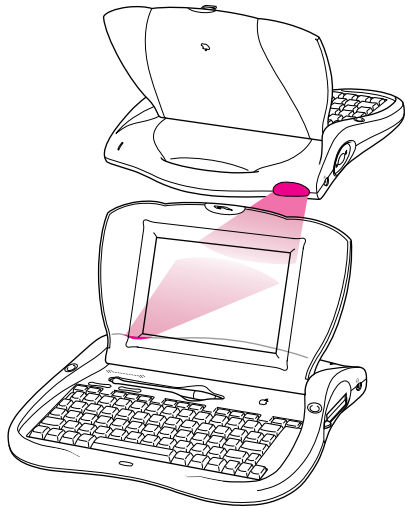# eMate

eMate 300

Basics

eMate

Overview

The eMate 300 is a portable computer that has the Newton operating system and a tablet similar to a Newton, plus a keyboard. Opening the lid turns eMate power on, and closing the lid shuts eMate power off. The lid angle is adjustable to get the best viewing position. With the eMate pen you can tap choices, write, or draw on the screen. The keyboard keys are similar to those found on other computers. A few special keys found along the top of the keyboard make some operations easier, such as scrolling, searching, and closing applications.

It is easy to access upgradeable components through a single back panel. Upgradeable components are the battery pack, DRAM/Flash expansion connector, and system ROM connector. Fragile components are easily replaced, including the keyboard, display, tablet, and backlight assembly.

Beaming and Faxing

Infrared wireless transmission allows exchanging information with another eMate or Newton device, or connecting to a desktop computer. To do this, the infrared windows need to point directly at each other and should be less than one meter apart (closer in bright sunlight).

To send or receive a fax with the eMate, connect the eMate to a Newton-compatible fax modem or use a fax modem card. See the Newton website for a list of compatible modems (http://www.apple.com/newton/html).

Printing

The eMate can be connected directly to some Apple printers with a serial or printer cable plugged into the communications port on the side of the eMate. Plug the other end of the serial cable into one of these printers:

• StyleWriter I and II
• Personal LaserWriter LS
• Personal LaserWriter 300
• StyleWriter 1200
• Color StyleWriter 2200
• Color StyleWriter 2400

Any PostScript-based AppleTalk LaserWriter printer can be connected to the eMate with a LocalTalk connector. Plug a LocalTalk box into the eMate and connect it to another LocalTalk box. The second LocalTalk box can be on the network or plugged directly into the printer. To connect a printer that has a parallel (Centronics-type) interface, use the Newton Print Pack.

Battery

The eMate comes with a built-in Nickel Metal Hydride (NiMH) battery that needs periodic recharging. The battery normally lasts 24 hours. Using the optional power adapter with the eMate automatically recharges the battery while the eMate is in use.

If the battery doesn't last as long as it should, these activities may have shortened battery life:
• Setting the eMate to "Never sleep"
• Using backlighting for long periods
• Setting the eMate to receive beams automatically
• Using the communications port for faxing, mailing, and printing

Resetting the eMate

If the eMate is working erratically, the simplest solution is to reset the operating system.

Soft Reset

Note: A soft reset doesn't erase any stored information in the eMate.

With a pointed instrument, press the Reset button on the bottom of the eMate for two seconds to do a "soft reset." If the eMate didn't reset, press the Reset button again for at least 15 seconds. If a soft reset doesn't solve the problem, you may want to do a hard reset.

Hard Reset

Caution: A hard reset erases all data, third-party applications, and information in the eMate's internal memory.

To do a "hard reset," follow these steps:

1 Remove any PC cards or application cards inserted in the eMate.

2 Press and hold the Power key while momentarily pressing the Reset button on the bottom of the eMate.

3 Continue holding down the Power key until a message appears asking if you want to erase your data completely.

4 Tap Yes.

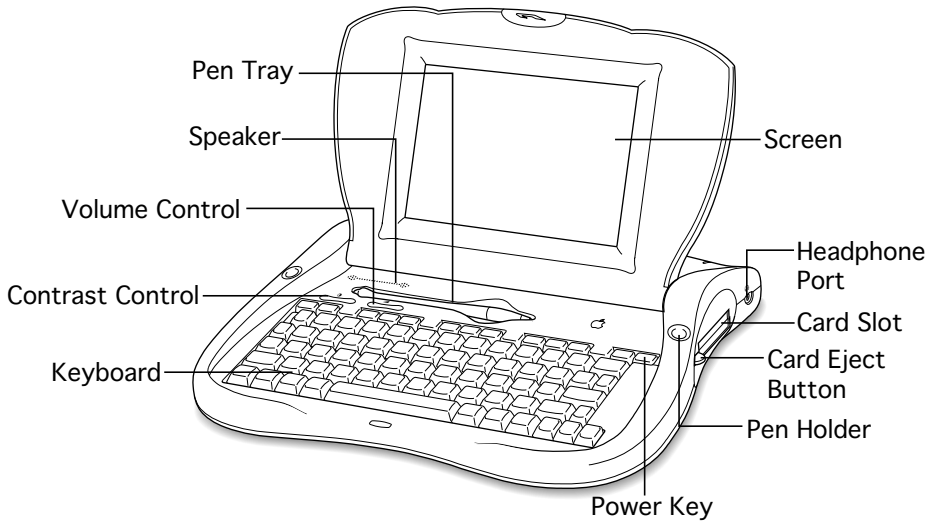5 When another message appears telling you that all data will be erased, tap OK.

Sharing Newton Information

The eMate uses the Newton 2.1 operating system. This means the eMate can share information with a Newton that has the same operating system version. The eMate can also use 5-volt PC cards and storage cards from a Newton device having the same operating system.
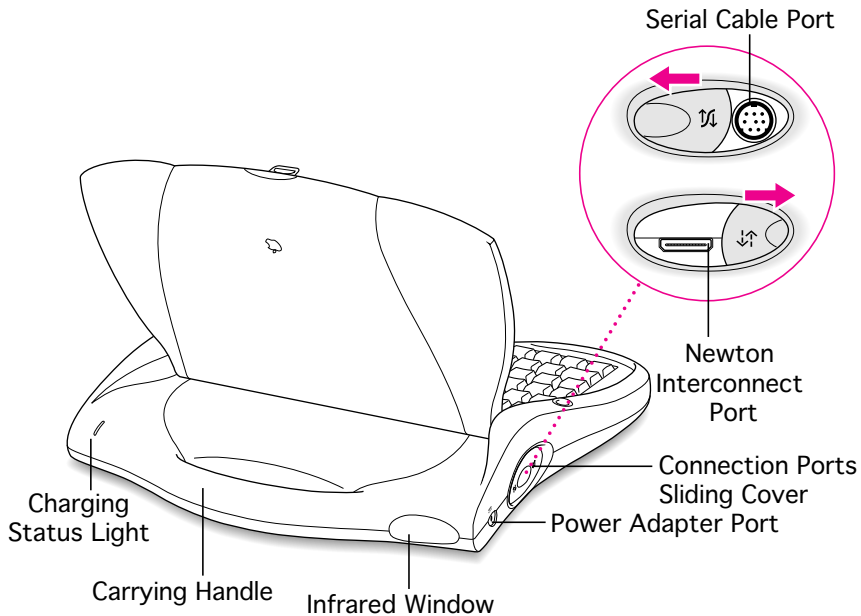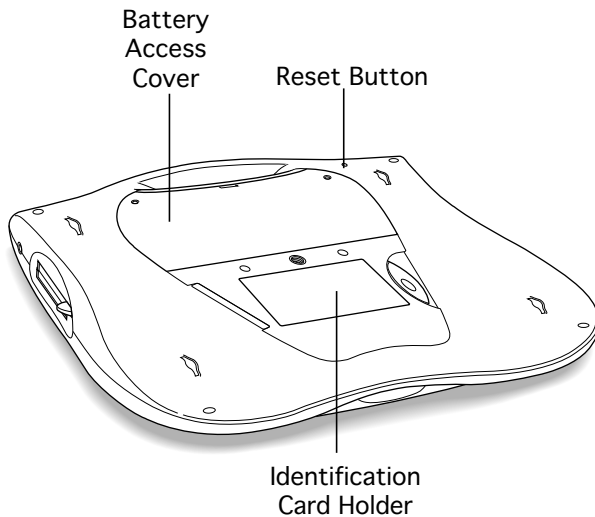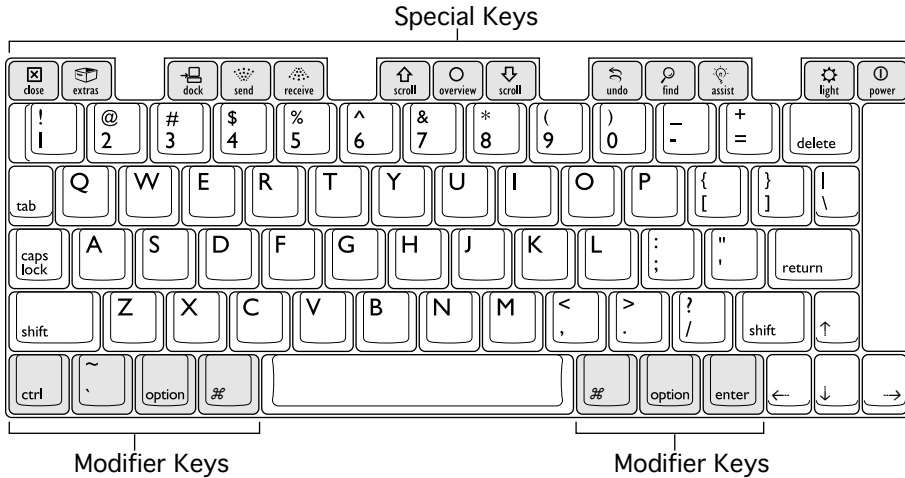
Front View

Pen Tray

Speaker

Volume Control

Contrast Control

Keyboard

Screen

Headphone Port

Card Slot

Card Eject Button

Pen Holder

Power Key

Rear View

Serial Cable Port

Newton
Interconnect
Port

Connection Ports
Sliding Cover

Power Adapter Port

Charging
Status Light

Carrying Handle   Infrared Window

Bottom View

Battery Access Cover

Reset Button

Identification Card Holder

Keyboard

Special Keys

Modifier Keys   Modifier Keys

Specifications

eMate

Processor

CPU   ARM 710a processor running at 27 MHz

Memory

RAM
512K DRAM installed on the logic board
512K or 1 MB Flash installed on the logic board
Memory expansion connector allows addition of daughter card
    containing DRAM and FLASH.

