



PART NO. 09825-90037
MICROFICHE NO. 09825-99037

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Hewlett-Packard 9825A Calculator System Test Booklet



System Test Booklet



The HP 9825A Calculator

Hewlett-Packard Calculator Products Division
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CAUTION

The HP 9825A Calculator can be severely damaged if it has not been set to the correct voltage; if in doubt, please refer to the Operating and Programming Manual.

Table of Contents

| | |
|-------------------------------------|----|
| General Information | |
| Introduction | 1 |
| Calculator Tests | |
| Procedure | 3 |
| Test Descriptions | 5 |
| Test Modifications | 11 |
| Peripheral Tests | |
| Introduction | 13 |
| Rom Error Messages | 15 |
| 2631A Printer | 16 |
| 9862A Plotter | 21 |
| 9863A Tape Reader | 25 |
| 9864A Digitizer | 28 |
| 9866A/B Thermal Printer | 32 |
| 9869A Hopper Card Reader | 36 |
| 9871A Impact Printer | 39 |
| 9872A Plotter Dynamic Test | 42 |
| 9881A Printer Test | 45 |
| 9883A Paper Tape Photo Reader | 56 |
| 9884A Paper Tape Punch | 58 |
| 98032A 16-Bit Interface | 61 |
| 98033A BCD Interface | 64 |
| 98034A Interface | 67 |
| 98035A Real Time Clock | 71 |
| 98036A Serial Interface | 74 |

Chapter 1

General Information

Introduction

This booklet contains test procedures to verify the performance of the HP 9825A Calculator System. The System Test Cartridge (Part No. 09825-90036) contains the necessary programs to implement these tests.

The tests are divided into two groups;

1. Calculator Tests
2. Peripheral Tests

The calculator should be thoroughly tested before attempting to test any of the peripherals.

This booklet assumes that the calculator will turn-on and display $\frac{1}{1}$. If not, refer to the Operating and Programming Manual for installation procedures, fuse requirements, and if necessary, the Sales and Service Offices locations.

The symbol $\left(\begin{smallmatrix} \text{Shift} \\ \text{Key} \end{smallmatrix} \right)$ is used in this booklet to indicate that the shift key should be held down while the next key is pressed. Example:

$$\begin{array}{l} \text{A} = a \\ \left(\begin{smallmatrix} \text{Shift} \\ \text{Key} \end{smallmatrix} \right) \text{A} = A \end{array}$$

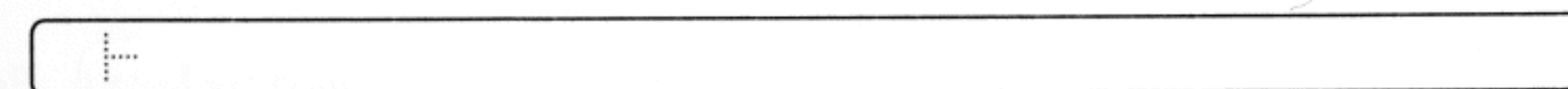
Chapter 2

Calculator Tests

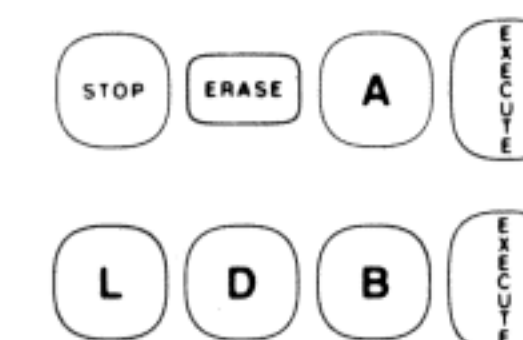
Procedure

To Test the Calculator

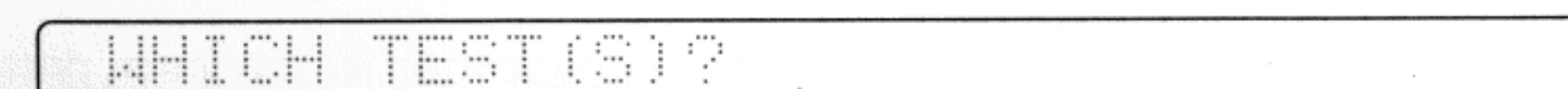
1. Turn the calculator ON.
2. The following display should be seen.

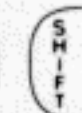


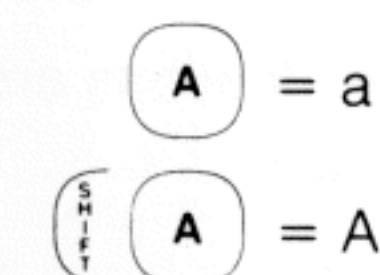
3. Insert the Test Cartridge so that the label on the cartridge faces the back of the calculator.
4. Press:



5. The following display should be seen.



The symbol  is used in this booklet to indicate that the shift key should be held down while the next key is pressed. Example:



6. The following tests are available on the Test Cartridge:

- 1 R/W Memory Test
- 2 ROM Test
- 3 Processor Test
- 4 Tape Cartridge Test
- 5 Printer Test
- 6 Display Test
- 7 Key Switch Test
- 0 Abort (clears the calculator)

Run each of these tests by typing-in the test number followed by **CONTINUE**. Refer to the next sections of this booklet for detailed information about each test.

At the end of each test the following display will be seen:

WHICH TEST(S)?

type-in the next test number followed by **CONTINUE**.

If the wrong key is pressed while typing the test number press **STOP** **CONTINUE** and then type the correct test number.

If errors are printed or if the results are not as described for the tests, press:

RESET **R** **T** **B** *

and then repeat the test. If there are still errors, contact the nearest HP Sales and Service Office for assistance; office locations are listed at the back of the 9825A Operating and Programming Manual.

*rtb = return to binary

Test Descriptions

1 R/W Memory Test

The following display and printout should be seen.

R/W MEMORY TEST

20 to 80 seconds

R/W MEMORY TEST

60K BOARD PASSED
70K BOARD PASSED
50K BOARD PASSED

This information will vary depending on the memory options installed (see table below).

R/W MEMORY TEST
COMPLETE

Board and Option Number

| | |
|-----|----------|
| 70K | Standard |
| 60K | Opt. 001 |
| 50K | Opt. 002 |
| 40K | Opt. 003 |

If there are no errors printed the R/W Memory is operating properly.

2 ROM Test

The following display and printout should be seen.

ROM TEST

5 seconds

```
ROM TEST
ROMS ON SYSTEM:
    MAINFRAME
    32 K
    34 K
    40 K
    46 K
    } This information will
    } vary depending on the
    } ROM(s) installed (see table below).

ROMS IN ERROR:
    NONE
    } Errors will be printed here.

ROM TEST
COMPLETE
```

ROM Numbers and Titles

- 30K Flexible Disc
- 32K General I/O
- 34K Plotter
- 36K Matrix
- 36K Systems Programming
- 40K Advanced Programming
- 42K Extended I/O (Part 1)
- 44K Extended I/O (Part 2)
- 46K Strings

If NONE is printed for errors the ROM(s) are operating properly.

3 Processor Test

The following printout should be seen.

```
PROCESSOR TEST
PROCESSOR PASSED
```

If there are no errors printed the processor is operating properly.

4 Tape Cartridge Test

The following display and printout should be seen.

INSERT SCRATCH CARTRIDGE

CARTRIDGE TEST

Remove the Test Cartridge and insert a scratch cartridge*, then press CONTINUE.

After about 45 seconds the following display and printout should be seen.

REPLACE TEST CARTRIDGE

CARTRIDGE TEST
COMPLETE

Remove the scratch cartridge, re-insert the Test Cartridge, and then press CONTINUE.

*The scratch cartridge must be a known-good, unprotected tape cartridge which does not contain wanted information.

5 Printer Test

The following display and printout should be seen during the printer test.

PRINTER TEST

5 seconds

PRINTER TEST

== ==

== ==

== ==

4 6 8 A a B b C c D d E e F f G g H h I i J j K k L l M m N n O o P p Q q R r S s T t U u V v W w X x Y y Z z [\] ^ _ ` { | } ~ ¡ ¢ £ ¤ ¥ ¦ § ¨ © ª « ¬ ® ¯ ° ± ² ³ ´ µ ¶ · ¸ ¹ º » ¼ ½ ¾ ¿ À Á Â Ã Ä Å Æ Ç È É Ê Ë Ì Í Î Ï Ñ Ò Ó Ô Õ Ö × Ø Ù Ú Û Ü Ý Þ ß à á â ã

PRINTER TEST
COMPLETE

The printout should duplicate the above sample.

6 Display Test

The following printouts and displays should be seen. Each display should be checked for missing or extra display dots.

DISPLAY TEST

[illegible]

5 seconds, this display may flicker

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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3 seconds

[illegible]

3 seconds

4/XNaB[F7ΔσLλντrIθQ&AcAðÖöDÜffē²f®

20 seconds

! " # \$ % & ' () * + , - . / : ; [\] ^ _ { | } ~ ¡ ¢ £ ¤ ¥ ¦ § ¨ © ª « ¬ ® ¯ ° ± ² ³ ´ µ ¶ · ¸ ¹ º » ¼ ½ ¾ ¿ À Á Â Ã Ä Å Æ Ç È É Ê Ë Ì Í Î Ï Ñ Ò Ó Ô Õ Ö × Ø Ù Ú Û Ü Ý Þ à á â ã ä å æ ç è é ê ë ì í î ï ð ñ ò ó ô õ ö ø ù ú û ü ý þ ÿ            

               @ABCDEFGHIJKLMNPQRSTUVWXYZ_`ab|cde fghijklmnopqrstu vwxyz{|~?

20 seconds

0123456789ABCDEFGHIJKLMNPOQRSTUVWXYZ[]^_`

20 seconds

```
"abcdefghijklmnopqrstuvwxyz0123456789~!@#$%^&*()-+=`{|}~!"
```

20 seconds

DISPLAY TEST
COMPLETE

Pressing:

(CONTINUE) - will stop the display test, to allow more viewing time.

(CONTINUE) - again, will continue the display test.

(STOP) - will abort the display test.

7 Key Switch Test

The following display and printout should be seen.

PRESS PRT ALL

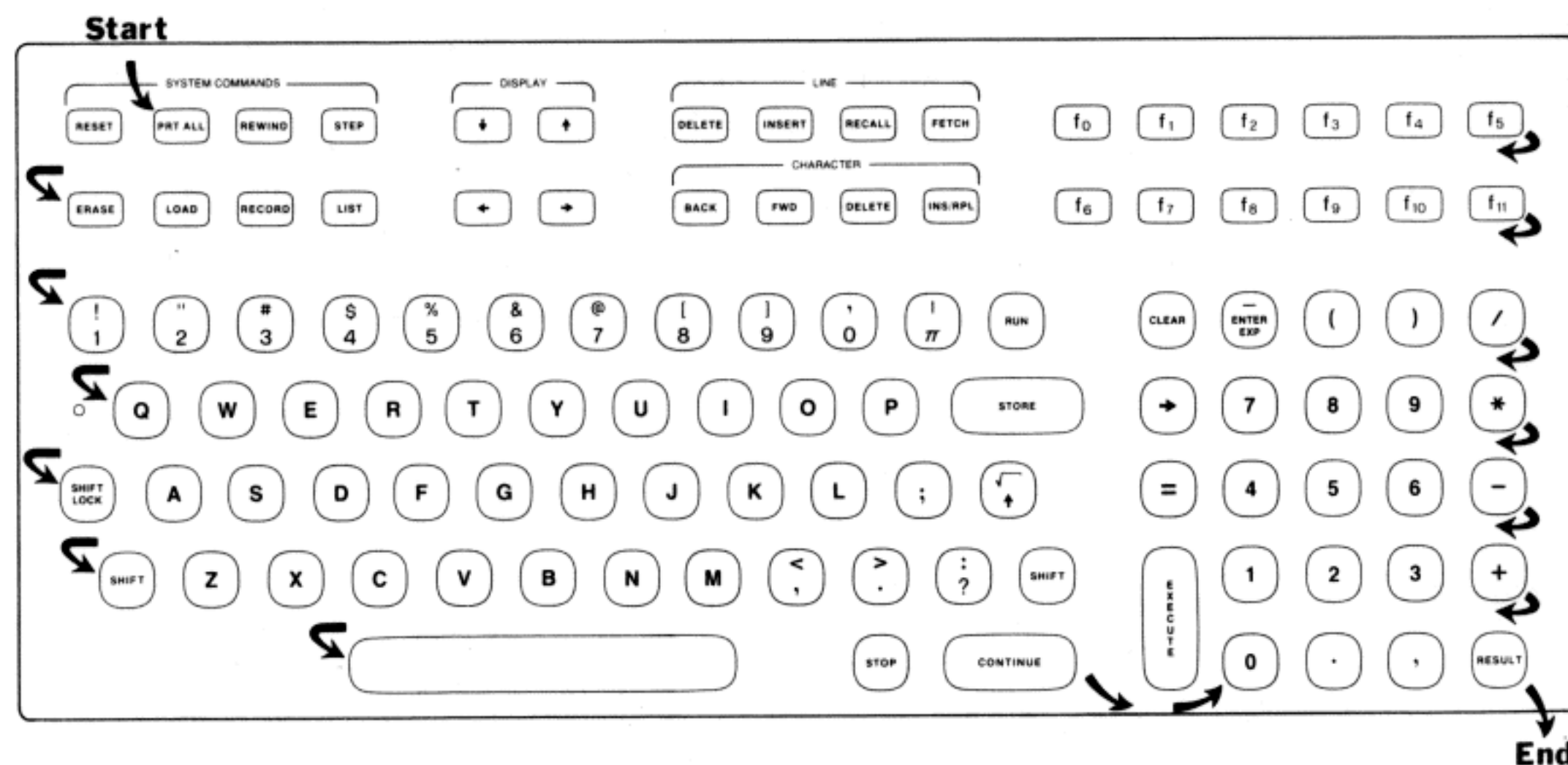
KEYBOARD TEST

Check the keys for proper operation by pressing each key as it is called for by the display. Remember to press **SHIFT LOCK** before pressing **A**. Leave shift key locked until display reads

PRESS z

Press **SHIFT** (to unlock shift) before pressing **z**.

The key sequence called for by the display is shown below.



An error message will be printed if:

- the wrong keys are pressed four times in succession.
- the correct key fails to operate properly.

If a key completely fails to operate, press any other key four times to continue the test.

After the last key (RESULT) is pressed the following printout should be seen.

KEYBOARD TEST
COMPLETE

0 Abort

Pressing **0** **CONTINUE** will abort the Calculator Test and return the calculator to normal operation.

Test Modifications

A group of tests can be run in succession by typing-in more than one test number before pressing **CONTINUE**. The tests will run in numerical order regardless of the order in which they are typed.

Examples:

3412

runs tests: 1, 2, 3, and 4

76123

runs tests: 1, 2, 3, 6, and 7

Chapter 3

Peripheral Tests

Introduction

Tests for the 9800 series peripherals are available on the test cartridge. The peripheral tests that are available and the ROMs required for each test are listed in Table 1. Sample ROM printout messages are included following Table 1.

1. Ensure that the proper plug-in option ROM(s) are installed in the calculator (see Table 1) and that the peripheral device is properly connected to the calculator. Connection instructions for each peripheral device are included with the test instructions for that particular device.

WARNING

POWER TO THE 9825A AND PERIPHERALS
MUST BE TURNED OFF BEFORE INSERTING
OR REMOVING INTERFACES OR PLUG-IN
ROMS. FAILURE TO DO SO MAY CAUSE
DAMAGE TO THE INTERFACES, ROMS, OR
TO THE CALCULATOR.

2. Proceed to the appropriate instructions for the device that is being tested. These sections follow.



If errors are printed or if the results are not as described for the test, ensure that the Test Cartridge is installed and then press  . Repeat the test. If there are still errors, contact the nearest HP Sales and Service Office for assistance; office locations are listed at the back of the 9825A Operating and Programming Manual.

