SERVICE BRIEF

HEWLETT-PACKARD
MODEL 64683A
Z80 INTERFACE MODULE

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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.**
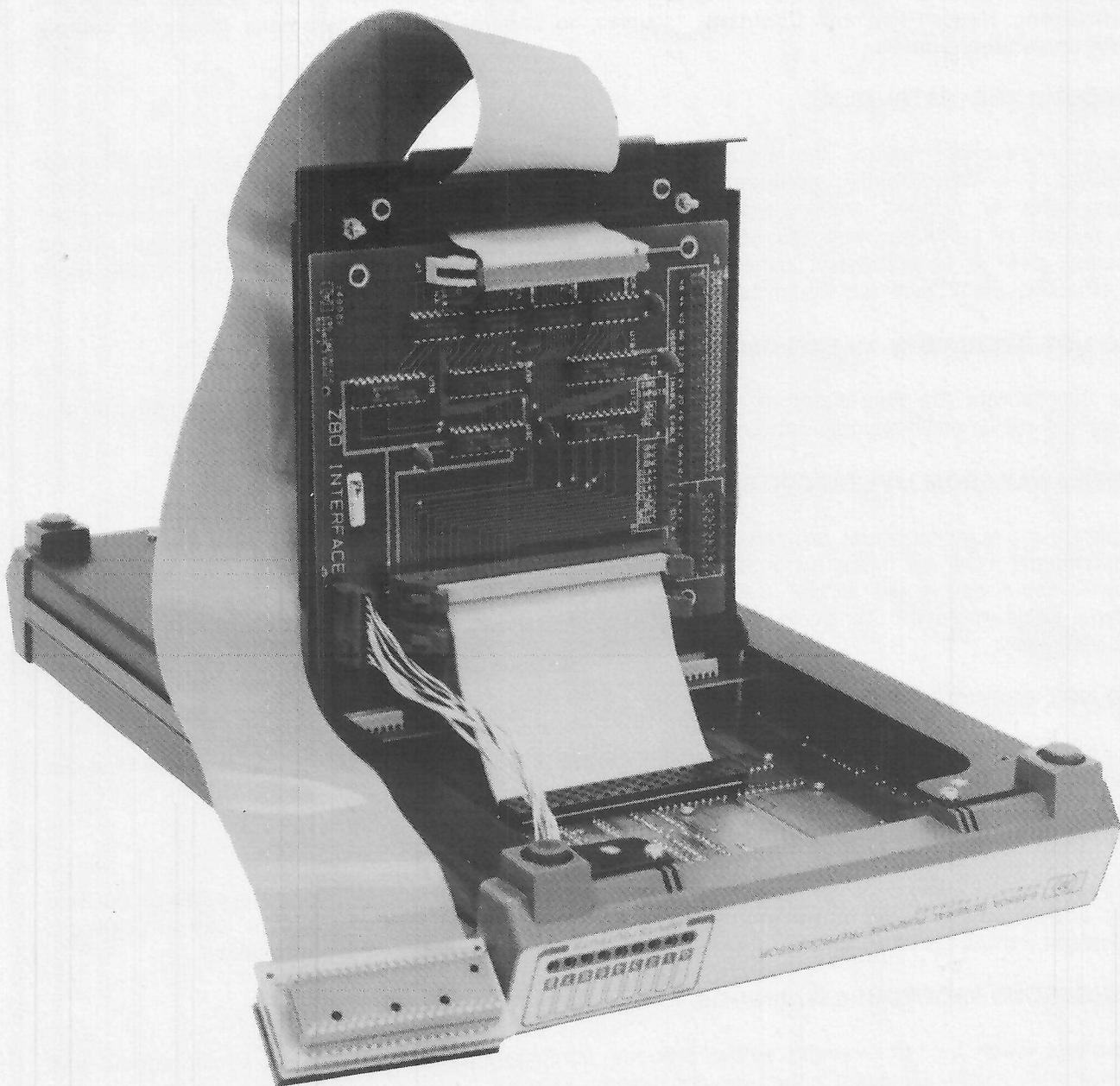
Figure 1.   Model 64683A Interface Module

GENERAL INFORMATION.

The Model 64683A, Z80 Interface Module, provides a dedicated interface between a microprocessor system and either the Model 1630A/D Logic Analyzer or the Model 64620S Logic Analyzer. Although both hardware and software are needed to provide this interface, the software element is beyond the scope of this manual. For information in addition to the following brief description please refer to the Model 64620S or the Model 1630A/D Operating Manual.

