

# HP 9866A/B Printer Peripheral Manual

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## Technical Specifications

Printing Speed - Print Mode: 240 lines/minute  
Plot Mode: 900 rows of dots/minute

Print Density - Print Mode:  
80 characters/line  
6 lines/inch (2.4 lines/cm)

Plot Mode (9866B):  
400 dots/row  
60 rows/inch (23.6 rows/cm)

Character Set - 9866A  
64 alphanumeric characters\*; a complete character set is shown below:

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

9866B  
95 alphanumeric characters\*, a complete character set is shown below:

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

Data Input Format - 7 line ASCII code, bit-parallel, character-serial fashion

Printer Paper - 8-3/4" wide (222.3mm wide) thermal sensitive paper, available in 250' rolls

Buffer - 1 line of 80 characters

Size - 17.75" × 16.1" × 6.1" (45.09cm × 40.90cm × 15.49cm)

Weight - 40 lbs. (18.14 kg)

Power Requirements - Nominal voltage ranges - 100, 120, 220, 240V ac; +5% to -10% of each range

Frequency range - 48 to 66Hz

Power - 250 voltamps, maximum

Temperature Range\*\* - 0° C to 45° C

Humidity Range\*\* - 95% relative humidity maximum (non-condensing)

\*All characters are not usable with some calculators.

\*\*The printer paper is sensitive to high temperature and high humidity conditions.

# Chapter 1

## General Information

### Introduction

The HP 9866A and 9866B Printers are high speed, thermal line-printers capable of printing up to 240 lines per minute with up to 80 characters (columns) per line. Up to 64 alphanumeric characters are available for printing with the 9866A. The character set for the 9866B is expanded (lower-case alpha characters) up to 95 alphanumeric characters. The 9866B also has a plot mode which is usable with some calculators.

#### NOTE

This manual replaces the 9866A Printer Peripheral Manual (HP Part No. 09866-90000).

This manual describes how to install and maintain the 9866A or 9866B Printer. When the printer is to be used with 9800-Series Calculators, the printer is supplied with the appropriate calculator interface. See "Accessories Supplied" in this chapter.

When the printer does not contain an "option", it is supplied with an unterminated interface cable and a service manual (HP Part No. 09866-90031) containing general interfacing information.

For instructions on how to control the printer with your 9800-Series Calculator, see one of the following manuals.

Printer Operating Manuals		
Calculator	Printer Manual	Manual Part No.
9810A 9820A 9821A	9866A/B Option 10/20/21/30 Operating Manual	09866-90032
9830A	9866A/B Option 10/20/21/30 Operating Manual	09866-90032
	9830A Operating and Programming Manual	09830-90001
9815A	98134A Opt. 066 Interface Printer Operating Note	98134-90013
9825A	98032A Opt. 066 Interface Printer Operating Note	09825-90043

## Printer Paper

The printer uses a unique thermal-printing method which permits a fast, non-impact printout by using special heat-sensitive paper. Thermal printer paper is available under the following part numbers.

Six rolls, Black printout - HP Part No. 9270-0488

Two rolls, Blue printout - HP Part No. 9281-0414

## Maintenance Agreements

When you buy a Hewlett-Packard 9866 Printer, service is an important factor. If you are to get maximum use from your printer, it must be in good working order. A HP Maintenance Agreement is the best way to keep your printer in optimum running condition.

Consider these important advantages:

- **Fixed Cost**— The cost is the same regardless of the number of calls, so it is a figure that you can budget.
- **Automatic Upgrading**— Even after the warranty has expired, your HP field service engineer will add critical engineering changes during his regular visits.
- **Priority Service**— Your Maintenance Agreement assures that you receive priority treatment, within an agreed upon response time.
- **On-Site Service**— There is no need to package your equipment and return it to HP. Fast and efficient modular replacement at your location saves you both time and money.
- **A Complete Package**— A single charge covers labor, parts, and transportation.
- **Regular Maintenance**— Periodic visits are included, per factory recommendations, to keep your equipment in optimum operating condition.
- **Individualized Agreements**— Each Maintenance Agreement is tailored to your support equipment configuration and your requirements.

