Required Tools:

-   Phillips Screwdriver. Some C-128's may need a TORX ("star" point) driver (size T10), available at Sears, and other hardware and automotive stores.

-   IC extractor or small, flat-bladed screwdriver. Needed for removal of the stock Kernal ROMs on the C-128 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.

-   Drill (hand or power) - required if you wish to permanently install the ROM selector switch in the C-128 case assembly.

Procedure:

1. Make sure that the C-128 power switch is **OFF** and that any peripherals (printer, disk drives, etc.) attached to the C-128 are also switched **OFF**.

2. Unplug the C-128 AC power cord from its wall outlet, outlet strip, etc.

3. Unplug ALL cables from the C-128.

4. Remove any devices plugged into the Cartridge or User Ports.

5. Turn the C-128 upside-down. Remove the six screws holding the top and bottom halves of the computer together. See Figure 1 below.
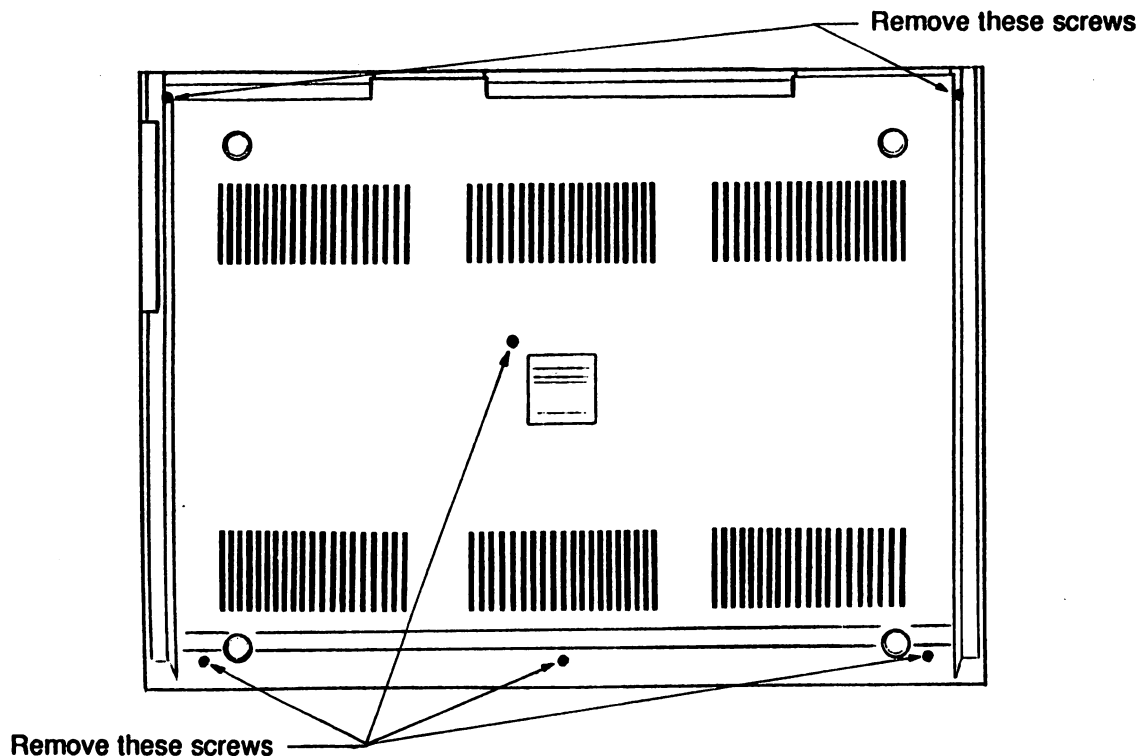

Figure 1 C-128 CASE SCREW REMOVAL

6. Turn the C-128 back over into its normal position. Separate the upper and lower case assemblies at the seam along the left side of the computer. Lift the left side of the keyboard assembly until it is tilted upward far enough for you to gain access to the inside of the computer.

7. Unplug the indicator light cable from the left side of the circuit board.

8. Unplug the keyboard cable from the C-128 circuit board and unfasten the keyboard ground strap. Place the keyboard off to one side. **Note:** The keyboard cable may be a snug fit and a little difficult to remove. If so, work it off carefully by alternately lifting each end of the connector.

