

**64000**

**HP64000  
Logic Development  
System**

**Model 64509A  
PROM Programmer  
Module**

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 **HEWLETT  
PACKARD**



**SERVICE MANUAL**  
**MODEL 64509A**  
**PROM PROGRAMMER MODULE**

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Logic Systems Division  
Colorado Springs, Colorado, U.S.A.

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## **CERTIFICATION**

*Hewlett-Packard Company certifies that this product met its published specifications at the time of shipment from the factory. Hewlett-Packard further certifies that its calibration measurements are traceable to the United States National Bureau of Standards, to the extent allowed by the Bureau's calibration facility, and to the calibration facilities of other International Standards Organization members.*

## **WARRANTY**

This Hewlett-Packard system product is warranted against defects in materials and workmanship for a period of 90 days from date of installation. During the warranty period, HP will, at its options, either repair or replace products which prove to be defective.

Warranty service of this product will be performed at Buyer's facility at no charge within HP service travel areas. Outside HP service travel areas, warranty service will be performed at Buyer's facility only upon HP's prior agreement and Buyer shall pay HP's round trip travel expenses. In all other cases, products must be returned to a service facility designated by HP.

For products returned to HP for warranty service. Buyer shall prepay shipping charges to HP and HP shall pay shipping charges to return the product to Buyer. However, Buyer shall pay all shipping charges, duties, and taxes for products returned to HP from another country.

HP warrants that its software and firmware designated by HP for use with an instrument will execute its programming instructions when properly installed on that instrument. HP does not warrant that the operation of the instrument, or software, or firmware will be uninterrupted or error free.

## **LIMITATION OF WARRANTY**

The foregoing warranty shall not apply to defects resulting from improper or inadequate maintenance by Buyer, Buyer-supplied software or interfacing, unauthorized modification or misuse, operation outside of the environmental specifications for the product, or improper site preparation or maintenance.

NO OTHER WARRANTY IS EXPRESSED OR IMPLIED. HP SPECIFICALLY DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

## **EXCLUSIVE REMEDIES**

THE REMEDIES PROVIDED HEREIN ARE BUYER'S SOLE AND EXCLUSIVE REMEDIES. HP SHALL NOT BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, WHETHER BASED ON CONTRACT, TORT, OR ANY OTHER LEGAL THEORY.

## **ASSISTANCE**

*Product maintenance agreements and other customer assistance agreements are available for Hewlett-Packard products.*

*For any assistance, contact your nearest Hewlett-Packard Sales and Service Office.*

## **SAFETY SUMMARY**

***The following general safety precautions must be observed during all phases of operation, service, and repair of this instrument. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the instrument. Hewlett-Packard Company assumes no liability for the customer's failure to comply with these requirements.***

### **GROUND THE INSTRUMENT.**

To minimize shock hazard, the instrument chassis and cabinet must be connected to an electrical ground. The instrument is equipped with a three-conductor ac power cable. The power cable must either be plugged into an approved three-contact electrical outlet or used with a three-contact to two-contact adapter with the grounding wire (green) firmly connected to an electrical ground (safety ground) at the power outlet. The power jack and mating plug of the power cable meet International Electrotechnical Commission (IEC) safety standards.

### **DO NOT OPERATE IN AN EXPLOSIVE ATMOSPHERE.**

Do not operate the instrument in the presence of flammable gases or fumes. Operation of any electrical instrument in such an environment constitutes a definite safety hazard.

### **KEEP AWAY FROM LIVE CIRCUITS.**

Operating personnel must not remove instrument covers. Component replacement and internal adjustments must be made by qualified maintenance personnel. Do not replace components with power cable connected. Under certain conditions, dangerous voltages may exist even with the power cable removed. To avoid injuries, always disconnect power and discharge circuits before touching them.

### **DO NOT SERVICE OR ADJUST ALONE.**

Do not attempt internal service or adjustment unless another person, capable of rendering first aid and resuscitation, is present.

### **DO NOT SUBSTITUTE PARTS OR MODIFY INSTRUMENT.**

Because of the danger of introducing additional hazards, do not install substitute parts or perform any unauthorized modification of the instrument. Return the instrument to a Hewlett-Packard Sales and Service Office for service and repair to ensure that safety features are maintained.

### **DANGEROUS PROCEDURE WARNINGS.**

Warnings, such as the example below, precede potentially dangerous procedures throughout this manual. Instructions contained in the warnings must be followed.

