

Soft ROM Switch

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SUMMARY:

The use and capability of the SOFT ROM device is given.

The construction and installation of a simple switch for THE SOFT ROM is described.

This allows the user with ONE SOFT ROM to have full control of the 2 expansion read-only addresses at \$9000 and \$A000.

CURRENT FIRMWARE FOR THE PET:

A good review on this subject was given by F. Arthur Cochrane in **COMPUTE**. His paper was titled **ROM EXPANSION FOR THE COMMODORE PET** and can be found in Issue 11, April 1981 on page 130.

THE SOFT ROM:

This device was developed by Bill McClean and his group at BMB Compuscience, Milton Ontario, Canada.

The SOFT ROM when installed (simple to do) at either address (\$9000 or \$A000) allows you to WRITE as well as READ to the memory at the installation address. This can be done by using the Machine Language Monitor, or by LOADING from disk or tape. You can also change the memory from BASIC with a POKE statement (ex. 'POKE(9*4096),A' where A can be any number 0 to 255.

You can set the SOFT ROM for WRITING only, READING only or in a READ/WRITE mode by the SOFT ROM SWITCH (not to be confused by an additional switch which is the subject of this article.)

The major use of the SOFT ROM is to simplify the problems of the competing ROMS for the expansion addresses.

Visicalc, Waterloo BASIC, Jinsam, etc. protections ROMS occupy locatio \$9000

WordPro 3, Kram, SuperKram, etc. protections ROMS occupy loaction \$A000.

One can now dispense with the ROMS by: (1) READ each Protection ROM by SAVING to the disk with the Machine Language Monitor. (2) Install permanently the SOFT ROM (not soldered in however, -ed.) Then LOAD back into the SOFT ROM the appropriate, previously saved Protection ROM. (Ex. WordPro 3 ROM information when using WordPro 3 etc.).

This facility clearly creates problems for those using ROMS at the expansion memory addresses as a means of protecting their programs. On the other

hand it solves problems for the users who have to resort to devices that allow for multiple ROM switching. It also allows them to have a REAL BACKUP for the total program. If you have placed and removed ROMS repeatedly you will know that it is not too difficult to damage one of the ROM pins in the process. The other use of the SOFT ROM is in the development of a Program to be located at the expansion memory address. Once you have established that the program is bug free you can 'burn in' an EPROM.

SWITCH FOR THE SOFT ROM:

The purpose of this switching method is to allow you to mechanically switch ONE SOFT ROM device to function at address \$9000 or \$A000 without removing it from the socket.

This is accomplished by having a complete pathway from either SEL 9 or SEL A on the circuit board to pin position 20 on the SOFT ROM. Ex. (If SELECT 9 path is complete to the pin on the SOFT ROM, corresponding to PIN 20 at address \$9000, then the SOFT ROM will function as described for address \$9000). The same thinking applies to address \$A000.

The method described allows you to accomplish the above simply and **requires no alteration** (such as interrupting the SELECT LINES and hooking them to a switch) **of your PET circuit board.**

The interruption of the SELECT LINES is done instead on a 24 pin ROM socket holder that can be purchased cheaply at Radio Shack.

PREPARATION:

1. Prepare the cable wire as shown in FIG.4. Connect the center wire to the Minitest clip.

2. Prepare and TEST the DIP ROM SOCKET before removing pin 20.

Possible Problems: The ROM sockets until I touched up the pin tips of the Radio Shack ROM socket holder with very little solder. You can check out its performance before removing PIN 20 by placing it in the PET socket and then installing the SOFT ROM into the newly installed ROM socket. The SOFT ROM should work as well as it did when it was installed without the intervening ROM socket.

Having established proper connection of the ROM socket holder remove pin 20.