After considering these advantages, we are sure you will agree that a Maintenance Agreement is an important and cost-effective investment.

For more information please contact your local HP calculator sales and service office.

## Accessories Supplied

Table 1 lists the accessories supplied with the various printer options. Each option also receives the Standard accessories (except the interface cable and service manual). A list of equipment supplied with options not listed here can be found in the operating manual supplied with the printer.

Table 1. Accessories Supplied

Description	Quantity	HP Part No.
Standard Accessories		
Peripheral Manual	1	09866-90001
Service Manual*	1	09866-90031
Interface Cable*	1	09866-61606
Power Cord	1	8120-1378
Spare Fuses:		
1.5A, 250V, Slow-blo	1	2110-0304
3.0A, 250V, Slow-blo	2	2110-0381
Dust Cover	1	4040-0504
Printer Paper (pkg. of 2)	1	9281-0414
Option 10 Accessories		
Option 10/20/21/30 Operating Manual	1	09866-90032
Printer Exerciser Program ** (consists of a pre-recorded program card and envelope)	1	09810-90207
Interface Cable	1	09866-61610
Select Code Labels	1 pkg.	7120-2940
Option 15 Accessories		
Interface Cable	1	98134-61666
Operating Note	1	98134-90013
Option 20 Accessories		
Option 10/20/21/30 Operating Manual	1	09866-90032
Supplement 'J' (Rev A) for the 9820A Electrical Inspection Booklet **	1	09820-90201
Interface Cable	1	09866-61620
Select Code Labels	1 pkg.	7120-2940
Option 21 Accessories		
Option 10/20/21/30 Operating Manual	1	09866-90032
Interface Cable	1	09866-61620
Select Code Labels	1 pkg.	7120-2940
Option 25 Accessories		
Interface Cable	1	98032-67905
Operating Note	1	09825-90043
Select Code Labels	1 pkg.	7120-4779
Option 30 Accessories		
Option 10/20/21/30 Operating Manual	1	09866-90032
Interface Cable	1	09866-61630
Dust Cover	1	4040-0505
Power Cord, inter-instrument	1	8120-1575

\*Standard printer only, not supplied with options.

\*\*9866A only.

# Initial Inspection

The printer and its accessories were carefully inspected before they were shipped to you. Please verify that the correct accessories are present; then inspect the printer for physical damage. If any damage is found, contact the nearest HP Sales and Service Office; office locations are listed at the back of this manual.

# Electrical Inspection

Once the printer has been installed and loaded with paper, as described in the next chapter, it can be checked for proper electrical operation. Table 2 lists the printer tests to be used with the various 9800-Series Calculators, and the manual in which the test procedures can be found.

The exercisers in Table 2 include tests for both the 9866A and B. Earlier versions of printer test programs do not include tests for the 9866B. If your printer test does not include a test for the 9866B, see the operating manual or note supplied with your printer.

Table 2. Printer Tests

Calculator	Printer Test	Test Procedures
9810A	Program card included with 09810-90207	09810-90207
9815A	9815A Utility and Test Cartridge	98134A Option 066 Interface Operating Note
9820A	Magnetic program card included in Supplement J Revision A for the 9820A Electrical Inspection Booklet	Supplement "J" (Rev A) for the 9820A Electrical Inspection Booklet
9821A	9821A Systems Test Cassette	9821A System Test Instructions
9825A	9825A System Test Cartridge	9825A Test Cartridge Instructions
9830A	9830A Systems Test Cassette	9830A System Test Instructions

# Chapter 2

## Printer Installation

### Power Requirements

The printer operates from nominal power line voltages of 100, 120, 220, or 240 volts ac. The range of operation is within +5% and -10% of each nominal voltage. Two switches on the printer back panel allow selection of any one of the four nominal voltages (see Figure 1). The line frequency must be within 48 to 66 Hz and the printer requires a maximum of 250 voltamps.