The software portion includes format specification data and a disassembler. The format specification data includes information on which analyzer bits or fields contain address, data and status information, which clock signals to use and their polarities. The disassembler, a set of tables for an inverse assembler program, allows the analyzer to display mnemonics in addition to binary display.

The Module contains circuitry required to interface the Logic Analyzer to the Z80 microprocessor. Its location near the test point helps minimize loading of the system under test. The Logic Analyzer mainframe supplies +5 volts to the Interface Module for operating power at TTL logic levels. The Z80 Interface Module I.D. code is 83 decimal, 53 hexadecimal.

CAUTION

Remove Power from the System Before Preceding with the Installation

INSTALLATION IN MODEL 64650A GENERAL PURPOSE PREPROCESSOR

1. Connect W6 from the small General Purpose Preprocessor card (A2) to J4 on the Z80 Interface Module.

2. Connect W3 from the large General Purpose Preprocessor card (A1) to J3 on the Z80 Interface Module.

3. Lower the Interface Module into the `Preprocessor so that the component side fits inside the pod.

4. Fit the Pod Cover hinges into hinge slots on the General Purpose Preprocessor pod. Lower the cover over the Interface Module and fasten down with screws.

CAUTION

To avoid possible damage from static discharge, always connect the wire assembly (W4) from the preprocessor endcap to J5 on the Z80 Interface Module.

INSTALLATION IN MODEL 10269A INTERFACE

1. Connect W1 from J4 on the General Purpose Interface Card in the 10269A to J4 on the Dedicated Interface Module.

2. Connect W2 from J3 on the General Purpose Interface card in the 10269A to J3 on the Dedicated Interface Module.

3. Fit the Dedicated Interface Module assembly into hinge slots on the 10269A General Purpose Probe Interface Pod. Lower the cover and fasten down with screws.

J2 is not provided with the Z80 Interface Module. It may be added by installing HP part number 1251-3004 for a 40-pin connector or 1251-3090 for a 50-pin connector. INTERFACE REQUIREMENTS.

The Z80 Interface Module will operate with a Z80 Microprocessor clocked at rates up to 6 MHz. The Module adds one LS TTL load to all monitored lines (excludes Z80 clock pin 6) and an interface capacitance of approximately 35 pF.

The Interface Module has user definable wirewrap pins. Inputs must meet the following setup and hold specifications:

	64620S Logic Analyzer	1630A/D Logic Analyzer
Setup	25 nS	20 nS
Hold	12 nS	0 nS min

PERFORMANCE VERIFICATION AND ADJUSTMENT PROCEDURE

Equipment Needed (or Equivalent)
      Logic Probe.................................HP 10525T
      Logic Pulser................................HP 10526T

There are no automatic performance tests and no adjustments for the Model 64683A.

TROUBLESHOOTING

If a failure is suspected in the HP 64683A Interface Module, troubleshooting can be done using a Logic Pulser and a Logic Probe. The Model 64683A must be connected to the Model 64650A or the Model 10269A.