ROM
8 MB
Expandable to 16 MB ROM and 16 MB Flash on ROM daughter card.

Controls

Switches   Wake/sleep switch lid activated; wake key on keyboard
                      Backlight on/off switch on keyboard
                      Reset switch on back of unit

I/O Interfaces

Serial   GeoPort/LocalTalk port. Uses DIN9 interface connector. Software
                        switching to Newton Interconnect.

Sound   External headphone jack (plugged-in headphones disable internal
                        speaker)

PC Card Slot   One slot
                        PCMCIA type I/II/III
                        Ejection button

I/O Interfaces

Infrared   Point-to-point short range IR
                         115 kbps maximum data rate
                         1 m maximum range

Power Adapter   Power adapter port

I/O Devices

Keyboard   Built-in keyboard

Speaker   One internal speaker

Tablet   Non-glare finish

Video

Video Display   Black and white liquid crystal display
480 x 320 pixels
0.30 mm (85 dpi) dot pitch
16 levels of gray
Optimized for landscape orientation

Backlight   Electro-luminescent backlight
Yellow-green color
Intended for momentary use in low-light conditions

Electrical

Main Battery Pack   Four AA nickel-metal-hydride (NiMH) batteries
Up to 24 hours of use before recharging
Storage capacity: 5.76 W
Fast-charge time: 1 hr.
Recharge life: 500 cycles
LED charging status
   Off when AC adapter not attached
   Amber while AC adapter attached and charging
   Green with AC adapter attached and charged

Physical

Dimensions

Length	289.6 mm
Width	305.0 mm
Depth	53.3 mm

Weight   4.2 lb. (1.9 kg)

Environmental

Temperature

    Operating   32° to 104° F (0° to 40° C)

    Storage   -13° to 140° F (-25° to 60° C)

Relative Humidity   5% to 95% noncondensing

Operating Altitude   0 to 10,000 ft. (0 to 3,048 m)

Troubleshooting

eMate

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

Startup

Backlight blinking
after starting up

1. Power up memory test failed. If expansion memory card installed, remove it and press reset button.
2. Remove battery, wait 30 seconds, reinstall battery, turn on computer.
3. Remove battery, remove and reseat ROM card, reinstall battery, turn on computer.
4. Replace logic board.

Startup

eMate computer
won't power on

1 Check LCD contrast and volume control and adjust to mid-
   range.
2 Plug in AC adapter, and press reset button. Wait at least 30
   seconds for boot up chime.
3 Remove adapter and battery; remove and reseat ROM card;
   reinstall battery; repeat step 2.
4 If expansion memory card installed, remove card and repeat
   step 2.
5 If boot up chime is heard and no image on screen, press
   backlight key. If light comes on, replace LCD.
6 Replace logic board.

System

Error message displayed: "Your eMate is missing important calibration information and should be returned to a service provider."

1   Replace logic board.
2   Send logic board to repair center.

Audio

Speaker doesn't work

1   Check volume level.
2   Remove anything plugged into the headphone jack.
3   Verify speaker applications (for example, MacinTalk) are installed.
4   Press reset button.
5   Remove battery, wait 30 seconds, replace battery, turn on computer.
6   Replace speaker.
7   Replace logic board.

PC Card Module (PCMCIA)

PCMCIA doesn't work   1   Remove and reseat PC card.
                       2   Press reset button.
                       3   Remove battery, wait 30 seconds, replace battery, turn on
                            computer.
                       4   Replace logic board.

Infrared Communication

IR doesn't work   1 Press reset button.
                   2 Remove battery, wait 30 seconds, replace battery, turn on
                      computer.
                   3 Replace logic board.

Keyboard

Keyboard doesn't
work

1   If tablet doesn't work, press reset button.
2   Close lid, wait five seconds, open lid, press reset button.
3   Run keyboard diagnostics.

Tablet

Tablet doesn't work

1. Verify correct application (for example, Draw) is being used.
2. Press reset button and restart.
3. Remove battery, wait 30 seconds, replace battery, turn on computer.
4. Run diagnostic tablet test.
5. Reseat display/tablet flex cable on logic board and LCD sides.
6. Remove tablet, reseat tablet flex connector.
7. Replace tablet.
8. Replace logic board.

Backlight

Backlight doesn't
work

1 Press reset button.
2 Remove battery, wait 30 seconds, replace battery, turn on
   computer.
3 Replace backlight.
4 Replace logic board.

Battery

Battery won't charge

1 Press reset button.
2 Remove battery, wait 30 seconds, replace battery, turn on computer.
3 Run diagnostic battery test.
4 Replace battery.
5 Replace logic board.

Serial Port

Serial port doesn't
work

1 Press reset button.
2 Remove battery, wait 30 seconds, turn on computer.
3 If 9-pin connector works, but 26-pin connector doesn't,
   replace logic board.
4 Replace logic board.

eMate Service Diagnostics

The service diagnostic software comes on a PC card, and is designed to isolate the problem to a replaceable module. The replaceable modules identified could be any of these:

- Logic board
- RAM expansion card
- ROM expansion card
- Keyboard
- Display (LCD)
- Battery

To begin the service diagnostic routines, open the eMate lid to turn on the power and insert the diagnostic PC card. You'll see a dialog box that you should ignore. Press the Reset button until you hear a beep. Immediately remove the diagnostic PC card. Follow instructions on the screen to tap the center of a small box.

Reset Button
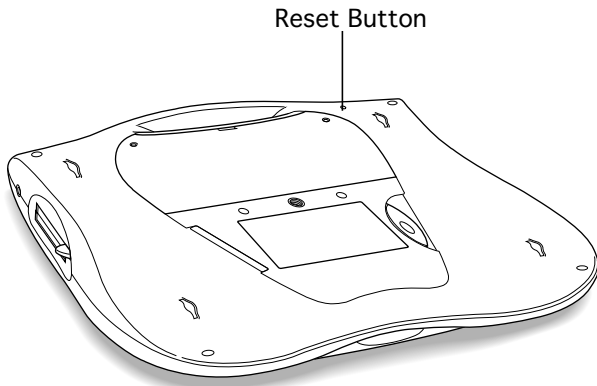
You'll see the Service Menu:

SERVICE MENU

EXIT

| LOGIC BOARD TST |

| LOOP TEST |

| EX RAM CARD TST |

| ROM CARD TEST |

| LCD UNIT TEST |

| KEYBOARD TEST |

| BATTERY TEST |
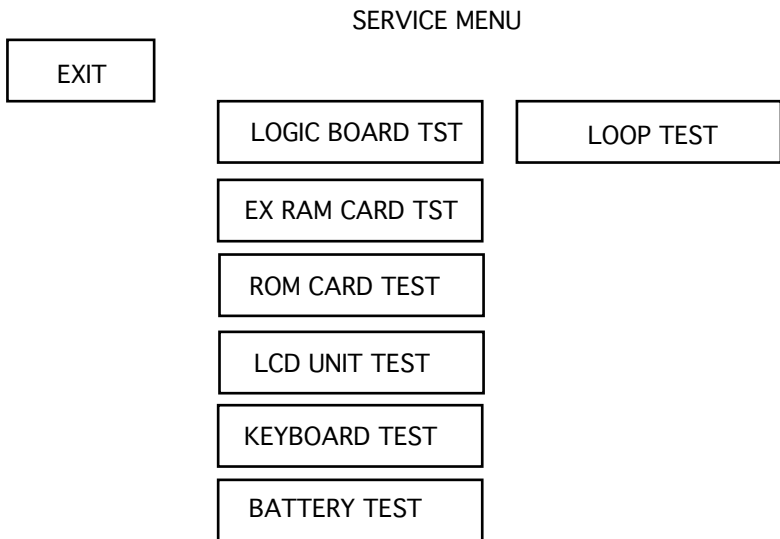
Logic Board Test

When you tap the Logic Board Test box, you'll see these choices:

NON DESTRUCTIVE	DESTRUCTIVE WILL ERASE DATA PERMANENTLY	ABORT

Caution: Choosing the Destructive box allows testing the storage section, but erases all existing data.

Tapping Non Destructive or Destructive will start the test routine, and you'll see messages flash on the screen telling what test is in progress.

When you see this message:

CLOSE AND OPEN LID WITHIN 20 SEC

quickly close and open the eMate lid.
The next message that requires you to take action looks like this:

PUSH & RELEASE PCMCIA SWITCH WITHIN 20 S

Push the card eject button on the right side of the eMate. This ejects any PC card present in the slot. (There should be no PC card present, but if there was, do not reinsert it.)

Card Slot
Card Eject
Button
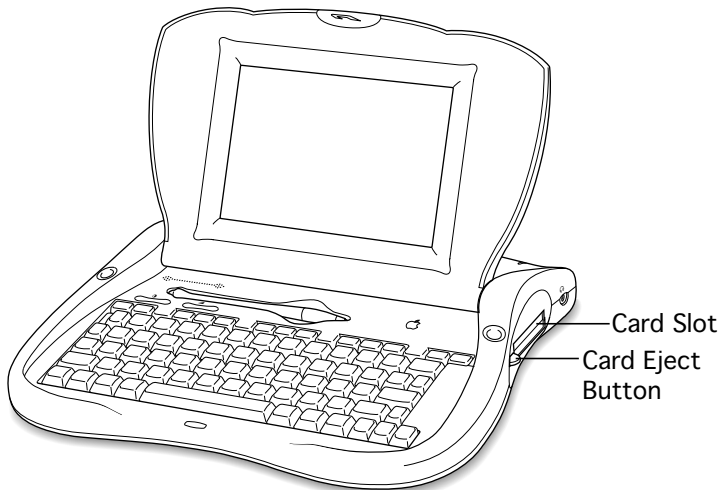
The volume slider test displays this on the screen:

MOVE VOLUME SLIDER AND CHECK IF VOLUME SLIDER
INDICATOR ON SCREEN MOVES. TAP SCREEN TO EXIT.
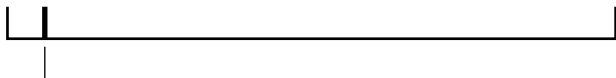
Cursor

Move the volume slider and watch to see that the cursor moves from one end to the other end of the line displayed on the screen. Tap the screen to leave the volume slider test, and you'll see these boxes on the screen:

OK		NG

Tap OK if the volume slider test passed, or tap NG (No Good) if the test failed. If you tap OK, you'll see another series of automated test messages flash on the screen. You'll hear a series of beeps during the speaker test.

