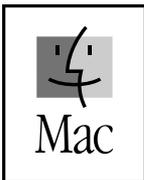




**Internal Hard Drive  
Upgrade  
with Installation Kit  
for PowerBooks**

**Installation Guide**



<http://www.mcetech.com>

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*In order to install this hard drive upgrade into a PowerBook 5300, 190, or Duo 2300 that already has an internal IDE hard drive, a separate mounting bracket is required. You may find further information about this bracket [MCE part number BRKT5323] at <http://www.mcetech.com>.*

*Given the very small and compact design of both the PowerBook 2400 and the iBook, these computers are comprised of an extremely complicated set of parts, boards, and ribbon cables. The installation of any hardware upgrade into these systems should not be attempted by anyone other than a very qualified PowerBook technician. This being the case, MCE has not included installation procedures for these devices in this installation guide. For further information on these procedures or for information on iBook hard drive upgrade services, you may visit <http://www.mcetech.com>.*

## ***Introduction***

Thank you for purchasing a new MCE hard drive upgrade solution for your PowerBook! We're sure that your new high-capacity hard drive will enrich your PowerBook computing experience.

MCE strongly recommends that the installation of the hard drive upgrade be performed by a qualified technician. The installation procedure involves disassembling the system and exposing its sensitive electronics. This is a delicate process and, if not performed properly, could cause damage to the computer. MCE cannot be held liable for damage done to the computer, the person installing the drive, or to the drive itself. These installation instructions are given for those who understand these risks. If performed correctly, these instructions will guide an individual step-by-step through a successful installation of the new MCE product.

If any difficulty is encountered during the installation of the hard drive, you may receive technical assistance by calling (949)458-0800 or by sending an email to [support@mcetech.com](mailto:support@mcetech.com).

## **Warranty Information**

This is your Mac Components Engineered (MCE) three year limited warranty. The original purchaser (Purchaser) must present proof of purchase and proof of purchase date (Bill of Sale) to obtain warranty service.

The MCE product is warranted by Mac Components Engineered to be free from defects in material and workmanship for three (3) years from the date of purchase by the Purchaser.

Purchaser's sole remedy under an MCE warranty shall be, at MCE's sole election, refund, repair or replacement as provided in this warranty. An MCE warranty shall not apply to any failure or defect caused by misuse, abnormal use, neglect, abuse, alteration, improper installation, unauthorized repair or modification, improper testing, accident or causes external to the product such as but not limited to excessive heat or humidity, power failure, or surges, or improper installation, or damage arising from improper packaging during transport; and damage resulting from causes, including without limitation, lack of technical skill, competence, or experience of the user. This warranty shall not be enlarged, diminished or affected by, and no liability shall arise out of, MCE's rendering of technical advice or providing information to Purchaser. Service by anyone other than MCE authorized service personnel voids any MCE warranty. MCE makes no representations or warranties, express or implied, regarding the fitness of a product for any particular purpose, or that a product is compatible with any particular hardware or software.

MCE's sole and exclusive maximum liability for any claim by Purchaser arising out of Purchaser's purchase of a product and/or the above warranty shall not in any event exceed the actual amount paid by Purchaser for the product. In no event shall MCE be liable for any direct, indirect, incidental, collateral, exemplary, consequential or special damages or losses arising out of Purchaser's purchase and/or use of products, including, without limitation, loss of use, profits, goodwill or savings, or loss of data, data files, or programs that may have been stored by a user of the product.

Continued use or possession of a product after expiration of its warranty period shall be conclusive evidence that the warranty is fulfilled to the full satisfaction of Purchaser.

MCE shall honor the terms of an MCE warranty as described herein, provided that the defective product is sent in its original packaging to MCE, together with a copy of the invoice on which the product appears, transportation and insurance prepaid, within the warranty period, and if the product is found by MCE to be defective within the terms of the warranty. Prior to returning any product to MCE, Purchaser must obtain a Return Merchandise Authorization (RMA) number from MCE. No product shall be accepted for return, repair or replacement without an RMA number visibly written on the outside of its original packaging or comparable packaging affording an equal degree of protection. MCE does not pay shipping charges for merchandise shipped back to MCE. Prior to returning the product, Purchaser must, if possible, remove any and all programs and data from any storage media. Replacement products and parts used to repair products may be similar new or other than new items. Replaced products and parts shall become the property of MCE. If any product returned by Purchaser to MCE for repair or replacement is not defective within this warranty, MCE shall so advise Purchaser and thereafter MCE shall handle such products in accordance with Purchaser's instructions and at Purchaser's cost, after reimbursement to MCE by Purchaser of freight charges at then current rates, and examination and testing expenses at then current rates (\$60.00 per hour as of January 2001). Prices, terms and conditions are subject to change without notice.

Non-defective purchases which are returned to MCE must be returned within thirty (30) days of purchase. For non-defective purchases which are returned or refused by the Purchaser, MCE will, at its discretion, issue a credit or refund for the purchase price of the goods, less all shipping charges incurred in the shipment and a restocking fee of no less than fifteen percent (15%) of the price of the goods.

## **Introduction to PowerBook 1400 Installation**

This chapter details the procedure for installing an MCE hard drive upgrade kit into a PowerBook 1400.

MCE strongly recommends that the installation be performed by a qualified technician. The installation procedure involves disassembling the PowerBook and exposing its sensitive electronics. This is a delicate process and, if not performed properly, could cause damage to the PowerBook. These installation instructions are given for those who understand these risks. If performed correctly, these instructions will guide an individual step-by-step through a successful installation of the new hard drive.

The new hard drive comes formatted and initialized with a Macintosh driver, but generally requires the installation of appropriate Macintosh operating system (Mac OS) software for use in the PowerBook. You will need a reliable Macintosh volume from which to boot the PowerBook in order to load the necessary operating system software. Once the PowerBook is booted, the new hard drive will automatically mount onto the PowerBook's Desktop and is ready for software installation. If the drive does not mount onto the Desktop, the PowerBook may prompt you to initialize the hard drive upon startup, after which the drive should then automatically mount onto your Desktop and be ready for software installation.

See the PowerBook User's Manual for operating system and other software installation procedures.



**Caution:** Due to a bug in Apple's ROM support for SCSI Disk Mode, a PowerBook 1400 which has an internal IDE hard drive larger than 4GB installed cannot be used in SCSI Disk Mode. One *can* use this PowerBook with an internal drive larger than 4GB in normal Macintosh mode. There is no workaround for reliably using such a PowerBook in SCSI Disk Mode. It is recommended that one use an Ethernet connection to transfer files if necessary.