9. Remove the screws securing the metal shield that covers the circuit board. Untwist the metal tabs around the perimeter of the shield. Remove the shield. **Note:** The shield may be soldered at a point along the right side of the circuit board. If so, you can: 1. Unsolder the shield 2. Break the solder joint by twisting the shield (no need to resolder later) 3. Leave the shield soldered in place and bend it out of your way off to the right.

10. Locate the 64 and 128-mode Kernal ROMs using the diagram in Figure 2. Remove both these ROMs from their sockets using the IC extractor or screwdriver. Lift the ROMs out by alternately prying each end upward a little at a time. If using a screwdriver, be careful not to damage the circuit board while prying. **For future reference, label the stock ROMs as they are removed.**
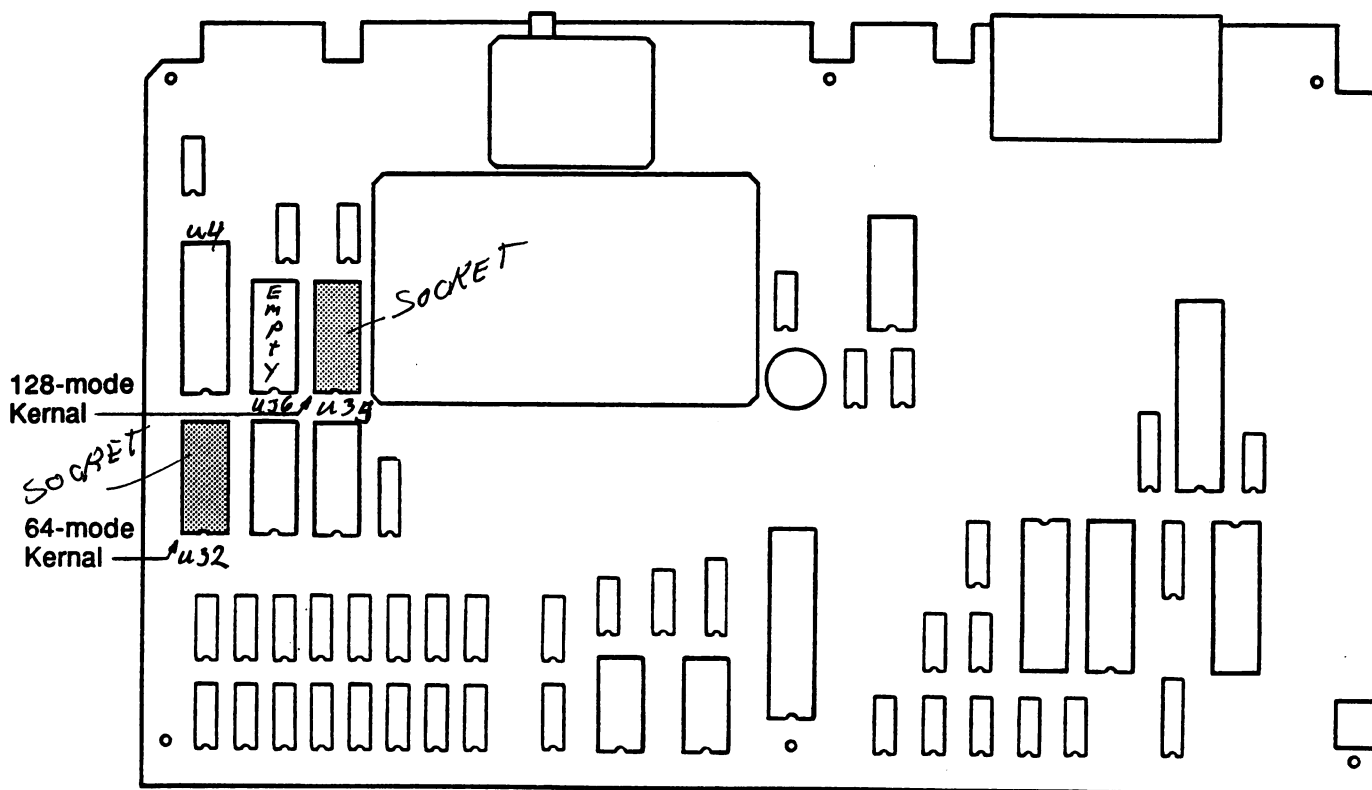

Figure 2 **LOCATION OF C-128 KERNAL ROMS**

11. Remove the JiffyDOS ROM assemblies marked **KERNAL-64** and **KERNAL-128** from their protective packing. Put the stock Kernal ROMs back into the packing for safe keeping. DO NOT DISCARD THE STOCK ROMS.