When a message indicates that the headphone test is in progress, plug in a headphone set to hear the test.

Headphone Port
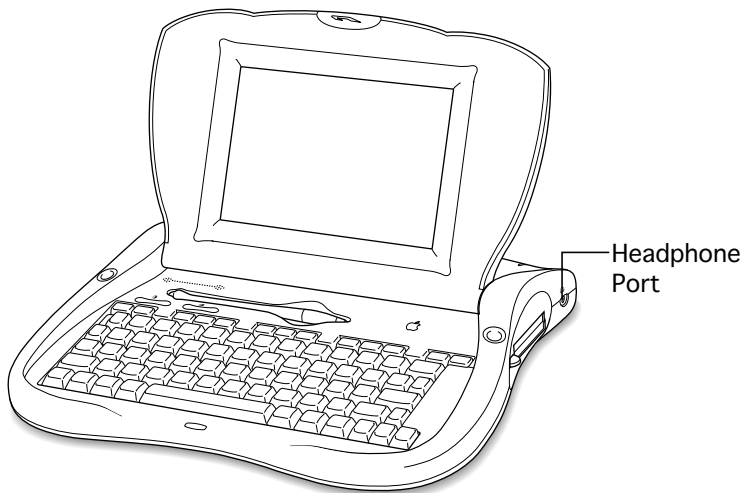
If all tests passed, you'll see this message:

LOGIC BOARD TEST PASSED — TAP SCREEN

Now tap the screen to return to the Service Menu.

RAM Card Test

When you tap the Ex RAM Card Test box, you'll see these choices:

NON DESTRUCTIVE	DESTRUCTIVE WILL ERASE DATA PERMANENTLY	ABORT

Caution: Choosing the Destructive box allows testing the storage section, but erases all existing data.

Tapping Non Destructive or Destructive will start the test routine, and you'll see messages flash on the screen telling what test is in progress.

If no RAM card has been installed, you'll see the test failed message.

ROM Card Test

Tap the ROM Card Test box to initiate automatic testing. There is no interaction required for this test.

LCD Unit Test

When you tap the LCD Unit Test box on the Service Menu, you'll get the message:

TAP SCREEN FOR EACH PATTERN

Each time you tap the screen, a new screen pattern fills the display. The first four patterns have very subtle changes, and may be barely perceptible. Be sure to do this test where the lighting is optimum for viewing the eMate display. You'll tap the screen a total of seven times before getting the OK and NG boxes at the bottom of the screen.

If you tap the OK box, the tablet test starts. Follow the instructions in the next message.

> TABLET TEST — TAP AND DRAG PEN ON SCREEN.
> WHEN PEN IS NOT MOVING CHECK IF IT IS IN BOX.
> UPON TEST COMPLETION HIT ANY KEY TO EXIT.

A small box should follow your pen as you drag the pen on the screen. If you hold the pen still in one spot on the screen, the point of the pen should rest within the box. Press any key to exit. If the tablet test passed, tap the OK box when the OK and NG boxes appear at the bottom of the screen. This will cause the backlight to come on, and you'll see this message:

> TAP SCREEN TO TURN OFF

Tap the screen to see the next message:

LCD UNIT TEST PASSED — TAP SCREEN

Tap the screen to return to the Service Menu.

Keyboard Test

Tap the Keyboard Test box on the Service Menu. You'll see this message:

WAITING FOR CLOSEBOX

The Closebox key is found in the upper left corner of the keyboard. You can press each key when it's requested, but a much faster way to test all the keys is to run your finger over the keys from left to right, top to bottom. If you don't press a key within 10 seconds, you'll see a message saying the test failed.

To start, place a finger on the Closebox key, and drag across all keys in the top row so that each key is briefly pressed down. Continue this process for each row, moving down one row at a time and always starting from the extreme left side. When all six rows of keys have been pressed, you'll get the pass or fail message. Tap the screen to return to the Service Menu.

Battery Test

The battery test only works if a battery is installed and the eMate power adapter is plugged in.

Charging Status Light

Power Adapter Port
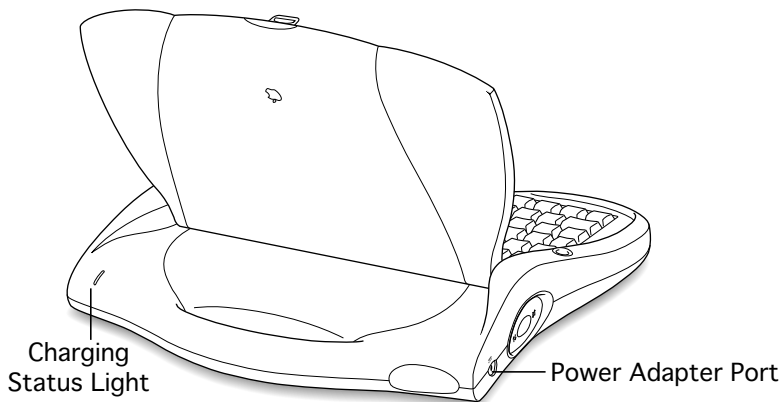
Tap the Battery Test box to see this message:

BATTERY CHARGE TEST — OK IF LED IS AMBER

In a few seconds, the message disappears and you'll see the OK and NG boxes. Look at the charging status light on the back of the eMate. If the light is amber, the battery test passed and you should tap the OK box. If the light is not amber, the battery would not charge, the battery test failed, and you should tap the NG box.

Loop Test

The loop test runs all automatic tests and ignores all tests requiring interaction. Tap the Loop Test box on the Service Menu. You'll see these choices:

NON DESTRUCTIVE	DESTRUCTIVE WILL ERASE DATA PERMANENTLY	ABORT

Caution: Choosing the Destructive box allows testing the storage section, but erases all existing data.

Tapping Non-Destructive or Destructive displays the Loop Test Menu.

Here's the default Loop Test Menu:

EXIT	RUN

TIME	00:00:00:00
ELPSE	00:00:00:00
LOOPS	0
COUNT	0
OK	0
NG	0

LOGIC BOARD	X
RAM CARD TEST	
ROM CARD TEST	

If you tap the Run box when the default screen is displayed, the logic board test will run once.

Set Loop Test Time

To set an amount of time for the test(s) to run, tap inside the box to the right of TIME to see the Numeric Entry Menu:

```
        Hours ─┐   ┌─ Minutes
               │   │
Days ─── 00:00:00:00 ─── Seconds

       │   1   │   2   │   3   │

       │   4   │   5   │   6   │

       │   7   │   8   │   9   │

       │       │   0   │       │

Cancel │  DEL  │ QUIT  │  ENT  │ ─── Enter
Entry                            Time
                 │
        Return to Loop Test Menu
```
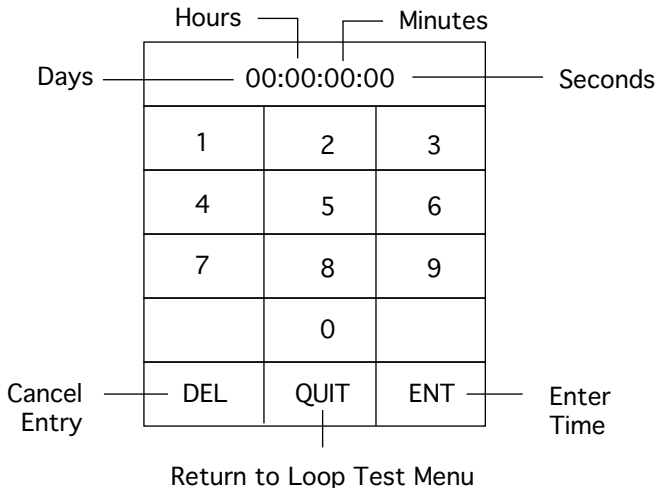
The time displayed in the top box of the Numeric Entry Menu indicates Days:Hours:Minutes:Seconds. For an example, tap the number 2 three times. Two minutes and 22 seconds appear in the top box.

00:00:02:22		
1	2	3
4	5	6
7	8	9
	0	
DEL	QUIT	ENT

Tap the ENT box to enter this amount of time and see the Loop Test Menu again.

EXIT	RUN

TIME	00:00:02:22
ELPSE	00:00:00:00
LOOPS	0
COUNT	0
OK	0
NG	0

LOGIC BOARD	X
RAM CARD TEST	
ROM CARD TEST	

To continue an example test, tap inside the RUN box at the top of the screen. When the testing is complete, the Loop Test Menu displays the results.

EXIT	RUN

TIME	00:00:02:22
ELPSE	00:00:02:23
LOOPS	0
COUNT	6
OK	6
NG	0

LOGIC BOARD	OK
RAM CARD TEST	
ROM CARD TEST	

The result shown to the right of COUNT is the number of loops completed. The result to the right of OK is the number of tests passed. The result to the right of NG is the number of tests failed.

Set Loop Number

Now, enter the number of loops to execute for all three tests on the Loop Test Menu. Tap inside the boxes to the right of RAM and ROM, and then tap in the number box to the right of LOOPS.

EXIT	RUN

TIME	00:00:00:00
ELPSE	00:00:00:00
LOOPS	0
COUNT	0
OK	0
NG	0

LOGIC BOARD	X
RAM CARD TEST	X
ROM CARD TEST	X

In the Numeric Entry Menu, tap the number 6 and then tap inside the ENT box.

1	2	3
4	5	6
7	8	9
	0	
DEL	QUIT	ENT

Back in the Loop Test Menu, tap inside the RUN box.

EXIT	RUN

TIME	00:00:00:00
ELPSE	00:00:00:00
LOOPS	6
COUNT	0
OK	0
NG	0

LOGIC BOARD	X
RAM CARD TEST	X
ROM CARD TEST	X

Here's an example of what the Loop Test Menu in result mode might look like after running six loops.

EXIT	RUN

TIME	00:00:00:00		LOGIC BOARD	OK
ELPSE	00:00:02:44		RAM CARD TEST	NG
LOOPS	6		ROM CARD TEST	OK
COUNT	6			
OK	12			
NG	6			

Interrupting the Loop Cycle

At the beginning of each loop test cycle, the Loop Test Menu is briefly displayed. At the top of the Loop Test Menu there are two buttons marked EXIT and RUN. To interrupt the looping cycle, tap EXIT. A STOP and CONTINUE button appear at the bottom of the screen. Tap STOP to end the loop test completely. Tap CONTINUE to cancel the interruption and resume the loop test.

