Service Source

Macintosh Performa 630 Series

Macintosh Performa 630, 630CD, 631CD, 635CD, 636, 637CD, 638CD

Basics

Macintosh Performa 630 Series

General Information

The Macintosh Performa 630 Series computers are high-performance, low-cost modular computers with multimedia features, based on the Motorola 68LC040 microprocessor. The computers in this series are designed to accept a floppy drive, a hard drive, and an optional CD-ROM drive.

User Controls

User controls include
• Soft power-on control from keyboard
• Front panel sound-control push buttons
• Optional infrared remote control

Internal Expansion Connections

Four types of expansion slots on the logic board include
• DRAM SIMM expansion slot (1 or 2 slots)
• LC PDS slot
• Communications slot for modems and Ethernet found on LC 575
• Video-in slot for real-time video display, capture, and overlay

In addition to expansion slots on the logic board, there is an expansion ribbon connector for an optional TV tuner card. The TV-tuner connector provides NTSC and PAL input from an external TV antenna or cable.

IDE (Intelligent Device Electronics)

The internal hard drive in the Performa 630 Series computers uses IDE (Intelligent Device Electronics) technology, commonly used in DOS-compatible systems.

The internal IDE hard drive functions the same as a typical SCSI hard drive. You must replace IDE drives like for like.

The IDE drive does not affect SCSI ID selections or SCSI termination schemes. Seven external SCSI devices may be daisy-chained through the external SCSI port on the Performa 630 Series.

Plastic Panel Design

Performa 630 Series computers are designed for easy service. Plastic panels cover the metal bottom case, the metal top cover shield, and the left, right and rear sides of the metal case. You need to remove just one panel to reach either the logic board or drives.

Simply remove the front plastic panel (the drive bezel) to service all drives. Remove the plastic I/0 door to slide out the logic board.

Product Configuration

Performa 630

Memory: 4 MB of RAM

Storage: Internal Apple 1.4 MB SuperDrive, Internal 250 MB IDE hard drive

Display: 14-inch Apple Performa Display Plus

Modem: Teleport send-fax/data modem

Performa 630CD

Memory: 8 MB of RAM

Storage: Internal Apple 1.4 MB SuperDrive, internal 250 MB IDE hard drive, internal AppleCD 300i Plus drive

Display: 14-inch Apple Performa Display Plus

Modem: Teleport send-fax/data modem

Performa 635CD

Memory: 5 MB of RAM

Storage: Internal Apple 1.4 MB SuperDrive, internal 250 MB IDE hard drive, internal AppleCD 300i Plus drive

Display: 15-inch Apple Performa Display

Modem: Teleport send-fax/data modem

Performa 636

Memory: 4 MB of RAM

Storage: Internal Apple 1.4 MB SuperDrive, internal 250 MB IDE hard drive

Display: 14-inch Apple Performa Display Plus

Modem: No modem included

Performa 637CD

Memory: 8 MB of RAM

Storage: Internal Apple 1.4 MB SuperDrive, internal 250 MB IDE hard drive, internal Apple CD 300i Plus drive

Display: 15-inch Apple Performa Display

Modem: Teleport send-fax/data modem

TV Tuner Card installed

Video-in Card installed

Performa 638CD

Memory: 8 MB of RAM

Storage: Internal Apple 1.4 MB SuperDrive, internal 250 MB IDE hard drive, internal Apple CD 300i Plus drive

Display: 15-inch Apple Performa Display

Modem: Teleport send-fax/data modem

TV Tuner Card installed

Video-in Card installed

Rear View Diagram

TV Tuner
Access Cover

Monitor Port

Standby
Power
Button

Security
Lock Port

Power Socket

I/O Door Diagram

Video-In Card Access Cover

Communication Card Access Cover

PDS Expansion Card Access Cover

ADB Port

Printer Port

Modem Port

SCSI Port

Sound Input Port

Sound Output Port
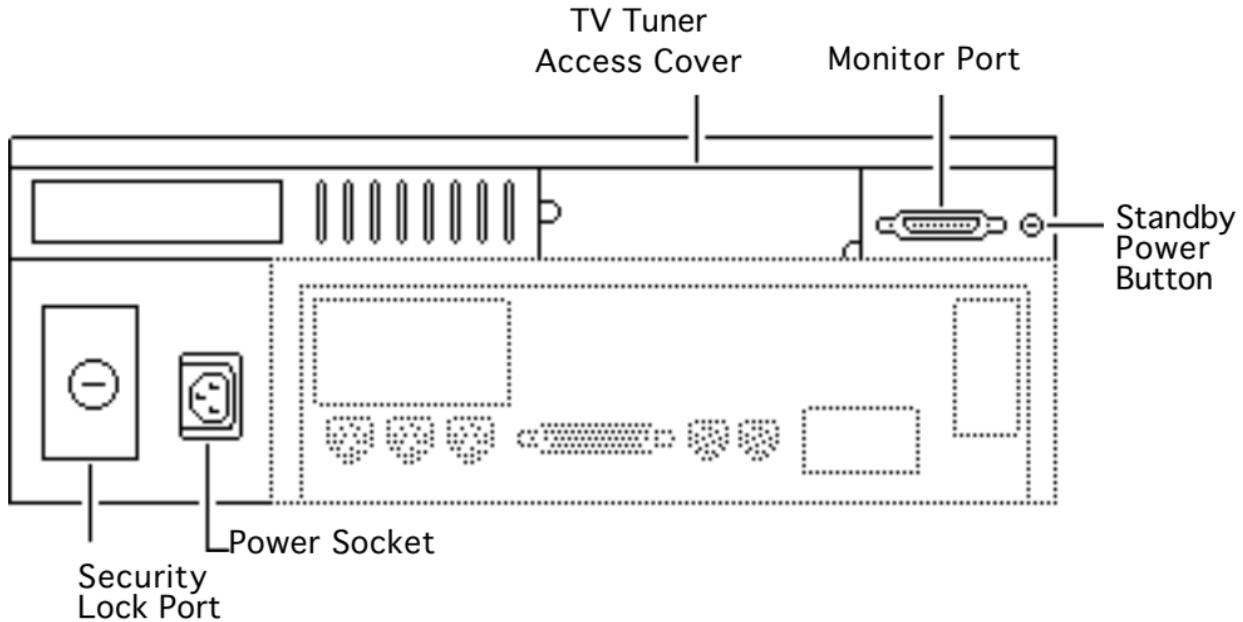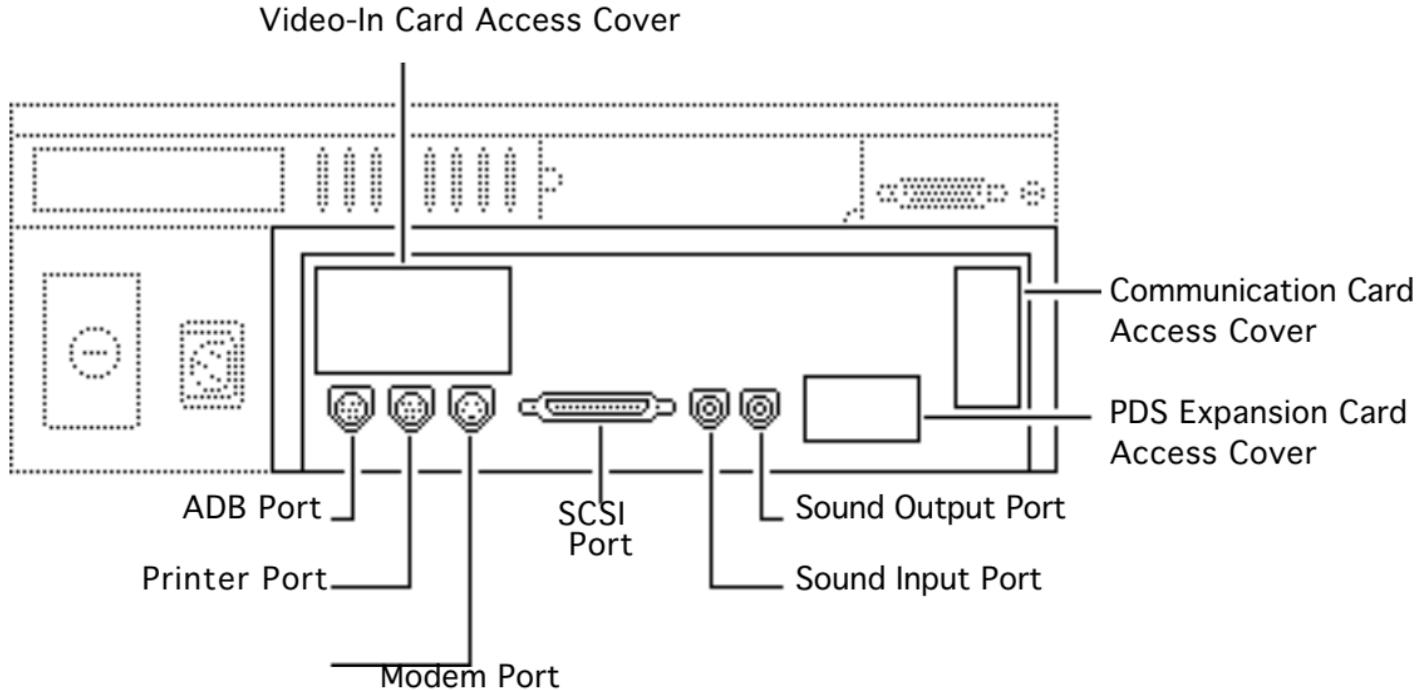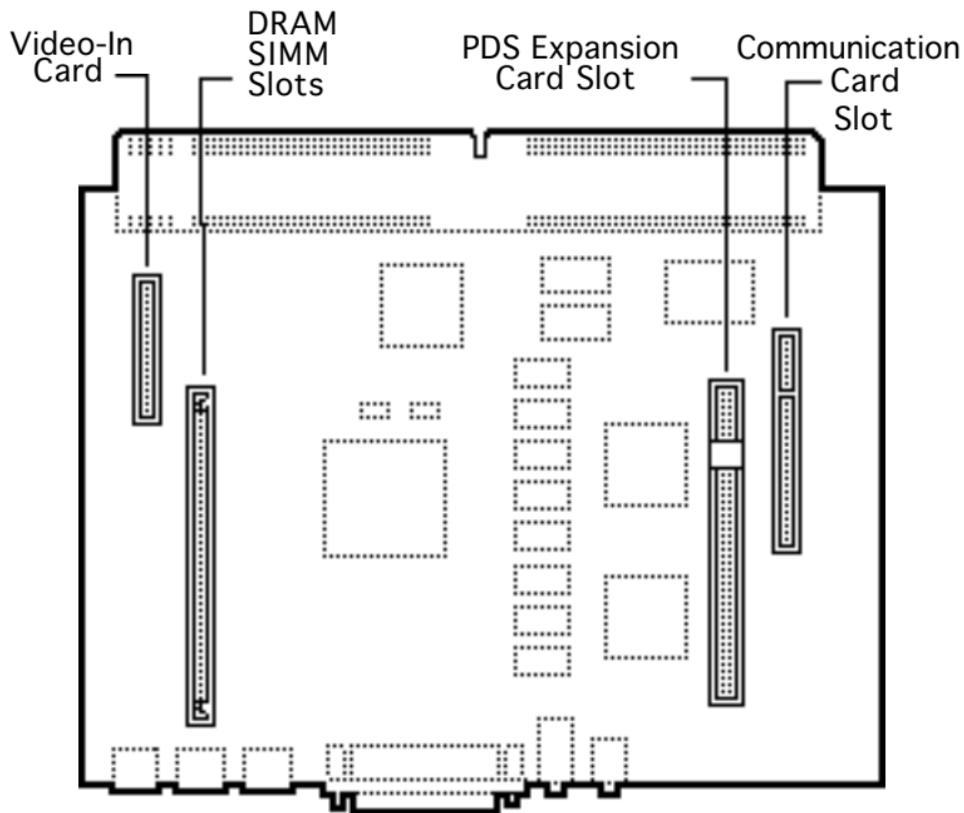
Logic Board Diagram

Note: Some logic boards may have only one DRAM SIMM slot. The maximum expandable DRAM is 36 MB on logic boards with either one or two SIMM slots.

Video-In Card

DRAM SIMM Slots

PDS Expansion Card Slot

Communication Card Slot

Shield/Wiring Harness

- 26-Pin IR Connector
- 20-Pin Floppy Drive Connector
- DB-15 Video Connector
- Monitor-Out Daughterboard
- 6-Pin Header to P/S
- Power Connector
- 40-Pin IDE Connector
- 4-Pin CD Audio
- 30-Pin CD Connector
- 10-Pin TV Tuner Connector
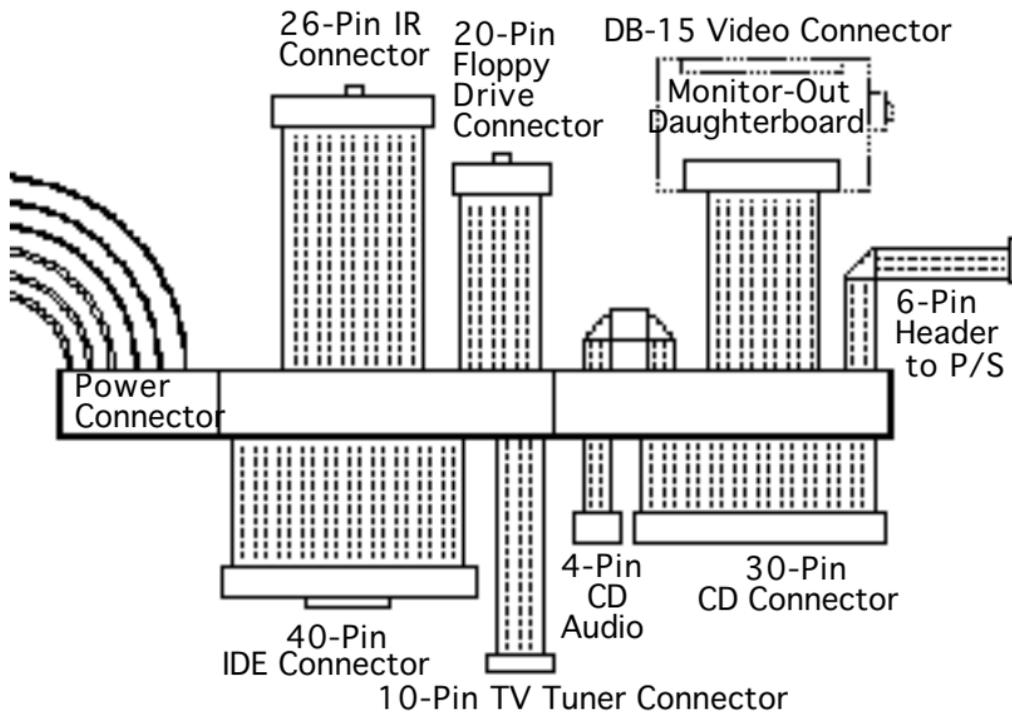
Specifications

Macintosh Performa 630 Series

Processor

CPU   Motorola 68LC040 microprocessor
                        33 MHz

Addressing   32-bit internal registers
                        32-bit address bus
                        32-bit data bus

Memory

DRAM   4 MB built in
Expandable to 36 MB (72-pin, 80 ns or faster SIMMs)
Note: See Basics chapter, "Product Configurations," for specific model configurations.

DRAM Frame Buffer   1 MB

ROM   1 MB

VRAM   Video data are stored in the 1 MB DRAM frame buffer. The Performa 630 Series does not support video memory expansion.

Disk Storage

Floppy Drive   1.4 MB Apple SuperDrive Manual Insert

CD-ROM Drive   Optional Apple 300i Plus CD-ROM drive

Hard Drive   250 MB IDE hard drive
Note: Performa 630 Series computers do not support internal
SCSI hard drives.

I/O Interfaces

Serial   Two RS-232/422 serial ports; mini DIN-8 connectors

SCSI   One external SCSI port; DB-25 connector
                       Supports up to six external SCSI devices

Apple Desktop Bus One Apple Desktop Bus (ADB) port; mini DIN-4 connector

Video   One DB-15 monitor port on built-in video daughterboard

Sound   Mono sound input port supports external microphone or
                             line-level inputs.
                             Bias current for electret microphone
                             Stereo sound output jacks at front and rear of the computer

Processor-Direct Slot   One 114-pin internal expansion slot for LC-compatible
                             processor-direct card

Communications   One 112-pin internal expansion slot for modem and Ethernet
Slot

Video-in Slot   One 60-pin internal video-in slot for real-time video display,
                             capture, and overlay

TV Tuner   One 10-pin port for TV tuner card

Controls　　　　　　Softpower control from keyboard
　　　　　　　　　　　Front panel push button control for sound volume
　　　　　　　　　　　Front panel stereo headphone jack
　　　　　　　　　　　Optional infrared remote control

I/O Devices

Keyboard   Apple Extended Keyboard II (other ADB keyboards supported)

Mouse   ADB Mouse II

Microphone   Electret, omnidirectional
                      Operates on 8 VDC supplied by microphone port on CPU

Sound and Video

Sound   8-bit monophonic sound input

8-bit stereo sound output (16-bit in CD mode), level nominally 0.5 V RMS into 39 ohms

Internal speaker muted when a plug is inserted into an output jack

Video   Supports all Apple 12-inch, 13-inch, and 14-inch monitors, Apple 15-inch multiple synchronous monitor, and VGA (640 x 480) monitors at maximum 16-bit per pixel

Supports Apple 16-inch and SVGA (800 x 600) monitors at maximum 8-bit per pixel

Electrical

Line Voltage   100–240 VAC

Frequency   50–60 Hz

Maximum Power   5 W, not including monitor

Physical

Dimensions   Height: 4.3 in. (10.95 cm)
                        Width: 16.5 in. (41.95 cm)
                        Depth: 12.6 in. (32 cm)

Weight   Without CD-ROM: 17 lb. (7.7 kg)
                        With CD-ROM: 19 lb. (8.6 kg)
                        Weight varies with options

Troubleshooting

Macintosh Performa 630 Series

General

The Symptom Charts included in this chapter will help you diagnose specific symptoms related to your product. Because cures are listed on the charts in the order of most likely solution, try the first cure first. Verify whether or not the product continues to exhibit the symptom. If the symptom persists, try the next cure. (Note: If you have replaced a module, reinstall the original module before you proceed to the next cure.)

If you are not sure what the problem is, or if the Symptom Charts do not resolve the problem, refer to the Flowchart for the product family.

For additional assistance, contact Apple Technical Support.

Symptom Charts

Error Chords

Eight-tone error chord sounds during startup

1 Reseat SIMMs
2 Replace SIMMs. Refer to Hardware/Memory manual.
3 Replace logic board. Retain customer's SIMMs.
4 Perform SIMM verification on replacement logic board.

Four-tone error chord sounds during startup

1 Disconnect hard drive power cable and reboot system. If startup sequence is normal, run "Macintosh Hard Disk Test" and replace hard drive if necessary.
2 Disconnect floppy drive cable and reboot system. If startup sequence is normal, replace floppy drive.
3 Replace logic board. Retain customer's SIMMs.

System

Flashing "?" appears at startup in system with vacant PDS and communication slots

1. Diagnose hard drive with Disk First Aid included on Power Macintosh CD-ROM.
2. Perform repairs and then go to step 4.
3. If repairs are impossible, back up drive, reformat with Drive Setup 1.0.3, and then go to step 4.
4. Update driver using Drive Setup 1.0.3.
5. Perform clean install

Menu bar constantly flashes or system constantly beeps

1. Verify that front panel control buttons are not jammed.
2. Reseat drive bezel and front panel control board.

Audio

Crackling noise is present when you play sounds other than system beeps and you are not in "play through" mode

1 If static noise varies when you adjust volume by Sound control panel, use Audio Volume Extension 1.1 or later. Note: Audio Volume Extension is available from standard Apple software update sites.
2 Replace logic board.

Sound distortion with MPEG board installed

Replace MPEG board with modified MPEG board. A modified board should have a jumper present from U5 Pin 2 to D1 Pin 1.

Video

Screen is dark, audio and at least one drive operate, fan runs, and LED is lit

1 Confirm that video connections are secure.
2 Confirm that monitor-out daughterboard connection on the fan bracket is secure.
3 Reseat logic board.
4 Perform monitor adjustments
5 Replace monitor.
6 Replace logic board. Retain customer's SIMMs.
7 Replace power supply.

Screen is dark, audio and drive do not operate, but fan runs and LED is lit

1 Reseat logic board.
2 Remove expansion card, if present.
3 Remove peripherals.
4 Replace SIMMs. Refer to Hardware/Memory manual.
5 Replace logic board. Retain customer's SIMMs.
6 Replace power supply.

Video (Continued)

Partial or whole
screen is bright and
audio is present, but
no video information
is visible

1 Reseat logic board.
2 Replace fan/video card bracket.
3 Replace monitor.
4 Replace logic board. Retain customer's SIMMs.

Video will not play or
system hangs when
you attempt to run
video in units with
MPEG card

1 If chip at location U12 on MPEG card displays number
341SO205, check all connections.
2 If chip at location U12 on MPEG card does not display
number 341SO205, replace MPEG card

Video (Continued)

Screen is completely dark, fan is not running and LED is not lit

1   Check all external power connections.
2   Computer powers on exclusively through softpower on keyboard. Verify that power-on connections of keyboard are functioning by testing with known-good keyboard.
3   Reseat logic board.
4   Unplug 5.4 battery, wait 20 seconds, plug in battery, and restart computer.
5   Verify that monitor has power.
6   Remove expansion card, if present.
7   Remove peripherals.
8   Replace power supply.
9   Replace logic board. Retain customer's SIMMs.

Video (Continued)

Vertical lines, horizontal lines, or snow appears on screen, or screen is completely dark; startup tone is normal

1   Perform monitor adjustments.
2   Replace monitor.
3   Replace logic board. Retain customer's SIMMs.
4   Replace power supply.

Unable to tune in some UHF channels.

Replace video-in card Rev. A, part number 661-0159, with video-in card Rev. B, part number 661-1073.

Floppy Drive

Audio and video are present, but internal drive does not operate

1 Reseat logic board.
2 Replace floppy drive.
3 Replace shield/wiring harness.
4 Replace logic board. Retain customer's SIMMs.