12. Inspect the JiffyDOS ROM adapter boards carefully. If you observe any severely bent pins, carefully straighten them with a pair of tweezers.

13. "Test fit" the KERNAL-64 and KERNAL-128 assemblies into their respective sockets on the C-128 circuit board (see Figure 3 below).

    Make sure that the KERNAL-64 and KERNAL-128 ROMs are in the correct sockets, and MAKE SURE THAT THE NOTCHES IN THE ROMS FACE THE FRONT OF THE COMPUTER AS SHOWN IN FIGURE 3 BELOW.
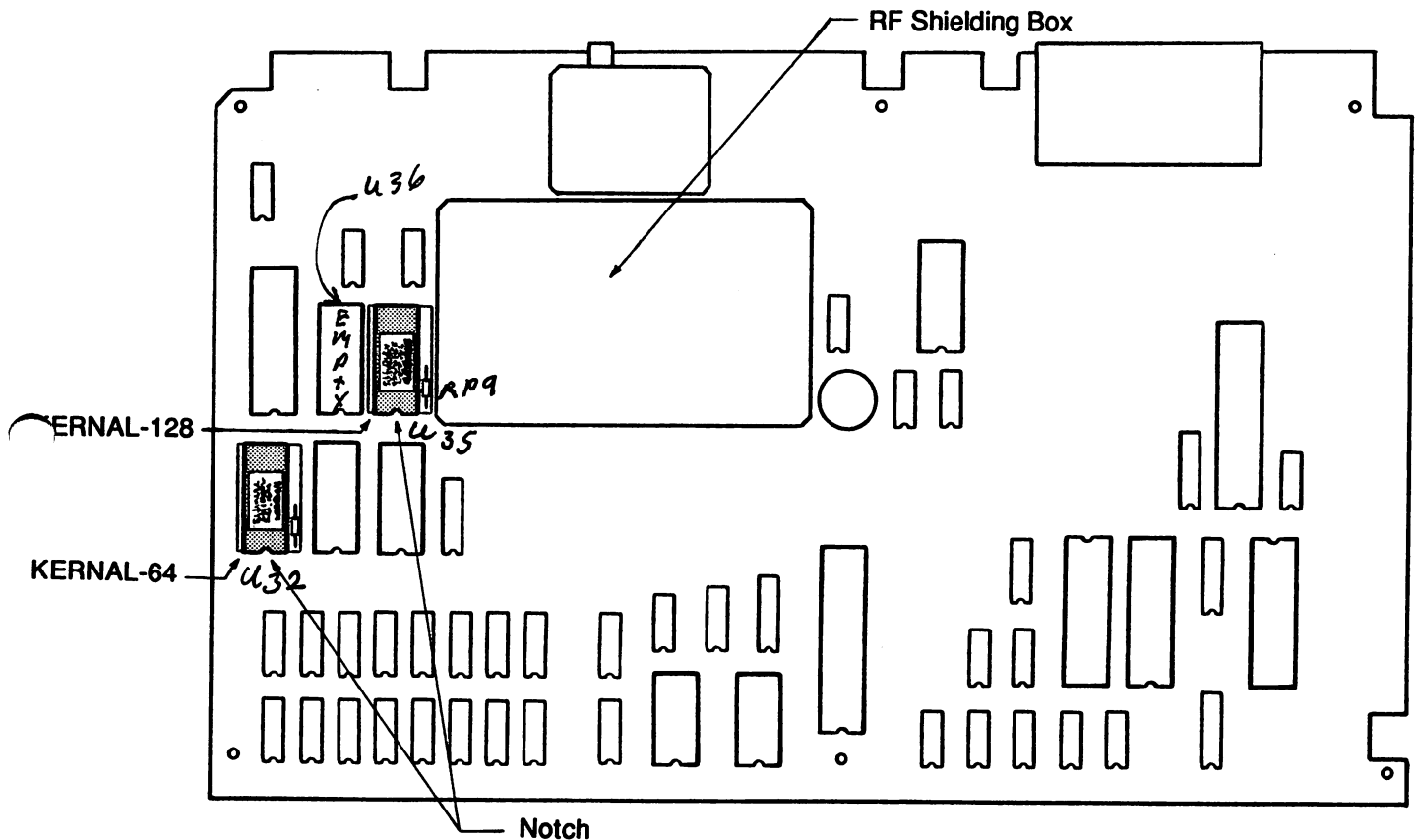

