

Errata

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HP References in this Manual

This manual may contain references to HP or Hewlett-Packard. Please note that Hewlett-Packard's former test and measurement, semiconductor products and chemical analysis businesses are now part of Agilent Technologies. We have made no changes to this manual copy. The HP XXXX referred to in this document is now the Agilent XXXX. For example, model number HP8648A is now model number Agilent 8648A.

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**HP 8130A/HP 8131A
Programmable
Pulse Generator
Service Manual
Including Options 001
and 020**

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**HEWLETT
PACKARD**

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Printing History

New editions are complete revisions of the manual. Update packages, which are issued between editions contain additional and replacement pages to be merged into the manual by the customer. The date on the title page and back cover of the manual, only changes when a new edition is published. When an edition is reprinted, all the prior updates to the edition are incorporated. No information is incorporated into a new edition unless it appears in a prior update.

Control Serial Number: Edition 1 applies directly to all instruments.

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Safety Considerations

The HP 8130A/HP8131A is a Safety Class 1 instrument (instrument with an exposed metal chassis that is directly connected to earth via the power supply cable). The symbol used to indicate a protective earth terminal in the instrument is .

Operational Safety

The following general safety precautions must be observed during all phases of operation, service, and repair of this product. 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 product. Hewlett-Packard Company assumes no liability for the customer's failure to comply with these requirements.

DO NOT operate the product in an explosive atmosphere or in the presence of flammable gases or fumes.

Keep away from live circuits: Operating personnel must not remove equipment covers or shields. Procedures involving the removal of covers or shields are for use by service-trained personnel only. Under certain conditions, dangerous voltages may exist even with the equipment switched off.

To avoid dangerous electrical shock, DO NOT perform procedures involving cover or shield removal unless you are qualified to do so.

DO NOT operate damaged equipment: Whenever it is possible that the safety protection features built into this product have been impaired, either through physical damage, excessive moisture, or any other reason, REMOVE POWER and do not use the product until safe operation can be verified by service-trained personnel. If necessary, return the product to a Hewlett-Packard Sales and Service Office for service and repair to ensure that safety features are maintained.

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

Safety Symbols



The apparatus will be marked with this symbol when it is necessary for the user to refer to the instruction manual in order to protect the apparatus against damage.



Indicates dangerous voltages.



Earth terminal.



Protective earth.



Affixed to a product containing static sensitive devices - use anti-static handling procedures to prevent electrostatic discharge damage to components.

Warning



The **WARNING** sign denotes a hazard. It calls attention to a procedure, practice or the like, which, if not correctly performed or adhered to, could result in injury or loss of life. Do not proceed beyond a **WARNING** sign until the indicated conditions are fully understood and met.

Caution



The **CAUTION** sign denotes a hazard. It calls attention to an operating procedure, practice or the like, which, if not correctly performed or adhered to, could result in damage to or destruction of part or all of the equipment. Do not proceed beyond a **CAUTION** sign until the indicated conditions are fully understood and met.

Notices

Subject Matter The information in this document is subject to change without notice.

Hewlett-Packard makes no warranty of any kind with regard to this printed material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

Hewlett-Packard shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

Limited Warranty

Warranty This Hewlett-Packard instrument product is warranted against defects in material and workmanship for a period of one year from date of shipment. During the warranty period, HP will, at its option, either repair or replace products which prove to be defective.

For warranty service or repair, this product must be returned to a service facility designated by HP. Buyer shall pre-pay 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, 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. Hewlett Packard 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. Hewlett Packard 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. Addresses are provided at the back of this manual.

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 Institute of Standards and Technology, NIST (formerly the United States National Bureau of Standards, NBS) to the extent allowed by the Institute's calibration facility, and to the calibration facilities of other International Standards Organization members.

**Radio Frequency
Interference Statement
Deutsche Bundespost**

(Federal Republic of Germany only)

Hersteller Bescheinigung

Hiermit wird bescheinigt, daß das Gerät, HP 8130A/HP 8131A Pulsgenerator, in Übereinstimmung mit den Bestimmungen der Postverfügung 1046/1984 funkentstört ist.

Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

Zusatzinformation für Meß- und Testgeräte:

Werden Meß- und Testgeräte mit ungeschirmten Kabeln und/oder in offenen Meßaufbauten verwendet, so ist vom Betreiber sicherzustellen, daß die Funkenstörbestimmungen unter Betriebsbedingungen an seiner Grundstücksgrenze eingehalten werden.

Manufacturers Declaration

This is to certify that the HP 8130A/HP 8131A Pulse Generator operates in accordance with the radio frequency interference requirements of Deutsche Bundespost (German Post Office) Directive FTZ 1046/1984.

The German Post Office was notified that this equipment was put into circulation. The German Post Office retains the right to check future Hewlett-Packard model HP 8130A/HP 8131A instruments for compliance with directive FTZ 1046/1984.

Additional information for test and measurement equipment:

If test and measurement equipment is operated with unshielded cables and/or used for measurements on open set-ups, the user must assure that, under operating conditions, the radio interference limits are still met at the border of his premises.

Introduction

This manual is arranged into five categories:

General Information

Descriptions of selected operating principles and installation/removal procedures - Chapters 1 and 2.

Adjustments and performance tests

Setting up procedures for replaced parts and complete performance tests for the instrument - Chapters 3 and 4.

Replaceable Parts

Lists of replaceable/exchangeable parts -Chapter 5, and full parts lists - Appendices B (HP8130A) and C (HP8131A).

Service Information

Theory of operation, trouble shooting charts, and circuit descriptions -Chapter 6

Customer Assistance

Sales and Service information: Appendix A.

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General Information

Introduction

This service manual contains information for testing and servicing the HP 8130A/HP 8131A Pulse Generator; it includes installation procedures and a list of recommended test equipment.

The manual is divided into six chapters and three appendices as follows:

- Chapter 1 General Information
- Chapter 2 Installation
- Chapter 3 Performance Tests
- Chapter 4 Adjustments
- Chapter 5 Replaceable Parts
- Chapter 6 Service Information
- Appendix A Sales and Service Offices, directory
- Appendix B Parts Lists
- Appendix C Backdating Information

Information for operating, programming and interfacing the HP 8130A/HP 8131A is contained in the Operating and Programming manual supplied with the instrument.

This General Information includes safety requirements, a product description and a list of accessories. Essential information on the specifications and operating characteristics are also supplied.

The title page of this manual contains a microfiche part number. This number can be used to order 4 x 6 inch microfilm transparencies of this manual. Each of the microfiche transparencies, holds up to 96 photo duplicates of manual pages and illustrations.

Instruments Covered By This Manual

The information contained in this manual applies to both versions of the HP 8130A/HP 8131A Pulse Generator that is, it covers the both the single and double (option 020) channel instruments.

In addition to the change information, there may be other supplementary information included where appropriate. To keep this manual as current and as accurate as possible, Hewlett-Packard recommends that you periodically request the latest Manual Changes Supplement.

Safety Requirements

Specific warnings, cautions and instructions, are placed wherever necessary in the manual. These must be observed during all phases of operation, service and repair of the instrument. Failure to comply with these instructions could cause violation of the safety standards of design and intended use of the HP 8130A/HP 8131A Pulse Generator. Hewlett-Packard assumes no liability for any failure of the customer to comply with these safety requirements.

Product Description

General

The standard instrument contains one channel; a second channel option is available but this can not be fitted retrospectively. The HP 8130A/HP 8131A Pulse Generator must be ordered as a single or double channel model. There are two methods of control available for the instrument:

- **Local mode** Where all operations are set up or changed via the manual controls of the front panel.
- **Remote Mode** Where the instrument is controlled by an external computer via suitable programming.

The HP 8130A Pulse Generator

The HP 8130A is a programmable 300 MHz pulse generator. It provides output signals with an amplitude ranging from 100 mVp-p to 5.00 Vp-p and variable transition times from 1 ns to 100 μ s.

The HP 8131A Pulse Generator

The HP 8131A is a programmable 500 MHz pulse generator. It provides differential output signals having an amplitude ranging from 100 mVp-p to 5.00 Vp-p. The signals have fixed transition times of \leq 200 ps.

Instrument Controls and Indicators

The front control panel of the instrument has groups of control keys and indicators, as shown and described below. In many cases a key has multiple duties, successive depressions of a key will cycle through optional duties or selections, available for that key. Those options are indicated by illumination of an adjacent lamp and/or the key top. For example, successive depression of the key below the HIGH lamp, selects the upper amplitude or offset limit, for adjustment.

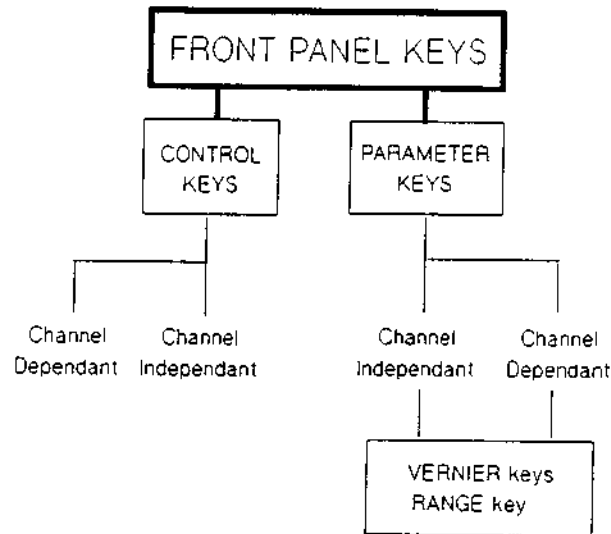


Figure 1-1. Control Relationships

General Purpose

The general purpose indicators and keys are located on the upper part of the instrument front panel. The main display is a four position digital display which shows values and addresses according to operating mode of the HP 8130A/HP 8131A. One of six indicator lamps displays the units (μ s, volts etc.) for the digital display. When a displayed value is to be altered, the range keys and vernier keys beside the display may be used.

Mode

There are eight (HP 8130A) or nine (HP 8131A) mode indicator lamps accompanied by two push button keys, which control mode of operation. The indicator lamps illuminate when the HP 8130A/HP 8131A Pulse Generator is operating in isolation and also when being remotely controlled from a computer.

Setting up

This group of keys is used to enter the initial settings for the HP 8130A/HP 8131A. The settings can be entered into memory and previously saved parameters can be recalled from memory if required.

Waveform Controls

The waveform controls enable an operator to set up all the necessary parameters for the output signal. The two channel option has two identical groups of wave form controls.

Options and Accessories

Options

- 001 Rear panel connectors
- 020 Second Channel
- 908 Rack Mounting Flange Kit (P/N 5062-3977)
- 910 One Operating and Programming Manual and one Service Manual
- 915 One Service Manual (P/N 08131-90001)
- 916 One Operating and Programming Manual (P/N 08130-90011/08131-90011)
- W30 Total of three years of "Return-to-HP" repair service
- W32 Total of three years of "Return-to-HP" calibration service

Accessories

Type	Part Number
Adapter, APC 3.5(m) to APC 3.5(m)	1250-1748
Adapter, APC 3.5(f) to APC 3.5(f)	1250-1749
Adapter, APC 3.5(m) to APC 3.5(f)	1250-1866
Adapter, SMA(m) to SMA(m)	1250-1158
Adapter, SMA(f) to SMA(f)	1250-1159
Adapter, SMA(m) to SMA(f)	1250-1200
Attenuator, 10 dB, SMA	8493A #10
Attenuator, 20 dB, SMA	8493A #20
Cable, co-axial, SMA(m) to SMA(m)	8120-4948
End Cap, Precision, 3.5 and SMA, female	1401-0202
End Cap, Precision, 3.5 and SMA, male	1401-0208
Manual, Microwave Connector Care	08510-90064

1-4 General Information

Torque Wrench, Precision 3.5 connectors	
8 lb-inch/90 N-cm	8710-1765
Torque Wrench, SMA connectors	
5 lb-inch/56 N-cm	8710-1582
Transition Time Converter, 300 ps	15432A
Transition Time Converter, 500 ps	15433A
Transition Time Converter, 1 ns	15434A

Transition Time Converter (HP 8131A only)

General Information

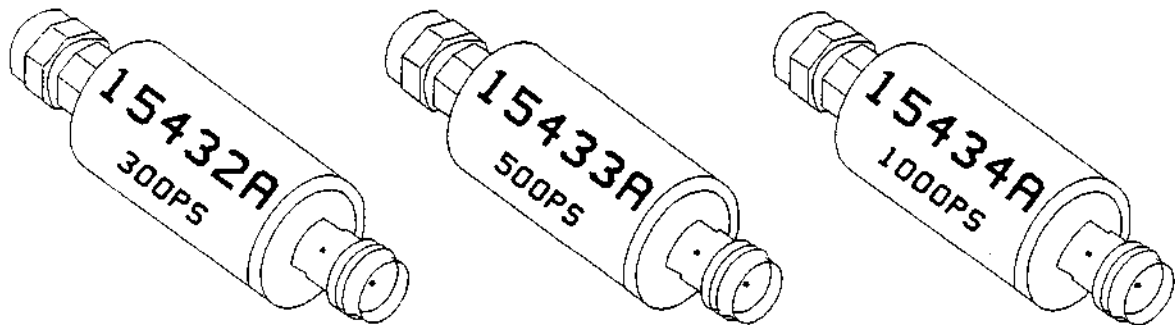


Figure 1-2. Time Converters

The transition time converter, converts the fixed transition time of a HP 8131A (normally less than 200 ps) to a fixed transition time of 300, 500 or 1000 ps according to the model used. The design of the converter and the slower transition time, result in a better pulse performance, so that reflection and overshoot sensitive applications can be satisfied.

Connector Characteristics

The transition time converter has SMA (m,f) connectors. Connect carefully to the HP 8131A. When a converter is not in use, protect the end connectors with the protective caps.

Typical Performance Characteristics

	15432A	15433A	15434A
Output Transition Times	300 ps	500 ps	1000 ps
Intrinsic Transition Times	260 ps	480 ps	990 ps
3 dB Corner Frequency	1120 MHz	660 MHz	330 MHz
Input Voltage	<10.0 V peak-to-peak		
Insertion Loss	<0.2 dB		
Overshoot and Ringing	<5%		
VSWR	<2.0		

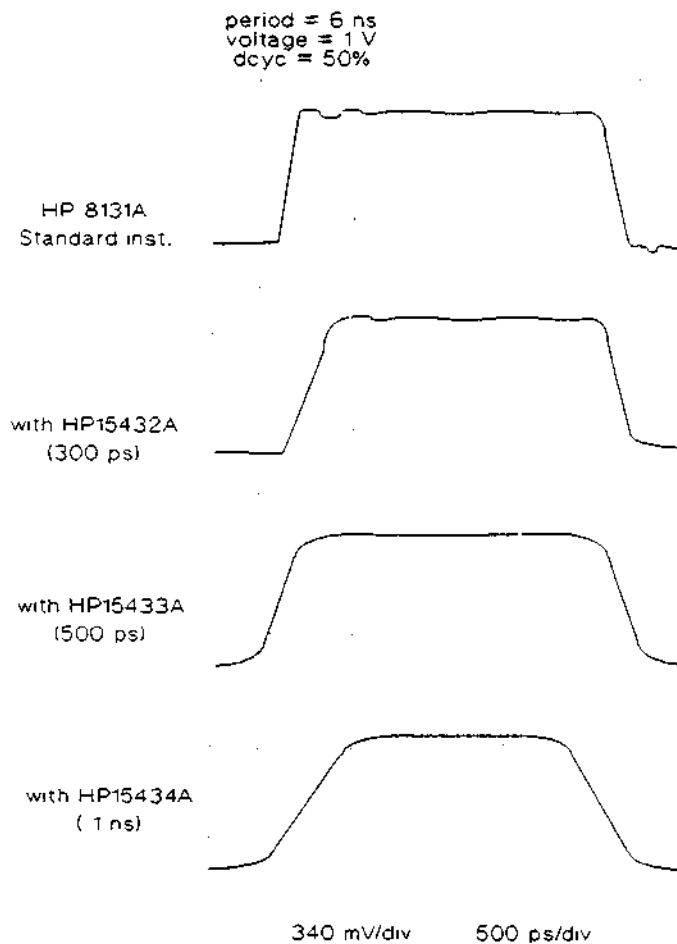


Figure 1-3. Transition Time Converter Waveforms

HP 8130A

Specifications

Specifications describe the instruments warranted performance. Non-warranted values are described as "typical".

All specifications apply after a 30 minute warm-up phase with 50Ω load resistance at all outputs, and are valid at ambient temperatures in the range 0°C to 55°C.

Error Detection

An error display indicates that a programmed setting exceeds the specified range, and that the output may be invalid. If the limiting condition is important in the application the output should be verified on an oscilloscope. In other cases, the timing should be adjusted until the error display turns off, indicating that all outputs are valid.

Table 1-1. Maximum Values of WIDTH, DCYC, and DELAY versus PERIOD

PERIOD(ns)	On-Time	DELAY
3.33 ... 4.99	0.5×PERIOD	0.5×PERIOD-1ns
5.00 ... 19.9	0.7×PERIOD-1ns	0.7×PERIOD-2ns
≥ 20.0	0.9×PERIOD-5ns	0.9×PERIOD-6ns

Note



On-Time in this table refers to the value set by DCYC (duty cycle) as well as by WIDTH.

Table 1-2. Maximum Values of DOUB versus PERIOD

PERIOD(ns)	DOUB
3.33 ... 7.19	n/a
7.20 ... 9.99	0.5×PERIOD
≥ 10.0	0.9×PERIOD-4ns

Timing Parameters

Measurement Conditions	Automatic operating mode, measured at 50% of amplitude and using the fastest transition times.
	Resolution: 3 digits, best case: 10ps.
	Repeatability: Factor of 4 better than accuracy.
	RMS-Jitter: 0.025% of programmed value + 15ps (0.05% of programmed value +15ps for the range from 10ns to 100ns)
Period	Range: 3.33ns to 99.9ms
	Accuracy: ±5% of programmed value ±100ps

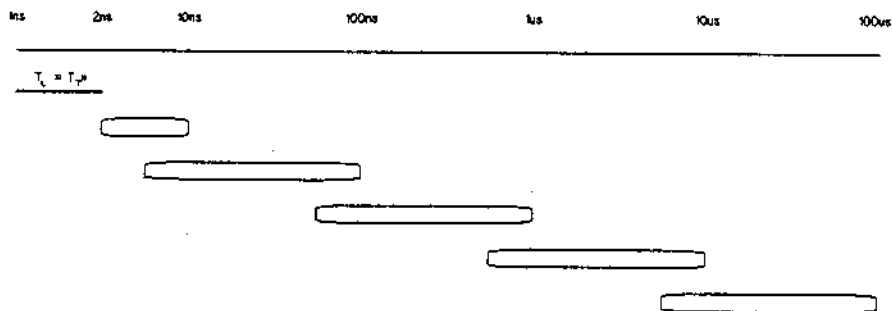
Width	Range: 1.5ns to 99.9ms (See Table 1-1 for the maximum) Accuracy: $\pm 5\%$ of programmed value $\pm 250\text{ps}$.
Delay	This value is measured between the trigger output at TRIG OUTPUT and the pulse at OUTPUT or $\overline{\text{OUTPUT}}$. Double Pulse and Delay are mutually exclusive. Fixed Delay: 18ns Variable Range: 0ns to 99.9ms (See Table 1-1 for maximum) Accuracy: $\pm 5\%$ if programmed value $\pm 1.5\text{ns}$.
Double Pulse	Period $\geq 7.20\text{ns}$ Double Pulse and Delay are mutually exclusive. Range: 3.33ns to 99.9ms (see Table 1-2 for maximum) Accuracy: $\pm 5\%$ of programmed value $\pm 250\text{ps}$

Transition Times

These are measured at 10% to 90% of amplitude

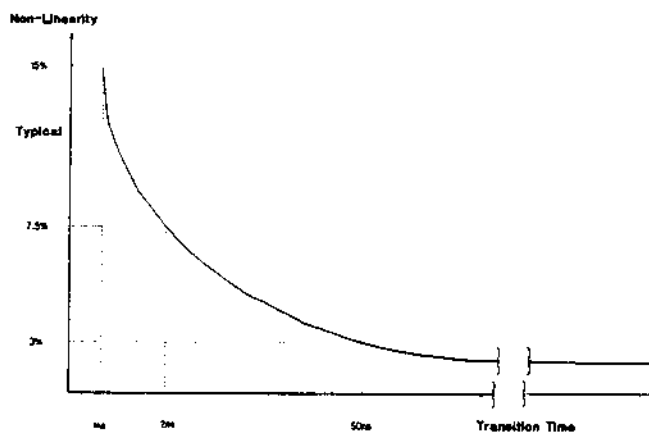
Range: 1ns to 100µs
 The range at 20% to 80% of amplitude has a typical lower limit of 600ps.

Leading and trailing edges are independently programmable within the following ranges



* Leading and trailing edges are assigned the same value.

Accuracy: ±10% of programmed value ±300ps
 Linearity:



Maximum values: Conflict with other timing parameters may cause amplitude clipping and is indicated by the "Excessive" display.

Output Levels

Output levels double when driving into open circuits. The instrument disables outputs if levels exceed $\pm 6.5V$ or if the amplitude exceeds $6.5V_{p-p}$.

Resolution:	3 Digits, best case: 10mV.
Level Accuracy:	$\pm 1\%$ of programmed value $\pm 3\%$ of amplitude $\pm 40mV$
Repeatability:	Factor of 4 better than accuracy
Settling Time:	20ns (at the fastest transition time)
High Level:	-4.90V to +5.00V
Low Level:	-5.00V to +4.90V
Pulse	Overshoot: $\leq 10\%$ of amplitude $\pm 20mV$
Performance	Ringing: $\leq 10\%$ of amplitude $\pm 20mV$
	Preshoot: $\leq 5\%$ of amplitude $\pm 20mV$

Operating Characteristics

Operating characteristics describe typical, non-warranted performance.

Timing Parameters

Duty Cycle	Width and duty cycle are mutually exclusive
	Range: 1% to 90%
	Resolution: 1% Subject to width and period specifications

Inputs and Outputs

All inputs and outputs have BNC connectors on the front panel. Rear panel connectors are optional.

Main Outputs These are differential outputs.

Amplitude:	100mVp-p to 5Vp-p into 50Ω For pulse widths less than settling time, the amplitude may decrease by 10% of the programmed value.
Offset:	-4.95V to 4.95V into 50Ω
Source Impedance:	$50\Omega \pm 1\Omega$
Maximum External Voltage:	$\pm 5V$
Short Circuit Current (I_{SC}):	$-200mA \leq I_{SC} \leq +200mA$
Skew:	The skew between differential outputs of the same channel $< 100ps$

External Input This input is used in trigger, gate, burst, and external width operating modes.

Trigger slopes can be selected positive or negative.

Input Impedance: $50\Omega \pm 2.5\Omega$

Threshold: -5V to +5V

Resolution: 100mV

Maximum Input Voltage: $\pm 10V$

Input Transition: <50ns

Input Frequency: dc to 300MHz

Minimum Pulse Width: 1.5ns

Input Sensitivity: $\geq 300mV_{p-p}$

**Trigger
Output**

Levels: High at 2.4V, low at 0.3V into 50Ω

Trigger Pulse Width:

	Period	Pulse Width
	3.33ns to 99.9ns	50% of Period
	100ns to 999ns	95% of Period
	1.00 μs to 9.99 μs	99.5% of Period
	10.0 μs to 99.9ms	99.95% of Period

Transition Times: <1ns

Source Impedance: $50\Omega \pm 2.5\Omega$

Delay: From external input to trigger output
 In trigger and external width operating mode: 16ns
 In Gate and burst operating mode: 18.5ns

Max/Min External Voltage: +7/-2V

Trigger Modes	Manual:	Simulates an external input signal.
	1 Pulse:	In trigger gate and burst operating mode one pulse or double pulse is generated.
	Auto:	Continuous pulse stream
	Trigger:	Each active input transition generates a single output pulse or double pulse
	Gate:	External signal enables period generator. The first output pulse is synchronous with active edge. The last pulse is always completed. The width and period of the first pulse may deviate 10% from subsequent pulses.
	External Burst:	Each active input transition generates a preprogrammed number of pulses (1 to 9999). The minimum burst period is 5ns. The width and period of the first pulse may deviate 10% from subsequent pulses.
	External Width:	Pulse recovery, the external edges toggle the output. Output levels and transition times can be selected.

Output Capabilities

Limit	The maximum high and low levels into 50Ω can be limited to protect the device under test.
Complement	Normal or complemented outputs can be selected.
Disable	Relays are used to connect or disconnect the outputs.
Set	This function will set the parameters to fixed ratio relative to period. (Delay=0ns; width=50% of period; transitions - 10% of period, limited to 1ns; period, high level and low level = current values).

Additional Features

HP-IB capabilities

All modes and parameters are programmable , downloadable and uploadable. ASCII and binary formats are supported.

HP-IB Interface Code: SH1, AH1,T6, TE0, L4, LE0, SR1, RL1, PP0, DC1, DT1, C0.

Non-Volatile Memory

Current settings are saved on power-down. Additionally, 19 complete set-ups can be stored.

General Environmental

Storage Temperature

-40°C to +65°C

Operating Temperature

0°C to 55°C

Humidity

(0°C to 40°C):95% R.H.

Power

100/200/220/240 Vrms, ±10%
250VA max.
50-60Hz

Weight

Net: 20kg (44.4lb)
Shipping: 28kg (62.2lb)

Dimensions

(H × W × D): 145mm × 426mm × 525mm (5.70in × 16.75 × 20.65in.)

Recalibration Period:

1 year recommended.

HP 8131A

Specifications

Specifications describe the instruments warranted performance. Non-warranted values are described as “typical”.

All specifications apply after a 30 minute warm-up phase with 50Ω load resistance at all outputs, and are valid at ambient temperatures in the range 0°C to 55°C.

Timing Parameters

Common	Resolution:	3 digits, best case: 10ps.
Specification:	Repeatability:	Factor of 4 better than accuracy.
	RMS-Jitter:	0.025% of programmed value + 15ps (0.05% of programmed value +15ps for the range from 10ns to 100ns)
Period	Range:	2ns to 99.9ms
	Accuracy:	±5% of programmed value ±100ps

Delay This value is measured between the trigger output at TRIG OUTPUT and the pulse at OUTPUT or OUTPUT.

Fixed Delay: 20ns
 Variable Range: 0ns to 99.9ms (See Table 1-1 for maximum)
 Accuracy: $\pm 5\%$ if programmed value $\pm 1.5\text{ns}$.

Double Pulse Range: 2ns to 99.9ms (see Table 1-2 for maximum)
 Accuracy: $\pm 5\%$ of programmed value $\pm 250\text{ps}$

Double Pulse: Maximum Values

PERiods (ns)	Double Pulse
2.00 ... 4.99	n/a
5.00 ... 9.99	50% of PER**
≥ 10.0	(90% of PER)-4ns

**PERiod < 5.72ns: Double Pulse < 50% of PER

Width Range: 500ps to 99.9ms
 Accuracy: $\pm 5\%$ of programmed value $\pm 250\text{ps}$.

Width and Delay: Maximum Values

PERiod (ns)	Width	Delay
2.00	500ps or 1ns	0ns
2.01 ... 2.99	50% of PER*	(50% of PER)-1ns
3.00 ... 4.99	50% of PER	(50% of PER)-1ns
5.00 ... 19.99	70% of PER	(70% of PER)-1ns
≥ 20.0	90% of PER	(90% of PER)-1ns

*Width < 1ns: maximum width is (50% of PER)-0.5ns

Transition Times Range: 10% to 90% of amplitude: <200ps, 300mV to 3V range, PER $\leq 1\mu\text{s}$
 20% to 80% of amplitude: <200ps, 100mV to 5V range

Output Levels

Common Specifications: Resolution: 3 Digits, best case: 10mV.
 Level Accuracy: $\pm 1\%$ of programmed value
 $\pm 3\%$ of amplitude $\pm 40\text{mV}$
 Repeatability: Factor of 4 better than accuracy
 Settling Time: 10ns (typical)
 High Level -4.90V to +5.00V
 Low Level -5.00V to +4.90V

Pulse Performance	Overshoot:	<15% of amplitude $\pm 20\text{mV}$
	Ringings:	<15% of amplitude $\pm 20\text{mV}$
	Reflections:	<10% at 1GHz

Operating Characteristics

Operating characteristics describe typical, non-warranted performance.

Differential Outputs

Duty Cycle	Range:	1% to 99%
	Resolution:	1%
	Amplitude:	100mVp-p to 5Vp-p into 50 Ω
		The output levels double when the output drives into an open circuit
		The outputs are disabled if the output voltage $> \pm 6.5\text{V}$
	Offset:	-4.95V to 4.95V into 50 Ω
	Source Impedance:	50 $\Omega \pm 1\%$
	Skew:	The skew between differential outputs of the same channel <100ps

Trigger Output

Levels:	High at 0.0V, low at -0.6V
Impedance:	50 $\Omega \pm 10\%$
Delay:	From external input to trigger output 16ns
External Voltage:	$\pm 5\text{V}$ Maximum

External Input

Trigger, Gate, Burst, and External Width Operating Modes.	Input Impedance:	50 $\Omega \pm 5\%$
	Threshold:	-5V to +5V
	Resolution:	100mV
	Maximum Input Voltage:	$\pm 10\text{V}$
	Input Transition:	<50ns
	Input Frequency:	dc to 500MHz
	Minimum Pulse Width:	1ns
	Input Sensitivity:	$\geq 300\text{mVp-p}$
Transducer Operating Mode	Input Impedance:	50 $\Omega \pm 5\%$
	Input Transition:	<50ns
	Input Frequency:	10MHz to 1GHz
	Input Sensitivity:	$\geq 600\text{mVp-p}$

Additional Features

HP-IB capabilities

HP-IB conforms to IEEE standard 488.1-1987, Digital Interface for Programmable Information.

HP-IB Interface Code: IEEE Std. 488 interface function subsets: SH1, AH1, T6, L4, SR1, RL1, PP0, DC1, DT1, C0.

For information regarding interface codes, formats, protocols and common commands, use IEEE Standard 488.2-1987, Codes, Formats, Protocols, and Common Commands as a guide. No claim of conformance is made.

Programming Times

Code	Binary				ASCII*		
	upload transfer	download of a complete parameter set			download of parameters		
HP 8131A Version		transfer	implementation	total	one transfer+implementation	two	three
1 Channel	110	30	140	170	<60	<90	<110
2 Channel	110	30	190	220	-	-	-

All times in milliseconds

*Add 25ms for "enable output" statements

Battery

Memory is supported for 7 years

General Environmental

Storage Temperature: -40°C to +65°C

Operating Temperature: 0°C to 55°C

Humidity: (0°C to 40°C):95% R.H.

Power: 100/120//220/240Vrms±10%
250VA max.
48-66Hz
Single Phase

Weight

Net: 20kg (44.4lb)

Shipping: 28kg (62.2lb)

Dimensions

(H × W × D): 145mm × 426mm × 525mm (5.70in × 16.75 × 20.65in.)

Recalibration Period:

1 year recommended.

Installation

Safety Considerations

The HP 8130A/HP 8131A is a Safety Class 1 instrument (instrument with an exposed metal chassis that is directly connected to earth via the power supply cable).

Before commencing work on the HP 8130A/HP 8131A, the instrument and this manual, including the red safety page, should be reviewed for safety markings and instructions. These must then be followed to ensure safe operation and to maintain the instrument in a safe condition.

Power is present in some of the HP 8130A/HP 8131A circuits whenever the instrument is connected to the AC power source.

To disconnect from the line power, disconnect the power cord either at the rear power-inlet or at the AC line-power source (receptacle). One of these must be accessible at all times. If the instrument is installed in a cabinet, it must be disconnected from the line power by means of the systems line-power switch.

Initial Inspection

Inspect the shipping container for damage. If the container or cushioning is damaged, it should be kept until the contents of the shipment have been checked for completeness and the instrument has been verified both mechanically and electrically.

Procedures for checking the operation of the instrument are given in the Performance Tests. If the instrument package contents are incomplete, mechanical damage or defect is apparent, or if an instrument does not pass the operator checks, notify the nearest Hewlett-Packard office. Keep the shipping materials for inspection by the carrier. The HP office will arrange for repair or replacement without awaiting settlement.

Warning



To avoid hazardous electrical shock, do not perform electrical tests when there are signs of shipping damage to any portion of the outer enclosure (covers, panels, etc.).

Power Requirements

Caution



Before applying AC line power to the HP 8130A/HP 8131A, ensure that:

- the voltage selector on the HP 8130A/HP 8131A's rear panel is correctly set
- the correct line fuse is installed.

Procedures for changing the line voltage selector and fuse are contained in the following section "Line Voltage Selection".

The HP 8130A/HP 8131A can operate from any single-phase AC power source supplying 100 V, 120 V, 220 V or 240 V in the frequency range from 50 to 60 Hz. The maximum power consumption is 250 VA with all options installed.

Table 2-1. Line Voltage Ranges

Selector Voltage	AC Voltage Range
100	90 - 110 V
120	108 - 132 V
220	198 - 242 V
240	216 - 264 V

Line Voltage Selection

The line voltage selector is set at the factory to correspond to the most commonly used line voltage of the country of destination. The switch is combined with the power line voltage receptacle on the rear panel. Refer to the table below for the line voltage ranges and their corresponding fuse.

Table 2-2. Line Voltage and Fuse Selection

Line Voltage	Fuse Type	HP Part Number
100 V / 120 V	T 3A, 250 V	2110-0029
220 V / 240 V	T 1.5A, 250 V	2110-0304

To change the line voltage and fuse:

1. Switch OFF and remove the power cord.
2. Insert a screwdriver into the recess at the top of the assembly (see Figure 2-1) and "flip" cover down.
3. To change the voltage setting, the selector must be removed and then replaced with the new setting value displayed.
4. If necessary, change the fuse in accordance with the new voltage setting.

2-2 Installation

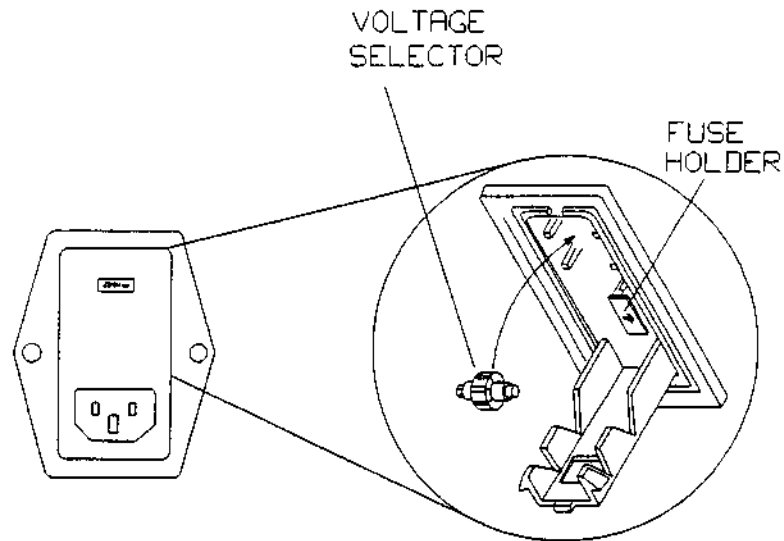


Figure 2-1. Line Voltage Switch Assembly

Power Cable

In accordance with international safety standards, this instrument is equipped with a three-wire power cable. When connected to an appropriate AC power receptacle, this cable grounds the instrument cabinet. The type of power cable shipped with each instrument depends on the country of destination. Refer to Figure 2-2 for the part numbers of available power cables.

Warning



To avoid the possibility of injury or death, the following precautions must be followed before the instrument is switched on.

- If this instrument is to be energized via an autotransformer for voltage reduction, ensure that the Common terminal is connected to the grounded pole of the power source.
 - The power cable plug shall only be inserted into a socket outlet provided with a protective ground contact. The protective action must not be negated by the use of an extension cord without a protective conductor.
 - Before switching on the instrument, the protective ground terminal of the instrument must be connected to a protective conductor. This is ensured by using the power cord which is supplied with the instrument.
 - Intentional interruption of the protective ground connection is prohibited.
-

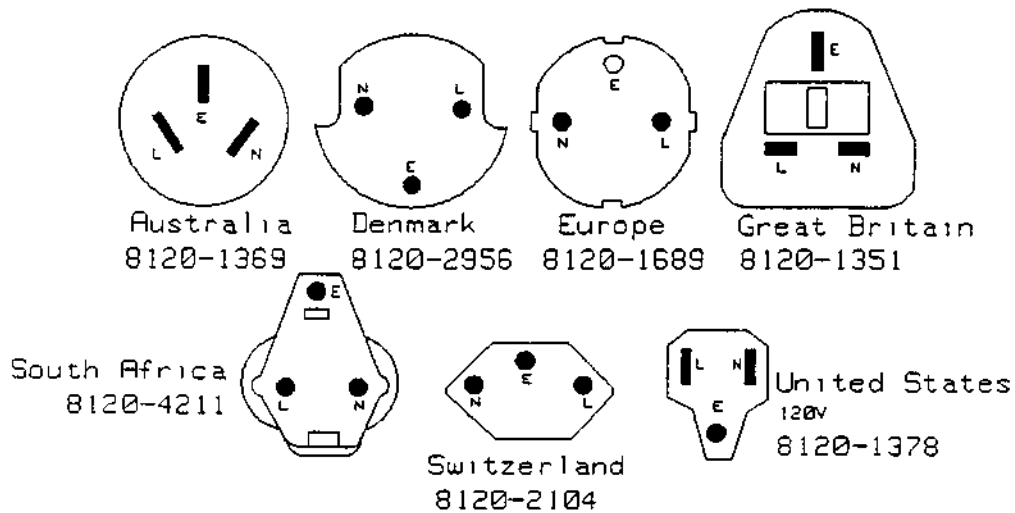


Figure 2-2. Power Cables - Plug Identification

The following work should be carried out by a qualified electrician - all local electrical codes being strictly observed. If the plug on the cable does not fit the power outlet, or the cable is to be attached to a terminal block, cut the cable at the plug end and re-wire it.

The color coding used in the cable will depend on the cable supplied. If a new plug is to be connected, it should meet local safety requirements and include the following features:

- Adequate load-carrying capacity (see table of specifications).
- Ground connection.
- Cable clamp.

Operating Environment

The following summarizes the HP 8130A/HP 8131A operating environment ranges. In order for the HP 8130A/HP 8131A to meet specifications, the operating environment must be within these limits.

Warning



The HP 8130A/HP 8131A is not designed for outdoor use, or in conditions that could cause moisture to enter the HP 8130A/HP 8131A.

Temperature

The HP 8130A/HP 8131A may be operated in temperatures from 0 °C to 55 °C.

Humidity

The HP 8130A/HP 8131A may be operated in environments with humidity up to 95% (0 °C to +40 °C). However, the HP 8130A/HP 8131A should be protected from temperatures or temperature changes which could cause condensation within the instrument.

Instrument Cooling

The HP 8130A/HP 8131A is equipped with a cooling fan mounted inside the rear panel. The instrument should be mounted so that air can freely circulate through it. When operating the HP 8130A/HP 8131A, choose a location that provides at least 75 mm (3 inches) of clearance at the rear, and at least 25 mm (1 inch) of clearance at each side. Failure to provide adequate air clearance will result in excessive internal temperature, thus reducing instrument reliability.

HP-IB Interface

Networks

The network may be:

- A star network
- A linear network
- A combination star and linear network.

Limitations:

- The maximum cable length per device is 2 m
- The total cable length must not exceed 20 m
- No more than 15 devices may be interconnected on one bus.

Caution



It is recommended that no more than three connectors be stacked one on top of the other.

Hand tighten the connector lock screws. Do not use a screwdriver.

Cables and Adapters

The HP-IB connector is compatible with the connectors on the following cables and adapter.

- HP-IB Cable, 10833A, 1 m (3.3 ft.)
- HP-IB Cable, 10833B, 2 m (6.6 ft.)
- HP-IB Cable, 10833C, 4 m (13.2 ft.)
- HP-IB Cable, 10833D, 0.5 m (1.6 ft.)
- HP-IB Adapter, 10834A, 2.3 cm extender.

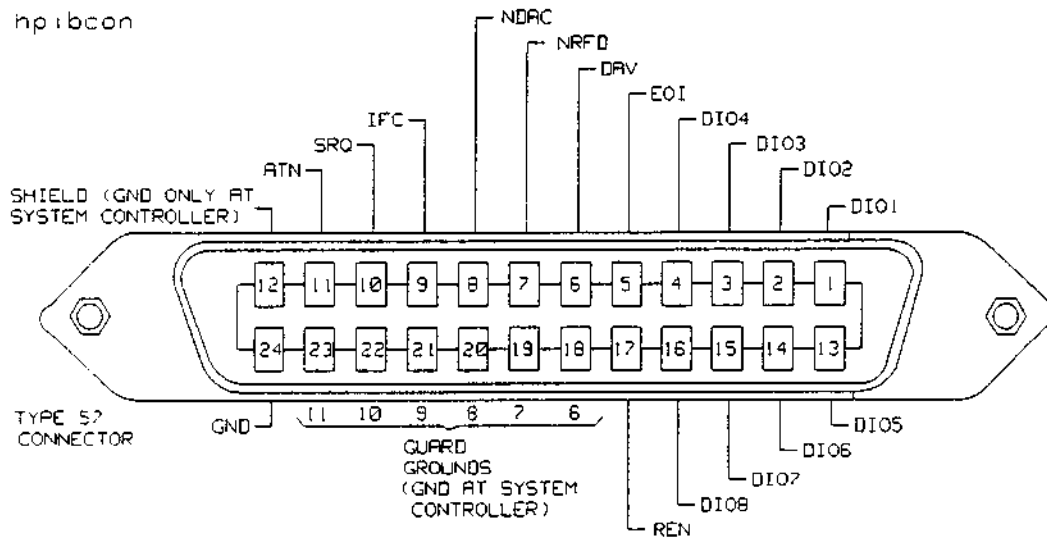


Figure 2-3. HP-IB Connector

Connector Lock Screw Compatibility

Caution



HP products are currently delivered equipped with connectors having ISO metric-threaded lock screws and stud mounts (ISO M3.5x0.6), which are black in color.

Earlier connectors may have lock screws and stud mounts with English-threaded lock screws and stud mounts (6-32 UNC) which have a shiny nickel finish.

Removal and Replacement Instructions

The HP 8130A/HP 8131A is of modular construction, which allows removal and replacement of major assemblies with minimum disturbance to other units. Instructions are detailed below for each subassembly.

Note



After replacement of the output board and/or timing board, carry out the adjustment procedures described in Chapter 3 of this manual.



Electrostatic sensitive devices are fitted to the circuit boards within the HP 8130A/HP 8131A. Ensure that standard precautions are taken to prevent static electricity discharge.

Tools required

The following tools are required for dismantling the HP 8130A/HP 8131A Pulse Generator.

Table 2-3.

Item	Part Number	Usage
Torque wrench 5/16inch 5lb-inch/56N-cm	8710-1582	SMA connectors
Screwdriver medium size, cruciform		Cover and fixing screws
Screwdriver small size, cruciform		Board fixing screws
Screwdriver small (jewelers), cruciform		Switch operating lever SMA relay removal
Screwdriver small flat		Switch operating lever (power supply only)
Soldering iron and fluxed solder		
Non-setting sealing compound		Mains switch assy.

Note



The part identification codes referred to in these procedures, are compatible with those contained in Chapter 5 of this manual *Replaceable Parts*.

Note

The part identification codes referred to in these procedures, are compatible with those contained in Chapter 5 of this manual *Replaceable Parts*.

Installation of Output Board

1. With the HP 8130A/HP 8131A switched OFF, disconnect the power cord
2. Remove the following:
 - a. The four rear frame feet
 - b. The cover top cabinet MP8 - one screw center rear, then slide cover to rear
 - c. The left cover side (with the strap handle) - two screws each end of handle, then slide cover to rear
 - d. The cover top MP7 - screws round the periphery (counter sunk on handle side rail)
 - e. The cover top card cage MP6 - fourteen screws around periphery
 - f. The two board keepers at the rear, by twisting them inwards and set them aside for re-fitting.
3. Note the color coding of the two SMA cables connected to the large SMD board (HP 8130A) or transducer board (HP 8131A) at the front end of the output board (to aid correct replacement).
4. Using the torque wrench, disconnect these two small SMA cables connected to the SMD board .
5. Free the two other screened cables from their fastener clips on the output board. Do not disconnect them unless the output board is to be replaced.
6. Slide the output board rearward to disengage it from the motherboard.
7. Fold the output board over the front of the instrument.
8. Place it in front of the instrument and protect the front frame and board against damage with a sheet of paper.
9. If option 020 is fitted, repeat steps 3 to 8 for the channel 1 output board located below the channel 2 output board.
10. Fit the exchange output board.
11. Reconnect SMA cables to the board (correct colors!).
12. Carry out adjustment procedures for the board(s) as detailed in Chapter 3 of this manual.
13. Switch OFF and disconnect the HP 8130A/HP 8131A.
14. Ensure that the output board is firmly engaged in the motherboard connector.
15. Refit the board keepers:
 - a. Insert small tab end into the hole at bottom rear of the card cage with straight edge of keeper facing towards the nearest side of the instrument.
 - b. Twist the keeper so that its straight edge is towards the rear of the instrument and the keeper is upright, with board resting on the support cutout.
16. Fit top cover top card cage MP6 with the right hand edge under the card cage side lips. The earthing fingers resting against the left hand side of the card cage, and with both board keepers engaged correctly in their slots at the rear of the cover.

Caution Take care not to trap the CPU Board ribbon cable under the cover.



-
17. Fit ALL the cover screws.
 18. Fit the cover top MP7 and the screws around the edge.
 19. Engage the bottom of the left (Handle side) cover over the flange of the bottom cover and slide the cover into position.
 20. Fit the handle using the two counter sunk screws, which also secure the cover.
 21. Fit top cover MP8.

Installation of SMA Relays

To replace a SMA relay on an output board, proceed as follows:

1. Dismantle the HP 8130A/HP 8131A and remove the output board(s) as detailed in the Output Board Installation instructions above.

Note



The output board does not need to be removed in order to fit a new relay, but if option 020 is fitted, the upper output board must be removed to gain access to channel 1 board.

-
2. Using the torque wrench:
 - a. disconnect the screened cable from the relay.
 - b. slacken off the SMA securing collet from the relay center pole earth connector and make sure it is completely free from the connector threads. Do not attempt to withdraw the earth connector from the relay center pole.

Caution



To avoid damage to the board tracks, be careful not to apply any side pressure to this center connector.

-
3. Unsolder the relay coil wires from the tags on the relay casing.
 4. Using the jewelers screwdriver, detach the relay from the board.

To fit a new relay proceed as follows:

1. **When tightening SMA connectors, always use the torque wrench.**
2. Remove the 50 Ω load from the discarded relay and fit it to the normally open contact of the replacement relay.
3. Place the relay on the board checking that the coil connector tags are adjacent to the connecting wires (Only the right hand relay has the label uppermost).
4. Lightly engage (one half turn) the center connector collet.
5. Fit the two fixing screws but do not finally tighten.

6. Tighten the collet, then tighten the fixing screws carefully.

Caution



Do not over tighten - positioning torque exercised by the solid earth conductor may mask the "feel" of the fixing screws.

7. Reconnect the coil energizing wires. Ensure that the positive coil wire (+ on board tracking) connects to the upper tag.
8. Carry out checks as detailed in Chapter 3.
9. Re-assemble other instrument components and covers by reversing the Output Board Installation procedure .

Installation of Timing board

Caution



HP 8131A Only

As a result of Hewlett-Packard's policy of continued improvement of products, in rare cases, there may be incompatibility between a replacement Timing Board and other boards in your instrument. Make the following checks on the CPU board in the instrument, before installing an exchange Timing Board:

- Integrated Circuits (ROM) U204/U205 should bear a label 08131-13703/13704 Rev 1.3.
 - If they are labeled Rev 1.1 or 1.2, then you will need to replace them with Rev 1.3 ROMs (part numbers as above) as well as the Timing Board.
 - If they are labeled 08130-13705/13706 Rev 1.4, contact the factory.
The manufacturing factory to contact is:
Hewlett-Packard GmbH,
Boeblingen Instruments Division,
Herrenberger Strasse 130,
D-7030 Boeblingen,
Federal Republic of Germany
-

To replace a timing board, proceed as follows:

1. Dismantle the HP 8130A/HP 8131A and remove the output board(s) as detailed in the Output Board Installation instructions above.
2. Remove the timing board from the motherboard connector and fit a replacement.
3. Refit and connect the output board(s).
4. Temporarily replace the instrument top cover MP7.
5. Carry out adjustment procedures for the output board(s), as detailed in Chapter 3 of this manual.
6. Reassemble other instrument components and covers by reversing the Output Board Installation procedure.

Installation of CPU Board

To replace a CPU board, proceed as follows:

1. Switch OFF the HP 8130A/HP 8131A and disconnect the power cord
2. Remove the following:
 - a. The four rear frame feet
 - b. The cover top cabinet MP8 - one screw center rear, then slide cover to rear
 - c. The left cover side (with the strap handle) - two screws each end of handle, then slide cover to rear
 - d. The cover top MP7 - screws round the periphery (counter sunk on handle side rail).
3. Disconnect the two pin fan supply lead (lift centre clip) and the ribbon cable (swing end levers outwards) from the CPU board.
4. Remove six long screws with pillars which attach the CPU board to the power supply unit.
5. Slide the CPU board rearward to disengage it from the motherboard.
6. There are no adjustments to be made after replacement of a CPU board.

Installation of Power Supply Unit

First remove and set aside the CPU board following the above instructions and then proceed as follows:

1. Remove six screws (two at each end and two center) and lift away the rear panel.
2. Make sure the instrument ON/OFF switch is set to OFF (protruding from the front panel).
3. Insert the small flat screwdriver through the elongated slot in the side frame adjacent to the ON/OFF switch assembly.
4. The switch operating rod is a tight push fit over the switch lever and may have non-setting adhesive applied.

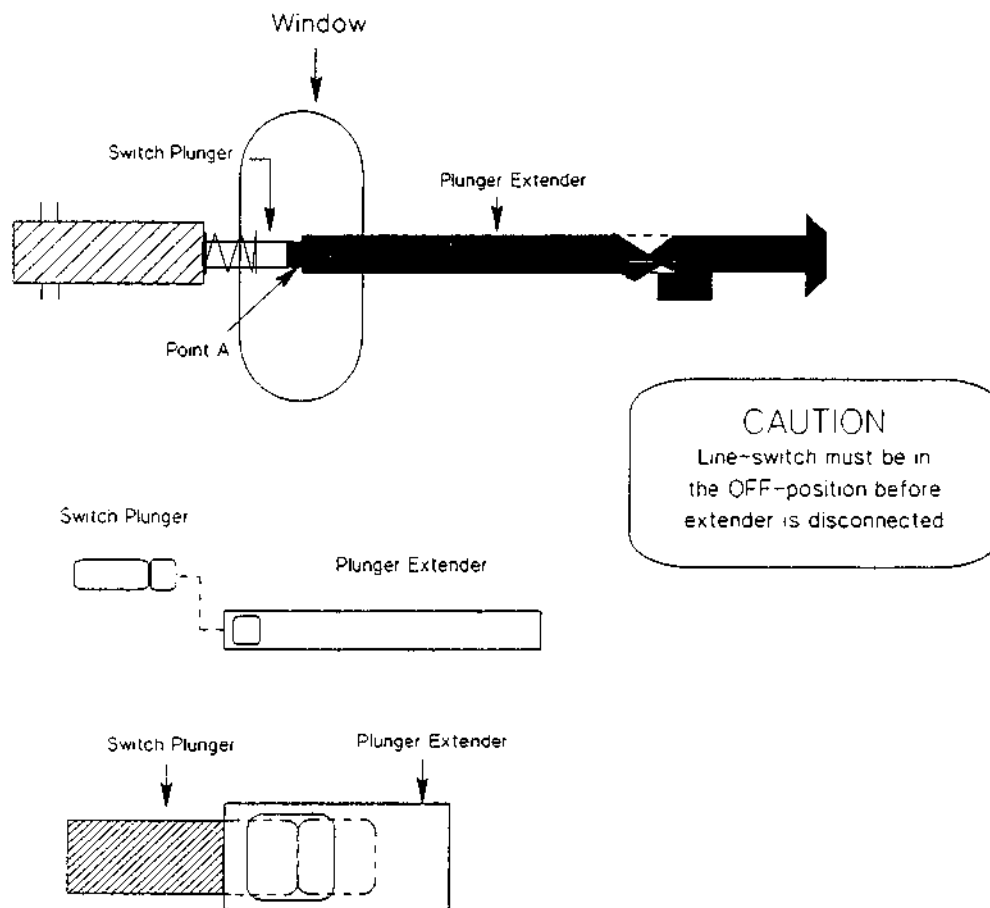


Figure 2-4.

