



OPERATING AND SERVICE MANUAL

12597A-002

TAPE READER INTERFACE KIT
(FOR 2100-SERIES COMPUTERS)

Card Assembly
12597-6001, Rev 832

Note

This manual should be retained with the applicable computer system documentation.

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SECTION I

GENERAL INFORMATION

1-1. INTRODUCTION.

1-2. This manual provides general information, installation instructions, programming instructions, theory of operation, maintenance information, and replaceable parts information for the Hewlett-Packard (HP) 12597A-002 Tape Reader Interface Kit (see figure 1-1).

1-3. DESCRIPTION.

1-4. GENERAL.

1-5. The HP 12597A-002 Tape Reader Interface Kit supplies the interfacing requirements for the addition of an HP 2748A/B Tape Reader or an HP 2758A Tape Reader-Reroller to the user's computer system.

1-6. INTERFACE KIT CONTENTS.

1-7. The HP 12597A-002 Tape Reader Interface Kit consists of the following:

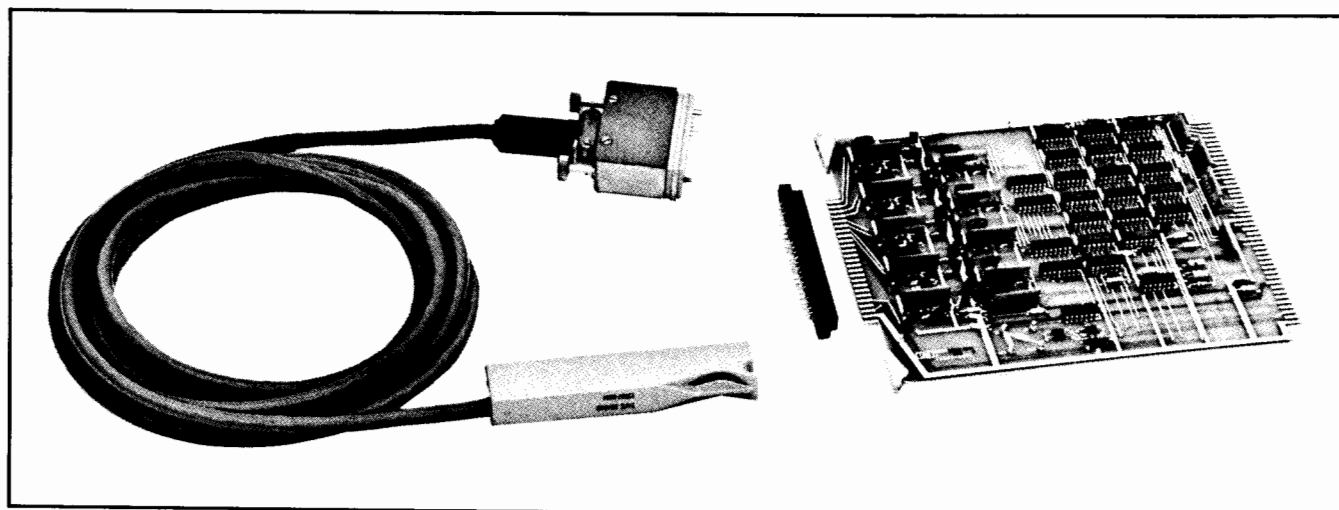
- a. Tape reader interface card (part no. 12597-6001).
- b. Interface cable (part no. 12597-6004).
- c. Test connector, 24-pin (part no. 1251-0332).
- d. Operating and service manual (part no. 12597-90022).

1-8. IDENTIFICATION

1-9. Hewlett-Packard uses five digits and a letter (00000A) to identify standard interface kits and three digits (-000) to identify options to standard interface kits. If the designation of the kit received does not agree with the designation on the title page of this manual, there are differences between the kit received and the kit described in this manual. These differences are explained in manual supplements available at HP Sales and Service Offices. (Addresses of these offices are listed at the back of this manual.)

1-10. In addition to a part number, each plug-in printed-circuit card is identified by a letter, a date code, and a division code (e.g., A-921-22). These are marked on the card beneath the part number. The letter identifies the version of the etched circuit on the card. The date code (three or four digits) refers to the electrical characteristics of the board with components mounted. The division code (one or two digits) identifies the Hewlett-Packard division which manufactured the card. If the date code on a printed-circuit card does not agree with the date code shown on the title page of this manual, the card differs from the one described in this manual. These differences are explained in a manual supplement available at HP Sales and Service Offices.

1-11. The interface cable is identified by its part number, marked on one of the plugs attached to the cable.



2118-5

Figure 1-1. HP 12597A-002 Tape Reader Interface Kit

1-12. The manual and manual supplements are identified by title, part number, and publication date, marked on the title page of the document. Supplements, if required, are bound to the back of the manual.

1-13. SPECIFICATIONS.

1-14. Table 1-1 lists the specifications for the HP 12597A-002 Tape Reader Interface Kit.

Table 1-1. Tape Reader Interface Kit Specifications

CHARACTERISTICS	SPECIFICATIONS
Output Levels	
"1" state	0 to +0.5V, 12 mA sink max.
"0" state	+12V, 10K source
Input Levels	
"1" state	0 to +0.5V, 12 mA sink max.
"0" state	+8V
Computer Power Supply Current Requirements	
+12V	0.05A
-12V	0.02A
-2V	0.05A
+4.5V	0.75A
Interface Card Dimensions	
Width	7-3/4 inches (196,8 mm)
Height	8-11/16 inches (220,7 mm)
Interface Kit Weight	
Net Weight	18 oz (675 gm)
Shipping Weight	4 lb (1,8 kg)

SECTION II INSTALLATION



2-1. INTRODUCTION.

2-2. This section provides information on unpacking and inspection, reshipment, preparation for installation, and installation of the tape reader interface kit.

2-3. UNPACKING AND INSPECTION.

2-4. If the tape reader interface kit is received separated from the computer, inspect the carton containing the kit before opening. If there is external evidence of damage, or if the box rattles, request that the carrier's agent be present when the carton is opened.

2-5. Inspect each component of the kit as the parts are unpacked. Look for such evidence of damage as cracks, dents, broken components, detached parts, corrosion, water damage, etc. If any part of the kit is damaged, retain the carton, packing material, and shipping papers, and immediately notify the carrier and the nearest Hewlett-Packard Sales and Service Office. The Sales and Service Office will arrange for repair or replacement of damaged parts without waiting for settlement of claims against the carrier.

2-6. RESHIPMENT.

2-7. If an item of the kit is to be shipped to Hewlett-Packard for service or repair, attach a tag to the item identifying the owner and indicating the service or repair to be accomplished. Include the model number of the kit.

2-8. Pack the item in the original factory packing material if available. If the original material is not available, standard factory packing material can be obtained from the nearest Hewlett-Packard Sales and Service Office.

2-9. If standard factory packing material is not used, wrap the item in air cap TH-240 cushioning (manufactured by Sealed Air Corporation, Hawthorn, N.J.) or equivalent and place in a corrugated carton (200 pound test material). Seal the shipping carton securely and mark it "FRAGILE" to ensure careful handling.

2-10. PREPARATION FOR INSTALLATION.

2-11. CURRENT REQUIREMENTS.

2-12. The interface card in this kit obtains its operating currents from the computer power supply. Before installing this interface card, determine the sum of the current requirements of this card in combination with any other interface or accessory cards already installed in the computer. The computer documentation describes the procedure for calculating the total current requirements. If the total current requirements exceed the limitations of the computer power supply, an HP power supply extender

unit or I/O extender unit must be used. See table 1-1 for the current requirements of the tape reader interface card.

2-13. INTERFACE CARD JUMPERS.

2-14. There are several jumper wires on the tape reader interface card. These jumpers are used to adapt the card for use with I/O devices other than the tape reader. Before installation of the interface card, ensure that the jumpers are positioned as described in table 2-1 (see figure 5-2 for physical location of the jumpers).

Table 2-1. Interface Card Jumper Positions

JUMPER	POSITION
W1	A
W2	A
W3	Connected
W4	Connected
W5	Connected
W6	Connected
W7	Connected
W8	Disconnected
W9	Disconnected

2-15. INSTALLATION

2-16. To install the tape reader interface kit, proceed as follows:

- a. Turn computer and tape reader power off.
- b. Insert the interface card in the computer I/O card slot corresponding to the desired select code (address).
- c. Connect the 48-pin connector end of the interface cable to the interface card.
- d. Connect the other end of the interconnecting cable to the tape reader.
- e. Apply power to the computer and the tape reader and perform the diagnostic test described in the High Speed Tape Reader/Punch Diagnostic Reference Manual, part no. 12597-90031, to verify proper operation of the interface card and the tape reader.

SECTION III

PROGRAMMING

3-1. INTRODUCTION.

3-2. This section provides programming information for the 12597A-002 Tape Reader Interface Kit.

3-3. GENERAL.

3-4. The tape reader interface card provides command logic to start the tape reader and flag logic to signal the computer when the tape reader has data ready for transfer. An input storage register provides buffer storage for transfer of eight bits of data from the tape reader to the computer. The following paragraphs provide information required to program the operation of the command, flag, and input register logic on the tape reader interface card.

3-5. I/O ADDRESSING.

3-6. Through the use of the I/O extender options, some HP computers are capable of operating up to 56 I/O devices. To provide orderly I/O operations, each I/O slot is

assigned a two digit octal address called a select code. All program instructions calling for action by the tape reader interface card must include the interface card's select code.

3-7. SAMPLE PROGRAM.

3-8. Table 3-1 provides a sample program showing the use of the tape reader interface card to operate an HP 2748A/B or 2758A Tape Reader. The sample is an actual program listing prepared on an HP computer system using the HP Assembler software package.

3-9. The program will cause 100 characters to be read from a punched tape and stored in 100 consecutive memory locations. To supply the I/O addressing requirements, the tape reader interface card has been arbitrarily assigned a select code of 13 octal.

3-10. The sample program does not use the computer interrupt system. If the interrupt system has been previously enabled, a CLF 00 instruction must be included at the start of the program to turn off the interrupt system.

Table 3-1. Sample Program

PAGE 0002 #01

```

0001          ASMB,A,B,L,T
0002*
0003*  THIS IS A SAMPLE PROGRAM DEMONSTRATING THE USE OF THE
0004*  HP 12597A-002 INTERFACE TO CONTROL THE OPERATION OF
0005*  AN HP 2748A OR 2758A TAPE READER. THIS PROGRAM WILL
0006*  READ 100, 8-BIT CHARACTERS USING THE TAPE READER AND
0007*  STORE THEM IN 100 CONSECUTIVE CORE LOCATIONS. SELECT-
0008*  CODE ADDRESS OF THE TAPE READER IS 13 OCTAL.
0009*
0010 00100          ORG 100B  PROGRAM STARTS AT ADDRESS 100 OCTAL.
0011*
0012 00100 060270  START LDA CNT  INITIALIZE A COUNT-BY-100 COUNTER
0013 00101 070267          STA CNTR  AND STORE IN LOCATION CNTR.
0014 00102 060121          LDA ITBL  ASSIGN BEGINNING ADDRESS OF STORAGE
0015 00103 070266          STA PNTR  BLOCK TO ADDRESS POINTER "PNTR".
0016*
0017 00104 014113  GO      JSB READ  JUMP TO SUBROUTINE LABELED READ.
0018*
0019 00105 170266          STA PNTR,I STORE NEW CHARACTER IN LOCATION
0020*          SPECIFIED BY POINTER.
0021 00106 034266          ISZ PNTR  INCREMENT POINTER FOR NEXT STORAGE.
0022 00107 034267          ISZ CNTR  INCREMENT COUNTER. 100 OPERATIONS?
0023 00110 024104          JMP GO    NO, READ ANOTHER CHARACTER.
0024 00111 102077          HLT 77B   YES. HALT PROGRAM.
0025 00112 024100          JMP START TO RERUN PROGRAM, PRESS "RUN".
0026*
0027*  **SUBROUTINE**
0028*  THIS PORTION OF THE PROGRAM INSTRUCTS THE INTERFACE
0029*  TO OPERATE THE TAPE READER.
0030*
0031 00113 000000  READ  NOP          ENTRY POINT.
0032 00114 103713          STC PTR,C  START TAPE READER.
0033 00115 102313          SFS PTR    HAS READER COMPLETED OPERATION?
0034 00116 024115          JMP *-1    NO. WAIT.
0035 00117 102513          LIA PTR     YES. PUT CHARACTER IN "A" REGISTER.
0036 00120 124113          JMP READ,I RETURN TO MAIN PROGRAM WITH NEW
0037*          CHARACTER.
0038*
0039*
0040*  CONSTANT AND STORAGE INFORMATION.
0041*
0042 00121 000122  ITBL  DEF TBL
0043 00122 000000  TBL   BSS 100
0044 00266 000000  PNTR  BSS 1
0045 00267 000000  CNTR  BSS 1
0046 00270 177634  CNT   DEC -100
0047 00013          PTR   EQU 13B
0048*
0049          END START
** NO ERRORS*

```

SECTION IV

THEORY OF OPERATION



4.1. INTRODUCTION.

4.2. This section provides the theory of operation for the 12597-6001 Tape Reader Interface Card.

4.3. FUNCTIONAL THEORY OF OPERATION.

4.4. Figure 4-1 is a flow chart showing the functional theory of operation for the tape reader interface card. The programmed instructions shown on the flowchart are the same as those used in the subroutine portion of the sample program (table 3-1) in section III of this manual.

4.5. The first programmed instruction (STC,C) sets the Control and Command FFs and clears the flag buffer and Flag FFs. The set side of the Command FF provides a Read signal which starts the operation of the tape reader. When the tape reader has completed its operation, it supplies a Feed Hole signal which sets the Flag Buffer FF, clears the Command FF, and loads the eight bits of data from the tape reader into the interface card's input storage register. The next ENF (T2) signal after the Flag Buffer FF sets will set the Flag FF.

