

**HP 12041A & HP 12261A**

**Multiuse Programmable**

**8-Channel Multiplexer Interface**

**Installation Manual**

**Card Assembly: 12041-60001**  
**Card Assembly: 5061-3415**



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# PRINTING HISTORY

The Printing History below identifies the Edition of this Manual and any Updates that are included. Periodically, update packages are distributed which contain replacement pages to be merged into the manual, including an updated copy of this Printing History page. Also, the update may contain write-in instructions.

Each reprinting of this manual will incorporate all past updates; however, no new information will be added. Thus, the reprinted copy will be identical in content to prior printings of the same edition with its user-inserted update information. New editions of this manual *will* contain new information, as *well* as updates.

To determine what manual edition is compatible with your current revision code, refer to the appropriate Software Numbering Catalog, Software Product Catalog, or Diagnostic Configurator Manual.

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## DESCRIPTION

The HP 12261A and 12041A are similar interfaces, performing identical functions for several processor families differentiated by two distinct backplanes. Both cards offer economical input/output capabilities by providing 8 separate I/O channels for data communication while occupying only one card slot in the CPU backplane.

The HP 12261A is a multiuse interface for the M/E/F-Series HP 1000 processors and requires standard interface driver DVN00. This driver contains the necessary routines to download "personality" microcode into card RAM. Likewise, the 12041A provides a multiplexed I/O channel for all processors utilizing the L-Series backplane (to date, L/XL- and A-Series). This card uses standard interface driver IDS00.

Both of these cards house one firmware EPROM which contains self-test, the download monitor, and the Development Debug Monitor (DDM).

## EQUIPMENT SUPPLIED

This manual, HP part number 5955-7631, and the following items are supplied with these products:

### HP 12261A

Printed circuit assembly, HP part number 5061-3415.

Self-test/Download/DDM firmware EPROM, HP part number 5180-1968.

80-pin connector kit, HP part no. 5061-3467.

Test Connector, HP part number 5061-4901.

### HP 12041A

Printed circuit assembly, HP part number 12041-60001.

Self-test/Download/DDM firmware EPROM, HP part number 5180-1968.

80-pin connector kit, HP part no. 5061-3467.

Test connector, HP part number 5061-4901.

## INSTALLATION

This section provides information for installing the card. For jumper location (discussed in the following paragraphs) refer to figures 1 and 2 and 3.

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## Power Requirements

The interface card obtains all operating voltages through the backplane of the host computer. Prior to installing any card, ensure that the system power supply can accommodate the additional load. Table 1 lists the power requirements of both the HP 12261A and HP 12041A.

Table 1. Power Requirements

12261A			12041A	
Voltage	Current (rms A)	Power (rms W)	Current (rms A)	Power (rms W)
+5	2.0	10.00	2.5	12.50
+12	0.3	3.60	0.07	0.84
-12	0.04	<u>0.48</u>	0.05	<u>0.60</u>
	TOTAL	14.08 WATTS		13.94 WATTS