5. Using the flat screwdriver, carefully prise the switch operating rod forwards, free from the switch, and withdraw it through the front cover.
6. Remove eleven power supply unit fixing screws from the side frame.
7. Slide the power supply unit rearward to disengage it from the motherboard.
8. Supporting the rear end of the power supply, carefully lift the front end upwards and forwards to remove the unit clear from the instrument chassis. The power supply cannot be removed through the rear of the instrument.

2-12 Installation

Caution

When re-fitting the power supply unit and when mating up with the motherboard connector, be careful not to damage the earthing strip fingers on the top rear of the power supply.

Note

Ensure that the switch operating rod is securely re-fitted onto the switch lever. Press the switch ON/OFF button several times to ensure correct and secure operation of the switch mechanism, then apply a little non-setting sealant to the junction.

Installation of Motherboard

To gain access to the motherboard, or to remove and replace it, ALL circuit boards and the power supply unit must first be removed using the procedures detailed above.

Remove the motherboard as follows:

1. Disconnect the keyboard ribbon cable.
2. Remove eight securing screws and lift the motherboard from its mounting pillars.

Note

Do not forget to connect the keyboard ribbon cable before re-fitting all other subassemblies.

Installation of Keyboard Assembly

Individual components such as the seven segment displays and key switches may be removed and replaced if faulty, instead of replacing the complete keyboard. However the keyboard must still be removed for access as follows:

1. Switch OFF the HP 8130A/HP 8131A and disconnect the power cord.
2. Turn the instrument onto its right hand side and remove six keyboard fixing screws from the bottom rail. Working down from the top, the screws to be removed are numbered 1, 4, 8, 11 and 14.
3. Turn the instrument back to a normal upright operational position.
4. Prise the thin plastic trim strip from the front top rail to expose fixing screws.
5. Working from the left, screws numbered 2, 5, 8, 11 and 14 must be removed.
6. The keyboard can now be pulled away from the front of the instrument for access .

Parts Ordering

A list of replaceable parts is given in Chapter 5 of this manual, together with ordering information.

Storage and Shipment

The instrument and its separate subassemblies can be stored or shipped at temperatures between $-40\text{ }^{\circ}\text{C}$ and $+75\text{ }^{\circ}\text{C}$. The instrument should be protected from temperature extremes which may cause condensation within it.

Return Shipping an Instrument to HP

If the instrument or subassembly is to be shipped to a Hewlett-Packard Sales/Service Office (see Appendix A), attach a tag showing owner, return address, model number and full serial number and the type of service required.

The original shipping carton and packing material may be used again, but the Hewlett-Packard Sales/Service Office will also provide information and recommendations on materials to be used if the original packing is no longer available or reusable. General instructions for repacking are as follows:

Packing

1. Wrap instrument in heavy paper or plastic.
2. Use strong shipping container. A double wall carton is adequate.
3. Use enough shock-absorbing material (3 to 4 inch layer) around all sides of the instrument to provide a firm cushion and prevent movement inside container.
4. Seal shipping container securely.
5. Mark shipping container **FRAGILE** to encourage careful handling.
6. In any correspondence, refer to item by model number and serial number.

Returning a Circuit Board to HP

If the instrument or subassembly is to be shipped to a Hewlett-Packard Sales/Service Office (see Appendix A), attach a tag showing owner, return address, model number and full serial number and the type of service required.

Packing a board

A circuit board must be carefully packed as follows:

1. The board should be first placed in a ESD protective envelope and then into a padded envelope suitable marked and identified.
2. Place the envelope in a cardboard container with further shock-absorbing material
3. Mark shipping container **FRAGILE** to encourage careful handling.
4. In any correspondence, refer to item by type number and serial number.

Adjustments

Adjustments to the HP 8130A Output Board

The Output Board(s) must be checked and adjusted after replacement or after replacement of a timing board.

To check the Output Board setting, proceed as follows:

1. Switch the instrument ON and allow to warm up for 30 minutes.
2. Set the HP 8130A:

Control	Setting	Chan 1	Chan 2
TIMING	PERIOD	10 ns	
	DEL	0.0 ns	0.0 ns
	WID	1.5 ns	1.5 ns
	LEAD	670 ps	670 ps
	TRA	670 ps	670 ps
OUTPUT	HIGH	+2 V	+2 V
	LOW	0 V	0 V
		NORM	NORM
		ENABLE	ENABLE

3. If channel 2 is fitted, commence adjustments for that channel's board.
4. Connect the HP 8130A TRIG OUTPUT via a cable assy-coax SMA (m- m) and APC 3.5 mm 20 dB attenuator (f-m), to the TRIG input of an HP 54121A oscilloscope.
5. Connect the HP 8130A Channel 2 OUT via a similar accessory to the Input 4 of the HP 54121A.
6. Setup HP 54121A Oscilloscope:
 - a. press AUTOSCALE
 - b. select the Display menu and set the Number of Averages to 16
 - c. set DELAY so that one pulse is positioned in the center of the screen
 - d. press MORE
 - e. press the +width function.
7. With WID = 1.5 ns check the NORMal and COMPliment Outputs = 1.5 ns \pm 50 ps. For NORMal pulse press +width on the oscilloscope, for COMPliment pulse press -width.

8. If necessary, carefully adjust RV100 on the large SMD board to obtain the best compromise. The width of the COMPLEMENT is typically 80-100 ps less than the NORMAL signal.
9. Switch the HP 8130A OFF and remove the channel 2 board if fitted. Ignore the displayed ERROR 504!
10. Switch the HP 8130A back on and repeat the above procedure for the channel 1 OUT signal.

Note

For this test the channel 1 control keys are inactive: use the channel 2 control keys.

11. Set HP 8130A:
 - a. PERIOD = 3 ns
 - b. WID = 1.2 ns.
12. Connect the HP 8130A channel 1 OUT to the HP 54121A's TRIG IN.
13. Connect the HP 8130A TRIG OUTPUT to the HP 54121A's Input 4.
14. Check the trigger signal for a duty cycle of 50% \pm 4%.
15. If necessary carefully adjust RV400 on the large SMD board.
16. Change the HP 8130A's PERIOD from 4 ns to 5 ns and then, in steps, up to 9 ns. At each step check the duty cycle is 50%.
17. Reassemble the HP 8130A.
18. Carry out the functional checks on both channels.

Adjustments to the HP 8131A Output Board

The Output Board(s) must be checked and adjusted after replacement or after a timing board has been replaced.

To check Output Board setting, proceed as follows:

1. Switch the instrument ON and allow to warm up for 30 minutes.
2. Set the HP 8131A:

Control	Setting	Chan 1	Chan 2
TIMING	PERIOD	20 ns	
	DEL	0.0 ns	0.0 ns
	WID	1 ns	1 ns
OUTPUT	AMPL	+5 V	+5 V
	OFFS	0 V	0 V
		ENABLE	ENABLE

3. If channel 2 is fitted, start adjustments with the board for that channel.
4. Connect the HP 8131A TRIG OUTPUT via a cable assy-coax SMA (m- m) and APC 3.5 mm 20 dB attenuator (f-m), to the TRIG input of an HP 54121A oscilloscope.
5. Connect the HP 8131A Channel 2 OUT via a similar accessory to the Input 4 of the HP 54121A.
6. Setup HP 54121A Oscilloscope:
 - a. press AUTOSCALE
 - b. select the Display menu and set the Number of Averages to 16
 - c. set DELAY to approx 20 ns so that pulse will be positioned in the center of the screen
 - d. select MORE and then select the channel to be measured (CH4)
 - e. select Position FINE
 - f. press MORE to obtain \pm Width function
 - g. select the Delta V menu and turn the voltage markers On
 - h. set Preset Levels = 50-50% and press Auto Level Set
 - i. select the Delta t menu and turn the time markers On
 - j. set START ON EDGE = POS1 and STOP ON EDGE = NEG1.

Note Press the Precise Edge Find key for each Width test.



7. With WID = 1 ns check the NORMAL and COMPLEMENT Outputs to be 940 ps \pm 30 ps. For NORMAL pulse press +width, for COMPLEMENT pulse press -width.

- If adjustment is necessary, carefully alter RV200 on the A18 Transducer Board, ensuring the width is set as close as possible to 960 ps. Turning RV200 clockwise increases width, counter clockwise reduces width.

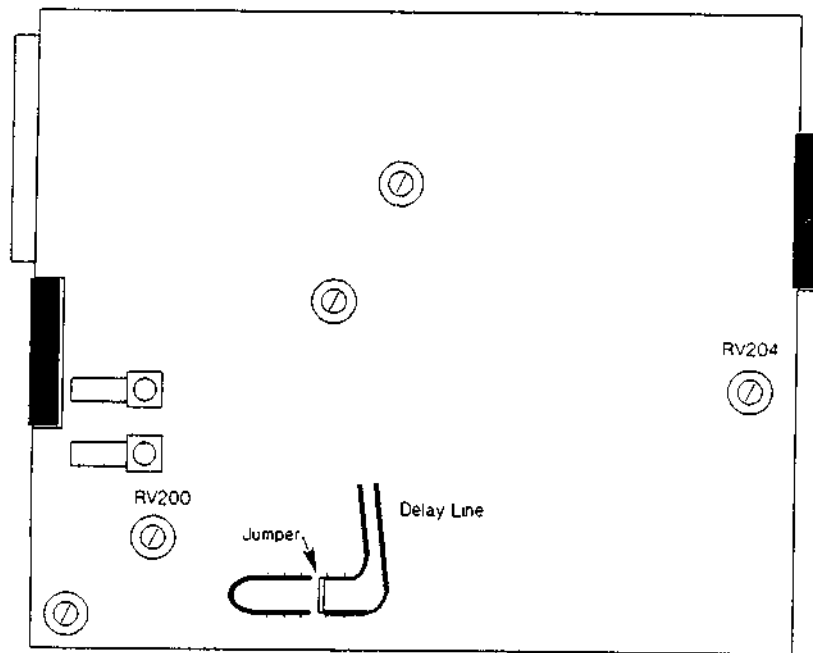


Figure 3-1. Transducer Board Layout

- If the difference between NORM and COMP is greater than 40 ps, slightly adjust RV204 on the Transducer Board, A18.

Note



There is no *preferred* direction for this initial movement, so it is important to note the direction of adjustment. You can then decide direction of adjustment for a subsequent compensation if required.

- Change the HP 8131A Width to 500 ps.
- Check the pulse width in NORM/COMP for 510 ps \pm 30 ps.
- If adjustment is necessary, carefully alter RV200 again on the A18 Transducer Board but use care, because it will have an effect on RV204 setting and vice-versa - see steps 8 and 9.
- Repeat steps 7 to 12 to achieve the best compromise at WID = 1 ns and WID = 500 ps. i.e. adjust for a minimum difference when switching between NORMAL and COMPLEMENT outputs at WID = 500 ps.
- If it is not possible to get the pulse width within 480 ps to 540 ps, the delay line on the A18 Transducer Board must be altered as follows:
 - Change the position of the SMT jumper, desolder and reconnect at another marker on the delay line
 - Delay line longer = smaller width
 - Delay line shorter = greater width.

3-4 Adjustments

Note

The delay line track should only be cut behind the jumper when setting is finalized.



-
15. Repeat steps 7 to 13.
 16. At WID = 500 ps, switch between NORM and COMP.
 17. Set HP 8131A:
 - a. Period = 2 ns
 - b. WID = 500 ps.
 18. Using the Vernier keys, change WID to 300 ps (≤ 500 ps).
 19. Check in NORM/COMP for a stable output signal (no missing pulse or double pulse) with WID = ≤ 500 ps. If necessary repeat step 11 for a lower value.
 20. Set HP 8131A:
 - a. Period = 5 ns
 - b. WID = 500 ps
 - c. DOUB = 2 ns.
 21. Using the Vernier keys, change PER to 10 ns.
 22. Check in NORM/COMP for a stable output signal (no missing pulse).
 23. Repeat the check with DOUB set to 2.14 ns.
 24. If necessary repeat steps 1 to 23 (using the range ± 40 ps in steps 7 and 11).
 25. Switch the HP 8131A OFF.
 26. If option 020 is fitted, remove output board 2 to gain access to channel 1 board and fold it over the front of the instrument.
 27. Switch ON the HP 8131A, ERROR 504 may be displayed, ignore it.
 28. Repeat steps 1 to 24 for Chan 1 OUT.

Note

For this test, the keys for channel 1 are not active. Use Channel 2 control keys.



-
29. Re-assemble the instrument.
 30. Carry out functional checks on both channels in:
 - a. AUTO operating mode
 - b. EXT INPUT mode
 - c. TRANSducer operating mode.

Adjustments to the HP 8130A and HP 8131A Timing Board

There are EEPROMs on the timing boards of the HP 8130A and the HP 8131A, containing the calibration factors for these boards. Calibration factors are measured by a special adjustment program during production. Further adjustment of these boards can only be carried out in the factory.

Performance Tests

Introduction

The performance tests verify the HP 8130A/HP 8131A's specified performance characteristics. They are suitable for incoming inspection, preventative maintenance, troubleshooting, and final test.

Carry out the performance tests in the same sequence as they appear in the manual.

Note Recommended test equipment is listed in Table 4.1.



Safety

The HP 8130A/HP 8131A is a Safety Class 1 instrument. It has an exposed metal chassis that is directly connected to earth potential through the line power cord.

Before testing the instrument review:

1. The Safety Summary (red page)
2. The Instrument Reference Manuals
3. The instrument safety markings.

Test Record

A test record is located at the end of this chapter.

The test results are identified as *TR Entries* in the performance tests and on the test record.

Recommended Test equipment

Other equipment can be used provided it meets the specifications of this equipment.

Type (Quantity)	Model	Specifications
1:1 Probe (1)	HP 10026A	100 V max, 1:1, 50 Ω .
10:1 Probe (1)	HP 10017A	300 V max, 10:1, 1 M Ω , 8 pF.
50 Ω feedthrough (1) termination	HP 10100C	50 Ω , 2 W, 1%.
50 Ω feedthrough (1) termination	See Figure 4-1.	50 Ω , 10 W, 0.1%.
Adapter, (1) BNC to Banana	HP 1251-2277	BNC(f) to dual banana plug, 50 Ω
Cable Assembly (5)	HP 8120-1839	50 Ω , 24 inches, coax, 2 BNC (m).
Counter (1)	HP 5335A/ HP 5370B	50 μ Hz to 50 MHz; 8 digit display; INPUT: 50 Ω /1 M Ω , X1/X10, AC/DC, separate/common; variable trigger level; TI/PERIOD/FREQUENCY.
Isolation Transformer (1)		Suitable for use with the variac.

Table 4-1. (continued)

Type (Quantity)	Model	Specifications
Multimeter (1)	HP 3478A/ HP 3456A	4 1/2 digit display VDC: 30 mV to 300 V; 30 to 35 readings/second; external trigger; input resistance: >10 MΩ
Oscilloscope (1) (Sampling)	HP 54121T	20 GHz
Sampling Oscilloscope Accessories		
Attenuator (3)	33340C	APC 3.5 mm (f-m), 20 dB
Adapter (2)	1250-1200	SMA (m) to BNC (f)
Cable (3)	8120-4948	SMA (m-m) coaxial
Adapter (1)	1250-1159	SMA (m-m)
Adapter (2)	1250-1700	SMA (f) to BNC (m)
Power Splitter (1)	11667B	APC 3.5 mm
Variac (1) (Variable AC Power Supply)		≥5 A, 0-300 VAC
Power Supply (1)	HP 6205A or HP 6237A	0-60 VDC, 0-3A.
Pulse Generator (1)	HP 8112A/ HP 8161A	1 Hz to 50 MHz; variable delay; variable width; variable pulseq; external trigger; output amplitude: > 5 V.
TEE (1)	HP 1250-0781	50 Ω, BNC(m)(f)(f).

Feedthrough Termination

This feedthrough must be used only where specified for DC voltage measurements.

The following figure provides a schematic and a parts list except for the case. The case must provide shielding and maintain grounding integrity.

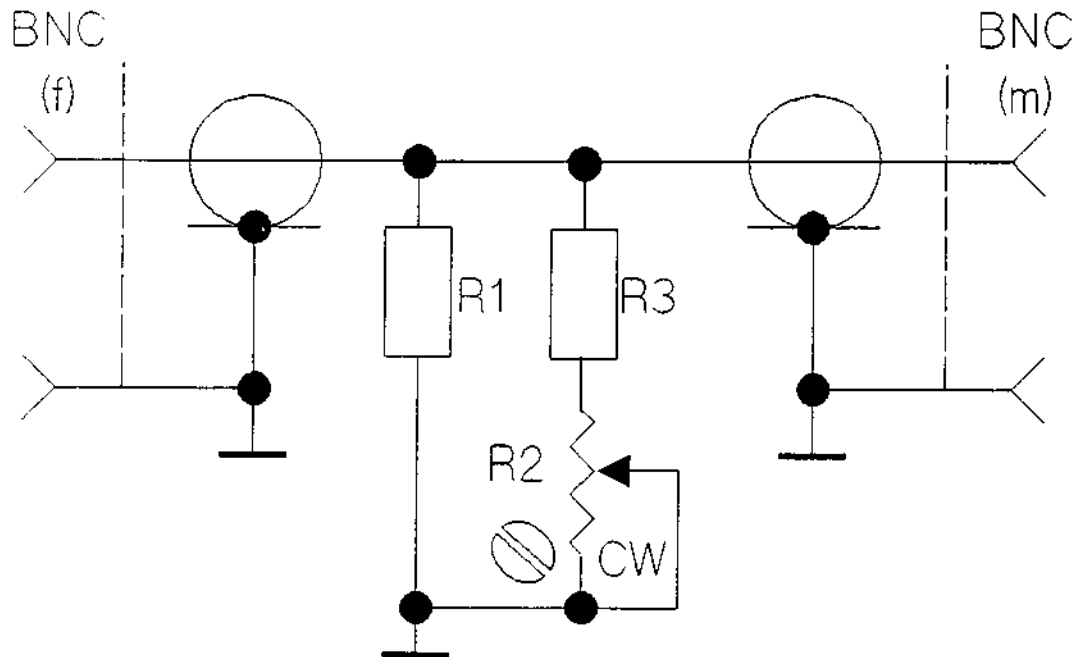


Figure 4-1. 50 Ω , 0.1%, 10 W Feedthrough Termination

R1 = 53.6 Ω , 1%, 10 W; HP Part Number: 0699-0146.

R2 = 200 Ω , 10%, 0.5 W, Variable trimmer; HP Part Number: 2100-3350.

R3 = 681 Ω , 1%, 0.5 W; HP Part Number: 0757-0816.

BNC (M): HP Part Number: 1250-0045.

BNC (F): HP Part Number: 1250-0083.

1. Period Test

Specifications

- Range: 3.33 ns to 99.9 ms for HP 8130A; 2 ns to 99.9 ms for HP 8131A
Resolution: 3 digits (best case: 10 ps)
Accuracy: 5% of programmed value ± 100 ps
rms Jitter: 10 ns to 100 ns range: 0.05% of programmed value +15 ps
all other ranges: 0.025% of programmed value +15 ps
Repeatability: Factor 4 better than accuracy

Equipment

1. Counter (HP 5335A/HP 5370B).
2. Cable, 50 Ω , BNC to BNC, coaxial (HP8120-1839).

Setup

1. Connect the HP 8130A/HP 8131A's OUTPUT 1/2 to the counter's channel A input (HP 5335A). FREQ input (HP 5370B).
2. Set the HP 8130A/HP 8131A:

		HP 8130A		HP 8131A	
CONTROL	SETTING	CHANNEL 1	CHANNEL 2	CHANNEL 1	CHANNEL 2
MODE	AUTO				
TIMING	PERIOD	3.33 ns		2.00 ns	
	DEL	0 ns	0 ns	0 ns	0 ns
	DCYC	50%	50%	50%	50%
	LEAD	1.00 ns	1.00 ns	—	—
	TRA	1.00 ns	1.00 ns	—	—
OUTPUT	HIGH	+1.5 V	+1.5 V	+1.5 V	+1.5 V
	LOW	-1.5 V	-1.5 V	-1.5 V	-1.5 V
		ENABLE	DISABLE	ENABLE	DISABLE

3. Set Counter:
 - a. Function = PERIOD
 - b. Channel A = 50 Ω
 - c. Trigger Level = Preset

Procedure

Check the HP 8130A/HP 8131A period at the following settings:

Period	Acceptable Range	TR entry
3.33 ns*	3.06 ns to 3.56 ns	1-1 (HP 8130A)
2.00 ns	1.80 ns to 2.20 ns	1-1 (HP 8131A)
5.00 ns	4.65 ns to 5.35 ns	1-2
10.0 ns	9.4 ns to 10.6 ns	1-3
50.0 ns	47.4 ns to 52.6 ns	1-4
100 ns	94.9 ns to 105.1 ns	1-5
500 ns	474.9 ns to 525.1 ns	1-6
1.00 μ s	949.9 ns to 1.05 μ s	1-7
5.00 μ s	4.75 μ s to 5.25 μ s	1-8
10.0 μ s	9.5 μ s to 10.5 μ s	1-9
50.0 μ s	47.5 μ s to 52.5 μ s	1-10
100 μ s	95 μ s to 105 μ s	1-11
500 μ s	475 μ s to 525 μ s	1-12
1.00 ms	950 μ s to 1.05 ms	1-13
5.00 ms	4.75 ms to 5.25 ms	1-14
10.0 ms	9.5 ms to 10.5 ms	1-15
50.0 ms	47.5 ms to 52.5 ms	1-16
99.9 ms	94.9 ms to 104.9 ms	1-17

* To meet this specification it is acceptable to program the value to less than 3.33 ns.

2. Delay Test

This test consists of two parts:

1. Short Delay Test
2. Long Delay Test

Note Repeat the entire delay test procedure for the second channel, if installed.



The specifications and tests are for the 50% point of amplitude.

Specifications

Range: 0 ns to 99.9 ms

Fixed Delay (Trigger Output to Main Output):

18 ns for the HP 8130A; 20 ns (nominal) for the HP8131A

Maximum Delay 3.33 ns \leq Period < 4.99 ns: Max. Delay = (50% of Period) - 1.00 ns

(HP 8130A): 5.00 ns \leq Period < 19.9 ns: Max. Delay = (70% of Period) - 2.00 ns

Period \geq 20.0 ns: Max. Delay = (90% of Period) - 6.00 ns

Maximum Delay

(HP 8131A): Period \geq 20.0 ns: Max. Delay = (90% of Period) - 6.00 ns

Accuracy: 5% of programmed value \pm 1.5 ns

rms Jitter: 10 ns to 100 ns range: 0.05% of programmed value +15 ps

All other ranges: 0.025% of programmed value +15 ps

Repeatability: Factor 4 better than accuracy

Equipment

- Digitizing Oscilloscope with Accessory (HP 54121T)
- Pulse Generator (HP 8112A/HP 8161A)
- Counter (HP 5335A/ HP 5370B)
- Cable, 50 Ω , BNC to BNC, coaxial, 2 each (HP 8120-1839).

Delay Test, Part 1: Short Delay Test

Setup

1. Set Pulse Generator:

PER = 500 ns

WID = 100 ns

HIL = 0.5 V

LOL = -0.5 V

Fixed Transition Time

2. Set the HP 8130A/HP 8131A:

		HP 8130A		HP 8131A	
CONTROL	SETTING	CHANNEL 1	CHANNEL 2	CHANNEL 1	CHANNEL 2
MODE	TRIG				
	Positive slope				
TIMING	DEL	0 ns	0 ns	0 ns	0 ns
	WIDTH	100 ns	10 ns	100 ns	10 ns
	LEAD	1.00 ns	1.00 ns	—	—
	TRA	1.00 ns	1.00 ns	—	—
OUTPUT	HIGH	+1.5 V	+1.5 V	+1.5 V	+1.5 V
	LOW	-1.5 V	-1.5 V	-1.5 V	-1.5 V
		ENABLE	DISABLE	ENABLE	DISABLE

- Connect the Pulse Generator's Output via a 50 Ω feedthrough to the HP 8130A/HP 8131A's EXT INPUT.
- Connect the HP 8130A/HP 8131A's TRIG OUTPUT via:
 - a BNC(m) to SMA(f) adapter (HP 8130A only)
 - an SMA(m-m) coaxial cable assembly
 - an APC 3.5 mm 20 dB Attenuator (f-m)
 to the Input 3 of the HP 54121A.
- Connect the HP 8130A/HP 8131A OUTPUT 1/2 via a second similar accessory assembly to Input 4 of the HP 54121A.
- Connect the Pulse Generator's Trigger Output via a third similar accessory assembly to the TRIG input of the HP 54121A.

Procedure

1. Set the HP 54121T Oscilloscope:
 - a. press AUTOSCALE
 - b. set TIME/DIV = 20 ns/div
 - c. select the Display menu and set the Screen function to Single; set the Number of Averages to 64
 - d. select the delta V menu and turn the voltage markers On and assign marker 1 to channel 3 and marker 2 to channel 4
 - e. set Preset Levels = 50-50% and press Auto Level Set
 - f. select the delta t menu and turn the time markers On
 - g. set START ON EDGE = POS1 and STOP ON EDGE = POS1.
 - h. Press the Precise Edge Find key.
2. Press the Precise Edge Find key for each new Delay setting.
3. Check the HP 8130A/HP 8131A delay at the following settings:

Delay	Acceptable Range	TR entry
0.0 ns	fixed delay	2-1
10.0 ns	8.0 ns to 12.0 ns	2-2
20.0 ns	17.5 ns to 22.5 ns	2-3
50.0 ns	46.0 ns to 54.0 ns	2-4
80.0 ns	74.5 ns to 85.5 ns	2-5
99.9 ns	93.4 ns to 106.4 ns	2-6

Record the value of the fixed delay, and subtract it from the other readings.

4. Step with the Vernier up keys from:
 - a. 0 ps to 100 ps in 10 ps steps
 - b. 100 ps to 1 ns in 100 ps steps
 - c. 1 ns to 10 ns in 1 ns steps

Check the function/variation on the oscilloscope.

Delay Test, Part 2: Long Delay Test

Setup

1. Set the HP 8130A/HP 8131A:

		HP 8130A		HP 8131A	
CONTROL	SETTING	CHANNEL 1	CHANNEL 2	CHANNEL 1	CHANNEL 2
MODE	AUTO				
TIMING	PERIOD	95 μ s		95 μ s	
	DEL	100 ns	0 ns	100 ns	10 ns
	WIDTH	100 ns	10 ns	100 ns	1 ns
	LEAD	1.00 ns	1.00 ns	—	—
	TRA	1.00 ns	1.00 ns	—	—
OUTPUT	HIGH	+1.5 V	+1.5 V	+1.5 V	+1.5 V
	LOW	-1.5 V	-1.5 V	-1.5 V	-1.5 V
		ENABLE	DISABLE	ENABLE	DISABLE

2. Set the counter:
 - a. FUNCTION = TI A to B
 - b. START = 50 Ω , POS (+) slope, DC, X1
 - c. STOP = 50 Ω , POS (+) slope, DC, X1
 - d. Gate Time = as necessary
 - e. INPUT MODE = SEP (SEPARATE)
 - f. START/STOP trigger levels = preset.
3. Connect the HP 8130A/HP 8131A TRIG OUTPUT to the counter's START input.
4. Connect the HP 8130A/HP 8131A OUTPUT 1/2 to the counter's STOP input.

Procedure

Check the HP 8130A/HP 8131A delay at the following Period and Delay settings:

Period	Delay	Acceptable Range	TR entry
*95.0 μ s	100 ns	93.5 ns to 106.5 ns	2-7
*95.0 μ s	500 ns	473.5 ns to 526.5 ns	2-8
*95.0 μ s	999 ns	947.55 ns to 1.051 μ s	2-9
99.9 ms	100 μ s	95.00 μ s to 105 μ s	2-10
99.9 ms	1 ms	950.00 μ s to 1.050 ms	2-11
99.9 ms	80 ms	76.00 ms to 84.000 ms	2-12

Note

*Take the fixed delay into account.



3. Double Pulse Test

This test consists of two parts:

1. Short Double Pulse Test
2. Long Double Pulse Test

Note



Repeat the entire double pulse test procedure for the second channel, if installed.

The specifications and tests are for the 50% point of amplitude.

Specifications

Range: 3.33 ns to 99.9 ms for HP 8130A; 2 ns to 9.99 ms for HP 8131A

Maximum Period < 7.1 ns: Max Double Pulse = n/a (HP 8130A only)

Double Pulse: $7.2 \text{ ns} \leq \text{Period} \leq 9.99 \text{ ns}$: Max Double Pulse = 50% of Period (HP8130A only)

Period $\geq 10.0 \text{ ns}$: (90% of Period) - 4.00 ns

Resolution: 3 digits (best case: 10 ps)

Accuracy: 5% of programmed value $\pm 250 \text{ ps}$

rms Jitter: 10 ns to 100 ns range: 0.05% of programmed value +15 ps

All other ranges: 0.025% of programmed value +15 ps

Repeatability: Factor 4 better than accuracy

Equipment

- Digitizing Oscilloscope with Accessory (HP 54121T)
- Counter (HP 5335A/HP 5370B)
- Cable, 50 Ω , BNC to BNC, coaxial, 2 each (HP 8120-1839).

Double Pulse Test, Part 1: Short Double Pulse Test

Setup

1. Set the HP 8130A/HP 8131A:

		HP 8130A		HP 8131A	
CONTROL	SETTING	CHANNEL 1	CHANNEL 2	CHANNEL 1	CHANNEL 2
MODE	AUTO				
TIMING	PERIOD	200 ns		200 ns	
	DOUB	20 ns	2 ns	20 ns	2 ns
	WIDTH	10 ns	1.5 ns	10 ns	1.00 ns
	LEAD	1.00 ns	1.00 ns	—	—
	TRA	1.00 ns	1.00 ns	—	—
OUTPUT	HIGH	+1.5 V	+1.5 V	+1.5 V	+1.5 V
	LOW	-1.5 V	-1.5 V	-1.5 V	-1.5 V
		ENABLE	DISABLE	ENABLE	DISABLE

2. Connect the HP 8130A/HP 8131A's TRIG OUTPUT via:
 - a. a BNC(m) to SMA(f) adapter (HP 8130A only)
 - b. SMA(m-m) coaxial cable assembly
 - c. an APC 3.5 mm 20 dB Attenuator (f-m)
 to the TRIG Input of the HP 54121A.
3. Connect the HP 8130A/HP 8131A OUTPUT 1/2 via a similar accessory assembly to the Input 4 of the HP 54121A.

Procedure

1. Set the HP 54121T Oscilloscope:
 - a. press AUTOSCALE
 - b. select the Display menu and set the Number of Averages to 64
 - c. select the delta V menu and turn the voltage markers On
 - d. set Preset Levels = 50-50% and press Auto Level Set
 - e. select the delta t menu and turn the time markers On
 - f. set START ON EDGE = POS1 and STOP ON EDGE = POS2.
2. Press the Precise Edge Find key for each new Double setting.

3. Check the HP 8130A/HP 8131A double pulse delay at the following settings:

Double	Acceptable Range	TR entry
20.0 ns	18.75 ns to 21.25 ns	3-1
50.0 ns	47.25 ns to 52.75 ns	3-2
80.0 ns	75.75 ns to 84.25 ns	3-3
99.9 ns	94.65 ns to 105.15 ns	3-4

4. Change the HP 8130A Width to 1.5 ns, and Double to 3.33 ns.

5. Change the HP 8131A Width to 1 ns, and Double to 2 ns.

6. Check the HP 8130A/HP 8131A double pulse delay at the following settings:

Double	Acceptable Range	TR entry
3.33 ns	2.51 ns to 3.75 ns	3-5 (HP 8130A only)
2.00 ns	1.65 ns to 2.35 ns	3-5 (HP 8131A only)
5.0 ns	4.50 ns to 5.50 ns	3-6
10.0 ns	9.25 ns to 10.75 ns	3-7

Double Pulse Test, Part 2: Long Double Pulse Test

Setup

1. Set the HP 8130A/HP 8131A:

		HP 8130A		HP 8131A	
CONTROL	SETTING	CHANNEL 1	CHANNEL 2	CHANNEL 1	CHANNEL 2
MODE	AUTO				
TIMING	PERIOD	95 μ s		95 μ s	
	DOUB	200 ns	2 ns	200 ns	2 ns
	WIDTH	100 ns	1.5 ns	100 ns	1 ns
	LEAD	1.00 ns	1.00 ns	—	—
	TRA	1.00 ns	1.00 ns	—	—
OUTPUT	HIGH	+1.5 V	+1.5 V	+1.5 V	+1.5 V
	LOW	-1.5 V	-1.5 V	-1.5 V	-1.5 V
		ENABLE	DISABLE	ENABLE	DISABLE

2. Set the counter:

FUNCTION = TI A to B

START = 50 Ω , POS (+) slope, DC, X1

STOP = 50 Ω , POS (+) slope, DC, X1

Gate Time = as necessary

INPUT MODE = COM

START/STOP trigger levels = Preset

3. Connect the HP 8130A/HP 8131A OUTPUT 1/2 to the counter's START input.

Procedure

Check the HP 8130A/HP 8131A double pulse delay at the following Period and Double settings:

Period	Double	Acceptable Range	TR entry
95.0 μ s	200 ns	189.75 ns to 210.25 ns	3-8
95.0 μ s	1 μ s	950.00 ns to 1.05 μ s	3-9
95.0 μ s	10 μ s	9.50 μ s to 10.5 μ s	3-10
99.9 ms	100 μ s	95 μ s to 105.00 μ s	3-11
99.9 ms	1 ms	950 μ s to 1.05 ms	3-12
99.9 ms	10 ms	9.5 ms to 10.50 ms	3-13
99.9 ms	80 ms	76 ms to 84.00 ms	3-14

4. Width Test

This test consists of two parts.

1. Short Width Test
2. Long Width Test

Note Repeat the entire width test procedure for the second channel, if installed.



The specifications and tests are for the 50% point of amplitude.

Specifications

Range: 1.5 ns to 99.9 ns for the HP 8130A; 500 ps to 99.9 ns for the HP 8131A

Maximum Width: $3.33 \text{ ns} \leq \text{Period} \leq 4.99 \text{ ns}$: Max Width = 50% of period (HP 8130A only)

$5.00 \leq \text{Period} \leq 19.9$: Max Width = (70% of Period) - 1 ns (HP8130A only)

Period $\geq 20.0 \text{ ns}$: (90% of Period) - 5.00 ns

Resolution: 3 digits (best case: 10 ps)

Accuracy: 5% of programmed value $\pm 250 \text{ ps}$

rms Jitter: 10 ns to 100 ns range: 0.05% of programmed value +15 ps

All other ranges: 0.025% of programmed value +15 ps

Repeatability: Factor 4 better than accuracy

Equipment

- Digitizing Oscilloscope with Accessory (HP 54121T)
- Counter (HP 5335A/HP 5370B)
- Cable, 50 Ω , BNC to BNC, coaxial, 2 each (HP 8120-1839)

Width Test, Part 1: Short Width Test

Setup

1. Set the HP 8130A/HP 8131A:

		HP 8130A		HP 8131A	
CONTROL	SETTING	CHANNEL 1	CHANNEL 2	CHANNEL 1	CHANNEL 2
MODE	AUTO				
TIMING	PERIOD	200 ns		200 ns	
	DEL	0 ns	0 ns	0 ns	0 ns
	WIDTH	10 ns	15 ns	10 ns	15 ns
	LEAD	1.00 ns	1.00 ns	—	—
	TRA	1.00 ns	1.00 ns	—	—
OUTPUT	HIGH	+1.5 V	+1.5 V	+1.5 V	+1.5 V
	LOW	-1.5 V	-1.5 V	-1.5 V	-1.5 V
		ENABLE	DISABLE	ENABLE	DISABLE

2. Connect the HP 8130A/HP 8131A's TRIG OUTPUT via:
 - a. a BNC(m) to SMA(f) adapter (HP 8130A only)
 - b. SMA(m-m) coaxial cable assembly
 - c. an APC 3.5 mm 20 dB Attenuator (f-m)
 to the TRIG Input of the HP 54121A.
3. Connect the HP 8130A/HP 8131A OUTPUT 1/2 via a similar accessory assembly to the Input 4 of the HP 54121A.

Procedure

1. Set the HP 54121T Oscilloscope:
 - a. press AUTOSCALE
 - b. select the Display menu and set the Number of Averages to 64
 - c. select the delta V menu and turn the voltage markers On
 - d. set Preset Levels = 50-50% and press Auto Level Set
 - e. select the delta t menu and turn the time markers On
 - f. set START ON EDGE = POS1 and STOP ON EDGE = NEG1.
2. Change the oscilloscope timebase to 500 ps/div.
3. Change the HP 8130A Width to 1.5 ns or the HP 8131A Width to 500 ps.
4. Press the Precise Edge Find key for each new Width setting.

5. Check the HP 8130A/HP 8131A pulse width at the following settings:

Width	Acceptable Range	HP 8130A TR entry	HP 8131A TR entry
*500 ps	225 ps to 775 ps	—	4-1
800 ps	510 ps to 1.09 ns	—	4-2
**1.5 ns	1.175 ns to 1.825 ns	4-1	—
2.0 ns	1.650 ns to 2.350 ns	4-2	4-3
5.0 ns	4.500 ns to 5.500 ns	4-3	4-4
10.0 ns	9.250 ns to 10.750 ns	4-4	4-5
20.0 ns	18.750 ns to 21.250 ns	4-5	4-6
50.0 ns	47.250 ns to 52.750 ns	4-6	4-7
80.0 ns	75.750 ns to 84.250 ns	4-7	4-8
99.9 ns	94.650 ns to 105.150 ns	4-8	4-9

6. For the HP 8130A step with the Vernier up keys from:

- a. 1.5 ns to 1.6 ns in 10 ps steps
- b. 1.6 ns to 2 ns in 100 ps steps
- c. 2 ns to 10 ns in 1 ns steps

Check the function/variation on the oscilloscope.

7. For the HP 8131A step with the Vernier up keys from:

- a. 500 ps to 600 ps in 10 ps steps
- b. 600 ps to 1 ns in 100 ps steps
- c. 1 ns to 10 ns in 1 ns steps

Check the function/variation on the oscilloscope.

Note



* To meet this specification it is acceptable to program the value to less than 500 ps.

** To meet this specification it is acceptable to program the value to less than 1.5 ns.

Width Test, Part 2: Long Width Tests

Setup

1. Set the HP 8130A/HP 8131A:

		HP 8130A		HP 8131A	
CONTROL	SETTING	CHANNEL 1	CHANNEL 2	CHANNEL 1	CHANNEL 2
MODE	AUTO				
TIMING	PERIOD	95 μ s		95 μ s	
	DEL	0 ns	0 ns	0 ns	0 ns
	WIDTH	500 ns	1.5 ns	500 ns	1.0 ns
	LEAD	1.00 ns	1.00 ns	—	—
	TRA	1.00 ns	1.00 ns	—	—
OUTPUT	HIGH	+1.5 V	+1.5 V	+1.5 V	+1.5 V
	LOW	-1.5 V	-1.5 V	-1.5 V	-1.5 V
		ENABLE	DISABLE	ENABLE	DISABLE

2. Set the counter:

FUNCTION = TI A to B

START = 50 Ω , POS (+) slope, DC, X1

STOP = 50 Ω , NEG (-) slope, DC, X1

Gate Time = as necessary

INPUT MODE = COM

START/STOP trigger levels = Preset.

3. Connect the HP 8130A/HP 8131A OUTPUT 1/2 to the counter's START input.

Procedure

Check the HP 8130A/HP 8131A pulse width at the following Period and Width settings:

Period	WIDTH	Acceptable Range	HP 8130A TR entry	HP 8131A TR entry
95.0 μ s	500 ns	474.75 ns to 525.250 ns	4-9	4-10
95.0 μ s	999 ns	948.80 ns to 1.049 μ s	4-10	4-11
95.0 μ s	10 μ s	9.50 μ s to 10.500 μ s	4-11	4-12
99.9 ms	100 μ s	95.00 μ s to 105.000 μ s	4-12	4-13
99.9 ms	1 ms	950.00 μ s to 1.050 ms	4-13	4-14
99.9 ms	80 ms	76.00 ms to 84.000 ms	4-14	4-15

5. Jitter Test

This test consists of three parts:

1. Period Jitter
2. Delay Jitter
3. Width Jitter

Note Repeat the tests for the second channel, if installed.



Specifications

rms Jitter: 10 ns to 100 ns range: 0.05% of programmed value +15 ps

All other ranges: 0.025% of programmed value +15 ps

Equipment

HP 54121T Digitizing Oscilloscope with Accessory
HP 54008A Delay Line (HP 8130A only)

Jitter Test, Part 1: Period Jitter Test

Setup

1. Set the HP 8130A/HP 8131A:

		HP 8130A		HP 8131A	
CONTROL	SETTING	CHANNEL 1	CHANNEL 2	CHANNEL 1	CHANNEL 2
MODE	AUTO				
TIMING	PERIOD	50 ns		50 ns	
	DEL	0 ns	0 ns	0 ns	0 ns
	WIDTH	25 ns	500 ps	25 ns	500 ps
	LEAD	1.00 ns	1.00 ns	—	—
	TRA	1.00 ns	1.00 ns	—	—
OUTPUT	HIGH	+1.0 V	+1.0 V	+1.0 V	+1.0 V
	LOW	0 V	0 V	0 V	0 V
		ENABLE	DISABLE	ENABLE	DISABLE

2. Connect an APC 3.5 mm 20 dB Attenuator (f-m) to the TRIG Input of the HP 54121A.
3. Connect (via an SMA (m-m) adapter) the APC 3.5 mm (f) output of the Power Splitter HP 11667B to the 20 dB Attenuator at the TRIG Input of the HP 54121A.
4. For the HP 8130A, connect the other output of the Power Splitter via an SMA(m-m) coaxial cable assembly to one of the SMA connectors on the HP 54008A.
For the HP 8131A connect the other output of the Power Splitter via an SMA (m) - BNC (f) adapter and connect four BNC (m-m) cables (61 cm) together to this adapter. Use three BNC adapters (f-f).
5. For the HP 8130A connect the free SMA Connector on the HP 54008A Delay Line to input 3 of the HP 54121A.
For the HP 8131A connect the cable assembly via a BNC(f)-SMA(m) adapter to input 3 of the HP 54121A.
6. Connect the HP 8130A/HP 8131A OUTPUT 1/2 via:
 - a. a BNC(m) to SMA(f) adapter (HP 8130A only)
 - b. a coaxial cable assembly SMA (m-m).
 to the Input of the Power Splitter.

Procedure

1. Set the HP 54121T Oscilloscope:
 - a. press AUTOSCALE
 - b. select the Display menu and set the Number of Averages to 128

- c. select the Timebase menu and set the TIME/DIV to 200 ps/div for the HP 8130A and to 10 ps/div for the HP 8131A
 - d. center the first positive going edge of the signal (approximate Delay = 26.4 ns for the HP 8130A and 17.8 ns for the HP 8131A)
 - e. select the channel menu and set the Attenuation factor to 10 (channel 3)
 - f. set the VOLT/DIV to 10 mV/div
 - g. select the delta V menu and turn the V Markers On
 - h. set the Marker 1 Position to 240 mV and the Marker 2 Position to 245 mV
 - i. select the delta t menu and turn the T Markers On
 - j. set START ON EDGE = POS1 and STOP ON EDGE = POS1
 - k. press the Precise Edge Find key.
2. RECORD the delta t! It is the rise time of the reference signal within a 1% amplitude window of the signal connected to Input 3. This value is needed later to calculate the correct jitter.
 3. Select the oscilloscope's Timebase menu and center the second positive going edge of the signal (actual Delay +50.x ns = approximate Delay 66.x ns)
 4. Press More and Histogram.
 5. Select the Window submenu and set:
 - Source is channel 3
 - choose the time Histogram
 - press WINDOW MARKER 1 and set it to 240 mV
 - press WINDOW MARKER 2 and set it to 245 mV
 6. Select the Acquire submenu and set the Number of Samples to 1000. Press Start Acquiring.
 7. After the data for the time histogram has been acquired (#Samples = 100%), select the Result submenu.
 8. Press Mean and Sigma. RECORD the value of Sigma!
 9. The rms jitter is calculated as follows:

$$\frac{6\sigma - \Delta t_{ref\ signal}}{6}$$
 10. Maximum rms jitter (period = 50 ns) is 40 ps TR entry 5-1
 11. Set the HP 8130A/HP 8131A: PER 500 ns
 12. Repeat steps 3 to 9.

Note Time/Div 100 ps/div Delay approximately 51x.x ns



Maximum rms jitter (period = 500 ns) is 140 ps TR entry 5-2

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Jitter Test, Part 2: Width Jitter Test

Setup

1. Same setup as in previous test.
2. Set the HP 8130A/HP 8131A:

		HP 8130A		HP 8131A	
CONTROL	SETTING	CHANNEL 1	CHANNEL 2	CHANNEL 1	CHANNEL 2
TIMING	PERIOD	1.00 μ s		1.00 μ s	
	WIDTH	1.5 ns	1.5 ns	1.0 ns	500 ps

Procedure

1. Set the HP 54121T Oscilloscope:
 - a. press the More key
 - b. select the Display menu and set the #Averages = 256
 - c. select the Timebase menu and center the first negative going edge of the signal (For the HP 8130A Time/Div 20 ps/div, approximate Delay = 28.x ns: for the HP 8131A Time/Div 10 ps/div, approximate Delay = 17.x ns).
 - d. select the delta V menu and set the Marker 1 Position to 260 mV and the Marker 2 Position to 255 mV
 - e. select the delta t menu and set START ON EDGE = NEG1 and STOP ON EDGE = NEG1
 - f. press the Precise Edge Find key.
2. RECORD delta t! It is the fall time of the signal within a 1% amplitude window of the signal connected to Input 3. This value is needed later to calculate the correct jitter.
3. Set the HP 8130A/HP 8131A: WID 50 ns
4. Select the oscilloscope's Timebase menu and center the first negative going edge of the signal (Time/Div 20 ps/div, Delay approximately 77.x ns for the HP 8130A and 66.x ns for the HP 8131A).
5. Press More = Histogram.
6. Select the Window submenu and press WINDOW MARKER 1 and set it to 260 mV press WINDOW MARKER 2 and set it to 255 mV.
7. Select the Acquire submenu and press Start Acquiring.
8. After the data for the time histogram is acquired (#Samples = 100%), select the Result submenu.
9. Press Mean and Sigma. RECORD the value of Sigma!

10. The rms jitter is calculated as follows:

$$\frac{6\sigma - \Delta t_{fall\ time}}{6}$$

11. Maximum rms jitter (width = 50 ns) is 40 ps **TR entry 5-3**

12. Set the HP 8130A/HP 8131A: WID 500 ns

13. Repeat steps 4 to 8.

Note Time/Div 100 ps/div, Delay 51x.x ns



Maximum rms jitter (width 500 ns) is 140 ps. **TR entry 5-4**

14. DISABLE THE HP 8130A/HP 8131A OUTPUTS !

Jitter Test, Part 3: Delay Jitter Test

Setup

1. Set the HP 8130A/HP 8131A:

		HP 8130A		HP 8131A	
CONTROL	SETTING	CHANNEL 1	CHANNEL 2	CHANNEL 1	CHANNEL 2
MODE	AUTO				
TIMING	PERIOD	500 ns		500 ns	
	DEL	250 ns	0 ns	250 ns	0 ns
	WIDTH	50 ns	500 ps	50 ns	500 ps
	LEAD	1.00 ns	1.00 ns	—	—
	TRA	1.00 ns	1.00 ns	—	—
OUTPUT	HIGH	+5 V	+5 V	+5 V	+5 V
	LOW	0 V	0 V	0 V	0 V
		ENABLE	DISABLE	ENABLE	DISABLE

2. Connect the HP 8130A/HP 8131A's TRIG OUTPUT via:

- a. a BNC(m) to SMA(f) adapter (HP 8130A only)
- b. an SMA(m-m) coaxial cable assembly
- c. an APC 3.5 mm 20 dB Attenuator (f-m)

to the TRIG Input of the HP 54121A.

3. Connect the HP 8130A/HP 8131A OUTPUT 1/2 via a similar second accessory assembly to Input 3 of the HP 54121A.

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4. ENABLE the output.

Procedure

1. Set the HP 54121T Oscilloscope:
 - a. press AUTOSCALE
 - b. select the Display menu and set the #Averages = 128
 - c. select the Timebase menu and set the TIME/DIV = 50 ps/div
 - d. center the first positive going edge of the signal (approximate Delay = 26x.x ns)
 - e. set the VOLT/DIV = 10 mV/div, Offset = 2.45V;
2. Press More = Histogram.
3. Select the Window submenu and press WINDOW MARKER 1 and set it to 2.450 V press WINDOW MARKER 2 and set it to 2.445 V
4. Select the Acquire submenu and press Start Acquiring.
5. After the data for the time histogram has been acquired (#Samples = 100%), select the Result submenu.
6. Press Mean and Sigma. RECORD the value of Sigma!
7. The rms jitter is calculated as follows:

$$\frac{6\sigma - \Delta t_{ref\ signal}}{6}$$

8. Maximum rms jitter (delay = 250 ns) is 67.5 ps **TR entry 5-5**

6. High Level and Low Level Tests

Note Repeat the high level and low level tests for the second channel, if installed.



Specifications

Note This specification applies to 50 Ω sources and 50 Ω loads.



High Level: -4.90 V to 5.00 V .

Low Level: -5.00 V to 4.90 V .

Resolution: 3 digits (best case: 10.0 mV).

Level Accuracy: 1% of programmed value $\pm 3\%$ of pulse amplitude, $\pm 40\text{ mV}$.

Repeatability: Factor 4 better than accuracy

Settling time: For the HP 8130A, 20 ns + transition time at fastest; for the HP 8131A, 10 ns + transition time at fastest

Equipment

1. Multimeter (HP 3478)
2. 50 Ω feedthrough termination, 0.1%, 10 W (see figure 4-1)
3. Adapter, BNC to dual banana plug (HP 1251-2277)
4. Cables, BNC to BNC, two each
5. Pulse Generator with a 50 Ω feedthrough termination

High Level Test

Setup

1. Set the HP 8130A/HP 8131A:

		HP 8130A		HP 8131A	
CONTROL	SETTING	CHANNEL 1	CHANNEL 2	CHANNEL 1	CHANNEL 2
MODE	AUTO				
TIMING	PERIOD	99.9 ms		99.9 ms	
	DEL	30 μ s	0 ps	30 μ s	0 ps
	WIDTH	50 ms	500 ps	50 ms	500 ps
	LEAD	1.00 ns	1.00 ns	—	—
	TRA	1.00 ns	1.00 ns	—	—
OUTPUT	HIGH	+5 V	+5 V	+5 V	+5 V
	LOW	0 V	0 V	0 V	0 V
		ENABLE	DISABLE	ENABLE	DISABLE

2. Set the Multimeter (HP 3478).
 - a. SGL TRIG = Single Trigger
 - b. Blue/AUTO ZERO = Auto Zero off
 - c. BLUE/4 = 4 digits
3. Set the Pulse Generator:
 - a. Mode: Trigger
 - b. Trigger slope positive
 - c. Width: 500 ns
 - d. HIL: 2.0 V
4. Connect the HP 8130A/HP 8131A OUTPUT 1/2 via:
 - a. a SMA(m) to BNC(f) adapter (HP 8131A only)
 - b. a 50 Ω feedthrough (0.1%, 10 W)
 - c. a BNC (m-m) cable
 - d. a BNC to dual banana plug adapter
 to the Multimeter's Input.
5. Connect the HP 8130A/HP 8131A TRIG OUTPUT to the Pulse Generator's External Input. This must be done via an SMA (m) to BNC (f) for the HP 8131A.
6. Connect the Pulse Generator's Output via a 50 Ω feedthrough terminator to the Multimeter's Trigger Input.

Procedure

Check the HP 8130A/HP 8131A high level at the following HIGH settings with the low level set to 0.00 V.

High Level	Acceptable Range	TR entry
5.0V	4.76 V to 5.24 V	6-1
3.0 V	2.84 V to 3.16 V	6-2
1.0 V	920 mV to 1.08 V	6-3
0.5 V	440 mV to 560 mV	6-4
0.1 V	56 mV to 144 mV	6-5

The low level 0.0 V may vary within $\pm 3\%$ of pulse amplitude, ± 40 mV.