## ***Installation Checklist***

In addition to the new hard drive, the following items should also be found in this PowerBook hard drive upgrade kit:

- (1) Disposable Grounding Wrist Strap
- (1) MCE Standard/Phillips Combo Screwdriver
- (1) New PowerBook 1400 Hard Drive Bracket

## ***Installation Procedure***



**Caution:** Electro-Static Discharge (ESD) can easily damage electronic components. Before proceeding, ensure that you are discharged of static electricity by touching a grounded metal object and by properly securing the provided Disposable Grounding Wrist Strap.

**Step 1:** Place your PowerBook on a hard, flat surface.

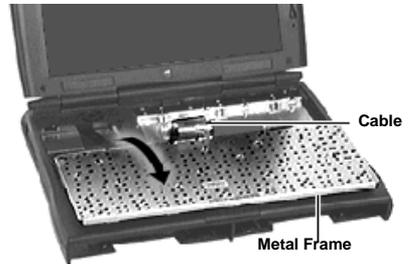
**Step 2:** If your PowerBook is on, turn it off. If the unit appears to be off, make sure that it is not in Sleep mode.

**Step 3:** Completely unplug all cables from the PowerBook and remove any batteries and PC Card modules from it.

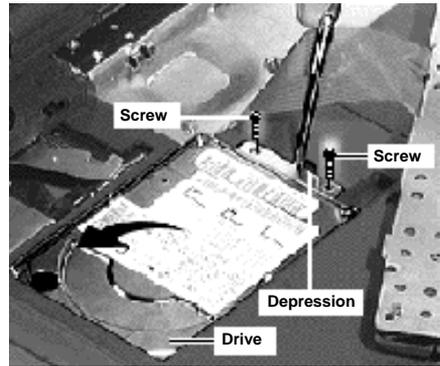
**Step 4:** Remove the speaker grill by firmly but carefully sliding it to the left and lifting it up.



**Step 5:** To move the keyboard, grasp the metal frame at the top of the keyboard and gently pull the keyboard up. Without putting stress on the keyboard cable, gently turn the keyboard onto the top case. Do not disconnect the keyboard cable.

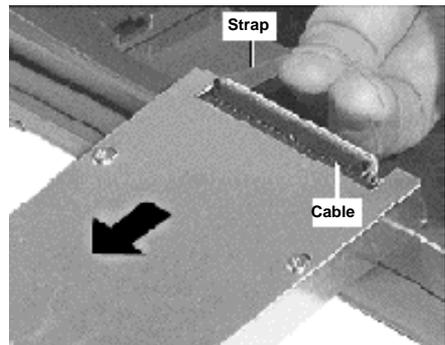


**Step 6:** Locate the hard drive situated to the left of the case bottom. Remove the 2 screws securing the hard drive bracket. Insert a flat-blade screwdriver into the small depression indicated and pry the shielded drive up. Swing the drive outward so that it is carefully sitting on the edge of the case. *You may need to gently but firmly pull on the hard drive/ribbon assembly to provide some slack in the hard drive ribbon so as to allow you to maneuver the ribbon connector, especially when replacing it back onto the replacement hard drive.*

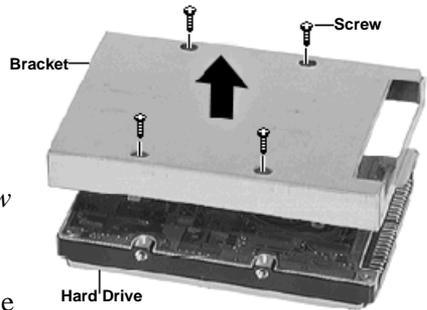


**Caution:** Great care must be taken in this action; if the ribbon is damaged you will need to remove the logic board in order to replace it.

**Step 7:** Grasp the ribbon strap and disconnect the ribbon from the hard drive by *carefully* pulling the ribbon straight off to prevent damage to the pins.



**Step 8:** Remove the four screws from the shield. Pull the hard drive out from the shield. *Note: The original hard drive may have had a jumper on one set of connector pins. Do **not** transfer this jumper to the new hard drive.*



**Step 9:** Install the new shield with the appropriate screw holes which came in the installation kit onto the new hard drive.

**Step 10:** With its shield side up, place the hard drive on the edge of the top case. Connect the hard drive ribbon to the drive, making sure the pins go in straight. After connecting the ribbon, fold the drive/ribbon assembly over. Fold the ribbon into its space and then firmly push the small lip of the shield into the groove on the top case. Screw the shield in place.

### ***Replace the keyboard and speaker grill.***

Congratulations! You have completed the hardware installation of your PowerBook hard drive upgrade.



**Note:** It is normal for usable hard drive capacities to be reduced by 5-7% upon initialization of the drive. Also, your drive ships preformatted and initialized, but does not include system software on it. If you have the appropriate hardware, such as the MCE DataShuttle Xtreme PC Card Kit, you may transfer the data from the original internal hard drive to the new internal hard drive. If not, you may need to re-install your system software and other applications from the original disks or CD-ROM disc. Consult the manual(s) that came with your PowerBook for details.

## ***Introduction to PowerBook 3400/G3 Installation***

This chapter details the procedure for installing an MCE hard drive upgrade kit into a PowerBook 3400 or the original PowerBook G3 (1997 release; a.k.a. Kanga).



**Note:** This section pertains to the PowerBook 3400 and PowerBook G3 model that have a multi-colored Apple logo both on the outside of the top cover and below the display.

MCE strongly recommends that the installation be performed by a qualified technician. The installation procedure involves disassembling the PowerBook and exposing its sensitive electronics. This is a delicate process and, if not performed properly, could cause damage to the PowerBook. These installation instructions are given for those who understand these risks. If performed correctly, these instructions will guide an individual step-by-step through a successful installation of the new hard drive.

The new hard drive comes formatted and initialized with a Macintosh driver, but generally requires the installation of appropriate Macintosh operating system (Mac OS) software for use in the PowerBook. You will need a reliable Macintosh volume from which to boot the PowerBook in order to load the necessary operating system software. Once the PowerBook is booted, the new hard drive will automatically mount onto the PowerBook's Desktop and is ready for software installation. If the drive does not mount onto the Desktop, the PowerBook may prompt you to initialize the hard drive upon startup, after which the drive should then automatically mount onto your Desktop and be ready for software installation.

See the PowerBook User's Manual for operating system and other software installation procedures.



**Caution:** Due to a bug in Apple's ROM support for SCSI Disk Mode, a PowerBook 3400/G3 which has an internal IDE hard drive

larger than 4GB installed cannot be used in SCSI Disk Mode. One *can* use this PowerBook with an internal drive larger than 4GB in normal Macintosh mode. There is no workaround for reliably using such a PowerBook in SCSI Disk Mode. It is recommended that one use an Ethernet connection to transfer files if necessary.