Remove the ZIF connector from the system under test. Remove the Z80 microprocessor from the ZIF connector. Pulse each pin of the ZIF socket, and, using the schematic, look for a pulse on the appropriate pin of J3 and J4.
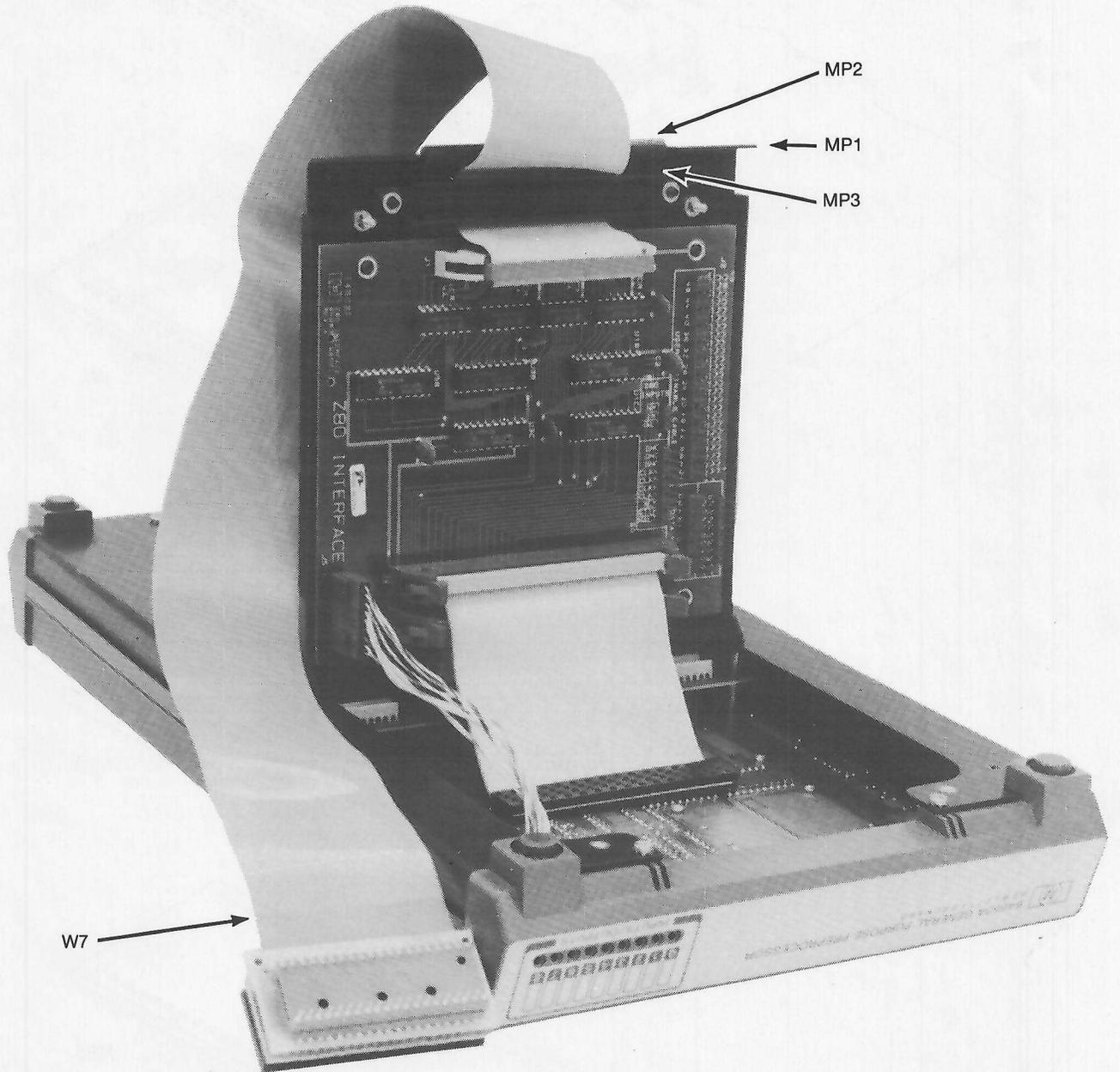
Figure 2.   Replaceable Parts Breakdown

