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OWC Mercury Optical Drives

Installation Instructions

For PowerBook G4 15” Models

Thank you for purchasing an OWC Mercury Optical drive from Other World Computing!

Please use this reference guide to install your new optical drive into your PowerBook G4 15” “Titanium”.

Before getting started, you will need the following:

- **A well lit clean work space approximately 3’x2’**
- **A soft cloth or rubber mat to place the PowerBook on while working on it**
- **A #1 Phillips Screwdriver**
- **A Torx T-8 Screwdriver**
- **A Torx T-6 Screwdriver (some models w/ combo drives installed)**
- **A blank CD-R disc**
- **A blank DVD-R disc (DVD-R optical drives only)**

You will need to observe static safe precautions while performing this installation, just like you would for installing memory into your computer. Refer to your original PowerBook manual for those steps.

Bottom side of a PowerBook G4/500MHz. Some systems will look different and have screws in different locations, although the objective is the same.

Before beginning, make certain your PowerBook is shut down. You cannot perform this upgrade if the computer is in sleep mode.

Start by turning your PowerBook over on it’s top. You may want to place the computer on a soft cloth or a rubber mat to keep it from sliding around while you perform this upgrade. A mouse pad works well, just be sure to not scratch the top of your PowerBook. Take a few moments and align all of the components and tools you will need to perform this upgrade so that you don’t have to move around much while doing the upgrade. You will find that if you don’t have to reach very far for an item, it will allow you to concentrate more.

Remove the battery from the PowerBook and place it aside.

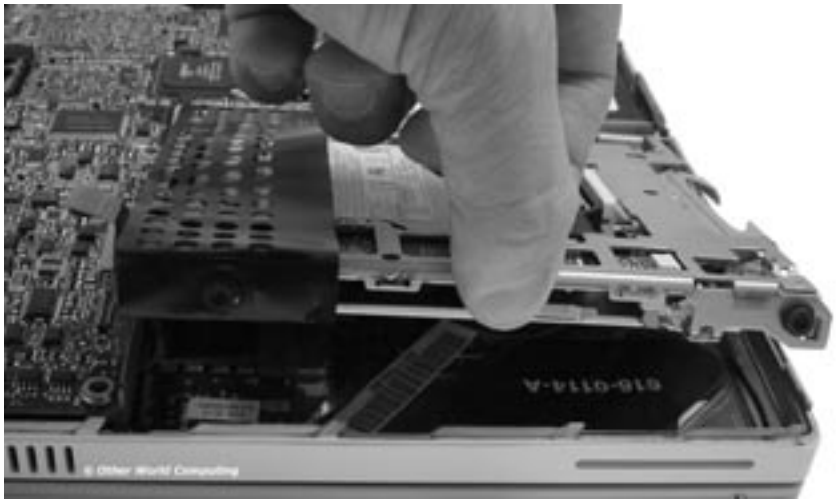
Remove the screws from the bottom of the computer. Depending on the model of computer you have, it will either use #1 Phillips screws or Torx T-8 screws. Some of these can be difficult to remove, be patient and use even force to unscrew them. Do NOT slip and either damage the screw head or scratch the bottom of the PowerBook.

If you own a PowerBook G4 400 - 667MHz(VGA) system without a combo DVD-CD/RW drive installed, please continue with this section.

For 667Mhz(DVI) - 1GHz systems, or for machines that already have a combo DVD-CD/RW drive, please turn to page 11.

Gently remove the bottom of the PowerBook and expose the logic board / HD / CD Drive. Note on the bottom left is the object of this upgrade, the CD-ROM drive. You may want to take a few moments and remove any dust or lint that has become trapped inside of the computer, especially at the top center, the cooling fan.