Note: If you want another loop test after tapping STOP, tap RUN to reset all test results. Enter a new time or number of loops.

Test Result Messages

Here's a table of possible messages displayed at the end of tests.

Test Name	Error Message	Pass Message
Logic Board	Logic Board Test Failed!	Logic Board Test Passed - Tap Screen.
RAM Card	Expansion RAM Card Test Failed!	Expansion RAM Card Test Passed - Tap Screen.
ROM Card	Expansion ROM Card Test Failed!	Expansion ROM Card Test Passed - Tap Screen
LCD Unit	LCD Unit Test Failed!	LCD Unit Test Passed - Tap Screen.
Keyboard	Keyboard Test Failed!	Keyboard Test Passed - Tap Screen.
Battery	Battery Test Failed!	Battery Test Passed - Tap Screen.

After one of these messages appears in the middle of the screen, tap the screen to return to the Service Menu.

Quitting Service Diagnostics

Important: Be sure there are no PC cards inserted in the PC card slot.

To leave the Service Diagnostics program, press the Reset button, hold the button several seconds after you hear a beep, and wait until the diagnostic screen disappears and the eMate screen is blank. Wait briefly for the Newton operating system to launch. The operating system will launch twice before the eMate is ready for normal use.

Take Apart

eMate

Access Door

Access Door

Before you begin, unplug the power adapter and turn off the power using the keyboard Power key.

Caution: The eMate contains components that are susceptible to ESD damage. To prevent damage, wear a grounding wriststrap. Review the ESD precautions in Bulletins/Safety.

1 With the display lid
  closed, turn over the
  eMate and use a T-8 torx
  driver to remove the two
  screws from the access
  door.

Access Door — T-8 Screws

2 Tilt up the access door to remove it from the bottom case.

Access Door

Bottom Case
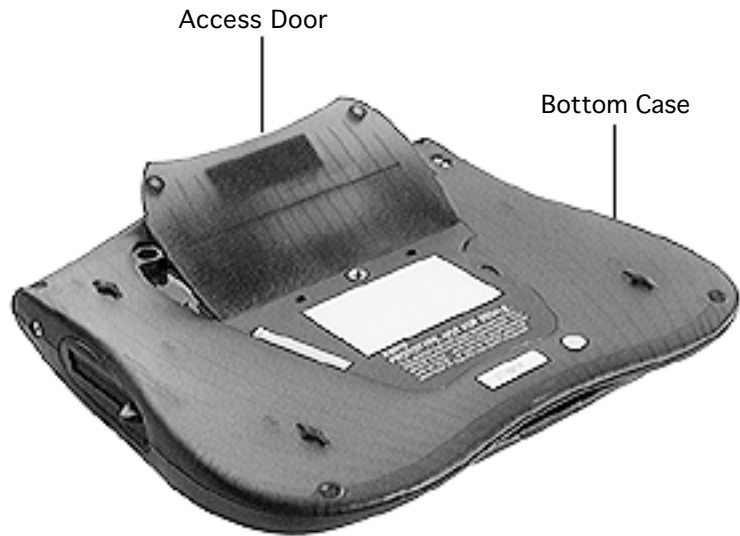
Battery

Battery

Before you begin, remove the access door.

Caution: The eMate contains components that are susceptible to ESD damage. To prevent damage, wear a grounding wriststrap. Review the ESD precautions in Bulletins/Safety.
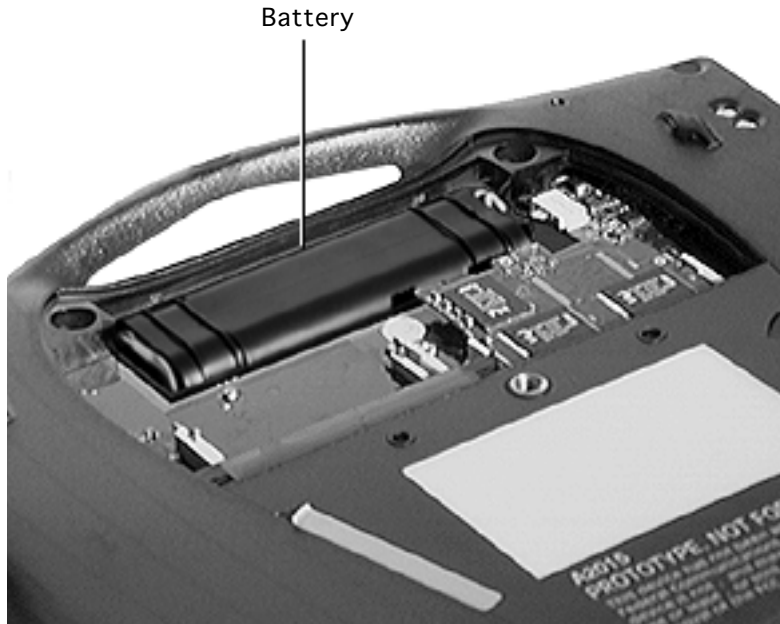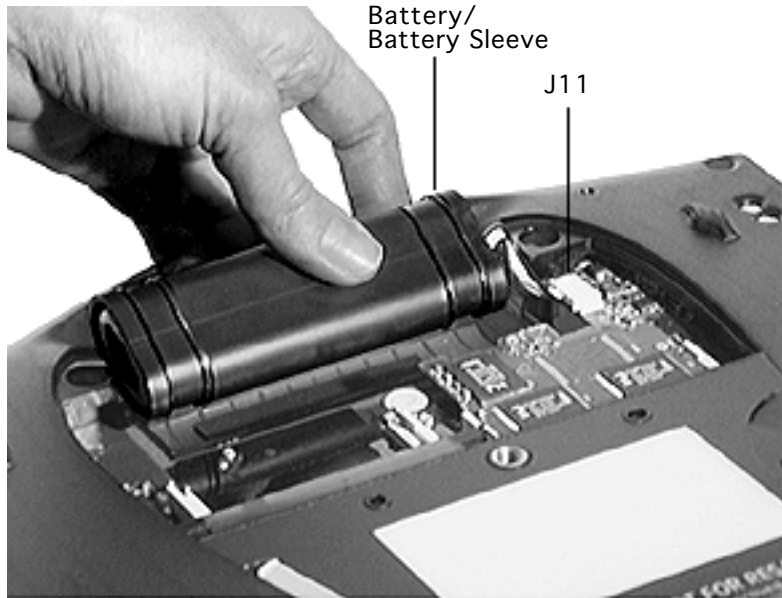
Battery/
Battery Sleeve

J11

Bottom Case

1 Lift up the battery and
   battery sleeve from the
   bottom case.

2 Disconnect battery
   connector J11.

Battery Sleeve
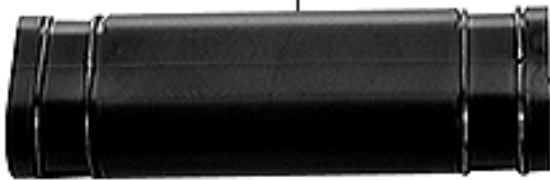
3 Slide the battery out of
   the battery sleeve.
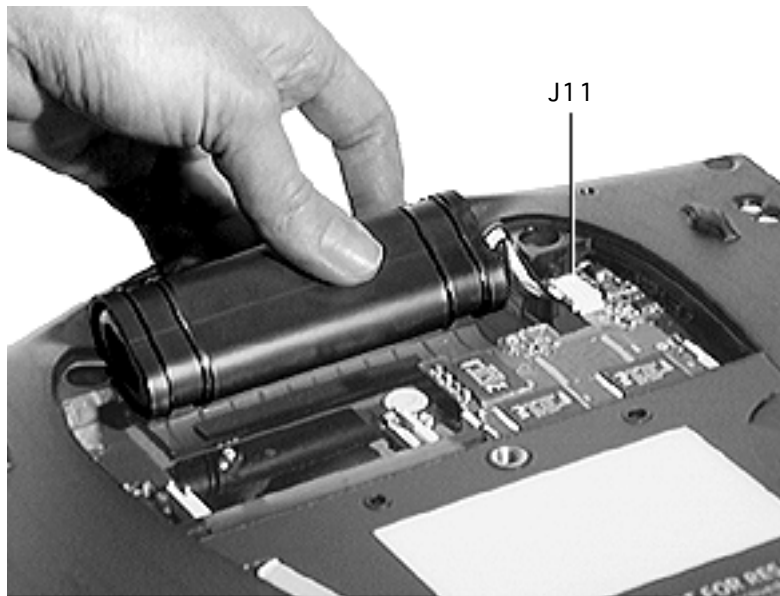
Battery

Replacement Note:
Reinstall the battery and battery sleeve so that the battery connector wires to connector J11 are not pinched or strained.
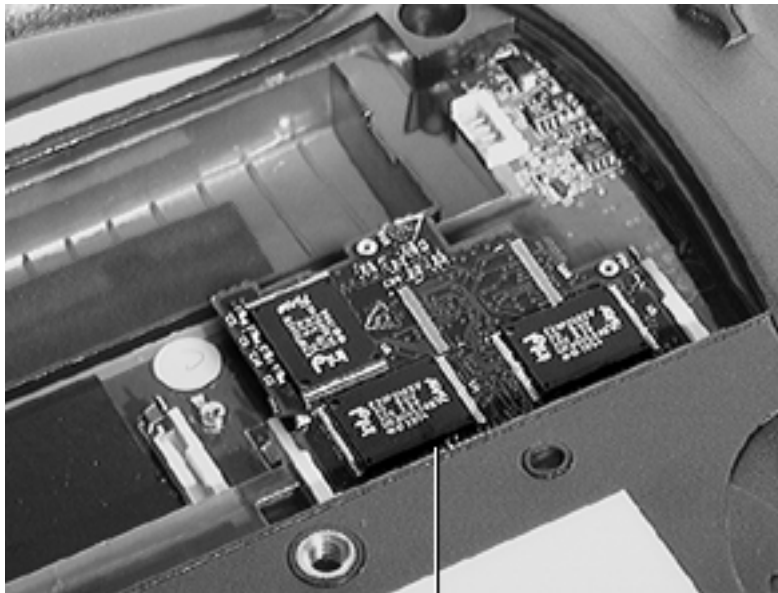
ROM Card

ROM Card

Before you begin, remove the following:

- Access door
- Battery

Caution: The eMate contains components that are susceptible to ESD damage. To prevent damage, wear a grounding wriststrap. Review the ESD precautions in Bulletins/Safety.

