

C-64 INSTALLATION

Required Tools:

- Phillips Screwdriver. Note: Some C-64's may need a TORX ("star" head) 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 ROM. An IC extractor is recommended, but not necessary (the small screwdriver will suffice). 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 Kernal ROM selector switch in the C-64 case assembly.

Procedure:

64"C" OWNERS: The 64"C" is slightly different in design than older C-64's, and requires some special steps during disassembly and reassembly. In the procedure that follows, the additional steps required for the 64"C" are enclosed in boxes.

1. Make sure that the C-64 power switch is OFF and that any peripherals (printer, disk drives, etc.) attached to the C-64 are also switched OFF.
2. Unplug the C-64 power supply cord from its wall outlet, outlet strip, etc.
3. Unplug ALL cables from the C-64.
4. Remove any devices plugged into the Cartridge, Cassette or User Ports.
5. Turn the C-64 upside-down. Remove the three screws holding the top and bottom halves of the computer together. See Figure 1 below.

64"C" ONLY: The 64"C" case differs slightly from the one shown below. However, it does have the same three screws holding the top and bottom halves of the enclosure together.

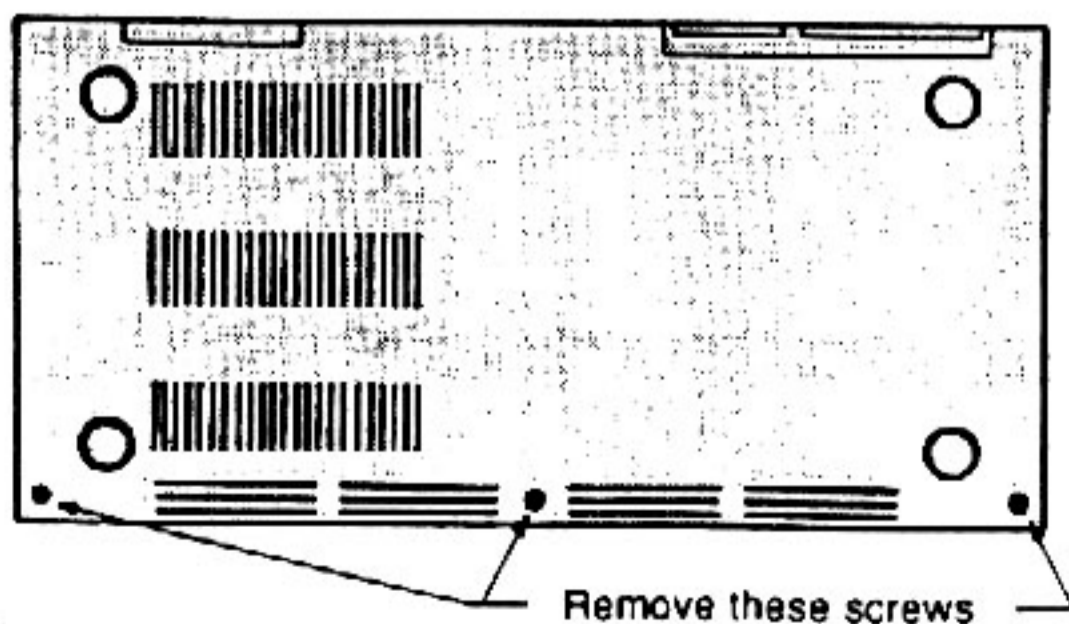


Figure 1 C-64 CASE SCREW REMOVAL

6. Turn the C-64 back into its normal position. Separate the upper and lower case assemblies at the seam along the front of the computer, and carefully lift just the the front edge of the upper case assembly. Continue to lift until you gain access to the inside of the computer.
7. Unplug the keyboard cable from its connector on the C-64 circuit board. The 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 .

64"C" ONLY: Detach the keyboard from the lower case assembly by removing its retaining screws and sliding it out from under the plastic tabs at the front of the case. Place the keyboard carefully to one side.