## **Installation Checklist**

In addition to the new hard drive, the following items should also be found in this PowerBook hard drive upgrade kit:

- (1) Disposable Grounding Wrist Strap
- (1) MCE Standard/Phillips Combo Screwdriver
- (1) Torx T8 Screwdriver

## **Installation Procedure**



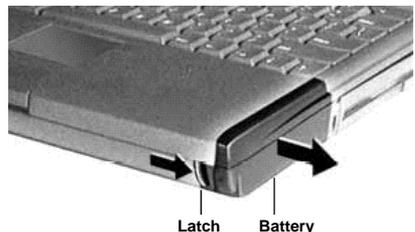
**Caution:** Electro-Static Discharge (ESD) can easily damage electronic components. Before proceeding, ensure that you are discharged of static electricity by touching a grounded metal object and by properly securing the provided Disposable Grounding Wrist Strap.

**Step 1:** Place your PowerBook on a hard, flat surface.

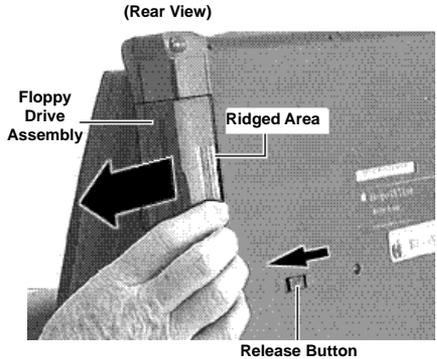
**Step 2:** If your PowerBook is on, turn it off. If the unit appears to be off, make sure that it is not in Sleep mode.

**Step 3:** Completely unplug all cables from the PowerBook and remove any PC Card modules from it.

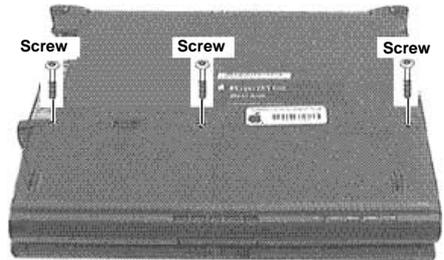
**Step 4:** Remove the battery by pushing the latch button in and sliding the latch to the side. Pull the battery completely out of the PowerBook.



**Step 5:** To remove the floppy/CD-ROM drive assembly without damaging it, turn the unit upside down as shown. Slide the release button outward. Grasp the ridged area of the plastics (not the metal cover) to prevent bending the metal top case and possibly damaging the drive. Grasping the assembly by its ridged area, pull it out of the media bay.

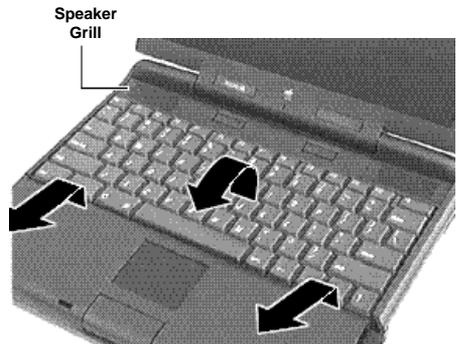


**Step 6:** Close and latch the PowerBook and turn it upside down. Remove the 3 screws on the bottom of the case with the torx screwdriver.



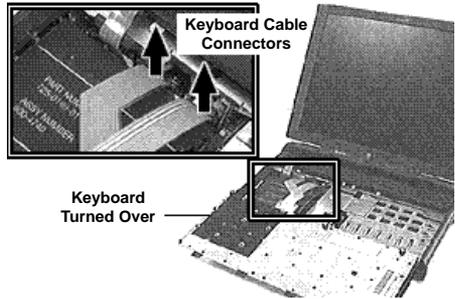
**Caution:** If you pull the keyboard too far you will rip the keyboard cables out of their connectors. Perform the next steps slowly and carefully.

**Step 7:** Turn the PowerBook right-side-up, front facing you and lift open the display. Rotate the display as far back as it will go away from you, probably, around 170° from the base of the PowerBook. Using the small flat-blade screwdriver to get underneath it, lift the keyboard *slightly* up and toward you until you feel a small resistance (its four top interior tabs should just clear the speaker grill). STOP!

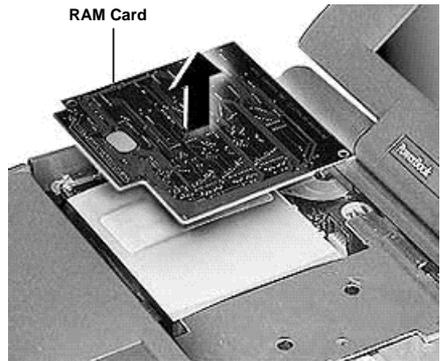


**Step 8:** Gently rotate the top of the keyboard (the end closest to the display) toward you, laying it face down onto the palm rest.

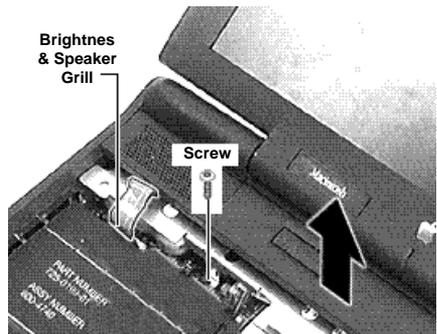
**Step 9:** Using the small flat-blade screwdriver, detach the two keyboard cables by gently lifting up their respective connector ears. Remove the keyboard, and set it safely aside.



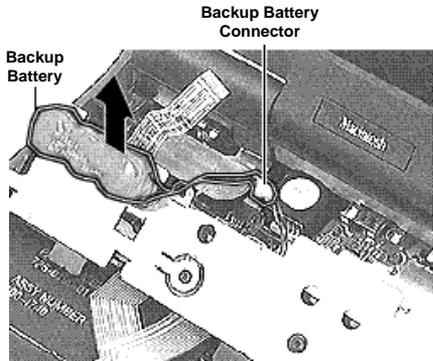
**Step 10:** If present, grasp the RAM card by the corners closest to you (supporting the bottom left corner over the connector and lift straight up.



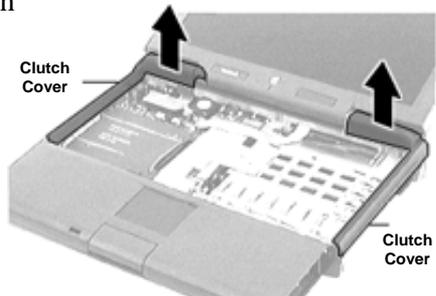
**Step 11:** Carefully detach the brightness & speaker cable from its connector. Remove the screw from the brightness and speaker grill. Lift off the grill (the piece under the up arrow in the picture) until you feel a slight resistance. STOP!