Low Level Test

Setup

Set the HP 8130A/HP 8131A:

		HP 8130A		HP 8131A	
CONTROL	SETTING	CHANNEL 1	CHANNEL 2	CHANNEL 1	CHANNEL 2
MODE	AUTO				
TIMING	PERIOD	99.9 ms		99.9 ms	
	DEL	30 ms	0 ps	30 ms	0 ps
	WIDTH	50 ms	500 ps	50 ms	500 ps
	LEAD	1.00 ns	1.00 ns	—	—
	TRA	1.00 ns	1.00 ns	—	—
OUTPUT	HIGH	0 V	0 V	0 V	0 V
	LOW	-0.1 V	-0.1 V	-0.1 V	-0.1 V
		ENABLE	DISABLE	ENABLE	DISABLE

Procedure

Check the HP 8130A/HP 8131A low level at the following low settings with the high level set to 0.00 V.

Low Level	Acceptable Range	TR entry
-0.1 V	56 mV to 144 mV	6-6
-0.5 V	440 mV to 560 mV	6-7
-1.0 V	920 mV to 1.08 V	6-8
-3.0 V	2.84 V to 3.16 V	6-9
-5.0 V	4.76 V to 5.24 V	6-10

The high level 0.0 V may vary within $\pm 3\%$ of pulse amplitude, ± 40 mV.

7. Transition Time Test

Note



Repeat the entire transition time test procedure for the second channel, if it is installed.

HP 8130A Specifications

Range: 1 ns to 100 μ s

Resolution: 3 digits (best case 10 ps)

Accuracy: $\pm 10\%$ of programmed value ± 300 ps

HP 8131A Specifications

10% - 90% amplitude: < 200 ps, 300 mV to 3 V range, PER $\leq 1\mu$ s

20% - 80% amplitude: < 200 ps, 100 mV to 5 V range

Equipment

HP 54121T Digitizing Oscilloscope with Accessory

Setup

1. Set the HP 8130A/HP 8131A:

		HP 8130A		HP 8131A	
CONTROL	SETTING	CHANNEL 1	CHANNEL 2	CHANNEL 1	CHANNEL 2
MODE	AUTO				
TIMING	PERIOD	500 μ s		500 μ s	
	DEL	10 ns	0 ps	10 ns	0 ps
	DCYC	50%	50%	50%	50%
OUTPUT	HIGH	+5 V	+5 V	+5 V	+5 V
	LOW	0 V	0 V	0 V	0 V
		ENABLE	DISABLE	ENABLE	DISABLE

2. Connect the HP 8130A/HP 8131A's TRIG OUTPUT via:
 - a. a BNC(m) - SMA(f) adapter (HP 8130A only)
 - b. cable assembly-coaxial SMA(m-m)
 - c. an APC 3.5 mm 20 dB Attenuator (f-m)to the TRIG Input of the HP 54121A

3. Connect the HP 8130A/HP 8131A OUTPUT 1/2 via a similar accessory assembly to Input 4 of the HP 54121A.

HP 8130A Procedure

1. Set the HP 54121T Oscilloscope:
 - a. press AUTOSCALE
 - b. Center one pulse horizontally and vertically on screen (for example, TIME/DIV = 50 μ s/div, DELAY = 375 μ s, VOLT/DIV = 800 mV/div, Offset = 2.5 V).
 - c. select the Display menu and set the Number of Averages to 64
 - d. select the channel menu and set the Attenuation factor to 10
 - e. select the delta V menu and turn the voltage markers On
 - f. set Preset Levels = 10-90% and press Auto Level Set
 - g. select the Timebase menu and set TIME/DIV = 2 ns, DELAY = 16 ns
 - h. select the delta t menu and turn the time markers On
 - i. set START ON EDGE = POS1 and STOP ON EDGE = POS1
2. Set HP 8130A: Period: 1 μ s
3. After the averaging, while the Oscilloscope is in the delta t menu, press the Precise Edge Find Key.
4. Check the HP 8130A rise times at the following leading edge settings

Oscilloscope Time/Div	Period	Leading edge	Trailing edge	Acceptable Range	TR entry
2 ns	1 μ s	1 ns*	1 ns to	1.31 ns	7-1
5 ns		10 ns	5 ns	8.7 ns to 11.3 ns	7-2
10 ns		50 ns	50 ns	44.7 ns to 55.3 ns	7-3
20 ns	5 μ s	100 ns	500 ns	90 ns to 110 ns	7-4
100 ns		500 ns		400 ns to 550 ns	7-5
200 ns		1 μ s		900 ns to 1.10 μ s	7-6
500 ns	50 μ s	2 μ s	5 μ s	1.80 μ s to 2.20 μ s	7-7
1 μ s		5 μ s		4.50 μ s to 5.5 μ s	7-8
2 μ s	500 μ s	10 μ s		9 μ s to 11 μ s	7-9
10 μ s		50 μ s	50 μ s	45 μ s to 55 μ s	7-10
20 μ s		100 μ s		90 μ s to 110 μ s	7-11

* Underprogramming to 670 ps is allowed to meet this specification.

5. Set the HP 8130A: Leading: 1 ns, Trailing: 1 ns

6. Select the oscilloscope's Timebase menu and set DELAY = 520ns
Select the oscilloscope's delta t menu and set START ON EDGE = NEG1 and STOP ON EDGE = NEG1.
7. While the oscilloscope is in the delta t menu press the Precise Edge Find Key.
8. Check the HP 8130A output signal fall times at the following trailing edge settings

Oscilloscope Time/Div	Period	Trailing edge	Leading edge	Acceptable Range	TR entry
2 ns	1 μ s	1 ns*	1 ns	to 1.31 ns	7-12
5 ns		10 ns	5 ns	8.7 ns to 11.3 ns	7-13
10 ns		50 ns	50 ns	44.7 ns to 55.3 ns	7-14
20 ns	5 μ s	100 ns	500 ns	90 ns to 110 ns	7-15
100 ns		500 ns		400 ns to 550 ns	7-16
200 ns		1 μ s		900 ns to 1.10 μ s	7-17
500 ns	50 μ s	2 μ s	5 μ s	1.80 μ s to 2.20 μ s	7-18
1 μ s		5 μ s		4.50 μ s to 5.5 μ s	7-19
2 μ s	500 μ s	10 μ s		9 μ s to 11 μ s	7-20
10 μ s		50 μ s	50 μ s	45 μ s to 55 μ s	7-21
20 μ s		100 μ s		90 μ s to 110 μ s	7-22

* Underprogramming to 670 ps is allowed to meet this specification.

HP 8131A Procedure

1. Set the HP 54121T Oscilloscope:
 - a. press AUTOSCALE
 - b. Center one pulse horizontally and vertically on screen (for example, TIME/DIV = 50 μ s/div, DELAY = 375 μ s, VOLT/DIV = 800 mV/div, Offset = 2.5 V).
 - c. select the Display menu and set the Number of Averages to 64
 - d. select the channel menu and set the Attenuation factor to 10
 - e. select the delta V menu and turn the voltage markers On
 - f. set Preset Levels = 20-80% and press Auto Level Set
 - g. select the Timebase menu and set TIME/DIV = 20 ns, DELAY = 16 ns
 - h. select the delta t menu and turn the time markers On
 - i. set START ON EDGE = POS1 and STOP ON EDGE = POS1
2. Set HP 8131A: Period: 250 ns
3. While the Oscilloscope is in the delta t menu, press the Precise Edge Find Key.
4. Check for rise time < 200 ps **TR ENTRY 7-1.**

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5. Select the oscilloscope delta t menu and set START ON EDGE = NEG1 and STOP ON EDGE = NEG1.
6. Press the Precise Edge Find Key
7. Check for Fall time < 200 ps **TR ENTRY 7-2**
8. Repeat steps 1 to 8 with HP 8131A set:
HIGH = 3.0 V
TR ENTRIES 7-3 and 7-4

Note

Set the voltage marker in the delta V menu to the 10-90% levels. Take the oscilloscope trace flatness error (GaAs IC input circuit) into account.

8. Pulse Aberration Test

Note Repeat this test for the second channel, if installed.



Specifications

Overshoot and Ringing: $\leq 10\%$ of the pulse amplitude ± 20 mV for the HP 8130A; $\leq 15\%$ of the pulse amplitude ± 20 mV for the HP 8131A.

Equipment

HP 54121T Digitizing Oscilloscope with Accessory

Setup

1. Set the HP 8130A/HP 8131A:

		HP 8130A		HP 8131A	
CONTROL	SETTING	CHANNEL 1	CHANNEL 2	CHANNEL 1	CHANNEL 2
MODE	AUTO				
TIMING	PERIOD	500 μ s		500 μ s	
	DEL	5 ns	0 ps	5 ns	0 ps
	DCYC	50%	50%	50%	50%
OUTPUT	HIGH	+5 V	+5 V	+5 V	+5 V
	LOW	0 V	0 V	0 V	0 V
		ENABLE	DISABLE	ENABLE	DISABLE

2. Connect the HP 8130A/HP 8131A's TRIG OUTPUT via:
 - a. a BNC(f) - SMA(m) adapter (HP 8130A only)
 - b. cable assembly-coaxial SMA (m-m)
 - c. an APC 3.5 mm 20 dB Attenuator (f-m)to the TRIG Input of the HP 54121A.
3. Connect the HP 8130A/HP 8131A OUTPUT 1/2 via a similar accessory assembly to the Input 4 of the HP 54121A.

Procedure

1. Set the HP 54121T Oscilloscope:
 - a. press AUTOSCALE
 - b. Center one pulse horizontally and vertically on screen (e.g. TIME/DIV = 50 μ s/div; DELAY = 377 μ s for the HP 8130A and 350 μ s for the HP 8131A; VOLT/DIV = 800 mV/div)
 - c. select the Display menu and set the Number of Averages to 64
 - d. select the channel menu and set the Attenuation factor to 10
 - e. select the delta V menu and turn the voltage markers On
 - f. set the VARIABLE LEVELS = 90-110% for the HP 8130A and 85-115% for the HP 8131A and press Auto Level Set
 - g. select the channel menu and center vertically the top pulse (Offset = 5 V)
 - h. set the VOLTS/DIV to 500 mV/div
 - i. select the Timebase menu and set TIME/DIV = 500 ps, DELAY = 21.5 ns for the HP 8130A and 17.x ns for the HP 8131A.
2. Set HP 8130A/HP 8131A: Period: 500 ns
3. Check the Overshoot and Ringing for $\leq 10\% \pm 20$ mV for the HP 8130A and $\leq 15\% \pm 20$ mV for the HP 8131A TR entry 8-1

Note Take the oscilloscope's trace flatness error (GaAs input circuit) into account.



-
4. Repeat steps 1 to 3.
Set HP 8130A/HP 8131A; HIGH = 500 mV TR entry 8-2

The HP 8130A Performance Test Record

MODEL: HP 8130A TESTED BY: _____

SERIAL NUMBER: _____ DATE: _____

CUSTOMER: _____ CSO#: _____

COMMENTS:

Test	Limit Minimum	Actual (TR Entry)	Limit Maximum	Pass	Fail
Period:					
3.33 ns	3.06 ns	(1-1) _____	3.56 ns	_____	_____
5.00 ns	4.65 ns	(1-2) _____	5.35 ns	_____	_____
10.0 ns	9.4 ns	(1-3) _____	10.6 ns	_____	_____
50.0 ns	47.4 ns	(1-4) _____	52.6 ns	_____	_____
100 ns	94.9 ns	(1-5) _____	105.1 ns	_____	_____
500 ns	474.9 ns	(1-6) _____	525.1 ns	_____	_____
1.00 μ s	949.9 ns	(1-7) _____	1.05 μ s	_____	_____
5.00 μ s	4.75 μ s	(1-8) _____	5.25 μ s	_____	_____
10.0 μ s	9.5 μ s	(1-9) _____	10.5 μ s	_____	_____
50.0 μ s	47.5 μ s	(1-10) _____	52.5 μ s	_____	_____
100 μ s	95 μ s	(1-11) _____	105 μ s	_____	_____
500 μ s	475 ms	(1-12) _____	525 μ s	_____	_____
1.00 ms	950 ms	(1-13) _____	1.05 ms	_____	_____
5.00 ms	4.75 ms	(1-14) _____	5.25 ms	_____	_____
10.0 ms	9.5 ms	(1-15) _____	10.5 ms	_____	_____
50 ms	47.5 ms	(1-16) _____	52.5 ms	_____	_____
99.9 ms	94.9 ms	(1-17) _____	104.9 ms	_____	_____

Test	Limit Minimum	Actual (TR Entry)	Limit Maximum	Pass	Fail
Short Delay:					
0.00 ns	-	(2-1)_____	-	_____	_____
10.0 ns	8.0 ns	(2-2)_____	12.0 ns	_____	_____
20.0 ns	17.5 ns	(2-3)_____	22.5 ns	_____	_____
50.0 ns	46.0 ns	(2-4)_____	54.0 ns	_____	_____
80.0 ns	74.5 ns	(2-5)_____	85.5 ns	_____	_____
99.9 ns	93.4 ns	(2-6)_____	106.4 ns	_____	_____
Long Delay:					
100 ns	93.5 ns	(2-7)_____	106.5 ns	_____	_____
500 ns	473.5 ns	(2-8)_____	526.5 ns	_____	_____
999 ns	947.55 ns	(2-9)_____	1.051 μ s	_____	_____
100 μ s	95 μ s	(2-10)_____	105 μ s	_____	_____
1 ms	950 ms	(2-11)_____	1.05 ms	_____	_____
80 ms	76 ms	(2-12)_____	84 ms	_____	_____
Short Double Pulse:					
20.0 ns	18.75 ns	(3-1)_____	21.25 ns	_____	_____
50.0 ns	47.25 ns	(3-2)_____	52.75 ns	_____	_____
80.0 ns	75.75 ns	(3-3)_____	84.25 ns	_____	_____
99.9 ns	94.65 ns	(3-4)_____	105.15 ns	_____	_____
3.33 ns	2.91 ns	(3-5)_____	3.75 ns	_____	_____
5.00 ns	4.5 ns	(3-6)_____	5.5 ns	_____	_____
10.0 ns	9.25 ns	(3-7)_____	10.75 ns	_____	_____

Test	Limit Minimum	Actual (TR Entry)	Limit Maximum	Pass	Fail
Long Double Pulse:					
200 ns	189.75 ns	(3-8)	210.25 ns		
1 μ s	950 ns	(3-9)	1.05 μ s		
10 μ s	9.5 μ s	(3-10)	10.5 μ s		
100 μ s	95 μ s	(3-11)	105 μ s		
1 ms	950 μ s	(3-12)	1.05 ms		
10 ms	9.5 ms	(3-13)	10.5 ms		
80 ms	76 ms	(3-14)	84 ms		
Short Width:					
1.5 ns	1.175 ns	(4-1)	1.825 ns		
2.00 ns	1.65 ns	(4-2)	2.35 ns		
5.00 ns	4.5 ns	(4-3)	5.5 ns		
10.0 ns	9.25 ns	(4-4)	10.75 ns		
20.0 ns	18.75 ns	(4-5)	21.25 ns		
50.0 ns	47.25 ns	(4-6)	52.75 ns		
80.0 ns	75.75 ns	(4-7)	84.25 ns		
99.9 ns	94.65 ns	(4-8)	105.15 ns		
Long Width:					
500 ns	474.75 ns	(4-10)	525.25 ns		
999 ns	948.8 ns	(4-11)	1.049 μ s		
10 μ s	9.5 μ s	(4-12)	10.5 μ s		
100 μ s	95 μ s	(4-13)	105 μ s		
1 ms	950 μ s	(4-14)	1.05 ms		
80 ms	76 ms	(4-15)	84 ms		

Test	Limit Minimum	Actual (TR Entry)	Limit Maximum	Pass	Fail
Period Jitter:					
≤ 40 ps		(5-1)_____		_____	_____
≤ 140 ps		(5-2)_____		_____	_____
Width Jitter:					
≤ 40 ps		(5-3)_____		_____	_____
≤ 140 ps		(5-4)_____		_____	_____
Delay Jitter:					
≤ 67.5 ps		(5-5)_____		_____	_____
High Level:					
5.0 V	4.76 V	(6-1)_____	5.24 V	_____	_____
3.0 V	2.84 V	(6-2)_____	3.16 V	_____	_____
1.0 V	920 mV	(6-3)_____	1.08 V	_____	_____
0.5 V	440 mV	(6-4)_____	560 mV	_____	_____
0.1 V	56 mV	(6-5)_____	144 mV	_____	_____
Low Level:					
-0.1 V	-56 mV	(6-6)_____	-144 mV	_____	_____
-0.5 V	-440 mV	(6-7)_____	-560 mV	_____	_____
-1.0 V	-920 mV	(6-8)_____	-1.08 V	_____	_____
-3.0 V	-2.84 V	(6-9)_____	-3.16 V	_____	_____
-5.0 V	-4.76 V	(6-10)_____	-5.24 V	_____	_____

Test	Limit Minimum	Actual (TR Entry)	Limit Maximum	Pass	Fail
Leading edge:					
1 ns	—	7-1_____	1.31 ns	_____	_____
10 ns	8.7 ns	7-2_____	11.3 ns	_____	_____
50 ns	44.7 ns	7-3_____	55.3 ns	_____	_____
100 ns	90 ns	7-4_____	110 ns	_____	_____
500 ns	400 ns	7-5_____	550 ns	_____	_____
1 μ s	900 ns	7-6_____	1.10 μ s	_____	_____
2 μ s	1.80 μ s	7-7_____	2.20 μ s	_____	_____
5 μ s	4.50 μ s	7-8_____	5.5 μ s	_____	_____
10 μ s	9 μ s	7-9_____	11 μ s	_____	_____
50 μ s	45 μ s	7-10_____	55 μ s	_____	_____
100 μ s	90 μ s	7-11_____	110 μ s	_____	_____
Trailing edge:					
1 ns	—	7-12_____	1.31 ns	_____	_____
10 ns	8.7 ns	7-13_____	11.3 ns	_____	_____
50 ns	44.7 ns	7-14_____	55.3 ns	_____	_____
100 ns	90 ns	7-15_____	110 ns	_____	_____
500 ns	400 ns	7-16_____	550 ns	_____	_____
1 μ s	900 ns	7-17_____	1.10 μ s	_____	_____
2 μ s	1.80 μ s	7-18_____	2.20 μ s	_____	_____
5 μ s	4.50 μ s	7-19_____	5.5 μ s	_____	_____
10 μ s	9 μ s	7-20_____	11 μ s	_____	_____
50 μ s	45 μ s	7-21_____	55 μ s	_____	_____
100 μ s	90 μ s	7-22_____	110 μ s	_____	_____
Pulse Aberration					
$\leq 10\% \pm 20m V$		(8-1)_____		_____	_____
$\leq 10\% \pm 20m V$		(8-2)_____		_____	_____

The HP 8131A Performance Test Record

MODEL: HP 8131A TESTED BY: _____

SERIAL NUMBER: _____ DATE: _____

CUSTOMER: _____ CSO#: _____

COMMENTS:

Test	Limit Minimum	Actual (TR Entry)	Limit Maximum	Pass	Fail
Period:					
2.00 ns	1.80 ns	(1-1) _____	2.20 ns	_____	_____
5.00 ns	4.65 ns	(1-2) _____	5.35 ns	_____	_____
10.0 ns	9.4 ns	(1-3) _____	10.6 ns	_____	_____
50.0 ns	47.4 ns	(1-4) _____	52.6 ns	_____	_____
100 ns	94.9 ns	(1-5) _____	105.1 ns	_____	_____
500 ns	474.9 ns	(1-6) _____	525.1 ns	_____	_____
1.00 μ s	949.9 ns	(1-7) _____	1.05 μ s	_____	_____
5.00 μ s	4.75 μ s	(1-8) _____	5.25 μ s	_____	_____
10.0 μ s	9.5 μ s	(1-9) _____	10.5 μ s	_____	_____
50.0 μ s	47.5 μ s	(1-10) _____	52.5 μ s	_____	_____
100 μ s	95 μ s	(1-11) _____	105 μ s	_____	_____
500 μ s	475 ms	(1-12) _____	525 μ s	_____	_____
1.00 ms	950 ms	(1-13) _____	1.05 ms	_____	_____
5.00 ms	4.75 ms	(1-14) _____	5.25 ms	_____	_____
10.0 ms	9.5 ms	(1-15) _____	10.5 ms	_____	_____
50 ms	47.5 ms	(1-16) _____	52.5 ms	_____	_____
99.9 ms	94.9 ms	(1-17) _____	104.9 ms	_____	_____

Test	Limit Minimum	Actual (TR Entry)	Limit Maximum	Pass	Fail
Short Delay:					
0.00 ns	-	(2-1)	--		
10.0 ns	8.0 ns	(2-2)	12.0 ns		
20.0 ns	17.5 ns	(2-3)	22.5 ns		
50.0 ns	46.0 ns	(2-4)	54.0 ns		
80.0 ns	74.5 ns	(2-5)	85.5 ns		
99.9 ns	93.4 ns	(2-6)	106.4 ns		
Long Delay:					
100 ns	93.5 ns	(2-7)	106.5 ns		
500 ns	473.5 ns	(2-8)	526.5 ns		
999 ns	947.55 ns	(2-9)	1.051 μ s		
100 μ s	95 μ s	(2-10)	105 μ s		
1 ms	950 ms	(2-11)	1.05 ms		
80 ms	76 ms	(2-12)	84 ms		
Short Double Pulse:					
20.0 ns	18.75 ns	(3-1)	21.25 ns		
50.0 ns	47.25 ns	(3-2)	52.75 ns		
80.0 ns	75.75 ns	(3-3)	84.25 ns		
99.9 ns	94.65 ns	(3-4)	105.15 ns		
3.33 ns	2.91 ns	(3-5)	3.75 ns		
5.00 ns	4.5 ns	(3-6)	5.5 ns		
10.0 ns	9.25 ns	(3-7)	10.75 ns		

Test	Limit Minimum	Actual (TR Entry)	Limit Maximum	Pass	Fail
Long Double Pulse:					
200 ns	189.75 ns	(3-8)	210.25 ns		
1 μ s	950 ns	(3-9)	1.05 μ s		
10 μ s	9.5 μ s	(3-10)	10.5 μ s		
100 μ s	95 μ s	(3-11)	105 μ s		
1 ms	950 μ s	(3-12)	1.05 ms		
10 ms	9.5 ms	(3-13)	10.5 ms		
80 ms	76 ms	(3-14)	84 ms		
Short Width:					
500 ps	225 ps	(4-1)	775 ps		
800 ps	510 ps	(4-2)	1.09 ns		
2.00 ns	1.65 ns	(4-3)	2.35 ns		
5.00 ns	4.5 ns	(4-4)	5.5 ns		
10.0 ns	9.25 ns	(4-5)	10.75 ns		
20.0 ns	18.75 ns	(4-6)	21.25 ns		
50.0 ns	47.25 ns	(4-7)	52.75 ns		
80.0 ns	75.75 ns	(4-8)	84.25 ns		
99.9 ns	94.65 ns	(4-9)	105.15 ns		
Long Width:					
500 ns	474.75 ns	(4-10)	525.25 ns		
999 ns	948.8 ns	(4-11)	1.049 μ s		
10 μ s	9.5 μ s	(4-12)	10.5 μ s		
100 μ s	95 μ s	(4-13)	105 μ s		
1 ms	950 μ s	(4-14)	1.05 ms		
80 ms	76 ms	(4-15)	84 ms		

Test	Limit Minimum	Actual (TR Entry)	Limit Maximum	Pass	Fail
Period Jitter:					
≤ 40 ps		(5-1)_____		_____	_____
≤ 140 ps		(5-2)_____		_____	_____
Width Jitter:					
≤ 40 ps		(5-3)_____		_____	_____
≤ 140 ps		(5-4)_____		_____	_____
Delay Jitter:					
≤ 67.5 ps		(5-5)_____		_____	_____
High Level:					
5.0 V	4.76 V	(6-1)_____	5.24 V	_____	_____
3.0 V	2.84 V	(6-2)_____	3.16 V	_____	_____
1.0 V	920m V	(6-3)_____	1.08 V	_____	_____
0.5 V	440m V	(6-4)_____	560m V	_____	_____
0.1 V	56m V	(6-5)_____	144m V	_____	_____
Low Level:					
-0.1 V	-56m V	(6-6)_____	-144m V	_____	_____
-0.5 V	-440m V	(6-7)_____	-560m V	_____	_____
-1.0 V	-920m V	(6-8)_____	-1.08 V	_____	_____
-3.0 V	-2.84 V	(6-9)_____	-3.16 V	_____	_____
-5.0 V	-4.76 V	(6-10)_____	-5.24 V	_____	_____

Test	Limit Minimum	Actual (TR Entry)	Limit Maximum	Pass	Fail
Transitions:					
< 200 ps		7-1 _____		_____	_____
< 200 ps		7-2 _____		_____	_____
< 200 ps		7-3 _____		_____	_____
< 200 ps		7-4 _____		_____	_____
Pulse Aberration					
$\leq 15\% \pm 20m V$		(8-1) _____		_____	_____
$\leq 15\% \pm 20m V$		(8-2) _____		_____	_____

Replaceable Parts

Introduction

This section contains parts and ordering information for the HP 8130A/HP 8131A Pulse Generator. Table 5-1 lists the reference designators and abbreviations used throughout this manual. Table 5-2 lists the parts recommended for replacement.

Those components of major assemblies that are easily accessible for replacement, are also listed in Table 5-2 with the assembly to which they are related.

Repair philosophy is to board level, therefore individual components for sub assemblies are not listed. However Appendix B to this manual contains a full parts listing for those customers who require it.

Tables 5-3 and 5-4 list those parts that can be readily exchanged.

Replaceable Parts List

The organization of table 5-2, which lists replaceable parts, is as follows:

- Chassis mounted parts in alphanumeric order by reference designation
- Electrical assemblies and their components in alphanumeric order by reference designation

Note

An electrical assembly is a cable or a printed circuit board and its components.



-
- Replaceable parts for the assemblies

The information given for each part consists of the following:

- Complete reference designation
- Description of part
- Hewlett-Packard part number

Reference Designators

Reference designators are alphanumeric names for parts.

1. A1 = electrical assembly number 1
2. MP1 = mechanical part number 1
3. A5F2
 - a. A5 = electrical assembly number 5
 - b. F2 = fuse number 2 on A5

Ordering Information

To order a part listed in table 5-2, quote the Hewlett-Packard part number, quantity required, and address the order to your nearest Hewlett-Packard office as listed in Appendix A.

You may want to order a part that is not listed as replaceable. In this case, include the instrument model number, instrument serial number (very important), with a description and function of the part.

Exchange Assemblies

Exchange assemblies are listed in a separate table; table 5-3. These exchange assemblies have a part number in the form xxxxx-695xx, whereas new part numbers are xxxxx665xx. Before ordering an exchange part, it is advisable to contact your local office or repair organization for current procedures and availability.

Direct Mail Order System

Within the USA, Hewlett-Packard can supply parts through direct mail order. The advantages are as follows:

- Direct ordering and shipment from Hewlett-Packard Parts Center in Mountain View, California.
- No maximum or minimum on any mail order (there is a minimum order for parts ordered through local Hewlett-Packard offices when orders require billing and invoicing).
- Prepaid transportation (there is a small handling charge for each order).
- No invoices - to provide these advantages, check or money order must accompany each order. Mail order forms and specific ordering information are available through your local Hewlett-Packard offices.

Table 5-1. Reference Designators and Abbreviations

REFERENCE DESIGNATIONS

A assembly	E miscellaneous electrical part	P electrical connector (movable portion); plug	VR voltage regulator; breakdown diode
AT attenuator; isolator; termination	F fuse	Q transistor; SCR; triode thyristor	W cable; transmission path; wire
B fan; motor	FL filter	R resistor	X socket
BT battery	H hardware	RT thermistor	Y crystal unit (piezo-electric or quartz)
C capacitor	HY circulator	S switch	Z tuned cavity; tuned circuit
CP coupler	J electrical connector (stationary portion); jack	T transformer	
CR diode; diode thyristor; varactor	K relay	TB terminal board	
DC directional coupler	L coil; inductor	TC thermocouple	
DL delay line	M meter	TP test point	
DS annunciator; signaling device (audible or visual); lamp; LED	MP miscellaneous mechanical part	U integrated circuit; microcircuit	
		V electron tube	

ABBREVIATIONS

A ampere	CW continuous wave	h hour	MET OX metallic oxide
ac alternating current	cw clockwise	HET heterodyne	MF medium frequency; microfarad (used in parts list)
ACCESS accessory	cm centimeter	HEX hexagonal	MFR manufacturer
ADJ adjustment	D/A digital-to-analog	HD head	mg milligram
A/D analog-to-digital	dB decibel	HDW hardware	MHz megahertz
AF audio frequency	dBm decibel referred to 1 mW	HF high frequency	mH millihenry
AFC automatic frequency control	dc direct current	HG mercury	mho mho
AGC automatic gain control	deg degree (temperature interval or difference)	HI high	MIN minimum
AL aluminum	° degree (plane angle)	HP Hewlett-Packard	min minute (time)
ALC automatic level control	°C degree Celsius (centigrade)	HPPF high pass filter	min minute (plane angle)
AM amplitude modulation	°F degree Fahrenheit	HR hour (used in parts list)	MINAT miniature
AMPL amplifier	°K degree Kelvin	HV high voltage	mm millimeter
APC automatic phase control	DEPC deposited carbon	Hz Hertz	MOD modulator
ASSY assembly	DET detector	IC integrated circuit	MOM momentary
AUX auxiliary	diam diameter	ID inside diameter	MOS metal-oxide semiconductor
avg average	DIA diameter (used in parts list)	IF intermediate frequency	ms millisecond
AWG American wire gauge	DIFF AMPL differential amplifier	IMPG impregnated in inch	MTG mounting
BAL balance	div division	INCD incandescent	MTR meter (indicating device)
BCD binary coded decimal	DPDT double-pole, double-throw	INCL include(s)	mV millivolt
BD board	DR drive	INP input	mV ac millivolt, ac
BE CU beryllium copper	DSB double sideband	INS insulation	mV dc millivolt, dc
BFO beat frequency oscillator	DTL diode transistor logic	INT internal	mVpk millivolt, peak
BH binder head	DVM digital voltmeter	kg kilogram	mVp-p millivolt, peak-to-peak
BKDN breakdown	FCL emitter coupled logic	kHz kilohertz	mVrms millivolt, rms
BP bandpass	EMF electromotive force	k Ω kilohm	mW milliwatt
BPF bandpass filter	EDP electronic data processing	kV kilovolt	MUX multiplex
BRS brass	ELECT electrolytic	lb pound	MY mylar
BWO backward-wave oscillator	ENCAP encapsulated	LC inductance-capacitance	μ A microampere
CAL calibrate	EXT external	LED light-emitting diode	μ F microfarad
ccw counter-clockwise	F farad	LF low frequency	μ H microhenry
CER ceramic	FET field-effect transistor	LG long	μ ho micromho
CHAN channel	F/F flip-flop	LH left hand	μ s microsecond
cm centimeter	FH flatt head	LIM limit	μ V microvolt
CMO cabinet mount only	FIL H fillister head	LIN linear taper (used in parts list)	μ V ac microvolt, ac
COAX coaxial	FM frequency modulation	LK WASH lock washer	μ V dc microvolt, dc
COEF coefficient	FP front panel	LO low; local oscillator	μ Vp-p microvolt, peak-to-peak
COM common	FREQ frequency	LOG logarithmic taper (used in parts list)	μ Vrms microvolt, rms
COMP composition	FXD fixed	log logarithmic	μ W microwatt
COMPL complete	g gram	LPF low pass filter	nA nanoampere
CONN connector	GE germanium	LV low voltage	NC no connection
CP cadmium plate	GHZ gigahertz	m meter (distance)	N/C normally closed
CRT cathode-ray tube	GL glass	mA milliampere	NE neon
CTL complementary transistor logic	GRO ground(ed)	MAX maximum	NEG negative
	H henry	M Ω megohm	nF nanofarad
		MEG meg (10 ⁶) (used in parts list)	NI PL nickel plate
		MET FLM metal film	N/O normally open
			NOM nominal

NOTE

All abbreviations in the parts list will be in upper-case.

Table 5-1. Reference Designators and Abbreviations (continued)

NORM normal	POT potentiometer	SI silicon	VFO variable-frequency oscillator
NPN negative-positive-negative	p-p peak-to-peak	SIL silver	VHF very-high frequency
NPO negative-positive zero (zero temperature coefficient)	PP peak-to-peak (used in parts list)	SL slide	V _{pk} volts, peak
NRRF not recommended for field replacement	PPM pulse-position modulation	SNR signal-to-noise ratio	V _{p-p} volts, peak-to-peak
NSR not separately replaceable	PREAMPL preamplifier	SPDT single-pole, double-throw	V _{rms} volts, rms
ns nanosecond	PRF pulse-repetition frequency	SPG spring	VSWR voltage standing wave ratio
nW nanowatt	PRR pulse repetition rate	SR split ring	VTO voltage-tuned oscillator
OB.D order by description	ps picosecond	SPST single-pole, single-throw	VTVM Vacuum-tube voltmeter
OD outside diameter	PT point	SSB single sideband	V(X) volts, switched
OH oval head	PTM pulse-time modulation	SST stainless steel	W watt
OP AMPL operational amplifier	PWM pulse-width modulation	STL steel	W with
OPT option	PWV peak working voltage	SQ square	WIV working inverse voltage
OSC oscillator	RC resistance-capacitance	SWR standing-wave ratio	WW wirewound
OX oxide	RECT rectifier	SYNC synchronize	W/O without
oz ounce	REF reference	T timed (slow-blow fuse)	YIG yttrium-iron-garnet
Ω ohm	REG regulated	TA tantalum	Z ₀ characteristic impedance
P peak (used in parts list)	REPL replaceable	TC temperature compensating	
PAM pulse-amplitude modulation	RF radio frequency	TD time delay	
PC printed circuit	RFI radio frequency interference	TERM terminal	
PCM pulse-code modulation; pulse-count modulation	RH round head; right hand	TFT thin-film transistor	
PDM pulse-duration modulation	RLC resistance-inductance-capacitance	TGL toggle	
pF picofarad	RMO rack mount only	THD thread	
PH BRZ phosphor bronze	rms root-mean-square	THRU through	
PHL Phillips	RND round	TI titanium	
PIN positive-intrinsic-negative	ROM read-only memory	TOL tolerance	
PIV peak inverse voltage	R&P rack and panel	TRIM trimmer	
pk peak	RWV reverse working voltage	TSTR transistor	
PL phase lock	S scattering parameter	TTL transistor-transistor logic	
PLO phase lock oscillator	s second (time)	TV television	
PM phase modulation	" second (plane angle)	TVI television interference	
PNP positive-negative-positive	S-B slow-blow (fuse) (used in parts list)	TWT traveling wave tube	
P/O part of	SCR silicon controlled rectifier; screw	U micro (10 ⁶) (used in parts list)	
POLY polystyrene	SE selenium	UF microfarad (used in parts list)	
PORC porcelain	SECT sections	UHF ultrahigh frequency	
POS positive; position(s) (used in parts list)	SEMICON semiconductor	UNREG unregulated	
POSN position	SHF superhigh frequency	V volt	
		VA voltampere	
		V _{ac} volts, ac	
		VAR variable	
		VCO voltage-controlled oscillator	
		V _{dc} volts, dc	
		VDCW volts, dc, working (used in parts list)	
		V(F) volts, filtered	

MULTIPLIERS

Abbreviation	Prefix	Multiple
T	tera	10 ¹²
G	giga	10 ⁹
M	mega	10 ⁶
k	kilo	10 ³
da	deka	10
d	deci	10 ⁻¹
c	centi	10 ⁻²
m	milli	10 ⁻³
μ	micro	10 ⁻⁶
n	nano	10 ⁻⁹
p	pico	10 ⁻¹²
f	femto	10 ⁻¹⁵
a	atto	10 ⁻¹⁸

NOTE

All abbreviations in the parts list will be in upper-case.