8. Remove the power-on indicator light cable from its connector on the right side of the circuit board and then remove the upper case assembly. Be careful of the plastic tabs at the rear of the upper case assembly which slip into retaining slots in the lower case assembly.
9. Some 64's have a cardboard/foil or metal shield covering most of the circuit board components. If your computer has one of these shields, remove it at this time. The shield is held in place by self-tapping screws.
10. Locate the Kernel ROM using the diagrams shown in Figure 2 below (the Kernel ROM is the shaded IC). Note that there are four basic types of C-64 circuit boards: The "old board" present in the early 64's; a newer, slightly redesigned version; the old 64"C" board; and the new 64"C" V4 board.

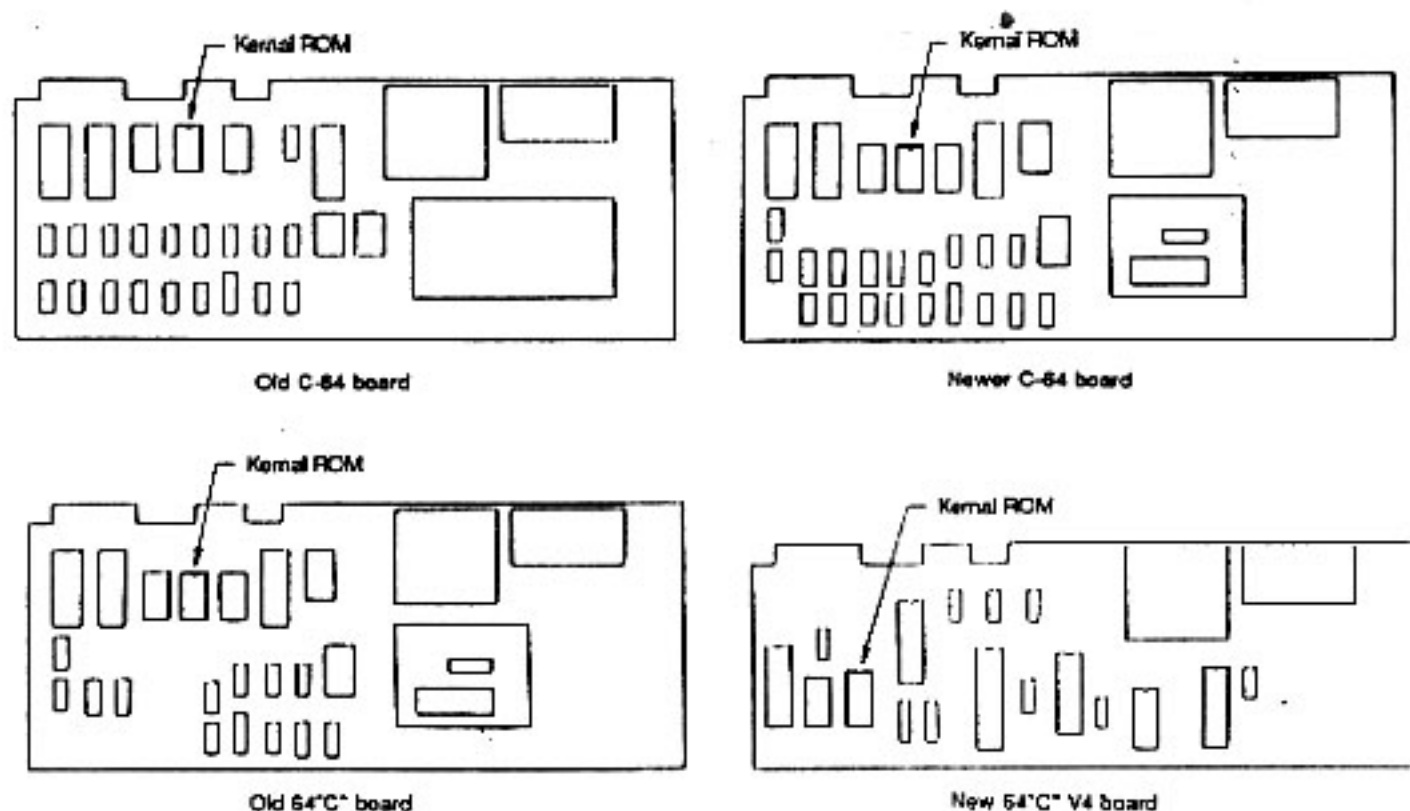


Figure 2 KERNAL ROM LOCATION

11. After the Kernal ROM has been located, check to see whether it is socketed or soldered directly to the circuit board.

If you have a socketed Kernal ROM:

Remove the Kernal ROM carefully from its socket using the IC extractor or small, flat-bladed screwdriver. Alternate prying the ROM from the front and back, raising it from its socket a little at a time. If using a screwdriver, take care not to damage the circuit board while prying. When the Kernal ROM has been removed, proceed to step 12.

If you have a soldered-in Kernal ROM:

