

INSTALLATION INSTRUCTIONS

for the Disk II

Your Disk II drive has been modified to reduce electromagnetic interference. The procedure for connecting the modified Disk II to the Apple is different from the procedure described in the DOS manual and in the manuals for Language System products like Apple Pascal. Follow the instructions here carefully to install your Disk II drive(s). Disregard the sections in your other manuals that describe connecting the Disk II to the Apple. If installation of the Disk II sounds difficult or if it becomes too difficult at any point, ask your dealer to help you do it. It's very important to connect your Disk II to your Apple CORRECTLY.

You'll need:

- * Your Disk II drive(s), with their ribbon-like cable(s) fully extended
- * Your disk controller card, unwrapped
- * The rectangular metal clamp and the screw that come in a plastic bag in your disk drive package
- * A Phillips screw driver
- * Your Apple

Before beginning, read over the entire procedure. You can cause permanent damage to your Apple and your disk drive by not following these steps precisely.

Some of the steps include additional instructions for installing two, three and four disk drives.

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1. Turn off the power switch at the back of the Apple!
 2. Remove the cover of the Apple by pulling up on the cover at the rear edge (the edge farthest from the keyboard) until the two corner fasteners pop apart. Then, carefully slide the cover back away from the keyboard until it comes free. Put the cover aside.
 3. Remove the clamp and screw from their plastic bag. Note that a small round nut is affixed to one side of the clamp, centered over holes in the clamp. With one hand, squeeze together the sides of the clamp. With the other hand slide the screw into the hole in the side of the clamp farthest from the nut. Slide the screw through to the side of the clamp with the nut. Then give the screw a few turns until its end is flush with the nut.
 4. Now look at your disk drive's ribbon-like cable. It has a connector at its end (with little holes in it) and a flap with a metal tab on its side. Slide the connector through the long, oval opening in the metal clamp in the same direction that you slid the screw, from the side without the nut through to the side with the nut attached to it. Then pull the cable through the clamp until the cable's flap with the metal tab is between the two sides of the clamp.

Notice that the long outer edges of one side of the clamp curl in toward the other side of the clamp. When the disk drive's cable is correctly in place, the metal tab on the cable's flap should fit snugly into this curl.

FOR 2 DRIVES: One at a time, slide the drive cable connectors through the long, oval opening in the metal clamp, making sure the cable flaps are facing outward and in opposite directions. Then pull the cables through until their flaps are between the two sides of the clamp. Position the flaps so their metal tabs fit into the clamp's curled edges, as shown in Figure 1 below. (The metal clamp is shown cut apart.) Figures 1 and 2 show the clamp's position as seen from the back of the Apple, not as seen from the keyboard.

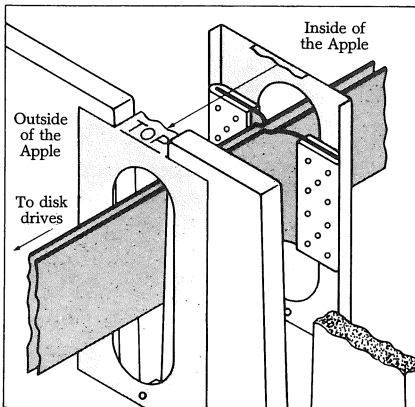


Figure 1 - Installing 2 Drives

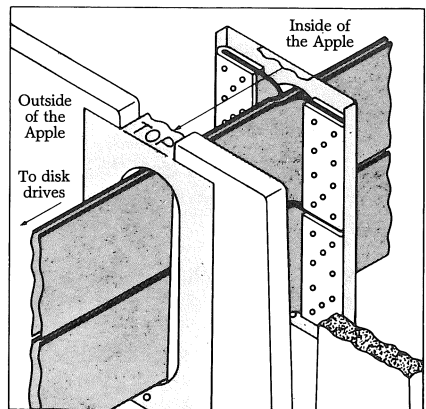


Figure 2 - Installing 4 Drives

FOR 4 DRIVES: One at a time, slide the drive cable connectors through the long, oval opening in the metal clamp, making sure that the flaps of two cables face out towards one outer edge of the clamp and that the other two cables' flaps face out towards the other outer edge of the clamp. Then pull the cables through until all their flaps are between the two sides of the clamp. Next separate the four cables into two pairs by sliding two cables down in the oval opening towards the screw and sliding the other two cables up towards the end of the clamp labeled TOP. Make sure each of these pairs has its two flaps facing in opposite directions. Get the flaps into the positions shown in Figure 2 above. This may take some wiggling of the cables and even some pushing around of the flaps with your fingers. If so, please wiggle and push CAREFULLY!

NOTE FOR 3 DRIVES: If you're installing 3 disk drives, follow the procedure described for 4 drivers above as closely as possible. Where the instructions tell you to separate the cables into two pairs, slide one of the cables down toward the screw and the other two up toward the TOP label (flaps facing opposite directions). Have the flap of the third, unpaired cable (that you slid down toward's the screw) facing outward and towards slot #7 and make sure it's correctly positioned under the curled edge. Use Figure 2 above for your guide in positioning the flaps, imagining the lower, right-hand flap in that figure absent.

5. Locate the notches in the back of the Apple's case: three deep ones and two shallow ones. In this step, you'll slide the clamp down over the third deep notch from the left (as seen from the keyboard side of the Apple).