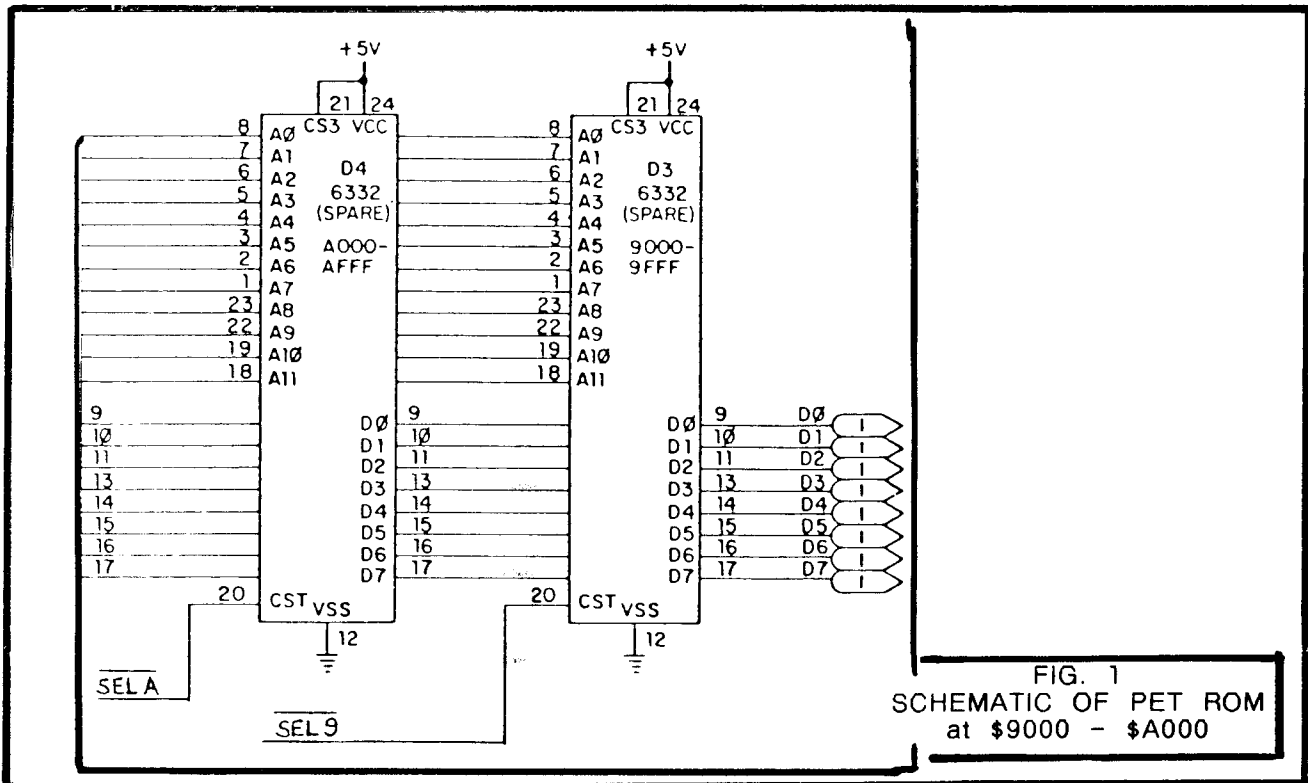