The stock Kernal ROM must be unsoldered and replaced with a low-profile IC socket before the JiffyDOS Kernal can be installed. Unsoldering the ROM requires removal of the circuit board, the right tools, and a fair amount of expertise. **UNLESS YOU HAVE EXPERIENCE, DO NOT ATTEMPT TO UNSOLDER THE KERNAL ROM YOURSELF - REFER THE JOB TO A QUALIFIED TECHNICIAN.**

Low-profile IC sockets can be easily obtained at Radio Shack Stores. (Note: all circuit boards except the new 64"C" V4 board require 24-pin IC sockets. The V4 board requires a 28-pin IC socket). After the stock Kernal ROM has been unsoldered and replaced with the IC socket, proceed to step 12.

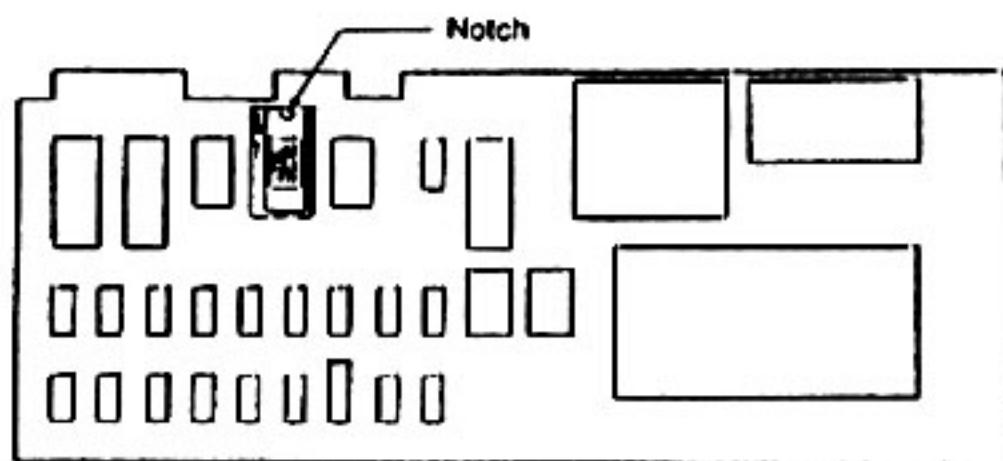
12. Remove the JiffyDOS ROM/Adapter Board labeled "KERNAL" from its protective packing. Put the stock Kernal ROM into the packing for safe keeping. **DO NOT DISCARD THE STOCK KERNAL ROM.**

64"C" OWNERS: The new "V4" circuit boards (see Figure 2) require a special JiffyDOS Kernal ROM. The JiffyDOS ROM for the older C-64 and 64"C" boards cannot be installed in the V4 board. The JiffyDOS Adapter Board for the V4 has 28 pins and is marked "KERNAL-64". The JiffyDOS Adapter for the older boards has 24 pins and is marked "KERNAL". If you have the incorrect JiffyDOS ROM, please return it to Creative Micro Designs with a note explaining your situation. Upon receipt of the ROM, we will send you the correct JiffyDOS Kernal ROM free of charge.

