SET-UP INSTRUCTIONS FOR THE HAND HELD PRODUCTS, INC. PORTABLE EPROM

HHP-PE

INTRODUCTION

To set-up the HHP-PE for operation with your HP-41 requires the setting of eight switches on two DIP sockets found inside the plastic case of the HHP-PE. The Portable EPROM comes with an 8k test set of chips set-up for port 1. The first step is to plug the HHP-PE into the HP-41 by inserting the HHP-PE into an open port number 4 space. This may require the removal of the plastic cover from the port 4 space. This is identical to the way the card reader is attached to the HP-41.

The following procedure uses a function called "XROMTST" to fully check a given 4k memory area in EPROM. By running this test two times, one for the lower 4k and one for the upper 4k, you can quickly establish that the HHP-PE is functional with your HP-41.

MEMORY TESTING

The steps to follow are detailed below:

1. with the power ON and not in USER mode, press the digits 1 and 2,
2. press the XEQ key, then the ALPHA switch at the top right,
3. now spell out X R O M T S T on the keyboard,
4. press the ALPHA switch again,
5. the message "12 PR-2C TST" will appear,
6. a few seconds later the message "12 PR-2C OK" will appear.

Now repeat steps 2 thru 4 after entering the digits 1 and 9. You should see the message "19 PD-1A TST" followed by "19 PD-1A OK" a few seconds later. This brief test routine serves as a simple and easy test that the HP-41 and the HHP-PE are working correctly together.

Should the message "12 PR-2C BAD" or "19 PD-1A BAD" appear, you should call Hand Held Products, Inc. at (704) 541-1380. Since all units are tested several times prior to shipment, the chances of seeing such a "BAD" message are quite small. If the above memory test procedure fails for any other reason, check that your HP-41 is fully functional by itself and that the "low battery indicator" is not illuminated. If the problem persists, please call Hand Held Products, Inc. for further assistance.

INSTALLATION OF YOUR CHIPS

After successfully testing your HHP-PE unit, you may wish to install your own custom set of EPROMs and configure the unit to your special needs. This section is aimed at guiding you through each step involved in both the physical installation and DIP switch set-up. Please read all instructions in their entirety before continuing with disassembly.

The first step is to remove the HHP-PE from the HP-41 and position it on a flat surface with the connector facing you. Opening the HHP-PE will require a small Phillips screw driver to remove the two top screws facing you. Note they are shown in Figure 1 on the following page. Radio Shack has a screw driver set (part number 64-1959) which handles this job nicely as well as the removal of the screw on the bottom side of the HHP-PE.

Remove the two top front screws and the bottom screw carefully. You will wish to study how the parts of the case are inter-related to aid in the later assembly of the case.

Holding the PE in one hand, remove the two top screws. Now turn the PE on its back so that you can see the bottom screw in the corner of the serial number plate. Remove this screw but <u>be careful not to open the case yet.</u> This screw may be tighter than the two top front were and it may require extra effort to remove.

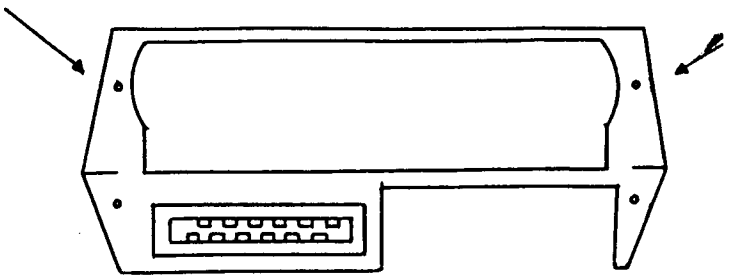

Figure 1

Now turn the PE over so you can read the HHP PORTABLE EPROM name plate. With your finger on the connector, slowly move the top plastic shell piece until it feels free. When this occurs, the two side catches and the front plate will come free also. Lift the top shell straight up until it is clear and set it aside.

Take a few seconds to note the relationship of the loose pieces. You will see that the left and right catches each have a metal spring band attached. There is a difference between the left and right catches so be sure to keep them separately identified. It is not necessary to remove these pieces to change the chips or set the DIP switches but they most likely will move free.

Now turn the PE until the connector points to the right as shown in Figure 2 and note that the top chip is called L8, for the lower 8 bits and the bottom chip is called U2, for the upper 2 bits in the 10 bit HP-41 ROM word. Note that both chips have 28 pin sockets but that U2 in this case is only a 24 pin chip and that it is aligned bottom side leaving the four exposed pin sockets open at the notched end of the chip on your right.

The top DIP switch defines the memory size and L8 type of chip used as shown in Table I. Note that the test 8k EPROM set has switch 1 down and all others up.