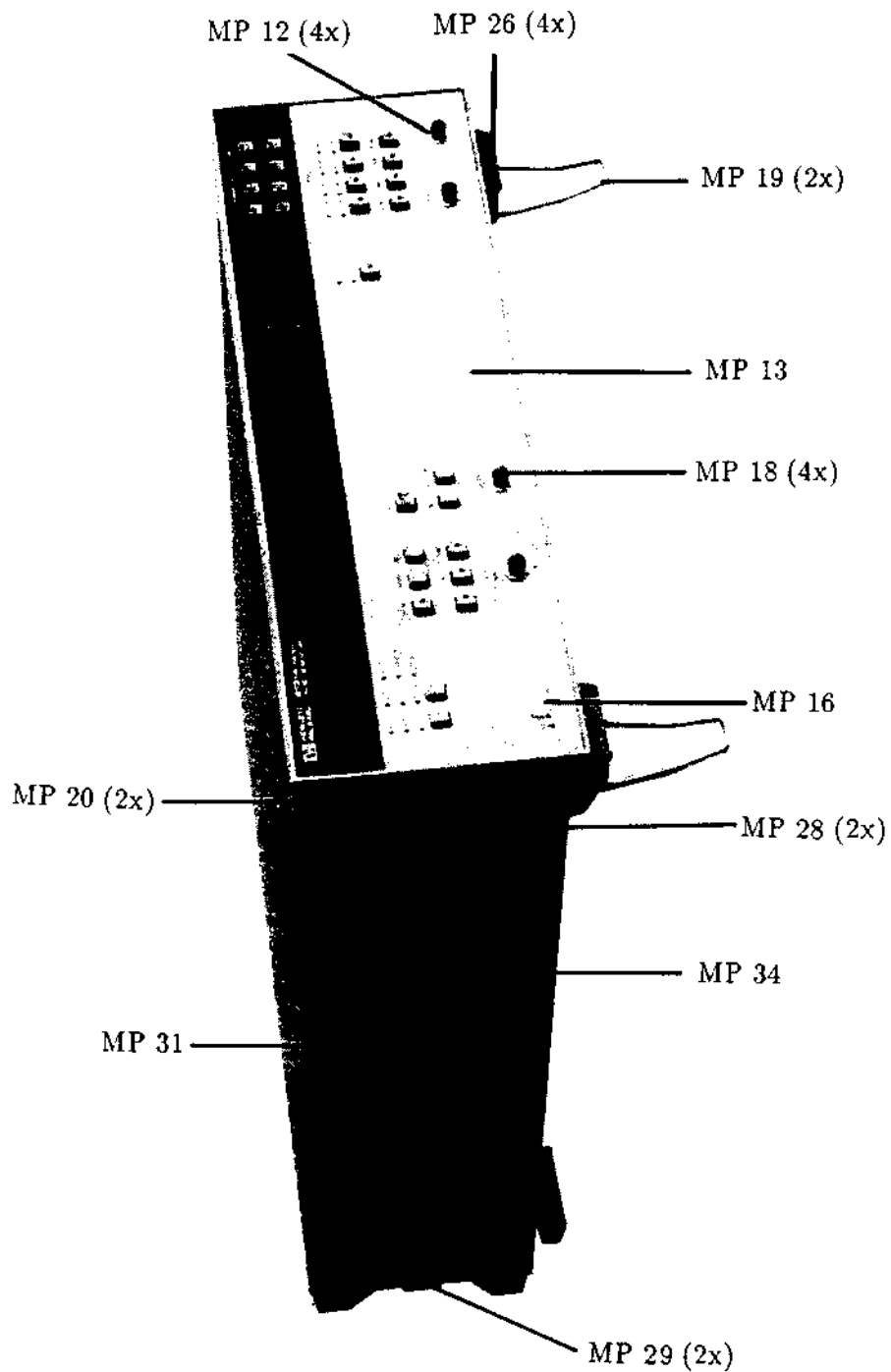


Figure 5-1. Parts Identification

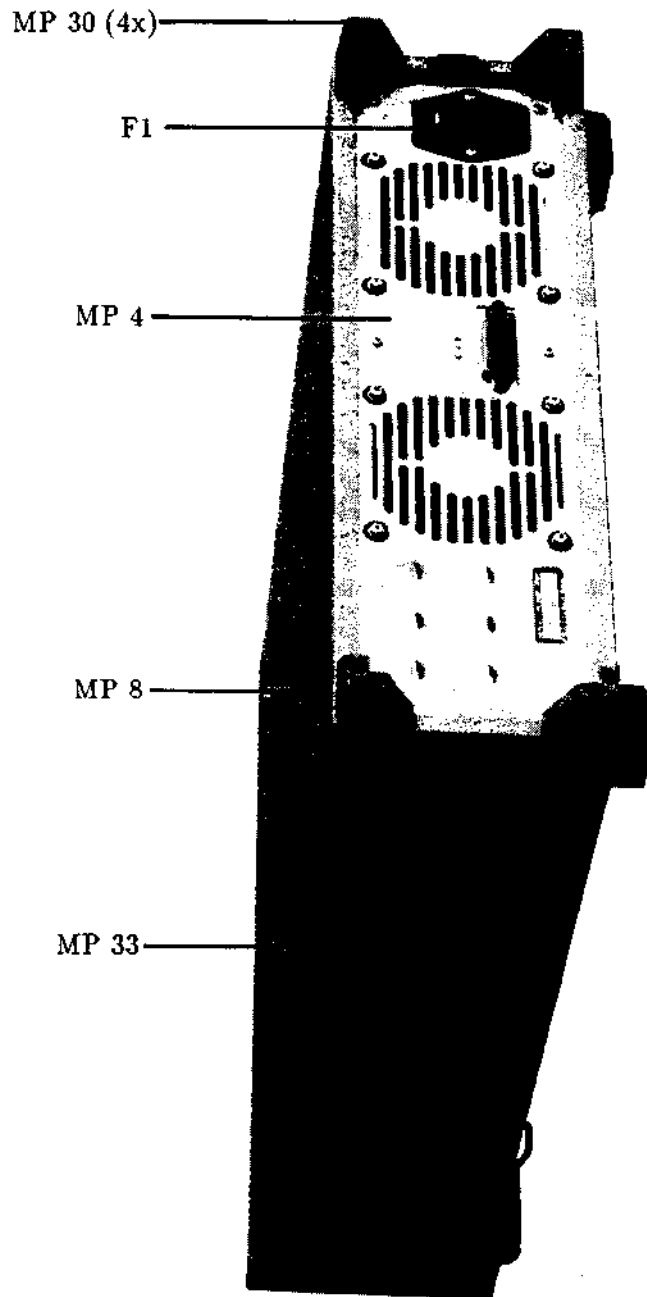


Figure 5-2. Parts Identification

5-6 Replaceable Parts

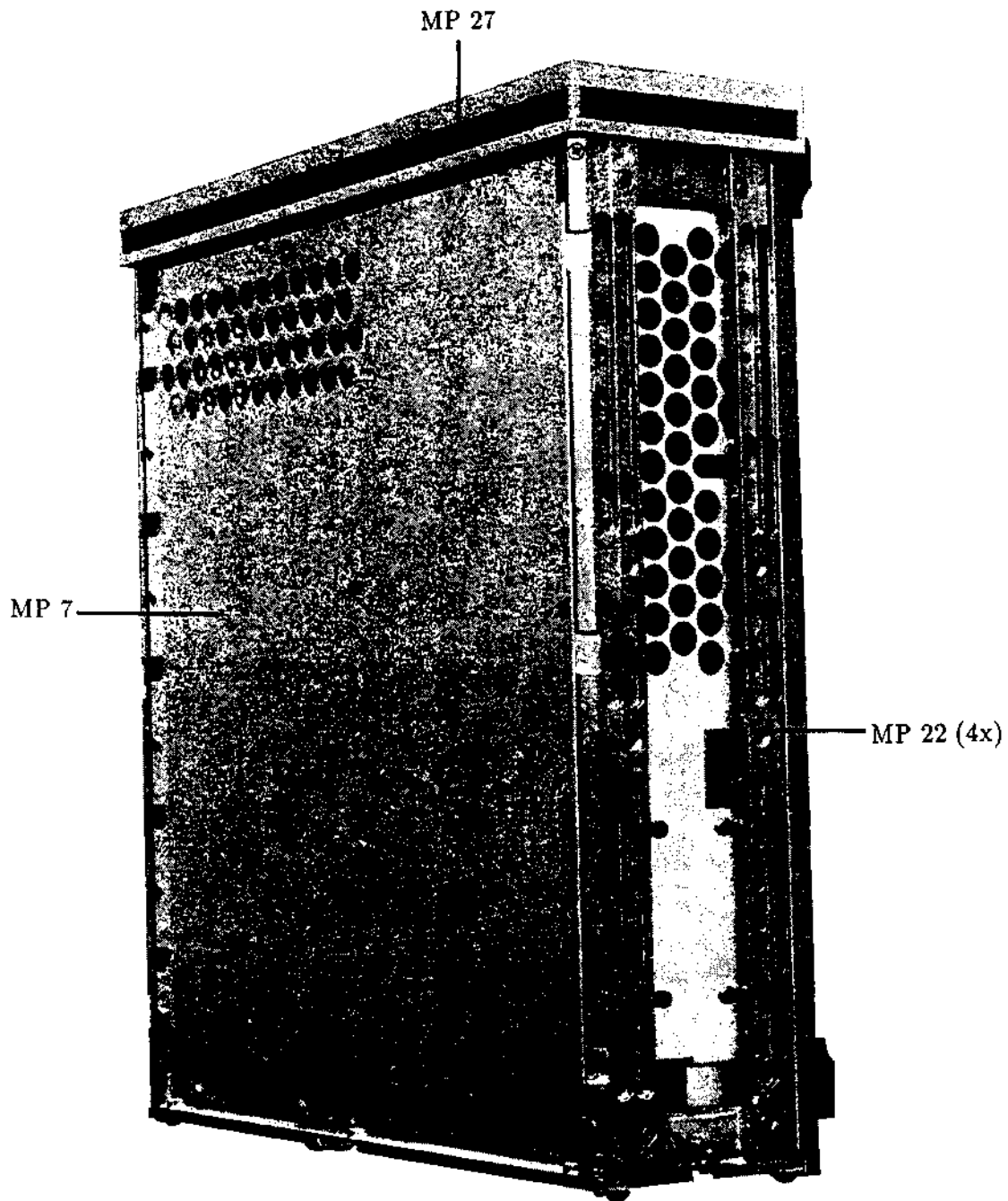


Figure 5-3. Parts Identification

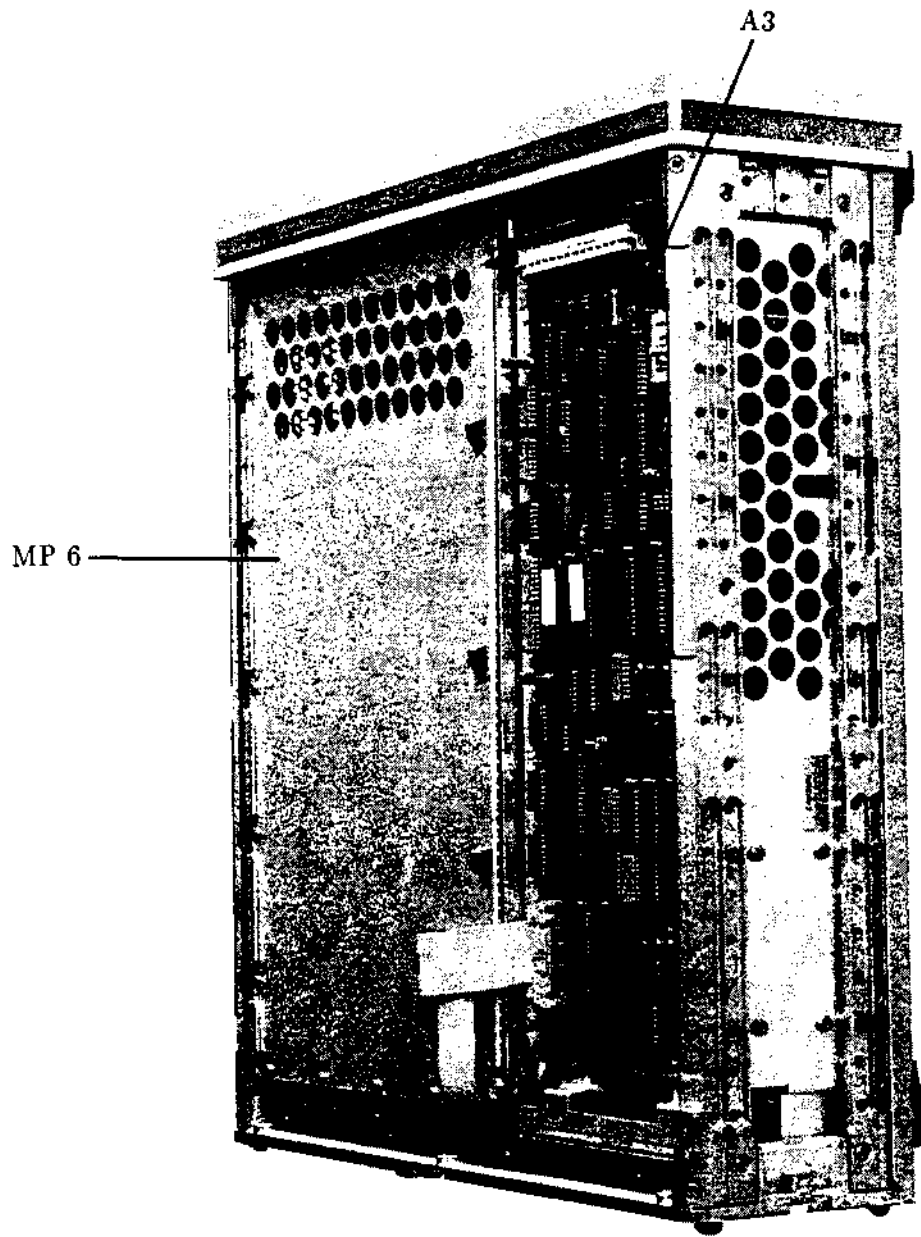


Figure 5-4. Parts Identification

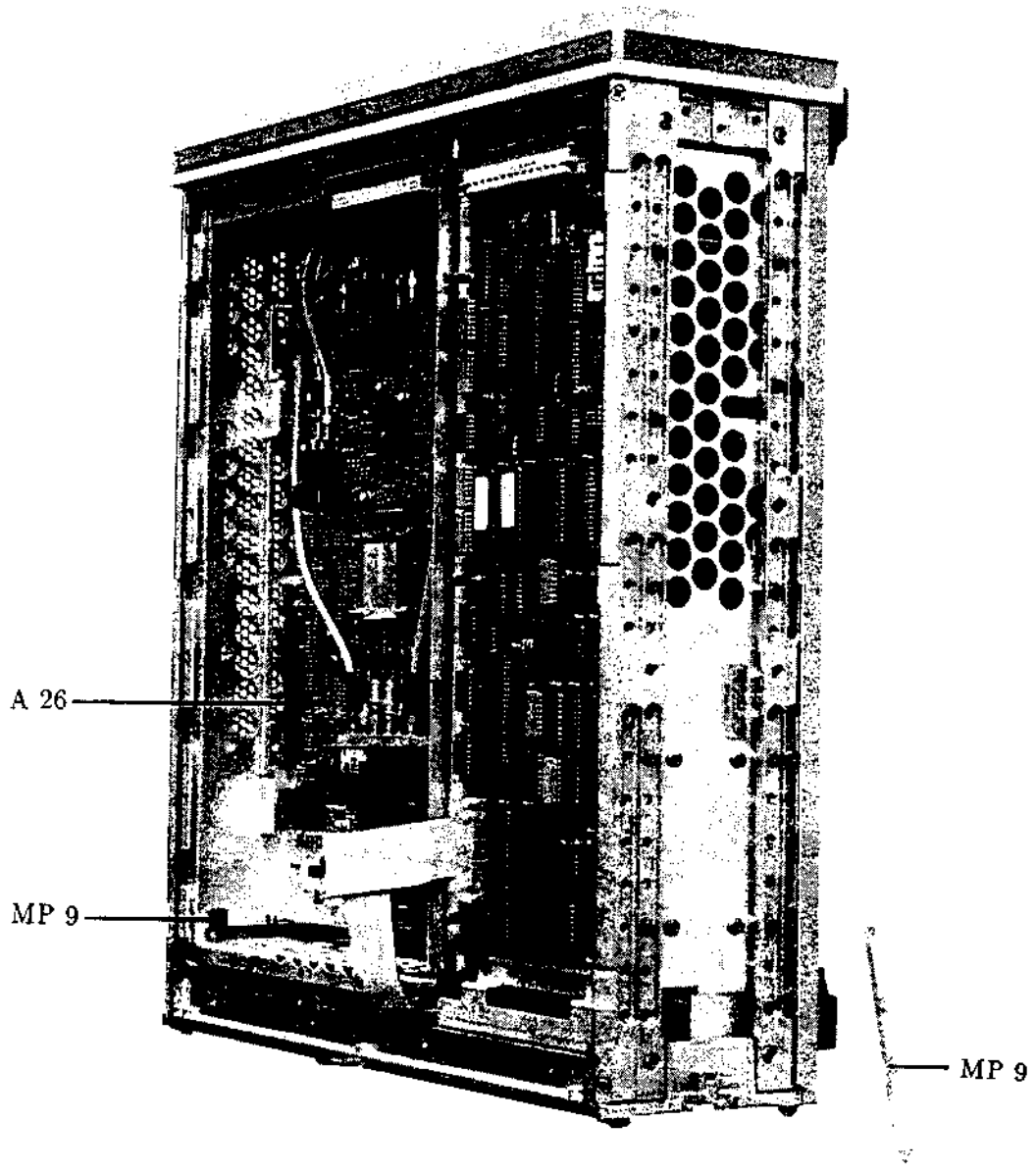


Figure 5-5. Parts Identification

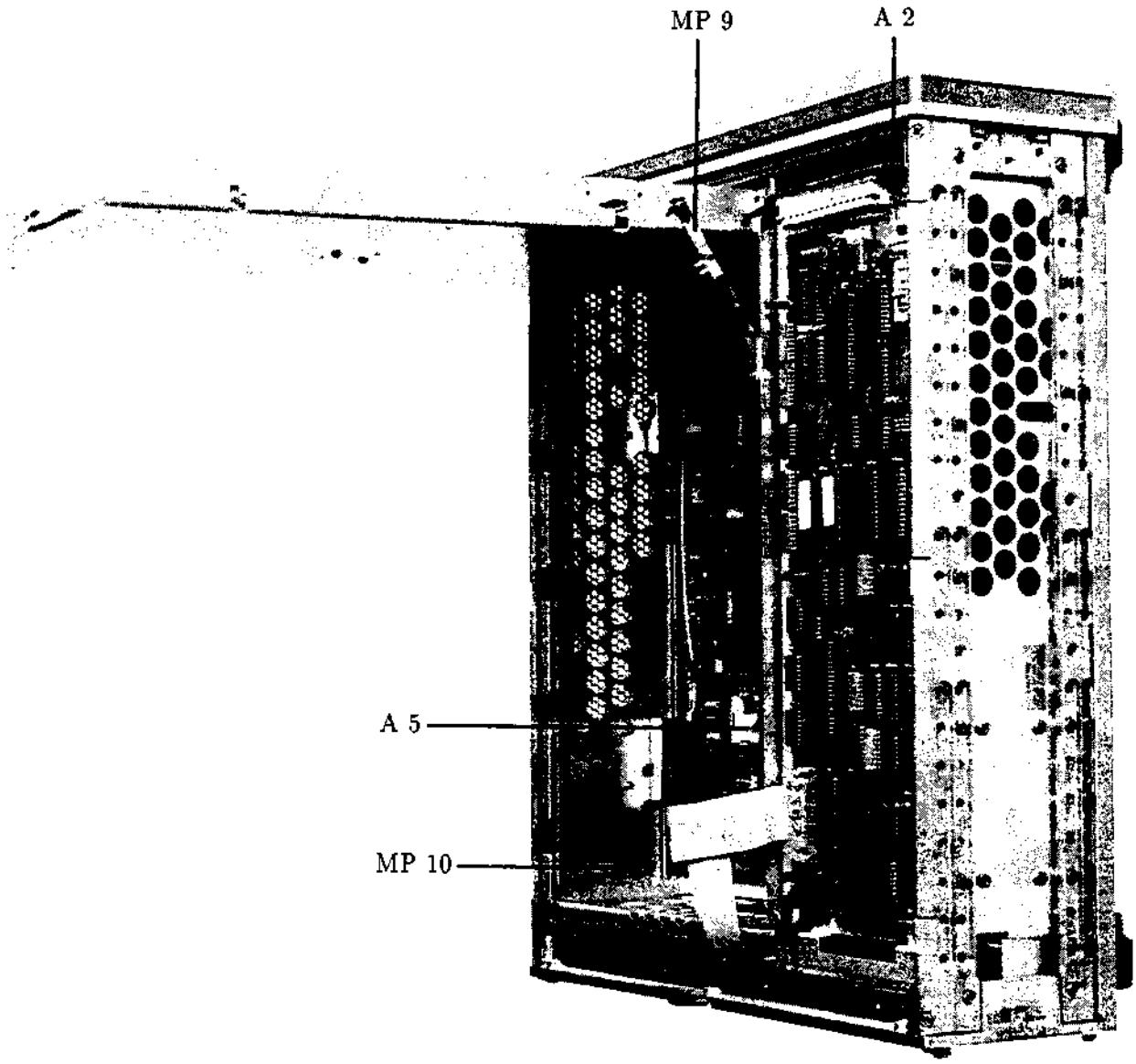


Figure 5-6. Parts Identification

5-10 Replaceable Parts

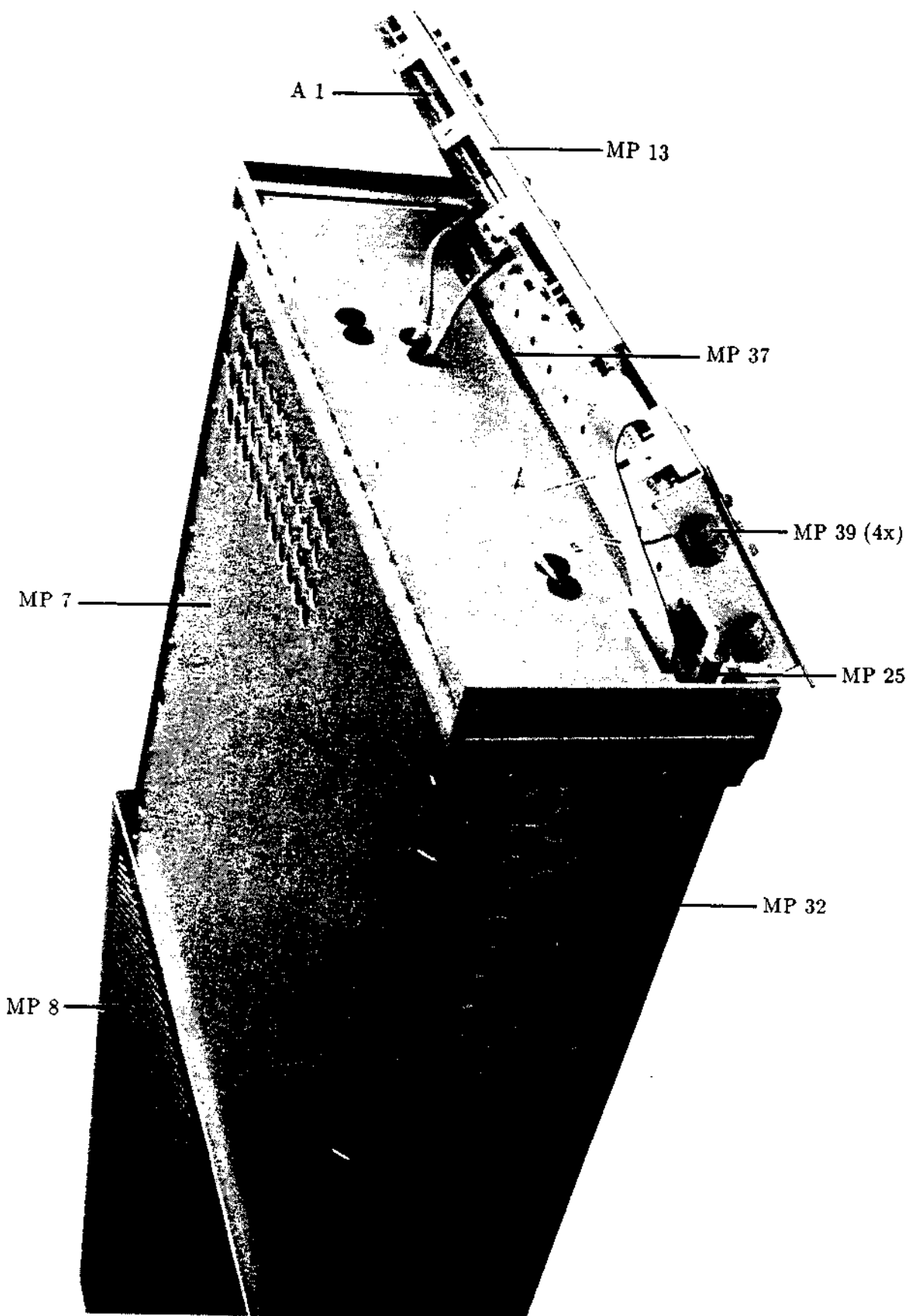


Figure 5-7. Parts Identification

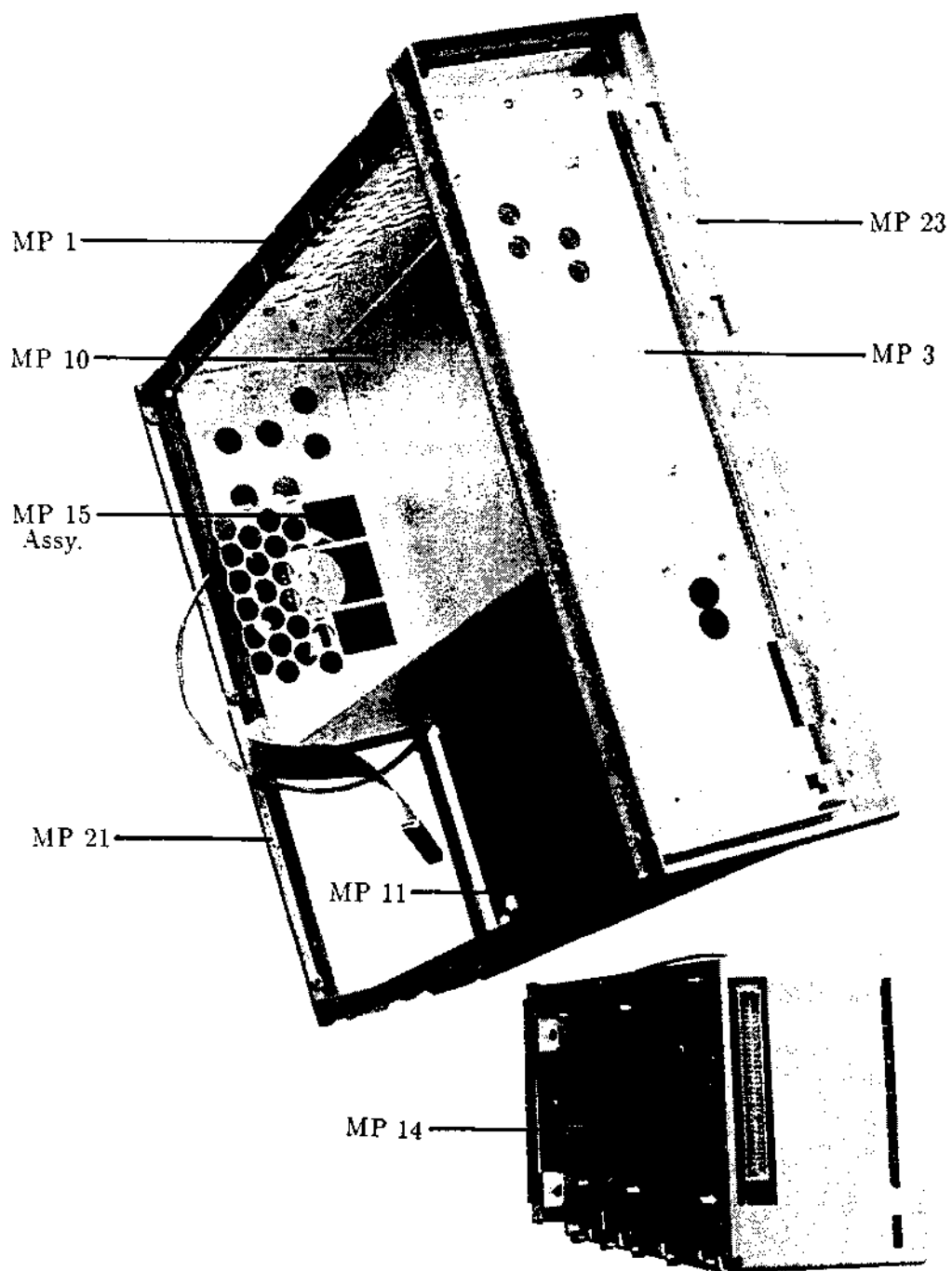


Figure 5-8. Parts Identification

5-12 Replaceable Parts

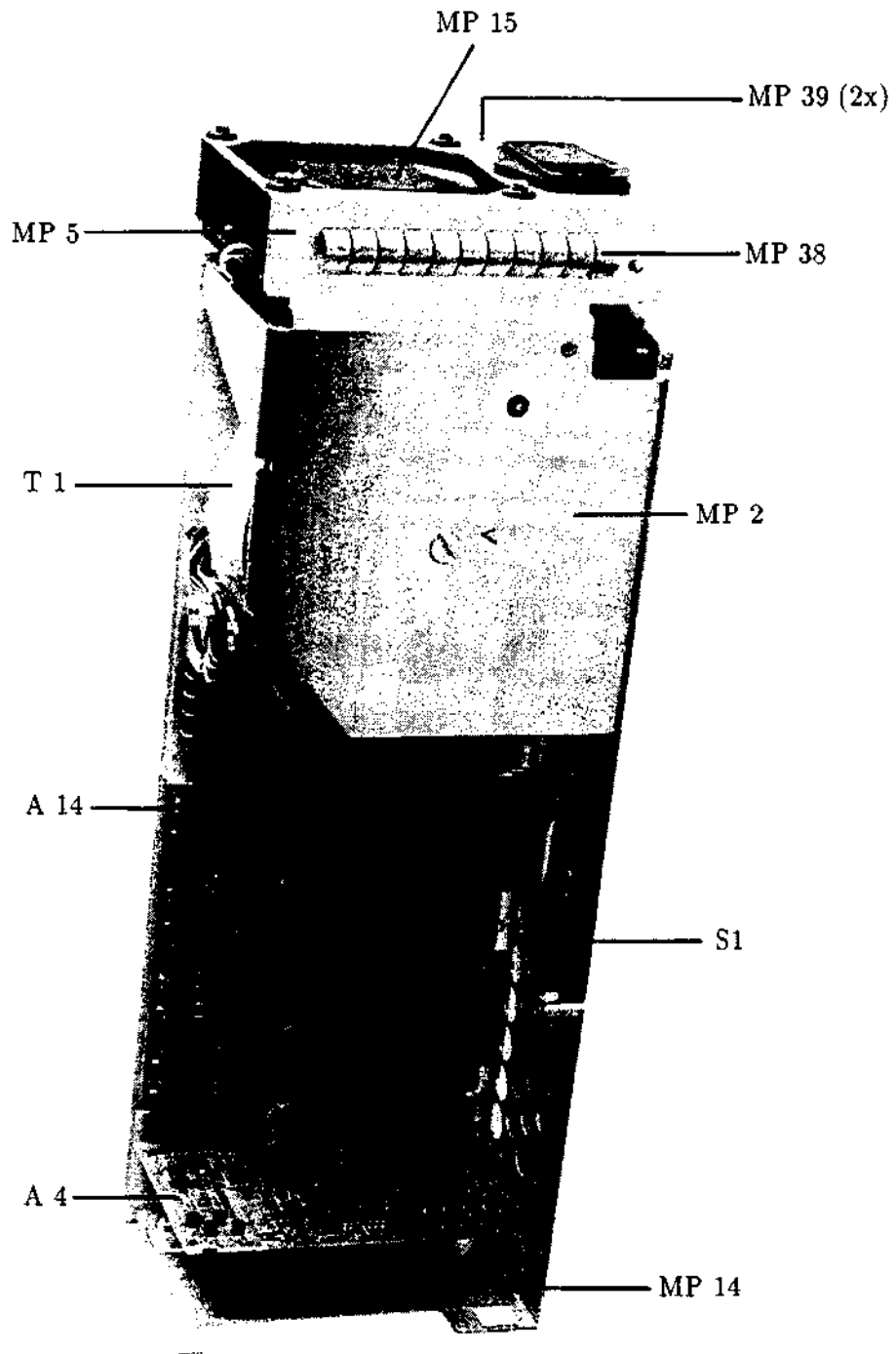


Figure 5-9. Parts Identification

Table 5-2. Replaceable Parts

Reference Designator	Part Description	HP 8130A Part Number	HP 8131A Part Number
W10-W13	Cable assy, Output	08130-61603	08131-61603
W3/W4	Cable assy, Trig Out	08130-61604	08131-61604
W5	Cable assy, Ext Inp	08130-61605	08131-61605
W6	Cable assy, Trigger Int		08131-61651
W1	Cable assy, HPIB	5180-2462	5180-2462
	Label, CAUTION	08131-44301	08131-44301
	Partition Set	08131-49301	08131-49301
	Plate, corrugated	08131-49302	08131-49302
	Bumper Foot	0403-0374	0403-0374
	Adhesive, (bumper foot)	0403-0285	0403-0285
A1	Board Assy, Key Std.	08130-66501	08131-66501
A1	Board Assy, Key (Opt 020)	08130-66521	08131-66521
MP3	Keycap, plain	5041-0309	5041-0309
MP4	Keycap, green	5041-0507	5041-0507
MP5	Keycap, LCL	5041-0726	5041-0726
MP1	Keycap, vernier	5041-4707	5041-4707
MP2	Keycap, lit	5041-0318	5041-0318
	LED Lamp	1990-1254	1990-1254
	Key switch, single	5060-9436	5060-9436
	7-segment Display	1990-1253	1990-1253
	LED light bar	1990-1252	1990-1252
	LED lamp	1990-1278	1990-1278
A2	Board Assy, Mother	08131-66502	08131-66502
	Connector, Din type	1252-0027	1252-0027
W1	Cable to Keyboard	08131-61601	08131-61601
	EMI fingers	8160-0392	8160-0392
A3	Board Assy, UPCR (CPU)	08130-66503	08131-66503
	EPROM 1 (U204)	08130-13701	08131-13707
	EPROM 2 (U205)	08130-13702	08131-13708
	LED Green	1990-0485	1990-0485
A4	Board, Power Control	08131-66504	08131-66504

Table 5-2. Replaceable Parts (continued)

Reference Designator	Part Description	HP 8130A Part Number	HP 8131A Part Number
A5	Board, Timing (Std.)	08130-66505	08131-66505
	Board, Timing (Opt 020)	08130-66525	08131-66525
	LED Lamp	1990-1278	1990-1278
A14	Board, Main Power	08131-66514	08131-66514
	Fuse, 10A 125V	2110-0456	2110-0456
S1	Switch 4A/80A	3101-2992	3101-2992
A26	Board, Output 1 (Std.)	08130-66526	08131-66526
A26	Board, Output 1 (Opt. 020)		08131-66527
A27	Board, Output 2 (Opt. 020)	08130-66527	
A28	Board, Output 2 (Opt. 020)		08131-66528
	Switch, SMA Co-ax	0955-0452	0955-0452
F1	Fuse, 3 A, 250 V	2110-0029	2110-0029
	Fuse, 1.5 A	2110-0304	2110-0304
MP1	Chassis, main	08130-00101	08131-00101
MP2	Angle, power	08131-00111	08131-00111
MP3	Sub Panel	08130-00202	08131-00202
MP4	Rear Panel	08130-00203	08131-00203
MP5	Bracket, fan	08131-01212	08131-01212
MP6	Cover, top Cardcage	08130-04101	08131-04101
MP7	Cover, top Cabinet	08131-04102	08131-04102
MP8	Cover, top Instrument	08131-04103	08131-04103
MP9	Board Keeper	08131-04107	08131-04107
MP10	Card Cage	08131-04501	08131-04501
MP13	Front Panel Std.	08130-40204	08131-40204
MP13	Front Panel Opt 020	08130-40201	08131-40201
MP14	Cage assy., Pwr	08131-60110	08131-60110
MP15	Fan Assembly	08131-68502	08131-68502
MP16	Key Cap (ON/OFF)	08180-47401	08180-47401
MP18	Cap Protective, Outp Connectors		1401-0202
MP19	Tilt Stand	1460-1345	1460-1345
MP20	Side Trim	5001-0539	5001-0539
MP21	Frame, rear	5021-5804	5021-5804
MP22	Strut, corner	5021-5837	5021-5837
MP23	Frame Front	5021-8403	5021-8403
MP24	Sleeve-blue	5040-0478	5040-0478
MP25	Shaft, power switch	5040-9319	5040-9319
MP26	Foot	5041-8801	5041-8801

Table 5-2. Replaceable Parts (continued)

Reference Designator	Part Description	HP 8130A Part Number	HP 8131A Part Number
MP27	Trim Strip, top	5041-8802	5041-8802
MP30	Foot, rear	5041-8821	5041-8821
MP31	Strap, handle	5062-3704	5062-3704
MP32	Cover, bottom	5062-3747	5062-3747
MP33	Cover, side, right	5062-3812	5062-3812
MP34	Cover, side, left	5062-3837	5062-3837
MP35	Button, plug	6960-0006	6960-0006
MP36	Label, Ground	7120-6153	7120-6153
MP39	EMI Fingers	8160-0392	8160-0392

Table 5-3. HP 8130A Exchange Items

Board Assy Part No.	Description	Exchange Assy Part No.
08130-66501	Keyboard assy Std.	component repair
08131-66502	Mother board assy.	throw away item
08130-66503	CPU board assy.	08130-69503
08131-66504	Pwr supply control bd. assy.	component repair
08130-66505	Timing board assy. Std.	08130-69505
08131-66514	Pwr supply main bd. assy.	component repair
08130-66521	Keyboard assy Opt. 020	component repair
08130-66525	Timing board assy. Opt. 020	08130-69525
08130-66526	Output board assy. Std. or Bd1	08130-69526
08130-66527	Output board assy. Opt. 020 (Bd2)	08130-69527

Table 5-4. HP 8131A Exchange Items

Board Assy Part No.	Description	Exchange Assy Part No.
08131-66501	Keyboard assy Std.	component repair
08131-66502	Mother board assy.	throw away item
08131-66503	CPU board assy.	08131-69503
08131-66504	Pwr supply control bd. assy.	component repair
08131-66505	Timing board assy. Std.	08131-69505
08131-66514	Pwr supply main bd. assy.	component repair
08131-66521	Keyboard assy Opt. 020	component repair
08131-66525	Timing board assy. Opt. 020	08131-69525
08131-66526	Output board assy. Std. (Bd1)	08131-69526
08131-66527	Output board assy. Opt. 020 (Bd1)	08131-69527
08131-66528	Output board assy. Opt. 020 (Bd2)	08131-69528

Instrument Block Diagrams

General

This chapter contains two overall block diagrams for the HP 8130A/HP 8131A instruments:

- Identifier Block Diagram
- Functional Block Diagram.

The diagrams provide an illustration of the interconnections and relationships, between the main assemblies and with the motherboard bus system.

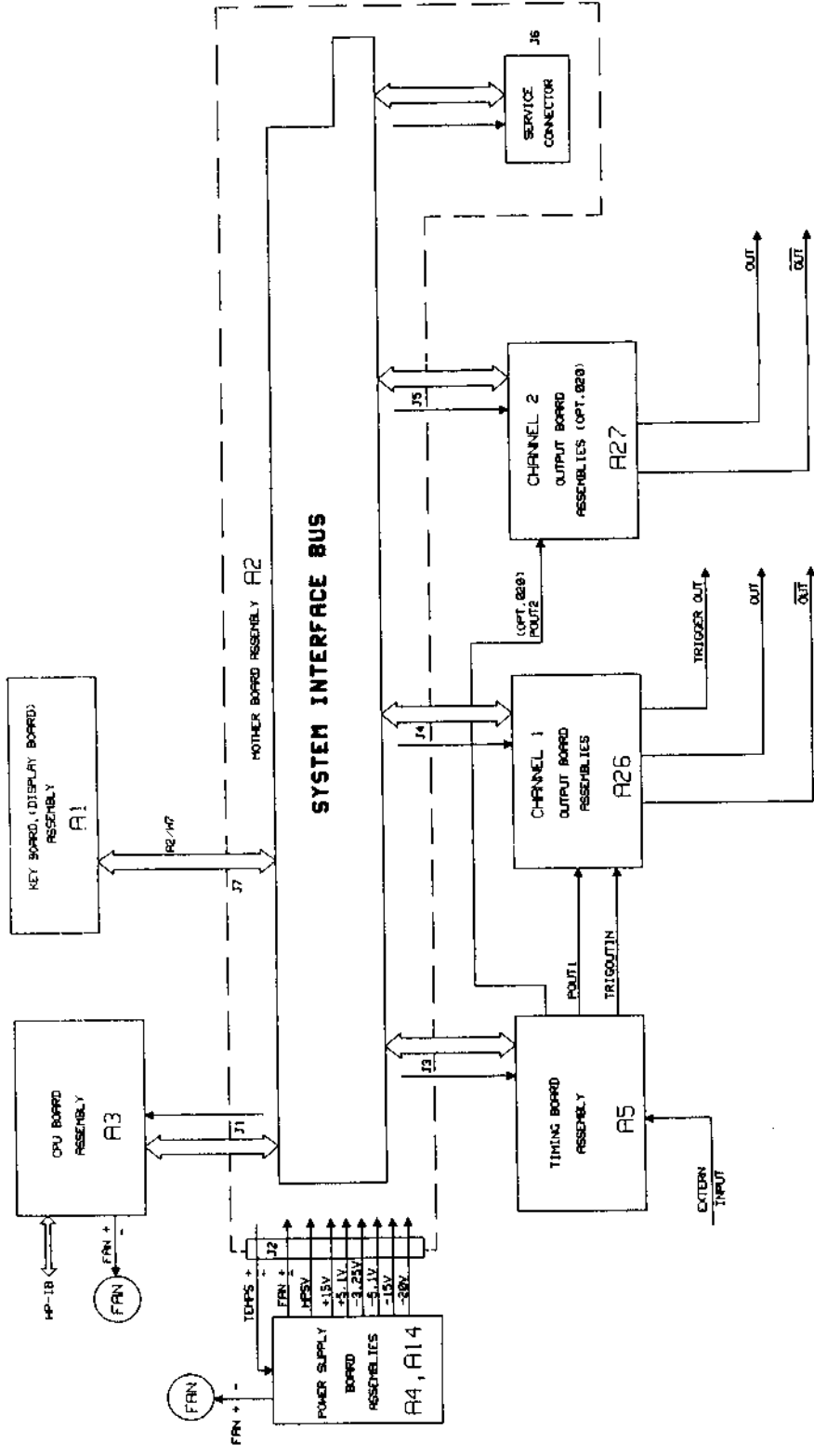
These block diagrams should be used to assist the isolation of a malfunction to a specific assembly or circuit board. Further location of malfunctions may then continue, by referring to the appropriate subsection of chapter 6 for further details.

Chapter 6 Subsection details

Chapter 6 is subdivided as follows:

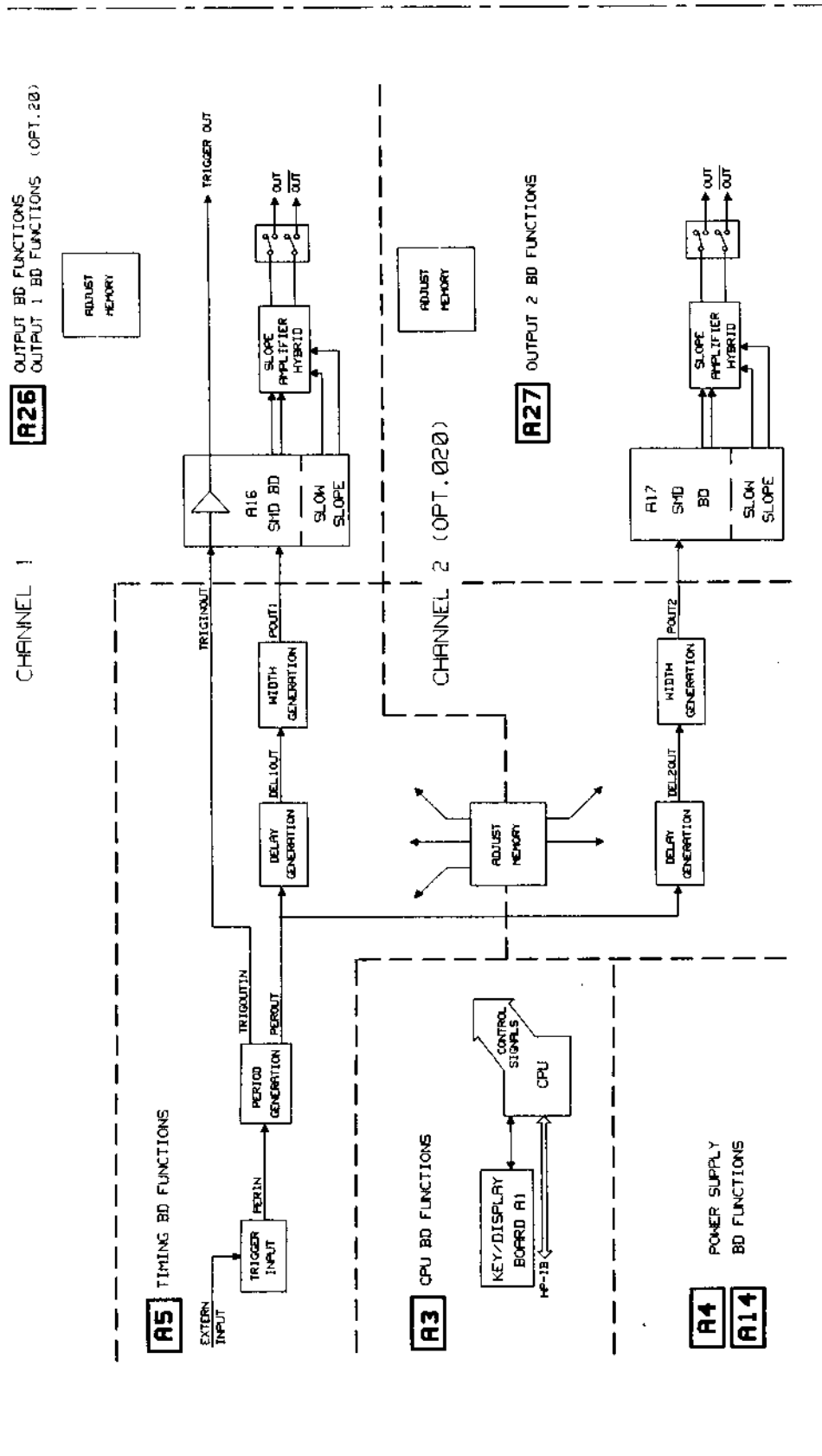
- Chapter 6-0 This chapter
- Chapter 6-1 Motherboard
- Chapter 6-2 Power Supply
- Chapter 6-3 CPU board
- Chapter 6-4 Timing board
- Chapter 6-5 HP 8130A Output board
- Chapter 6-6 HP 8131A Output board
- Chapter 6-7 Troubleshooting

BLOCK DIAGRAM IDENTIFIER



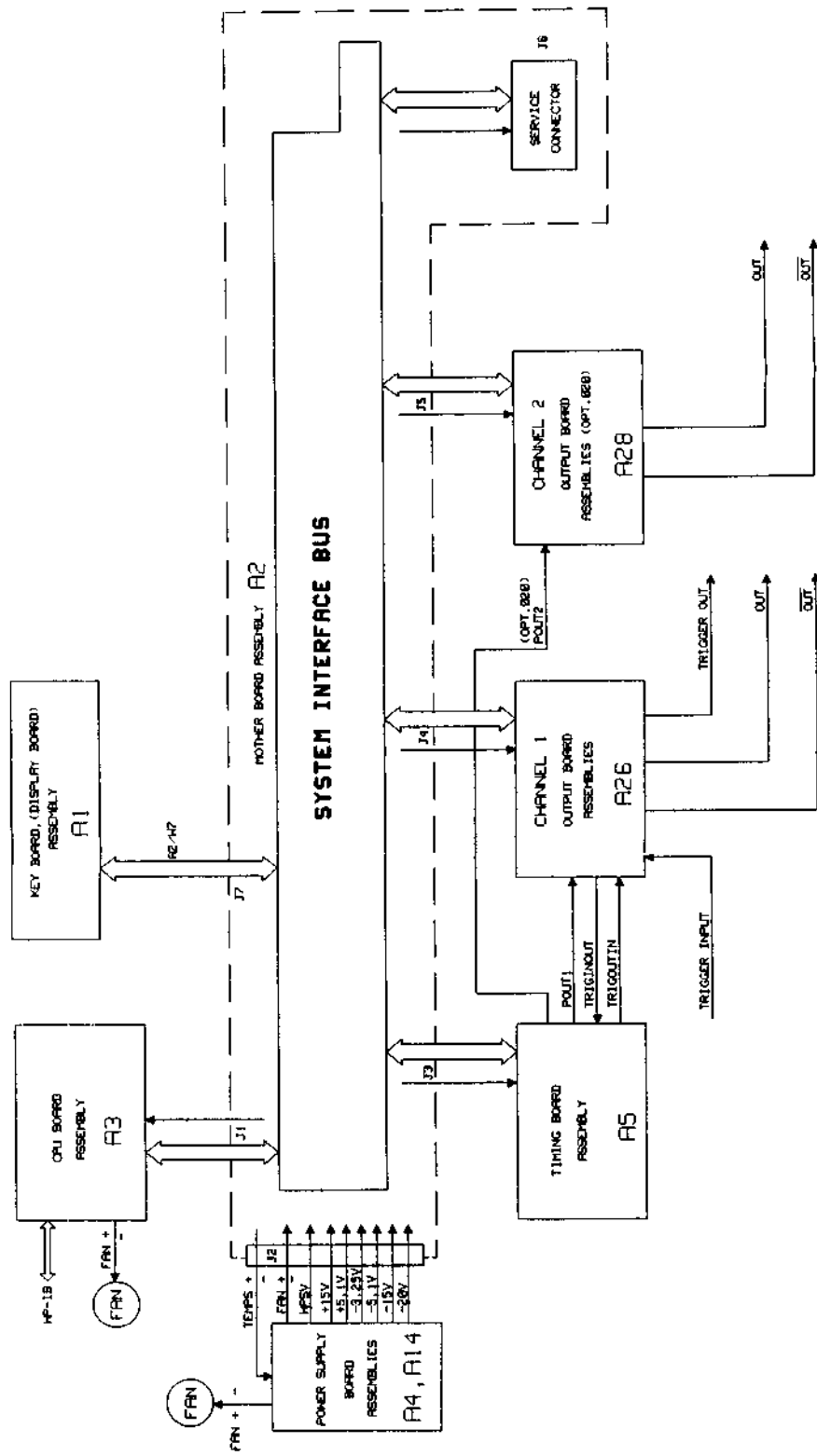
MODEL HP8138B
IDENTIFIER BLOCK DIAGRAM
INSTRUMENT BLOCK DIAGRAM 6.0-3

BLOCK DIAGRAM FUNCTIONAL



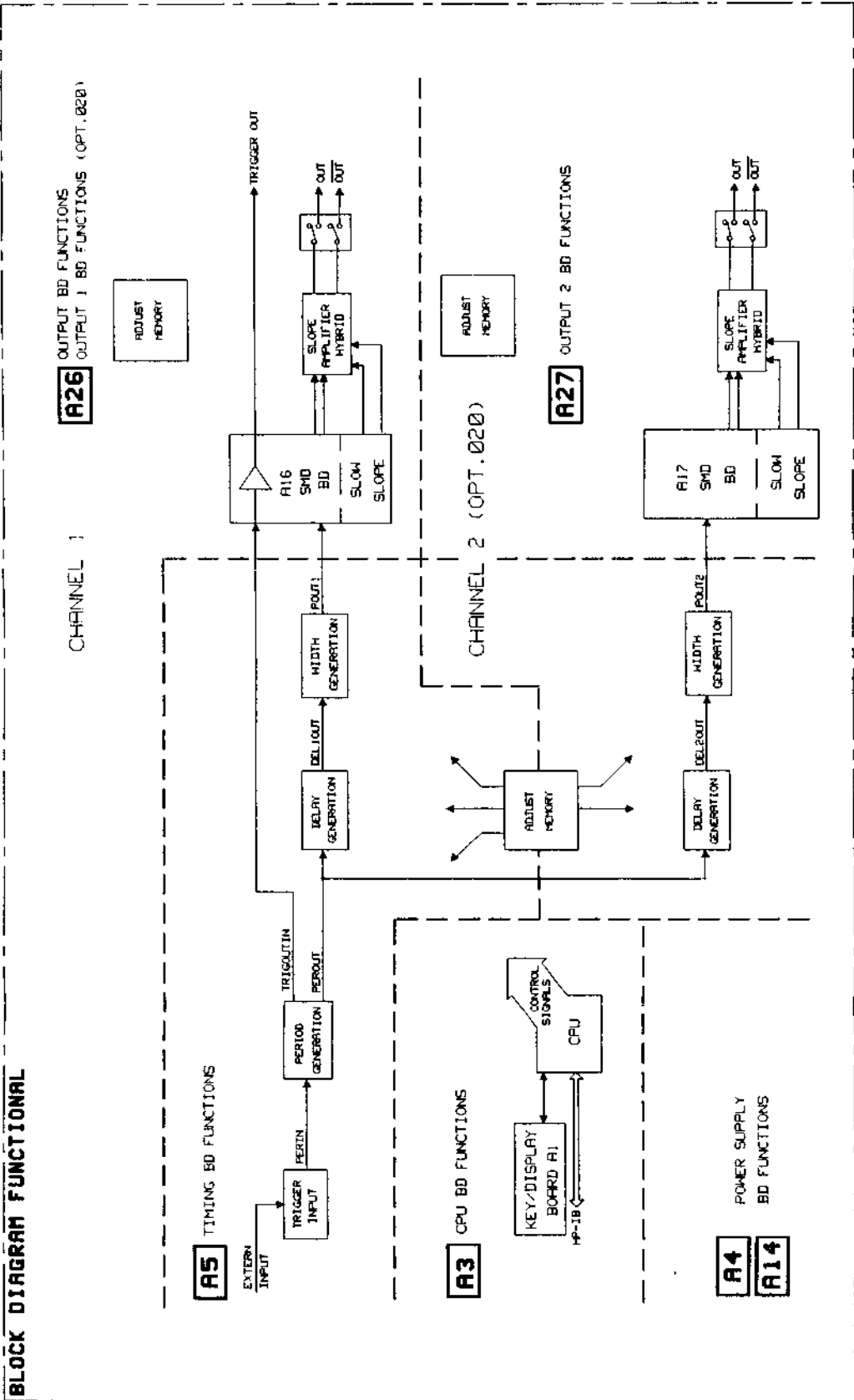
MODEL HP8130B
IDENTIFIER BLOCK DIAGRAM
INSTRUMENT BLOCK DIAGRAM 6.0-2
FIGURE 6.0-2
6.0-4

BLOCK DIAGRAM IDENTIFIER



MODEL HPB131A
IDENTIFIER BLOCK DIAGRAM
INSTRUMENT BLOCK DIAGRAM

BLOCK DIAGRAM FUNCTIONAL



MODEL HP8131A
IDENTIFIER BLOCK DIAGRAM
INSTRUMENT BLOCK DIAGRAM 5.0-6

Motherboard (A2)

Motherboard

All boards are interconnected via the motherboard. The connector identities and the devices that they connect to the motherboard, are listed in the table below.

Table 6-1-1. motherboard Connectors

Connector	Device
J1	CPU board
J2	power supply board
J3	timing board - slot 0 (lowest position)
J4	output board, channel 1 - slot 1
J5	output board, channel 2 - slot 2
J6	service connector - slot 3
J7	keyboard

Special Interconnections

- Two lines from the temperature sensor to power supply connector (TEMPS+ and TEMPS-). The temperature sensor is located inside the card cage next to slot 0
- Two lines from the power supply connector to the CPU board connector for the two fans (FAN+ and FAN-).
- One line from the power supply connector to the CPU board connector (HPSV).
- Slot recognition - LCEN on pin 24a of each signal board as follows:
 - slot 0 - LCS0 pin 10a on CPU board
 - slot 1 - LCS1 pin 10c on CPU board
 - slot 2 - LCS2 pin 11a on CPU board
 - slot 3 - LCS3 pin 11c on CPU board
- -3.25V SENS from the power supply connector pin 14c to pin 8a on slots 0 and 3.

Grounds

- DGND - ground for CPU board and keyboard only
 - AGND - ground for signal boards:
 - timing board
 - output board channels 1 and 2
 - service connector
 - RGND - reference ground for DACs and ADCs on the above signal boards
 - SHGND - shield-ground, no current.
- DGND, AGND, RGND, and SHGND are commoned on the power supply board.

Voltages

- +5.1 V DIG - for CPU board and keyboard only
 - +5.1 V ANA - for signal boards only
- +5.1 V DIG and +5.1 V ANA are commoned on the power supply board.

Table 6-1-2. Pin definitions on Motherboard: Signal and Service Connectors

Pin	Row c	Row a
1	NC	NC
2	-20 V	-20 V
3	-15 V	-15 V
4	-15 V	-15 V
5	-5.1 V	-5.1 V
6	-5.1 V	-5.1 V
7	-5.1 V	-5.1 V
8	-3.25 V	-3.25 V SENS
9	-3.25 V	-3.25 V
10	-3.25 V	-3.25 V
11	-3.25 V	-3.25 V
12	AGND	AGND
13	AGND	AGND
14	AGND	AGND
15	AGND	AGND
16	AGND	AGND
17	AGND	AGND
18	AGND	AGND
19	AGND	AGND
20	RGND	RGND
21	+15 V	+15 V
22	+5.1 V ANA	+5.1 V ANA
23	SHGND	SHGND
24	LDRQ	LCEN
25	HDD6	HDD7
26	HDD4	HDD5
27	HDD2	HDD3
28	HDD0	HDD1
29	LRHW	LDBV
30	HDA4	HDA5
31	HDA2	HDA3
32	HDA0	HDA1

Table 6-1-3. Pin definitions on Motherboard: CPU Board Connector

Pin	Row c	Row a
1	HDA1	HDA0
2	HDA3	HDA2
3	HDA5	HDA0
4	LDBV	LRHW
5	HDD1	HDD0
6	HDD3	HDD2
7	HDD5	HDD4
8	HDD7	HDD6
9	HPSV	LDRQ
10	LCS1	LCS0
11	LCS3	LCS2
12	SHGND	SHGND
13	+5.1 V DIG	+5.1 V DIG
14	+5.1 V DIG	+5.1 V DIG
15	+5.1 V DIG	+5.1 V DIG
16	+5.1 V DIG	+5.1 V DIG
17	DGND	DGND
18	DGND	DGND
19	DGND	DGND
20	DGND	DGND
21	FAN-	FAN+
22	NC	NC
23	SL2	SL3
24	SL0	SL1
25	RL6	RL7
26	RL4	RL5
27	RL2	RL3
28	RL0	RL1
29	S6	S7
30	S4	S5
31	S2	S3
32	S0	S1

Table 6-1-4. Pin definitions on Motherboard: Power Supply Connector

Pin	Row c	Row a
1	FAN-	FAN+
2	TEMPS-	TEMPS+
3	NC	NC
4	-20 V	-20 V
5	-20 V	-20 V
6	-15 V	-15 V
7	-15 V	-15 V
8	-5.1 V	-5.1 V
9	-5.1 V	-5.1 V
10	-5.1 V	-5.1 V
11	-3.25 V	-3.25 V
12	-3.25 V	-3.25 V
13	-3.25 V	-3.25 V
14	-3.25 V SENS	-3.25 V
15	AGND	AGND
16	AGND	AGND
17	AGND	AGND
18	AGND	AGND
19	AGND	AGND
20	AGND	AGND
21	AGND	AGND
22	AGND	AGND
23	AGND	AGND
24	RGND	RGND
25	DGND	DGND
26	DGND	DGND
27	+5.1 V DIG	+5.1 V DIG
28	+5.1 V DIG	+5.1 V DIG
29	+5.1 V ANA	+5.1 V ANA
30	+5.1 V ANA	+5.1 V ANA
31	+5.1 V	+5.1 V
32	+5.1 V	+5.1 V

Table 6-1-5. Pin definitions on Motherboard: Power Supply Connector

Pin	Row a
1	S0
2	S1
3	S2
4	S3
5	S4
6	S5
7	S6
8	S7
9	RL0
10	RL1
11	RL2
12	RL3
13	RL4
14	RL5
15	RL6
16	RL7
17	SL0
18	SL1
19	SL2
20	SL3
21	DGND
22	DGND
23	+5.1 V DIG
24	+5.1 V DIG
25	SHGND
26	SHGND

POWER SUPPLY BOARD
A4/A14 J2

PIN	a	b	c
1	N.C.	FAN+	FAN-
2	-20V	N.C.	TEMP-
3	-15V	N.C.	TEMP+
4	-15V	-20V	-20V
5	-5.1V	-15V	-15V
6	-5.1V	-15V	-15V
7	-5.1V	-5.1V	-5.1V
8	-5.1V	-5.1V	-5.1V
9	-3.25V	-5.1V	-5.1V
10	-3.25V	-5.1V	-5.1V
11	-3.25V	-3.25V	-3.25V
12	-3.25V	-3.25V	-3.25V
13	-3.25V	-3.25V	-3.25V
14	AGND	-3.25V	-3.25V
15	AGND	-3.25V	-3.25V
16	AGND	AGND	AGND
17	AGND	AGND	AGND
18	AGND	AGND	AGND
19	AGND	AGND	AGND
20	AGND	AGND	AGND
21	+5.1VANA	AGND	AGND
22	+5.1VANA	AGND	AGND
23	SHGND	AGND	SHGND
24	H001	AGND	AGND
25	H002	AGND	AGND
26	H003	AGND	AGND
27	H004	AGND	AGND
28	H005	AGND	AGND
29	H006	AGND	AGND
30	H007	AGND	AGND
31	H008	AGND	AGND
32	HDA1	AGND	AGND

SIGNAL + SERVICE CONN.
A5/A6/A26 J3 - J6

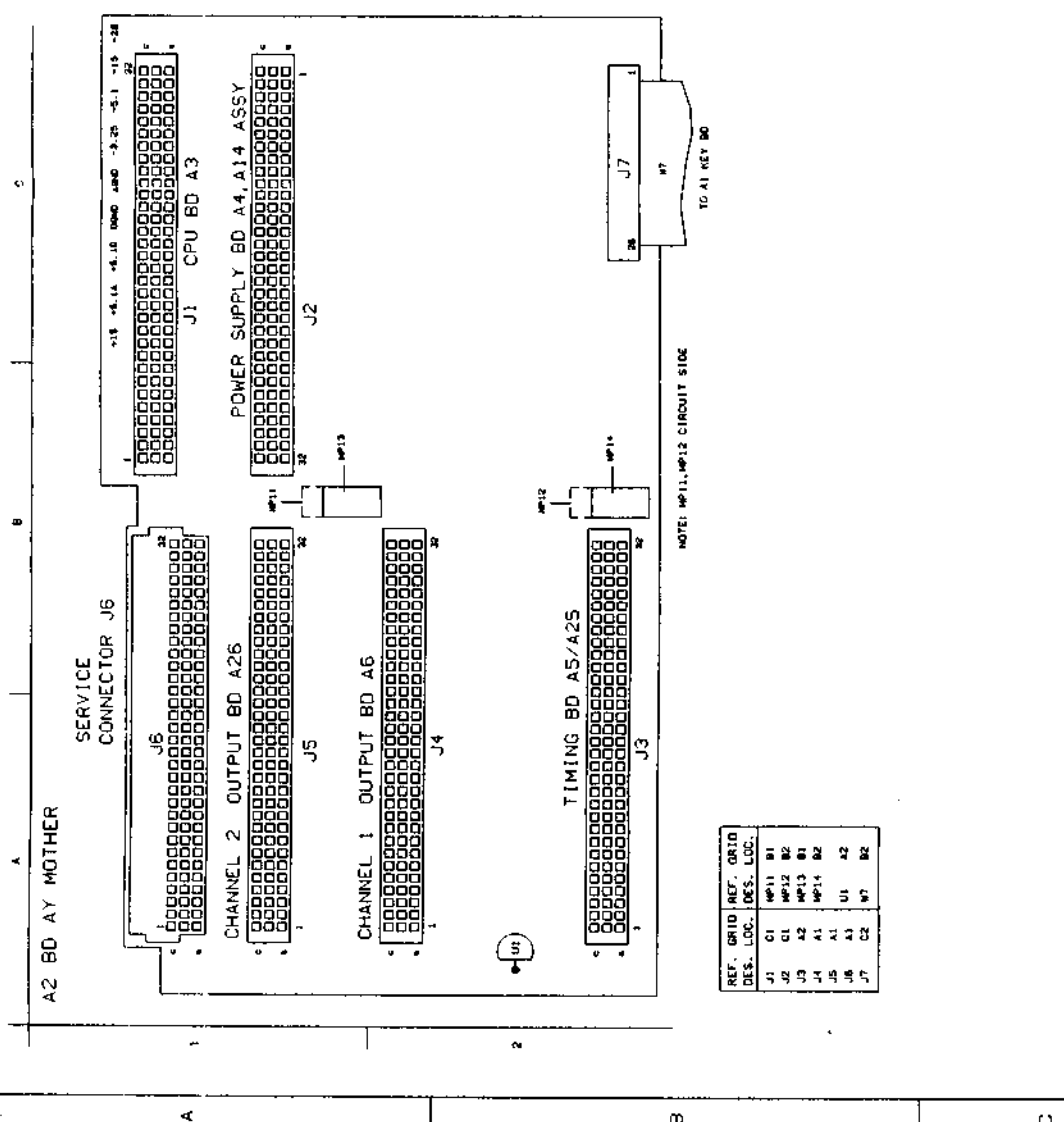
PIN	a	b	c
1	N.C.	N.C.	N.C.
2	-20V	-20V	-20V
3	-15V	-15V	-15V
4	-15V	-15V	-15V
5	-5.1V	-5.1V	-5.1V
6	-5.1V	-5.1V	-5.1V
7	-5.1V	-5.1V	-5.1V
8	-5.1V	-5.1V	-5.1V
9	-3.25V	-3.25V	-3.25V
10	-3.25V	-3.25V	-3.25V
11	-3.25V	-3.25V	-3.25V
12	-3.25V	-3.25V	-3.25V
13	AGND	AGND	AGND
14	AGND	AGND	AGND
15	AGND	AGND	AGND
16	AGND	AGND	AGND
17	AGND	AGND	AGND
18	AGND	AGND	AGND
19	AGND	AGND	AGND
20	AGND	AGND	AGND
21	+5.1VANA	+5.1VANA	+5.1VANA
22	+5.1VANA	+5.1VANA	+5.1VANA
23	SHGND	SHGND	SHGND
24	H001	H001	H001
25	H002	H002	H002
26	H003	H003	H003
27	H004	H004	H004
28	H005	H005	H005
29	H006	H006	H006
30	H007	H007	H007
31	H008	H008	H008
32	HDA1	HDA1	HDA1

KEY BOARD
A1 J7

PIN	a	b	c
1	S0	S0	S0
2	S1	S1	S1
3	S2	S2	S2
4	S3	S3	S3
5	S4	S4	S4
6	S5	S5	S5
7	S6	S6	S6
8	S7	S7	S7
9	RL0	RL0	RL0
10	RL1	RL1	RL1
11	RL2	RL2	RL2
12	RL3	RL3	RL3
13	RL4	RL4	RL4
14	RL5	RL5	RL5
15	RL6	RL6	RL6
16	RL7	RL7	RL7
17	SL0	SL0	SL0
18	SL1	SL1	SL1
19	SL2	SL2	SL2
20	SL3	SL3	SL3
21	DDND	DDND	DDND
22	DDND	DDND	DDND
23	DDND	DDND	DDND
24	DDND	DDND	DDND
25	SHGND	SHGND	SHGND
26	SHGND	SHGND	SHGND

CPU BOARD
A3 J1

PIN	a	b	c
32	S1	S0	S0
31	S3	S2	S2
30	S5	S4	S4
29	S7	S6	S6
28	RL1	RL0	RL0
27	RL3	RL2	RL2
26	RL5	RL4	RL4
25	RL7	RL5	RL5
24	SL1	SL0	SL0
23	SL3	SL2	SL2
22	SL5	SL4	SL4
21	DDND	DDND	DDND
20	DDND	DDND	DDND
19	DDND	DDND	DDND
18	DDND	DDND	DDND
17	DDND	DDND	DDND
16	DDND	DDND	DDND
15	DDND	DDND	DDND
14	DDND	DDND	DDND
13	DDND	DDND	DDND
12	DDND	DDND	DDND
11	DDND	DDND	DDND
10	DDND	DDND	DDND
9	DDND	DDND	DDND
8	DDND	DDND	DDND
7	DDND	DDND	DDND
6	DDND	DDND	DDND
5	DDND	DDND	DDND
4	DDND	DDND	DDND
3	DDND	DDND	DDND
2	DDND	DDND	DDND
1	DDND	DDND	DDND



REF. GRID	REF. ORIO	DES. LOC.	DES. LOC.
J1	U1	MP11	W1
J2	U1	MP12	B2
J3	A2	MP13	B1
J4	A1	MP14	B2
J5	A1	U1	A2
J6	A1	U1	W1
J7	C2	U1	B2

2

MODEL MP6131A
FIGURE 6-1-1
MOTHERBOARD COMPONENT LAYOUT
6-1-7

Power Supply (A14)

Introduction

The power supply operates as an analog series regulator. Its main features are:

- primary 4-voltage tapping transformer
- additional secondary tapping, twice at each output level
- Schottky power rectifiers
- power MOSFETs with low resistance when on.

