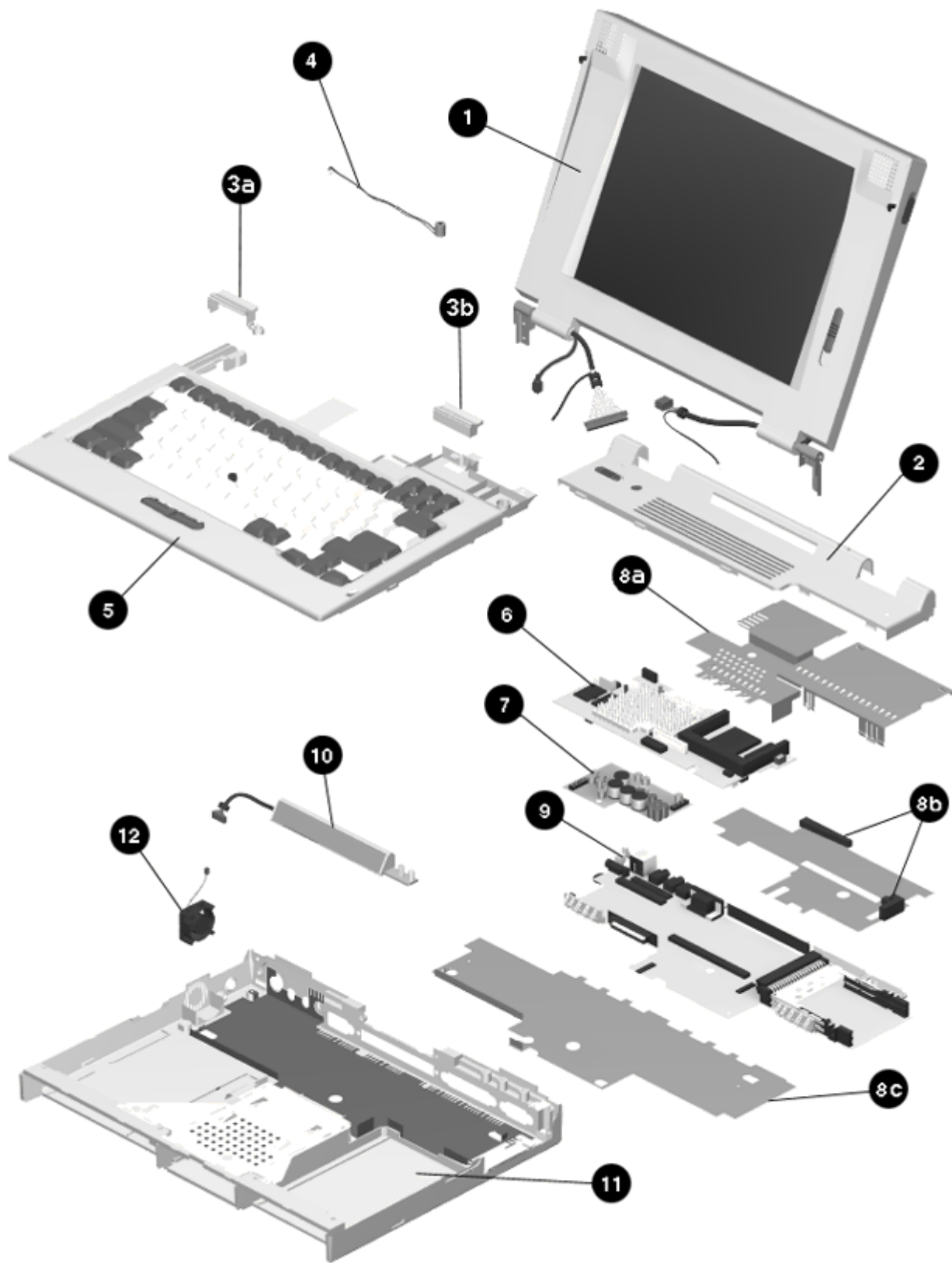


Figure 3-1. Computer System Major Components

Table 3-1. Spare Parts - Computer System Major Components

Item	Description	Spare Part Number
1	Display assembly, VGA, CTFT, 10.4-inch (26.4 cm). Use with Model LTE 5000 VGA (NOTE 1)	213547-001
1	Display assembly, VGA, CSTN, 10.4-inch (26.4 cm). Use with Model LTE 5000 VGA (NOTE 1)	213646-001
1	Display assembly, SVGA, CSTN, 11.3-inch (28.7 cm). Use with Model LTE 5000 SVGA (NOTE 1)	213549-001
1	Display assembly, SVGA, CTFT, 10.4-inch (26.4 cm). Use with Model LTE 5100 SVGA (NOTE 1)	213548-001 (NOTE 3) 224149-001 (NOTE 3)
1	Display assembly, SVGA, CTFT, 10.4-inch (26.4 cm). Use with Models LTE 5200 SVGA (NOTE 1)	213548-001 (NOTE 3) 224149-001 (NOTE 3)
1	Display assembly, SVGA, CTFT, 11.3-inch (28.7 cm). Use with Models LTE 5280 SVGA (NOTE 1)	224140-001
1	Display assembly, SVGA, CTFT, 12.1-inch (30.7 cm). Use with Models LTE 5300 SVGA (NOTE 1) and LTE 5400.	224139-001
1	Display assembly, SVGA, CSTN, 11.3-inch (28.7 cm). Use with Models LTE 5150 SVGA (NOTE 1)	224141-001
1	Display assembly, SVGA, CTFT, 10.4-inch (26.4 cm). Use with Models LTE 5250 SVGA (NOTE 1)	242117-001
1	Display assembly, 1024 x 768, CTFT, 12.1-inch (30.7 cm). Use with Models LTE 5380 (NOTE 1)	242116-001
2	CPU cover, U.S. (all other models) (includes switch actuators and warning labels)	241968-001
2	CPU cover, other than U.S. (includes switch actuators and caution labels)	213543-031
3	Clutch Cradle (Included in Doors & Miscellaneous Plastic Kit) a. Left clutch cradle b. Right clutch cradle	See Section 3.6
Item	Description	Spare Part Number
4	Microphone (includes microphone boot & extension cable)	213626-X01 (NOTE 4)
5	Keyboard assembly, Belgium (NOTE 2)	213533-X18 (NOTE 4)

5	Keyboard assembly, Danish (NOTE 2)	213533-X08 (NOTE 4)
5	Keyboard assembly, French (NOTE 2)	213533-X05 (NOTE 4)
5	Keyboard assembly, French Canadian (NOTE 2)	213533-X12 (NOTE 4)
5	Keyboard assembly, German (NOTE 2)	213533-X04 (NOTE 4)
5	Keyboard assembly, Italian (NOTE 2)	213533-X06 (NOTE 4)
5	Keyboard assembly, Japanese (NOTE 2)	213533-X19 (NOTE 4)
5	Keyboard assembly, Latin American (NOTE 2)	213533-X16 (NOTE 4)
5	Keyboard assembly, Norwegian (NOTE 2)	213533-X09 (NOTE 4)
5	Keyboard assembly, Portuguese (NOTE 2)	213533-X13 (NOTE 4)
5	Keyboard assembly, Spanish (NOTE 2)	213533-X07 (NOTE 4)
5	Keyboard assembly, Swedish/Finnish (NOTE 2)	213533-X10 (NOTE 4)
5	Keyboard assembly, Swiss (NOTE 2)	213533-X11 (NOTE 4)
5	Keyboard assembly, U.K. (NOTE 2)	213533-X03 (NOTE 4)
5	Keyboard assembly, U.S. (NOTE 2)	213533-X01 (NOTE 4)
6	LTE 5000 75 Mhz Processor Board	213556-001
6	LTE 5100 90 MHz Processor Board	213557-001
6	LTE 5150 100 MHz Processor Board	224136-001
6	LTE 5200 120 MHz Processor Board	213628-001
6	LTE 5250 120 MHz Processor Board	224137-001
6	LTE 5280 120 MHz Processor Board	224137-001
6	LTE 5300 133 MHz Processor Board	224138-001
=====		
Item	Description	Spare Part Number
=====		
6	LTE 5380 133 MHz Processor Board	224138-002
6	LTE 5400 150 MHz Processor Board	242166-001
7	Power board, DC/DC	213562-001
8	Shields and Insulators Kit	213672-001
	a. EMI shield	
	b. Power board insulator (75 MHz)	
	c. Power board insulator (90 MHz/not shown)	
	c. System board insulator. IrDA shield (not shown)	

9	LTE 5000, 5100 75 Mhz, 90 Mhz and 5200 120 MHz System Board	213546-001
9	LTE 5150 100 Mhz, 5250, 5280 120 Mhz, 5300 133 MHz and 5400 150 MHz System Board	224135-001
9	LTE 5380 133 MHz System Board	242115-001
10	Status panel assembly (for models 5000, 5100, and 5200)	213534-001
10	Status panel assembly (for all other models)	241968-001
11	Base assembly (See Section 3.3 for components)	213542-001
12	Fan (includes cushions) (all models)	242185-001

NOTE 1: Includes cables, clutch assemblies, and logos.

2: Includes keyboard w/integrated EasyPoint II pointing device, microphone, and eject mechanisms.

3: LTE 5100 and LTE 5200 units that shipped with the original display(serial number lower than J605xxxxxxxx) are supported by Spare Part Number 213548-001. LTE 5100 and LTE 5200 units that shipped with the enhanced display (serial number J605xxxxxxxx or higher) are supported by Spare Part Number 224149-001. (Refer to Service Advisory 973 for more information)

4: Replace X in part number with 1 for keyboard with normal pointing device cap, or 2 for keyboard with enhanced "fuzzy" pointing device cap.

Chapter 3.2 Display Assembly Components

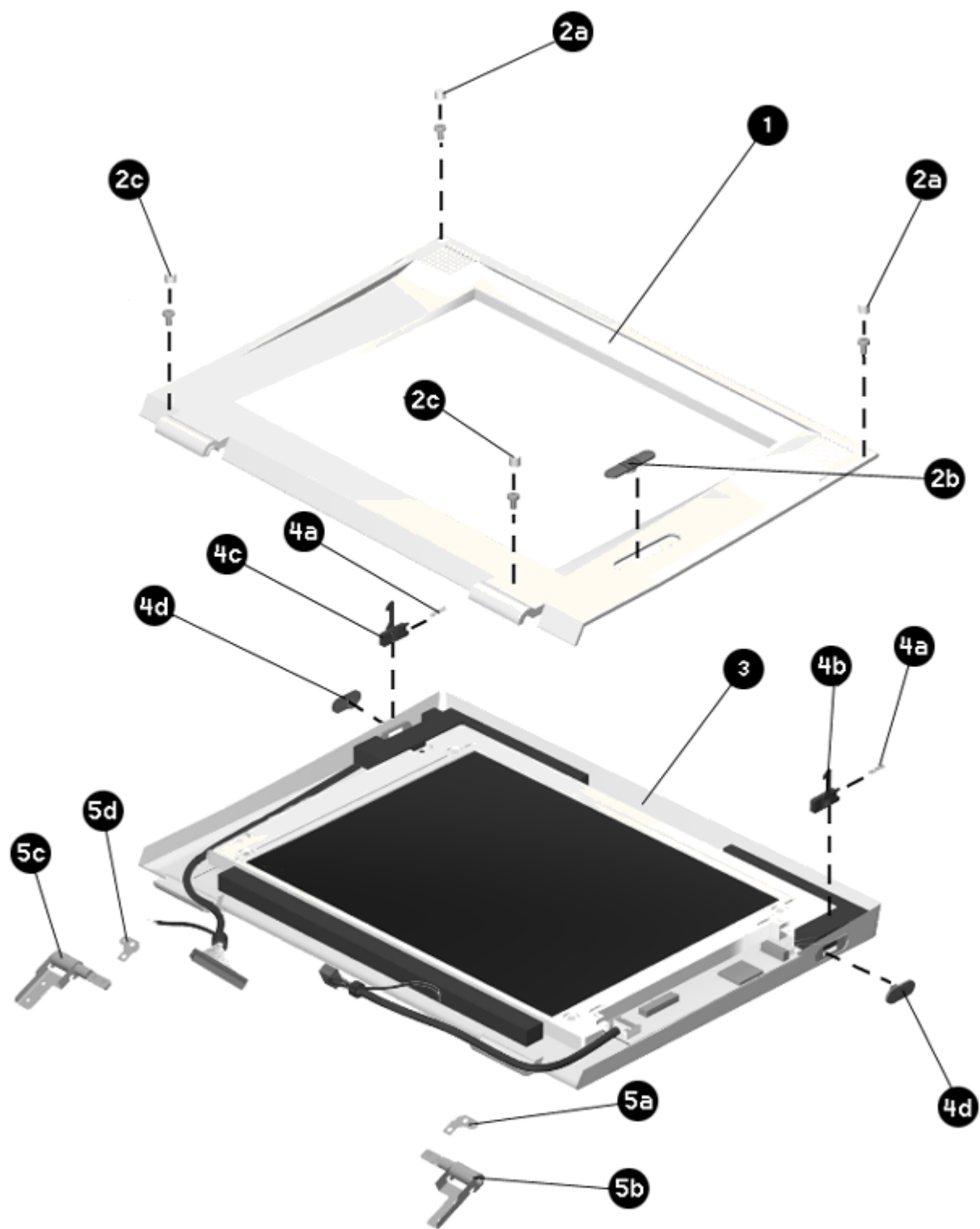


Figure 3-2. Display Assembly Components

Table 3-2. Spare Parts - Display Assembly Components

Item	Description	Spare Part Number
1	Bezel with speakers, for 10.4-inch (26.4 cm) CSTN display	213647-001
1	Bezel with speakers, for 11.3-inch (28.7 cm) CSTN display	213609-001
1	Bezel with speakers, for 11.3-inch (28.7 cm) CTFT display	224167-001
	Bezel with speakers, for 12.1-inch (30.7 cm) CTFT display	224157-001
1	Bezel with speakers, for 10.4-inch (26.4 cm) CTFT display	213540-001
1	Bezel with speakers, for 10.4-inch (26.4 cm) enhanced CSTN display	213647-002
2	Doors and Miscellaneous Plastics Kit (SPS number 213567-001) components: a. Bezel screw cover (Quantity = 2) b. Brightness/Contrast control actuator (Quantity = 2) c. Clutch screw cover (Quantity = 2)	See Section 3.6
3	Display panel and cover (Shown for reference; available only as part of Display Assembly)	See Section 3.1
4	Latches Kit (SPS number 213568-001) components: a. Latch spring (Quantity = 2) b. Latch (right) c. Latch (left) d. Latch actuator (Quantity = 2)	See Section 3.5
5	Clutch Kit. Contains the following: a. Clutch bracket, right b. Clutch, right c. Clutch, left d. Clutch bracket, left	213541-001

Chapter 3.3 Computer Base Assembly Components

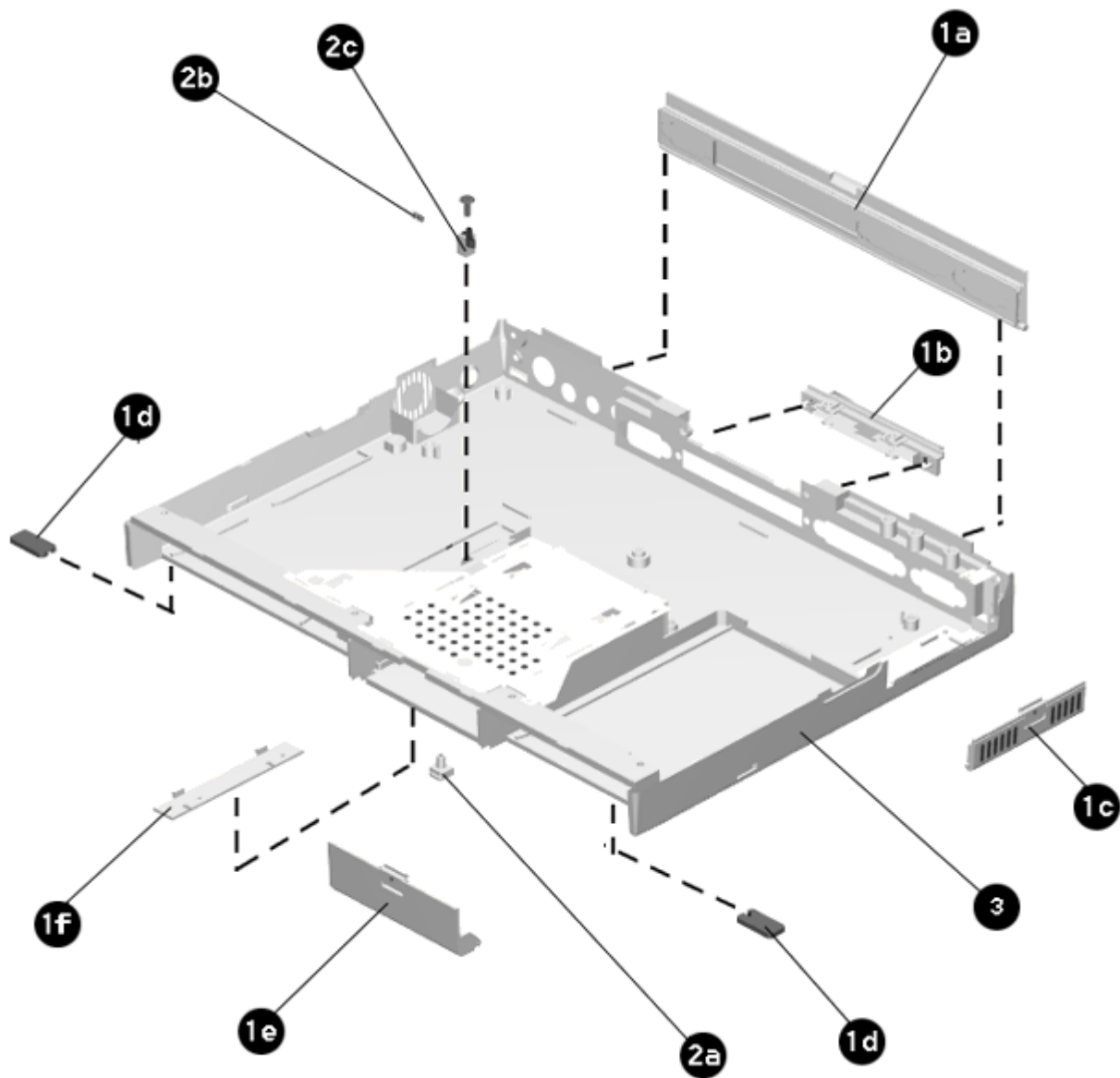


Figure 3-3. Computer Base Assembly Components

Table 3-3. Spare Parts - Computer Base Assembly Components

Item	Description	Spare Part Number
1	Doors and Miscellaneous Plastic Kit (SPS number 213567-001) components: a. Connector cover b. Memory slot panel with handle c. PC Card door d. Foot (Quantity = 10) e. Hard drive door f. Auxiliary battery door	See Section 3.6
2	Latches Kit (SPS number 213568-001) components: a. Hard drive release b. Hard drive release spring c. Hard drive latch	See Section 3.5
3	Base (available only as part of base assembly)	See Section 3.1

Chapter 3.4 Keyboard Assembly Components

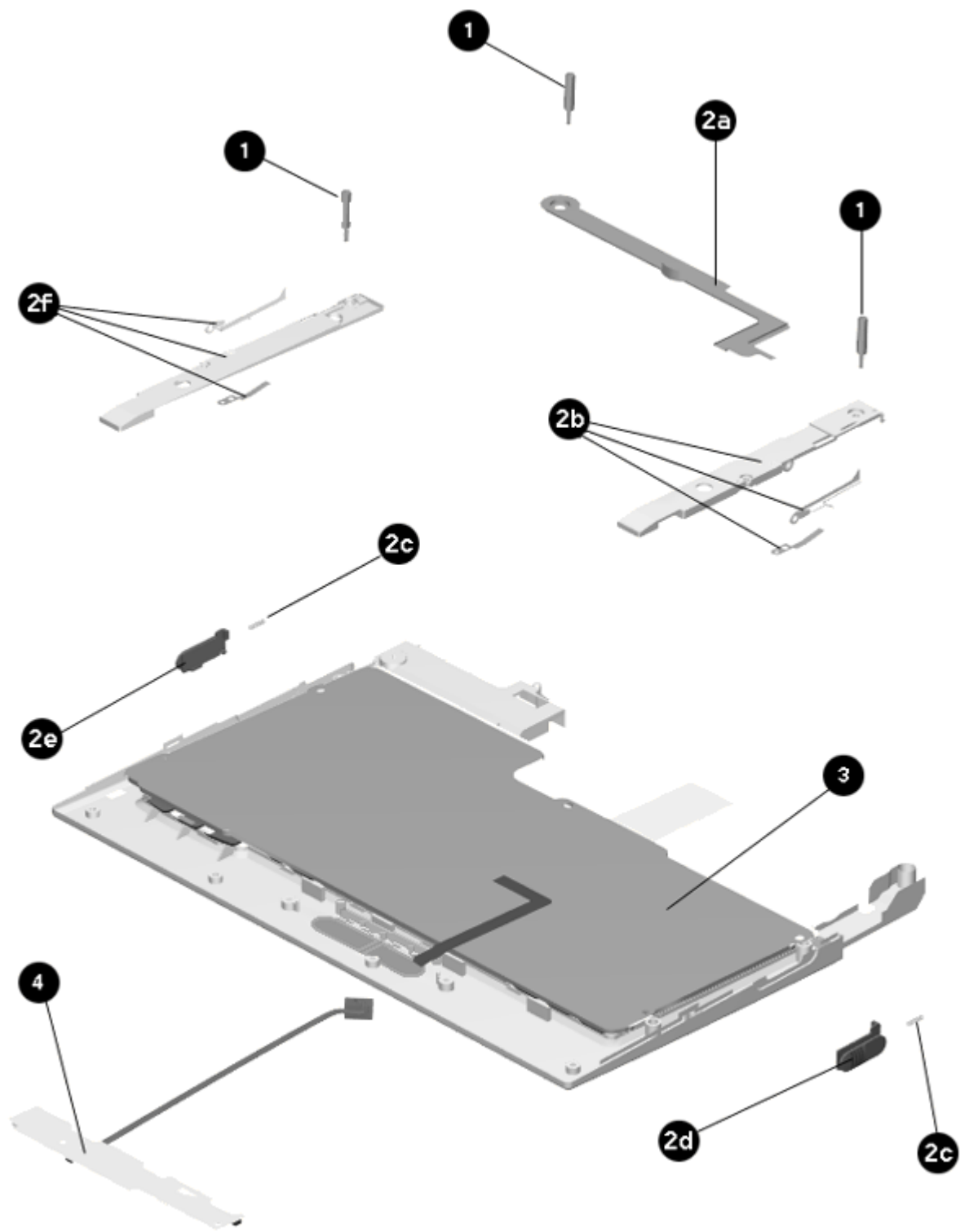


Figure 3-4. Keyboard Assembly Components

Table 3-4. Spare Parts - Keyboard Assembly Components

Item	Description	Spare Part Number
1	Standoff (Quantity = 5). Included in Miscellaneous Screws Kit (SPS number 213545-001).	See Section 3.10
2	Latches Kit (SPS number 213568-001) components: a. CD-ROM release bar b. MultiBay release holder assembly (includes release hook and leaf spring) c. Release spring (Quantity = 2) d. MultiBay device release actuator e. Battery release actuator f. Battery release holder assembly (includes release hook and leaf spring)	See Section 3.5
3	Keyboard base (available only as part of keyboard assembly)	See Section 3.1
4	EasyPoint II controller (includes insulator)	213538-001

Chapter 3.5 Latches Kit Components

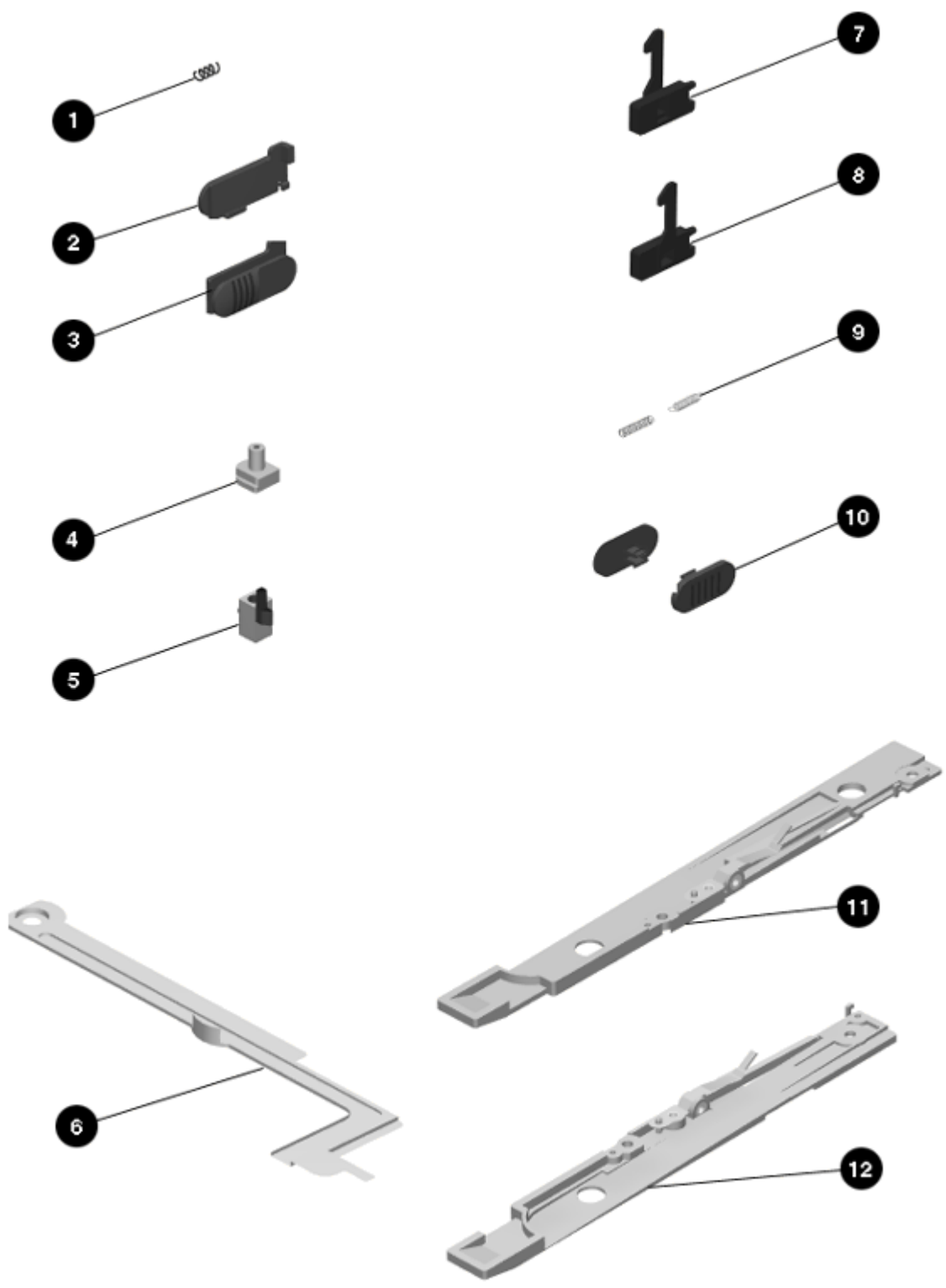


Figure 3-5. Latches Kit Components

Table 3-5. Spare Parts - Latches Kit

Description	Spare Part Number
Latches Kit. Contains the following:	213568-001
1. Hard drive release spring	
2. Battery release actuator	
3. MultiBay device release actuator	
4. Hard drive release button	
5. Hard drive latch	
6. CD-ROM release bar	
7. Latch hook, left	
8. Latch hook, right	
9. Latch spring (Quantity = 2)	
10. Latch actuator (Quantity = 2)	
11. Battery release holder assembly (includes release hook & leaf spring)	
12. MultiBay release holder assembly (includes release hook & leaf spring)	
13. Battery/MultiBay release actuator spring (Quantity = 2 /not shown)	

Chapter 3.6 Doors and Miscellaneous Plastics Kit

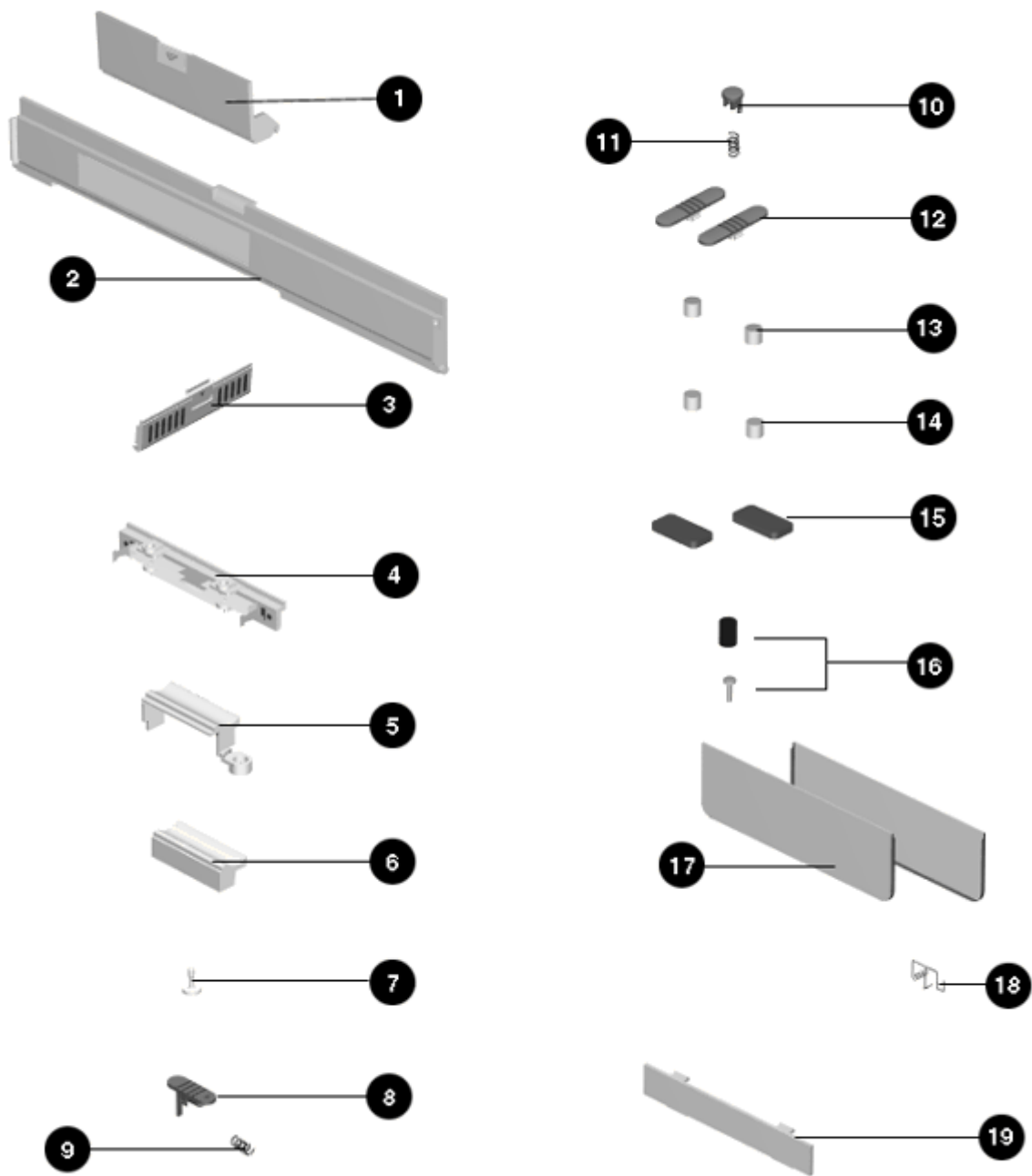


Figure 3-6. Doors and Miscellaneous Plastics Kit

Table 3-6. Spare Parts - Doors and Miscellaneous Plastics Kit

Description	Spare Part Number
Doors and Miscellaneous Plastics Kit. Contains the following:	213567-001
1. Hard drive door	
2. Connector cover	
3. PC Card door	
4. Memory slot panel with handle	
5. Clutch cradle (left)	
6. Clutch cradle (right)	
7. Display switch button	
8. Power switch actuator	
9. Power switch actuator spring	
10. Standby switch button	
11. Standby switch button spring	
12. Brightness/Contrast control actuator (Quantity = 2)	
13. Bezel screw plug (Quantity = 10)	
14. Clutch screw plug (Quantity = 10)	
15. Foot (Quantity = 10)	
16. Pointing device rubber cap with plunger (Quantity = 3)	
17. Battery charger door (Quantity = 2)	
18. Battery charger door spring (Quantity = 2)	
19. Auxiliary battery door	

Chapter 3.7 Computer Optional Components

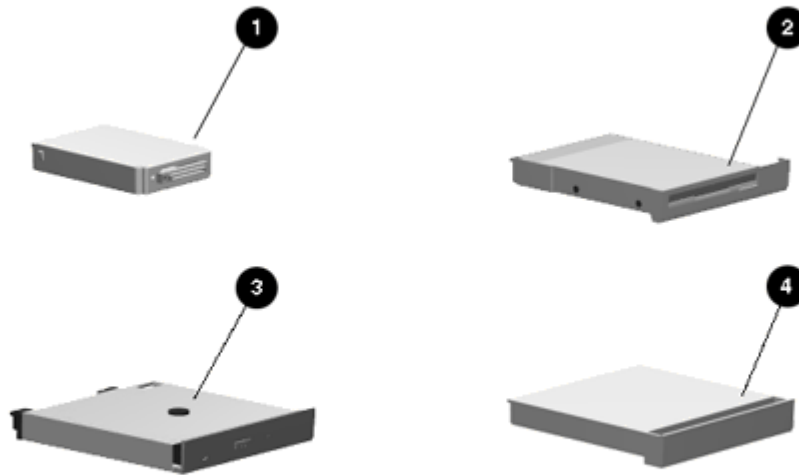


Figure 3-7. Computer Optional Components

Table 3-7. Spare Parts - Computer Optional Components

Item	Description	Spare Part Number
1	510 MB hard drive	213558-001
1	810 MB hard drive	213559-001
1	1.35 GB hard drive	213722-001
1	2.16 GB hard drive without DFP	242114-001
1	2.16 GB hard drive with DFP	242169-001
2	Diskette drive, 3-mode, 3.5-inch	213560-001
3	6x CD-ROM drive	242113-001
3	Quad speed CD-ROM Drive	224130-001
3	Dual speed CD-ROM Drive	213561-002
4	MultiBay Weight Saver	213636-001

Chapter 3.8 Computer Standard Accessories

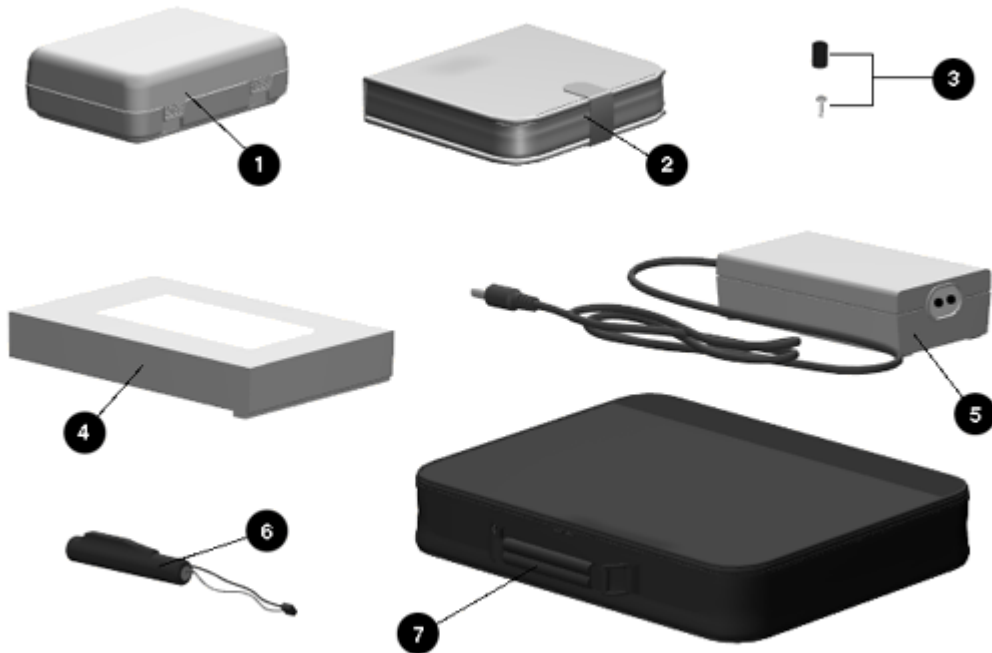


Figure 3-8. Computer Standard Accessories

Table 3-8. Spare Parts - Computer Standard Accessories

Item	Description	Spare Part Number
1	Hard drive carrying case	149783-001
2	MultiBay device carrying case	213611-001
3	EasyPoint II pointing device cap (Quantity = 12)	213621-001
4	Battery pack, NiMH (Models 5000, 5100, and 5200)	213564-001
4	Battery pack, NiMH (Models 5280, and 5300)	213564-002
4	Battery pack, NiMH (Models 5150, 5250, 5380, and 5400)	213564-002
5	AC adapter	213563-001
6	Auxiliary battery	213532-001
7	Slipcase	213616-001

8	AC power cord, Australia (not shown)	149710-008
8	AC power cord, Europe (not shown)	149710-002
8	AC power cord, Japan (not shown)	149710-007
8	AC power cord, UK (not shown)	149710-003
8	AC power cord, US (not shown)	149710-001

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Chapter 3.9 Computer Optional Accessories

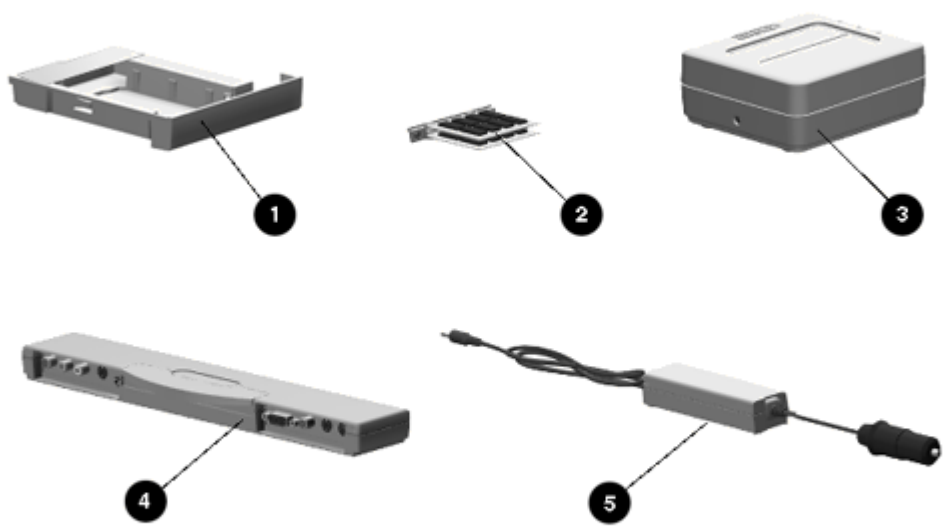


Figure 3-9. Computer Optional Accessories

Table 3-9. Spare Parts - Computer Optional Accessories

Item	Description	Spare Part Number
1	Hard drive carrier	213610-001
2	Memory expansion board, 8 MB	213536-001
2	Memory expansion board, 16 MB	213536-002
2	Memory expansion board, 32 MB	213536-003

2	Memory expansion board, 64 MB	213536-004
3	Battery Fastcharger	213614-001
4	MPEG and TV Video Adapter	213537-001
5	Automobile Adapter	194626-001
6	MPEG AC Adapter (not shown)	241909-001

=====

Chapter 3.10 Computer Miscellaneous Spare Parts

Table 3-10. Computer Miscellaneous Spare Parts

Item	Description	Spare Part Number
1	Service Aids Kit (not shown). Includes: a. Connector removal tool b. Display bezel removal tool c. Serial interface loopback plug d. Parallel interface loopback plug e. Screwdriver with bits	100767-001
2	Miscellaneous Screws Kit (See Table 3-11 for contents and where-used matrix.)	213545-001
3	Shipping carton (Quantity = 5 /not shown)	213623-001
4	Shipping carton with packing (Quantity = 1 /not shown)	213619-001
5	Shipping carton, display (Quantity = 1 /not shown)	213620-001

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Table 3-11. Computer Miscellaneous Screws Kit Contents and Use

Package:	1
Description:	8TX26060M Screw
Drive:	T8/Slotted
Quantity:	25
Where Used:	Display bezel to display panel assembly (Quantity = 4) Clutch assembly to display panel assembly (Quantity = 2) Clutch assembly to CPU Base assembly (Quantity = 2) CPU cover to CPU base assembly (Quantity = 3) CPU base assembly to keyboard (Quantity = 3)

Rear of keyboard to CPU base assembly
(Quantity = 2)
Left clutch cradle (Quantity = 1)
Processor board to CPU base assembly (Quantity = 1)
Power board to CPU base assembly (Quantity = 1)
System board to CPU base assembly (Quantity = 2)

Package: 2
Description: 8TX25035M Screw
Drive: T8/Slotted
Quantity: 25
Where Used: CPU base assembly to keyboard (Quantity = 4)
EasyPoint II controller to keyboard (Quantity = 2)

Package: 3
Description: Standoff
Drive: 3/16" Hex
Quantity: 5
Where Used: Processor board to CPU base assembly (Quantity = 1)
CD-ROM release bar to keyboard (Quantity = 1)
Battery release holder assembly to keyboard
(Quantity = 1)
MultiBay release holder assembly to keyboard
(Quantity = 1)

Package: 4
Description: Screwlock
Drive: 3/16" Hex
Quantity: 6
Where Used: Serial connector on I/O panel (Quantity = 2)
Parallel connector on I/O panel (Quantity = 2)
External monitor connector on I/O panel
(Quantity = 2)

Package: 5
Description: Screwlock
Drive: 3/16" Hex
Quantity: 2
Where Used: External options connector on I/O panel
(Quantity = 2)

Chapter 3.11 Documentation

Table 3-12. Spare Parts - Documentation

Description	Spare Part Number
Compaq LTE 5000 Family of Personal Computers Maintenance & Service Guide	213622-001
Compaq LTE 5000 Family of Personal Computers Illustrated Parts Map (Quantity = 10) *	213677-002
Compaq LTE 5000 Family of Personal Computers Beyond Setup Guide (Brazilian/Portuguese)	213624-201
Compaq LTE 5000 Family of Personal Computers Beyond Setup Guide (Danish)	213624-081
Compaq LTE 5000 Family of Personal Computers Beyond Setup Guide (Dutch)	213624-331
Compaq LTE 5000 Family of Personal Computers Beyond Setup Guide (English)	213624-001
Compaq LTE 5000 Family of Personal Computers Beyond Setup Guide (Finnish)	213624-351
Compaq LTE 5000 Family of Personal Computers Beyond Setup Guide (French)	213624-051
Compaq LTE 5000 Family of Personal Computers Beyond Setup Guide (German)	213624-041
Compaq LTE 5000 Family of Personal Computers Beyond Setup Guide (Italian)	213624-061
Compaq LTE 5000 Family of Personal Computers Beyond Setup Guide (Japanese)	213624-291
Compaq LTE 5000 Family of Personal Computers Beyond Setup Guide (Latin American, Spanish)	213624-161
Compaq LTE 5000 Family of Personal Computers Beyond Setup Guide (Norwegian)	213624-091
Compaq LTE 5000 Family of Personal Computers Beyond Setup Guide (Swedish)	213624-101
Essentials of MS-DOS and Microsoft Windows (English)	182343-001
Essentials of MS-DOS and Microsoft Windows (French)	182343-051
Essentials of MS-DOS and Microsoft Windows (German)	182343-041
Essentials of MS-DOS and Microsoft Windows (Italian)	182343-061
Essentials of MS-DOS and Microsoft Windows (Spanish)	182343-071

Microsoft Windows and MS-DOS 6 User's Guide (Dutch)	196078-331
Microsoft Windows and MS-DOS 6 User's Guide (Swedish)	196078-101
Introducing Microsoft Windows 95 User's Guide (Brazilian Portuguese)	182793-201
Introducing Microsoft Windows 95 User's Guide (Danish)	182793-081
Introducing Microsoft Windows 95 User's Guide (Dutch)	182793-331
Introducing Microsoft Windows 95 User's Guide (English)	182793-001
Introducing Microsoft Windows 95 User's Guide (Finnish)	182793-351
Introducing Microsoft Windows 95 User's Guide (French)	182793-051
Introducing Microsoft Windows 95 User's Guide (German)	182793-041
Introducing Microsoft Windows 95 User's Guide (Italian)	182793-061
Introducing Microsoft Windows 95 User's Guide (Japanese)	182793-291
Introducing Microsoft Windows 95 User's Guide (Latin American Spanish)	182793-161
Introducing Microsoft Windows 95 User's Guide (Norwegian)	182793-091
Introducing Microsoft Windows 95 User's Guide (Swedish)	182793-101
Compaq LTE 5000 Family of Personal Computers Online User's Guide (Dutch) **	213625-331
Compaq LTE 5000 Family of Personal Computers Online User's Guide (English) **	213625-001
Compaq LTE 5000 Family of Personal Computers Online User's Guide (French) **	213625-051
Compaq LTE 5000 Family of Personal Computers Online User's Guide (German) **	213625-041
Compaq LTE 5000 Family of Personal Computers Online User's Guide (Italian) **	213625-061
Compaq LTE 5000 Family of Personal Computers Online User's Guide (Japanese) **	213625-291
Compaq LTE 5000 Family of Personal Computers Online	

User's Guide (Latin American Spanish) ** 213625-161

Compaq LTE 5000 Family of Personal Computers Online
 User's Guide (Swedish) ** 213625-101

* Not available in Europe, Middle East, or Africa.
 ** The Compaq LTE 5000 Family of Personal Computers Online User's Guide is
 provided on 3.5-inch diskette.

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Chapter 3.12 Software

Table 3-13. Spare Parts - Software

Description	Spare Part Number
LTE 5000 Video Drivers Support Kit	213638-XXX
LTE 5000 CD-ROM Drivers Support Kit	213639-XXX
LTE 5000 Audio Driver Support Kit	213640-XXX
LTE 5000 Windows Sound System	213641-XXX
LTE 5000 Network Interface Drivers Kit	213643-XXX
TranXit Infrared Software Utility	213644-XXX
Windows 3.1x Software Drivers Kit	213645-XXX
Windows 95 Software Drivers Kit	182886-XXX
LTE 5000 Mouse Driver Kit	182357-XXX
LTE 5000 System ROMPaq, English	182358-001
LTE 5000 PC Card Drivers Kit	182359-XXX
LTE 5000 Supplemental Support Diskette	182360-XXX
Advanced/User Diagnostics Diskette (English)	109728-001
Advanced/User Diagnostics Diskette (French)	109728-051
Advanced/User Diagnostics Diskette (German)	109728-041
Advanced/User Diagnostics Diskette (Italian)	109728-061
Advanced/User Diagnostics Diskette (Spanish)	109728-071
QuickFind for Windows CD-ROM Kit (US)	137906-0XX *
QuickFind for Windows CD-ROM Kit (Outside US)	137907-0XX *

* Software (except ROM software) available in the following languages:
 Danish (-081), Dutch (-331), English (-001), Finnish (-351), French
 (-051), German (-041), Italian (-061), Norwegian (-091), Portuguese
 (-131), Spanish (-071), and Swedish (-101). Please provide appropriate

language code when ordering, e.g., 213638-001 for English LTE 5000 Video Drivers Support Kit.

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* NOTE: QuickFind is updated monthly. To complete the QuickFind part number add the suffix from the table below for the desired month. If you do not specify the 3-digit suffix, the default is the current month in which the order is placed.

QuickFind Part Number Suffix

Suffix	Month	Suffix	Month
-001	January	-007	July
-002	February	-008	August
-003	March	-009	September
-004	April	-010	October
-005	May	-011	November
-006	June	-012	December

Chapter 3.13 MultiBay Expansion Base Cover Assemblies

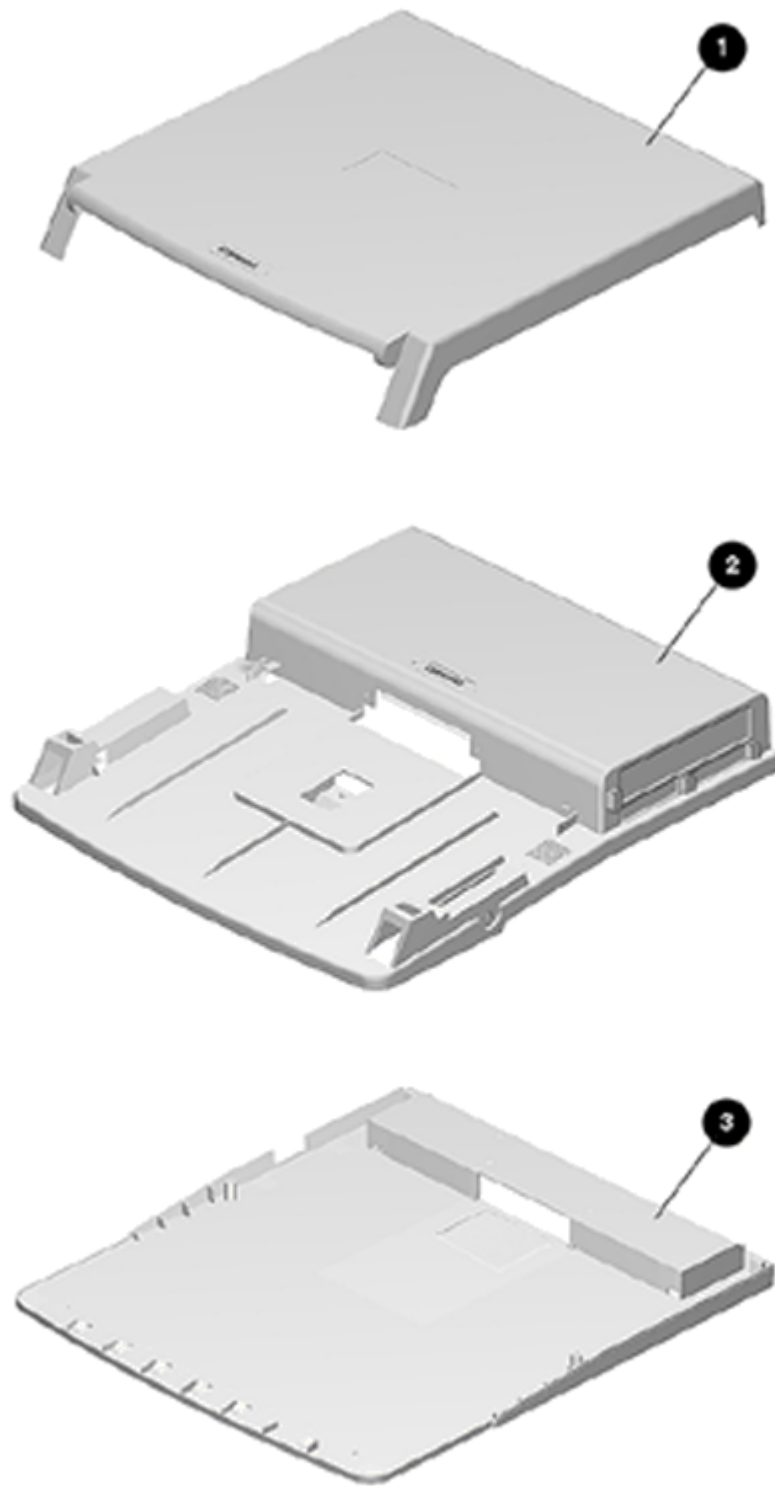


Figure 3-10. MultiBay Expansion Base Cover Assemblies

Table 3-14. Spare Parts - MultiBay Expansion Base Cover Assemblies

Item	Description	Spare Part Number
1	Monitor support cover with logo	213713-001
2	Top cover assembly. Includes EMI shield, release mechanism, doors, guides, monitor support cover slot caps with springs, labels, and logo.	213711-001
3	Bottom cover assembly. Includes feet, MPEG connector door, and labels.	213712-001

3.13A MultiBay ISA Expansion Base Cover Assemblies

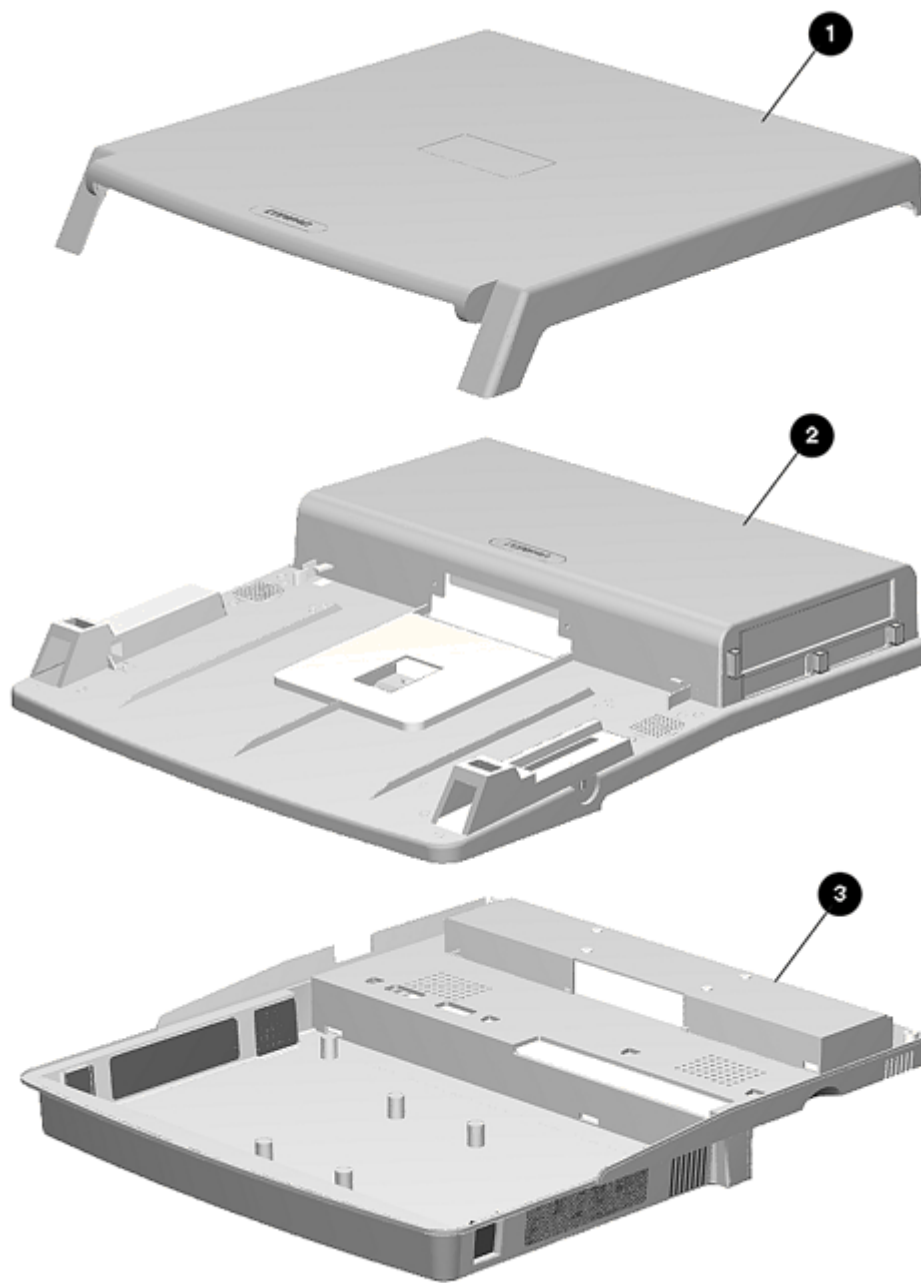


Figure 3-10A. MultiBay-ISA Expansion Base Cover Assemblies

Table 3-14A. Spare Parts - MultiBay ISA Expansion Base Cover Assemblies

Item	Description	Spare Part Number
1	Monitor support cover w/logo	213713-001
2	Top cover assembly. Includes EMI shield, release mechanism, doors, guides, monitor support cover slot caps with springs, labels, and logo.	213711-003
3	Base assembly. Includes feet and labels.	241949-001