Hold the cables and clamp in the arrangement described in step 4 for the number of drives you're installing. Being careful not to scratch the paint inside the Apple case, slide the clamp down over the third notch from the left, making sure that:

- * The side of the clamp with the screw head visible is OUTSIDE the Apple
- * The screw goes down into the notch first so that the clamp's label TOP is facing up
- * The metal tabs of the drive cable flaps are INSIDE the Apple, held flat against the inside of the case in the positions described above and not sticking out from under the curled edges of the clamp
- * The metal tabs fit snugly under the curled edges of the clamp, and do not overlap one another

6. Gently push the clamp as far down into the notch as it will go. Tighten the clamp screw from the outside of the Apple, making sure the flaps of the disk cables are held TIGHTLY against the inside of the Apple's case by the metal clamp. As you do this check to make sure that all the conditions listed in step 5 above are met.

7. (For one drive:) On your Disk II interface card (controller card) locate the set of pins labeled "DRIVE 1". Hold the connector near the DRIVE 1 pins so that the cable faces away from the controller card as shown in Figure 3 below. Line up the holes in the cable connector with the DRIVE 1 pins, so that there are no pins or holes left over on either end. Plug the connector onto the pins, making sure the DRIVE 1 pins go into the matching holes in the cable connector. Check that the cable isn't jammed between the connector and the controller card. If it is, the connector is plugged in incorrectly (backwards). You'll have to unplug the connector and re-connect it, with the cable exiting the connector away from the controller card. Otherwise you'll damage the Apple when you turn it on.

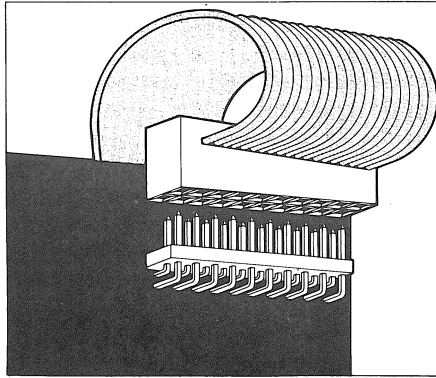


Figure 3 - Connecting the Disk II Drive to the Controller Card

FOR 2 DRIVES: Following the same instructions as for the first drive, plug the second drive's connector onto the DRIVE 2 pins on the controller card. Make sure the cable of this connector also exits on the side away from the controller card.

FOR 4 DRIVES: As you look at the Apple from the keyboard, you'll see that two of the disk drive cables enter the Apple to the right of the other two cables. Of these two cables that enter on the right, one is below the other. Making sure all the pins line up with holes and that the cable leaves the connector away from the controller card as shown in Figure 3, connect this lower right-hand cable to the DRIVE 2 pins of one of your controller cards. Then follow the same procedure carefully to connect the upper right-hand cable to the DRIVE 1 pins of the same controller card. Set this card aside — DON'T plug it in yet. To the DRIVE 2 pins on the second controller card connect the lower left-hand cable connector, making sure there is a pin for every hole and that the cable exits the connector away from the card. Finally, connect the upper left-hand cable to the DRIVE 1 pins of this second controller card.

NOTE FOR 3 DRIVES: If you're installing three drives, first read the instructions for 4 drives above. Then, making sure there's a pin for every hole and that the cable exits the connector properly as shown in Figure 3, connect the lower right-hand cable (as seen from the keyboard side) to the DRIVE 2 pins of your first controller card. Connect the upper right-hand cable to the DRIVE 1 pins of this same controller card. Set this card down on the board without connecting it. To the DRIVE 1 pins on the second controller card, connect the upper left-hand cable.

8. Locate the eight long, narrow slots across the rear of the Apple's circuit board. The leftmost slot (looking at the computer from the keyboard side) is slot #0 and the rightmost is slot #7. If you're installing one controller card and this is your first, you'll place it in slot #6, the second slot from the right. Making sure the power is OFF, slide the "fingers" at the bottom of the controller card into the appropriate slot (#6 for your first controller card). You may have to exert pressure on the cables to bend them to get the controller card into position. Do this gently. Then, rock the card into the slot gently, first towards the front and then towards the back of the Apple until it is firmly seated in the slot. Then press down on each connector to make sure it's plugged firmly onto the controller card. Finally, press down once again on the card to ensure that it's firmly seated in the slot.

FOR 3 or 4 DRIVES: First read and follow step 8 above. Then locate slot #4, the fourth slot from the right. You'll use slot #4 for your second controller card, leaving slot #5 empty. Make sure the Apple's power is OFF. Slide your second controller card (attached to the left-hand cables) into slot #4. This may require some (gentle!) force to bend the cables to correctly position the card. After the card is in place, press down on each connector to make sure it's plugged firmly onto the controller card. Press down once again on the card to ensure that it's firmly seated in the slot.

9. It's a good idea to label the front of each drive with the number that your programs will use to refer to it. If you'll be using DOS, label each drive with its slot and drive numbers. For example, label the drive connected to the DRIVE 1 pins of the card in slot #6 as "Slot #6, Drive 1". If you'll be using a Pascal Operating System based Apple product (with the Language Card), label your drives with their Pascal volume numbers according to the following table.

| APPLE <u>DISK DRIVE</u> | PASCAL <u>VOLUME</u> |
|----------------------------|-------------------------|
| Slot 6, Drive 1 | #4: |
| Slot 6, Drive 2 | #5: |
| Slot 4, Drive 1 | #9: |
| Slot 4, Drive 2 | #10: |

10. Review these instructions, checking at each step that you have followed them correctly and completely.

11. Replace the cover of the Apple by first sliding the front edge of the cover into place. Then as you settle down the rear edge of the cover, make sure the drive cables run through the notch in the cover, that corresponds to the third notch from the left in the Apple's case. Finally, press down on the two rear corners until they pop into place.



APPLE part #031-0008-A