Figure 3 **JIFFYDOS KERNAL ROM LOCATIONS**

14. Make sure that all pins on the JiffyDOS ROM assemblies are aligned properly with the sockets.

    Again, make sure that the ROMs are in the proper locations and that THE NOTCHES IN THE ROMS FACE THE FRONT OF THE C-128 AS SHOWN ABOVE.

15. When the ROMs are correctly positioned, carefully press them into their sockets using firm pressure on top of the ROMs.

    MAKE SURE THE ROMS ARE SEATED EVENLY AND COMPLETELY IN THEIR SOCKETS.

16. Route the Kernal Selector Switch wiring out through an opening in the metal circuit board shield.

17. Replace the shield and secure it with the screws you removed earlier. Note: In order to provide clearance for the taller JiffyDOS ROM assemblies, bend the metal tabs which contact the ROMs upward. Note: Because of the height of the JiffyDOS ROMs, you may not be able to replace one of the screws along the left side of the shield (this will not affect operation or reliability).

IMPORTANT

DO NOT replace the single screw which secures the shield to the top of the RF Shielding Box shown in Figure 3 (leaving the screw out will not affect the operation or reliability of the C-128 in any way).

Replacing this screw with the JiffyDOS ROMs in place may lift the cover of the RF Shielding Box, making it unable to heatsink the two IC chips which are inside. LIFTING THE COVER ON THE RF SHIELDING BOX MAY CAUSE THE C-128 TO OPERATE ERRATICALLY.

18. Before continuing, MAKE SURE the cover on the RF Shielding Box (see Fig. 3) is pressed down firmly into place (see above).

19. Twist the small metal tabs around the perimeter of the circuit board shield back into place.

20. Drill a 1/4" hole in the lower case assembly of the computer for the Kernal Selector Switch. A suggested location for the switch is given below in Figure 4.

Before drilling, make sure that the switch will not interfere with any of the internal components of the C-128. Also, make sure that the switch will not interfere with any cartridges, cables, interfaces, or other devices which plug into or connect to your computer.
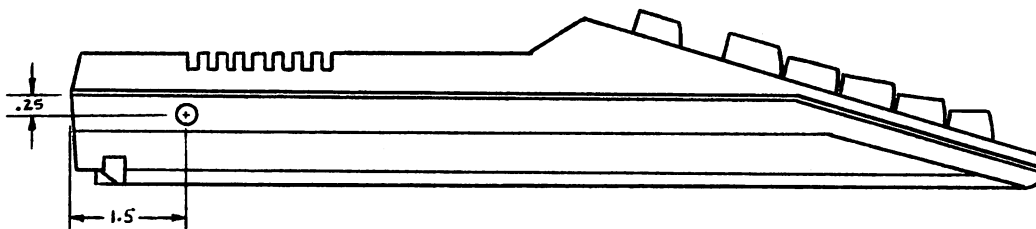

Figure 4 SUGGESTED SWITCH LOCATION

21. Install the Kernal Selector Switch into the hole just drilled in the case. Secure it with the hardware provided with the switch.

22. Replace the keyboard grounding strap and reconnect the keyboard cable to the circuit board.

23. Tilt the keyboard assembly back towards its normal position on top of the lower case assembly.

24. Reconnect the power-on indicator light cable to its connector on the C-128 circuit board. NOTE: Cable orientation (the position of the red and black wires) is not critical.