4.6. Since the tape reader operates at a speed considerably slower than the computer, some means must be provided to signal the computer when the tape reader has completed its operation. Figure 4-1 shows the next instruction to be an SFS instruction. If the Flag FF is not set (tape reader is still busy), the computer executes a JMP *-1 instruction and again executes the SFS instruction. The computer will stay in this wait-for-flag loop until the Flag FF is finally set.

4.7. When the Flag FF sets, the interface card generates an SKF signal which causes the computer to skip the JMP *-1 instruction and proceed with the next instruction (LIA). The interface card then transfers the 8-bit data word to the computer's A-register.

4.8. DETAILED THEORY OF OPERATION.

4.9. GENERAL.

4.10. Diagrams that support the detailed theory of operation of the tape reader interface include the timing diagram (figure 4-4 or 4-5) in this section and the logic diagram (figure 5-2) in section V of this manual.

4.11. For an index of signals to and from the 86-pin edge of the interface card, see volume two of the computer system documentation. For interface cable signals, see table 5-2 in section V of this manual.

4.12. Logic levels between the computer and the interface card and logic levels internal to the interface card are positive-true. The term "true" refers to a signal level of approximately +3.5 volts and "false" refers to a level of approximately ground. These signal levels vary depending on the integrated circuit package involved. Detailed signal level information for the various integrated circuit packages is provided in figure 5-1.

4.13. Signals to and from the tape reader are ground-true and are detailed in table 1-1.

4.14. POWER-ON LOGIC.

4.15. When power is initially applied to the computer or the computer's PRESET switch is pressed, the computer supplies a POPIO and a CRS signal to the interface card. The POPIO signal sets the Flag Buffer FF; the CRS signal clears the Control and Command FFs. The Control FF, in the clear state, disables the interrupt circuitry on the interface card. A cleared Command FF ensures that the tape reader will be receiving a false Read signal. At time T2 the computer generates an ENF signal which is gated with the set-side of the Flag Buffer FF to set the Flag FF. The ENF signal also ensures that the IRQ FF is in the clear state.

4.16. The initial operating conditions of the tape reader interface card after power on are: Flag Buffer and Flag FFs set and Control, Command, and IRQ FFs cleared.

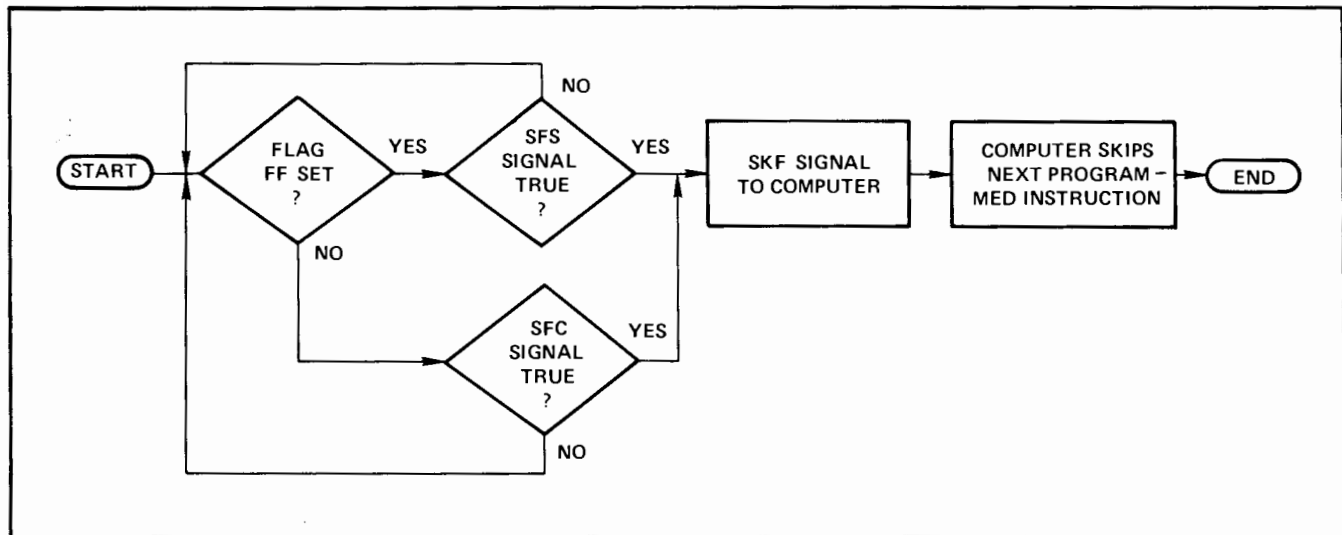
4.17. COMMAND LOGIC.

4.18. The first programmed instruction required for a tape reading operation is an STC xx,C (combined Set Control and Clear Flag) instruction with the select code (xx) of the tape reader interface card. As a result of this instruction, the interface card receives true IOG, SCM, SCL, STC, and CLF signals which set the Control and Command FFs and clear the Flag and Flag Buffer FFs.

4.19. The set side of the Control FF provides an enable for the interface card interrupt circuitry. Interrupt operation is described in detail in paragraph 4-25. The set side of the Command FF is level amplified and sent to the tape reader as a Read signal. The tape reader reads one 8-bit word and puts the word on the eight data signal lines from the reader to the interface card. In the clear state, the Flag and Flag Buffer FFs provide the initial operating conditions for the following discussion of the interface card flag logic.

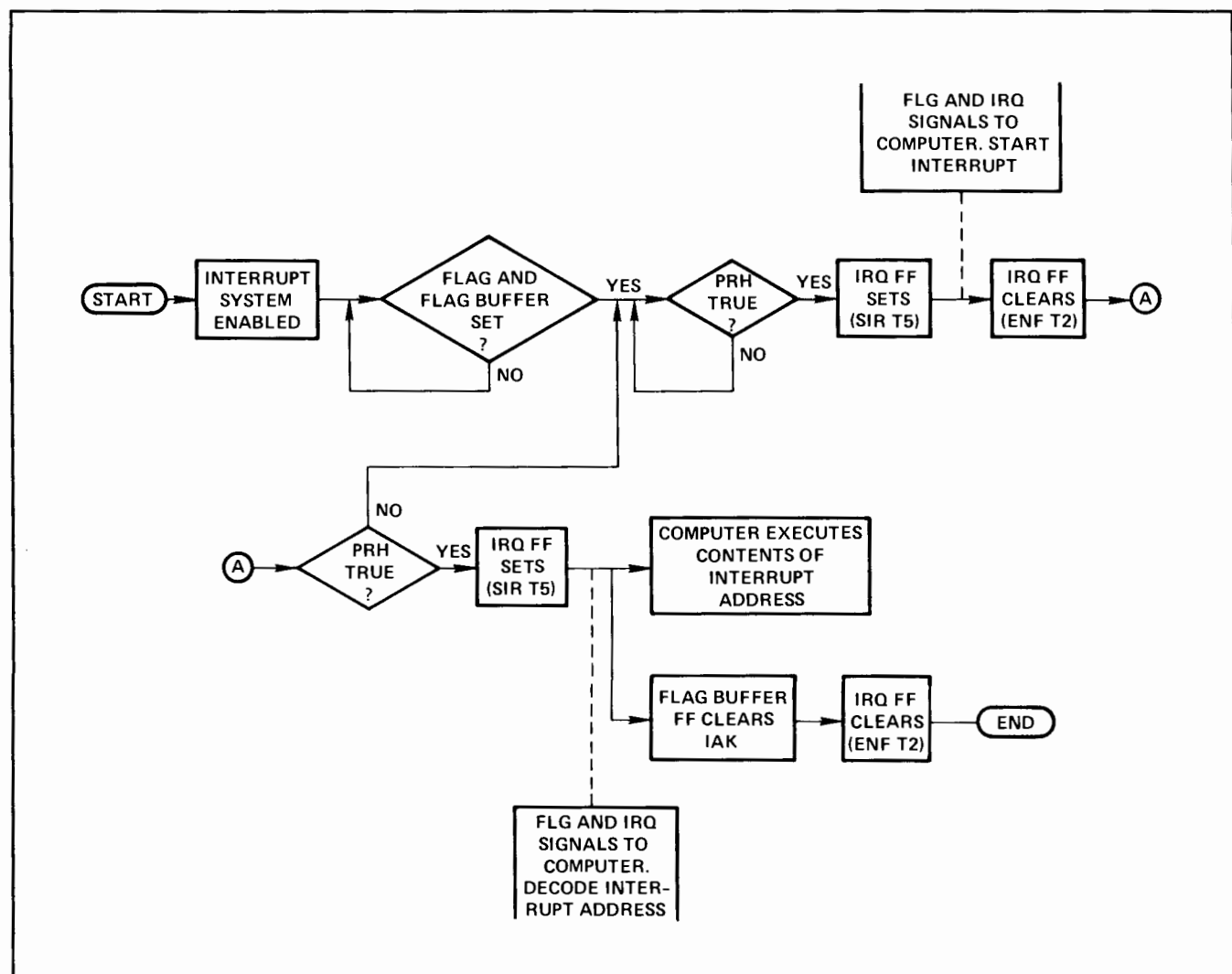
4.20. FLAG LOGIC.

4.21. When the tape reader completes a read operation, it supplies a Feed Hole signal (so named because it is generated by the feed holes in the tape). The Feed Hole