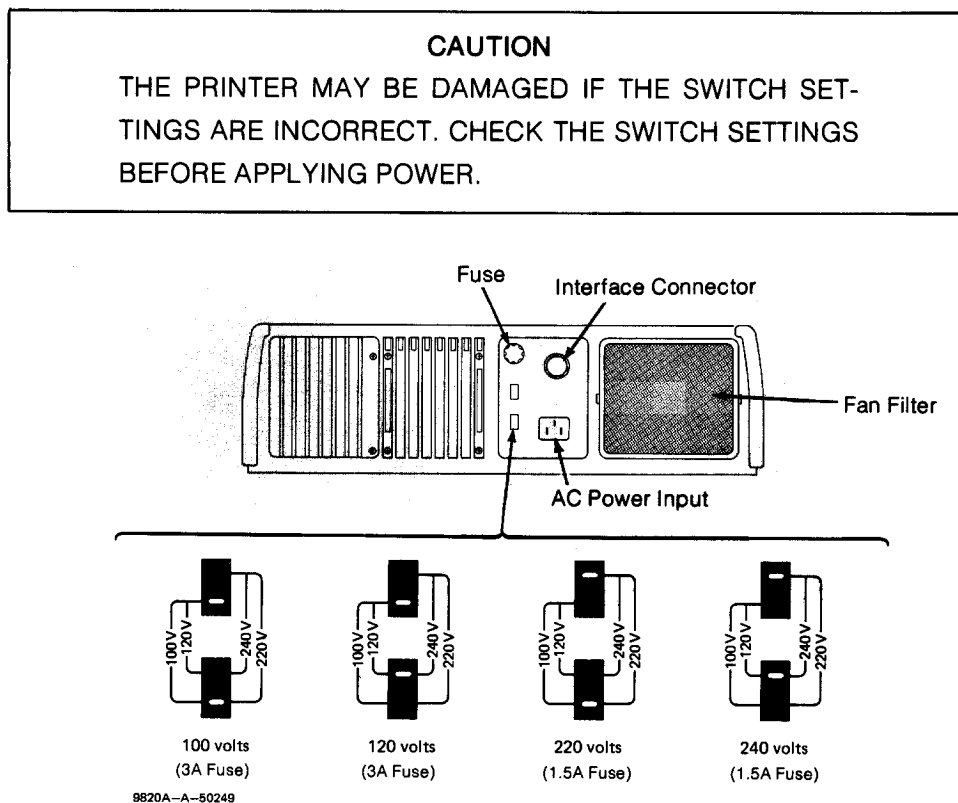


Figure 1. The Printer Back Panel



## Power Cords

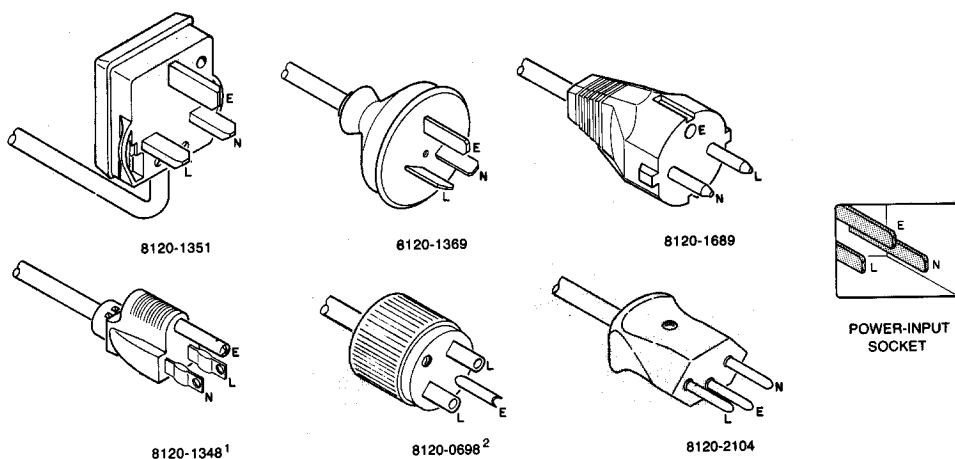
Power cords supplied by HP will have polarities matched to the power-input socket on the equipment, as shown below:

- L = Line or Active Conductor (also called "live" or "hot")
- N = Neutral or Identified Conductor
- E = Earth or Safety Ground

### WARNING

IF IT IS NECESSARY TO REPLACE THE POWER CORD, THE REPLACEMENT CORD MUST HAVE THE SAME POLARITY AS THE ORIGINAL. OTHERWISE A SAFETY HAZARD FROM ELECTRICAL SHOCK TO PERSONNEL, WHICH COULD RESULT IN DEATH OR INJURY, MIGHT EXIST. IN ADDITION, THE EQUIPMENT COULD BE SEVERELY DAMAGED IF EVEN A RELATIVELY MINOR INTERNAL FAILURE OCCURRED.