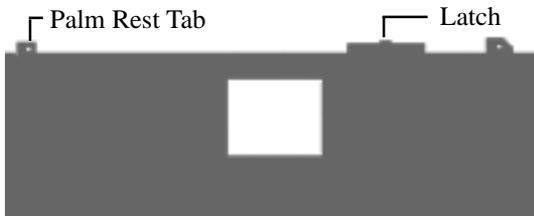
**Step 12:** Rotate the top of the grill toward the front of the PowerBook. Use your fingers to disconnect the backup battery connector. (The backup battery is adhered to the grill with reusable adhesive. This does not need to be removed from the grill.)



**Step 13:** Grasp the area of the clutch cover under the display. Using a fingernail, pull up from the seam in back and gently rock the clutch cover until it releases. Pull the clutch cover straight up, watching to clear the bottom of the display assembly.



**Note:** Familiarize yourself with the palm rest. This section will have to be rotated into the area originally occupied by the keyboard. Be careful not to pull the trackpad cable out of the connector as you turn over the palm rest. Perform the next steps carefully.

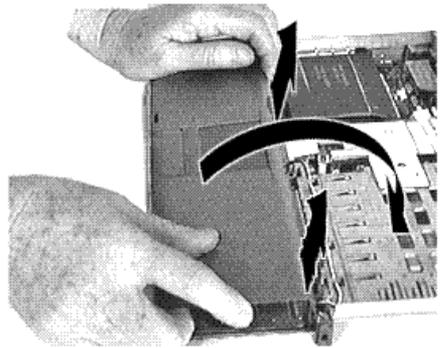


**Step 14:** Grasp the right corner of the palm rest and gently but firmly pull it up.

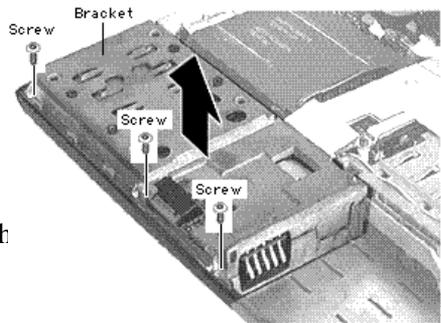
**Step 15:** Referring to the latch noted on the previous diagram, use a small flat-blade screwdriver to gently press the latch toward the palm rest and at the same time rotate the top right section of the palm rest towards the front of the PowerBook.

**Step 16:** Once the latch is freed, grasp the top right side of the palm rest and pull it up slowly. *Note that there are six more latches connecting the palm rest, along the front and middle seams.* Some of these latches may be a bit tough to release, especially along the left front seam. You might try gently rocking the palm rest to free these latches. You might also try pushing with your thumbs on the bottom half of the case below the front seam as you pull the top palm rest area with your other fingers.

**Step 17:** Rotate the palm rest over until it is laying upside down in the area that the keyboard originally occupied, remembering not to pull the trackpad cable out of the connector as you turn over the palm rest.



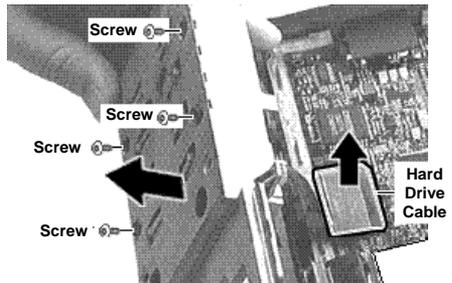
**Step 18:** Remove the three interchangeable screws connecting the hard drive bracket to the CPU stiffener. Lift up the bracket until you feel a slight resistance - STOP! Notice the hard drive cable connecting the drive to the logic board.





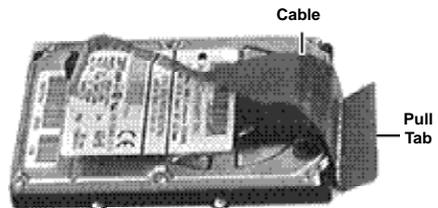
**Tip:** There are two items that the bracket protects - the hard drive and the power supply board underneath the right side of the bracket. When separating the bracket from the computer use a small flat-blade screwdriver to hold down the power supply board. Do this by applying slight pressure to the right edge of the board. Touch only the green part of the IC board.

**Step 19:** While holding the power supply board in place rotate the bracket towards the front of the PowerBook. Disconnect the hard drive cable connector from the logic board by carefully pulling up on the hardened plastic back of the cable.



**Step 20:** Remove the four screws holding the drive in the bracket.

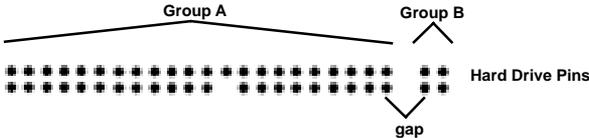
**Step 21:** Remove the hard drive from within the bracket. Use the pull tabs to disconnect the cable from the hard drive.



**Step 22:** Replace the cable connector onto the new hard drive taking care to orient it properly for later connection of the other end of the cable to the logic board.



**Caution:** Note that the ribbon cable connector does not attach to the “Group B” pins in the diagram below. The same is true when you re-attach the connector to the new drive.



- *Reverse the relevant previous steps to reassemble the computer.*

### **Replacement Notes**

Install the palm rest before the clutch covers. The palm rest tabs fit under the clutch cover tabs.

When replacing the keyboard screws, you may have to apply pressure to the keyboard for the screws to engage. Apply pressure with great care.

When reinserting the floppy drive align the bay device carefully. Tolerances are tight.

As always, install the PowerBook’s battery before connecting the AC power adapter.

Congratulations! You have completed the hardware installation of your PowerBook hard drive upgrade.



**Note:** It is normal for usable hard drive capacities to be reduced by 5-7% upon initialization of the drive. Also, your drive ships preformatted and initialized, but does not include system software on it. If you have the appropriate hardware, such as the MCE DataShuttle Xtreme PC Card Kit, you may transfer the data from the original internal hard drive to the new internal hard drive. If not, you may need to re-install your system software and other applications from the original disks or CD-ROM disc. Consult the manual(s) that came with your PowerBook for details.

## **Introduction to PowerBook G3 (1998) Installation**

This chapter details the procedure for installing an MCE hard drive upgrade kit into a PowerBook G3 (1998 release; a.k.a. Black keyboard G3, Wall Street, Main Street, PDQ).



**Note:** This section pertains to the PowerBook G3 model that has a white Apple logo on the outside of the top cover and a multi-colored Apple logo below the display.