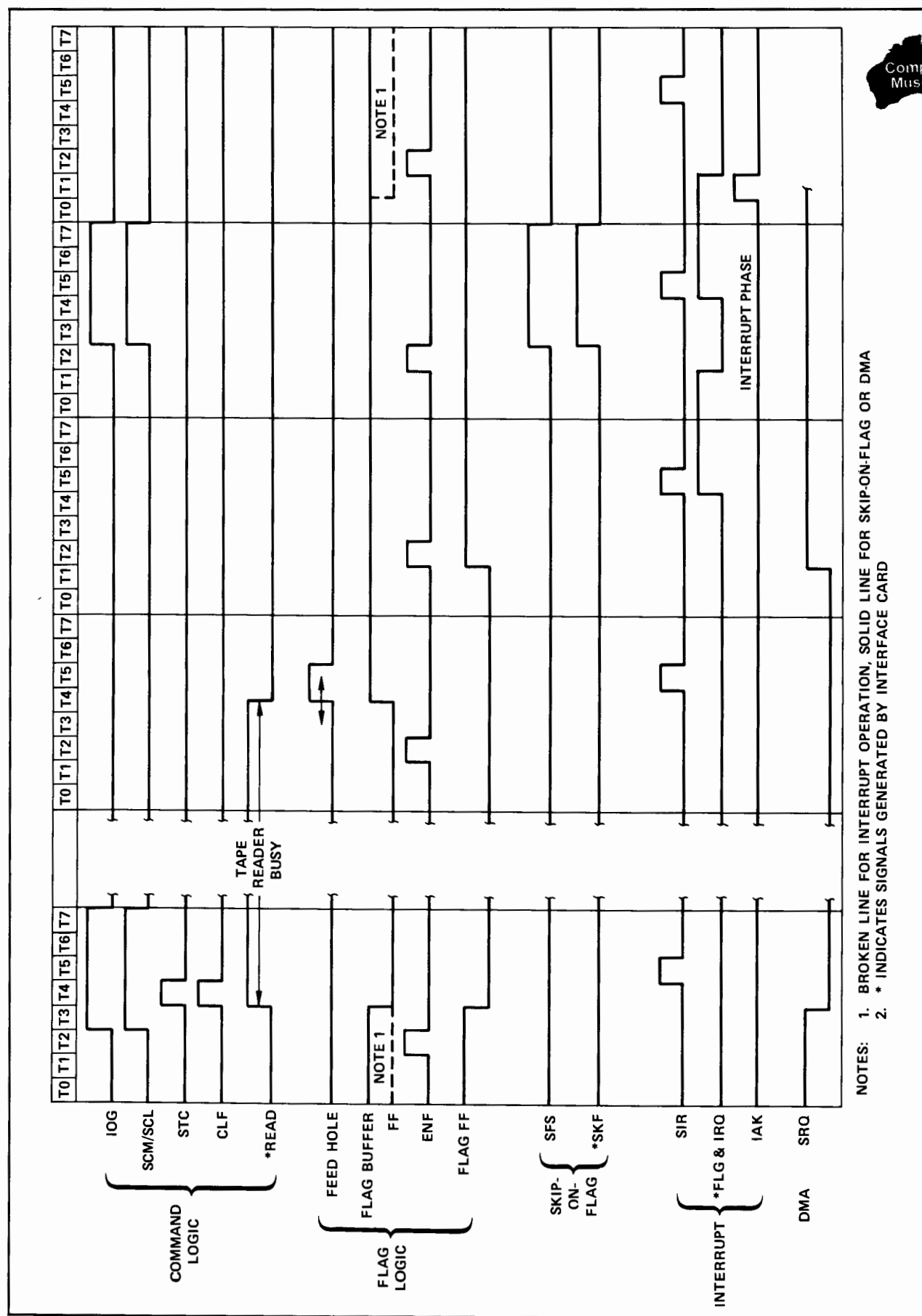
2118-2

Figure 4-2. Skip-On-Flag Signal Generation Flow Chart



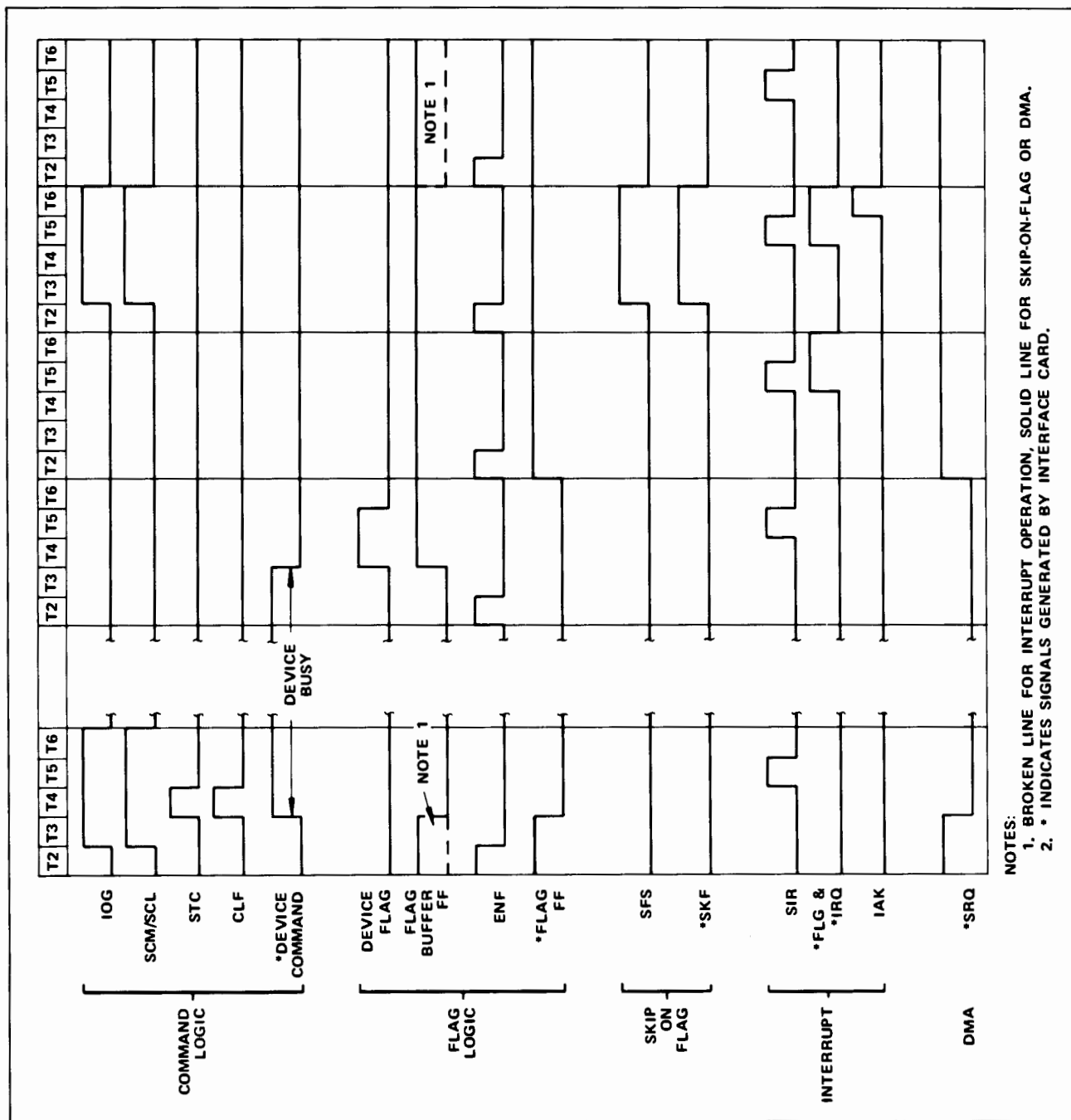
2118-3A

Figure 4-3. Interrupt Operation Flow Chart



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Figure 4-4. Overall Timing Diagram Showing Operation with 2114, 2115, and 2116 Computers



2118-US1

Figure 4-5. Overall Timing Diagram Showing Operation with 2100 and 21MX Computers

SECTION V

MAINTENANCE

5-1. INTRODUCTION.

5-2. This section provides maintenance information for the tape reader interface kit. Included are preventive maintenance instructions, troubleshooting instructions, and maintenance data consisting of an interface card replaceable parts list (table 5-1), information pertaining to the integrated circuit pin connections and characteristics (figure 5-1), an interface card parts location diagram and logic diagram (figure 5-2), and an interface cable signal index (table 5-2).

5-3. PREVENTIVE MAINTENANCE.

5-4. Preventive maintenance for the tape reader interface kit should be performed along with the preventive maintenance routines for the computer system.

5-5. Preventive maintenance consists of running the diagnostic test described in the High Speed Tape Reader/Punch Diagnostic Reference Manual, part no. 12597-90031. Also, visually inspect the interface card, cable, and connectors for burned or broken components, connections, and insulation.

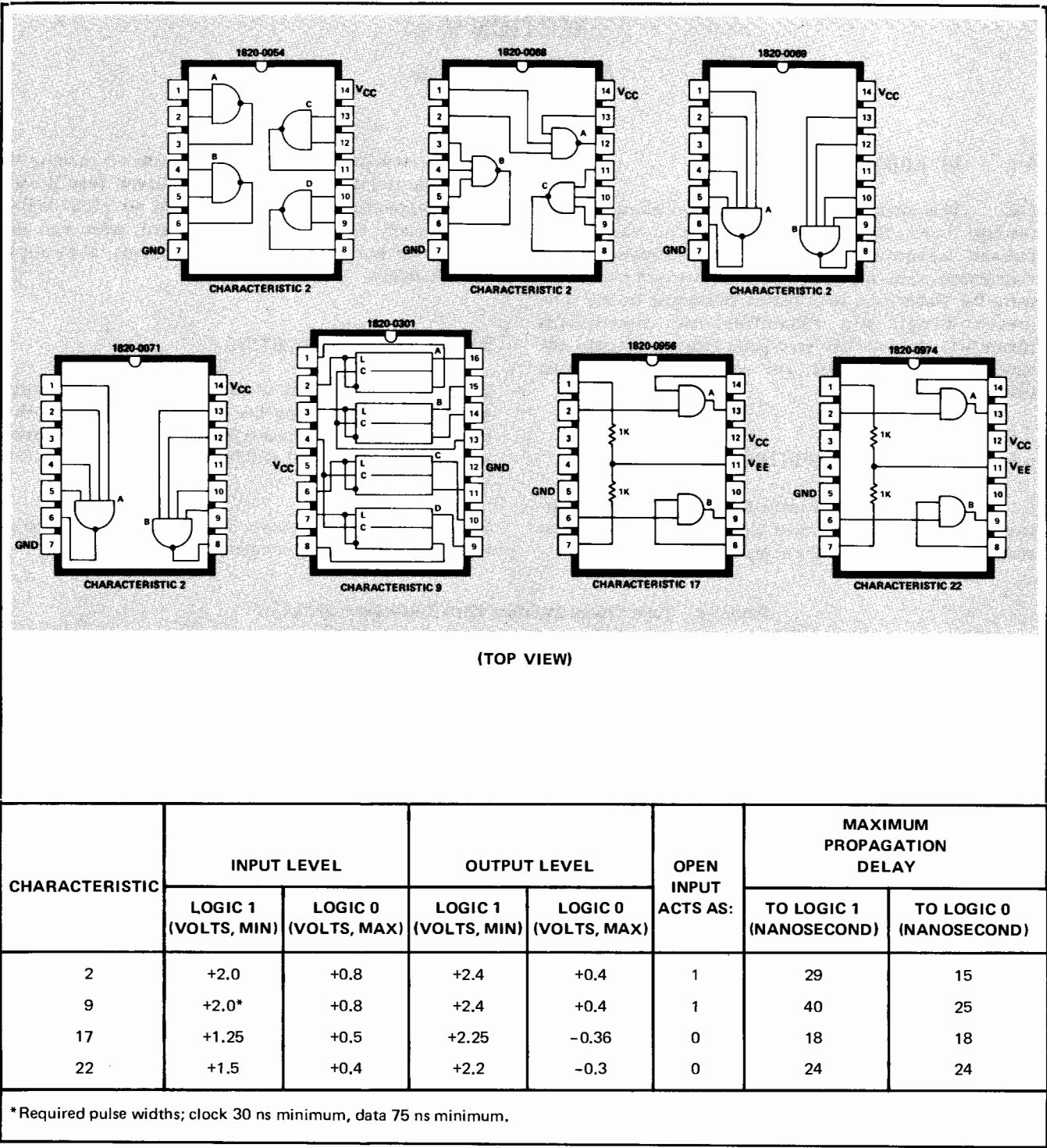
5-6. TROUBLESHOOTING.

5-7. Troubleshooting the tape reader interface card is accomplished by running the diagnostic test described in the High Speed Tape Reader/Punch Diagnostic Reference Manual, part no. 12597-90031, and analyzing error halts as they occur.

5-8. Use the maintenance data contained in this section to further isolate faulty components.

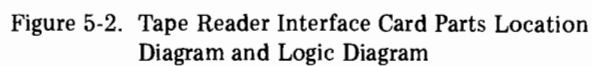
Table 5-1. Tape Reader Interface Card Replaceable Parts List

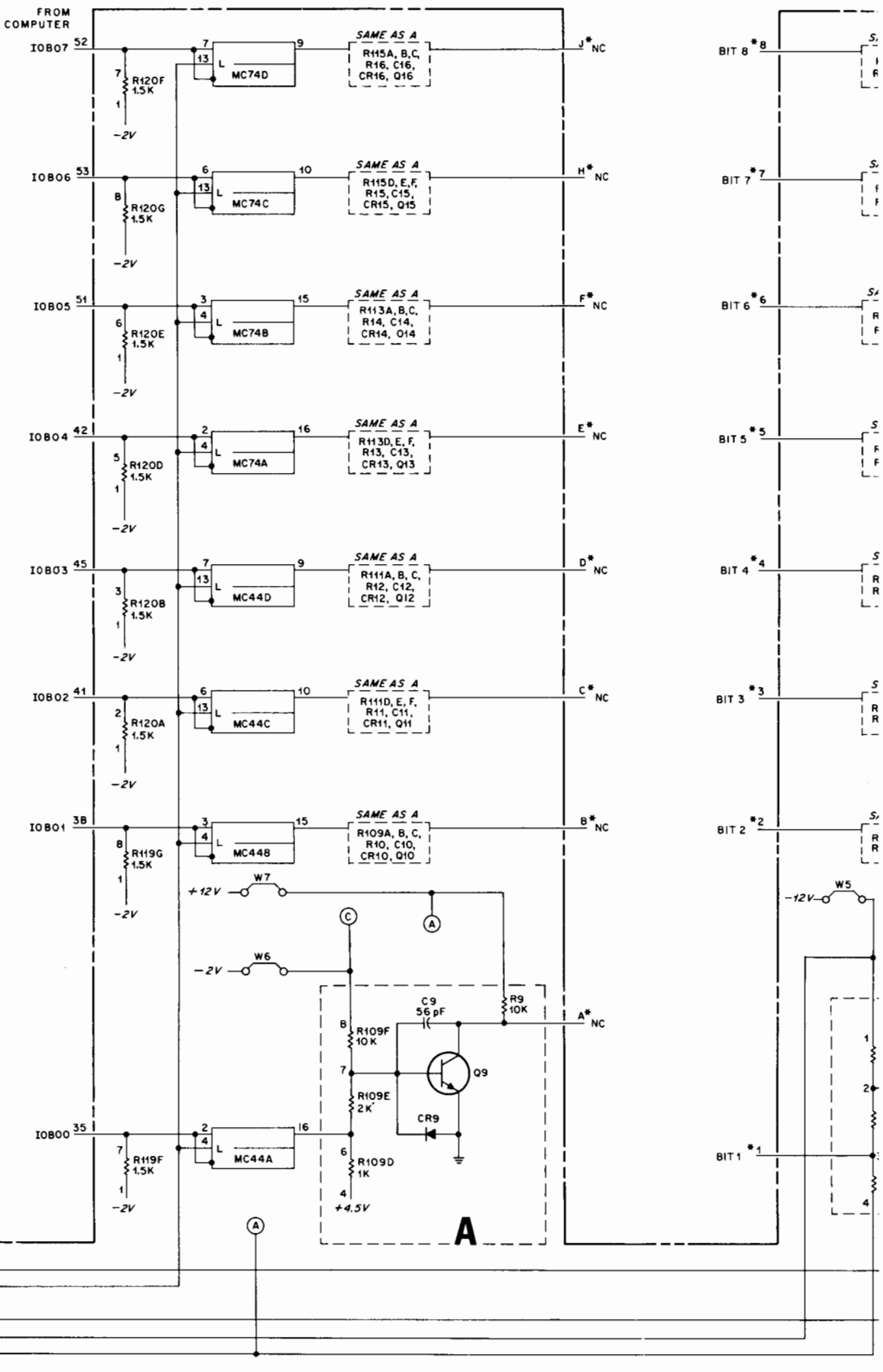
REFERENCE DESIGNATION	HP PART NO.	DESCRIPTION	MFR CODE	MFR PART NO.
C1 thru C8,18	0140-0198	Capacitor, Fxd, Mica, 200 pF, 5%	28480	0140-0198
C9 thru C16	0140-0191	Capacitor, Fxd, Mica, 56 pF, 5%	28480	0140-0191
C17	0140-0192	Capacitor, Fxd, Mica, 68 pF, 5%	28480	0140-0192
C19,22	0160-0153	Capacitor, Fxd, My, 1000 pF, 10%, 200 VDCW	28480	0160-0153
C20,21	0160-0154	Capacitor, Fxd, My, 2200 pF, 10%	28480	0160-0154
C23 thru C32	0180-0197	Capacitor, Fxd, Elect, 2.2 uF, 10%, 20 VDCW	56289	150D225X 9020A2
CR9 thru CR17	1901-0040	Diode, Si, 30 mA, 30 WV	07263	FDG1088
MC15,36	1820-0068	Integrated Circuit, TTL	56289	USN7410A
MC16,26,47	1820-0956	Integrated Circuit, CTL	07263	SL3459
MC17,25,27,37,46,57,86,94	1820-0054	Integrated Circuit, TTL	56289	USN7400A
MC34,44,64,74	1820-0301	Integrated Circuit, TTL	01295	SN7475N
MC35	1820-0069	Integrated Circuit, TTL	56289	USN7420A
MC45,55,65,75	1820-0974	Integrated Circuit, CTL	07263	SL4817
MC56,66	1820-0071	Integrated Circuit, TTL	56289	USN7440A
Q1 thru Q18	1854-0215	Transistor, Si, NPN	04713	SPS3611
R1 thru R8,18	0757-0417	Resistor, Fxd, Flm, 562 ohms, 1%, 1/8W	28480	0757-0417
R9 thru R17	0757-0442	Resistor, Fxd, Flm, 10.0k, 1%, 1/8W	28480	0757-0442
R19,22,23	0698-3445	Resistor, Fxd, Flm, 348 ohms, 1%, 1/8W	28480	0698-3445
R20,30,31	0698-3440	Resistor, Fxd, Flm, 196 ohms, 1%, 1/8W	28480	0698-3440
R21	0698-0082	Resistor, Fxd, Flm, 464 ohms, 1%, 1/8W	28480	0698-0082
R24,25,28,32	0757-0280	Resistor, Fxd, Flm, 1k, 1%, 1/8W	28480	0757-0280
R26,27	0757-0401	Resistor, Fxd, Flm, 100 ohms, 1%, 1/8W	28480	0757-0401
R29	0757-1094	Resistor, Fxd, Flm, 1.47k, 1%, 1/8W	28480	0757-1094
R101,103,105,107,109, 111,113,115,117,118	1810-0008	Resistor Network (6 fxd flm resistors)	28480	1810-0008
R119 thru R122	1810-0020	Resistor Network (7 fxd flm resistors)	28480	1810-0020
W1 thru W7	8159-0005	Jumper Wire	28480	8159-0005