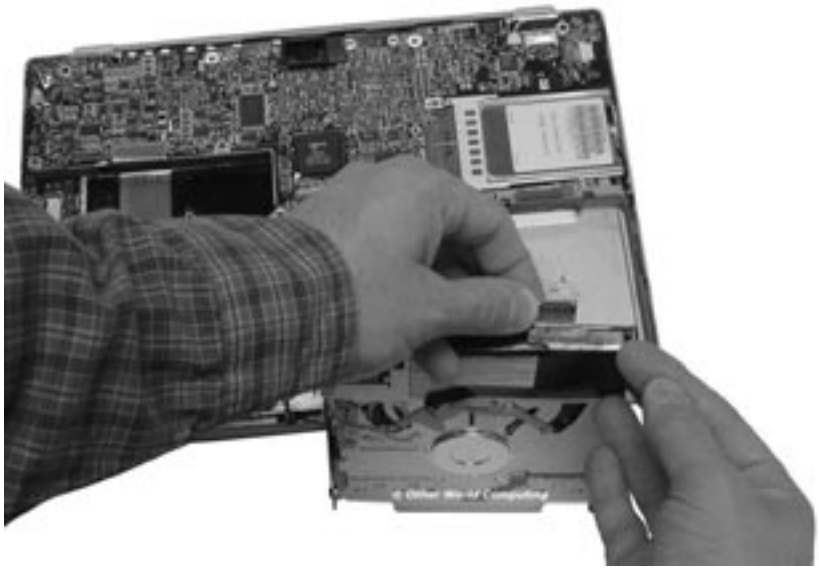
Begin removing the CD-ROM drive by detaching the cable that controls it from the main logic board as shown. You may find a yellow piece of tape covering the cable you need to remove, gently peel it off of the logic board, you can reattach it once the installation is complete. Your fingernail is probably the best choice to remove this cable from the logic board, you only need lift it up enough to dislodge it from the connector.



Once the cable has been unhooked, you can then grasp the side of the CD-ROM drive as shown and gently lift it out of the computer. You're lifting on the side of the drive, not the front. Notice the 2 screws and rubber grommets attached to the CD-ROM drive, they aren't captive held into the frame of the computer, they are held in by compression once the bottom is attached to the computer.

Lift the drive up and pull toward you, the entire mechanism will slide out.

NOTE: If you feel resistance, you may have a piece of tape holding the thin black plastic shield down at the rear of the drive. The only way to remove this adhesive is to physically break the plastic shield, it's not very difficult to do. If you're lucky, you can peel the plastic away from the adhesive but don't be concerned if you break the plastic shield.



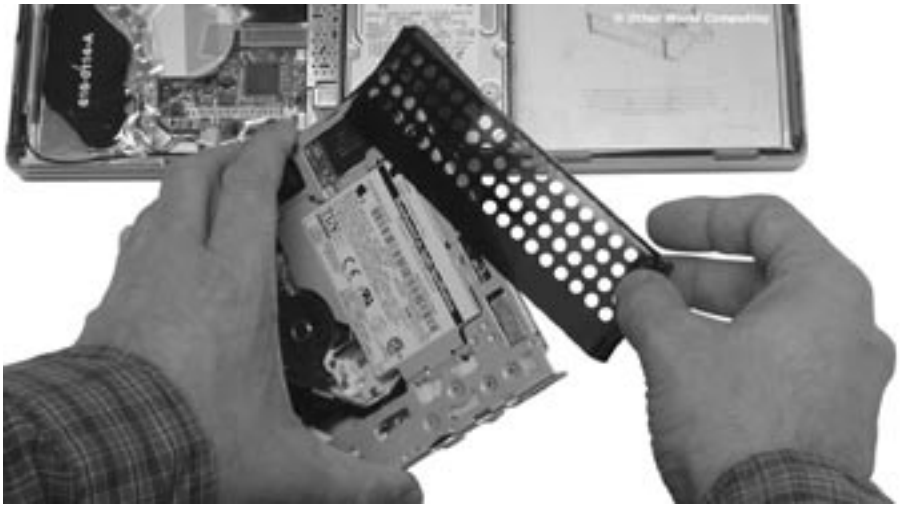
Take the CD-ROM drive and turn it so you can see the cable attached to the back of it. Gently use your fingernails to rock the cable gently, removing it from the connector. Set the cable aside.

Another picture of the cable being removed, showing the connector in more detail.