MP6

W7

MP4

MP5
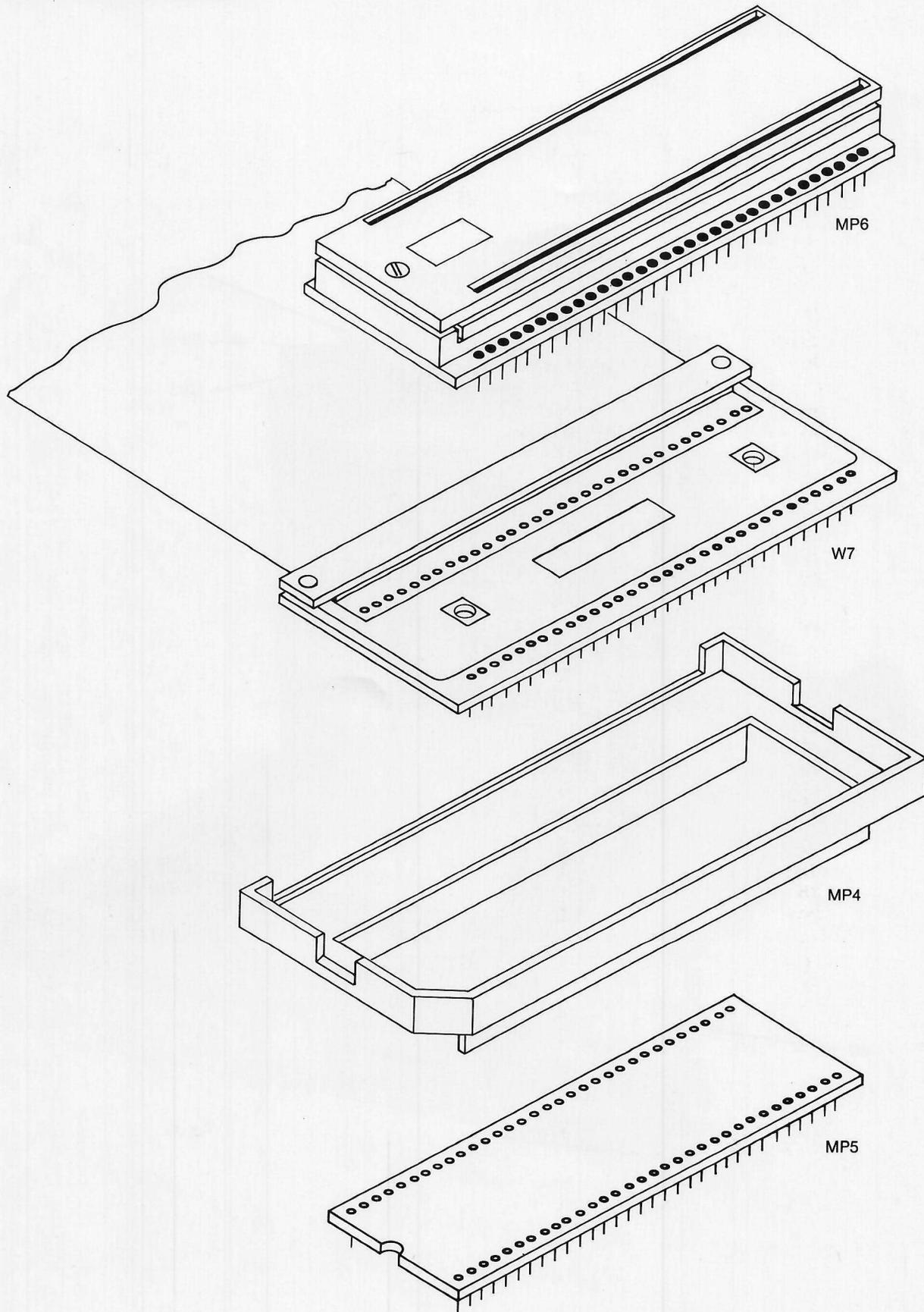
Figure 3. Exploded View User Plug

Table 1. Replaceable Parts List

REF DES	HP PART NUMBER MFR PART NUMBER	C D	QTY	DESCRIPTION	MFR CODE	
MP1	64683-04101	5	1	PODCOVER Z80	28480	64683-04101
MP2	4320-0095	7	1	U CHANNEL NPRN .047-IN-WD-CHANNEL	28480	4320-0095
MP3	64651-01201	2	1	STRAIN RELIEF BRACKET	28480	64651-01201
MP4	5041-3163	5	1	PIN BASE 40	28480	5041-3163
MP5	1200-0682	1	2	SOCKET-IC 40-CONT DIP DIP-SLDR	28480	1200-0682
MP5	1200-0682	1		SOCKET-IC 40-CONT DIP DIP-SLDR	28480	1200-0682
MP6	64651-66504	4	1	ZIF SOCKET BOARD-40	28480	64651-66504
W7	8120-3665	3	1	CABLE ASSEMBLY Z80	28480	8120-3665
A3	64683-66501	9	1	BOARD ASSEMBLY Z80	28480	64683-66501
C1	0160-2055	9	5	CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
C2	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
C3	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
C4	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
C5	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
J1	1251-3004	4	1	CONNECTOR-POST TYPE 40 DPSLDR	28480	1251-3004
J3	1251-7575	2	2	HEADER 60 PIN	28480	1251-7575
J4	1251-7575	2		HEADER 60 PIN	28480	1251-7575
J5	1251-7613	9	1	CONNECTOR 9-PIN	28480	1251-7613
U5B	1820-1917	1	1	IC BFR TTL LS LINE DRVR OCTL	01295	SN74LS240N
U1B	1820-1918	2	4	IC BFR TTL LS LINE DRVR OCTL	01295	SN74LS241N
U1C	1820-1918	2		IC BFR TTL LS LINE DRVR OCTL	01295	SN74LS241N
U3B	1820-1918	2		IC BFR TTL LS LINE DRVR OCTL	01295	SN74LS241N
U3C	1820-1918	2		IC BFR TTL LS LINE DRVR OCTL	01295	SN74LS241N
UCR1A	1906-0202	7	4	DIODE ARRAY 40V 400MA	01295	TID130
UCR2A	1906-0202	7		DIODE ARRAY 40V 400MA	01295	TID130
UCR3A	1906-0202	7		DIODE ARRAY 40V 400MA	01295	TID130
UCR4A	1906-0202	7		DIODE ARRAY 40V 400MA	01295	TID130
WT1	1251-7697	9	1	POST SET 9-PIN	28480	1251-7697
WT2	1251-3958	7	1	CONNECTOR 10-PIN M POST TYPE	28480	1251-3958
WT3	1251-3958	7		CONNECTOR 10-PIN M POST TYPE	28480	1251-3958
WT4	1251-3958	7		CONNECTOR 10-PIN M POST TYPE	28480	1251-3958
WT5	1251-4682	6	1	CONNECTOR 3-PIN M POST TYPE	28480	1251-4682
WT6	1251-4773	6	2	CONNECTOR 25-PIN M POST TYPE	28480	1251-4773
WT7	1251-4773	6	2	CONNECTOR 25-PIN M POST TYPE	28480	1251-4773