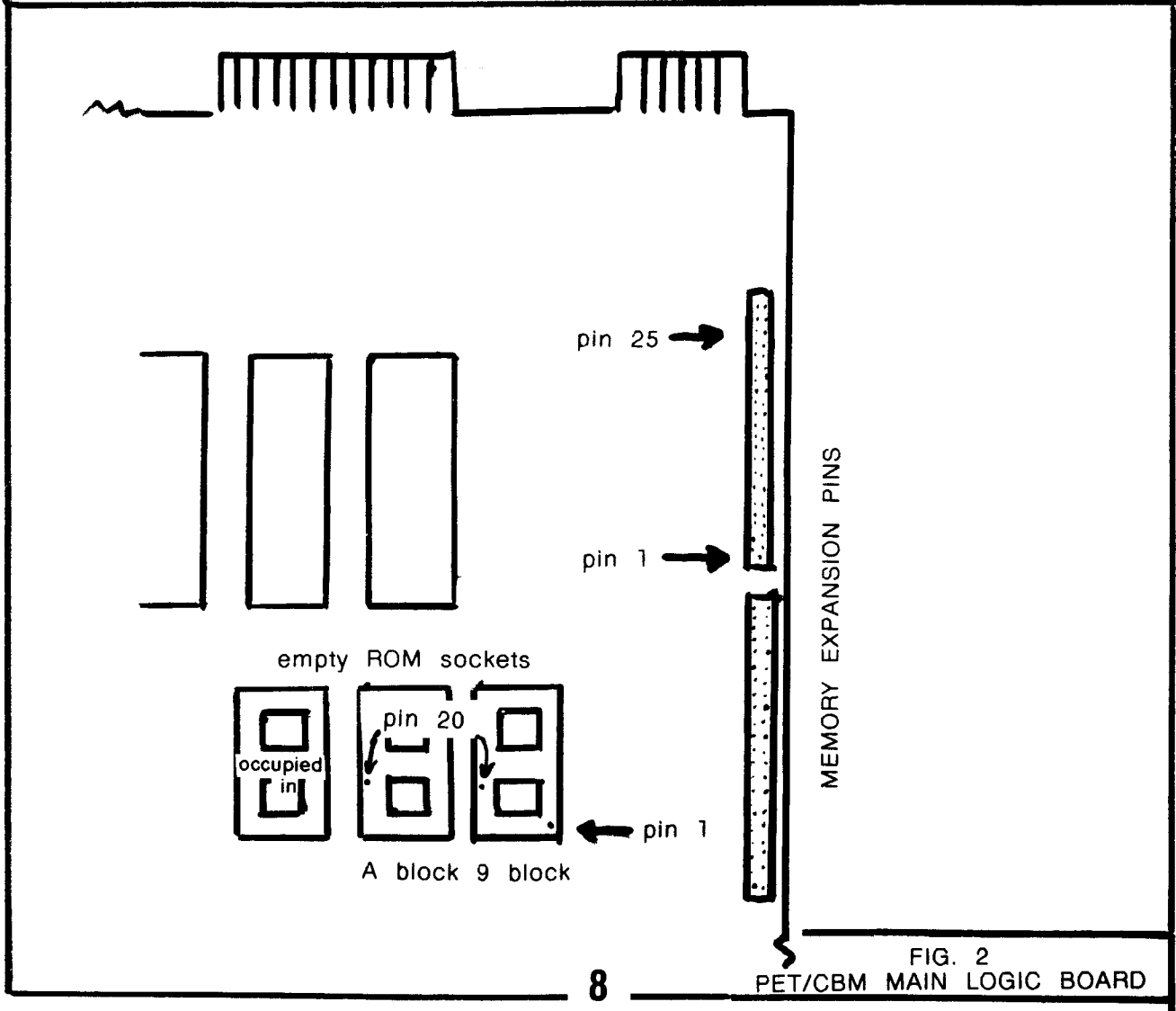