Table 1

| | | General I/O | Extended I/O | 9862A Plotter | 9872A Plotter |
|---------|----------------------------|----------------|-----------------|------------------|------------------|
| 2631A | Dot-Matrix Printer | x | 1 | | |
| +9862A | Plotter | x | | x | |
| 9863A | Paper Tape Reader | x | | | |
| 9864A | Digitizer | x | | | |
| 9866A/B | Thermal Line Printer | x | | | |
| 9869A | Hopper Card Reader | x | | | |
| 9871A | Impact Printer | x | | | |
| 9872A | 4 Color Plotter Dynamic | x | | | x |
| 9881A | Impact Printer Test | x | | | |
| 9883A | Paper Tape Photo Reader | x | | | |
| 9884A | Paper Tape Punch | x | | | |
| 98032A | 16-Bit Interface | x | | | |
| 98033A | BCD Interface | x | | | |
| ●98034A | HP-IB (IEEE-488) Interface | x | x | | |
| 98035A | Real Time Clock Interface | x | 1 | | |
| 98036A | Serial Data Interface | x | 1 | | |

+ This test will work with the 9872A if the 9872A Plotter ROM is installed.

1 These tests will be more extensive when the Extended I/O ROM is also installed.

● This test requires two 98034A cards – one card tests the other.

ROM Error Messages

```
*****
*  BAD ROM(S)  *
*              *
*  GENERAL I/O *
*              *
*****
```

In this example, the General I/O ROM (part of 98214A ROM) was determined to be defective by the program.

```
PLEASE VERIFY
THE FOLLOWING:
```

```
GEN. I/O ROM IN
EXT. I/O ROM OUT
9862A   ROM IN
9872A   ROM OUT
```

It is important to check the ROM listing carefully. In this case the Extended I/O ROM was listed as being out when it was actually plugged in. This indicates that the Extended I/O ROM is defective.

```
TESTS REQUIRE
GEN. I/O ROM
TO OPERATE
```

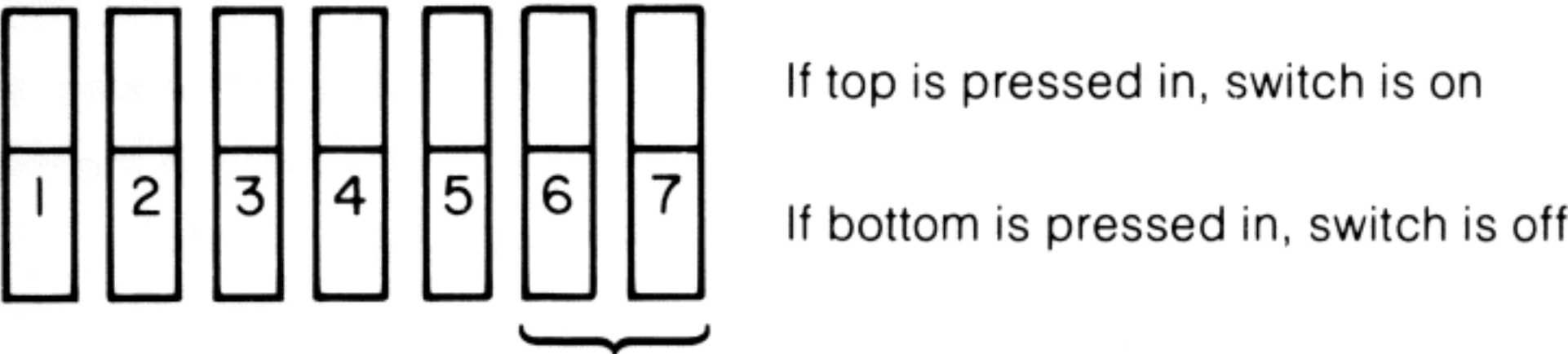
```
PLEASE TURN UNIT
OFF, INSERT
GEN. I/O ROM
AND RESTART TEST
```

All peripheral tests require the General I/O ROM. If it is not plugged in or if it is defective, this message is printed.

2631A Printer

This test requires the General I/O ROM. The test is more extensive with the Extended I/O ROM also installed.

- 1. Assure that calculator and printer power are turned OFF.
- 2. Install the General I/O ROM (and possibly the Extended I/O ROM) and connect the printer interface to the printer and to the calculator.
- 3. Check the select code of the interface and the Bus Address of the Binary Address switches located on the right rear of the printer.



| Switch # | Binary Value |
|----------|---------------------------------|
| 1 | 1 |
| 2 | 2 |
| 3 | 4 |
| 4 | 8 |
| 5 | 16 |
| 6 | Listen Always * (should be off) |
| 7 | SRQ (should be off) |

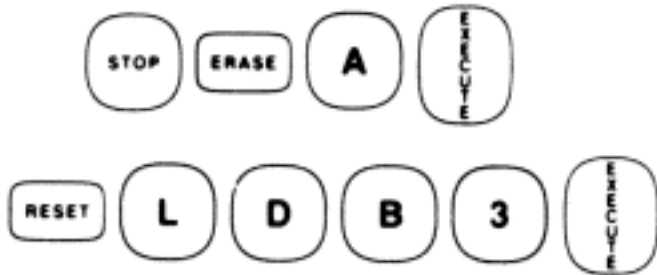
Example:

If switches #1 and 3 were on and the others were off, the printer address would be 05.

- 4. Set the printer slide switches (located under printer front cover) for print mode and line spacing as follows:

Line Spacing – 8LPI
Print Mode – Norm

- 5. Load the printer with standard 11" x 14⁷/₈ paper (see 2631A Printer Installation and Service Manual) and turn calculator and printer power ON. Depress printer RESET key and OFF-LINE, ON-LINE switch to initialize it and put it on line. Printer power-on light, 8-LPI light, and on-line light should glow.
- 6. With the test cartridge in your calculator, press:



- 7. The tape should load and the calculator should print a message similar to the one below, depending on which ROM(s) are installed.

PLEASE VERIFY
THE FOLLOWING:

GEN. I/O ROM IN
EXT. I/O ROM OUT
9862A ROM IN
9872A ROM OUT

This information will vary depending on ROM(s) that are installed. Other ROM(s) such as Matrix, String, and Systems Programming are not included in listing.

After the ROM verify printout, the display should return with:

ENTER MODEL # TO BE TESTED...

Press: 2 6 3 1 A CONTINUE

- 8. When the display returns with:

ENTER SELECT CODE...


Enter the select code of the interface followed by the printer Bus Address (see step 3) for example, if the interface select code is 7 and printer address is 05, then

press: 7 0 5 CONTINUE

- 9. The printer should print the following patterns.

10. If you wish to re-run the test, wait until the test is complete and the display reads

"TO RESTART PRESS CONTINUE"

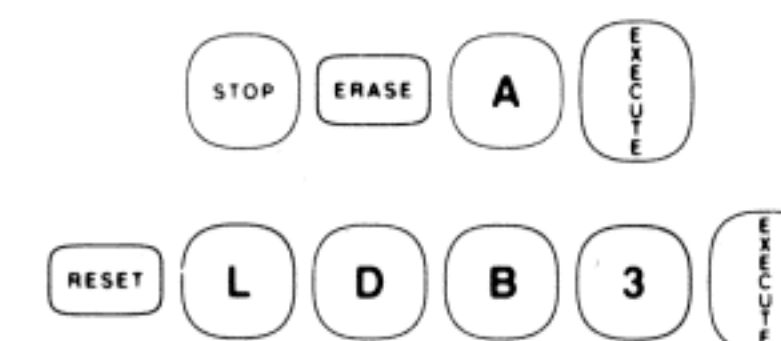
and press .

11. If no errors appear on the calculator printout and the printer page matches patterns in step 9, then the printer is working properly.
12. If errors are printed or the printer page does not match the patterns in step 9, carefully repeat the test procedure. If errors still occur, contact the nearest HP Sales and Service Office; locations are listed in the back of the 9825A Operating and Programming Manual.

9862A Plotter

To Test the Plotter

1. Install the 9862A Plotter ROM and General I/O ROM in the calculator. The 9872A Plotter ROM must NOT be installed.
2. Switch the plotter and calculator ON. The LINE indicator on the plotter should light.
3. On the Plotter:
 - a. Place a sheet of plotter paper (P/N 9270-1004 supplied with the plotter) on the platen and align the paper against the bottom and left-edge paper guides. Press CHART HOLD and smooth the paper on the platen.
 - b. Adjust the LOWER LEFT Graph Limit controls to align the pen exactly over the lower left corner of the grid on the paper. Then adjust the UPPER RIGHT Graph Limit controls to align the pen over the upper-right corner of the grid.*
4. With the test cartridge in your calculator, press:



5. The tape should load and the printer should print a message similar to the one below, depending on which ROM(s) are installed in the calculator.

PLEASE VERIFY
THE FOLLOWING:

```

GEN. I/O ROM IN
EXT. I/O ROM IN
9862A  ROM IN
9872A  ROM OUT
  
```



This information will vary depending on ROM(s) that are installed. Other ROM(s) such as Matrix, String, and Systems Programming are not included in listing.

*This procedure must be completed very carefully, as the accuracy of the plot depends on it.

After the ROM verify printout, the display should return with:

ENTER MODEL # TO BE TESTED...

press

9 8 6 2  A 

6. When the display returns with:

ENTER SELECT CODE...

enter the select code and press . To specify the factory set select code just press .


7. When the display returns with:

WHICH TEST? RETRACE=0 DYNAMIC=1

enter either 0 or 1 depending on the test you want to run (refer to steps 10 and 11).


8. When the display returns with:

ENTER # OF TIMES TO RUN TEST...

enter the number of times you want the test to run and press .

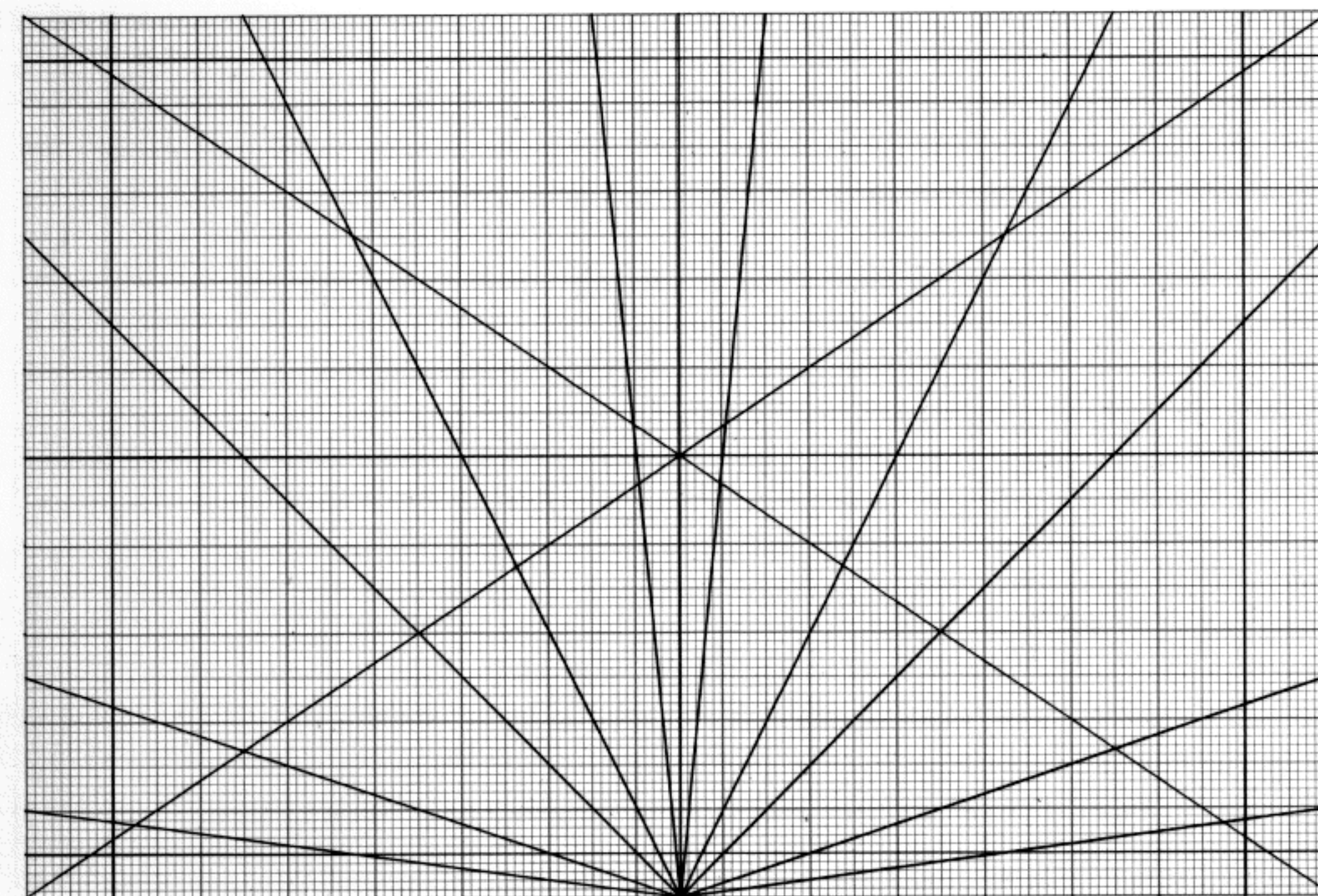
9. When the display returns with:

LOAD PAPER, PRESS CONTINUE

ensure that the plotter is loaded with paper as described in step 3 and that the pen is ready. Press .

Retrace Plot

10. The retrace plot should duplicate the sample plot shown in this figure.

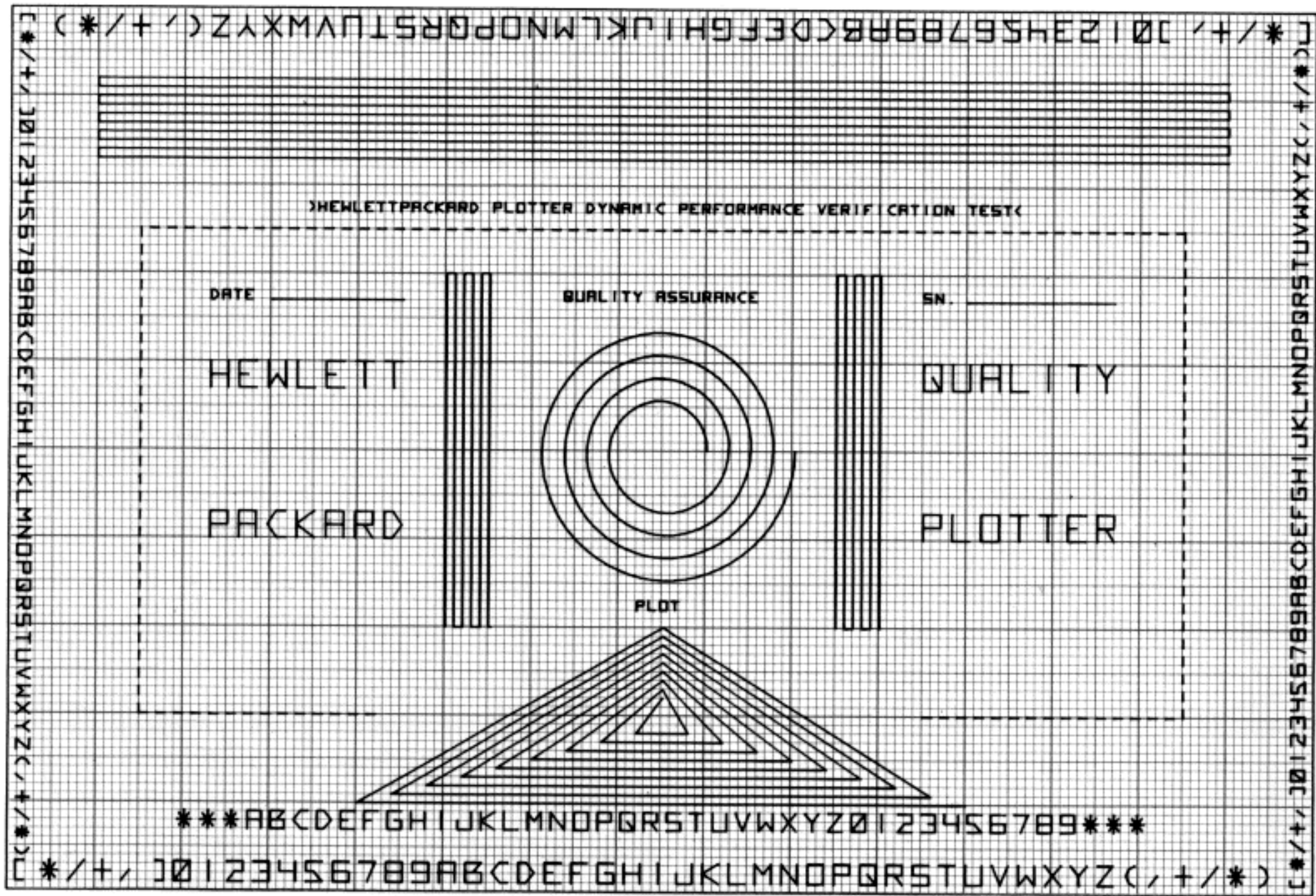


Plotter alignment can be verified by comparing the plot with the following specifications:

- Alignment Verification - all vertical and horizontal lines (6) align within 0.010 inch of preprinted grid.
- Retrace Verification - all retraced lines (11) radiating from bottom center) are open less than 0.015 inch.
- Servo Matching Verification - the single horizontal trace (at bottom of Plot) has inflections less than 0.015 inch in amplitude.
- All angular lines bow no more than 0.040 inch from the true straight line between end points.