Block Theory of Operation

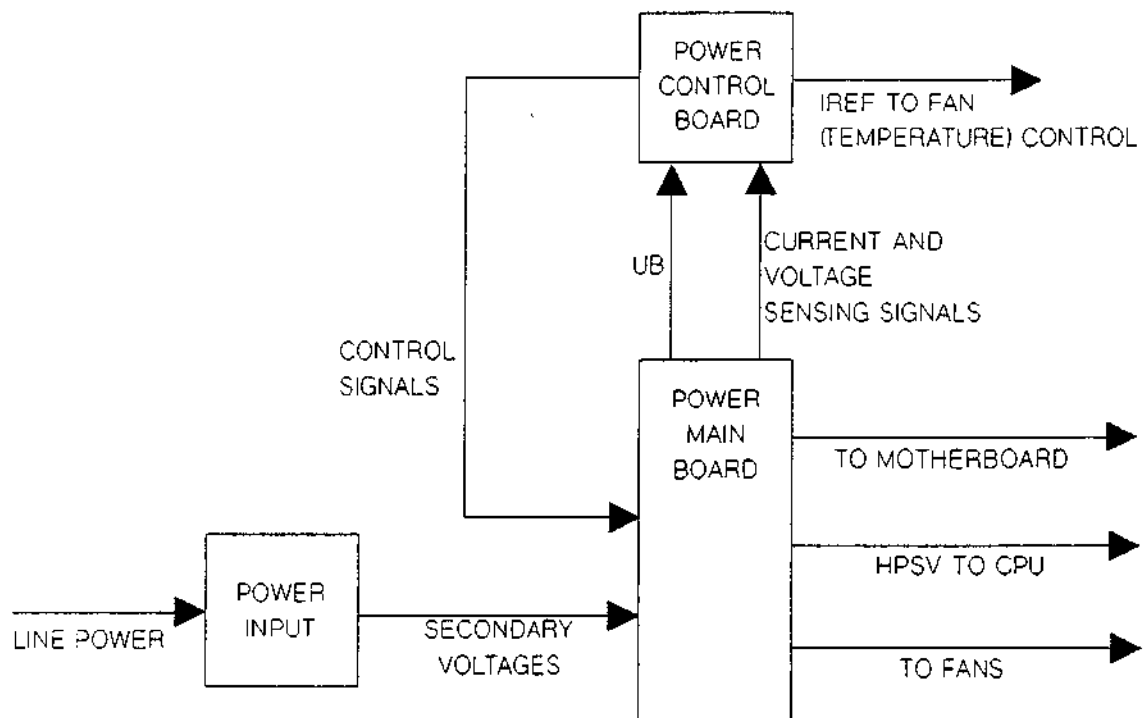


Figure 6-2-1. Modular Block Diagram

The following paragraphs contain basic block level theory of operation. A more detailed theory of operation follows after this section.

The power supply consists of three functional blocks:

- power input that includes a 50/60 Hz transformer
- power main board
- power control board.

Power Input

This block is responsible for:

- filtering the line voltage
- fusing
- selection
- on/off switching
- transforming the primary voltages to secondary voltage levels.

Power Main Board

This block is responsible for:

- rectification
- filtering
- series regulation of all secondary voltages and transmitting them to the motherboard
- generating the voltage and current sensing signals
- generating the control power +UB and transmitting it to the power control board
- fan control circuit
- power-on reset circuit which generates the HPSV signal to reset the MPU.

Power Control Board

This board is supplied from the power main board with:

- the control power +UB
- the voltage and current sensing signals.

It is responsible for:

- generating the required reference voltages and gate control signals. This enables the power main board to carry out voltage regulation (with foldback current limiting) and selection of secondary winding taps.
- supplying the reference current for the fan control circuit on the power main board.

Power Outputs

The power supply provides the following outputs:

- -3.25 V, 3.5 A
- -5.1 V, 1.5 A
- +5.1 V, 2.7 A
- -15 V, 2.2 A
- +15 V, 1.8 A
- -20 V, 1.0 A
- fan(+) & (-) voltages
- HPSV:
 - >4.35 V, 1.16 mA at +5.1 V > 4.85 V
 - <0.40 V, 0.05 mA at +5.1 V < 4.85 V

Power Input

The AC line voltage is applied to the power input module F1 which consists of a:

- line filter for filtering RFI from the AC line voltage
- line fuse F1
- line voltage selector for 100/120/220/240 VAC operation.

The mains on/off switch S1, isolates the input power from the voltage selector. Depending on the voltage selector setting, the primary windings of the transformer are connected in one of the following four modes:

1. **100 V:** the two 120 V windings are connected in parallel, but power is supplied to the 100 V tapping (A) - orange wire.
2. **120 V:** the two 120 V windings are connected in parallel and power is supplied to them (C), (D) - black, black-green wires.
3. **220 V:** the two 120 V windings are connected in series but power is supplied to the 100 V tapping (A) - orange wire.
4. **240 V:** the two 120 V windings are connected in series power is supplied to (C) - black wire.

Caution



It is important to set the voltage selector according to the nominal line voltage supply. This is to prevent:

- malfunction if the supply voltage is too low
- high power losses or blowing of fuse if the supply voltage is too high.

The transformer secondary windings are center tapped, and provide an additional high/low tapping for each of the four output voltage levels. They are all connected to the power main board.

Power Main Board

Regulation circuits are the same for all six output voltages, therefore only a description for the +15 V supply is given here.

+15 V Regulation

There are two complete regulation paths. They are applied together to:

- have a common output at J1(31A,C; 32A,C)
- have a common control by feedback signals generated at R113
- supply the power control board with:
 - a voltage sensing signal +15 V fed to J3(14) - X3(14)
 - a current sensing signal R+15 fed to J3(15) - X3(15)

The high tapping path is formed by:

- the Red 3 and Blue 3 wires of T1, J7(2,4)
- Schottky power diodes, CR101 and CR102, for full wave rectification
- filtering capacitor C101
- series voltage regulation via the power MOSFET Q101

The gate of Q101, is controlled by the voltage drop across R101, which is produced by controlling the current signal G+15H, from the power control board. Q101 is turned off when there is:

- no control current
- control current producing a voltage drop below the gate threshold voltage.

The low tapping path acts in a similar manner with the following components:

- Red 4 and Blue 4 wires of T1, J7(1,3)
- CR103 and CR104
- C102
- Q102
- R102

The unregulated low tapping path voltage UL+15 is fed, via J3(6) and X3(6), to the power control board. The function of this path is to select which tapping path is active (sometimes both). Line voltage tolerance, and to some degree the load state, determine which tapping path is active.

Generally, the high tapping is active at a line voltage that is below the nominal value, but still within tolerance. Low tapping is active when the line voltage is above the nominal value, but still within tolerance. Both are active at around nominal line voltage. This keeps series regulator voltage drop and power losses as low as possible.

Control Power +UB

The high tapping AC voltage (from T1 wires Red 1 and Blue 1) is used by diodes CR123 and CR124 to generate +UB. This unregulated voltage is applied to the power control board via J3(19).

Power-on Reset

This circuit provides correct resetting of the MPU during power on, power off and fail, by:

- monitoring the +5.1 V output with U101
- supplying the HPSV signal to the MPU via J1(3C).

The threshold voltage is approximately +4.85 V at R119. If the +5.1 V supply equals the threshold at power-on, the reset signal is delayed for approximately 40 ms by C120, HPSV then goes high (> 4.35 V). At power-down, the signal change to low is not delayed.

Fan Control

The fan control circuit supplies voltage for the two fans. The value of this voltage is dependent on the temperature detected by the sensor mounted on the motherboard. It is supplied from the unregulated low tapping voltages UL+15 and UL-15 and operates floating to ground.

The temperature sensor, U1, on the motherboard is supplied with a current of approximately 1 mA from R123. It generates a voltage drop directly proportional to the absolute temperature value - 10 mV/K. This voltage is compared with the threshold voltage drop across R125, which is supplied by a reference current of 1 mA from the power control board.

Comparator U103A controls the output voltage of the power regulator U104. The control gain is set by feedback to $(R126/R125 + 1)$. Thus, the threshold point is approximately 300 K (27 °C) and its output voltage approximately 14 V, is determined by the voltage drop of VR103 and R125.

At temperatures below the threshold, the output voltage cannot fall below (approximately) 13.3 V and is determined by the sum of the volt drops of VR103, U103A pins 1-4, CR125 and U104 pins 1 and 2. If the temperature exceeds the limit condition the output of U103A, pin 1 is decoupled by CR125. Uout max is approximately 26.3 V.

Power Control Board

Bias and Reference Voltages

The unregulated +UB voltage from J3(19) is stabilized to +UBIAS by VR1, R66, Q15 and C15, this provides the bias for reference voltage generation and some control circuits.

By means of +UBIAS, U7 generates the reference voltage +5R, it is buffered by U8B, Q16 and C17. All other reference voltages are derived from +5R as follows:

1. -5R reference voltage is formed and buffered by U8A, R69, R70 and Q17.
2. Unregulated low tapping voltage UL-15 is stabilized by VR2, R72, and Q20 to the negative bias of U8A.
3. +10R reference voltage is formed by R67, R68 and U8D; it is buffered by C16.
4. The current source IREF is derived from the +10R reference by R71, U8C and Q18. The value of this current source is 1 mA and supplies the fan control circuit on the power main board.

Control Circuits

Most of the control circuits function in a similar way and the +15 V control is used to describe them all. The +5.1 V and -3.25 V control circuits are slightly different; these are described separately after the +15 V control.

+15 V Control

Voltage Control. The voltage sensing feedback signal +15 V from J3(14) and X3(14), is divided and compared to reference voltage -5R by R9, R10 and U1B.

If the voltage output goes high, the output at U1B pin 7 also rises, taking more current via R6 than that injected by R4 to the node of emitters Q1 and Q2. This lower emitter current lowers the gate control current signals, G+15H and G+15L, at the collectors of Q1 and Q2 and thus to the output MOSFETS on the power main board. C2 provides frequency compensation to prevent oscillation.

High/Low Tapping Path Control. Division of these two currents is controlled by the unregulated low tapping voltage UL+15 and the differential stage function of Q1, Q2, R1, R2, R3 and R5.

If the line voltage is operating at low tolerance, Q2 conducts and only the high tapping path is activated and controlled, the low tapping path being switched off. Around nominal line voltage both high and low tapping paths are activated because of the linear region operation of Q1 and Q2. This action is smoothed by C1 to damp ripple voltages. At high line voltage tolerance only Q1 is on and thus only the low tapping path is activated.

Foldback Current Limitation. Feedback signals R+15 and +15V represent the voltage drop of the output current sensing resistor. It is compared by U1A, to the limit threshold set by R7 and R8, and the output pin 1 of U1A. It achieves control in a similar manner to voltage regulation, but limits the output current when active. Diodes CR1 and CR2 decouple operation during the most positive control voltage, therefore the limiting function is active.

When below the current limit, the voltage of U1A pin 1 is close to -5R, therefore CR2 is reversed biased and has no influence on voltage control. The foldback characteristic is achieved by lowering the threshold. As the output voltage decreases, so does the R+15 voltage

in current limiting operation. At the output, the short circuit minimum foldback current limit is reached and R+15 is almost zero.

+5.1V Control

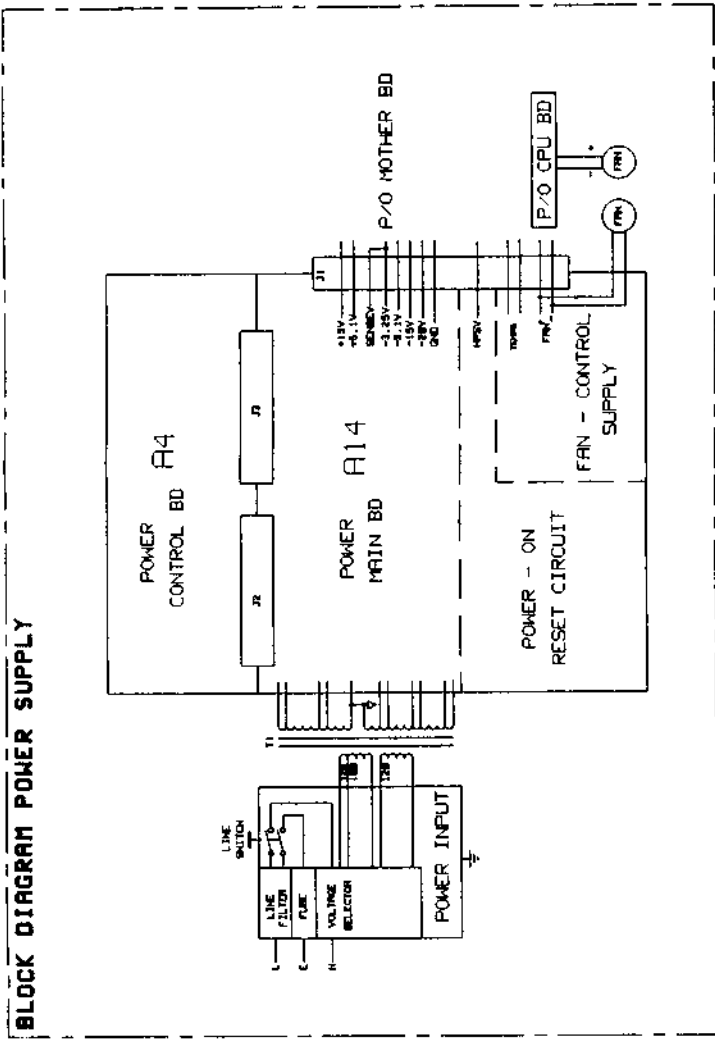
The output voltage of the operational amplifier U2 is buffered by Q6 and R19. The gate signals G+5H and G+5L are controlled by voltage rather than current, via R17 and R18. Therefore at differential stage Q4/Q5 the transistor which is not conducting, is that corresponding to the active tapping path; at the same time the conducting transistor switches the other tapping path off.

CR7 and CR8 lower the maximum output voltage, to prevent saturation of U2 at the highest gate voltage and conduction points. R73 prevents gate oscillation.

-3.25V Control

There is a separate voltage sensing signal, -3.25VSENS, from the motherboard, that compensates for voltage drops of up to 0.1 V. R34 in conjunction with the -3.25V signal prevents the output voltage rising more than approximately 0.1 V if the -3.25VSENS line is open circuit.

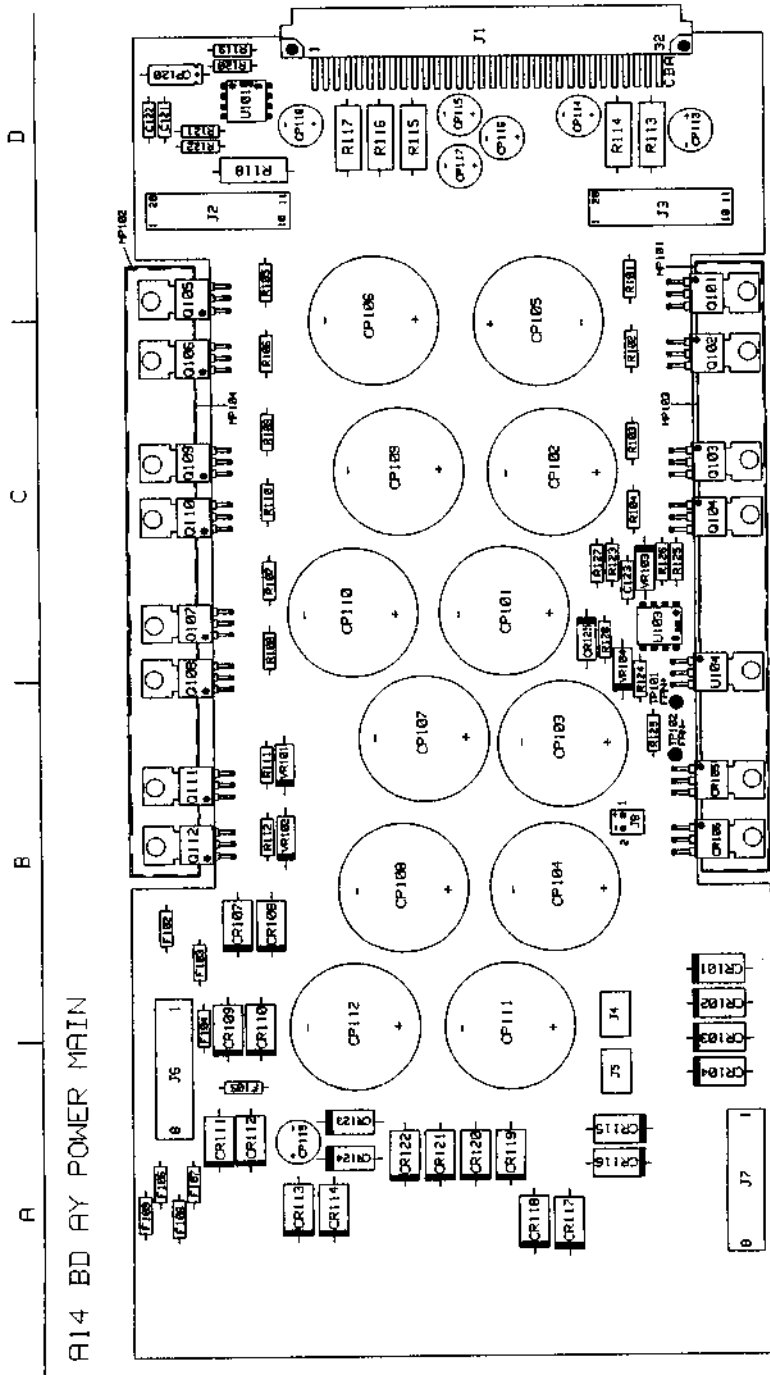
BLOCK DIAGRAM POWER SUPPLY



MODEL HP8131A
 POWER SUPPLY BLOCK DIAGRAM
 POWER SUPPLY (A14)

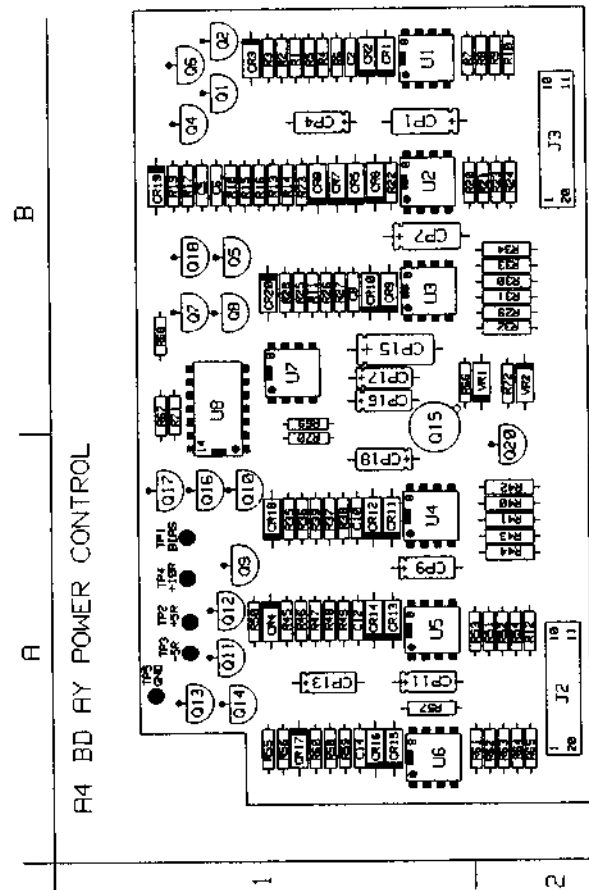
FIGURE 6.2-2.

REF. DES.	CR110	REF. DES.	CR110	REF. DES.	CR110	REF. DES.	CR110
DES.	LOC.	DES.	LOC.	DES.	LOC.	DES.	LOC.
CR101	C2	CR123	R1	CR101	R1	CR118	C1
CR102	C2	CR124	R1	CR102	R1	CR119	B1
CR103	B2	CR125	C2	CR103	R11	CR120	B2
CR104	B2	F102	B1	CR104	R112	CR121	B2
CR105	B2	F103	B1	CR105	R113	CR122	B2
CR106	D1	F104	B1	CR106	R114	CR123	B2
CR107	D2	F105	B1	CR107	R115	CR124	B2
CR108	D2	F106	B1	CR108	R116	CR125	B2
CR109	C1	F107	R1	CR109	R117	U101	D1
CR110	C1	F108	R1	CR110	R118	U102	D1
CR111	B2	F109	R1	CR111	R119	U103	D1
CR112	B2	F110	R1	CR112	R120	U104	D1
CR113	B2	F111	R1	CR113	R121	U105	D1
CR114	D2	F112	R1	CR114	R122	U106	D1
CR115	D2	F113	R1	CR115	R123	U107	D1
CR116	D2	F114	R1	CR116	R124	U108	D1
CR117	D2	F115	R1	CR117	R125	U109	D1
CR118	D2	F116	R1	CR118	R126	U110	D1
CR119	D1	F117	R1	CR119	R127	U111	D1
CR120	D1	F118	R1	CR120	R128	U112	D1
CR121	D1	F119	R1	CR121	R129	U113	D1
CR122	D1	F120	R1	CR122	R130	U114	D1
CR123	C2	F121	D1/2	CR123	R131	U115	D1
CR124	C2	F122	D1	CR124	R132	U116	D1
CR125	C2	F123	D1	CR125	R133	U117	D1
CR126	C2	F124	D1	CR126	R134	U118	D1
CR127	C2	F125	D1	CR127	R135	U119	D1
CR128	C2	F126	D1	CR128	R136	U120	D1
CR129	C2	F127	D1	CR129	R137	U121	D1
CR130	C2	F128	D1	CR130	R138	U122	D1
CR131	C2	F129	D1	CR131	R139	U123	D1
CR132	C2	F130	D1	CR132	R140	U124	D1
CR133	C2	F131	D1	CR133	R141	U125	D1
CR134	C2	F132	D1	CR134	R142	U126	D1
CR135	C2	F133	D1	CR135	R143	U127	D1
CR136	C2	F134	D1	CR136	R144	U128	D1
CR137	C2	F135	D1	CR137	R145	U129	D1
CR138	C2	F136	D1	CR138	R146	U130	D1
CR139	C2	F137	D1	CR139	R147	U131	D1
CR140	C2	F138	D1	CR140	R148	U132	D1
CR141	C2	F139	D1	CR141	R149	U133	D1
CR142	C2	F140	D1	CR142	R150	U134	D1
CR143	C2	F141	D1	CR143	R151	U135	D1
CR144	C2	F142	D1	CR144	R152	U136	D1
CR145	C2	F143	D1	CR145	R153	U137	D1
CR146	C2	F144	D1	CR146	R154	U138	D1
CR147	C2	F145	D1	CR147	R155	U139	D1
CR148	C2	F146	D1	CR148	R156	U140	D1
CR149	C2	F147	D1	CR149	R157	U141	D1
CR150	C2	F148	D1	CR150	R158	U142	D1
CR151	C2	F149	D1	CR151	R159	U143	D1
CR152	C2	F150	D1	CR152	R160	U144	D1



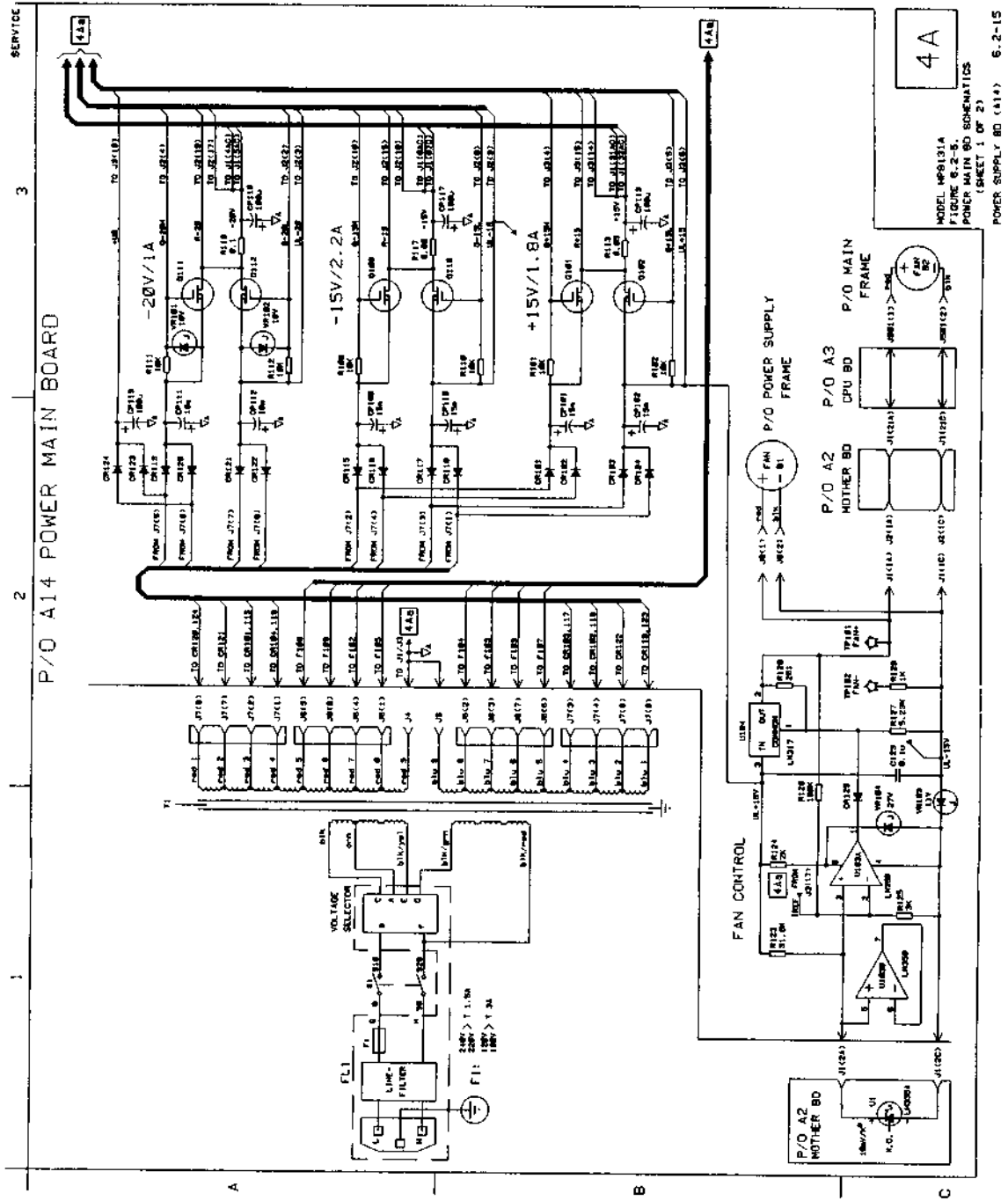
MODEL HP131A
MAIN BOARD COMPONENT LAYOUT
POWER SUPPLY (A14)
FIGURE 5.2-3.
6.2-11

REF. DES.	GRID LOC.	REF. DES.	GRID LOC.	REF. DES.	GRID LOC.	REF. DES.	GRID LOC.
CP1	B1	CR13	A1	R1	B1	R31	B2
CP2	B1	CR14	A1	R2	B1	R32	B2
CP4	B1	CR15	A1	R3	B1	R33	B2
CP5	B1	CR16	A1	R4	B1	R34	B2
CP6	B1	CR17	A1	R5	B1	R35	B2
CP7	B1	CR18	A1	R6	B1	R36	B1
CP8	B1	CR19	A1	R7	B2	R37	A1
CP9	B1	CR20	B1	R8	B2	R38	A1
CP10	A1	J3	A2	R9	B2	R39	A1
CP11	A1	J3	A2	R10	B2	R40	A2
CP13	A1	J3	A2	R11	B1	R41	A2
CP14	A1	J3	A2	R12	B1	R42	A2
CP15	B1	J3	A2	R13	B1	R43	A2
CP16	B1	J3	A2	R14	B1	R44	A2
CP17	B1	J3	A2	R15	B1	R45	A1
CP18	B1	J3	A2	R16	B1	R46	A1
CP19	B1	J3	A2	R17	B1	R47	A1
CP20	B1	J3	A2	R18	B1	R48	A1
CP21	B1	J3	A2	R19	B1	R49	A1
CP22	B1	J3	A2	R20	B2	R50	A1
CP23	B1	J3	A2	R21	B2	R51	A2
CP24	B1	J3	A2	R22	B1	R52	A2
CP25	B1	J3	A2	R23	B2	R53	A2
CP26	B1	J3	A2	R24	B2	R54	A2
CP27	B1	J3	A2	R25	B1	R55	A1
CP28	B1	J3	A2	R26	B1	R56	A1
CP29	B1	J3	A2	R27	B1	R57	A1
CP30	B1	J3	A2	R28	B1	R58	A1
CP31	B1	J3	A2	R29	B2	R59	A1
CP32	B1	J3	A2	R30	B2	R60	A1
CP33	B1	J3	A2	R31	B2	R61	A1
CP34	B1	J3	A2	R32	B2	R62	A1
CP35	B1	J3	A2	R33	B2	R63	A1
CP36	B1	J3	A2	R34	B2	R64	A1
CP37	B1	J3	A2	R35	B2	R65	A1
CP38	B1	J3	A2	R36	B2	R66	B1
CP39	B1	J3	A2	R37	B2	R67	B1
CP40	B1	J3	A2	R38	B2	R68	B1
CP41	B1	J3	A2	R39	B2	R69	B1
CP42	B1	J3	A2	R40	B2	R70	A1
CP43	B1	J3	A2	R41	B2	R71	B1
CP44	B1	J3	A2	R42	B2	R72	B2
CP45	B1	J3	A2	R43	B2	R73	B1
CP46	B1	J3	A2	R44	B2	R74	B1
CP47	B1	J3	A2	R45	B2	R75	B1
CP48	B1	J3	A2	R46	B2	R76	B1
CP49	B1	J3	A2	R47	B2	R77	B1
CP50	B1	J3	A2	R48	B2	R78	B1
CP51	B1	J3	A2	R49	B2	R79	B1
CP52	B1	J3	A2	R50	B2	R80	B1
CP53	B1	J3	A2	R51	B2	R81	B1
CP54	B1	J3	A2	R52	B2	R82	B1
CP55	B1	J3	A2	R53	B2	R83	B1
CP56	B1	J3	A2	R54	B2	R84	B1
CP57	B1	J3	A2	R55	B2	R85	B1
CP58	B1	J3	A2	R56	B2	R86	B1
CP59	B1	J3	A2	R57	B2	R87	B1
CP60	B1	J3	A2	R58	B2	R88	B1
CP61	B1	J3	A2	R59	B2	R89	B1
CP62	B1	J3	A2	R60	B2	R90	B1
CP63	B1	J3	A2	R61	B2	R91	B1
CP64	B1	J3	A2	R62	B2	R92	B1
CP65	B1	J3	A2	R63	B2	R93	B1
CP66	B1	J3	A2	R64	B2	R94	B1
CP67	B1	J3	A2	R65	B2	R95	B1
CP68	B1	J3	A2	R66	B2	R96	B1
CP69	B1	J3	A2	R67	B2	R97	B1
CP70	B1	J3	A2	R68	B2	R98	B1
CP71	B1	J3	A2	R69	B2	R99	B1
CP72	B1	J3	A2	R70	B2	R100	B1



MODEL HPB131A
CONTROL BOARD COMPONENT LAYOUT
POWER SUPPLY (R14)

FIGURE 6.2-4.



MODEL W9131A
FIGURE 6.2-5.
POWER MAIN BOARD SCHEMATICS
(SHEET 1 OF 2)
POWER SUPPLY BD (A14) 6.2-15

4A

P/O A2 MOTHER BD

P/O A3 CPU BD

P/O MAIN FRAME

P/O POWER SUPPLY FRAME

FAN CONTROL

VOLTAJE SELECTOR

LINE FILTER

F1

BR1

C1

U1

U2

U3

U4

R1

R2

R3

R4

R5

C2

C3

C4

C5

J1

J2

J3

J4

J5

J6

J7

J8

J9

J10

J11

J12

J13

J14

J1(2A)

J1(2B)

J1(2C)

J1(2D)

J1(2E)

J1(2F)

J1(2G)

J1(2H)

J1(2I)

J1(2J)

J1(2K)

J1(2L)

J1(2M)

J1(2N)

J1(2O)

J1(2P)

J1(2Q)

J1(2R)

J1(2S)

J1(2T)

J1(2U)

J1(2V)

J1(2W)

J1(2X)

J1(2Y)

J1(2Z)

J1(2AA)

J1(2AB)

J1(2AC)

J1(2AD)

J1(2AE)

J1(2AF)

J1(2AG)

J1(2AH)

J1(2AI)

J1(2AJ)

J1(2AK)

J1(2AL)

J1(2AM)

J1(2AN)

J1(2AO)

J1(2AP)

J1(2AQ)

J1(2AR)

J1(2AS)

J1(2AT)

J1(2AU)

J1(2AV)

J1(2AW)

J1(2AX)

J1(2AY)

J1(2AZ)

J1(2BA)

J1(2BB)

J1(2BC)

J1(2BD)

J1(2BE)

J1(2BF)

J1(2BG)

J1(2BH)

J1(2BI)

J1(2BJ)

J1(2BK)

J1(2BL)

J1(2BM)

J1(2BN)

J1(2BO)

J1(2BP)

J1(2BQ)

J1(2BR)

J1(2BS)

J1(2BT)

J1(2BU)

J1(2BV)

J1(2BW)

J1(2BX)

J1(2BY)

J1(2BZ)

J1(2CA)

J1(2CB)

J1(2CC)

J1(2CD)

J1(2CE)

J1(2CF)

J1(2CG)

J1(2CH)

J1(2CI)

J1(2CJ)

J1(2CK)

J1(2CL)

J1(2CM)

J1(2CN)

J1(2CO)

J1(2CP)

J1(2CQ)

J1(2CR)

J1(2CS)

J1(2CT)

J1(2CU)

J1(2CV)

J1(2CW)

J1(2CX)

J1(2CY)

J1(2CZ)

J1(2DA)

J1(2DB)

J1(2DC)

J1(2DD)

J1(2DE)

J1(2DF)

J1(2DG)

J1(2DH)

J1(2DI)

J1(2DJ)

J1(2DK)

J1(2DL)

J1(2DM)

J1(2DN)

J1(2DO)

J1(2DP)

J1(2DQ)

J1(2DR)

J1(2DS)

J1(2DT)

J1(2DU)

J1(2DV)

J1(2DW)

J1(2DX)

J1(2DY)

J1(2DZ)

J1(2EA)

J1(2EB)

J1(2EC)

J1(2ED)

J1(2EE)

J1(2EF)

J1(2EG)

J1(2EH)

J1(2EI)

J1(2EJ)

J1(2EK)

J1(2EL)

J1(2EM)

J1(2EN)

J1(2EO)

J1(2EP)

J1(2EQ)

J1(2ER)

J1(2ES)

J1(2ET)

J1(2EU)

J1(2EV)

J1(2EW)

J1(2EX)

J1(2EY)

J1(2EZ)

J1(2FA)

J1(2FB)

J1(2FC)

J1(2FD)

J1(2FE)

J1(2FF)

J1(2FG)

J1(2FH)

J1(2FI)

J1(2FJ)

J1(2FK)

J1(2FL)

J1(2FM)

J1(2FN)

J1(2FO)

J1(2FP)

J1(2FQ)

J1(2FR)

J1(2FS)

J1(2FT)

J1(2FU)

J1(2FV)

J1(2FW)

J1(2FX)

J1(2FY)

J1(2FZ)

J1(2GA)

J1(2GB)

J1(2GC)

J1(2GD)

J1(2GE)

J1(2GF)

J1(2GG)

J1(2GH)

J1(2GI)

J1(2GJ)

J1(2GK)

J1(2GL)

J1(2GM)

J1(2GN)

J1(2GO)

J1(2GP)

J1(2GQ)

J1(2GR)

J1(2GS)

J1(2GT)

J1(2GU)

J1(2GV)

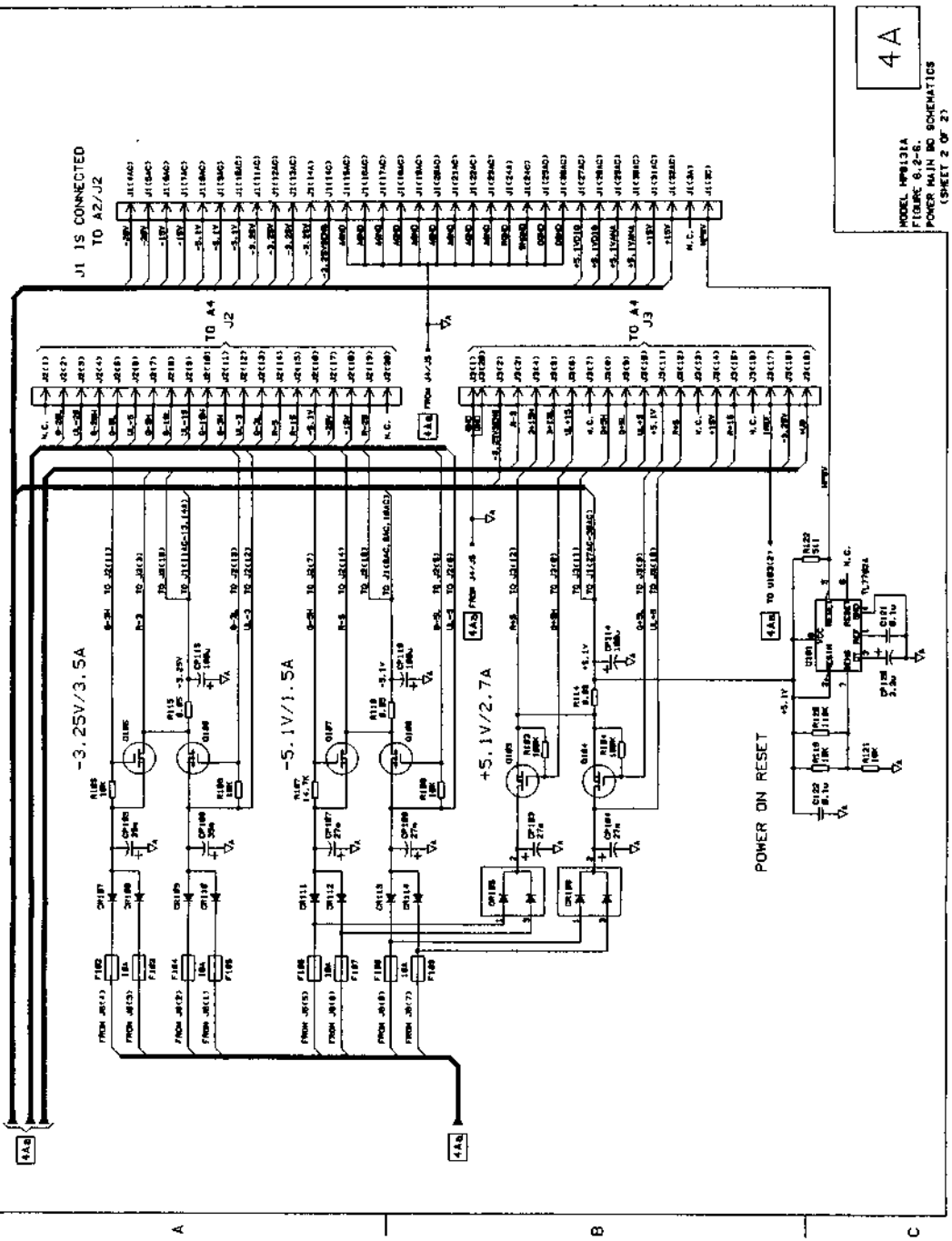
J1(2GW)

J1(2GX)

J1(2GY)

J1(2GZ)

P/O A14 POWER MAIN BOARD



4A

MODEL HP8131A
FIGURE 6.2-6.
POWER MAIN BOARD SCHEMATICS
(SHEET 2 OF 2)

SERVICE

4

3

2

1

A4 POWER CONTROL BOARD

-3.25V/3.5A

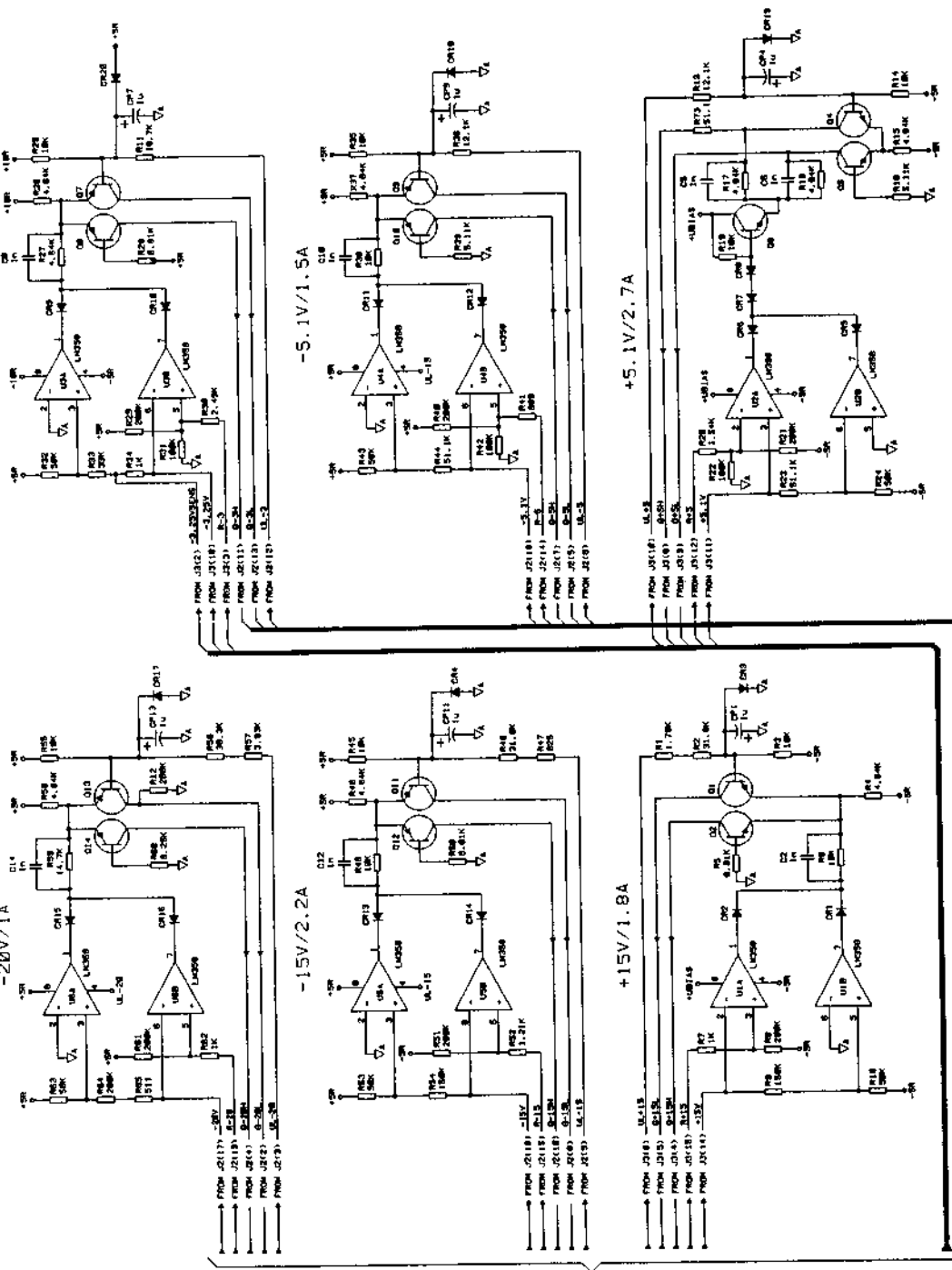
-20V/1A

-15V/2.2A

-5.1V/1.5A

+15V/1.8A

+5.1V/2.7A



4B

MODEL HP8131A
FIGURE 5.2-8
POWER MAIN BOARD SCHEMATICS
(SHEET 2 OF 2)
POWER SUPPLY BD (A14) 5.2-2)

C

CPU Board (A3)

Introduction

The CPU board houses a MC 68B09E microprocessor, with associated circuits and components. The following section provides basic block level theory of operation. A more detailed theory of operation follows this section.

Block Theory of Operation

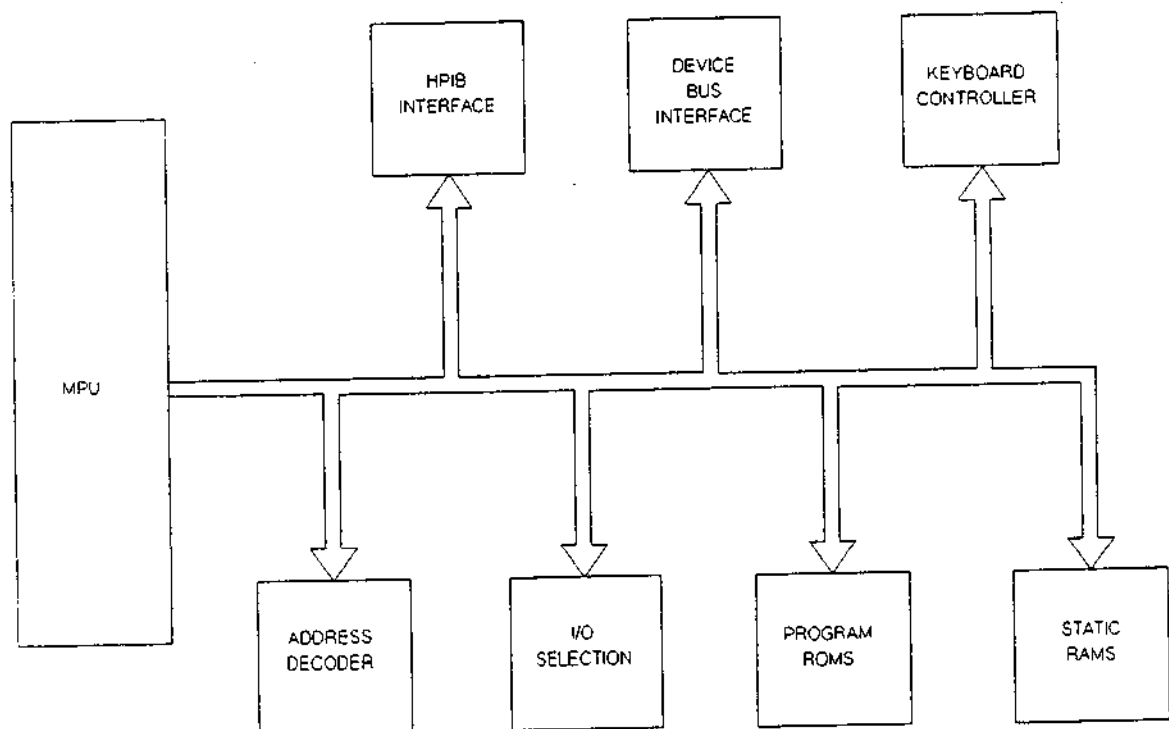


Figure 6-3-1. Module Block Diagram

Microprocessor (MPU)

The CPU board microprocessor is an MC 68B09E using an 8-bit bidirectional (buffered) data bus, a 16-bit unidirectional address bus and an interrupt line.

Address Decoder

This circuit generates the select lines.

I/O Selection

This circuit is used to address the I/O devices, RAM, and ROM on the CPU board.

Program ROMs

The two ROMs (32 Kword x 8 bit) used on this board contain instructions that are read by the MPU.

Static RAMs

The static RAMs (8K x 8-bit) provide information storage concerning the state of the instrument, plus other data. To ensure security of data when power is switched off, the two chips are buffered by a battery backup. This battery is activated each time the power is switched off.

Keyboard Controller

This block is responsible for scanning the keyboard and LEDs. The controller scans each row and column of the keyboard for a closed switch. When a change in the switch matrix is detected, the processor is sent an interrupt request.

The LEDs are scanned out of the internal RAM of the keyboard controller. These LEDs are used to indicate the active state of a parameter or a function.

Device Bus Interface

The CPU board communicates with, or controls the other boards within the HP 8130A/HP 8131A via the device bus. This bus consists of:

- 8-bit bidirectional device data bus
- 6-bit high device address bus
- 4 low card select lines
- 2 control lines.

HP-IB Interface

Communications between separate systems is achieved over a communications link known as the Hewlett-Packard Interface Bus (HP-IB). The HP-IB conforms to the IEEE 488 (1987) standard. The HP-IB connector on the rear panel of the HP 8130A/HP 8131A is connected to the CPU board by means of a ribbon cable.

6-3-2 CPU Board (A3)

Control Timing

This circuit provides the CPU board with its timing waveforms. Each waveform has a frequency of 1.25 MHz and a delay between each adjacent phase of 50 ns. For example, P1 leads P2 by 50 ns.

Reset Logic

About 50 ms after the +5 V supply exceeds +4.8 V the HPSV signal will become active indicating a stable supply i.e. a LOW level on this line indicates the reset mode. When the HPSV signal is valid a green LED, on the CPU board, will light up.

Microprocessor Unit (MPU)

The MC 68B09E microprocessor (MPU) uses an 8-bit bi-directional buffered data bus (HDBRW0 - HDBRW7), to communicate with other boards. The MPU is capable of addressing 64 Kbyte of memory. Clocking for the MPU E and Q clock inputs is provided by the Control Timing Section.

I/O Decoding and RAM/ROM Selection

This circuit generates the select lines used to address the I/O devices, RAM, and ROM, on the CPU board. 1024 bytes are reserved for the Device Bus used for communication between the CPU board and other boards within the HP 8130A/HP 8131A.

I/O Decoding

To select/enable an I/O operation and/or device, the I/O STROBE lines (LIS0 - LIS07) are used. These signals are generated by an addressable demultiplexer.

Table 6-3-1. I/O Functions Selection

Strobe Mnemonics	I/O Function	Physical Address (hex)
LIS7	reset timer	000E0 - 000FF
LIS6	write interrupt mask	000C0 - 000DF
LIS5	read interrupt status	000A0 - 000BF
LIS4	write control latch	00080 - 0009F
LIS3	write keyboard controller	00060 - 0007F
LIS2	read keyboard controller	00040 - 0005F
LIS1	HP-IB controller	00020 - 0003F
LIS0	NOT USED	00000 - 0001F

RAM/ROM Selection

The chip select signals needed to select RAM, ROM etc are generated by 1 from 8 multiplexers, decoding the MPU address lines. To avoid glitches on the select lines, the multiplexers are enabled by gating two timing signals (P2 and P6).

Table 6-3-2. RAM/ROM Selection

Strobe Mnemonic	Function	Physical Address (hex)
LS6	ROM selection	08000 - 0FFFF
LS5	ROM selection	04000 - 07FFF
LS4	SRAM selection	02000 - 03FFF
LS3	SRAM selection	01000 - 01FFF
LS2	EEPROM selection	00800 - 00FFF
LS1	device bus selection	00400 - 007FF
LS0	I/O selection	00000 - 003FF

Control Latch

The MPU uses this latch to control and/or enable various functions on the CPU board. The MPU outputs control information onto the bidirectional data bus (HDBRW0 - HDBRW7) via the data bus buffer (U406). The information is then clocked into the control latch (U404) by the I/O select line, LIS4. The resultant 8 outputs are used to control various system functions as listed in the following table.