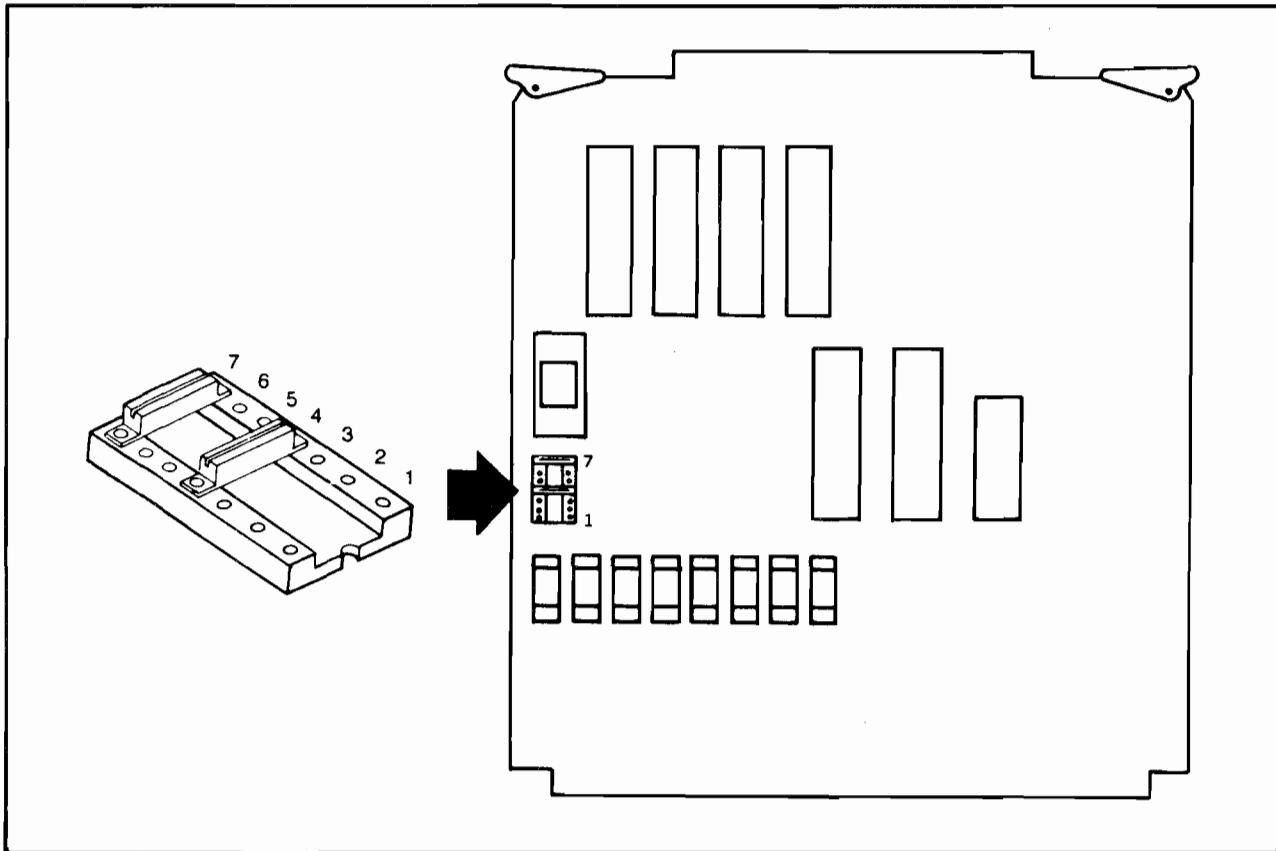


Figure 1. HP 12261A Configuration Diagram

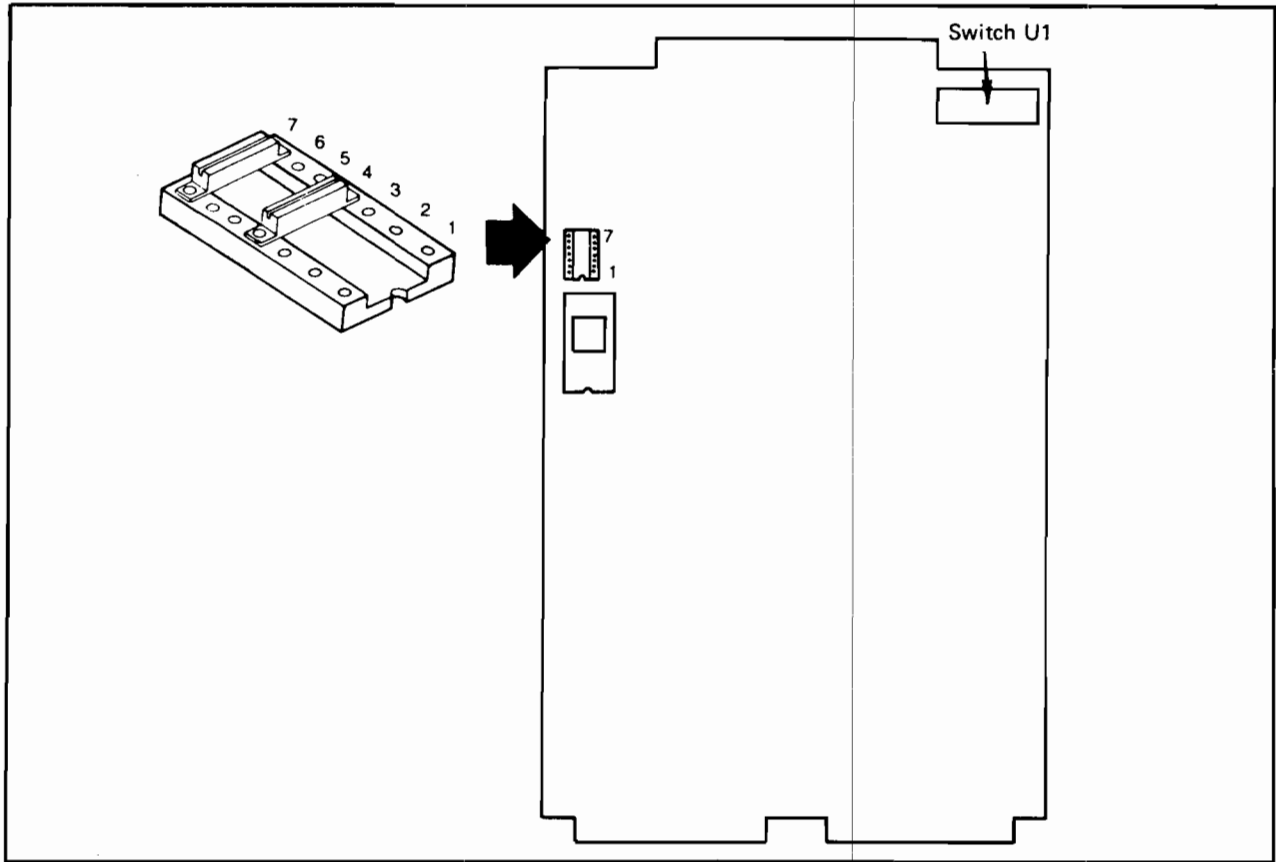


Figure 2. HP 12041A Configuration Diagram

### EPROM Jumper Configuration

Jumpers on the card allow the use of several EPROM devices which may differ in pin configuration. This interface card was shipped from the factory with the jumpers properly installed.

**IMPROPER INSTALLATION OF JUMPERS MAY RESULT IN DAMAGE TO THE CARD.**

Table 2. EPROM Device Jumpers

Manufacturer's Part Number	Install Jumpers
MK36000, AMI 54264, MOT MCM68A364, MCM68764	W2 & W5
INTEL 2364, 2764	W4 & W7
MK27640	W4 & W6

## DIP Switch Configuration

The 12041A card provides a bank of eight switches known as a DIP (Dual In-line Package) and referenced on the board as U1. The function of each switch is given in Table 4. Note that switch 1 is a firmware read switch as well as a hardware switch. Refer to the appropriate subsystem manual for definition of this switch.

Table 4. DIP Switch U1 Configuration (12041A only)

SWITCH	FUNCTION
1	Firmware read switch/hardware switch.
2	Must be OPEN if card cage door is closed. Must be CLOSED if card cage door is open.
3-8	Card select code (octal). Switch 8 is the least significant bit.

## Data Transmission Rate Wiring

The multiplexer interface houses two baud-rate generators whose outputs can be distributed in any pattern to each of the eight Z-80A SIO ports. This distribution scheme, coupled with the programmatic selection of data rates, provides the capability for one multiplexer card to interface several devices operating at different data rates.

Configuration of the BRGs is accomplished by hardwiring jumpers into the 80-pin connector kit supplied with the card.

The cable connector supplied with the 12828A multiplexer junction panel is configured at the factory with port 0 connected to baud-rate generator 0, and ports 1 through 7 connected to baud-rate generator 1. As mentioned above, the jumper pattern can be altered to meet the needs of the system. Figure 3 illustrates several examples of wiring options including the factory setting for the 12828A connector.