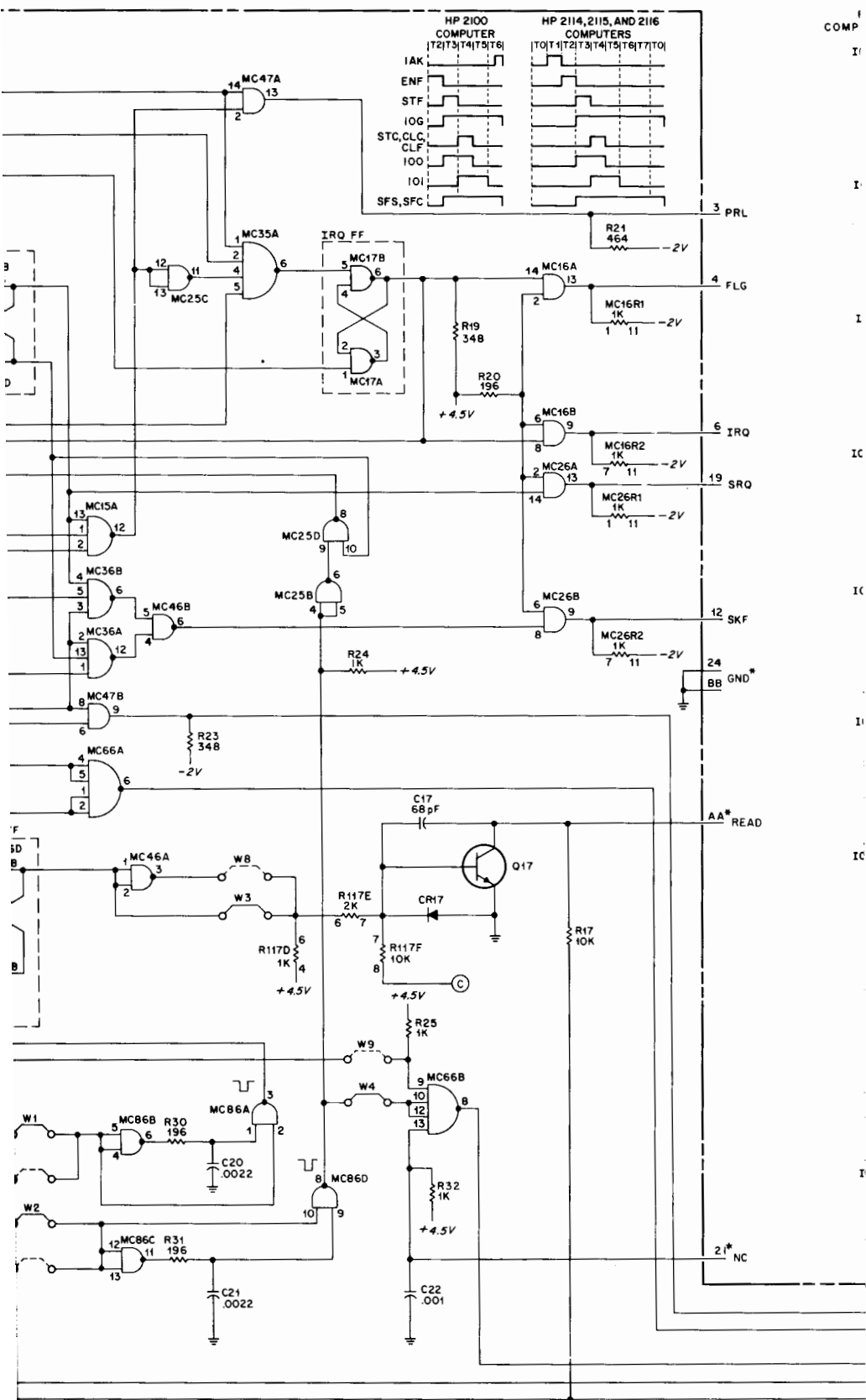


2118-6

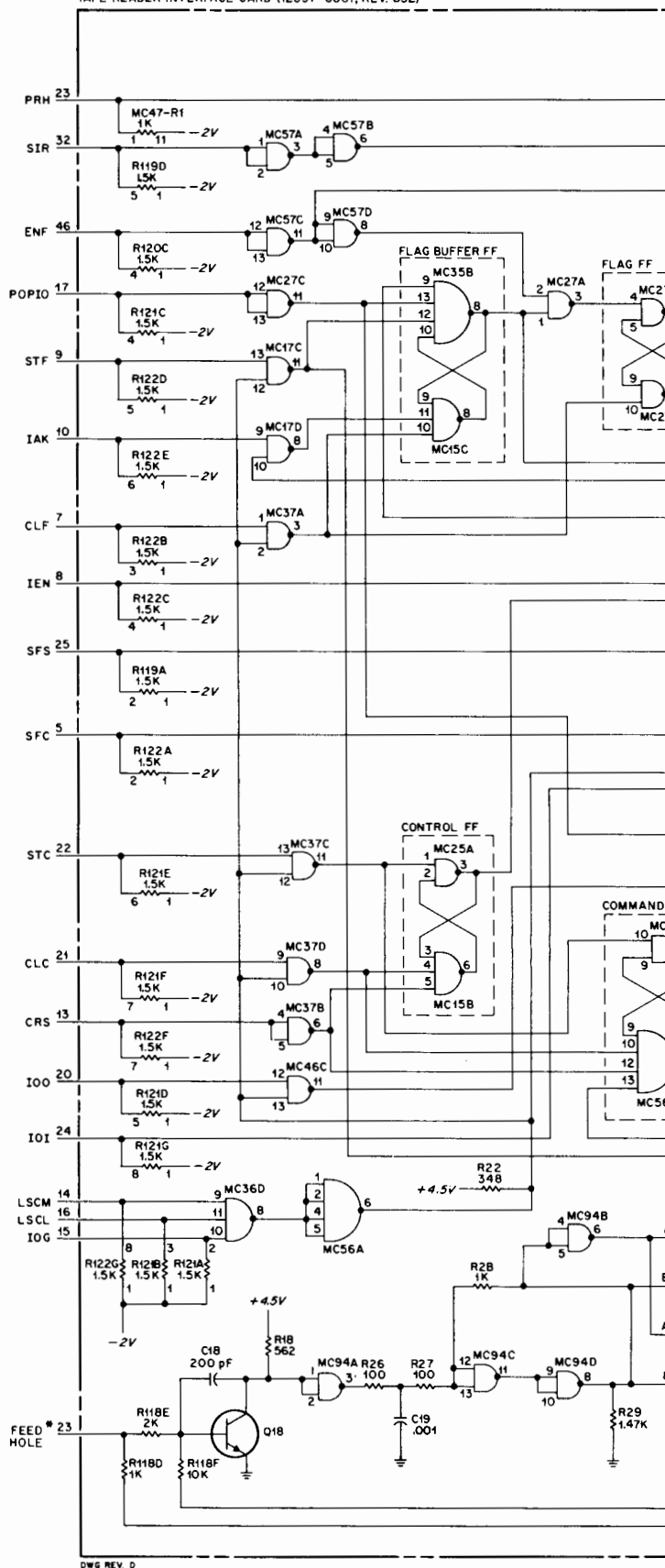
Figure 5-1. Integrated Circuit Pin Connections and Characteristics







TAPE READER INTERFACE CARD (12597-6001, REV. B32)



DWG REV. D

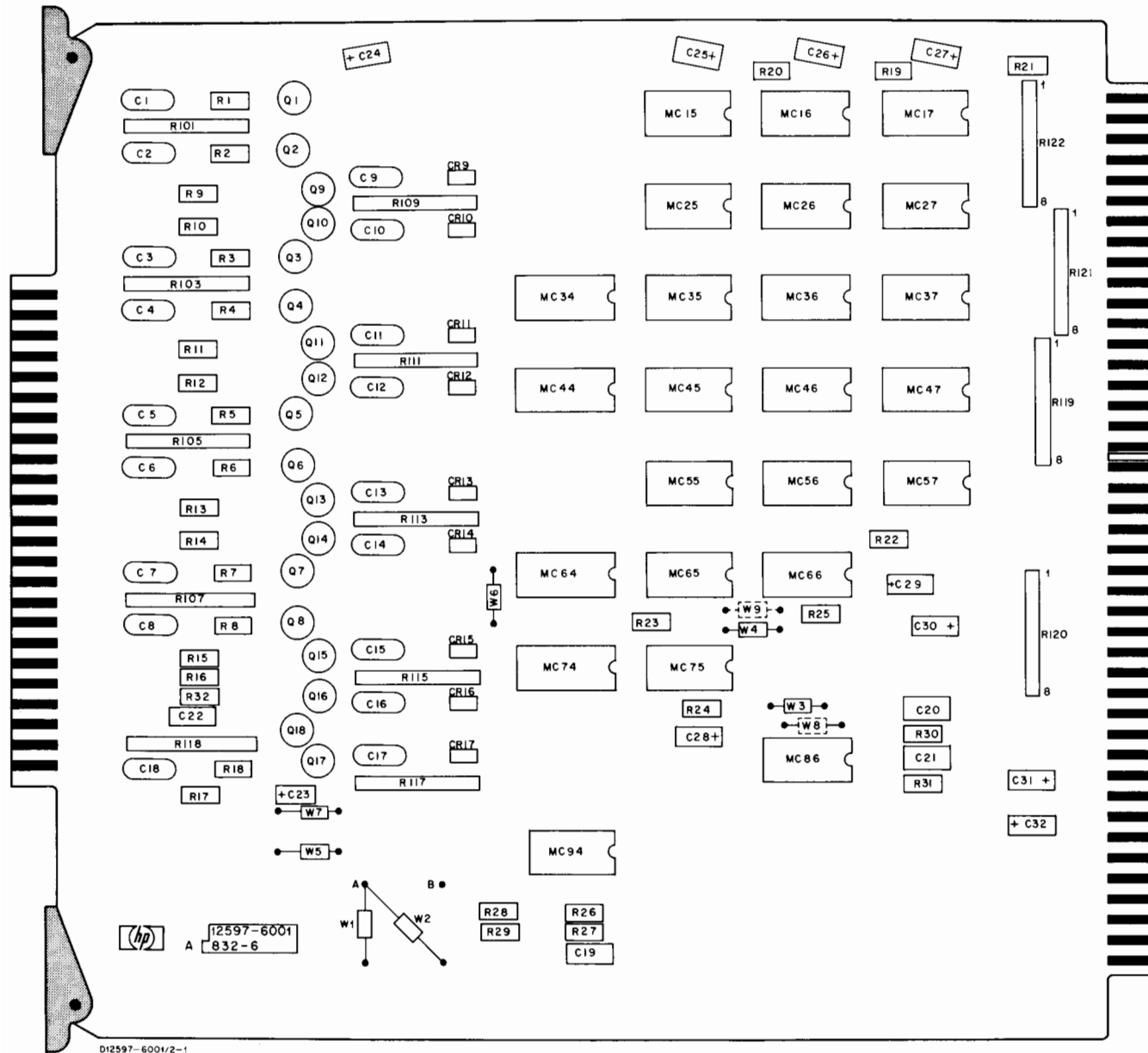


Table 5-2. Interface Cable Signal Index

48-PIN CONNECTOR PIN NO.	TAPE READER CONNECTOR PIN NO.	SIGNAL
1	B	Bit 1
2	F	Bit 2
3	L	Bit 3
4	R	Bit 4
5	V	Bit 5
6	Z	Bit 6
7	d	Bit 7
8	j	Bit 8
AA	AA	Read
23	FF	Feed Hole
24,BB	HH	Ground

SECTION VI

REPLACEABLE PARTS



6-1. INTRODUCTION.

6-2. This section provides information for ordering replacement parts for the 12597A-002 Tape Reader Interface Kit. Table 6-1 is a numerical listing of all replaceable parts in the interface kit.

6-3. An interface card replaceable parts list (table 5-1) and parts location diagram (figure 5-2) are provided in Section V of this manual.

6-4. Tables 5-1 and 6-1 list the following information for each replaceable part:

a. Reference designation of the part (table 5-1 only). (Refer to table 6-2 for an explanation of the abbreviations used in the REFERENCE DESIGNATION column.)

b. Hewlett-Packard part number.

c. Description of the part. Refer to table 6-2 for an explanation of the abbreviations used in the DESCRIPTION column.

d. A five digit code that corresponds to the manufacturer of the part. (Refer to table 6-3 for a code list of manufacturers.)

e. Manufacturer's part number.

f. Total quantity (TQ) of each part used in the kit or assembly (table 6-1 only).

