MSD SD-1/SD-2 SINGLE & DUAL DRIVE INSTALLATION

Required tools:

- Phillips screwdriver
- IC extractor or small, flat-bladed screwdriver. Needed for removal of the stock DOS ROMs on the MSD circuit board. An IC extractor is recommended, but not necessary (the small screwdriver will suffice). However, if using a screwdriver, wrap a layer of tape around the tip to help prevent damage to the circuit board when prying.
- Hand or power drill. Necessary for installation of the ROM selector switch in the MSD case assembly.

Procedure:

1. If any diskettes are present in the disk drive(s), remove them.
2. Make sure that the MSD power switch and the power switch on your computer are **OFF**. Also make sure that any other peripherals attached to the serial bus are also switched **OFF**.
3. Unplug the MSD power supply cord from its wall outlet.
4. Unplug all cables from the rear of the disk drive, including the AC power cable and serial bus cable(s).
5. Remove the six case screws (three on each side of the drive) indicated in Figure 1 below.

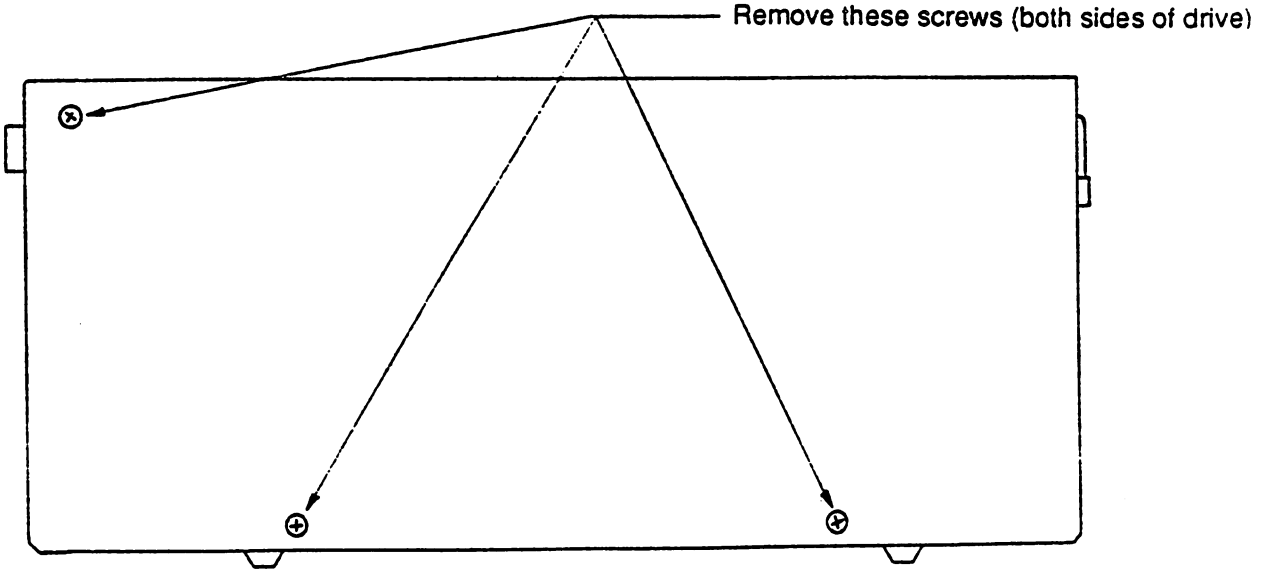

Figure 1 MSD CASE SCREW REMOVAL

6. Remove the cover held in place by the six screws. This should reveal the internals of the MSD and the MSD circuit board.

7. Locate the "FE" and "DC" DOS ROMs on the MSD circuit board using the diagram in Figure 2 below. The FE ROM is U5 and the DC ROM is U6 (The designations U5 and U6 should be marked on the MSD circuit board near the ROMs). For future reference, mark the ROMs "DC" and "FE" as they are removed (if they are not already marked as such).