Dynamic Plot

11. The dynamic plot should duplicate the sample plot shown in this figure.



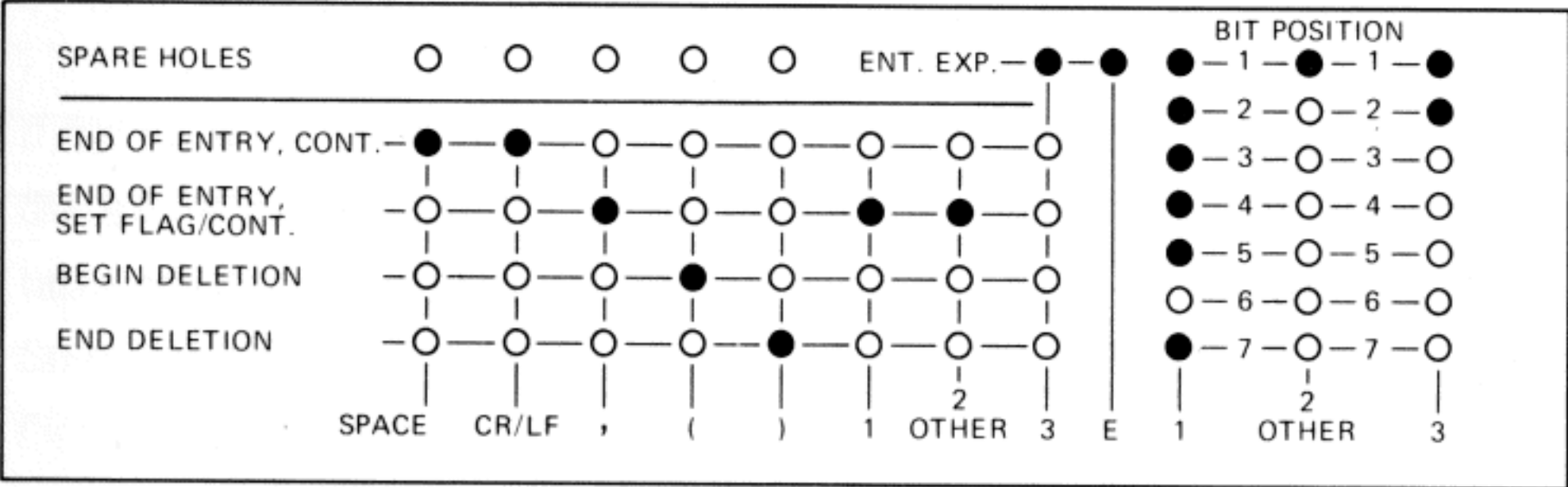
12. If the plotter fails to duplicate the sample plots, verify that the paper is properly positioned and that the lower-left and upper-right corners are properly aligned; then repeat the procedure. If the sample plot cannot be duplicated, contact the nearest HP Sales and Service Office for assistance; office locations are listed at the back of the 9825A Operating and Programming Manual.

9863A Tape Reader

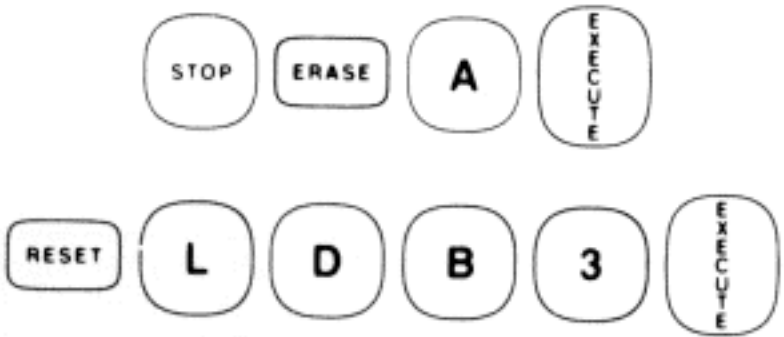
This test requires the General I/O ROM.

To Test the Tape Reader

- 1. Make sure that the calculator and tape reader are properly connected.
- 2. Switch the calculator and the tape reader ON.
- 3. Set the program board on the tape reader as shown:



- 4. Set the Mode Switch to Data, and set the Selector switch to STOP.
- 5. Load the last section of the diagnostic tape (09863-90002) supplied with the tape reader and set the Selector switch to START.
- 6. With the test cartridge in your calculator, press:



7. The tape should load and the printer should print a message similar to the one below, depending on which ROM(s) are installed in the calculator.

PLEASE VERIFY
THE FOLLOWING:



```
GEN. I/O ROM IN
EXT. I/O ROM IN
9862A ROM IN
9872A ROM OUT
```

This information will vary depending on ROM(s) that are installed. Other ROM(s) such as Matrix, String, and Systems Programming are not included in listing.

After the ROM verify printout, the display should return with:

ENTER MODEL # TO BE TESTED...

press

9 8 6 3  A 


8. When the display returns with:

ENTER SELECT CODE...

enter the select code and press . To specify the factory set select code just press .

9. When the display returns with:

ENTER # OF TIMES TO RUN TEST...

enter the number of times you want the test to run and press .

10. When the display returns with:

LOAD TAPE, PRESS CONTINUE

ensure that the punched tape is loaded in the tape reader, and then press

.

11. The tape reader should read the entire tape and then print:

TEST COMPLETE

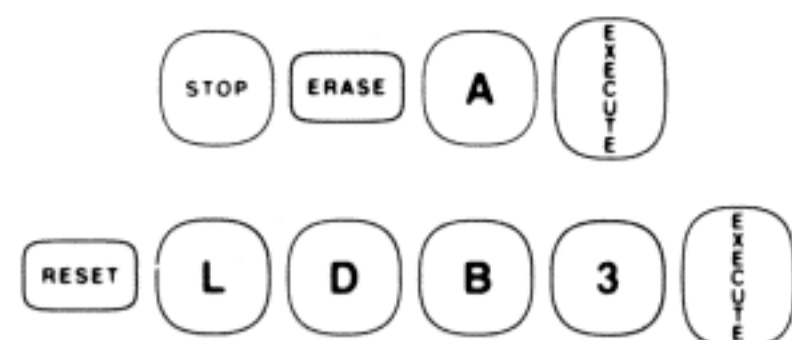
12. If the tape reader stops and the calculator prints an error, carefully repeat the entire procedure. If the exercise still cannot be successfully run, the tape reader may be defective. For assistance, contact the nearest HP Sales and Service Office; locations are listed at the back of the 9825A Operating and Programming Manual.

9864A Digitizer

This test requires the General I/O ROM.

To Test the Digitizer

1. Make sure that the calculator and digitizer are properly connected.
2. Switch the calculator and digitizer ON. You should hear a beep from the digitizer and the LINE switch should light.
3. With the test cartridge in your calculator, press:



4. The tape should load and the printer should print a message similar to the one below, depending on which ROM(s) are installed in the calculator.

PLEASE VERIFY
THE FOLLOWING:

```

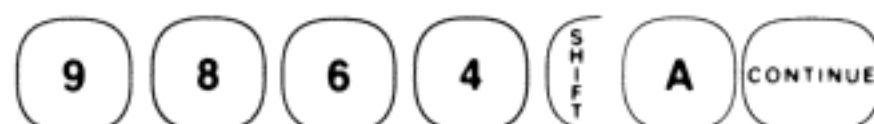
GEN. I/O ROM IN
EXT. I/O ROM IN
9862A  ROM IN
9872A  ROM OUT
  
```

This information will vary depending on ROM(s) that are installed. Other ROM(s) such as Matrix, String, and Systems Programming are not included in listing.

After the ROM verify printout, the display should return with:

ENTER MODEL # TO BE TESTED...

press



5. When the display returns with:

ENTER SELECT CODE...

enter the select code and press **CONTINUE**. To specify the factory set select code just press **CONTINUE**.

NOTE

From this point until the end of this procedure, move the cursor only as directed. When directed to move the cursor from one point to another, do so by sliding the cursor; do not lift the cursor from the digitizing surface unless specifically instructed to do so. Also, do not slide the cursor outside the digitizing area unless instructed to do so.

6. When the display returns with:

TURN 9864A OFF AND THEN ON

place the cursor near the middle of the platen and then turn the digitizer OFF and then ON. The digitizer should beep each time it is turned OFF or ON. Press **CONTINUE**.

7. When the display returns with:

LIFT CURSOR FROM 9864A PLATEN

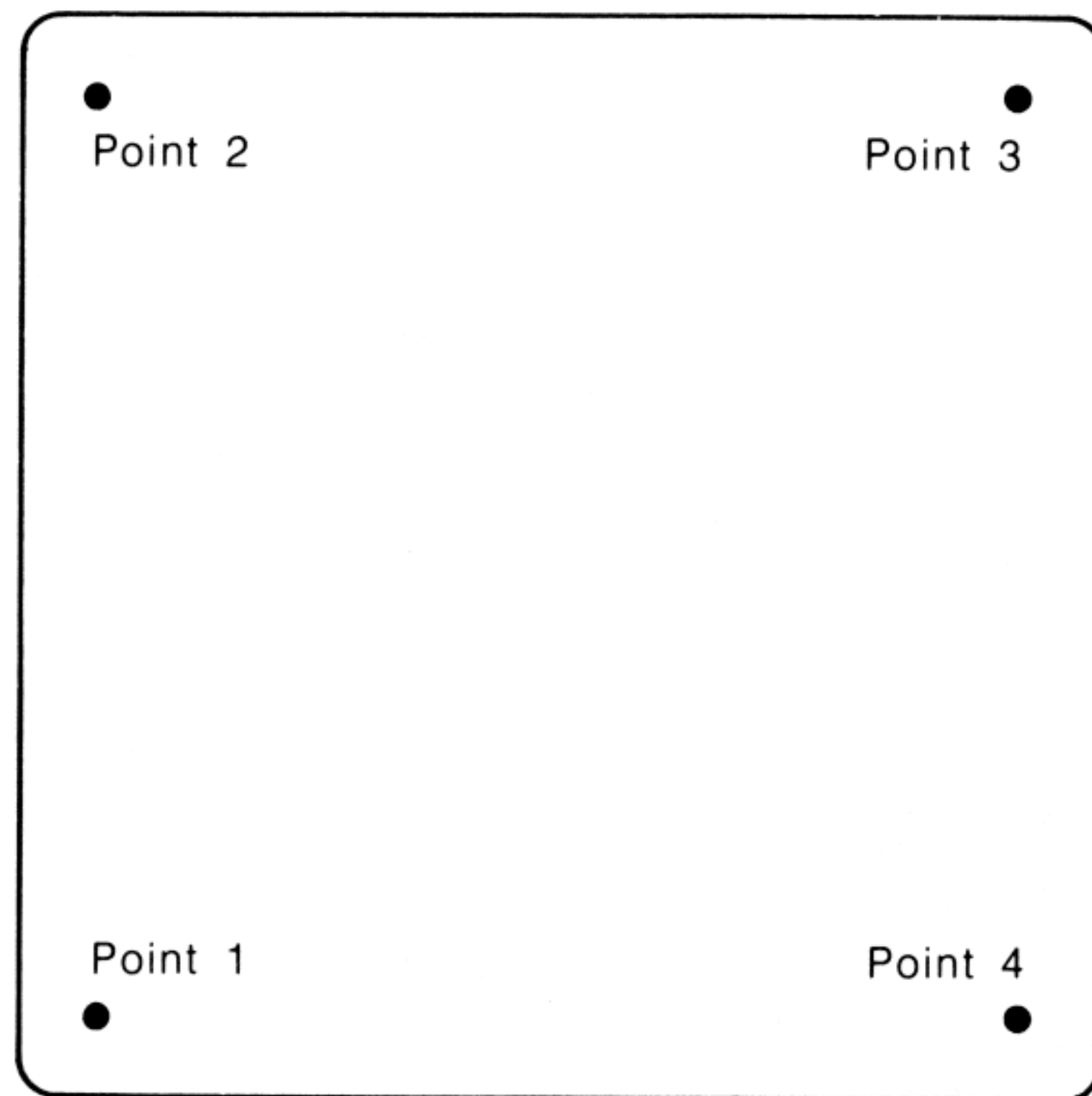
lift the cursor from the platen, a beep should be heard. Return the cursor to the platen and press **CONTINUE**.

XY Test

8. The following display should be seen.

SET ORIGIN&TAKE SAMPLE AT POINT 1

Place the cursor over point 1 (refer the following figure) and press **O** (origin) and **S** (single sample) on the cursor.



Platen

9. Press **S** at each of the other points as called for by the display.
10. If XY TEST COMPLETE is printed continue to the Hold Test. If ERROR is printed the XY TEST will be restarted, carefully repeat the procedure starting at step 8. If the XY Test continues to fail, refer to step 16.

Hold Test

11. Place the cursor over the lower-left dot (point 1), press **O** and **C** (continuous sample) on the cursor.
12. Move the cursor to the upper-right dot (point 3) and press **H** (hold) on the cursor, once. Note the values of X and Y as they are displayed by the calculator.
13. Move the cursor to the lower-left dot and press **H**, once.
14. Repeat (about 5 more times) steps 12 and 13 until the displayed values for X and Y "roll over" from 99.99 to 0.00; it is not necessary to see the actual change.
15. When the X and Y values have rolled over the tests are complete. If there have been no failures the digitizer is operating properly. If there have been failures carefully repeat the tests.
16. If there are still failures contact the nearest HP Sales and Service Office; locations are listed at the back of the 9825A Operating and Programming Manual.

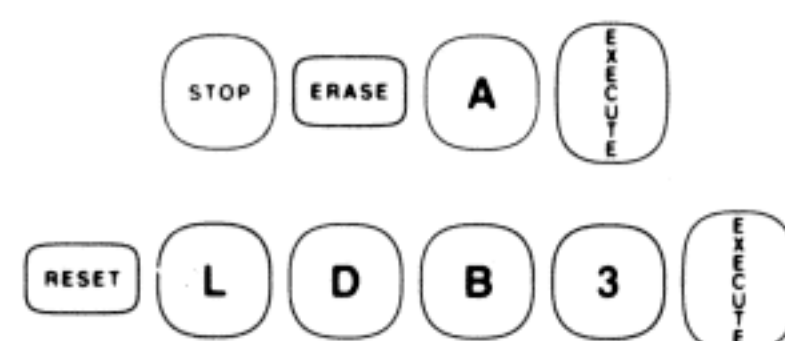
9866A/B Thermal Printer

This test requires the General I/O ROM.

To Test the Printer

1. Make sure that the calculator and printer are properly connected.
2. Turn the printer and calculator ON. The white light above the LINE switch indicates that the printer is ON. If the amber light below the Paper Advance switch lights, you do not have any paper. Start the test with a fresh roll.