6-5. ORDERING INFORMATION.

6-6. To order replacement parts, address the order or inquiry to the nearest Hewlett-Packard Sales and Service Office. Refer to the list at the back of this manual for addresses. Specify the following information for each part ordered:

a. Identification of the instrument, kit, or assembly containing the part (refer to paragraph 1-8).

b. Hewlett-Packard part number for each part.

c. Description of each part.

d. Circuit reference designation for each part (if applicable).

Table 6-3. Code List of Manufacturers

The following code numbers are from the Federal Supply Code for Manufacturers Cataloging Handbooks H4-1 (Name to Code) and H4-2 (Code to Name) and their latest supplements. The date of revision and the date of the supplements used appear at the bottom of each page. Alphabetical codes have been arbitrarily assigned to suppliers not appearing in the H4 Handbooks.								
Code No.	Manufacturer	Address	Code No.	Manufacturer	Address	Code No.	Manufacturer	Address
00000	U.S.A. Common	Any supplier of U.S.	05347	Ultronix, Inc.	San Mateo, Cal.	11236	CTS of Berne, Inc.	Berne, Ind.
00136	McCoy Electronics	Mount Holly Springs, Pa.	05397	Union Carbide Corp., Elect.		11237	Chicago Telephone of	
00213	Sage Electronics Corp.	Rochester, N. Y.		Div.	New York, N. Y.		California, Inc.	So. Pasadena, Cal.
00287	Cemco, Inc.	Danielson, Conn.	05574	Viking Ind. Inc.	Canoga Park, Cal.	11242	Bay State Electronics Corp.	Waltham, Mass.
00334	Humidial	Colton, Calif.	05593	Icore Electro-Plastics Inc.	Sunnyvale, Cal.	11312	Teledyne Inc., Microwave	
00348	Mietron, Co., Inc.	Valley Stream, N. Y.	05616	Cosmo Plastic (c/o Electrical Spec. Co.)	Cleveland, Ohio		Div.	Palo Alto, Cal.
00373	Garlock Inc.	Cherry Hill, N. J.	05624	Barber Colman Co.	Rockford, Ill.	11314	National Seal	Downey, Cal.
00656	Aerovox Corp.	New Bedford, Mass.	05728	Tiffen Optical Co.		11453	Precision Connector Corp.	Jamaica, N. Y.
00779	Amp. Inc.	Harrisburg, Pa.			Roslyn Heights, Long Island, N. Y.	11534	Duncan Electronics Inc.	Costa Mesa, Cal.
00781	Aircraft Radio Corp.	Boonton, N. J.	05729	Metro-Tel Corp.	Westbury, N. Y.	11711	General Instrument Corp.	
00809	Croven, Ltd.	Whitby, Ontario, Canada	05783	Stewart Engineering Co.	Santa Cruz, Cal.		Semiconductor Division Products	
00815	Northern Engineering Laboratories, Inc.	Burlington, Wis.	05820	Wakefield Engineering Inc.	Wakefield, Mass.		Group	Newark, N. J.
00853	Sangamo Electric Co., Pickens Div.	Pickens, S. C.	06004	Bassick Co., Div. of Stewart Warner Corp.	Bridgeport, Conn.	11717	Imperial Electronic, Inc.	Buena Park, Cal.
00866	Goe Engineering Co.	City of Industry, Cal.	06090	Raychem Corp.	Redwood City, Cal.	11870	Melabs, Inc.	Palo Alto, Cal.
00891	Carl E. Holmes Corp.	Los Angeles, Cal.	06175	Bausch and Lomb Optical Co.	Rochester, N. Y.	12136	Philadelphia Handle Co.	Camden, N. J.
00929	Microlab Inc.	Livingston, N. J.	06402	E. T. A. Products Co. of America	Chicago, Ill.	12361	Grove Mfg. Co., Inc.	Shady Grove, Pa.
01002	General Electric Co., Capacitor Dept.	Hudson Falls, N. Y.	06540	Amatom Electronic Hardware Co., Inc.	New Rochelle, N. Y.	12574	Gulton Ind. Inc., Data System	
01009	Alden Products Co.	Brockton, Mass.	06555	Beede Electrical Instrument Co., Inc.	Penacook, N. H.		Div.	Albuquerque, N. M.
01121	Allen Bradley Co.	Milwaukee, Wis.	06666	General Devices Co., Inc.	Indianapolis, Ind.	12697	Clarostat Mfg. Co.	Dover, N. H.
01255	Litton Industries, Inc.	Beverly Hills, Cal.	06751	Components Inc., Ariz. Div.	Phoenix, Arizona	12728	Elmar Filter Corp.	W. Haven, Conn.
01281	TRW Semiconductors, Inc.	Lawndale, Cal.	06812	Torrington Mfg. Co., West Div.	Van Nuys, Cal.	12859	Nippon Electric Co., Ltd.	Tokyo, Japan
01295	Texas Instruments, Inc.		06980	Varian Assoc. Etmac Div.	San Carlos, Cal.	12881	Metex Electronics Corp.	Clark, N. J.
01349	The Alliance Mfg. Co.	Alliance, Ohio	07088	Kelvin Electric Co.	Van Nuys, Cal.	12930	Delta Semiconductor Inc.	Newport Beach, Cal.
01538	Small Parts Inc.	Los Angeles, Cal.	07126	Digitran Co.	Pasadena, Cal.	12954	Dickson Electronics Corp.	Scottsdale, Arizona
01589	Pacific Relays, Inc.	Van Nuys, Cal.	07137	Transistor Electronics Corp.	Minneapolis, Minn.	13019	Airco Supply Co., Inc.	Wichita, Kansas
01670	Gudebrod Bros. Silk Co.	New York, N. Y.	07138	Westinghouse Electric Corp., Electronic Tube Div.	Elmira, N. Y.	13061	Wilco Products	Detroit, Mich.
01930	Amerock Corp.	Rockford, Ill.	07149	Filmohm Corp.	New York, N. Y.	13103	Thermolloy	Dallas, Texas
01960	Pulse Engineering Co.	Santa Clara, Cal.	07233	Cinch-Graphix Co.	City of Industry, Cal.	13327	Soliton Devices Inc.	Tappan, N. Y.
02114	Ferroxcube Corp. of America	Saugerties, N. Y.	07256	Silicon Transistor Corp.	Carle Place, N. Y.	13396	Telefunken (GmbH)	Hanover, Germany
02116	Wheelock Signals, Inc.	Long Branch, N. J.	07261	Avnet Corp.	Culver City, Cal.	13835	Midland-Wright Div. of	
02286	Cole Rubber and Plastics Inc.	Sunnyvale, Cal.	07263	Fairchild Camera & Inst. Corp.			Pacific Industries, Inc.	Kansas City, Kansas
02660	Amphenol-Borg Electronics Corp.	Broadview, Ill.	07322	Semiconductor Div.	Mountain View, Cal.	14099	Sem-Tech	Newbury Park, Cal.
02735	Radio Corp. of America, Semiconductor and Materials Division	Somerville, N. J.	07387	Minnesota Rubber Co.	Minneapolis, Minn.	14193	Calif. Resistor Corp.	Santa Monica, Cal.
02771	Vocaline Co. of America, Inc.	Old Saybrook, Conn.	07397	Birtcher Corp. The	Monterey Park, Cal.	14298	American Components, Inc.	Conshohocken, Pa.
02777	Hopkins Engineering Co.	San Fernando, Cal.	07700	Sylvania Elect. Prod. Inc., Mt. View Operations	Mountain View, Cal.	14433	ITT Semiconductor, a Div. of Int. Telephone and Telegraph Corporation	West Palm Beach, Fla.
02875	Hudson Tool & Die	Newark, N. J.	07829	Technical Wire Products Inc.	Cranford, N. J.	14493	Hewlett-Packard Company	Loveland, Colo.
03296	Nylon Molding Corp.	Springfield, N. J.	07910	Bodine Elect. Co.	Chicago, Ill.	14655	Cornell Dublier Electric Corp.	Newark, N. J.
03508	G. E. Semiconductor Prod. Dept.	Syracuse, N. Y.	07933	Continental Device Corp.	Hawthorne, Cal.	14674	Corning Glass Works	Corning, N. Y.
03705	Apex Machine & Tool Co.	Dayton, Ohio	07980	Raytheon Mfg. Co., Semiconductor Div.	Mountain View, Cal.	14752	Electro Cube Inc.	San Gabriel, Cal.
03797	Eldema Corp.	Compton, Calif.	08145	Hewlett-Packard Co., New Jersey Division	Rockaway, N. J.	14960	Williams Mfg. Co.	San Jose, Cal.
03818	Parker Seal Co.	Los Angeles, Cal.	08289	U. S. Engineering Co.	Los Angeles, Cal.	15106	The Sphere Co., Inc.	Little Falls, N. J.
03877	Transitron Electric Corp.	Wakefield, Mass.	08358	Blinn, Delbert Co.	Pomona, Cal.	15203	Webster Electronics Co.	New York, N. Y.
03888	Pyrofilm Resistor Co., Inc.	Cedar Knolls, N. J.	08524	Burgess Battery Co.	Niagara Falls, Ontario, Canada	15287	Scionics Corp.	Northridge, Cal.
03954	Singer Co., Diehl Div., Finderne Plant	Sumerville, N. J.	08664	Deutsch Fastener Corp.	Los Angeles, Cal.	15291	Adjustable Bushing Co.	N. Hollywood, Cal.
04009	Arrow, Hart and Hegeman Elect. Co.	Hartford, Conn.	08717	Bristol Co., The	Waterbury, Conn.	15558	Micron Electronics, Garden City	Long Island, N. Y.
04013	Tarus Corp.	Lambertville, N. J.	08718	Sloan Company	Sun Valley, Cal.	15566	Amprobe Inst. Corp.	Lynbrook, N. Y.
04062	Arco Electronic Inc.	Great Neck, N. Y.	08727	ITT Cannon Electric Inc., Phoenix Div.	Phoenix, Arizona	15631	Cabletronics	Costa Mesa, Cal.
04217	Essex Wire	Los Angeles, Cal.	08792	National Radio Lab. Inc.	Paramus, N. J.	15772	Twentieth Century Coil Spring Co.	Santa Clara, Cal.
04222	Hi-Q Division of Aerovox	Myrtle Beach, S. C.	08806	CBS Electronics Semiconductor Operations, Div. of CBS Inc.	Lowell, Mass.	15801	Fenwal Elect. Inc.	Framingham, Mass.
04354	Precision Paper Tube Co.	Wheeling, Ill.	08984	General Electric Co., Miniature Lamp Dept.	Cleveland, Ohio	15818	Amelco Inc.	Mountain View, Cal.
04404	Palo Alto Division of Hewlett-Packard Co.	Palo Alto, Cal.	09026	Mel-Rain	Indianapolis, Ind.	16037	Spruce Pine Mica Co.	Spruce Pine, N. C.
04651	Sylvania Electric Products, Microwave Device Div.	Mountain View, Cal.	09097	Babcock Relays Div.	Costa Mesa, Cal.	16179	Omni-Spectra Inc.	Detroit, Ill.
04673	Dakota Engr. Inc.	Culver City, Cal.	09134	Electronic Enclosures Inc.	Los Angeles, Calif.	16352	Computer Diode Corp.	Lodi, N. J.
04713	Motorola Inc. Semiconductor Prod. Div.	Phoenix, Arizona	09145	Texas Capacitor Co.	Houston, Texas	16554	Electroid Co.	Union, N. J.
04732	Filttron Co., Inc. Western Div.	Culver City, Cal.		Tech, Ind, Inc, Atohm		16585	Boots Aircraft Nut Corp.	Pasadena, Cal.
04773	Automatic Electric Co.	Northlake, Ill.	09250	Elect. Assemblies, Inc.	Burbank, Cal.	16688	Ideal Prec-Meter Co., Inc.	
04796	Sequia Wire Co.	Redwood City, Cal.	09353	Electro Assemblies, Inc.	Chicago, Ill.		De Jur Meter Div.	Brooklyn, N. Y.
04811	Precision Coil Spring Co.	El Monte, Cal.	09569	C & K Components Inc.	Newton, Mass.	16758	Delco Radio Div. of G. M. Corp.	Kokomo, Ind.
04870	P. M. Motor Company	Westchester, Ill.		Mallory Battery Co. of Canada, Ltd.	Toronto, Ontario, Canada	17109	Thermonetics Inc.	Canoga Park, Cal.
04919	Component Mfg. Service Co.	W. Bridgewater, Mass.	09795	Pennsylvania Florocarbon	Clifton Heights, Penn.	17474	Tranex Company	Mountain View, Cal.
05006	Twentieth Century Plastics, Inc.	Los Angeles, Cal.	09922	Burndy Corp.	Norwalk, Conn.	17675	Hamlin Metal Products Corp.	Akron, Ohio
05277	Westinghouse Electric Corp. Semiconductor Dept.	Youngwood, Pa.	10214	General Transistor Western Corp.	Los Angeles, Cal.	17745	Angstrom Prec. Inc.	No. Hollywood, Cal.
			10411	Ti-Tal, Inc.	Berkeley, Cal.	17856	Siliconix Inc.	Sunnyvale, Cal.
			10646	Carborundum Co.	Niagara Falls, N. Y.	17870	McGraw-Edison Co.	Manchester, N. H.
						18042	Power Design Pacific Inc.	Palo Alto, Cal.
						18083	Clevite Corp. Semiconductor Div.	Palo Alto, Cal.
						18324	Signetics Corp.	Sunnyvale, Cal.
						18476	Ty-Car Mfg. Co., Inc.	Holliston, Mass.
						18486	TRW Elect. Comp. Div.	Des Plaines, Ill.
						18565	Chomerics	Plainville, Mass.
						18583	Curtis Instrument, Inc.	Mt. Kisco, N. Y.
						18612	Vishay Instruments Inc.	Malvern, Pa.
						18873	E. I. DuPont and Co., Inc.	Wilmington, Del.
						18911	Durant Mfg. Co.	Milwaukee, Wis.
						19315	The Bendix Corp., Navigation & Control Div.	Teterboro, N. J.
						19500	Thomas A. Edison Industries, Div. of McGraw-Edison	West Orange, N. J.
						19589	Concoa	Baldwin Park, Cal.
00015-49								
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From: Handbook Supplements
H4-1 Dated January 1970