Chapter 3.14 MultiBay Expansion Base Major Components

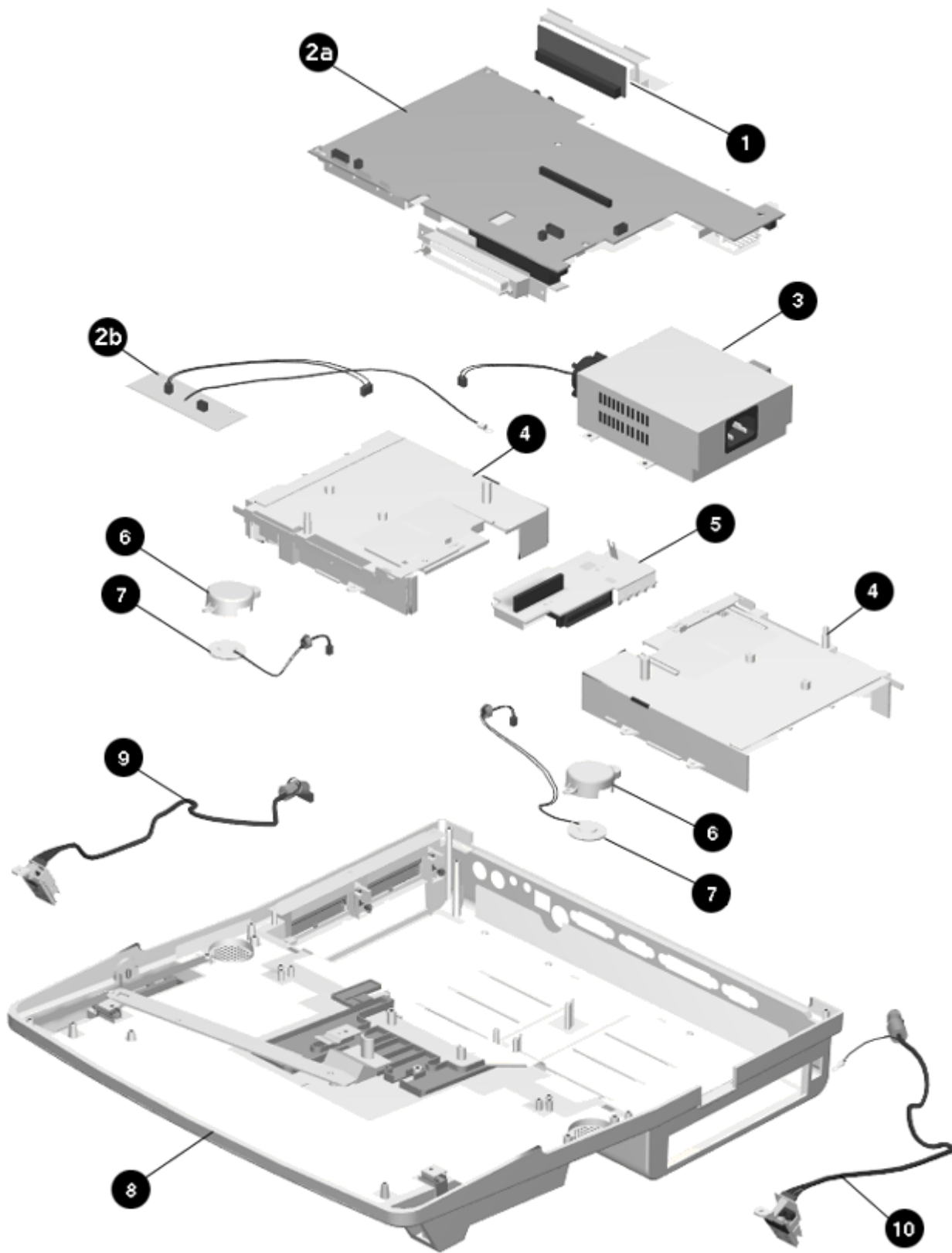


Figure 3-11. MultiBay Expansion Base Major Components

Table 3-15. Spare Parts - MultiBay Expansion Base Major Components

Item	Description	Spare Part Number
1	MPEG connector with frame	213761-001
2	Main board kit. Includes: a. Main board b. Fan control board	213706-001
3	Power supply with fan	213707-001
4	MultiBay assembly with ejector	213757-001
5	MultiBay connector board	213758-001
6	Speaker holder (Part of Miscellaneous Plastics Kit 213717-001)	See Section 3.16
7	Speaker	213763-001
8	Top cover assembly (See Section 3.15 for details)	213711-001
9	Power switch board with cable	213714-001
10	IrDA board with cable	213715-001

3.14A MultiBay ISA Expansion Base Major Components

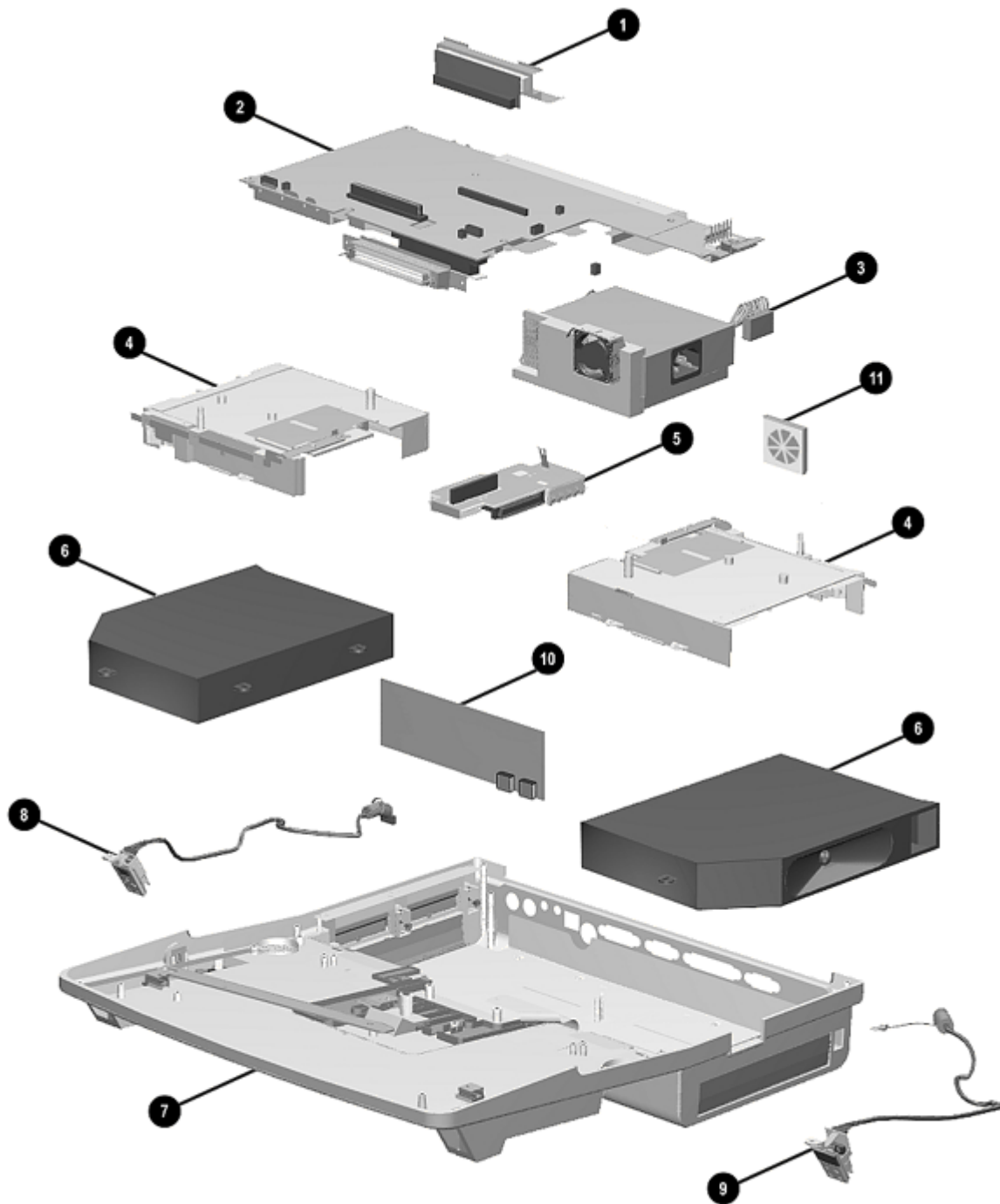


Figure 3-11A. MultiBay-ISA Expansion Base Major Components

Table 3-15A. Spare Parts - MultiBay ISA Expansion Base Major Components

Item	Description	Spare Part Number
1	MPEG connector w/frame	242128-001
2	Main I/O board	241958-001
3	Power supply w/fan	241959-001
4	MultiBay assembly w/ejector	Included with Item 7
5	MultiBay connector board	Included with Item 7
6	Speaker assembly	241956-001
7	Top cover assembly (See Section 3.15 for details)	213711-003
8	Power switch board w/cable	213714-001
9	IrDA board w/cable	213715-001
10	ISA Backplane board	241967-001

Chapter 3.15 MultiBay and MultiBay ISA Expansion Base Top Cover Assembly Components

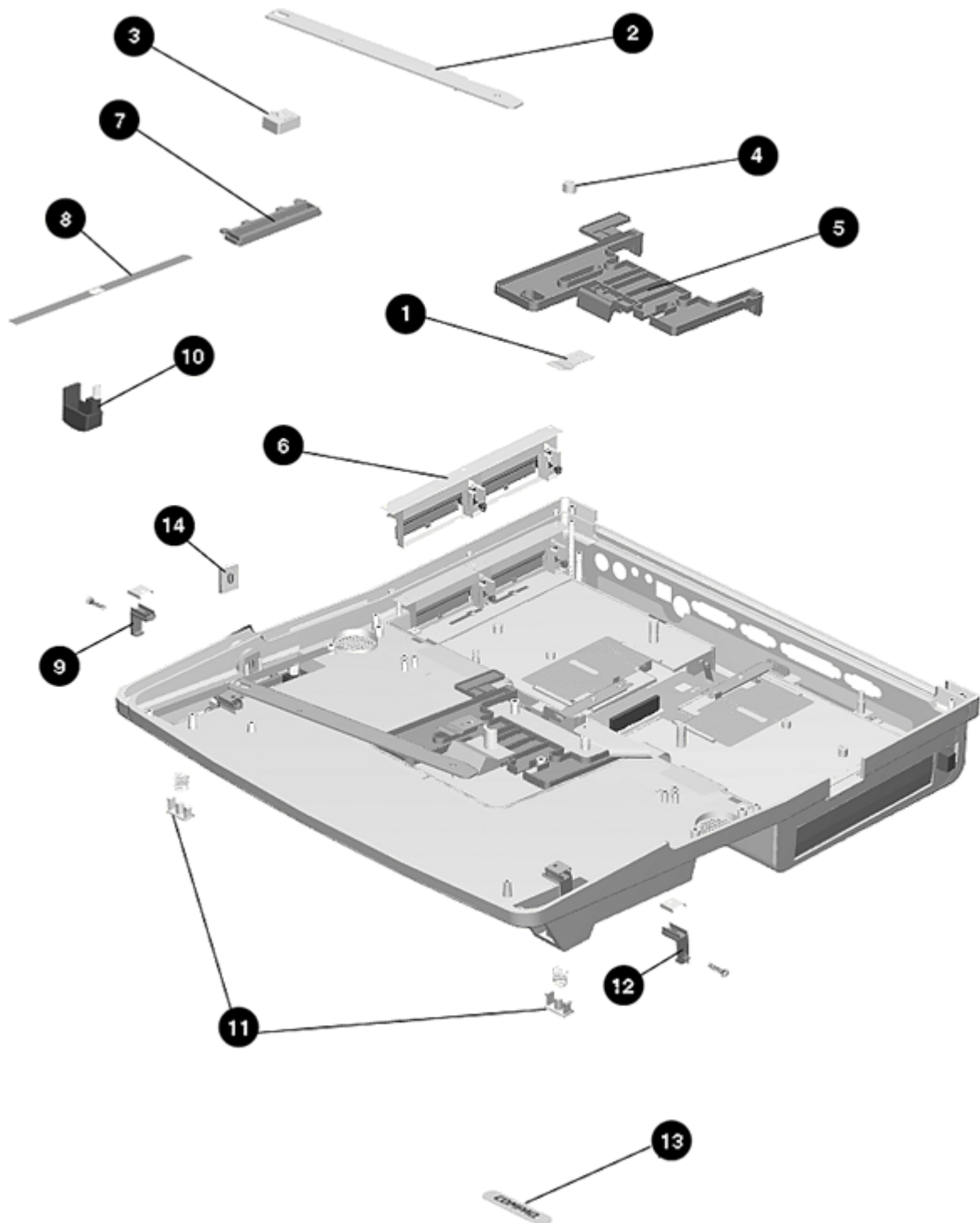


Figure 3-12. MultiBay and MultiBay-ISA Expansion Base Top Cover Assembly Components

Table 3-16. Spare Parts - MultiBay and MultiBay ISA Expansion Base Top Cover Assembly Components

Description	Spare Part Number
Top Cover Assembly Includes the following:	213711-001
1. Docking mechanism spring (NOTE 1)	
2. Docking mechanism bar (NOTE 1)	
3. Docking mechanism slide block (NOTE 1)	
4. Docking mechanism bushing (NOTE 1)	
5. Docking mechanism puller (NOTE 1)	
6. PC Card door assembly (NOTE 2)	
7. Docking mechanism handle cover (NOTE 1)	
8. Docking mechanism handle shield (NOTE 1)	
9. Alignment guide, right (NOTE 1)	
10. Docking mechanism lever (NOTE 1)	
11. Monitor support cover slot cap and spring (NOTE 2)	
12. Alignment guide, left (NOTE 1)	
13. Logo	
14. Security lock bracket (NOTE 2)	

NOTES 1: Also included in Mechanical Kit (SPS number 213756-001); see Section 3.17.	
2: Also included in Miscellaneous Plastics Kit (SPS number 213717-001); see Section 3.16.	
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**Chapter 3.16 MultiBay and MultiBay ISA Expansion Base Miscellaneous Plastics Kit
MultiBay and MultiBay-ISA expansion bases**

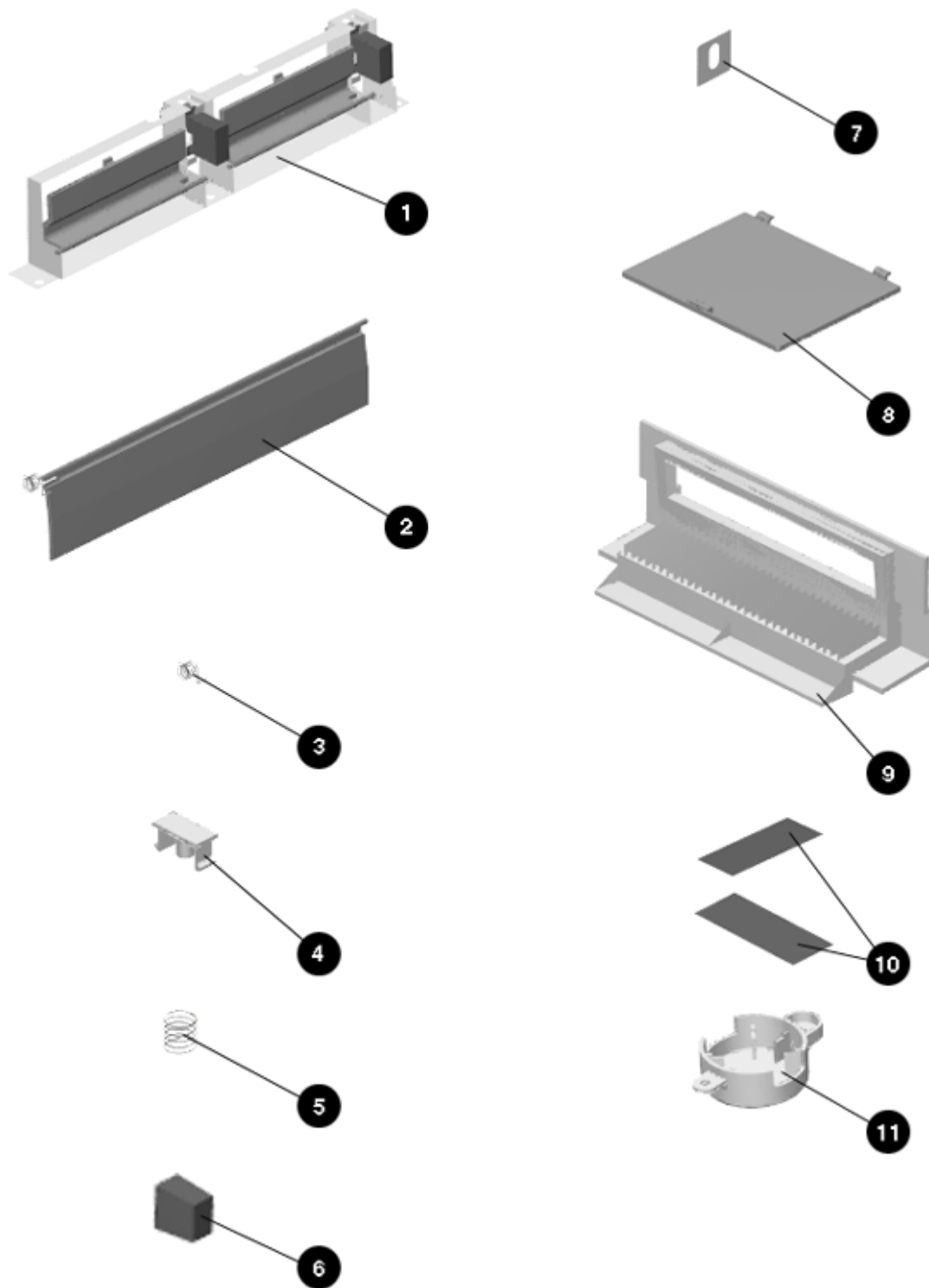


Figure 3-13. MultiBay and MultiBay-ISA Expansion Base Miscellaneous Plastics Kit

Table 3-17. Spare Parts - MultiBay and MultiBay ISA Expansion Base
Miscellaneous Plastics Kit

Description	Spare Part Number
Miscellaneous Plastics Kit. Contains the following:	213717-001
1. PC Card doors assembly	
2. MultiBay door (Quantity = 2)	
3. MultiBay door spring (Quantity = 2)	
4. Monitor support cover slot caps	
5. Monitor support cover slot cap spring	
6. MultiBay eject button (Quantity = 2)	
7. Security lock bracket	
8. MPEG connector door	
9. Computer interface connector frame	
10. Feet (Quantity = 6)	
11. Speaker bracket with shield (Quantity = 2)	
12. MultiBay connector board grounding tab (not shown)	
13. MultiBay grounding tab (Quantity = 7 /not shown)	

Chapter 3.17 MultiBay and MultiBay ISA Expansion Base Mechanical Kit

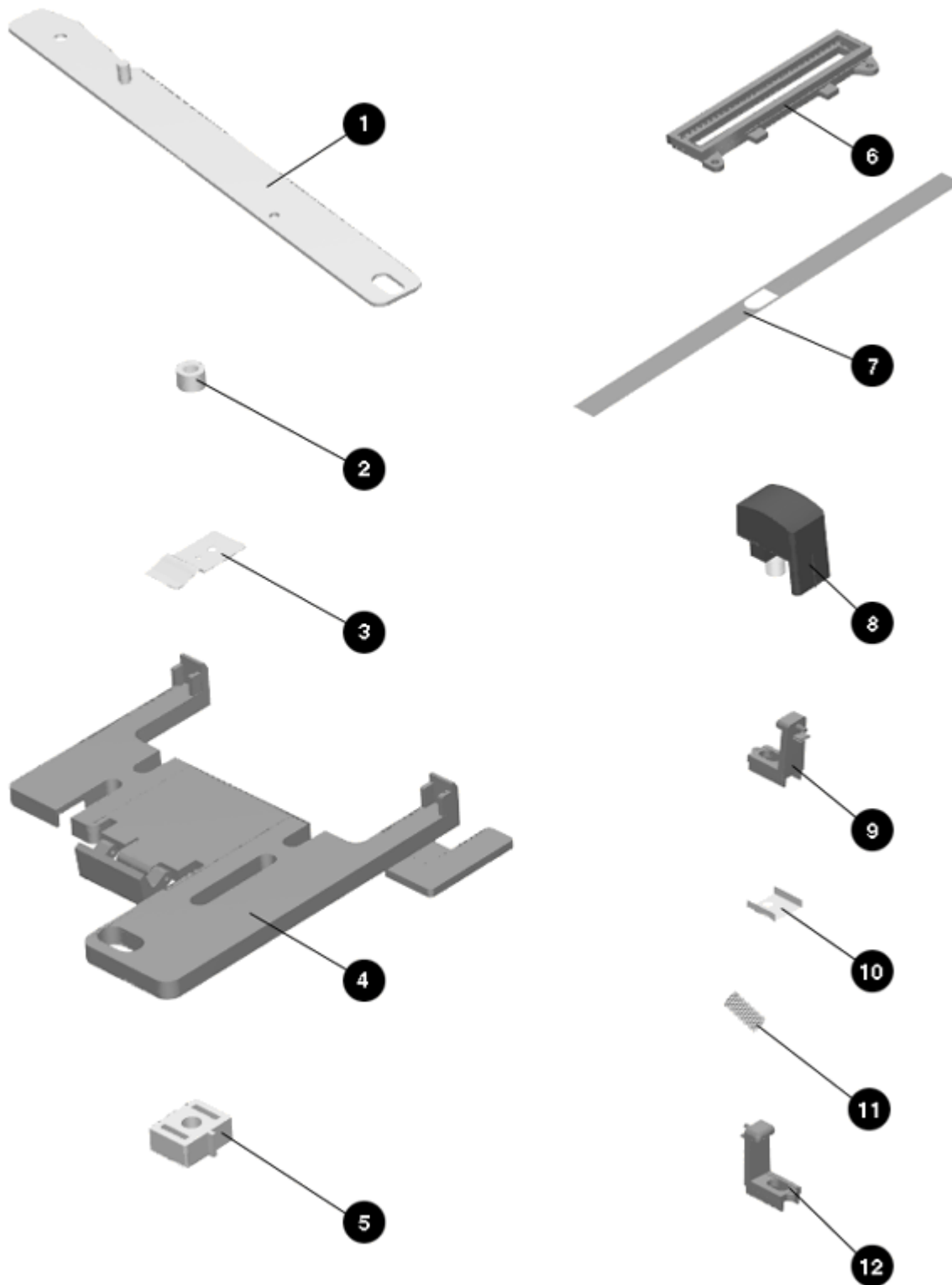


Figure 3-14. MultiBay and MultiBay-ISA Expansion Base Mechanical Kit

Table 3-18. Spare Parts - MultiBay and MultiBay ISA Expansion Base Mechanical Kit

Description	Spare Part Number
Mechanical Kit. Contains the following:	213756-001
1. Docking mechanism bar	
2. Docking mechanism bar bushing	
3. Docking mechanism spring	
4. Docking mechanism puller assembly	
5. Docking mechanism slide block	
6. Docking mechanism handle cover	
7. Docking mechanism handle shield	
8. Docking mechanism lever	
9. Alignment guide (right)	
10. Alignment guide plate (Quantity = 2)	
11. Alignment guide spring (Quantity = 2)	
12. Alignment guide (left)	
13. Alignment guide screw (Quantity = 4 /not shown)	

Chapter 3.18 MultiBay and MultiBay ISA Expansion Base Miscellaneous Parts

Table 3-19. Spare Parts: MultiBay Expansion Base Miscellaneous Parts

Description	Spare Part Number
MultiBay expansion base shipping container (Quantity = 5)	213759-001
MultiBay expansion base shipping container with packaging	213760-001
Screws kit (see Table 3-20 for contents and where-used matrix)	213716-001
Power cord, MultiBay Expansion Base (Aust)	213673-011
Power cord, MultiBay Expansion Base (Den)	213673-008
Power cord, MultiBay Expansion Base (Europe)	213673-021
Power cord, MultiBay Expansion Base (Japan)	213673-391
Power cord, MultiBay Expansion Base (U.K.)	213673-031

Table 3-20. MultiBay and MultiBay ISA Expansion Base Miscellaneous Screws
Kit Contents and Use

Description:	8TX25060M Screw
Drive:	T8/Slotted
Quantity:	25
Where Used:	Bottom cover to top cover assembly (Quantity = 10) Main board to top cover assembly (Quantity = 5) Power supply to top cover assembly (Quantity = 4) MultiBay to top cover assembly (Quantity = 3) MultiBay connector board to top cover assembly (Quantity = 3) PC card door assembly to top cover assembly (Quantity 3) IrDA board to top cover assembly (Quantity = 1) Power switch board to top cover assembly (Quantity = 1) Speaker holder to top cover assembly (Quantity = 2) Docking mechanism spring to top cover assembly (Quantity = 1) Computer connector bezel to top cover assembly (Quantity = 2)
Description:	8TXWC25100M Nylok Screw
Drive:	T8/Slotted
Quantity:	25
Where Used:	Docking mechanism bar to release puller (Quantity = 1) Docking mechanism bar to release knob (Quantity = 1)
Description:	SPF25080M Shoulder Screw
Drive:	T8/Slotted
Quantity:	25
Where Used:	Computer connector bezel to top cover assembly (Quantity = 2)
Description:	8TX25060M Nylok Screw
Drive:	T8/Slotted
Quantity:	5
Where Used:	Docking mechanism spring to top cover (Quantity = 1)

Table 3-21. Spare Parts: MultiBay Expansion Base Documentation

Description	Spare Part Number
LTE 5000 MultiBay Expansion Base Installation and Operations Guide (Dutch)	213762-331
LTE 5000 MultiBay Expansion Base Installation and Operations Guide (English)	213762-001
LTE 5000 MultiBay Expansion Base Installation and Operations Guide (French)	213762-051
LTE 5000 MultiBay Expansion Base Installation and Operations Guide (German)	213762-041
LTE 5000 MultiBay Expansion Base Installation and Operations Guide (Italian)	213762-061
LTE 5000 MultiBay Expansion Base Installation and Operations Guide (Japanese)	213762-291
LTE 5000 MultiBay Expansion Base Installation and Operations Guide (Spanish)	213762-071
LTE 5000 MultiBay Expansion Base Installation and Operations Guide (Swedish)	213762-101

Chapter 4. Removal and Replacement Preliminaries

Chapter 4.0 Introduction

This chapter provides general service information for the computer. Adherence to the procedures and precautions described in this chapter is essential for proper service.

Chapter 4.1 Electrostatic Discharge Information

A sudden discharge of static electricity from your finger or other conductor can destroy static-sensitive devices or microcircuitry. Often the spark is neither felt nor heard, but damage occurs. An electronic device exposed to electrostatic discharge (ESD) may not be affected at all and can work perfectly throughout a normal cycle. Or it may function normally for a while, then degrade in the internal layers, reducing its life expectancy.

Networks built into many integrated circuits provide some protection, but in many cases, the discharge contains enough power to alter device parameters or melt silicon junctions.

4.1.1 Generating Static

Table 4-1 shows how different activities generate static electricity and at different electrostatic voltage levels.

Table 4-1. Typical Electrostatic Voltages

Event	-- Relative Humidity --		
	10%	40%	55%
Walking across carpet	35,000 V	15,000 V	7,500 V
Walking across vinyl floor	12,000 V	5,000 V	3,000 V
Motions of bench worker	6,000 V	800 V	400 V
Removing DIPS from plastic tube	2,000 V	700 V	400 V
Removing DIPS from vinyl tray	11,500 V	4,000 V	2,000 V
Removing DIPS from Styrofoam	14,500 V	5,000 V	3,500 V
Removing bubble pack from PCB	26,500 V	20,000 V	7,000 V
Packing PCBs in foam-lined box	21,000 V	11,000 V	5,000 V

NOTE: 700 volts can degrade a product.

4.1.2 Preventing Electrostatic Damage to Equipment

Many electronic components are sensitive to ESD. Circuitry design and structure determine the degree of sensitivity. The following proper packaging and ground precautions are necessary to prevent damage.

- o To avoid hand contact, transport products in static-safe containers such as tubes, bags, or boxes.
- o Protect all electrostatic parts and assemblies with conductive or approved containers or packaging.
- o Keep electrostatic sensitive parts in their containers until they arrive at static-free stations.
- o Place items on a grounded surface before removing them from their container.
- o Always be properly grounded when touching a sensitive component or assembly.
- o Place reusable electrostatic-sensitive parts from assemblies in protective packaging or conductive foam.

Use transporters and conveyors made of antistatic belts and roller bushings. Mechanized equipment used for moving materials must be wired to ground and proper materials selected to avoid static charging. When grounding is not possible, use an ionizer to dissipate electric charges.

4.1.3 Preventing Damage to Drives

To prevent static damage to diskette drives and hard drives, use the following precautions:

- o Handle drives gently, using static-guarding techniques.
- o Avoid touching the connectors on the hard drive.
- o Store drives in the carrying case. Use the Hard Drive Carrying case, not the MultiBay Device Carrying Case.
- o Avoid dropping drives from any height onto any surface.
- o Handle drives on surfaces that have at least one inch of shock-proof foam.

4.1.4 Grounding Methods

The method for grounding must include either a wrist strap or a foot strap at a grounded workstation. When seated, wear a wrist strap connected to a grounded system. When standing, use footstraps and a grounded floor mat.

Table 4-2. Static Shielding Protection Levels

=====

Method	Voltage
Antistatic plastic	1,500 V
Carbon-loaded plastic	7,500 V
Metallized laminate	15,000 V

4.1.5 Grounding Workstations

To prevent static damage at the workstation, use the following precautions:

- o Cover the workstation with approved static-dissipative material. Provide a wrist strap connected to the work surface and properly grounded tools and equipment.
- o Use static-dissipative mats, foot straps, or air ionizers to give added protection.
- o Handle electrostatic sensitive components, parts, and assemblies by the case or PCM laminate. Handle them only at static-free workstations.
- o Avoid contact with pins, leads, or circuitry.
- o Turn off power and input signals before inserting and removing connectors or test equipment.
- o Use fixtures made of static-safe materials when fixtures must directly contact dissipative surfaces.
- o Keep work area free of nonconductive materials such as ordinary plastic assembly aids and Styrofoam.
- o Use field service tools, such as cutters, screwdrivers, and vacuums, that are conductive.
- o Use a portable field service kit with a static-dissipative vinyl pouch that unfolds to become a work mat. Also, use a wrist strap and a ground cord for the work surface. Ground the cord to the chassis of the equipment undergoing test or repair.

4.1.6 Grounding Equipment

Use the following equipment to prevent static electricity damage to equipment:

Wrist Straps are flexible straps with a minimum of one megohm +/- 10% resistance in the ground cords. To provide proper ground, a strap must be worn snug against the skin. On grounded mats with more banana-plug connectors, connect a wrist strap with alligator clips.

Heelstraps/Toestrap/Bootstraps can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use them on both feet with a minimum of one-megohm resistance between the operator and ground. To be effective, the

conductive strips must be worn in contact with the skin.

4.1.7 Recommended Materials and Equipment

Other materials and equipment that are recommended for use in preventing static electricity include:

- o Antistatic tape
- o Antistatic smocks, aprons, or sleeve protectors
- o Conductive bins and other assembly or soldering aids
- o Conductive foam
- o Conductive tabletop workstations with ground cord of one-megohm resistance
- o Static-dissipative table or floor mats with hard tie to ground
- o Field service kits
- o Static awareness labels
- o Wrist straps and footwear straps providing one-megohm +/- 10% resistance
- o Material handling packages
- o Conductive plastic bags
- o Conductive plastic tubes
- o Conductive tote boxes
- o Metal tote boxes
- o Opaque shielding bags
- o Transparent metallized shielding bags
- o Transparent shielding tubes

Chapter 4.2 Service Considerations

Listed below are some of the considerations that you should keep in mind during the disassembly and assembly of the computer.

4.2.1 Tool and Software Requirements

To service the computer, you need the following:

- o Torx T-8 screwdriver

Chapter 5. Computer Removal and Replacement Procedures

Chapter 5.0 Introduction

This chapter presents the removal and replacement procedures for the computer.

Chapter 5.1 Serial Number

The computer serial number should be reported to Compaq when requesting information or ordering spare parts. The serial number is displayed immediately above the serial connector on the rear of the computer (Figure 5-1).

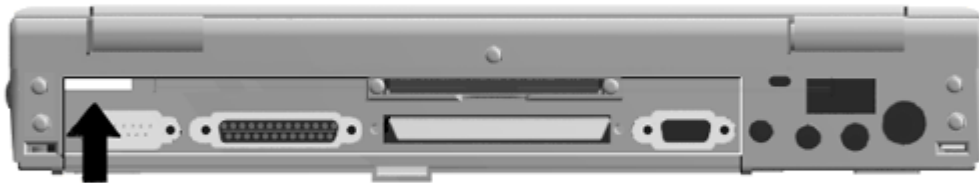


Figure 5-1. Serial Number Location

Chapter 5.2 Disassembly Sequence Chart

Use the chart below to determine the section number and disassembly sequence for removing components from the computer.

5.3 Preparing for Disassembly	
	5.3.1 Undocking the Computer
	5.3.2 Disconnecting the Computer
	5.3.3 Battery Pack
	5.3.4 Auxiliary Battery
	5.3.5 Hard Drive
	5.3.6 MultiBay Device
	5.3.7 PC Card
5.4 External Components	
	5.4.1 Computer Logo
	5.4.2 Computer Feet
	5.4.3 Connector Cover
	5.4.4 Auxiliary Battery Compartment Door
	5.4.5 Memory Expansion Board
	5.4.6 EasyPoint II Button
	5.4.7 Hard Drive Bay Door
	5.4.8 PC Card Door
5.5 CPU Cover Assembly	
	5.5.1 CPU Cover Assembly
	5.5.2 Power Switch Actuator
	5.5.3 Standby Switch Button
	5.5.4 Display Switch Button
	5.6 Microphone
	5.7 Status Panel
	5.8 Display Assembly
	5.8.1 Display Assembly
	5.8.6 Clutch Cradle
	5.8.2 Display Bezel
	5.8.3 Latches
	5.8.4 Clutch Assembly
	5.8.5 Brightness/Contrast Control Actuator
	5.9 Keyboard
	5.9.1 Keyboard
	5.9.2 EasyPoint II Controller
	5.9.3 Battery Release Assembly
	5.9.4 MultiBay Release Assembly
	5.9.5 Hard Drive Latch
	5.10 Fan
	5.11 Processor Board
	5.12 Microphone Extension Cable
	5.13 Power Board
	5.14 System Board

Figure 5-2. Computer Disassembly Sequence Chart

Chapter 5.3 Preparing the Computer for Disassembly

Before beginning removal and replacement procedures, complete the following procedures:

1. Undock the computer from the expansion base (Section 5.3.1).
2. Disconnect AC power and any external devices (Section 5.3.2).

3. Remove the battery pack(s) (Section 5.3.3).
4. Remove the auxiliary battery (Section 5.3.4).
5. Remove the hard drive (Section 5.3.5).
6. Remove the battery or mass storage device from the MultiBay (Section 5.3.6).
7. Remove any PC cards (section 5.3.7).

NOTE: It is important that these instructions be followed when replacement of any part requires removal of the display assembly:

Slide the display assembly back in place and replace all screws. The screws must be fully tightened to ensure that they do not touch the expansion base sensor located near the left hinge. Failure to properly seat the screws may prevent the unit from booting up.

5.3.1 Undocking the Computer

If the computer is not docked in an expansion base, proceed to Section 5.3.2. If the computer is docked in an expansion base, see Figure 5-3 and complete the following steps to undock the computer:

1. Turn off the power [1] to the expansion base.
2. Pull the docking lever forward [2] to release the computer and lift the computer out of the expansion base.

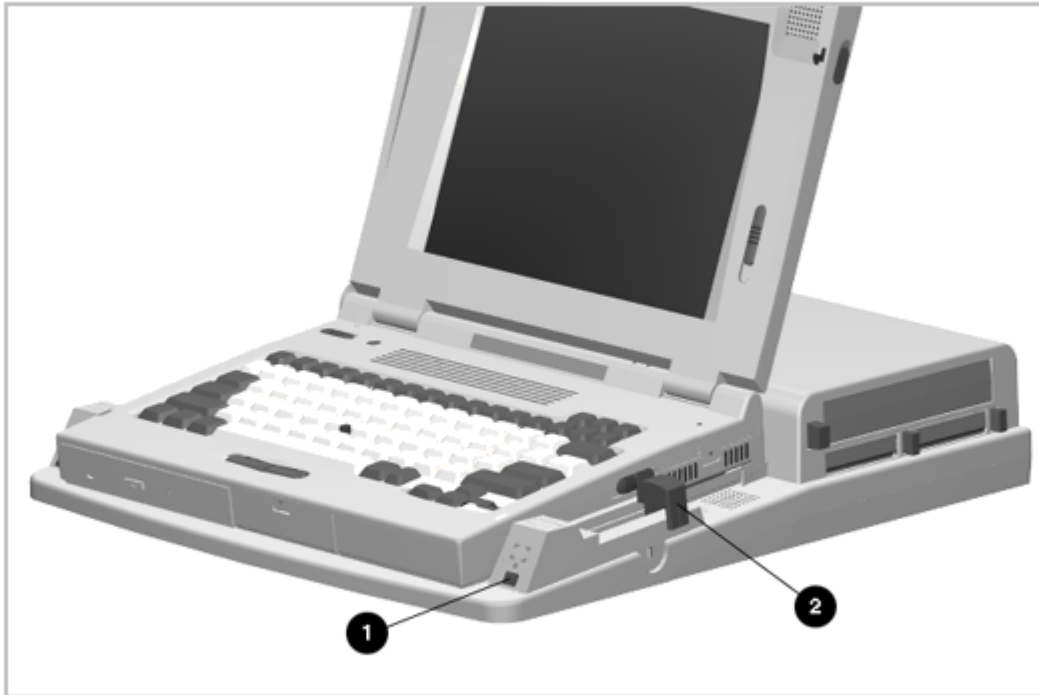


Figure 5-3. Undocking the Computer

5.3.2 Disconnecting the Computer

If the computer is docked in an expansion base, see Section 5.3.1 for undocking instructions. If the computer is not docked in an expansion base, see Figure 5-4 and complete the following steps to disconnect the computer:

1. Turn off [1] the computer.
2. Disconnect the AC Adapter power cord from the wall outlet [2].
3. Disconnect the AC Adapter [3] from the computer.

Removing the Battery Pack

To remove the battery pack, see Figure 5-5 and complete the following steps:

1. Slide the battery release actuator [1] toward the front of the computer.
2. Slide the battery pack [2] out of the battery bay.



Figure 5-5. Removing the Battery Pack

Installing the Battery Pack

To install a battery pack, complete the following steps:

1. Insert the battery pack, with the label facing up and the battery contacts facing the inside of the bay.
2. Push firmly on the battery pack; it will lock into place.

Using the Battery Pack as a Counterweight

With the display open and the mass storage devices and battery pack removed from the computer bays, the weight of the display makes the computer susceptible to being easily tipped over. When performing service

that does not require the display to be removed, you can use the battery pack as a counterweight to stabilize the computer.

To use the battery pack as a counterweight, complete the following steps:

1. Slide the battery panel all the way to the right.
2. Insert the battery pack into the battery compartment (Figure 5-6). The battery panel prevents the battery from making electrical contact.

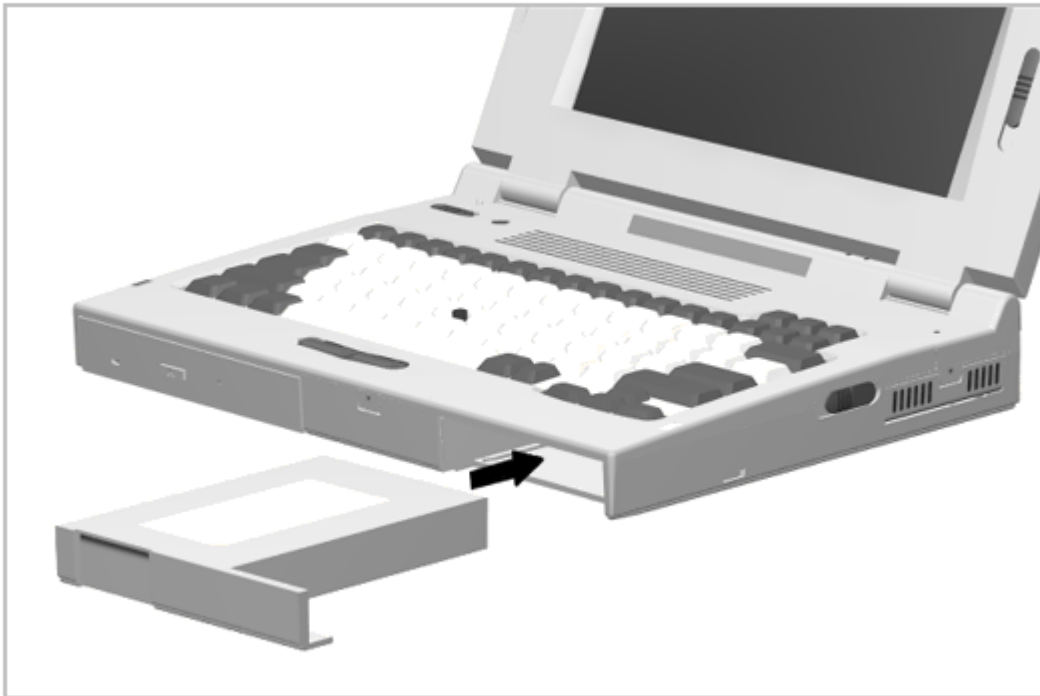


Figure 5-6. Using the Battery Pack as a Counterweight

5.3.4 Auxiliary Battery

The auxiliary battery is stored in a compartment on the bottom of the computer (Figure 5-7). The auxiliary battery should be removed prior to servicing the computer.

Removing the Auxiliary Battery

To remove the auxiliary battery, complete the following steps:

1. Using a small flat-blade screwdriver to release the door clips [1], remove the auxiliary battery compartment door [2] (Figure 5-7).

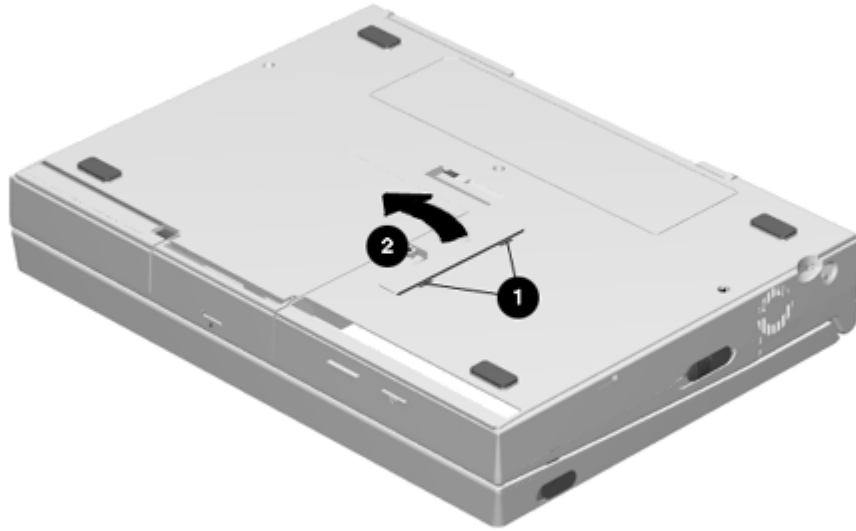


Figure 5-7. Removing the Auxiliary Battery Door

2. Lift the auxiliary battery out of its compartment [1] and disconnect the auxiliary battery cable [2] as shown in Figure 5-8.

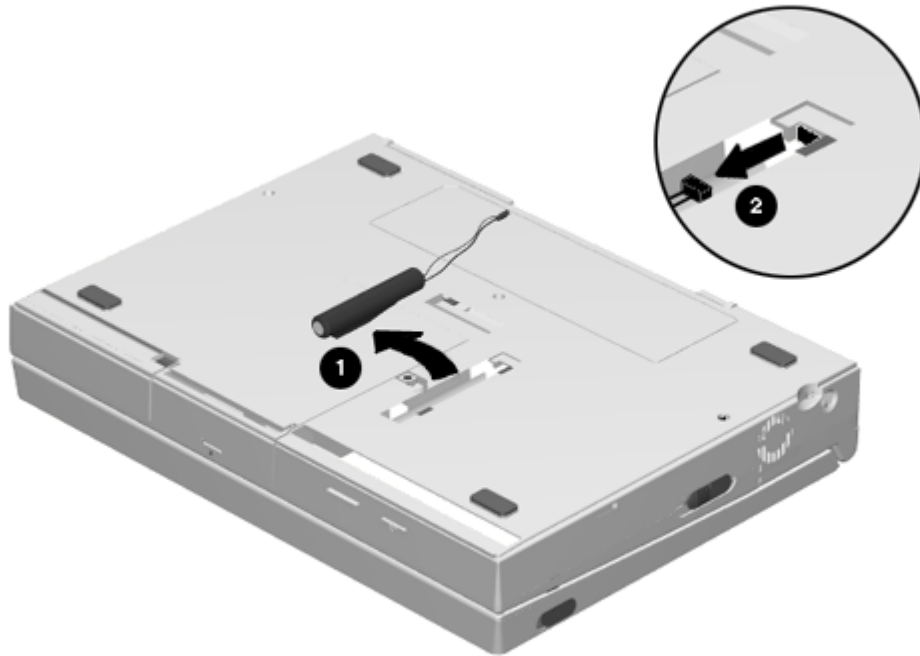


Figure 5-8. Removing the Auxiliary Battery

Installing the Auxiliary Battery

The auxiliary battery is not cylindrical but protrudes along one side. When installing the auxiliary battery, this side of the battery must enter the battery compartment first. To install an auxiliary battery, complete the following steps:

1. Remove the auxiliary battery compartment door if it is not already off (Figure 5-7).
2. Plug the auxiliary battery cable into the connector in the rear of the compartment (Figure 5-8).
3. Insert the auxiliary battery into the compartment, remembering that the side of the battery that protrudes must enter the compartment first (Figure 5-9). The battery compartment door will not close if the battery is inserted improperly.

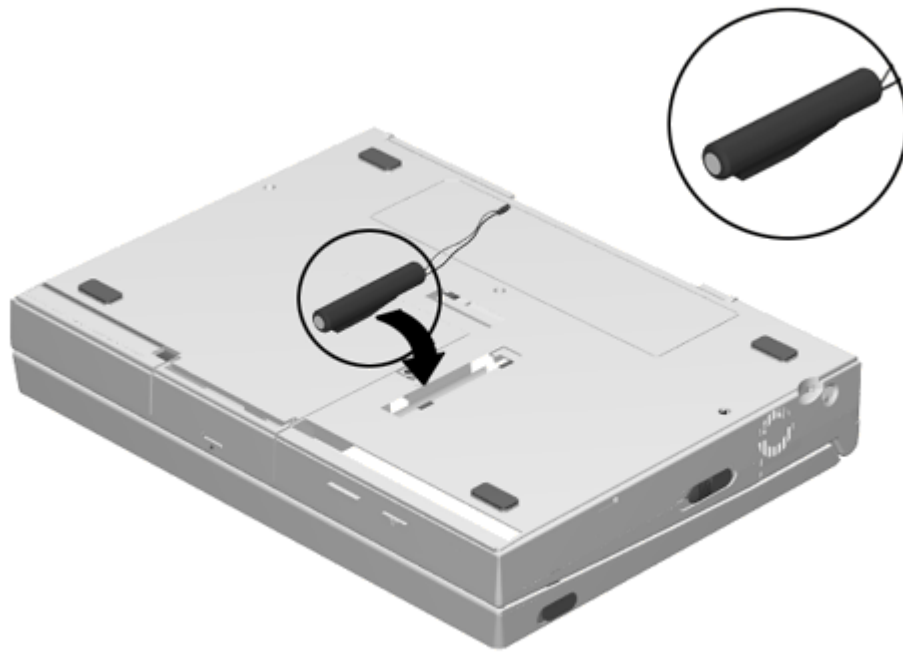


Figure 5-9. Installing the Auxiliary Battery

4. Install the auxiliary battery compartment door (Figure 5-7).

5.3.5 Hard Drive

The middle compartment on the front of the computer is a dedicated hard drive bay. No other device should be installed in this bay. Remove the hard drive prior to performing maintenance on the computer.

IMPORTANT: Be sure to save current data and turn the computer off before removing the hard drive.

Removing the Hard Drive

To remove a hard drive from the hard drive bay, complete the following steps:

1. Remove the security screw from the hard drive release on the bottom of the computer (Figure 5-10).

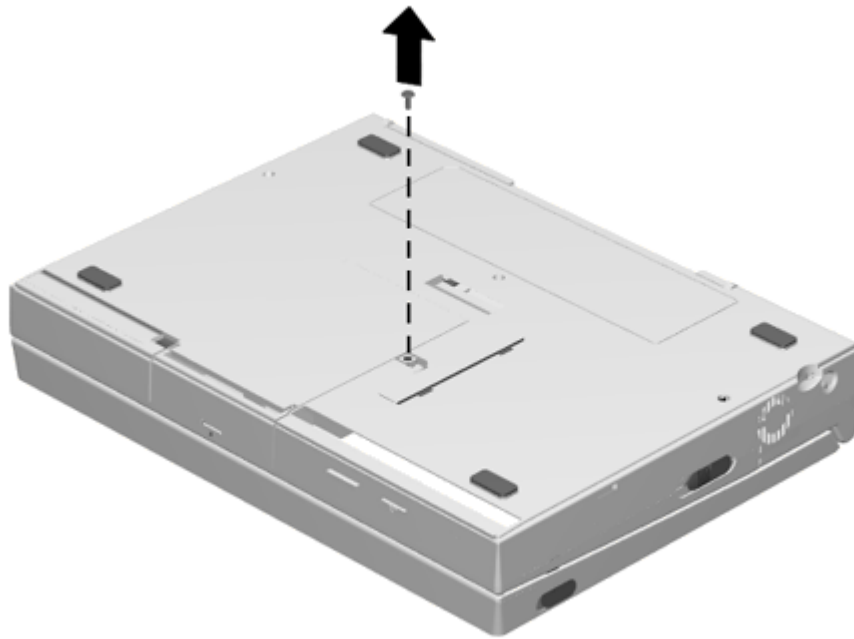


Figure 5-10. Removing the Hard Drive Security Screw

2. Open the hard drive bay door [1], and while holding the hard drive release actuated [2], pull on the tab [3] to remove the hard drive (Figure 5-11).

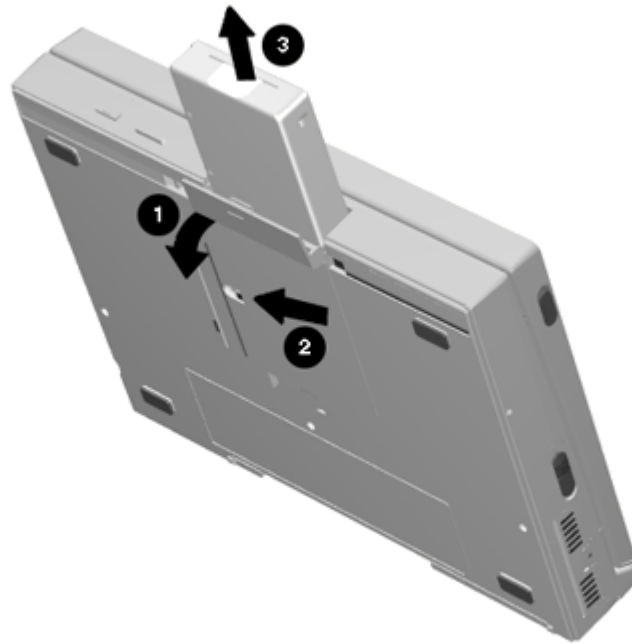


Figure 5-11. Removing the Hard Drive

Installing the Hard Drive

To install a hard drive, complete the following steps:

1. Open the hard drive bay door and insert the hard drive with the label facing up and the hard drive connector facing the inside of the bay. Make certain that the pull tab on the hard drive does not get trapped under the drive (Figure 5-11).
2. Push the hard drive into the bay until it is seated.
3. Close the hard drive bay door.
4. Install the security screw (optional) as shown in Figure 5-10.

5.3.6 MultiBay Device

Either a mass storage device or a battery pack can be installed in the MultiBay. The device installed in the MultiBay should be removed prior to performing maintenance on the computer.

Removing a Device from the MultiBay

To remove a device from the MultiBay, complete the following steps:

1. Remove the MultiBay security screw (Figure 5-12).

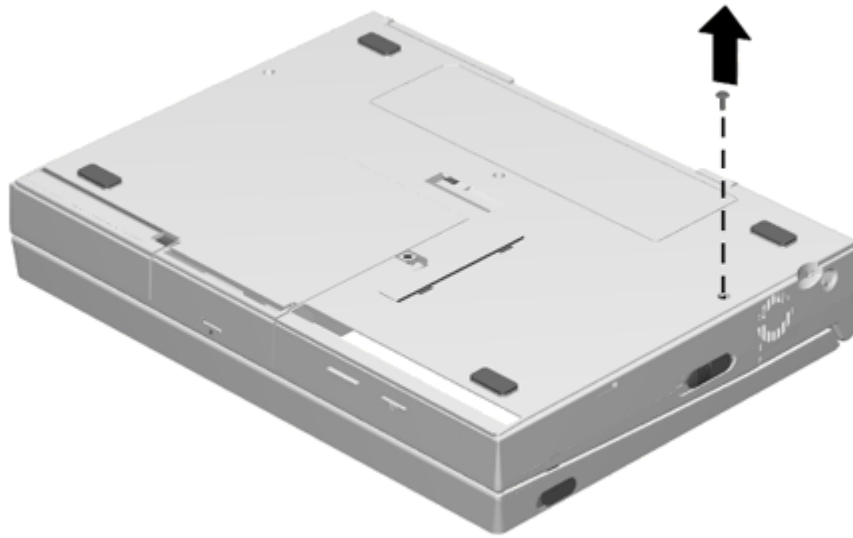


Figure 5-12. Removing the MultiBay Security Screw

2. Push the MultiBay device release [1] toward the front of the computer and pull the device [2] out of the MultiBay (Figure 5-13).

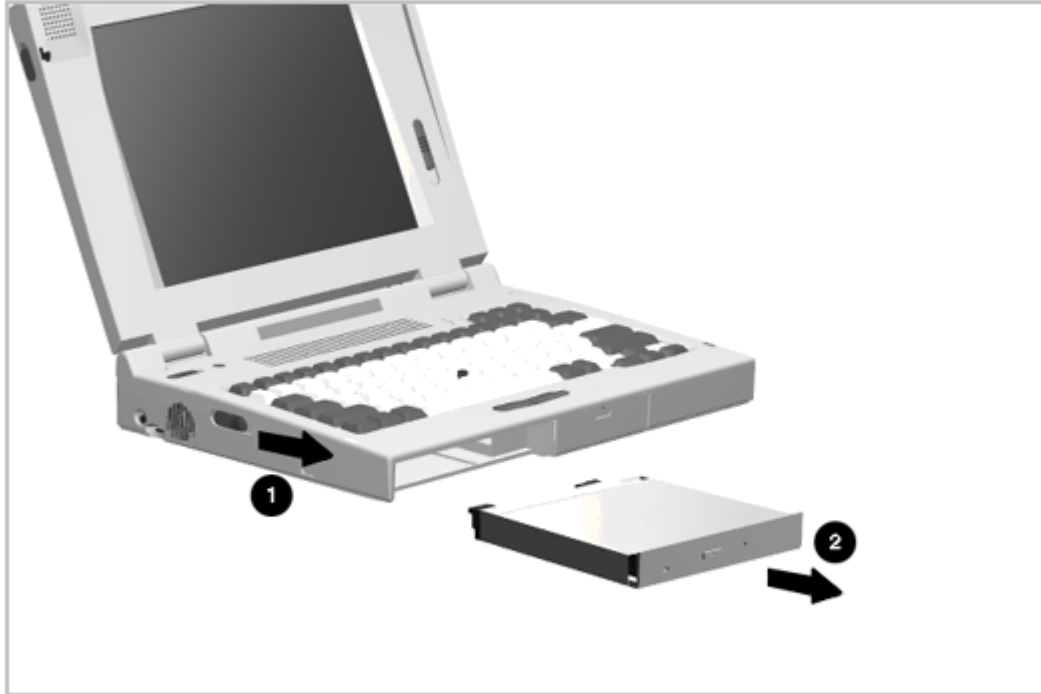


Figure 5-13. Removing a Device from the MultiBay

Installing a Device in the MultiBay

Installation of a device in the MultiBay is the reverse of the removal procedure. To install a device in the MultiBay, complete the following steps:

1. Insert the device, with the label facing up and the connector/contacts facing the inside of the bay (Figure 5-13).
2. Push firmly on the device; it will lock into place.
3. Install the security screw (optional) as shown in Figure 5-12.

5.3.7 PC Card

Compaq recommends that you remove any installed PC Cards (PCMCIA) before performing any service on the computer. To remove a PC card, complete the following steps:

1. Open the PC Card door [1] (Figure 5-14).
2. Press on the PC Card release button [2] to remove the PC Card (Figure 5-14).

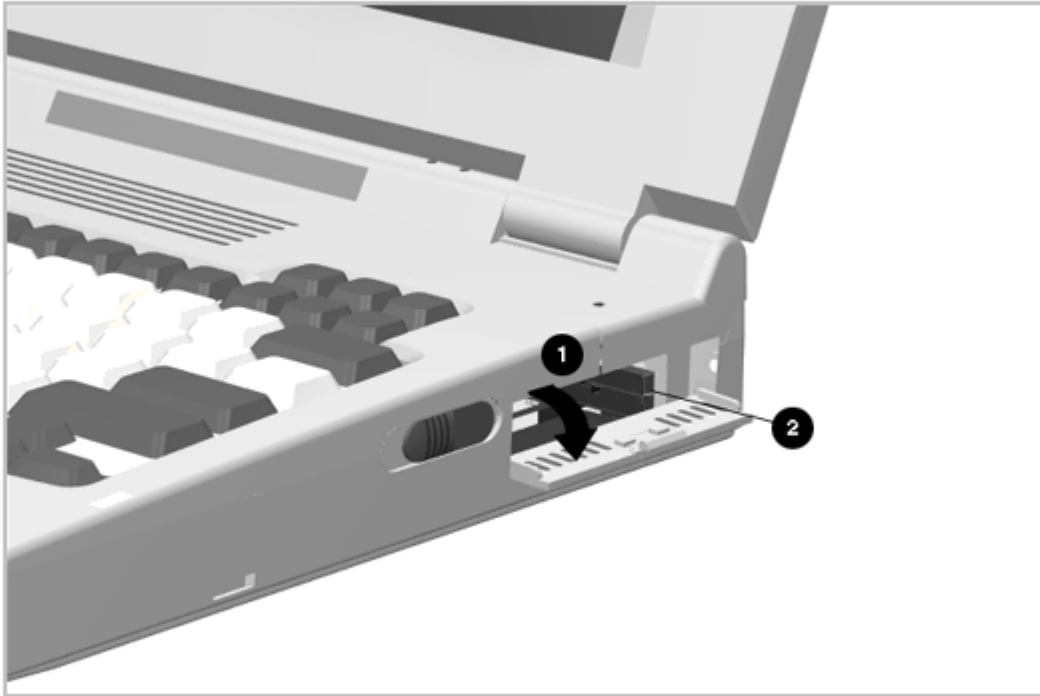


Figure 5-14. Removing a PC Card

To install a PC Card, open the PC Card door, insert the card into the slot, and press firmly until it is seated.

Chapter 5.4 External Computer Components

This section describes the removal and replacement procedures that do not require access to the internal components of the computer. This includes:

- o Computer logo
- o Computer feet
- o Connector cover
- o Auxiliary battery compartment door
- o Memory expansion board
- o EasyPoint II pointing device
- o Hard drive bay door
- o PC Card door

5.4.1 Computer Logo

The computer logo identifies the model of the computer. A logo for each model is included with the display assembly spare parts kit. The logo has an adhesive backing for installation. Select the appropriate logo for your computer model, remove the protective covering from the adhesive back, and install the logo as shown in Figure 5-15. The logo should be right reading when viewed from the back of the computer with the display open.



Figure 5-15. Installing the Computer Logo

5.4.2 Computer Feet

The computer feet are rectangular, adhesive-backed rubber pads. Install the feet by removing the protective covering from the adhesive back and placing the feet in their positions on the bottom of the computer as shown in Figure 5-16.