3. With the test cartridge in your calculator, press:



4. The tape should load and the printer should print a message similar to the one below, depending on which ROM(s) are installed in the calculator.

PLEASE VERIFY
THE FOLLOWING:

```

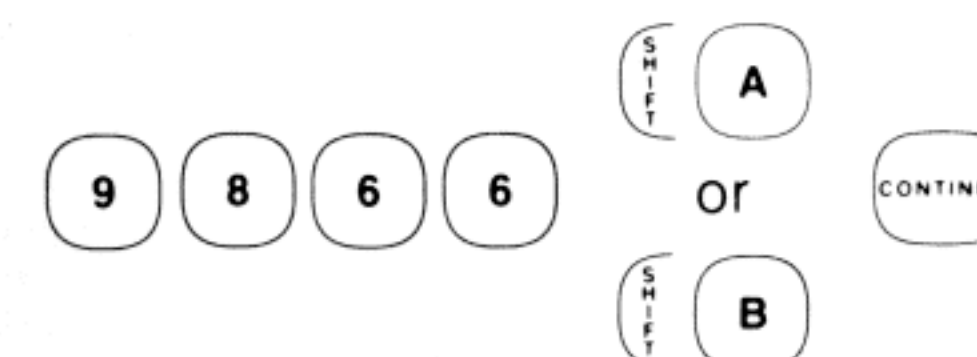
GEN. I/O ROM IN
EXT. I/O ROM IN
9862A   ROM IN
9872A   ROM OUT
  
```

This information will vary depending on ROM(s) that are installed. Other ROM(s) such as Matrix, String, and Systems Programming are not included in listing.

After the ROM verify printout, the display should return with:

ENTER MODEL # TO BE TESTED...

press



5. When the display returns with:

ENTER SELECT CODE...

enter the select code and press **CONTINUE**. To specify the factory set select code just press **CONTINUE**.

6. When the display returns with:

ENTER # OF TIMES TO RUN TEST...

enter the number of times you want the test to run and press **CONTINUE**.

7. The printout should appear as shown for the appropriate model (see next page).
8. Compare the printout with the sample shown. If the printout differs from the sample, carefully repeat the entire procedure. Should the printout still fail to duplicate the sample, carefully compare each line of the sample with the finished printout. Note any characters which are missing or incompletely printed. If the same errors are repeated line-after-line in your printout, the printer is probably defective.

9866A Printout

9866A THERMAL PRINTER TEST

[illegible]

ABCDEFGHIJKLMNOPQRSTUVWXYZ ABCDEFGHIJKLMNOPQRSTUVWXYZ
 ABCDEFGHIJKLMNOPQRSTUVWXYZ ABCDEFGHIJKLMNOPQRSTUVWXYZ
 ABCDEFGHIJKLMNOPQRSTUVWXYZ ABCDEFGHIJKLMNOPQRSTUVWXYZ

```
0123456789 !"#$%&'()*+,-./:;<=>?@[\]^_`{|}~
0123456789 !"#$%&'()*+,-./:;<=>?@[\]^_`{|}~
0123456789 !"#$%&'()*+,-./:;<=>?@[\]^_`{|}~
```

EXERCISER COMPLETE

9866B Printout

9866B THERMAL PRINTER TEST

[illegible]

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz
 ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz
 ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

```
0123456789 | "#%&'()*+,-./:;<=>?@[ \ ] ^ _ `{|}~
0123456789 | "#%&'()*+,-./:;<=>?@[ \ ] ^ _ `{|}~
0123456789 | "#%&'()*+,-./:;<=>?@[ \ ] ^ _ `{|}~
```

PLOT CHARACTER TEST

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 | 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | 141 | 142 | 143 | 144 | 145 | 146 | 147 | 148 | 149 | 150 | 151 | 152 | 153 | 154 | 155 | 156 | 157 | 158 | 159 | 160 | 161 | 162 | 163 | 164 | 165 | 166 | 167 | 168 | 169 | 170 | 171 | 172 | 173 | 174 | 175 | 176 | 177 | 178 | 179 | 180 | 181 | 182 | 183 | 184 | 185 | 186 | 187 | 188 | 189 | 190 | 191 | 192 | 193 | 194 | 195 | 196 | 197 | 198 | 199 | 200 | 201 | 202 | 203 | 204 | 205 | 206 | 207 | 208 | 209 | 210 | 211 | 212 | 213 | 214 | 215 | 216 | 217 | 218 | 219 | 220 | 221 | 222 | 223 | 224 | 225 | 226 | 227 | 228 | 229 | 230 | 231 | 232 | 233 | 234 | 235 | 236 | 237 | 238 | 239 | 240 | 241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | 249 | 250 | 251 | 252 | 253 | 254 | 255 | 256 | 257 | 258 | 259 | 260 | 261 | 262 | 263 | 264 | 265 | 266 | 267 | 268 | 269 | 270 | 271 | 272 | 273 | 274 | 275 | 276 | 277 | 278 | 279 | 280 | 281 | 282 | 283 | 284 | 285 | 286 | 287 | 288 | 289 | 290 | 291 | 292 | 293 | 294 | 295 | 296 | 297 | 298 | 299 | 300 | 301 | 302 | 303 | 304 | 305 | 306 | 307 | 308 | 309 | 310 | 311 | 312 | 313 | 314 | 315 | 316 | 317 | 318 | 319 | 320 | 321 | 322 | 323 | 324 | 325 | 326 | 327 | 328 | 329 | 330 | 331 | 332 | 333 | 334 | 335 | 336 | 337 | 338 | 339 | 340 | 341 | 342 | 343 | 344 | 345 | 346 | 347 | 348 | 349 | 350 | 351 | 352 | 353 | 354 | 355 | 356 | 357 | 358 | 359 | 360 | 361 | 362 | 363 | 364 | 365 | 366 | 367 | 368 | 369 | 370 | 371 | 372 | 373 | 374 | 375 | 376 | 377 | 378 | 379 | 380 | 381 | 382 | 383 | 384 | 385 | 386 | 387 | 388 | 389 | 390 | 391 | 392 | 393 | 394 | 395 | 396 | 397 | 398 | 399 | 400 | 401 | 402 | 403 | 404 | 405 | 406 | 407 | 408 | 409 | 410 | 411 | 412 | 413 | 414 | 415 | 416 | 417 | 418 | 419 | 420 | 421 | 422 | 423 | 424 | 425 | 426 | 427 | 428 | 429 | 430 | 431 | 432 | 433 | 434 | 435 | 436 | 437 | 438 | 439 | 440 | 441 | 442 | 443 | 444 | 445 | 446 | 447 | 448 | 449 | 450 | 451 | 452 | 453 | 454 | 455 | 456 | 457 | 458 | 459 | 460 | 461 | 462 | 463 | 464 | 465 | 466 | 467 | 468 | 469 | 470 | 471 | 472 | 473 | 474 | 475 | 476 | 477 | 478 | 479 | 480 | 481 | 482 | 483 | 484 | 485 | 486 | 487 | 488 | 489 | 490 | 491 | 492 | 493 | 494 | 495 | 496 | 497 | 498 | 499 | 500 | 501 | 502 | 503 | 504 | 505 | 506 | 507 | 508 | 509 | 510 | 511 | 512 | 513 | 514 | 515 | 516 | 517 | 518 | 519 | 520 | 521 | 522 | 523 | 524 | 5 |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---|

EXERCISER COMPLETE

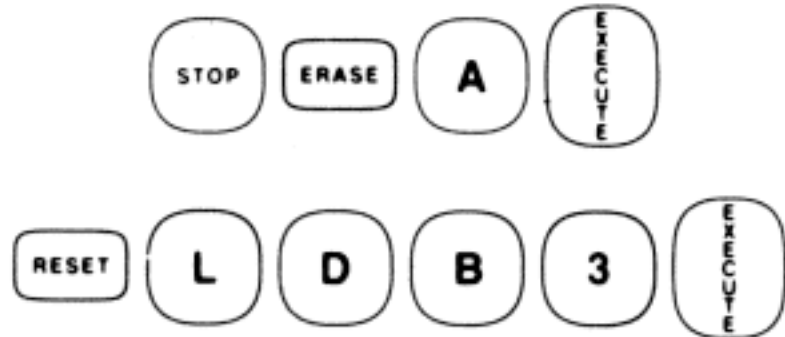
9. If your printer appears defective, contact the nearest HP Sales and Service Office for assistance; office locations are listed at the back of the 9825A Operating and Programming Manual.

9869A Hopper Card Reader

This test requires the General I/O ROM.

To Test the Card Reader

- 1. Make sure that the calculator and card reader are properly connected.
- 2. Turn the calculator and the card reader ON.
- 3. With the test cartridge in your calculator, press:



- 4. The tape should load and the printer should print a message similar to the one below, depending on which ROM(s) are installed in the calculator.

PLEASE VERIFY
THE FOLLOWING:

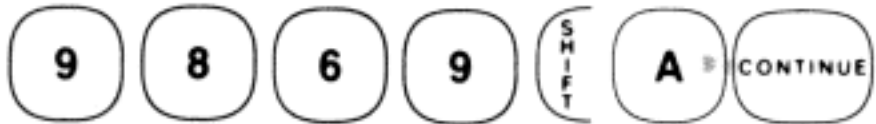
GEN. I/O ROM IN
EXT. I/O ROM IN
9862A ROM IN
9872A ROM OUT

This information will vary depending on ROM(s) that are installed. Other ROM(s) such as Matrix, String, and Systems Programming are not included in listing.

After the ROM verify printout, the display should return with:

ENTER MODEL # TO BE TESTED...

press



- 5. When the display returns with:

ENTER SELECT CODE...

enter the select code and press CONTINUE. To specify the factory set select code just press CONTINUE.

- 6. When the display returns with:

CARD DECK # =

enter the test deck number (1, 2, 3, or 4) and then press CONTINUE.

The test deck number is to be used depends on the Card Selector switch position. This switch is located on the back panel of the card reader.

| Switch position | Use test deck Number |
|---------------------|----------------------|
| 80 Column no. clock | 1 |
| 40 Column no. clock | 2 |
| Clock on Data | 3 |
| Clock after Data | 4 |

Depending on the options your card reader has, not all of these positions may be available.
If 0 is entered, instead of a test deck number, the card reader test will be terminated.

- 7. When the display returns with:

LOAD CARDS, SET SWITCH, PRESS CONT


ensure the Card Selector switch is set as required, load the test card, and press CONTINUE.

8. The calculator will read 18 cards while displaying the following test titles:

| | |
|------------------------|-----------|
| DEMAND-NORMAL TEST | 3 seconds |
| DEMAND-IMAGE TEST | 3 seconds |
| CONTINUOUS-NORMAL TEST | 3 seconds |
| CONTINUOUS-IMAGE TEST | 3 seconds |

9. The display should return with:

| |
|-------------------|
| 9869A TEST PASSED |
|-------------------|

10. Press  and repeat the procedure, starting at step 6, to test the other positions of the Card Selector switch using the appropriate test cards.

11. If the card reader or calculator fail to respond as indicated repeat the procedure carefully. If there are still failures contact the nearest HP Sales and Service Office; locations are listed in the back of the 9825A Operating and Programming Manual.

9871A Impact Printer

This test requires the General I/O ROM.

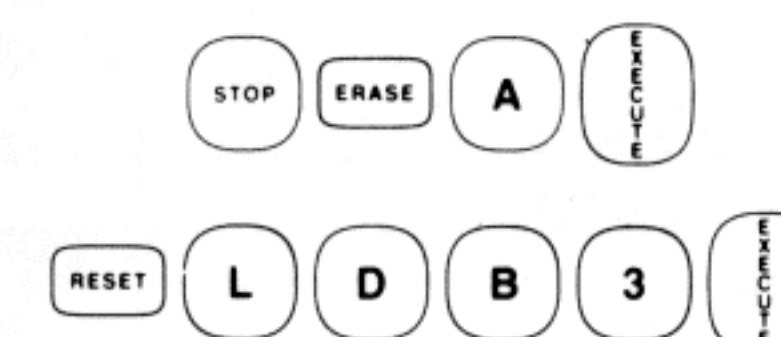
To Test the Printer

1. Make sure that the calculator and printer are properly connected.
2. Switch the calculator and the printer ON.
3. Load the printer with a sheet of 8 1/2" x 14" paper (insert the long edge first).

NOTE

If your 9871A Printer is equipped with option 98021A Form Feed Accessory, it must be removed prior to running this test. (See 9871A Printer Operating Manual P/N 09871-90000).

4. With the test cartridge in your calculator, press:



5. The tape should load and the printer should print a message similar to the one below, depending on which ROM(s) are installed in the calculator.

PLEASE VERIFY
THE FOLLOWING:

```

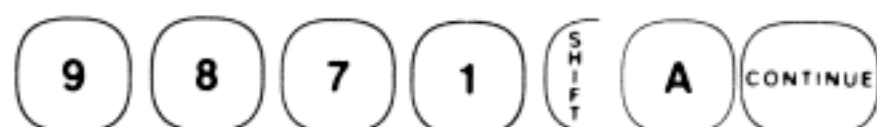
GEN. I/O ROM IN
EXT. I/O ROM IN
9862A   ROM IN
9872A   ROM OUT
  
```

This information will vary depending on ROM(s) that are installed. Other ROM(s) such as Matrix, String, and Systems Programming are not included in listing.

After the ROM verify printout, the display should return with:

ENTER MODEL # TO BE TESTED...

press



6. When the display returns with:

ENTER SELECT CODE...

enter the select code and press **CONTINUE**. To specify the factory set select code just press **CONTINUE**.

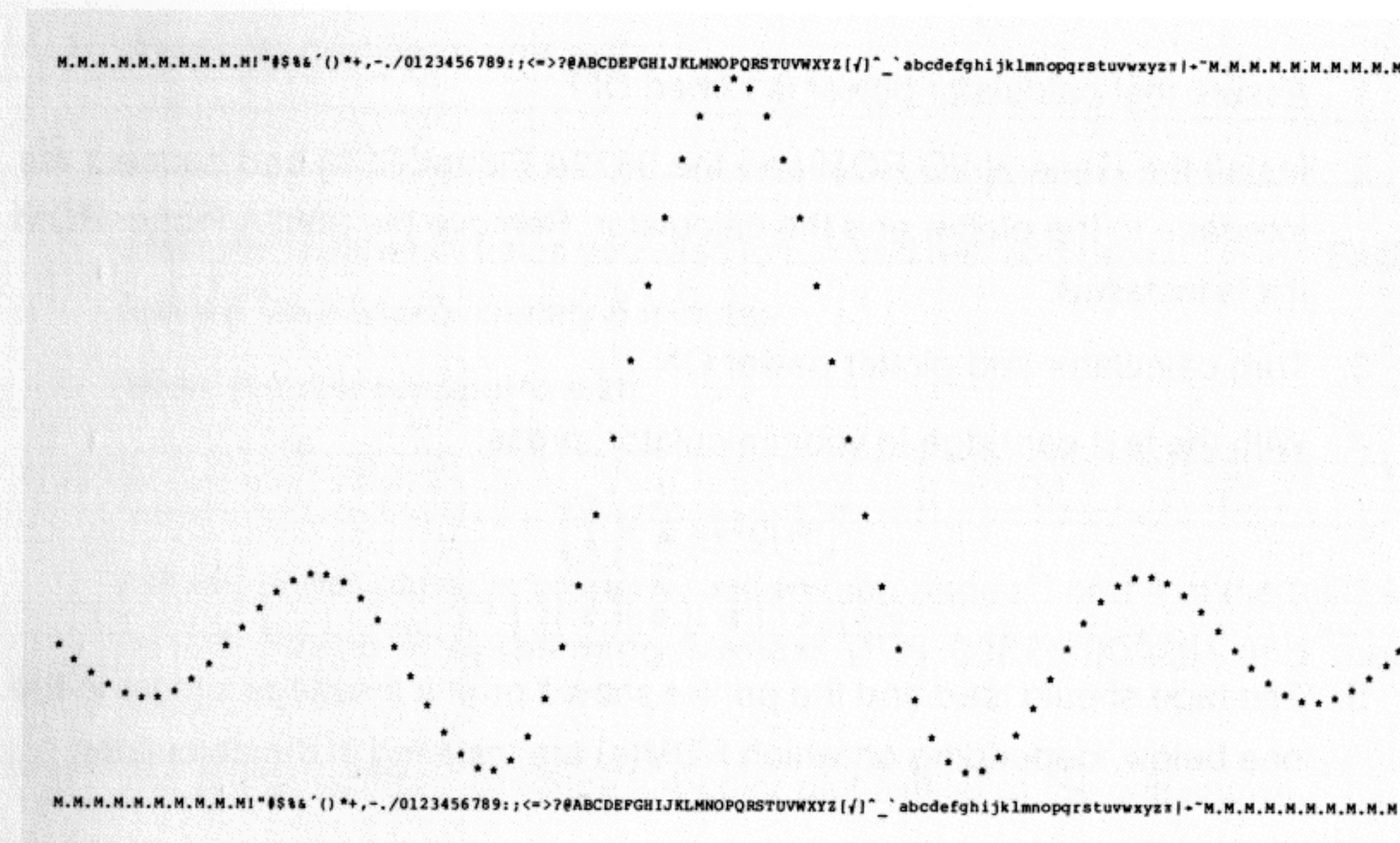
7. When the display returns with:

ENTER # OF TIMES TO RUN TEST...

press **CONTINUE**.