ROM Card
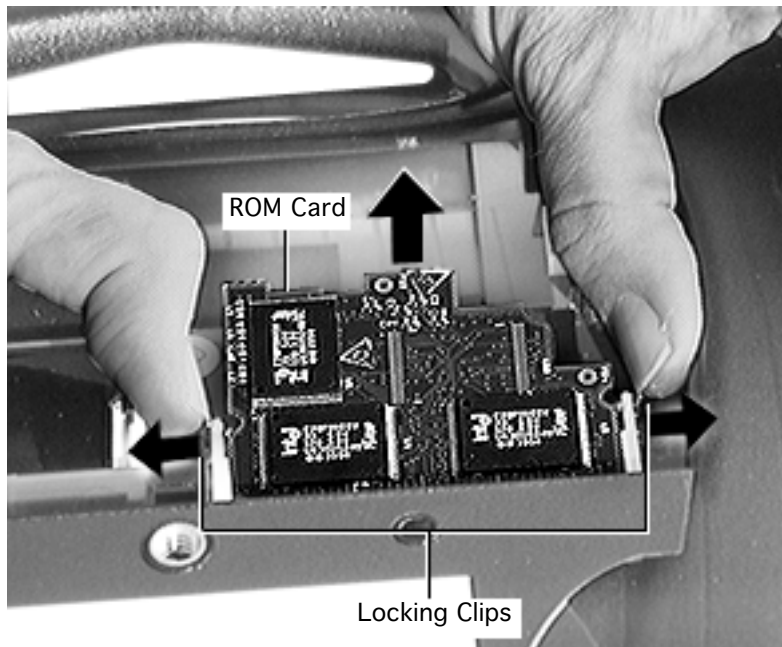
Locking Clips

1. Push outward on the metal locking clips so the ROM card tilts up.

2. Remove the ROM card from the bottom case.

Display

Display Assembly

Before you begin, remove the following:

- Access door
- Battery
- ROM card

Caution: The eMate contains components that are susceptible to ESD damage. To prevent damage, wear a grounding wriststrap. Review the ESD precautions in Bulletins/Safety.

Caution: eMate cables are fragile and easily torn or
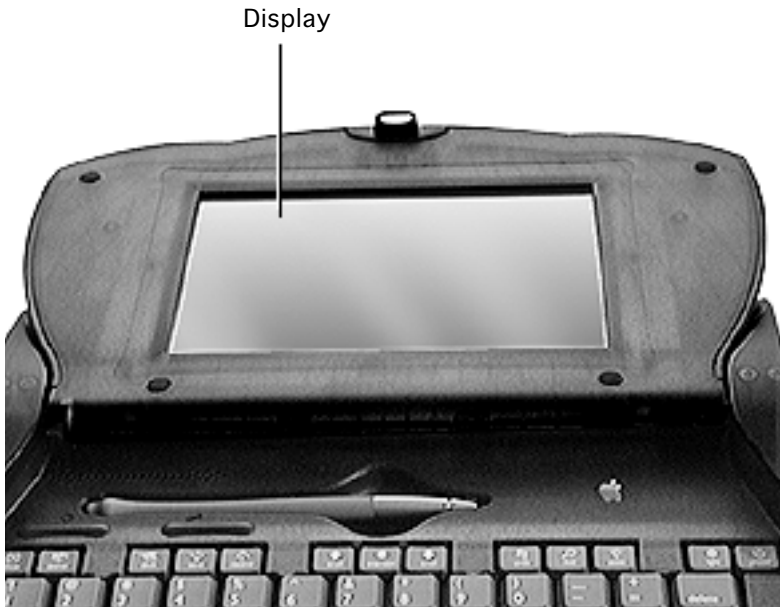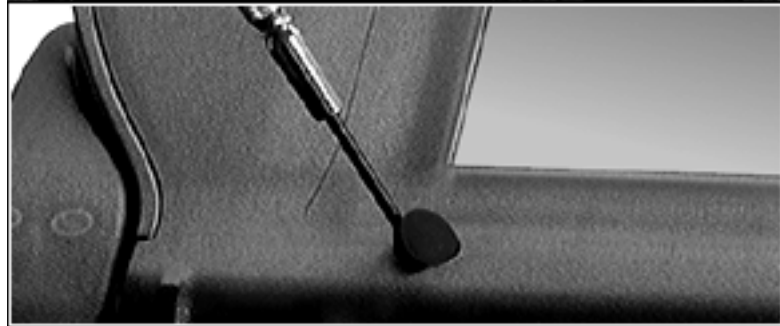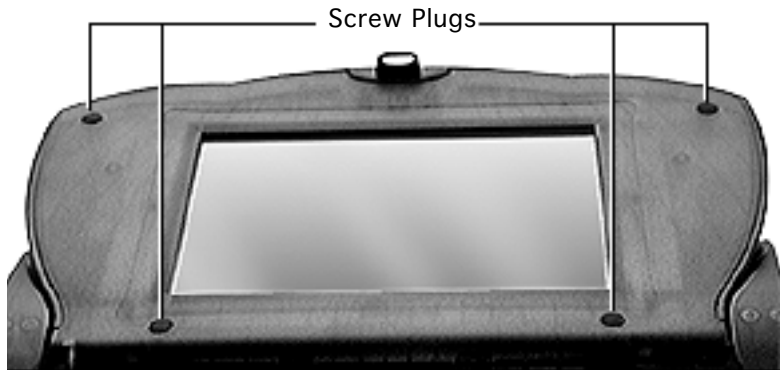
Screw Plugs

damaged. Handle all cables with care.

1 Position the display so it lies completely flat and fully open.

2 Using a flat-blade jeweler's screwdriver, pry out the four rubber screw plugs at the corners of the display.

Replacement Note: Reinstall the screw plugs so the cupped surface covers the screw and the smooth surface is outside.

T-8 Screw

3 Remove the four T-8 torx screws from the corners of the display.

4 Grasp the lower edge of the display bezel, and pull it up and off to release the holding tabs.

Bezel

Screw

Screw

Backlight
Connector

5 Using a Phillips #0 jeweler's screwdriver, remove the two screws and washers from the top corners of the display.

6 Disconnect the backlight connector at the left side of the display.
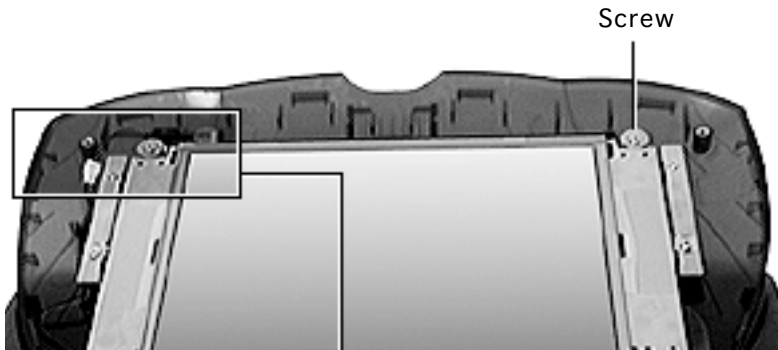
7 At the bottom right corner hinge, use a Phillips #0 jeweler's screwdriver to remove the bottom screw and washer.
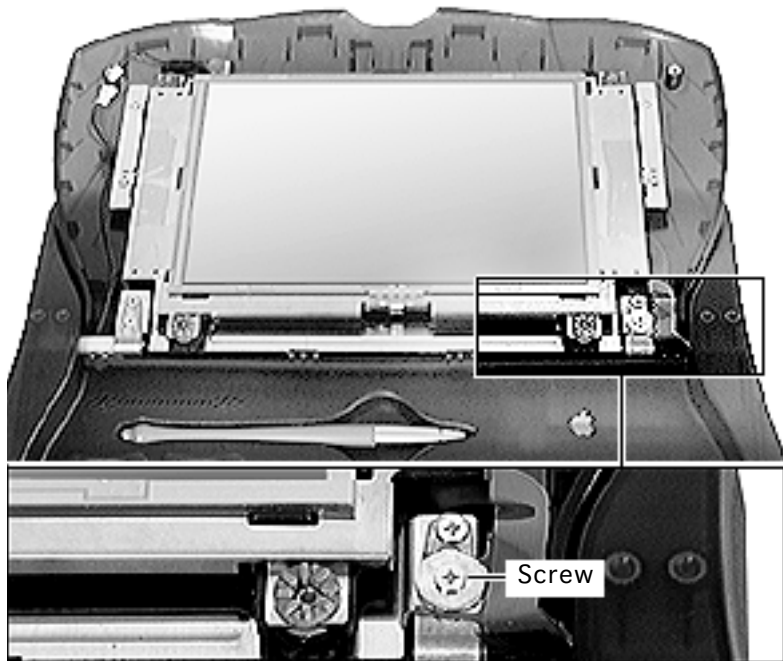
Screw

8 Gently tilt up the display and rest it face-down on the keyboard.

Display

Keyboard

Locking Clip

LJ6
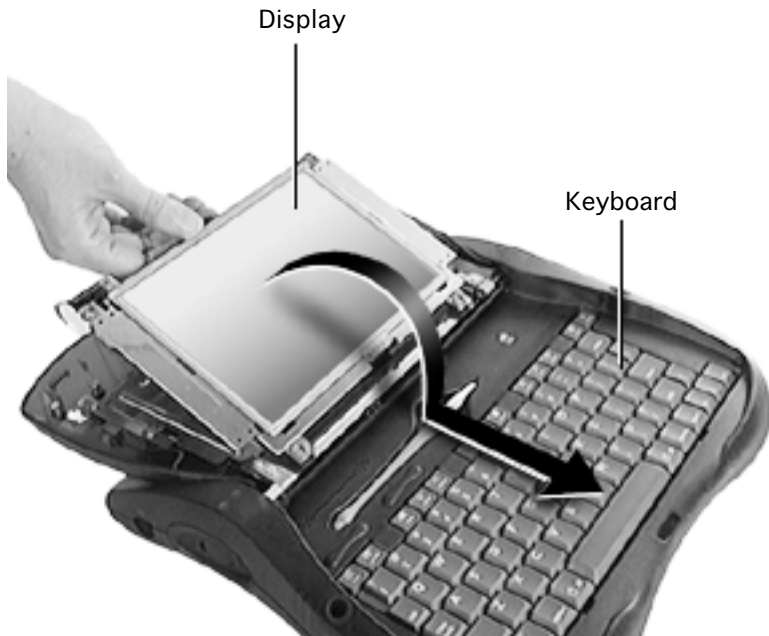
Locking Clip

9 Locate the ribbon cable at connector LJ6.

10 **Caution:** Do not use pliers or a screwdriver to remove the ribbon cable: this could damage the traces on the cable.