Table 2. Manufacturer's Codes

Mfr No. Code	Manufacturer Name	Address	Zip
01295	Texas Instr Inc Semicond Cmpnt Div	Dallas, TX	75222
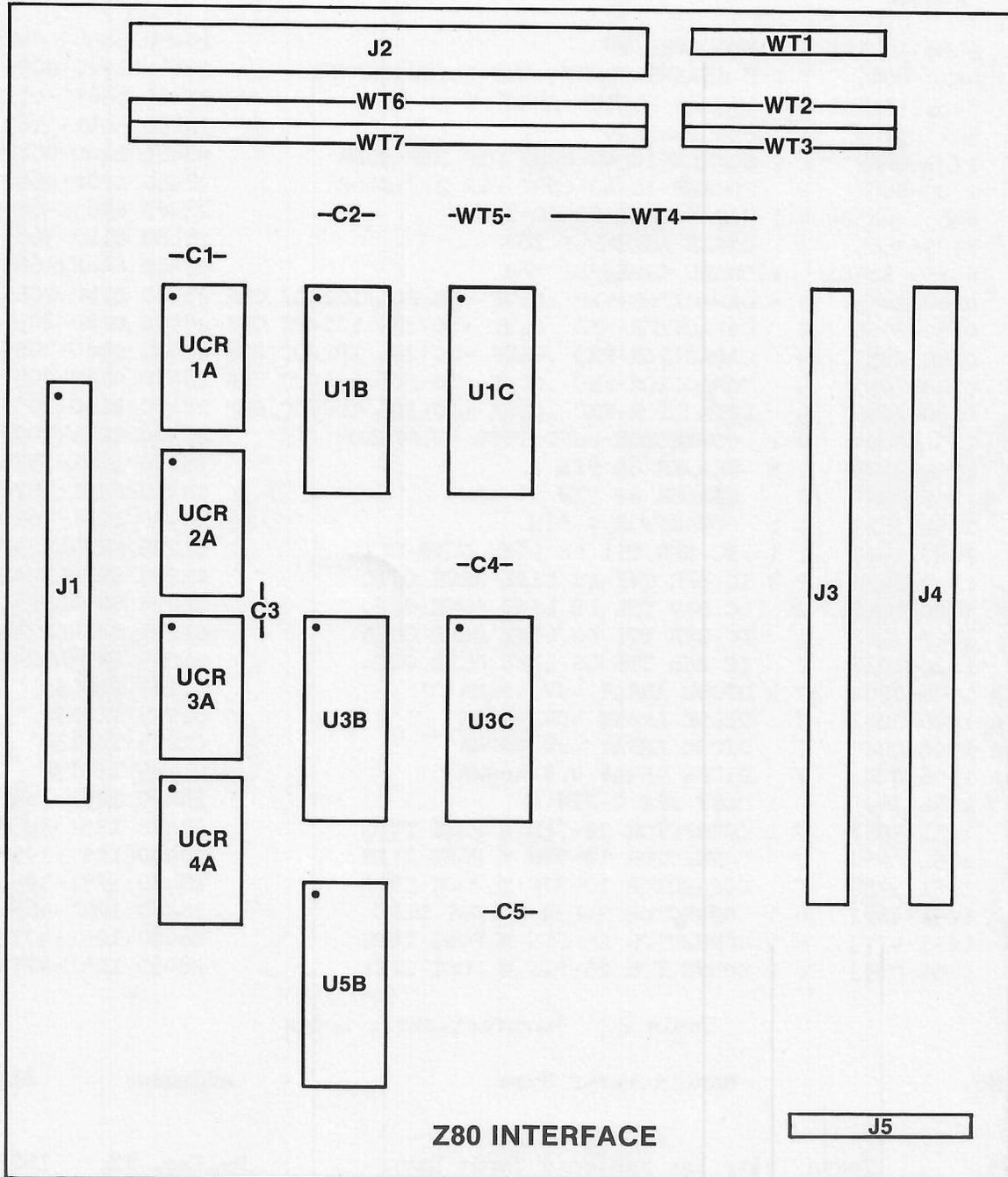
Figure 4.   Component Locator