8. The printout should appear as shown below.

9871A Printout

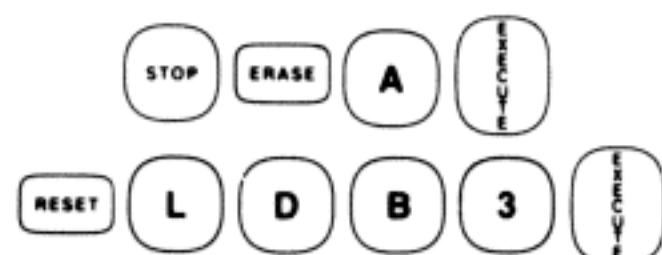


If the printout differs from the sample, carefully repeat the entire procedure. Should the printout still fail to duplicate the sample, contact the nearest HP Sales and Service Office for assistance; office locations are listed at the back of the 9825A Operating and Programming Manual.

USE 9825A SYSTEM TEST
VERSION 09825-90036
9872A Plotter Dynamic Test

This test requires the General I/O ROM and the 9872A Plotter ROM. The 9862A ROM must NOT be installed.

1. Assure that calculator power is turned OFF.
2. Install the General I/O ROM and the 9872A Plotter ROM and connect the interface to the plotter and the calculator. Remove the 9862A Plotter ROM if it is installed.
3. Turn calculator and plotter power ON.
4. With the test cartridge in your calculator, press:



5. The tape should load and the printer should print a message similar to the one below, depending on which ROM(s) are installed in the calculator.

PLEASE VERIFY
THE FOLLOWING:

```
GEN. I/O ROM IN
EXT. I/O ROM IN
9862A ROM OUT
9872A ROM IN
```

This information will vary depending on ROM(s) that are installed. Other ROM(s) such as Matrix, String, and Systems Programming are not included in the listing.

After the ROM verify printout, the display should return with:

ENTER MODEL # TO BE TESTED...

press: 9 8 7 2 A

6. When the display returns with:

ENTER SELECT CODE...

Enter the select code of the interface followed by the plotter Bus Address. For example, if the interface select code is 7 and the plotter Bus Address is 05.

press: 7 0 5

7. When the display returns with:

ENTER # OF TIMES TO RUN TEST...

enter the number of times you wish to run and test and press: . Each test will take approximately 6 minutes.

8. When the display returns with:

LOAD PAPER & THEN PRESS CONTINUE

assure plotter paper is properly loaded (see pages 3 and 4 of the 9825A/9872A Plotter Programming Manual (P/N 09825-90026) and then press: .

9. The plotter will then produce a 4-color plot similar to the one shown.
10. When the plot is completed the calculator will print 9872A PLOT COMPLETE
11. To check the plotter digitizing capability re-run the beginning of the plotter test (steps 1 to 6). When display returns with:

ENTER # OF TIMES TO RUN TEST...

enter a negative number (-10 for example).

12. The calculator will print 9872A DIGITIZE
13. Move the pen on the plotter using the front panel plotter controls and press the plotter key.

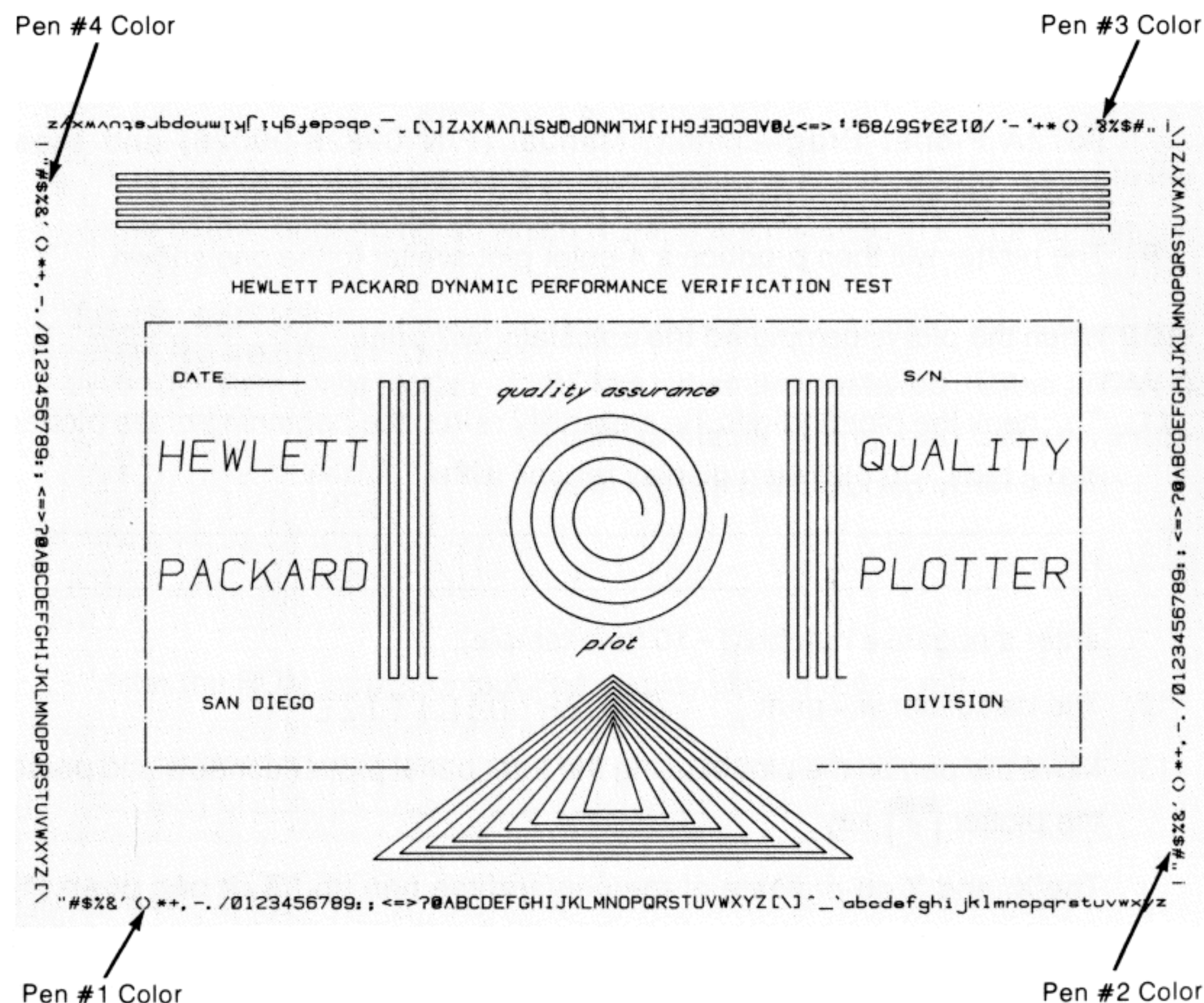
The X, and Y co-ordinate of the pen and the pen up (0) or pen down (1) condition will be displayed. Moving the X and Y position of the pen and pressing will cause the display on the calculator to change. When the number of points entered is equal to the minus number entered in step 11 the calculator will print

DIGIT MODE
COMPLETE

14. If the plotter fails to reproduce the sample plot, verify that the paper is properly loaded and carefully repeat the test procedure. If the sample plot still cannot be duplicated, contact the nearest HP Sales and Service Office; locations are listed in back of the 9825A Operating and Programming Manual.

NOTE

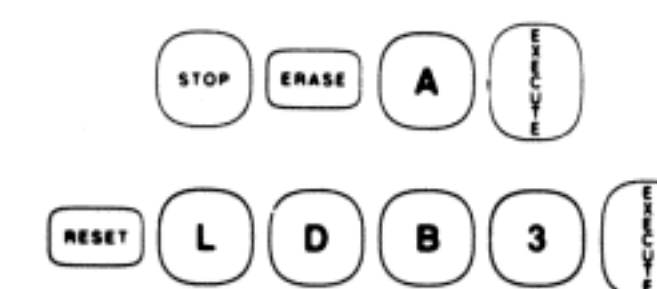
Four color pens must be installed in the plotter in order to duplicate the four color plot.



9881A Printer Test

This test requires the General I/O ROM.

1. Assure that calculator and printer are turned OFF.
2. Install the General I/O ROM in the calculator and connect the interface to the calculator and the printer and turn calculator and printer power ON.
3. With the test cartridge in your calculator press:



4. The tape should load and the printer should print a message similar to the one below, depending on which ROM(s) are installed in the calculator.

PLEASE VERIFY
THE FOLLOWING:

| |
|-----------------|
| GEN. I/O ROM IN |
| EXT. I/O ROM IN |
| 9862A ROM IN |
| 9872A ROM OUT |

This information will vary depending on ROM(s) that are installed. Other ROM(s) such as Matrix, String, and Systems Programming are not included in listing.

After the ROM verify printout, the display should return with:

ENTER MODEL # TO BE TESTED...

press: 9 8 8 1 A CONTINUE

5. When the display returns with:

ENTER SELECT CODE...

Enter the select code and press: CONTINUE

6. At this point you can select which tests you want to run. If you wish to run all the tests, press: .

If you wish to run only specific tests, press: .

7. All questions displayed from this point on can be answered by pressing for yes and for no. If you wish to perform specific tests, key in 0 for each test you do not want and 1 for each test you do want.

Here is a list of the six printer tests.

The tests appear in the following order:

1. Dot Matrix
2. Character Set
3. Vertical Format
4. Paper Slew
5. Triangular
6. Ripple

NOTE

When the last test you requested is performed (or when you request no test), the printer will print: **TEST COMPLETE**

Dot Matrix Test

The dot matrix test consists of up to four characters printed across the page a specified number of times. It is the only test you can run more than one time, by answering the first question displayed:

Entire dot matrix test?

Enter 1 for yes and 0 for no. For an initial test, the entire dot matrix test should be performed. Key in .

Entire Test Procedure

The next question displayed will be:

How many lines of each?

Key in the number of lines of "H", "I", "#", or "." characters you want printed. (For an initial test, 30 lines of each character is advisable.) Entering zero instead of a number at this point will exit the dot matrix test portion of the program and begin the procedure for the next test.

The printer will immediately begin printing each of the four characters mentioned above across the page the specified number of lines.

After these lines have been printed, the procedure for the next test (i.e., Character Set, Vertical Format, etc.) will be performed automatically.

The image consists of a large, dense grid of small, repeating characters, likely a barcode or a highly compressed image. The characters are arranged in a regular, repeating pattern across the entire page, forming a textured, almost abstract visual field. The characters appear to be a mix of letters and symbols, but they are too small and numerous to be individually legible. The overall effect is one of a highly structured, repetitive pattern that fills the page.

Partial Test Procedure

The next question displayed will be:

How many lines of code?

Key in the number of lines of "H", "I", or "#", or "." characters you want printed. Entering zero instead of a number at this point will exit the dot matrix test portion of the program and begin the procedure for the next test.

The display will now ask whether you want to print any of the following characters, in the order H1#..

Answer each question, with a 1 for yes and a 0 for no, as it appears on the display.

After the printer prints the characters you requested the specified number of times, the display will again ask:

21591X1J10W top air 443

Enter 1 for yes or 0 for no. If you enter 1, follow the "Entire test procedure", on the previous page. If you enter 0, follow the "Partial test procedure", from the top of this page.

Compare your printout to the example on the following page. Be sure all characters are aligned and all dots in each character are printed. Alignment should be both vertical and horizontal. Also, be sure the print intensity is uniform.

Character Set Test

The printer will print one line each of every letter in the alphabet.

Compare your printout to the example on this page. Be sure all characters are printed in each row and in each column, and that all the dots in each character have been printed.

```

CHARACTER SET TEST
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD
EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
JJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJ
KKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKK
LLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLL
MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM
NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP
QQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQ
RRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRR
SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS
TTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT
UUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUU
VVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVV
WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
ZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZ
  
```

Vertical Format Test

The printer will print TOP OF FORM on the first line of two pages and BOTTOM OF FORM on the last line of both pages. SINGLE SPACE, DOUBLE SPACE, TRIPLE SPACE, NEXT QUARTER PAGE, NEXT HALF PAGE, NEXT SIXTH PAGE will be printed at appropriate intervals, two per message.

Compare your printout to the example on this page. Be sure all messages are printed in the correct position.

| | | | | |
|----------------|---|---------------------|---|------------------|
| • SINGLE SPACE | • | • NEXT SIXTH PAGE | • | • NEXT HALF PAGE |
| • SINGLE SPACE | • | | • | |
| • SINGLE SPACE | • | | • | |
| • SINGLE SPACE | • | | • | |
| • SINGLE SPACE | • | | • | |
| • SINGLE SPACE | • | | • | |
| • SINGLE SPACE | • | | • | |
| • SINGLE SPACE | • | | • | |
| • SINGLE SPACE | • | | • | |
| • SINGLE SPACE | • | | • | |
| • SINGLE SPACE | • | • NEXT SIXTH PAGE | • | |
| • SINGLE SPACE | • | | • | |
| • SINGLE SPACE | • | | • | |
| • SINGLE SPACE | • | | • | |
| • SINGLE SPACE | • | | • | |
| • SINGLE SPACE | • | | • | |
| • DOUBLE SPACE | • | | • | |
| • DOUBLE SPACE | • | • NEXT SIXTH PAGE | • | |
| • DOUBLE SPACE | • | | • | |
| • DOUBLE SPACE | • | | • | |
| • DOUBLE SPACE | • | | • | |
| • DOUBLE SPACE | • | • NEXT QUARTER PAGE | • | |
| • DOUBLE SPACE | • | | • | |
| • | • | | • | |
| • | • | | • | |
| • TRIPLE SPACE | • | | • | |
| • TRIPLE SPACE | • | | • | |
| • TRIPLE SPACE | • | | • | |
| • TRIPLE SPACE | • | • NEXT QUARTER PAGE | • | |
| • TRIPLE SPACE | • | | • | |

NEXT HALF PAGE

Paper Slew Test

The printer will print PAPER SLEW in increasing intervals on the page.

Compare your printout to the example on this page. Be sure all messages are printed in the correct position.

[illegible]

Triangular Test

The letter M will be repeated across the page in a triangular pattern.

Compare your printout to the example on this page. Be sure the “M”s form a smoothly-decreasing triangular pattern, one less M per line, despite the space gap between form pages. Verify that the area to the right of the triangle contains no characters or ribbon smudges; it should be perfectly clean.