Table 6-3-3. Control Latch Bit Assignment

Control Bit	Position on Data Bus	Function
CL(7 - 4)	HDBRW(7 - 4)	used to stretch the device bus cycle in order to serve slow devices
CL3	HDBRW3	NOT USED
CL2	HDBRW2	used to expand the 4K addressable SRAM space
CL(1 - 0)	HDBRW(1 - 0)	used to expand the 16K addressable ROM space

Interrupt Processing

This circuit is responsible for sampling and masking all interrupts.

The MPU:

- sets the priority for each interrupt
- masks out lower priority interrupts
- services the interrupt with highest priority

Four different interrupts can be generated in the HP 8130A/HP 8131A as indicated by the table below.

Table 6-3-4. Interrupts

Mnemonic	Interrupt	Function
HDBI	High Device Bus Interrupt	This is an interrupt signal derived from the common Low Device Bus Request (LDRQ) line used by the other boards to indicate a request to the MPU.
HKBI	High KeyBoard Interrupt	This signal indicates a change in the keyboard matrix
HTI	High Timer Interrupt	This is an interrupt signal from a timer used by a real-time Operating System
HIBI	High HP-IB	This is an interrupt request from the HP-IB controller

HP-IB - Interface

The Hewlett Packard Interface Bus (HP-IB) is an implementation of the IEEE Std. 488.2. It is a bit-parallel/byte-serial asynchronous interface using a three wire handshake.

- The handshake signals are DAV, NRFD and NDAC
- The management signals are IFC, ATN, SRQ, REN and EOI

The interface function for each system component is performed within each component, thus, only passive cabling is needed to connect up the system. The cables connect all instruments, controllers and other components in parallel.

Data and commands are transferred between system components via 16 signal lines (HPA00 - HPA15).

The HP-IB controller carries out communication by means of 13 registers. Six of these registers are read from, and seven written to. The registers are used to send control data to, and receive status information from, system components. A LOW on the chip enable indicates that the processor is carrying out either a read or write from the selected register.

Keyboard Controller

The keyboard controller is used to scan:

- The keyboard
- The LEDs on the front panel, used to indicate the active state of a parameter or function. Each of these functions is programmed and controlled by the CPU.

The controller is always enabled.

Data flow between the MPU and the Keyboard controller registers and buffers, is controlled by two I/O select lines, LIS2 and LIS3, in conjunction with the address line HPA0 (see table below).

Table 6-3-5. Keyboard Controller Select Lines

LIS2	LIS3	HPA0	Function
0	1	0	Write command to keyboard controller
0	1	1	Write data to keyboard controller
1	0	0	Read status of keyboard controller
1	0	1	Read data from keyboard controller

Scanning the Keyboard

The keyboard controller uses the sensor matrix mode to scan the keyboard. Each switch corresponds to a specific location in an 8-bit by 8-bit sensor RAM. This sensor RAM keeps an image of the state of the sensor matrix switches.

Scanning the rows of the sensor matrix or keyboard is accomplished by a combination of the encoded scan lines SL2 -SL0. These lines count from zero to seven in binary thus enabling 1 of 8 outputs of a demultiplexer.

The eight outputs of the demultiplexer are connected to the row lines of the keyboard switches. Thus each byte, in the sensor matrix RAM corresponds to a row of switches.

The state of the eight columns in the sensor matrix is sampled via the eight keyboard-column lines. The result is loaded into the respective bit location of the byte addressed in the sensor RAM by the active row.

A closed switch is indicated by a LOW sensed on a column line. The interrupt request line (HKBI) goes HIGH if a key-location has a changed value. The processor services the interrupt and HKBI goes LOW.

Scanning the Front Panel LEDs

The keyboard controller has a 16-word by 8-bit internal display RAM (only 12 bytes are used) used to drive the front panel LEDs.

The keyboard controller BD output signal inhibits all LEDs while information on the data outputs is changing.

The contents of the display RAM are arranged in such a way that each RAM bit corresponds to one LED on the front panel. When a bit is set the corresponding LED lights up.

Device Bus Interface

The MPU communicates with, or controls, the other boards in the HP 8130A/HP 8131A via the Device Bus. This bus consists of address, data and control lines, that only change their state when data is exchanged.

The 8-bit bidirectional Device Data Bus is derived from HDBRW0 - HDBRW7, the processor data bus.

High Read (HR) active enables the buffer to read data to the MPU. High Write (HW) (the complement of HR) active enables data to be latched into the buffer and to be then sent to other boards. This two-way data transfer is carried out via HDRW0 - HDRW7.

The Device Bus Interface occupies 1 Kbyte of memory. This memory space is divided into 16 parts consisting of 64 locations addressed by address lines HPA5 - HPA0. To address one of these 16 parts, 4 address lines are decoded into eight select lines; each line can select one slot.

Table 6-3-6. Device Bus Address Lines

Mnemonic	Physical Address	Slot on Mother board
LCS0	0600 - 063F	slot 0 - timing board
LCS1	0640 - 067F	slot 1 - output board 1
LCS2	0680 - 06BF	slot 2 - optional output board 2
LCS3	06C0 - 06FF	slot 3 - service connector
LCS4-7	NOT USED	

Three control lines handle the Device Bus transaction as indicated by the table below.

Table 6-3-7. Device Bus Control Lines

Mnemonic	Function
LRHW	Low Read/High Write used to control the direction of data flow
LDBV	Low Device Bus Valid, this signal is used to synchronize the address and data exchange on the Device Bus
LDRQ	Low Device bus ReQuest, used to indicate an interrupt from a board within the HP 8130A/HP 8131A

6-3-8 CPU Board (A3)

Battery Back-up

Normal Operating Mode

VBAT is driven near to +5 V via a transistor on the CPU board. The battery is disconnected from VBAT and the SRAMs are supplied from the power supply; HPSV is active high.

Battery Back-up Mode

When the +5 V drops below 4.75 V HPSV goes LOW and the transistor that drives VBAT turns off. This results in the voltage level on VBAT falling towards the battery level. Once the battery level is reached, it is made available to the SRAMs. The potential on the active LOW CS inputs of the SRAMs are pulled to the battery voltage and thus access is denied. The SRAMs are now buffered.

The SRAMs are driven by a Lithium battery.

Signal Mnemonics and their Functions

Table 6-3-8. Signal Mnemonics and their Functions

Mnemonic	Function
ATN	ATTention. HP-IB line that defines the type of data on the interface data bus (address/commands or data). See the HP-IB Interface section
BA00 - BA15	MPU Bus Address lines 0-16. MPU address bus
CL0 - CL7	Control Lines 0-7. Used by the MPU to control various system functions. See Control Latch section.
DAV	Data Valid. HP-IB line that indicates availability and validity of the data on the interface bus. See HP-IB section.
DB0 - DB7	Device Bus lines 0-7. Bidirectional data bus used for communication between the MPU and the other boards.
EMAP0, EMAP1	EPROM MAP lines. Used to map a 32 Kbyte SRAM into two 16 Kbyte EPROM pages.
EOI	End Of Identity. HP-IB line; indicates end of data transfer on the interface bus. See HP-IB Interface section.
HIBI	High Interface Bus Interrupt. Used to inform the processor of a request from the HP-IB interface (if the signal can pass the interrupt mask).
HDA0 - HDA5	High Device bus Address lines 0-5. Static address bus used to select 1 of 64 locations on the board. Enabled by the active LCS line during a device bus operation.
HDB	High Device Bus. Derived from address information to indicate an MPU operation on the device bus.
HDBA	High Device Bus Address. Used to latch address information when the MPU is communicating via the device bus.
HDBI	High Device Bus Interrupt. Used to inform the processor of a request from another board (if the signal can pass the interrupt mask).
HKBI	High KeyBoard Interrupt. Used to inform the processor of a request from the keyboard controller (if it can pass the interrupt mask).
HMR	High Master Reset. This signal will stay at the active LOW level for about 50 ms after power-on (see LMR).
HPSV	High Power Supply Valid. About 50 ms after the +5 V supply exceeds approximately +4.8 V, this signal will become active indicating a stable power supply.
HR	High Read. Indicates a data read operation. Used for devices on the CPU board.
HTI	High Timer Interrupt. This signal is used by the operating system to inform the MPU of a request.
HW	High Write. Indicates a data write operation. Used for devices on the CPU board.
HWDD	High Write Device bus Data. Used by the MPU to clock data into the device bus latch for a write operation.

Table 6-3-8. Signal Mnemonics and their Functions (continued)

Mnemonic	Function
IFC	InterFace Clear. HP-IB line; places I/O system into a known state.
LCEN	Low Card ENable. The LCEN input of each slot of the HP 8131A is connected to a different LCS line. This line indicates an access to the related board (slot) by the MPU.
LCS0 - LCS7	Low Card Select 0-7. Indicates which slot on the HP 8130A/HP 8131A has been addressed for a data exchange with the MPU.
LDBV	Low Device Bus Valid. This line is used by the MPU to indicate stable information (data, address) on the device bus. It is used for communication between the MPU and other boards
LDRQ	Low Device bus ReQuest. This line is used by boards to inform the MPU of a request.
LIS0 - LIS7	Low I/O Strobe lines 0-7. Signals from the I/O decoder used for read/write or enable operations on the MPU I/O devices.
LMR	Low Master Reset. This signal stays at the active LOW level for about 50 ms after power-on.
LRHW	Low Read/High Write. Used to indicate the direction of the device bus data flow.
LOE	Low Output Enable. Used to control the output of the EPROMs.
LROM0, LROM1	Low ROM select. Used to select ROM0 or ROM1 on the MPU board
LSRAM0, LSRAM1	Low SRAM select. Used to select SRAM0 or SRAM1 on the MPU board
LEEPROM	Low EEPROM select. Used to select the EEPROM on the MPU board.
LWE	Low Write Enable. Used to enable the RAMs.
NDAC	Not Data ACcepted. HP-IB handshake line indicating acceptance of data by all devices.
NFRD	Not Ready For Data. HP-IB handshake line indicating that devices are ready to accept data.
P0 -P7	Phase 0-7. Each phase is a 1.25 MHz signal from the control timing circuit.
RL0 - RL7	Return Lines 0-7. Return line inputs that are connected to the scan lines via the keys (input lines to key_ctrl).
S0 -S7	Segment lines. These lines form the output of the display refresh registers. The data from these outputs is synchronized with the scan lines (SL0 - SL3).
SL0 - SL3	Scan Lines. These scan lines are used to scan the key switches or the display digits.
SMAP	SRAM MAP line. Used to map an 8 Kbyte SRAM in two 4 Kbyte SRAM pages.

Pin Definitions

Motherboard Connector

Table 6-3-9. Motherboard Connector Pin Definitions

Pin	Row a	Row c	Pin	Row a	Row c
32	S1	S0	16	+5.1 V	+5.1 V
31	S3	S2	15	+5.1 V	+5.1 V
30	S5	S4	14	+5.1 V	+5.1 V
29	S7	S6	13	+5.1 V	+5.1 V
28	RL1	RL0	12	SHGND	SHGND
27	RL3	RL2	11	LCS2	LCS3
26	RL5	RL4	10	LCS0	LCS1
25	RL7	RL6	09	LDRQ	HPSV
24	SL1	SL0	08	HDD6	HDD7
23	SL3	SL2	07	HDD4	HDD5
22	nc	nc	06	HDD2	HDD3
21	FAN+	FAN-	05	HDD0	HDD1
20	DGND	DGND	04	LRHW	LDBV
19	DGND	DGND	03	HDA4	HDA5
18	DGND	DGND	02	HDA2	HDA3
17	DGND	DGND	01	HDA0	HDA1

Keyboard to CPU Board Connections

Table 6-3-10. Keyboard and CPU Pin Definitions

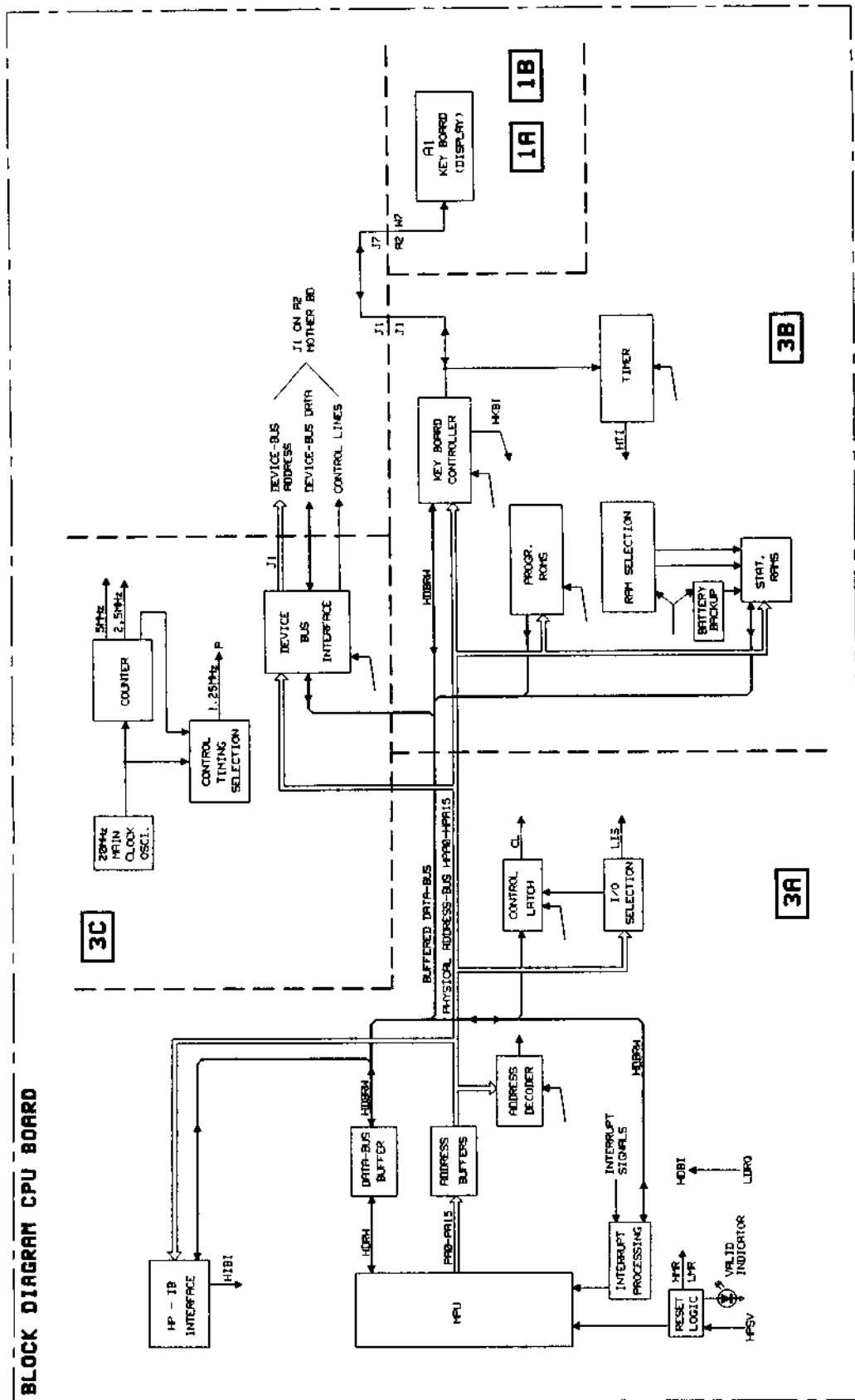
Signal	Keyboard Connector Pins	CPU Connector Pins
S0	1	32c
S1	2	32a
S2	3	31c
S3	4	31a
S4	5	30c
S4	6	30a
S6	7	29c
S7	8	29a
RL0	9	28c
RL1	10	28a
RL2	11	27c
RL3	12	27a
RL4	13	26c
RL5	14	26a
RL6	15	25c
RL7	16	25a
SL0	17	24c
SL1	18	24a
SL2	19	23c
SL3	20	23a

HP-IB to CPU Board Connections

Table 6-3-11. HP-IB and CPU Pin Definitions

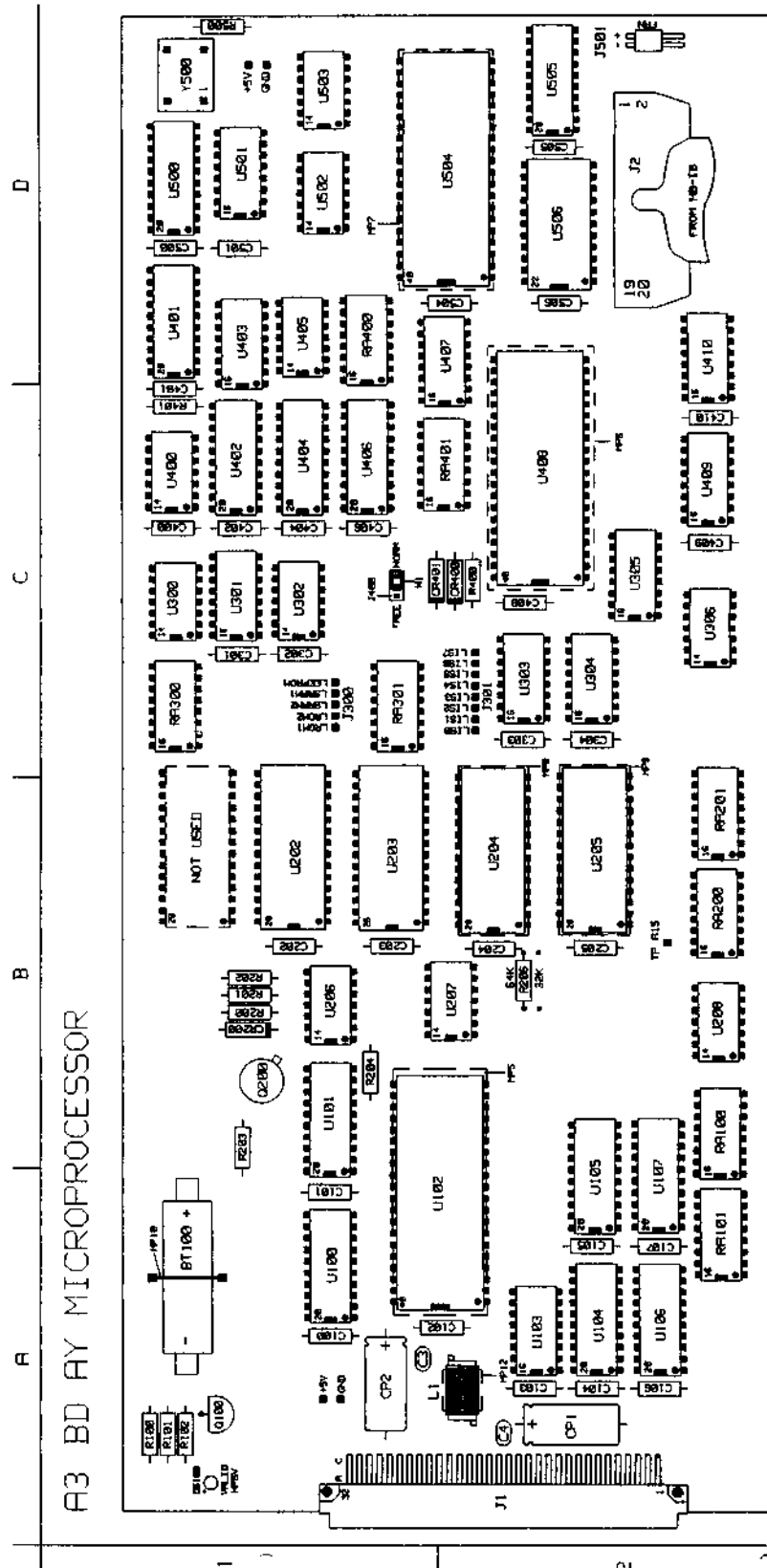
Signal	HP-IB Connector Pins	CPU Connector Pins
DIO1	1	1
DIO2	2	3
DIO3	3	5
DIO4	4	7
EOI	5	9
DAV	6	11
NRFD	7	13
NDAC	8	15
IFC	9	17
SRQ	10	19
ATN	11	21
SHIELD	12	23
DIO5	13	2
DIO6	14	4
DIO7	15	6
DIO8	16	8
REN	17	10
GND	18	12
GND	19	14
GND	20	16
GND	21	18
GND	22	20
GND	23	22
GND	24	24

BLOCK DIAGRAM CPU BOARD



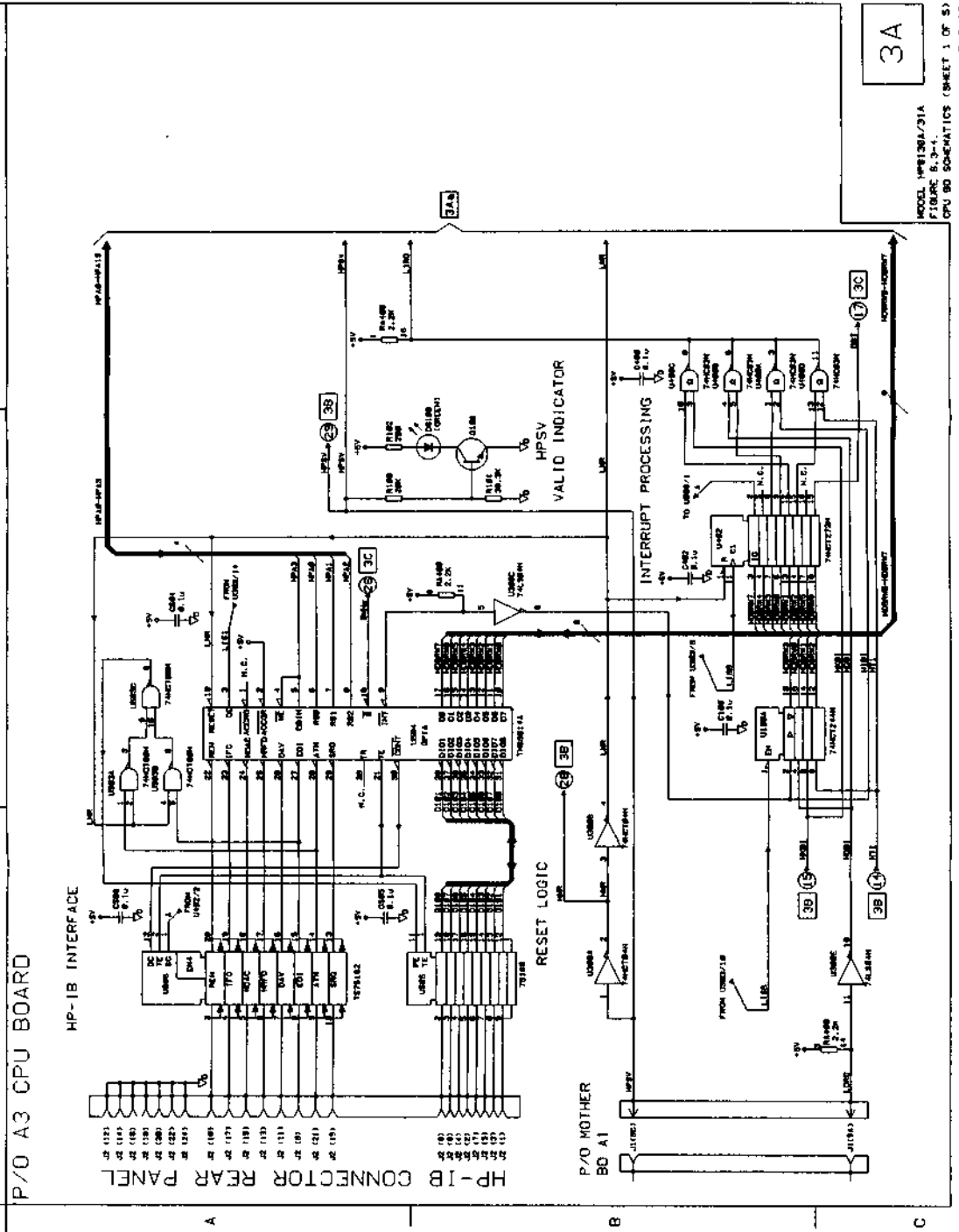
MODEL HP8130R/31A CPU BOARD BLOCK DIAGRAM FIGURE 6.3-2.
CPU BOARD (A3) 6.3-15
CPU BOARD (A3)

REF. DES.	GRID LOC.	REF. DES.	GRID LOC.	REF. DES.	GRID LOC.
BT100	A1	MF6	B2	U201	C1
CP1	F2	MF7	D1	U202	C2
CP2	A1	MF8	C2	U304	C2
CP3	A1	MF9	C2	U305	C2
CP4	A2	MF10	A2	U306	C2
C100	A1	O100	A2	U400	B1
C101	A1	O101	B1	U401	B1
C102	A2	O102	B1	U402	B1
C103	A2	O103	B1	U403	B1
C104	A2	O104	B1	U404	B1
C105	A2	O105	B1	U405	B1
C106	A2	O106	B1	U406	B1
C200	B1	R200	B1	U407	B1
C201	B1	R201	B1	U408	B1
C202	B1	R202	B1	U409	B1
C203	B1	R203	B1	U410	B1
C204	B1	R204	B1	U500	C2
C205	B2	R205	B2	U501	C2
C301	C1	R301	B2	U502	C2
C302	C1	R302	B2	U503	C2
C303	C1	R303	B2	U504	C2
C304	C2	R304	B2	U505	C2
C400	D1	R401	B2	U506	C2
C401	D1	R402	B2	U507	C2
C402	D1	R403	B2	U508	C2
C403	D1	R404	B2	U509	C2
C404	D1	R405	B2	U510	C2
C405	D1	R406	B2	U511	C2
C406	D1	R407	B2	U512	C2
C407	D1	R408	B2	U513	C2
C408	D1	R409	B2	U514	C2
C409	D1	R410	B2	U515	C2
C410	D1	R411	B2	U516	C2
C411	D1	R412	B2	U517	C2
C412	D1	R413	B2	U518	C2
C413	D1	R414	B2	U519	C2
C414	D1	R415	B2	U520	C2
C415	D1	R416	B2	U521	C2
C416	D1	R417	B2	U522	C2
C417	D1	R418	B2	U523	C2
C418	D1	R419	B2	U524	C2
C419	D1	R420	B2	U525	C2
C420	D1	R421	B2	U526	C2
C421	D1	R422	B2	U527	C2
C422	D1	R423	B2	U528	C2
C423	D1	R424	B2	U529	C2
C424	D1	R425	B2	U530	C2
C425	D1	R426	B2	U531	C2
C426	D1	R427	B2	U532	C2
C427	D1	R428	B2	U533	C2
C428	D1	R429	B2	U534	C2
C429	D1	R430	B2	U535	C2
C430	D1	R431	B2	U536	C2
C431	D1	R432	B2	U537	C2
C432	D1	R433	B2	U538	C2
C433	D1	R434	B2	U539	C2
C434	D1	R435	B2	U540	C2
C435	D1	R436	B2	U541	C2
C436	D1	R437	B2	U542	C2
C437	D1	R438	B2	U543	C2
C438	D1	R439	B2	U544	C2
C439	D1	R440	B2	U545	C2
C440	D1	R441	B2	U546	C2
C441	D1	R442	B2	U547	C2
C442	D1	R443	B2	U548	C2
C443	D1	R444	B2	U549	C2
C444	D1	R445	B2	U550	C2



MODEL HP8130B/31A
CPU BOARD COMPONENT LAYOUT
CPU BOARD (R3)

FIGURE 6.3-3.
6.3-17



P/O A3 CPU BOARD

HP-IB INTERFACE

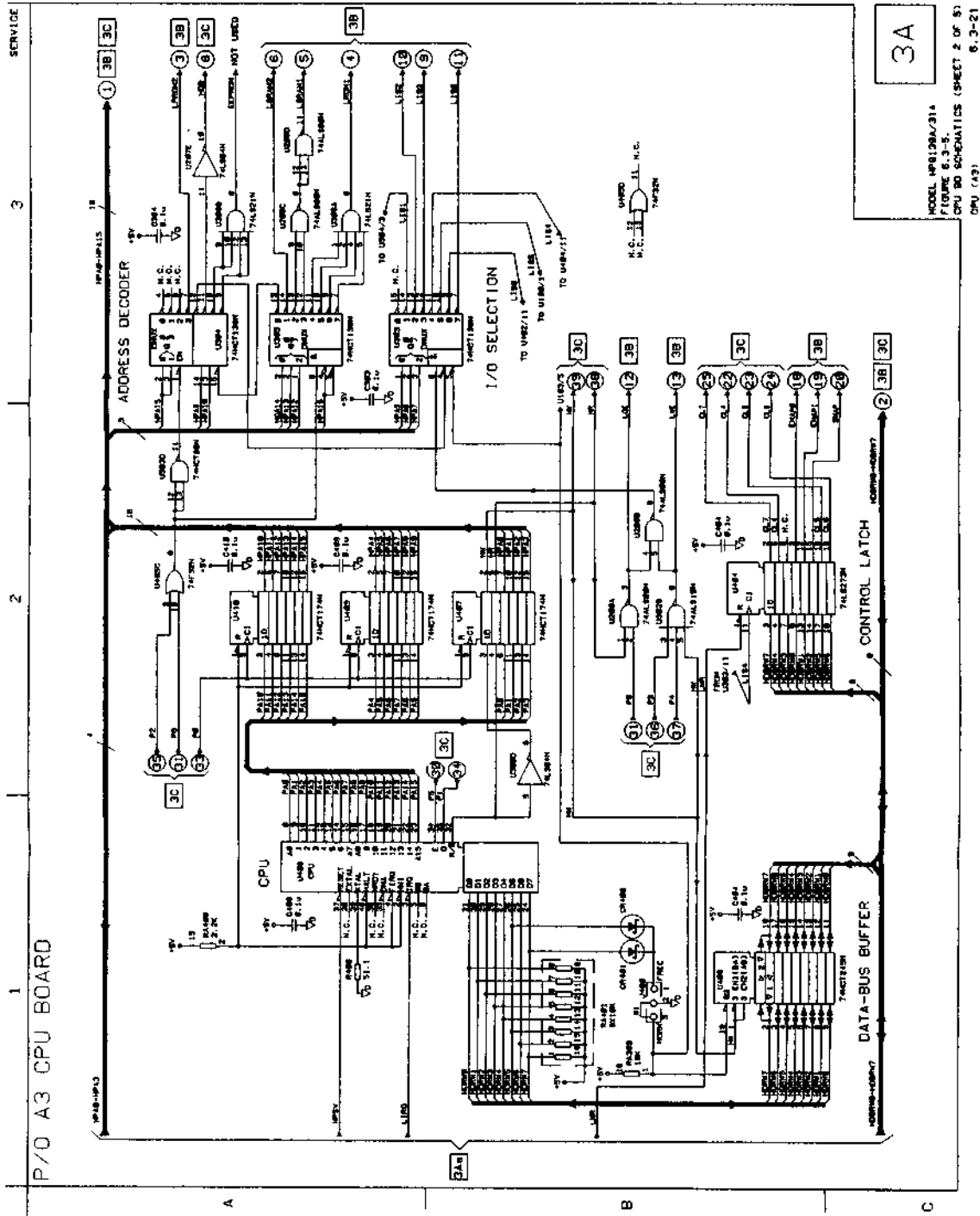
HP-IB CONNECTOR REAR PANEL

P/O MOTHER BC A1

RESET LOGIC

VALID INDICATOR

INTERRUPT PROCESSING



SERVICE

3

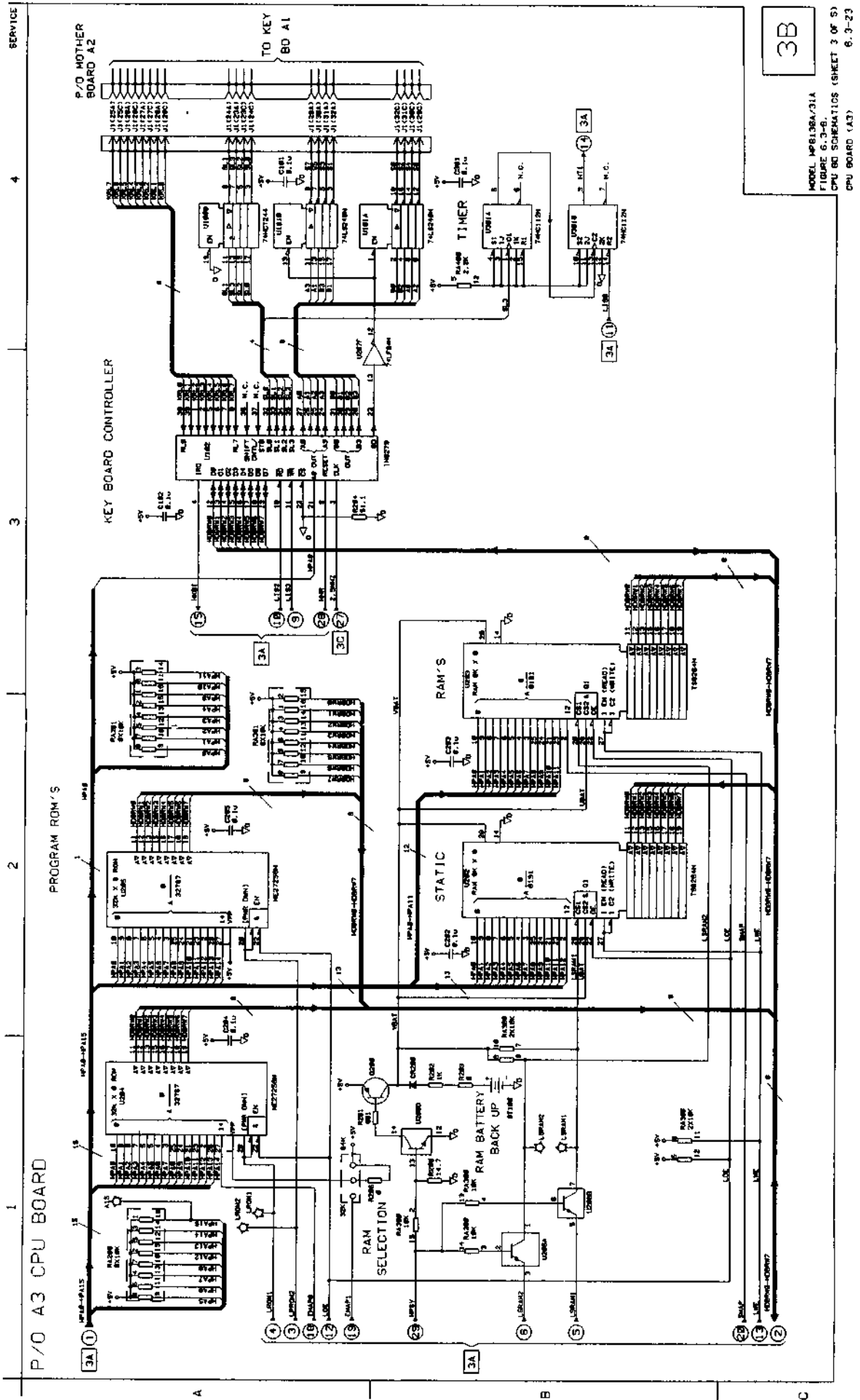
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1

P/O A3 CPU BOARD

3A

MODEL 4801/28A/31A
FIGURE 6.3-5
CPU IO SCHEMATICS (SHEET 2 OF 5)
CPU (12)



SERVICE

4

3

2

1

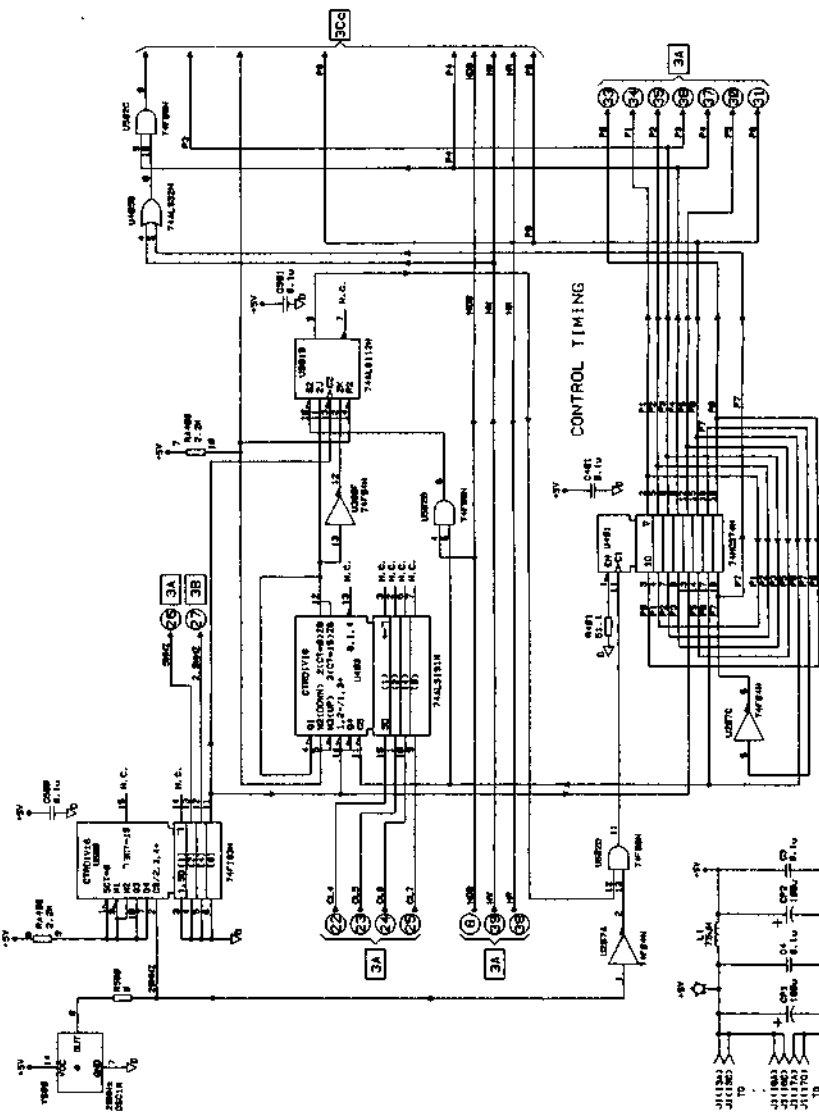
A

B

C

P/O A3 CPU BOARD

MAIN CLOCK OSCILLATOR



P/O A3 CPU BOARD

ADDRESS INTERFACE

DEVICE BUS INTERFACE

DATA OUTPUT

DATA INPUT

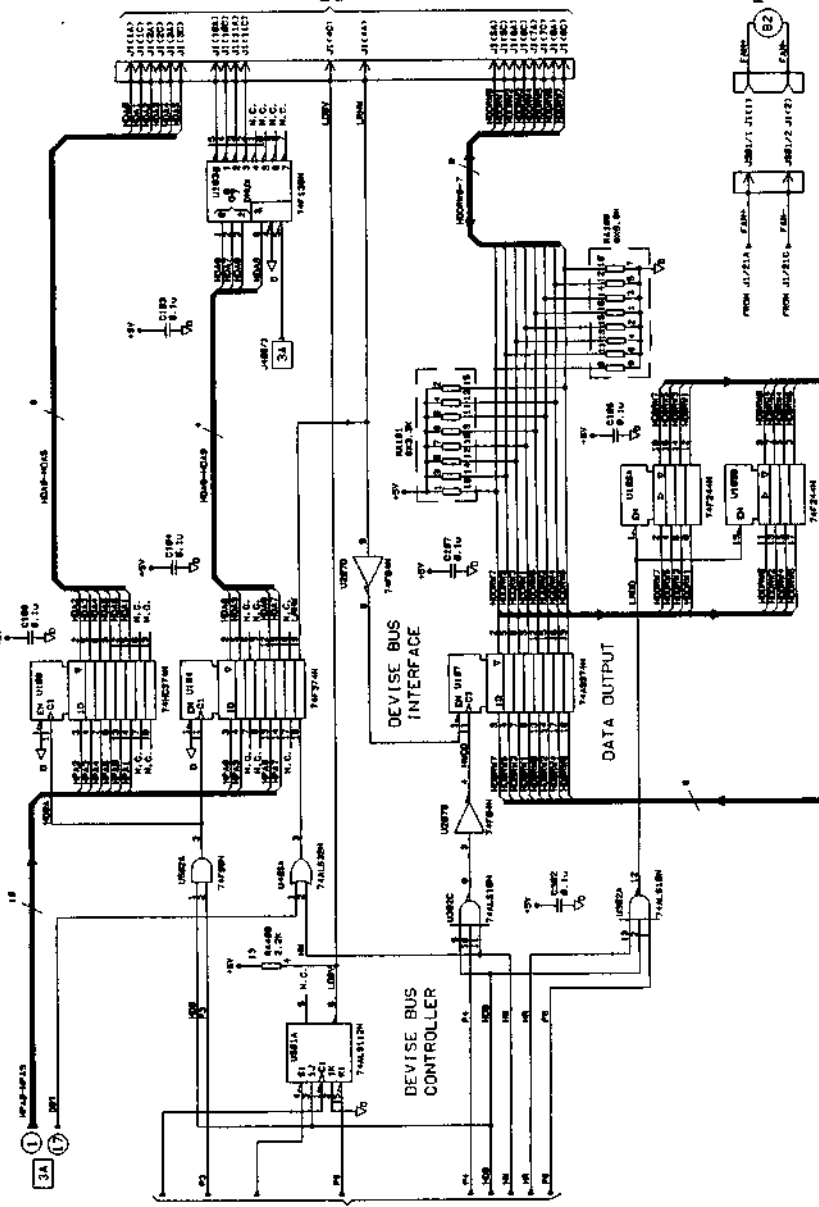
DEVICE BUS CONTROLLER

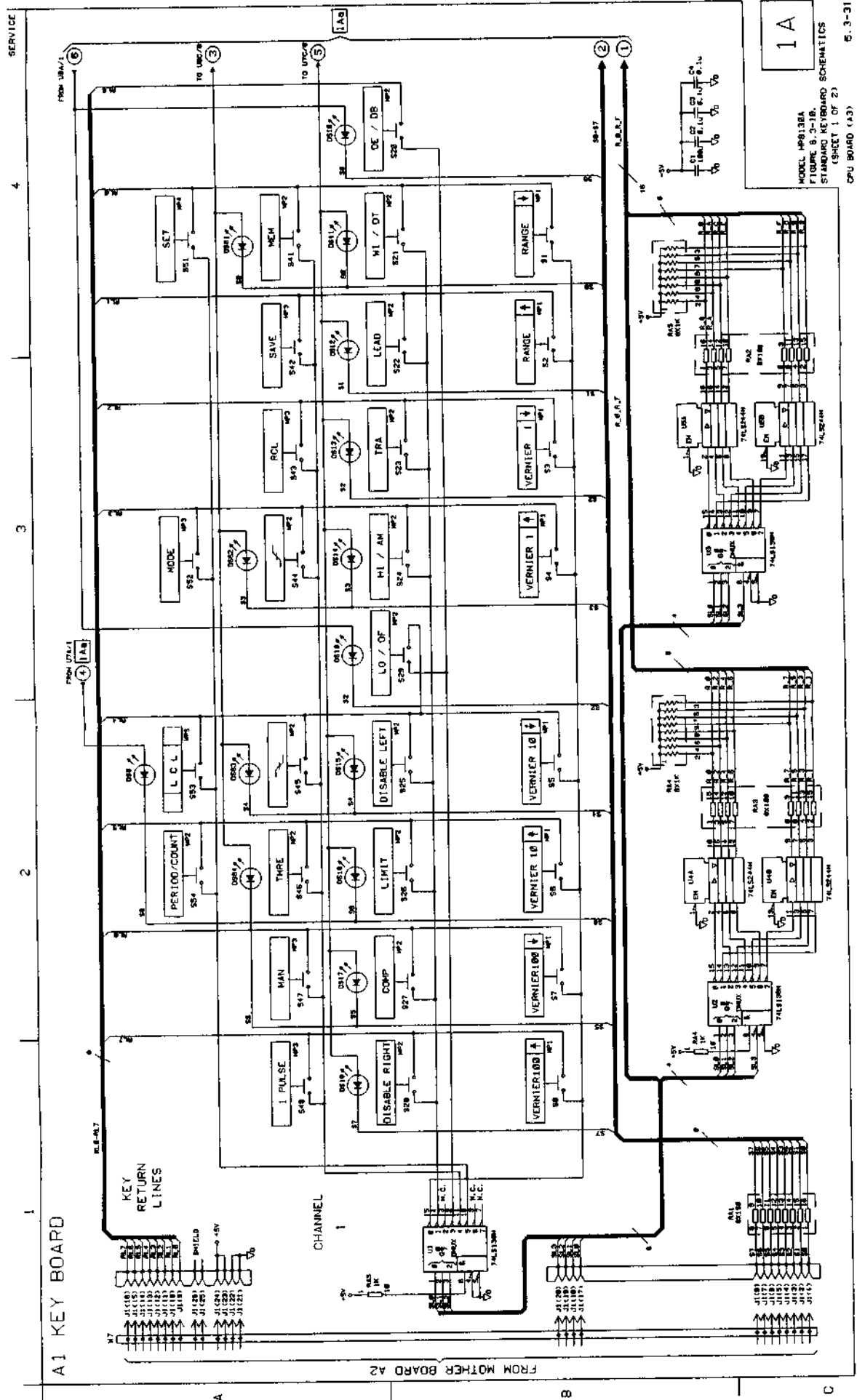
P/O A1 MOTHER BO

P/O MAIN FRAME

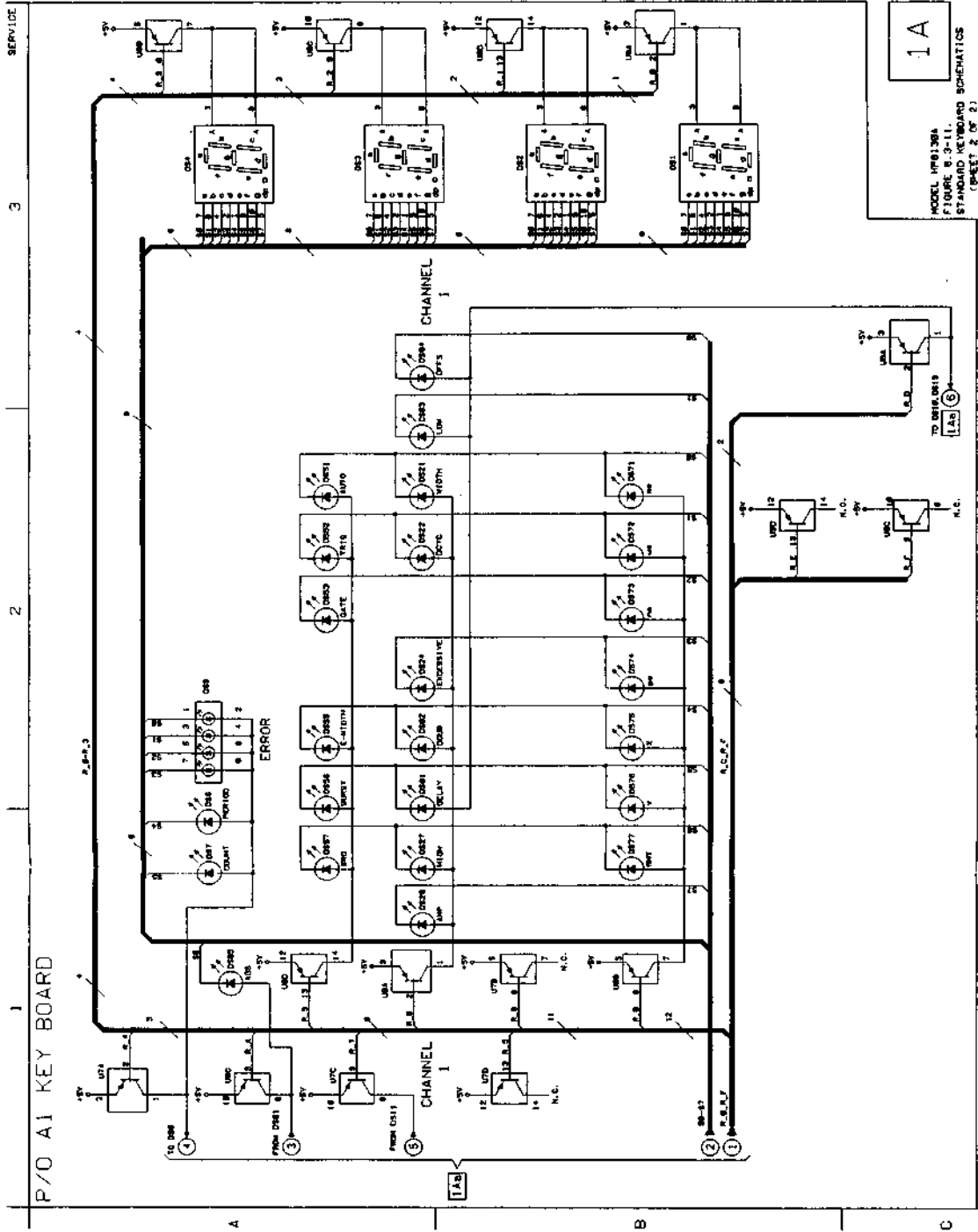
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MODEL 1P013BA/31A
FIGURE 6-3-8
CPU BO SCHEMATICS (SHEET 5 OF 5)
6-3-27
CPU (43)