**WARNING**

**Dangerous voltages, capable of causing death, are present in this instrument.  
Use extreme caution when handling, testing, and adjusting.**



Figure 1. 64509A PROM Programmer Module

## GENERAL INFORMATION.

The Hewlett-Packard Model 64509A Programmer Module provides the interface between the Model 64501A Positive PROM Programmer and the PROM being programmed.

A Module Identification Code is returned to the CPU, when requested by the CPU, to determine which PROM or PROMs may be programmed. For this module the I.D. code is: 06 HEX (Low True).

The Model 64509A will program the following PROM: INTEL 2732. This PROM contains all 1s (high state) in all memory locations after erasure.

## INSTALLATION.

## NOTE

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The Model 64509A Programmer Module must be installed and removed with the Mainframe power turned off.

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A 50 conductor ribbon cable, W1, connects the PROM Programmer to the Programmer Module. The end of the cable with the single connector is connected to the PROM Programmer. The cable should be routed across the top of the Card Cage and down behind the Front Panel. The two connectors should be visible in the opening for the Programmer Module. Use the connector nearest the end of the cable. The P.C. board and cable connectors are keyed and fit only one way.

## PERFORMANCE VERIFICATION and ADJUSTMENT PROCEDURE.

**CAUTION**

The Positive PROM Programmer Verification must not be performed with this Programmer Module as permanent damage to the Programmer Module may result. Only the 64502A Programmer Module is capable of handling the voltages produced during Performance Verification.

Refer to the 64500A and 64502A Service Manuals for PROM Subsystem Verification details.

This Programmer Module has no internal adjustments. If defects are suspected an ohmmeter is required.