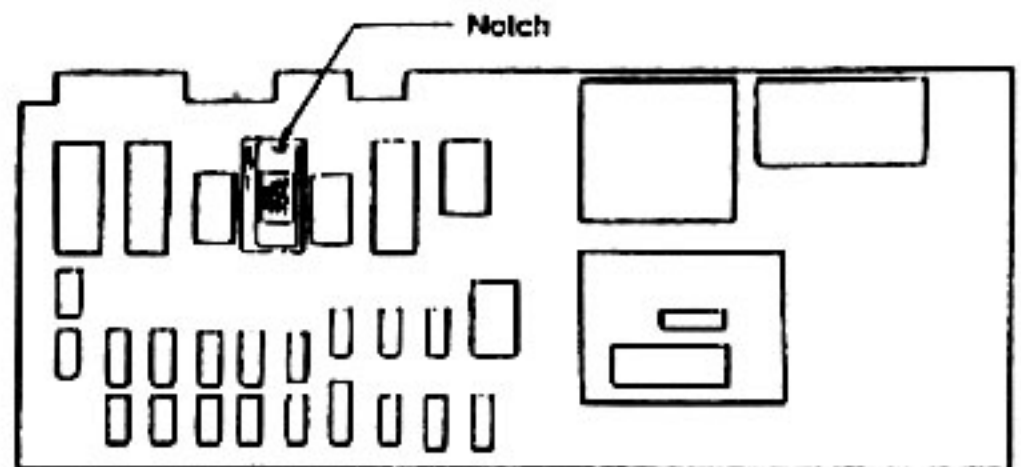
13. Inspect the JiffyDOS ROM/Adapter Board carefully. If you observe any severely bent pins, carefully straighten them with a pair of tweezers.
14. "Test fit" the Kernal ROM/Adapter Board by placing it on top of the empty Kernal ROM socket but **DO NOT PRESS IT INTO PLACE YET.**

IMPORTANT

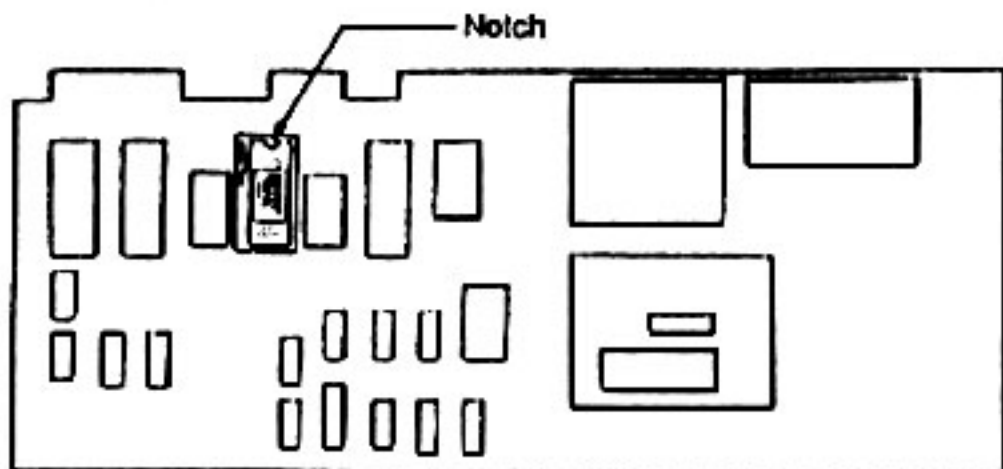
Make sure that the notch in the JiffyDOS/64 Kernal ROM is oriented towards the rear of your computer as shown on the next page in Figure 3.