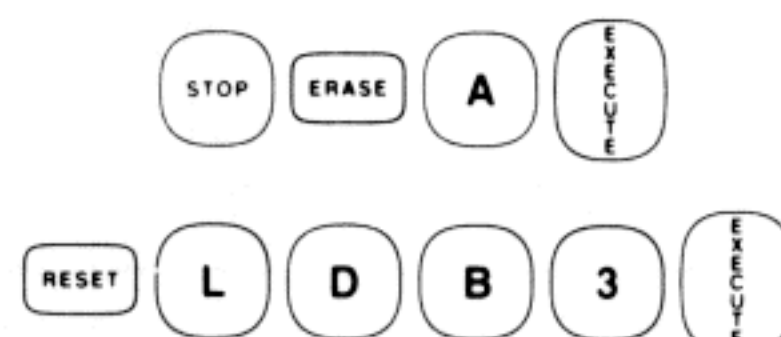
[illegible]

9883A Paper Tape Photo Reader

This test requires the General I/O ROM.

To Test the Tape Reader

1. Make sure that the calculator and tape reader are properly connected.
2. Switch the calculator and tape reader ON.
3. Load the diagnostic tape (09883-90030) supplied with the tape reader and then press READ on the front of the tape reader.
4. With the test cartridge in your calculator, press:



5. The tape should load and the printer should print a message similar to the one below, depending on which ROM(s) are installed in the calculator.

PLEASE VERIFY
THE FOLLOWING:

```

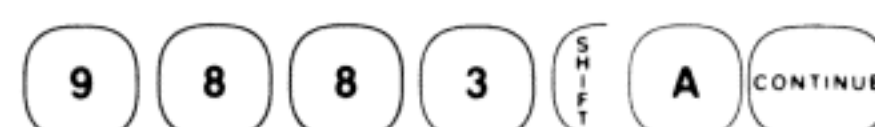
GEN. I/O ROM IN
EXT. I/O ROM IN
9862A ROM IN
9872A ROM OUT
  
```

This information will vary depending on ROM(s) that are installed. Other ROM(s) such as Matrix, String, and Systems Programming are not included in listing.

After the ROM verify printout, the display should return with:

ENTER MODEL # TO BE TESTED...

press



6. When the display returns with:

ENTER SELECT CODE...

enter the select code and press **CONTINUE**. To specify the factory set select code just press **CONTINUE**.

7. When the display returns with:

ENTER # OF TIMES TO RUN TEST...

press **CONTINUE**.

8. When the display returns with:

LOAD TAPE, PRESS CONTINUE

ensure that the punched tape is loaded in the tape reader, and then press **CONTINUE**.

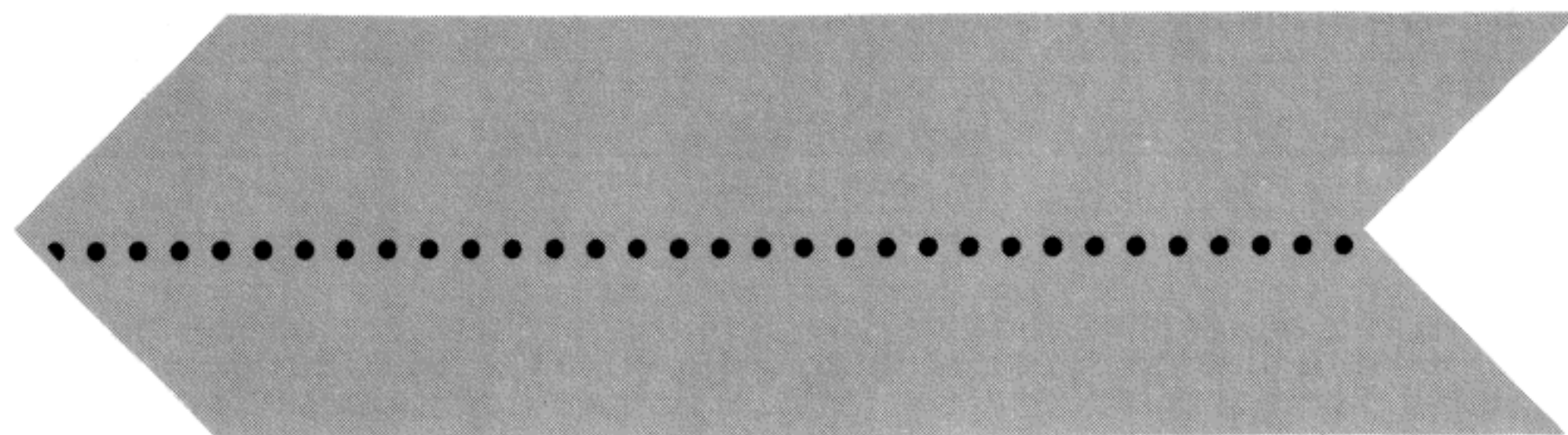
9. The tape reader should read the entire tape, the calculator will print the errors if they occur.
10. If no errors are printed the tape reader is operating properly.
11. If errors are printed, carefully repeat the procedure. If there are still errors contact your nearest HP Sales and Service Office; locations are listed in the back of the 9825A Operating and Programming Manual.

9884A Paper Tape Punch

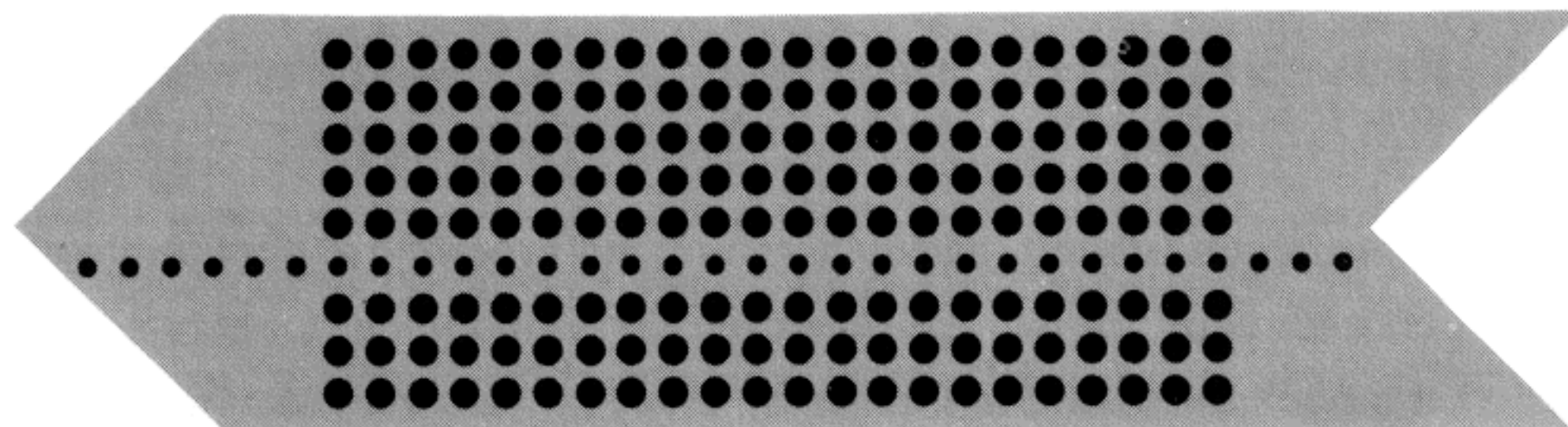
This test requires the General I/O ROM.

To Test the Tape Punch

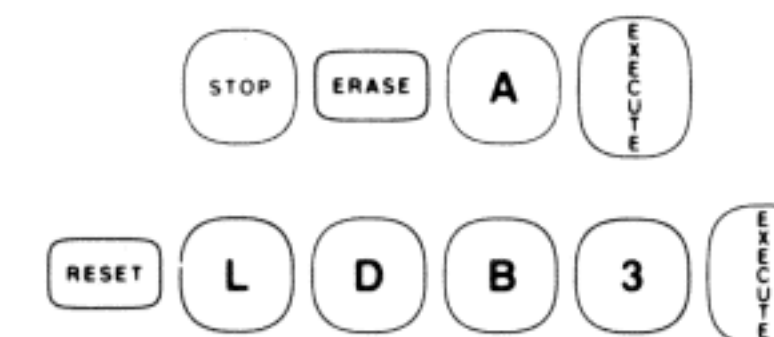
1. Make sure that the calculator and punch are properly connected.
2. Turn the calculator and the punch ON.
3. Ensure that the punch is loaded with paper tape.
4. Press the FEED HOLES switch on the punch, the following holes should be punched.



5. Press the CODE HOLES switch on the punch, the following holes should be punched.



6. With the test cartridge in your calculator, press:



7. The tape should load and the printer should print a message similar to the one below, depending on which ROM(s) are installed in the calculator.

PLEASE VERIFY
THE FOLLOWING:

```
GEN. I/O ROM IN
EXT. I/O ROM IN
9862A   ROM IN
9872A   ROM OUT
```

This information will vary depending on ROM(s) that are installed. Other ROM(s) such as Matrix, String, and Systems Programming are not included in listing.

After the ROM verify printout, the display should return with:

ENTER MODEL # TO BE TESTED...

press:



8. When the display returns with:

ENTER SELECT CODE...

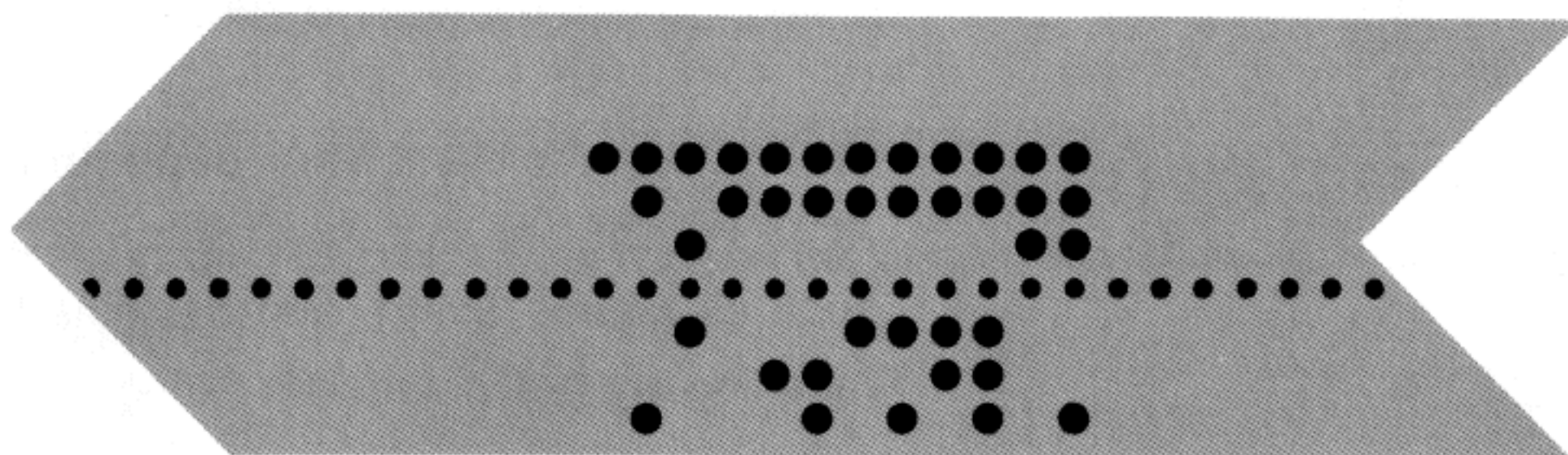
enter the select code and press **CONTINUE**. To specify the factory set select code just press **CONTINUE**.

9. When the display returns with:

ENTER # OF TIMES TO RUN TEST...

enter the number of times you want the test to run and press **(CONTINUE)**

10. The resulting punched tape should be the same as example shown below.



11. If the punched tape is the same, the punch is operating properly.

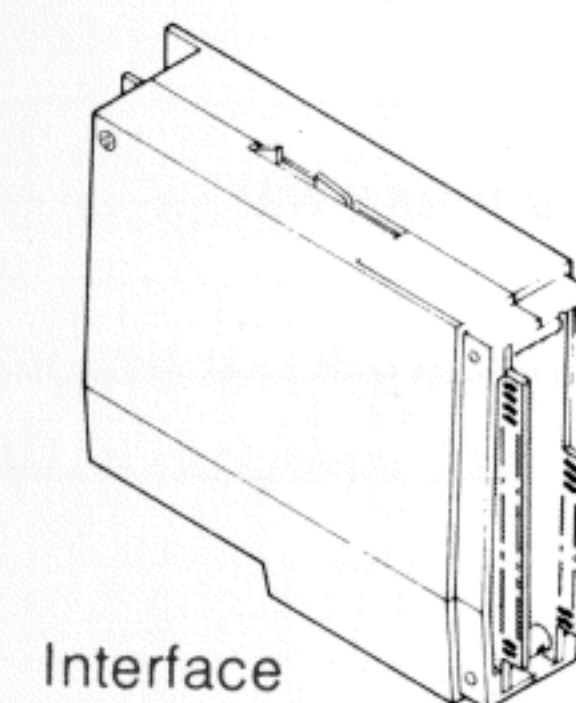
12. If there are missing holes or if there are extra punched holes, carefully repeat the procedure. If there are still missing or extra holes contact the nearest HP Sales and Service Office; locations are listed in the back of the 9825A Operating and Programming Manual.

98032A 16-Bit Interface

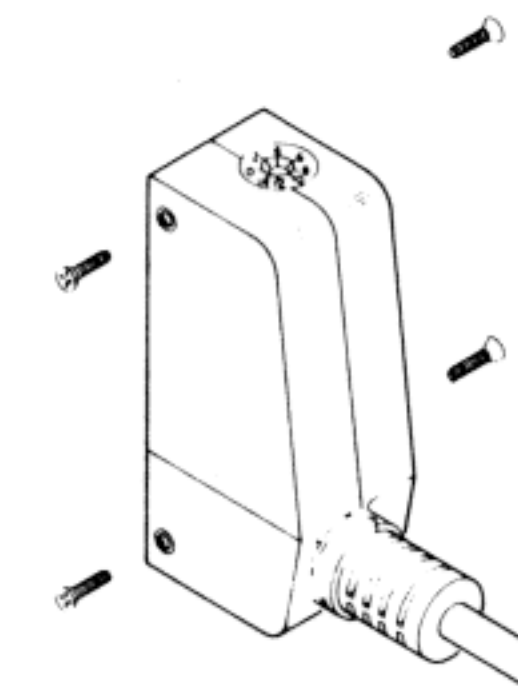
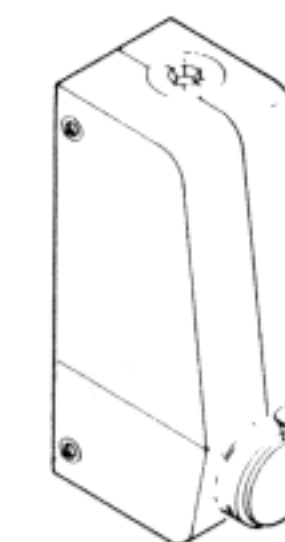
This test requires the General I/O ROM.

To Test the Interface

1. Remove the Peripheral Configuration Assembly and install the Test Connector (P/N 98241-67932).

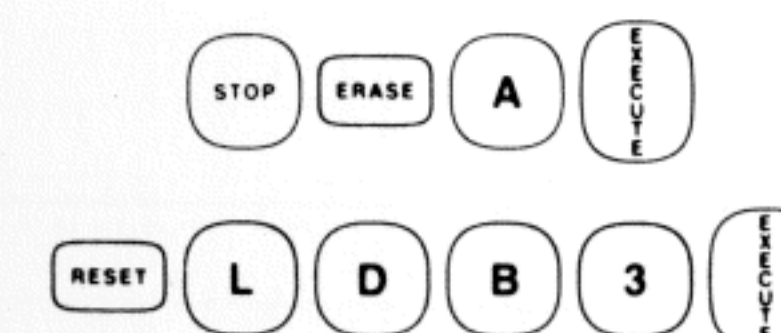


Interface



Peripheral Configuration Assembly

2. Turn the calculator OFF.
3. Plug the interface into the back of the calculator and turn the calculator ON.
4. With the test cartridge in your calculator, press:



5. The tape should load and the printer should print a message similar to the one below, depending on which ROM(s) are installed in the calculator.