Disk ejects; display shows Mac icon with blinking "X"

1 Replace disk with known-good system disk.
2 Replace floppy drive cable.
3 Replace floppy drive.
4 Replace logic board. Retain customer's SIMMs.

Floppy Drive (Continued)

Disk does not eject

1. Switch off system and hold mouse button down while switching system back on.
2. Eject disk manually by pushing opened paper clip into hole beside drive slot.
3. Replace floppy drive cable.
4. Replace floppy drive.

Drive attempts to eject disk, but doesn't

1. Switch off system and hold mouse button down while switching system back on.
2. Eject disk manually by pushing opened paper clip into hole beside drive slot.
3. Replace floppy drive cable.
4. Replace floppy drive.

Hard Drive

Internal hard drive
runs continuously

1   Make sure System is version 7.1.2P (or later).
2   Replace hard drive cable.
3   Replace internal hard drive.
4   Replace logic board. Retain customer's SIMMs.

Internal hard drive
does not operate

1   Confirm that all hard drive connections are secure.
2   Reseat logic board.
3   Replace internal IDE hard drive.
4   Replace shield/wiring harness chassis.
5   Replace logic board. Retain customer's SIMMs

Hard drive not found
when booted from CD-
ROM drive

Use Drive Setup 1.03.

CD-ROM Drive

CD-ROM drive does
not accept disc

1 Replace disc (if dirty or damaged).
2 Reseat CD-ROM drive.
3 Replace CD-ROM drive.

Volume control does
not operate correctly

1 Check Control Panel Sound setting.
2 Check front panel controls.
3 Reseat front panel control board.
4 Replace shield/wiring harness chassis.

Macintosh cannot
mount CD-ROM drive

1 Reseat CD-ROM drive.
2 Check SCSI ID setting; internal CD-ROM drive was originally set at 3 at the factory.
3 Replace CD-ROM drive.

Peripheral

Works with internal or external SCSI device but does not work with both

1　Verify that SCSI select switch on external device is set to different priority from internal CD-ROM drive.
2　Verify that both ends of external SCSI device are terminated.
3　Replace terminator on external device.
4　Verify that terminator is installed on internal SCSI drive.
5　Replace SCSI select cable (on external SCSI device).

Cursor does not move

1　Reboot system.
2　Check mouse connection.
3　If mouse was connected to keyboard, connect mouse to rear ADB port and disconnect keyboard. If mouse works, replace keyboard.
4　If mouse does not work in ADB port, replace mouse.
5　Reseat logic board.
6　Replace logic board. Retain customer's SIMMs.

Peripheral (Continued)

Cursor moves, but
clicking mouse
button has no effect

1   Replace mouse.
2   Reseat logic board.
3   Replace logic board. Retain customer's SIMMs.

Double-click doesn't
open application,
disk, or server

1   Remove extra system files on hard drive.
2   Check mouse speed on Control Panel.
3   Unplug 5.4 battery, wait 20 seconds, plug in battery, and
    restart computer.
4   If mouse was connected to keyboard, connect mouse to rear
    ADB port and disconnect keyboard. If mouse works, replace
    keyboard.
5   If mouse does not work in ADB port, replace mouse.
6   Replace logic board. Retain customer's SIMMs.

Peripheral (Continued)

No response to any
key on keyboard

1. Make sure System is version 7.1.2P (or later).
2. Check keyboard connection to ADB port.
3. Replace keyboard.
4. Reseat logic board.
5. Replace logic board. Retain customer's SIMMs.

Known-good
ImageWriter or
ImageWriter II does
not print

1. Make sure that Chooser and Control Panel settings are
   correct.
2. Make sure System is version 7.1.2P (or later).
3. Check printer DIP switches.
4. Replace printer interface cable.
5. Replace logic board. Retain customer's SIMMs.

Peripheral (Continued)

Known-good
LaserWriter does not
print

1 Make sure that Chooser and Control Panel settings are
   correct.
2 Make sure System is version 7.1.2P (or later).
3 Refer to Networks and Communications manual.

Miscellaneous

Rattling sound at
startup in system
with Apple External
Video Connector

Press or fold Apple External Video cable to prevent it from
contacting fan blades
.

Take Apart

Macintosh Performa 630 Series

Drive Bezel

Drive Bezel

Latch

Latch

No preliminary steps are required before you begin this procedure.

1 Locate the two latches below the ridge on the drive bezel.
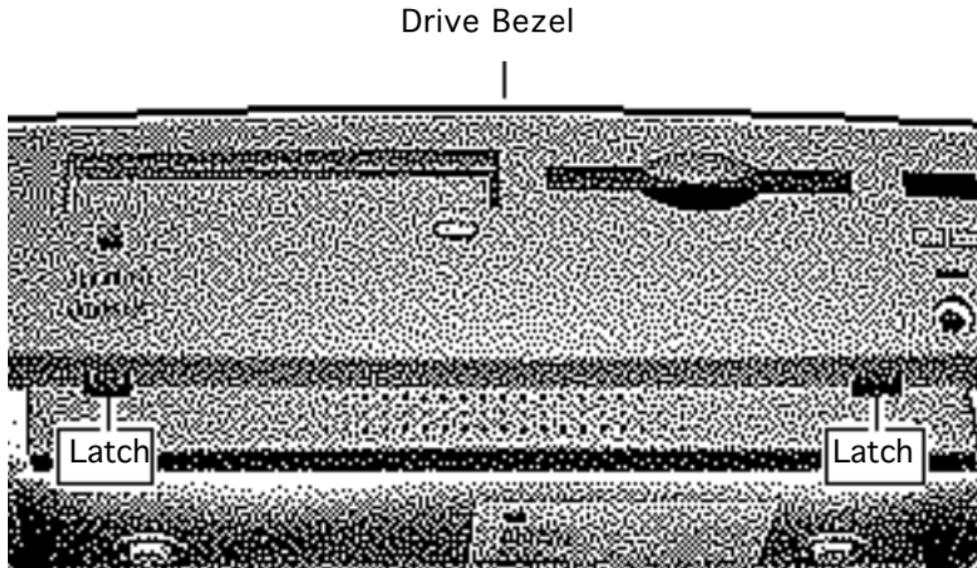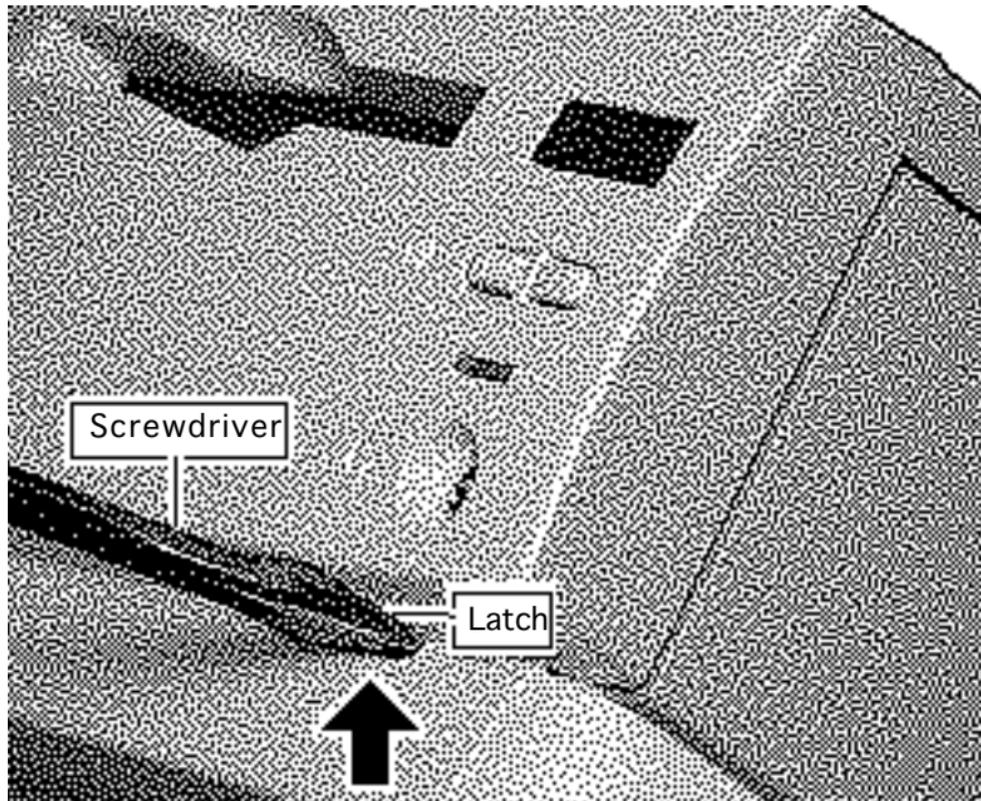
2 **Caution:** When using a screwdriver to release a latch, press up carefully. Do not scratch or gouge the plastic.

Insert a flat-blade screwdriver at each latch.

3 Pry up to release each latch.

4 Swing up the drive bezel and pull it away from the metal chassis.
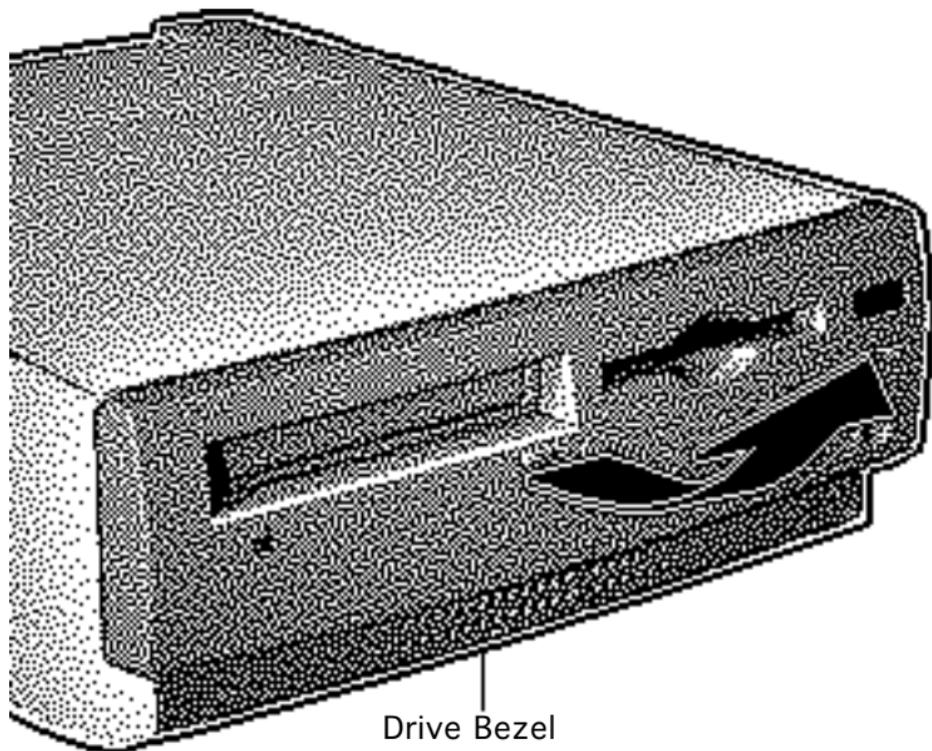
Drive Bezel

Front Panel
Control

Before you begin, remove
the drive bezel.

Caution: Review the ESD
precautions in Bulletins/
Safety.

Front Panel
Control

Front Panel Control
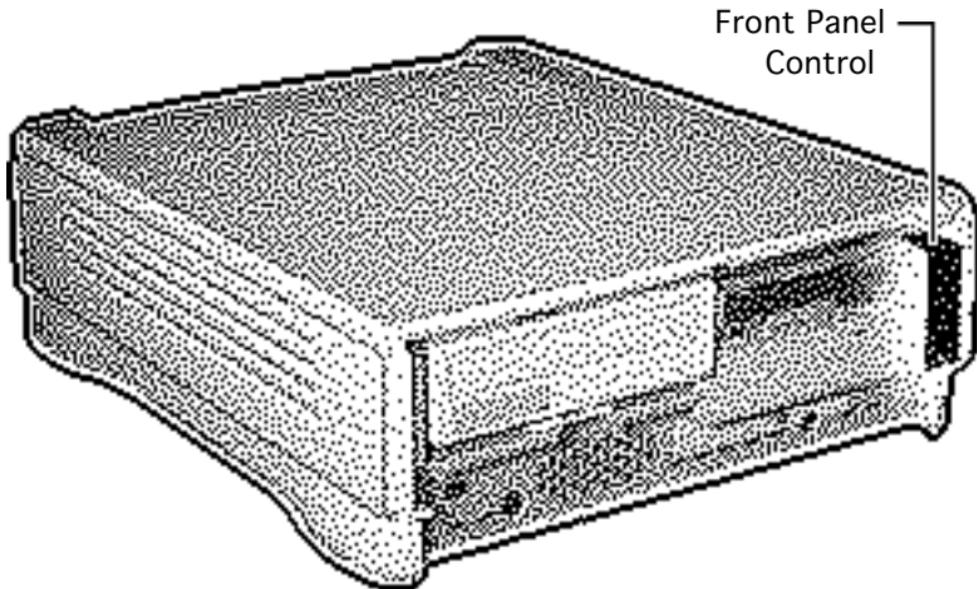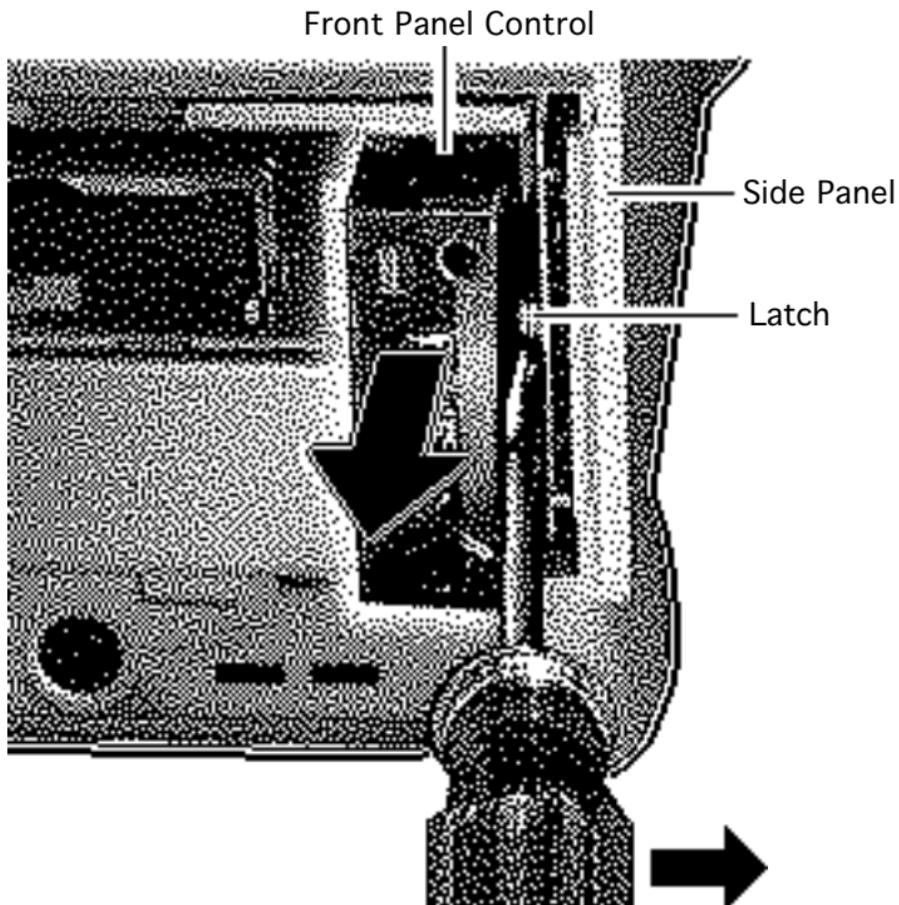
Side Panel

Latch

1   Insert a flat-blade
    screwdriver about an
    inch between the side
    panel and the front
    panel control.

2   Pry open the latch to
    release the front panel
    control.

Front Panel
Control
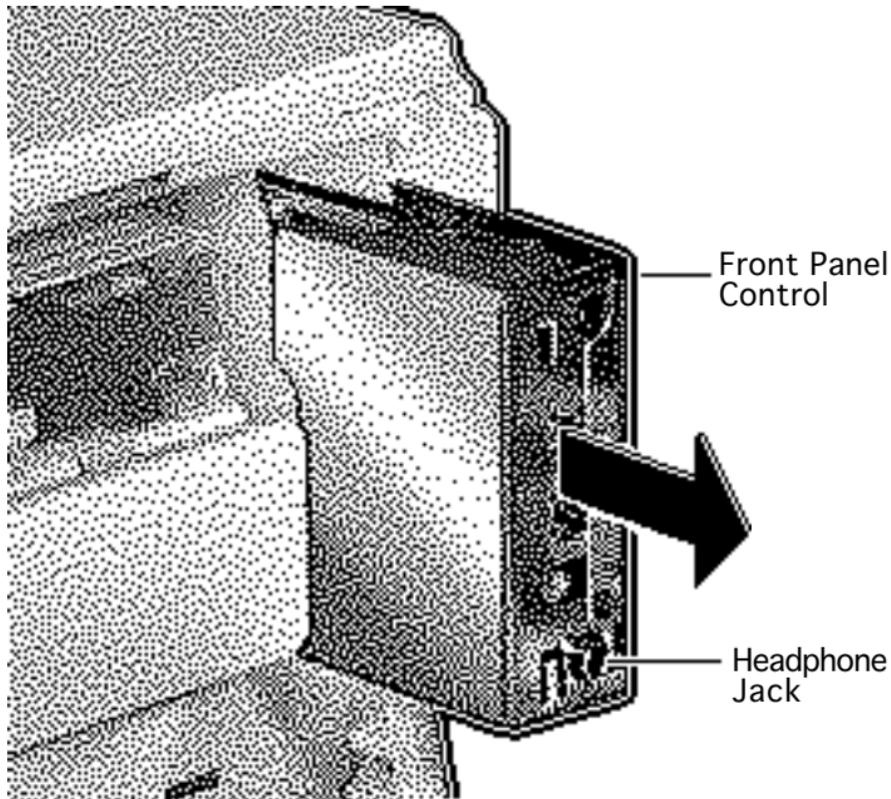
Headphone
Jack

3 Pull the front panel
   control out just far
   enough to reach the
   ribbon cable connector.

   Replacement Caution:
   When you replace the
   front panel control
   assembly, make sure
   that the headphone jack
   is at the bottom of the
   assembly.

Ribbon Cable   Front Panel Control
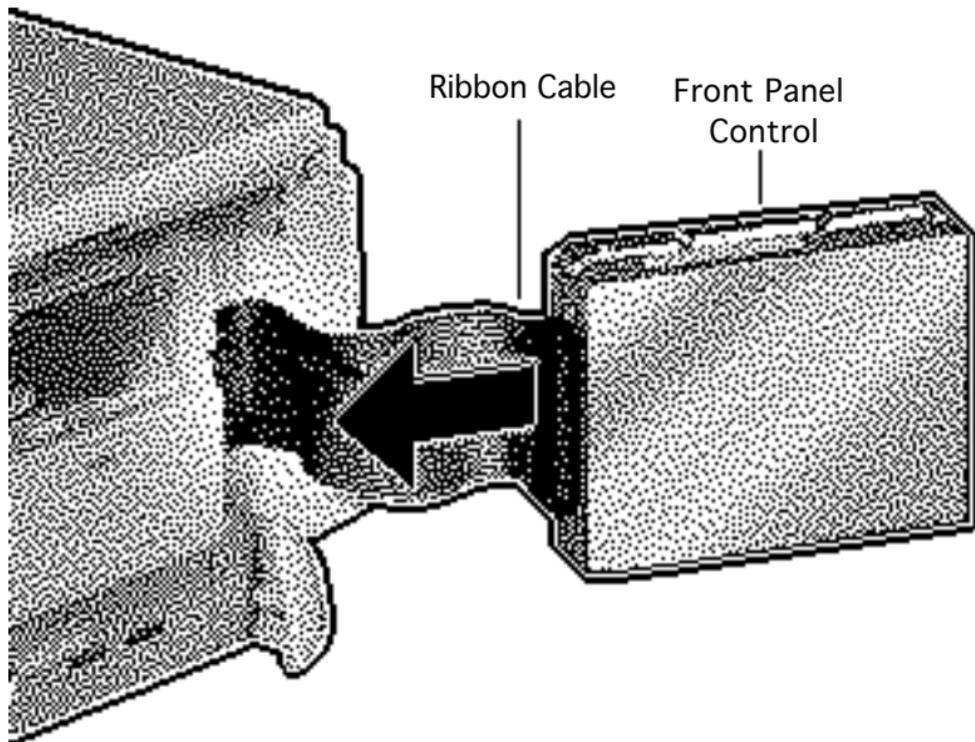
4 Disconnect the front panel control from the ribbon cable.

Replacement Note: Take care not to crimp the cable when you replace the front panel control.

Drive Security Bracket

Before you begin, remove the drive bezel.

Caution: Review the ESD precautions in Bulletins/Safety.