FIG. 1
SCHEMATIC OF PET ROM
at \$9000 - \$A000



LOW-PROFILE DIP SOCKET
Type 24-Pin Cat. No. 276-1989

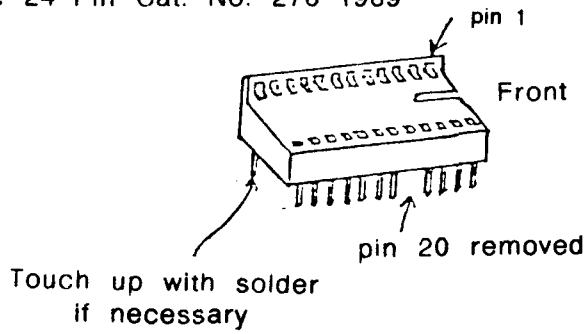


FIG. 3
PREPARATION OF DIP SOCKET

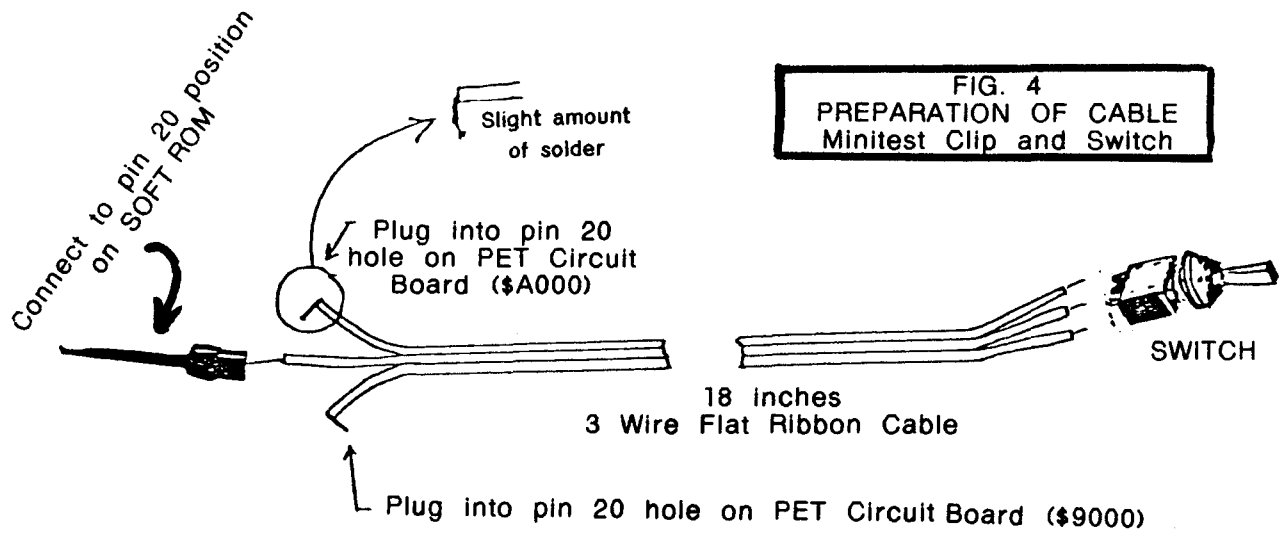
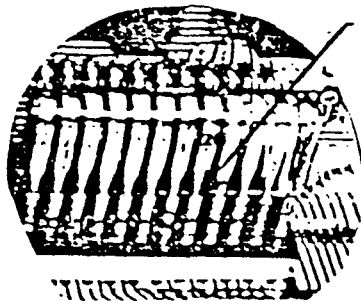