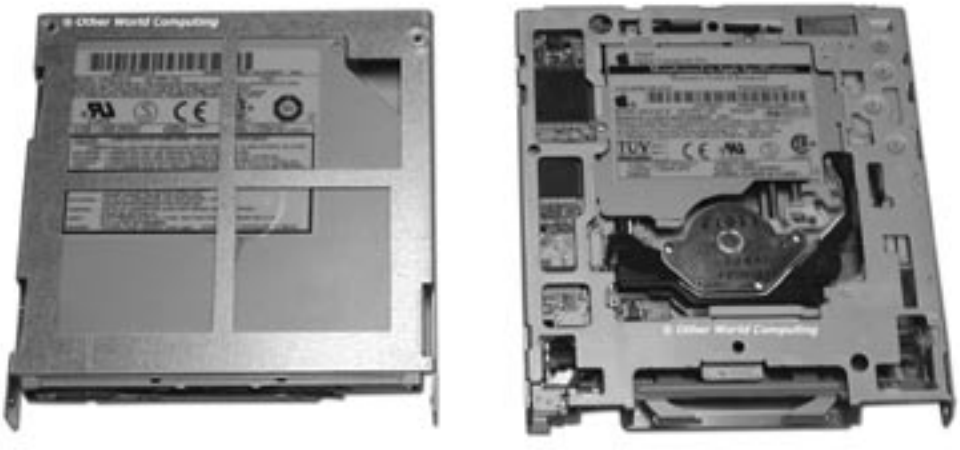
Use the Torx T-8 screwdriver to remove the 4 screws and grommets that are at the corners of the drive. You will notice that the screws are all identical, but there are 3 different types of grommets.

- Two are half-moon shaped and go on the left side of the drive (they are the ones that are compressed to hold in place when the lid is closed).
- One is a standard round washer that goes at the front right of the drive, right next to the hard drive.
- One is a captive grommet, which is round and fits into a hole at the top right of the CD bay.

Place these screws and grommets in order when you remove them to avoid having to determine which one goes where upon reassembly.



Once the screws have been removed, slide the thin plastic drive shield off of the CD-ROM mechanism. If you had to tear any part of it to remove because of it being stuck inside of the machine, take a moment and examine where it was torn and use a bit of tape to repair it.



Side-by-side comparison of two drives. An OWC Mercury Ti Combo on the left, the CD-ROM/DVD-ROM drive just removed on the right.

Slide the plastic drive shield over the rear of the new OWC Mercury Optical drive. This usually takes two hands to get it in place. The shield will fully cover the rear of the drive and the screw holes will be visible once you have it in place all the way.

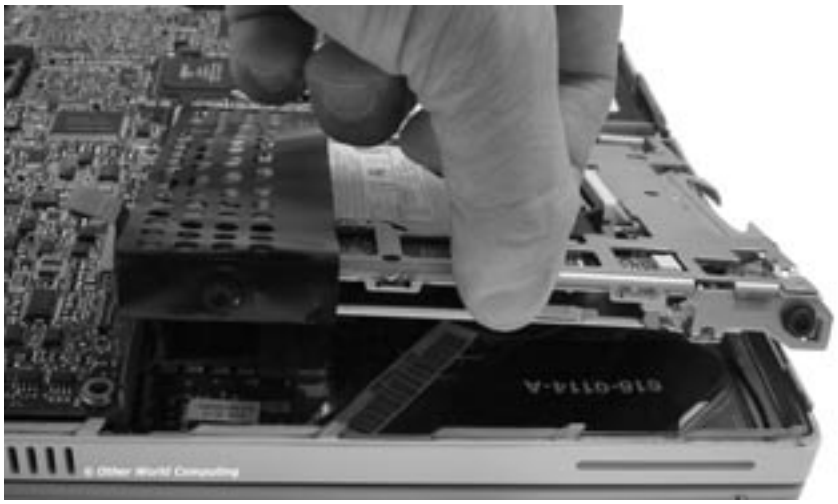
Align the cable you removed and fully seat it into the OWC Mercury Optical drive's connector. This will also help hold the plastic shield in place while you install the screws and grommets.