Drive Security Bracket

Drive Security Bracket

Tab

Tab

Tab

Tab
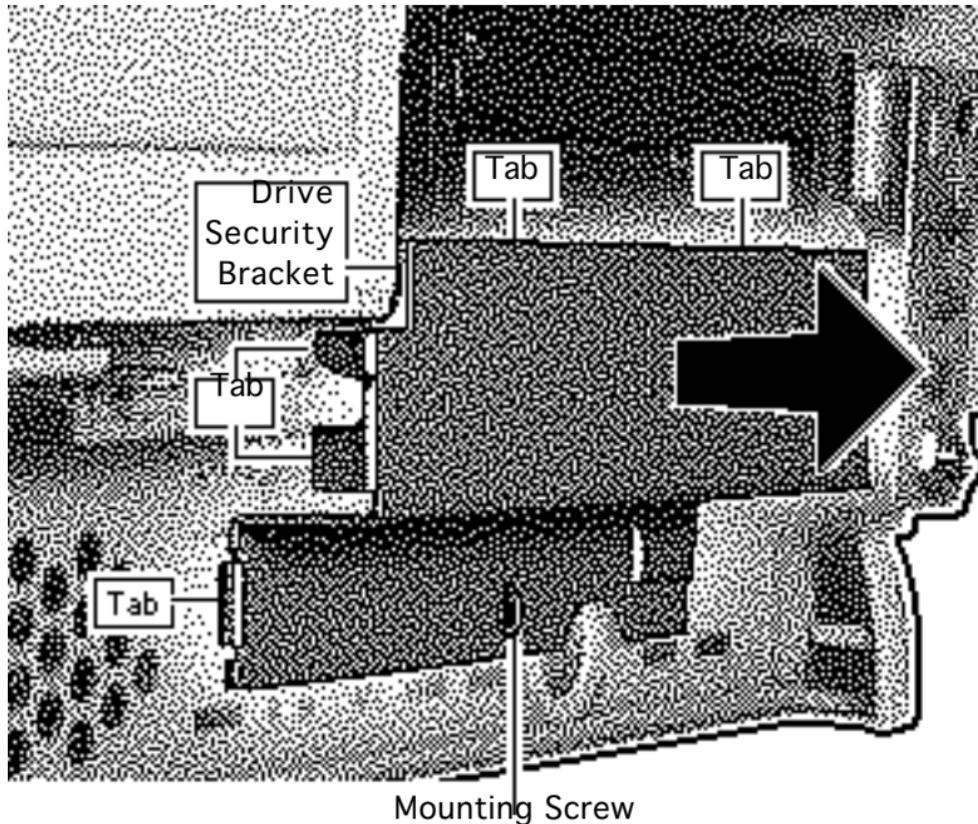
Mounting Screw

Remove the mounting screw and pull off the drive security bracket.

Replacement Note: Be sure to correctly position the four tabs of the drive security bracket.

Floppy Drive

Before you begin, remove the following:

- Drive bezel
- Drive security bracket

Caution: Review the ESD precautions in Bulletins/ Safety.

Floppy Drive

Floppy Drive

Tab

Guide
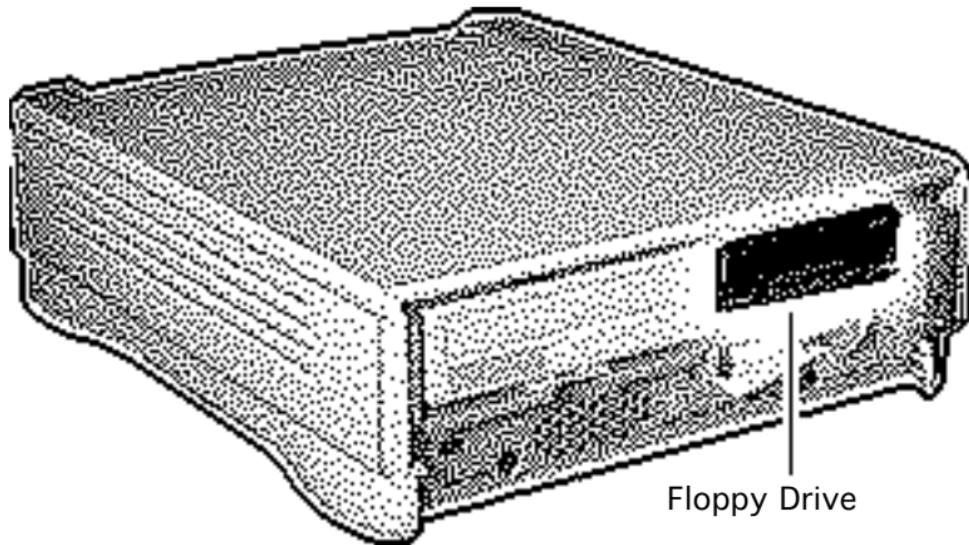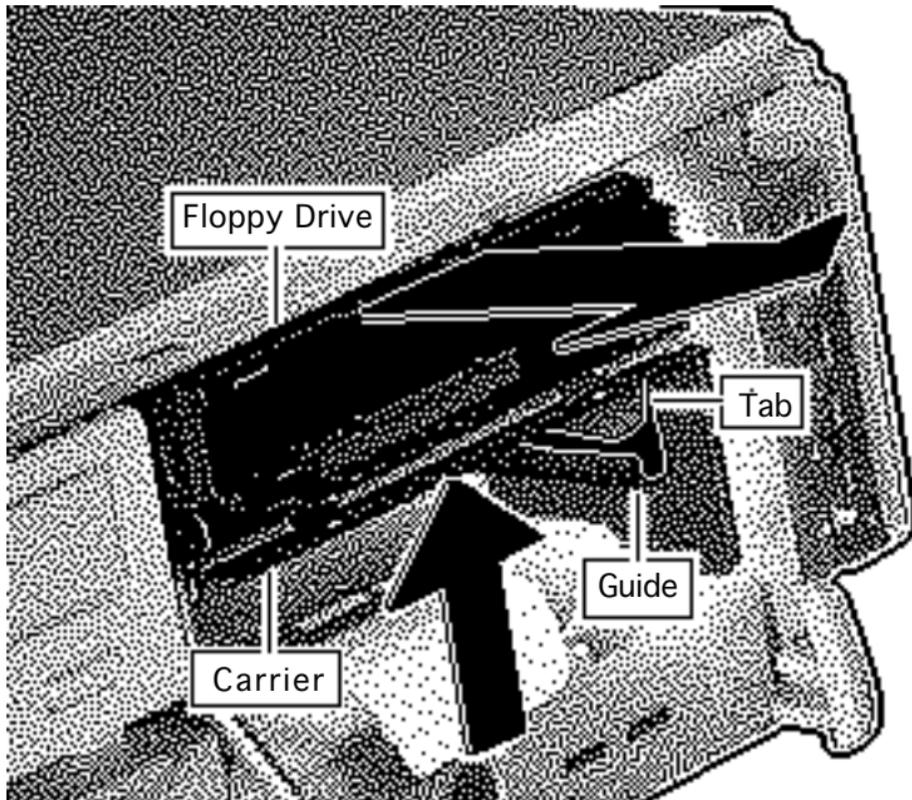
Carrier

1   Lift the front of the
    floppy drive and carrier.

2   Pull the floppy drive
    out just far enough to
    reach the ribbon cable
    connector.

    Replacement Note:
    When you replace the
    floppy drive, make sure
    that the tab of the floppy
    carrier is seated
    properly in the floppy
    drive guide.

Floppy Drive Cable
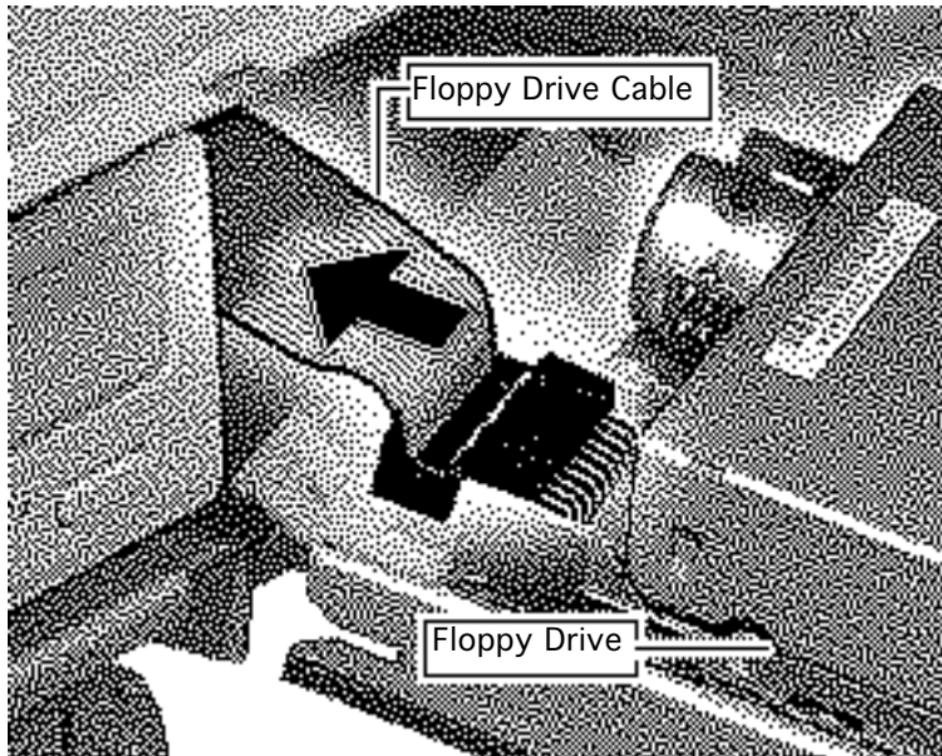
Floppy Drive

3 Disconnect the floppy drive from the floppy drive cable.

Replacement Note: If you are replacing a defective floppy drive, invert the drive and carrier and remove the four carrier mounting screws. Separate the drive from the carrier.

CD-ROM Drive

Before you begin, remove the following:

- Drive bezel
- Drive security bracket

Caution: Review the ESD precautions in Bulletins/Safety.

CD-ROM Drive
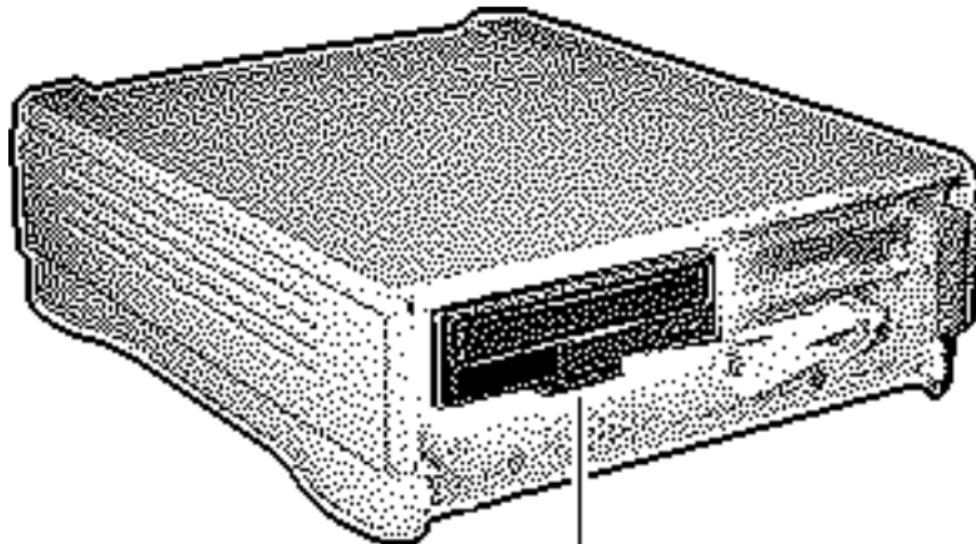
CD-ROM Drive
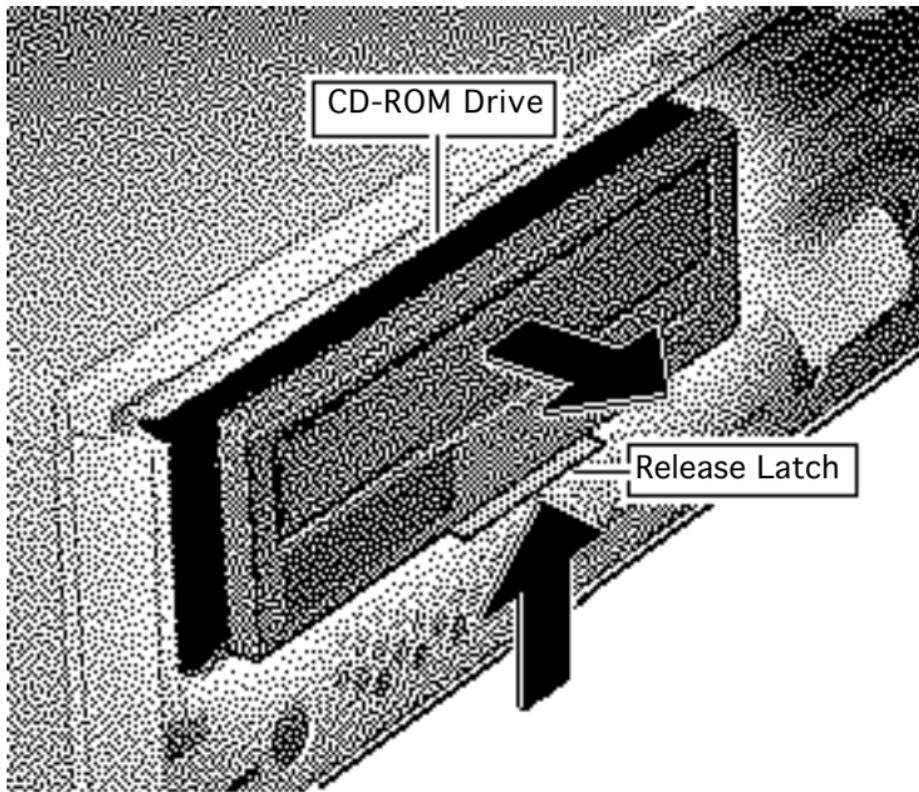
Release Latch

1 **Note:** To perform this step, you may want to insert a screwdriver in the slot of the release latch to help you pull the CD-ROM drive.

Push up the release latch and pull the CD-ROM drive from the chassis.

Note: You may need to use some initial force to disconnect the CD-ROM from the internal wiring harness.

CD-Carrier

CD Audio Adapter
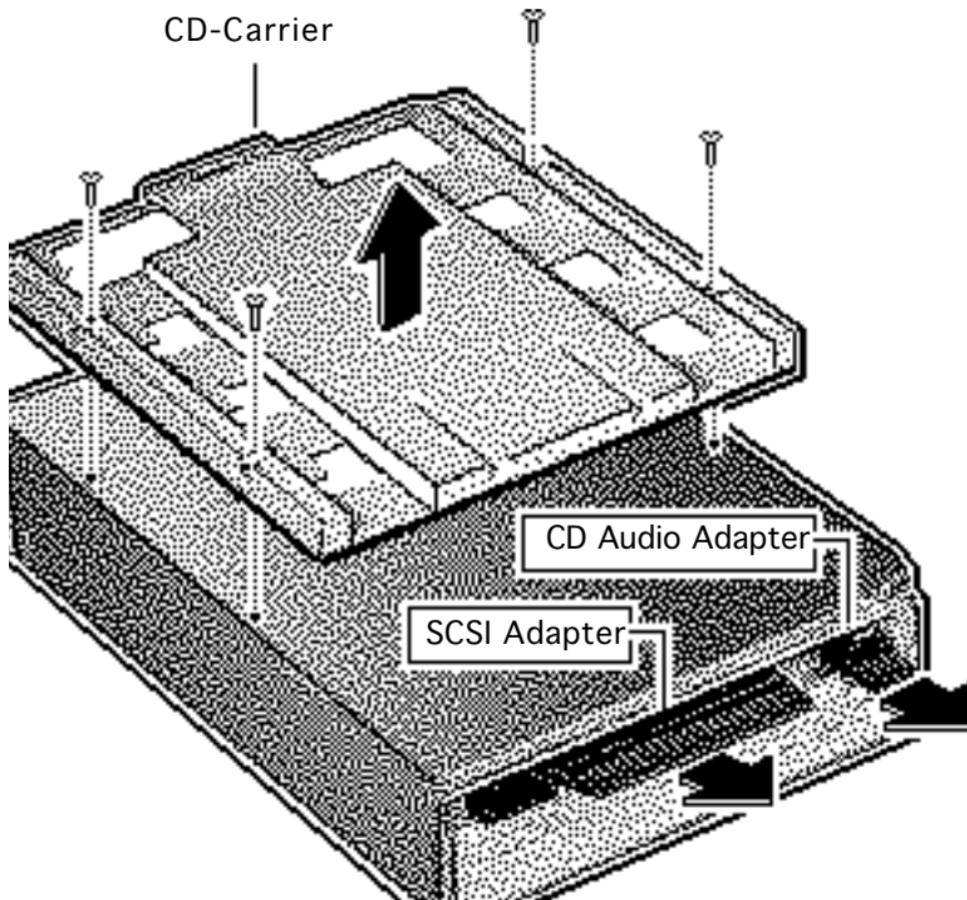
SCSI Adapter

Note: Perform the following steps only if you are replacing a defective CD-ROM drive.

2 Disconnect the CD-ROM audio adapter from the drive.

3 Disconnect the SCSI adapter.

4 Remove the four mounting screws and carrier from the CD-ROM drive.

Replacement Caution:
Before replacing the SCSI
adapter, make sure that the
SCSI drive connector pins
are not bent.

Hard Drive

Hard Drive

Before you begin, remove the following:

- Drive bezel
- Security bracket

Caution: Review the ESD precautions in Bulletins/Safety.

Note: Performa 630 computers do not support internal SCSI hard drives. Refer to Basics for more information on the IDE hard drive interface.
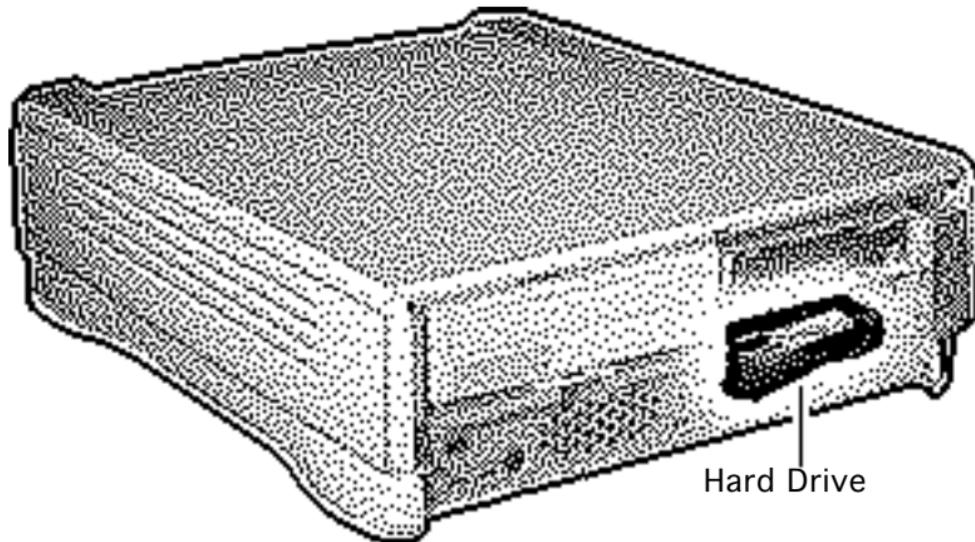
IDE Data Cable
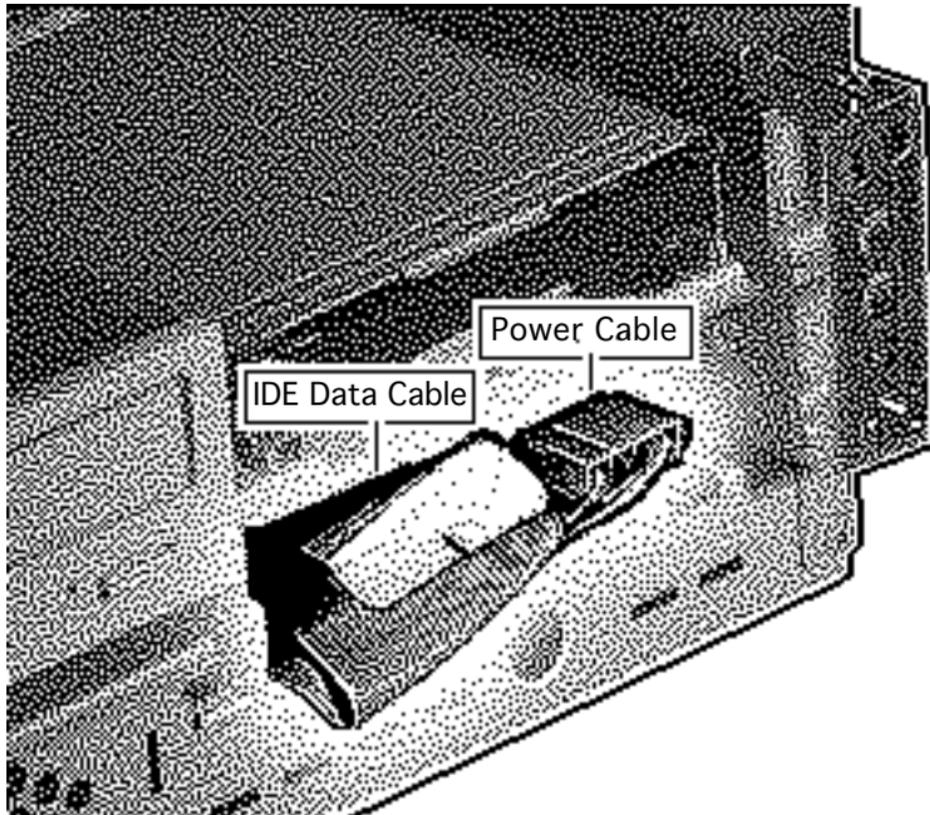
Power Cable

1 Using the pull tabs, disconnect the IDE data cable from the hard drive connector.

2 Disconnect the power cable.

3 Using a flat-blade screwdriver, push up the release latch and pull the IDE hard drive from the chassis.

IDE Hard Drive

Release Latch
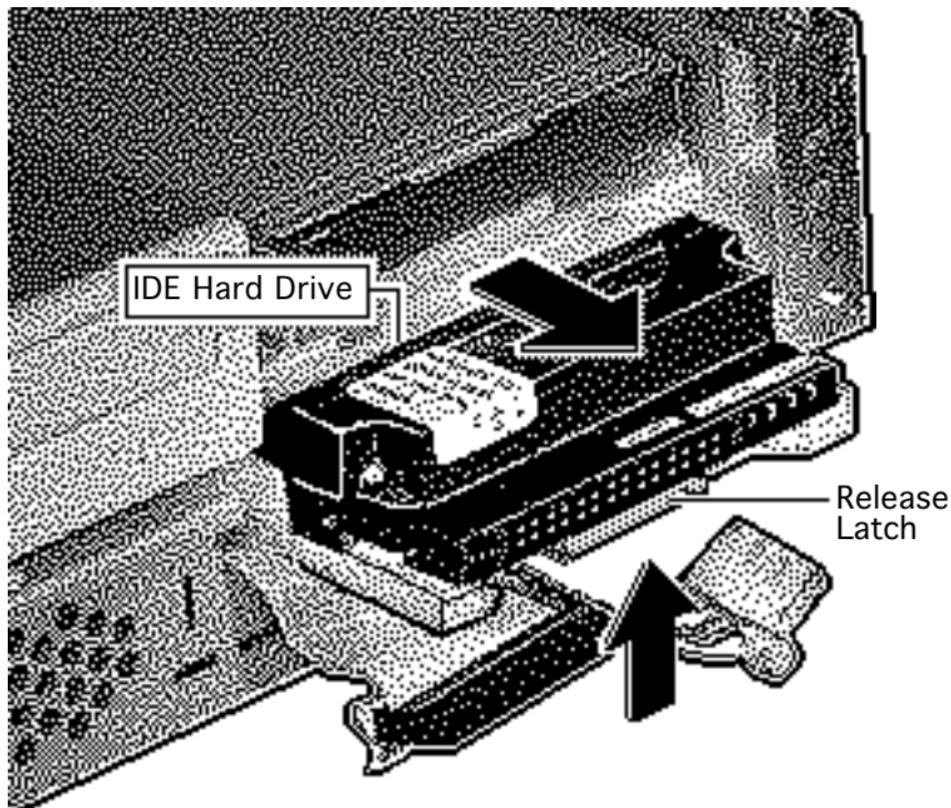
I/O Door

No preliminary steps are required before you begin this procedure.