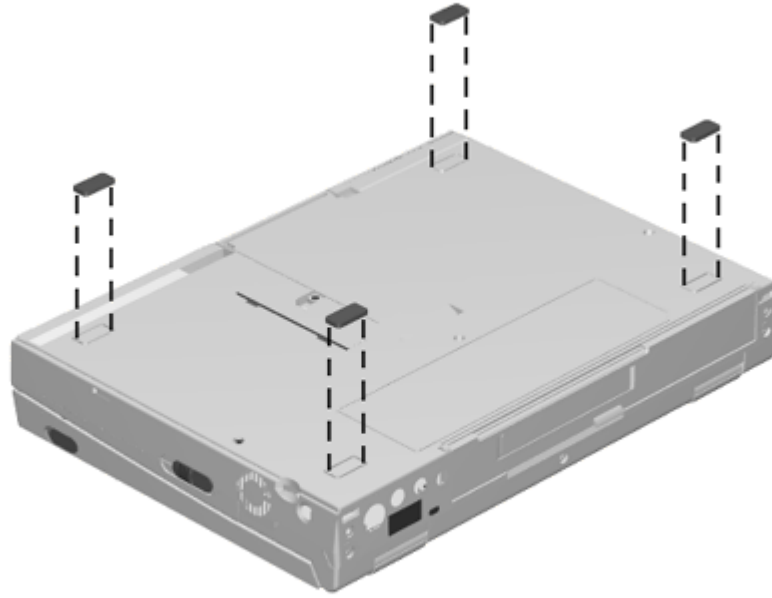


Figure 5-16. Installing the Computer Feet

5.4.3 Connector Cover

The connector cover snaps into place. To remove and replace a connector cover, complete the following steps:

1. Open the connector cover.
2. Flex the center of the cover away from the computer (Figure 5-17) until the pivots on each end of the cover disengage the pivot holes in the computer housing.

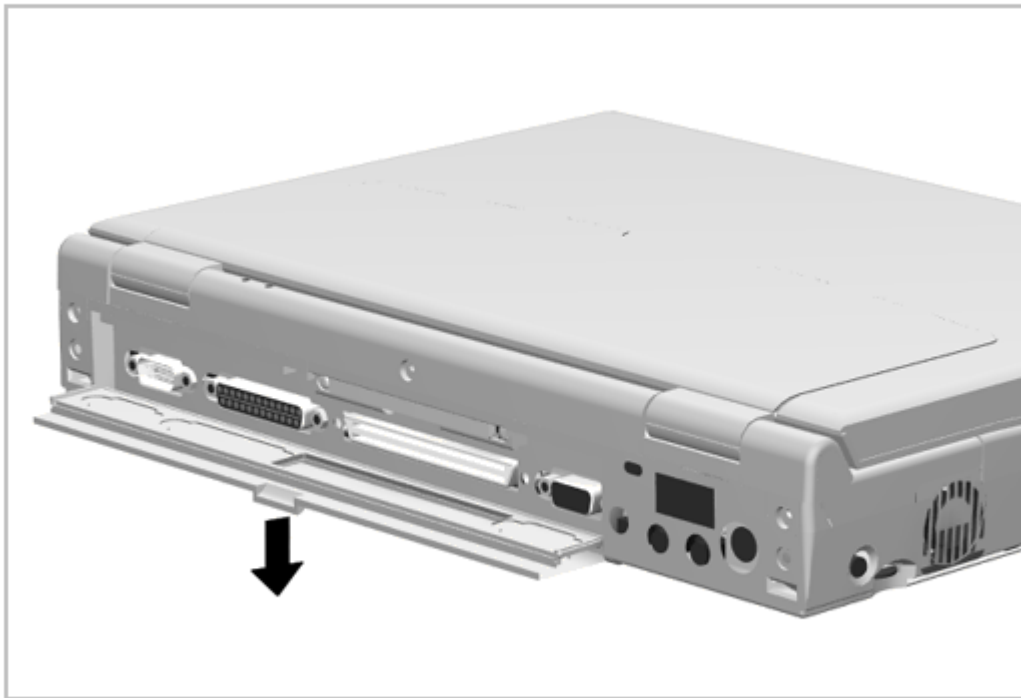


Figure 5-17. Removing the Connector Cover

Reverse this procedure to install a connector cover.

5.4.4 Auxiliary Battery Compartment Door

See Section 5.3.4 for instructions on how to remove and replace the auxiliary battery compartment door.

5.4.5 Memory Expansion Board

The memory expansion board is installed from the outside of the computer and is located behind the connector cover on the rear of the computer. The assembly consists of two memory boards and a carrier, which are preassembled and installed as a unit. To remove and replace a memory expansion board, complete the following steps:

1. Turn off the computer and unplug the power cord.
2. Open the connector cover and loosen the two screws [1] (Figure 5-18). The screws are captured in the memory expansion board carrier and do not separate from the carrier.

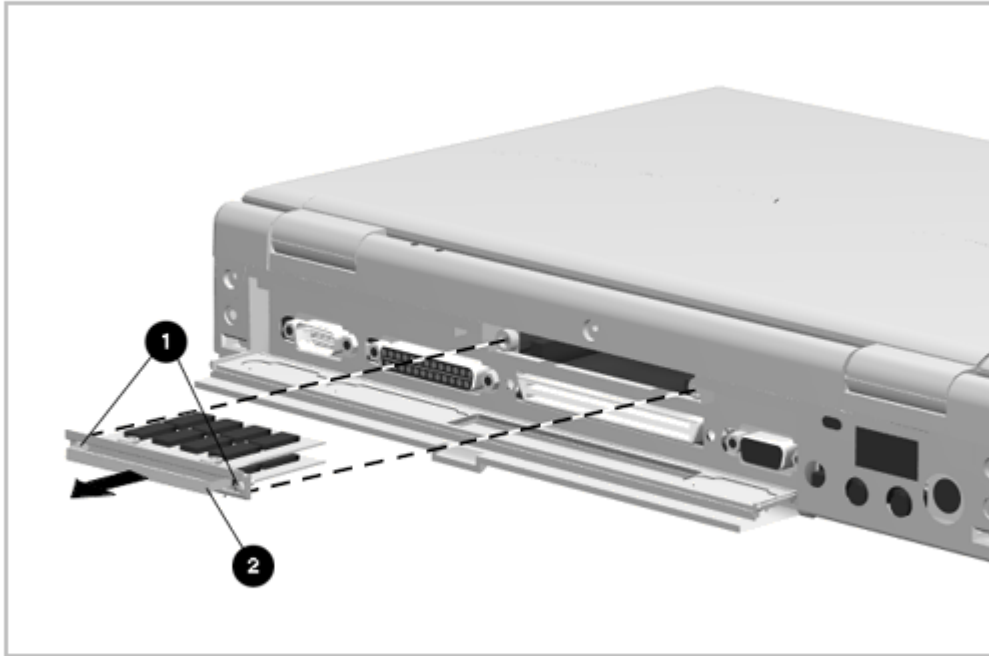


Figure 5-18. Removing a Memory Module

3. Pull on the handle [2] to remove the memory expansion board from the computer (Figure 5-18).

Reverse the above procedure to install a memory expansion board.

IMPORTANT: Run Computer Setup after installing a memory expansion board.

5.4.6 EasyPoint II Pointing Device

The EasyPoint II pointing device consists of a rubber cap [1]. If the rubber cap needs to be replaced, grasp the rubber cap with your thumb and index finger and lift it out. Install a new cap by pushing it on (Figure 5-19).

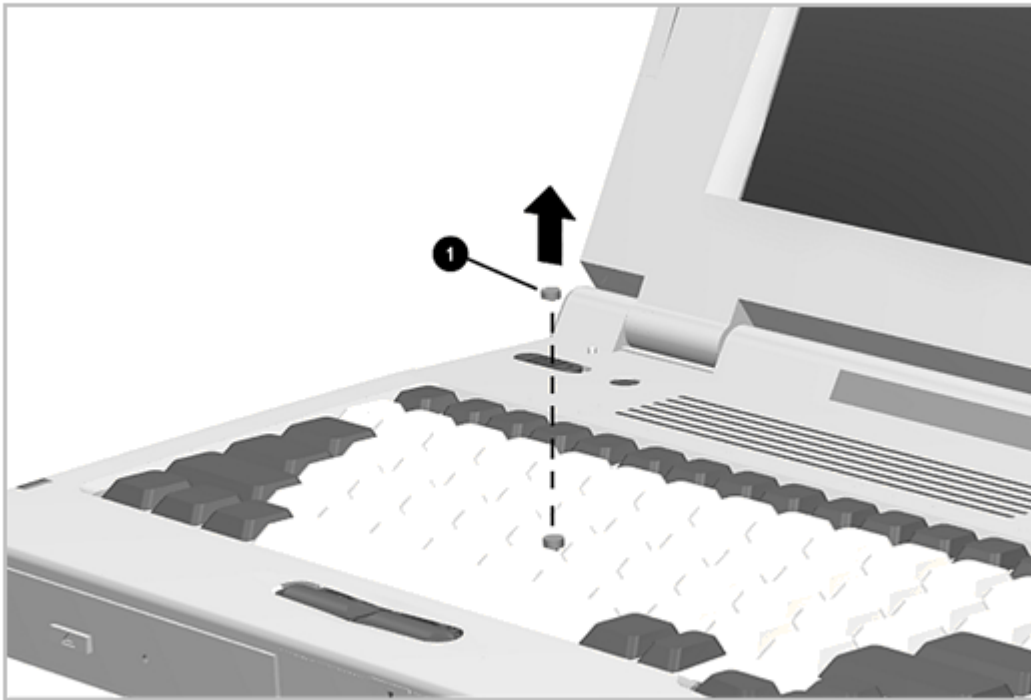


Figure 5-19. Removing and Installing the EasyPoint II Pointing Device

5.4.7 Hard Drive Bay Door

The hard drive bay door snaps into place. To remove the hard drive bay door, complete the following steps:

1. Position the computer on a tabletop so the front edge of the computer is just off the edge of the table (Figure 5-20).

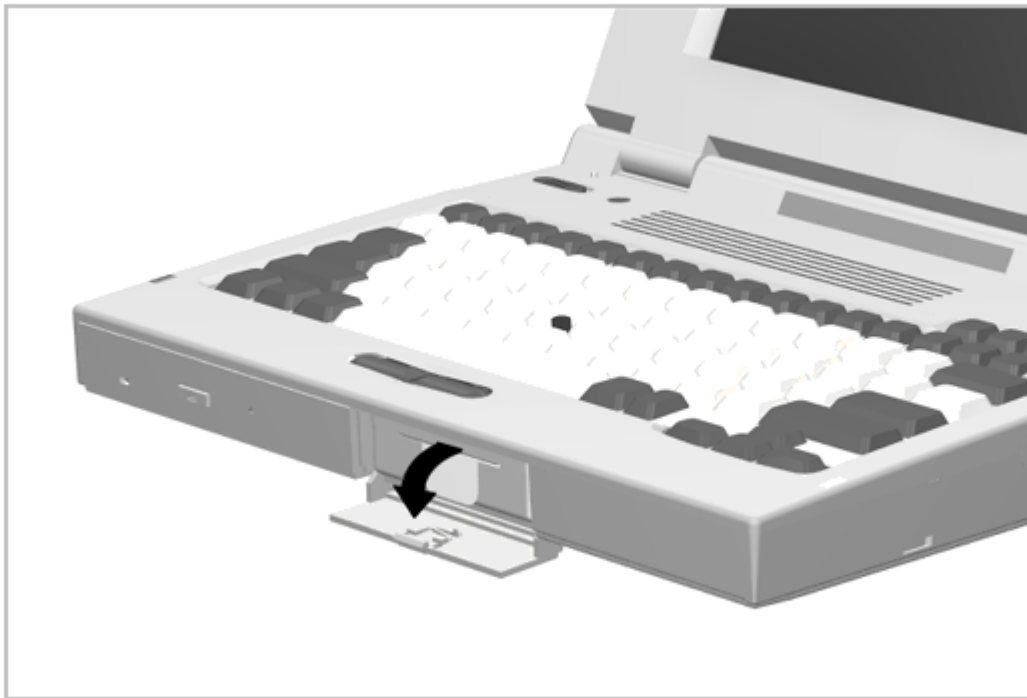


Figure 5-20. Removing the Hard Drive Bay Door

2. Open the hard drive bay door until you feel resistance, then continue to open the door (Figure 5-20) until the door is released.

To install the hard drive door, orient the door to 90 degrees from its closed position and snap it onto the pivot studs on the computer.

5.4.8 PC Card Door

The PC Card door snaps into place. To remove and replace the PC Card door, complete the following steps:

1. Open the PC Card door (Figure 5-21).

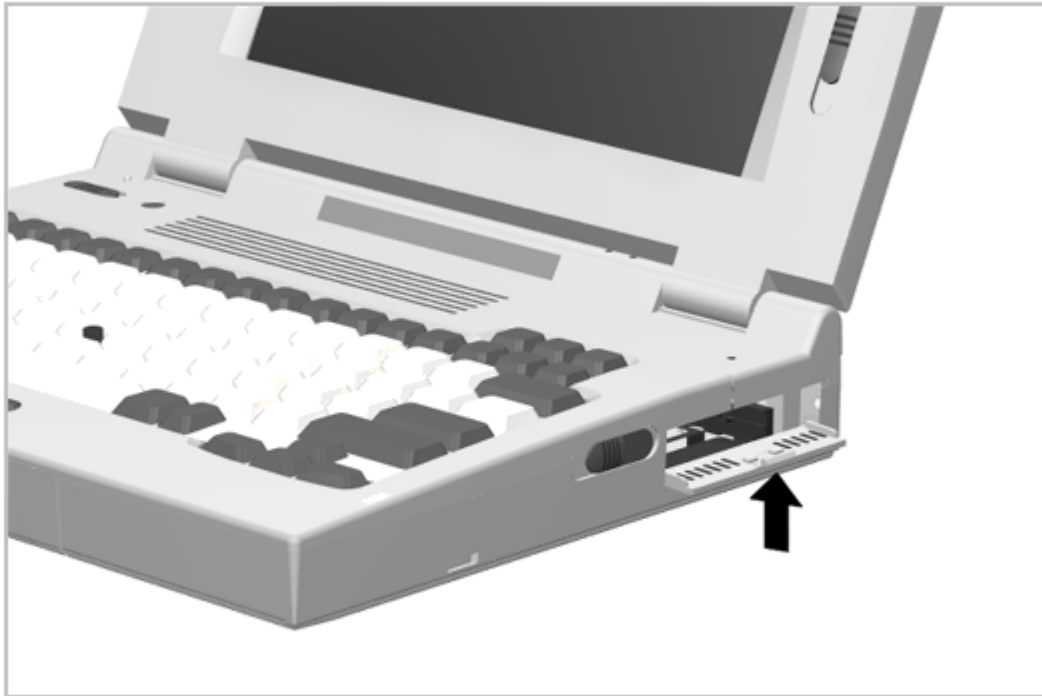


Figure 5-21. Removing the PC Card Door

2. Flex the center of the door up until the pivots on each end of the door disengage the pivot holes in the computer housing (Figure 5-21).

Reverse this procedure to install the PC Card door.

Chapter 5.5 CPU Cover Assembly

The CPU cover assembly must be removed to gain access to any of the interior components of the computer, and it is the first component that has to be removed to gain access to the interior components. Maintenance of the CPU cover assembly includes replacement of the following:

- o CPU cover assembly
- o Power switch actuator
- o Standby (Suspend) button
- o Display switch button

Additionally, the integrated microphone can be accessed for service when the CPU cover is removed.

5.5.1 CPU Cover Assembly

To remove and replace the CPU cover assembly, complete the following steps:

1. Prepare the computer for disassembly as described in Section 5.3.
2. Remove the three screws from the back of the computer (Figure 5-22).

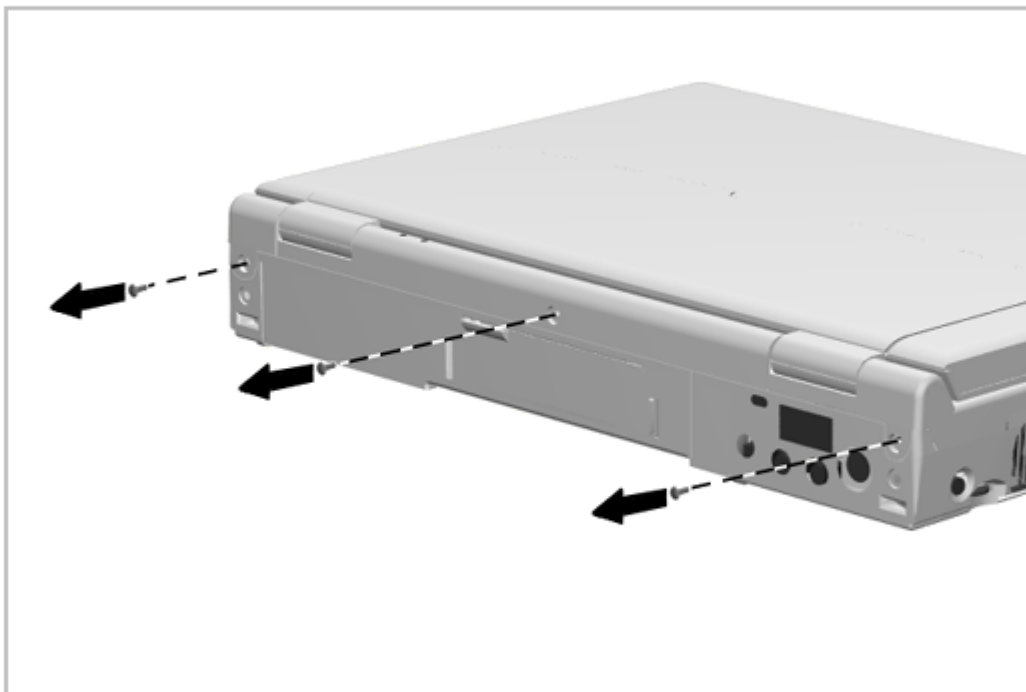


Figure 5-22. Removing the CPU Cover Screws

3. Open the display panel and tilt the display panel all the way back (Figure 5-23).



Figure 5-23. Removing the CPU Cover

4. Tilt the CPU cover forward and out of the computer (Figure 5-23).

Reverse the above procedure to install the CPU cover assembly.

IMPORTANT: A set of warning labels is included with each CPU cover assembly spare parts kit. Select a label with the language that matches the keyboard language and install the label in the upper right corner of the cover. This label contains a warning message to prevent physical discomfort and harm. Installation of this label is essential.

5.5.2 Power Switch Actuator

To remove the power switch actuator, complete the following steps:

1. Remove the CPU cover as described in Section 5.5.1.
2. From the bottom side of the CPU cover, squeeze the tabs and push the switch actuator and its installed spring out of the cover (Figure 5-24).

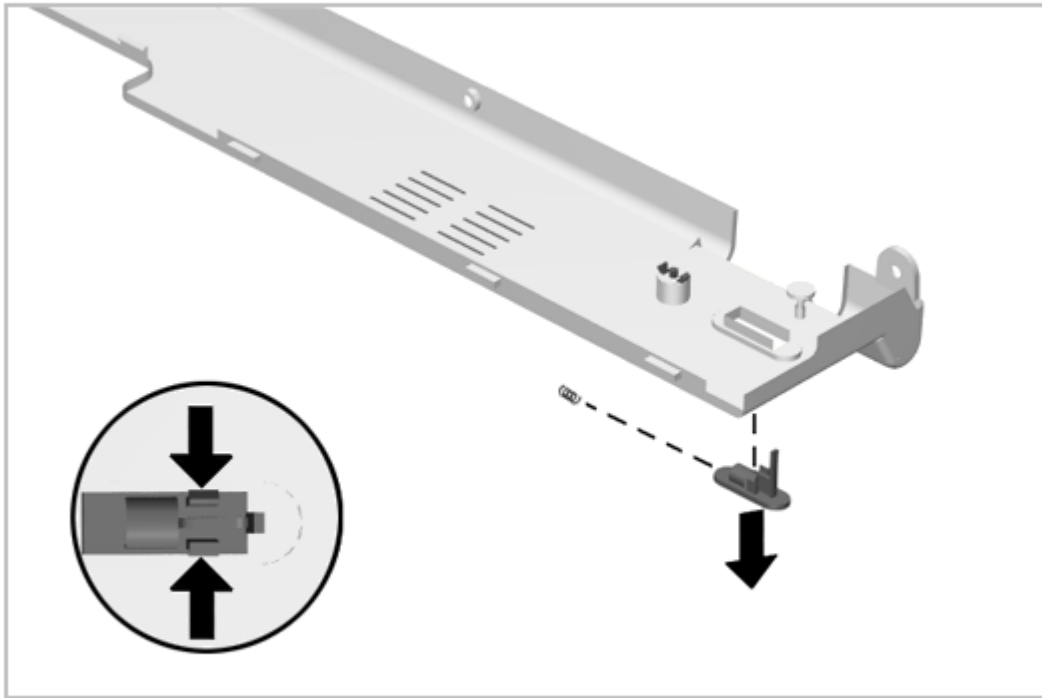


Figure 5-24. Removing the Power Switch Actuator

To install, simply snap the power switch actuator, with spring installed, into place.

5.5.3 Standby (Suspend) Button

To remove the standby (suspend) button, complete the following steps:

1. Remove the CPU cover as described in Section 5.5.1.
2. From the bottom side of the CPU cover, squeeze the tabs and push the button out of the cover (Figure 5-25). Note the spring associated with this button and take care not to lose it.

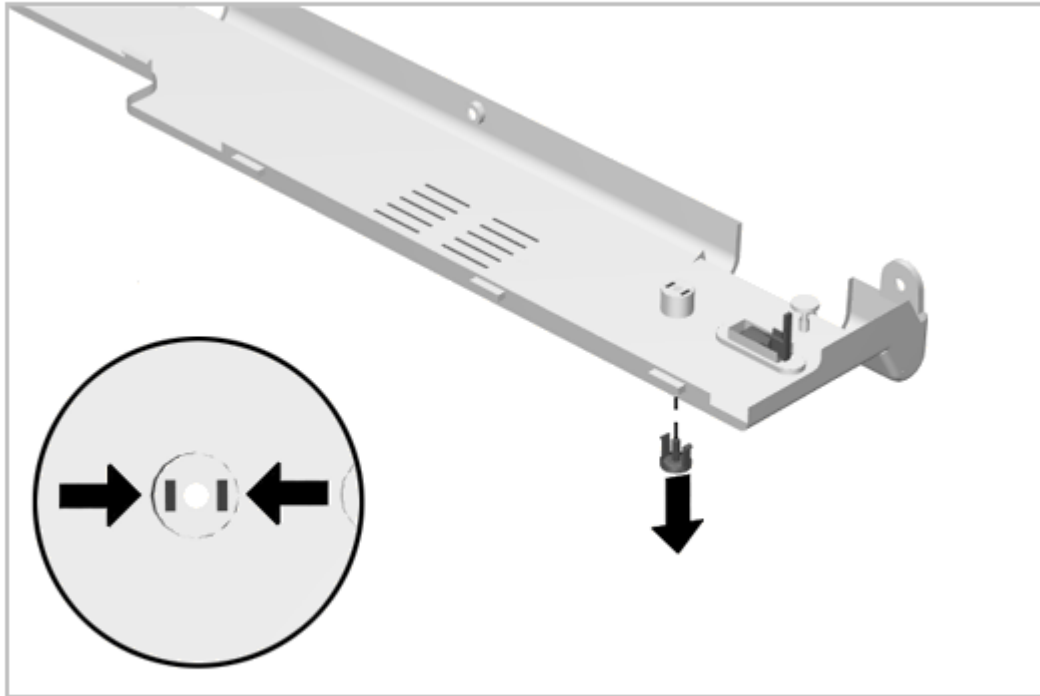


Figure 5-25. Removing the Standby (Suspend) Button

To install, simply snap the standby (suspend) button into place. To avoid losing the spring, this task is better performed with the CPU cover inverted.

5.5.4 Display Switch Button

The display switch button is installed with a snap action. To remove, simply pull it out of its mounting hole (Figure 5-26).

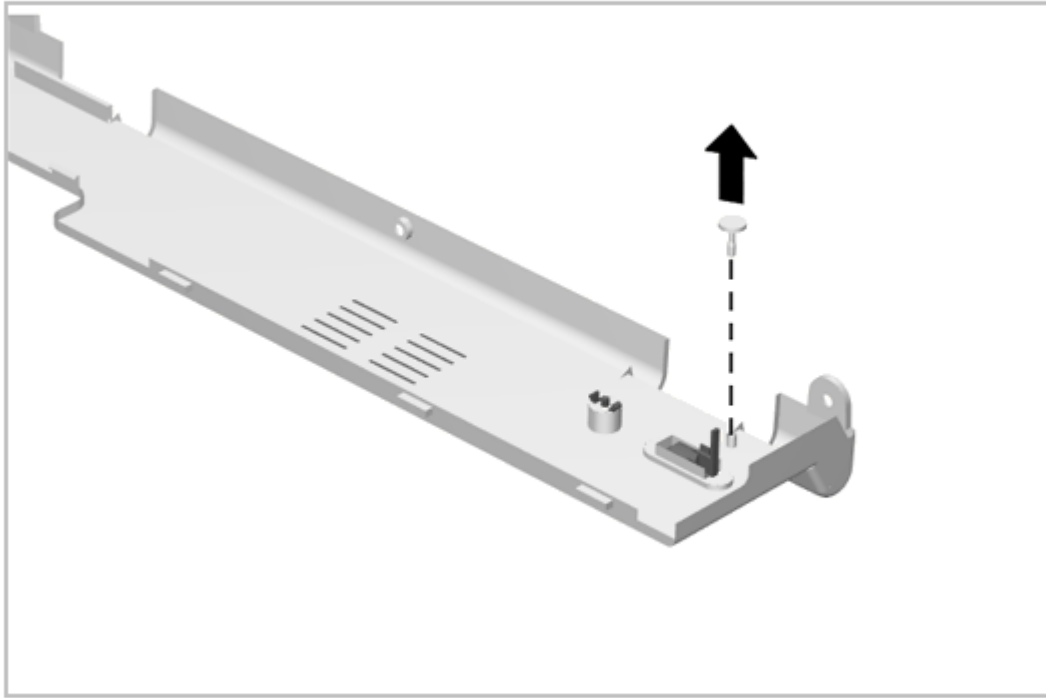


Figure 5-26. Removing the Display Switch Button

To install a display switch button, snap it into place.

Chapter 5.6 Microphone

With the CPU cover removed, the microphone is readily accessible on the right-hand side of the computer above the keyboard. The microphone is seated in a boot that is then installed in the keyboard plastic. To remove and replace the microphone, complete the following steps:

1. Remove the CPU cover as described in Section 5.5.1.
2. Disconnect the microphone cable (Figure 5-27).

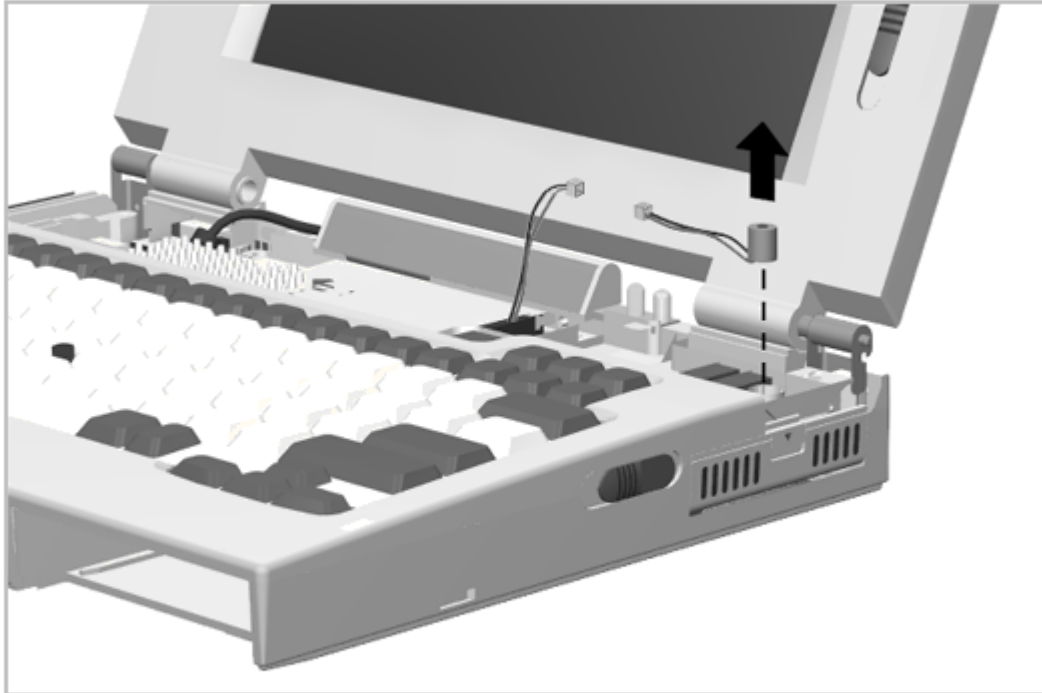


Figure 5-27. Removing the Microphone

3. Lift the microphone and its boot out of the computer (Figure 5-27).

NOTE: The microphone extension cable cannot be properly accessed for service until the processor board is removed. See Section 5.11 for details on the extension cable.

To install a microphone, reverse the above procedure.

Chapter 5.7 Status Panel

The CPU cover must be removed to gain access to the status panel. To remove the status panel assembly, complete the following steps:

1. Prepare the computer for disassembly as described in Section 5.3.
2. Remove the CPU cover as described in Section 5.5.1.

IMPORTANT: Note the routing of the status panel cable before disturbing the cable. It is very important that this cable be routed properly at reassembly.

3. With the display open and tilted all the way back, disconnect the status panel cable [1] (Figure 5-28).

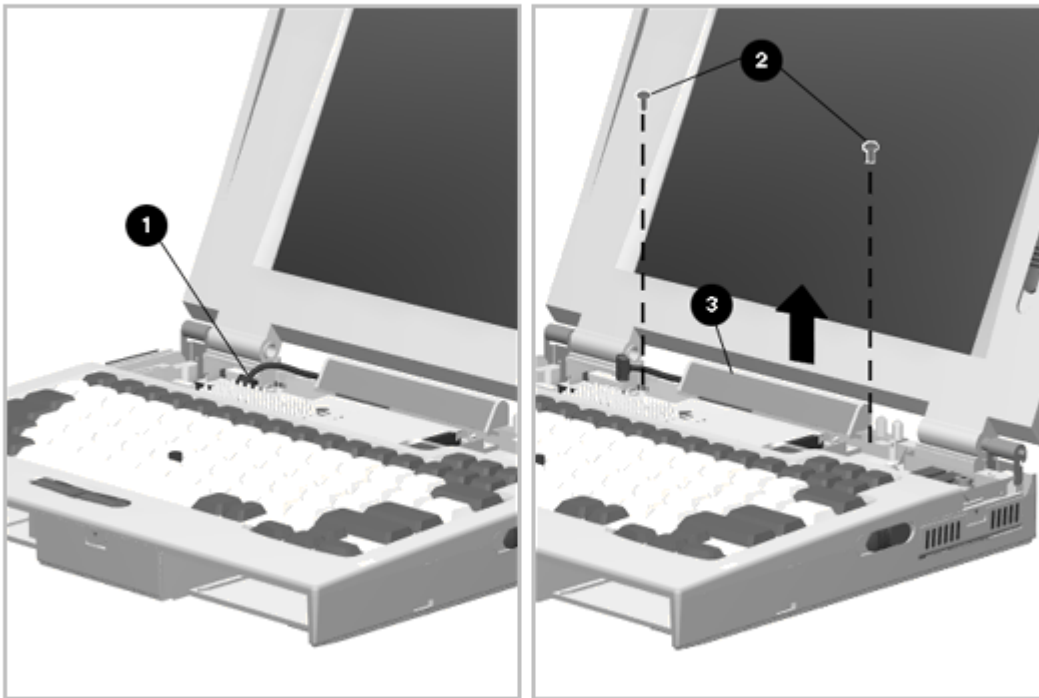


Figure 5-28. Removing the Status Panel

4. Remove the two status panel screws [2] (Figure 5-28).
5. Lift the status panel [3] out of the computer.

Reverse the above procedure to install the status panel, taking care to route the cable properly.

Chapter 5.8 Display Assembly

Maintenance of the display assembly includes replacement of the following:

- o Display assembly
- o Display bezel with speakers
- o Latch assemblies
- o Clutch assemblies
- o Brightness/contrast control actuators

- o Clutch cradles

All of these procedures require removal of the CPU cover and the display assembly.

5.8.1 Removing and Installing the Display Assembly

To remove and install the display assembly, complete the following steps:

1. Prepare the computer for disassembly as described in Section 5.3.
2. Remove the CPU cover as described in Section 5.5.1.
3. Disconnect the display cables: one connector [4] and grounding lug [5] on the right, two connectors [2] [3] and one grounding lug [1] on the left (Figure 5-29).

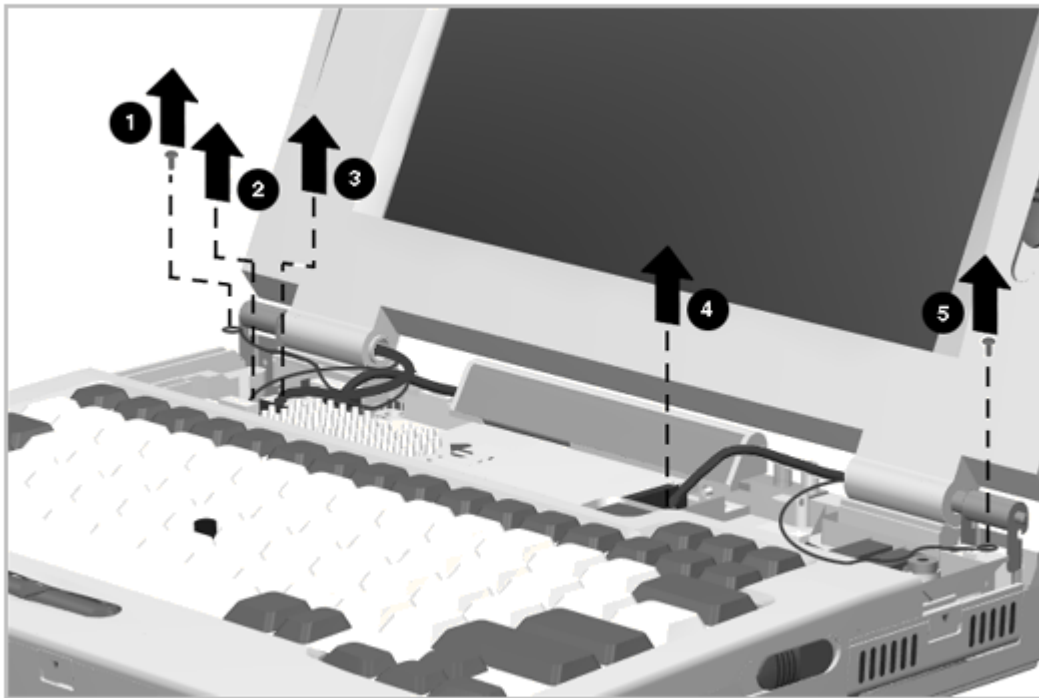


Figure 5-29. Disconnecting the Display Cables

4. Remove the two screws [1] securing the display assembly to the base assembly (Figure 5-30), and separate the display assembly from the base assembly [2].

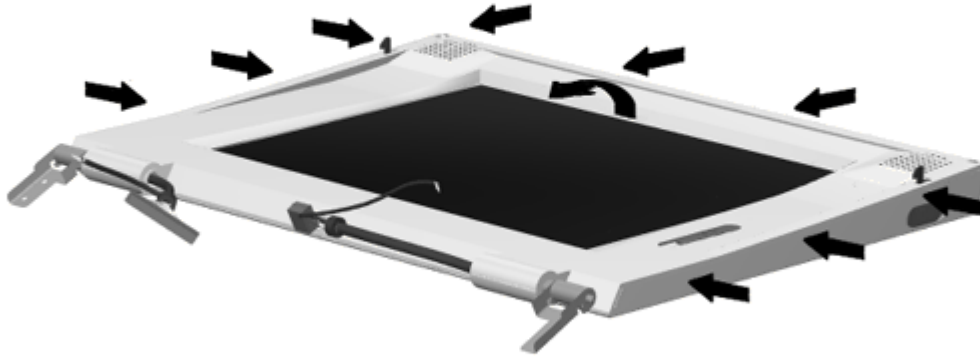


Figure 5-32. Removing the Display Bezel

IMPORTANT: Note the routing of the display cables to ensure proper routing at reassembly.

Reverse the above procedure to install the display bezel, taking care to properly align the brightness/contrast control(s) with their switches.

5.8.3 Removing and Installing the Latches

To remove the latches, complete the following steps:

1. Remove the display assembly as described in Section 5.8.1.
2. Remove the display bezel as described in Section 5.8.2.
3. Using a small flat-blade screwdriver, apply pressure to the latch actuator tab [1] to allow the actuator to be removed (Figure 5-33).

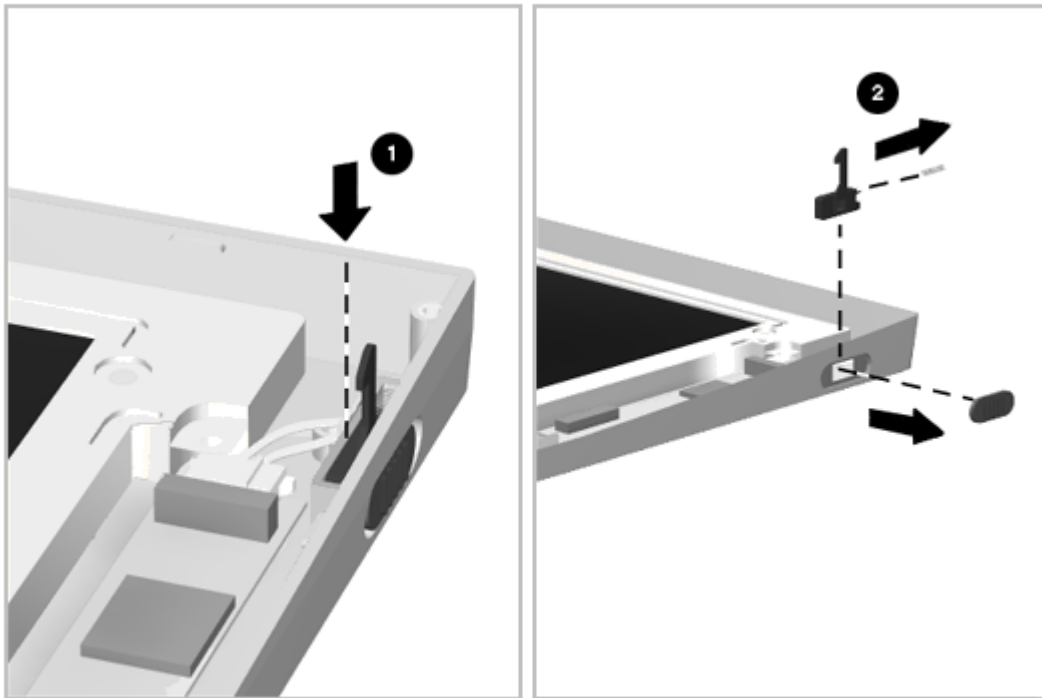


Figure 5-33. Removing the Latch Assembly

4. Lift out the latch [2] and its attached spring (Figure 5-33).

Reverse the above procedure to install a latch assembly.

5.8.4 Removing and Installing the Clutch Assembly

To remove a clutch assembly, complete the following steps:

1. Remove the display assembly as described in Section 5.8.1.
2. Remove the display bezel as described in Section 5.8.2.
3. Remove the screws holding the clutch assembly and bracket to the display housing (Figure 5-34), and remove the clutch assembly and bracket.

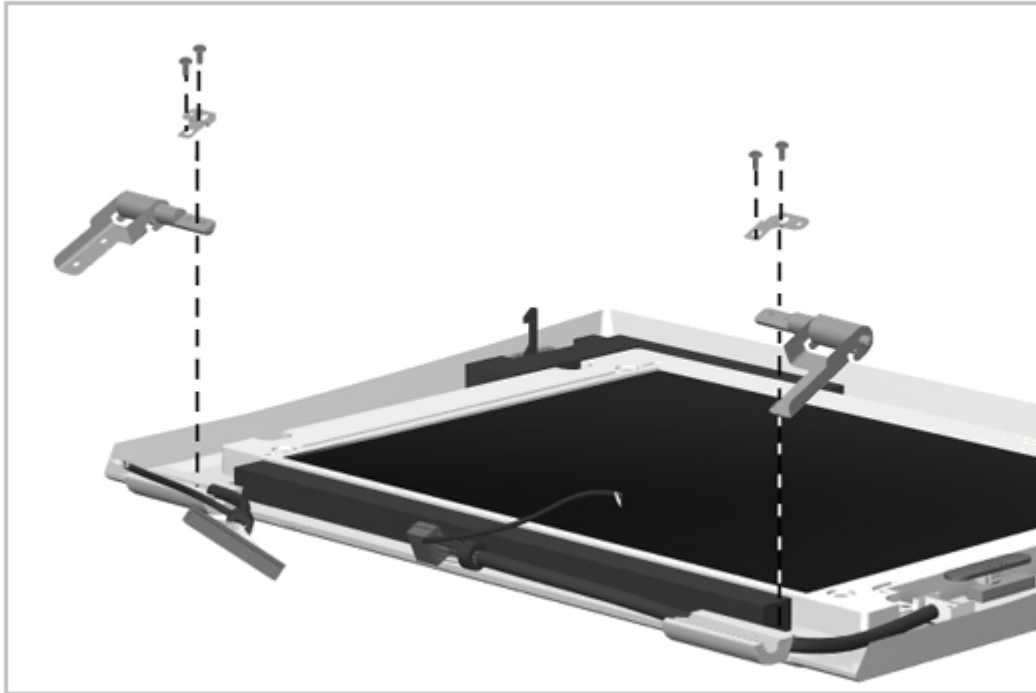


Figure 5-34. Removing the Clutch Assembly and Bracket

Reverse the above procedure to install a clutch assembly and bracket.

5.8.5 Brightness/Contrast Control Actuator

To remove a brightness/contrast control actuator, complete the following steps:

1. Remove the display assembly as described in Section 5.8.1.
2. Remove the display bezel as described in Section 5.8.2.
3. Squeeze the tabs on the back of the actuator (Figure 5-35) and let it drop out.

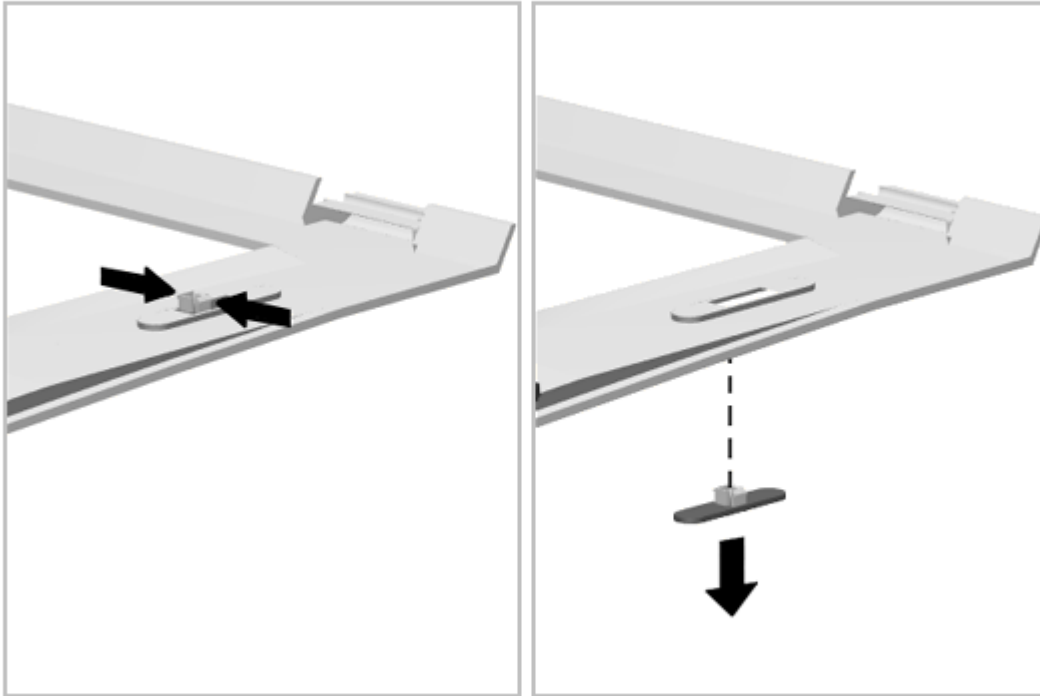


Figure 5-35. Removing a Brightness/Contrast Control Actuator

To install a brightness/contrast control actuator, simply snap it into place.

IMPORTANT: When replacing the display bezel onto the display panel, make sure the seat in the brightness/contrast control actuator is aligned with the tab on the brightness/contrast switch. An alternate installation procedure is to install the bezel and then install the actuators.

5.8.6 Removing and Installing the Clutch Cradles

The left clutch cradle is held in place with one screw and is keyed to provide proper installation. The right clutch cradle uses no screws for installation and simply lifts out of the computer. To remove the clutch cradles, complete the following steps:

1. Remove the display assembly (Section 5.8.1).
2. Remove the left cradle screw and lift the cradle out (Figure 5-36).

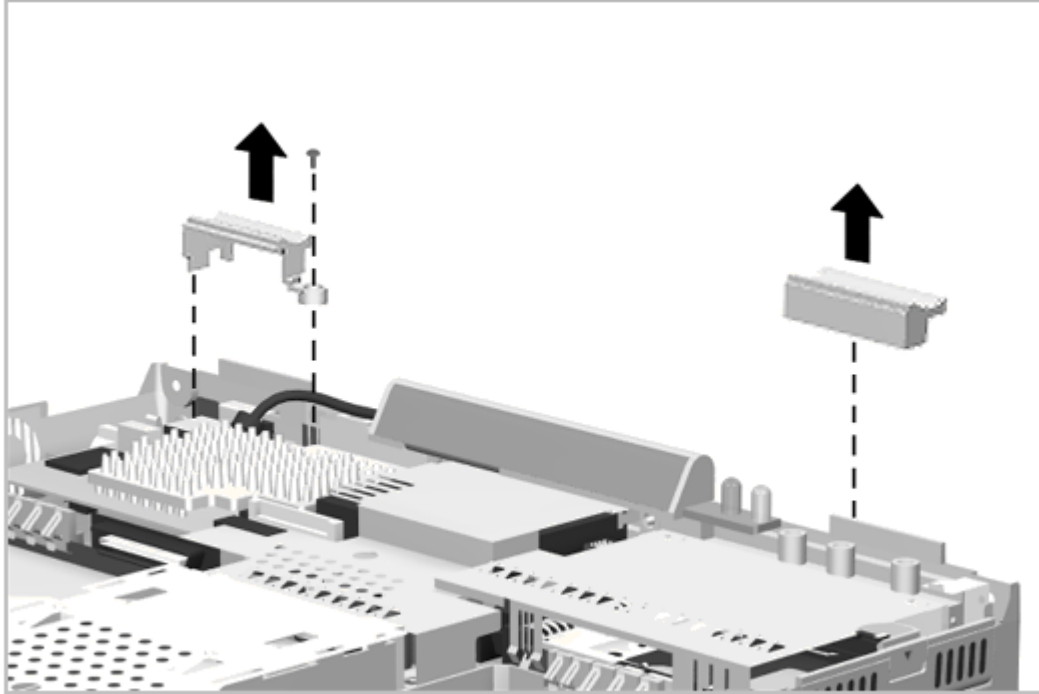


Figure 5-36. Removing the Clutch Cradles

3. Lift the right cradle out of the computer (Figure 5-36).

Reverse the above procedure to install the clutch cradles.

Chapter 5.9 Keyboard Assembly

Maintenance of the keyboard assembly includes removal and replacement of the following:

- o Keyboard assembly
- o EasyPoint II controller
- o Battery eject mechanism
- o MultiBay device eject mechanism
- o Hard drive latch

5.9.1 Removing and Installing the Keyboard

To remove the keyboard, complete the following steps:

1. Remove the CPU cover as described in Section 5.5.1.
2. Remove the keyboard screws (Figure 5-37).

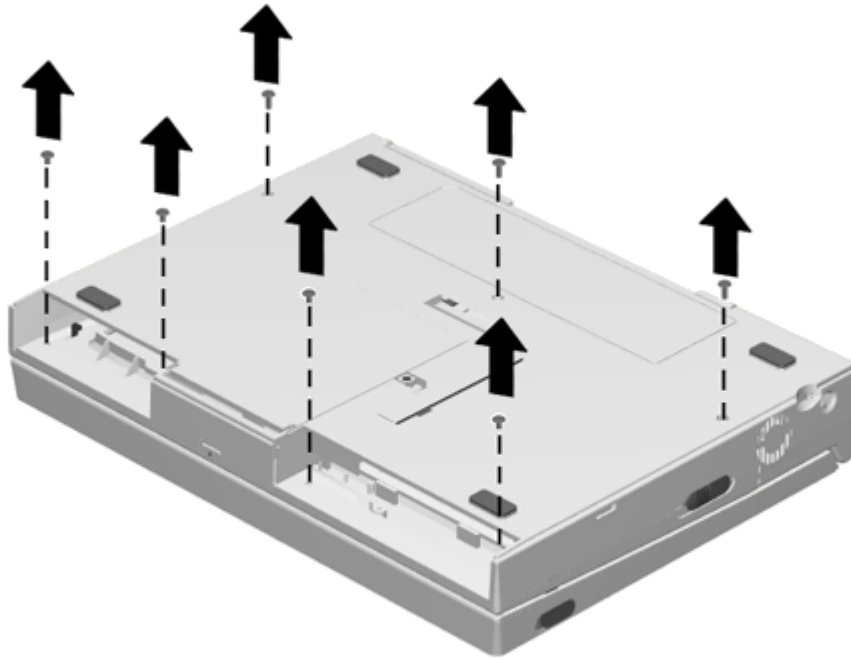


Figure 5-37. Removing the Keyboard Screws

3. Remove the screws [1] from the rear corners of the keyboard (Figure 5-38). Note that ground lugs are attached by these screws.

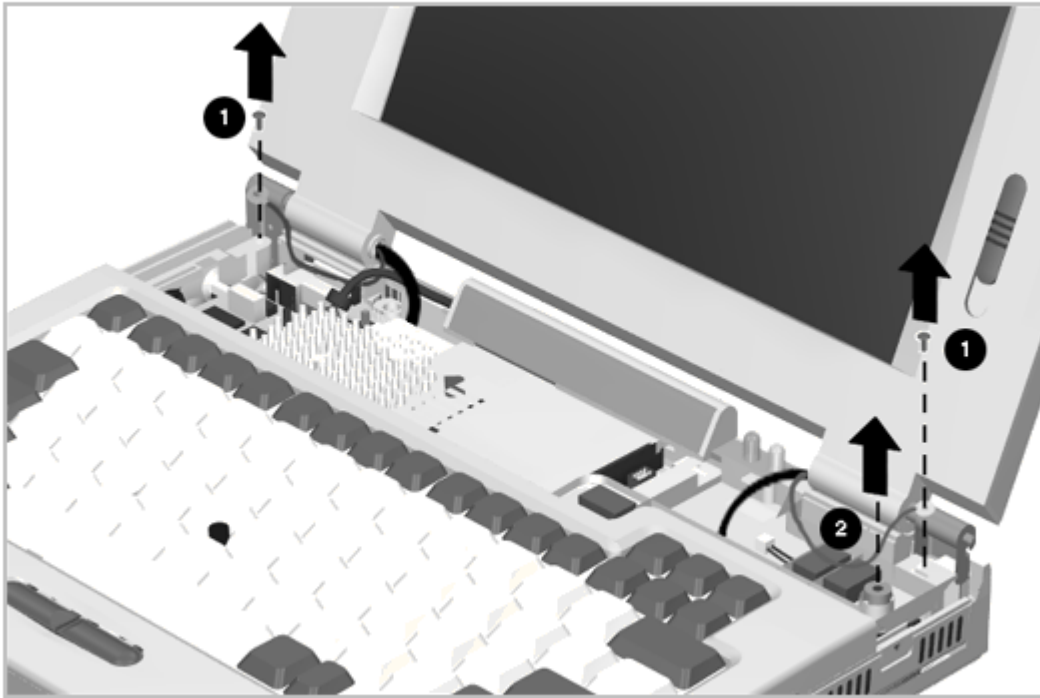


Figure 5-38. Removing the Keyboard Screws and Microphone

4. Remove the microphone [2] (Figure 5-38). You can leave it attached to its extension cable.
5. Separate the keyboard from the base and shift it slightly to gain better access to the keyboard ZIF connector [1] (Figure 5-39), then disconnect the ZIF connector.

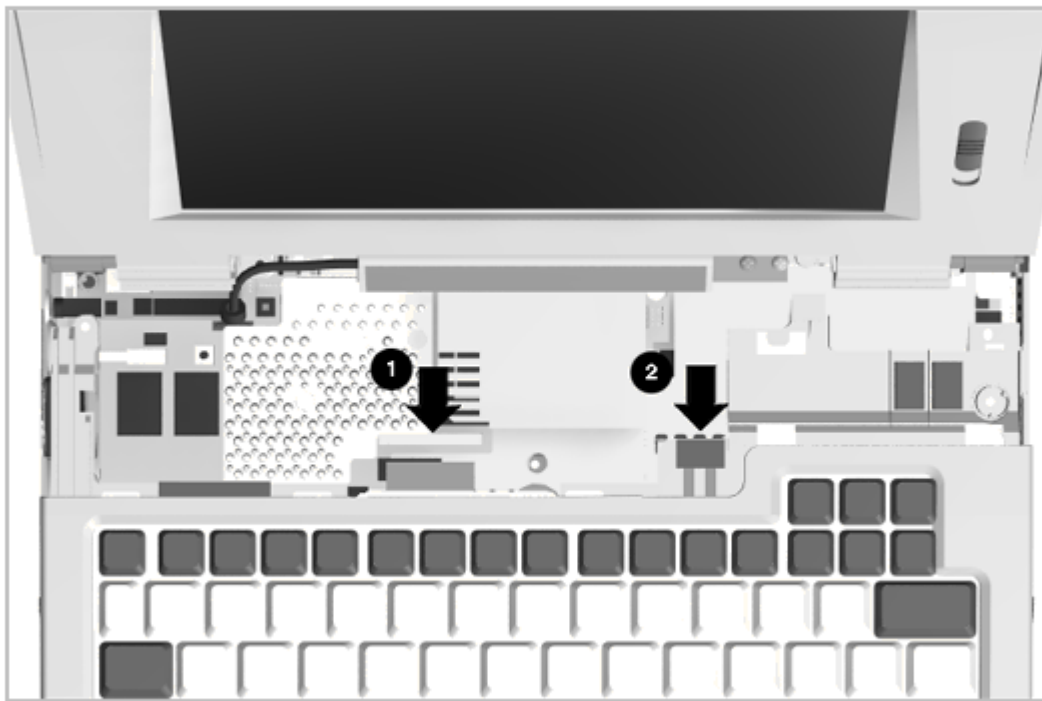


Figure 5-39. Disconnecting the Keyboard

6. Disconnect the EasyPoint II controller cable [2] from the system board (Figure 5-39).

7. Lift the keyboard out.

Reverse this procedure to install the keyboard.

NOTE: Be sure to connect the ground lugs at the rear of the keyboard.

5.9.2 Removing and Installing the EasyPoint II Controller

To remove the EasyPoint II controller, complete the following steps:

1. Remove the keyboard as described in Section 5.9.1.
2. Remove the two screws from the EasyPoint II controller (Figure 5-40).

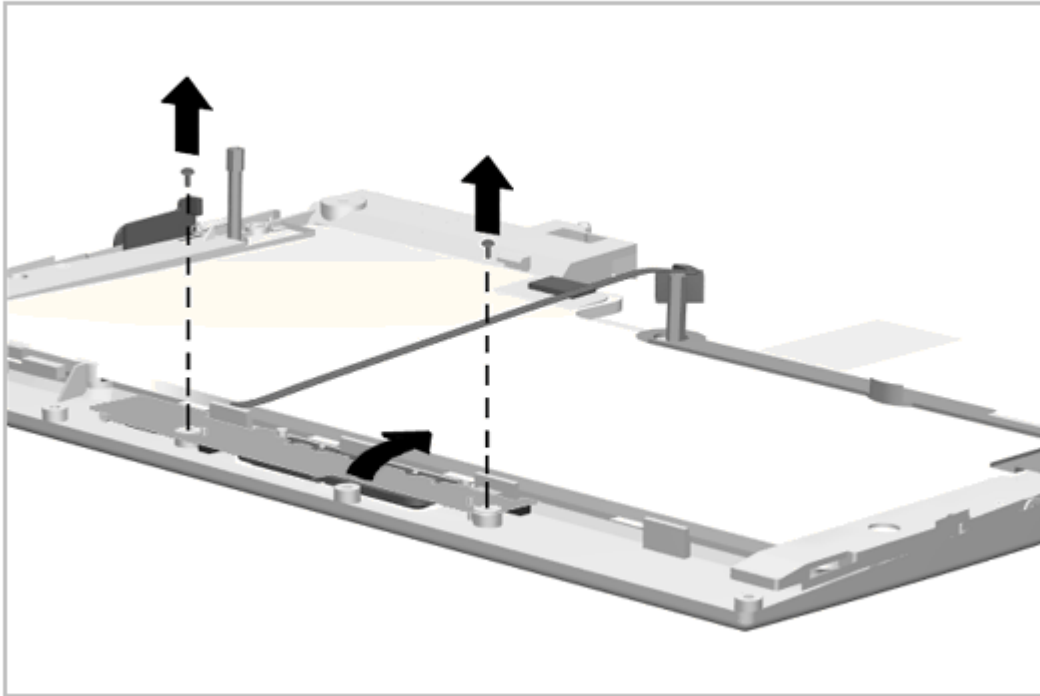


Figure 5-40. Removing the EasyPoint II Controller

3. Disconnect the cable from the ZIF connector on the EasyPoint II Controller (Figure 5-41). The ZIF connector is located on the back side of the controller board.