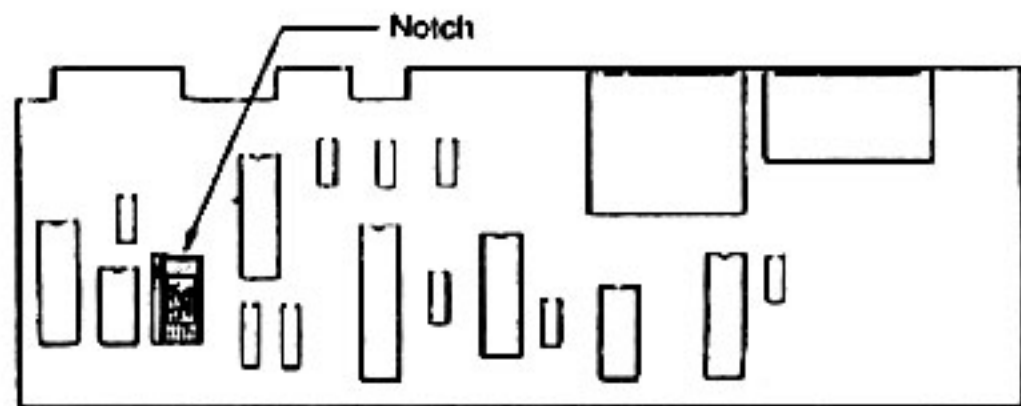
Old C-64 board



Newer C-64 board



Old 64C* board



New 64C* V4 board

Figure 3 KERNAL ROM NOTCH ORIENTATION

15. Make sure that each pin on the JiffyDOS Kernal ROM Adapter is aligned over its proper hole in the socket (straighten any misaligned pins with a pair of tweezers). Also make sure that the wiring for the Kernal selector switch clear of the pins on the adapter.
16. With the pins properly aligned and with the Kernal ROM notch oriented towards the rear of the computer, carefully press the Kernal ROM/Adapter Board into the socket using firm finger pressure on top of the ROM until it is fully seated in the socket.
17. Make sure the Kernal ROM Adapter Board assembly is seated evenly and completely in its socket. Make sure that no pins have been bent. Again, make sure that the notch on the JiffyDOS Kernal ROM is facing the rear of the computer.
18. If your computer has a cardboard/foil or metal shield which covers the circuit board, replace it at this time. On metal shields, make sure that you route the Kernal Selector Switch and its wiring safely out through the shield. Also note that it will be necessary to bend the shielding tab which contacts the Kernal ROM upward in order to provide clearance for the taller JiffyDOS/64 Kernal ROM/Adapter assembly.

19. Drill a 1/4" hole in the lower case assembly of the computer to accommodate the Kernal Selector Switch. A suggested location 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-64, or with any cartridges, cables, interfaces, or other devices which plug into or connect to your computer.