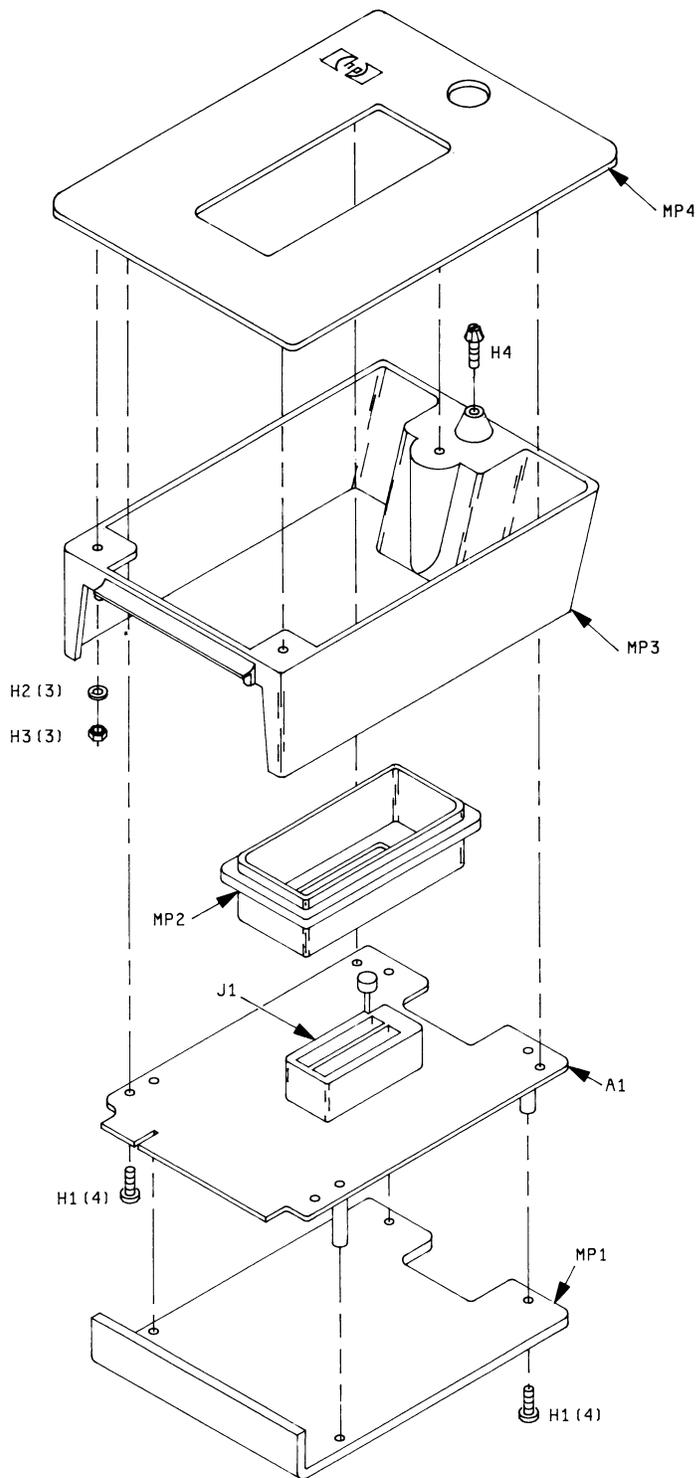


Figure 2. Module Breakdown

Table 1. Replaceable Parts

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A1	64509-66501	8	1	P.C. BOARD ASSEMBLY	28480	64509-66501
C1	0160-3622	6	1	CAPACITOR-FXD .1UF +80-20% 100VDC CER	04222	5030ES100RD1042
H1	2360-0113	2	8	SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
H2	3050-0425	3	3	WASHER-FLT MTLC NO. 4 .125-IN-ID	28480	3050-0425
H3	2260-0009	3	3	NUT-HEX-W/LKWR 4-40-THD .093-IN-THK	28480	2260-0009
H4	0570-0661	8	1	SCREW-THUMB 6-32 .49-IN-LG	28480	0570-0661
J1	1200-0610	5	1	SOCKET-IC-TS 24-CONT DIP TEST DIP-SLDR	19613	224-3344-00-0602
MP1	64500-04101	5	1	SAFETY COVER	28480	64500-04101
MP2	64500-45204	5	1	"BATHTUB" FOR ZIF SOCKET J1	28480	64500-45204
MP3	5041-1576	0	1	SUPPORT PANEL	28480	5041-1576
MP4	64509-00201	7	1	FRONT PANEL	28480	64509-00201
MP5	64500-09101	5	1	GROUND CLIP	28480	64500-09101
R1	0757-0989	9	1	RESISTOR 16.2 1% .5W FTC=0+-100	07716	CEC-993
U1	1810-0279	5	1	NETWORK-RES 10-PIN-SIP .1-PIN-SPCG	56289	256CK110

Table 2. Manufacturers' Codes

Mfr No.	Manufacturer Name	Address	Zip Code
00000	ANY SATISFACTORY SUPPLIER		
04222	AVX CERAMICS CORP		
07716	HOLSWORTHY ELECTRONICS LTD	MYRTLE BEACH SC	29577
19613	TEXTOL PRODUCTS INC	HOLSWORTHY EG	
28480	HEWLETT-PACKARD CO CORPORATE HQ	IRVING TX	75060
56289	SPRAGUE ELECTRIC CO	PALO ALTO CA	94304
		NORTH ADAMS MA	01247