Insert the 4 Torx T-8 screws into the OWC Mercury Optical drive and place their grommets over the screw heads. Once again, the locations are:

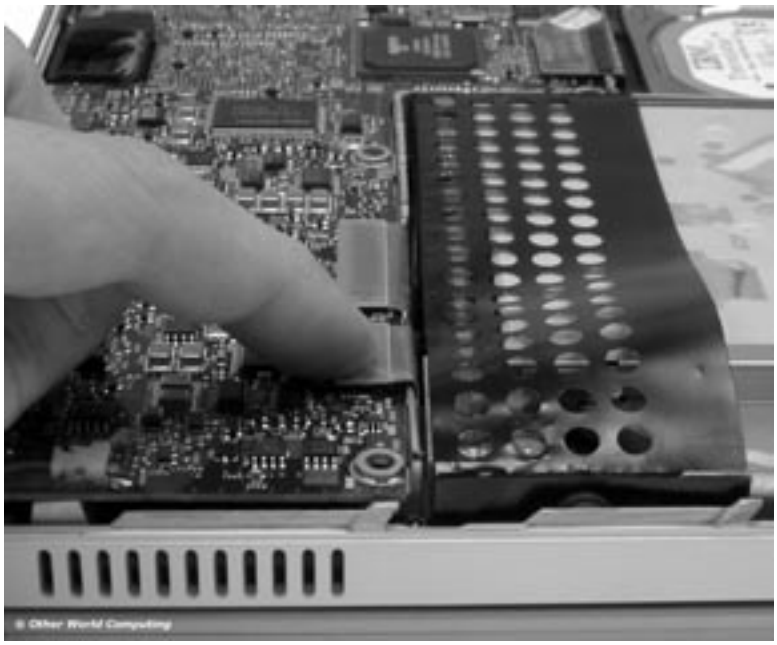
- Two are half-moon shaped and go on the left side of the drive (they are the ones that are compressed to hold in place when the lid is closed).
- One is a standard round washer that goes at the front right of the drive, right next to the hard drive.
- One is a captive grommet, which is round and fits into a hole at the top right of the CD bay.

The two grommets / washers on the right side are universal in orientation, because they are round. The two grommets on the left side are half-moon shaped and the moon (larger portion) should be facing up as shown in this picture. The drive slides down onto the smaller portion of the grommet and if improperly installed, the case will not close on the PowerBook.

Now that you have the OWC Mercury Optical drive prepared to reinstall into the PowerBook, take a moment and look inside of the CD-ROM bay where the new drive will be placed. Note the two holes that are highlighted in this photograph. The grommet and washer will be placed into these holes when you install the new drive. Note that the rear hole is deeper than the front, as the front will not protrude into the hard drive bay when installed.



Set the new drive into the bay (old drive is pictured, but the fit is the same). NOTE: The label side of the drive will be DOWN, reversed from what the original drive was. Be certain when you have the holes on the right side of the bay lined up and pivot the new drive down into the bay that you have the controlling cable flush with the rear of the drive, otherwise it will catch and impede your movement of the drive downward.



Once your new OWC Mercury Optical drive is inserted fully into the CD bay, insert the controlling cable onto the connector on the logic board. Be sure that the cable is fully lined up, it does take a bit of adjustment so it will seat into the connector fully. If your system had yellow tape covering the two connectors, reattach it now.

Your new OWC Mercury Optical drive should fit snugly into the drive bay. Run your fingers along the perimeter of the drive to be sure that it fully seated into the bay, it should not protrude from the left side at all, the half-moon grommets will settle down onto the posts that align the height perfectly.