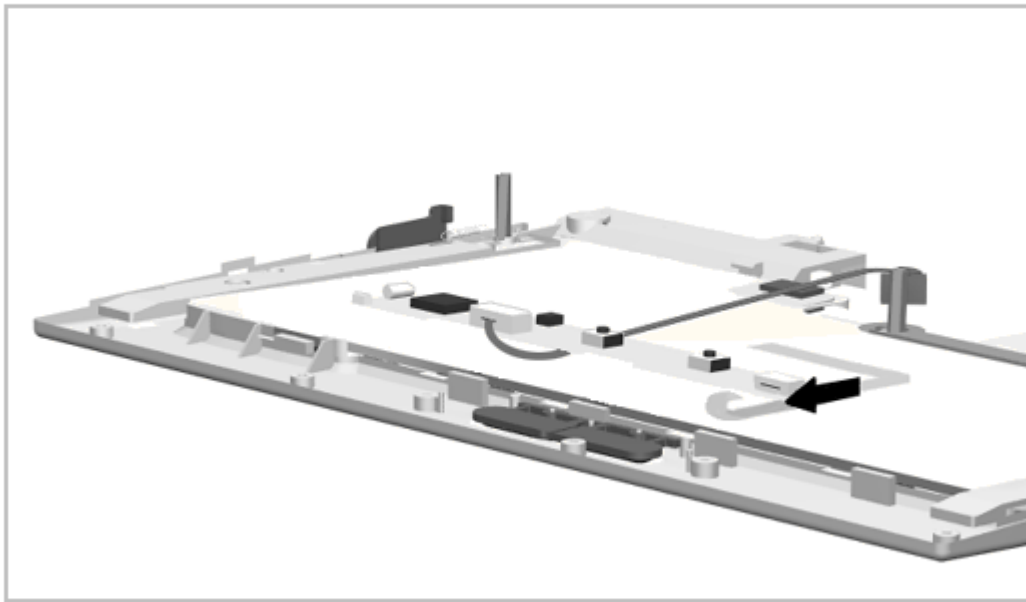


Figure 5-41. Disconnecting the EasyPoint II Controller

NOTE: Observe the dressing of the EasyPoint II controller cables. It may be necessary to use adhesive tape to maintain the cables in their proper orientations.

Reverse the above procedure to install the EasyPoint II controller.

5.9.3 Removing and Installing the Battery Release Assembly

To remove the battery release assembly, complete the following steps:

1. Remove the keyboard as described in Section 5.9.1.
2. Remove the two screws [1] from the release holder [3] (Figure 5-42).

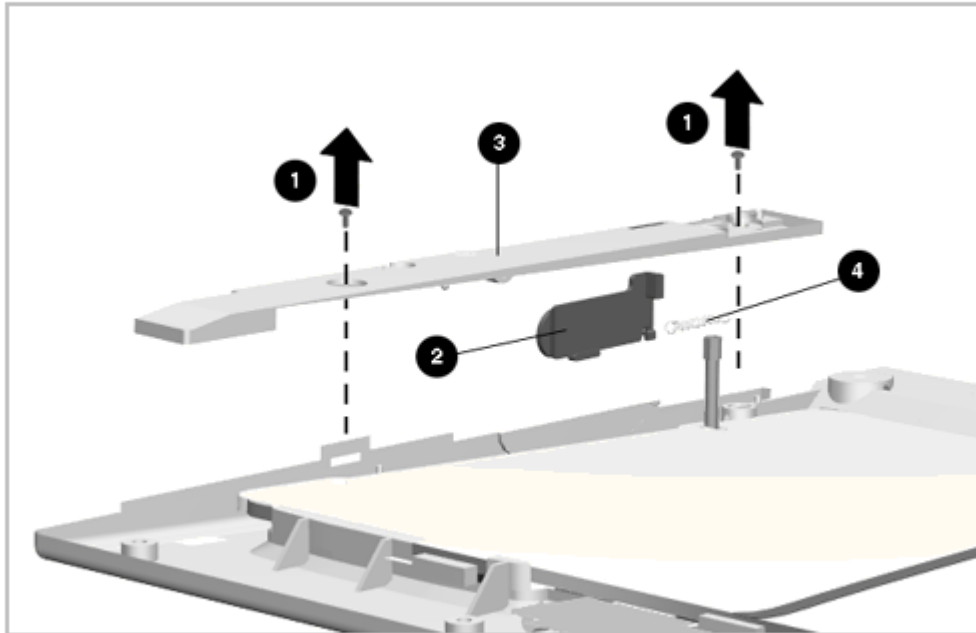


Figure 5-42. Removing the Battery Release Assembly

3. The release holder, spring, and latch are installed as an assembly. Lift out the release holder [3] (Figure 5-42). The battery release [2] is attached to the release holder with its spring [4].

Reverse the above procedure to install the battery release assembly. Use the locating pins adjacent to each mounting hole to locate the release holder properly.

NOTE: At reassembly, make certain that the spring on the battery release is not trapped between the release holder and side plastic. The spring should be below the holder (Figure 5-43).

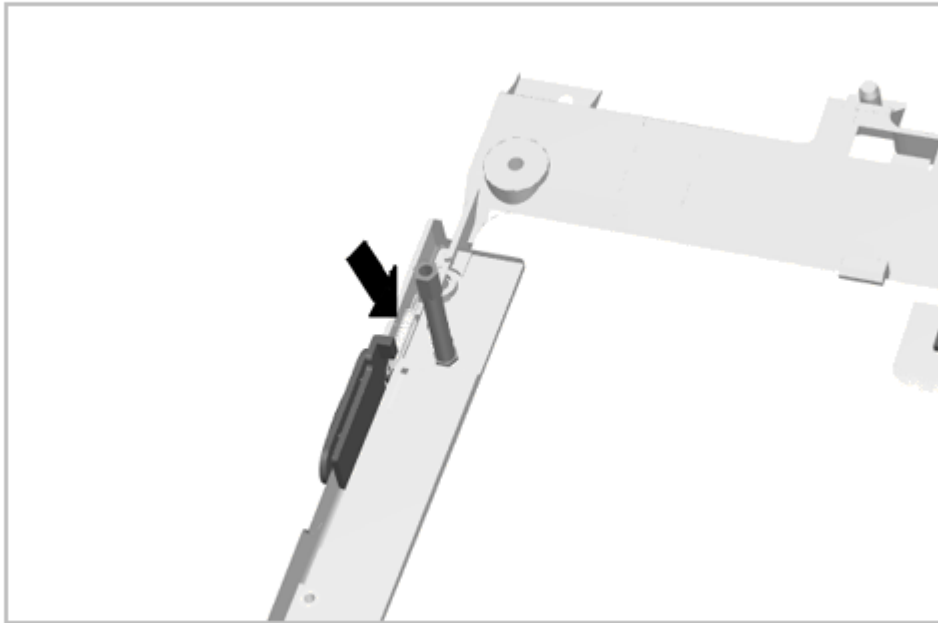


Figure 5-43. Installing the Battery Release Assembly

5.9.4 Removing and Installing the MultiBay Release Assembly

To remove the MultiBay release assembly, complete the following steps:

1. Remove the keyboard as described in Section 5.9.1.
2. Remove the standoff [1] from the CD-ROM eject bar [2] and lift out the eject bar (Figure 5-44).

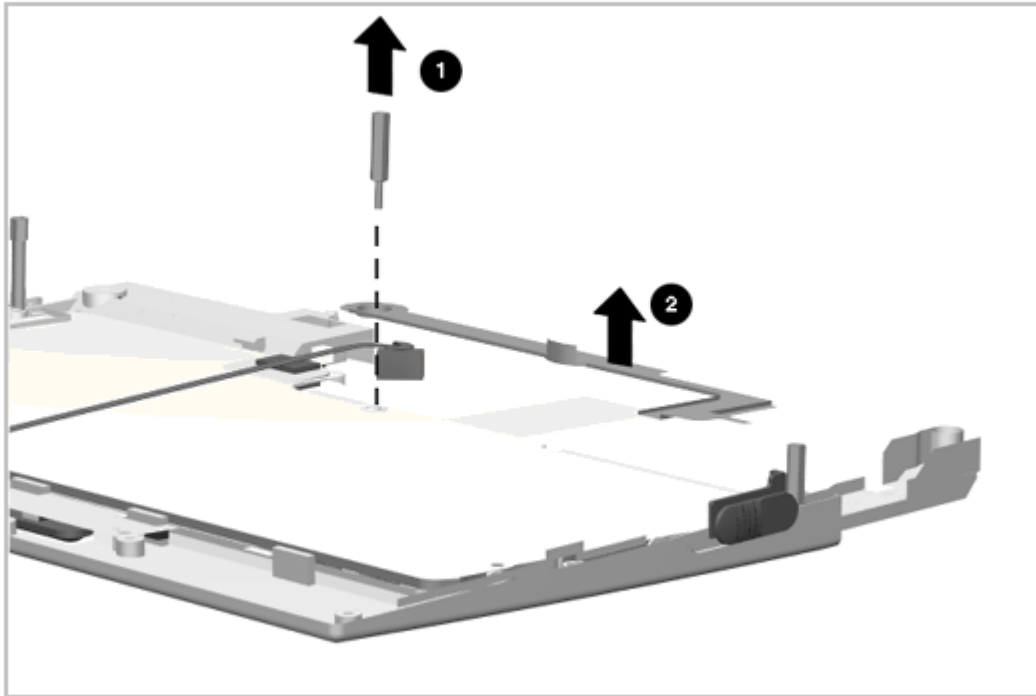


Figure 5-44. Removing the CD-ROM Eject Bar and Standoff

3. Remove the standoff and screw from the release holder (Figure 5-45).

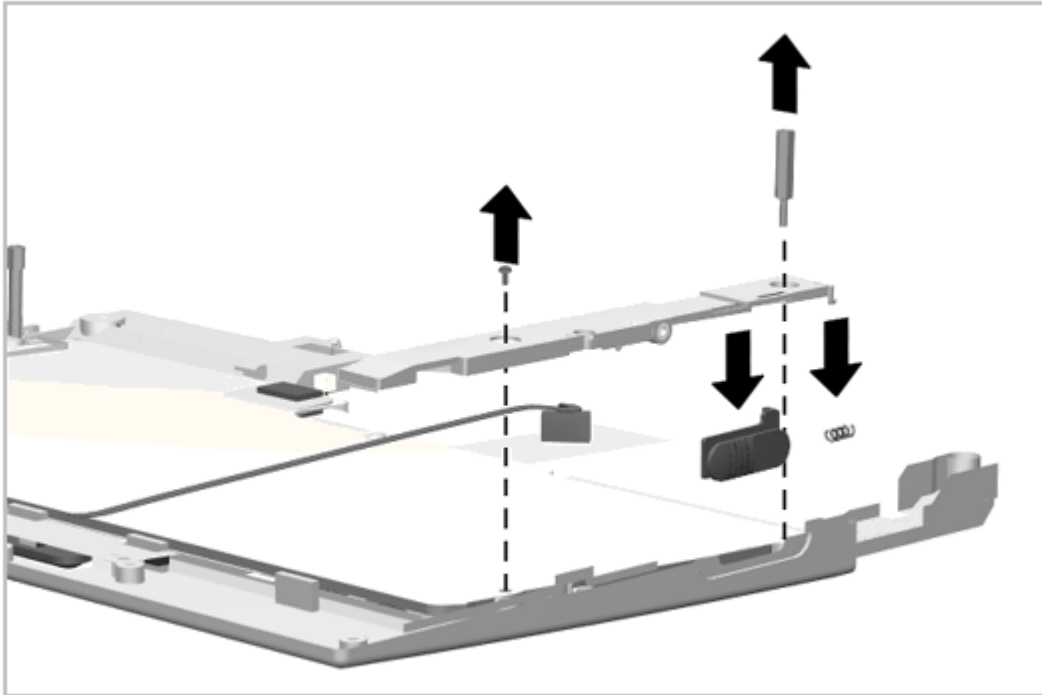


Figure 5-45. Removing the MultiBay Release Assembly

4. Lift out the release holder (Figure 5-45). The release is attached to the holder with its spring.

The release holder, spring and latch are installed as an assembly. Reverse the above procedure to install the MultiBay release assembly. Use the locating pins adjacent to each mounting hole to locate the release holder properly.

NOTE: At reassembly, make certain that the spring on the MultiBay release is not trapped between the release holder and side plastic. The spring should be below the holder. (Figure 5-46).

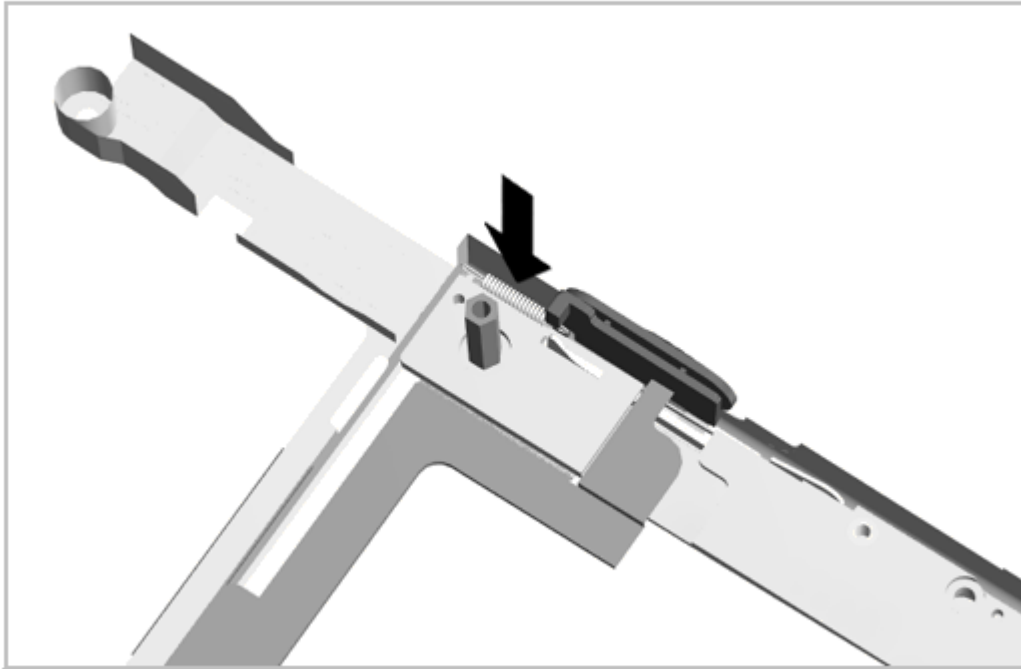


Figure 5-46. Installing the MultiBay Release Assembly

5.9.5 Removing and Installing the Hard Drive Latch

The hard drive latch assembly consists of the hard drive release, latch, and spring. It is held in place with one screw. To remove and replace the hard drive latch, complete the following steps:

1. Remove the keyboard as described in Section 5.9.1.
2. Remove the hard drive security screw (Figure 5-47)

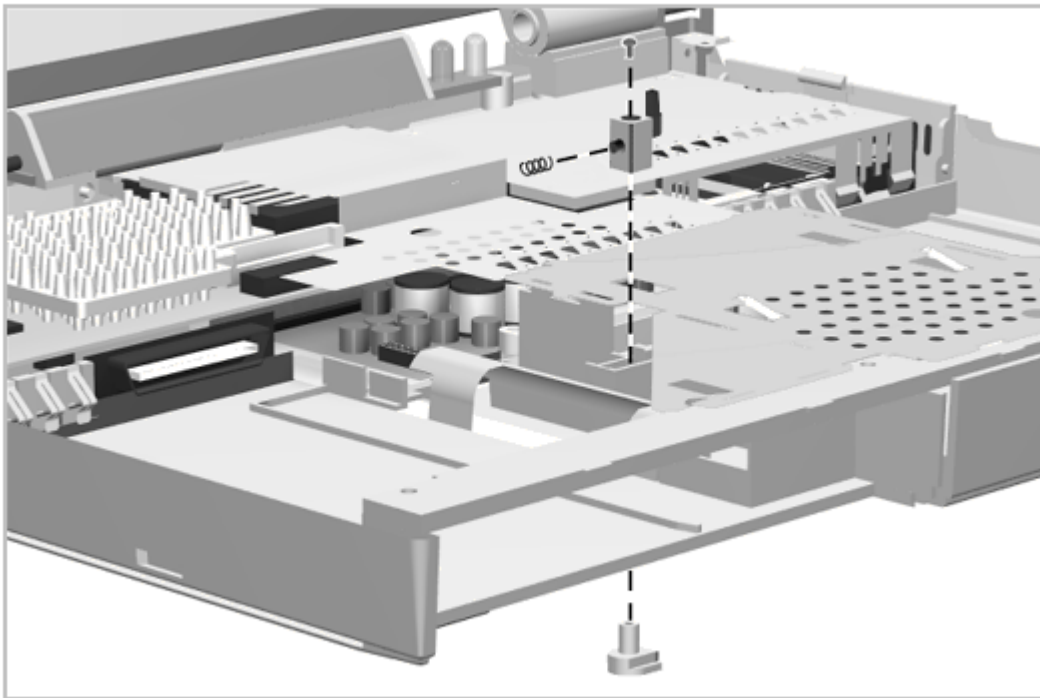


Figure 5-47. Removing the Hard Drive Latch

3. Remove the latch screw as shown in Figure 5-47. The release drops out but the spring holds the latch in place. Use forceps or needle-nose pliers to remove the latch and spring.

Chapter 5.10 Fan

The cooling fan is mounted at the air vent on the left side of the computer and is plugged into the system board. After removing the CPU cover, the fan is easily removed by disconnecting the fan cable from the system board and lifting the fan out (Figure 5-48). To remove the fan, complete the following steps:

1. Remove the CPU cover (Section 5.5).
2. Remove the keyboard (Section 5.9.1).
3. Disconnect the fan cable from the system board (Figure 5-48).

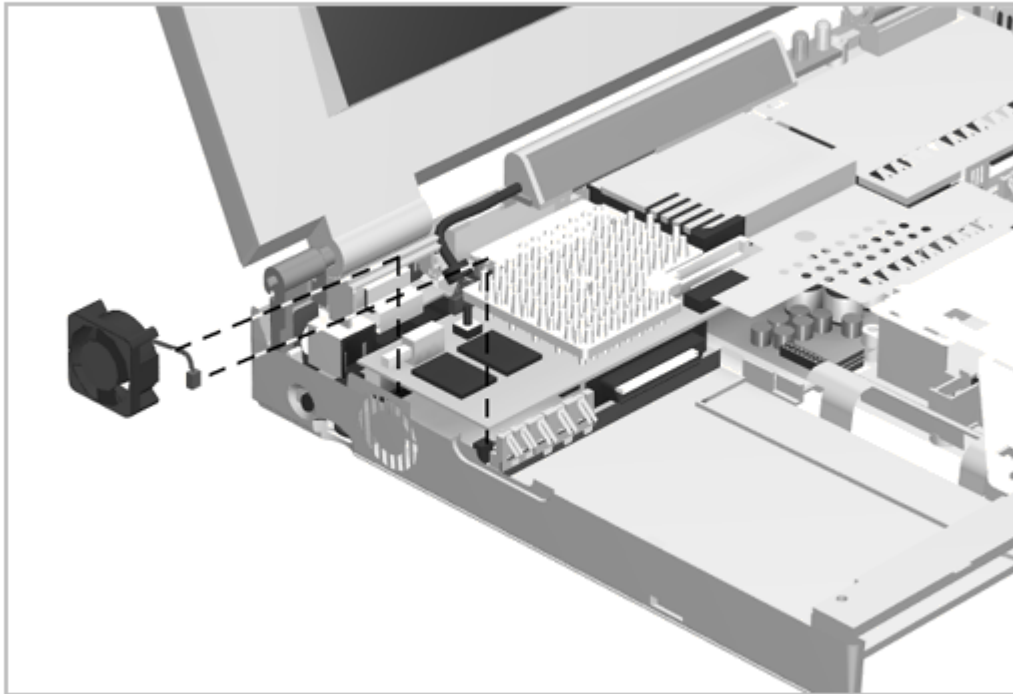


Figure 5-48. Removing the Fan

4. Lift the fan out of the computer.

Reverse the above procedure to install a fan. Make certain the fan is properly oriented with the label on top and the airflow arrow pointing out of the computer.

Chapter 5.11 Processor Board

To remove the processor board, complete the following steps:

1. Remove the CPU cover as described in Section 5.5.1.
2. Remove the status panel as described in Section 5.6.
3. Remove the display assembly as described in Section 5.8.1.
4. Remove the memory expansion board as described in Section 5.4.6.
5. Remove the keyboard as described in Section 5.9.1.
6. Remove the clutch cradles as described in Section 5.8.6.
7. Remove the EMI shield (Figure 5-49).

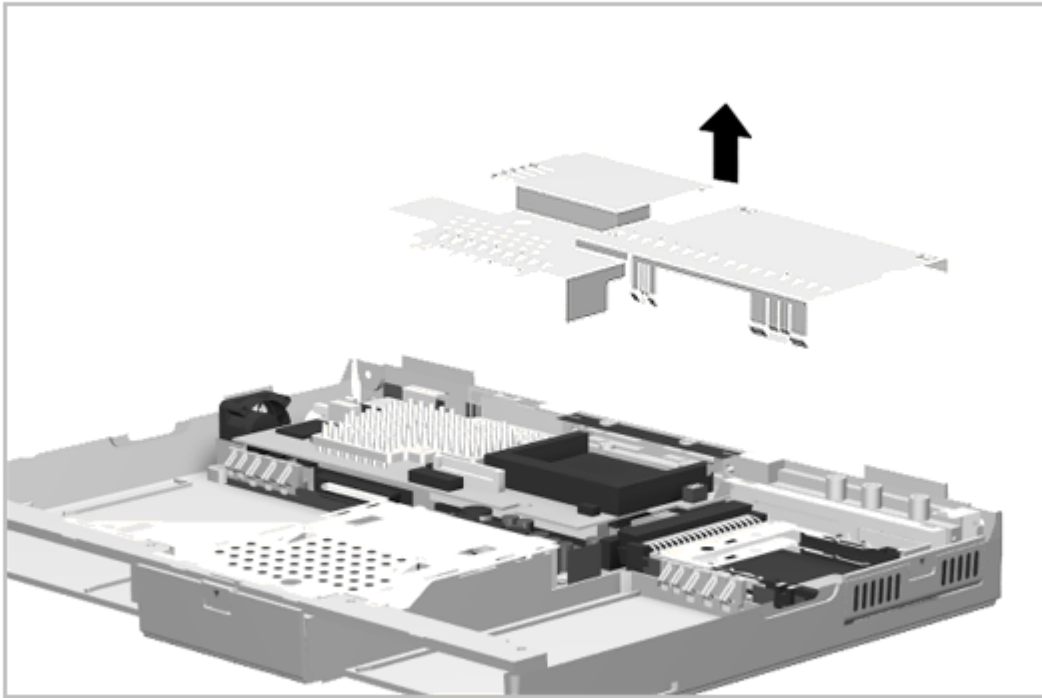


Figure 5-49. Removing the EMI Shield

8. Disconnect the thermistor cable [1] as shown in Figure 5-50.

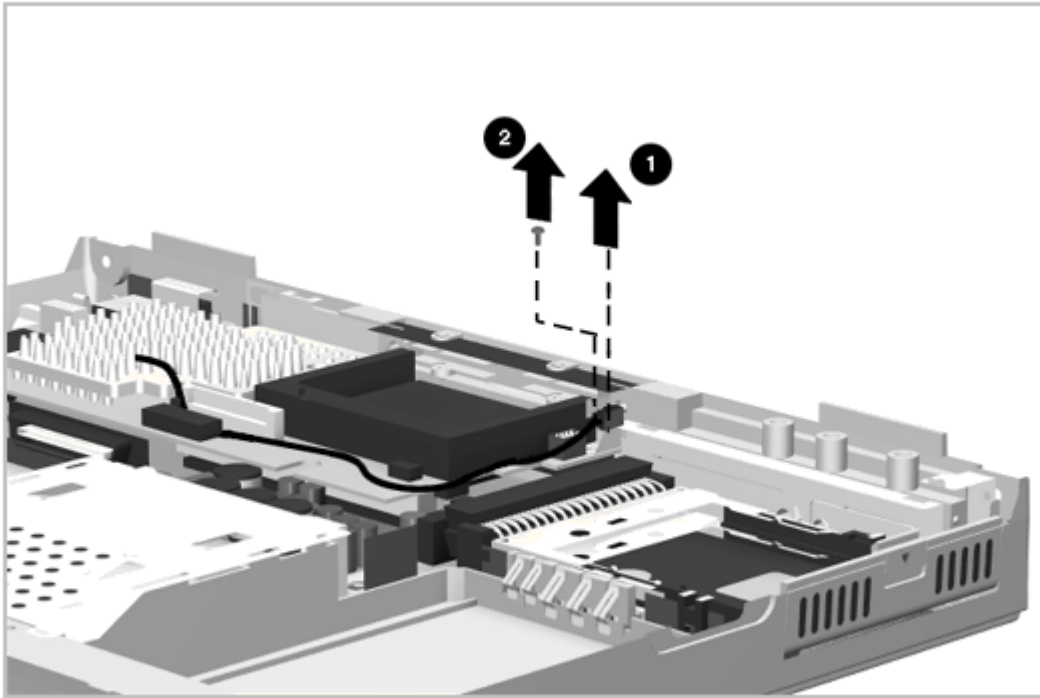


Figure 5-50. Removing the Processor Board Cable and Screws

9. Remove the screw [2] from the right rear corner of the processor board (Figure 5-50).
10. Remove the processor board as shown in Figure 5-51.

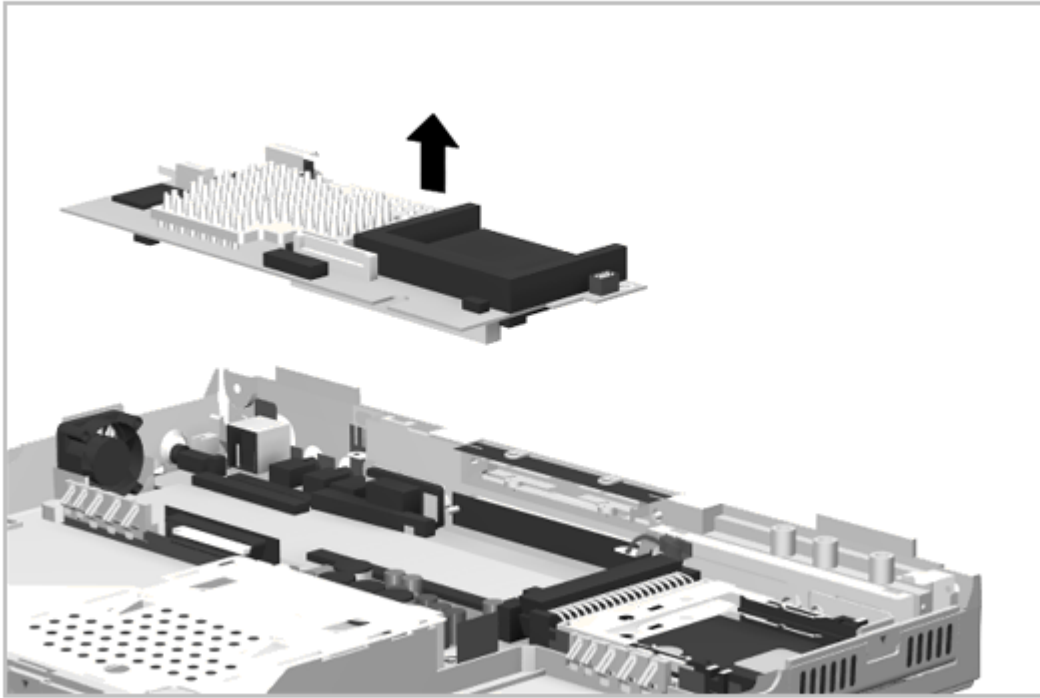


Figure 5-51. Removing the Processor Board

Before installing the processor board, verify that the display jumpers are appropriately configured for the type of display installed in the computer. The jumper locations are shown in Figure 5-52, and jumper configurations are presented in Table 5-1.

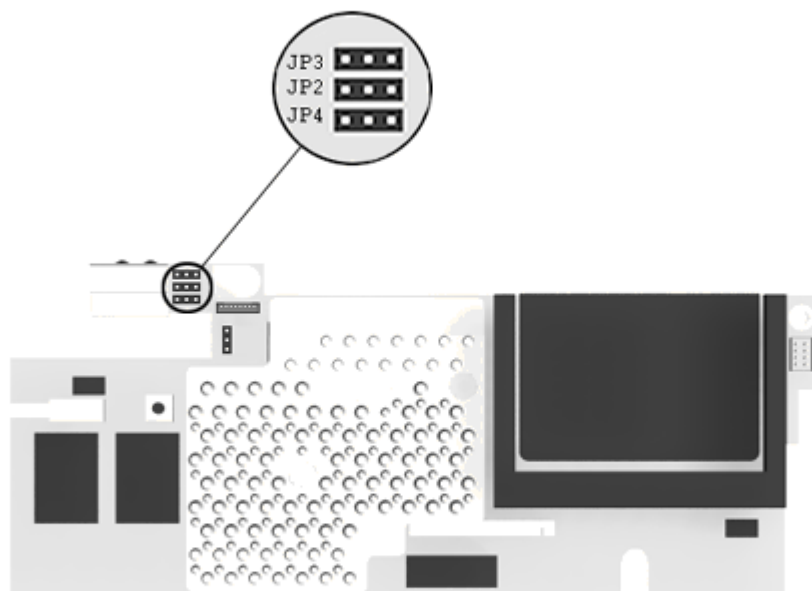


Figure 5-52. Display Configuration Jumpers

Table 5-1. Display Configuration Jumpers

Display Type	JP3	JP2	JP4
LTE 5000 10.4 in VGA CSTN	1-2	2-3	1-2
LTE 5000 10.4 in VGA CTFT	2-3	2-3	1-2
LTE 5000 11.3 in SVGA CSTN	1-2	2-3	2-3
LTE 5100 10.4 in SVGA CTFT	2-3	2-3	2-3
LTE 5150 Rev. 4.X * 11.3 in SVGA CSTN	1-2	1-2	1-2
LTE 5150 Rev. 2.X * 11.3 in SVGA CSTN	2-3	1-2	1-2
LTE 5200 10.4 in SVGA CTFT	2-3	2-3	2-3
LTE 5250 10.4 in SVGA CTFT	2-3	2-3	2-3
LTE 5280 11.3 in SVGA CTFT	2-3	2-3	2-3
LTE 5300 12.1 in SVGA CTFT	2-3	2-3	2-3
LTE 5380 12.1 in 1024x768	2-3	1-2	1-2

CTFT

LTE 5400 12.1 in 1024x768
CTFT

2-3

2-3

2-3

* Verify the display panel revision number by checking the printed number on the large ferrite bead on the display cable. The display cable is located on the left side of the display assembly.
=====

Reverse the above procedure to install a processor board, taking care with the placement of the EMI shield (Figure 5-53).

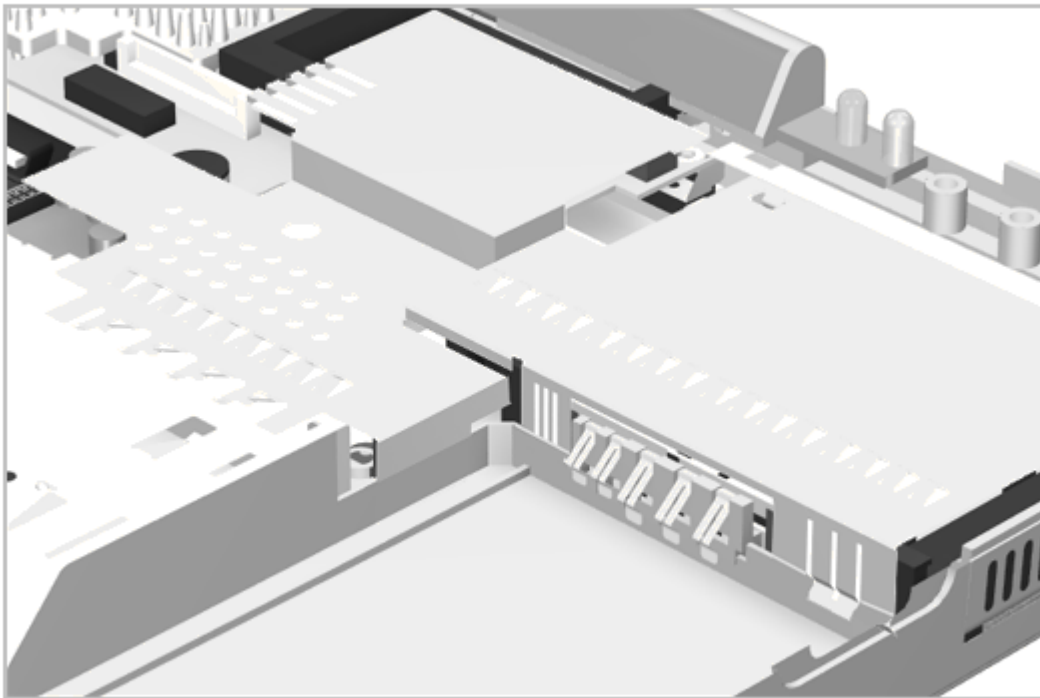


Figure 5-53. Placement of the EMI Shield

Chapter 5.12 Microphone Extension Cable

The microphone extension cable is routed under the processor board. To remove and replace the microphone extension cable, complete the following steps:

1. Remove the processor board as described in Section 5.11.
2. Disconnect the microphone extension cable from the microphone cable and its connector in the left rear corner of the system board, and lift the cable out (Figure 5-54).

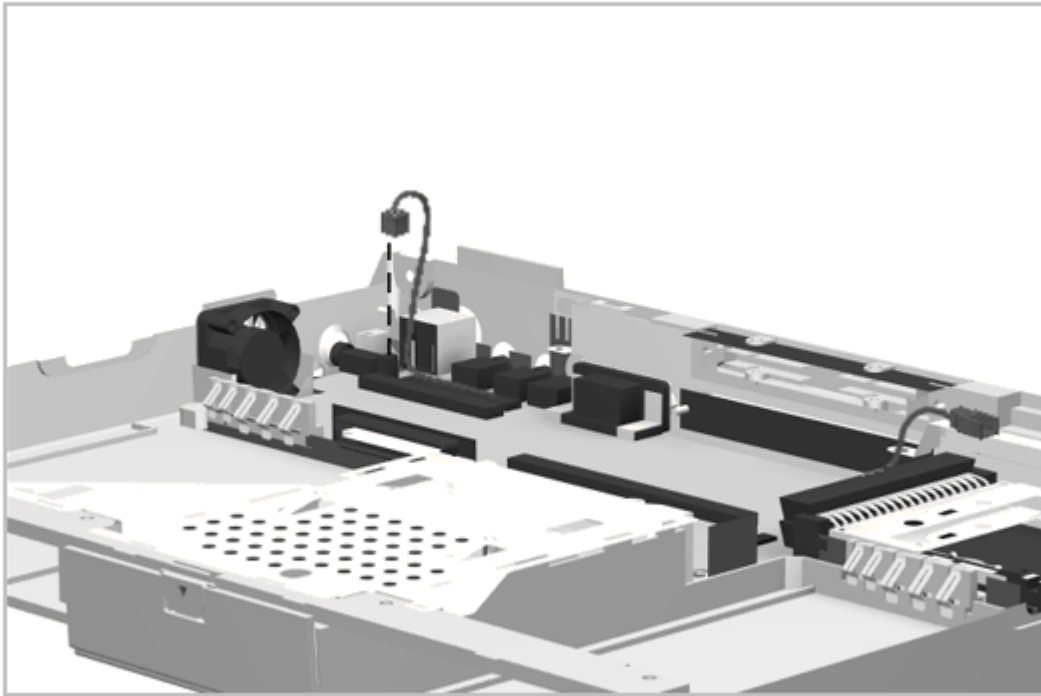


Figure 5-54. Removing the Microphone Extension Cable

Chapter 5.13 Power Board

To remove the power board, complete the following steps:

1. Remove the processor board as described in Section 5.11.
2. Remove the screw near the hard drive bay (Figure 5-55) and lift the power board out of the computer.

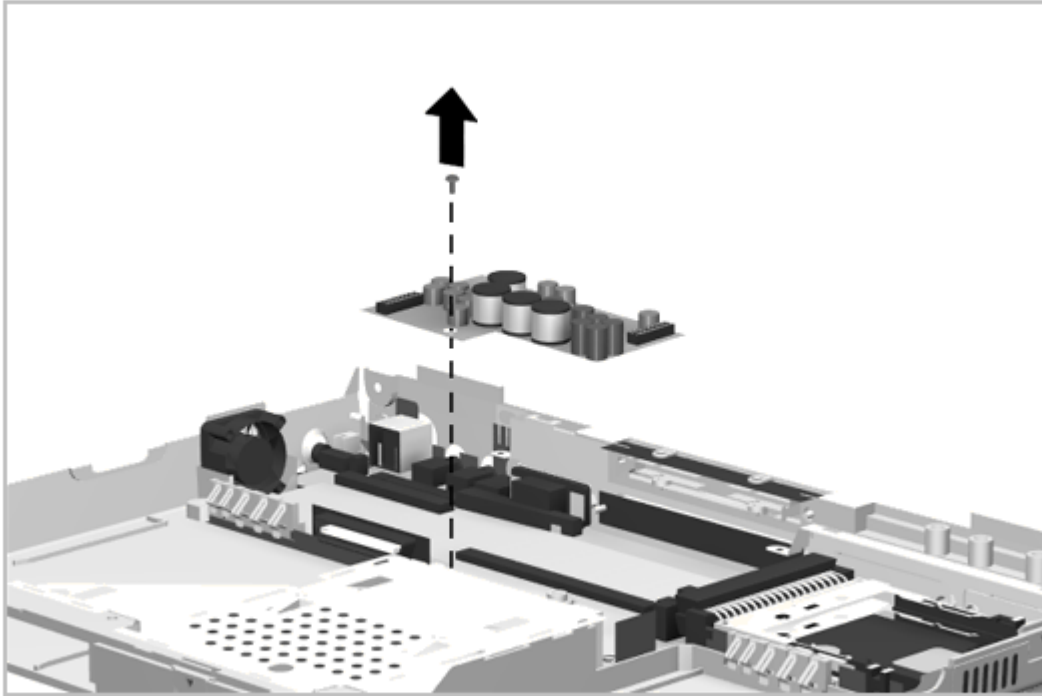


Figure 5-55. Removing the Power Board

Reverse the above procedure to install a power board.

Chapter 5.14 System Board

To remove the system board, complete the following steps:

1. Remove the CPU panel as described in Section 5.5.1.
2. Remove the display as described in Section 5.8.1.
3. Remove the processor board as described in Section 5.11.
4. Remove the power board as described in Section 5.13.
5. Remove the insulator laying on top of the system board if it is damaged (Figure 5-56). It is not necessary to remove the insulator to remove the system board but it is an opportune time to inspect and replace the insulator.

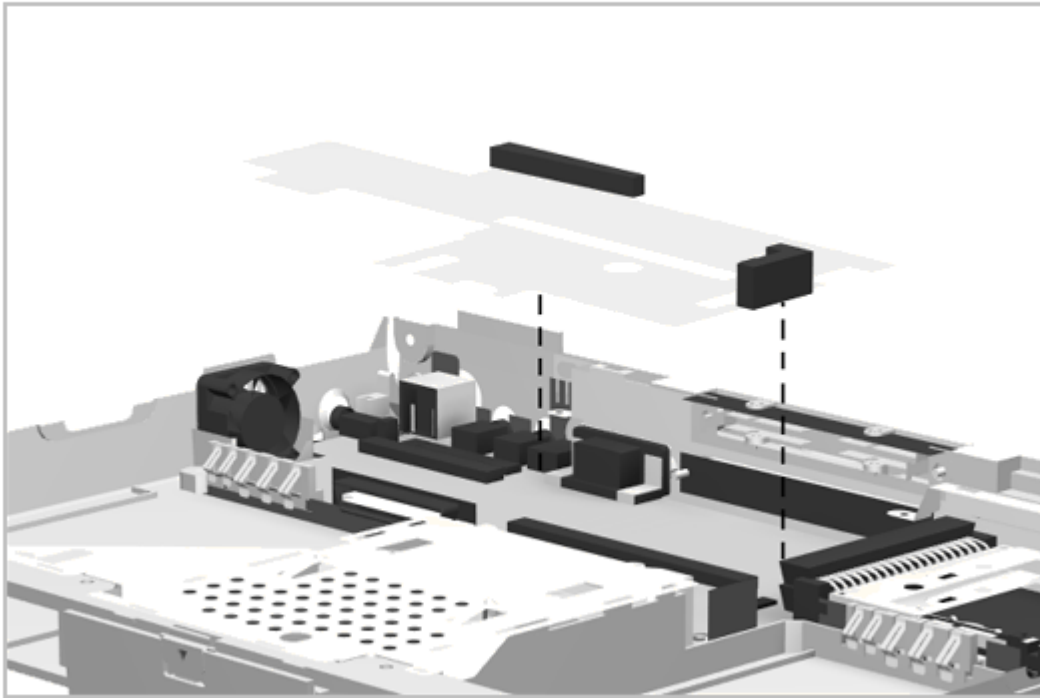


Figure 5-56. Removing the System Board Insulator

6. Remove the standoff from the left rear corner of the system board (Figure 5-57).

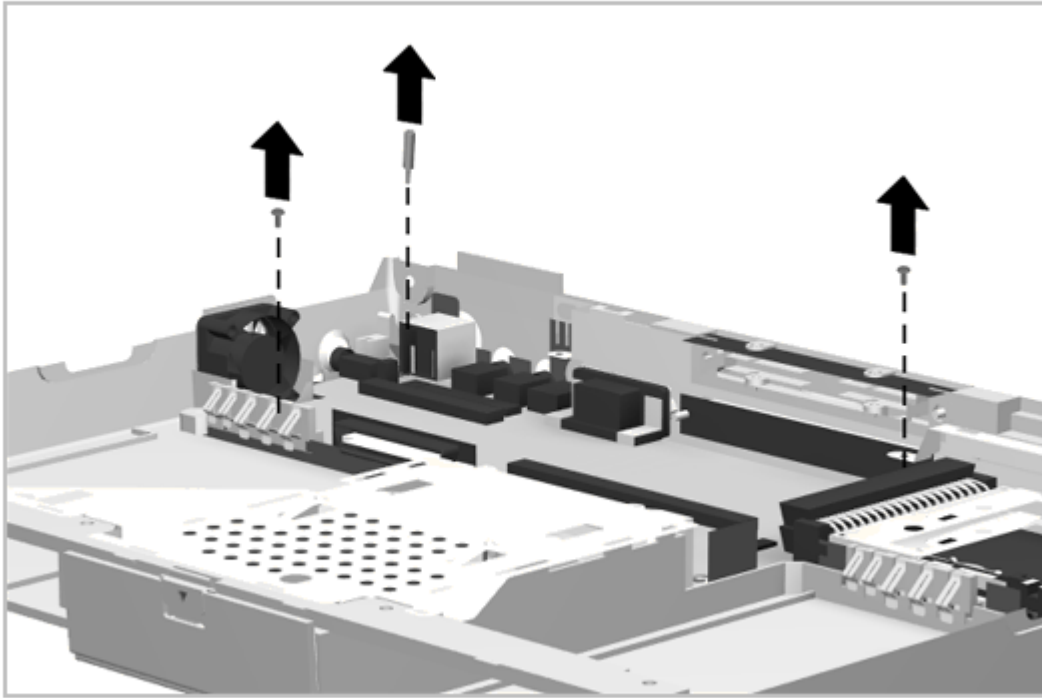


Figure 5-57. Removing the System Board Standoff and Screws

7. Remove the screw from the front left and the screw from the right rear of the system board (Figure 5-57).
8. Remove the two screwlocks from the option connector on the rear of the computer (Figure 5-58).

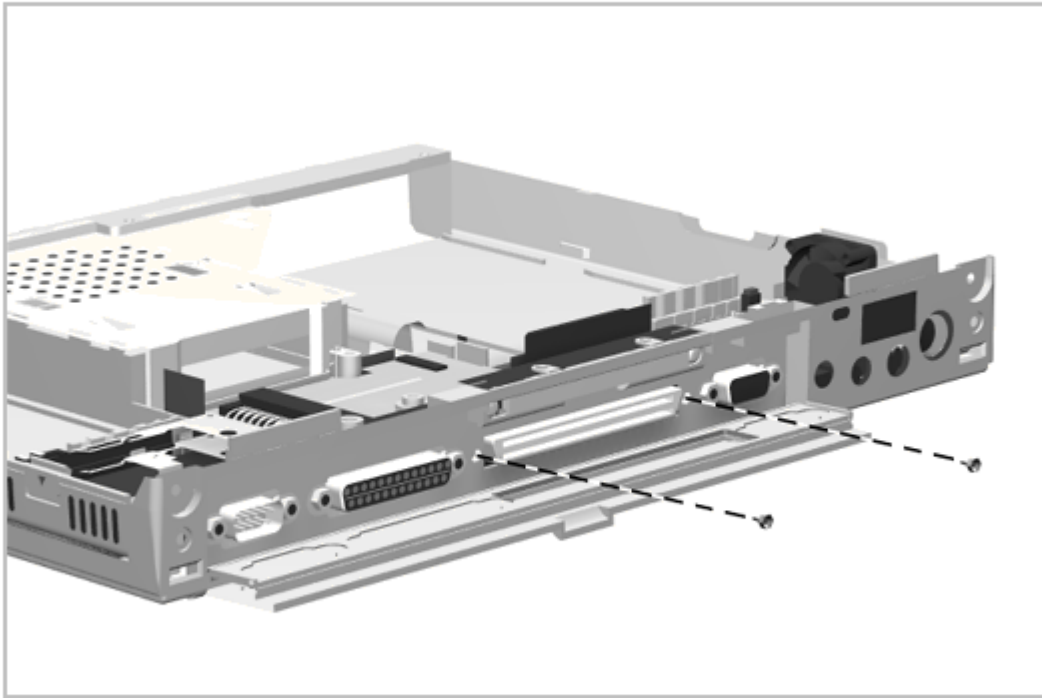


Figure 5-58. Removing the System Board Screwlocks

9. The system board can now be lifted out of the computer as shown in Figure 5-59.

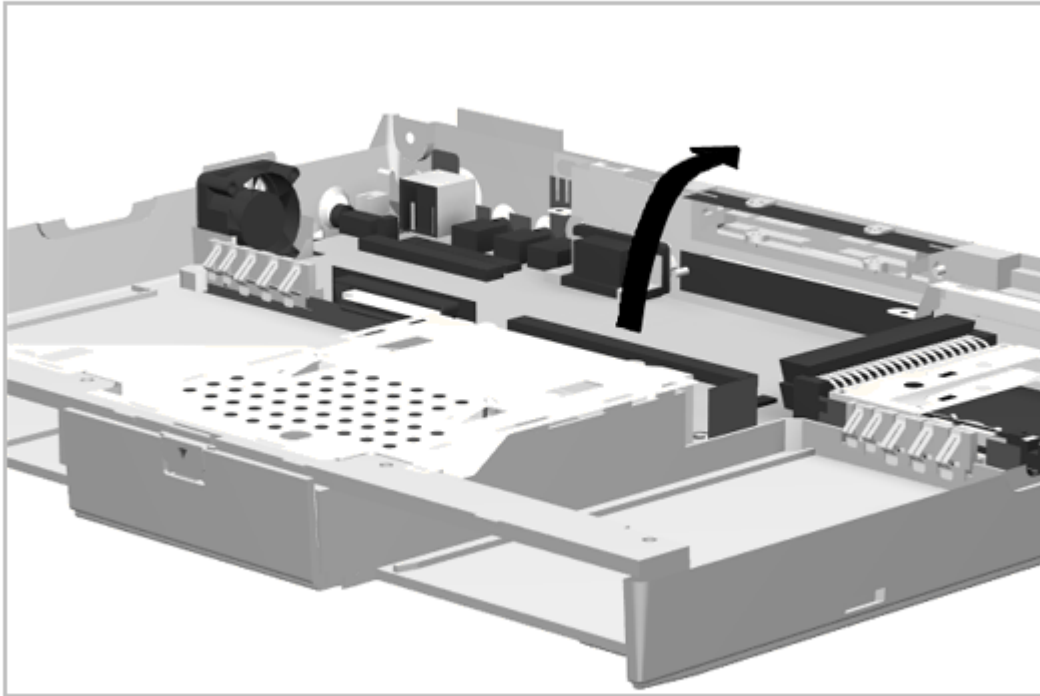


Figure 5-59. Removing the System Board

NOTE: Begin lifting the system board at the edge near the hard drive shield. The sheet metal may have to be deflected slightly to provide clearance for removing the board. Continue lifting the system board out toward the front of the computer.

Reverse the above procedure to install the system board.

IMPORTANT: When installing the system board, install the screws and standoff first but do not tighten them. This allows the alignment pins to properly position the board. Next, install the screwlocks, then tighten the screws and standoff. This procedure ensures proper alignment of the External Options Connector on the system board with the connector on the expansion base at docking.

Chapter 6. MultiBay Expansion Base: Removal and Replacement Procedures

Chapter 6.0 Introduction

This chapter presents the removal and replacement procedures for the MultiBay Expansion Base. For information on the MultiBay ISA Expansion Base, refer to Section 7.

Chapter 6.1 Serial Number

The expansion base serial number should be reported to Compaq when requesting information or ordering spare parts. The serial number is displayed on the rear of the expansion base to the right of the serial port.



Figure 6-1. MultiBay Expansion Base Serial Number Location

Chapter 6.2 Disassembly Sequence Chart

Use the chart in Figure 6-2 to determine the section number and disassembly sequence for removing components from the MultiBay Expansion Base.

6.3 Preparing for Disassembly	
	6.3.1 Undocking the Computer
	6.3.2 Disconnecting the Expansion Base
	6.3.3 Battery Pack
	6.3.4 Mass Storage Devices
	6.3.5 PC Card
6.4 External Components	
	6.4.1 Expansion Base Feet
	6.4.2 MPEG Connector Door
6.5 Bottom Cover Assembly	
	6.6 MPEG Connector
	6.7 Power Supply
	6.8 Main Board
	6.9 CPU Connector Bezel
	6.10 MultiBay Assembly
	6.11 MultiBay Door
	6.12 PC Card Door Assembly
	6.13 Power Switch Board
	6.14 IrDA Board
	6.15 Speaker Assemblies
	6.16 Alignment Guides
	6.17 Monitor Support Cover Caps
	6.18 Docking Mechanism
	6.19 Docking Lever and Cover
	6.20 Security Lock Bracket

Figure 6-2. Expansion Base Disassembly Sequence Chart

Chapter 6.3 Preparing the MultiBay Expansion Base for Disassembly

NOTE: It is important that these instructions be followed when installing a new expansion base top cover (Service Spare Part Number 213711-003).

1. Do not remove the plastic hole cover.
2. Discard the fan.

Before beginning removal and replacement procedures, complete the following steps:

1. Undock the computer from the expansion base (Section 5.3.1).
2. Disconnect AC power and any external devices (Section 6.3.1).
3. Remove the battery pack(s) (Section 6.3.2).
4. Remove the mass storage devices (Section 6.3.3).
5. Remove any PC Cards (section 6.3.4).

6.3.1 Undocking the Computer

See Section 5.3.1 for instructions on how to undock the computer from the expansion base.

6.3.2 Disconnecting the Expansion Base

1. Turn off the expansion base and undock the computer if it is docked in the expansion base. See Section 5.3.1 for detailed instructions.
2. Disconnect the power cord from the AC source and from the expansion base.

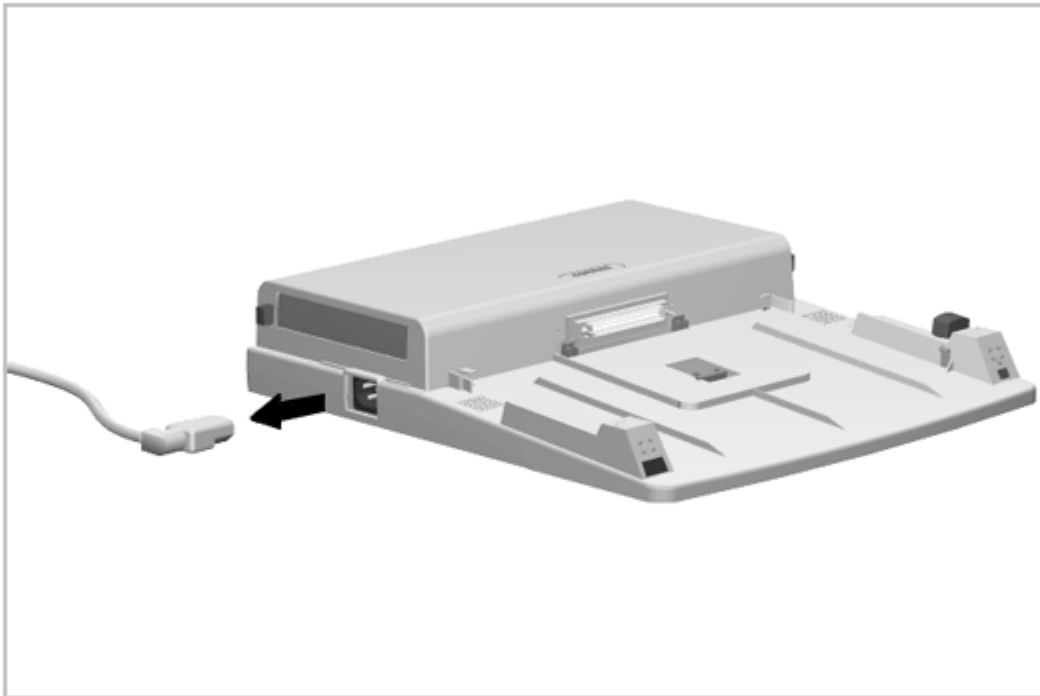


Figure 6-3. Disconnecting the Expansion Base

3. Disconnect all peripheral devices from the expansion base.
4. Complete the preparation for disassembly by performing the procedures described in Sections 6.3.3 through 6.3.5.

6.3.3 Battery Pack

All battery packs should be removed from the expansion base before performing any internal maintenance.

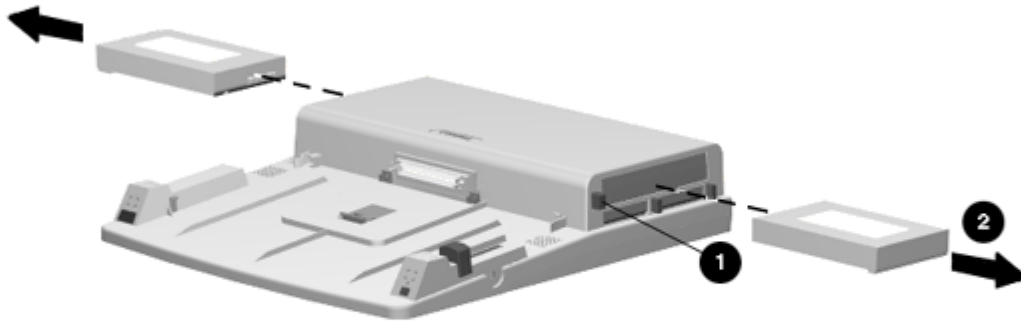


Figure 6-4. Removing a Battery Pack from a MultiBay

2. Move the sliding panel on the front of the battery to the left.

Installing a Battery Pack

To install a battery pack into a MultiBay, complete the following steps:

1. With the label facing up and the connectors facing in, align the left side of the battery pack with the left side of the MultiBay, and push the battery pack into the MultiBay until it is seated.
2. Move the sliding panel on the front of the battery pack to the right to cover the MultiBay opening.

6.3.4 Mass Storage Devices

Removing a Mass Storage Device

To remove mass storage devices from the expansion base, complete the following steps:

1. Save and close any files that reside on the drive that is to be removed.

1. Turn off the expansion base.
2. Make sure the latch inside the carrier is pushed to the right, and place the hard drive in the carrier with the label facing up and the contacts facing the rear of the carrier.
3. Slide the drive toward the rear of the carrier until it is seated (Figure 6-6).

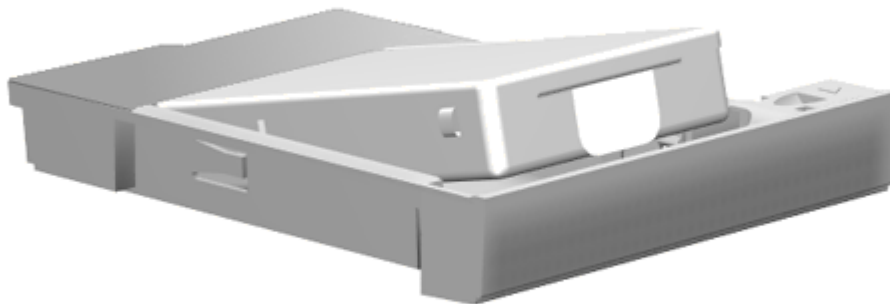


Figure 6-6. Placing a Hard Drive in the Hard Drive Carrier

4. Push the latch inside the carrier to the left to secure the hard drive in place.
5. Align the left side of the carrier with the left side of the MultiBay, and push the carrier into the bay until it is seated.

Installing a Diskette Drive or CD-ROM Drive

To install a diskette drive or CD-ROM drive into the MultiBay, complete the following steps:

1. Turn off the computer.
2. Align the left side of the diskette drive or CD-ROM drive with the left

side of the MultiBay and push the drive into the bay until it is seated.

6.3.5 PC Card

All PC cards should be removed from the expansion base before performing any internal maintenance on the computer.

Removing a PC Card

To remove a PC Card, complete the following steps:

1. Push the PC Card release button [1]. The card [2] ejects out of the card slot (Figure 6-7).

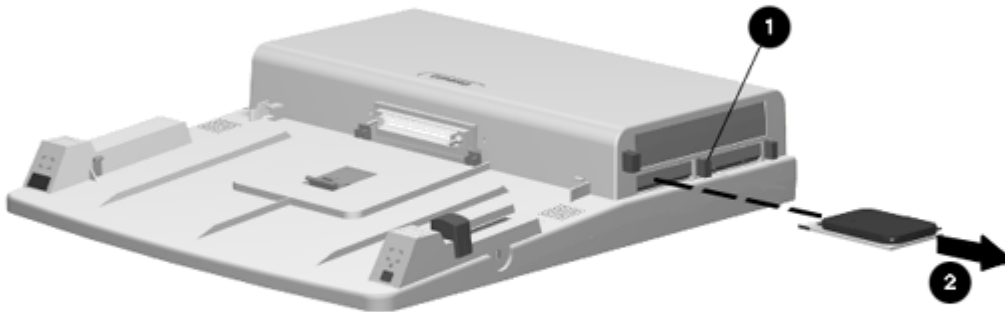


Figure 6-7. Removing a PC Card

2. The PC Card door automatically closes after removing the card.

Installing a PC Card

To install a PC Card, complete the following steps:

1. Push open the PC Card door so you can see the tracks inside.

2. Place the PC Card in the tracks with the card connector to the inside and label up.
3. Slide the card in until it seats. The door remains open while the card device is connected.