25. Fit the upper case/keyboard assembly into place on top of the lower case assembly. Turn the C-128 upside down and replace the six screws which hold the upper and lower halves of the case together.

26. Turn the C-128 back into an upright position. Replace the Power supply and video cables. **Remember to plug the power supply back into a working outlet.**

Installation Checkout Procedure:

1. Turn on your monitor or TV. Let it warm up.

2. Switch the C-128 ON. The normal C-128 power-up screen should appear. If the JiffyDOS Kernal is selected, the line ***** JIFFYDOS/128 V5.0 ***** will appear in addition to the usual display.

   IF THE SCREEN REMAINS BLANK AFTER YOUR COMPUTER IS POWERED ON, IMMEDIATELY SWITCH POWER OFF. FOLLOW THE TROUBLESHOOTING STEPS OUTLINED BELOW:

   1a. Recheck all connections you have made to the computer. Make sure that the power supply cable and video cable have been properly connected. **Make sure the power supply has been plugged into a working outlet.** If any cabling errors have been made, correct the errors and try powering up the C-128 again.

   1b. If the problem is not with the cabling, power down the C-128, remove all cables, and open up the C-128 case according to the procedure used earlier. Remove the KERNAL-128 and KERNAL-64 from their sockets and then reinstall them following Steps 12-15. **Make sure that the ROM notches are oriented correctly, that there are no bent pins, and that the ROM is seated snugly in its socket.** Once the JiffyDOS ROMs have been reinstalled, and the C-128 has been reassembled, try powering up the computer again.

   1c. If Steps 1a and 1b both fail, remove the JiffyDOS ROMs and reinstall the stock Kernal ROMs. Install the stock ROMs by following the same procedures you used when installing the JiffyDOS ROMs. Make sure that the notches on the stock ROMs are oriented correctly (toward the FRONT of the computer). Try powering up the C-128 again. If the computer powers up properly, return the JiffyDOS Kernal ROMs to Creative Micro Designs for replacement under warranty. If your computer does not power up properly with the stock ROMs installed, seek the assistance of a qualified technician.

2. Power the C-128 up in 64 mode (hold down the Commodore key while turning power on).

   IF THE SCREEN REMAINS BLANK IN 64 MODE, IMMEDIATELY SWITCH POWER OFF AND PROCEED WITH TROUBLESHOOTING STEP 1B ABOVE.

3. Test the operation of the Kernal Selector Switch.

   128 Mode:

   a. Turn the C-128 OFF, and then back ON again. The power up screen should display the normal information. If the selector switch is in the JiffyDOS position, the last line of the power-up message will read:

      *** JIFFYDOS/128 Vx.x ***

   b. Turn the C-128 OFF again, and then place the selector switch in its other position. Power up the C-128. The alternate screen should be displayed.

   64 Mode:

   a. Turn the C-128 OFF, and then back ON while holding down the Commodore key. You should see either the normal 64-mode Commodore BASIC screen or the JiffyDOS screen, depending on the current setting of the selector switch. If JiffyDOS is selected, the power-on screen will read:

      *** JIFFYDOS/64 VERSION x.x ***

   b. Turn the C-128 OFF, and then place the selector switch in its other position. Power up the C-128 again while holding down the Commodore key. The alternate screen should be displayed.

   IF YOU CANNOT GET BOTH SCREENS TO BE DISPLAYED IN 64 AND/OR 128 MODES:

   a. Turn off the C-128 and toggle the Kernal Selector Switch back and forth several times (to break through any oxidation on the switch contacts) and then try the switch test again.

   b. If exercising the switch does not work, disassemble the C-128 and check the switch wire connections at the switch and at the KERNAL-64 and KERNAL-128 ROM assemblies. Repair any evident problems (shorted or broken wires). Resolder the connections, if necessary.

   c. If the problem persists, return the JiffyDOS KERNAL-64 and KERNAL-128 ROM assemblies to Creative Micro Designs for replacement under warranty. Please be sure to include a note explaining your problem.

4. Once the selector switch has been checked out, the C-128 is ready to use. If there are any more peripherals to connect to your system, shut the C-128 off, and connect them at this time.