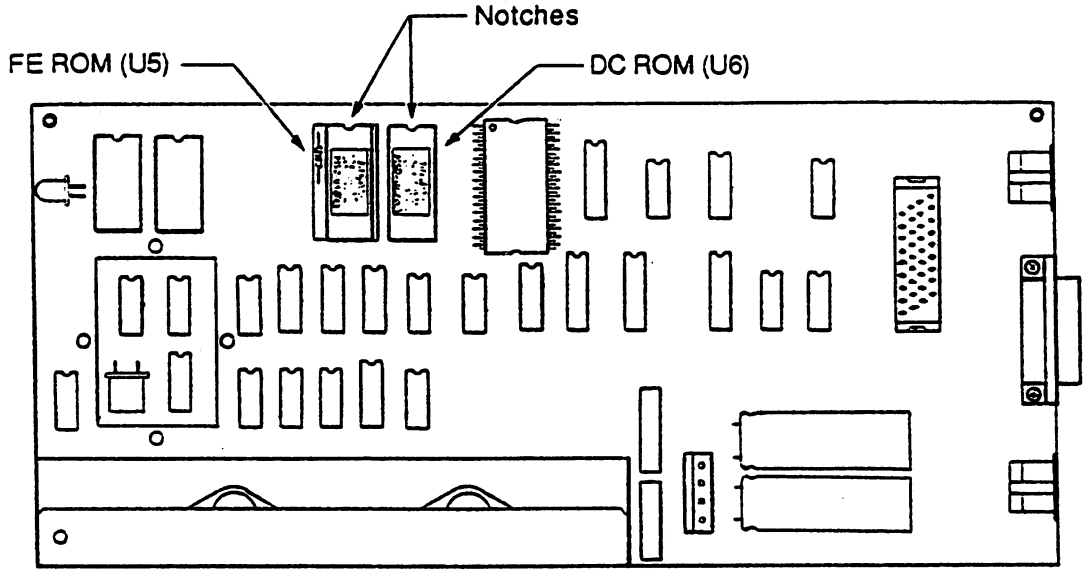

Figure 2 **MSD DOS ROM LOCATIONS**

8. Carefully remove each MSD DOS ROM from its socket using the IC extractor or small, flat-bladed screwdriver. Alternate lifting the ROM from each end, raising it from its socket a little at a time. If using a screwdriver, take care not to damage the circuit board or any of the circuit board components while prying.

9. Remove the JiffyDOS ROM marked **MSD-U6 (DC)** from its packing. This is the stand-alone ROM <u>without</u> the adapter board and switch assembly.

10. Inspect the JiffyDOS MSD ROM carefully. If you observe any bent pins, carefully straighten them with a pair of tweezers.

11. "Test fit" the JiffyDOS MSD-U6 (DC) ROM on top of the proper DOS ROM socket (U6). SEE FIGURE 2 ABOVE.

<u>VERY IMPORTANT</u>

MAKE SURE THAT THE NOTCH ON THE JIFFYDOS ROM IS FACING THE TOP OF THE DRIVE AS SHOWN IN FIGURE 2 ABOVE.

12. With all pins on the JiffyDOS ROM properly aligned with the socket, and with the ROM notch facing upward as shown in Figure 2, carefully press the ROM into the socket using finger pressure until it is fully seated.

13. Remove the JiffyDOS ROM marked **MSD-U5 (FE)** from its packing. This is the ROM which includes the adapter board and switch assembly.

14. Inspect the JiffyDOS MSD ROM carefully. If you observe any bent pins, carefully straighten them with a pair of tweezers.

15. "Test fit" the JiffyDOS MSD-U5 (FE) ROM on top of the proper DOS ROM socket (U5). SEE FIGURE 2 ON THE PREVIOUS PAGE.

VERY IMPORTANT

MAKE SURE THAT THE NOTCH ON THE JIFFYDOS ROM IS FACING THE TOP OF THE DRIVE AS SHOWN IN FIGURE 2 ON THE PREVIOUS PAGE.

16. With all pins on the JiffyDOS ROM properly aligned with the socket, and with the ROM notch facing upward as shown in Figure 2, carefully press the ROM into the socket using finger pressure until it is fully seated.

17. **Before proceeding, MAKE SURE that the JiffyDOS DC and FE ROMs are in the proper sockets and that the ROM notches face the top of the disk drive. REFER TO THE DIAGRAM IN FIGURE 2 ON THE PREVIOUS PAGE.**

18. Drill a 1/4" hole in the MSD case assembly to accomodate the JiffyDOS ROM selector switch. A recommended location is given in Figure 3 below.

    WHETHER YOU CHOOSE THIS LOCATION OR AN ALTERNATE ONE, MAKE ABSOLUTELY SURE THAT THE SWITCH IS POSITIONED SO THAT IT WILL NOT COME INTO CONTACT WITH ANY OF THE MSD'S INTERNAL COMPONENTS.

IMPORTANT

WHEN DRILLING, MAKE SURE THAT YOU DEVISE SOME METHOD TO KEEP THE METAL SHAVINGS OFF OF THE CIRCUIT BOARD AND OUT OF ANY PART OF THE DRIVE'S INTERNAL ASSEMBLIES.

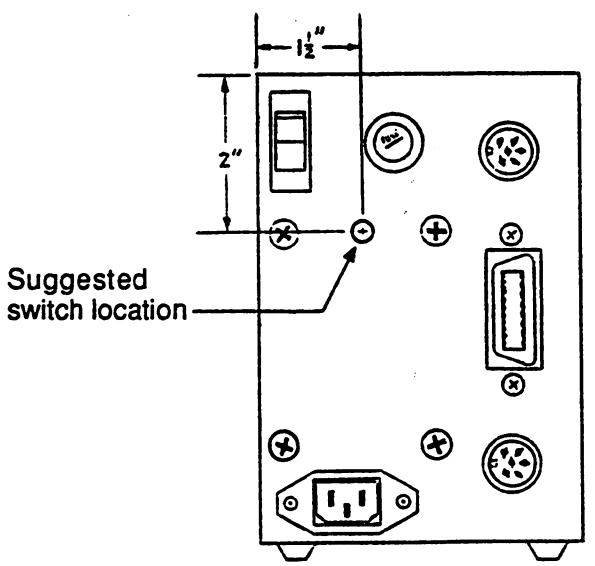

Figure 3 **SUGGESTED SWITCH LOCATION**

19. After drilling, clean the drive to make sure it is free of metal shavings.

20. Install the JiffyDOS Selector Switch into the hole just drilled in the MSD case assembly and secure it using the hardware provided with the switch. **Make sure that you secure the switch wire so that it will not interfere with any of the moving parts in the drive mechanism(s).**