Caution: Review the ESD precautions in Bulletins/ Safety.
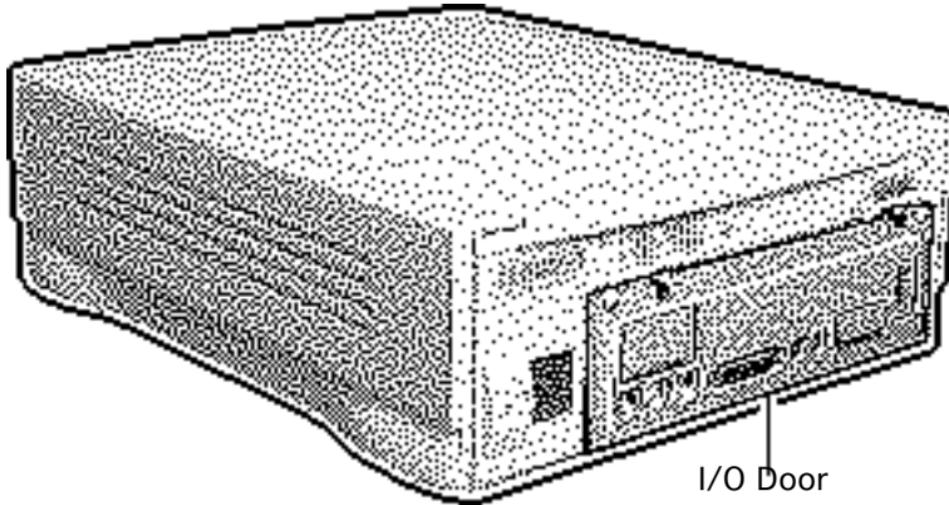
I/O Door

1 Push down the two locking tabs and swing down the door.

Tab

Tab

I/O Door

Hinge Tab

Hinge Tab
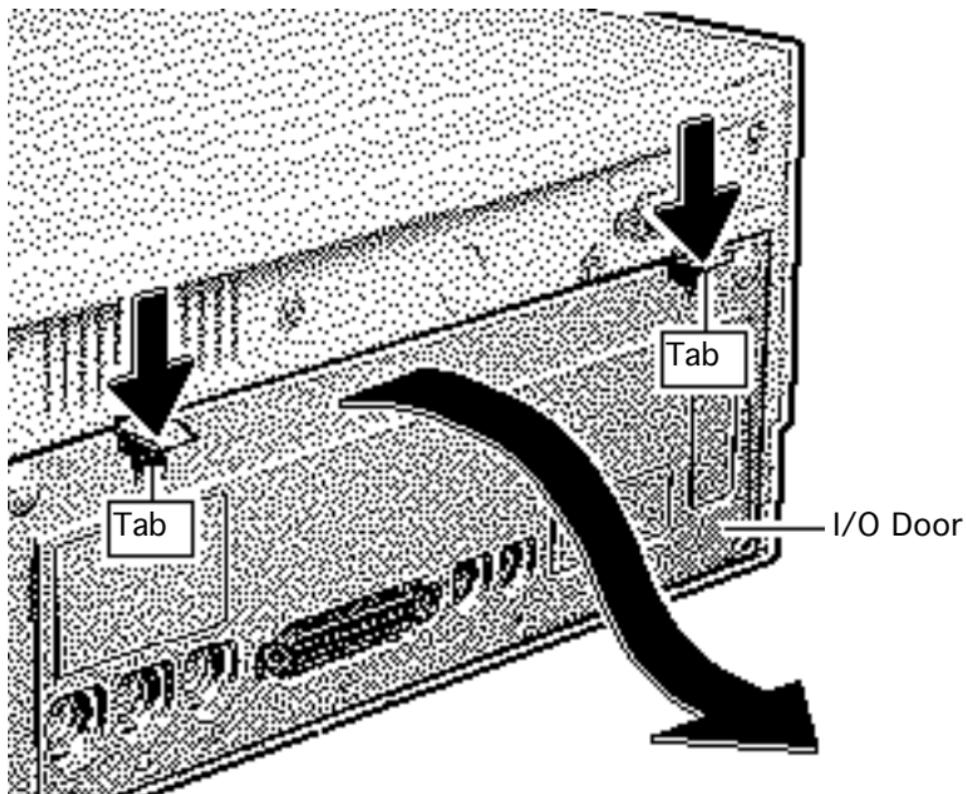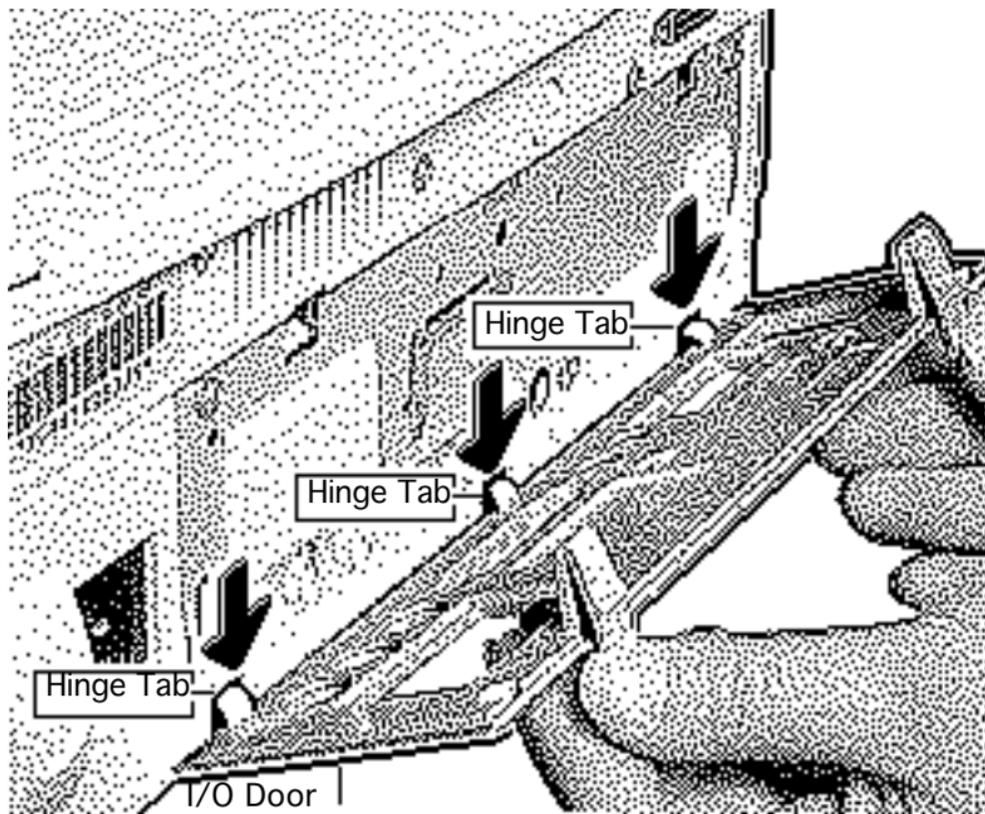
Hinge Tab

I/O Door

Replacement Note:
Carefully align the three hinge tabs before swinging up the 1/0 door.

Logic Board

Before you begin, remove the I/O door

Caution: Review the ESD precautions in Bulletins/Safety.

Note: If you are replacing a logic board that has one SIMM slot, replace it with P/N 661-0158. If you are replacing a logic board that has two SIMM slots, replace it with P/N 661-1114.

Logic Board with Fence
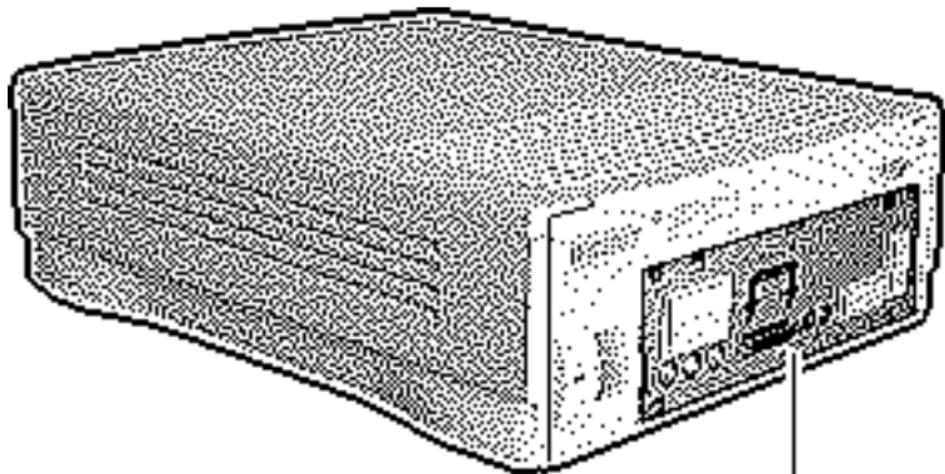
Logic Board
Fence
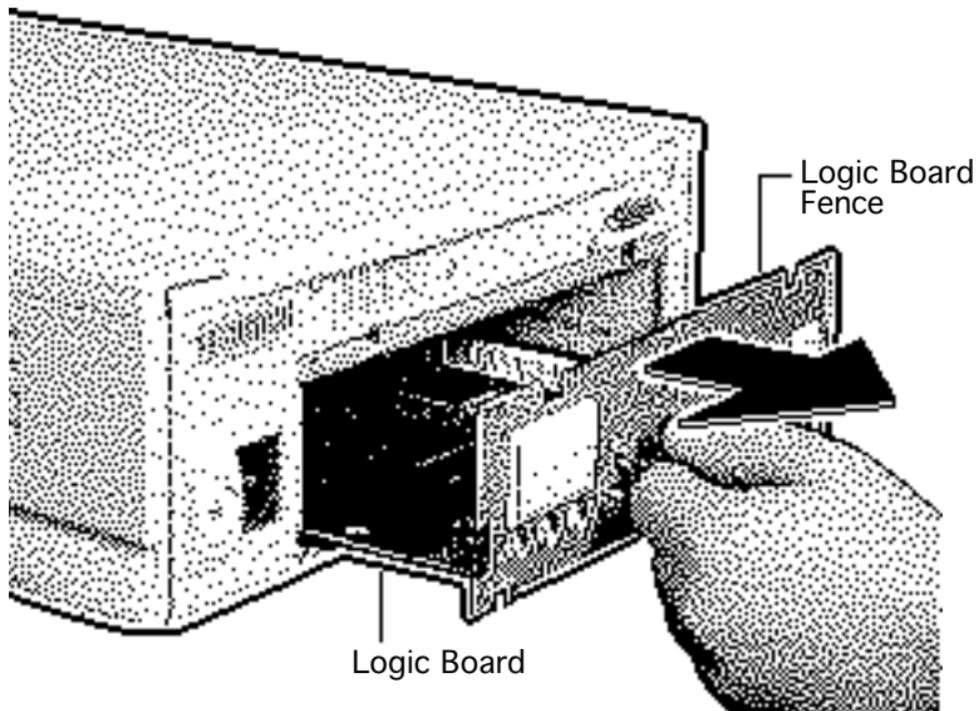
Logic Board

1 Remove the two screws
from the metal fence.

2 **Note:** The logic-board-
and-fence assembly may
need a firm initial tug to
loosen it from the
shield/wiring harness.

Slide out the logic-
board-and-fence-
assembly.

Logic Board

Phillips Screw

Torx Screw

Torx Screw

SCSI Connector

Phillips Screw
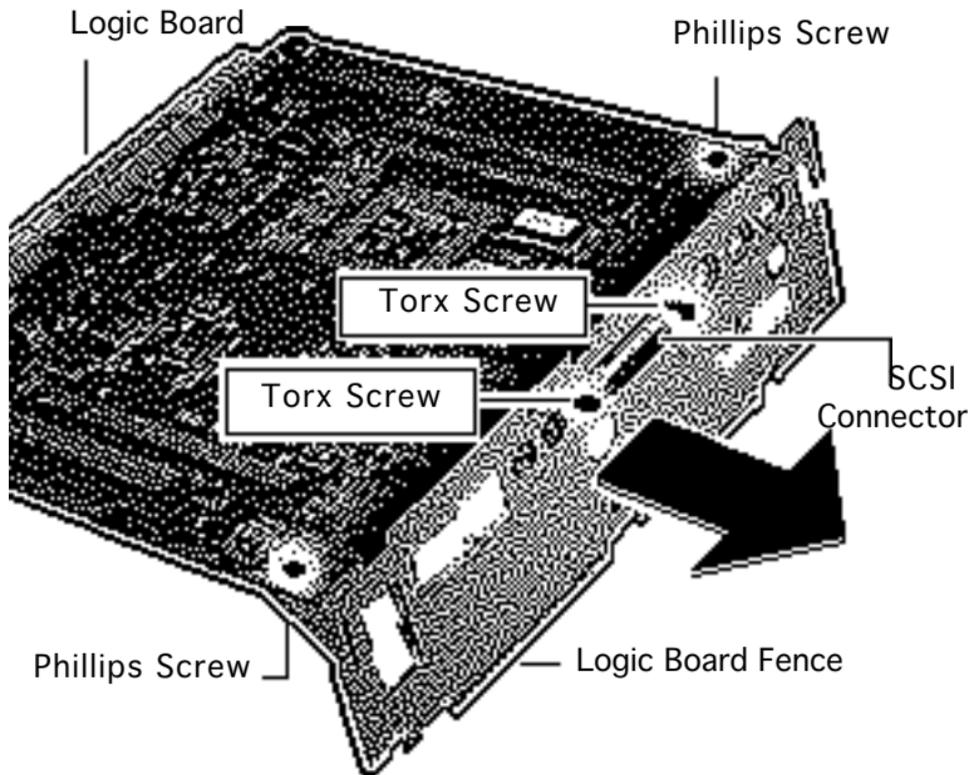
Logic Board Fence

Note: Perform the following steps only if you are replacing a defective logic board.

3 Remove the two Phillips screws that secure the fence to the solder side of the logic board.

4 Using a T9 torx driver, remove the two torx screws that secure the logic board fence to the SCSI connector.

5 Separate the logic board fence from the logic board.

Rear Panel

No preliminary steps are required before you begin this procedure.
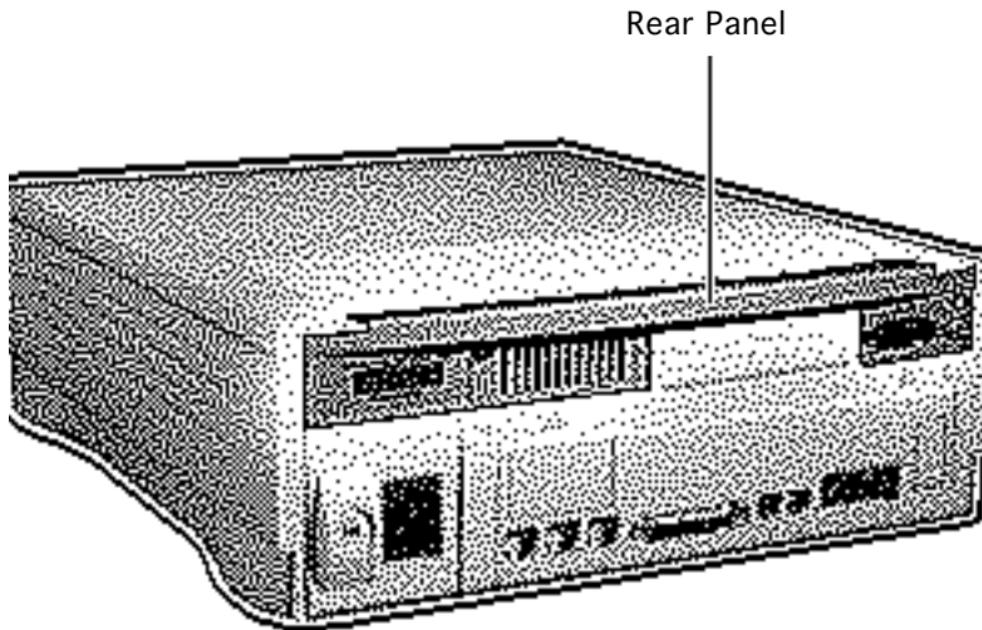
Rear Panel

1 Remove the two Phillips screws.

2 Lift off the rear panel.

Screw

Screw
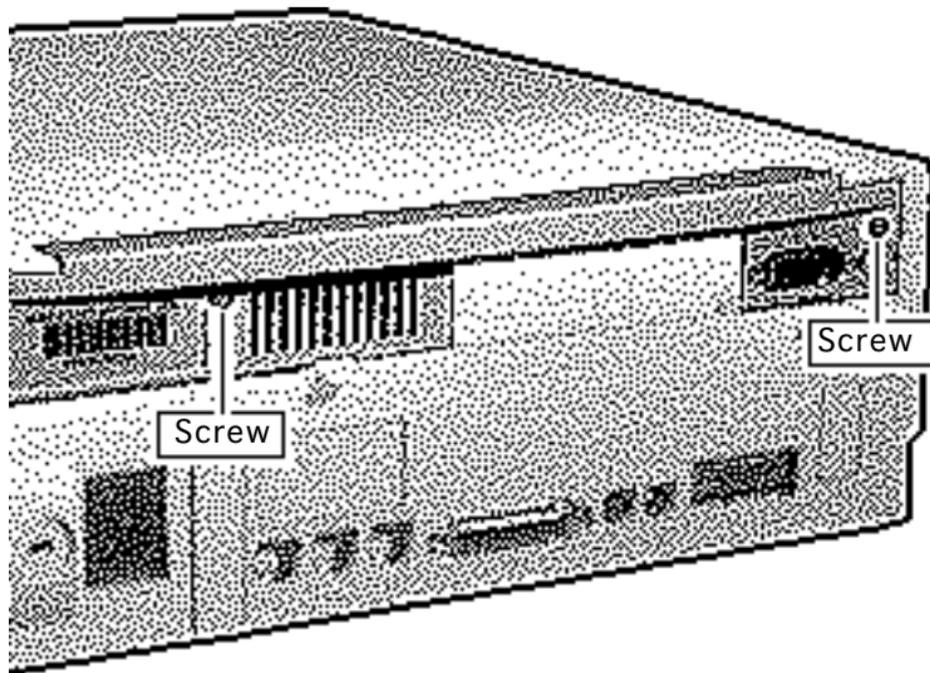
Replacement Note:
Carefully align the flat tab and the four hinge tabs.

Hinge Tabs

Flat Tab
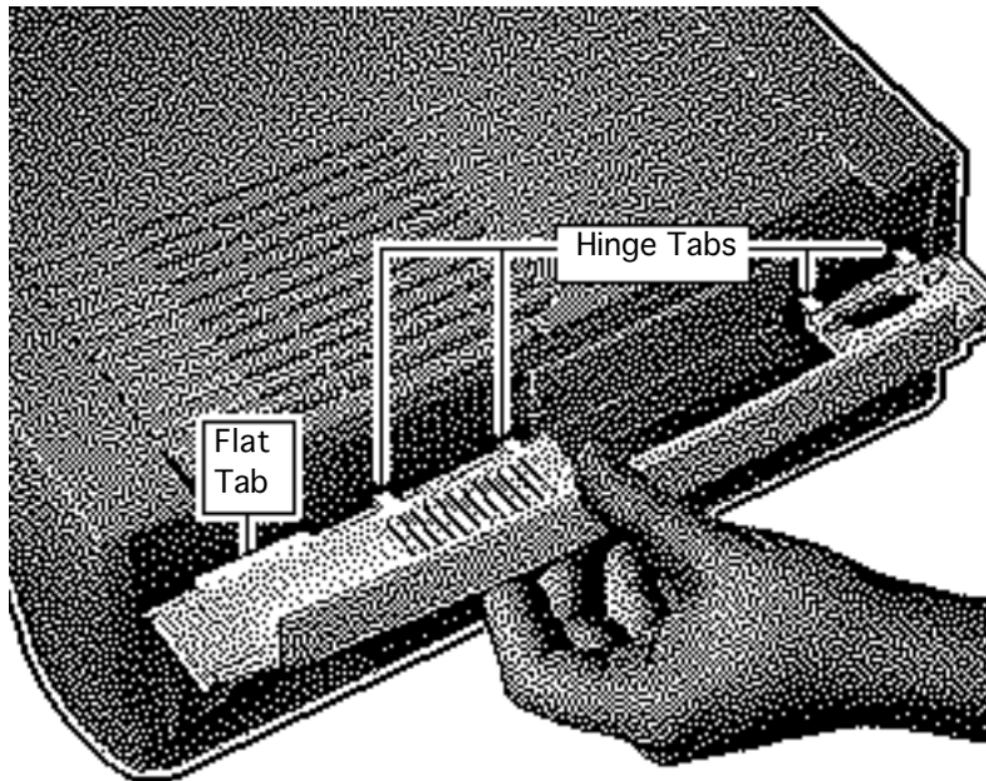
Top Cover

Top Cover

Before you begin, remove the following:

- Drive bezel
- Rear panel

**Caution:** Review the ESD precautions in Bulletins/Safety.

Note: The top cover consists of two parts that must be removed separately—a plastic cover on top of a metal shield.