MCE strongly recommends that the installation be performed by a qualified technician. The installation procedure involves disassembling the PowerBook and exposing its sensitive electronics. This is a delicate process and, if not performed properly, could cause damage to the PowerBook. These installation instructions are given for those who understand these risks. If performed correctly, these instructions will guide an individual step-by-step through a successful installation of the new hard drive.

The new hard drive comes formatted and initialized with a Macintosh driver, but generally requires the installation of appropriate Macintosh operating system (Mac OS) software for use in the PowerBook. You will need a reliable Macintosh volume from which to boot the PowerBook in order to load the necessary operating system software. Once the PowerBook is booted, the new hard drive will automatically mount onto the PowerBook's Desktop and is ready for software installation. If the drive does not mount onto the Desktop, the PowerBook may prompt you to initialize the hard drive upon startup, after which the drive should then automatically mount onto your Desktop and be ready for software installation.

See the PowerBook User's Manual for operating system and other software installation procedures.

## *Installation Checklist*

In addition to the new hard drive, the following items should also be found in this PowerBook hard drive upgrade kit:

- (1) Disposable Grounding Wrist Strap
- (1) MCE Standard/Phillips Combo Screwdriver
- (1) Torx T8 Screwdriver

## *Installation Procedure*



**Caution:** Electro-Static Discharge (ESD) can easily damage electronic components. Before proceeding, ensure that you are discharged of static electricity by touching a grounded metal object and by properly securing the provided Disposable Grounding Wrist Strap.

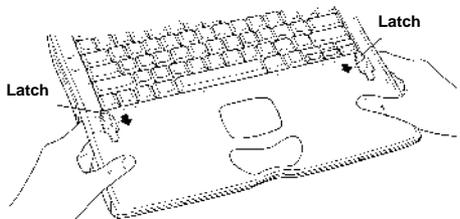
**Step 1:** Place your PowerBook on a hard, flat surface.

**Step 2:** If your PowerBook is on, turn it off. If the unit appears to be off, make sure that it is not in Sleep mode.

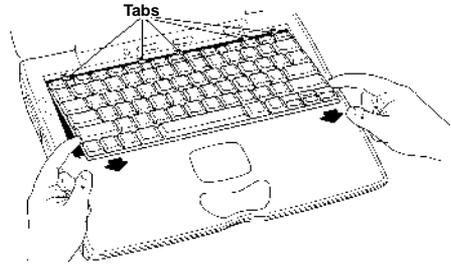
**Step 3:** Completely unplug all cables from the PowerBook and remove any batteries, media bay devices, and PC Card modules from it.

**Step 4:** Adjust the PowerBook's display so that it is at a 90-degree angle to its base.

**Step 5:** Reach into the expansion bays with each of your index fingers and locate the plastic keyboard release tabs on each side. They are ridged and are located on the underside of the palm rest. Slide the tabs toward the front of the computer until you see the bottom of the keyboard pop up slightly.

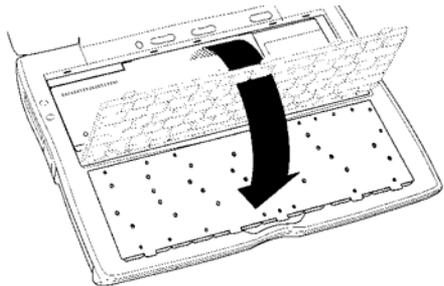


**Step 6:** Slide the keyboard about a half inch toward the front of the computer until the five metal tabs on the back of the keyboard clear the chassis.



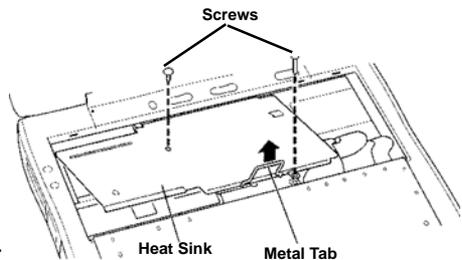
**Caution:** Do not put tension on or remove the ribbon cables connecting the keyboard to the logic board.

**Step 7:** Gently rotate the back of the keyboard towards the front of the system until it is resting upside down on the palm rest.

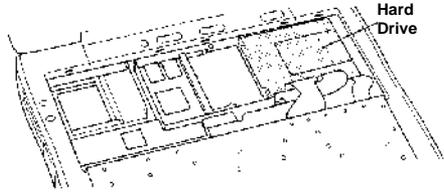


**Caution:** If the PowerBook was just in operation, the heat sink may be hot. If this is so, let it cool down.

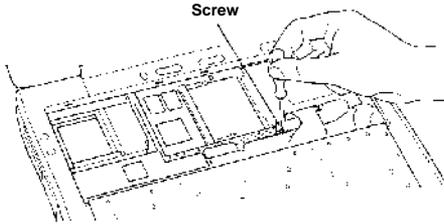
**Step 8:** Remove the two screws securing the internal heat sink in place. Lift the heat sink out of its compartment by gently but firmly pulling up on the small metal tab located on its front edge.



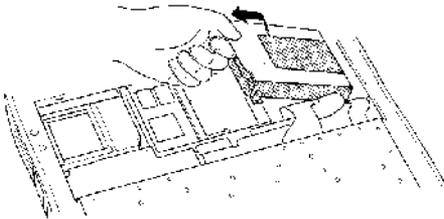
**Step 9:** Locate the original internal hard drive in the upper right corner of the system base unit.



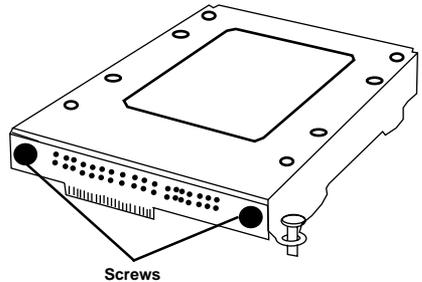
**Step 10:** Using the T8 Torx screwdriver, loosen the screw that secures the hard drive bracket in place, noting that the screw remains attached to the bracket - do not try to completely remove the screw from the bracket.



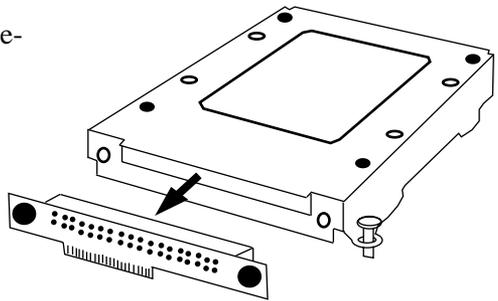
**Step 11:** Gently but firmly pull up on the tab located on the left side of the hard drive bracket to remove the bracket from its compartment in the computer's base unit.