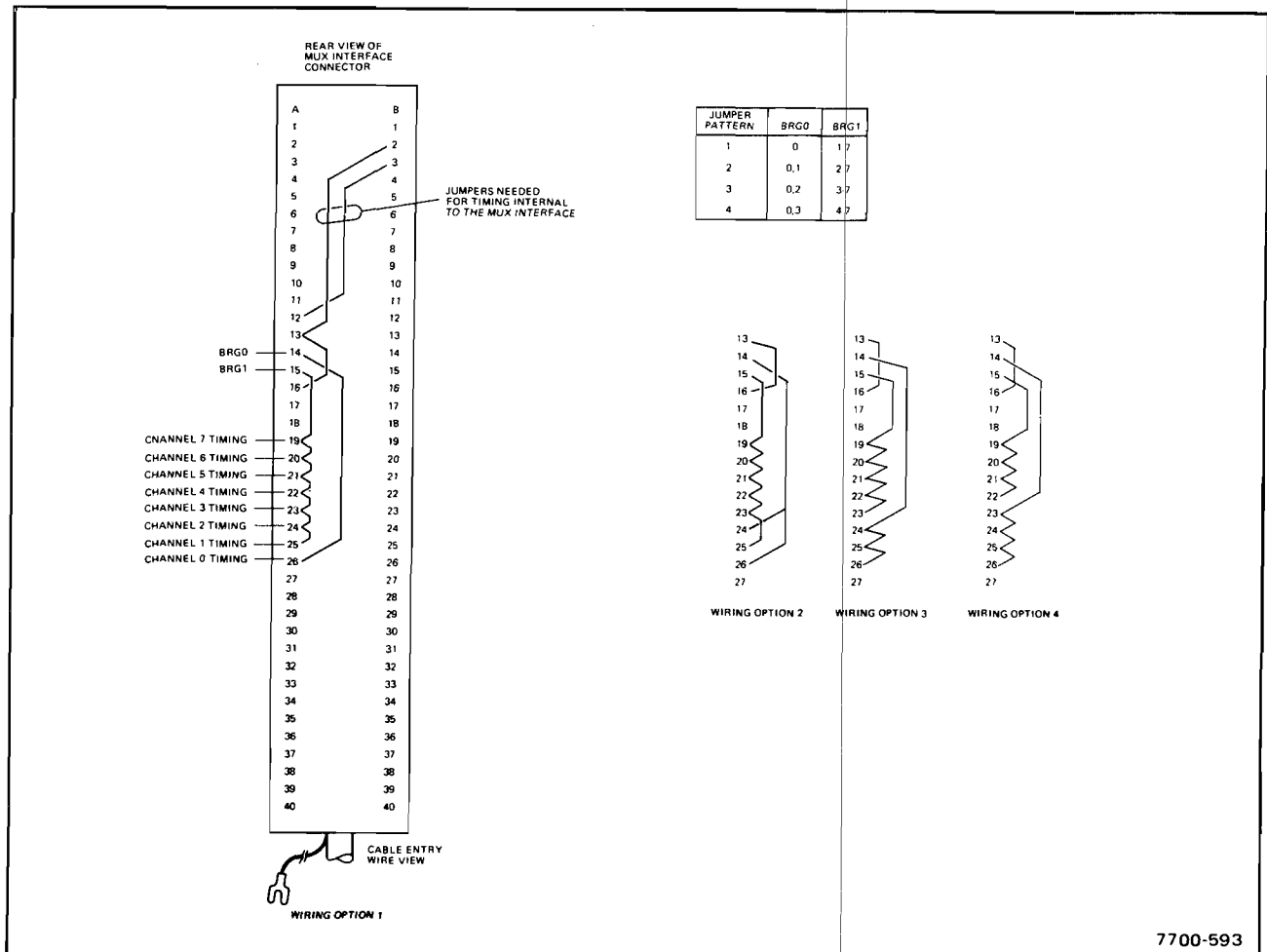


Figure 3. Baud Rate Generator Wiring

### SELF-TEST

A hardware self-test program resides in EPROM and is initiated at each RESET of the card. In addition to verifying checksum on EPROM, self-test examines Z-80A CPU operation, on-board DMA operation, and counter/timer chip performance, and RAM.

The test does not check the Z-80A SIO circuits or line drivers and receivers unless the Diagnostic Hood is connected to the frontplane. If the hood is sensed, self-test performs an internal data loopback, transmitting data over each SIO channel and looping it back through a set of special receivers on the card. Self-test does not check backplane circuitry.



## **Starting Self-Test**

Self-test executes whenever the card is reset. This is accomplished in a number of ways. On an HP 1000 L/A-Series computer, there are four methods:

1. Cycling power to the computer.
2. Pressing the RESET button on the CPU card.
3. Entering %P on the Virtual Control Panel.
4. Using the CLC 0 instruction.

On an HP 1000 M/E/F-Series computer:

1. Cycling power to the computer.
2. Pressing the PRESET button on the front panel.
3. Using the CLC 0 instruction.

## **Self-Test Results**

The results of self-test are displayed on the LED located near the frontplane edge connector. Interpretation of the LED states are as follows:

The LED is turned on at self-test initiation.