   Move the two locking clips forward to release the ribbon cable.
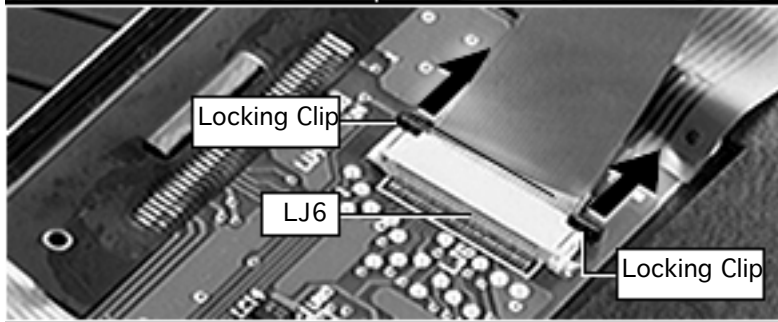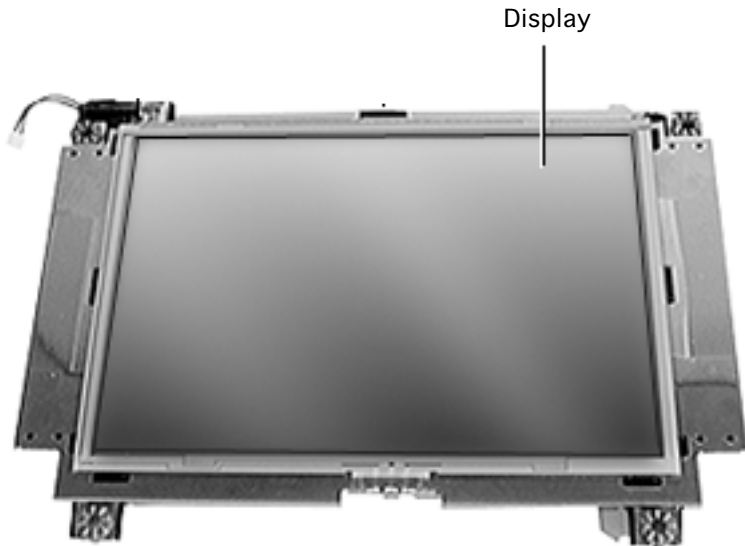
Display

11 **Caution:** Pick up the display by its edges; avoid touching its delicate components.

Lift the display off the keyboard.

Backlight

Backlight

Before you begin, remove the following:

- Access door
- Battery
- ROM card
- Display

Caution: The eMate contains components that are susceptible to ESD damage. To prevent damage, wear a grounding wriststrap. Review the ESD precautions in Bulletins/Safety.
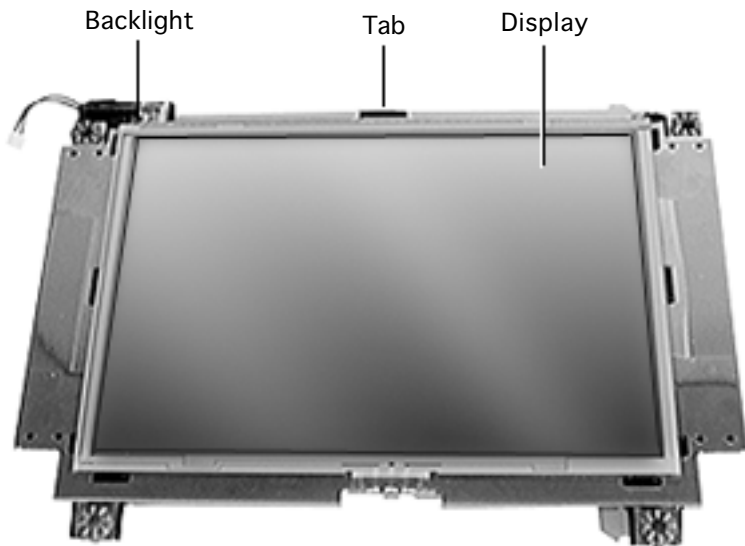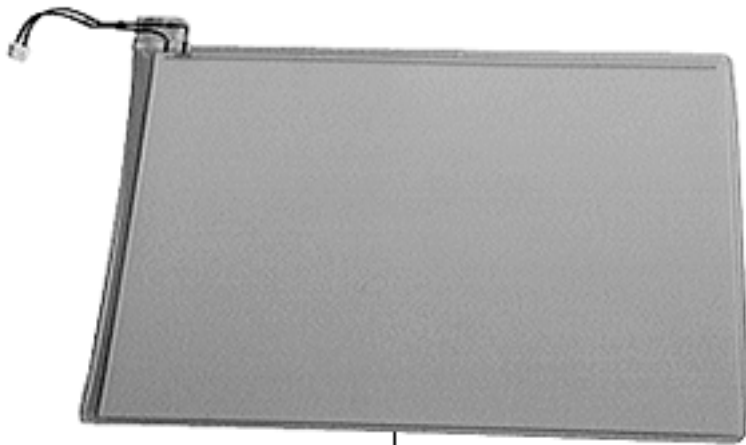
1 Press the tab on the display assembly to access the edge of the backlight.

Backlight   Tab   Display
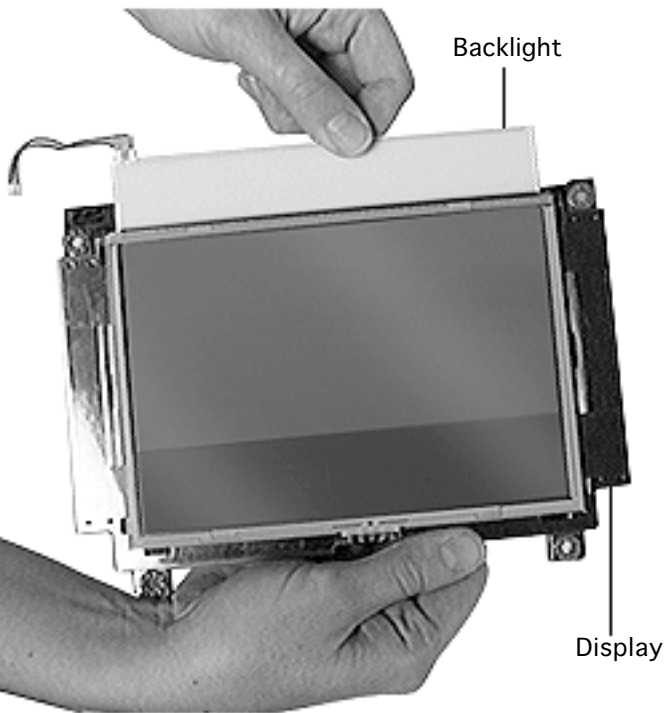
Backlight

Display

2 Using your fingers or a needlenose pliers, grasp the backlight's clear plastic edge and slide the backlight out of the display assembly.

Caution: Be careful not to bend or damage the backlight.

Backlight

Top Cover

Top Cover

Before you begin, remove the following:

- Access door
- Battery
- ROM card
- Display

Caution: The eMate contains components that are susceptible to ESD damage. To prevent damage, wear a grounding wriststrap. Review the ESD precautions in Bulletins/Safety.

(~90 Degrees)

Caution: eMate cables are fragile and easily torn or damaged. Handle all cables with care.

1 Position the top cover so it is open and positioned at an angle of about 90-110 degrees to the keyboard.

   Caution: Do not lower the cover to less than 90 degrees during this procedure or the lid switch could be damaged.
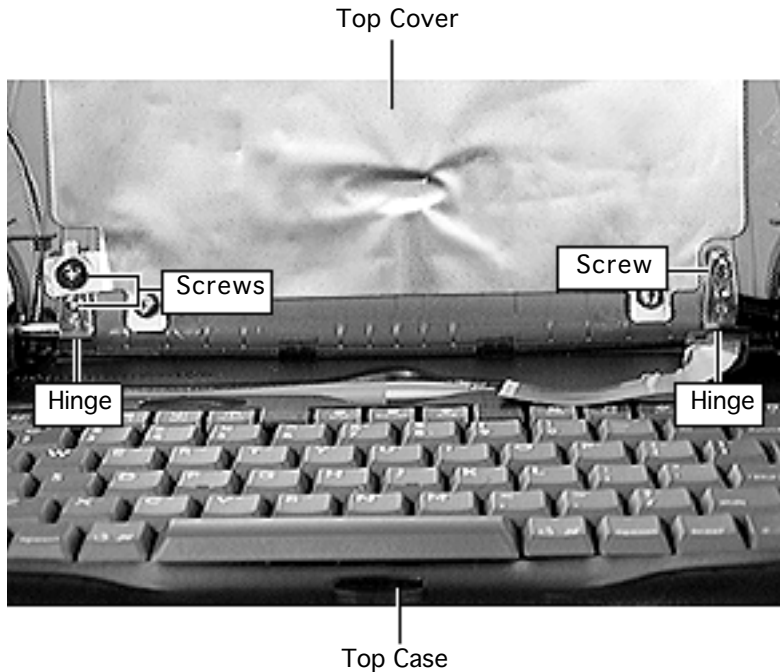
Backlight Wires