Plastic Top Cover

Cutout
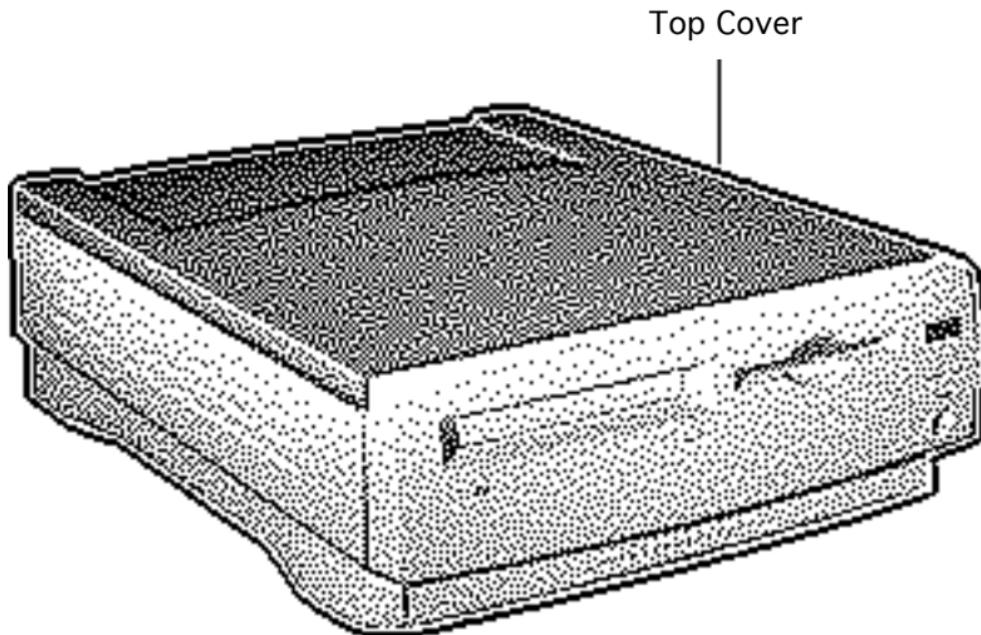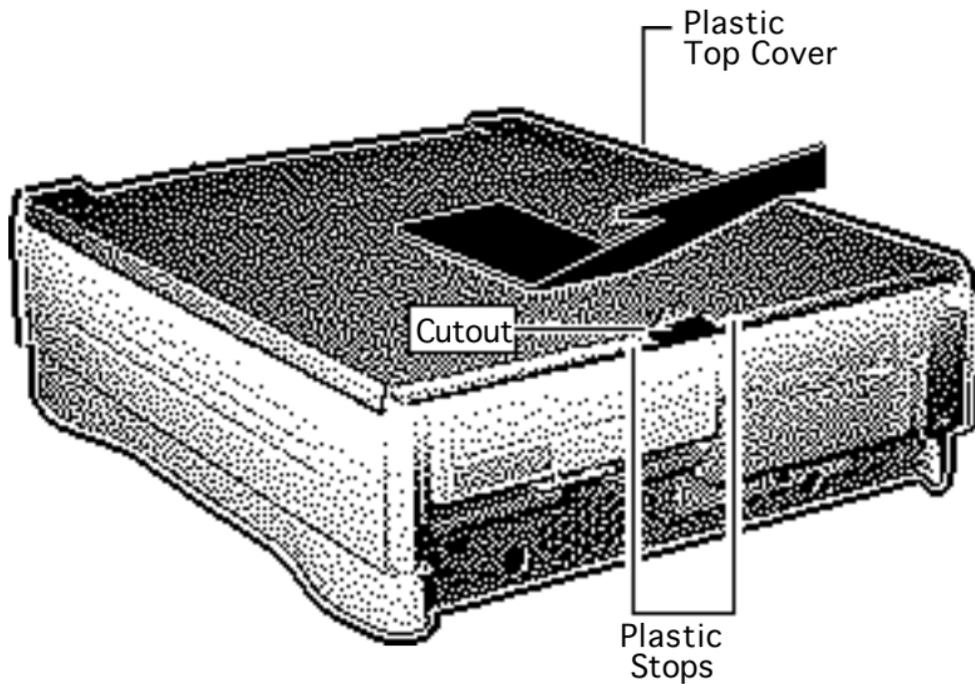
Plastic Stops

1. Insert a small flat-blade screwdriver into the cutout and lift the front edge to clear the plastic stops.

2. With your other hand, slide the plastic cover forward about one-half inch.

3. Lift the plastic cover off the metal shield.
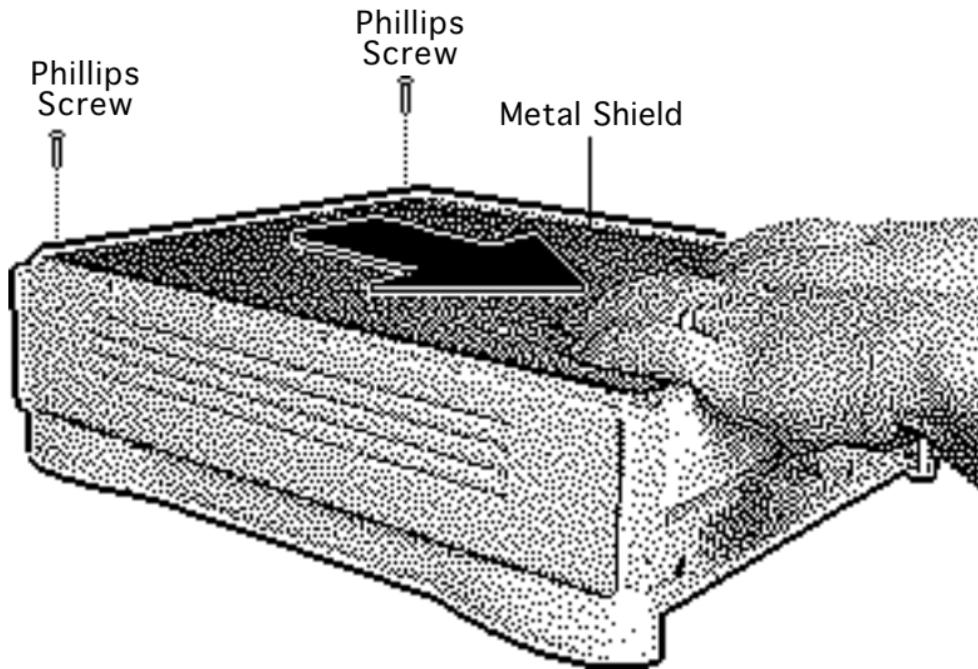
4 Remove the two Phillips
  screws.

5 Slide the metal shield
  toward the front of the
  unit about one-half inch.

Phillips
Screw

Phillips
Screw

Metal Shield

Metal Shield

Security Wire
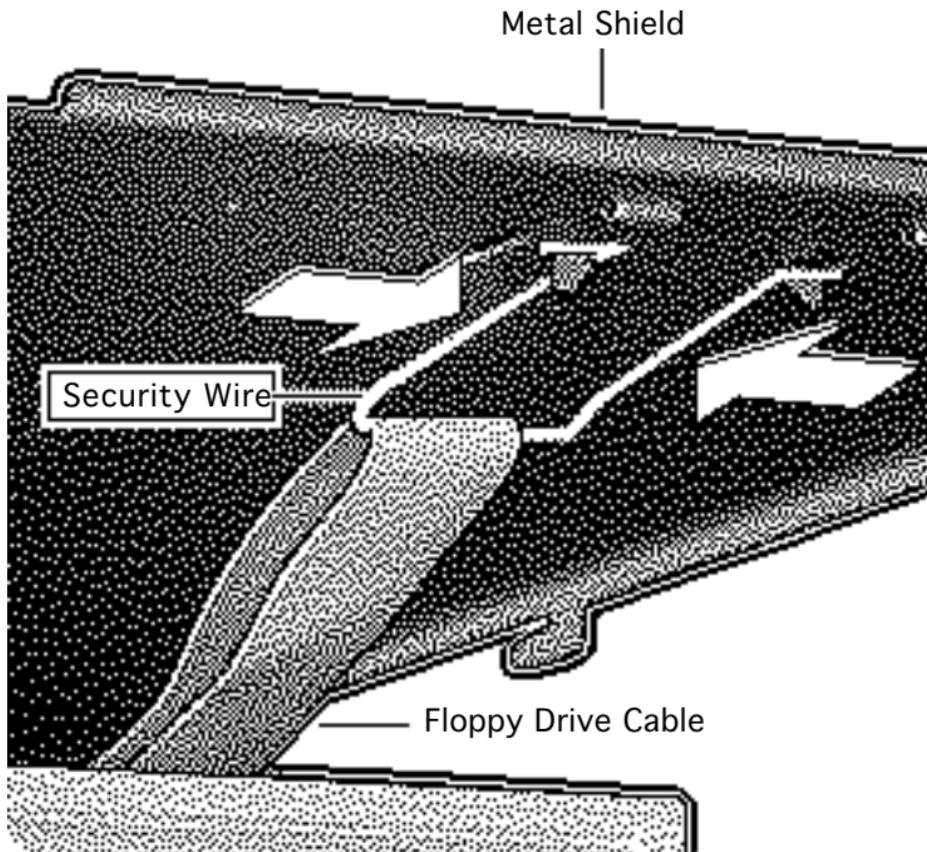
Floppy Drive Cable

6 Lift the front edge of the metal shield about an inch.

7 Under the metal shield, squeeze together the ends of the floppy drive cable security wire and unhook it from the metal shield.

8 Remove the security wire from the floppy drive cable.

9 Lift off the metal shield.

Shield/Wiring Harness

Before you begin, remove the following:

- Drive bezel
- Drive security bracket
- Front panel control
- Floppy drive
- CD-ROM drive
- Hard drive
- I/O door
- Logic board
- Rear panel
- Top cover and shield

Shield/Wiring Harness
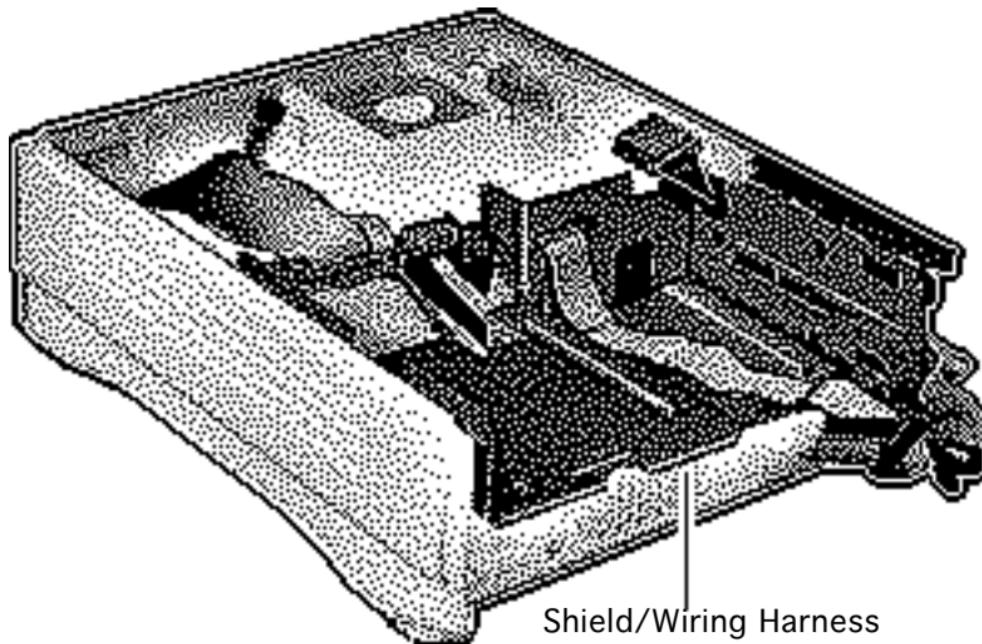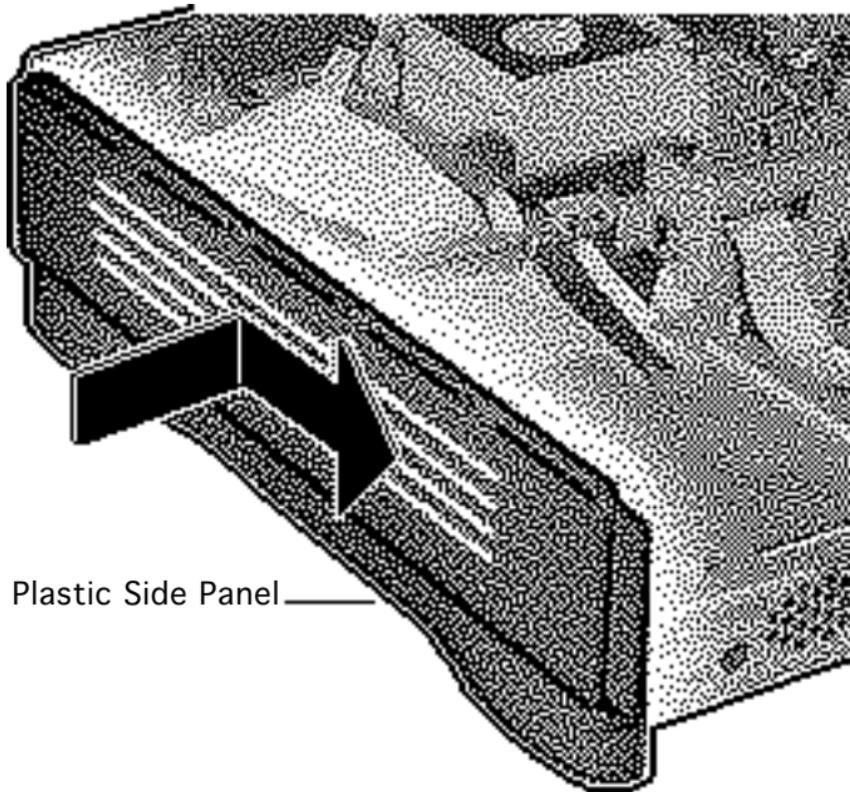
Plastic Side Panel

Caution: Review the ESD precautions in Bulletins/ Safety.

1 Push in and slide the plastic side panels toward the front of the computer about one-half inch.

2 Remove the plastic side panels.

Screw

Shield/Wiring Harness
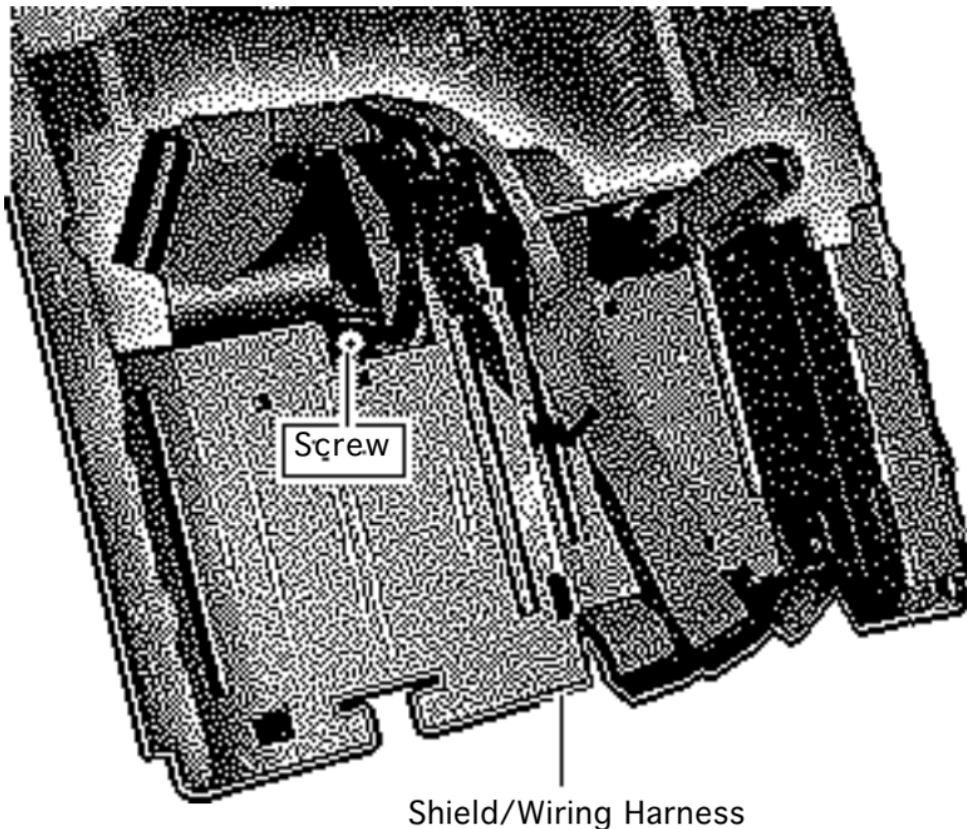
3 **Note:** This graphic shows the bottom case tipped to provide a better view of the screw. Perform this procedure with the bottom case seated on a firm, flat surface.

Remove the screw that secures the shield/wiring harness to the bottom case.

2-Pin Speaker Cable

Cable Holder

10-Pin Tuner Cable

34-Pin
Monitor-Out
Cable
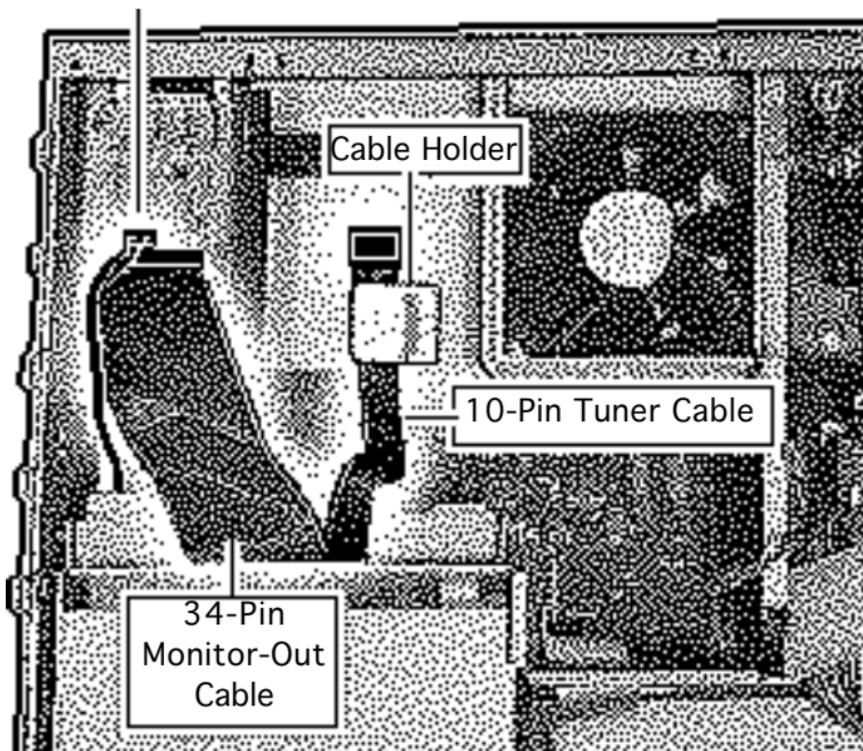
4 Disconnect:
   • 2-pin speaker cable
   • 34-pin monitor-out
     cable
   • 10-pin tuner cable,
     if connected

5 Slide the tuner cable
   from the cable holder.
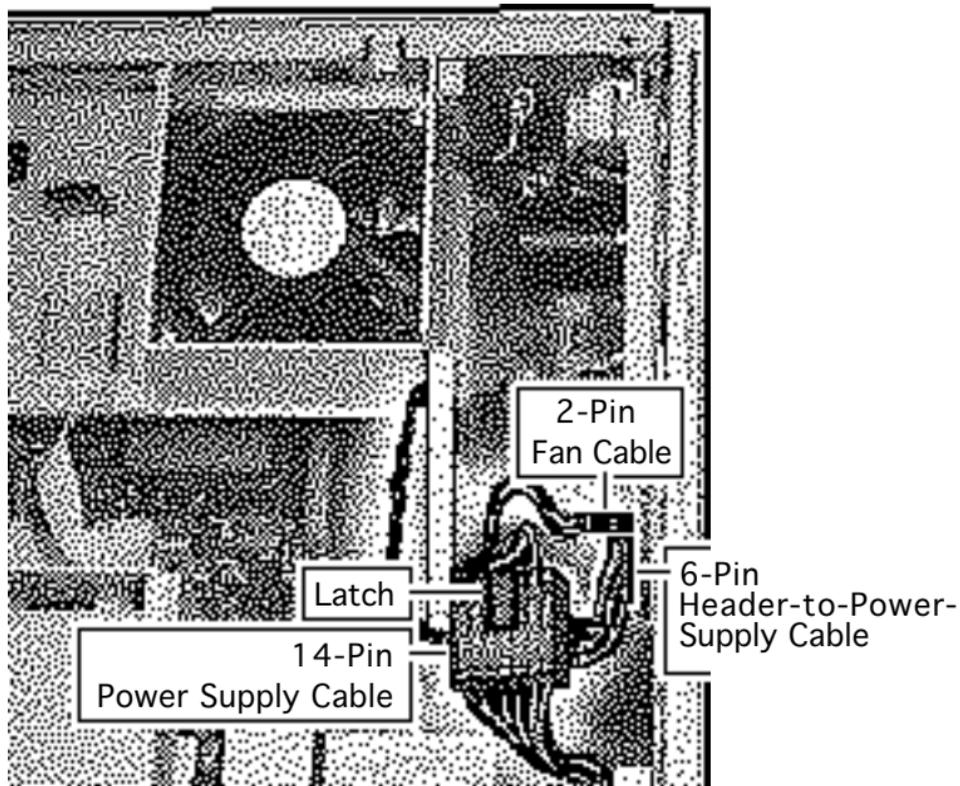
6 Release the latch on the 14-pin power supply cable and disconnect the cable.