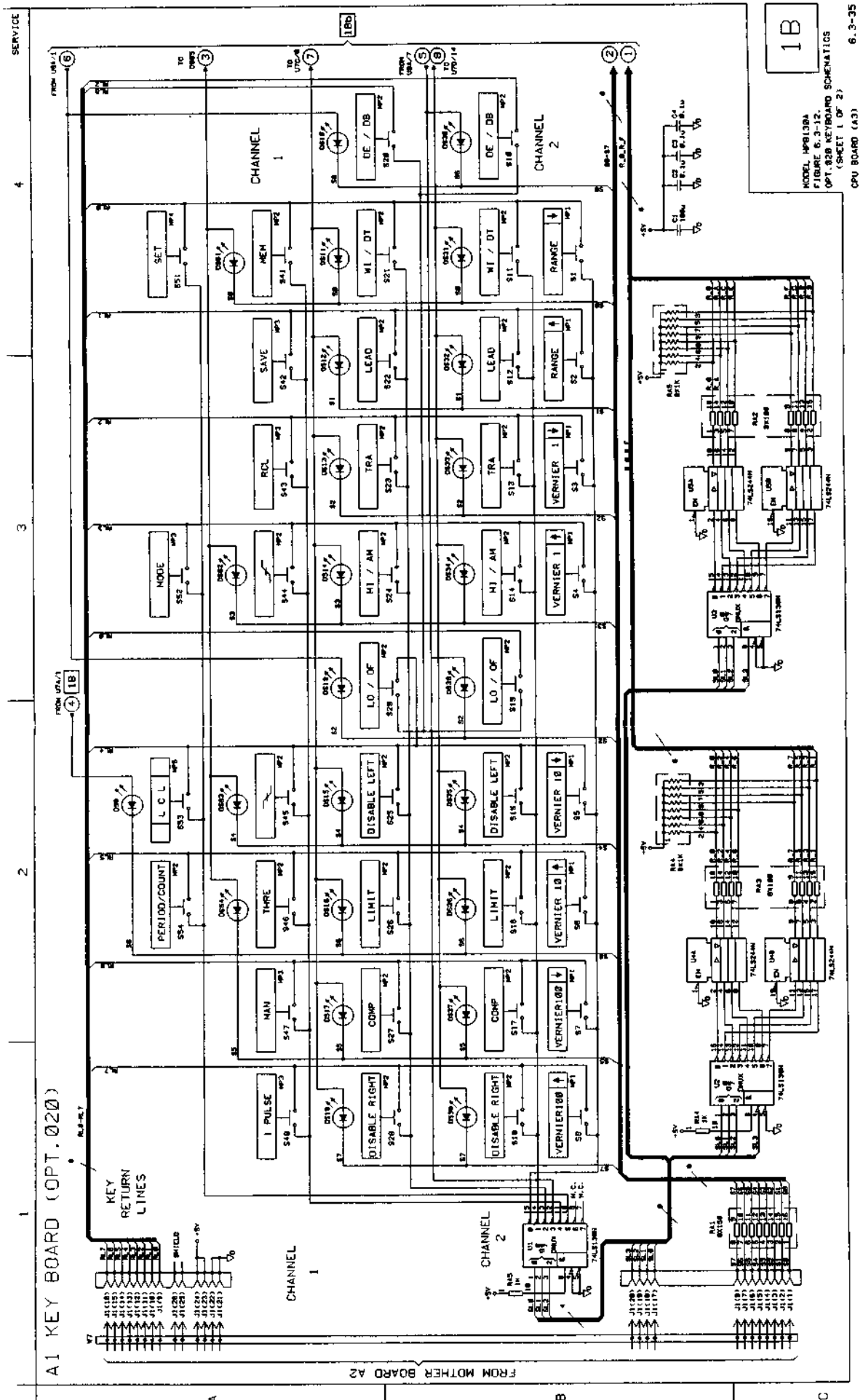




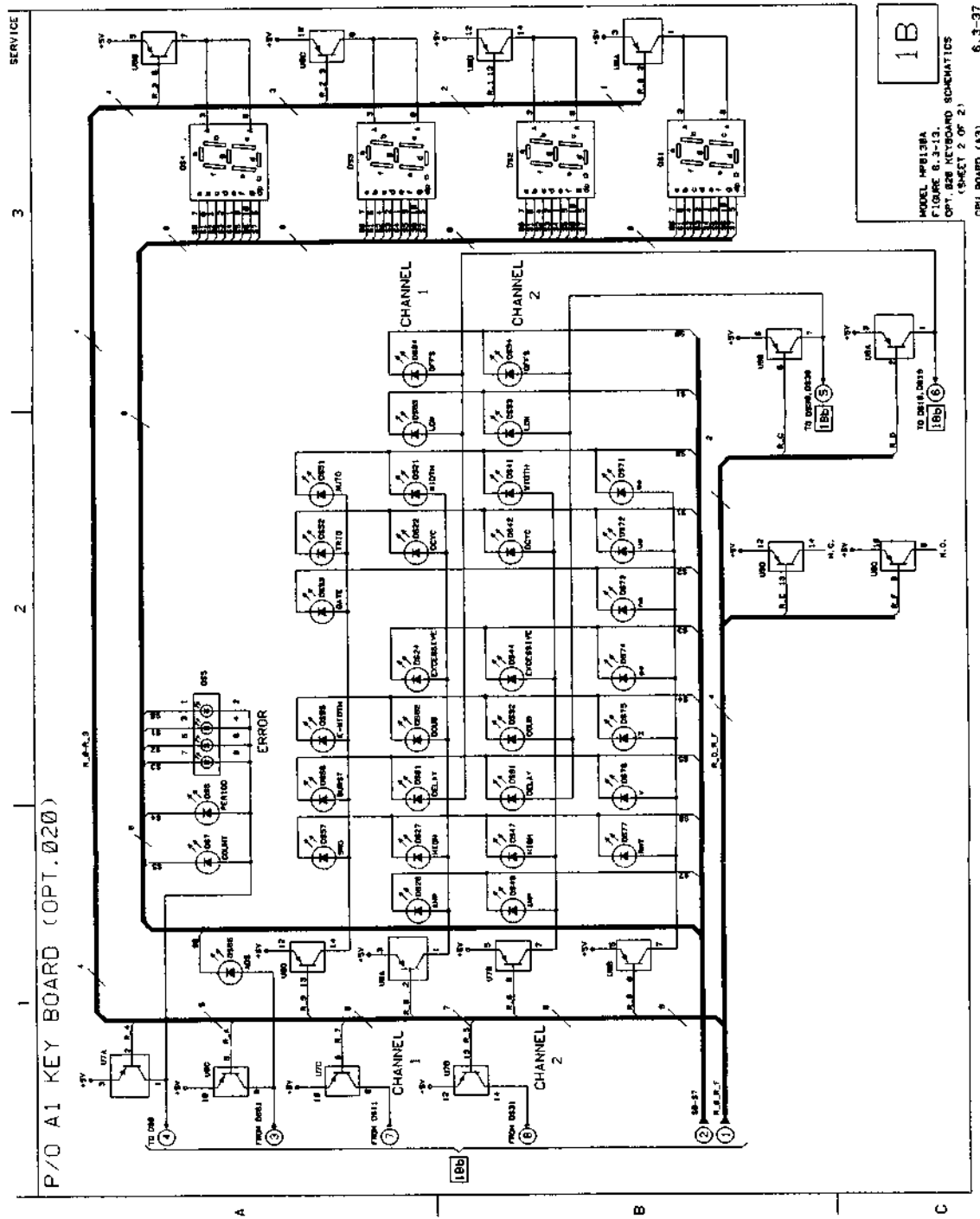
MODEL WPG138A
FIGURE 5-3-1B
STANDARD RETURN SCHEMATICS
(SHEET 1 OF 2)
CPU BOARD (A3)



1 A
 MODEL HP8128A
 FIGURE 8-3-11.
 STANDARD KEYBOARD SCHEMATICS
 (SHEET 2 OF 2)
 CPU BOARD (A3)
 6-3-33

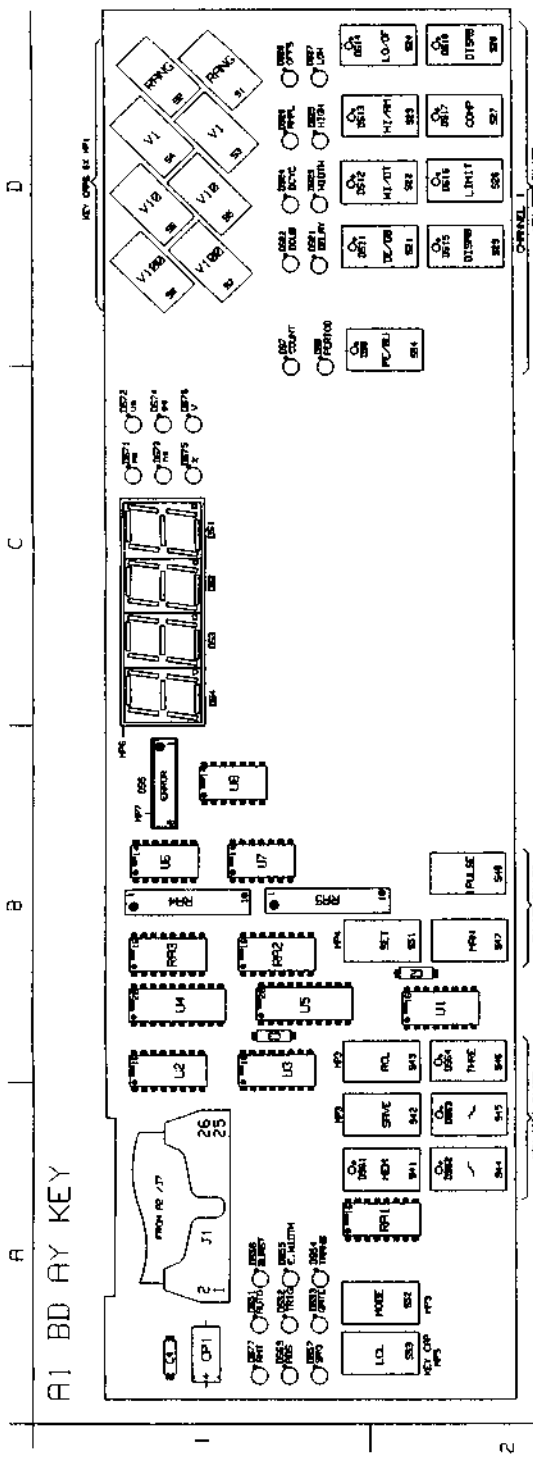


MODEL HP8138A
 FIGURE 6.3-12.
 OPT. 020 KEYBOARD SCHEMATICS
 (SHEET 1 OF 2)

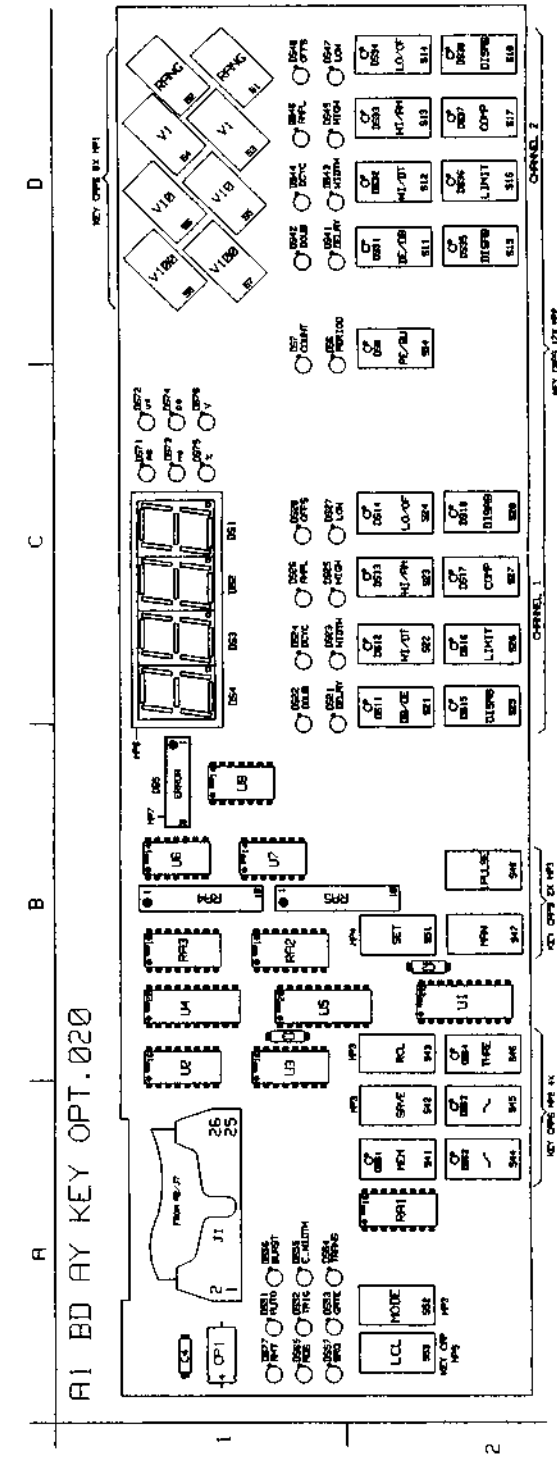


1B
MODEL HPB138A
FIGURE 6.3-13.
OPT. 020 KEYBOARD SCHEMATICS
(SHEET 2 OF 2)
CPU BOARD (A3)

REF. DES.	CALL REF. LOC.	DES.	CALL REF. LOC.	DES.	CALL REF. LOC.
C1	201	201	201	201	201
C2	202	202	202	202	202
C3	203	203	203	203	203
C4	204	204	204	204	204
C5	205	205	205	205	205
C6	206	206	206	206	206
C7	207	207	207	207	207
C8	208	208	208	208	208
C9	209	209	209	209	209
C10	210	210	210	210	210
C11	211	211	211	211	211
C12	212	212	212	212	212
C13	213	213	213	213	213
C14	214	214	214	214	214
C15	215	215	215	215	215
C16	216	216	216	216	216
C17	217	217	217	217	217
C18	218	218	218	218	218
C19	219	219	219	219	219
C20	220	220	220	220	220
C21	221	221	221	221	221
C22	222	222	222	222	222
C23	223	223	223	223	223
C24	224	224	224	224	224
C25	225	225	225	225	225
C26	226	226	226	226	226
C27	227	227	227	227	227

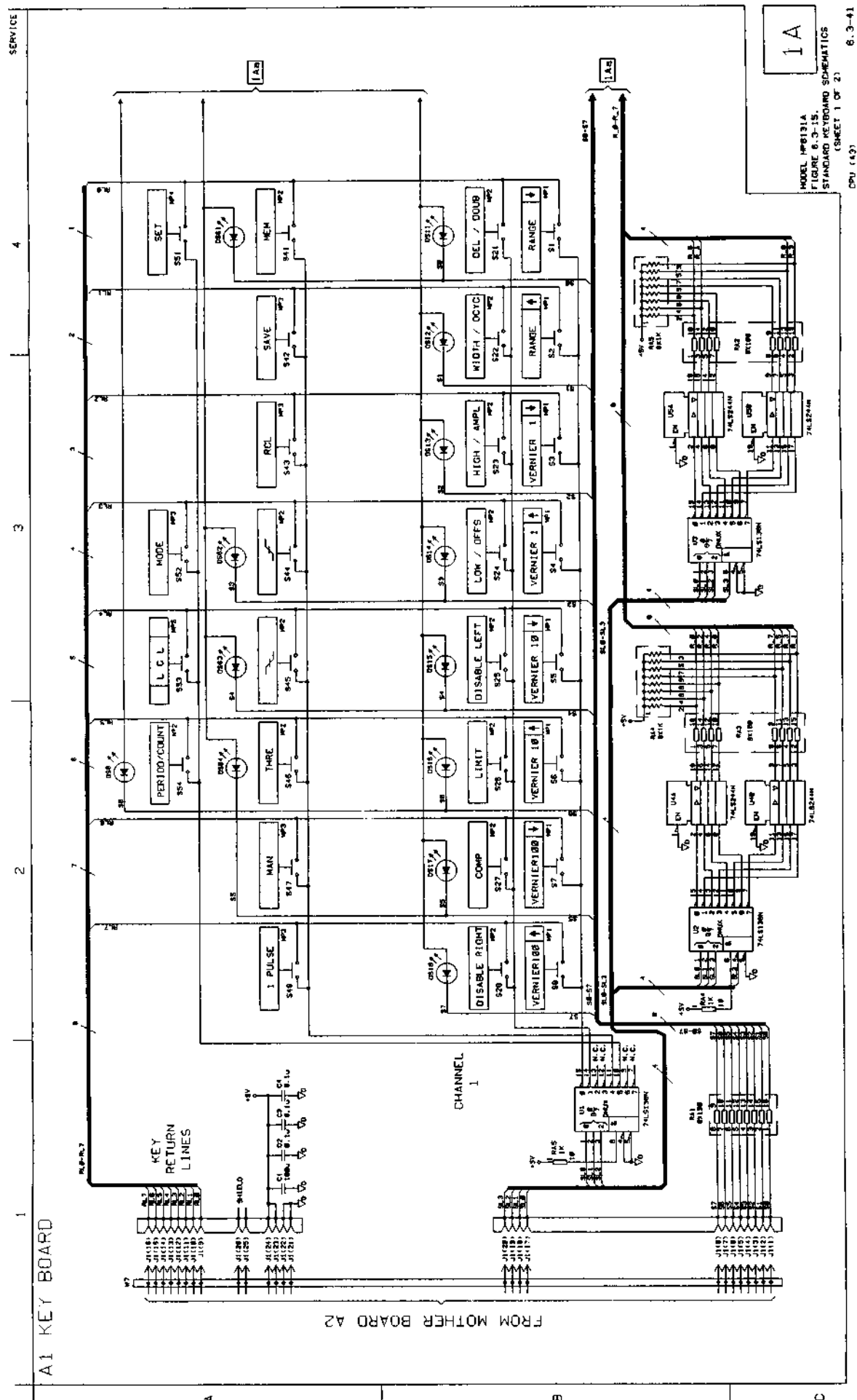


REF. DES.	CALL REF. LOC.	DES.	CALL REF. LOC.	DES.	CALL REF. LOC.
C1	201	201	201	201	201
C2	202	202	202	202	202
C3	203	203	203	203	203
C4	204	204	204	204	204
C5	205	205	205	205	205
C6	206	206	206	206	206
C7	207	207	207	207	207
C8	208	208	208	208	208
C9	209	209	209	209	209
C10	210	210	210	210	210
C11	211	211	211	211	211
C12	212	212	212	212	212
C13	213	213	213	213	213
C14	214	214	214	214	214
C15	215	215	215	215	215
C16	216	216	216	216	216
C17	217	217	217	217	217
C18	218	218	218	218	218
C19	219	219	219	219	219
C20	220	220	220	220	220
C21	221	221	221	221	221
C22	222	222	222	222	222
C23	223	223	223	223	223
C24	224	224	224	224	224
C25	225	225	225	225	225
C26	226	226	226	226	226
C27	227	227	227	227	227



MODEL HPB131A
KEYBOARD COMPONENT LAYOUT
(STANDARD AND OPT.020) CPU BD (R3) 6.3-39

MODEL HPB131A
KEYBOARD COMPONENT LAYOUT
(STANDARD AND OPT.020) CPU BD (R3) 6.3-39



SERVICE

4

3

2

1

A1 KEY BOARD

LAB

LAB

1A

MODEL HP8131A
 FIGURE 6.3-15.
 STANDARD KEYBOARD SCHEMATICS
 (SHEET 1 OF 2)

6.3-41

CPU (42)

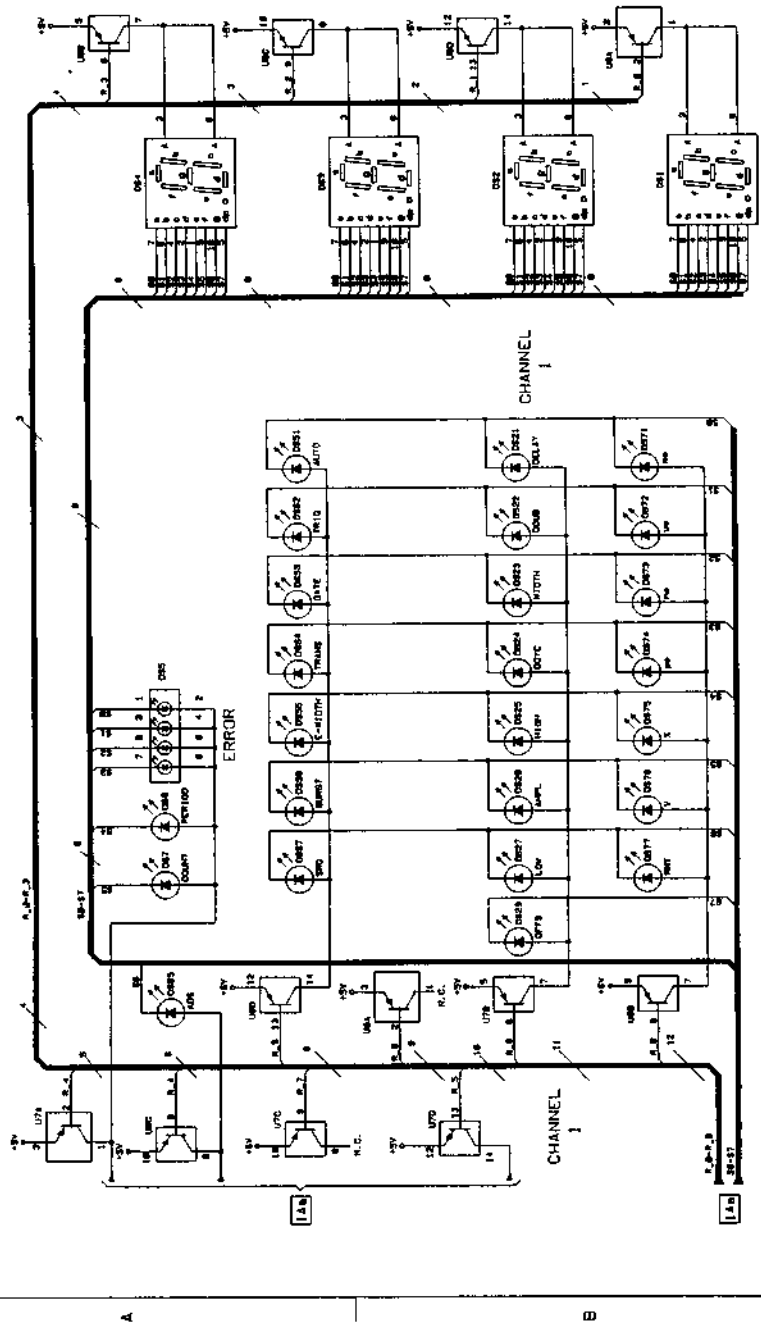
FROM MOTHER BOARD A2

A

B

C

A1 KEY BOARD

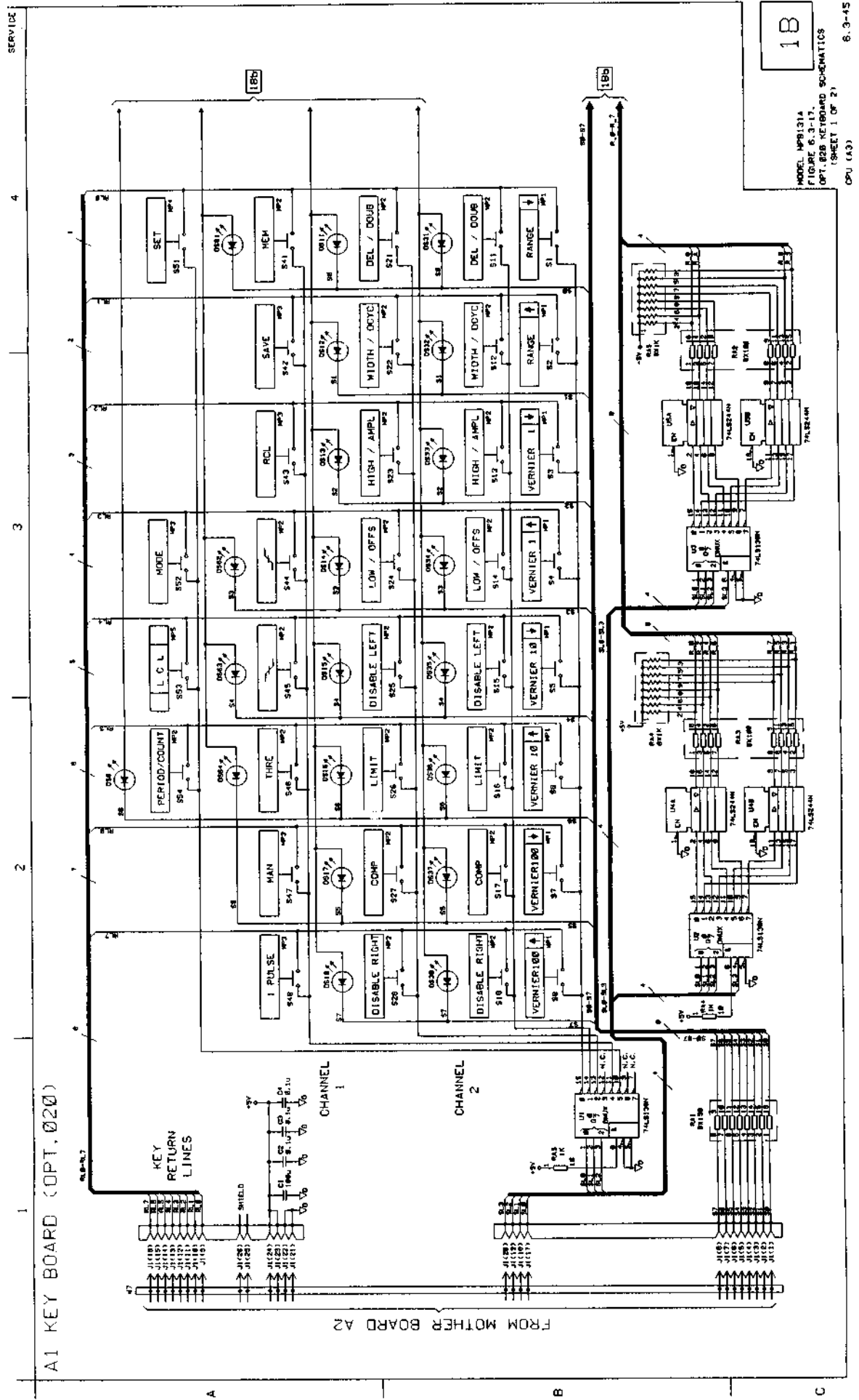


1 A

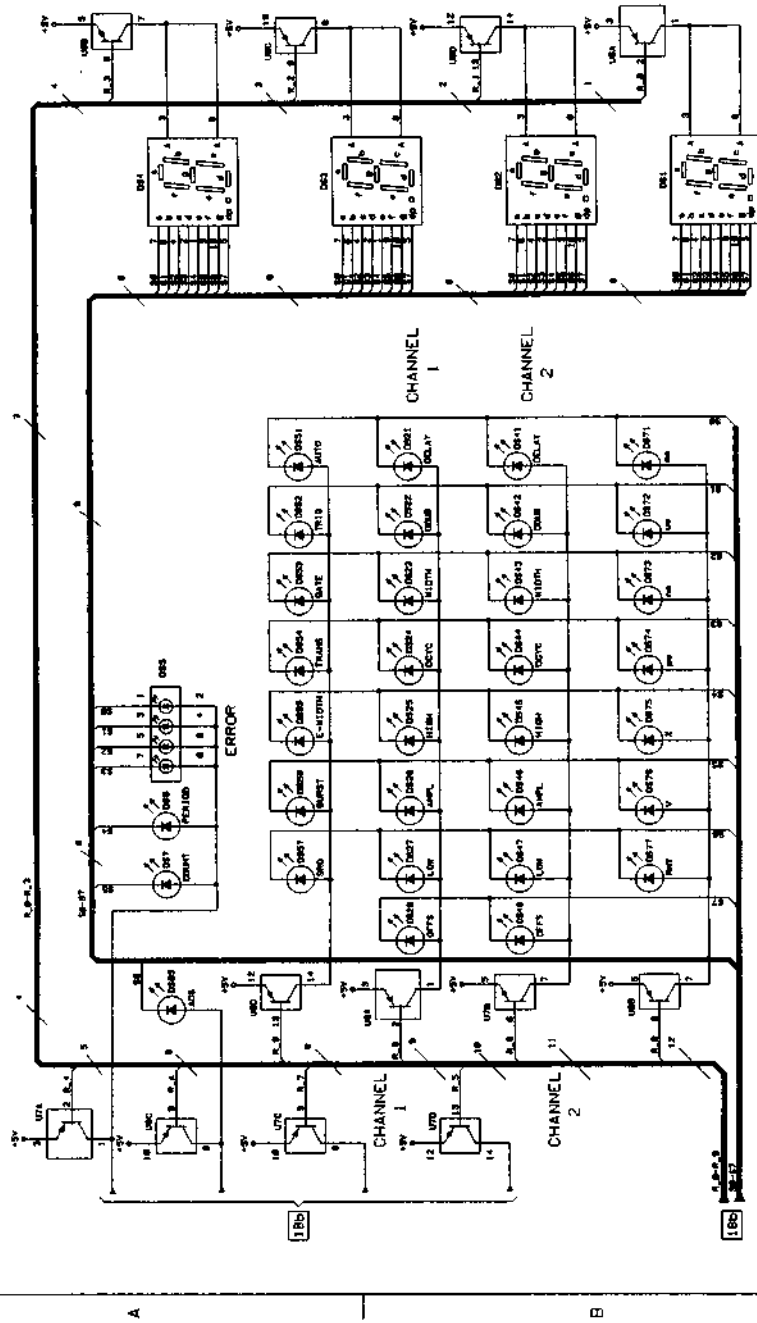
MODEL HP8131A
FIGURE 6-3-16.
STANDARD KEYBOARD SCHEMATICS
(SHEET 2 OF 2)

CPU BOARD (A3)

6-3-43



A1 KEY BOARD (OPT. 020)



1B

MODEL HP8131A
 FIGURE 6-3-16
 OPT. 020 RETROARD SCHEMATICS
 (SHEET 2 OF 2)
 CPU BOARD (A3)

Timing Board (A5)

Introduction

The complete timing generation for both the HP 8130A/HP 8131A 500 MHz channels is realized on one board.

Note

The HP 8130A is a 300 MHz pulse generator, however, it uses the same 500 MHz channels as the HP 8131A.

The board consists of five main parts:

- three timing blocks to generate period, delay and width
- trigger input stage
- adjust memory.

The delay and width generators are duplicated in the optional second channel (option 020).

Block Theory of Operation

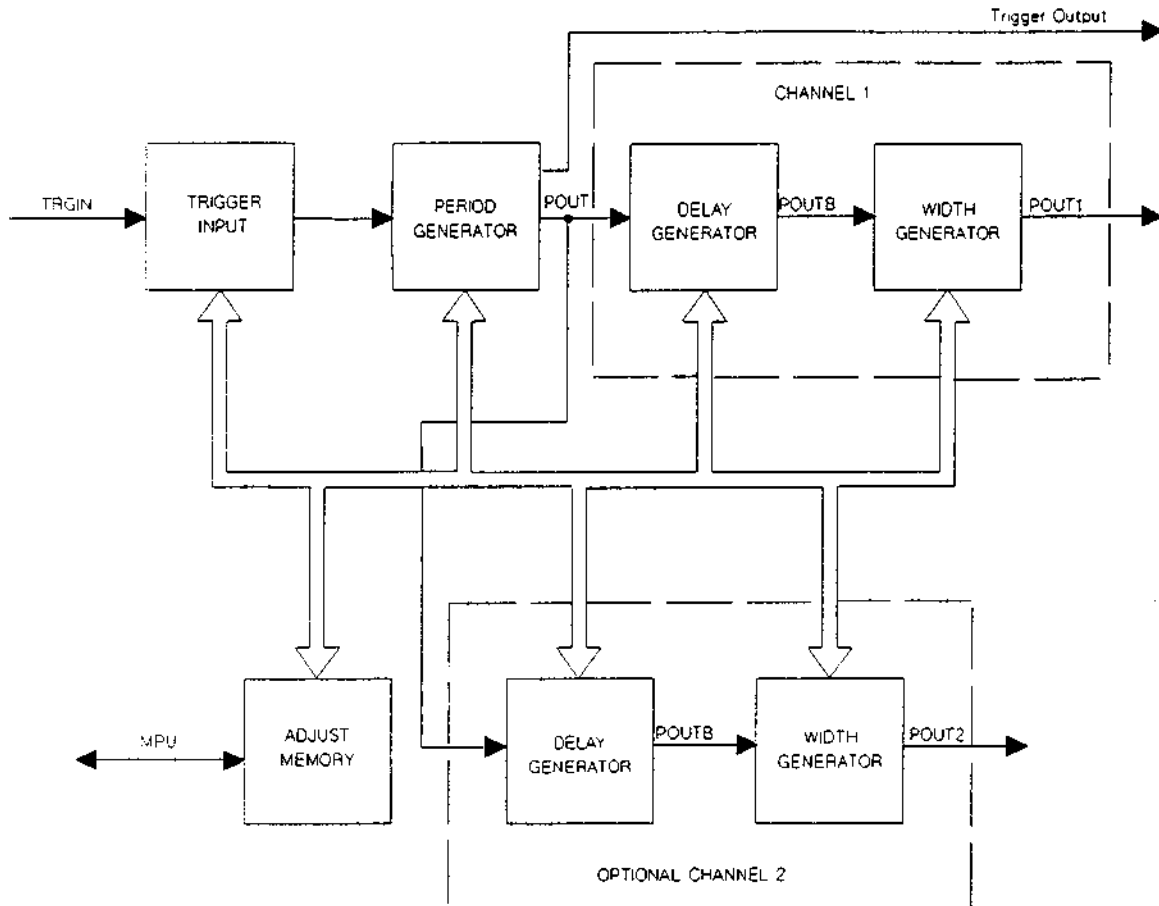


Figure 6-4-1. Module Block Diagram

Trigger Input

The external signal, with a frequency up to 300 MHz for the HP 8130A and 500 MHz for the HP 8131A, is transformed to an internal signal with an EECL format.

Timing Blocks

The three timing blocks (period, delay, and width) function in a similar manner, their main components being a 500 MHz triggerable oscillator and a 200 MHz counter. This enables a frequency range from 500 MHz down to 10 Hz to be covered. The delay and width timing blocks are duplicated in the optional channel 2.

Adjust Memory

The adjust information (found during a special test during production) is stored in an EEPROM within this block. The MPU uses this EEPROM data every time the timing parameter changes.

6-4-2 Timing Board (A5)

Trigger Input

The trigger input stage transforms an external trigger signal with a frequency up to 300 MHz for the HP 8130A and 500 MHz for the HP 8131A to an internal trigger signal. The external levels can be in the range of ± 5 V with a peak-to-peak voltage down to 300 mV, the internal levels are EECL format.

The heart of the trigger input is a bipolar 500 MHz comparator mounted on a hybrid that can be internally inverted and disabled. To operate the comparator in its specified range, the input signal, TRGIN, is attenuated by 20 dB. The trigger threshold is generated by an 8-bit DAC.

Timing Block

The timing block is the main part of the timing board. There are three timing blocks in the 1-channel version and five in the 2-channel version. They operate in a similar manner to generate period, delay, and width.

A timing block consists of:

- a 500 MHz bipolar timing generator (TIGER)
- a 200 MHz bipolar counter
- five current sources and one voltage source that are partially controlled by a DAC
- a digital interface for mode control
- a 10 MHz TTL-burst-counter for the period generator.

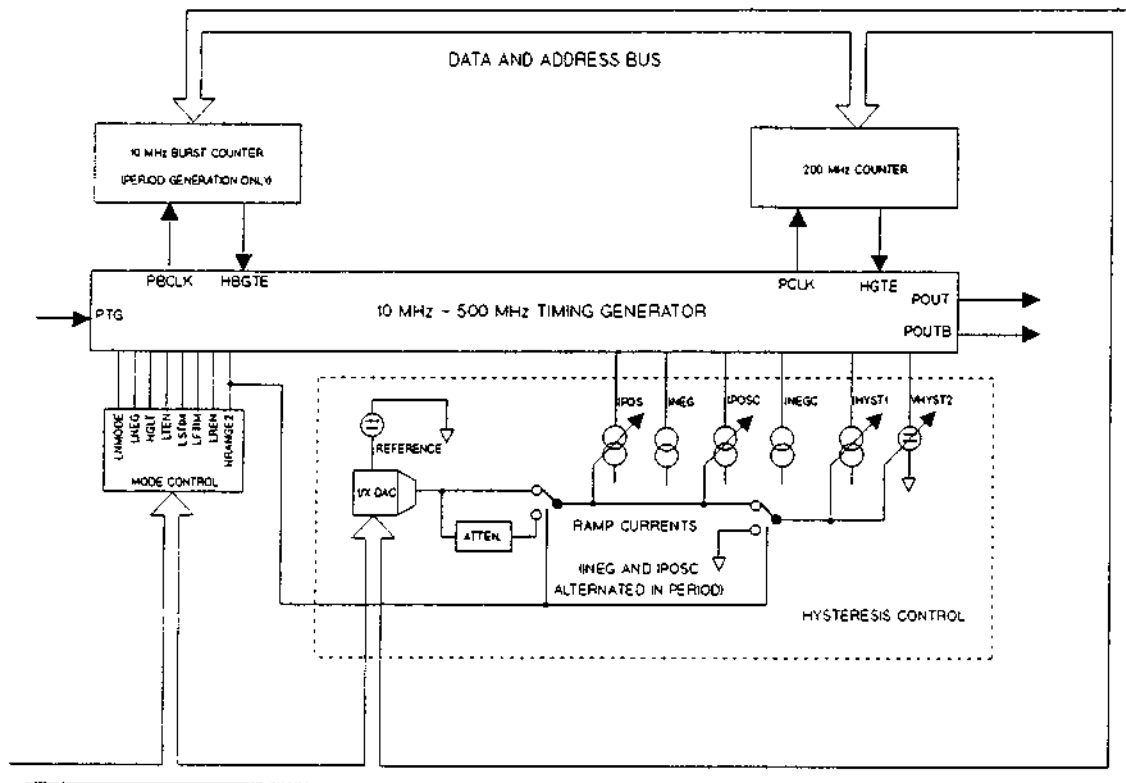


Figure 6-4-2. Timing Block Diagram

Bipolar Timing Generator

The TIGER-IC is a synchronously gateable and triggerable oscillator with a maximum frequency of 500 MHz or a minimum pulse width of 1 ns. It has a large analog timing range divided into two parts. The first part has a pulse width range from 1 ns to 10 ns, the second from 10 ns to 100 ns (or a 500 MHz to 100 MHz and 100 MHz to 10 MHz repetition rate). This analog timing range can be expanded by using an external decade counter.

Mode Control

The operation mode of the TIGER is controlled by the digital mode control. Each TIGER can operate in one of the following modes:

- a gateable oscillator
- a monostable that can be triggered on the rising edge or, the rising and falling edges
- a transparent IC (output signal = input signal).

There are some additional signals to enable the timing circuit and, to select either the first or second timing range.

Current Sources, Voltage Source and Hysteresis Control

The analog timing of the TIGER is controlled by five current sources and one voltage source, partially controlled by a DAC.

The current sources I_{pos} and I_{neg} supply the ramp oscillator load capacitor and hence define the charge and discharge cycles.

I_{posc} and I_{negc} are complements of I_{pos} and I_{neg} and are used for internal offset biasing.

I_{hyst1} and V_{hyst2} are used to adjust the ramp oscillator internal hysteresis and thus to compensate for high frequency effects.

I_{pos} , I_{posc} and the hysteresis control are varied by a 12-bit DAC used in the 1/x-mode. To enable both timing ranges to be covered by the same DAC and sources, the DAC can be switched to operate via an attenuator in the second timing range. The result is to set the current sources in a different manner; the hysteresis control is fixed.

Decade Counter

The decade counter is used to expand the analog timing range of the TIGER. It is a (14+2)-bit bipolar EECL counter that is able to operate in a frequency range up to 200 MHz and to count up to 3 276 801. When operating in the second timing range (10 ns to 100 ns) the counter, together with the TIGER, can expand the pulse width up to 100 ms (repetition rate of 10 Hz).

Period Generation

During period generation the fast counter operates in the burst mode to count the required number of bursts in the period range 5 ns to 99.9 ns. To provide a burst mode in slower ranges, where this counter is used to expand the period, an additional burst counter is realized using discrete TTL components.

Operation Modes

The following sections describe the seven operation modes available with the HP 8130A and the eight modes with the HP 8131A. The information given, also applies to the optional second channel.

AUTO - Auto Mode

In this mode, the period, delay and width are generated internally and the trigger input disabled. The period generator operates as a free running oscillator and the delay and width generators as monostables. The delay generator is triggered by the rising edge of the period generator output signal (POUT). The delay generator produces a single negative pulse at its inverted output (POUTB); the (negative) pulse width corresponds to the expected delay. The width generator is triggered by the rising edge of the delay generator output (POUTB). The width generator produces an output pulse (POUT1) with the required width.

TRIG - Triggered Mode

In TRIG mode the trigger input is enabled with all its functions. The period generator is in transparent mode and the delay and width generators are used as monostables. The delay and width generators function in the same way as in the AUTO mode. Triggering at the trigger input can be on the rising or falling edge.

GATE - Gate Mode

The internal configuration of the GATE mode is the same as for the AUTO mode, except the trigger input is enabled. Period, delay, and width are generated internally, in addition the period generator can be started or stopped by an external signal. The start of the period generator is synchronized to the external signal and is halted after the last period cycle has completed. The gate function at the trigger input can be selected either for positive or negative gate.

BURST - Burst Mode

In the BURST mode the period generator is configured as in the GATE mode, but the gate signal is internally generated by a burst counter. A trigger pulse at the period generator causes it to oscillate and a counter counts from the given number of burst pulses down to zero and then stops the period generator. If the period is lower than 100 ns, the fast counter is used to count the pulses otherwise the TTL counter is used. The delay and width generators again operate as monostables. The BURST function can be chosen, at the trigger input, to start on the rising or falling edge.

E. WIDTH - External Width Mode

In this mode the input signal TRGIN is transmitted to the output POUT1, thus all the generators (period, delay, and width) are in the transparent mode. In order to produce the correct signal at the HP 8130A/HP 8131A output, the input signal is first inverted at the trigger input stage and then again on the output board. The E. WIDTH mode can be selected, at the trigger input, to operate normally or inversely.

TRANS - Transducer Mode (HP 8131A only)

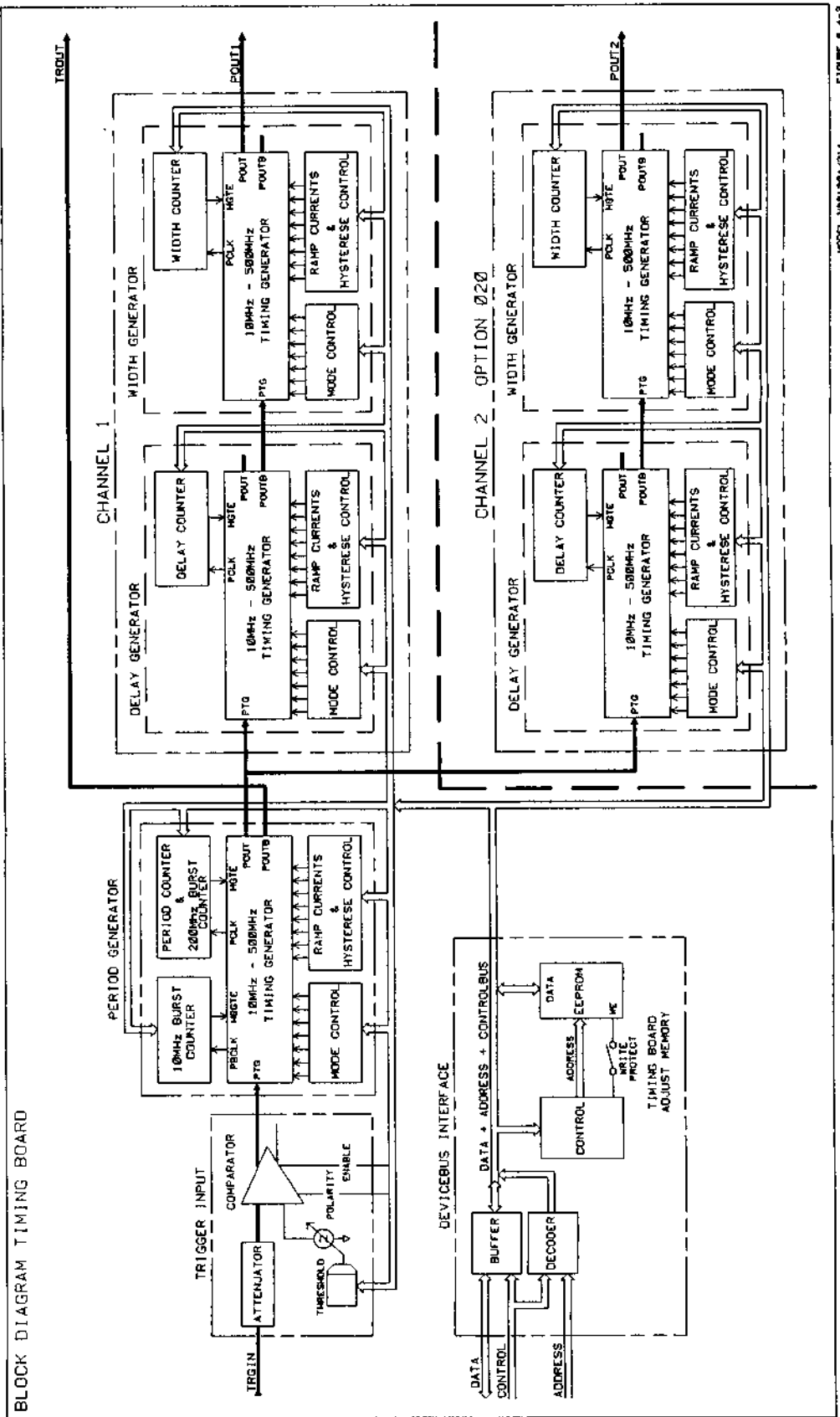
This mode does not involve the timing board; thus all generators and the trigger input are disabled.

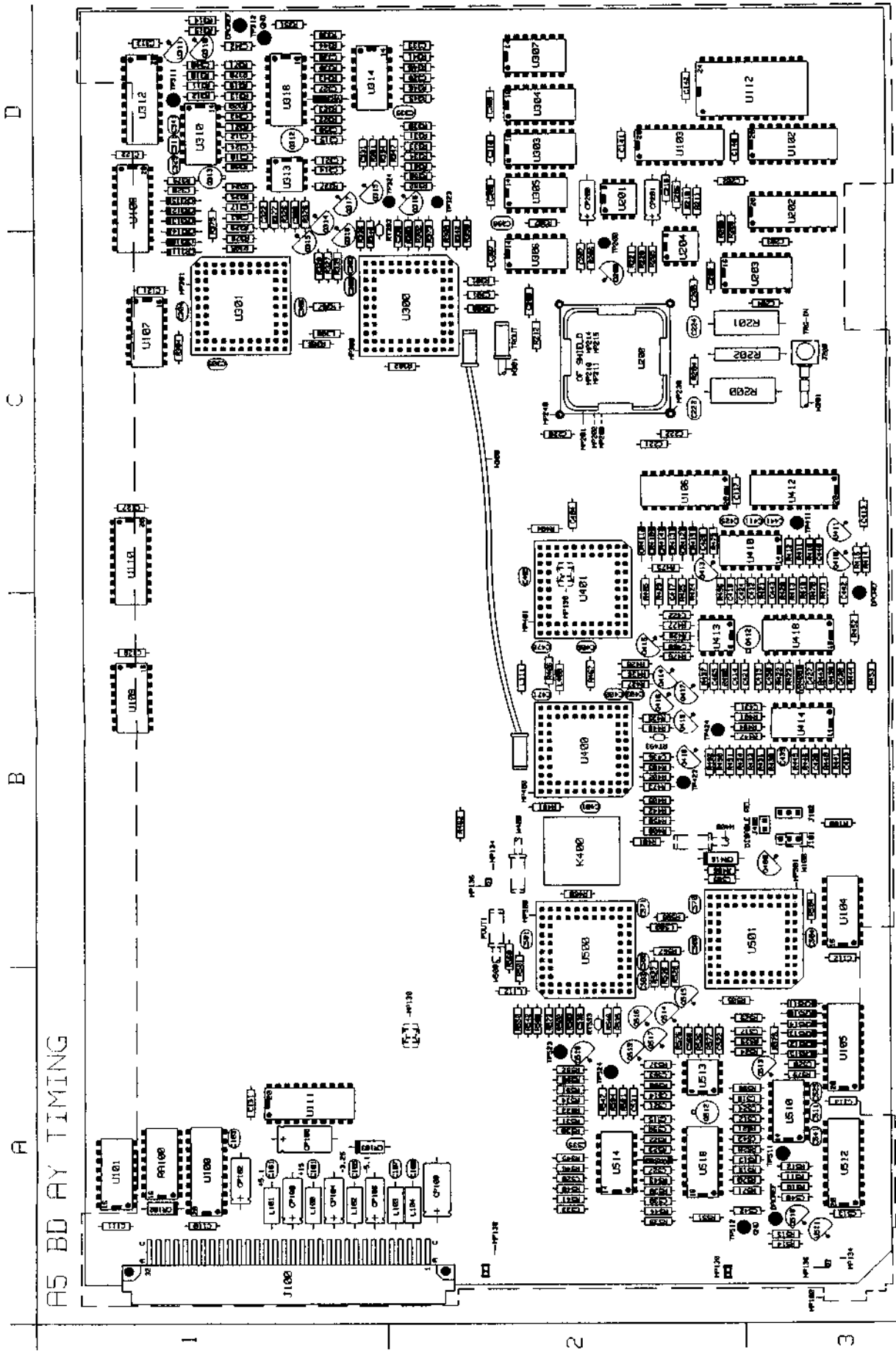
DCYC - Duty Cycle Mode

This mode can be selected in addition to the AUTO, GATE, and BURST modes. During this mode the firmware calculates and programs the width, corresponding to the given period, with respect to the desired duty cycle.

DOUB - Double Pulse Mode

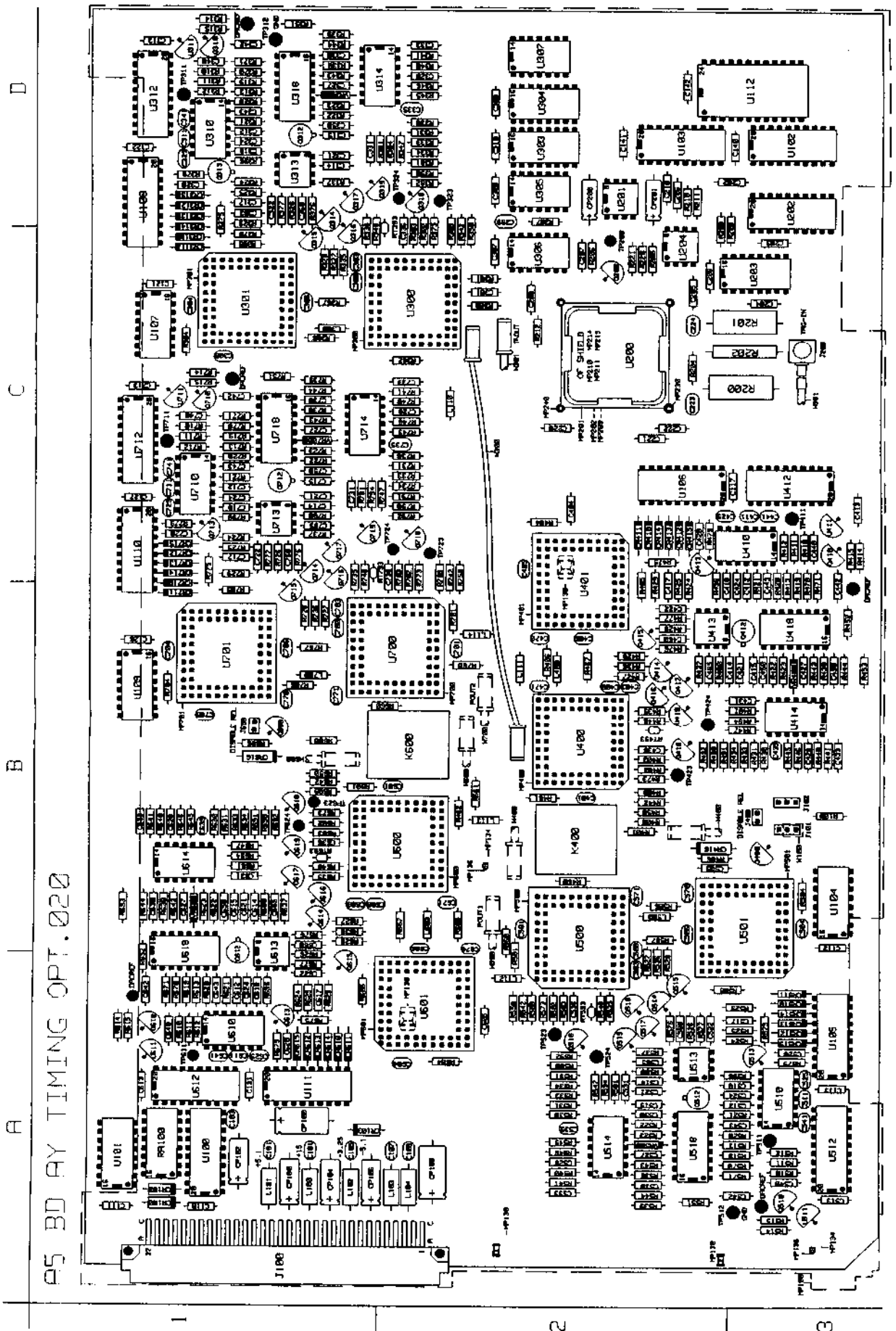
This mode can be selected in addition to AUTO, TRIG, GATE, and BURST modes. In this mode two pulses are generated for one trigger event or during one period. Both delay and width generators are in the monostable mode, but the width generator is now triggered on both the rising and falling edges of its input signal. Therefore, the pulse width of the delay generator defines the distance between the two output pulses. The (normal) delay function is not available in this mode.