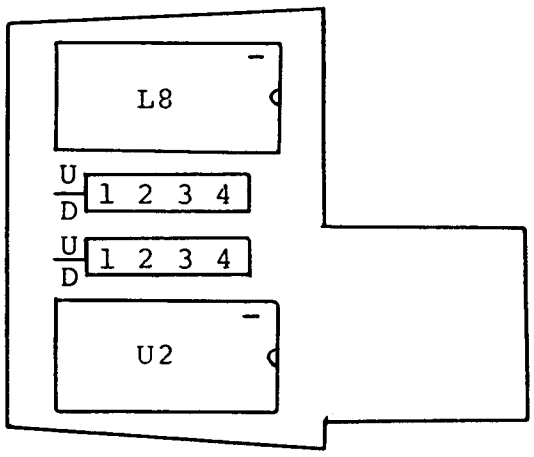

Figure 2

The bottom DIP switch defines the port address desired for the EPROM memory. Note that the test chip set is for port 1 with switch one down and the rest up as shown in Figure 2. In Table II all the port switch settings are presented.

MEMORY SIZE	sw1	sw2	sw3	L8 CHIP TYPE sw4
4k	up	up	up	up=2764 or
8k	dn	up	up	27128
16k	dn	dn	up	
32k	dn	dn	dn	dn=27256

Table I
Top DIP Switch Settings

PORT ADDRESS	sw1	sw2	sw3	sw4
port1	dn	up	up	up
port2	dn	up	dn	up
port3	dn	dn	up	up
port4	dn	dn	dn	up

Table II
Bottom DIP Switch Settings

You should now set the DIP switches to correspond to your specific memory size requirements, L8 chip type and desired port address. Several additional factors related to the HP-41 ROM memory address structure are presented in the section titled Advanced Address Alternatives for the HP-41 of this document.

CHIP REMOVAL AND INSERTION

Using a flat edge screwdriver from the same Radio Shack assorted precision screwdriver set, place it under the bottom of the U2 chip until the screwdriver touches the chip. By twisting slowly back and forth, the end of the U2 chip will rise. Now go around to the other end of the U2 chip and repeat the process of twisting the screwdriver until this end is also up. Repeat the process, if necessary, until the U2 chip is free of the board.

Now you can prepare the new U2 chip for insertion into the socket. Note the width of the pins on your new U2 chip and compare it to the old U2. Generally new EPROM chips have their pins spaced farther apart and will require them to be bent closer together. One method which has proven successful is to hold the new chip between your thumb and first finger with the pins pointing away from you. Using the flat surface available, simply lay the solid edge of the chip on the surface and roll your wrists slowly away from your body. The first time, you should move the edge only a very small amount to get the feel of how far the pins have moved. Be sure to flip the chip over and bend both sides an equal amount.

Replacing the chip in the U2 socket requires careful placing of all pins along one edge. Rotate the other row of pins and measure how close they come to aligning. Generally one or two additional small bends are required to fit the pins to the to rows of sockets. When ALL U2 pins line up properly, press the U2 chip with both thumbs evenly and check several times to see that all pins are fitting into their respective sockets without bending. Should a pin begin to bend, remove the chip and straighten the bent pin to align with the others in the row.

Repeat the process with the L8 chip. Removal and replacement of a 28 pin chip is a little more difficult but all the same steps given above apply. By now it is possible that all of the free plastic pieces which make up the case have come loose. The next section will guide you through replacing the plastic on the PE base.

ASSEMBLY OF THE PLASTIC CASE

NOTE: AT THIS TIME YOU CAN TEST YOUR EPROMS WITH YOUR HP-41.

Now here is where patience becomes a virtue. Speaking from experience, it does require a certain degree of character building patience to cause all of the pieces to come together but the following will minimize the challenge. First carefully slip the cover over the PE until it fits the base and put the screw back in the bottom. Note that the metal backing plates slide freely up into the top cover as it is positioned. You should be able to see the openings where the small screws go.

Next you should put into place the catches on the left and right side with their metal spring bands. If the metal slips out of the catch plastic, you may wish to use a light glue where the metal hole fits the catch. With the tension from the top of the cover, the catches will stay in place and their metal springs will come forward freely.

Finally, slip the front plate, bottom edge first into place and press until the top edge aligns. At this time the catches will most likely be outside their guide holes but still in place. Adjust the catches until they work freely in place. At this time all of the parts should be in place and ready for the small screws to be returned into their openings. Check all edges to see that they fit cleanly. Congradulations!

HHP-PE LIMITED WARRANTY

The HHP-PE is guaranteed for thirty (30) days from the date of shipment. Should an EPROM box prove to be defective within thirty (30) days, return the unit to us (at your expense) and we will replace any defective unit with a new one. Should any part of your HHP-PE malfunction after the above mentioned time, you may call Hand Held Products, Inc. (704) 541-1380 for an estimate of costs for repair or replacement, a return authorization number and shipping instructions.

THE FOREGOING LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE.

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