Chapter 6.4 External Components

This section describes the removal and replacement procedures that do not require access to the internal components of the expansion base. This includes:

- o Feet
- o MPEG Connector Door

6.4.1 Expansion Base Feet

The feet [1] for the expansion base are rectangular, adhesive-backed rubber pads. Install the feet by removing the protective covering from the adhesive back and placing the feet in their positions on the bottom of the expansion base (Figure 6-8).

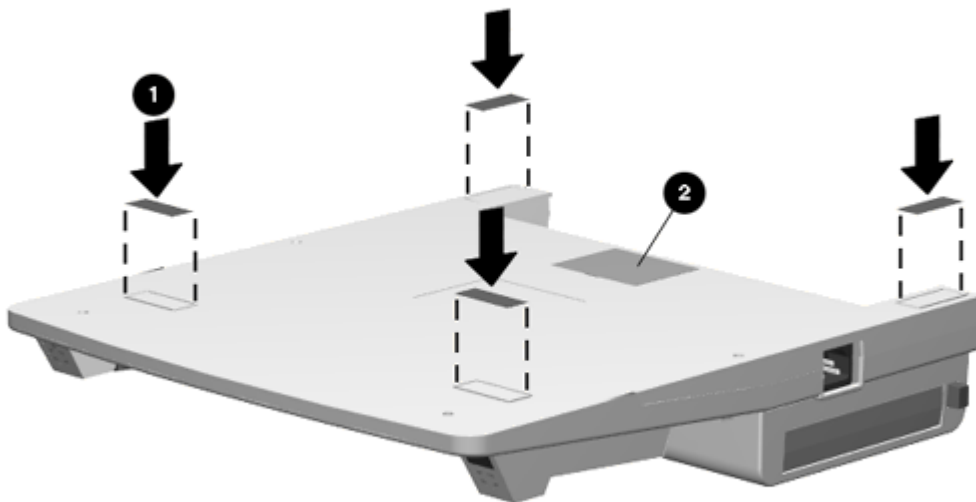


Figure 6-8. Expansion Base Feet and MPEG Connector Door

6.4.2 MPEG Connector Door

The MPEG connector door [2] provides visual access to the MPEG connector for guiding the connector into place when installing the bottom cover assembly with the connector attached to the bottom cover (Figure 6-8). Procedures presented later in this manual prescribe separating the MPEG connector from the bottom cover at disassembly and not removing the MPEG connector door.

If you choose to leave the MPEG connector attached to the bottom cover, you should remove the MPEG connector door for visual access to the MPEG connector and its connecting location on the main board. Use a small flat-blade screwdriver to pry the MPEG connector door loose.

Chapter 6.5 Bottom Cover Assembly

The bottom cover assembly is spared as a unit and consists of:

- o Bottom cover
- o MPEG connector access door
- o Feet
- o Labels

The feet are also spared separately. Feet installation is described in Section 6.4.2. The feet, labels, and MPEG connector access door are preinstalled.

To remove the bottom cover assembly, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 6.3.
2. Place the expansion base face down on the work surface and remove the ten screws that secure the bottom cover to the expansion base (Figure 6-9).

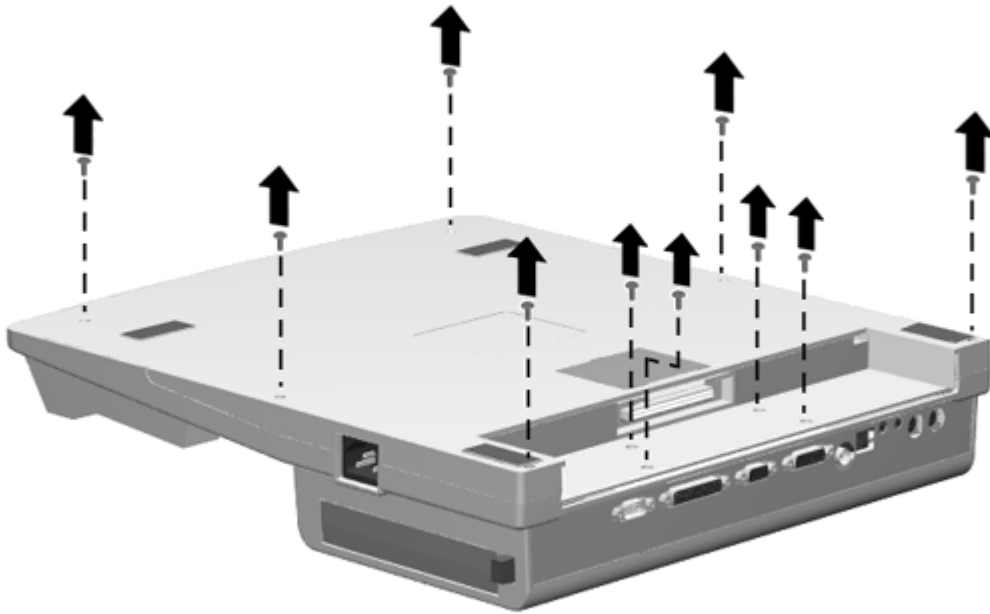


Figure 6-9. Removing the Bottom Cover Screws

3. Lift the bottom cover from the expansion base (Figure 6-10).

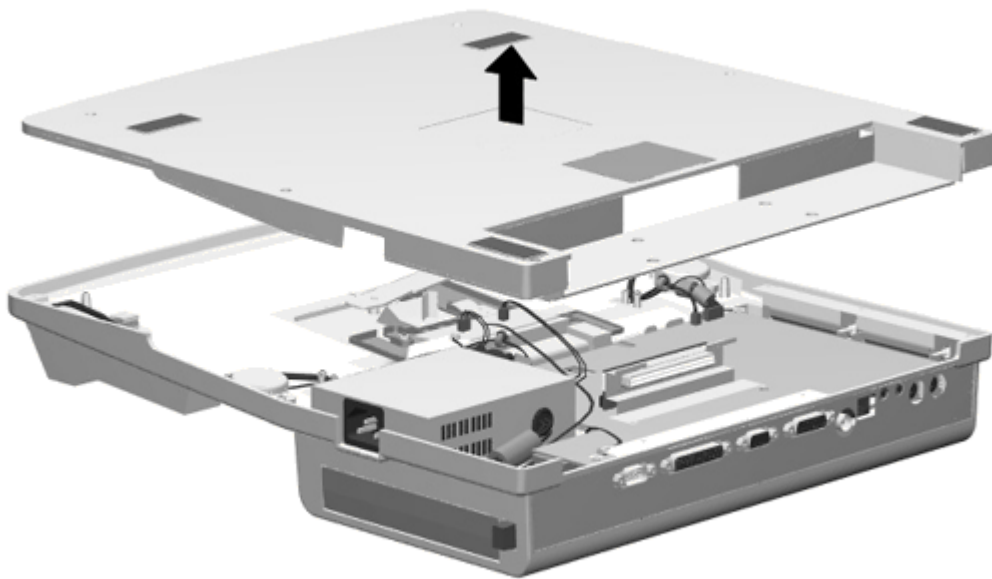


Figure 6-10. Removing the Bottom Cover Assembly

To install the bottom cover assembly, reverse the procedure presented above.

Chapter 6.6 MPEG Connector

The MPEG connector plugs into the main board and is accessed by removing the bottom cover assembly. Remove the bottom cover assembly as described in Section 6.5 and disconnect the MPEG connector from the main board as shown in Figure 6-11.

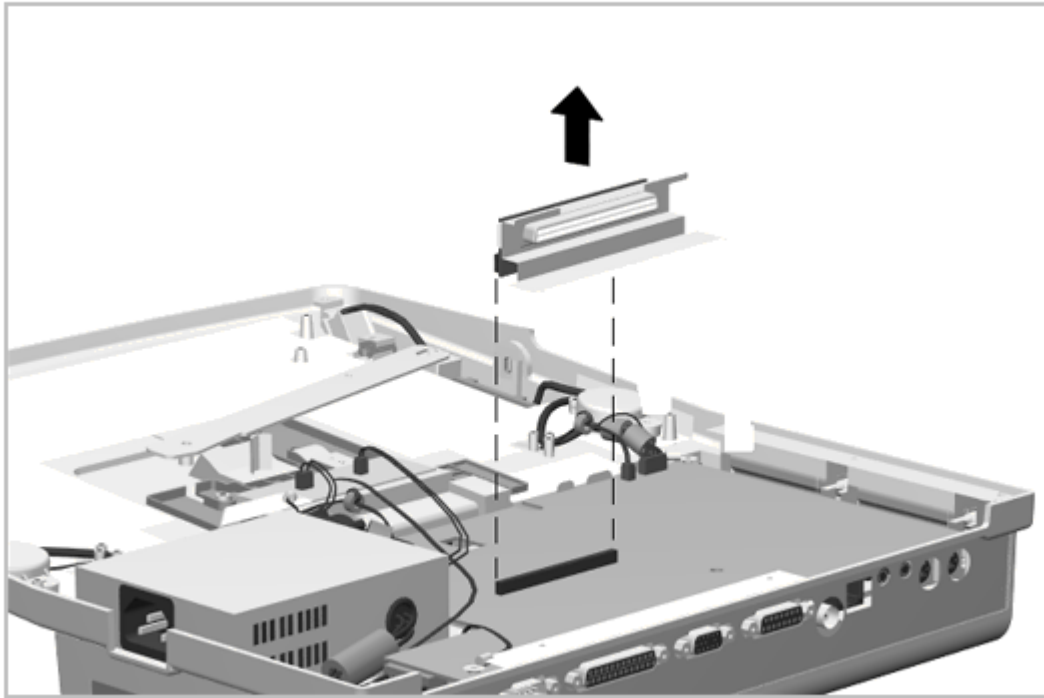


Figure 6-11. Removing the MPEG Connector

Reverse this procedure to install the MPEG connector.

Chapter 6.7 Power Supply

The power supply is mounted in the right rear corner of the expansion base when viewed with the base placed top side down on the work surface. It is replaced as an assembly with its fan.

To remove the power supply, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 6.3.
2. Remove the bottom cover assembly as described in Section 6.5.1.
3. Disconnect the power supply from the main board (Figure 6-12).
4. Disconnect the power supply fan cable from the Fan Control Board (Figure 6-12).

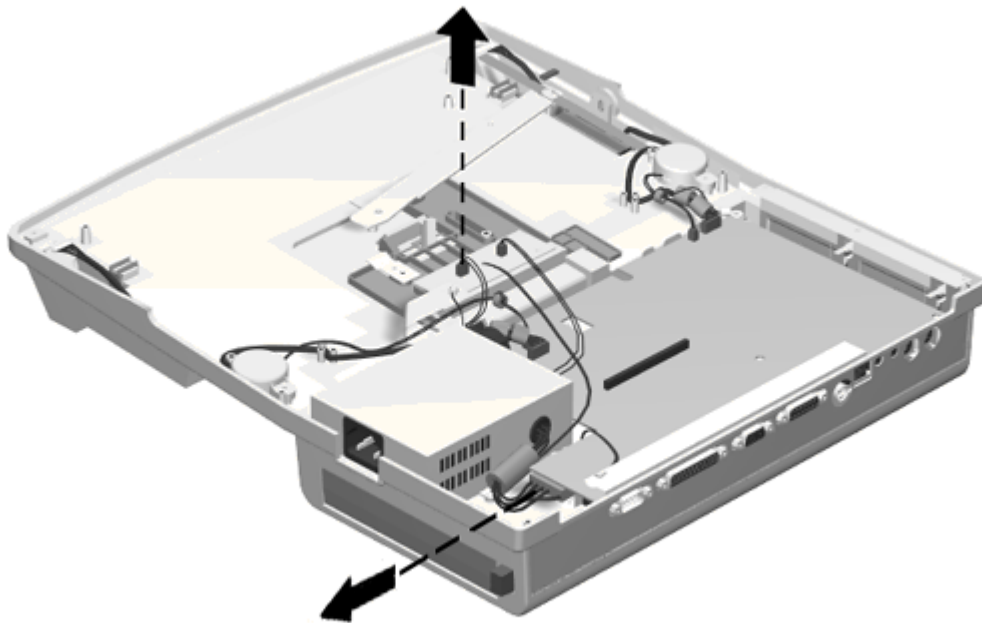


Figure 6-12. Disconnecting the Power Supply

5. Note the routing of the ground wires attached to the rear power supply screws. Remove the four screws and lift the power supply out (Figure 6-13).

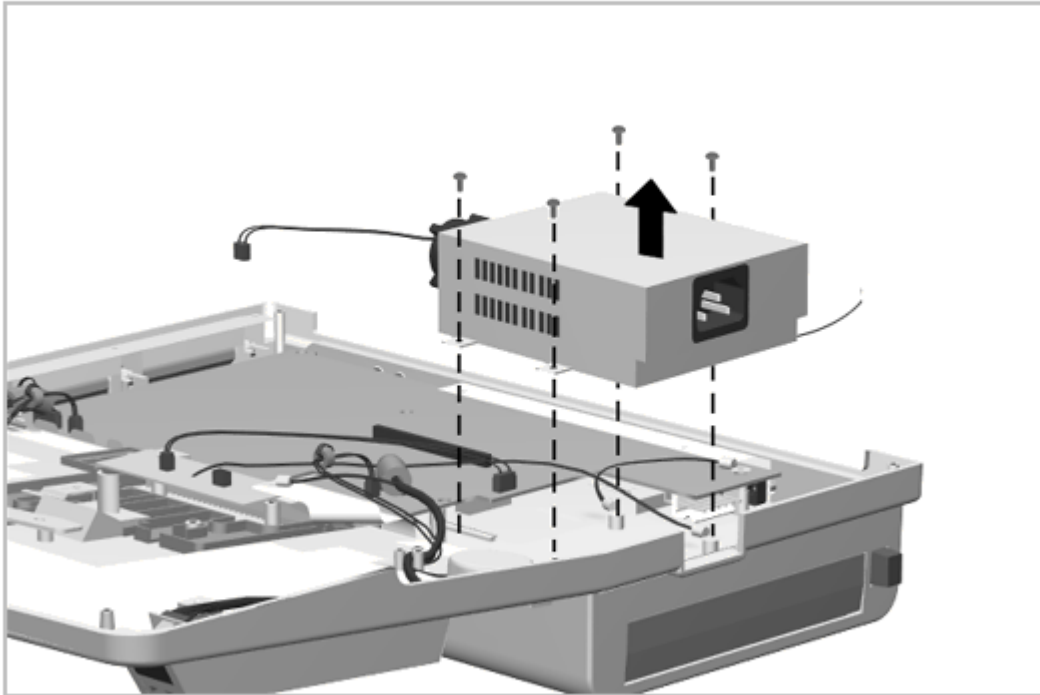


Figure 6-13. Removing the Power Supply Screws and Power Supply

To install the power supply, reverse the procedure presented above. Be sure to reconnect the ground wire.

Chapter 6.8 Main Board

To remove the main board, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 6.3.
2. Remove the two shoulder screws from the computer connector as shown in Figure 6-14.

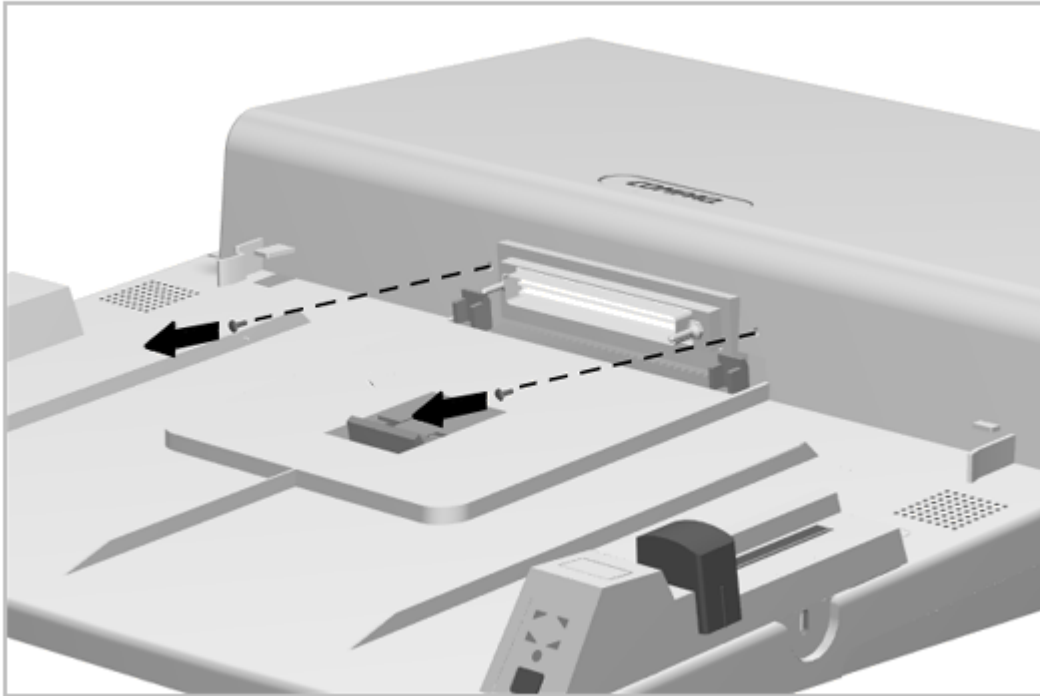


Figure 6-14. Removing the Computer Connector Screws

3. Remove the bottom cover as described in Section 6.5.
4. Note the routing of all cables and disconnect the power cable [1], speaker cables [2], IrDA cable [3], power supply cable [4], and cable [5] (Figure 6-15).

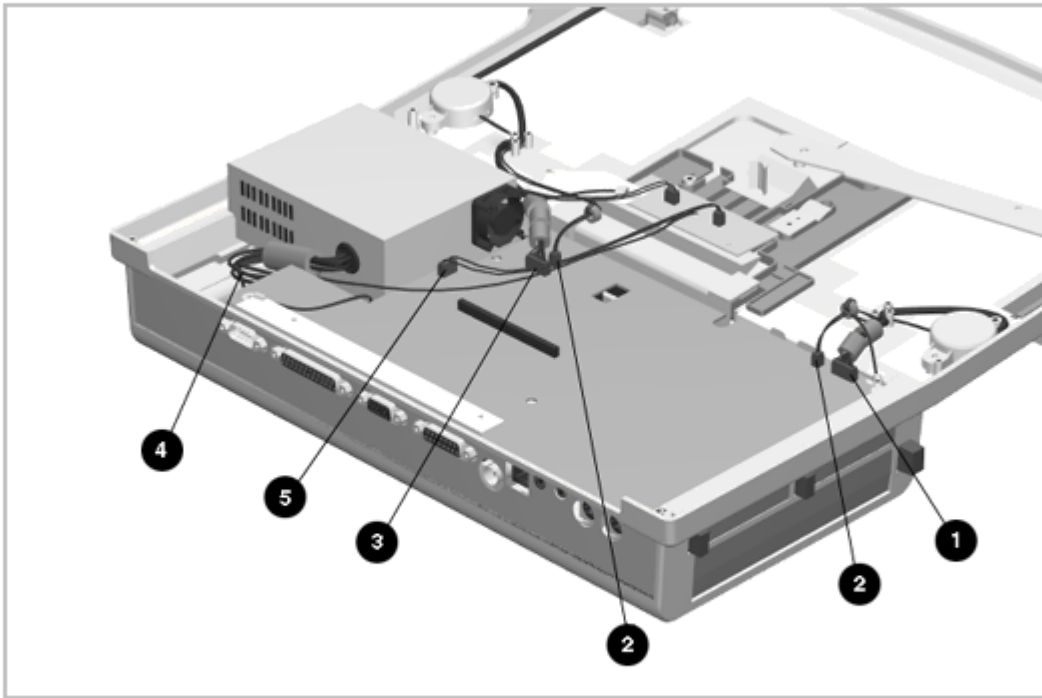


Figure 6-15. Disconnecting and Removing the Main Board Cables

5. Disconnect the fan [1] and fan power [2] at the Fan Control Board (Figure 6-16).

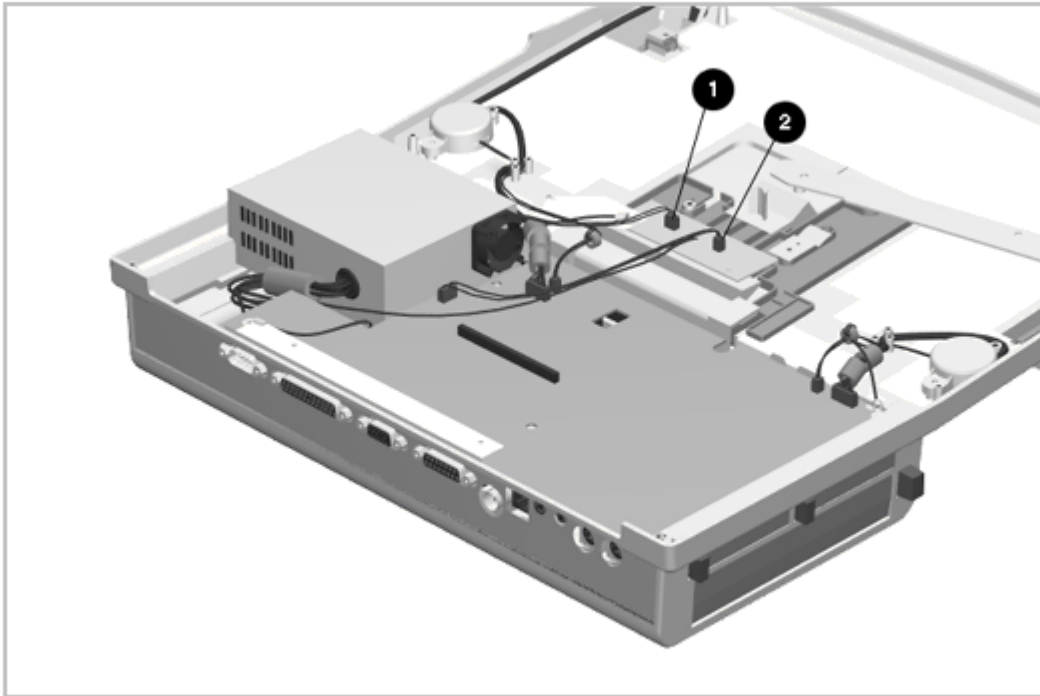


Figure 6-16. Disconnecting the Fan Control Board

6. Remove the remaining three screws from the main board and the two screws from the CPU connector bezel (Figure 6-17).

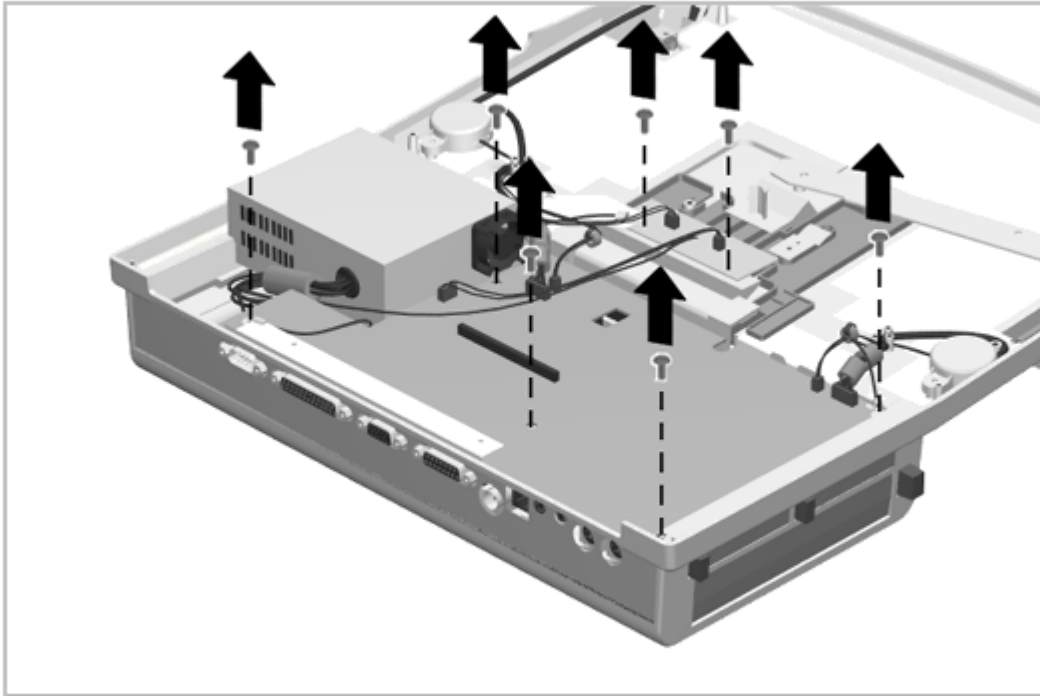


Figure 6-17. Removing the Main Board Screws

7. Lift the main board out of the base. Begin lifting at the front edge of the board [1] . The CPU connector bezel [2] comes off with the board but is not attached to the board. Some manipulation is required around the PC Card door module (Figure 6-18) .

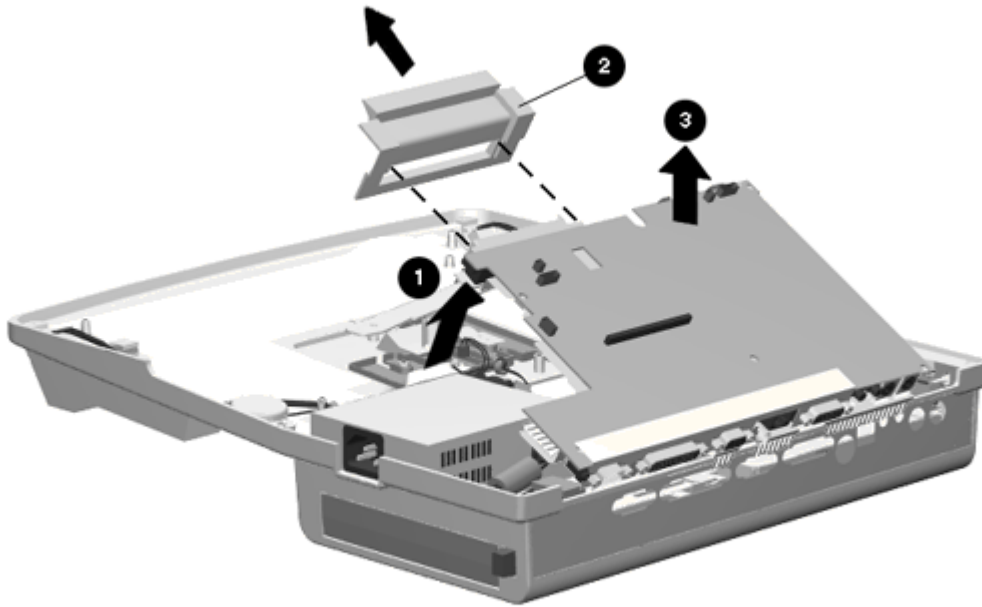


Figure 6-18. Removing the Main Board Assembly

Reverse the removal procedure described above to install the main board. Position the CPU connector cover in place but do not secure it with screws until the main board is properly seated. Then proceed with the rest of the installation.

Chapter 6.9 CPU Connector Bezel

The main board must be removed to remove and replace the CPU connector bezel. See Section 6.8 for details.

Chapter 6.10 MultiBay Assembly

The main board must be removed before removing a MultiBay assembly.

The MultiBay assembly is spared as part of the top cover assembly. However, the Multibay assembly may need to be removed in order to access the MultiBay door assembly. To remove a MultiBay, complete the following steps:

1. Remove the three screws and lift the bay out (Figure 6-19).

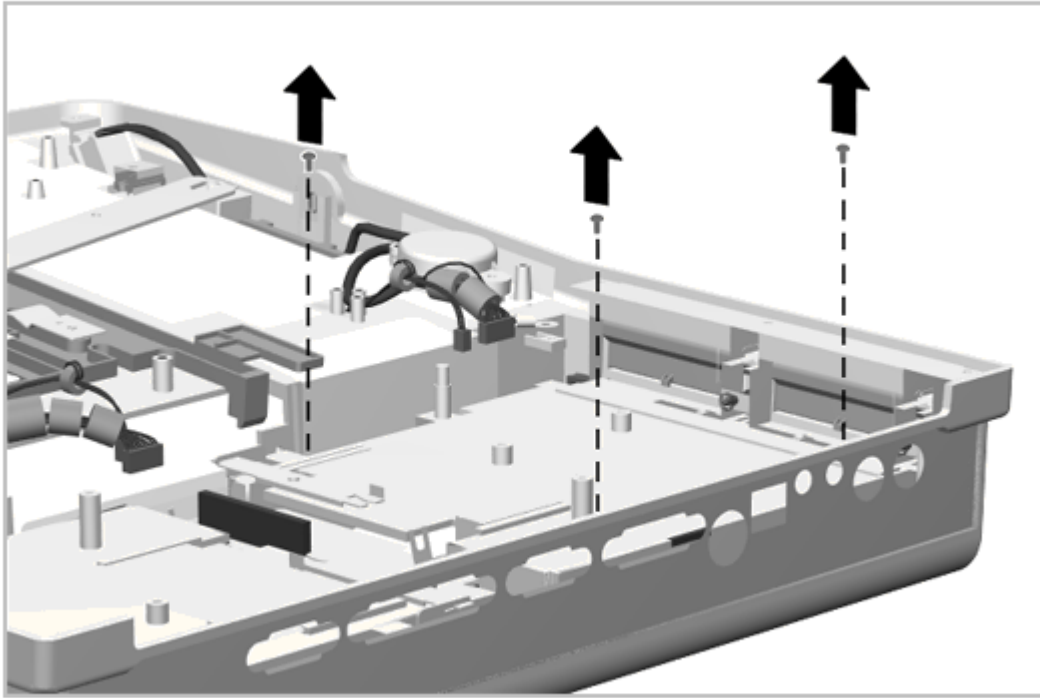


Figure 6-19. Removing the MultiBay Assembly Screws

2. Begin lifting at the end of the assembly toward the MultiBay Connector Board and lift the MultiBay assembly out (Figure 6-20).

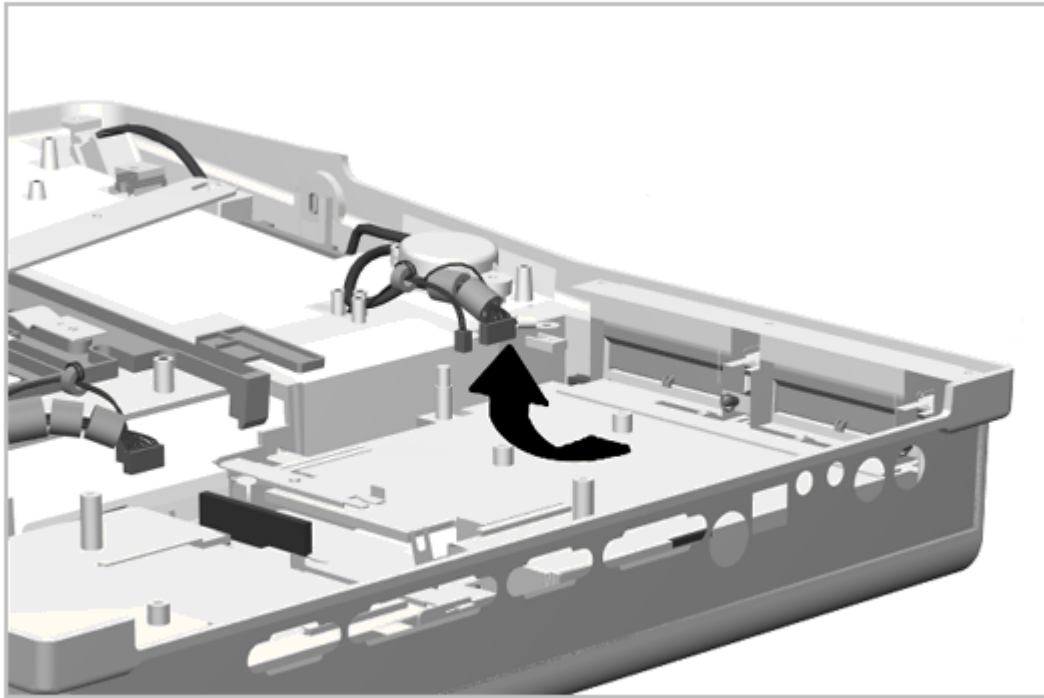


Figure 6-20. Removing the MultiBay Assembly

Reverse the above procedure to install a MultiBay assembly, inserting the end nearest the MultiBay door first (Figure 6-21). Take care not to damage the tabs on this end of the MultiBay.

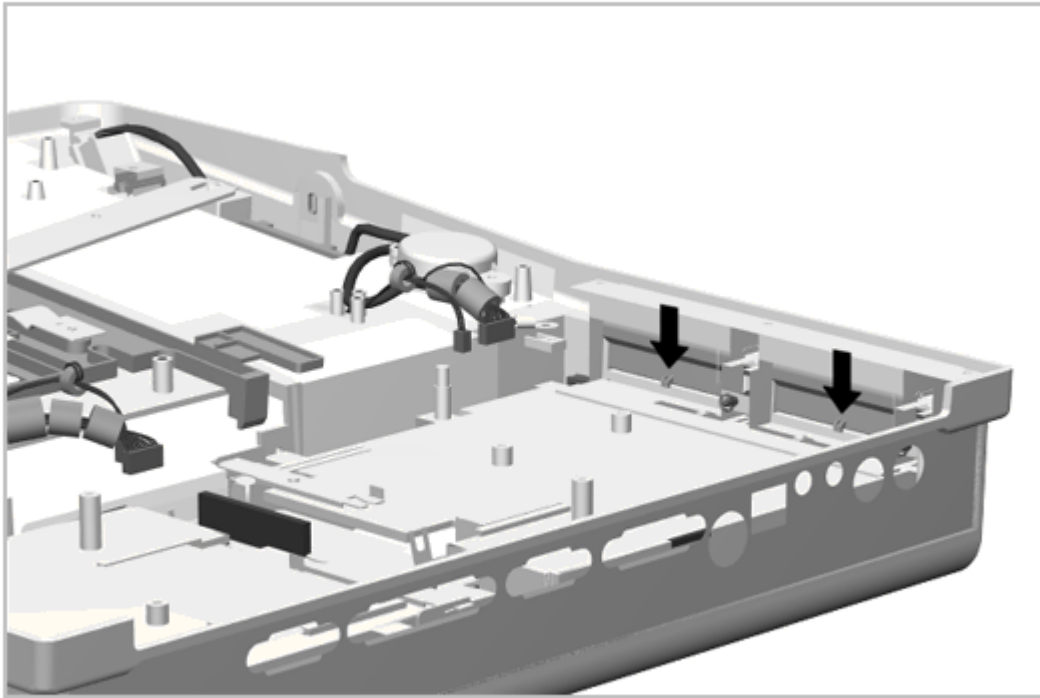


Figure 6-21. Installing the MultiBay Assembly

Chapter 6.11 MultiBay Door

The main board and one of the MultiBays must be removed before removing the MultiBay door assembly. To remove a MultiBay door assembly, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 6.3.
2. Remove the bottom cover assembly as described in Section 6.5.
3. Remove the power supply as described in Section 6.7 if servicing the door on that side.
4. Remove the main board as described in Section 6.8 if servicing the door on that side.
5. Remove the appropriate MultiBay assembly as described in Section 6.10.
6. Remove the MultiBay door by flexing the door [2] away from the expansion base as shown in Figure 6-22. Note the orientation of the spring [1]; this is important since it maintains the door in a closed position.

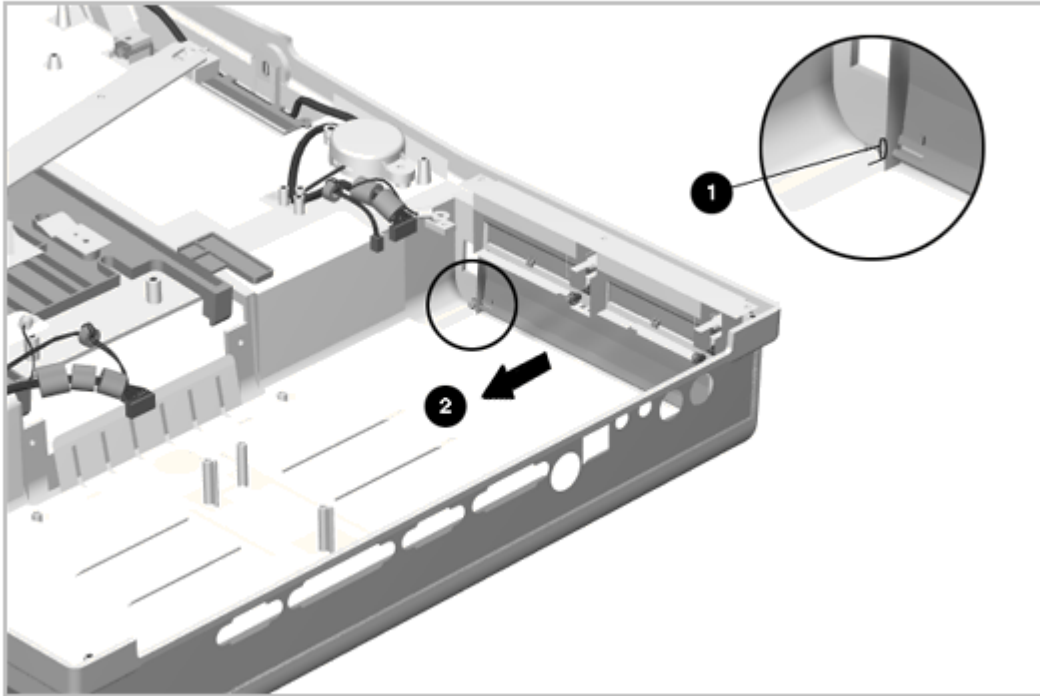


Figure 6-22. Removing the MultiBay Door

Chapter 6.12 PC Card Door Assembly

The main board must be removed before removing the PC Card door assembly. The PC Card doors are spared as an assembly, mounted in a common frame. To remove and replace the PC Card doors, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 6.3.
2. Remove the bottom cover assembly as described in Section 6.5.
3. Remove the main board as described in Section 6.8.
4. Remove the three screws and lift the PC Card door module out of the bottom cover assembly (Figure 6-23).

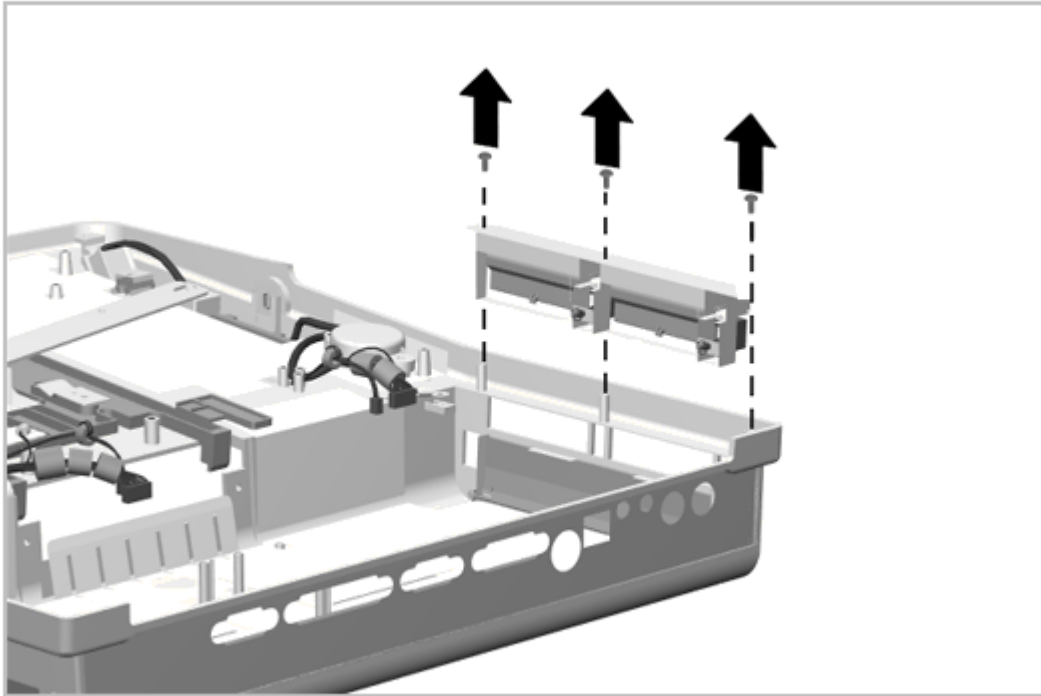


Figure 6-23. Removing the PC Card Door Assembly

Reverse the above procedure to install the PC Card door assembly.

Chapter 6.13 Power Switch Board

The bottom cover assembly must be removed before removing the power switch board. The power switch board is installed as a unit with its cable permanently attached.

To remove the power switch board, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 6.3.
2. Remove the bottom cover as described in Section 6.5.
3. Disconnect the power switch board cable and ground wire from the main board (Figure 6-24).

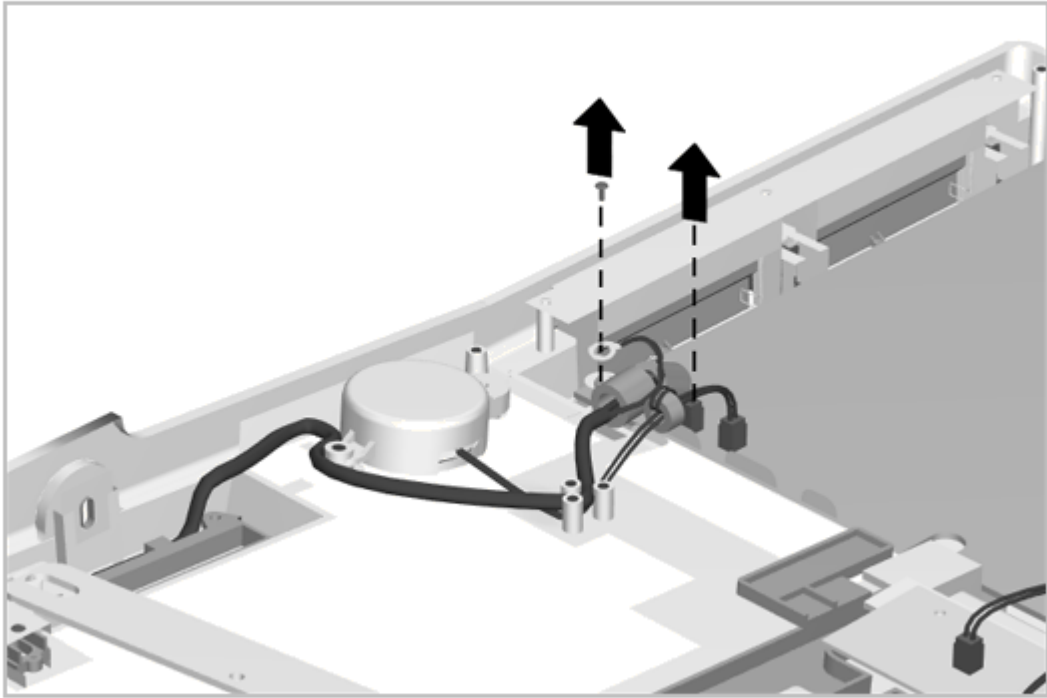


Figure 6-24. Disconnecting the Power Switch Board

4. Remove the screw holding the power switch board in place and lift the board out (Figure 6-25).

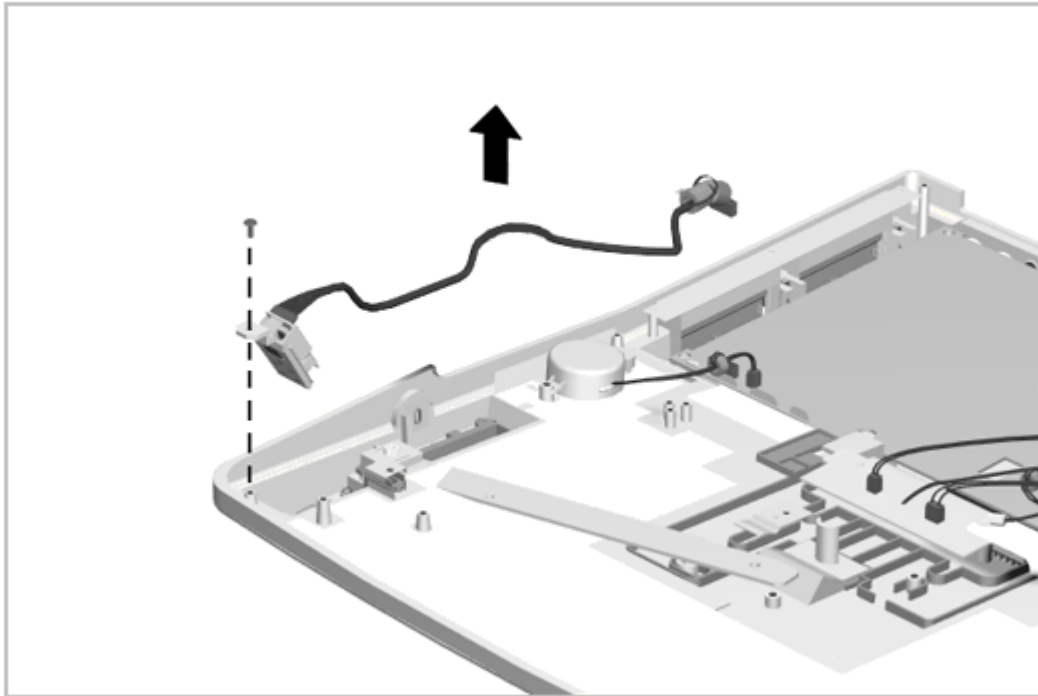


Figure 6-25. Removing the Power Switch Assembly

Reverse the above procedure to install a power switch board.

Chapter 6.14 IrDA Board

The bottom cover assembly must be removed before removing the IrDA board. The IrDA board is installed as a unit with its cable permanently attached.

To remove the IrDA board, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 6.3.
2. Remove the bottom cover assembly as described in Section 6.5.
3. Disconnect the IrDA board cable and ground wire from the main board (Figure 6-26).

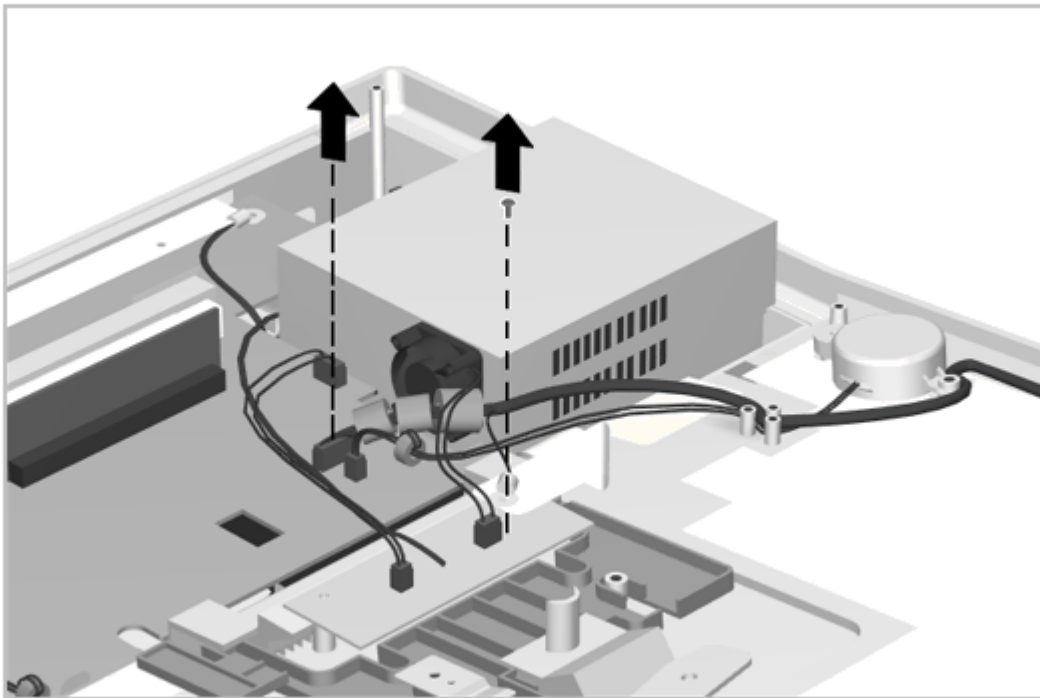


Figure 6-26. Disconnecting the IrDA Board

4. Remove the screw holding the IrDA board in place and lift the board out (Figure 6-27).

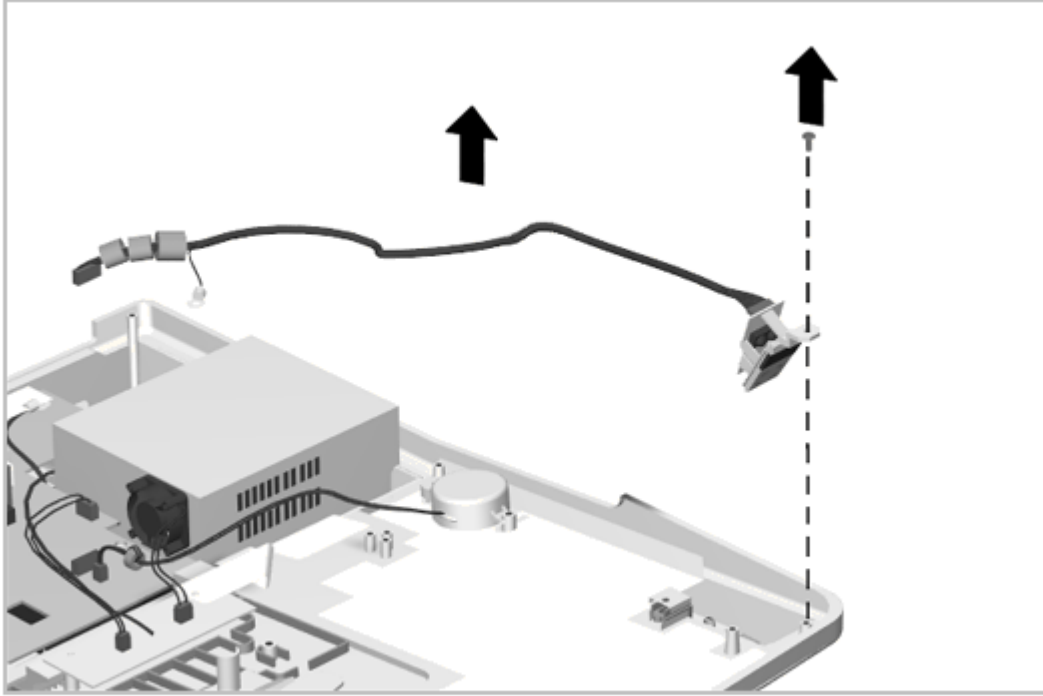


Figure 6-27. Removing the IrDA Board

Reverse the above procedure to install the IrDA board.

Chapter 6.15 Speaker Assemblies

The bottom cover assembly must be removed before removing the speaker assembly. The speaker assembly is installed as a unit with its cable permanently attached.

To remove the speaker assembly, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 6.3.
2. Remove the bottom cover assembly as described in Section 6.5.
3. Note the cable routing [2] and disconnect the speaker cable [1] from the main board (Figure 6-28).

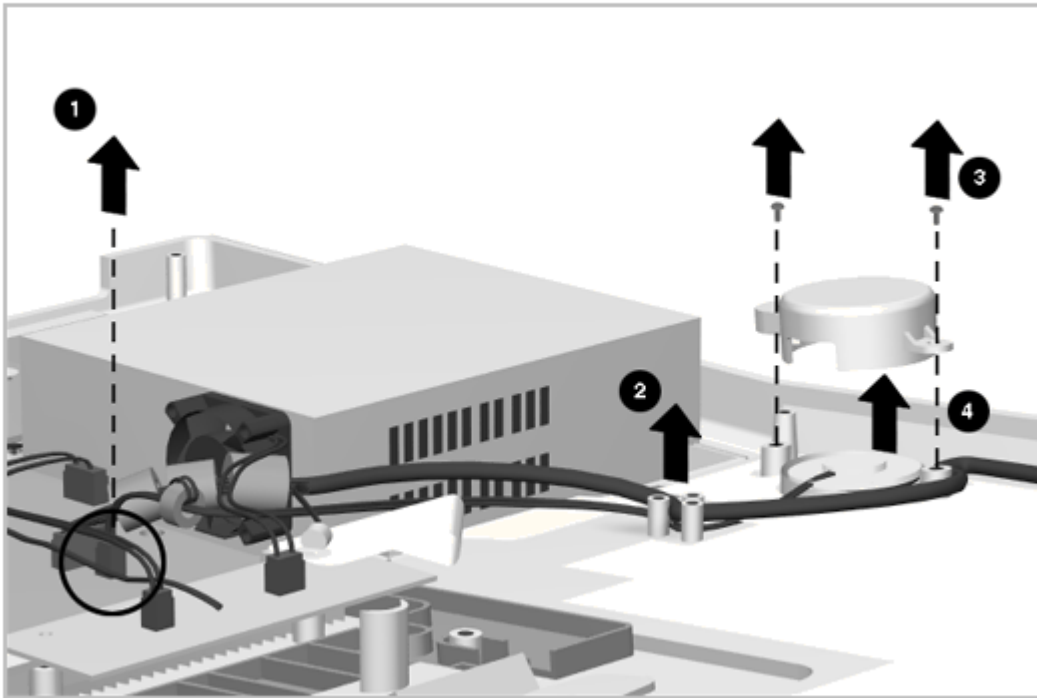


Figure 6-28. Removing the Speaker Assembly

4. Remove the two screws from the speaker bracket [3] and lift the bracket and board out of the bottom cover assembly [4] (Figure 6-28).

Reverse the above procedure to install a speaker assembly, paying particular attention to the cable routing.

Chapter 6.16 Alignment Guides

The bottom cover assembly must be removed before removing the alignment guides. The alignment guide assembly consists of the guide, spring, and bracket.

IMPORTANT: There is a left alignment guide and a right alignment guide. They are keyed for proper installation.

The assembly is mounted to the expansion base with one screw. To remove the CPU guide assembly, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 6.3.
2. Remove the bottom cover assembly as described in Section 6.5.

3. Remove the guide screw (Figure 6-29).

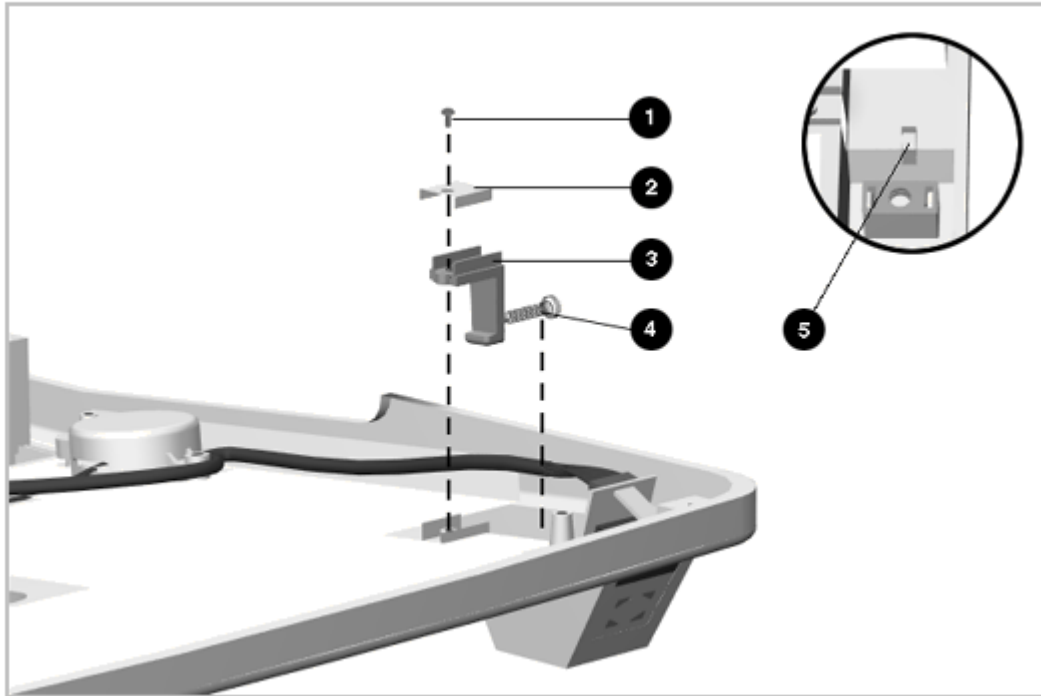


Figure 6-29. Removing the CPU Guide

4. Remove the CPU guide while guiding the spring out of its seat in the side panel of the expansion base (Figure 6-29).

Reverse the above procedure to install the CPU guide. Install the spring in its seat first and make certain it is seated completely. Do not over tighten the screw; the guide must be free to slide under the screw head.

Chapter 6.17 Monitor Support Cover Cap

The bottom cover must be removed before removing the monitor support cover cap. The monitor support cover cap and spring snap into place. To remove the cap and spring, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 6.3.
2. Remove the bottom cover assembly as described in Section 6.5.
3. Squeeze the tabs and allow the cap to drop out (Figure 6-30).

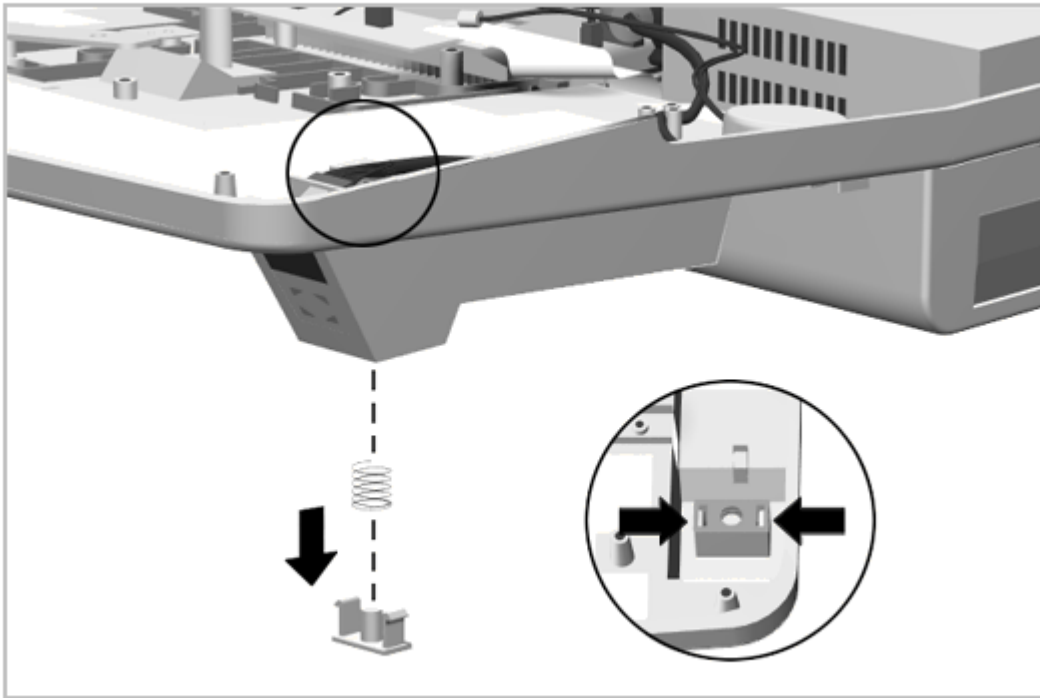


Figure 6-30. Removing the Monitor Support Cover Cap

Reverse the above procedure to install the monitor support cover cap.