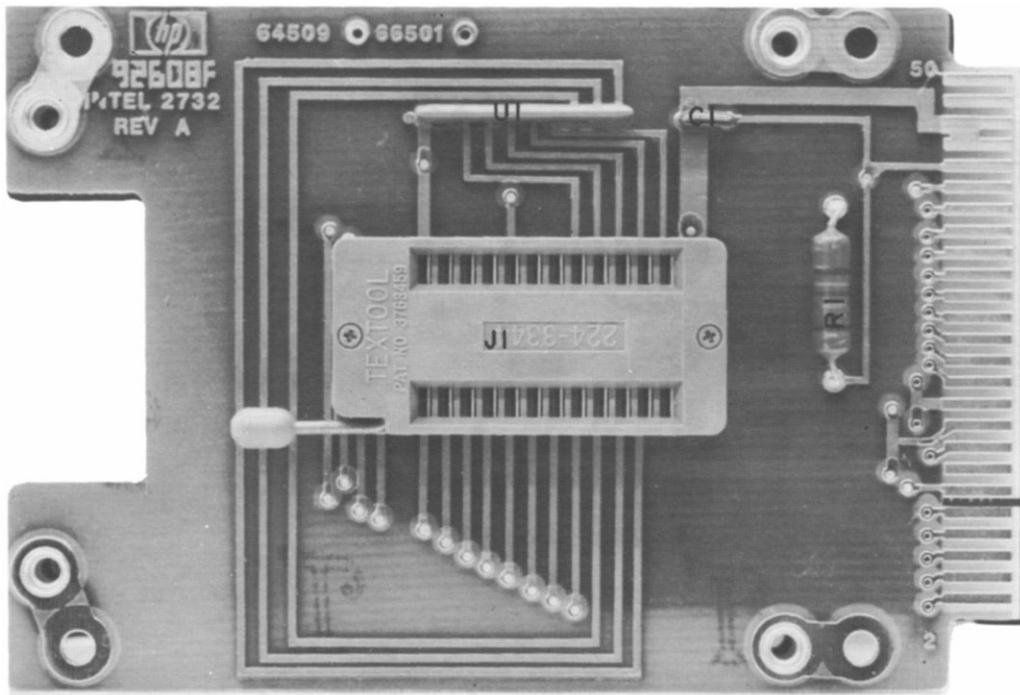


Figure 3. Component Locator

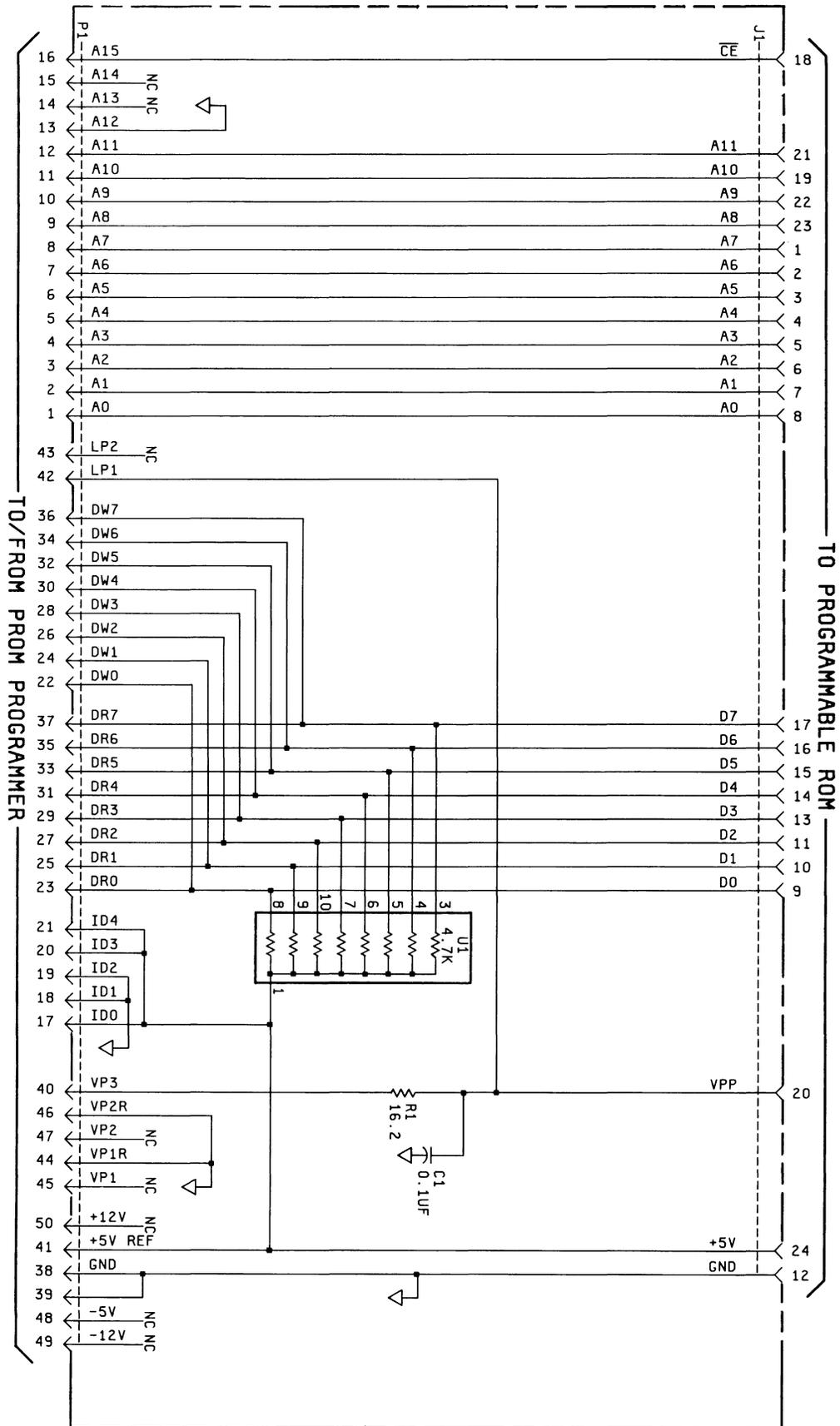


Figure 4. Schematic for 64509A Programmer Module