Table 6-3. Code List of Manufacturers (Continued)

Code No.	Manufacturer	Address	Code No.	Manufacturer	Address	Code No.	Manufacturer	Address
19644	LRC Electronics	Horseheads, N. Y.	71482	C. P. Clare & Co.	Chicago, Ill.	78452	Thompson-Bremer & Co.	Chicago, Ill.
19701	Electra Mfg. Co.	Independence, Kansas	71590	Centralab Div. of		78471	Tilley Mfg. Co.	San Francisco, Cal.
20183	General Atomics Corp.	Philadelphia, Pa.		Globe Union Inc.	Milwaukee, Wis.	78488	Stackpole Carbon Co.	St. Marys, Pa.
21226	Executone, Inc.	Long Island City, N. Y.	71616	Commercial Plastics Co.	Chicago, Ill.	78493	Standard Thomson Corp.	Waltham, Mass.
21355	Fafnir Bearing Co., The	New Britain, Conn.	71700	Cornish Wire Co., The	New York, N. Y.	78553	Tinnerman Products, Inc.	Cleveland, Ohio
21520	Fansteel Metallurgical Corp.	N. Chicago, Ill.	71707	Coto Coil Co., Inc.	Providence, R. I.	78790	Transformer Engineers	San Gabriel, Cal.
23020	General Reed Co.	Metuchen, N. J.	71744	Chicago Miniature Lamp Works	Chicago, Ill.	78947	Ucinite Co.	Newtonville, Mass.
23042	Texscan Corp.	Indianapolis, Ind.	71785	Cinch Mfg. Co.		79136	Waldes Kohinoor Inc.	Long Island City, N. Y.
23783	British Radio Electronics Ltd.	Washington, D.C.		Howard B. Jones Div.	Chicago, Ill.	79142	Veeder Root, Inc.	Hartford, Conn.
24455	G. E. Lamp Division, Nela Park	Cleveland, Ohio	71984	Dow Corning Corp.	Midland, Mich.	79251	Wenco Mfg. Co.	Chicago, Ill.
24655	General Radio Co.	West Concord, Mass.	72136	Electro Motive Mfg. Co., Inc.		79727	Continental-Wirt Electronics Corp.	
24681	Memcor Inc., Comp. Div.	Huntington Ind.			Willimantic, Conn.			Philadelphia, Pa.
26365	Gries Reproducer Corp.	New Rochelle, N. Y.	72619	Dialight Corp.	Brooklyn, N. Y.	79963	Zierick Mfg. Corp.	New Rochelle, N. Y.
26462	Grobert File Co. of America, Inc.	Carlstadt, N. J.	72656	Indiana General Corp.		80031	Mepco Division of Sessions Clock Co.	
26851	Compac Hollister Co.	Hollister, Cal.		Electronics Div.	Keasby, N. J.			Morristown, N. J.
26992	Hamilton Watch Co.	Lancaster, Pa.	72699	General Instrument Corp.		80033	Prestole Corp.	Toledo, Ohio
28480	Hewlett-Packard Co.	Palo Alto, Cal.		Cap Division	Newark, N. J.	80120	Schnitzer Alloy Products Co.	Elizabeth, N. J.
28520	Heyman Mfg. Co.	Kenilworth, N. J.	72765	Drake Mfg. Co.	Harwood Heights, Ill.	80131	Electronic Industries Association.	
30817	Instrument Specialties Co., Inc.	Little Falls, N. J.	72825	Hugh H. Eby Inc.	Philadelphia, Pa.			Standard tube or semi-conductor device, any manufacturer.
33173	G. E. Receiving Tube Dept.	Owensboro, Ky.	72928	Gudeman Co.	Chicago, Ill.	80207	Unimax Switch, Div. Maxon Electronics Corp.	Wallingford, Conn.
35434	Lectrohm Inc.	Chicago, Ill.	72962	Elastic Stop Nut Corp.	Union, N. J.	80223	United Transformer Corp.	New York, N. Y.
36196	Stanwyck Coil Products, Ltd.	Hawkesbury, Ontario, Canada	72964	Robert M. Hadley Co.	Los Angeles, Cal.	80248	Oxford Electric Corp.	Chicago, Ill.
36287	Cunningham, W. H. & Hill, Ltd.	Toronto, Ontario, Canada	72982	Eric Technological Products, Inc.	Erie, Pa.	80294	Bourns Inc.	Riverside, Cal.
37942	P. R. Mallory & Co., Inc.	Indianapolis, Ind.	73061	Hansen Mfg. Co., Inc.	Princeton, Ind.	80411	Arco Div. of Robertshaw Controls Co.	
39543	Mechanical Industries Prod. Co.	Akron, Ohio	73076	H. M. Harper Co.	Chicago, Ill.			Columbus, Ohio
40920	Miniature Precision Bearings, Inc.	Keene, N. H.	73138	Helipot Div. of Beckman Inst., Inc.		80486	All Star Products Inc.	Defiance, Ohio
40931	Honeywell Inc.	Minneapolis, Minn.	73293	Hughes Products Division of		80509	Avery Label Co.	Monrovia, Cal.
42190	Muter Co.	Chicago, Ill.		Hughes Aircraft Co.	Newport Beach, Cal.	80583	Hammarlund Co., Inc.	Mars Hill, N. C.
43990	C. A. Norgren Co.	Englewood, Colo.	73445	Amperex Elect. Co.	Hicksville, L. I., N. Y.	80640	Stevens, Arnold, Co., Inc.	Boston, Mass.
44655	Ohmite Mfg. Co.	Skokie, Ill.	73506	Bradley Semiconductor Corp.		80813	Dumco Gray Co.	Dayton, Ohio
46384	Penn Eng. & Mfg. Corp.	Doylstown, Pa.	73559	Carling Electric, Inc.	Hartford, Conn.	81030	International Inst. Inc.	Orange, Conn.
47904	Polaroid Corp.	Cambridge, Mass.	73586	Circle F Mfg. Co.	Trenton, N. J.	81073	Grayhill Co.	LaGrange, Ill.
48620	Precision Thermometer & Inst. Co.	Southampton, Pa.	73682	George K. Garrett Co., Div. MSL Industries, Inc.	Philadelphia, Pa.	81095	Triad Transformer Corp.	Venice, Cal.
49956	Microwave & Power Tube Div.	Waltham, Mass.	73734	Federal Screw Products, Inc.	Chicago, Ill.	81312	Winchester Elec. Div. Litton Ind., Inc.	
52090	Rowan Controller Co.	Westminster, Md.	73743	Fischer Special Mfg. Co.	Cincinnati, Ohio			Oakville, Conn.
52983	HP Co., Med. Elec. Div.	Waltham, Mass.	73793	General Industries Co., The	Elyria, Ohio	81349	Military Specification	
54294	Shallcross Mfg. Co.	Selma, N. C.	73846	Goshen Stamping & Tool Co.	Goshen, Ind.	81483	International Rectifier Corp.	El Segundo, Cal.
55026	Simpson Electric Co.	Chicago, Ill.	73899	JFD Electronics Corp.	Brooklyn, N. Y.	81541	Airpax Electronics, Inc.	Cambridge, Maryland
55933	Sonotone Corp.	Elmsford, N. Y.	73905	Jennings Radio Mfg. Corp.	San Jose, Cal.	81860	Barry Controls, Div. Barry Wright Corp.	
55938	Raytheon Co. Commercial Apparatus & System Div.	So. Norwalk, Conn.	73957	Groove-Pin Corp.	Ridgefield, N. J.			Watertown, Mass.
56137	Spaulding Fibre Co., Inc.	Tonawanda, N. Y.	74276	Signalite Inc.	Neptune, N. J.	82042	Carter Precision Electric Co.	Skokie, Ill.
56289	Sprague Electric Co.	North Adams, Mass.	74455	J. H. Winns, and Sons	Winchester, Mass.	82047	Sperit Faraday Inc., Copper Hewitt Electric Div.	Hoboken, N. J.
58474	Superior Elect. Co.	Bristol, Conn.	74861	Industrial Condenser Corp.	Chicago, Ill.	82116	Electric Regulator Corp.	Norwalk, Conn.
59446	Telex Corp.	Tulsa, Okla.	74868	R. F. Products Division of Amphenol-Borg Electronic Corp.		82142	Jeffers Electronics Division of	
59730	Thomas & Betts Co.	Elizabeth, N. J.			Danbury, Conn.			Du Bois, Pa.
60741	Triplett Electrical Inst. Co.	Bluffton, Ohio	74970	E. F. Johnson Co.	Waseca, Minn.	82170	Fairechild Camera & Inst. Corp.	
61775	Union Switch and Signal Div. of Westinghouse Air Brake Co.	Pittsburgh, Pa.	75042	International Resistance Co.	Philadelphia, Pa.			Paramus, N. J.
62119	Universal Electric Co.	Owosso, Mich.	75263	Keystone Carbon Co., Inc.	St. Marys, Pa.	82209	Magurie Industries, Inc.	Greenwich, Conn.
63743	Ward-Leonard Electric Co.	Mt. Vernon, N. Y.	75378	CTS Knights, Inc.	Sandwich, Ill.	82219	Sylvania Electric Prod., Inc.	
64959	Western Electric Co., Inc.	New York, N. Y.	75382	Kulka Electric Corp.	Mt. Vernon, N. Y.			Emporium, Pa.
65092	Weston Inst. Inc. Weston-Newark	Newark, N. J.	75818	Lenz Electric Mfg. Co.	Chicago, Ill.	82376	Astron Corp.	East Newark, Harrison, N. J.
66295	Witteck Mfg. Co.	Chicago, Ill.	75915	Littlefuse, Inc.	Des Plaines, Ill.	82389	Switchcraft, Inc.	Chicago, Ill.
66346	Minnesota Mining & Mfg. Co.		76005	Lord Mfg. Co.	Erie, Pa.	82647	Metals & Controls Inc.	
	Revere Mincom Div.	St. Paul, Minn.	76210	C. W. Marwedel	San Francisco, Cal.			Attleboro, Mass.
70276	Allen Mfg. Co.	Hartford, Conn.	76433	General Instrument Corp.		82768	Phillips-Advance Control Co.	Joliet, Ill.
70309	Allied Control	New York, N. Y.		Micamold Division	Newark, N. J.	82866	Research Products Corp.	Madison, Wis.
70318	Allmetal Screw Product Co., Inc.		76487	James Millen Mfg. Co., Inc.	Malden, Mass.	82877	Rolton Mfg. Co., Inc.	Woodstock, N. Y.
		Garden City, N. Y.	76493	J. W. Miller Co.	Los Angeles, Cal.	82893	Vector Electronic Co.	Glendale, Cal.
70417	Amplex, Div. of Chrysler Corp.	Detroit, Mich.	76530	Cinch-Monadnock, Div. of United Carr		83058	Carr Fastener Co.	Cambridge, Mass.
70485	Atlantic India Rubber Works, Inc.	Chicago, Ill.		Fastener Corp.	San Leandro, Cal.	83086	New Hampshire Ball Bearing, Inc.	Peterborough, N. H.
70563	Amperite Co., Inc.	Union City, N. J.	76545	Mueller Electric Co.	Cleveland, Ohio			
70674	ADC Products Inc.	Minneapolis, Minn.	76703	National Union	Newark, N. J.	83125	General Instrument Corp.	
70903	Belden Mfg. Co.	Chicago, Ill.	76854	Oak Manufacturing Co.	Crystal Lake, Ill.			Darlington, S. C.
70998	Bird Electric Corp.	Cleveland, Ohio	77068	The Bendix Corp.		83148	ITT Wire and Cable Div.	Los Angeles, Cal.
71002	Birnback Radio Co.	New York, N. Y.		Electrodynamics Div.	N. Hollywood, Cal.	83186	Victory Eng. Corp.	Springfield, N. J.
71034	Bliley Electric Co., Inc.	Erie, Pa.	77075	Pacific Metals Co.	San Francisco, Cal.	83298	Bendix Corp., Red Bank Div.	Red Bank, N. J.
71041	Boston Gear Works Div. of Murray Co. of Texas	Quincey, Mass.	77221	Phaostran Instrument and Electronic Co.	So. Pasadena, Cal.	83315	Hubbell Corp.	Mundelein, Ill.
71218	Bud Radio, Inc.	Willoughby, Ohio	77252	Philadelphia Steel and Wire Corp.	Philadelphia, Pa.	83324	Rosan Inc.	Newport Beach, Cal.
71279	Cambridge Thermionics Corp.	Cambridge, Mass.	77342	American Machine & Foundry Co.		83330	Smith, Herman H., Inc.	Brooklyn, N. Y.
71286	Camloc Fastener Corp.	Paramus, N. J.		Potter & Brumfield Div.	Princeton, Ind.	83332	Tech Labs	Palisades Park, N. Y.
71313	Cardwell Condenser Corp.		77630	TRW Electronic Components Div.	Camden, N. J.	83385	Central Screw Co.	Chicago, Ill.
		Lindenhurst, L. I., N. Y.	77638	General Instrument Corp.		83501	Gavitt Wire and Cable Co., Div. of Amerace Corp.	Brookfield, Mass.
71400	Bussmann Mfg. Div. of McGraw-Edison Co.	St. Louis, Mo.		Rectifier Division	Brooklyn, N. Y.	83594	Burroughs Corp., Electronic Tube Div.	Plainfield, N. J.
71436	Chicago Condenser Corp.	Chicago, Ill.	77764	Resistance Products Co.	Harrisburg, Pa.			New York, N. Y.
71447	Calif. Spring Co., Inc.	Pico-Rivera, Cal.	77969	Rubbercraft Corp. of Calif.	Torrance, Cal.	83777	Model Eng. and Mfg., Inc.	Huntington, Ind.
71450	CTS Corp.	Elkhart, Ind.	78189	Shakeproof Division of Illinois Tool Works	Elgin, Ill.	83821	Loyd Scruggs Co.	Festus, Mo.
71468	ITT Cannon Electric Inc.	Los Angeles, Cal.	78277	Sigma	So. Braintree, Mass.	83942	Aeronautical Inst. & Radio Co.	Lodi, N. J.
71471	Cinema, Div. Aerovox Corp.	Burbank, Cal.	78283	Signal Indicator Corp.	New York, N. Y.	84171	Arco Electronics Inc.	Great Neck, N. Y.
			78290	Struthers-Dunn Inc.	Pitman, N. J.	84396	A. J. Glesener Co., Inc.	San Francisco, Cal.
						84411	TRW Capacitor Div.	Ogallala, Neb.