Routing Channel
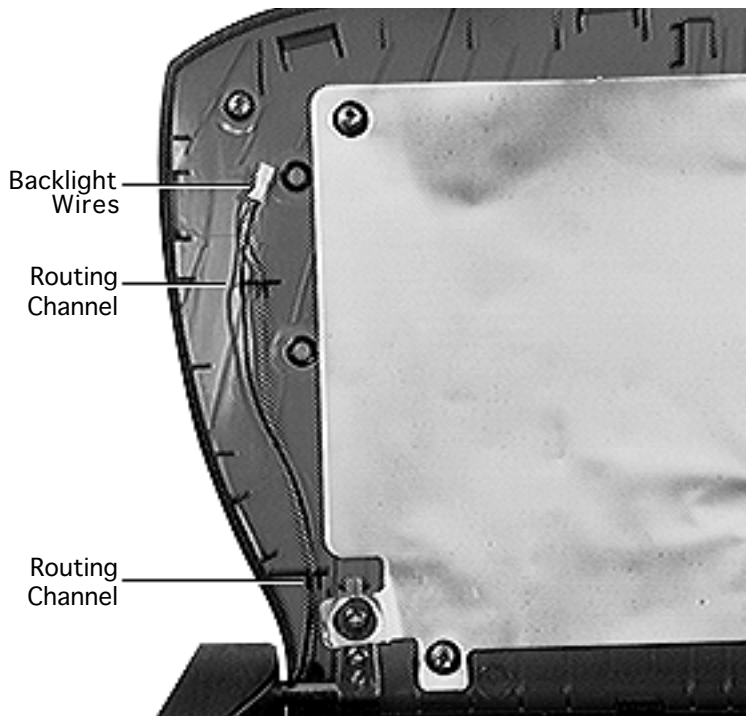
Routing Channel

2   Route the backlight connector wires out of the routing channels.

Top Cover

Screws

Screw

Hinge

Hinge

Top Case

3 Using a Phillips #0 jeweler's screwdriver, remove the three screws at the bottom hinges.

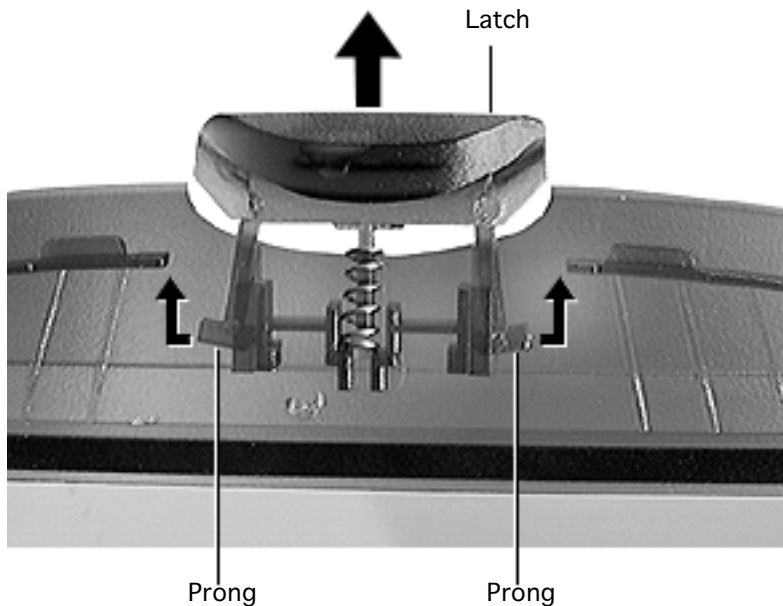4 Without moving the hinges, separate the top cover from the top case.

Latch

Latch

Before you begin, remove the following:

- Access door
- Battery
- ROM card
- Display
- Top cover

Caution: The eMate contains components that are susceptible to ESD damage. To prevent damage, wear a grounding wriststrap. Review the ESD precautions in Bulletins/Safety.

Latch

Prong   Prong

1 Split the prongs apart so they clear the edges of the bezel channel.

2 Slide the latch and spring off the top cover bezel.

Keyboard

Keyboard

Before you begin, unplug the power adapter and turn off the power.

Caution: The eMate contains components that are susceptible to ESD damage. To prevent damage, wear a grounding wriststrap. Review the ESD precautions in Bulletins/Safety.

Caution: eMate cables are fragile and easily torn or damaged. Handle all cables with care.
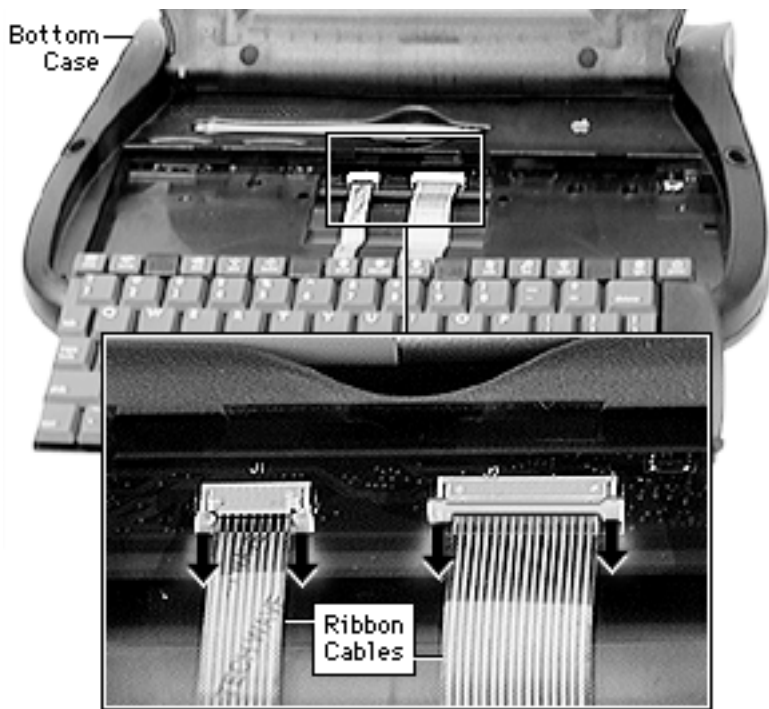
Screwdriver

1 Use a flat-blade jeweler's screwdriver to pry up the keyboard in three places indicated in the graphic.

2   Tilt the keyboard up.

    Caution: Handle the
    keyboard carefully in
    the next step to avoid
    tearing cables connected
    between the keyboard
    and the logic board.

3   With the ribbon cables
    still attached, gently
    place the keyboard in
    front of the bottom case.

Bottom Case

Ribbon Cables

4 **Caution:** Do not use pliers or a screwdriver to remove the ribbon cables: this could damage the traces on the cables.

Pull on the locking clips of the two ribbon cables to release the cables from their connectors.
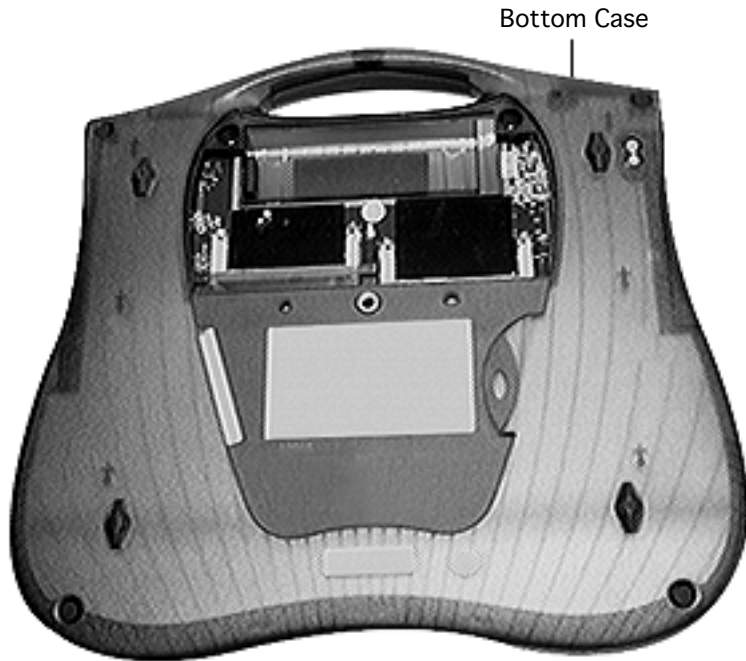
Replacement Note: Before replacing the keyboard, make sure the ribbon cables are securely connected and folded. Tilt the keyboard so the top is secured first, then use a flat-blade jeweler's screwdriver to press the bottom of the keyboard until it snaps into place. (Refer to the graphic in step 1 for the three places to press.)
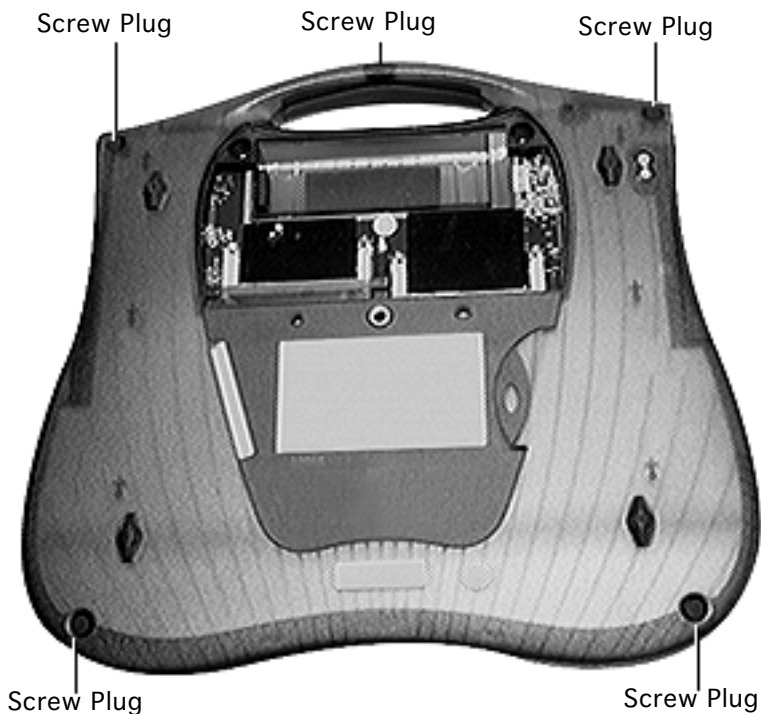
Bottom Case

Bottom Case

Before you begin, remove the following:

- Access door
- Battery
- ROM card
- Display
- Top cover
- Keyboard

Caution: The eMate contains components that are susceptible to ESD damage. To prevent damage, wear a grounding wriststrap. Review the ESD precautions in Bulletins/Safety.
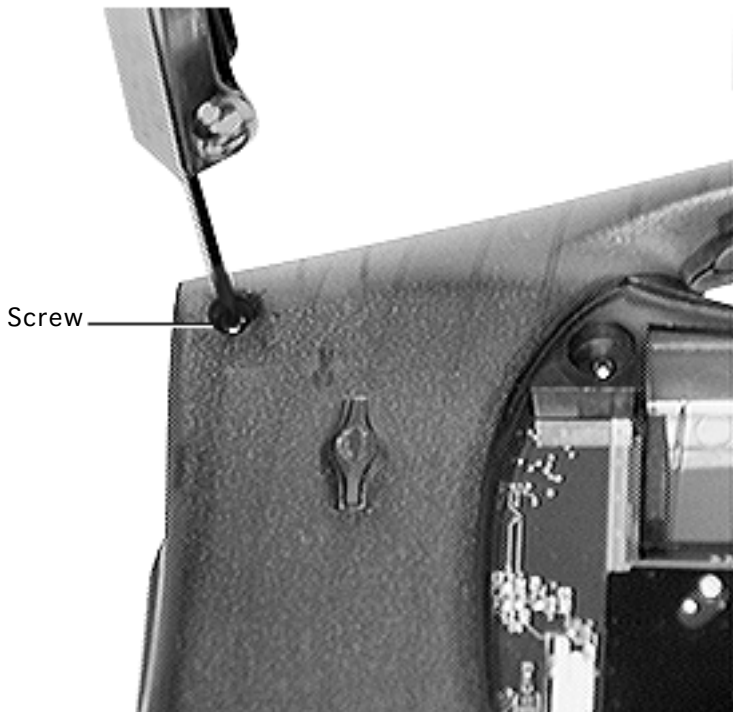
Screw Plug   Screw Plug   Screw Plug