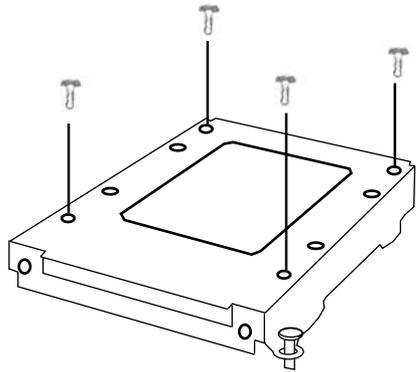
**Step 12:** Remove the two screws holding the the hard drive-to-logic board connector onto the bracket.



**Step 13:** Remove the hard drive-to-logic board connector board from the hard drive.



**Step 14:** Remove the four screws which hold the bracket onto the hard drive and then slip the hard drive out of the bracket.



• *Reverse the relevant previous steps to reassemble the computer.*

Congratulations! You have completed the hardware installation of your new PowerBook hard drive upgrade.



**Note:** It is normal for usable hard drive capacities to be reduced by 5-7% upon initialization of the drive. Also, your drive ships preformatted and initialized, but does not include system software on it. If you have the appropriate hardware, such as the MCE DataShuttle Xtreme PC Card Kit, you may transfer the data from the original internal hard drive to the new internal hard drive. If not, you may need to re-install your system software and other applications from the original disks or CD-ROM disc. Consult the manual(s) that came with your PowerBook for details.

## *Introduction to PowerBook G3 (1999) Installation*

This chapter details the procedure for installing an MCE hard drive upgrade kit into a PowerBook G3 (1999 release; a.k.a. Bronze, Lombard).



**Note:** To distinguish this PowerBook G3 from other PowerBook G3 models, note that the computer has, among its other ports, two built-in USB ports (  ) and one built-in SCSI port (  ).

MCE strongly recommends that the installation be performed by a qualified technician. The installation procedure involves disassembling the PowerBook and exposing its sensitive electronics. This is a delicate process and, if not performed properly, could cause damage to the PowerBook. These installation instructions are given for those who understand these risks. If performed correctly, these instructions will guide an individual step-by-step through a successful installation of the new hard drive.

The new hard drive comes formatted and initialized with a Macintosh driver, but generally requires the installation of appropriate Macintosh operating system (Mac OS) software for use in the PowerBook. You will need a reliable Macintosh volume from which to boot the PowerBook in order to load the necessary operating system software. Once the PowerBook is booted, the new hard drive will automatically mount onto the PowerBook's Desktop and is ready for software installation. If the drive does not mount onto the Desktop, the PowerBook may prompt you to initialize the hard drive upon startup, after which the drive should then automatically mount onto your Desktop and be ready for software installation.

See the PowerBook User's Manual for operating system and other software installation procedures.

## ***Installation Checklist***

In addition to the new hard drive, the following items should also be found in this PowerBook hard drive upgrade kit:

- (1) Disposable Grounding Wrist Strap
- (1) MCE Standard/Phillips Combo Screwdriver
- (1) Torx T8 Screwdriver

## ***Installation Procedure***



**Caution:** Electro-Static Discharge (ESD) can easily damage electronic components. Before proceeding, ensure that you are discharged of static electricity by touching a grounded metal object and by properly securing the provided Disposable Grounding Wrist Strap.

**Step 1:** Place your PowerBook on a hard, flat surface.

**Step 2:** If your PowerBook is on, turn it off. If the unit appears to be off, make sure that it is not in Sleep mode.

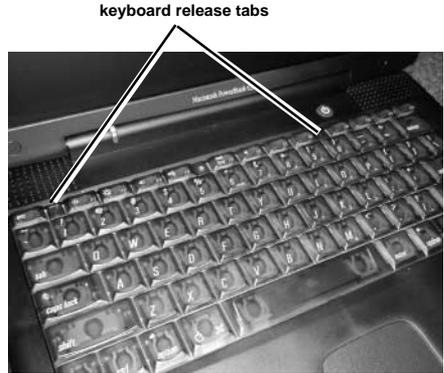
**Step 3:** Adjust the PowerBook's display so that it is at a 90-degree angle to its base.

**Step 4:** Completely unplug all cables from the PowerBook and remove any batteries, media bay devices, and PC Card modules from it.

**Step 5:** If the keyboard is locked, unlock it by turning the keyboard lock screw counter-clockwise with a flat head screwdriver. Note that this keyboard locking screw is captured and should not be removed completely from its slot.



**Step 6:** Push the keyboard release tabs towards the front of the PowerBook and gently lift so that the keyboard pops up from that end. Disengage the tabs on the bottom of the keyboard which secure it to the palm rest by holding the top corners of the keyboard and pulling them up and out.



**Step 7:** Carefully rotate the keyboard so that it lays face down on the PowerBook's palm rest, being careful not to pull on the ribbon cable attaching the keyboard to the logic board.



**Step 8:** Remove the heatsink by removing its three screws and pulling its handle up and out.



**Note:** The heat spreader on the top of the processor may come off and become attached to the bottom of the heat sink. Be sure that the heat spreader is properly placed on the processor before replacing the heat sink.

**Step 9:** Fold back the translucent plastic flap attached to the end of the hard drive and disconnect the hard drive connector from the logic board by very carefully prying it up with the end of a small flat blade.



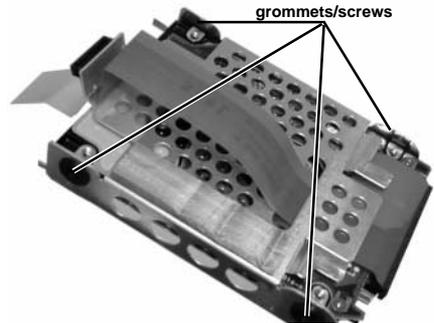
**Step 10:** Lift the plastic flap up to bring the end of the hard drive out of its compartment.



**Step 11:** Grasp the hard drive bracket by its sides and carefully pull the drive out of its compartment. You may have to gently but firmly jostle the drive from side to side to loosen it from its fasteners within the compartment.



**Step 12:** Remove the four screws from out of the black grommets at the side corners of the hard drive bracket using the Torx T8 driver.



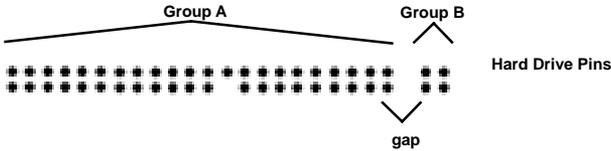
**Step 13:** Carefully lift the hard drive bracket away from the hard drive, routing the orange ribbon cable through the opening in the bracket.