PLEASE VERIFY
THE FOLLOWING:

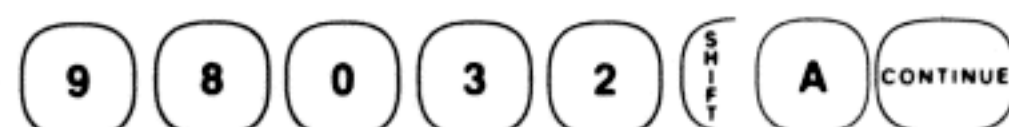
GEN. I/O ROM IN
EXT. I/O ROM IN
9862A ROM IN
9872A ROM OUT

This information will vary depending on ROM(s) that are installed. Other ROM(s) such as Matrix, String, and Systems Programming are not included in listing.

After the ROM verify printout, the display should return with:

ENTER MODEL # TO BE TESTED...

press



6. When the display returns with:

ENTER SELECT CODE...

enter the select code and press . To specify the factory set select code just press .

7. When the display returns with:

ENTER # OF TIMES TO RUN TEST...

enter the number of times you want the test to run and press .

8. The following displays should be seen while the test is in progress.

Doing 98032 DATA PATTERNS TEST

60 seconds

Doing I/O line TEST

15 seconds

Doing EXTENDED CTRL and STATUS

30 seconds

Test of 98032 COMPLETE!

2 seconds

During the test the calculator will beep periodically to indicate that the test is still in progress. The printer will print any errors that occur during the test.

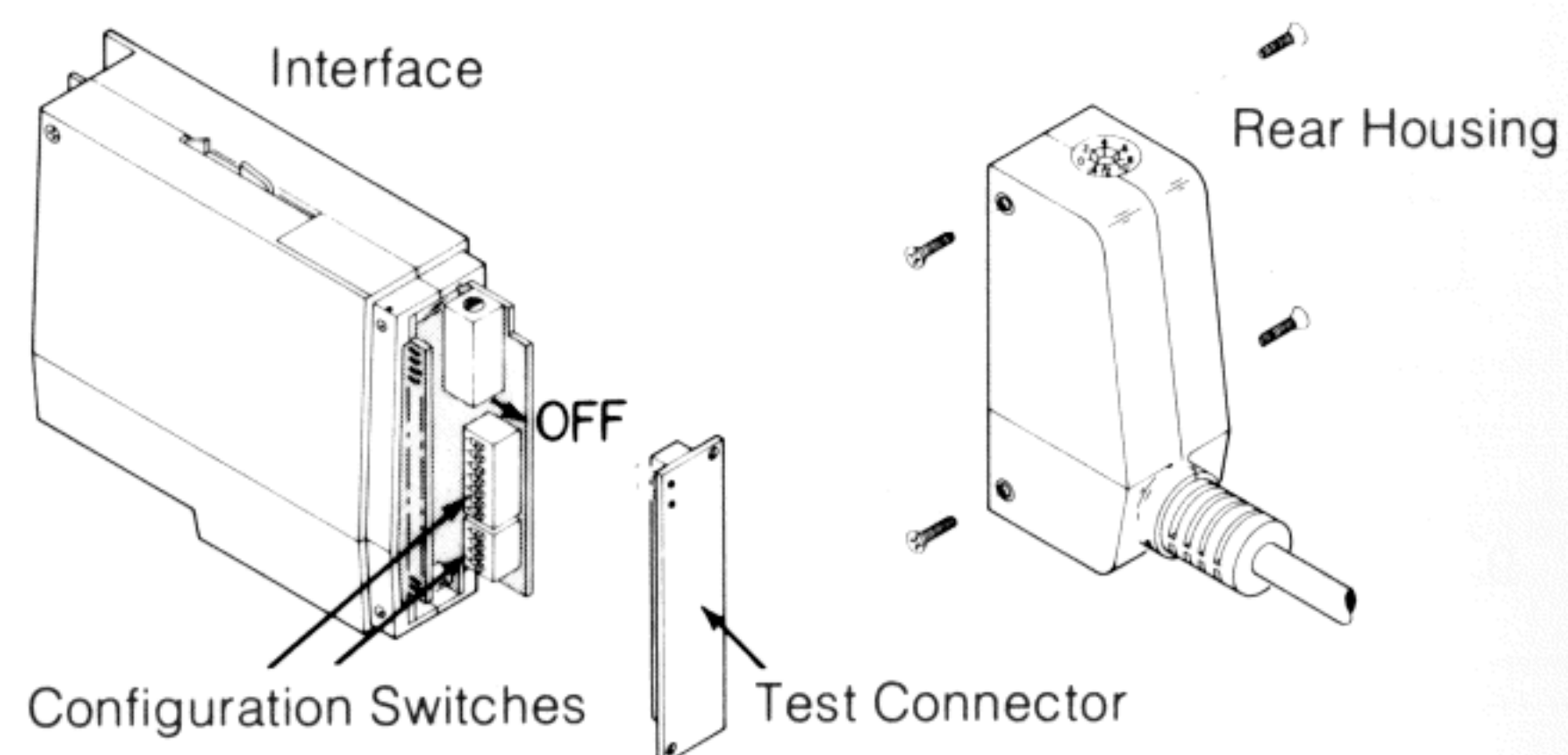
9. If no errors are printed the interface is operating properly.
10. If errors are printed, carefully repeat the procedure. If there are still errors, contact the nearest HP Sales and Service Office; locations are listed in the back of the 9825A Operating and Programming Manual.

98033A BCD Interface

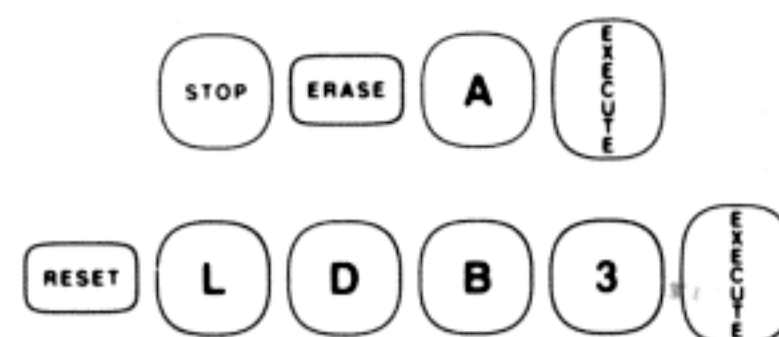
This test requires the General I/O ROM.

To Test the Interface

1. Remove the rear housing and install the Test Connector (P/N 98241-67933) and set all of the configuration switches to OFF (refer to the 98033A BCD Interface Installation and Service Manual).



2. Turn the calculator OFF.
3. Plug the interface into the back of the calculator and turn the calculator ON.
4. With the test cartridge in your calculator, press:



5. The tape should load and the printer should print a message similar to the one below, depending on which ROM(s) are installed in the calculator.

PLEASE VERIFY
THE FOLLOWING:

```

GEN. I/O ROM IN
EXT. I/O ROM IN
9862A      ROM IN
9872A      ROM OUT
  
```

This information will vary depending on ROM(s) that are installed. Other ROM(s) such as Matrix, String, and Systems Programming are not included in listing.

After the ROM verify printout, the display should return with:

ENTER MODEL # TO BE TESTED...

press



6. When the display returns with:

ENTER SELECT CODE...

enter the select code and press **CONTINUE**. To specify the factory set select code just press **CONTINUE**.

7. When the display returns with:

ENTER # OF TIMES TO RUN TEST...

enter the number of times you want the test to run and press **CONTINUE**.

8. The following display should be seen while the test is in progress.

98033A BCD Interface Test

70 seconds

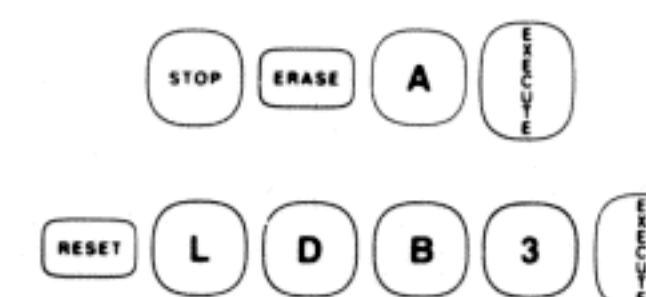
During the test the calculator will beep periodically to indicate that the test is still in progress. The calculator will print any errors that occur during the test.

9. If no errors are printed the interface is operating properly.
10. If errors are printed, carefully repeat the procedure. If there are still errors, contact the nearest HP Sales and Service Office; locations are listed in the back of the 9825A Operating and Programming Manual.

98034A Interface

This test requires the General and the Extended I/O ROM. It also requires two 98034A's: one to be tested and one to perform the tests. The interface to be tested should be set to the factory configuration (refer to the 98034A Installation and Service Manual, P/N 98034-90000). The test interface must be disassembled and reconfigured.

1. Assure that calculator power is OFF.
2. Install the General and Extended I/O ROMs.
3. Following the procedure in the Installation and Service Manual, remove the interface cover on the test interface.
4. Separate case halves as shown in DWG. On 98034-66502 board, change the parallel poll bit from 1 to 2 (see DWG). Note the switch positions before you change them. On the 98034-66501 board, change the talk/listen address switches to ON, ON, OFF, ON, OFF (see DWG). Keep the parallel poll logic switch at the 1 position. Change the select code to 6.
5. Reassemble the test interface. Plug both interfaces into the back of the calculator. Plug HP-IB connectors together and turn calculator power ON.
6. With the test cartridge in your calculator press:



7. The tape should load and the printer should print a message similar to the one below, depending on which ROM(s) are installed in the calculator.

PLEASE VERIFY
THE FOLLOWING:



```
GEN. I/O ROM IN
EXT. I/O ROM IN
9862A   ROM IN
9872A   ROM OUT
```

This information will vary depending on ROM(s) that are installed. Other ROM(s) such as Matrix, String, and System Programming are not included in listing.

8. After the ROM verify printout, the display should return with:


ENTER MODEL # TO BE TESTED...


press:

9 8 0 3 4  A 

9. When the display returns with:


ENTER SELECT CODE...

Enter the select code and press: 

To specify the factory select code, press: .

10. When the display returns with:

ENTER # OF TIMES TO RUN TEST...

Enter number of times you want the test to run and press: 

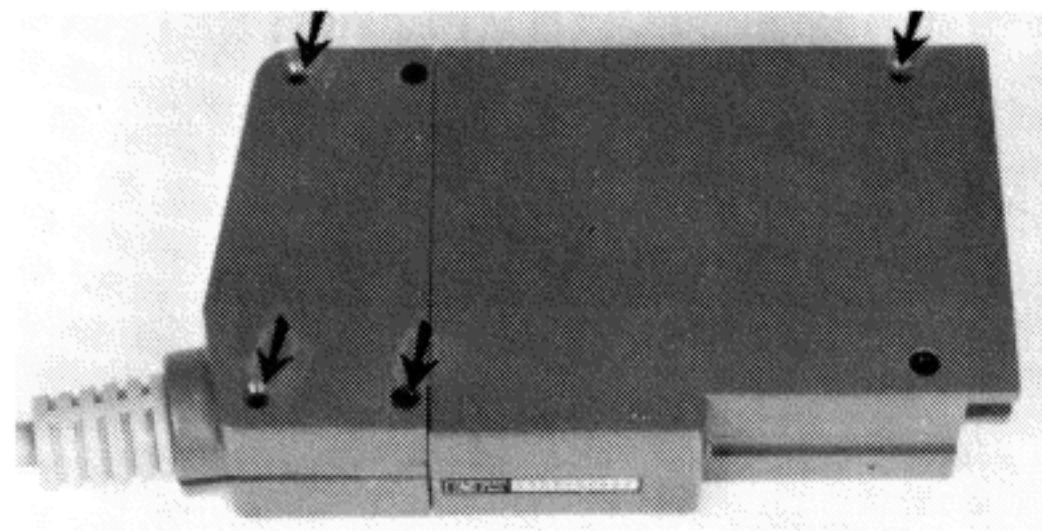
NOTE: One test takes approximately two minutes to complete. Do not run the test more than ten times as this test must access three tape files. Prolonged repetitive tape use is not recommended.

11. The calculator will display which test is in progress and will print:

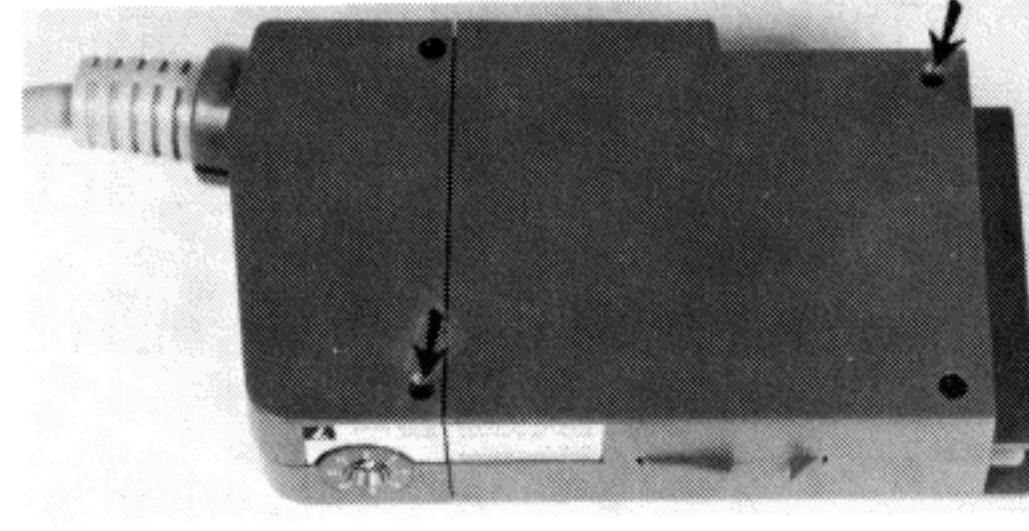
TEST COMPLETE

when finished. Any errors that occur during the test will be printed.