7 Disconnect the 2-pin fan cable.

8 Disconnect the 6-pin header-to-power-supply cable and remove the cable from the routing notch in the power supply case.

Shield/Wiring Harness

Front
Panel
Control
Bay

Logic
Board
Connector   CD-ROM
Shelf
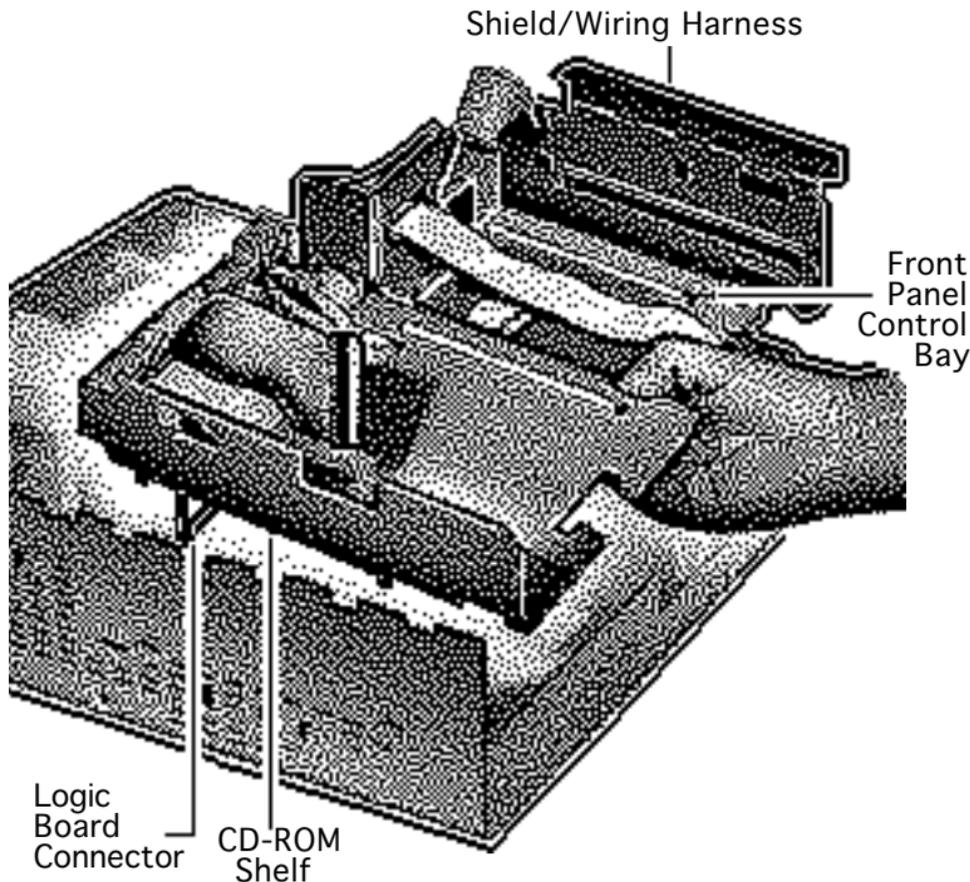
9 Lift up one side of the
   shield/wiring harness a
   few inches, then lift up
   the other side about an
   inch.

10 **Note:** Guide the speaker
   cable through the shield/
   wiring harness as you
   remove the harness.

   Remove the shield/
   wiring harness.

Replacement Note: In rerouting the cables, do not crimp cables between the harness and the floor or sides of the bottom case. Route the speaker cable between the logic board connector and the CD-ROM shelf. Route the fan, power supply, and header cables to the side of the front panel control bay.

Monitor-Out Cable
Video-In Cable
Power Supply Cable
6-Pin Header-to-Power-Supply Cable
Floppy Drive Cable
Front Panel Control Cable
Hard Drive Power Cable
IDE Data Cable
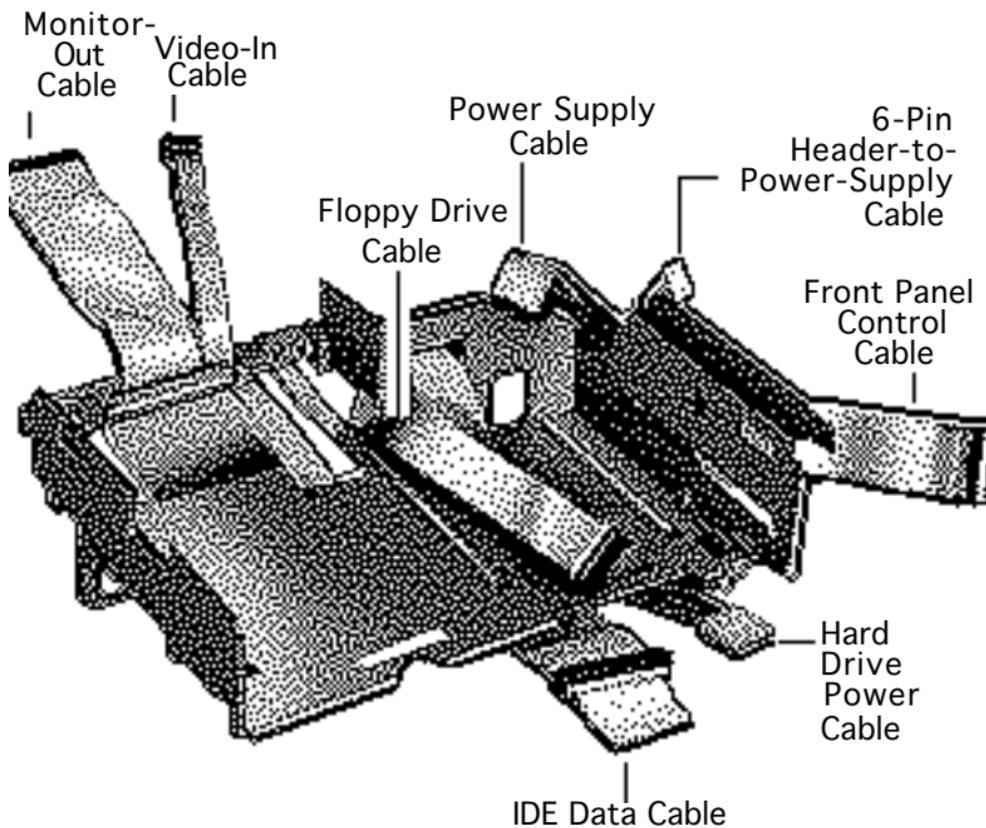
Replacement Note: Arrange the cables as shown before replacing the shield/wiring harness. When dressing the cables, do not crimp them between the harness and the floor of the bottom case, or between the harness and the sides of the bottom case. Route the speaker cable between the logic board connector and the CD-ROM shelf. Route front panel control, power supply, and header cables to the side of the front panel control bay.
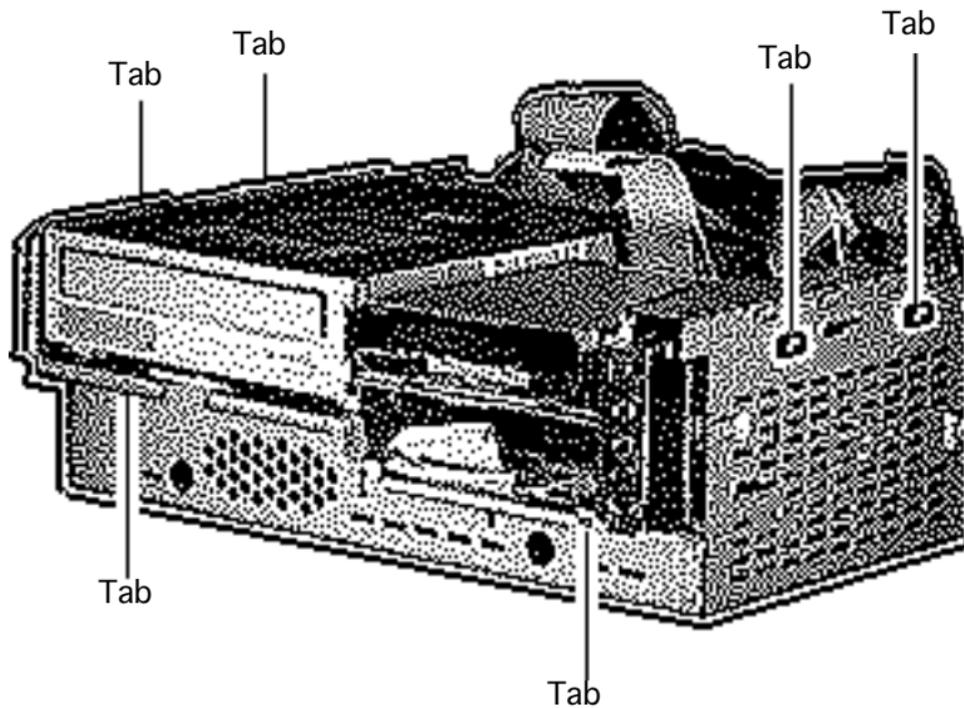
Replacement Note:
Carefully position all six tabs of the shield/wiring harness.

Tab

Tab

Tab

Tab

Tab

Tab

Fan/Video Card Bracket
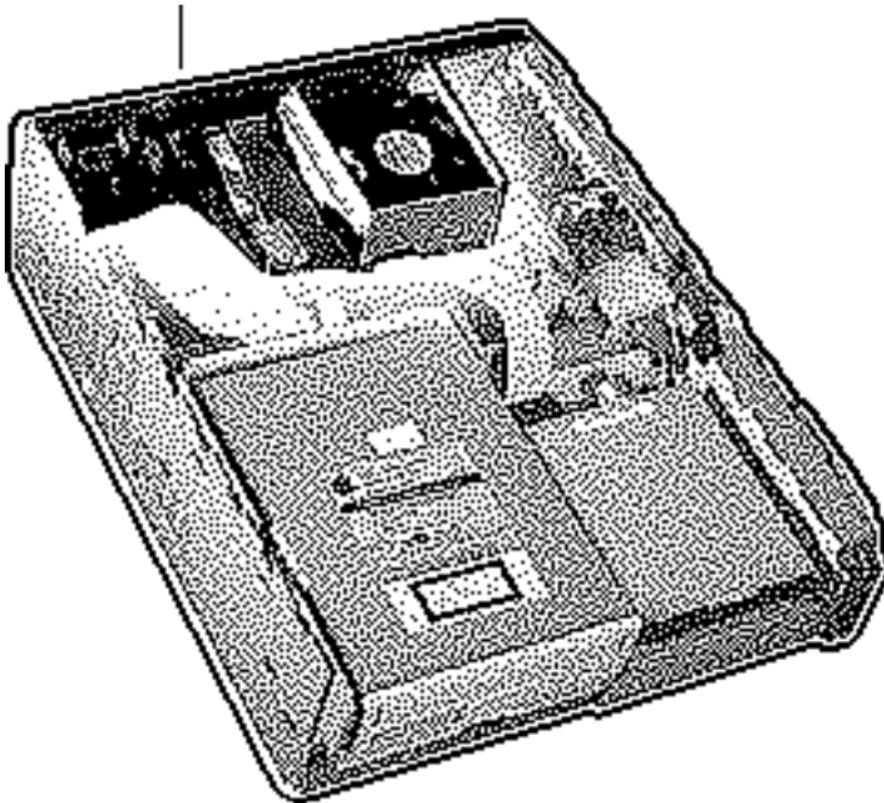
Fan/Video Card Bracket

Before you begin, remove the following:

- Drive bezel
- I/O door
- Top cover and shield

**Caution:** Review the ESD precautions in Bulletins/ Safety.

1 Remove the two screws from the logic board metal fence.

Screw

Screw

Logic Board
Metal Fence

2-Pin Speaker Cable

Cable Holder

10-Pin Tuner Cable
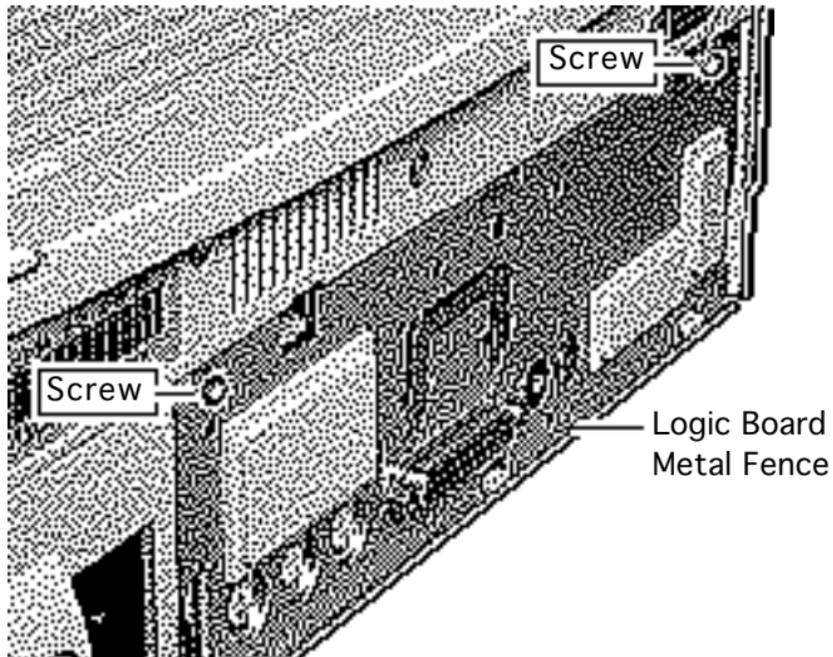
34-Pin
Monitor-Out
Cable
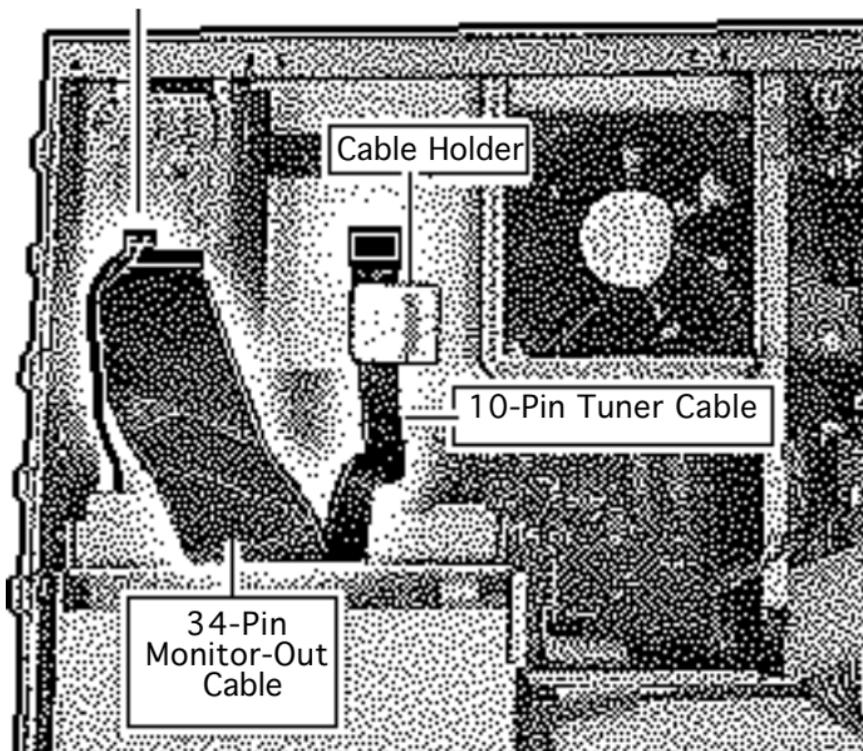
2 Disconnect:
- 2-pin speaker cable
- 34-pin monitor-out cable
- 10-pin tuner cable, if connected

3 Slide the tuner cable from the cable holder.

2-Pin
Fan Cable

4   Disconnect the 2-pin fan
    cable.
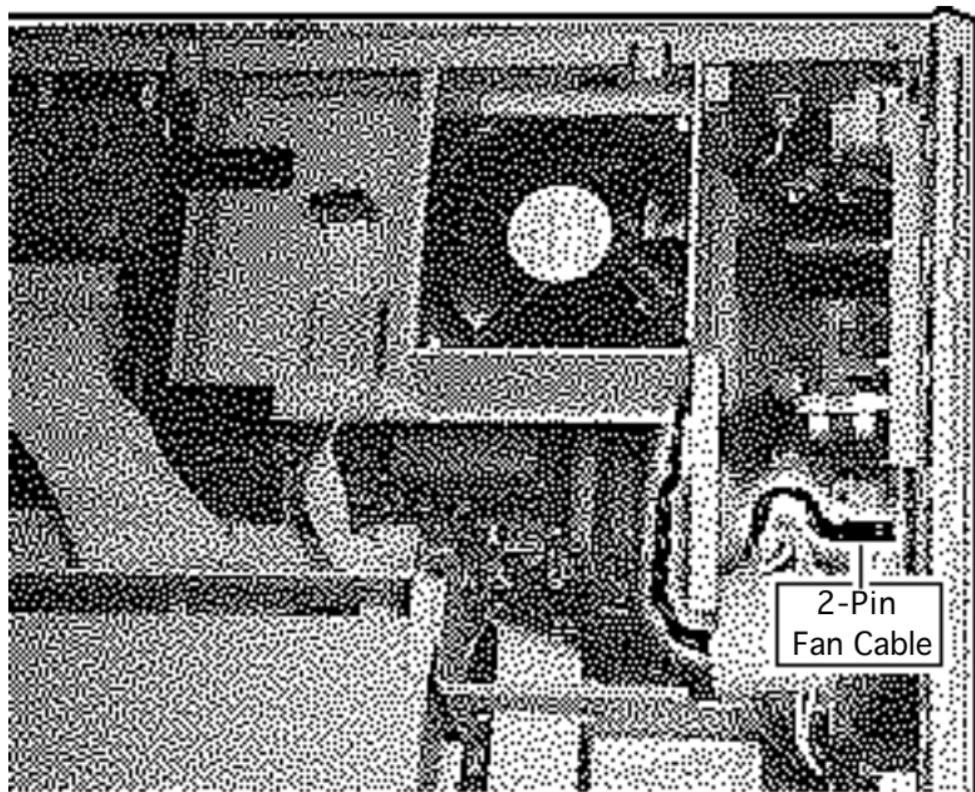
Fan/Video Card Bracket
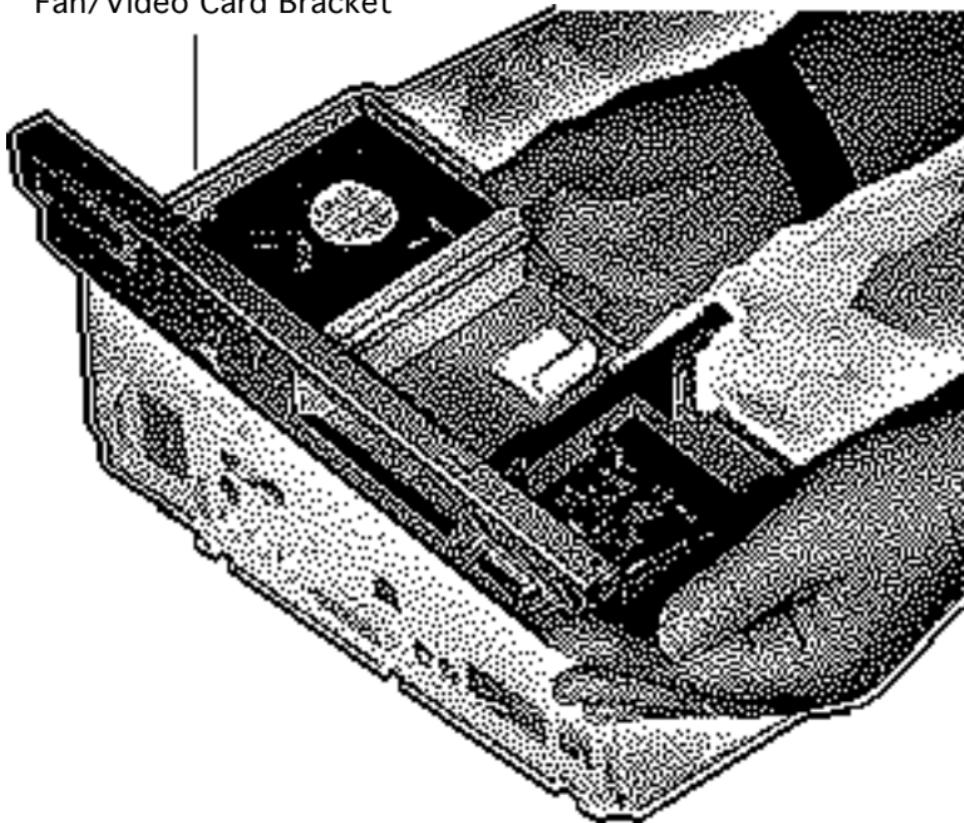
5 Lift up one side of the fan/video card bracket, then the other.