Power cords with different plugs are available for the equipment; the part number of each cord is shown below. Each plug has a ground connector. The cord packaged with the equipment depends upon where the equipment is to be delivered. If your equipment has the wrong power cord for your area, please contact your local HP Sales and Service Office.



<sup>1</sup>UL and CSA approved for use in the United States of America and Canada with equipment set for either 100 or 120 Vac operation.

<sup>2</sup>UL and CSA approved for use in the United States of America and Canada with equipment set for either 220 or 240 Vac operation.

## Grounding Requirements

To protect operating personnel, the National Electrical Manufacturers' Association (NEMA) recommends that the printer cabinet be grounded. The printer is equipped with a three conductor power cable which, when connected to an appropriate power receptacle, grounds the printer cabinet.

## Printer Fuse

The printer must be fitted with a 3.0 amp fuse for 100/120V operation and a 1.5 amp fuse for 220/240V operation. Fuse part numbers are listed in Table 1.

### WARNING

BEFORE CHANGING THE FUSE, BE SURE THAT THE  
PRINTER IS DISCONNECTED FROM ANY POWER  
SOURCE.

Always be sure that the correct fuse is used, since failure to follow this precaution may result in needless damage to the printer if a printer malfunction or an unusual line voltage occurs.

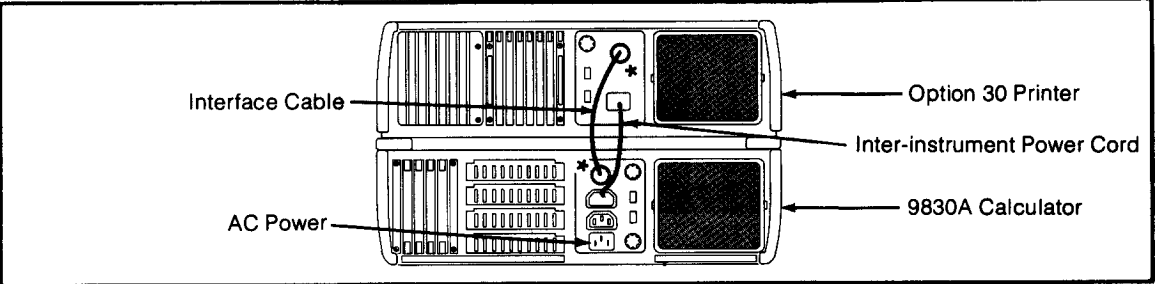
To remove a fuse, press in on the cap of the fuseholder and at the same time twist the cap in the direction indicated by the arrow on the cap. Pull the cap free and remove the fuse. To install a fuse, place either end of the fuse into the pocket in the cap, and reinstall the cap by pressing in on the cap and twisting it in the opposite direction of the arrow.