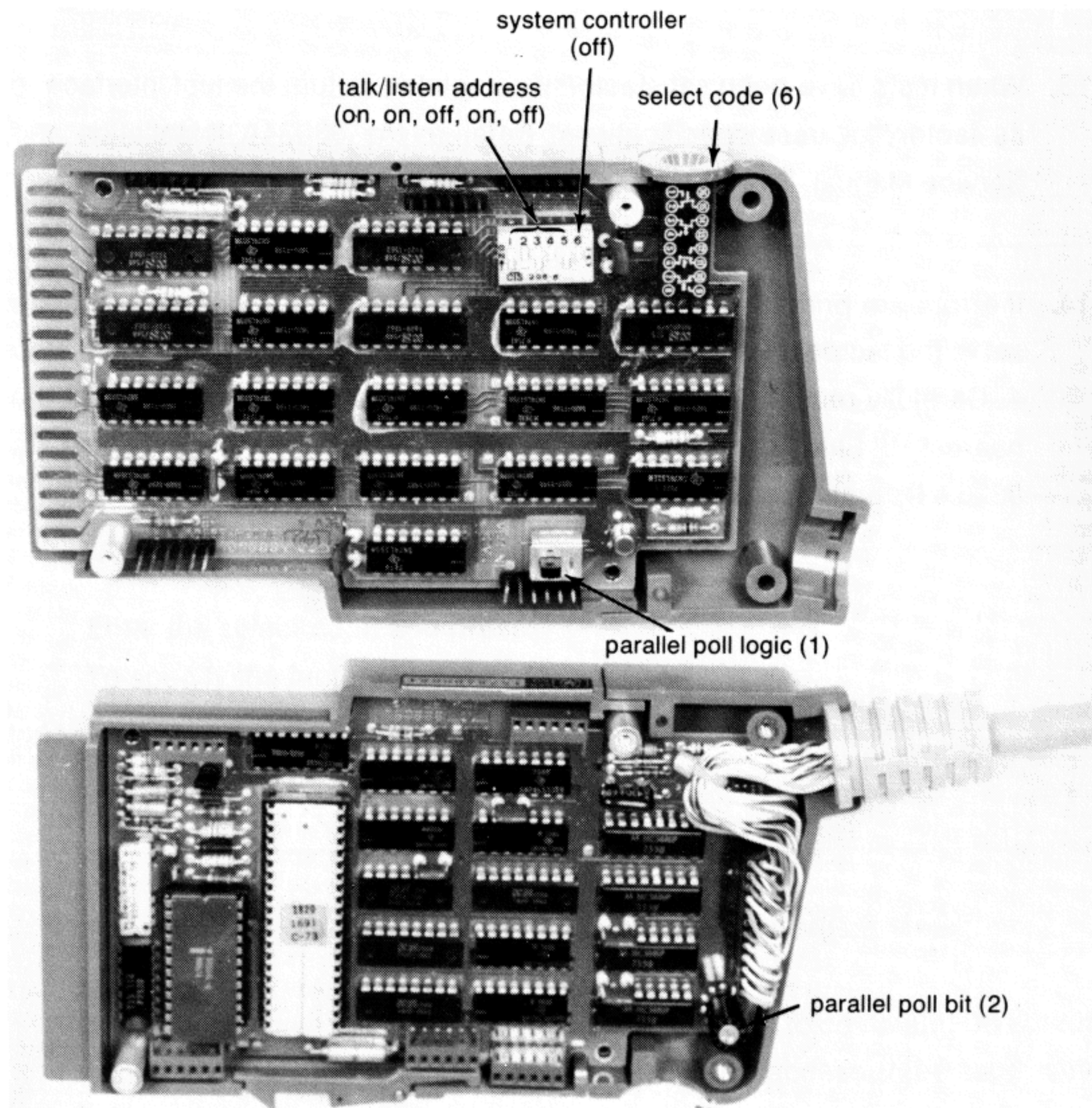
12. If no errors are printed and the test is completed, the interface is operating properly.
13. When tests have been satisfactorily completed, return the test interface to its factory or user specifications, (refer to the 98034A Installation and Service Manual, P/N 98034-90000) and reassemble the interface.
14. If errors are printed, check to be sure that the configuration switches are set to the factory settings and that the test interface is set as shown in step 4. Carefully repeat the test procedure. If there are still errors, contact the nearest HP Sales and Service Office; locations are listed in the back of the 9825A Operating and Programming Manual.



A. Remove only the four screws shown above.



B. Flip the card over and remove these two screws.



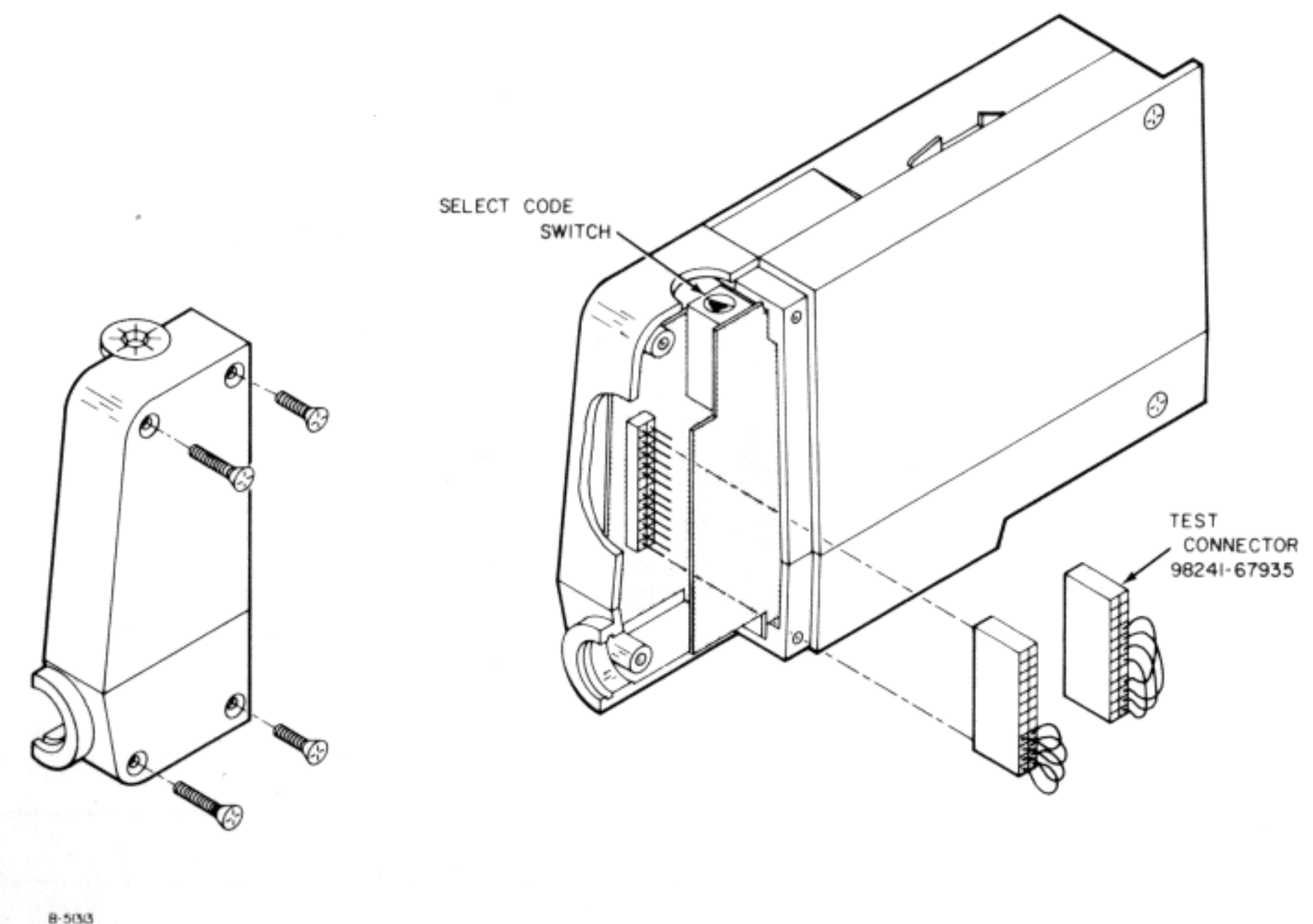
C. Separate the case halves and position them as shown.

98035A Real Time Clock

This test requires the General I/O ROM. The test is more extensive with the Extended I/O ROM also installed.

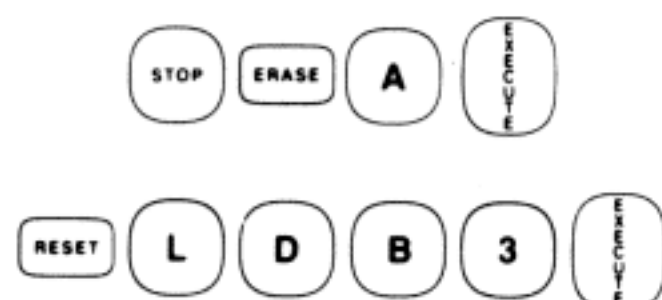
1. Assure that calculator power is turned OFF.
2. Install the selected ROM(s) and remove the Real Time Clock unit. Remove the 4 screws from the rear housing and remove the rear housing (see DWG).
3. Remove the wired connector from the back of the Real Time Clock unit and install the test connector (P/N 9824-67935) in place of the wired connector (see DWG).

NOTE: If your 98035A has the option cable, carefully remove the connector and install the test connector.



4. Plug the Real Time Clock into the back of the calculator and turn the calculator ON.

5. With the test cartridge in your calculator, press:



6. The tape should load and the printer should print a message similar to the one below, depending on which ROM(s) are installed in the calculator.

PLEASE VERIFY
THE FOLLOWING:

```
GEN. I/O ROM IN
EXT. I/O ROM IN
9862A ROM IN
9872A ROM OUT
```

This information will vary depending on ROM(s) that are installed. Other ROM(s) such as Matrix, String, and System Programming are not included in the listing.

After the ROM verify printout, the display should return with:

ENTER MODEL # TO BE TESTED...

Press: 9 8 0 3 5 (A) (CONTINUE)

7. When the display returns with:

ENTER SELECT CODE...

enter the select code (located on upper rear of clock unit) and press (CONTINUE).
To specify the factory set select code just press (CONTINUE).

8. When the display returns with:

ENTER # OF TIMES TO RUN TEST...

enter the number of times that you want to run the test and press (CONTINUE).

NOTE: One test pass requires approximately 3 minutes to complete.

9. When the display returns with:

TIME CHANGE ON CARD OK? (1=Y, 0=N)

press (1) (CONTINUE) if the time setting may be changed or (0) (CONTINUE) if you do not wish to change the time setting. NOTE: The test is not as extensive if the time setting is not changed (e.g., clock hardware not tested completely, set and read commands not checked).

10. The calculator will display each test as it is in progress.

TEST COMPLETE

will be printed when finished. Any errors that occur during the test will be printed.

11. If no errors are printed and the test is completed, the Real Time Clock should be operating properly.
12. When the tests have been satisfactorily completed, remove the test connector, reinstall the wired connector, and reassemble the Real Time Clock unit.
13. If errors are printed, carefully repeat the test procedure. If errors still occur, contact the nearest HP Sales and Service Office; locations are listed in the back of the 9825A Operating and Programming Manual.

98036A Serial Interface

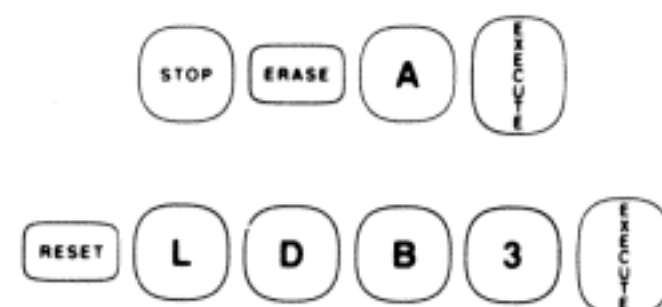
This test requires the General I/O ROM. The test is more extensive with the Extended I/O ROM also installed.

1. Assure that calculator power is turned OFF.
2. Install selected ROM(s) and remove Serial Interface unit. Remove 4 screws from the rear housing and remove the rear housing (see DWG).
3. Remove the wired connector from the back of the interface unit and install the test connector (P/N 98241-67936) in place of the wired connector.

NOTE

Assure that test connector pins line up properly with pins on interface (see DWG). Make note of the BAUD rate switch position.

4. Set the BAUD rate switch to position 3. This sets the BAUD rate to 2400 (see DWG).
5. Plug the Serial Interface into the back of the calculator and turn calculator ON.
6. With test cartridge in your calculator, press:



7. The tape should load and the printer should print a message similar to the one below, depending on which ROM(s) are installed in the calculator.

PLEASE VERIFY
THE FOLLOWING:

```
GEN. I/O ROM IN
EXT. I/O ROM IN
9862A    ROM IN
9872A    ROM OUT
```

This information will vary depending on the ROM(s) that are installed. Other ROM(s) such as Matrix, String, and Systems Programming are not included in listing.

After the ROM verify printout, the display should return with:

ENTER MODEL # TO BE TESTED...

Press:



8. When the display returns with:

ENTER SELECT CODE...

enter the select code and press

9. When the display returns with

ENTER # OF TIMES TO RUN TEST...

enter the number of times you want the test to run and press

NOTE: One test requires approximately 7½ minutes to complete.

10. When the display returns with

SET BAUD RATE TO 2400 & CONTINUE

verify that the BAUD rate switch on the interface is set to position 3 (see step 4) and press

11. The following displays should appear while the test is in progress.

DEFAULT MODE # GOOD

where # is a number between 1 and 255.

MODE # 1, # 2 GOOD

where #1 and #2 are numbers between 1 and 255.

TESTING R6

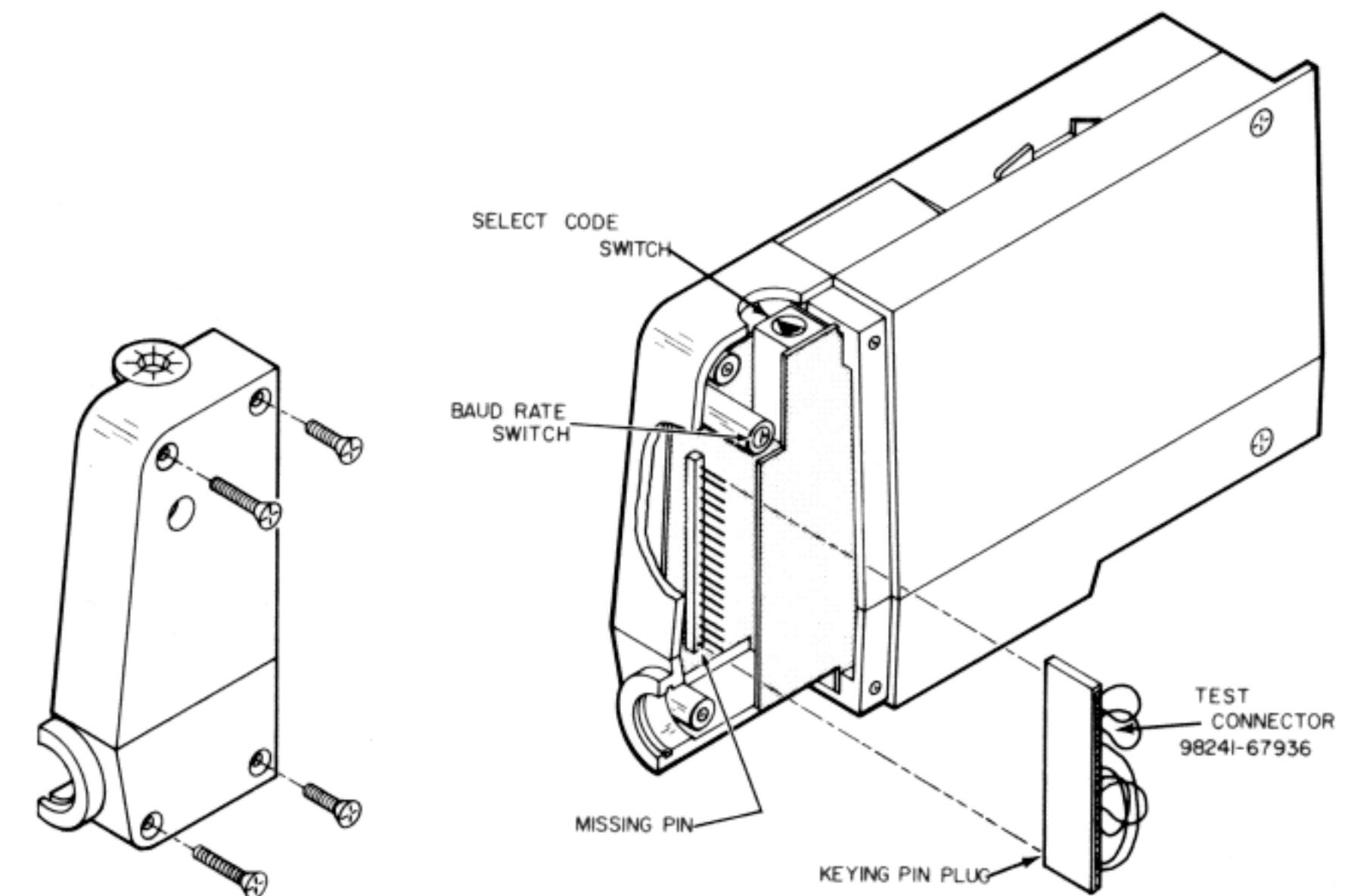
is displayed if the Extended I/O ROM is installed.

TEST COMPLETE

is printed when finished. The calculator prints any errors that occur during the test.

12. If no errors are printed and the test is completed, the interface is operating properly.
13. When tests have been satisfactorily completed, remove the test connector and reinstall the wired connector, return the BAUD rate switch to its previous position, and reassemble the interface.
14. If errors are printed, check to be sure that the configuration switches are set to the factory settings and carefully repeat the test procedure. If there are still errors, contact the nearest HP Sales and Service Office; locations are listed in the back of the 9825A Operating and Programming Manual.

98036A Serial Interface



B-5132



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