6 Remove the fan/video card bracket.

Speaker

Speaker

Before you begin, remove the following:

- Drive bezel
- Drive security bracket
- Front panel control
- Floppy drive
- CD-ROM drive
- Hard drive
- I/O door
- Logic board
- Top cover and shield
- Shield/wiring harness
- Fan/video card bracket
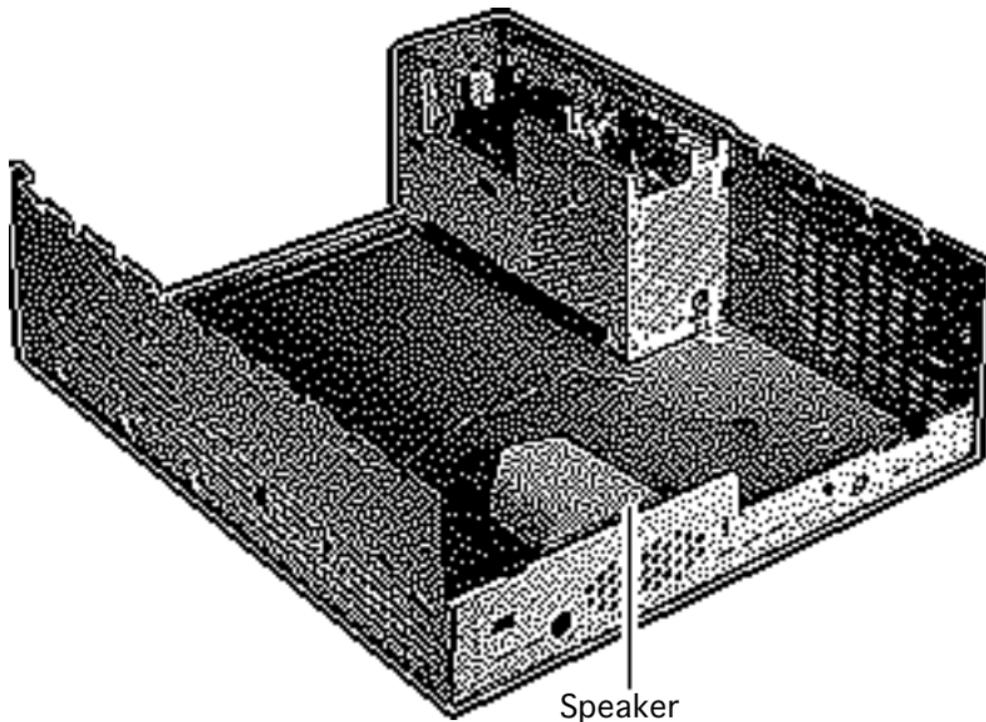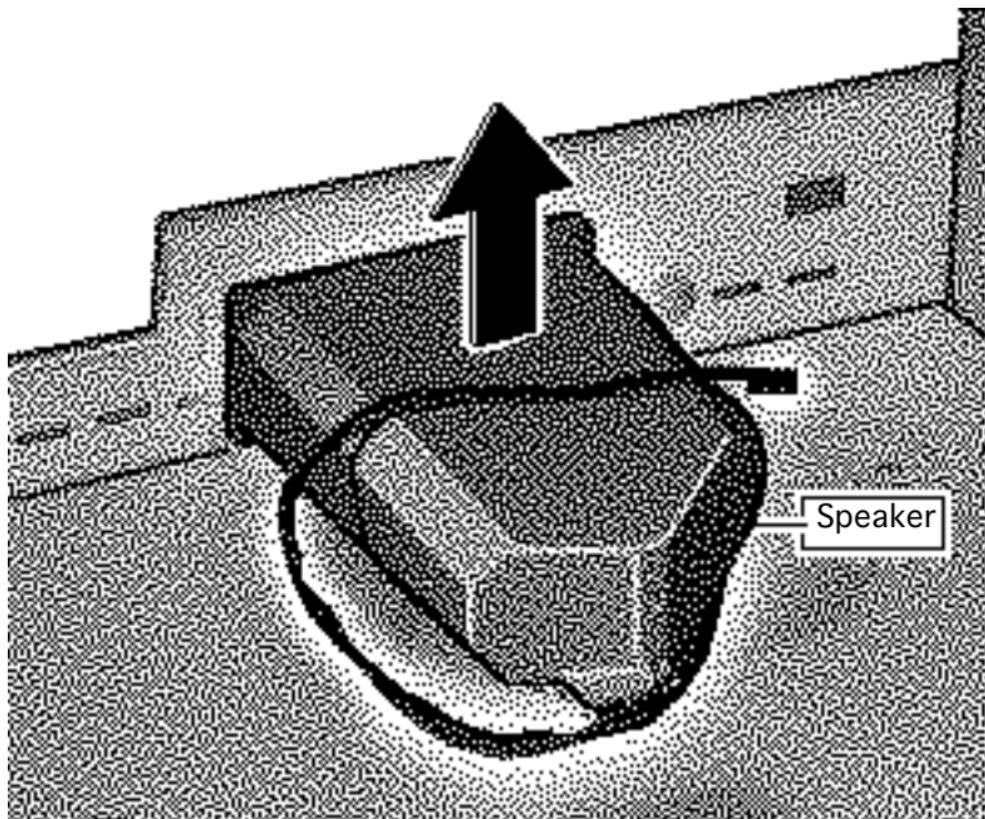
Pull up on the speaker to
disengage it from its hook-
and-loop connection.

Speaker

Power Supply

Power Supply

Before you begin, remove the following:

- Drive bezel
- Drive security bracket
- Front panel control
- Floppy drive
- CD-ROM drive
- Hard drive
- I/O door
- Logic board
- Top cover and shield
- Shield/wiring harness
- Fan/video card bracket
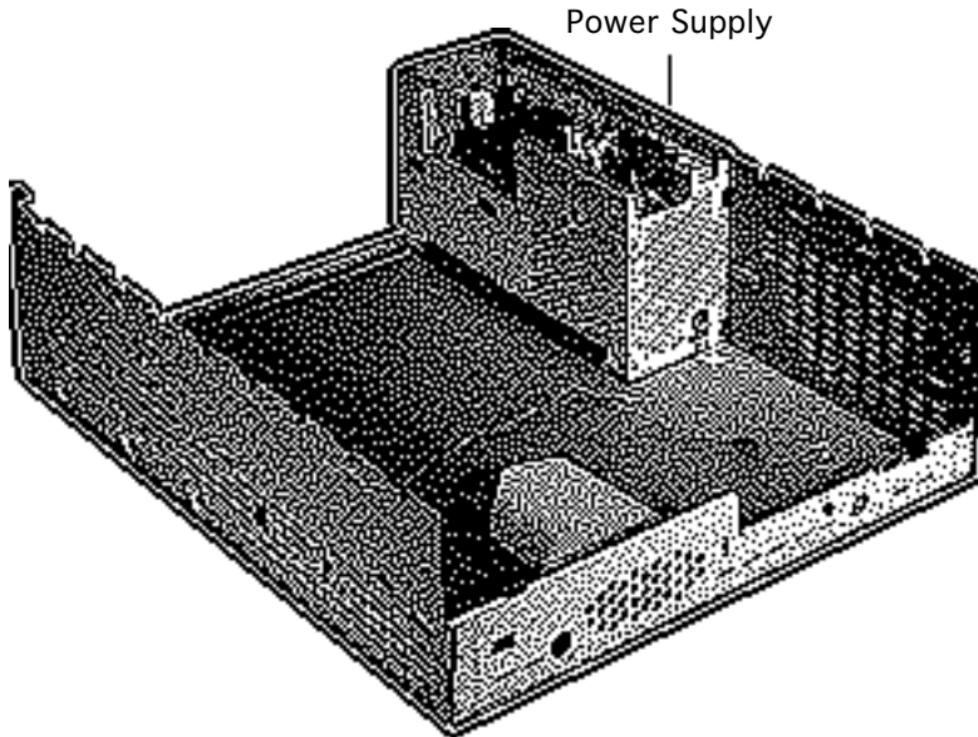
Power Supply
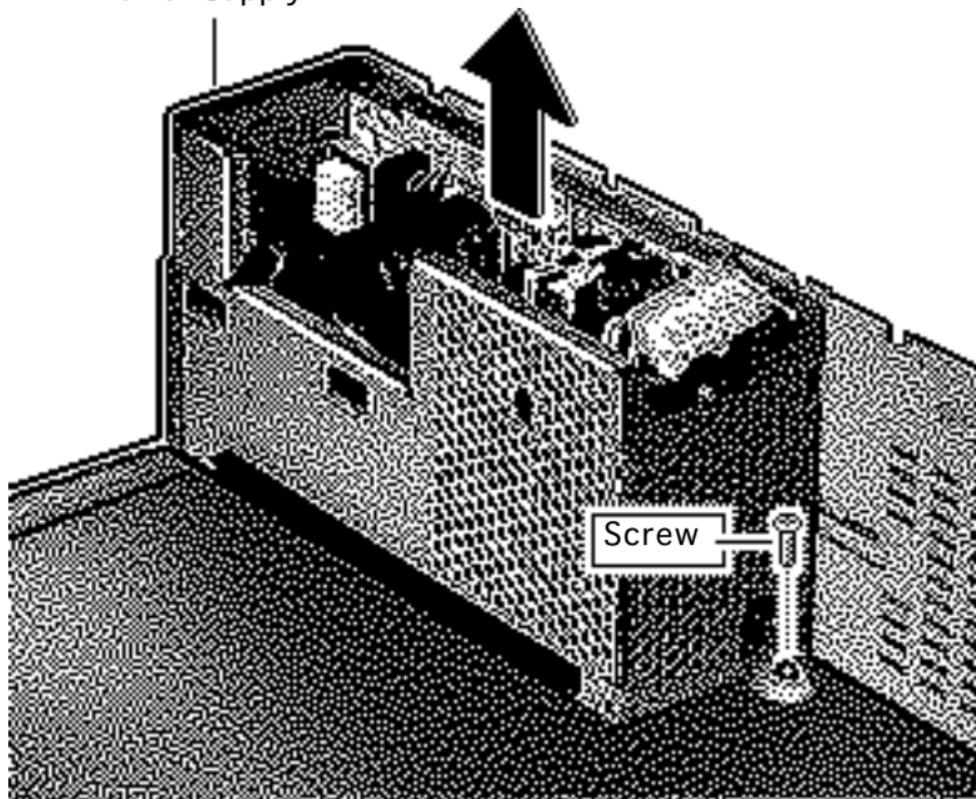
Remove the screw from the power supply and lift the power supply from the bottom case.

Screw

Bottom Case

To remove the bottom case, remove the following:

- Drive bezel
- Drive security bracket
- Front panel control
- Floppy drive
- CD-ROM drive
- Hard drive
- I/O door
- Logic board
- Top cover and shield
- Shield/wiring harness
- Fan/video card bracket
- Speaker
- Power supply

Bottom Case
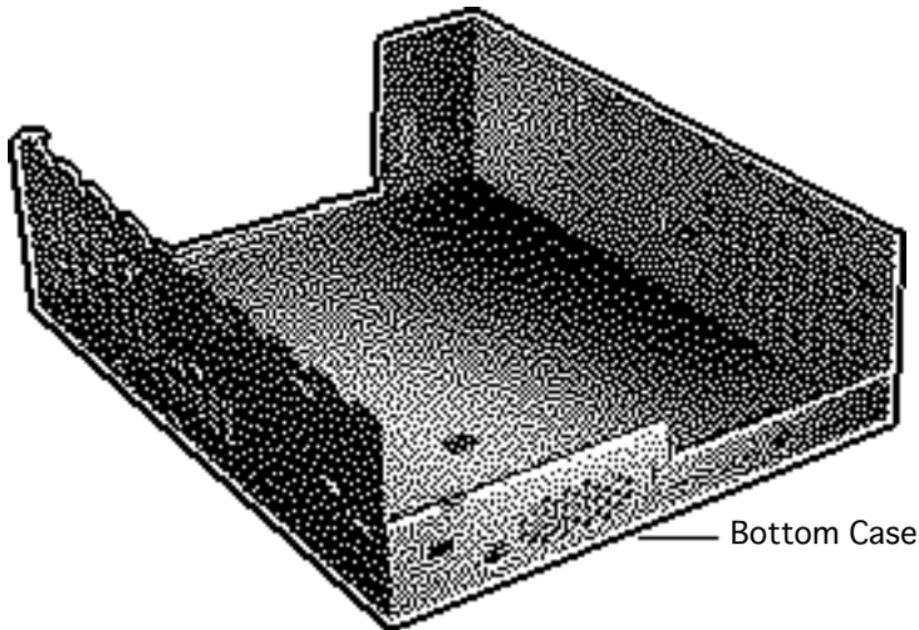
Upgrades

Macintosh Performa 630 Series

Macintosh Processor Upgrade
(including 256K Cache Card)

Processor Upgrade

Before you begin, remove the following:

- I/O door
- Logic board
- Card in PDS slot (if any)

Caution: Review the ESD precautions in Bulletins/Safety.

The Macintosh Processor Upgrade kit allows 68LC040 computers to switch between a PowerPC 601 processor and a 68LC040 processor.

Hook-and Loop Fasteners

Macintosh Processor Upgrade with 256K Cache Card

040 Heat Sink

256K Cache Card

Processor Removal Tool

Spacer
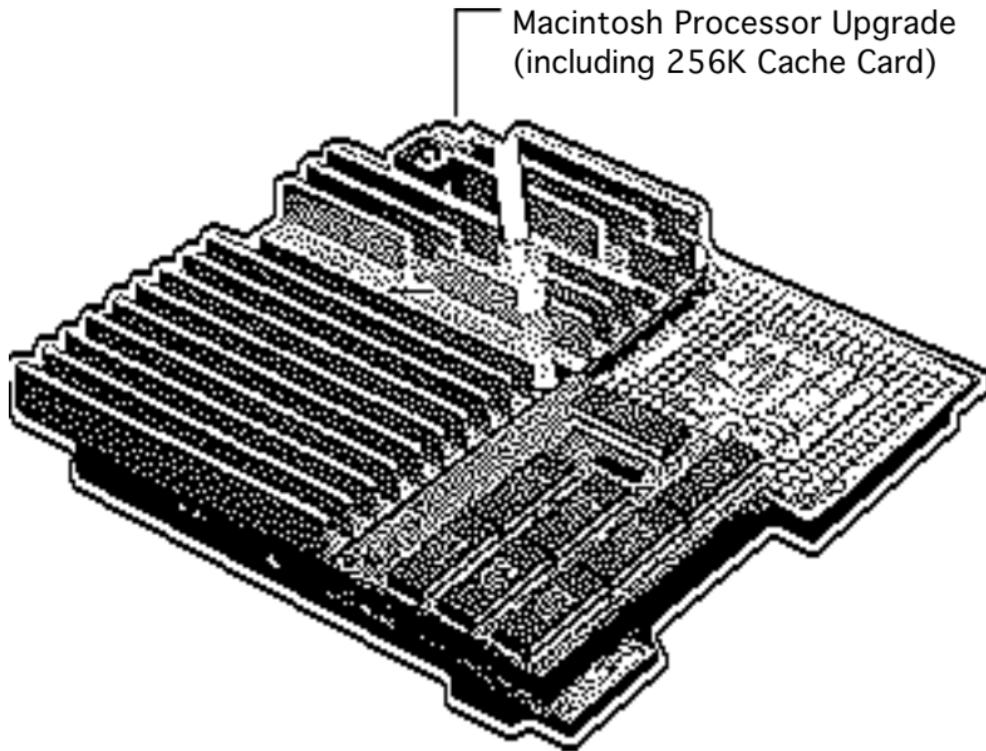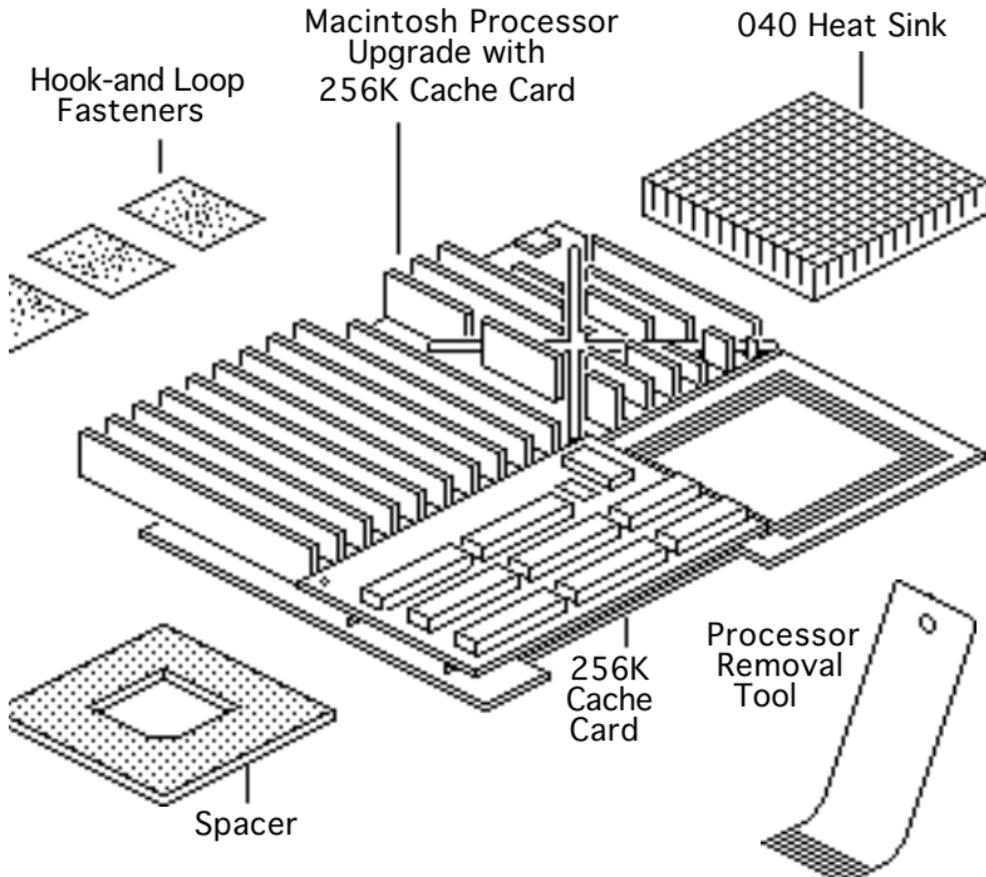
The upgrade board includes the PowerPC 601 processor on board and a socket to accept the customer's 68LC040 processor.

Refer to the Macintosh Processor Upgrade manual for information about specifications and troubleshooting.

Note: The Macintosh Processor Upgrade comes packaged with the Macintosh Processor Upgrade board, 256K cache card, 040 heat sink, and hook-and-loop

fasteners. If you need to order service replacement parts, order the parts separately.

Note: To install the upgrade, you will need a processor removal tool. Order the removal tool as a separate service part.

**Note:** The cache card comes installed on the upgrade board.

Installation Procedure Overview

There are four basic steps to installing the Macintosh Processor Upgrade.

- Remove the 68LC040 processor from the customer's logic board
- Install the 68LC040 processor on the upgrade board
- Prepare the upgrade and logic boards for installation
- Install the upgrade board on the logic board

68LC040
Processor

Detailed procedures for this computer follow.

Remove the 68LC040 Processor from the Logic Board

1   Locate the 68LC040 processor on the logic board.

Processor

Processor Removal Tool

Logic Board Socket
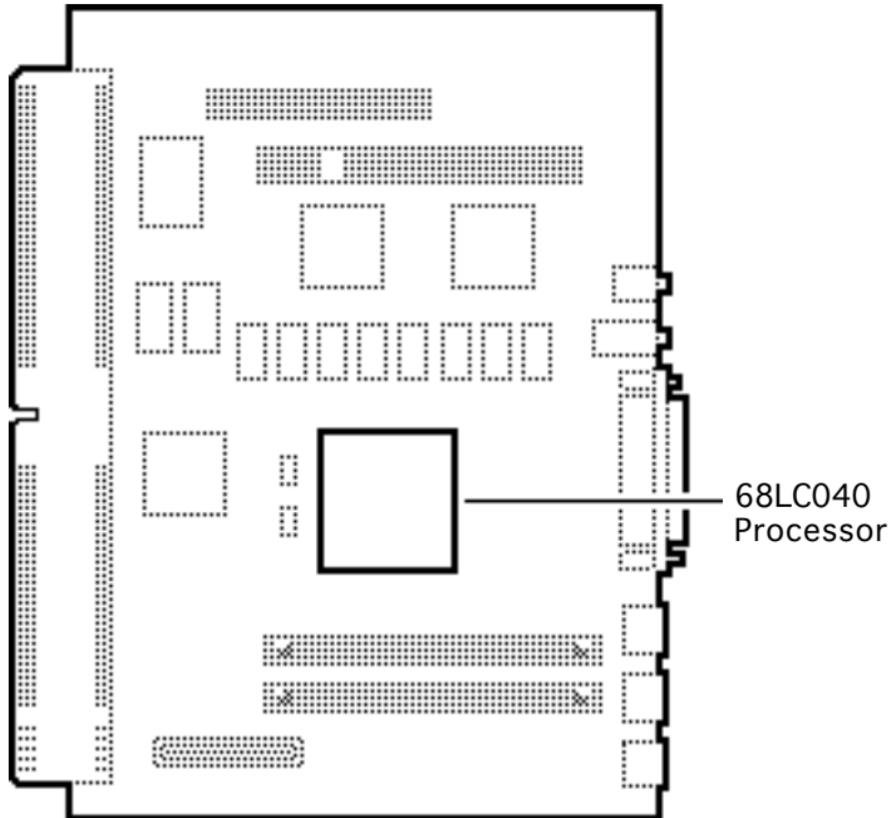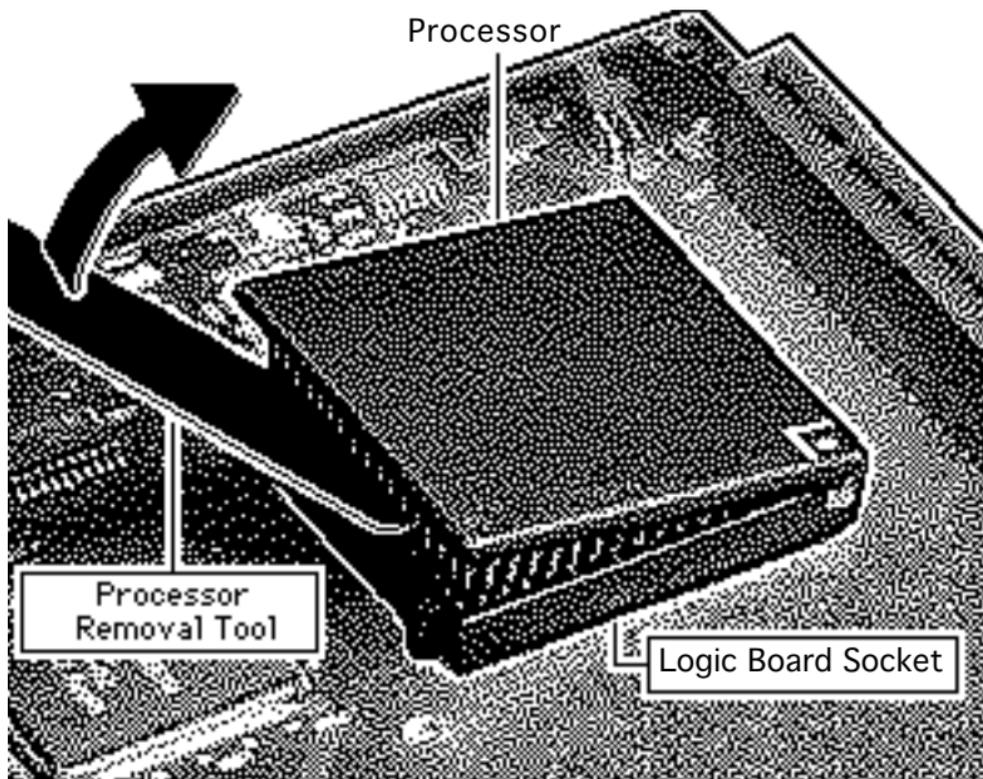
Note: This graphic shows the proper way to remove any 68LC040 chip from its logic board. Your logic board may differ somewhat from this graphic.