## Initial Turn-On Procedure

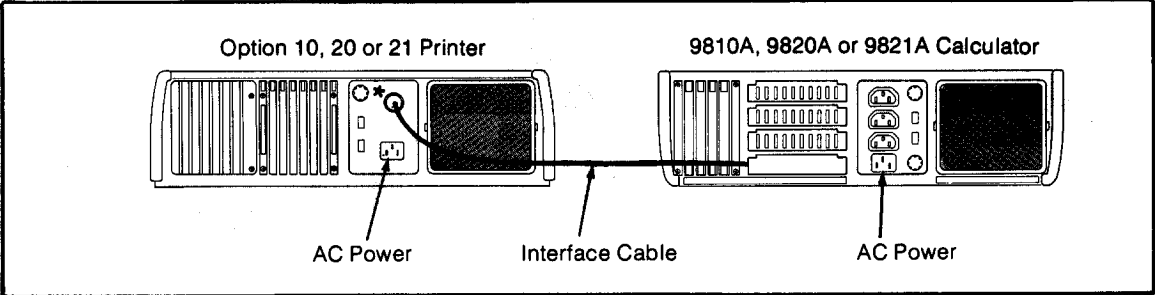
1. With the printer disconnected from any ac power source, verify that the correct fuse is installed for the line voltage in your area (see "Printer Fuse" above).
2. The two slide switches located on the rear panel (see Figure 1) must be set to the particular line voltage to be used. Each switch is set by inserting the tip of a small screwdriver into the white slot and then sliding the switch so that the slot is opposite the line corresponding to the desired voltage.
3. Switch the LINE switch, located on the front of the printer, to the OFF position. Connect the power cord to the ac power input connector (see Figure 1) and plug the other end of the cord into a suitable ac power outlet.
4. If you are using the printer with a 9800-Series Calculator, connect the interface cable as shown in Figure 2. If the printer is not to be used with a 9800-Series Calculator, refer to the interfacing information in the service manual (HP Part No. 09866-90031) supplied with the printer.

8 Printer Installation

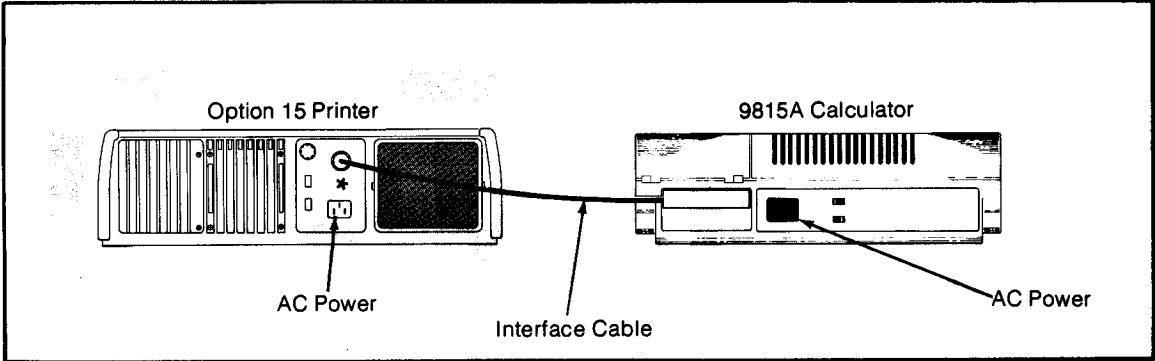
Option 30



Option 10, 20, 21



Option 15



Option 25

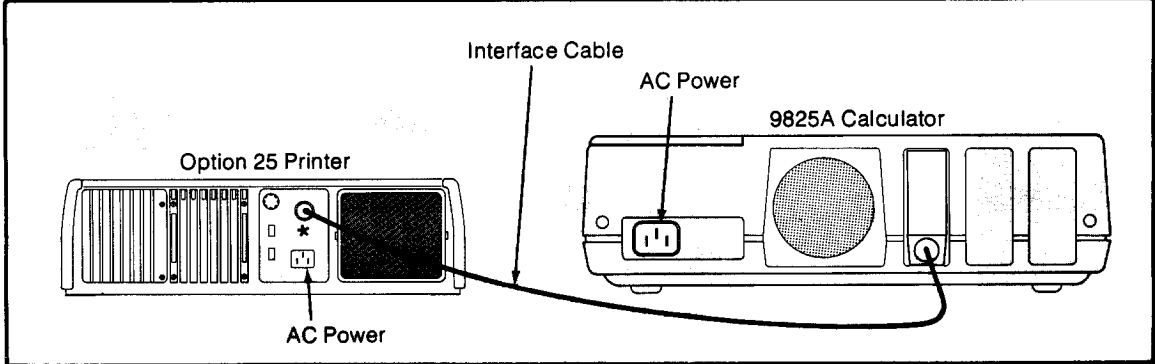


Figure 2. Printer Interface Typical Connections

\*To connect the interface cable to the printer or a 9830A calculator, rotate the connector until it is aligned with the socket on the instrument back panel, then twist the knurled sleeve clockwise to lock the connector in place (the connector is unlocked by twisting the sleeve counter-clockwise).