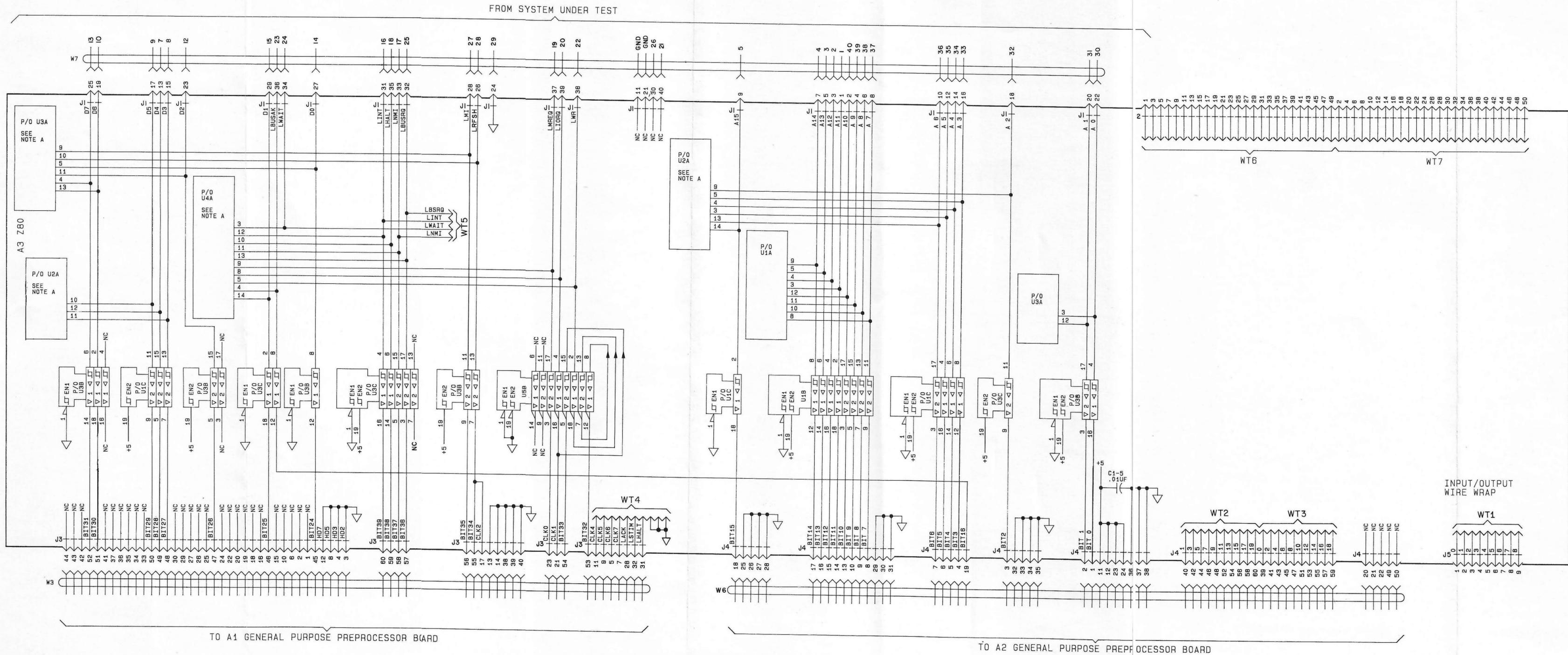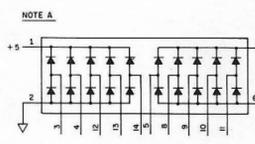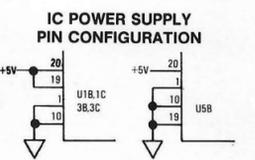
Figure 5. Model 64683A Schematic

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