2 Position the teeth of the processor removal tool in the groove between the processor and the logic board socket.

Caution: Be sure to lift up on the handle of the processor removal tool. Pressing down could damage components on the logic board.

3 **Caution:** Pry up each side of the processor only slightly to avoid bending the pins.

Gently lift up the processor removal tool handle and pry up each side of the processor from the socket.

4 Remove the processor.

## Install the 68LC040 Processor on the Upgrade Board

Spacer

Alignment Corners   68LC040 Processor
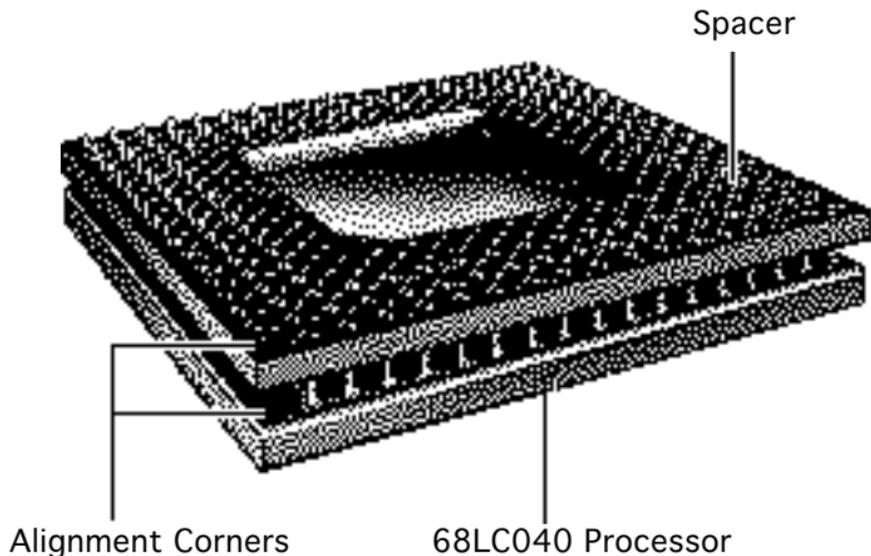
1 **Note:** The alignment corner of the 68LC040 processor is missing one pin.

   The alignment corner of the spacer is missing a pin hole.

2 Position the spacer alignment corner over the 68LC040 processor alignment corner

3 Place the spacer on the processor.
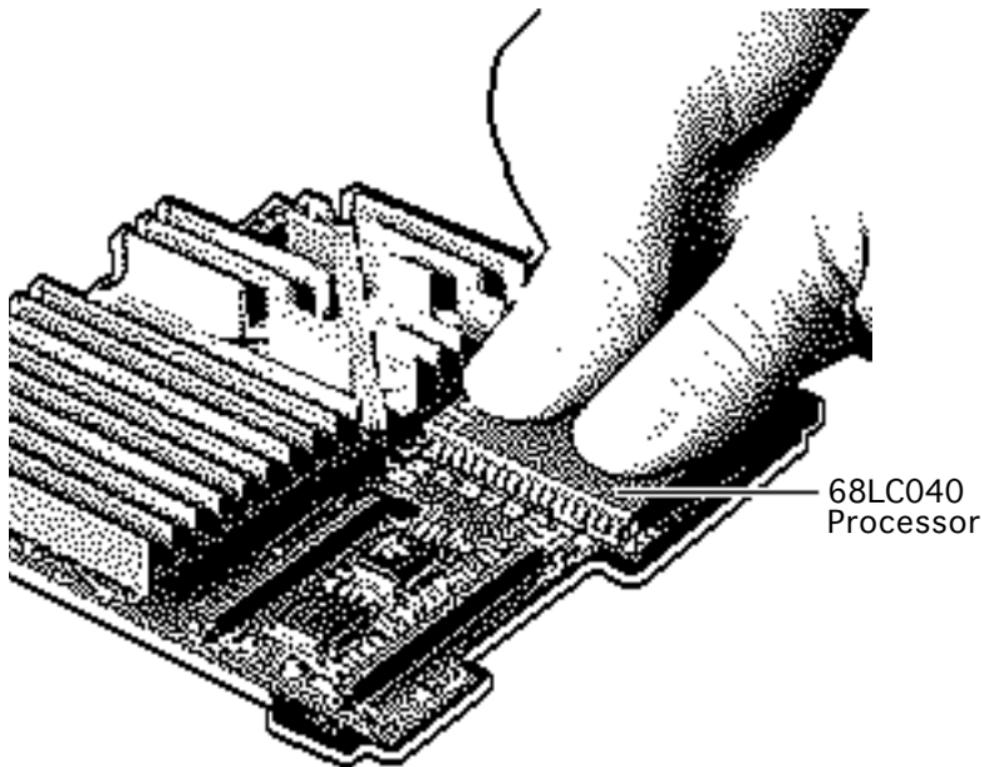
68LC040
Processor

4 **Caution:** Forcing the 68LC040 processor connector pins into the socket could damage the pins. If the processor resists installation, check the pin alignment.

Caution: Place the upgrade board on a firm even surface to avoid bending the upgrade board when pressing the processor into the socket.

Caution: Use two thumbs to evenly distribute the pressure as you press the processor into the socket.

Hold the processor and spacer together and position the spacer alignment corner over the upgrade socket alignment corner.

5 Press the processor connector pins into the socket until you hear a "snap."

Note: On a correctly installed 040 processor, a very small gap separates the 040 chip from the metal spacer. A larger gap caused by the barrel sockets of the upgrade board separates the upgrade board and the spacer.

040 Processor

Small Gap

Spacer

Barrel Sockets
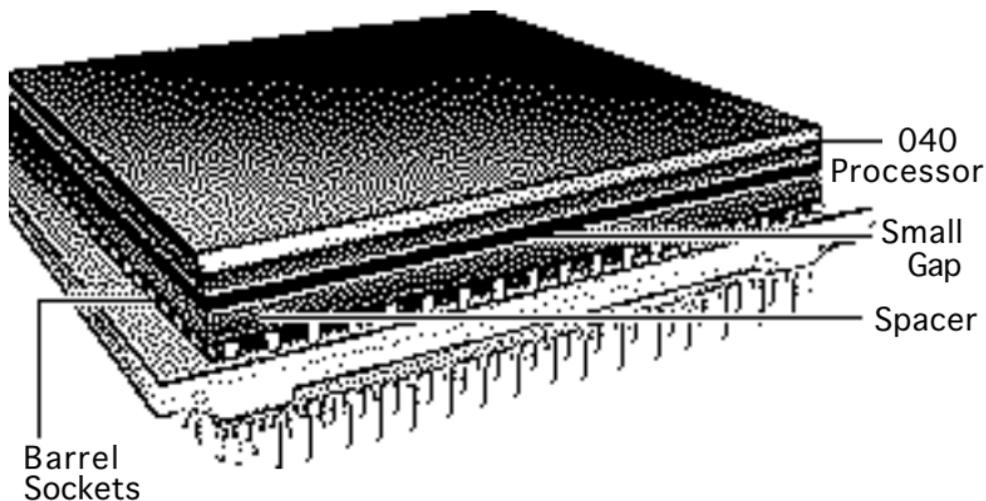
Prepare the Upgrade and Logic Boards for Installation

Note: The following steps explain how to prepare the logic board to accept the upgrade board.

Caution: The EMI clips on the bottom of the logic board are fragile. Do not apply heavy pressure directly to these clips or you may bend the logic board.

Antistatic Foam

Logic Board, Bottom Side

EMI Clips
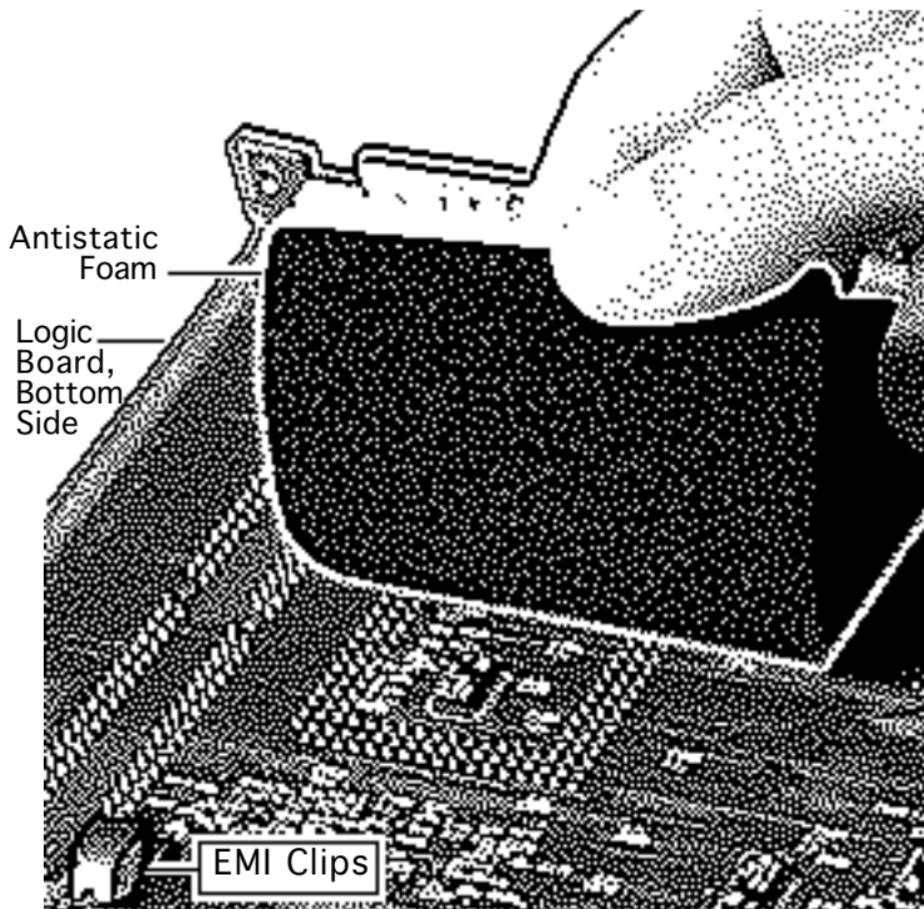
1 Place a piece of antistatic foam directly under the processor socket on the bottom side of the logic board.

Note: This step helps prevent the logic board from bending when you apply pressure in the next few steps.
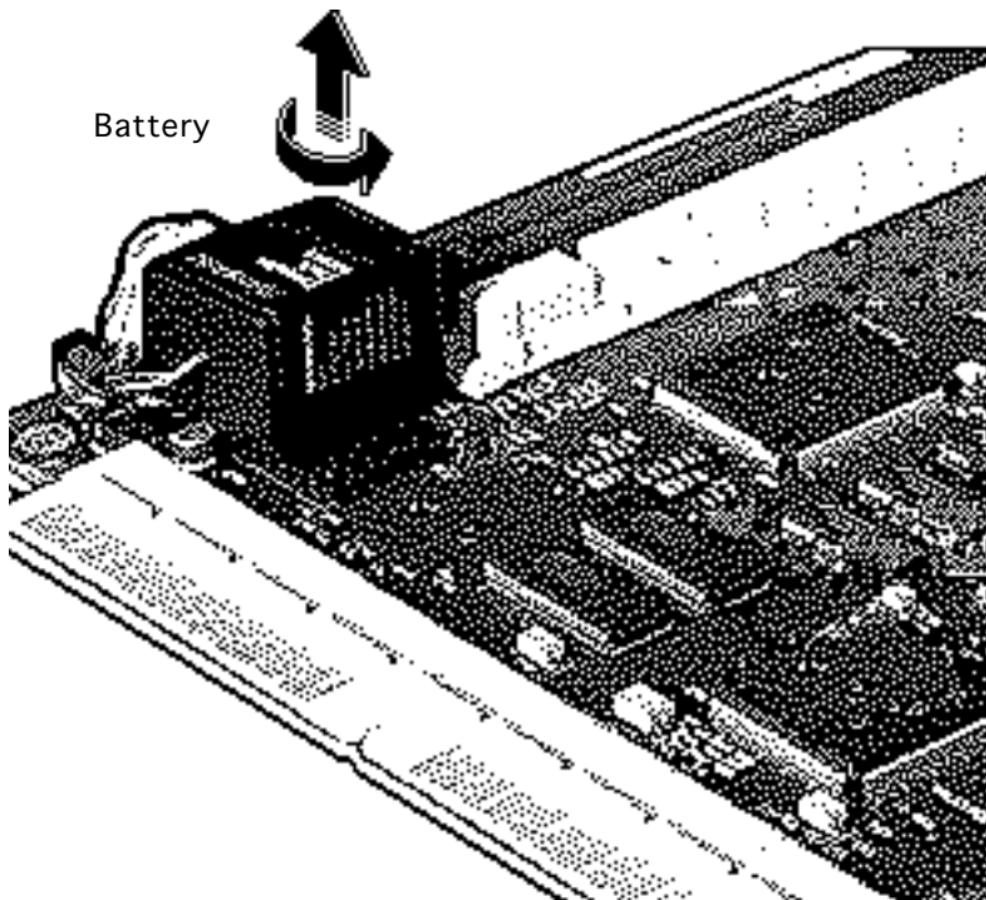
Battery

2 Lift and rotate the battery one quarter turn from its original position on the logic board. (This step makes room for the upgrade board.)

3 Press the battery firmly into its new position.

Upgrade Connector Alignment Corner

Logic Board Socket Alignment Corner
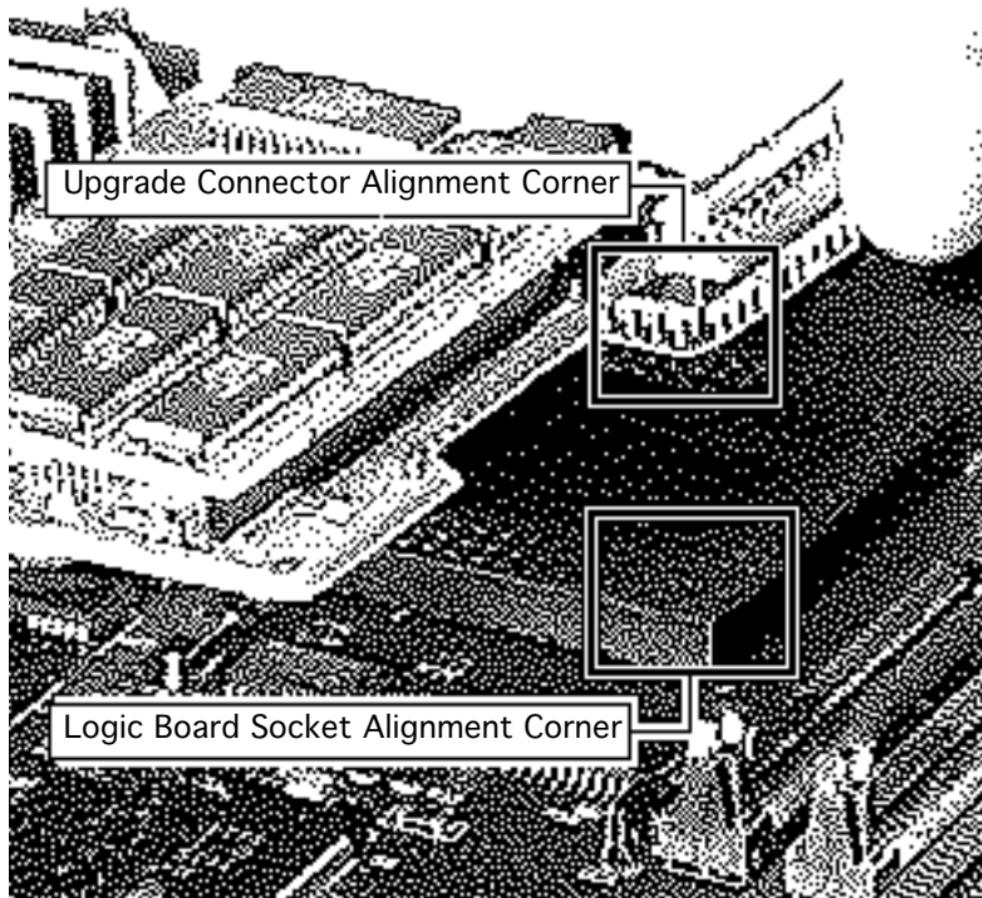
Install the Upgrade Board

1 **Caution:** Forcing the upgrade board connector pins into the logic board socket could damage the pins. If the connector resists installation, check the pin alignment.

Position the upgrade connector alignment corner over the logic board socket alignment corner.

2   Carefully align the pins
    along all sides of the
    processor and socket.

3   Firmly press the
   connector pins into the
    logic board socket.

Note: To install the
software, refer to the
upgrade Owner's Guide.

Logic Board and Upgrade Board Returns

Return the upgrade and logic boards to their original conditions before sending them to Apple. Be sure to remove the upgrade board from the logic board and reinstall the 68LC040 processor on the logic board.

Replacement Caution: To avoid bending any pins when removing the 68LC040 processor, pry up each side only slightly.
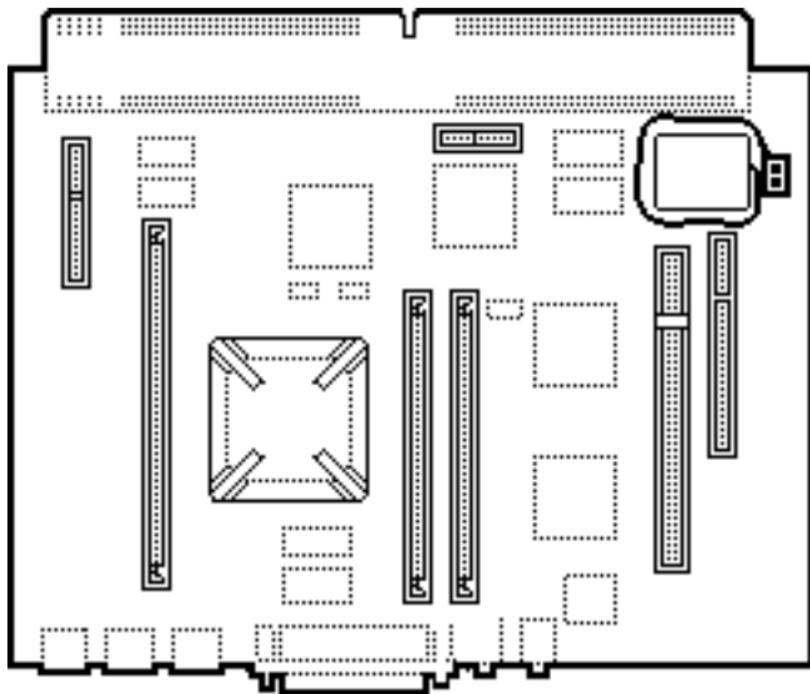
Power Macintosh 5300/6300 Logic Board Upgrade

Before you begin, remove the following:

- I/O door
- Logic board
- Card in PDS slot (if any

.**Caution:** Use a grounded workbench and always wear a grounding wriststrap.

The Power Macintosh 5300/ 6300 Logic Board Upgrade is a finished goods product.

The upgrade kit includes the 603e, 100 MHz logic board and logic board fence. See Take Apart chapter, Logic Board topic for installation procedures.

## Service Provider's Checklist

- Install the upgrade board
- Run Safe Install
- Install System 7.5
- Turn on the upgrade board
- Turn on Modern Memory Manager
- Restart the computer to verify the board works properly

Replacement Note: You may need to remove the 603e processor on the 6300 series logic board to instal or service SIMMs. See "6300 SIMM Upgrade."
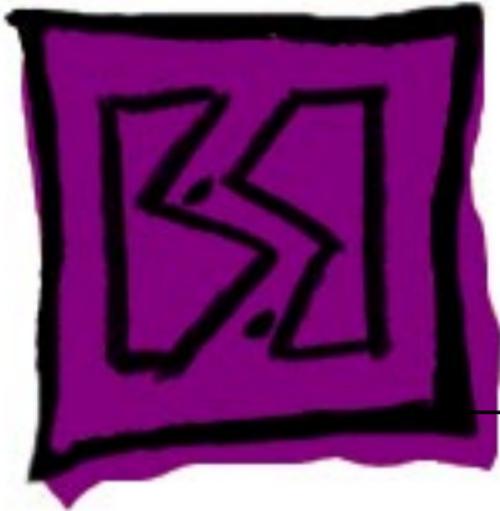
Exploded View

Macintosh Performa 630 Series

Exploded View

Top Cover
922-1161

Shield
922-1155

Front Panel
Control Board
661-0139

Wiring Harness
922-1154

Floppy
Drive
661-0121

Floppy
Drive
Carrier
922-1133

Chassis Shield
922-1154

Drive
Security
Bracket
922-1156

Fan/Video
Bracket
922-1160

Hard Drive*

I/O Door
922-1163

Processor
Upgrade Card
661-0255

300i CD-ROM Drive
661-0913

Hard Drive
Carrier
922-1124

Logic Board
Fence
922-2314

CD-ROM
Carrier
922-0850

Side Panel
922-1159

Logic Board*

Power Supply
661-0170

Side Panel
922-1158

Bottom Case
922-1176

Speaker
922-1175

Front Bezel
922-1157

Product family configurations may vary. For number of part with asterisk, see parts list.