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Revised: May, 1970

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H4-1 Dated January 1970

Table 6-3. Code List of Manufacturers (Continued)

Code No.	Manufacturer	Address	Code No.	Manufacturer	Address	Code No.	Manufacturer	Address
94870	Sarkes Tarzian, Inc.	Bloomington, Ind.	91929	Honeywell Inc., Micro Switch Division	Freeport, Ill.	96095	Hi-Q Div. of Aerovox Corp.	Olean, N.Y.
85454	Boonton Molding Company	Boonton, N.J.				96256	Thordarson-Meissner Inc.	Mt. Carmel, Ill.
85471	A.B. Boyd Co.	San Francisco, Cal.	91961	Nahm-Bros. Spring Co.	Oakland, Cal.	96296	Solar Mfg. Co.	Los Angeles, Cal.
85474	R.M. Bracamonte & Co.	San Francisco, Cal.	92180	Tru-Connector Corp.	Peabody, Mass.	96396	Microswitch, Div. of	
85660	Koiled Kords, Inc.	Hamden, Conn.	92367	Elgeet Optical Co., Inc.	Rochester, N.Y.		Minn.-Honeywell	Freeport, Ill.
85911	Seamless Rubber Co.	Chicago, Ill.	92607	Tensolite Insulated Wire Co., Inc.		96330	Carlton Screw Co.	Chicago, Ill.
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86197	Clifton Precision Products Co., Inc.		92702	IMC Magnetics Corp.	Westbury, L.I., N.Y.	96501	Excel Transformer Co.	Oakland, Cal.
		Clifton Heights, Pa.	92966	Hudson Lamp Co.	Kearney, N.J.	96508	Xcelite, Inc.	Orchard Park, N.Y.
86579	Precision Rubber Products Corp.	Dayton, Ohio	93332	Sylvania Electric Prod. Inc., Semiconductor Div.	Woburn, Mass.	96733	San Fernando Elec. Mfg. Co.	San Fernando, Cal.
86684	Radio Corp. of America, Electronic Comp. & Devices Division	Harrison, N.J.	93369	Robbins & Myers Inc.	Pallisades Park, N.J.	96881	Thomson Ind. Inc.	Long Island, N.Y.
86928	Seastrom Mfg. Co.	Glendale, Cal.	93410	Stemco Controls, Div. of Essex Wire Corp.	Mansfield, Ohio	97464	Industrial Retaining Ring Co.	Irvington, N.J.
87034	Marco Industries	Anaheim, Cal.				97539	Automatic & Precision Mfg.	Englewood, N.J.
87216	Philco Corporation (Lansdale Division)	Lansdale, Pa.	93632	Waters Mfg. Co.	Culver City, Cal.	97979	Reon Resistor Corp.	Yonkers, N.Y.
87473	Western Fibrous Glass Products Co.	San Francisco, Cal.	93929	G.V. Controls	Livingston, N.J.	97983	Litton System Inc., Adicr-Westrex Commun. Div.	New Rochelle, N.Y.
87664	Van Waters & Rogers Inc.	San Francisco, Cal.	94137	General Cable Corp.	Bayonne, N.J.	98141	R-Tronics, Inc.	Jamaica, N.Y.
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88140	Cutler-Hammer, Inc.	Lincoln, Ill.	94148	Scientific Electronics Products, Inc.	Loveland, Colo.	98220	Hewlett-Packard Co., Medical Elec. Div.	Pasadena, Cal.
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88698	General Mills, Inc.	Buffalo, N.Y.	94197	Curtiss-Wright Corp., Electronics Div.	East Patterson, N.J.	98291	Sealectro Corp.	Mamaronech, N.Y.
89231	Graybar Electric Co.	Oakland, Cal.	94222	South Chester Corp.	Chester, Pa.	98376	Zero Mfg. Co.	Burbank, Cal.
89473	G.E. Distributing Corp.	Schenectady, N.Y.	94330	Wire Cloth Products, Inc.	Bellwood, Ill.	98410	Etc Inc.	Cleveland, Ohio
89479	Security Co.	Detroit, Mich.	94375	Automatic Metal Products Co.	Brooklyn, N.Y.	98731	General Mills Inc., Electronics Div.	Minneapolis, Minn.
89665	United Transformer Co.	Chicago, Ill.	94682	Worcester Pressed Aluminum Corp.	Worcester, Mass.	98734	Paeco Division of Hewlett-Packard Co.	
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90763	United Carr Fastener Corp.	Chicago, Ill.	95236	Allies Products Corp.	Dania, Fla.	99313	Varian Associates	Palo Alto, Cal.
90970	Bearing Engineering Co.	San Francisco, Cal.	95238	Continental Connector Corp.	Woodside, N.Y.	99378	Atlee Corp.	Winchester, Mass.
91146	ITT Cannon Elect. Inc., Salem Div.	Salem, Mass.	95263	Leecraft Mfg. Co., Inc.	Long Island, N.Y.	99515	Marshall Ind., Capacitor Div.	Monrovia, Cal.
91260	Connor Spring Mfg. Co.	San Francisco, Cal.	95265	National Coil Co.	Sheridan, Wyo.	99707	Control Switch Division, Controls Co. of America	El Segundo, Cal.
91345	Miller Dial & Nameplate Co.	El Monte, Cal.	95275	Vitramon, Inc.	Bridgeport, Conn.	99800	Delevan Electronics Corp.	East Aurora, N.Y.
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91506	Augat Inc.	Attleboro, Mass.	95354	Method Mfg. Co.	Rolling Meadows, Ill.	99928	Branson Corp.	Whippany, N.J.
91637	Dale Electronics, Inc.	Columbus, Nebr.	95566	Arnold Engineering Co.	Marengo, Ill.	99934	Rembrandt, Inc.	Boston, Mass.
91662	Elco Corp.	Willow Grove, Pa.	95712	Dage Electric Co., Inc.	Franklin, Ind.	99942	Hoffman Electronics Corp., Semiconductor Division	El Monte, Cal.
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91827	K F Development Co.	Redwood City, Cal.	96067	Microwave Assoc., West, Inc.	Sunnyvale, Cal.			
91886	Malco Mfg., Inc.	Chicago, Ill.						

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0000Z	Willow Leather Products Corp.	Newark, N.J.	000MM	Rubber Eng. & Development	Hayward, Cal.	000WW	California Eastern Lab	Burlington, Cal.
000AB	ETA	England	000NN	A "N" D Mfg. Co.	San Jose, Cal.	000YY	S.K. Smith Co.	Los Angeles, Cal.
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TWX: 910-328-6147

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Atlanta 30326
Tel: (404) 434-4000
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ILLINOIS
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Skokie 60076
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TWX: 910-223-3613

St. Joseph
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Tel: (317) 842-1000
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4 Choke Cherry Road
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710-828-0487
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2 Choke Cherry Road
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TWX: 710-828-9684

MASSACHUSETTS
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TWX: 710-326-6904

MICHIGAN
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Farmington 48024
Tel: (313) 476-6400
TWX: 810-242-2900

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TWX: 910-764-0830

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Omaha 68144
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Tel: (505) 526-2485
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NEW YORK
6 Automation Lane
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Albany 12205
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TWX: 710-441-8270

Calculators Only
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Syracuse 13211
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NORTH CAROLINA
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High Point 27262
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Cleveland 44130
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Night: 243-7305
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Tel: (405) 721-0200
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OREGON
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PENNSYLVANIA
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Apartado Postal 689
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Managua
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San Isidro
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Lima
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Pda. 3-PTA de Tierra
San Juan 00906
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Cable: SATRONICS San Juan
Tel: SATRON 3450 332

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Comercial e Industrial
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Hewlett-Packard Ges. m. b. H.
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Telex: 166 40 hpas
Hewlett-Packard A/S
Navervej 1
DK-8600 Silkeborg
Tel: (06) 82 71 66
Telex: 166 40 hp as
Cable: HEWPAK AS

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P.O. Box 6
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Tel: 6923031
Cable: HEWPAK OYS Helsinki
Telex: 12-15363

FRANCE

Hewlett-Packard France
Quartier de Courbevoie
Boite Postale No. 6
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Tel: (1) 907 78 25
Cable: HEWPAK Orsay
Telex: 60048
Hewlett-Packard France
Agence Regionale
Chemin des Mouilles
Boite Postale No. 12
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Tel: (78) 33 81 25
Cable: HEWPAK Ecullay
Telex: 31 617
Hewlett-Packard France
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Zone Aeronautique
Avenue Clement Ader
F-31770 Colomiers
Tel: (61) 78 11 55
Telex: 51957

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TWX: 41770 F

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Tel: 74912 F
Telex: 74 912 F
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Centre Vauban
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Tel: (20) 51 44 14

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Hewlett-Packard GmbH
Vertreterzentrale Frankfurt
Bernstrasse 117
Postfach 560 140
D-6000 Frankfurt 56
Tel: (0731) 50 04-1
Cable: HEWPAKSA Frankfurt
Telex: 41 32 49 fra

Hewlett-Packard GmbH
Technisches Büro Böblingen
Herrenbergerstrasse 130
D-7030 Böblingen, Württemberg
Tel: (07031) 667-1
Cable: HEPAK Böblingen
Telex: 07265739 bbn

Hewlett-Packard GmbH
Technisches Büro Düsseldorf
Vogelsanger Weg 38
D-4000 Düsseldorf
Tel: (0211) 63 80 31/5
Telex: 85/86 533 hppd d

Hewlett-Packard GmbH
Technisches Büro Hamburg
Wendenstrasse 23
D-2000 Hamburg 1
Tel: (040) 24 13 83
Cable: HEWPAKSA Hamburg
Telex: 21 63 032 hpph d

Hewlett-Packard GmbH
Technisches Büro Hannover
Mellendorfer Strasse 3
D-3000 Hannover-Kleefeld
Tel: (0511) 55 60 46
Telex: 092 3259

Hewlett-Packard GmbH
Technisches Büro Nürnberg
Neumeyer Str. 90
D-8500 Nürnberg
Tel: (0911) 56 30 83/85
Telex: 0623 680

Hewlett-Packard GmbH
Technisches Büro München
Unterhachinger Strasse 28
ISAR Center
D-8012 Ottobrunn
Tel: (089) 601 30 61/7
Telex: 52 49 85
Cable: HEWPAKSA München
(West Berlin)
Hewlett-Packard GmbH
Technisches Büro Berlin
Keith Strasse 2-4
D-1000 Berlin 30
Tel: (030) 24 90 86
Telex: 18 34 05 hpbld d

GREECE

Kostas Karayannis
18, Ermou Street
GR-Athens 126
Tel: 3230-303 Sales/SVC
3230-305 Adm. Order Proc
Cable: RAKAR Athens
Telex: 21 59 62 rkar gr
Hewlett-Packard S.A.
Mediterranean & Middle East
Operations
35 Kolokotroni Street
Platia Kefallaniou
GR-Kifissia-Athens
Tel: 8080337, 8080359
8080429, 8018693
Telex: 21 6588
Cable: HEWPAKSA Athens

Analytical Only
"INTECO" G. Papathanassiou & Co.
Marni 17
GR-Athens 103
Tel: 521 915
Cable: INTEKNIKA
Telex: 21 5329 INTE GR

Medical Only
Technomed Hellas Ltd.
52, Skoufa Street
GR-Athens 135
Tel: 626 972
Cable: ETALAK Athens
Telex: 21-4693 ETAL GR

IRELAND

Hewlett-Packard Ltd.
King Street Lane
Winners, Wokingham
GB-Berkshire RG11 5AR
Tel: Wokingham 744774
Telex: 847178/848179

Hewlett-Packard Ltd.
"The Grattons"
Stamford New Road
GB-Altrincham, Cheshire
Tel: (061) 528-9021
Telex: 668068

ITALY

Hewlett-Packard Italiana S.p.A.
Via Amerigo Vesputici 2
I-20124 Milan
Tel: (2) 6251 (10 lines)
Cable: HEWPAKSA Milan
Telex: 32046

Hewlett-Packard Italiana S.p.A.
Via Pietro Maroncelli 40
(ang. Via Visentini)
I-35100 Padova
Tel: 66 48 88
Telex: 32046 via Milan

Medical Only
Hewlett-Packard Italiana S.p.A.
Via Medaglie d'Oro, 2
I-56100 Pisa
Tel: (050) 2 32 04
Telex: 32046 via Milan

Hewlett-Packard S.p.A.
Via G. Armetini 10
I-00143 Rome-Eur
Tel: (6) 5912544/5
Telex: 61514
Cable: HEWPAKSA Rome