**Step 14:** Carefully remove the ribbon cable connector from the hard drive.



**Caution:** Note that the ribbon cable connector does not attach to the “Group B” pins as indicated on the diagram below. The same is true when you re-attach the connector to the new drive.



- **Reverse the relevant previous steps to reassemble the computer.**

Congratulations! You have completed the hardware installation of your new PowerBook hard drive upgrade.



**Note:** It is normal for usable hard drive capacities to be reduced by 5-7% upon initialization of the drive. Also, your drive ships preformatted and initialized, but does not include system software on it. If you have the appropriate hardware, such as the MCE DataShuttle Xtreme PC Card Kit, you may transfer the data from the original internal hard drive to the new internal hard drive. If not, you may need to re-install your system software and other applications from the original disks or CD-ROM disc. Consult the manual(s) that came with your PowerBook for details.

## ***Introduction to PowerBook 2000 Installation***

This chapter details the procedure for installing an MCE hard drive upgrade kit into a PowerBook G3 (2000 release; a.k.a. FireWire, Pismo).



**Note:** To distinguish this PowerBook G3 from other PowerBook G3 models, note that this PowerBook has two built-in FireWire ports (  ).

MCE strongly recommends that the installation be performed by a qualified technician. The installation procedure involves disassembling the PowerBook and exposing its sensitive electronics. This is a delicate process and, if not performed properly, could cause damage to the PowerBook. These installation instructions are given for those who understand these risks. If performed correctly, these instructions will guide an individual step-by-step through a successful installation of the new hard drive.

The new hard drive comes formatted and initialized with a Macintosh driver, but generally requires the installation of appropriate Macintosh operating system (Mac OS) software for use in the PowerBook. You will need a reliable Macintosh volume from which to boot the PowerBook in order to load the necessary operating system software. Once the PowerBook is booted, the new hard drive will automatically mount onto the PowerBook's Desktop and is ready for software installation. If the drive does not mount onto the Desktop, the PowerBook may prompt you to initialize the hard drive upon startup, after which the drive should then automatically mount onto your Desktop and be ready for software installation.

See the PowerBook User's Manual for operating system and other software installation procedures.

## ***Installation Checklist***

In addition to the new hard drive, the following items should also be found in the PowerBook hard drive upgrade kit:

- (1) Disposable Grounding Wrist Strap
- (1) MCE Standard/Phillips Combo Screwdriver
- (1) Torx T8 Screwdriver

## ***Installation Procedure***



**Caution:** Electro-Static Discharge (ESD) can easily damage electronic components. Before proceeding, ensure that you are discharged of static electricity by touching a grounded metal object and by properly securing the provided Disposable Grounding Wrist Strap.

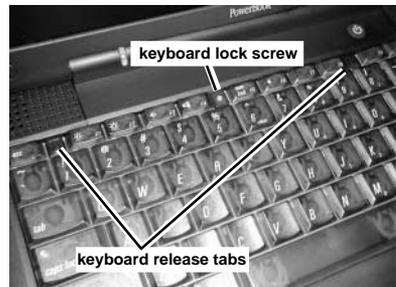
**Step 1:** Place your PowerBook on a hard, flat surface.

**Step 2:** If your PowerBook is on, turn it off. If the unit appears to be off, make sure that it is not in Sleep mode.

**Step 3:** Adjust the PowerBook's display so that it is tilted back as far as it will go.

**Step 4:** Completely unplug all cables from the PowerBook and remove any batteries, media bay devices, and PC Card modules from it.

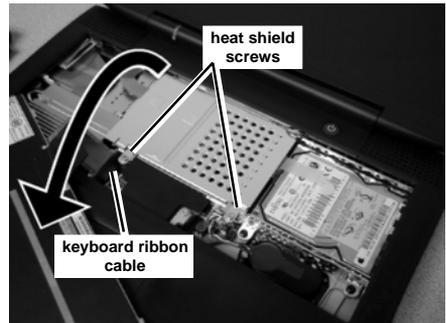
**Step 5:** If the keyboard is locked in place, unlock it by turning the keyboard lock screw counter-clockwise with a tiny flat head screwdriver. Note that this keyboard locking screw is captured and should not be removed from its slot.



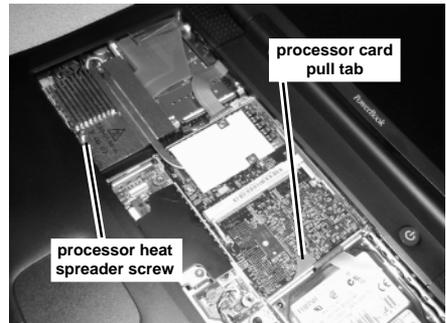
**Step 6:** Push the keyboard release tabs towards the front of the PowerBook and gently lift so that the keyboard pops up from that end. By holding the top corners of the keyboard and pulling them up and out, disengage the tabs on the bottom of the keyboard which secure it to the inside of the palm rest .



**Step 7:** Carefully rotate the keyboard so that it lays face down on the PowerBook's palm rest, being careful not to rip the ribbon cable attaching the keyboard to the logic board. Carefully disconnect the keyboard ribbon cable from the logic board.



**Step 8:** Remove the heat shield by removing its two screws and pulling it up and out. *Make sure it is not too hot before handling.*



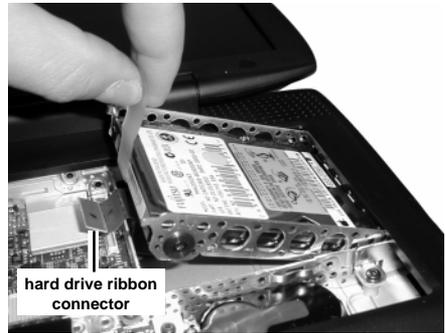
**Step 9:** Remove the screw that secures the processor heat spreader in place.

**Step 10:** Remove the processor card from its logic board connector by pulling up on its pull tab, which is the shorter of the two translucent tabs located to the left of the hard drive.



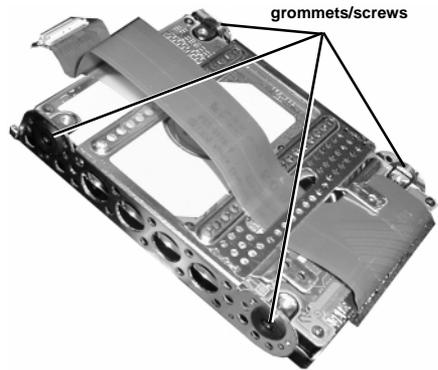
**Step 11:** Disconnect the hard drive ribbon connector from the logic board.