21. Replace the MSD's cover and the six screws which hold the cover in place.

22. Reconnect the power cable to the rear of the MSD.

23. Plug the power cable into a working outlet.

24. Connect the serial bus cable between the MSD and your computer.

Installation Checkout Procedure:

NOTE: Some of the steps in the following MSD installation checkout procedure require the use of a JiffyDOS-equipped computer.

1. Switch the MSD ON. The activity light on the front of the drive should come on immediately as power is switched on, stay on for about one second, and then shut off as it normally does upon power-up.

   IF THE ACTIVITY LIGHT STAYS ON OR BLINKS REPEATEDLY, IMMEDIATELY SWITCH THE DRIVE OFF. THEN FOLLOW THE STEPS OUTLINED BELOW.

   1a. Recheck all cabling connections to the MSD. Make sure that the power supply and serial bus cables have been connected properly. **Make sure that the AC power cord has been plugged into a working outlet.** If any cabling errors have been made, correct the errors and try powering up the MSD again.

   1b. If the problem is not with the cabling, disassemble the MSD according to the procedure you used earlier. Remove the JiffyDOS ROM assemblies from their sockets and then reinstall them according to the procedure in Steps 10-17. **Make sure that the ROMs are in the correct sockets, that the notches are oriented correctly, that there are no bent pins, and that the ROMs are seated snugly.** Once the JiffyDOS ROM assemblies have been reinstalled and the drive has been reassembled, try powering up the MSD again.

   1c. If Steps 1a and 1b both fail, remove the JiffyDOS ROM assemblies and reinstall the stock MSD DOS ROMs. Follow the same procedure for installing the stock DOS ROMs as you did for installing the JiffyDOS ROM assemblies. Try powering up the MSD again. If it powers up properly, return your JiffyDOS MSD ROM assembly to Creative Micro Designs for replacement under warranty. If your disk drive does not power up properly, seek the assistance of a qualified technician.

2. Once the MSD has been powered up successfully, select JiffyDOS on your computer and then power it on (make sure that the power-on message on your computer indicates that JiffyDOS is active). Insert a known good diskette with a few programs on it into the MSD.

3. At your computer, type **@$** and **RETURN**. The activity light on the MSD should come on and a directory listing should appear on the screen. If you own an MSD SD-2 dual drive, you can read the directory of Drive 1 by entering **@$1** followed by **RETURN**.

IF THE DIRECTORY LISTING DOES NOT APPEAR, OR AN ERROR MESSAGE IS DISPLAYED, SHUT OFF THE MSD AND YOUR COMPUTER. FOLLOW THE TROUBLESHOOTING PROCEDURE OUTLINED BELOW.

3a. Make sure that JiffyDOS is selected on your computer. When JiffyDOS is selected, the power-on screen will display: **JIFFYDOS/64 VERSION x.x**, or **JIFFYDOS/128 VER. x.x**. If you did not have JiffyDOS switched in, select it now and try reading the disk directory again.

3b. Make sure that you have a known good disk in the MSD. Make sure that the disk is properly inserted in the drive.

3c. Recheck the serial bus cabling between your computer and disk drive. Correct any errors and try reading the directory again.

3d. If the problem persists, proceed with troubleshooting procedure 1b found on the previous page.

4. Test the operation of the MSD ROM selector switch. To do this, shut the MSD OFF, and then turn it back ON. **Make sure that your computer is in JiffyDOS mode.** Type **@** and **RETURN** on the keyboard (this will read and display the MSD status channel). Depending on the position of the ROM selector switch, one of the following messages will be displayed:

73,M.S.D./JDOS 5.0, 00, 00

73,M.S.D. DOS V2.3, 00, 00

Next, power off the MSD, select the alternate position on the ROM selector switch, and then power the MSD back on. Type **@** and **RETURN** on the keyboard. This time, the other message should be displayed.

IF YOU CANNOT GET BOTH MESSAGES TO BE DISPLAYED, FOLLOW THE INSTRUCTIONS BELOW:

4a. Toggle the selector switch back and forth several times to break through any oxidation on the switch contacts and repeat this step (Step 4) from the beginning.

4b. If exercising the switch does not work, disasssemble the MSD and check the the switch wire connections at the switch and at the ROM assembly for shorts or breaks. Repair any evident problems (resolder the connections, if necessary), reassemble the drive, and then repeat Step 4 again.

4c. If the problem persists, return the JiffyDOS MSD ROM assembly to Creative Micro Designs for replacement under warranty. Please be sure to include a note explaining the problem.

5. After the selector switch has been checked out, the MSD is ready to use. If there are any more peripherals to connect to your system, shut off the MSD and your computer, and connect them at this time.