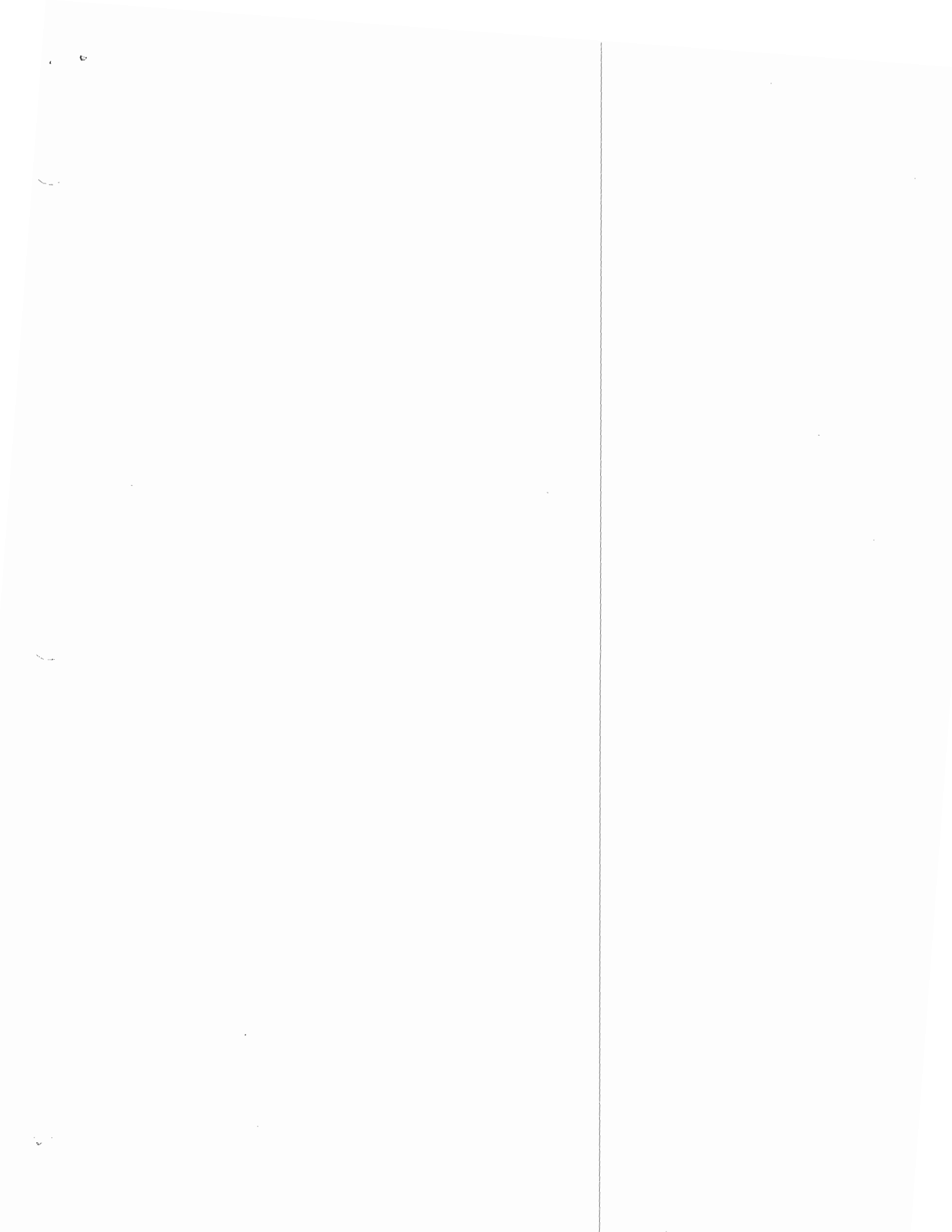
If the test hood is attached to the frontplane, the LED is turned off for a short period (approximately one second). With the hood attached, self-test performs a more thorough check of the hardware. A problem exists if the hood is attached, but the LED does not blink.

Upon successful completion of self-test, the LED is turned off. If the LED remains on, a failure has occurred.

Once self-test completes, control is passed to the download monitor. It should be noted that even if the card failed self-test but was capable of passing status information to the host, it may possible to download further diagnostics.

## **RESHIPMENT**

If, for any reason, the interface card is to be shipped to Hewlett-Packard, attach a tag identifying the owner and indicating the reason for return. Include the part number of the card. Remove the EPROM from the card. Pack the card in the original factory material. If the original material is not available, good commercial packing material should be used. Reliable commercial packing and shipping companies have the facilities and materials to adequately repack the item.





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