Screw Plug   Screw Plug

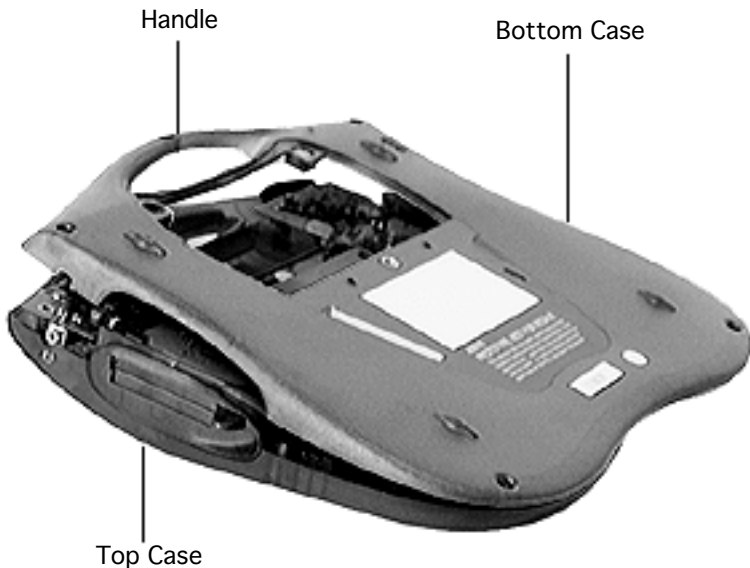1 Remove the four round corner screw plugs and the oval handle screw plug from the bottom case.

   Replacement Note: Reinstall the screw plugs so the cupped surface covers the screw and the smooth surface is outside.
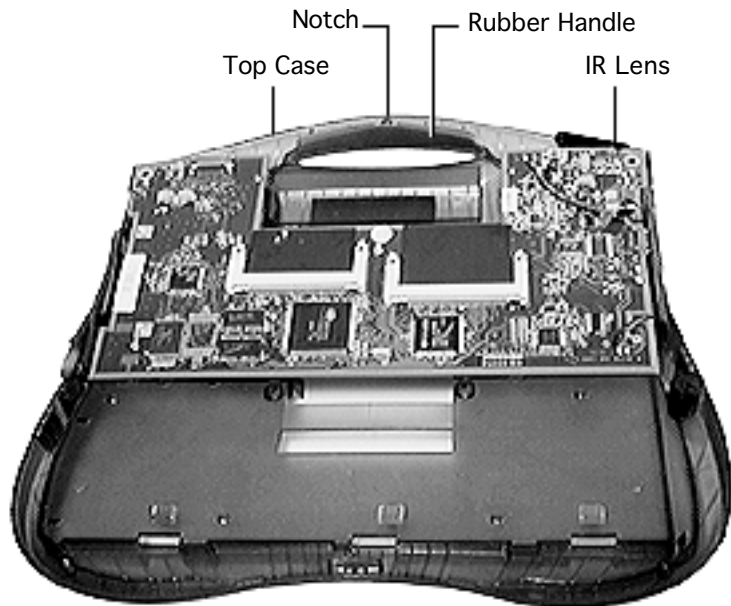
2 Using a T-10 torx
   driver, remove the five
   torx screws.

Screw

3 Starting with the handle, pull apart the bottom case from the top case.

Handle

Bottom Case

Top Case

Notch — Rubber Handle
Top Case   IR Lens

Replacement Note: Place the rubber handle on the top case so the notch faces up. Fit the IR lens into the top case. Hook the front of the bottom case first, then secure the bottom case onto the top case by pressing and rolling the sides.
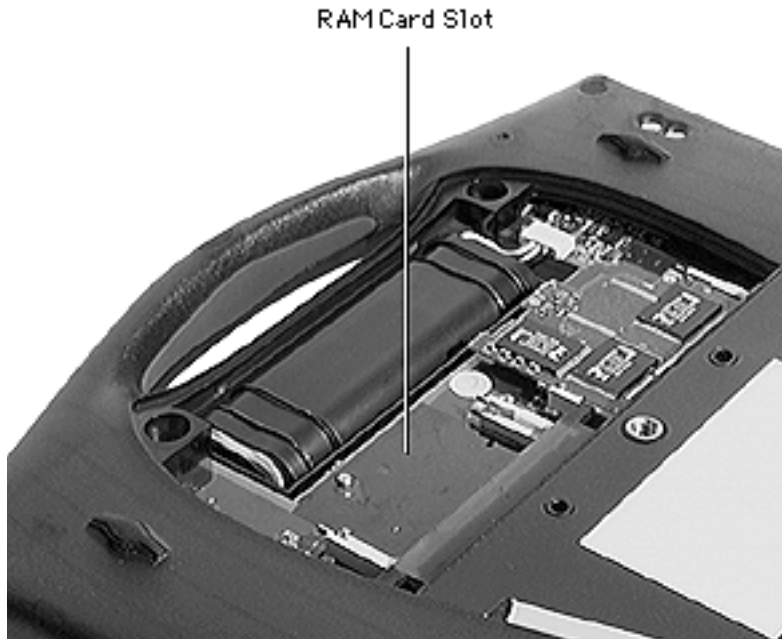
Upgrades

eMate

RAM

RAM Card Slot
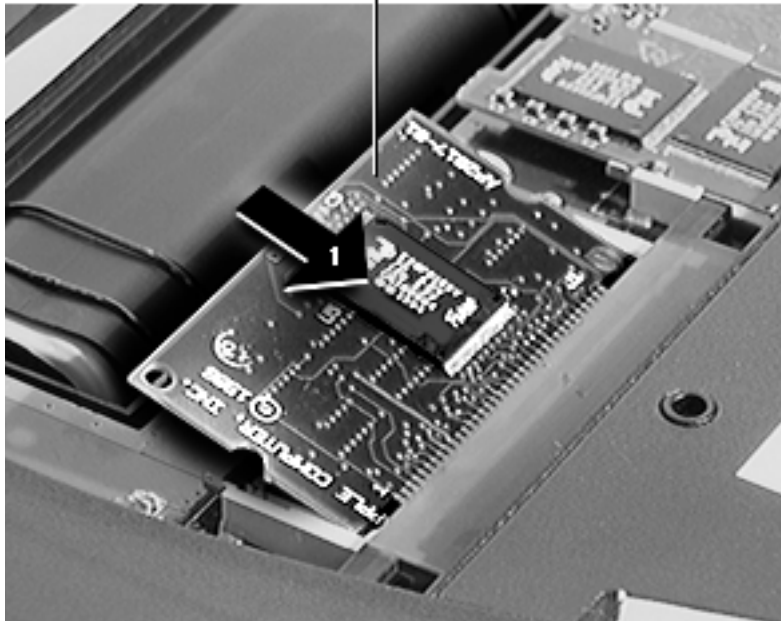
Before you begin, remove the access cover.

Caution: The eMate contains components that are susceptible to ESD damage. To prevent damage, wear a grounding wriststrap. Review the ESD precautions in Bulletins/Safety.
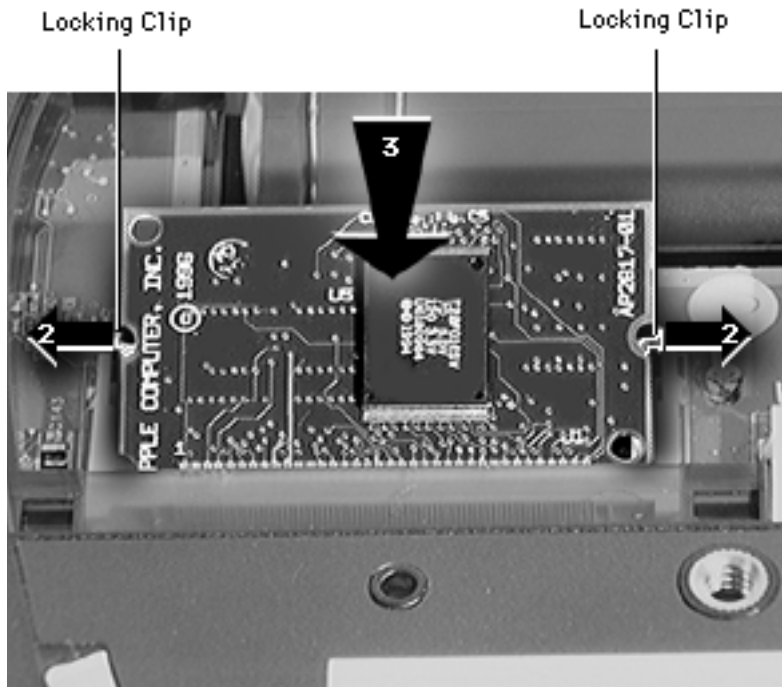
RAM Card

Note: RAM cards are not available from Apple. They can be purchased from third-party vendors.

1 Insert the RAM card connector into the RAM card slot at about a 30 degree angle.

Locking Clip   Locking Clip

2   Push outward on the metal locking clips.

3   Press the RAM card down to the locking clips.

4   Release the locking clips so that they engage each side of the RAM card.

Exploded View

eMate

Top Cover
922-2939

Backlight
Electroluminescent
922-2681

Bezel
922-2940

Liquid
Crystal
Display
(LCD)
661-1193

Top Case Assembly
includes Logic Board
661-1194

Stylus (Pen)
922-2682

Keyboard
922-2398

Battery
922-2938

ROM Card
661-1195

Battery
Sleeve
922-2675

Bottom Case Assembly
922-2941

Access Door
922-2674