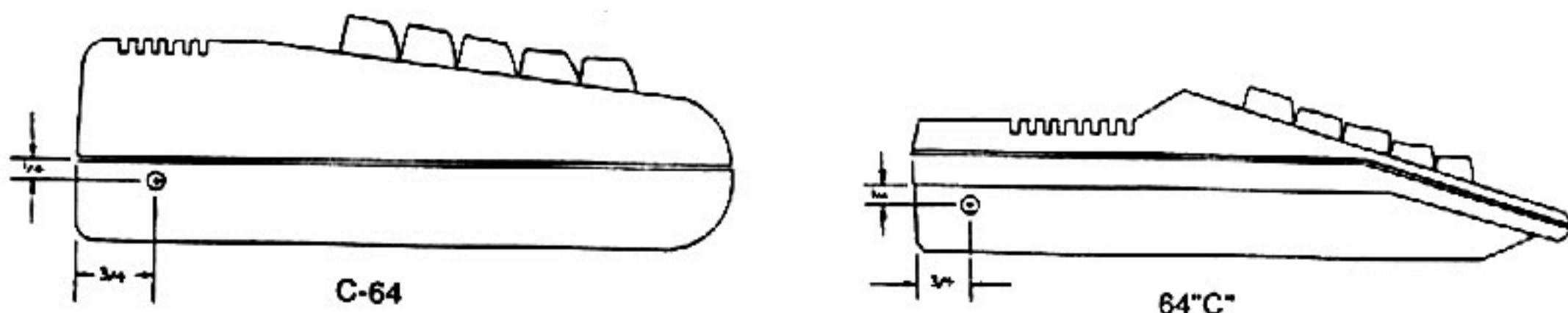


Figure 4 SUGGESTED SWITCH LOCATIONS

20. Install the Kernal Selector Switch into the hole just drilled in the case. Secure it with the hardware provided with the switch.
21. Take the upper case assembly and rest it in a tilted-back position on the lower case assembly. Make sure that the tabs at the rear of the upper case assembly fit properly into their notches in the lower case assembly.
22. Reconnect the power-on indicator light cable to the circuit board. Make sure it mounts properly over the pins protruding from the circuit board. NOTE: Cable orientation (position of the red and black wires) is not critical.

64" ONLY: Reinstall the keyboard in the lower case assembly. Make sure that the front edge of the keyboard seats properly under the plastic tabs at the front of the lower case assembly, and then replace the keyboard mounting screws.

23. Reconnect the keyboard cable to its connector on the C-64 circuit board. The cable connector is "keyed". Make sure that the "key" on the connector (the position with no hole) lines up properly with the missing pin on the circuit board header.
24. Once the cables have been reinstalled, tilt the upper case assembly back down into place on the lower case assembly. Turn the C-64 over onto its keyboard and replace the three screws removed in Step 5.
25. Place the C-64 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-64 ON. The power-up message should appear as it normally does after a second or two.

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

- 2a. Recheck all connections to the computer. Make sure the power supply cable and video cable are properly connected. Make sure the power supply is plugged into a working outlet. If any cabling errors have been made, correct the errors and try powering up the C-64 again.
 - 2b. If the problem is not with the cabling, power down the C-64, remove all cables, and open up the C-64 case according to the procedure used earlier. Remove the JiffyDOS Kernal ROM from its socket and then reinstall it following Steps 13-17. Make sure that the ROM notch is oriented correctly, that there are no bent pins, and that the ROM is seated snugly in its socket. Once the ROM has been reinstalled, and the C-64 has been reassembled, try powering up the computer again.
 - 2c. If Steps 2a and 2b both fail, remove the JiffyDOS Kernal ROM and reinstall the stock Kernal ROM. Install the stock ROM by following the same procedure you used when installing the JiffyDOS ROM. Make sure the ROM notch is facing the REAR of the computer. Try powering up the C-64 again. If the computer powers up properly, return the JiffyDOS Kernal ROM to Creative Micro Designs for replacement under warranty. If your computer does not power up properly with the stock ROM in place, seek the assistance of a qualified technician.
3. Test the JiffyDOS Kernal Selector Switch. Turn the C-64 OFF, and then back ON again. If the selector switch is in the JiffyDOS position, the power-up message will read ***** JIFFYDOS/64 VERSION 5.0 *****.

Turn the C-64 OFF, and then place the selector switch in the other position. Power up the C-64. The alternate screen should be displayed.

IF YOU CANNOT GET BOTH SCREENS TO BE DISPLAYED:

- 3a. Turn off the C-64 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.
 - 3b. If exercising the switch does not work, disassemble the C-64 and check the switch wire connections at the switch and at the Kernal ROM. Repair any evident problems (shorted or broken wires). Resolder the connections, if necessary.
 - 3c. If the problem persists, return the JiffyDOS Kernal ROM assembly 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-64 is ready to use. If there are any more peripherals to connect to your system, shut the C-64 off, and connect them at this time.