Chapter 6.18 Docking Mechanism

The bottom cover assembly must be removed before removing the docking mechanism. The docking mechanism consists of the:

- o Docking lever
- o Docking lever cover
- o Docking lever shield
- o Slide block
- o Docking bar
- o Docking bar bushing
- o Puller plate assembly
- o Spring

To remove the docking mechanism, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 6.3.
2. Remove the bottom cover assembly as described in Section 6.5.
3. Remove the main board as described in Section 6.8.
4. Remove the screw and washer [1] that connects the docking bar [2] to the puller plate assembly [3] (Figure 6-31).

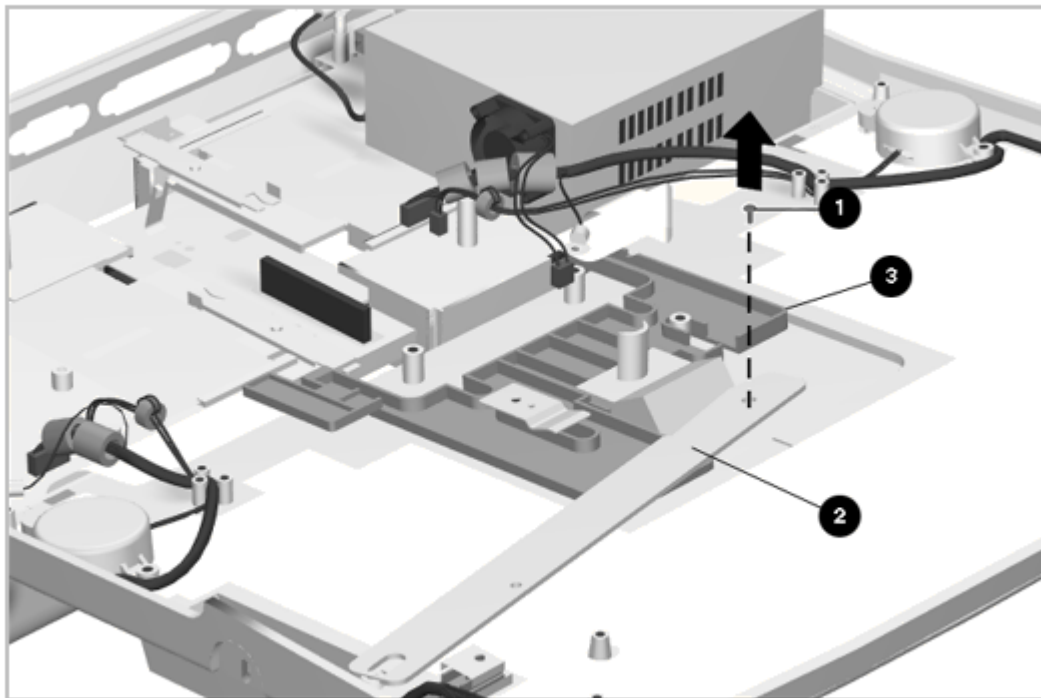


Figure 6-31. Disconnecting the Docking Bar from the Puller Plate

5. Lift the docking bar [1] and its bushing [2] out of the assembly (Figure 6-32).

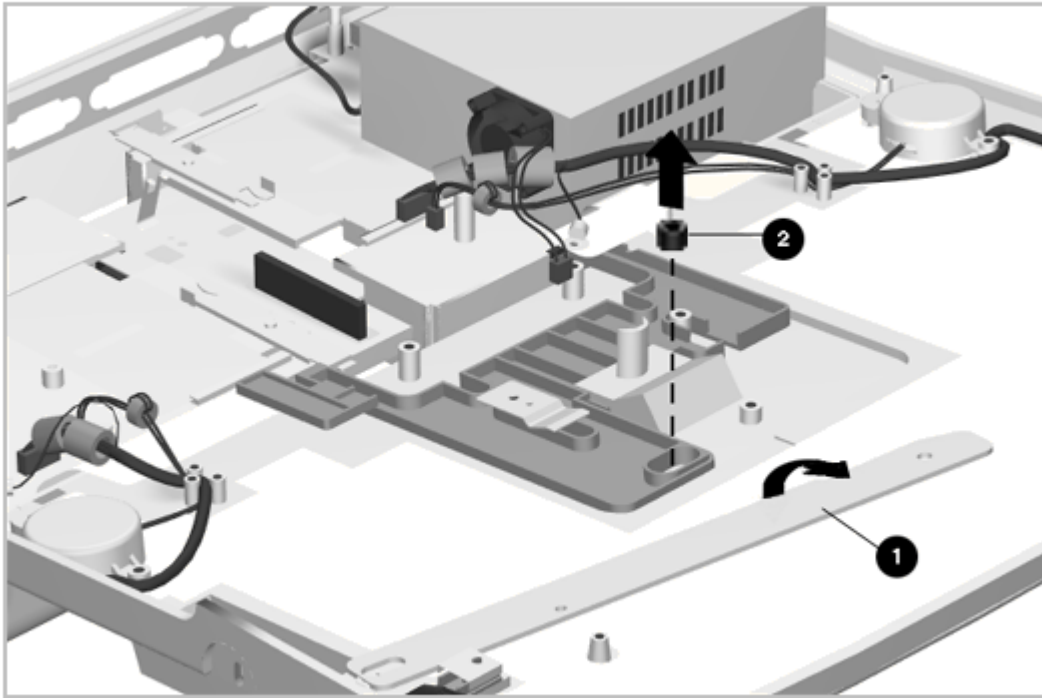


Figure 6-32. Removing the Docking Bar and Bushing

6. Remove the screw from the spring and lift the spring out (Figure 6-33).

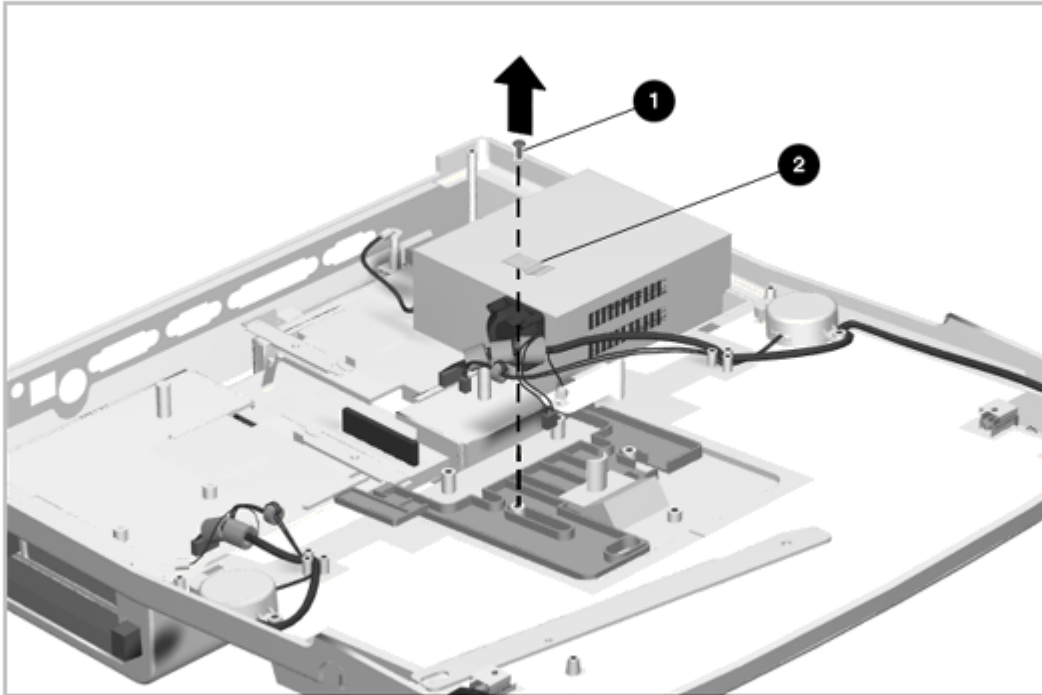


Figure 6-33. Removing the Puller Plate Spring

7. To remove the puller plate assembly [1], see Figure 6-34 and complete the following steps:
 - a. Slide the puller plate all the way back [2].

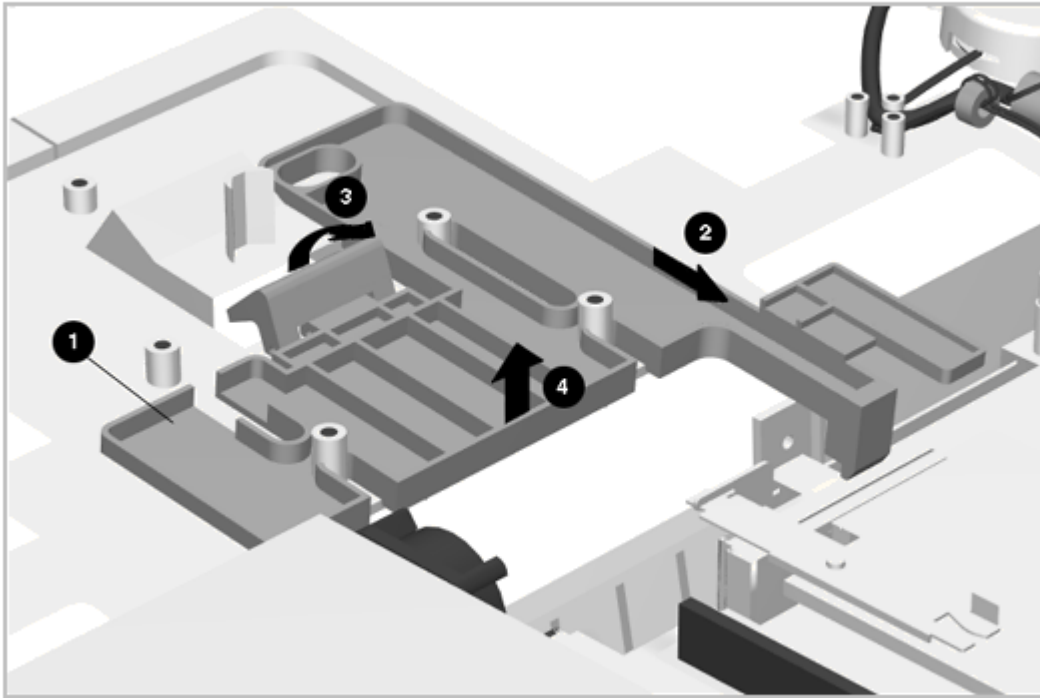


Figure 6-34. Removing the Puller Plate Assembly

- b. Lift the rear of the puller plate [4] and continue to slide back while pulling the catch [3] out of the opening in the base.

To install the puller plate assembly, press the docking aid [3] through the opening and slide the puller plate [1] into place (Figure 6-34).

Reverse the previous procedure to install the docking mechanism. Be sure to use nylock screws for the docking bar and spring.

Chapter 6.19 Docking Lever and Cover

To remove the docking lever and cover, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 6.3.
2. Remove the bottom cover assembly as described in Section 6.5.
3. Remove the screw and washer that connects the docking bar to the slide block and docking lever (Figure 6-35).

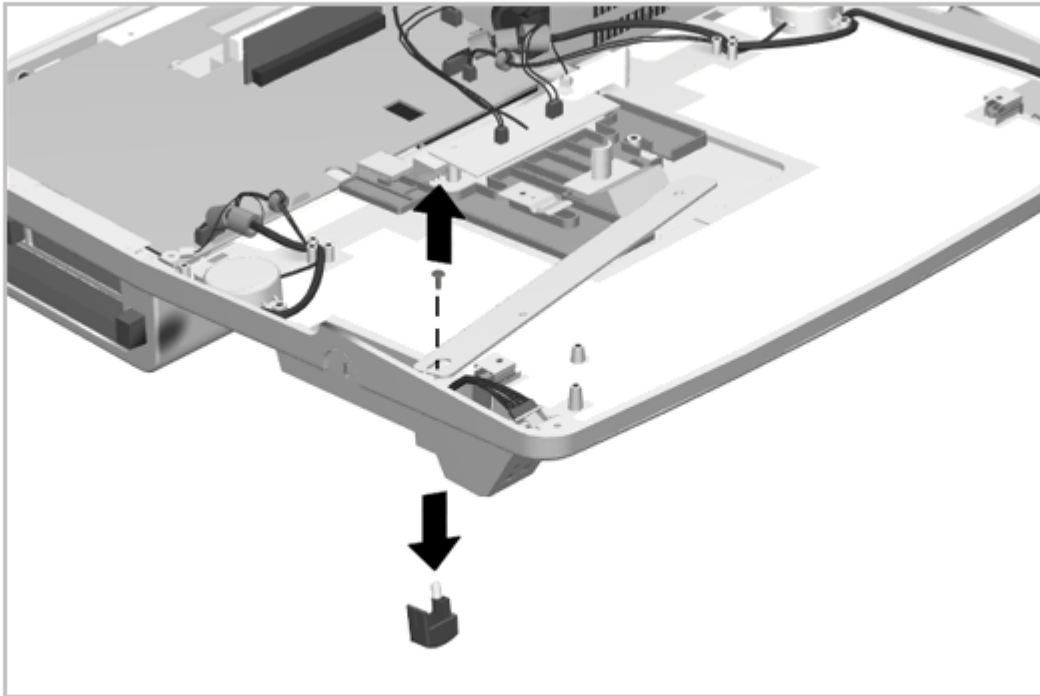


Figure 6-35. Removing the Docking Lever

4. The docking lever slider is now free to be removed [1] (Figure 6-36). Note that the little tab on one side of the docking lever slider [2] goes toward the outside of the expansion base at reassembly.

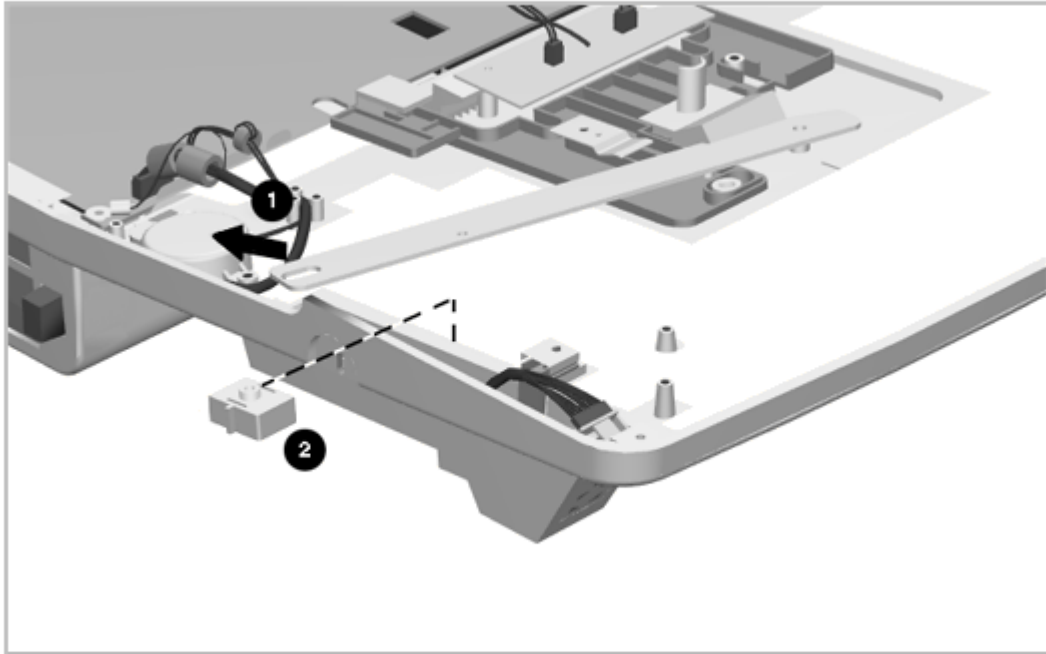


Figure 6-36. Removing the Docking Lever Slider

5. Remove the screws [1] and lift out the docking lever cover [2] (Figure 6-37).

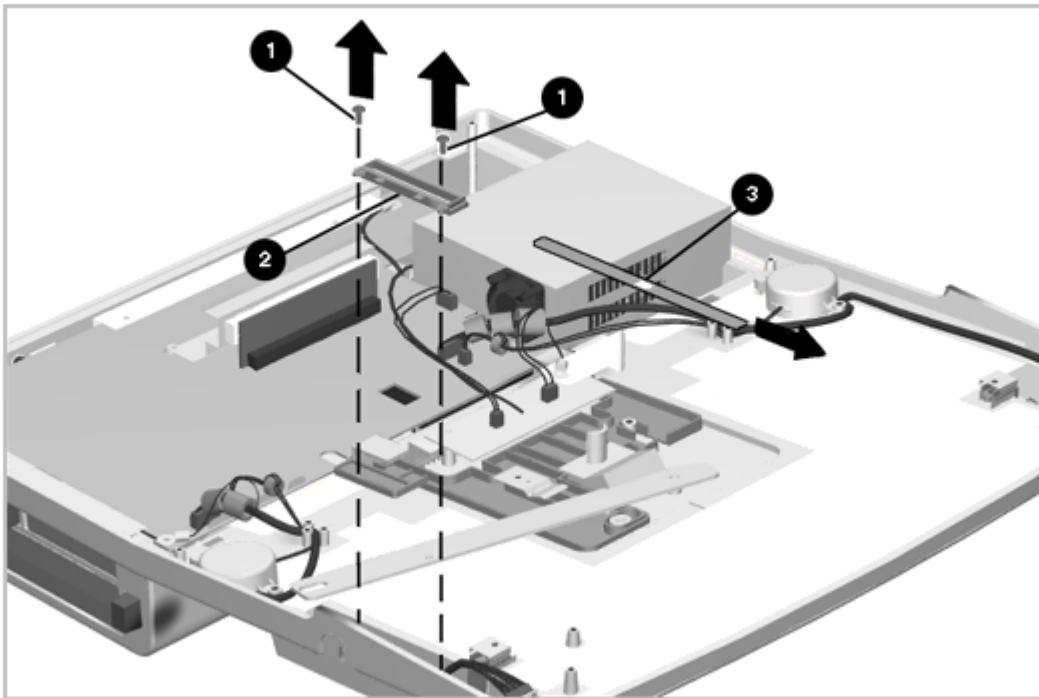


Figure 6-37. Removing the Docking Lever Cover

6. Remove the docking lever cover insert [3] as shown in Figure 6-37.

Reverse the above procedures to install the docking lever, docking lever slider, or docking lever cover.

Chapter 6.20 Security Lock Bracket

The security lock bracket simply slides into its mounting seat on the side of the expansion base. To remove and install the security lock bracket, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 6.3.
2. Remove the bottom cover assembly as described in Section 6.5.
3. Use a flat-blade screwdriver to pry the bracket straight up, or use a small pair of pliers to grasp the bracket and pull it out (Figure 6-38).

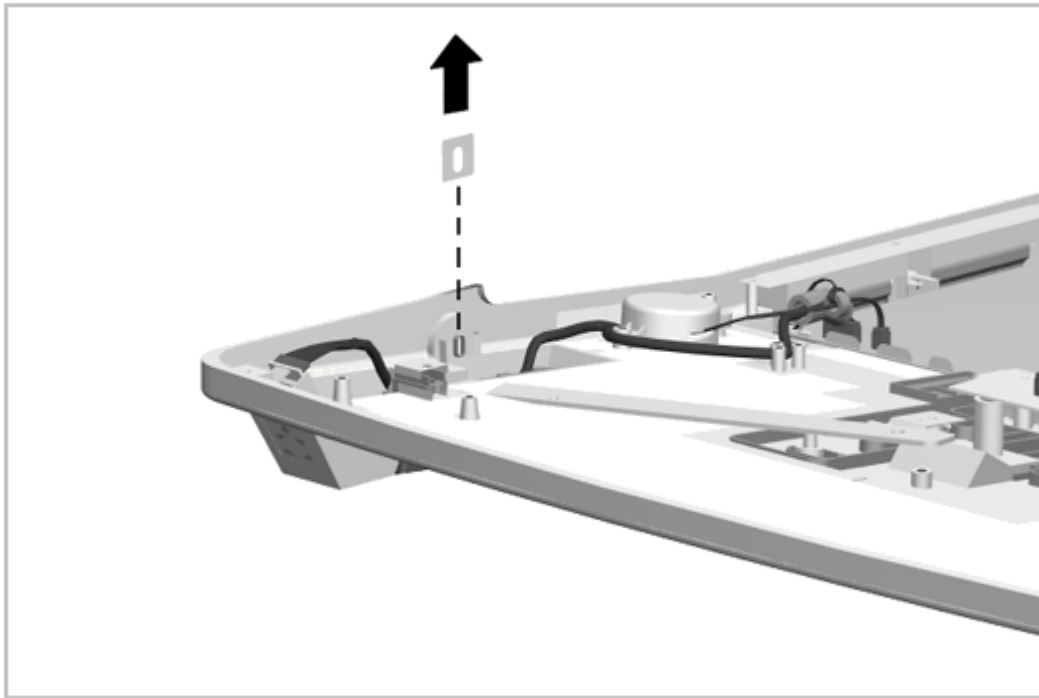


Figure 6-38. Removing the Security Lock Bracket

Chapter 7. MultiBay ISA Expansion Base: Removal and Replacement Procedures

Chapter 7.0 Introduction

This chapter presents the removal and replacement procedures for the MultiBay ISA Expansion Base.

Chapter 7.1 Serial Number

The expansion base serial number should be reported to Compaq when requesting information or ordering spare parts. The serial number is displayed on the rear of the expansion base to the right of the auxiliary fan.



Figure 7-1. MultiBay-ISA Expansion Base Serial Number Location

Chapter 7.2 Disassembly Sequence Chart

Use the chart in Figure 7-2 to determine the section number and disassembly sequence for removing components from the MultiBay ISA Expansion Base.

7.3 Preparing for Disassembly	
	6.3.1 Undocking the Computer
	6.3.2 Disconnecting the Expansion Base
	6.3.3 Battery Pack
	6.3.4 Mass Storage Devices
	6.3.5 PC Card
7.4 Expansion Base Feet	
7.5 Bottom Cover Assembly	
	7.6 MPEG Connector
	7.7 Power Supply
	7.8 Main Board
	7.9 CPU Connector Bezel
	7.10 MultiBay Assembly
	7.11 MultiBay Door
	7.12 PC Card Door Assembly
	7.13 Power Switch Board
	7.14 IrDA Board
	7.15 Speaker Assemblies
	7.16 Alignment Guides
	7.17 Monitor Support Cover Cap
	7.18 Docking Mechanism
	7.19 Docking Lever and Cover
	7.20 Security Lock Bracket

Figure 7-2. MultiBay-ISA Expansion Base Disassembly Sequence Chart

Chapter 7.3 Preparing the MultiBay ISA Expansion Base For Disassembly

NOTE: It is important that these instructions be followed when installing a new expansion base top cover (Service Spare Part Number 213711-003).

1. Remove the plastic hole cover from the left corner of the top cover.
2. Insert the fan (which is included with the new top cover) in the open space.
3. Plug the fan electrical connector to the I/O board, adjacent to the power supply.

Before beginning removal and replacement procedures, complete the following steps:

1. Undock the computer from the expansion base (Section 5.3.1).
2. Disconnect AC power and any external devices (Section 7.3.1).
3. Remove the battery pack(s) (Section 7.3.2).
4. Remove the mass storage devices (Section 7.3.3).

5. Remove any PC Cards (section 7.3.4).

7.3.1 Undocking the Computer

See Section 5.3.1 for instructions on how to undock the computer from the expansion base.

7.3.2 Disconnecting the Expansion Base

1. Turn off the expansion base and undock the computer if it is docked in the expansion base. See Section 5.3.1 for detailed instructions.
2. Disconnect the power cord from the AC source and from the expansion base.

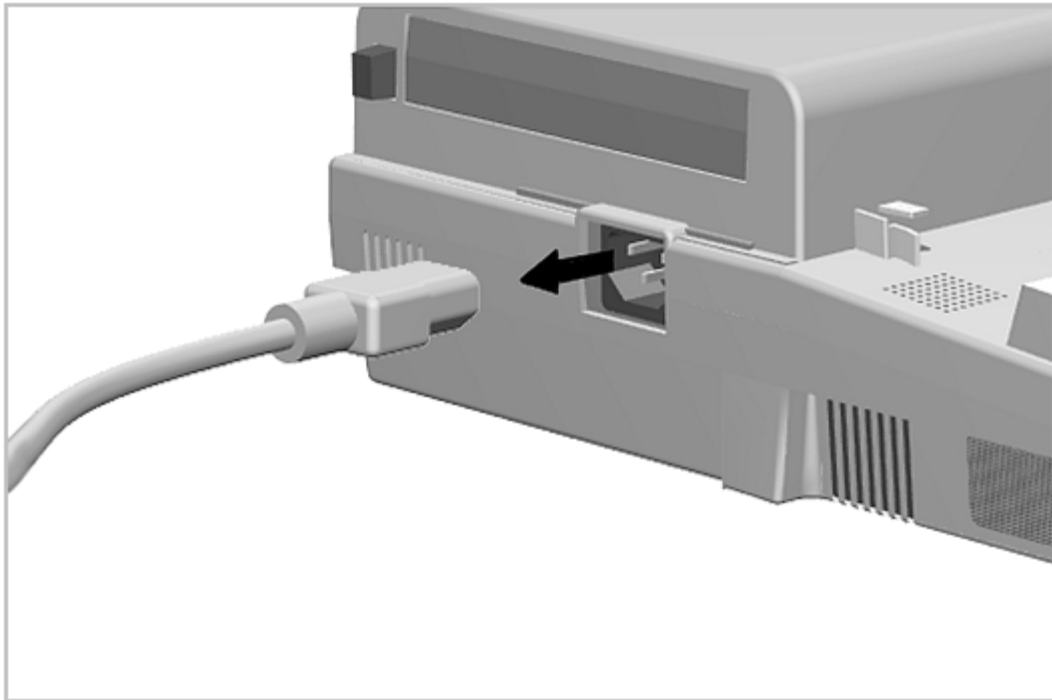


Figure 7-3. Disconnecting the Expansion Base

3. Disconnect all peripheral devices from the expansion base.
4. Complete the preparation for disassembly by performing the procedures described in Sections 7.3.3 through 7.3.5.

7.3.3 Battery Pack

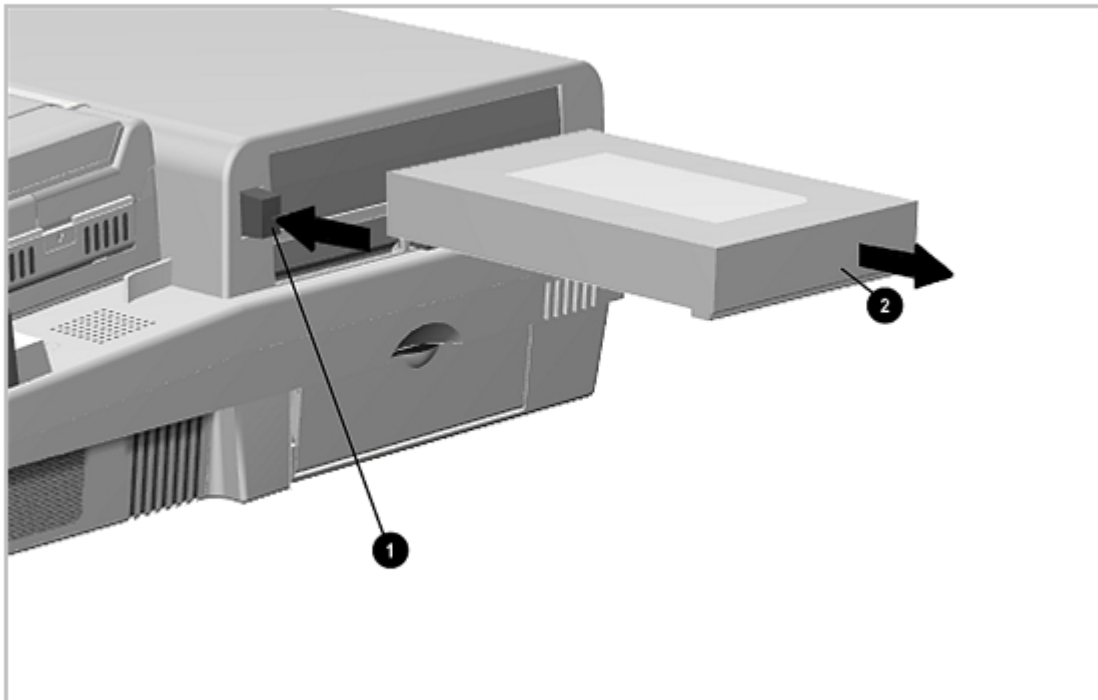


Figure 7-4. Removing a Battery Pack from a MultiBay

2. Move the sliding panel on the front of the battery to the left.

Installing a Battery Pack

To install a battery pack into a MultiBay, complete the following steps:

1. With the label facing up and the connectors facing in, align the left side of the battery pack with the left side of the MultiBay, and push the battery pack into the MultiBay until it is seated.
2. Move the sliding panel on the front of the battery pack to the right to cover the MultiBay opening.

7.3.4 Mass Storage Devices

Removing a Mass Storage Device

To remove mass storage devices from the expansion base, complete the following steps:

1. Save and close any files that reside on the drive that is to be removed.

1. Turn off the expansion base.
2. Make sure the latch inside the carrier is pushed to the right, and place the hard drive in the carrier with the label facing up and the contacts facing the rear of the carrier.
3. Slide the drive toward the rear of the carrier until it is seated (Figure 7-6).

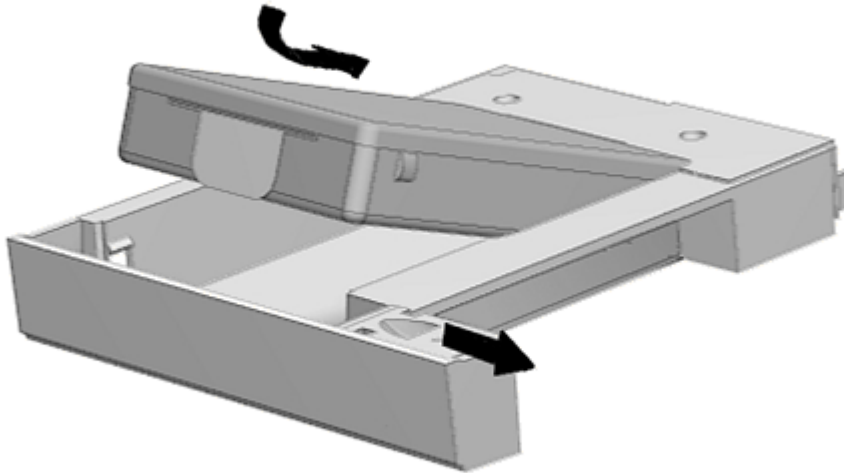


Figure 7-6. Placing a Hard Drive in the Hard Drive Carrier

4. Push the latch inside the carrier to the left to secure the hard drive in place.
5. Align the left side of the carrier with the left side of the MultiBay, and push the carrier into the bay until it is seated.

Installing a Diskette Drive or CD-ROM Drive

To install a diskette drive or CD-ROM drive into the MultiBay, complete the following steps:

1. Turn off the computer.
2. Align the left side of the diskette drive or CD-ROM drive with the left

side of the MultiBay and push the drive into the bay until it is seated.

7.3.5 PC Card

All PC cards should be removed from the expansion base before performing any internal maintenance on the computer.

Removing a PC Card

To remove a PC Card, complete the following steps:

1. Push the PC Card release button [1]. The card [2] ejects out of the card slot (Figure 7-7).

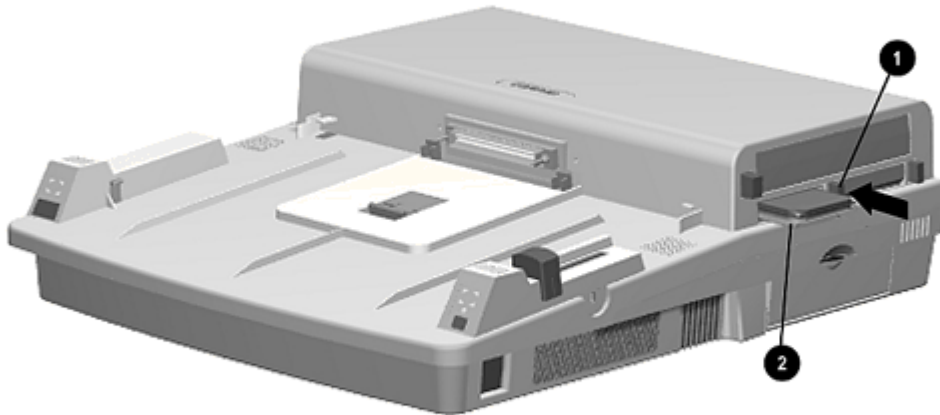


Figure 7-7. Removing a PC Card

2. The PC Card door automatically closes after removing the card.

Installing a PC Card

To install a PC Card, complete the following steps:

1. Push open the PC Card door so you can see the tracks inside.

2. Place the PC Card in the tracks with the card connector to the inside and label up.
3. Slide the card in until it seats. The door remains open while the card device is connected.

Chapter 7.4 Expansion Base Feet

The feet for the expansion base are rectangular, adhesive-backed rubber pads. Install the feet by removing the protective covering from the adhesive back and placing the feet in their positions on the bottom of the expansion base (Figure 7-8).

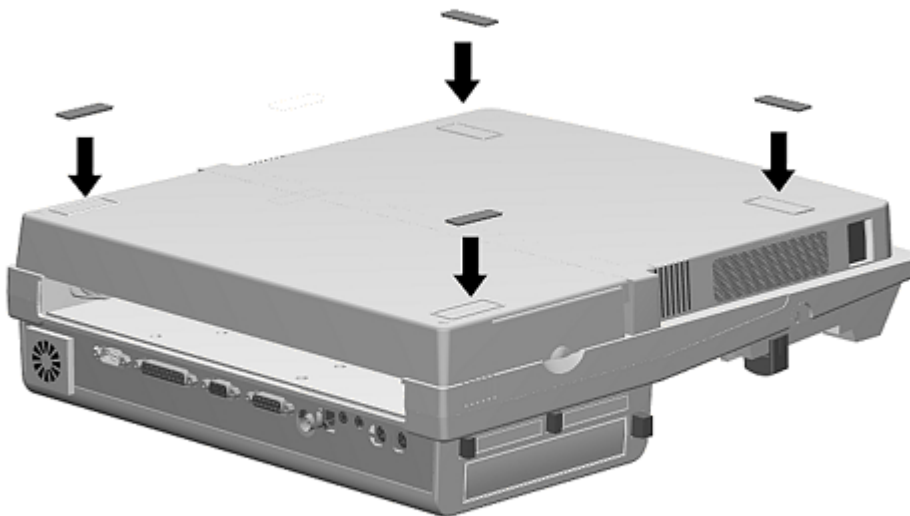


Figure 7-8. Expansion Base Feet

Chapter 7.5 Bottom Cover Assembly

The bottom cover assembly is spared as a unit and consists of:

- o Bottom cover
- o ISA expansion cover
- o Feet

o Labels

The feet are also spared separately. Feet installation is described in Section 7.4. The feet, labels, and ISA expansion cover are preinstalled.

To remove the bottom cover assembly, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 7.3.
2. Place the expansion base face down on the work surface and remove the two screws that secure the ISA expansion cover to the bottom cover (Figure 7-9).

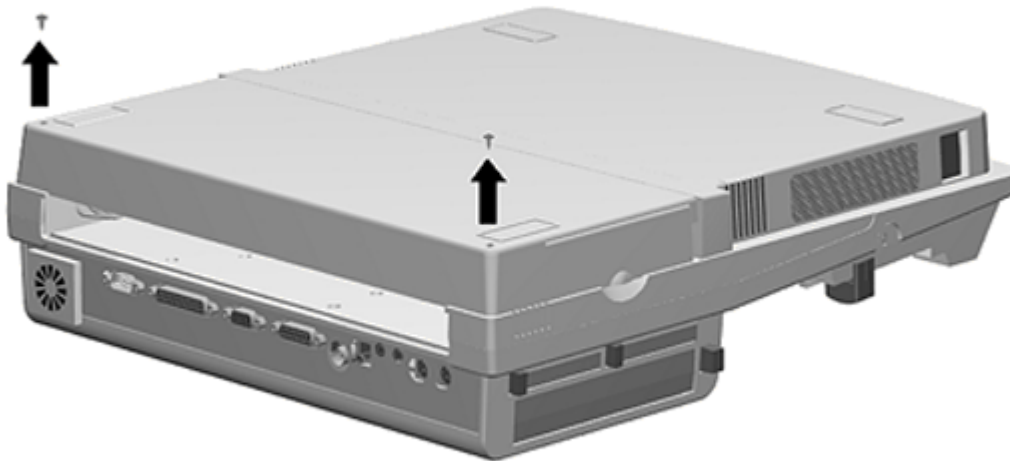


Figure 7-9. Removing the ISA Cover Screws

3. Remove the ISA expansion cover (Figure 7-10)

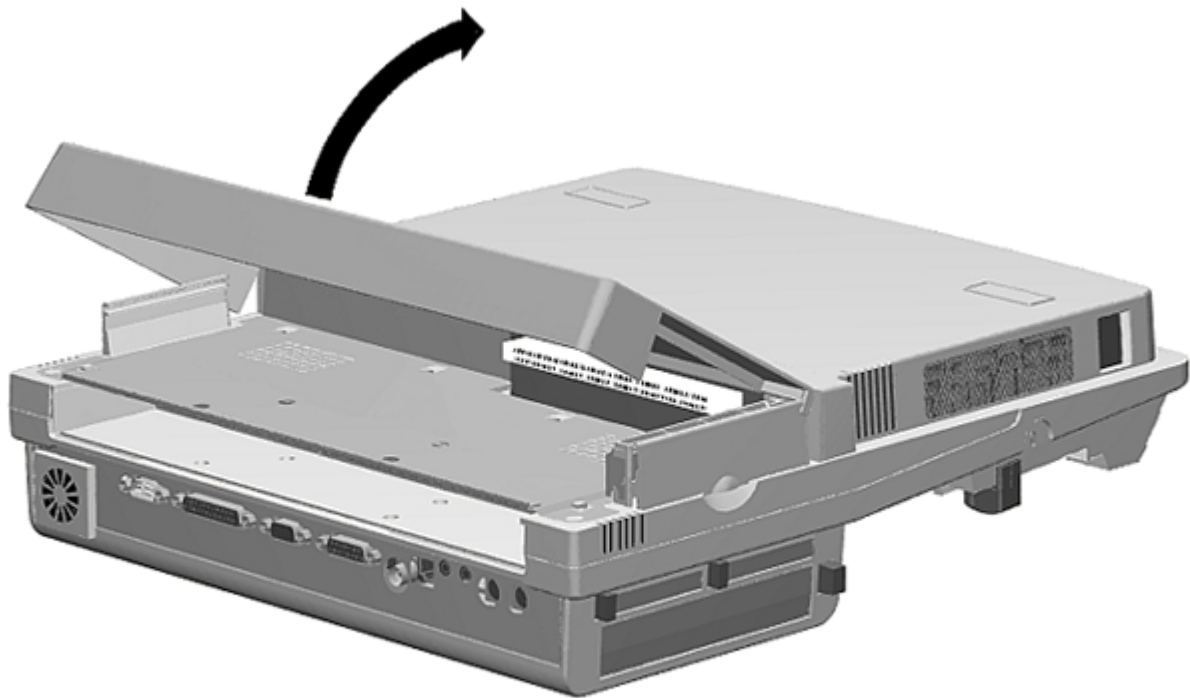


Figure 7-10. Removing the ISA Cover Assembly

4. Remove the one screw in the center of the shield on the bottom cover, remove the shield by sliding it forward and lifting it off the retaining clips, and then remove the remaining ten screws that secure the bottom cover to the expansion base (Figure 7-11).

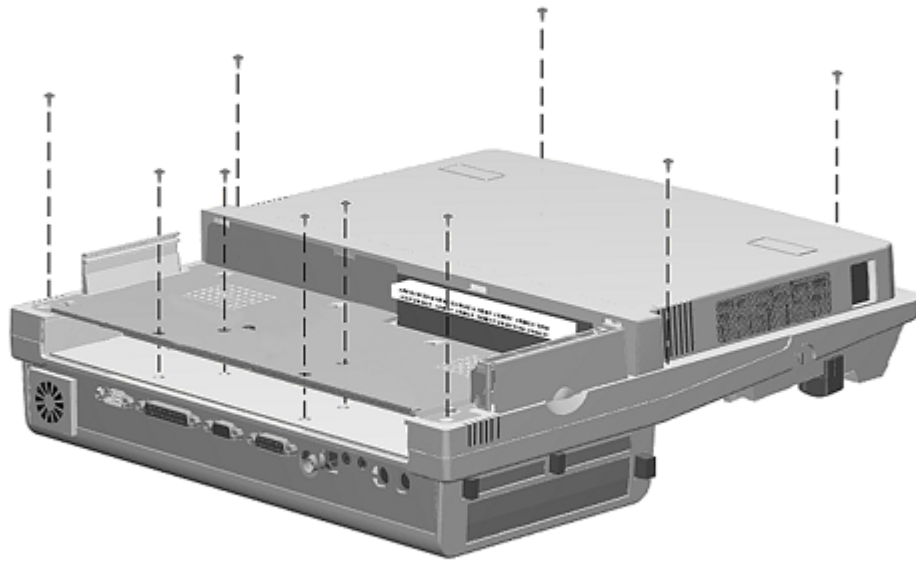


Figure 7-11. Removing the Bottom Cover Screws

5. Lift the bottom cover off the expansion base (Figure 7-12).

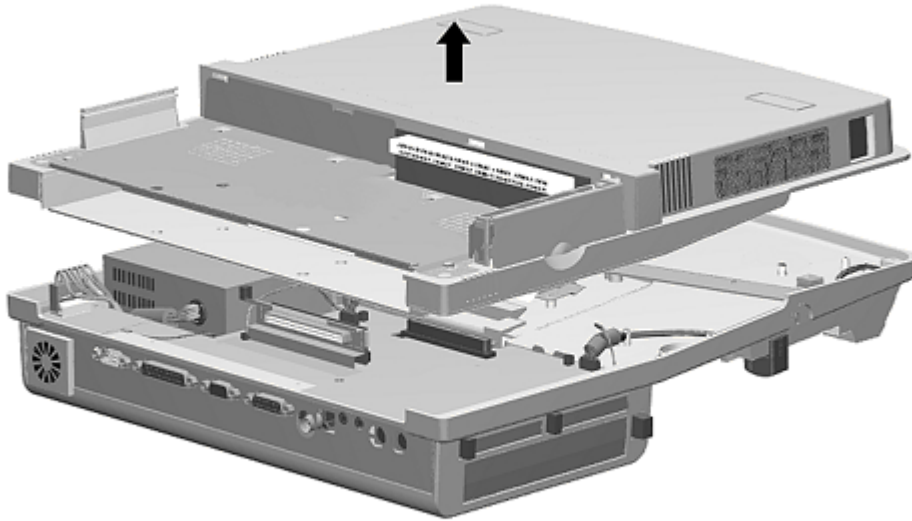


Figure 7-12. Removing the Bottom Cover

6. To remove the ISA connector board, remove the two screws, and remove the board (Figure 7-13).

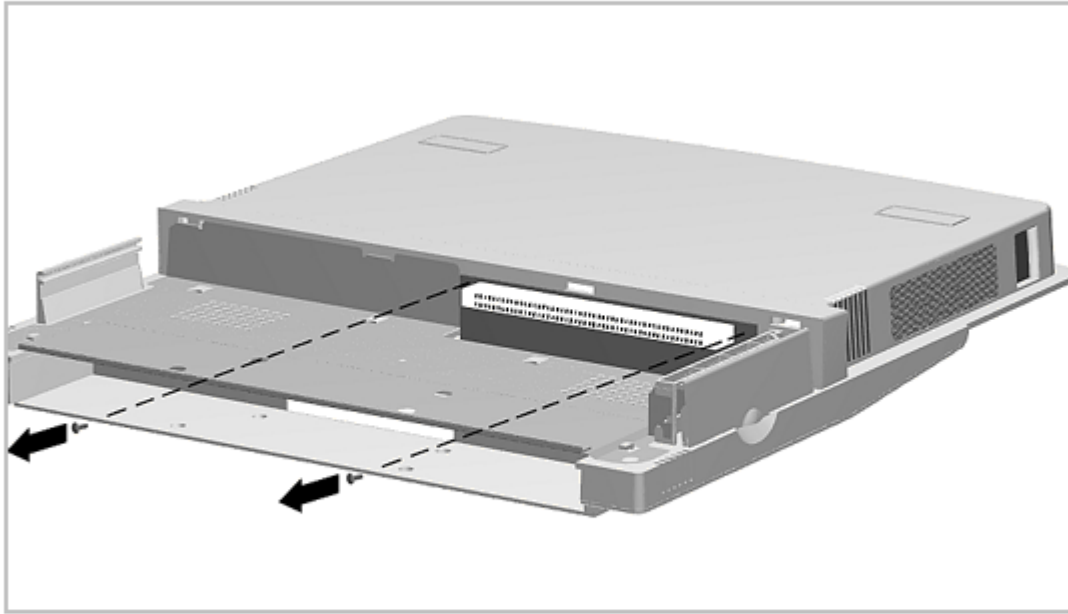


Figure 7-13. Removing the ISA Connector Board

To install the bottom cover assembly, reverse the procedure presented above.

Chapter 7.6 MPEG Connector

The MPEG connector plugs into the main board and is accessed by removing the bottom cover assembly. Remove the bottom cover assembly as described in Section 7.5 and disconnect the MPEG connector from the main board as shown in Figure 7-14.

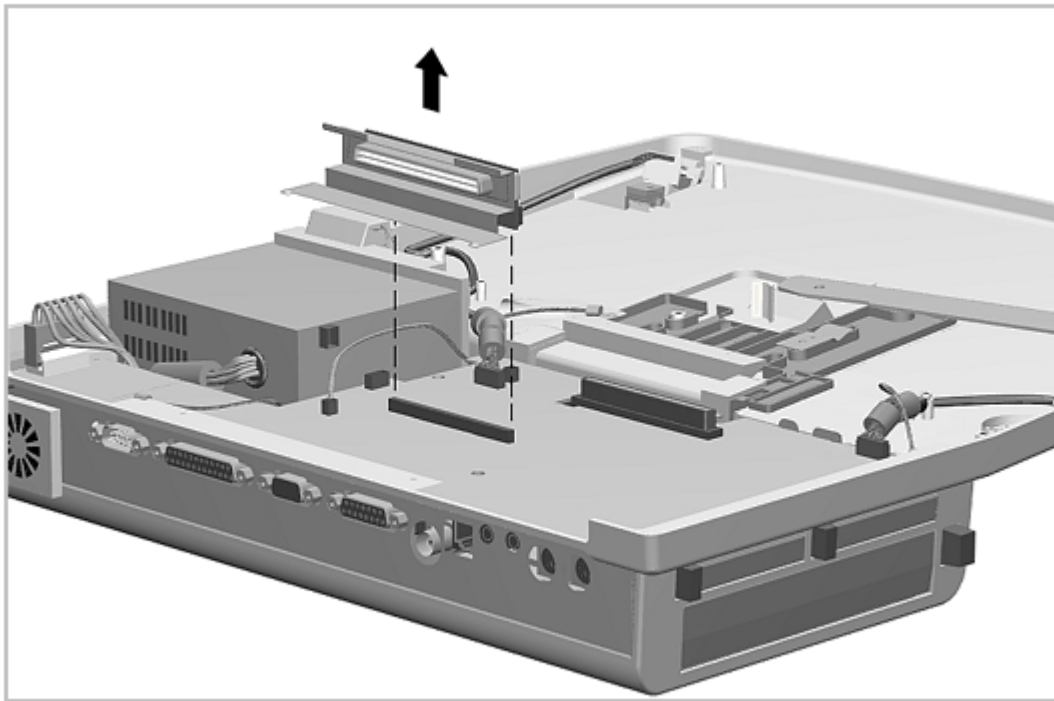


Figure 7-14. Removing the MPEG Connector

Reverse this procedure to install the MPEG connector.

Chapter 7.7 Power Supply

The power supply is mounted in the right rear corner of the expansion base when viewed with the base placed top side down on the work surface. It is replaced as an assembly with its fan.

To remove the power supply, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 7.3.
2. Remove the bottom cover assembly as described in Section 7.5.1.
3. Disconnect the power supply from the main board (Figure 7-15).
4. Disconnect the power supply fan cable from the main board (Figure 7-15).

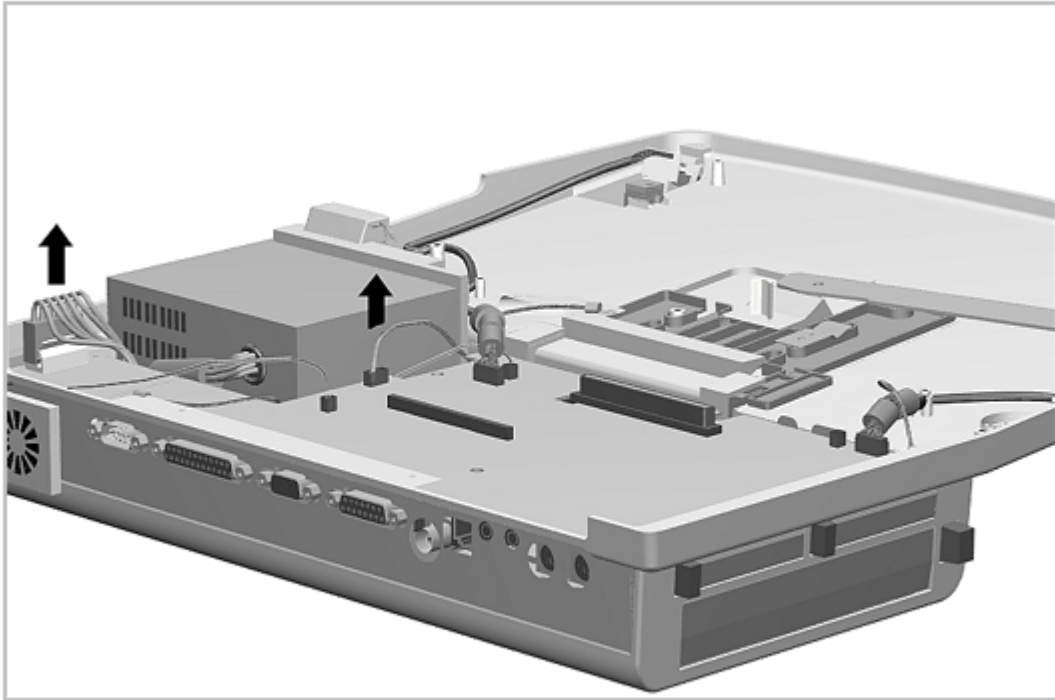


Figure 7-15. Disconnecting the Power Supply

5. Note the routing of the ground wires attached to the rear power supply screws. Remove the three screws and lift the power supply out (Figure 7-16).

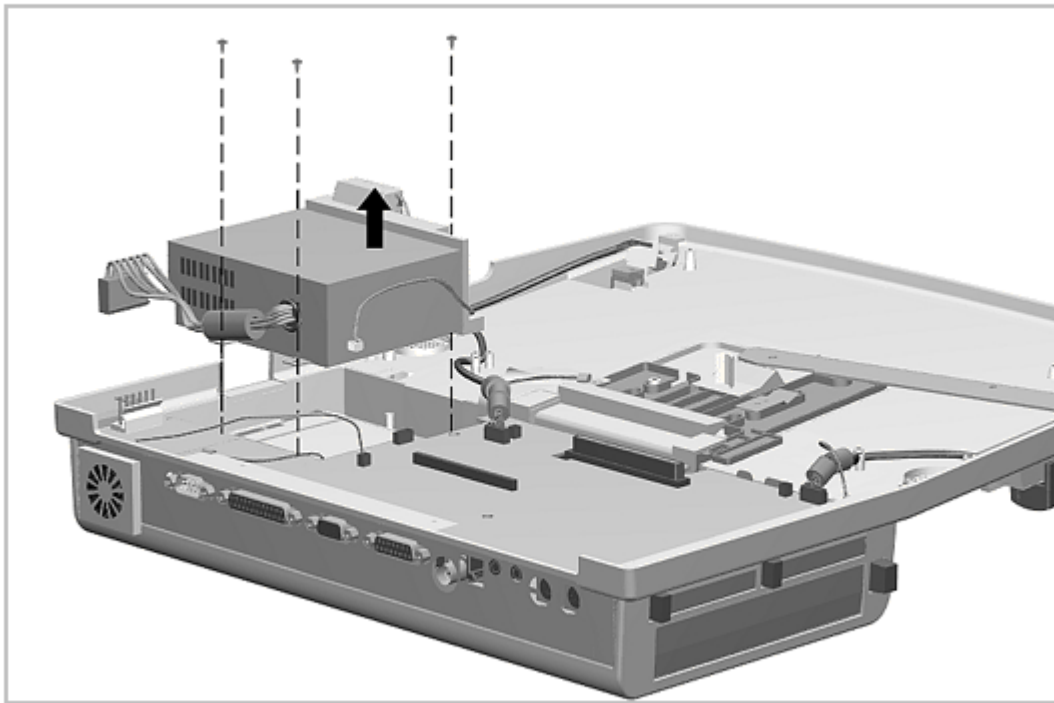


Figure 7-16. Removing the Power Supply Screws and Power Supply

To install the power supply, reverse the procedure presented above. Be sure to reconnect the ground wire.

Chapter 7.8 Main Board

To remove the main board, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 7.3.
2. Remove the two shoulder screws from the computer connector as shown in Figure 7-17.

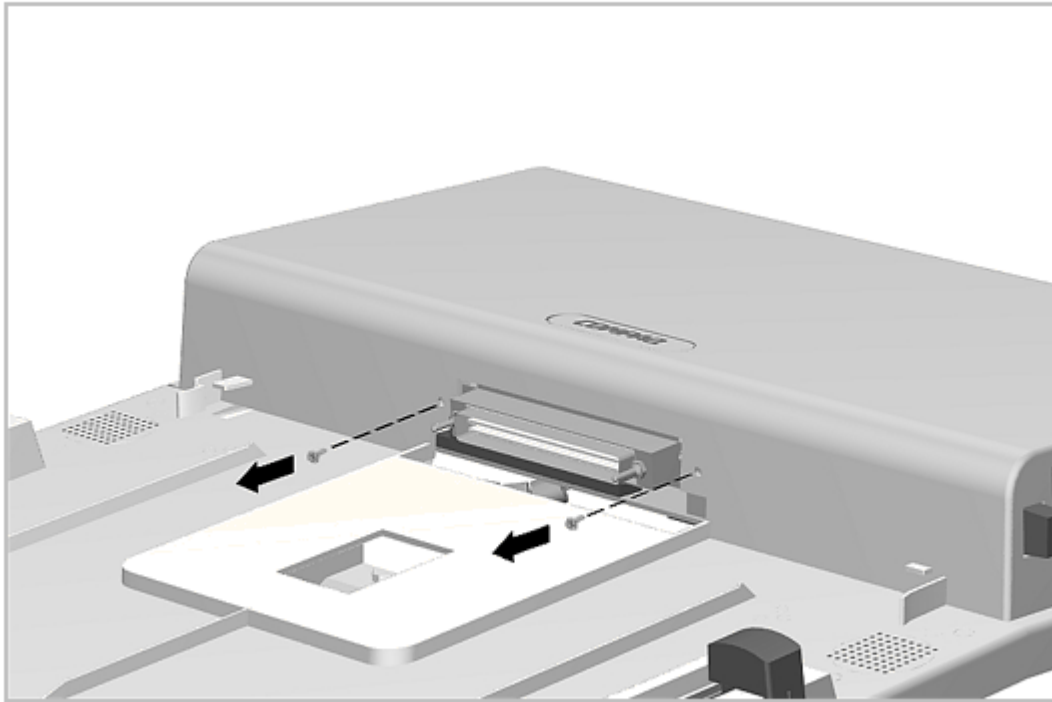


Figure 7-17. Removing the Computer Connector Screws

3. Remove the bottom cover as described in Section 7.5.
4. Note the routing of all cables and disconnect the power supply cable [1], the auxiliary fan cables [2], [3], the power supply fan cable [4], the IrDA cable [5], the speaker cables [6], [8], and the power cable [7] (Figure 7-18).

