

# **SCRG**

**SOUTHERN CALIFORNIA RESEARCH GROUP**

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## **SWITCH-A-SLOT**

### **Instructions**

## INSTALLATION AND USE

- 1) Unpack the unit, taking care not to unduly flex the cable.
- 2) Set it to the right of the computer.
- 3) Make SURE the power to the computer is OFF.
- 4) Take the loose end of the cable, and put it inside the computer. Apple //e users, you may insert the cable through one of the two larger sized openings in the rear. Do not attempt to use the smallest size. Gather the cable tightly around the small circuit board, and carefully push the connector through (as shown in figure 1). Avoid shearing the cable as you push it through.
- 5) Remove the protective cover from the gold "fingers". Do not touch them, as the grease and oils from your hand may result in erratic operation. The "fingers" may be cleaned, if necessary, using any non-abrasive cleaner.
- 6) Insert the gold "fingers" firmly and completely into the peripheral connector of your choice. DO NOT attempt to plug the board in backwards. It will not fit. See figure two to see how it should look.
- 7) With the power to the computer still off, insert up to four peripheral cards into the SWITCH-A-SLOT. Note that there is an indicator light on the circuit board. If the light is on, there is power applied, and you MUST NOT insert or remove cards. Severe damage may result.
- 8) Write the slot number that the SWITCH-A-SLOT is plugged into, in the space provided on the front panel. You may also write a note reminding you of which card is in which slot. ("A" is the left-most slot, "D" is on the right). You may write using a pencil, as the surface will not be damaged by erasers. If you use pencil, be sure not to get any pencil dust on electronic equipment or discs. You may also use a felt tip pen. For removal, this will have to be cleaned up with a solvent (such as acetone), followed by a wipe with a towel or rag moistened with bleach.
- 9) While we have had no problems in extensive testing, we cannot recommend that the switch be turned while the power is on. If you feel that you must switch with power on, please be aware of the following: If you switch to a card with a fairly large capacitor, the capacitor acts as a short-circuit for several milliseconds while it is charging. Thus, memory chips may be deprived of operating voltage for just long enough to change or lose contents. This MAY show up as random characters on the screen, the computer "locking up", or even no obvious problems. For this reason, it is urgent that tests be run FIRST with non-valuable disks and data before depending on such operation. Also, it is possible (but not likely) that damage may occur to the peripheral and/or the computer.

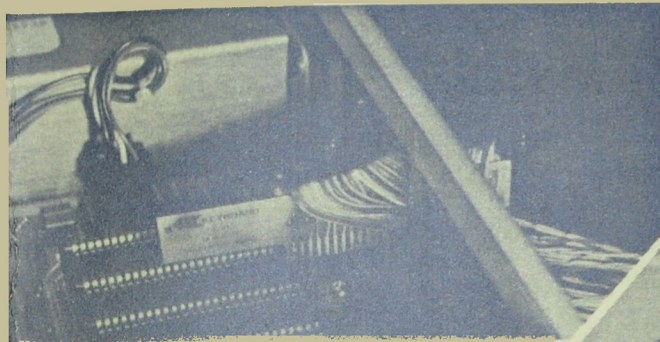


FIGURE ONE

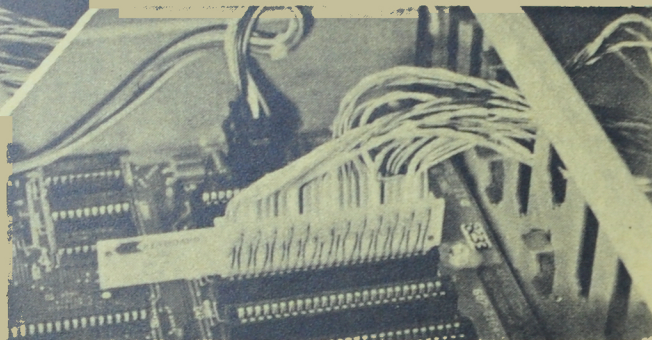


FIGURE TWO

#### TERMINATION RESISTORS

The SWITCH-A-SLOT has sockets installed, which allows the user to change termination resistors as needed.

Termination resistors are usually necessary whenever signals have to travel long distances. The length of the SWITCH-A-SLOT cable is a considerable distance for the signal to travel. The resistors aid by cutting down on reflections, and placing a load on otherwise open lines. The value of the resistors included with the SWITCH-A-SLOT (1,000 ohms) has been empirically chosen to maximize the chances of good operation under most conditions. It may be necessary to change the value of, or even remove, the resistors, depending on your particular system and needs.

The resistor networks used have ten pins and nine resistors. The networks have a dot or line at one end. This is the "common" end; i.e. this lead goes to each resistor. Between slots "B" and "C", there is a 20 pin socket. The dot or line on the resistor goes to the front of the board. There are two 20 pin sockets between slots "C" and "D". Pin one of the front set of resistors goes to the front, and pin one to the rear resistors goes to the rear. There is a white dot on the SWITCH-A-SLOT board showing where pin one goes. Removing a resistor network is most easily done with a "long-nosed" pliers.

In addition, there is a four position slide switch at the back of the board between slots "B" and "C". This switch was shipped with all four switches in the "UP, or "ON" position. This actively terminates the resistors to +5 volts and ground. This also increases the current used by the SWITCH-A-SLOT. Moving the switches to the "OFF" position will cause the SWITCH-A-SLOT to use less power, but will remove the resistors from +5 and ground. Feel free to experiment, and see which gives the better response.

## NOTE FOR APPLE ][ or ][+ USERS

Several of our customers have found that their computer (with SWITCH-A-SLOT installed) works better if the three 8T97 chips (located just to the left of the 6502) are replaced with 74LS367. If you wish to try this change, and cannot obtain these chips locally, please contact us, and we will send them at no charge. Of course, we cannot accept responsibility for any damage that might occur if you try this change. The most important thing to note is that pin one of these chips goes to the FRONT of the computer.

## POSSIBLE PROBLEMS

Most slow to medium-speed cards will operate in the SWITCH-A-SLOT without problems. High-speed cards (Such as memory cards, disk drive controllers, and alternate processers) are not likely to work, due to the degradation of signal caused by the length of the SWITCH-A-SLOT cable. Problems caused by cable length include propagation delay (unavoidable, due to the speed of light being one of the only absolutes in the universe), crosstalk, capacitive coupling, etc. Most cards are able to withstand the loss of signal quality. Some cards, however, are "fussier" than others. Peripheral cards are supposed to be digital in nature. The high speed at which they operate actually cause the circuit to have a strong analog component. Normal component tolerances will cause unit-to-unit differences, even among "exact" duplicates of cards. Thus, the SWITCH-A-SLOT may work for one person, but not another who has exactly the same set-up. This is not to say that the card or computer is defective, just different.

## TRIAL PERIOD

As it is impossible to know in advance whether or not the SWITCH-A-SLOT will work in a particular operating environment, SOUTHERN CALIFORNIA RESEARCH GROUP offers a ten-day trial period, where the user can see if the unit will function as required. If you have bought the unit directly from us, give us a call if you find that you have to return the unit within the trial period. As federal law prohibits us from requiring dealers to have a specific policy, check with your dealer (if you bought this unit from a dealer) for their policy.

## WARRANTY

After the trial period, we warranty the SWITCH-A-SLOT to be free of defects in workmanship and materials for a period of six months. For service, return the unit postpaid to the below address, and we will repair or replace the unit if it found to be defective.

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