Please turn to page 20

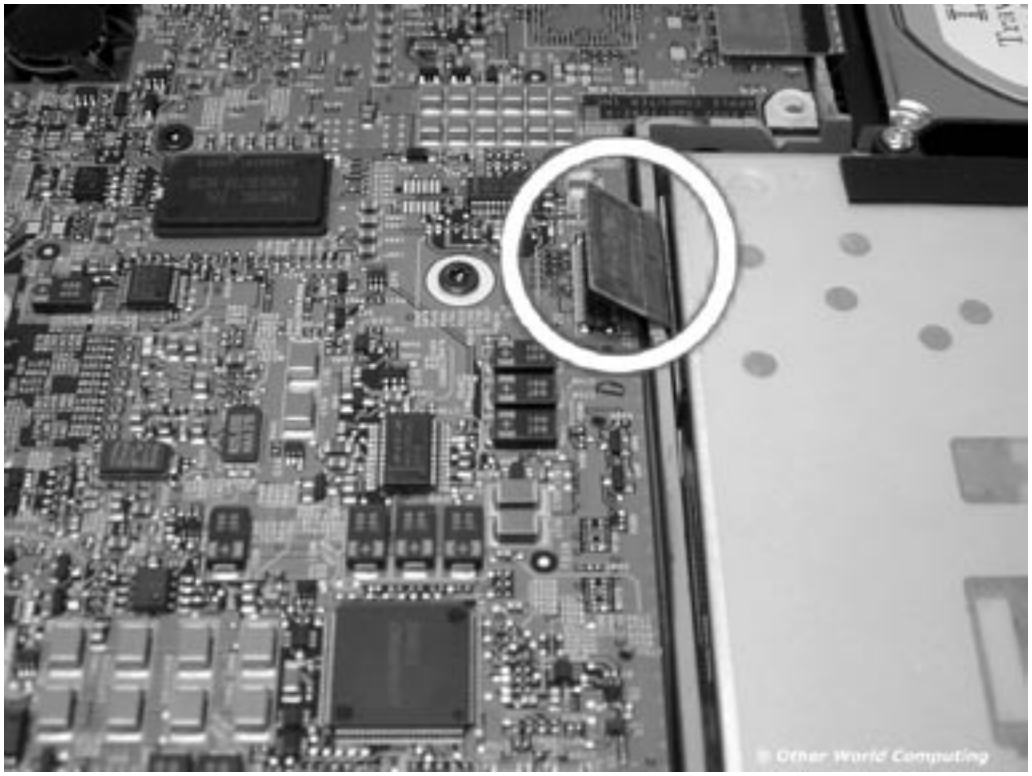
Installation into a 667MHz (DVI) or later with combo drive.

Upon removing the bottom shell of the PowerBook, you will see the optical drive on the left side of the computer. Turn the machine so the drive is oriented facing you, as shown in this picture. There are a number of cables and connectors you need to unhook to remove this drive. The cards attached to the drive brackets are a modem (left) and the inverter board for the display (right).

Begin removing the drive by gently lifting up on the ribbon cable attached to the inverter board, circled here.

Detach the ribbon cable from the inverter board and then from the logic board - the two positions you remove the cable from are shown circled in this picture. Set the inverter ribbon cable aside.

Unplug the white and pink cable from the inverter board by pulling gently straight back towards the modem, the cable is shown unplugged in this picture. The wires are very flexible silicone coated, do not pinch or cut them as they carry power to the LCD display.



At the top of the drive you will see a flat ribbon cable attached to the main logic board, it may be covered by a yellow piece of kapton tape. If it is, remove the tape gently (you will reuse it), and lift up on the ribbon cable from the logic board side gently, as shown.

Look back at the outside of the drive assembly and you will see two more connectors that need to be detached. Unplug the ribbon cable from the logic board (it goes to the modem, underneath the drive), and also the 2 wire cable from under the edge of the black plastic cover on the modem card. That cable will need to be pulled straight out of it's connector toward the back of the PowerBook.

You are now ready to physically remove the drive from the PowerBook. Start by gently lifting up on the drive where the modem and inverter boards are at, angling the drive from the outside. The 2 rubber grommets that the drive rests on will allow the drive to lift freely on the outside, but not the inside. The inside grommets are captive and fit inside holes in the frame and you cannot lift from the middle of the computer.

Once the drive is free of the machine, set it on a flat surface and remove the 4 Torx T-6 screws circled in this picture that attach the cards to the frame.

The inverter board will lift straight up off of the frame, set it aside. The modem card will also lift straight up and off of the frame, but the ribbon cable needs to be gently fed through the bottom half of the frame, do not cut or pinch the cable while doing so. You can remove the cable itself to do this, but you do not have to - your choice.

Turn the drive around and remove the two Phillips screws that attach the small left frame to the drive. Set all parts aside in a safe place.

Remove the two Phillips screws from the large right metal frame. Notice that the screw on the left in this picture is a zero draft head - very flat, and it will need to be put back into this hole, otherwise the modem card will not fit flush back into place upon reassembly. Set the frame aside.

Remove the drive connector cable from the back of the drive and set it aside.

Turn the original drive on it’s back and point the slot toward you as shown in this picture. Using a small thin straight screwdriver, or a paperclip, press gently on these two release tabs circled in this picture. You will find two more tabs on the bottom side of the drive (pictured below), and also one on the side. Once you release the tabs, you will see the other capture points and the removal is simple. Be patient, and do not break the tabs.