Hewlett-Packard Italiana S.p.A.
Via San Quintino, 46
I-10121 Turin
Tel: 53 82 64/54 84 68
Telex: 32046 via Milan

Medical/Calculators Only
Hewlett-Packard Italiana S.p.A.
Via Principe Nicola 43 G/C
I-95126 Catania
Tel: (095) 370505

LUXEMBURG

Hewlett-Packard Benelux
S.A./N.V.
Avenue de Col-Vert, 1,
(Gronkraglaan)
B-1170 Brussels
Tel: (02) 672 22 40
Cable: PALOBEN Brussels
Telex: 23 494

NETHERLANDS

Hewlett-Packard Benelux N.V.
Van Heuven Goedhartlaan 121
P.O. Box 667
NL-1134 Amsterdam
Tel: (020) 47 20 21
Cable: PALOBEN Amsterdam
Telex: 13 216 hepa nl

NORWAY

Hewlett-Packard Norge A/S
Nesveien 13
Box 149
N-1344 Hauglum
Tel: 25 38 360
Telex: 16621 hpnas n

POLAND

Analytical/Medical Only
Hewlett-Packard
Warsaw Technical Office
UL. Spitalne 1
00-120 Warsaw
Tel: 268031 ext. 30
Telex: 61213

PORTUGAL

Teletra-Empresa Técnica de
Equipamentos Eléctricos S. a. r. l.
Rua Rodrigo da Fonseca 103
P.O. Box 2531
P-Lisbon 1
Tel: (19) 68 60 72
Cable: TELCTRA Lisbon
Telex: 12598

SPAIN

Hewlett-Packard Española, S.A.
Jerez No. 3
E-Madrid 16
Tel: (1) 458 26 00 (10 lines)
Telex: 23515 hpe

Hewlett-Packard Española, S.A.
Milanesado 21-23
E-Barcelona 17
Tel: (3) 203 620 (5 lines)
Telex: 52603 hpe e

Hewlett-Packard Española, S.A.
Av Ramon y Cajal, 1
Edificio Sevilla, planta 9ª
E-Seville
Tel: 64 44 54/58

Hewlett-Packard Española S.A.
Edificio Albia II 7º B
E-Bilbao
Tel: 23 83 062 82 06
Calculators Only
Hewlett-Packard Española S.A.
Alvaro Bazan, 12
(Edificio Luz)
E - Valencia - 10
Tel: 60 42 00

SWEDEN

Hewlett-Packard Sverige AB
Enghetsvägen 1-3
Fack
S-161 20 Bromma 20
Tel: (08) 730 05 50
Cable: MEASUREMENTS
Stockholm
Telex: 10721

Hewlett-Packard Sverige AB
Hagakersgatan 9C
S-431 41 Mölndal
Tel: (031) 27 68 00/01
Telex: Via Bromma

SWITZERLAND

Hewlett-Packard (Schweiz) AG
Zücherstrasse 20
P.O. Box 64
CH-8952 Schlieren Zurich
Tel: (01) 98 18 21
Cable: HPAG CH
Telex: 53933 hpag

Hewlett-Packard (Schweiz) AG
Chemin Louis-Pictet
CH-1214 Vernier-Geneva
Tel: (022) 41 49 50
Cable: HEWPAKSA Geneva
Telex: 27 333 hpas ch

TURKEY

Telekom Engineering Bureau
Saglik Sok No. 15/1
Ayaspaşa-Beyoglu
P.O. Box 437 Beyoglu
TR-Istanbul
Tel: 49 40 40
Cable: TELEMATION Istanbul

UNITED KINGDOM

Hewlett-Packard Ltd.
King Street Lane
Winners, Wokingham
GB-Berkshire RG11 5AR
Tel: Wokingham 784774
Telex: 847178/848179

Hewlett-Packard Ltd.
"The Grattons"
Stamford New Road
GB-Altrincham, Cheshire
Tel: (061) 928-9021
Telex: 668068

Hewlett-Packard Ltd.
c/o Makro
South Service Wholesale Centre
Amber Way
Halesowen Industrial Estate
GB-Halesowen, Worcs
Tel: Birmingham 7860

Hewlett-Packard Ltd.
4th Floor
Wedge House
799, London Road
GB-Thornton Heath CR4 6XL
Surrey
Tel: (01) 684 0105
Telex: 946825

Hewlett-Packard Ltd.
c/o Makro
South Service Wholesale Centre
Wear Industrial Estate
Washington
GB-New Town, County Durham
Tel: 315-879/321-674

Hewlett-Packard Ltd. 's registered
address for V.A.T. purposes
only
70, Finsbury Pavement
London, EC2A15X
Registered No. 690597

USSR
Hewlett-Packard USSR
c/o Commercial Office
American Embassy (Box M)
A-1091 Vienna, Austria
Tel: 221-79-71
Telex: 7825 hewpak SU

YUGOSLAVIA
Iskra-Standard/Hewlett-Packard
Office
Miklosiceva 38/VII
61000 Ljubljana
Tel: 315-879/321-674
Telex: 31265

SOCIALIST COUNTRIES
PLEASE CONTACT:
Hewlett-Packard S.A.
7, rue du Bois-du-Lan
P.O. Box 349
CH-1217 Meyrin 1 Geneva
Switzerland
Tel: (022) 41 54 00
Cable: HEWPAKSA Geneva
Telex: 2 24 86

AFRICA, ASIA, AUSTRALIA

ANGOLA

Teletra
Empresa Técnica de
Equipamentos
Eléctricos, S.A.R.L.
R. Barbosa Rodrigues, 42-1º.D.
Casa Postal, 6487-Luanda
Tel: 35515/6
Cable: TELETRA Luanda

AUSTRALIA

Hewlett-Packard Australia
Pty. Ltd.
31-41 Joseph Street
Blackburn, Victoria 3130
Tel: 89-6351, 89-6306
Telex: 31-024
Cable: HEWPAK Melbourne
Hewlett-Packard Australia
Pty. Ltd.
31 Bridge Street
Pymble
New South Wales, 2073
Tel: 449-6566
Telex: 21561
Cable: HEWPAK Sydney

Hewlett-Packard Australia
Pty. Ltd.
97 Churchill Road
Prospect 5082
South Australia
Tel: 44 8151
Cable: HEWPAK Adelaide

Hewlett-Packard Australia
Pty. Ltd.
141 Stirling Highway
Claremont, W.A. 6010
Tel: 86-5455
Telex: 93859
Cable: HEWPAK

Hewlett-Packard Australia
Pty. Ltd.
121 Wollongong Street
Fyshwick, A.C.T. 2609
Tel: 95 3733

Hewlett-Packard Australia
Pty. Ltd.
5th Floor
Teachers Union Building
495-499 Boundary Street
Spring Hill, 4000 Queensland
Tel: 29-1544
Telex: AA-42133

CEYLON

United Electricals Ltd.
P.O. Box 681
Colombo 2
Tel: 26696
Cable: HOTPOINT Colombo

CYPRUS

Kyprionics
19 Gregorios & Xenopoulos Rd.
P.O. Box 1152
CY-Nicosia
Tel: 45628/29
Cable: KYPRIONICS PANDEHIS

HONG KONG

Schmidt & Co. (Hong Kong) Ltd.
P.O. Box 297
Connaught Centre
39th Floor
Connaught Road, Central
Hong Kong
Tel: 259291
Telex: 74766SCHMCHX
Cable: SCHMITCO Hong Kong

INDIA

Blue Star Ltd.
Sahas
414/2 Vir Savarkar Marg
Prabhadevi
Bombay 400 025
Tel: 45 78 87
Telex: 4093
Cable: FROSTBLUE

Blue Star Ltd.
Band Box House
Prabhadevi
Bombay 400 025
Tel: 45 73 01
Telex: 3751
Cable: BLUESTAR

Blue Star Ltd.
14/40 Civil Lines
New Delhi 110 024
Tel: 62 32 76
Telex: 2483
Cable: BLUESTAR

Blue Star Ltd.
7 Hare Street
P.O. Box 506
Calcutta 700 001
Tel: 23-0131
Telex: 655
Cable: BLUESTAR

Blue Star Ltd.
Nise Ibaragi Bldg
2-2-8 Kasuga
Ibaragi-Shi
Osaka
Tel: 0726-23-1641
Telex: 0726-385 YHP OSAKA

Blue Star Ltd.
Nise Ibaragi Bldg
2-2-8 Kasuga
Ibaragi-Shi
Osaka
Tel: 0726-23-1641
Telex: 0726-385 YHP OSAKA

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Blue Star Ltd.
Nise Ibaragi Bldg
2-2-8 Kasuga
Ibaragi-Shi
Osaka
Tel: 0726-23-1641
Telex: 0726-385 YHP OSAKA

Blue Star Ltd.
1-1-1771
Sarajini Devi Road
Secunderabad 500 003
Tel: 7 63 91, 7 73 93
Cable: BLUEFROST

Blue Star Ltd.
23/24 Second Line Beach
Madras 600 001
Tel: 23954
Telex: 379
Cable: BLUESTAR

Blue Star Ltd.
Nathraj Mansions
2nd Floor, Bishop
Jamshedpur 831 001
Tel: 38 04
Cable: BLUESTAR

Blue Star Ltd.
Sahas
414/2 Vir Savarkar Marg
Prabhadevi
Bombay 400 025
Tel: 45 78 87
Telex: 4093
Cable: FROSTBLUE

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414/2 Vir Savarkar Marg
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Bombay 400 025
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Bombay 400 025
Tel: 45 78 87
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Blue Star Ltd.
Sahas
414/2 Vir Savarkar Marg
Prabhadevi
Bombay 400 025
Tel: 45 78 87
Telex: 4093
Cable: FROSTBLUE

Yokogawa-Hewlett-Packard Ltd.
Tanigawa Building
2-24-1 Tsuruya-cho
Kanagawa-ku
Yokohama 221
Tel: 045-312-1252
Telex: 382-3204 YHP YOK

Yokogawa-Hewlett-Packard Ltd.
Mito Mitsui Building
1-4-73 San-no-maru
Mito, 310
Tel: 0292-25-7470

Yokogawa-Hewlett-Packard Ltd.
Inoue Building
1346-3, Asahi-cho, 1-chome
Atsugi, 243
Tel: 0462-24-0452

Yokogawa-Hewlett-Packard Ltd.
Inoue Building
1346-3, Asahi-cho, 1-chome
Atsugi, 243
Tel: 0462-24-0452

Yokogawa-Hewlett-Packard Ltd.
Inoue Building
1346-3, Asahi-cho, 1-chome
Atsugi, 243
Tel: 0462-24-0452

Yokogawa-Hewlett-Packard Ltd.
Inoue Building
1346-3, Asahi-cho, 1-chome
Atsugi, 243
Tel: 0462-24-0452

Yokogawa-Hewlett-Packard Ltd.
Inoue Building
1346-3, Asahi-cho, 1-chome
Atsugi, 243
Tel: 0462-24-0452

Yokogawa-Hewlett-Packard Ltd.
Inoue Building
1346-3, Asahi-cho, 1-chome
Atsugi, 243
Tel: 0462-24-0452

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Inoue Building
1346-3, Asahi-cho, 1-chome
Atsugi, 243
Tel: 0462-24-0452

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Inoue Building
1346-3, Asahi-cho, 1-chome
Atsugi, 243
Tel: 0462-24-0452

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Inoue Building
1346-3, Asahi-cho, 1-chome
Atsugi, 243
Tel: 0462-24-0452

Yokogawa-Hewlett-Packard Ltd.
Inoue Building
1346-3, Asahi-cho, 1-chome
Atsugi, 243
Tel: 0462-24-0452

Yokogawa-Hewlett-Packard Ltd.
Inoue Building
1346-3, Asahi-cho, 1-chome
Atsugi, 243
Tel: 0462-24-0452

NEW ZEALAND

Hewlett-Packard (N.Z.) Ltd.
4-12 Cruickshank Street
Kilbirnie, Wellington 3
Mailing Address:
Hewlett-Packard (N.Z.) Ltd.
P.O. Box 9443
Courty Place
Wellington
Tel: 877-199
Telex: NZ 3898

Hewlett-Packard (N.Z.) Ltd.
Pakuranga Professional Centre
267 Pakuranga Highway
Box 51092
Pakuranga
Tel: 569-651
Cable: HEWPAK, Auckland

Hewlett-Packard (N.Z.) Ltd.
Pakuranga Professional Centre
267 Pakuranga Highway
Box 51092
Pakuranga
Tel: 569-651
Cable: HEWPAK, Auckland

Hewlett-Packard (N.Z.) Ltd.
Pakuranga Professional Centre
267 Pakuranga Highway
Box 51092
Pakuranga
Tel: 569-651
Cable: HEWPAK, Auckland

Hewlett-Packard (N.Z.) Ltd.
Pakuranga Professional Centre
267 Pakuranga Highway
Box 51092
Pakuranga
Tel: 569-651
Cable: HEWPAK, Auckland

Hewlett-Packard (N.Z.) Ltd.
Pakuranga Professional Centre
267 Pakuranga Highway
Box 51092
Pakuranga
Tel: 569-651
Cable: HEWPAK, Auckland

Hewlett-Packard (N.Z.) Ltd.
Pakuranga Professional Centre
267 Pakuranga Highway
Box 51092
Pakuranga
Tel: 569-651
Cable: HEWPAK, Auckland

Hewlett-Packard (N.Z.) Ltd.
Pakuranga Professional Centre
267 Pakuranga Highway
Box 51092
Pakuranga
Tel: 569-

CERTIFICATION

Products, materials, parts, and services furnished on this order have been provided in accordance with all applicable Hewlett-Packard specifications. Actual inspection and test data pertaining to this order is on file and available for examination.

Hewlett-Packard's calibration measurements are traceable to the National Bureau of Standards to the extent allowed by the Bureau's calibration facilities.

The Hewlett-Packard Quality Program satisfies the requirements of MIL-Q-9858, MIL-I-45208, and MIL-C-45662.



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