**Step 12:** Lift up the hard drive pull tab to bring the end of the hard drive out of its compartment.

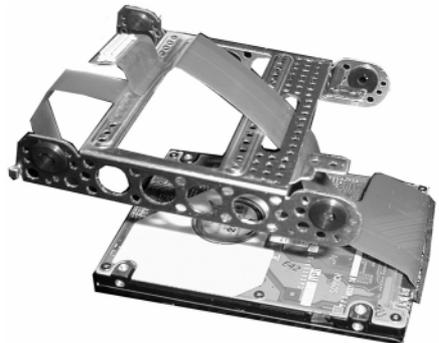


**Step 13:** Grasp the hard drive bracket by its sides and carefully pull the drive out of its compartment. You may have to gently but firmly jostle the drive from side to side to loosen it from its fasteners within the compartment.

**Step 14:** Remove the four screws from out of the black grommets at the side corners of the hard drive bracket using the Torx T8 driver.



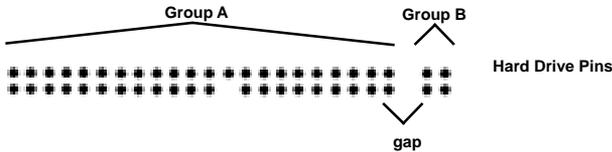
**Step 15:** Carefully lift the hard drive bracket away from the hard drive, routing the orange ribbon cable through the opening in the bracket.



**Step 16:** Carefully remove the ribbon cable connector from the hard drive.



**Caution:** Note that the ribbon cable connector does not attach to the “Group B” pins in the diagram on the next page. The same is true when you re-attach the connector to the new drive.



- *Reverse the relevant previous steps to reassemble the computer.*

Congratulations! You have completed the hardware installation of your new PowerBook hard drive upgrade.



**Note:** It is normal for usable hard drive capacities to be reduced by 5-7% upon initialization of the drive. Also, your drive ships preformatted and initialized, but does not include system software on it. If you have the appropriate hardware, such as the MCE DataShuttle Xtreme PC Card Kit, you may transfer the data from the original internal hard drive to the new internal hard drive. If not, you may need to re-install your system software and other applications from the original disks or CD-ROM disc. Consult the manual(s) that came with your PowerBook for details.

## ***Troubleshooting***

This section offers general advice on common issues which arise during and after the installation of an MCE PowerBook internal hard drive upgrade kit. Also, keep in mind that MCE suggests using the latest version of Apple's Drive Setup utility to initialize, format and perform other hard drive functions for all MCE hard drive upgrade kits. This utility can be found on the CD-ROM disc of the latest release of Apple's MacOS system software or at Apple's web site.

### ***PowerBook will not start.***

- Make sure that power is being supplied to the PowerBook by either its battery or its AC power adapter.
- Make sure that the battery is properly seated in its bay.
- If the battery needs recharging, plug the appropriate end of its AC adapter into a working outlet and the other end into the PowerBook. Let the battery charge for several minutes. The AC adapter should become warm after several minutes of being plugged in. If it is not, make sure that it is plugged in properly.
- If the AC adapter is plugged into a power strip or surge suppressor, make sure that this device is turned on.
- If you have an external keyboard or mouse attached, make sure that they are connected properly. (Note: Be sure that your PowerBook is off before connecting or disconnecting external keyboard or mouse.)
- Reset the PowerBook's Power Manager (ref. Apple Tech Info Library article #14449 at <http://til.info.apple.com/techinfo.nsf/artnum/n14449>).
- Re-do the installation, making sure that all recently installed hardware upgrades are securely seated and connected properly.

### ***Disk icon with blinking question mark appears at startup.***

- This generally indicates that the PowerBook cannot properly locate a volume from which it may load System software.
- Make sure that external peripherals are connected properly and are turned on.
- Make sure that any SCSI devices connected to the PowerBook do not have common ID numbers.
- Start the PowerBook with extensions turned off by pressing the Shift key on the PowerBook's keyboard while the PowerBook is starting up. If the

PowerBook now starts up, a software conflict is causing the condition. Determine which system components are conflicting and disable them.

- “Re-bless” the System Folder of the internal hard drive by booting from an external volume (CD-ROM, external hard drive, etc.) and double clicking on the System suitcase of the internal hard drive’s System Folder.
- Reset the PRAM by booting with the following keys depressed simultaneously: Command, Option, P, and R. After you hear the startup tone sound three more times, release these keys.
- Test and repair the internal hard drive by booting from an external volume and running the latest version of Apple’s Drive Setup utility program, found either on the CD-ROM of the latest release of Mac OS system software, or from Apple’s website.
- Re-do the installation, making sure that all recently installed hardware upgrades are securely seated and connected properly.
- Reinstall system software onto the internal hard drive.

### ***A “Sad Mac” icon appears at startup.***

- Make sure that external peripherals are connected properly and are turned on.
- Make sure that you are not trying to start the PowerBook from a volume (hard drive, CD-ROM disc, floppy disk, etc.) that does not have system software.
- Test and repair the internal hard drive by booting from an external volume and running the latest version of Apple’s Drive Setup utility program, found either on the CD-ROM of the latest release of Mac OS system software, or from Apple’s website.
- Re-do the installation, making sure that all internal parts, and especially their connectors, are securely seated and connected properly.
- Reinstall system software onto the internal hard drive.

### ***PowerBook does not recognize the installed hard drive.***

- Determine if the hard drive is spinning (you should be able to hear the drive first spin up during the boot process and then continue to spin while the computer is powered on).
- If the drive is not spinning, it is likely that either the drive itself or some other component or connector involved in the installation of the drive is not properly connected. Inspect all hardware involved in the installation of the drive to ensure that all connectors are secured properly.

- If the drive is spinning, do the following:
  - Boot from either a bootable CD or a bootable external drive and launch the most recent version of Apple's Drive Setup utility to see if the drive appears in the List of Drives window.
  - If the drive is listed, highlight the drive in the list and select the Mount Volumes (command-M) under the Functions menu.
  - If nothing happens, highlight the drive and select the Initialize button.
  - If the drive is not listed, the computer cannot properly communicate with the drive. Check to make sure that the drive is not misaligned on the PowerBook's internal hard drive connector such that it receives power, but cannot send or receive data properly.

If you have exhausted all of the troubleshooting recommendations outlined here and still have not resolved the problem with your new hard drive, you may receive technical assistance by calling (949)458-0800 or by sending an email to [support@mcetech.com](mailto:support@mcetech.com). Please provide the following information:

- Your name
- Invoice number
- Date of the invoice
- MCE part number
- PowerBook model
- Mac OS version number
- Description of the problem, including any relevant error messages

Since technical assistance representatives do not have access to invoice information, it is necessary that you have this information with you when contacting them.

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