5. Switch the LINE switch to the ON position; the light above the switch indicates when the printer is switched ON.

The light below the PAPER button lights when paper is not loaded in the printer mechanism (the printer will not operate unless it is loaded with paper).

## Loading Printer Paper

Printer paper is loaded by using the following procedure. For this procedure the printer must be switched ON.

1. Lift the access cover on the top of the printer.
2. Remove and discard the paper core of any previous roll. If the remaining roll is small and a new roll is to be used, remove the old roll by:
  - a. Unrolling and lifting it upwards until the roll is above the printer; then,
  - b. Hold the roll firmly and pull it upward and forward; the paper guide will tear the paper off.
3. If any paper remains in the printer mechanism, remove it by pressing the PAPER button until the paper stops moving.
4. Remove the first layer of paper from a new roll. Be sure the paper has a cleanly torn or cut edge, as paper with a ragged edge may not load properly.
5. Insert the new roll such that the free end is positioned as shown on the back of the access cover. Press the PAPER button until paper appears at the front of the printer.

## Printer Select Codes

Since all calculator peripheral devices are connected in a "party-line" fashion, each device must have a unique 'address' so that the calculator can specify which device should respond to each operation. The printer address (or select code) consists of a one or two-digit number and is determined by the circuits on the interface card (see Figure 2). Each calculator-to-printer command must include the correct select code, thereby specifying which interface card is to respond to which operation. The following paragraphs describe select code settings with each option printer.

### Option 10, 20, 21

When using the printer with the 9810A, 9820A or 9821A Calculator, the printer's interface is set to select code 8 at the factory.

The select code can also be set to a code of from 1 to 9 by following this procedure:

1. Switch the calculator and printer OFF.
2. Disconnect the interface from the calculator. Remove the four screws located on the top of the interface card; turn the card over and lift off the bottom cover.

3. Raise the hinged cover on the select code switch (see Figure 3). Using a small flat-blade screwdriver, carefully rotate the selector tab until it is positioned at the desired select code number. Numbers are printed on the top cover of the switch. Before closing the cover, be sure that the slot in the selector tab is at a right angle to the length of the switch.
4. Close the switch cover and replace the interface card bottom cover. Secure the cover with the four screws which were removed in Step 2.
5. Place a select code label on the interface card to indicate the new select code.

Programs supplied by HP will usually specify select code 8. Therefore to run programs supplied by HP you must either reset your printer interface to respond to select code 8 or modify each printer command in the program to specify the correct select code.

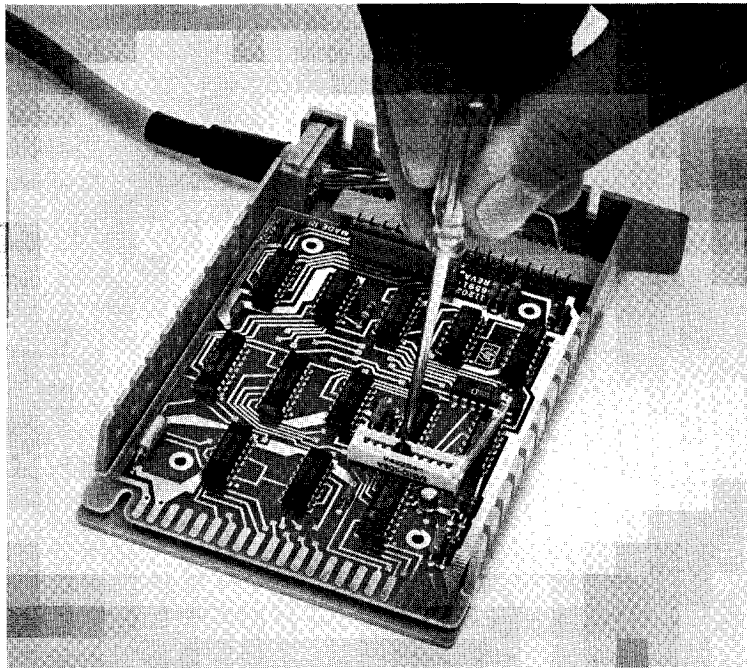


Figure 3. Setting the Select Code (option 10, 20, 21)

### Option 15

The 98134A Interface is preset to select code 2 at the factory. You can change the setting to 3 by following this procedure:

1. Switch the calculator and the printer off.
2. Disconnect the interface from the calculator. Remove the four screws on the top of the interface connector and remove the plastic cover.
3. Locate the select code plug (see Figure 4), and move it to its alternate position.