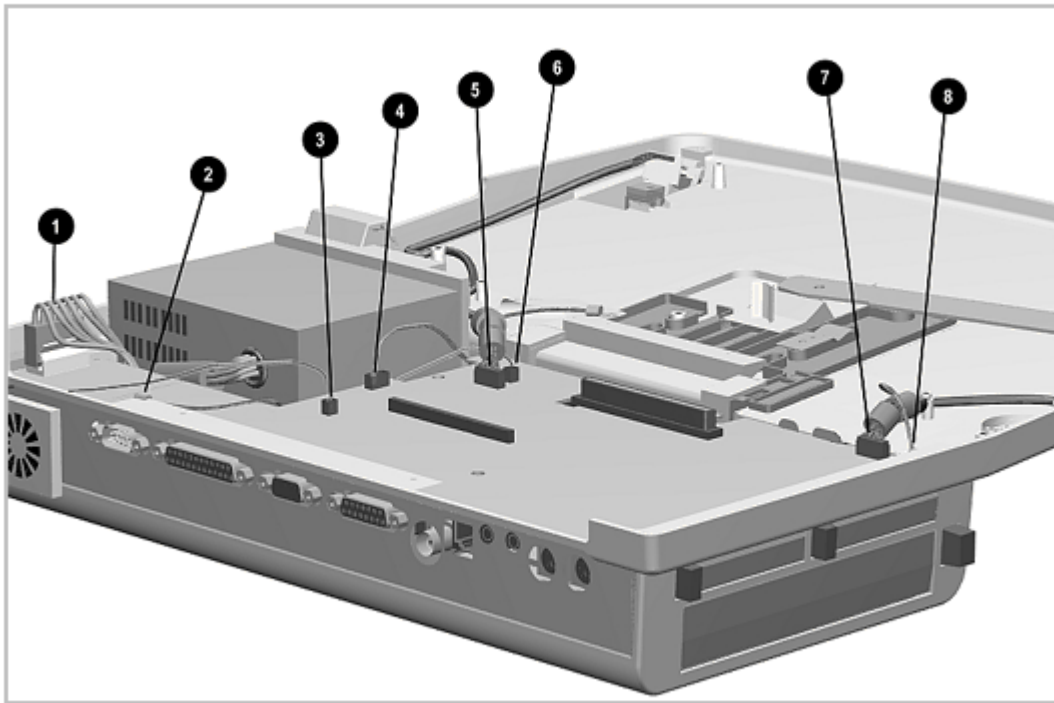


Figure 7-18. Disconnecting and Removing the Main Board Cables

5. Remove the screws from the main board and the two screws from the CPU connector bezel (Figure 7-19).

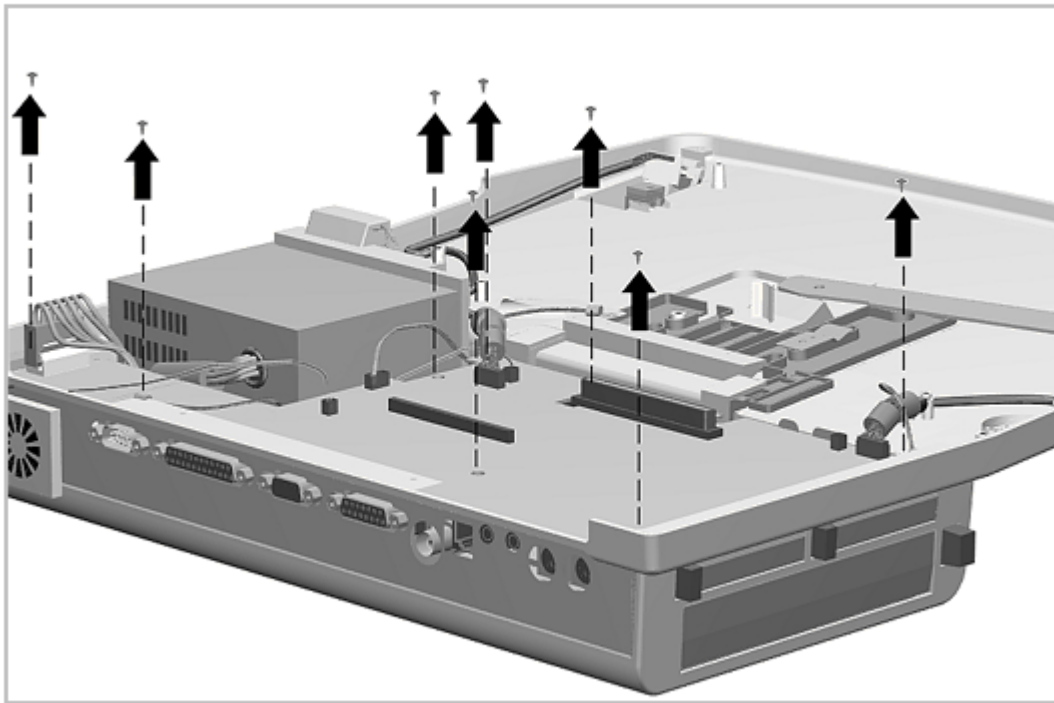


Figure 7-19. Removing the Main Board Screws

6. Lift the main board out of the base. Begin lifting at the front edge of the board [1]. The CPU connector bezel [2] comes off with the board but is not attached to the board. Some manipulation is required around the PC Card door module (Figure 7-20).

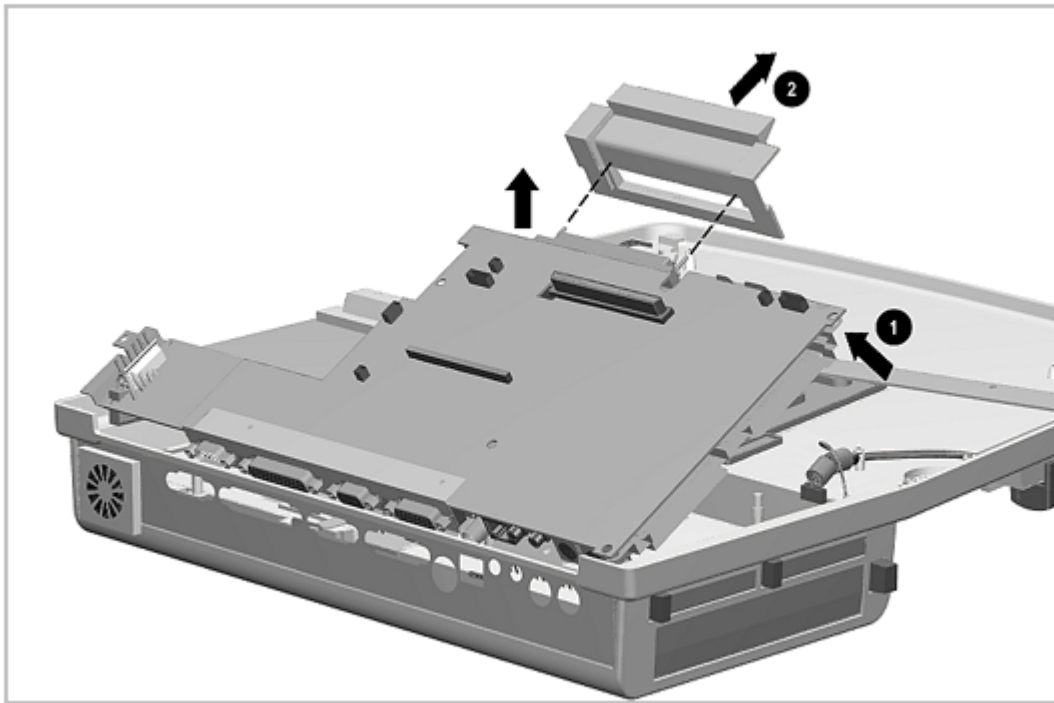


Figure 7-20. Removing the Main Board Assembly

7. To remove the auxiliary fan, release the fan mounting clips and remove the fan from the bottom cover. (Figure 7-21)

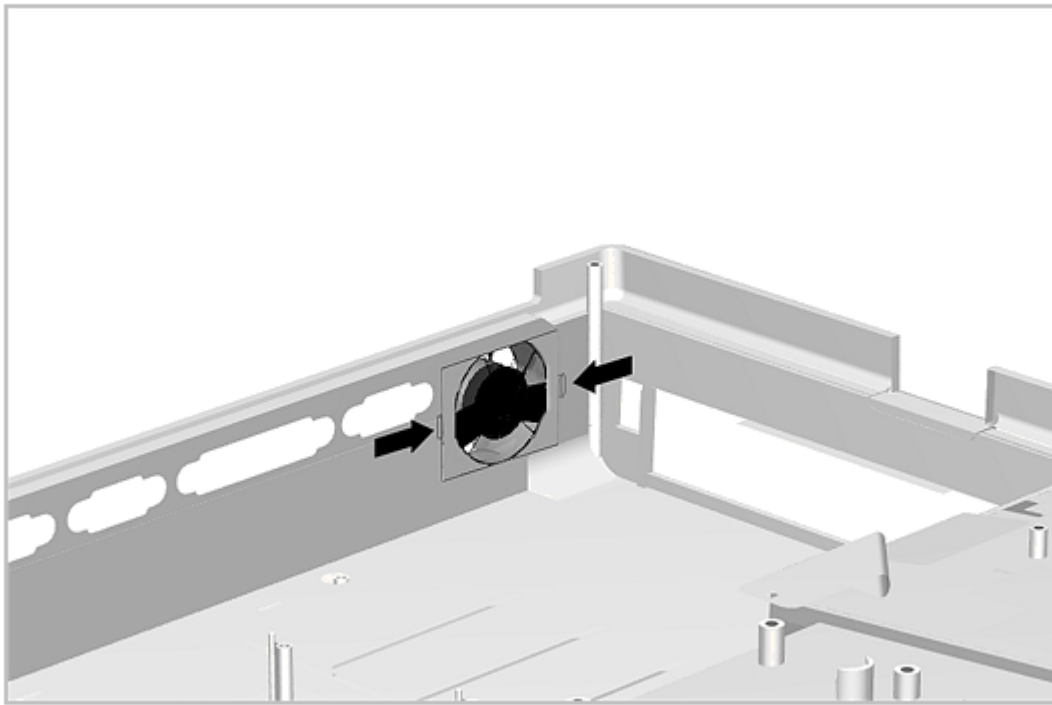


Figure 7-21. Removing the Auxiliary Fan

Reverse the removal procedure described above to install the main board. Position the CPU connector cover in place but do not secure it with screws until the main board is properly seated. Then proceed with the rest of the installation.

Chapter 7.9 CPU Connector Bezel

The main board must be removed to remove and replace the CPU connector bezel. See Section 7.8 for details.

Chapter 7.10 MultiBay Assembly

The main board must be removed before removing a MultiBay assembly.

The MultiBay assembly is spared as part of the top cover assembly. However, the MultiBay assembly may need to be removed in order to access the MultiBay door assembly. To remove a MultiBay, complete the following steps:

1. Remove the three screws and lift the bay out (Figure 7-22).

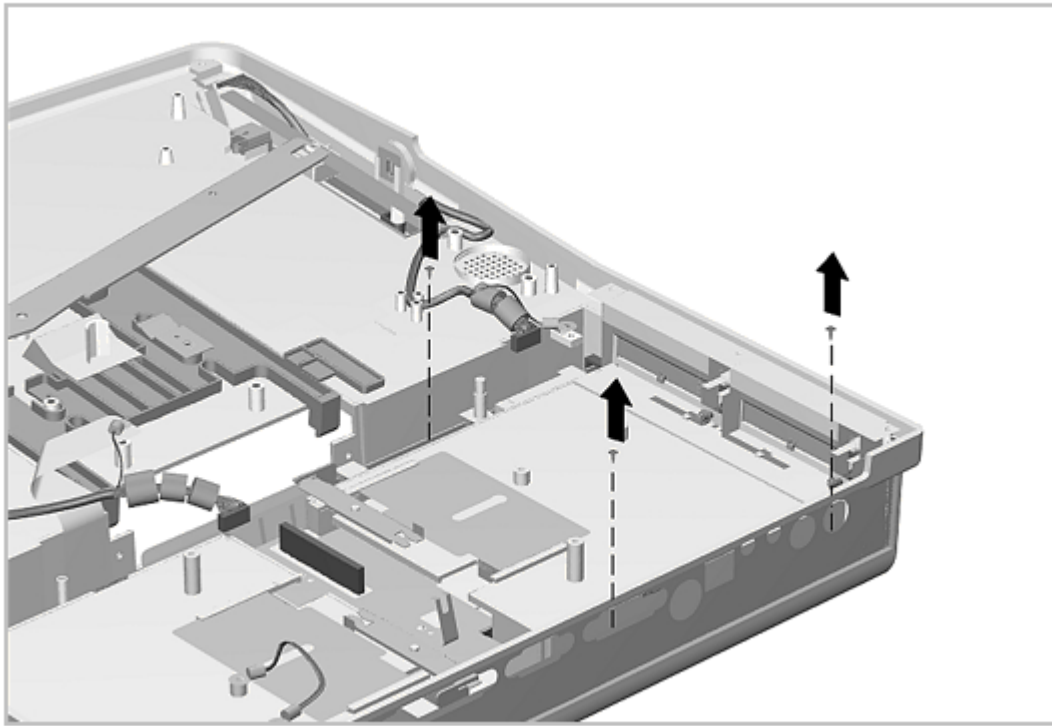


Figure 7-22. Removing the MultiBay Assembly Screws

2. Begin lifting at the end of the assembly toward the MultiBay Connector Board and lift the MultiBay assembly out (Figure 7-23).

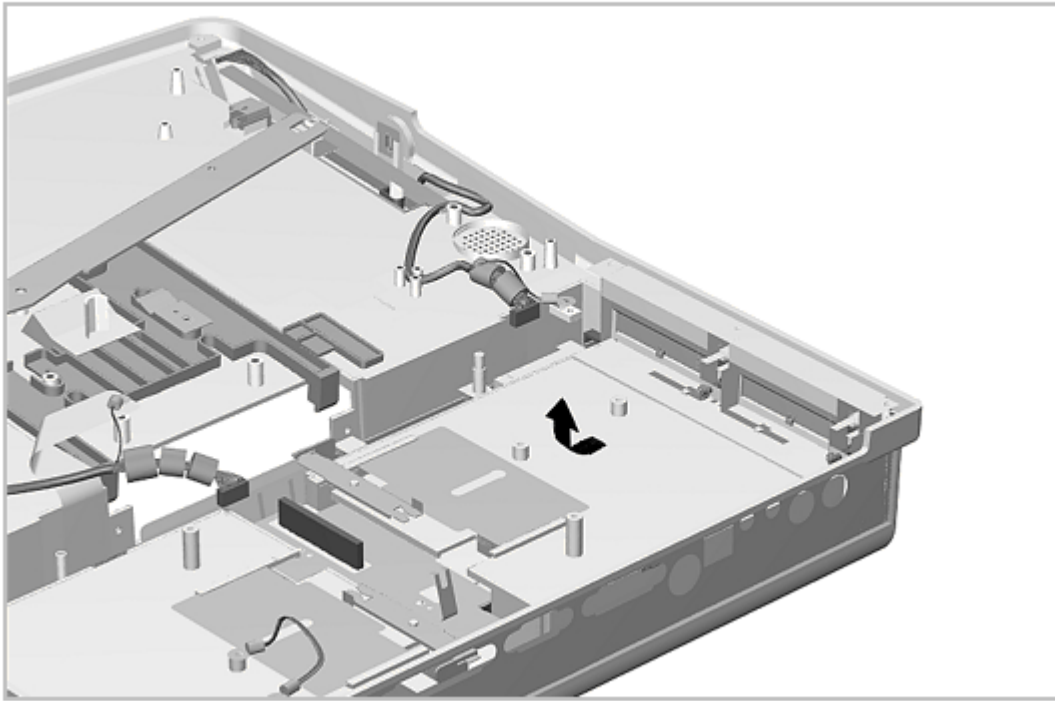


Figure 7-23. Removing the MultiBay Assembly

Reverse the above procedure to install a MultiBay assembly, inserting the end nearest the MultiBay door first (Figure 7-24). Take care not to damage the tabs on this end of the MultiBay.

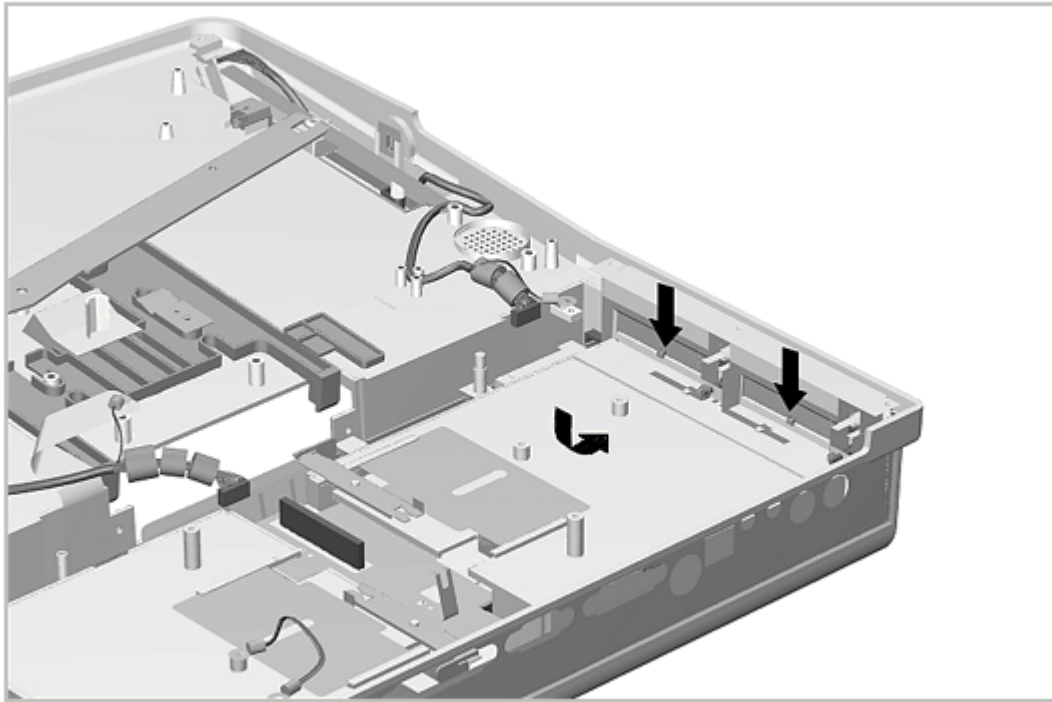


Figure 7-24. Installing the MultiBay Assembly

Chapter 7.11 MultiBay Door

The main board and one of the MultiBays must be removed before removing the MultiBay door assembly. To remove a MultiBay door assembly, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 7.3.
2. Remove the bottom cover assembly as described in Section 7.5.
3. Remove the power supply as described in Section 7.7 if servicing the door on that side.
4. Remove the main board as described in Section 7.8 if servicing the door on that side.
5. Remove the appropriate MultiBay assembly as described in Section 7-10.
6. Remove the MultiBay door by flexing the door [2] away from the expansion base as shown in Figure 7-25. Note the orientation of the spring [1]; this is important since it maintains the door in a closed position.

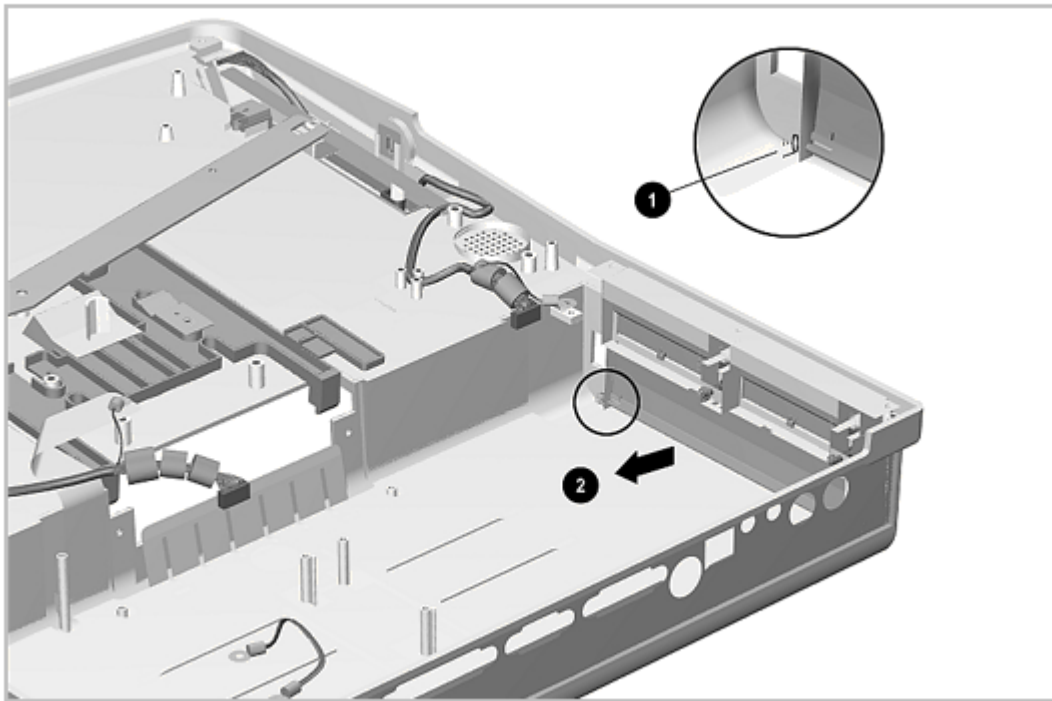


Figure 7-25. Removing the MultiBay Door

Chapter 7.12 PC Card Door Assembly

The main board must be removed before removing the PC Card door assembly. The PC Card doors are spared as an assembly, mounted in a common frame. To remove and replace the PC Card doors, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 7.3.
2. Remove the bottom cover assembly as described in Section 7.5.
3. Remove the main board as described in Section 7.8.
4. Remove the three screws and lift the PC Card door module out of the bottom cover assembly (Figure 7-26).

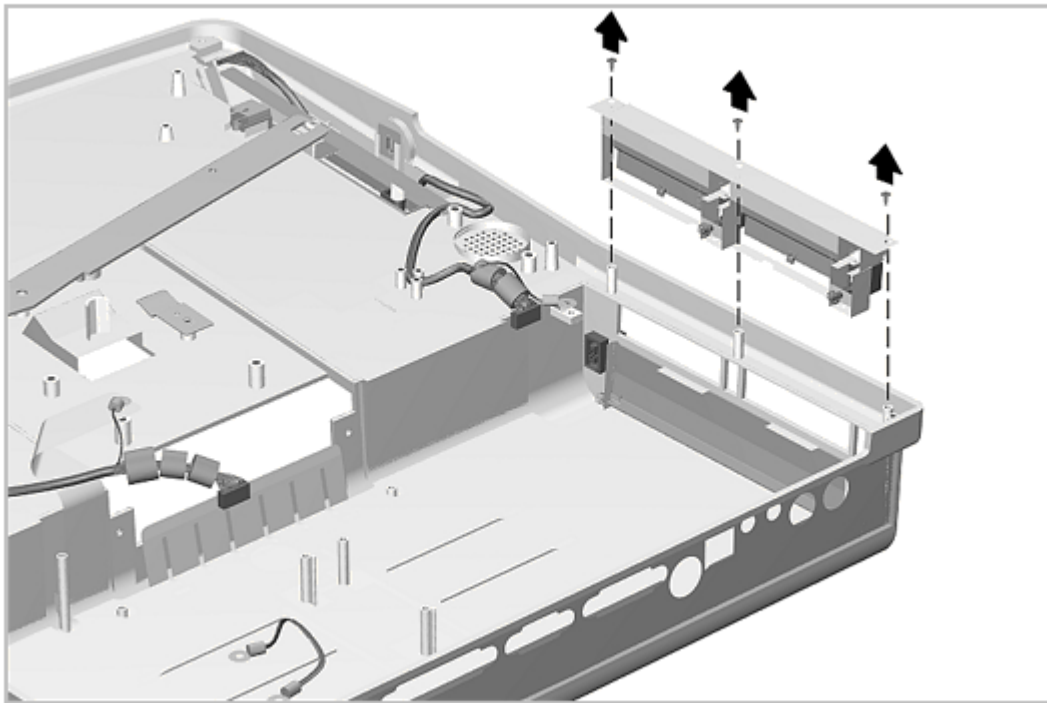


Figure 7-26. Removing the PC Card Door Assembly

Reverse the above procedure to install the PC Card door assembly.

Chapter 7.13 Power Switch Board

The bottom cover assembly must be removed before removing the power switch board. The power switch board is installed as a unit with its cable permanently attached.

To remove the power switch board, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 7.3.
2. Remove the bottom cover as described in Section 7.5.
3. Disconnect the power switch board cable and ground wire from the main board (Figure 7-27).

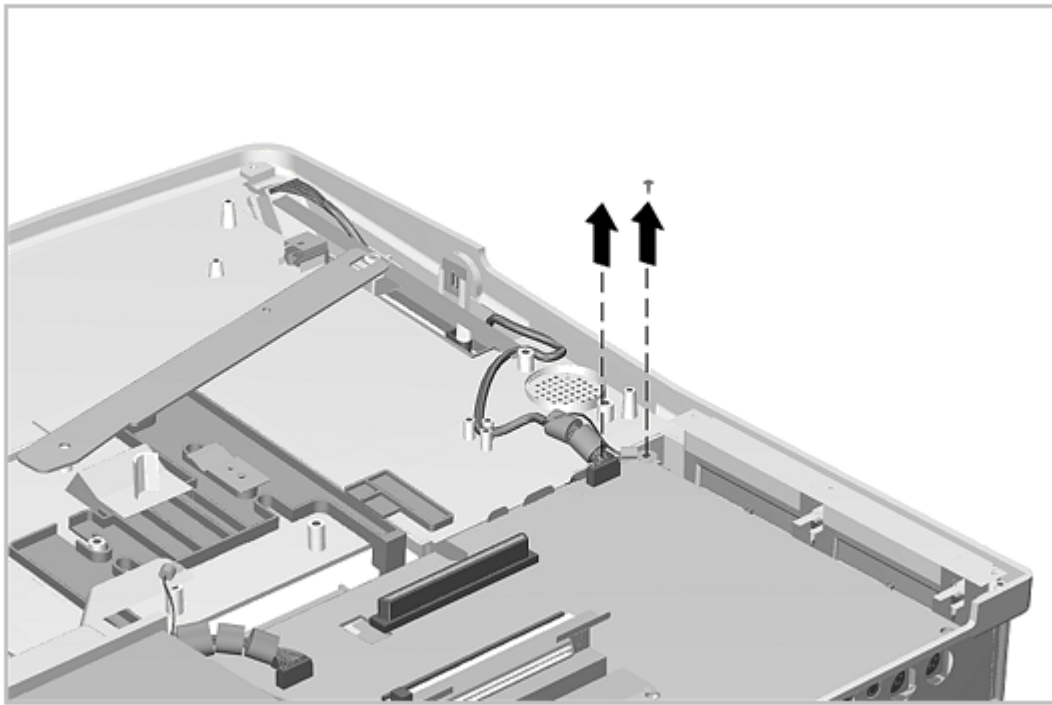


Figure 7-27. Disconnecting the Power Switch Board

4. Remove the screw holding the power switch board in place and lift the board out (Figure 7-28).

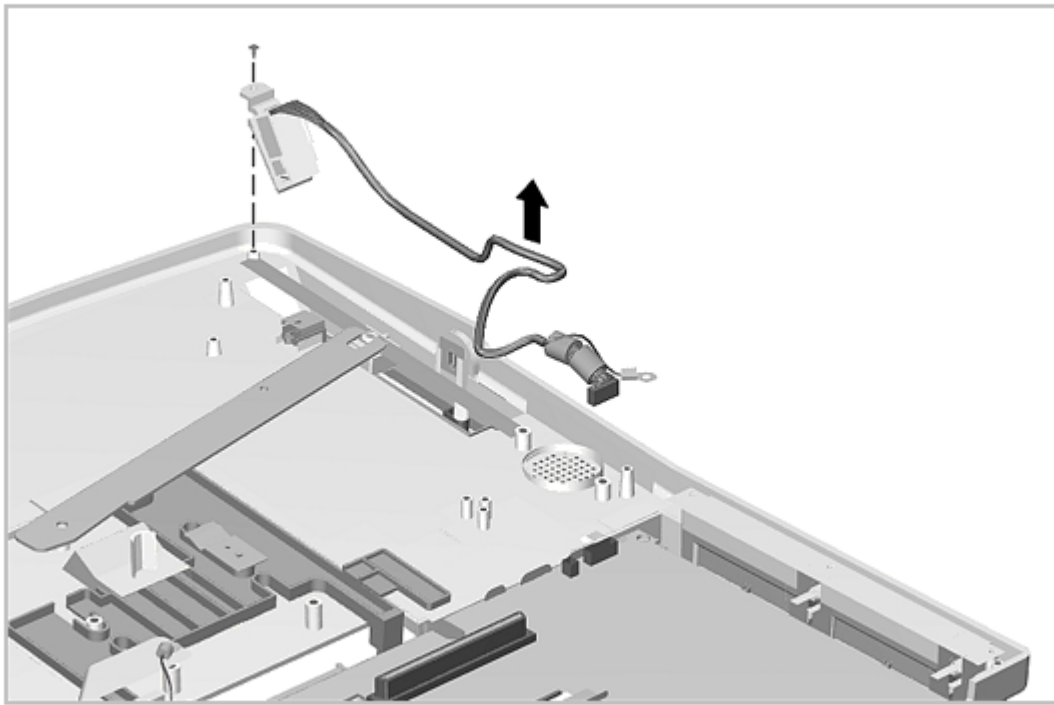


Figure 7-28. Removing the Power Switch Assembly

Reverse the above procedure to install a power switch board.

Chapter 7.14 IrDA Board

The bottom cover assembly must be removed before removing the IrDA board. The IrDA board is installed as a unit with its cable permanently attached.

To remove the IrDA board, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 7.3.
2. Remove the bottom cover assembly as described in Section 7.5.
3. Disconnect the IrDA board cable and ground wire from the main board (Figure 7-29).

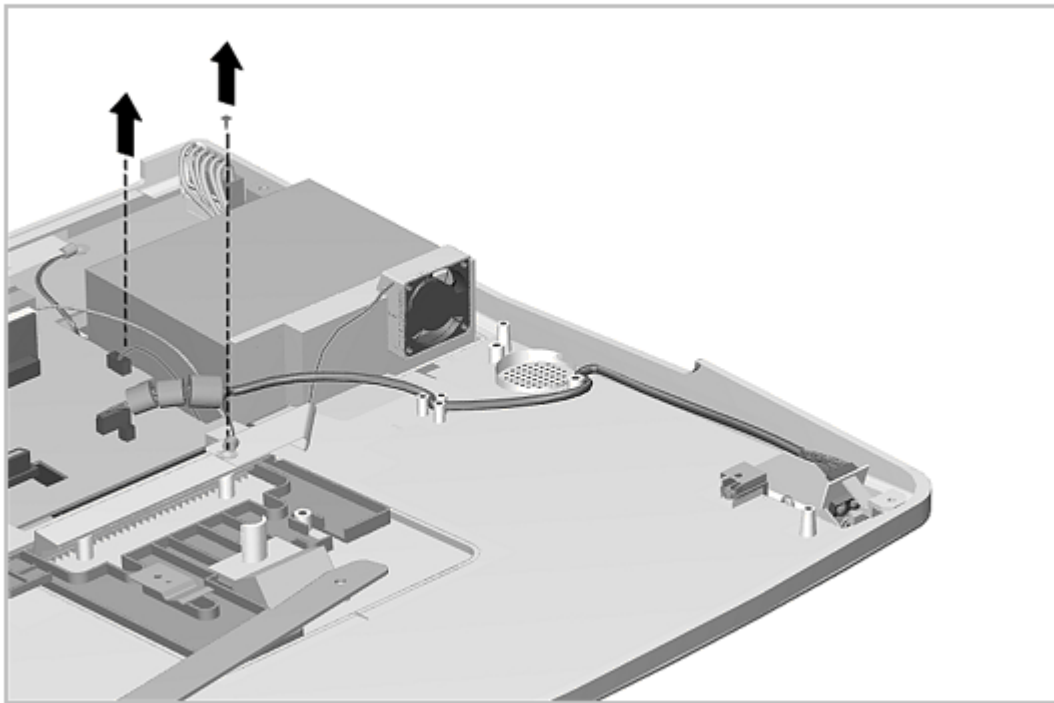


Figure 7-29. Disconnecting the IrDA Board

4. Remove the screw holding the IrDA board in place and lift the board out (Figure 7-30).

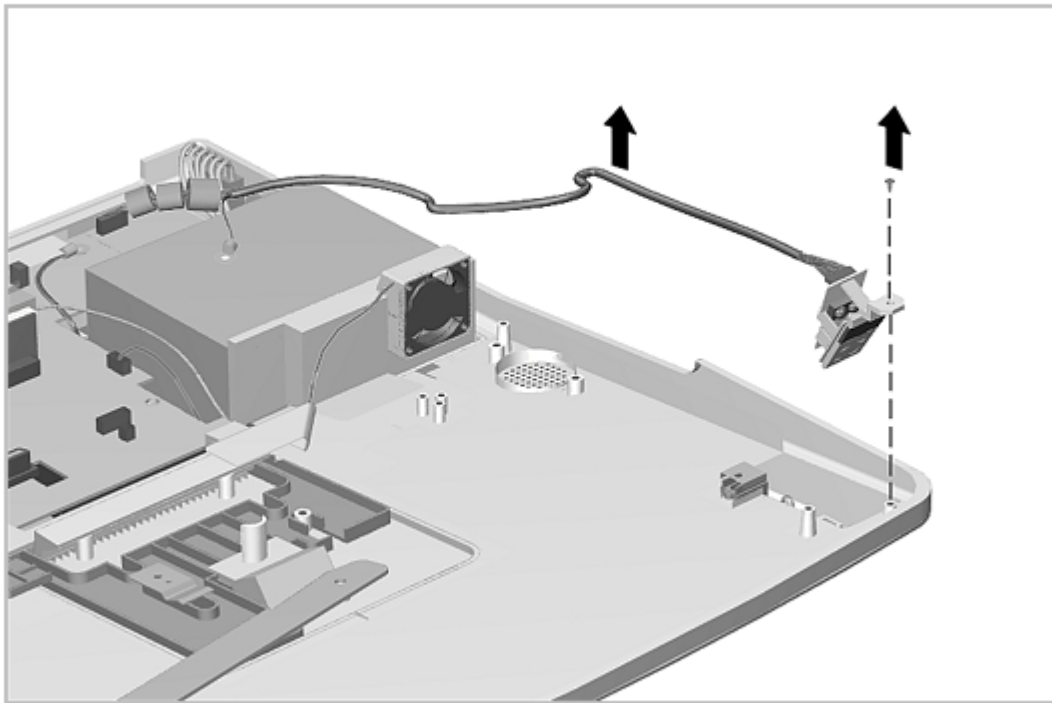


Figure 7-30. Removing the IrDA Board

Reverse the above procedure to install the IrDA board.

Chapter 7.15 Speaker Assemblies

The bottom cover assembly must be removed before removing the speaker assemblies. The speaker assemblies are installed as a unit with their cables permanently attached.

To remove the speaker assemblies, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 7.3.
2. Remove the bottom cover assembly as described in Section 7.5.
3. Note the cable routing and disconnect the speaker cables from the connector board (Figure 7-31).
4. Remove the four screws from the speaker mounting brackets and lift the speaker out of the bottom cover assembly (Figure 7-31).

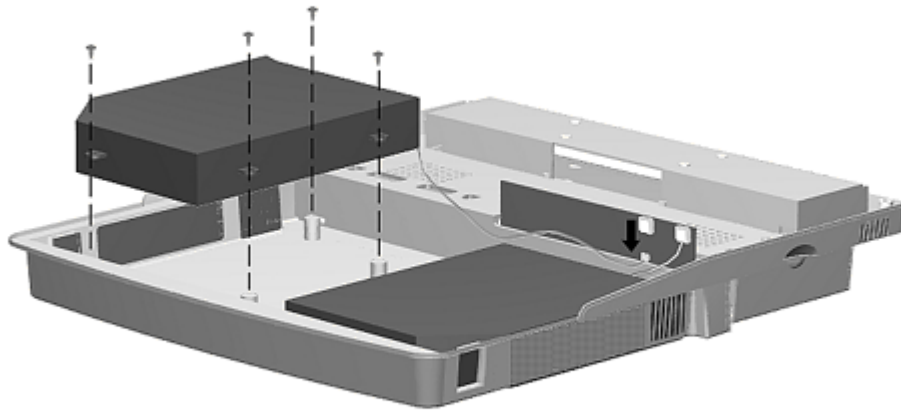


Figure 7-31. Removing the Speaker Assemblies

Reverse the above procedure to install a speaker assembly, paying particular attention to the cable routing.

Chapter 7.16 Alignment Guides

The bottom cover assembly must be removed before removing the alignment guides. The alignment guide assembly consists of the guide, spring, and bracket.

IMPORTANT: The left alignment guide and right alignment guide are keyed for proper installation.

The assembly is mounted to the expansion base with one screw. To remove the CPU guide assembly, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 7.3.
2. Remove the bottom cover assembly as described in Section 7.5.
3. Remove the guide screw (Figure 7-32).

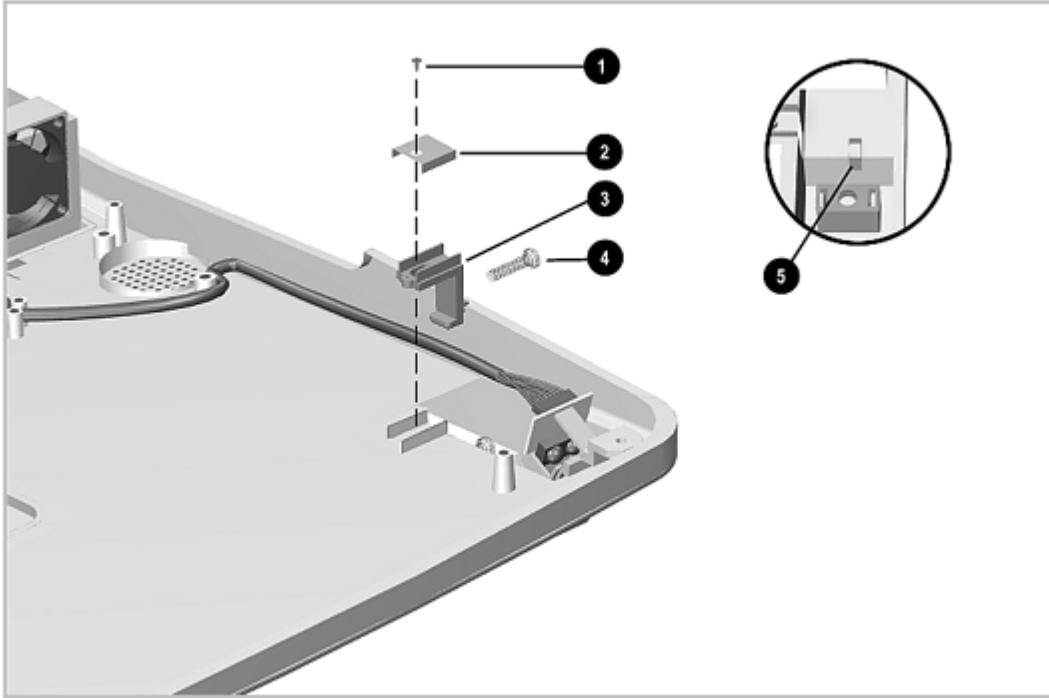


Figure 7-32. Removing the CPU Guide

4. Remove the CPU guide while guiding the spring out of its seat in the side panel of the expansion base (Figure 7-32).

Reverse the above procedure to install the CPU guide. Install the spring in its seat first and make certain it is seated completely. Do not over tighten the screw; the guide must be free to slide under the screw head.

Chapter 7.17 Monitor Support Cover Cap

The bottom cover must be removed before removing the monitor support cover cap. The monitor support cover cap and spring snap into place. To remove the cap and spring, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 7.3.
2. Remove the bottom cover assembly as described in Section 7.5.
3. Squeeze the tabs and allow the cap to drop out (Figure 7-33).

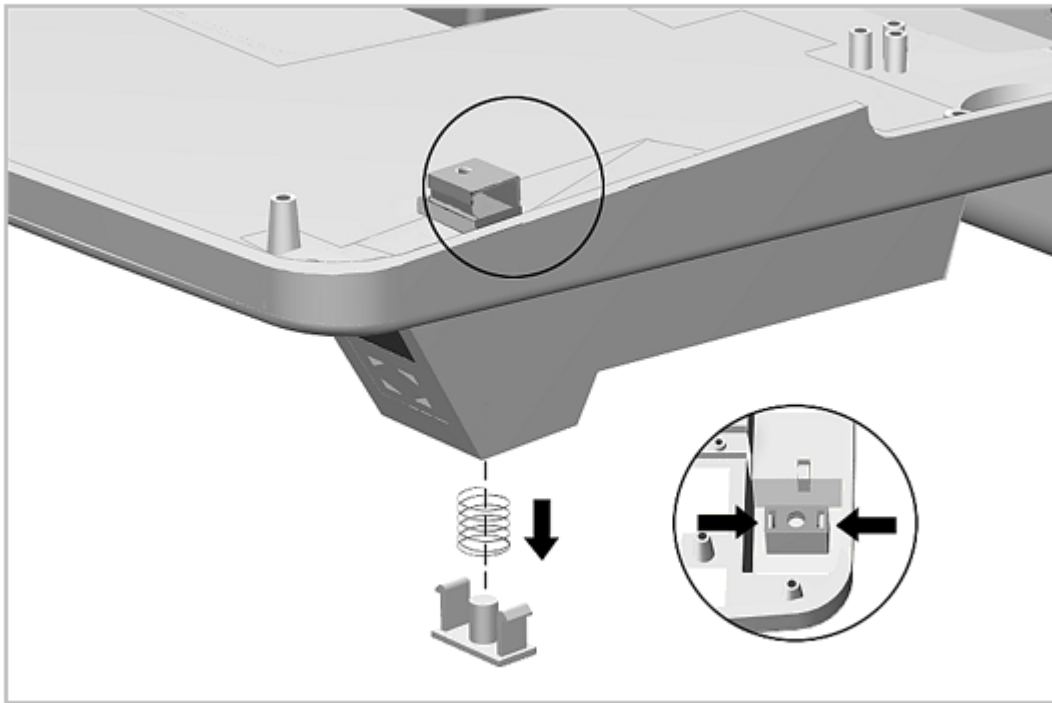


Figure 7-33. Removing the Monitor Support Cover Cap

Reverse the above procedure to install the monitor support cover cap.

Chapter 7.18 Docking Mechanism

The bottom cover assembly must be removed before removing the docking mechanism. The docking mechanism consists of the:

- o Docking lever
- o Docking lever cover
- o Docking lever shield
- o Slide block
- o Docking bar
- o Docking bar bushing
- o Puller plate assembly
- o Spring

To remove the docking mechanism, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 7.3.
2. Remove the bottom cover assembly as described in Section 7.5.
3. Remove the main board as described in Section 7.8.
4. Remove the screw and washer [1] that connects the docking bar [2] to the puller plate assembly [3] (Figure 7-34)

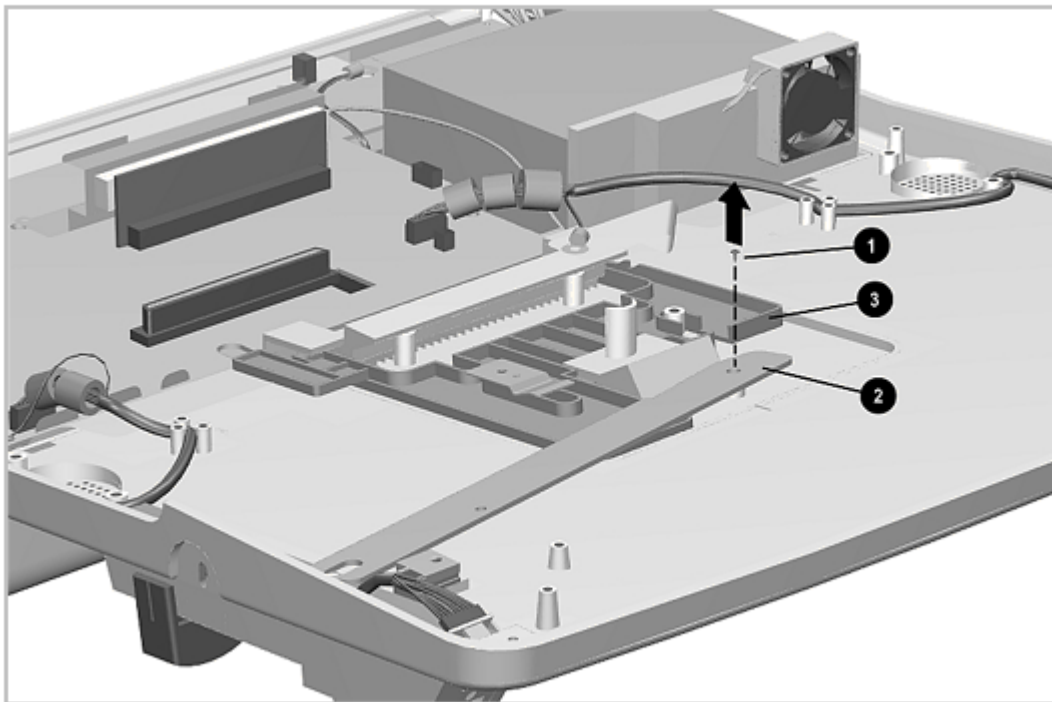


Figure 7-34. Disconnecting the Docking Bar from the Puller Plate

5. Lift the docking bar [1] and its bushing [2] out of the assembly (Figure 7-35).

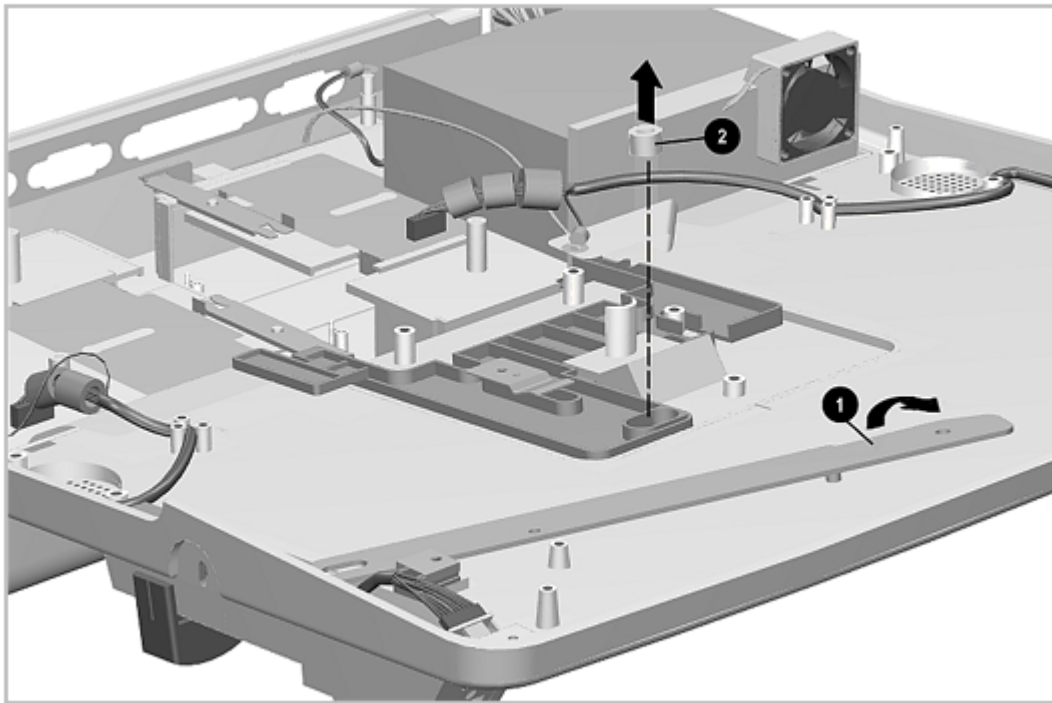


Figure 7-35. Removing the Docking Bar and Bushing

6. Remove the screw from the spring and lift the spring out (Figure 7-36).

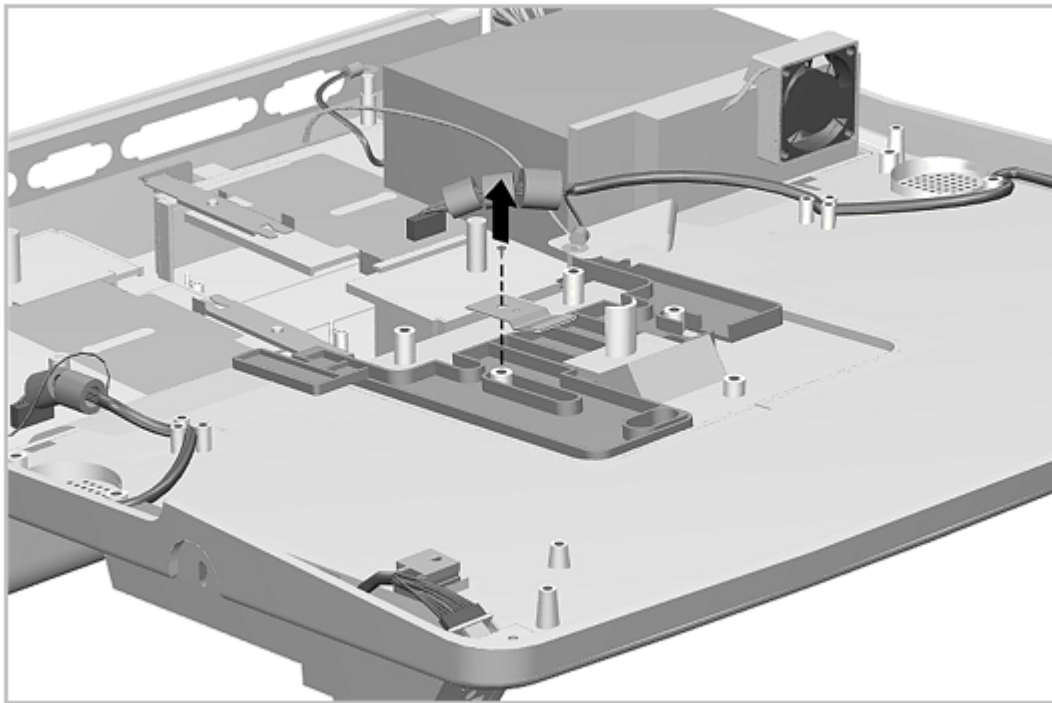


Figure 7-36. Removing the Puller Plate Spring

7. To remove the puller plate assembly [1], see Figure 7-37 and complete the following steps:
 - a. Slide the puller plate all the way back [2].

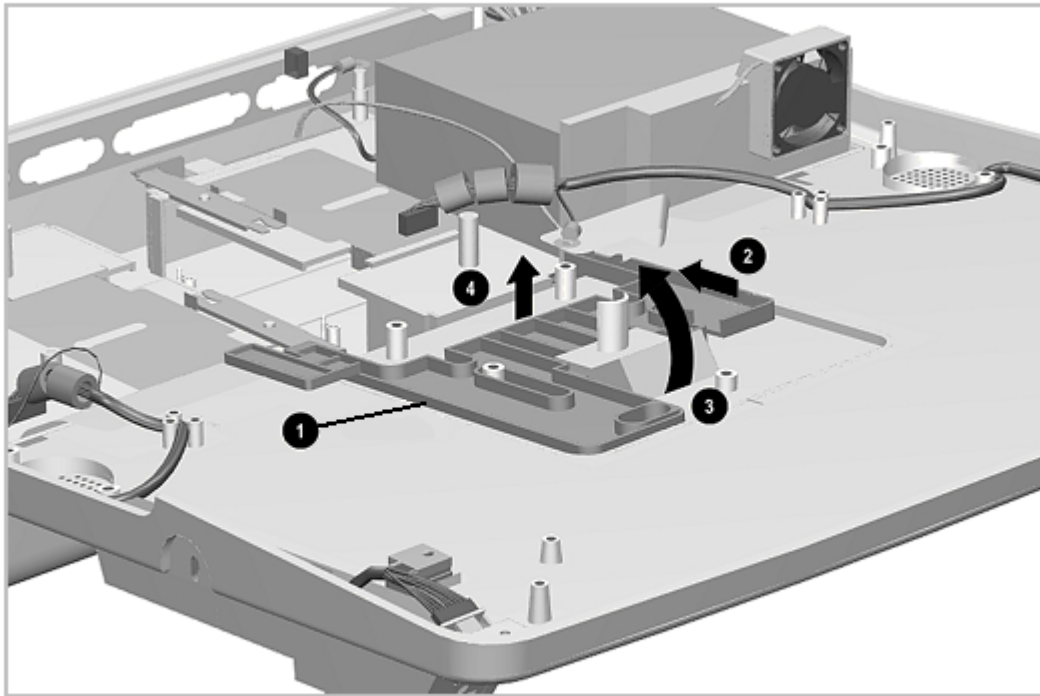


Figure 7-37. Removing the Puller Plate Assembly

- b. Lift the rear of the puller plate [4] and continue to slide back while pulling the catch [3] out of the opening in the base.

To install the puller plate assembly, press the docking aid [3] through the opening and slide the puller plate [1] into place (Figure 7-37).

Reverse the previous procedure to install the docking mechanism. Be sure to use nylock screws for the docking bar and spring.

Chapter 7.19 Docking Lever and Cover

To remove the docking lever and cover, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 7.3.
2. Remove the bottom cover assembly as described in Section 7.5.
3. Remove the screw and washer that connects the docking bar to the slide block and docking lever (Figure 7-38).

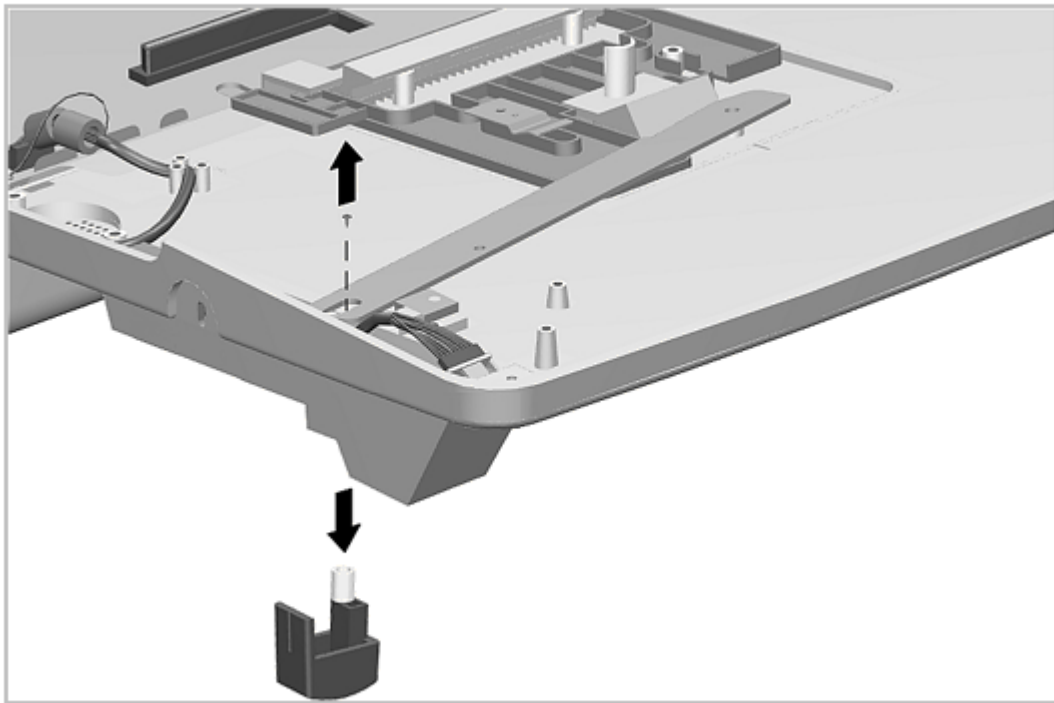


Figure 7-38. Removing the Docking Lever

4. The docking lever slider is now free to be removed [1] (Figure 7-39). Note that the little tab on one side of the docking lever slider [2] goes toward the outside of the expansion base at reassembly.

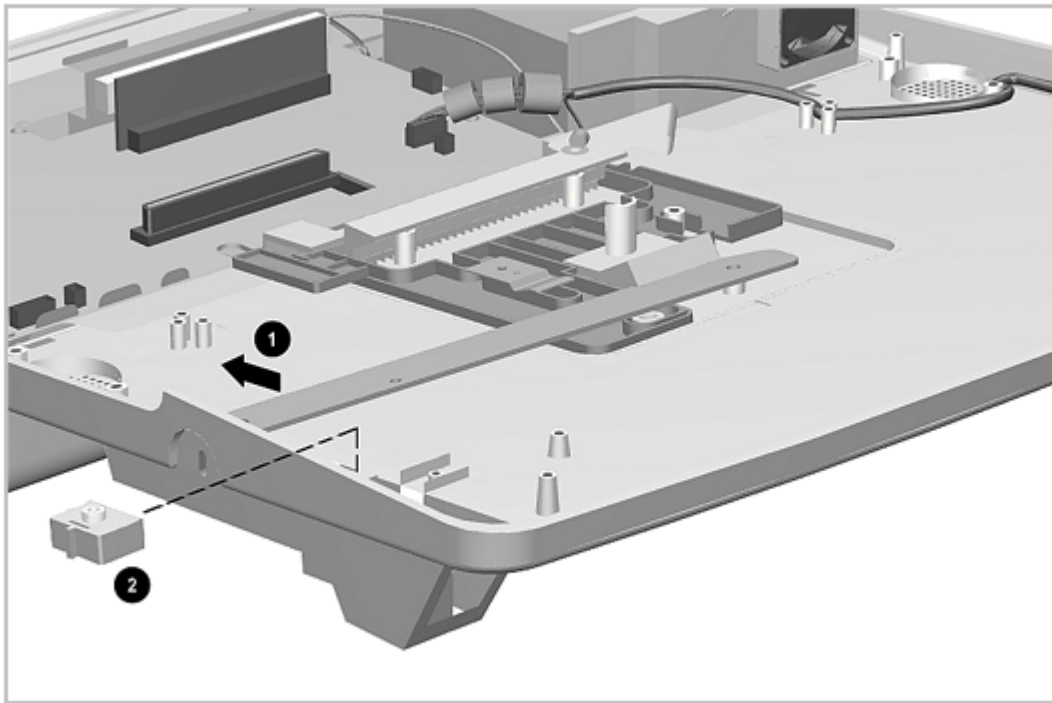


Figure 7-39. Removing the Docking Lever Slider

5. Remove the screws [1] and lift out the docking lever cover [2] (Figure 7-40).

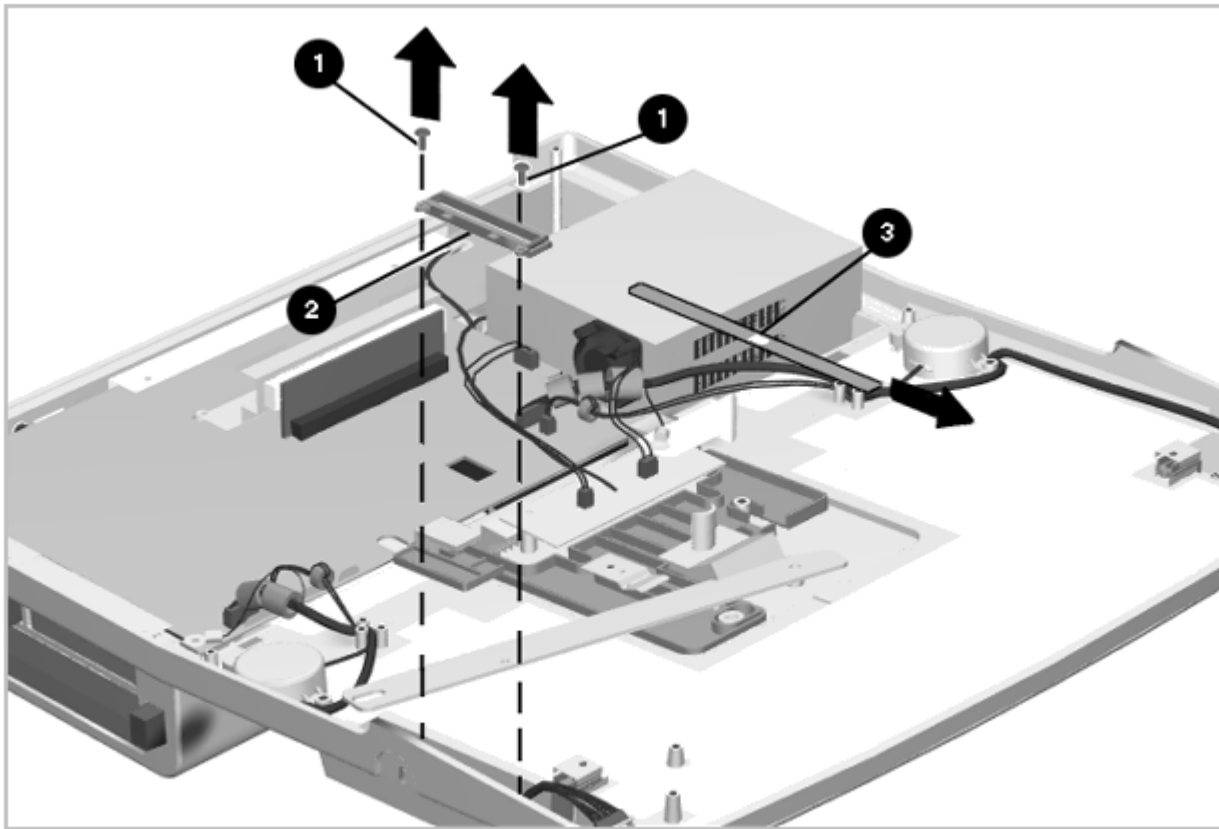


Figure 7-40. Removing the Docking Lever Cover

6. Remove the docking lever cover insert [3] as shown in Figure 7-40.

Reverse the above procedures to install the docking lever, docking lever slider, or docking lever cover.