Remove and place the feed slot onto the new drive in the same way you removed it from the old drive, starting with the side tab and hinging the slot onto the drive mechanism, locking it into place.

Begin assembling the new drive by placing the large right frame on the new drive. Attach the small zero draft screw on the left, and the regular screw on the right (circled with the large circles above). Gently slide the modem's ribbon cable through the slot shown above, placing the modem on the screw risers circled on the left. Do the same with the inverter board, placing it on the right, with the power connector toward the modem card.

Reattach the 4 Torx T-6 screws you removed from the boards back onto the assembly, securing the cards in place.

Attach the drive controller cable to the back of the new drive as shown. It will fit flush once in place.

Reattach the small bracket to the left side of the drive using the Phillips screws you removed from it. The old drive is shown in this picture, installation is identical.

Inserting the drive into the PowerBook

Take the assembled drive components and place it into the PowerBook, label side down, with the modem and inverter board towards the outside.

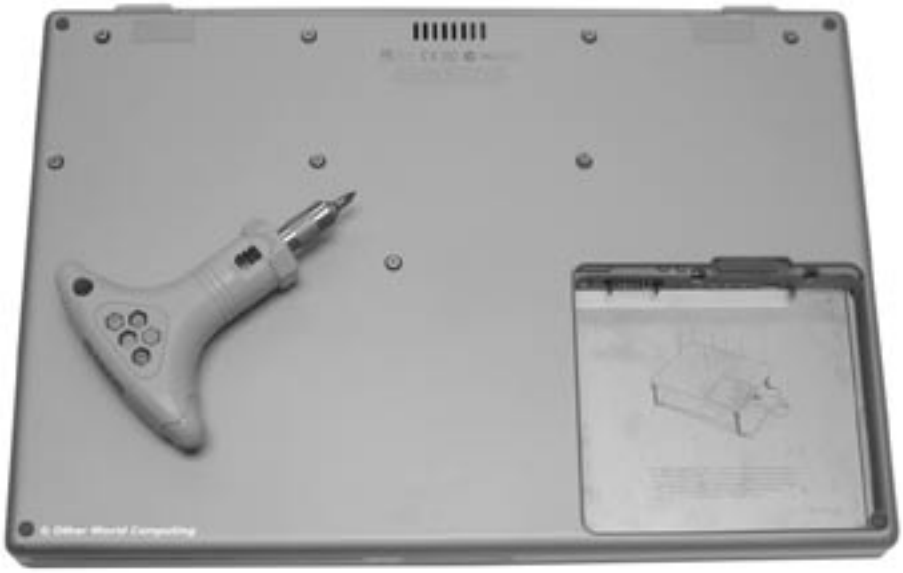
You will need to place the rubber grommets from the frame on the inside portion of the drive mechanism into the holes in the PowerBook chassis that line up with the drive, and pivot the new drive downward into the chassis. Once inserted, the rubber grommets on the outside portion of the frame will rest on their mounting pegs. Be sure the drive is straight, and do not use force to insert the drive, it will slide right into place without resistance if installed properly.

Start by attaching the drive controller cable on the back of the drive to the logic board. If there was a yellow piece of Kapton tape when you removed that cable, reattach it now.

Then, following the numbers here, attach the cables you removed back onto the components.

1. Inverter power (routing the cable neatly around the drive, as shown)
2 & 2a. Inverter ribbon cable (you removed it from the machine originally)
3 & 3a. Modem ribbon cable
4. 2 wire cable from modem card (under black plastic cover)

Another picture of the inverter pink & white cord, routed nicely around the drive mechanism.



Place the bottom back onto your PowerBook and line up all of the screw holes. We recommend partially inserting each screw only enough to line the hole up, and proceeding to the next screw. Frequently PowerBooks will have a screw or two that are extremely difficult to get seated fully, if you encounter resistance while inserting the screws, you can usually press the case bottom back toward the rear a bit more and alleviate the pressure on the screw, allowing it to be tightened for a snug fit.

Tighten the screws in a rotation starting with the inside screws, as directed by your original Apple PowerBook manual.

Once the bottom is reattached, you're ready to try out your new OWC Mercury Optical Drive! Boot the system up and insert a blank CD-R disc - you should be greeted with a dialog box asking what you wish to do with it. The OWC Mercury Optical Drive works natively with all of your favorite creation applications!