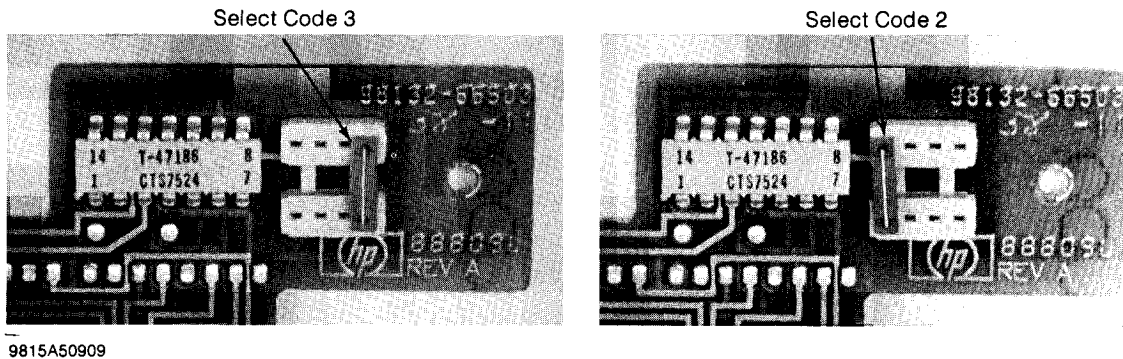


Figure 4. Interface Select Code (option 15)

4. Replace the plastic cover and secure it with the four screws. Then place a new select code label on the side of the connector to indicate the new code.
5. Reconnect the interface to the calculator; then turn the calculator and the printer on. Verify interface operation by executing an I/O instruction (or running a program) which specifies the new select code.

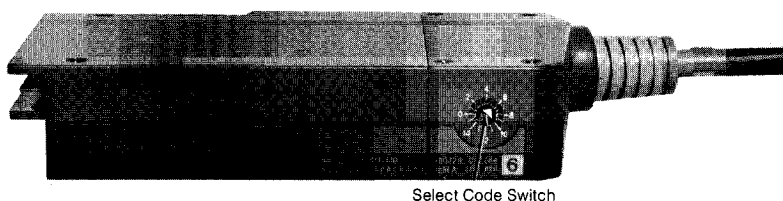
## Option 25

The Option 25 interface is set to select code "6" at the factory. To set the select code to any number from 2 to 15, simply turn the select code switch on top of the interface with a small flat-blade screwdriver (see Figure 5).

### NOTE

Select codes 0 and 1 are internal calculator codes, and should not be used.

The select code is properly set when the white arrow on the switch points to the desired select code number.



Select Code Switch

Figure 5. Interface Select Code (option 25)

## Option 30

When using the 9830A Calculator, the printer is assigned select code "15" since some 9830A printer commands automatically specify that select code. However, the printer can be set to other select codes if the interface cable supplied with the option 10, 20 or 21 printer is used to connect the printer to the 9830A Calculator.

## The Peripheral Control ROMs

An appropriate peripheral control or I/O ROM must be used when the printer is connected to a 9810A, 9820A, 9821A or 9825A Calculator. This ROM provides the necessary output commands to enable your calculator to control the printer.

Any HP Sales and Service Office can assist you in determining which ROM is correct for your calculator.

## Cleaning the Printer

The printer can be cleaned by using a soft, damp cloth; do not use any abrasive cleaners and do not let moisture get inside the printer.

The fan filter (located at the back of the printer) should be cleaned at least once every three months. The filter can be removed by prying it out with a small, blunt instrument such as a screwdriver or nail file. Clean the filter by rinsing it in clean water. Dry the filter completely before reinstalling it.

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