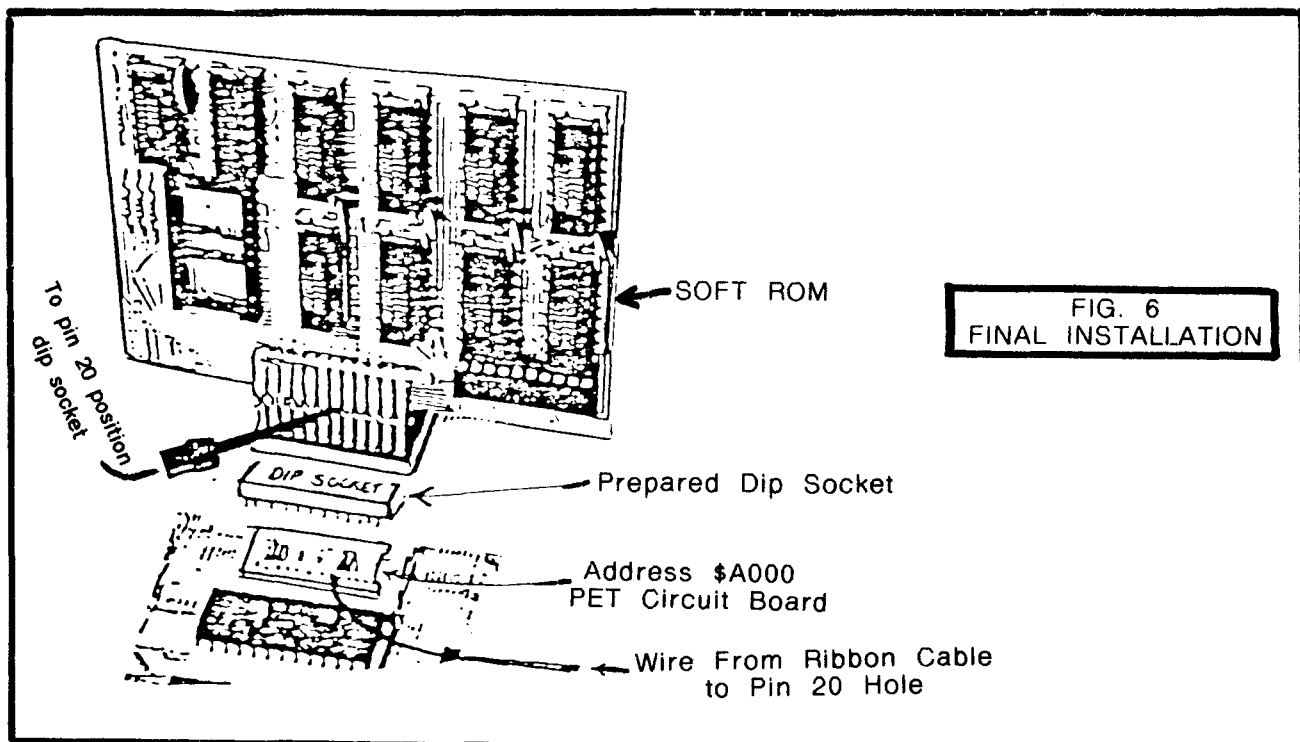
FIG. 4
PREPARATION OF CABLE
Minitest Clip and Switch



Scrape Off Small Amount of Insulation (to allow minitest clip connection)

Pin 20 wire
SOFT ROM

FIG. 5
PREPARATION FOR TEST CLIP CONNECTION



3. Mount the SPDT switch onto some holder that can be stuck to the side of the PET as was done for the switch which comes with the SOFT ROM. I used a plastic self-stick hook holder that is made for putting on doors. The plastic holder was drilled and cut so that the SPDT switch could be mounted onto it? Solder one wire to one of the outer lugs and the remaining wire to the remaining switch lug. The switch should function so as to have a complete path from the center lug to one outer lug at a time, depending upon the position of the switch lever.

OPERATION:

The SOFT ROM will operate properly at address \$9000 or \$A000 depending upon the position of the toggle switch lever. You can put a label on the switch to let you know which lever position corresponds to which address.

I made 2 such ROM socket holders. This should allow me to use a combination of the SPACEMAKER II and the SOFT ROM. One will remain at one of the memory addresses on the PET board. The other will be mounted in a similar fashion in one of the 4 selectable sockets of the SPACEMAKER II.

INSTALLATION:

1. Install one outside wire to pin 20 hole on the PET circuit board at address \$9000 and the other outside wire at \$A000. The Minitest clip will be connected later. FIG. 2. FIG. 6.

3. Install the SOFT ROM into the above mounted DIP SOCKET at address \$A000. Fig. 6.

4. Connect the Minitest clip to the wire going to pin 20 of the SOFT ROM (Just above the solder joint. You may have to scrape away a little of the wire insulation to allow for a proper connection). FIGS. 5 & 6.

This completes the installation.

PARTS PURCHASE INFORMATION:

A. SOFT ROM: BMB COMPUSCENCE or Canadian Micro Distributors Ltd. 365 Main Street, Milton, Ontario, L9T 1P7, Canada.

B. FROM RADIO SHACK:

1. SPDT FLATTED LEVER SIGNAL SWITCH (275-635).
2. ONE or TWO LOW PROFILE IC SOCKETS, 24 PIN DUAL INLIN (276-1989).
3. 3 WIRE RIBBON CABLE approximately 18 inches in length.
4. Minitest Clips (270-372).

3. Some plastic or other holder on which you can mount your toggle switch, which in turn can be stuck to the side of the PET.