Chapter 7.20 Security Lock Bracket

The security lock bracket simply slides into its mounting seat on the side of the expansion base. To remove and install the security lock bracket, complete the following steps:

1. Prepare the expansion base for disassembly as described in Section 7.3.
2. Remove the bottom cover assembly as described in Section 7.5.
3. Use a flat-blade screwdriver to pry the bracket straight up, or use a small pair of pliers to grasp the bracket and pull it out (Figure 7-41).

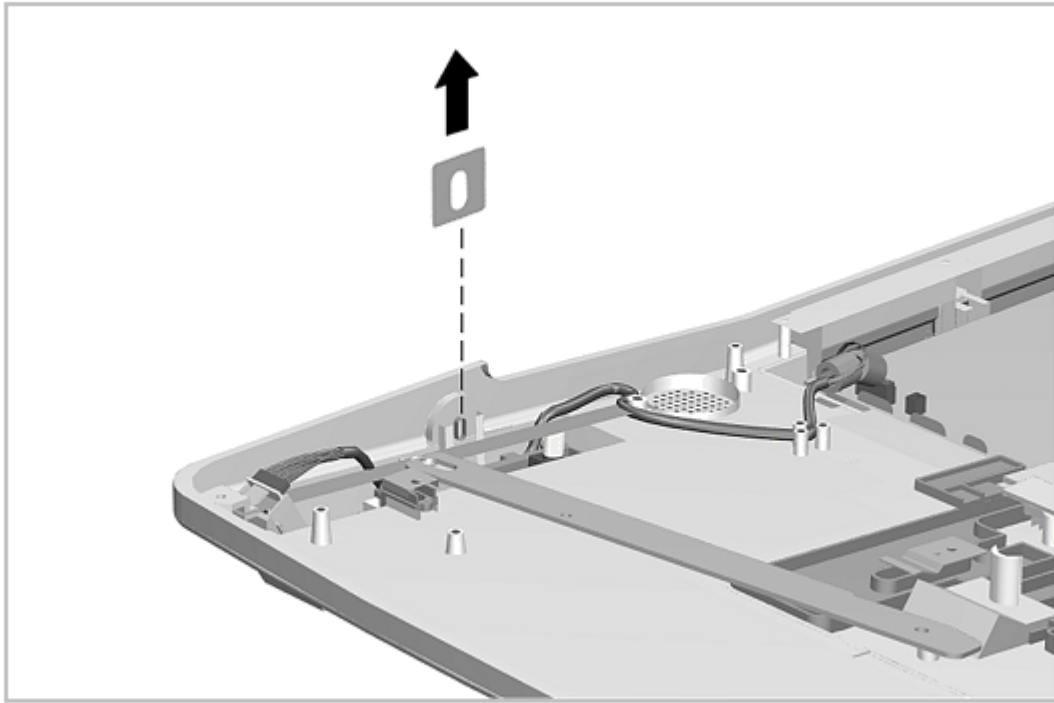


Figure 7-41. Removing the Security Lock Bracket

Chapter 8. Specifications

Chapter 8.0 Introduction

This chapter provides physical and performance specifications for the:

- o Computer
- o Display
- o Hard drives
- o Diskette drive
- o CD-ROM drive
- o Battery packs
- o MultiBay Expansion Base
- o MultiBay ISA Expansion Base

This chapter also includes:

- o System interrupts
- o System DMA
- o System I/O address
- o System memory map

Chapter 8.1 Computer Specifications

Table 8-1. Computer Specifications

	U.S.	Metric
Dimensions:		
Height	2.13 in	5.42 cm
Depth	9.06 in	23.00 cm
Width	12.20 in	31.00 cm
Weight:		
510 CSTN	7.1 lb	3.23 kg
810 CTFT	7.3 lb	3.32 kg
810 CSTN 800 x 600	7.5 lb	3.39 kg
810 CTFT 800 x 600	7.4 lb	3.35 kg
1350 CTFT 800 x 600	7.4 lb	3.35 kg
2160 CTFT 1024 x 768	7.4 lb	3.35 kg
Standalone (Battery) Power Requirements:		
Nominal Operating Voltage	12 VDC	

Maximum Operating Power	15 W
Peak Operating Power	25 W

AC Adapter Power Requirements:

Rated Voltage	100-200 VAC RMS
Operating Voltage	90-240 VAC RMS
Operating Current	0.4 - 0.8 A RMS
Operating Frequency Range	47 to 63 Hz AC
Maximum Transient	1kV for 50 ns

Automobile Adapter DC Input Requirements:

Operating Voltage	10 to 24 VDC
Operating Power	30 - 40 W

Temperature:

Operating	50 to 95oF	10 to 35oC
Nonoperating	-4 to 140oF	-20 to 60oC

Relative Humidity (noncondensing):

Operating	10 to 90%	10 to 90%
Nonoperating (tw = 38.7 C max)	5 to 95%	5 to 95%

Altitude:

Operating	0 to 10,000 ft	0 to 3.15 km
Nonoperating	0 to 30,000 ft	0 to 9.14 km

Shock:

Operating	10 G, 11 ms, half sine
Non operating	240 G, 2 ms, half sine

Vibration:

Operating	0.5 G
Nonoperating	1.5 G

NOTE: Applicable product safety standards specify thermal limits for plastic surfaces. The LTE 5000 operates well within this range of temperatures.

=====

Chapter 8.2 Display Specifications

Table 8-2. 10.4 inch Color TFT SVGA Display

	U.S.	Metric
=====		
Dimensions:		
Height	6.24 in	15.84 cm
Width	8.32 in	21.13 cm

Number of Colors	256, 32K, 64K	

Contrast Ratio	100:1	

Brightness	70 CD/M-2 @ 4.3 mA	

Pixel Resolution		
Pitch	0.264 x 0.264 mm	
Format	800 x 600	

Configuration	RGB Stripe
Backlight	Edge Lit
Character Display	80 x 25
Total Power Consumption	4.0 W

Table 8-3. 10.4 inch Color TFT VGA Display

	U.S.	Metric
Dimensions:		
Height	6.24 in	15.84 cm
Width	8.32 in	21.12 cm
Number of Colors	256, 32K, 64K, 16M	
Contrast Ratio	100:1	
Brightness	70 CD/M-2 @ 4.3 mA	
Pixel Resolution:		
Pitch	0.33 x 0.33 mm	
Format	640 x 480	
Configuration	RGB Stripe	
Backlight	Edge Lit	
Character Display	80 x 25	
Total Power Consumption	3.8 W	

Table 8-4. 11.3 inch Color TFT SVGA Display

	U.S.	Metric
Dimensions:		
Height	6.88 in	9.15 in
Width	17.48 cm	23.24 cm
Number of Colors	64K	
Contrast Ratio	100:1	
Brightness	70 CD/M-2 @ 4.0 mA	
Pixel Resolution:		
Pitch	0.288 x 0.288 mm	
Format	800 x 600	
Configuration	RGB Stripe	
Backlight	Edge Lit	
Character Display	80 x 25	
Total Power Consumption	3.7 W	

Table 8-5. 12.1 inch Color TFT SVGA Display

	U.S.	Metric
Dimensions:		
Height	7.26 in	18.45 cm
Width	9.68 in	24.6 cm
Number of Colors	64K	
Contrast Ratio	100:1	
Brightness	70 CD/M-2 @ 4.0mA	
Pixel Resolution:		
Pitch	0.3075 x 0.3075 mm	
Format	800 x 600	
Configuration	RGB Stripe	
Backlight	Edgelit	
Character Display	80 x 25	
Total Power Consumption	3.9 W	

Table 8-6. 12.1 inch Color TFT 1024x768 Display

	U.S.	Metric
Dimensions (Active area):		
Height	7.26 in	18.43 cm
Width	9.68 in	24.58 cm
Number of Colors	Panel: 256K System: 256	
Contrast Ratio	100:1	
Brightness	70 CD/M-2 @ 5.0mA	
Pixel Resolution:		
Pitch	0.24 x 0.24 mm	
Format	1024 x 768	
Configuration	RGB Stripe	
Backlight	Single CCFL/Sidelit	
Character Display	80 x 25	
Total Power Consumption	4.5 W	

Table 8-7. 11.3 inch Color DSTN SVGA Display

	U.S.	Metric
Dimensions:		
Height	6.80 in	9.07 in

Width	17.28 cm	23.04 cm
Number of Colors	256	
Contrast Ratio	25:1	
Brightness	70 CD/M-2 @ 6.0 mA	
Pixel Resolution:		
Pitch	0.288 x 0.288 mm	
Format	800 x 600	
Configuration	RGB Stripe	
Backlight	Edge Lit	
Character Display	80 x 25	
Total Power Consumption	3.8 W	

Table 8-8. 10.4 inch Color DSTN VGA Display

	U.S.	Metric
Dimensions:		
Height	6.24 in	15.84 cm
Width	8.32 in	21.13 cm
Number of Colors	256, 32K, 64K	
Contrast Ratio	20:1	
Brightness	70 CD/M-2 @ 4.0mA	
Pixel Resolution:		
Pitch	0.288 x 0.288 mm	
Format	640 x 480	
Configuration	RGB Stripe	
Backlight	Edgelit	
Character Display	80 x 25	
Total Power Consumption	3.8 W	

Chapter 8.3 Hard Drive Specifications

Table 8-9. Hard Drive Specifications

	510 MB	810 MB	1.35 GB	2.16 GB
Capacity per Drive	524 MB	808.2 MB	1.35 GB	2.16 GB
Drive Type	65	65	65	N/A
2.5 inch Form Factor	Yes	Yes	Yes	Yes

Sector Interleave	1:1	1:1	1:1	1:1
Integrated Controller	Yes	Yes	Yes	Yes
Physical Configuration:				
Cylinders	1920	2360	2920	3650
Heads	8	8	8	10
Bytes per sector	512	512	512	512
Logical Configuration:				
Cylinders	1016	1571	2633	4200
Heads	16	16	16	16
Sectors per Track	63	63	63	63
Bytes per Sector	512	512	512	512
Buffers Size	128K	128K	128K	128K
Seek Times (Typical, Including settling in ms):				
Single Track	6	4	3	3
Average	16	15	13	13
Full Stroke	26	24	25	25
Transfer Rates:				
Host/Interface (MB/sec)	5.22	8.33	11.1	11.1
Media (Mbits/sec)	27.28	24.9 - 36	24.7 to 44.9	38.1 to 54.8

Chapter 8.4 Diskette Drive Specifications

Table 8-10. Diskette Drive Specifications

Diskette size:	3.5 inch
High density	1.44 MB/1.2 MB
Low density	720 KB
Light	None
Height	0.59-in (15 mm)
Bytes per sector	512
Sectors per Track:	
High density	18 (1.44 MB)/15 (1.2 MB)
Low density	9
Tracks per Side	
High density	80 (1.44 MB)/80 (1.2 MB)
Low density	80
Read/Write heads	2
Average Seek Times:	
Track-to-Track (high/low)	3 ms
Average (high/low)	95 ms
Settling Time	15 ms
Latency Average	100 ms

Chapter 8.5 CD-ROM Drive Specifications

Table 8-11. Dual-Speed CD-ROM Drive Specifications

Applicable Disc	CD-ROM mode 1, mode 2 CD-Digital Audio CD-XA mode 2 (Form 1, Form 2) Photo CD (signal/multisession)
Center Hole Diameter	15 mm
Disc Diameter	12 cm, 8 cm
Rotational Speed	1060 - 400 rpm, double speed
Disc Thickness	1.2 mm
Track Pitch	1.8 um
Laser:	
Beam Divergence	10 (vertical)/36 (horizontal) degrees
Output Power	0.7 to 2.5 mw
Type	Ellipse
Wave Length	780 nm +15/- 10
Access time:	
Random	350 ms
Full Stroke	700 ms
Audio output level:	
Line Out	0.85 mV rms
Headphone	None
Cache buffer	64 KB
Data transfer rate:	
Sustained	300 KB/sec
Asynchronous	13.5 MB/sec
Startup Time	6.5 seconds typical

Table 8-12. Quad-Speed CD-ROM Drive Specifications

Applicable Disc	CD-ROM mode 1, mode 2 CD-Digital Audio CD-XA mode 2 (Form 1, Form 2) Photo CD (signal/multisession)
Center Hole Diameter	15 mm
Disc Diameter	12 cm, 8 cm
Rotational Speed	2120 - 800 rpm, quad-speed
Disc Thickness	1.2 mm

Track Pitch	1.8 um

Laser:	
Beam Divergence	10 (vertical)/36 (horizontal) degrees
Output Power	0.7 to 2.5 mw
Type	Ellipse
Wave Length	780 nm +15/- 10

Access time:	
Random	250 ms
Full Stroke	500 ms

Audio output level:	
Line Out	0.85 mV rms
Headphone	None

Cache buffer	128 KB

Data transfer rate:	
Sustained	600 KB/sec
Asynchronous	14.3 MB/sec
Startup Time	7 seconds typical
=====	

Table 8-13. 6X CD-ROM Drive Specifications

=====	
Applicable Disc	CD-ROM mode 1, mode 2 CD-Digital Audio CD-XA mode 2 (Form 1, Form 2) Photo CD (signal/multisession)

Center Hole Diameter	15 mm

Disc Diameter	12 cm, 8 cm

Rotational Speed	1200 - 3180 rpm

Disc Thickness	1.2 mm

Track Pitch	1.8 um

Laser:	
Beam Divergence	11 (vertical)/37 (horizontal) degrees
Output Power	5 mw
Type	AlGaAs double-hetero visible laser diode
Wave Length	785 nm

Access time:	
Random	190 ms (6X speed)
Full Stroke	450 ms (6X speed)

Audio output level:	
Line Out	0.85 mV rms
Headphone	None

Cache buffer	128 KB

Data transfer rate:	
Sustained	900 KB/sec
Asynchronous	16.7 MB/sec

Startup Time 8 seconds typical

Chapter 8.6 Battery Specifications

Table 8-14. Nickel Metal Hydride Battery Pack

	U.S.	Metric
Dimensions:		
Height	0.75 in	1.9 cm
Length	5.55 in	14.1 cm
Width	3.94 in	10.0 cm
Weight		
	1.30 lb	0.59 kg
Energy:		
Voltage	12 V	
Environmental Requirements:		
Operating temperatures	50oF to 104oF	10oC to 40oC
Storage temperatures		
No time limit	-4oF to 86oF	-20oC to 30oC
No longer than 3 months	-4oF to 104oF	-20oC to 40oC
No longer than 1 year	-4oF to 122oF	-20oC to 50oC

Chapter 8.7 MultiBay Expansion Base Physical and Environmental Specifications

Table 8-15. MultiBay Expansion Base Physical and Environmental

	U.S.	Metric
Dimensions:		
Height	3.18 in	8.07 cm
Depth	16.44 in	41.75 cm
Width	14.61 in	37.11 cm
Height (to top of monitor support cover)	4.16 in	10.57 cm
Weight		
Expansion Base	6.68 lb	3.03 kg
Monitor Stand	2.32 lb	1.05 kg
Power Supply (Input)		
Operating Voltage	90 to 260 VAC	
Operating Current	1.0 Amp Maximum	
Rated Voltage	100 to 240 VAC	
Rated Current	1.0 Amp Maximum	
Line Frequency	47 to 63 Hz.	
Temperature		
Operating	50 to 95oF	10 to 35oC
Nonoperating	-22 to 140oF	-30 to 60oC

Relative Humidity		
Operating	20 to 80%	
Nonoperating	5 to 90%	

Altitude		
Operating	10,000 ft	3048 m
Nonoperating	30,000 ft	9144 m

Shock		
Operating	5 G, 11 ms, half sine	
Nonoperating	140 G, 2 ms, half sine	

Vibration		
Operating	.25 G, 10 to 500 Hz sine	.25 octave/min sweep
Nonoperating	.75 G, 10 to 500 Hz sine	.5 octave/min sweep

Heat Dissipation	Btu/hr	kg-cal/min

Monitor Support (maximum)	55 lb	25 kg
=====		

The MultiBay Expansion Base is designed in accordance with ANSI specifications (number X3.131-1993, Revision 10h) and IEEE 802.3 specifications.

Chapter 8.8 MultiBay ISA Expansion Base Physical and Environmental Specifications

Table 8-16. MultiBay ISA Expansion Base Physical and Environmental

	U.S.	Metric
=====		
Dimensions:		
Height		
with monitor support cover	5.50 in	14.0 cm
without monitor support cover	4.51 in	11.5 cm
Depth	16.44 in	41.75 cm
Width	14.61 in	37.11 cm

Weight:		
Expansion Base	9.72 lb	4.41 kg
Monitor Stand	2.32 lb	1.05 kg

Power Supply (Input):		
Operating Voltage	90 to 260 VAC	
Operating Current	1.0 Amp Maximum	
Rated Voltage	100 to 240 VAC	
Rated Current	1.0 Amp Maximum	
Line Frequency	47 to 63 Hz.	

Temperature:		
Operating	50 to 95oF	10 to 35oC
Nonoperating	-22 to 140oF	-30 to 60oC

Relative Humidity:		
Operating	20 to 80%	
Nonoperating	5 to 90%	

Altitude:		
Operating	10,000 ft	3048 m
Nonoperating	30,000 ft	9144 m

Shock:		
Operating	5 G, 11 ms, half sine	
Nonoperating	140 G, 2 ms, half sine	

Vibration:		
Operating	.25 G, 10 to 500 Hz sine	.25 octave/min sweep
Nonoperating	.75 G, 10 to 500 Hz sine	.5 octave/min sweep

Heat Dissipation	Btu/hr	kg-cal/min

Monitor Support (maximum)	55 lb	25 kg
=====		

The MultiBay ISA Expansion Base is designed in accordance with ANSI specifications (number X3.131-1993, Revision 10h) and IEEE 802.3 specifications.

Chapter 8.9 System Interrupts

Table 8-17. System Interrupts

Hardware IRQ	System Function
IRQ0	Timer Interrupt
IRQ1	Keyboard
IRQ2	Interrupt Controller Cascade
IRQ3	Unused
IRQ4	Infrared Serial Port (COM 3) (default)
IRQ4	RS232 Serial Port (COM 1) (default)
IRQ5	Audio (default) *
IRQ6	Diskette Drive
IRQ7	Parallel Port (LPT 1) (default)
IRQ8	Real-Time Clock (Not on ISA Bus)
IRQ9	Unused (Except by optional MPEG)
IRQ10	Unused (Network Interface in MEB default) **
IRQ11	Unused, available for PC Card

```

IRQ12          Internal Point Stick or External Mouse
IRQ13          Coprocessor (Not available to any peripheral)
IRQ14          IDE Interface (Hard Disk and CD-ROM Drive)
IRQ15          Fixed Disk Drives on the MultiBay Expansion Base

```

```

-----
NOTES: PCMCIA cards may assert IRQ3, IRQ4, IRQ5, IRQ7, IRQ9, IRQ10, IRQ11,
      or IRQ15.  Either the infrared or the serial port may assert IRQ3
      or IRQ4.

```

```

      * Default configuration; audio possible configurations are: IRQ5,
      IRQ7, IRQ9, IRQ10, or none.

```

```

      ** Default configuration; possible configurations for the expansion
      base network interface adapter are IRQ9, IRQ10, IRQ11, or none.

```

Chapter 8.10 System DMA

Table 8-18. System DMA

```

=====
Hardware DMA    System Function
=====
DMA 0           Available for Audio

DMA 1           Entertainment Audio (Default; Alternate = DMA0, DMA3, None)

DMA 2           Diskette Drive

DMA 3           ECP Parallel Port LPT1 (Default; Alternate = DMA 0, none)

DMA 4           DMA Controller Cascading (Not available)

DMA 5           Available for PC Card

DMA 6           Not Assigned

DMA 7           Not Assigned

```

```

-----
NOTE: PC Card controller can use DMA 1, 2, or 5.
=====

```

Chapter 8.11 System I/O Address

Table 8-19. System I/O Address

```

=====
I/O Address (Hex)    System Function (Shipping Configuration)
=====
000 - 00F            DMA Controller # 1

010 - 01F            Unused

020 - 021            Interrupt Controller # 1

```

022 - 024	Opti Chipset Configuration registers
025 - 03F	Unused
02E - 02F	87334 "Super IO" configuration for CPU
040 - 043	Counter/Timer Registers
044 - 05F	Unused
060	Keyboard Controller
061	Port B
062 - 063	Unused
064	Keyboard Controller
065 - 06F	Unused
070 - 071	NMI Enable/Real Time Clock
072 - 07F	Unused
080 - 08F	DMA Page Registers
090 - 091	Unused
092	Port A
093 - 09F	Unused
0A0 - 0A1	Interrupt Controller # 2
0A2 - 0BF	Unused
0C0 - 0DF	DMA Controller # 2
0E0 - 0EF	Unused
0F0 - 0F1	Coprocessor Busy Clear/Reset
0F2 - 0FF	Unused
=====	
I/O Address (Hex)	System Function (Shipping Configuration)
=====	
100 - 16F	Unused
170 - 177	Secondary Fixed Disk Controller
178 - 1EF	Unused
1F0 - 1F7	Primary Fixed Disk Controller
1F8 - 200	Unused
201- 202	Joystick (Decoded in ESS1688)
203 - 21F	Unused

220 - 22F	Entertainment Audio (Default alternate is 230, 240, 250)
230 - 26D	Unused
26E - 26FH	National 87334 "Super IO" Controller in MEB
278 - 27F	Unused
280 - 2AB	Unused
2A0	MEB PC Card DMA Selection, Hard Drive Reset, IDE Select, MultiBay Device Identification
2A1 - 2E7	Unused
2E8 - 2EF	Reserved Serial Port (COM4)
2F0 - 2F7	Unused
2F8 - 2FF	Reserved for Serial Port (COM2)
300 - 31F	Network Interface in MEB (Default; Alternate is 320, 340, or 360h)
320 - 321	MPU-401 Interface (Default; Alternate is 300, 310, 330)
322- 36F	Unused
370 - 375	Secondary Floppy Controller (In MEB when a floppy is installed in the CPU)
376	Secondary Fixed Disk Controller
377	Secondary Floppy Controller (In MEB when a floppy is installed in the CPU)
378 - 37F	Parallel Port w/EPP support (LPT1/Default)
380 - 387	Unused
388 - 38B	FM Synthesizer - OPL3
38C - 3AF	Unused
3B0 - 3BB	VGA
3BC - 3BF	Reserved (Parallel Port/No EPP Support)
3C0 - 3DF	VGA
3E0 - 3E1	PC Card controller in CPU
3E2 - 3E3	PC Card controller in MEB
3E8 - 3EF	Infrared Serial Port (COM3/Default)
3F0 - 3F5	"A" Diskette Controller

3F6	Primary Fixed Disk Controller
3F7	"A" Diskette Controller
3F8 - 3FF	Serial Port (COM1/Default)
CF8 - CFB	PCI Configuration Index Register (PCIDIV0-1)
CFC - CFF	PCI Configuration Data Register (PCIDIV0-1)

=====

Chapter 8.12 System Memory Map

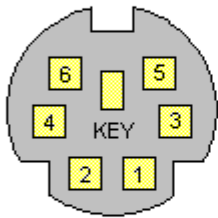
Table 8-20. System Memory Map

Size	Memory Address	System Function
640 K	00000000 - 0009FFFF	Base Memory
128 K	000A0000 - 000BFFFF	Video Memory
48 K	000C0000 - 000CBFFF	Video BIOS
112K	000CC000 - 000E7FFF	Unused
16 K	000E8000 - 000EBFFF	PCI System BIOS - Unused after POST
12 K	000EC000 - 000EEFFF	PnP System BIOS
4K	000EF000 - 000EFFFF	EPP System BIOS
64K	000F0000 - 000FFFFF	System BIOS
15 M	00100000 - 00FFFFFF	Extended Memory
64 M	01000000 - 04FFFFFF	Super Extended Memory
48 M	05000000 - 07FFFFFF	Unused
2 M	08000000 - 080FFFFF	Video Memory (Direct Access)
4 G	08200000 - FFFFFFFFFF	Unused
64 K	FFFF0000 - FFFFFFFF	System BIOS ("SHADOW")

=====

Appendix A.1 Connector Pin Assignments

This appendix contains the pin assignments for all external connectors.



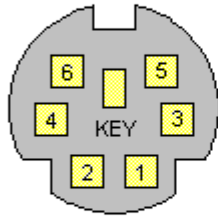
Pin	Signal
1	Data
2	Unused
3	Ground
4	+5 VDC
5	Clock
6	Unused

Location of Pin Assignments for the External Keyboard Connector

IPA-1A

Table A-1. External Keyboard

Pin	Signal
1	Data
2	Unused
3	Ground
4	+5 VDC
5	Clock
6	Unused



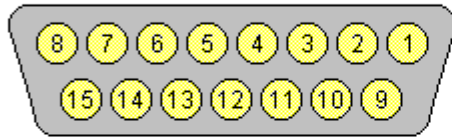
Pin	Signal
1	Data
2	Unused
3	Ground
4	+5 VDC
5	Clock
6	Unused

Location of Pin Assignments for the PS/2-Compatible Mouse

IPA-1B

Table A-2. PS/2-Compatible Mouse

Pin	Signal
1	Data
2	Unused
3	Ground
4	+5 VDC
5	Clock
6	Unused



Pin	Signal
1	Ground
2	Joystick Button
3	Joystick Direction
4	Ground
5	Ground
6	Joystick Direction
7	Joystick Button
8	Ground
9	Ground
10	Joystick Button
11	Joystick Direction
12	MIDI Out
13	Joystick Direction
14	Joystick Button
15	MIDI In

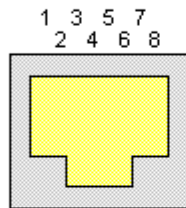
Location of Pin Assignments for the MIDI/Game Connector

IPA-1c

Table A-3. MIDI/Game

Pin	Signal
1	Ground
2	Joystick Button
3	Joystick Direction
4	Ground
5	Ground
6	Joystick Direction
7	Joystick Button
8	Ground
9	Ground
10	Joystick Button
11	Joystick Direction
12	MIDI Out

- 13 Joystick Direction
 - 14 Joystick Button
 - 15 MIDI In
- =====



Pin	Signal
1	(+) Transmit Data
2	(-) Transmit Data
3	(+) Receive Data
4	Unused
5	Unused
6	(-) Receive Data
7	Unused
8	Unused

Location of Pin Assignments for the Ethernet RJ-45 Connector

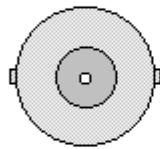
IPA-2a

Table A-4. Ethernet RJ-45

=====

Pin	Signal
1	(+) Transmit Data
2	(-) Transmit Data
3	(+) Receive Data
4	Unused
5	Unused
6	(-) Receive Data
7	Unused

=====



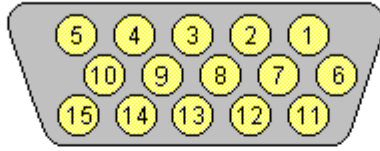
Pin	Signal
1 (Inside)	Data
2 (Outside)	Ground

Location of Pin Assignments for the BNC Connector

IPA-2b

Table A-5. BNC

Pin	Signal
1 (Inside)	Data
2 (Outside)	Ground



Pin	Signal	Pin	Signal
1	Red Analog	9	+5 Volt Supply
2	Green Analog	10	Ground
3	Blue Analog	11	Monitor ID Bit 0
4	Monitor ID Bit 2	12	Monitor ID Bit 1 (SDA)
5	Ground	13	Horizontal SyNC
6	Ground	14	Vertical SyNC
7	Ground	15	Monitor ID Bit 3 (SCL)
8	Ground		

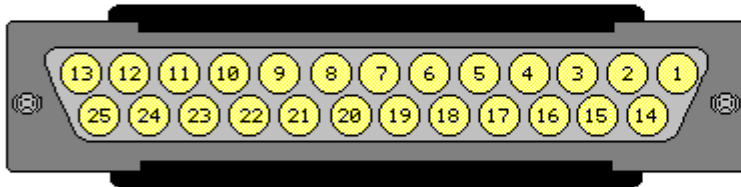
Location of Pin Assignments for the External Monitor Connector

IPA-2c

Table A-6. External Monitor

Pin	Signal
1	Red Analog
2	Green Analog
3	Blue Analog
4	Monitor ID Bit 2
5	Ground
6	Ground
7	Ground
8	Ground
9	+5 Volt Supply
10	Ground
11	Monitor ID Bit 0
12	Monitor ID Bit 1 (SDA)

- 13 Horizontal SyNC
 - 14 Vertical SyNC
 - 15 Monitor ID Bit 3 (SCL)
- =====



Pin	Signal
1	Strobe
2	Data Bit 0
3	Data Bit 1
4	Data Bit 2
5	Data Bit 3
6	Data Bit 4
7	Data Bit 5
8	Data Bit 6
9	Data Bit 7
10	Acknowledge
11	Busy
12	Paper End
13	Select
14	Auto Linefeed
15	Error
16	Initialize Printer
17	Select In
18-25	Signal Ground

Location of Pin Assignments for the Parallel Connector

IPA-3a

Table A-7. Parallel

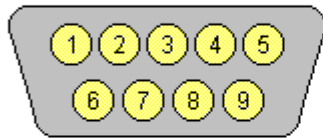
=====

Pin	Signal
1	Strobe
2	Data Bit 0
3	Data Bit 1
4	Data Bit 2
5	Data Bit 3
6	Data Bit 4
7	Data Bit 5

=====

8	Data Bit 6
9	Data Bit 7
10	Acknowledge
11	Busy
12	Paper End
14	Auto Linefeed
13	Select
15	Error
16	Initialize Printer
17	Select In
18	Ground
19	Ground
20	Ground
21	Ground
22	Ground
23	Ground
24	Ground
25	Ground

=====



Pin	Signal
1	Carrier Detect
2	Receive Data
3	Transmit Data
4	Data Terminal Ready
5	Ground
6	Data Set Ready
7	Request to Send
8	Clear to Send
9	Ring Indicator

Location of Pin Assignments for the Serial Connector

IPA-3b

Table A-8. Serial

Pin	Signal
1	Carrier Detect
2	Receive Data
3	Transmit Data
4	Data Terminal Ready
5	Ground
6	Data Set Ready
7	Ready to Send
8	Clear to Send
9	Ring Indicator



Pin	Signal	Pin	Signal
1	Expansion - SMI (Reserved)	26	System Data Bit 8
2	CRT - Red Video	27	System Data Bit 10
3	Battery 2 Voltage	28	Ground
4	CRT - Blue Video	29	System Data Bit 12
5	CRT - Green Video	30	System Data Bit 14
6	CRT - Vertical SyNC	31	System Data Bit 16
7	CRT - Horizontal SyNC	32	System Data Bit 20
8	CRT ID Bit 3 / Clock	33	Ground
9	Line In - Right Channel	34	16-Bit Memory Cycle*
10	Ground	35	Low Memory Read Control*
11	VAFC - Overlay Window	36	I/O Bus Ready*
12	VAFC - SyNC Enable	37	I/O Error Check*
13	IDE Active *	38	Ground
14	VAFC - Pixel Data 2	39	OSC
15	VAFC - Pixel Data 6	40	Ground
16	Ground	41	Interrupt Request 5
17	VAFC - Pixel Data 10	42	Interrupt Request 10
18	VAFC - Pixel Data 14	43	Interrupt Request 15
19	TV - Composite SyNC	44	DMA Request 3
20	Ground	45	DMA Acknowledge 0*
21	System Data Bit 0	46	DMA Acknowledge 5*
22	System Data Bit 2	47	DMA Acknowledge 7*
23	System Data Bit 4	48	NC
24	Ground	49	Mouse Clock
25	System Data Bit 6	50	Keypad - Data/Power

*** Active Low**

Location of Pin Assignments for the MPEG and TV Video Adapter Connector

IPA-4

Table A-9. MPEG and TV Video Adapter Connector

Pin	Signal
1	Expansion - SMI (Reserved)
2	CRT - Red Video
3	Battery 2 Voltage
4	CRT- Blue Video
5	CRT- Green Video
6	CRT- Vertical SyNC
7	CRT- Horizontal SyNC
8	CRT ID Bit 3 / Clock

9	Line In - Right Channel
10	Ground
11	VAFC - Overlay Window
12	VAFC - SyNC Enable
13	IDE Active *
14	VAFC - Pixel Data 2
15	VAFC - Pixel Data 6
16	Ground
17	VAFC - Pixel Data 10
18	VAFC - Pixel Data 14
19	TV - Composite SyNC
20	Ground
21	System Data Bit 0
22	System Data Bit 2
23	System Data Bit 4
24	Ground
25	System Data Bit 6
=====	
Pin	Signal
=====	
26	System Data Bit 8
27	System Data Bit 10
28	Ground
29	System Data Bit 12
30	System Data Bit 14
31	System Data Bit 16
32	System Data Bit 20
33	Ground
34	16-Bit Memory Cycle *
35	Low Memory Read Control *
36	I/O Bus Ready *
37	I/O Error Check *

38 Ground
39 OSC
40 Ground
41 Interrupt Request 5
42 Interrupt Request 10
43 Interrupt Request 15
44 DMA Request 3
45 DMA Acknowledge 0 *
46 DMA Acknowledge 5 *
47 DMA Acknowledge 7 *
48 NC
49 Mouse Clock
50 Keypad - Data/Power

=====
Pin Signal
=====

51 NC
52 Mouse Data
53 NC
54 NC
55 NC
56 DMA Acknowledge 1 *
57 DMA Request 5
58 DMA Request 0
59 Interrupt Request 11
60 Interrupt Request 6
61 Interrupt Request 3
62 Ground
63 Bus Master Grab *
64 No Wait State *
65 DMA Terminate Count
66 Low Memory Write Control *

67	Byte High Enable *
68	Ground
69	System Address Bit 21
70	System Address Bit 17
71	System Data Bit 15
72	System Data Bit 13
73	Ground
74	System Data Bit 11
75	System Data Bit 9

Pin	Signal

76	System Data Bit 7
77	Ground
78	System Data Bit 5
79	System Data Bit 3
80	System Data Bit 1
81	Ground
82	TV - NTSC/PAL ENCOding Select
83	VAFC - Pixel Data 15
84	VAFC - Pixel Data 11
85	Ground
86	VAFC - Pixel Data 7
87	VAFC - Pixel Data 6
88	Ground
89	VAFC - Dot Clock
90	VAFC - Blanking *
91	Ground
92	Line - Left Channel
93	Ground
94	Joystick Read Control *
95	Joystick Write Control *

96 DC Voltage
97 Expansion - Clock (Reserved)
98 Battery 2 Voltage
99 CRT ID Bit / Data
100 Battery 1 Voltage

=====
Pin Signal
=====

101 Battery 1 Voltage
102 CRT ID Bit 0
103 Battery 2 Voltage
104 Expansion - Data (Reserved)
105 DC Voltage Input
106 MIDI In
107 MIDI Out
108 Ground
109 Line Out - Right Channel
110 Ground
111 VAFC - Video Clock
112 VAFC - Pixel Data 0
113 Ground
114 VAFC - Pixel Data 4
115 VAFC - Pixel Data 8
116 Ground
117 VAFC - Pixel Data 12
118 MPEG Audio - Clock
119 TV - On Control
120 Ground
121 System Address Bit 0
122 System Address Bit 2
123 System Address Bit 4
124 Ground

125	System Address Bit 6
=====	
Pin	Signal
=====	
126	System Address Bit 8
127	System Address Bit 10
128	Ground
129	System Address Bit 12
130	System Address Bit 14
131	System Address Bit 18
132	System Address Bit 22
133	Ground
134	Memory Read Control *
135	I/O Read Control *
136	Refresh *
137	Address Latch Enable
138	Reset Drive
139	Ground
140	Interrupt Request 4
141	Interrupt Request 7
142	Interrupt Request 12
143	DMA Request 1
144	DMA Request 6
145	DMA Acknowledge 2 *
146	NC
147	Expansion Network Enable *
148	Expansion I/O Power Down
149	Keyboard Clock
150	+5V System Output
=====	
Pin	Signal
=====	
151	+5V System Output
152	Keyboard Data

153	Expansion Device Ready
154	NC
155	DMA Acknowledge 6 *
156	DMA Acknowledge 3 *
157	DMA Request 7
158	DMA Request 2
159	Interrupt Request 14
160	Interrupt Request 9
161	Ground
162	System Clock
163	Ground
164	DMA Cycle Indicator
165	16-Bit I/O Cycle *
166	I/O Write Control *
167	Memory Write Control *
168	Ground
169	System Address Bit 23
170	System Address Bit 19
171	System Address Bit 15
172	System Address Bit 13
173	Ground
174	System Address Bit 11
175	System Address Bit 9
=====	
Pin	Signal
=====	
176	System Address Bit 7
177	Ground
178	System Address Bit 5
179	System Address Bit 3
180	System Address Bit 1
181	Ground

182 MPEG Audio - Data
183 MPEG Audio - R/L Channel Select
184 VAFC - Pixel Data 13
185 Ground
186 VAFC - Pixel Data 9
187 VAFC - Pixel Data 5
188 Ground
189 VAFC - Pixel Data 1
190 VAFC - Enable Video *
191 FDD Active *
192 Line Out - Left Channel
193 Ground
194 Secondary PCMCIA SMI
195 Secondary PCMCIA Speaker
196 DC Voltage Input
197 Secondary PCMCIA Ring-In
198 Power Switch
199 CRT ID Bit 2
200 Battery 1 Voltage

* Active Low
=====



Pin	Signal	Pin	Signal
1	Expansion - SMI (Reserved)	26	System Data Bit 8
2	CRT - Red Video	27	System Data Bit 10
3	Battery 2 Voltage	28	Ground
4	CRT - Blue Video	29	System Data Bit 12
5	CRT - Green Video	30	System Data Bit 14
6	CRT - Vertical SyNC	31	System Data Bit 16
7	CRT - Horizontal SyNC	32	System Data Bit 20
8	CRT ID Bit 3 / Clock	33	Ground
9	Line In - Right Channel	34	16-Bit Memory Cycle*
10	Ground	35	Low Memory Read Control*
11	VAFC - Overlay Window	36	I/O Bus Ready*
12	VAFC - SyNC Enable	37	I/O Error Check*
13	IDE Active *	38	Ground
14	VAFC - Pixel Data 2	39	OSC
15	VAFC - Pixel Data 6	40	Ground
16	Ground	41	Interrupt Request 5
17	VAFC -Pixel Data 10	42	Interrupt Request 10
18	VAFC - Pixel Data 14	43	Interrupt Request 15
19	TV - Composite SyNC	44	DMA Request 3
20	Ground	45	DMA Acknowledge 0*
21	System Data Bit 0	46	DMA Acknowledge 5*
22	System Data Bit 2	47	DMA Acknowledge 7*
23	System Data Bit 4	48	NC
24	Ground	49	Mouse Clock
25	System Data Bit 6	50	Keypad - Data/Power

*** Active Low**

Location of Pin Assignments for the External Options Connector

IPA-8

Table A-10. External Options Connector

Pin	Signal
1	Expansion - SMI (Reserved)
2	CRT - Red Video
3	Battery 2 Voltage
4	CRT - Blue Video
5	CRT - Green Video
6	CRT - Vertical SyNC
7	CRT - Horizontal SyNC
8	CRT ID Bit 3 / Clock

9	Line In - Right Channel
10	Ground
11	VAFC - Overlay Window
12	VAFC - SyNC Enable
13	IDE Active*
14	VAFC - Pixel Data 2
15	VAFC - Pixel Data 6
16	Ground
17	VAFC - Pixel Data 10
18	VAFC - Pixel Data 14
19	TV - Composite SyNC
20	Ground
21	System Data Bit 0
22	System Data Bit 2
23	System Data Bit 4
24	Ground
25	System Data Bit 6
=====	
Pin	Signal
=====	
26	System Data Bit 8
27	System Data Bit 10
28	Ground
29	System Data Bit 12
30	System Data Bit 14
31	System Data Bit 16
32	System Data Bit 20
33	Ground
34	16-Bit Memory Cycle *
35	Low Memory Read Control *
36	I/O Bus Ready *
37	I/O Error Check *

38 Ground
39 OSC
40 Ground
41 Interrupt Request 5
42 Interrupt Request 10
43 Interrupt Request 15
44 DMA Request 3
45 DMA Acknowledge 0 *
46 DMA Acknowledge 5 *
47 DMA Acknowledge 7 *
48 NC
49 Mouse Clock
50 Keypad - Data/Power

=====
Pin Signal
=====

51 NC
52 Mouse Data
53 NC
54 NC
55 NC
56 DMA Acknowledge 1 *
57 DMA Request 5
58 DMA Request 0
59 Interrupt Request 11
60 Interrupt Request 6
61 Interrupt Request 3
62 Ground
63 Bus Master Grab *
64 No Wait State *
65 DMA Terminate Count
66 Low Memory Write Control *

67	Byte High Enable *
68	Ground
69	System Address Bit 21
70	System Address Bit 17
71	System Data Bit 15
72	System Data Bit 13
73	Ground
74	System Data Bit 11
75	System Data Bit 9

Pin	Signal

76	System Data Bit 7
77	Ground
78	System Data Bit 5
79	System Data Bit 3
80	System Data Bit 1
81	Ground
82	TV - NTSC/PAL ENCOding Select
83	VAFC - Pixel Data 15
84	VAFC - Pixel Data 11
85	Ground
86	VAFC - Pixel Data 7
87	VAFC - Pixel Data 6
88	Ground
89	VAFC - Dot Clock
90	VAFC - Blanking *
91	Ground
92	Line - Left Channel
93	Ground
94	Joystick Read Control *
95	Joystick Write Control *

96 DC Voltage
97 Expansion - Clock (Reserved)
98 Battery 2 Voltage
99 CRT ID Bit / Data
100 Battery 1 Voltage

=====
Pin Signal
=====

101 Battery 1 Voltage
102 CRT ID Bit 0
103 Battery 2 Voltage
104 Expansion - Data (Reserved)
105 DC Voltage Input
106 MIDI In
107 MIDI Out
108 Ground
109 Line Out - Right Channel
110 Ground
111 VAFC - Video Clock
112 VAFC - Pixel Data 0
113 Ground
114 VAFC - Pixel Data 4
115 VAFC - Pixel Data 8
116 Ground
117 VAFC - Pixel Data 12
118 MPEG Audio - Clock
119 TV - On Control
120 Ground
121 System Address Bit 0
122 System Address Bit 2
123 System Address Bit 4
124 Ground

125	System Address Bit 6
=====	
Pin	Signal
=====	
126	System Address Bit 8
127	System Address Bit 10
128	Ground
129	System Address Bit 12
130	System Address Bit 14
131	System Address Bit 18
132	System Address Bit 22
133	Ground
134	Memory Read Control *
135	I/O Read Control *
136	Refresh *
137	Address Latch Enable
138	Reset Drive
139	Ground
140	Interrupt Request 4
141	Interrupt Request 7
142	Interrupt Request 12
143	DMA Request 1
144	DMA Request 6
145	DMA Acknowledge 2 *
146	NC
147	Expansion Network Enable *
148	Expansion I/O Power Down
149	Keyboard Clock
150	+5V System Output
=====	
Pin	Signal
=====	
151	+5V System Output
152	Keyboard Data

153	Expansion Device Ready
154	NC
155	DMA Acknowledge 6 *
156	DMA Acknowledge 3 *
157	DMA Request 7
158	DMA Request 2
159	Interrupt Request 14
160	Interrupt Request 9
161	Ground
162	System Clock
163	Ground
164	DMA Cycle Indicator
165	16-Bit I/O Cycle *
166	I/O Write Control *
167	Memory Write Control *
168	Ground
169	System Address Bit 23
170	System Address Bit 19
171	System Address Bit 15
172	System Address Bit 13
173	Ground
174	System Address Bit 11
175	System Address Bit 9
=====	
Pin	Signal
=====	
176	System Address Bit 7
177	Ground
178	System Address Bit 5
179	System Address Bit 3
180	System Address Bit 1
181	Ground

182 MPEG Audio - Data
183 MPEG Audio - R/L Channel Select
184 VAFC - Pixel Data 13
185 Ground
186 VAFC - Pixel Data 9
187 VAFC - Pixel Data 5
188 Ground
189 VAFC - Pixel Data 1
190 VAFC - Enable Video *
191 FDD Active *
192 Line Out - Left Channel
193 Ground
194 Secondary PCMCIA SMI
195 Secondary PCMCIA Speaker
196 DC Voltage Input
197 Secondary PCMCIA Ring-In
198 Power Switch
199 CRT ID Bit 2
200 Battery 1 Voltage

* Active Low
=====

Appendix B. Power Cord Set Requirements

B.1 3-Conductor Power Cord Set

The wide range input feature of your computer permits it to operate from any line voltage from 90 to 264 volts AC.

The power cord set received with the computer meets the requirements for use in the country where you purchased the equipment.

Power cord sets for use in other countries must meet the requirements of the country where you use the computer. For more information on power cord set requirements, contact your Compaq authorized reseller or service provider.

General Requirements

The requirements listed below are applicable to all countries:

1. The length of the power cord set must be at least 6.00 feet (1.8 m) and a maximum of 9.75 feet (3.0 m).
2. All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country where the power cord set will be used.
3. The power cord set must have a minimum current capacity of 10A and a nominal voltage rating of 125 or 250 volts AC, as required by each country's power system.
4. The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector, for mating with appliance inlet on the Switch Box.

Country-Specific Requirements

3-Conductor 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: The flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 mm² 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: The flexible cord must be Type SJT or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15A, 125V) or NEMA 6-15P (15A 250V) configuration.

3: The appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 0.75mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (15A, 125V) configuration.

=====

Appendix B.2 2-Conductor Power Cord Set

The wide-range input feature of your computer permits it to operate from any line voltage between 100 to 240 volts AC.

The power plug or power cord set (appliance coupler, flexible cord, and wall plug) you received with your computer meets the requirements for use in the country where you purchased your computer.

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

General Requirements

The requirements listed below are applicable to all countries:

1. The length of the power cord set must be at least 6.00 feet (1.8 m) and a maximum of 9.75 feet (3.0 m).
2. All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country where the power cord set will be used.

3. The power cord set must have a minimum current capacity of 2.5A and a nominal voltage rating of 125 or 250 volts AC, as required by each country's power system.
4. The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C7 connector, for mating with appliance inlet on the AC Adapter.

Country-Specific Requirements

2-Conductor 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	FIMKO	1
France	UTE	1
Germany	VDE	1
Italy	IMQ	1
Japan	JIS	3
The Netherlands	KEMA	1
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 HO3VV-F, 2-conductor, 0.75 mm² 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 SPT-2 or equivalent, No. 18 AWG, 2-conductor. Wall plug must be a two-pole type with a NEMA 1-15P (15A, 125V) configuration.

Appendix C. Using Additional Hard Drives

The Compaq LTE 5000 Family of Personal Computers can support up to four hard drives: two in the computer and two in the MultiBay Expansion Base or MultiBay ISA Expansion Base. A variety of optional Compaq LTE 5000 hard drives is available. Some Compaq LTE Elite hard drives are also compatible as data storage drives.

The LTE 5000 hard drive that is preinstalled in the dedicated hard drive bay contains the software necessary to access resources such as PC Cards, IrDA, multimedia, and others. Those resources will not be available if you start (boot) the computer from a drive other than the preinstalled hard drive (or a specially prepared hard drive).

IMPORTANT: The preinstalled software on the LTE Elite hard drive does not match the LTE 5000 hardware, and the preinstalled software on the LTE 5000 hard drive does not match the LTE Elite hardware. Starting the computer from a drive other than the original preinstalled hard drive, which contains the appropriate software, can produce unpredictable results. Drives shipped from Compaq with the LTE 5000 preloaded software have the product name (LTE 5000) on the label.

Appendix C.1 Using Optional LTE 5000 Hard Drives

Insert an optional LTE 5000 hard drive into a MultiBay hard drive carrier and then load it into one of the MultiBays in the computer or expansion base. Boot the computer from the preinstalled LTE 5000 hard drive in the dedicated hard drive bay.

NOTE: If you want to create an additional bootable hard drive, you must partition and format the drive as a bootable drive. You must also copy to the drive the LTE 5000 software that is necessary to operate the computer and access the computer features.

Appendix C.2 Using LTE Elite Hard Drives for Data Storage

Early model LTE Elite hard drives cannot be used as secondary drives. However, later model LTE Elite hard drives do have secondary-drive capability. If you have an LTE Elite hard drive with secondary-drive capability, you can use it in one of the MultiBays in the LTE 5000 or the MultiBay Expansion Base to store data or to transfer data files.

An LTE Elite hard drive that has secondary-drive capability is identified by the following symbol on the label located on the top of the drive:

The following limitations apply when using an early model LTE Elite hard drive (one that does not have the secondary-drive capability symbol):

- o When used in either expansion base, the LTE Elite hard drive must be the only device in the expansion base.

- o When used in the computer, the LTE Elite hard drive can be inserted only in the dedicated bay.

Using an LTE Elite Hard Drive That Has Secondary-Drive Capability

If an LTE Elite hard drive has the secondary-drive capability symbol, you can insert it into one of the MultiBays, but you must still boot from the LTE 5000 hard drive. Place the LTE Elite hard drive into a MultiBay hard drive carrier (sold separately) before inserting it into a MultiBay. Use the secondary-drive capable LTE Elite hard drive as you would any second hard drive.

Using an LTE Elite Hard Drives That Does Not Have Secondary-Drive Capability

Early model LTE Elite hard drives that do not have the secondary-drive capability symbol must be used in the primary drive bay in the computer or the expansion base.

Before beginning one of the procedures described below to insert the drive, run Computer Setup and ensure that the hard drive boot sequence on the Initialization menu is set to the factory default of:

1. Hard drive in the computer
2. Hard drive in the computer MultiBay
3. Hard drive in the expansion base MultiBay I
4. Hard drive in the expansion base MultiBay II

See Chapter 2 for more information about running Computer Setup.

Follow these steps to insert an LTE Elite hard drive that does not have secondary-drive capability into the expansion base MultiBay I:

1. Save your work and shut down the computer.
2. Place the LTE Elite hard drive into the MultiBay hard drive carrier (sold separately).
3. Insert the MultiBay hard drive carrier into the expansion base MultiBay I (the MultiBay on the left side of the Expansion Base).

NOTE: If you have another hard drive in MultiBay II, that hard drive must have secondary-drive capability.

4. Turn on the computer.

Use the LTE Elite hard drive as you would use any second hard drive.

If you do not have an expansion base, you can insert an LTE Elite hard drive that does not have secondary-drive capability into the dedicated hard drive bay. Use this procedure to transfer files only; it is not recommended for everyday use.

IMPORTANT: The computer does not automatically load Microsoft Windows 95 when this procedure is used. Follow this procedure only if you are experienced at using MS-DOS mode commands.

Follow these steps to insert an LTE Elite hard drive that does not have secondary-drive capability into the dedicated hard drive bay:

1. Save your work and shut down the computer.
2. Remove the LTE 5000 hard drive from the dedicated hard drive bay.
3. Place the LTE 5000 hard drive into the MultiBay Hard Drive Carrier (sold separately) and insert the carrier into the computer MultiBay.

NOTE: You can insert a hard drive other than the original LTE 5000 hard drive; however, the drive must have secondary-drive capability. To use a CD-ROM drive in the computer MultiBay, you must install the CD-ROM drivers.

4. Insert the LTE Elite hard drive into the dedicated hard drive bay.
5. Step 5 depends on the operating system on the LTE Elite hard drive.
 - o If the drive has Windows 95, turn on the computer and press F8 when you see the message "starting Windows 95." When the Windows 95 Startup Menu appears, select "Command Prompt Only."
 - o If the drive has Windows 3.1, turn on the computer and press F5 when you see the message "starting MS-DOS." This bypasses the configuration files (AUTOEXEC.BAT and CONFIG.SYS).

6. Use the COPY command to transfer files.

NOTE: Some LTE 5000 features will not be available until you reinsert the LTE 5000 hard drive in the dedicated hard drive bay and restart the computer.

Appendix C.3 Hard Drive Compatibility

Table C-1. Hard Drive Differences

Feature	Comparison
Secondary drive capability	<p>LTE Elite drives are jumpered internally to be "Device 0" (master) drives. They cannot function as "Device 1" (slave) drives</p> <p>The LTE 5000 Personal Computer supports multiple drives and LTE 5000 drives are jumpered as "cable select." The drive looks at a pin on the cable to determine whether it is "Device 0" or "Device 1." They can function as primary or secondary drives.</p>

The systems can boot only from "Device 0" drives.

Drives with secondary drive capability (cable select) have the following icon on the label:

ILLUSTRATION OF (to be supplied)

Preloaded software and drivers

LTE Elite and LTE 5000 Personal Computers use different chip sets in areas such as PC Cards and video/graphics. Different hardware chip sets require different software drivers.

The LTE 5000 Personal Computer has many features not supported on the LTE Elite, such as Multimedia and infrared. LTE Elite drivers do not have supporting software.

Diagnostics and Setup

The LTE Elite Personal Computer has Diagnostics and Setup on a hidden partition on the hard drive.

The LTE 5000 has Setup in ROM. Diagnostics are on diskette.

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Table C-2. Compatibility Implications
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Feature

Description

Option drives

Option Drives shipped after the introduction of the LTE 5000 are common to the LTE Elite and the LTE 5000 Personal Computers.

- o They will have Secondary Drive Capability (cable select). These drives will function properly as "Device 0" ("Master") in the LTE Elite.
- o They will not have preloaded software for either system (except Diagnostics and Setup). (LTE Elite option drives never have contained preloaded software).
- o They will have the hidden Diagnostics and Setup partition for the LTE Elite (as LTE Elite Option drives have always had). The LTE 5000 does not use this partition.

Option drives shipped before the LTE 5000 Announcement are for the LTE Elite only. They do not have Secondary Drive Capability. Drives shipped with LTE 5000 preloaded software have the product name (LTE 5000) on the label.

Using LTE 5000 drives in the LTE Elite

Drives with Secondary Drive Capability (cable select) will function properly as "Device 0" in the LTE Elite from a hardware standpoint.

However, drives with LTE 5000 preloaded software have the wrong drivers, and expect to find features not present in the LTE Elite hardware, resulting in errors.

LTE 5000 drives have a utility to detect the hardware/software mismatch and issue a caution.

Drives shipped in LTE 5000 units do not have Setup or Diagnostics in a hidden partition for the LTE Elite.

There is little practical use for LTE 5000 drives in the LTE Elite. One exception is to use the MS-DOS "Copy" command to transfer files to and from a drive in a SmartStation.

- o If the drive has Windows 3.1, you can boot MS-DOS only by pressing F5 at the "Loading MS-DOS" message to skip AUTOEXEC.BAT and CONFIG.SYS.
- o If the drive has Windows 95 loaded, turn on the computer and press F8 when you see the message "starting Windows 95." When the Windows 95 Startup Menu appears, select "Command Prompt Only."

Using LTE Elite drives in the LTE 5000

LTE Elite drives can be used in MultiBay I of the LTE 5000 MultiBay Expansion Base.

- o MultiBay I is normally configured as "Device 0" on the Secondary IDE Interface, so the LTE Elite drive can be "Device 0" without being the boot drive.
- o Boot from the LTE 5000 drive in the dedicated hard drive compartment of the computer.
- o If running Windows 3.1, an LTE Elite drive in the LTE 5000 cannot copy files from a CD-ROM.
- o If running Windows 95, an LTE Elite drive in the LTE 5000 can copy files from a CD-ROM.

Limited use without an expansion base

The LTE Elite drive must be "Device 0," so it must be the boot drive. The LTE 5000 Drive can be used as a secondary drive.

Preloaded software is incompatible, so you must follow the appropriate procedure for either Windows 3.1 or Windows 95, whichever is loaded on the drive.

- o If the drive has Windows 3.1 loaded, use F5 to abort AUTOEXEC.BAT and CONFIG.SYS. Press F5 when the message "Loading MS-DOS" appears.
- o If the drive has Windows 95 loaded, turn on the

computer and press F8 when you see the message "starting Windows 95." When the Windows 95 Startup Menu appears, select "Command Prompt Only."

This leaves you at the MS-DOS prompt; use the "Copy" command to transfer files.

NOTE: Drives shipped with LTE 5000 preloaded software have the product name (LTE 5000) on the label.

Not recommended for day to day use; use for occasional file transfers only. MS-DOS proficiency is required.

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