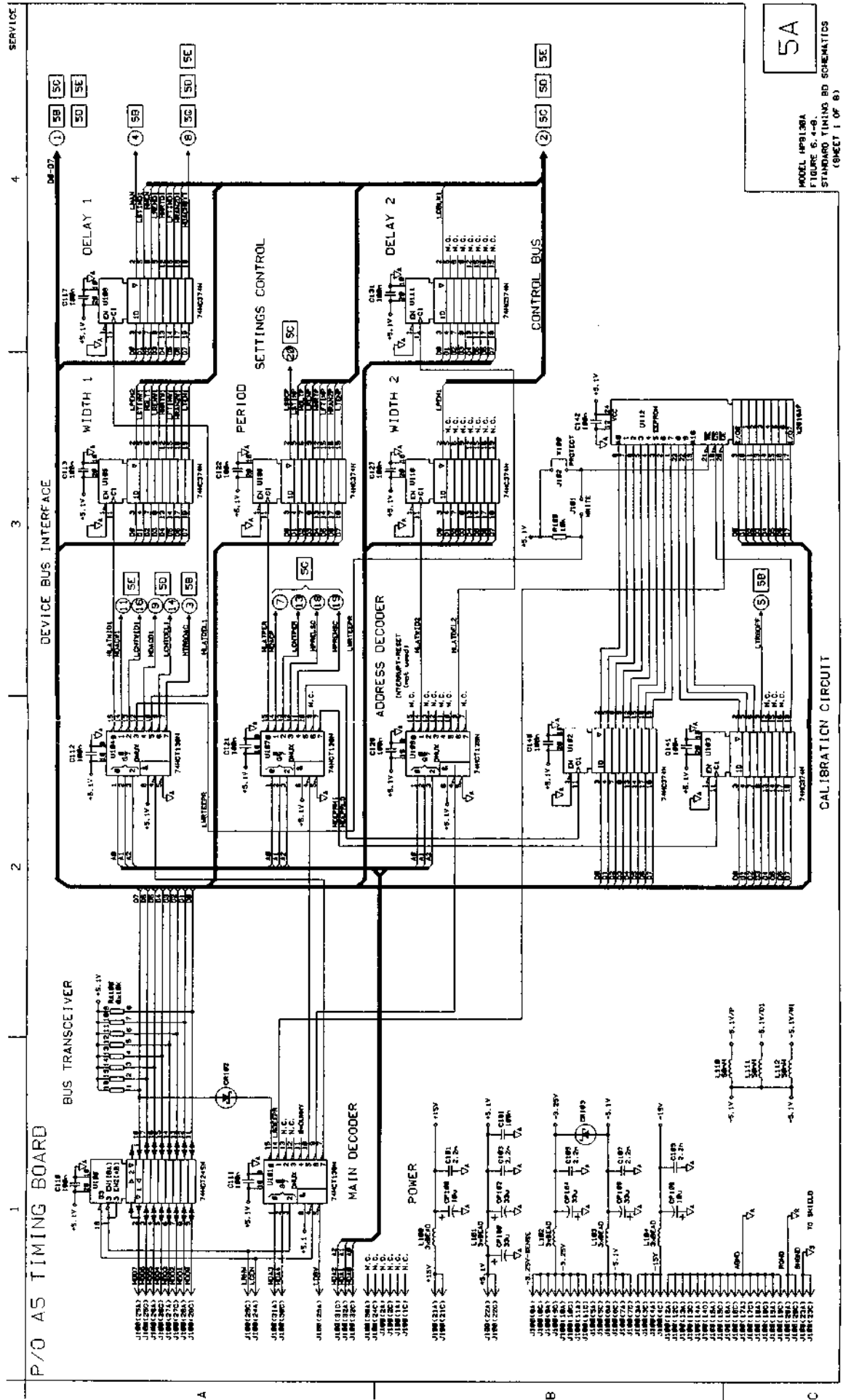
MODEL 4P8130A
STRATFORD TIMING BOARD
COMPONENT LAYOUT

FIGURE 6.4-4
TIMING BD (PS) 6.4-11

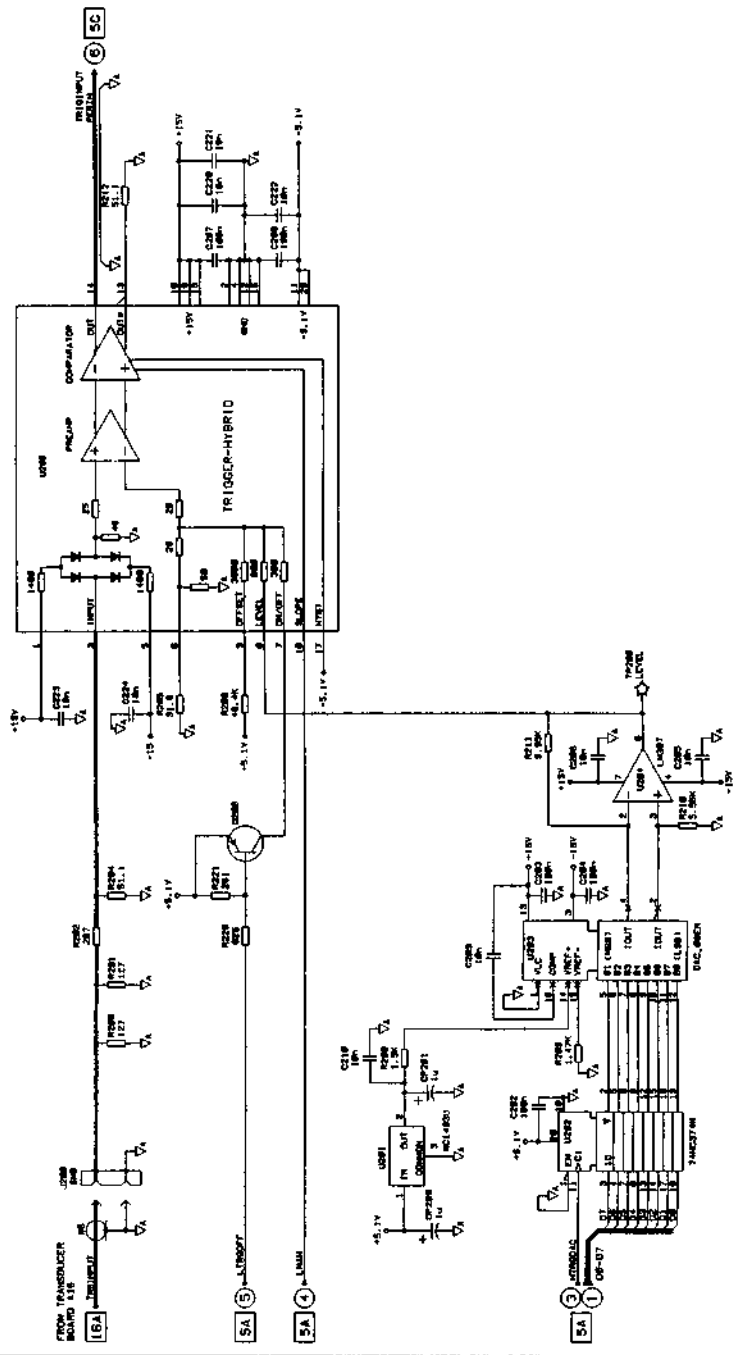


MODEL #FR130R
OPT. 020 TIMING BOARD
COMPONENT LAYOUT

FIGURE 6.4-6
TIMING BD (05) 6.4-15

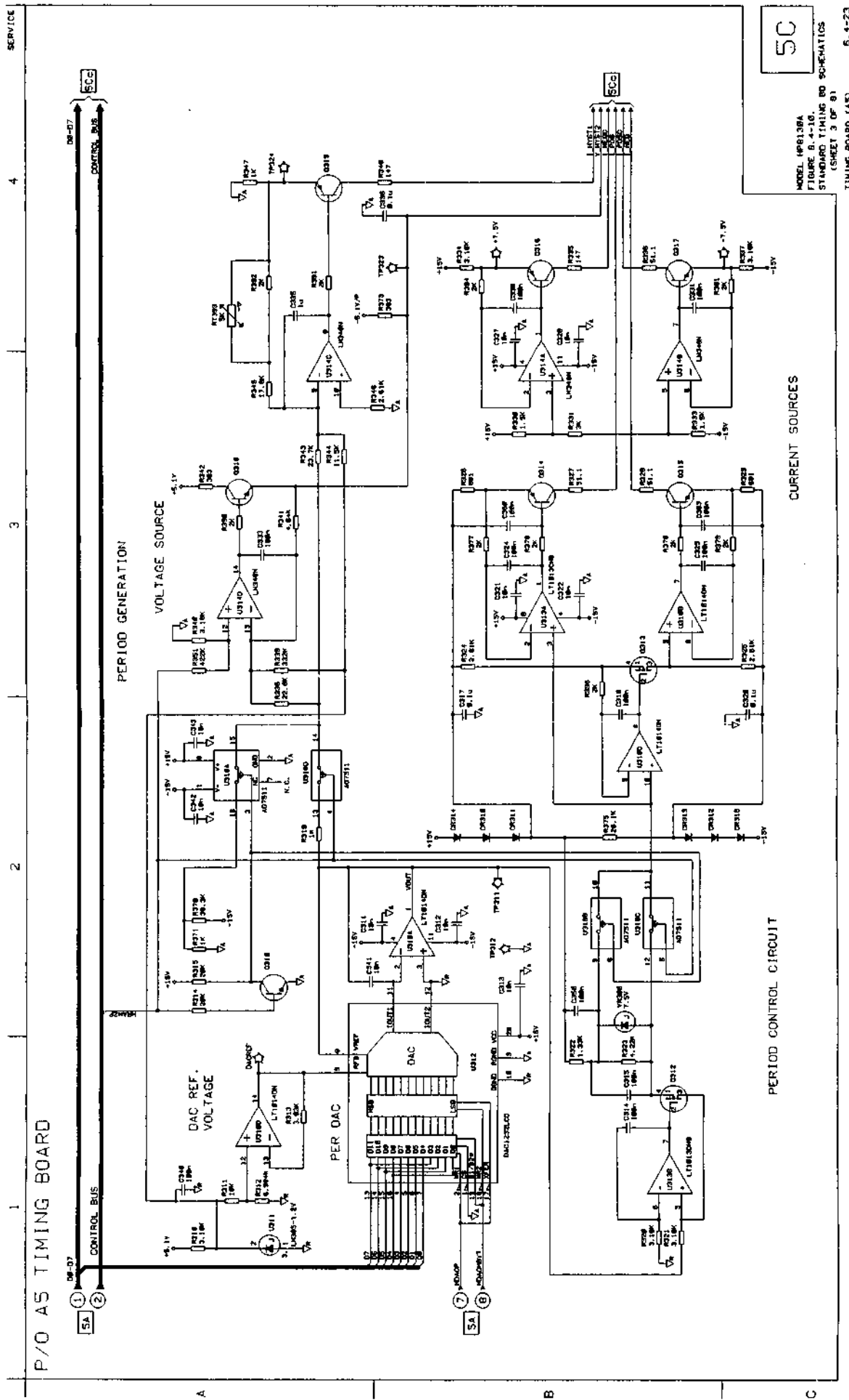


P/O A5 TIMING BOARD



5B

MODEL HP8138A
FIGURE 6-1-9
STANDARD TIMING BOARD SCHEMATICS
(SHEET 2 OF 8)
TIMING BOARD (A5) 6-4-21



P/O A5 TIMING BOARD

SERVICE

5A

5B

5C

5D

5E

5F

5G

5H

5I

5J

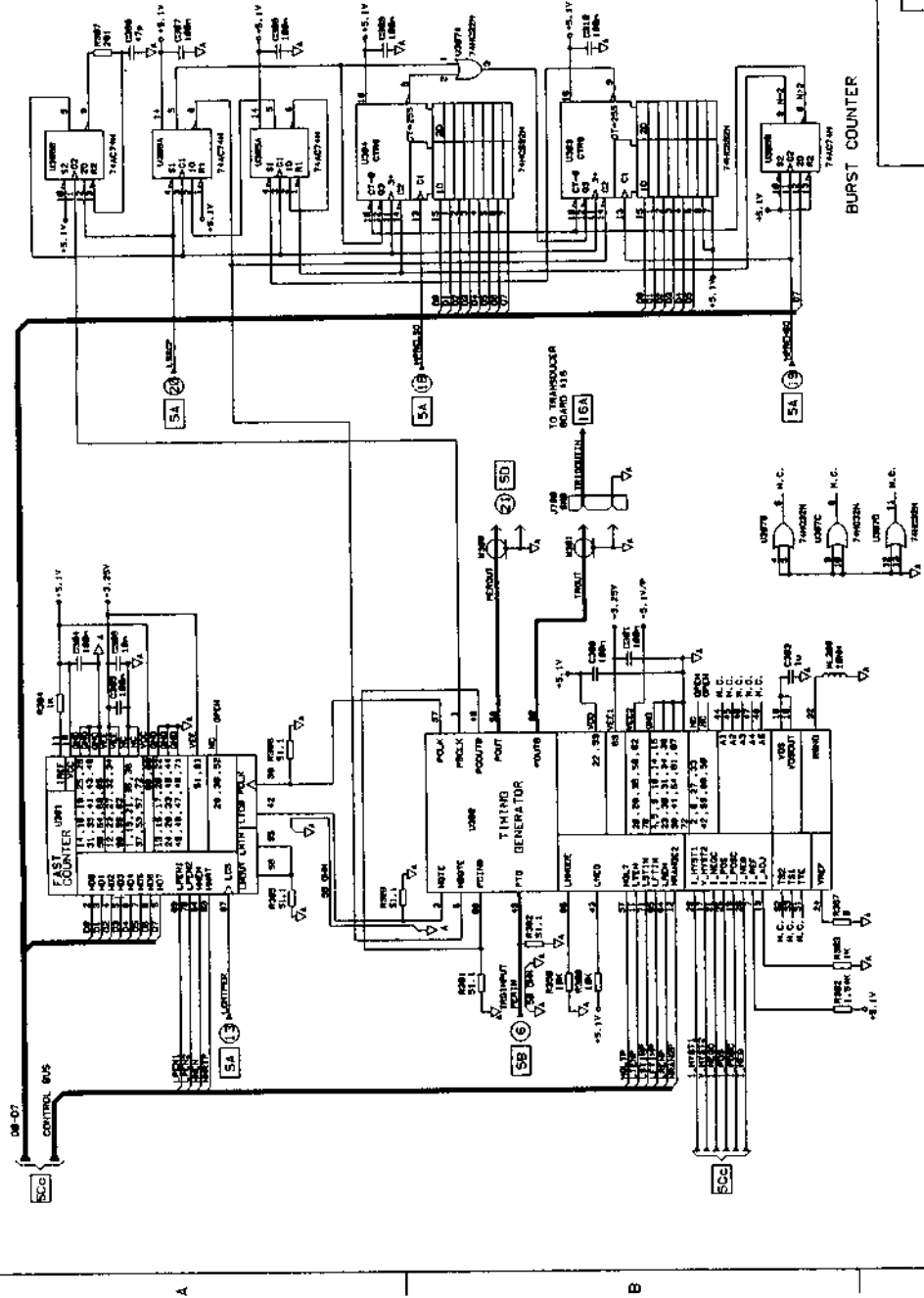
5K

5L

5M

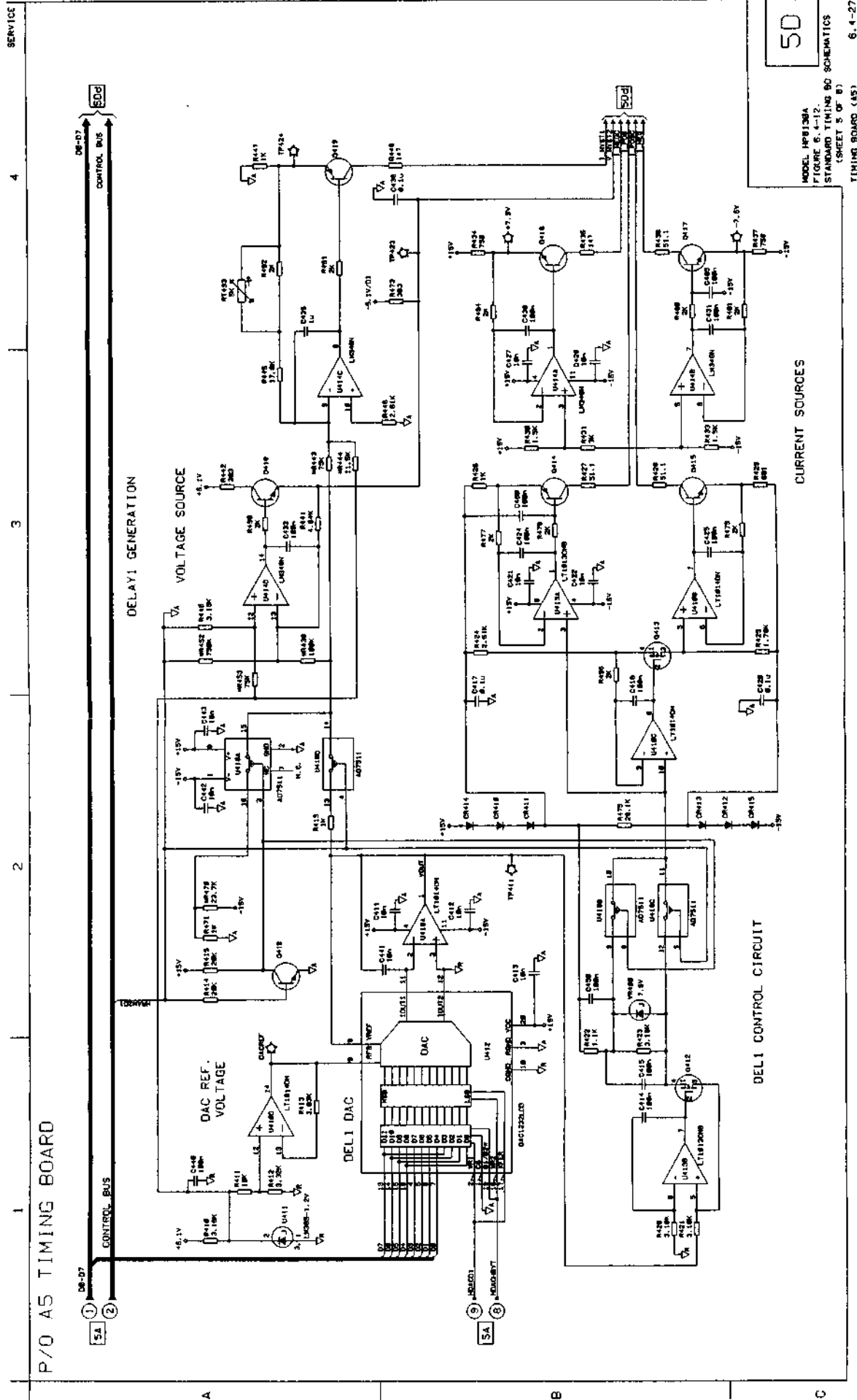
5N

P/O A5 TIMING BOARD

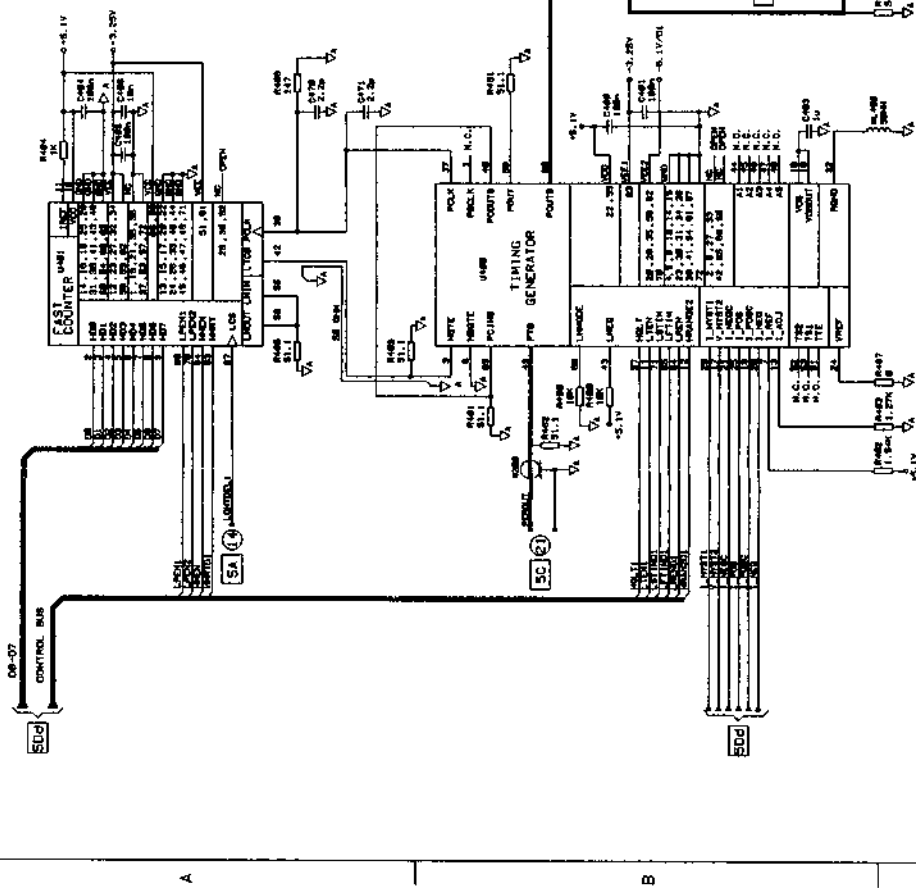


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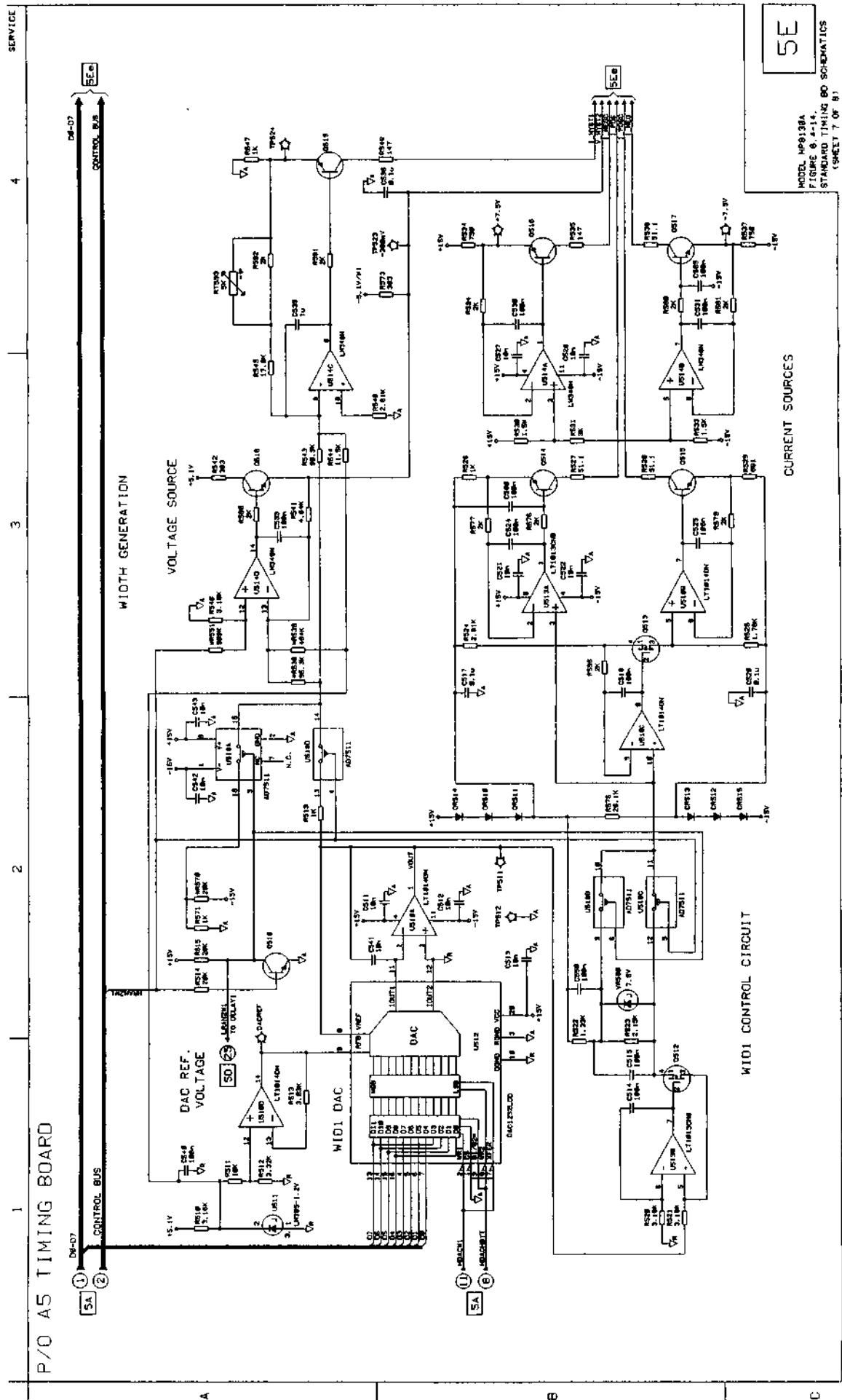
MODEL HP10158A
 MODEL HP10158A
 STANDARD TIMING BOARD SCHEMATICS
 SHEET 4 OF 82



P/O A5 TIMING BOARD



SD
MODEL MPB136A
FIGURE 6.4-14.
STANDARD TIMING BOARD SCHEMATICS
(SHEET 6 OF 8)



5E

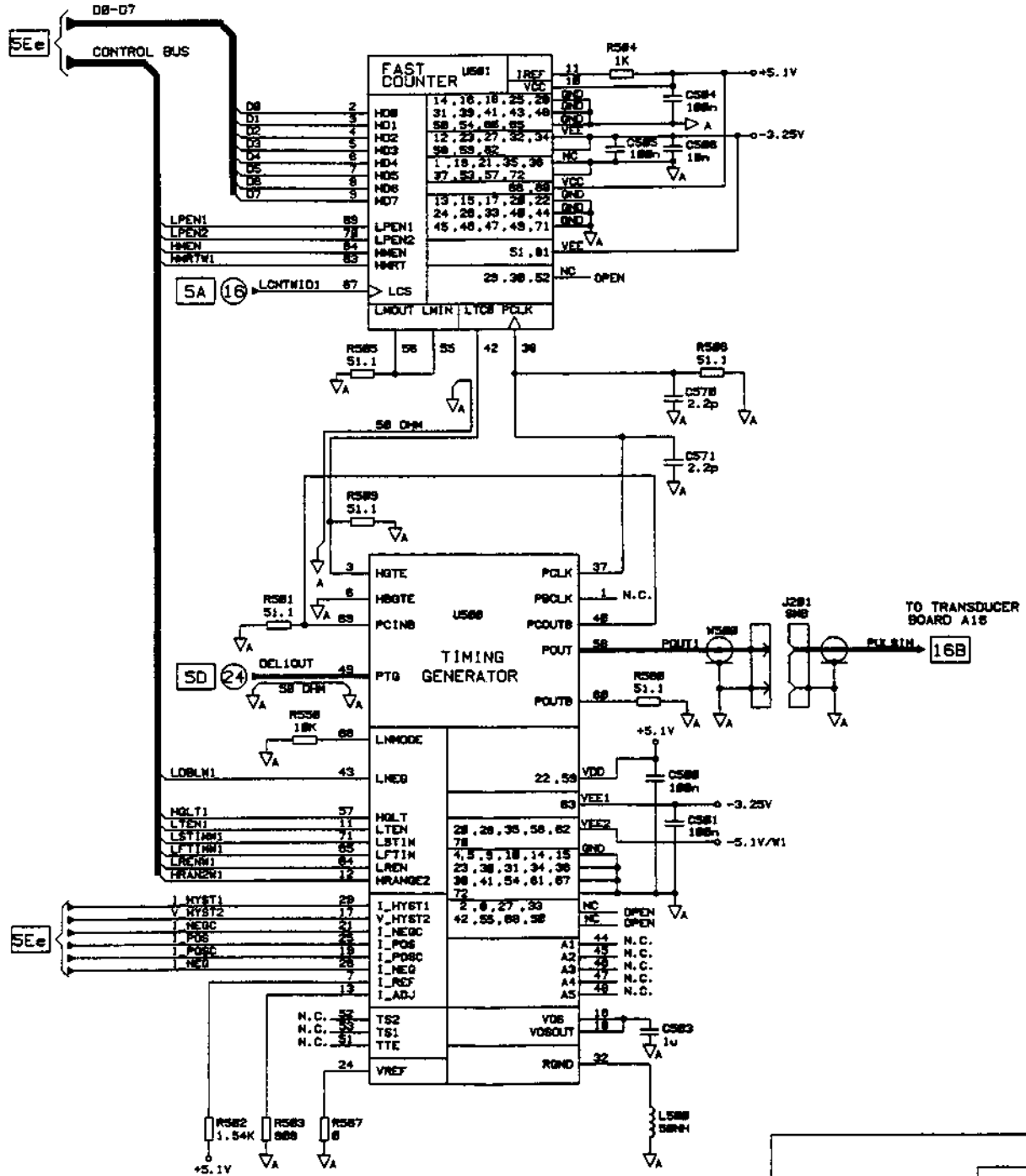
MODEL NP9138A
FIGURE 6, A-14,
STANDARD TIMING BO SCHEMATICS
(SHEET 7 OF 8)
TIMING BOARD (A5)

P/O A5 TIMING BOARD

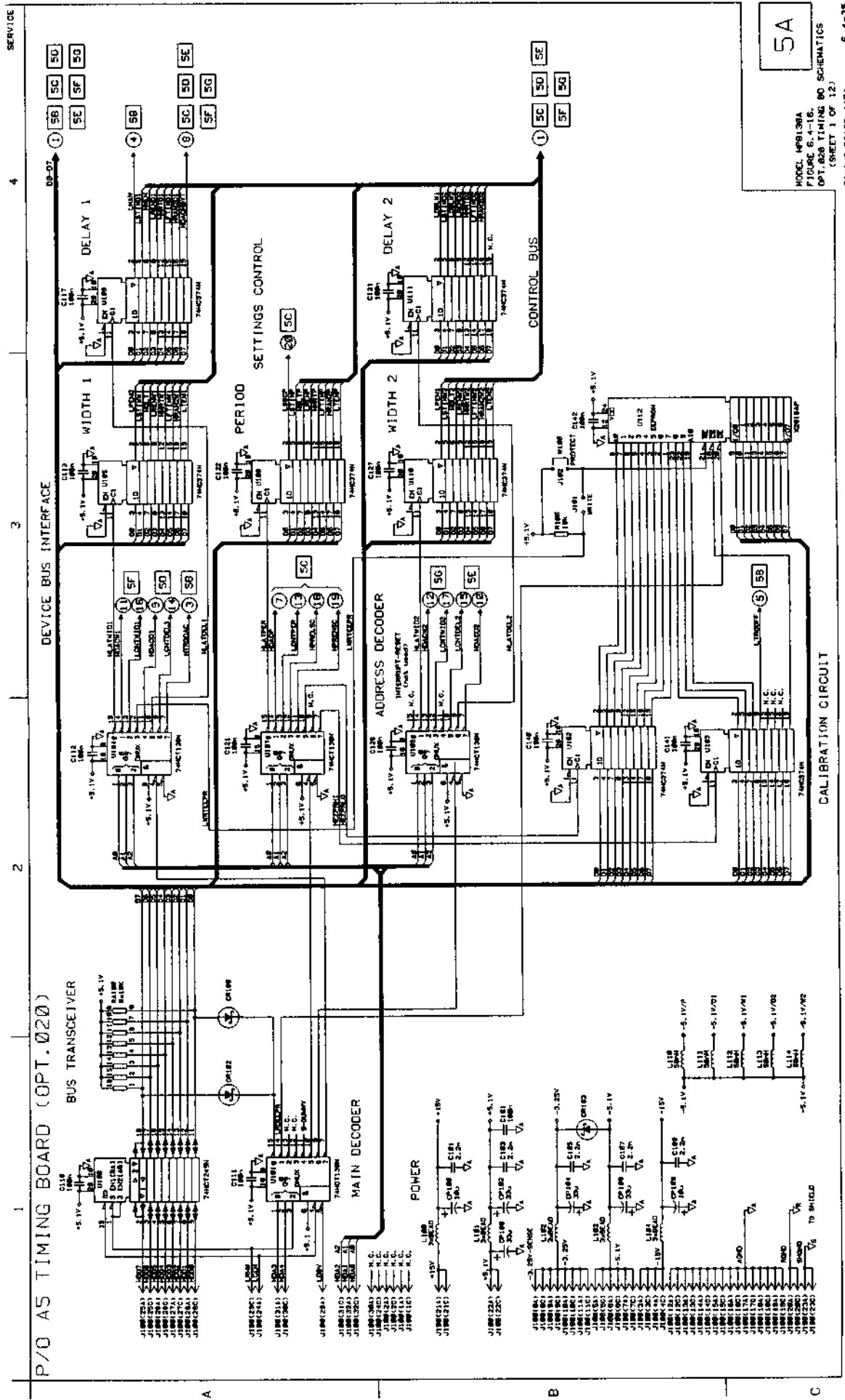
A

B

C

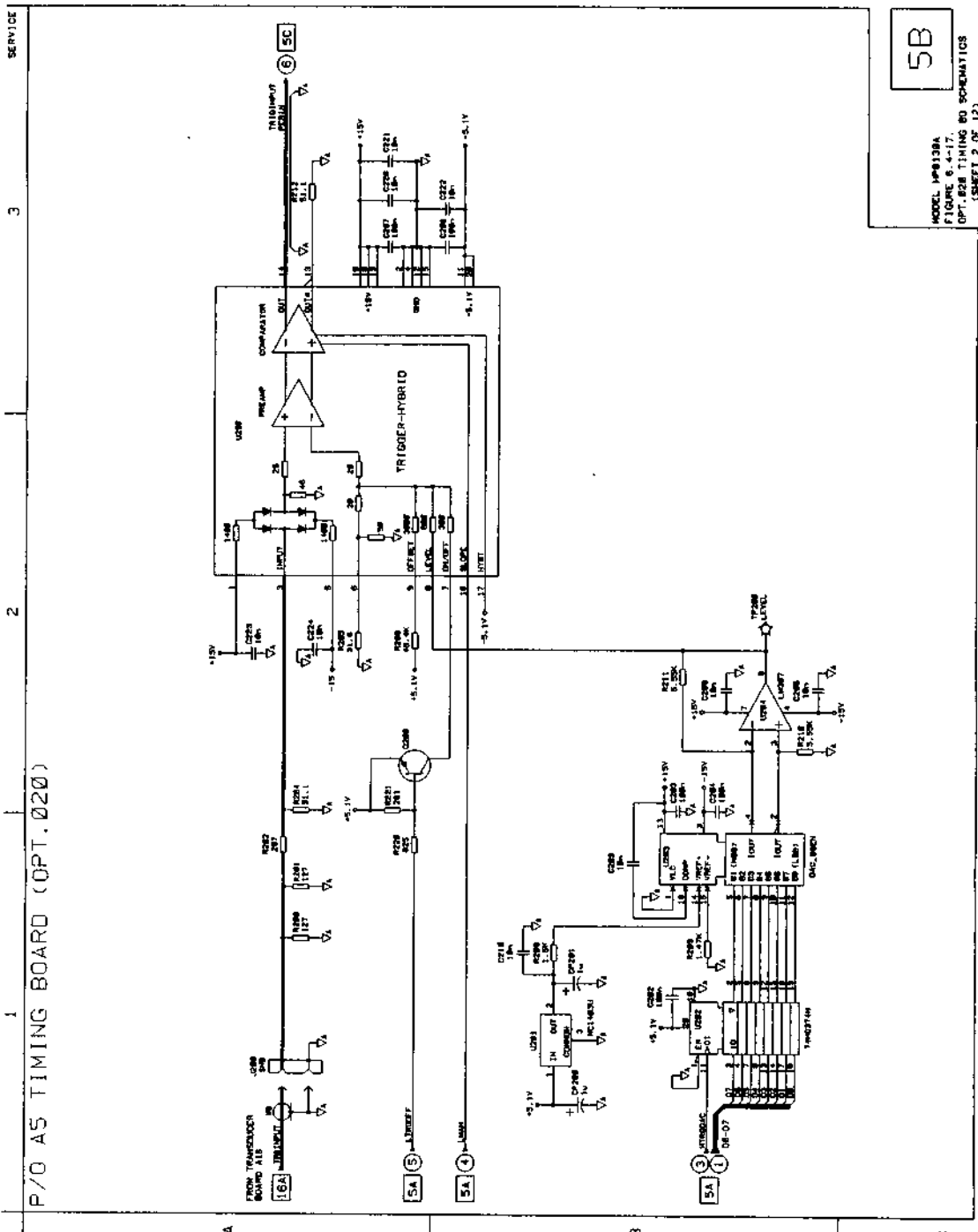


MODEL HP8138A
 FIGURE 6.4-15.
 STANDARD TIMING BD SCHEMATICS
 (SHEET 8 OF 8)



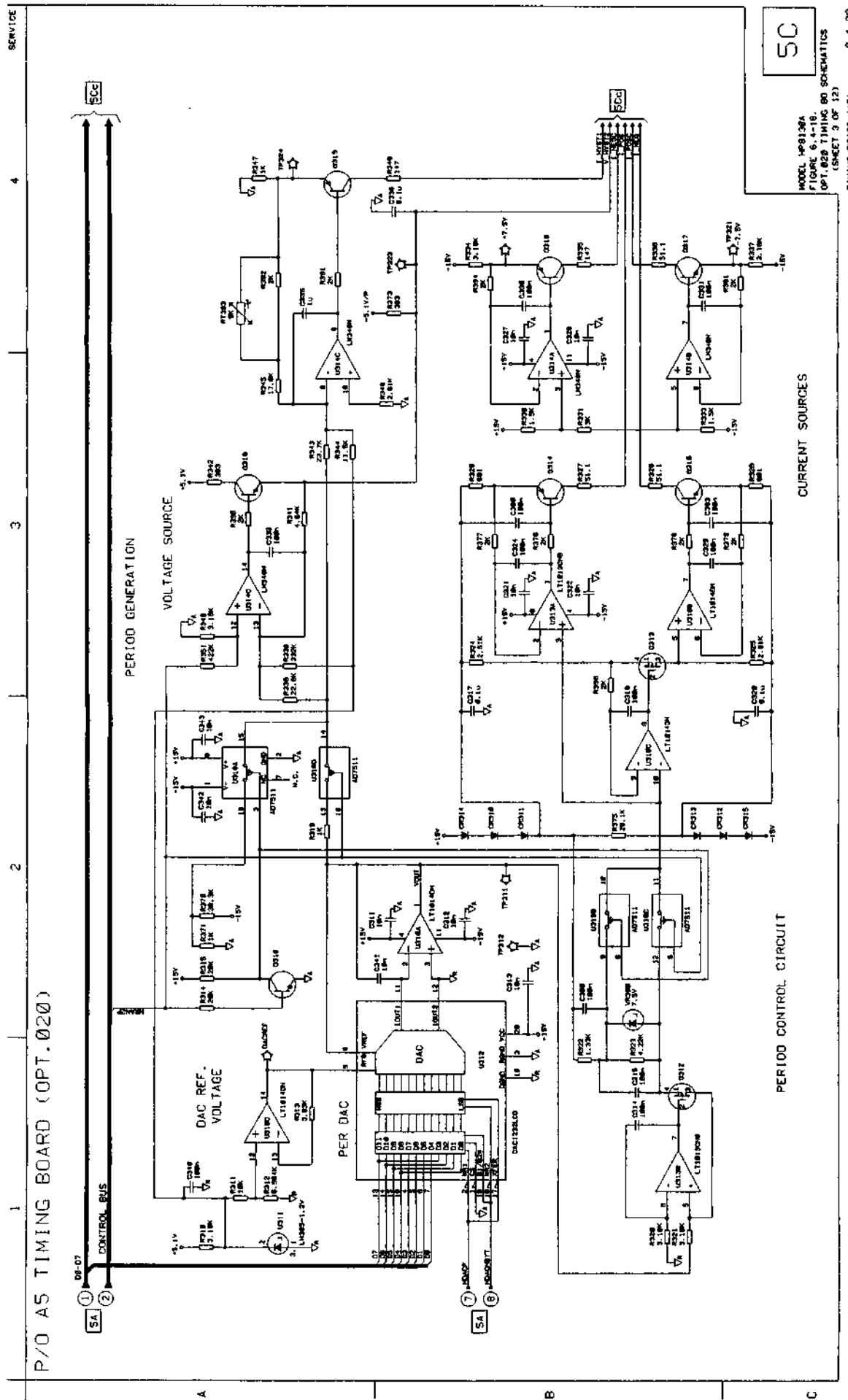
5A
MODEL 499138A
FIGURE 6-4-16
OPT. 020 TIMING BOARD SCHEMATICS
(SHEET 1 OF 12)
TIMING BOARD (A5)

P/O A5 TIMING BOARD (OPT. 020)



5B

MODEL MP8139A
 FIGURE 6-4-17
 OPT. 020 TIMING BOARD SCHEMATICS
 (SHEET 2 OF 12)



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MODEL HP8136A
FIGURE 6.4-18
OPT. 020 TIMING BOARD SCHEMATICS
(SHEET 3 OF 12)
TIMING BOARD (A5) 6.4-39

P/O A5 TIMING BOARD (OPT. 020)

SERVICE

4

3

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1

SA

DB-07

CONTROL BUS

PERIOD GENERATION

VOLTAGE SOURCE

PERIOD CONTROL CIRCUIT

CURRENT SOURCES

50

MODEL HP8136A

FIGURE 6.4-18

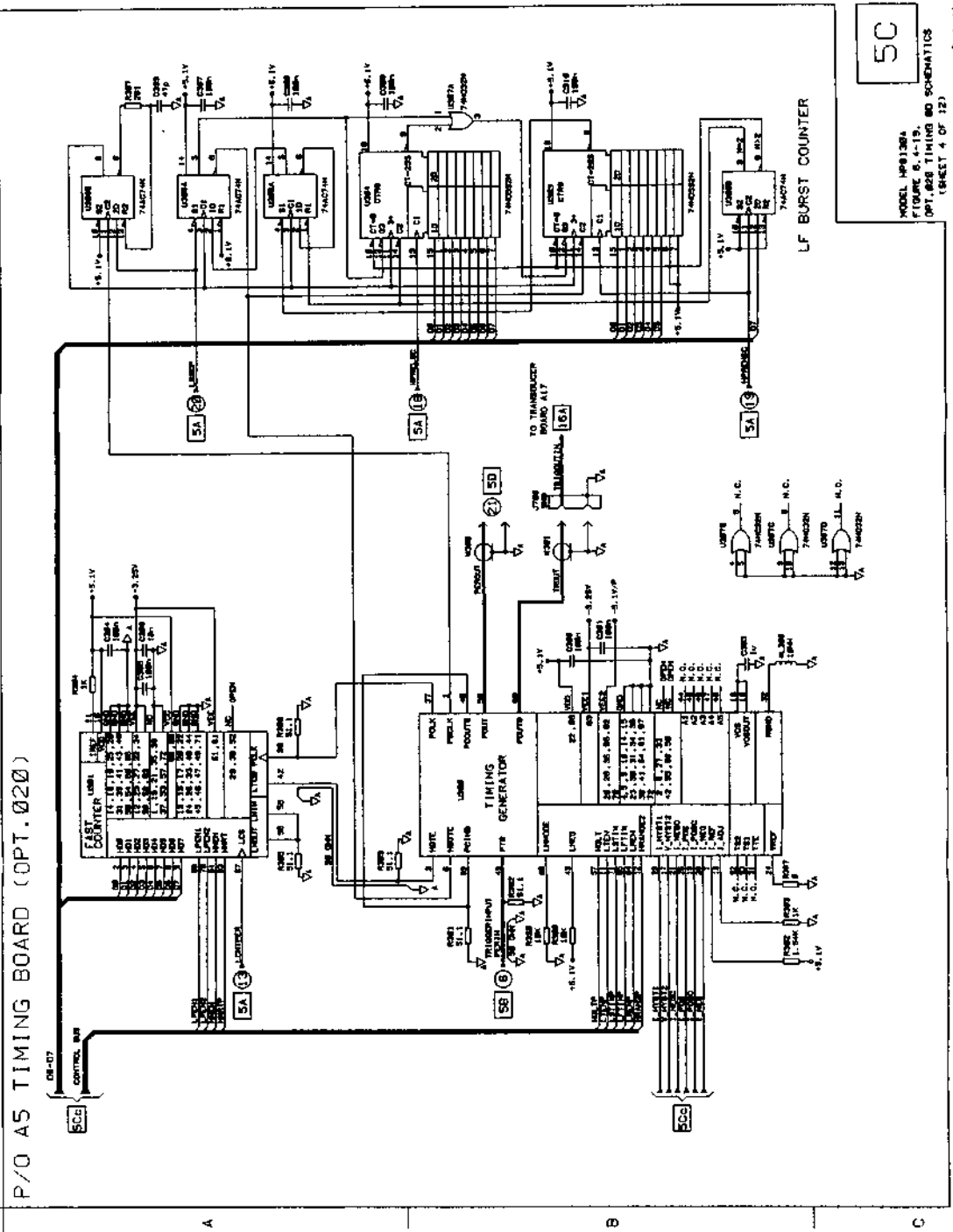
OPT. 020 TIMING BOARD SCHEMATICS

(SHEET 3 OF 12)

TIMING BOARD (A5)

6.4-39

P/O A5 TIMING BOARD (OPT. 020)

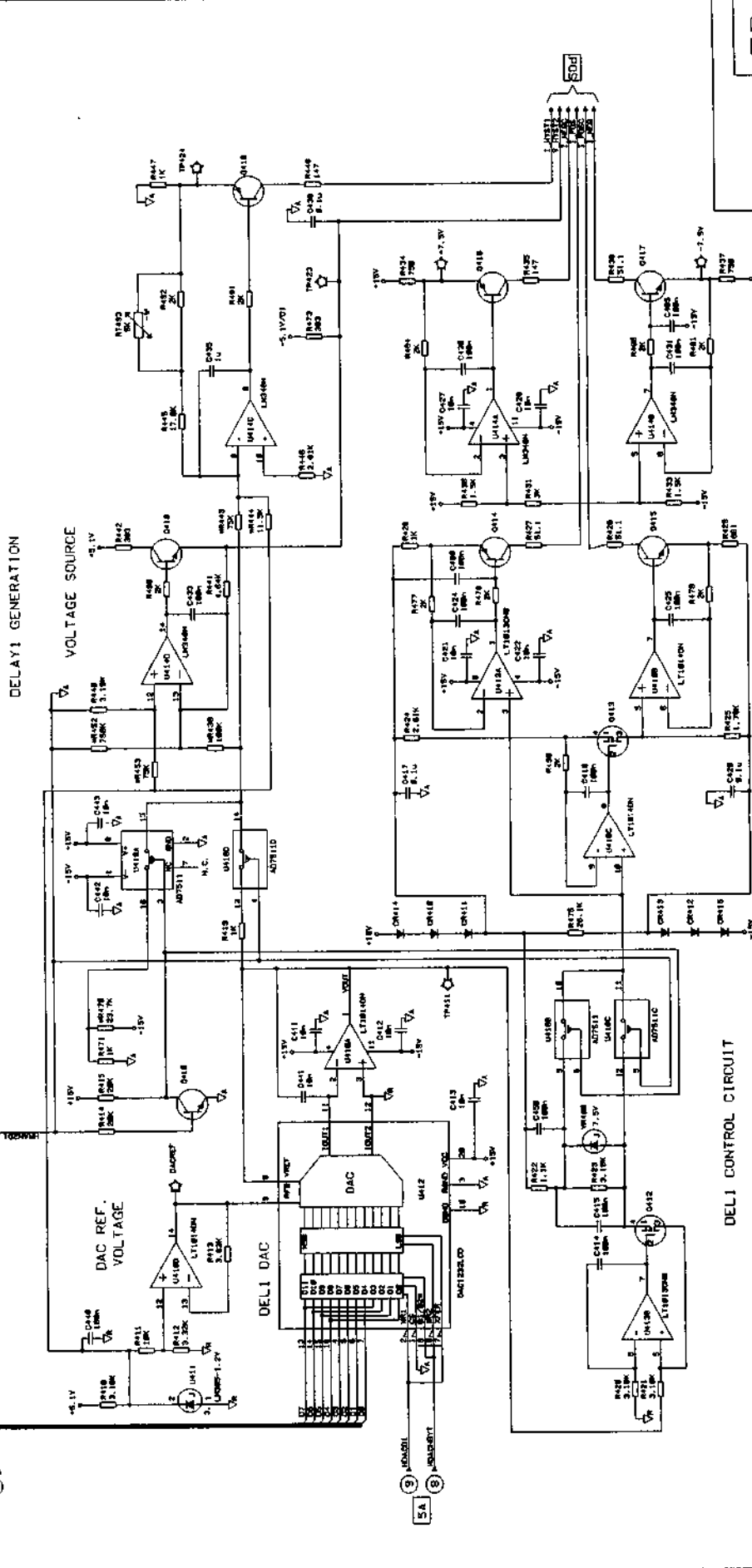
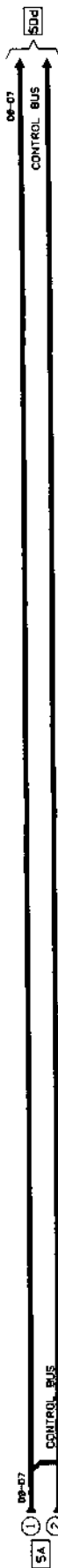


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MODEL HP9308A
 FIGURE 6.4-19.
 OPT. 020 TIMING BOARD SCHEMATICS
 (SHEET 4 OF 12)

TIMING BOARD (A5) 6.4-41

P/O A5 TIMING BOARD (OPT. 020)



DELAY GENERATION

VOLTAGE SOURCE

DAC REF. VOLTAGE

DELI DAC

DELI CONTROL CIRCUIT

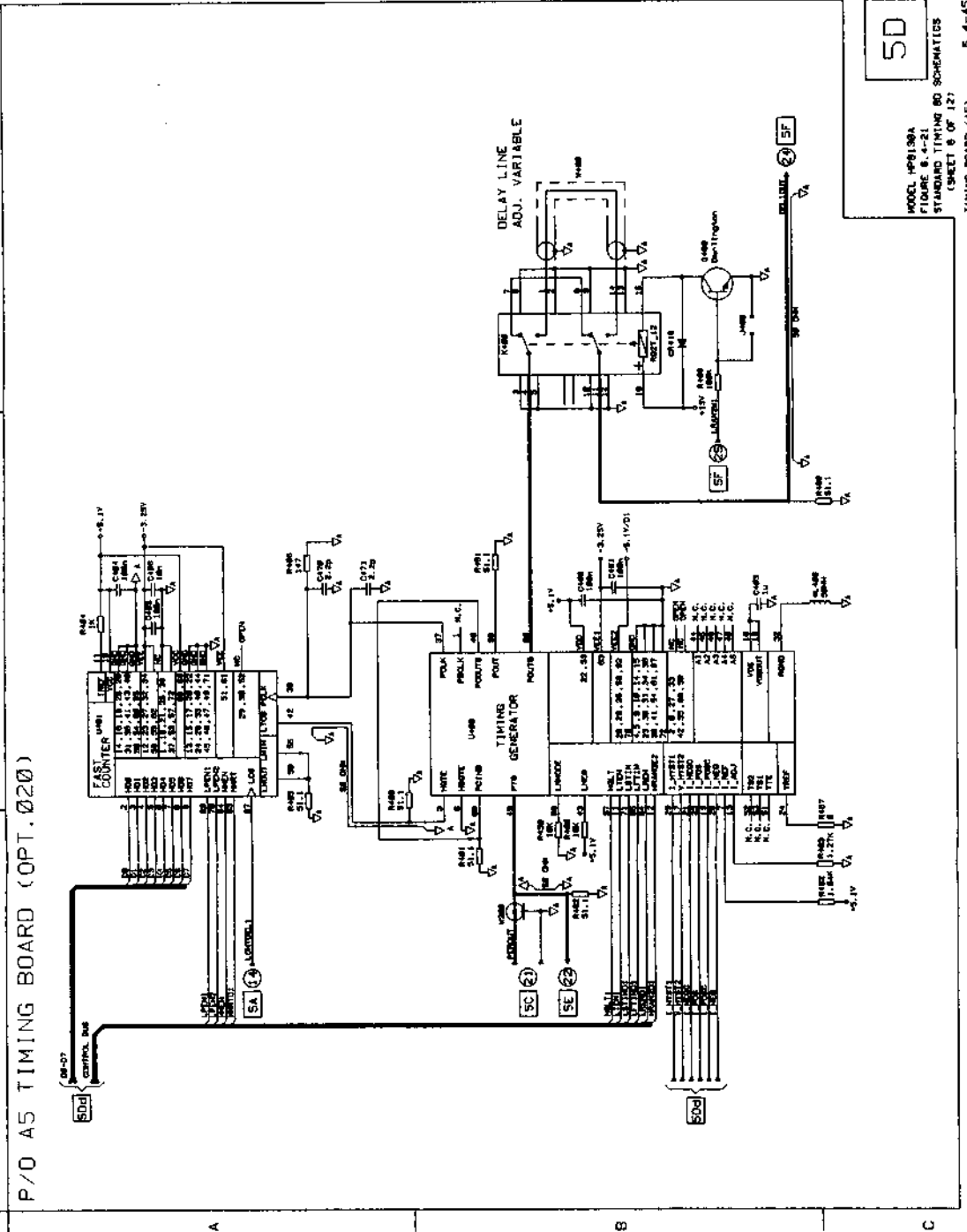
CURRENT SOURCES

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MODEL MFB138A
FIGURE 6.4-26
OPT. 020 TIMING BOARD SCHEMATICS
(SHEET 5 OF 12)

6.4-43

TIMING BOARD (AS)

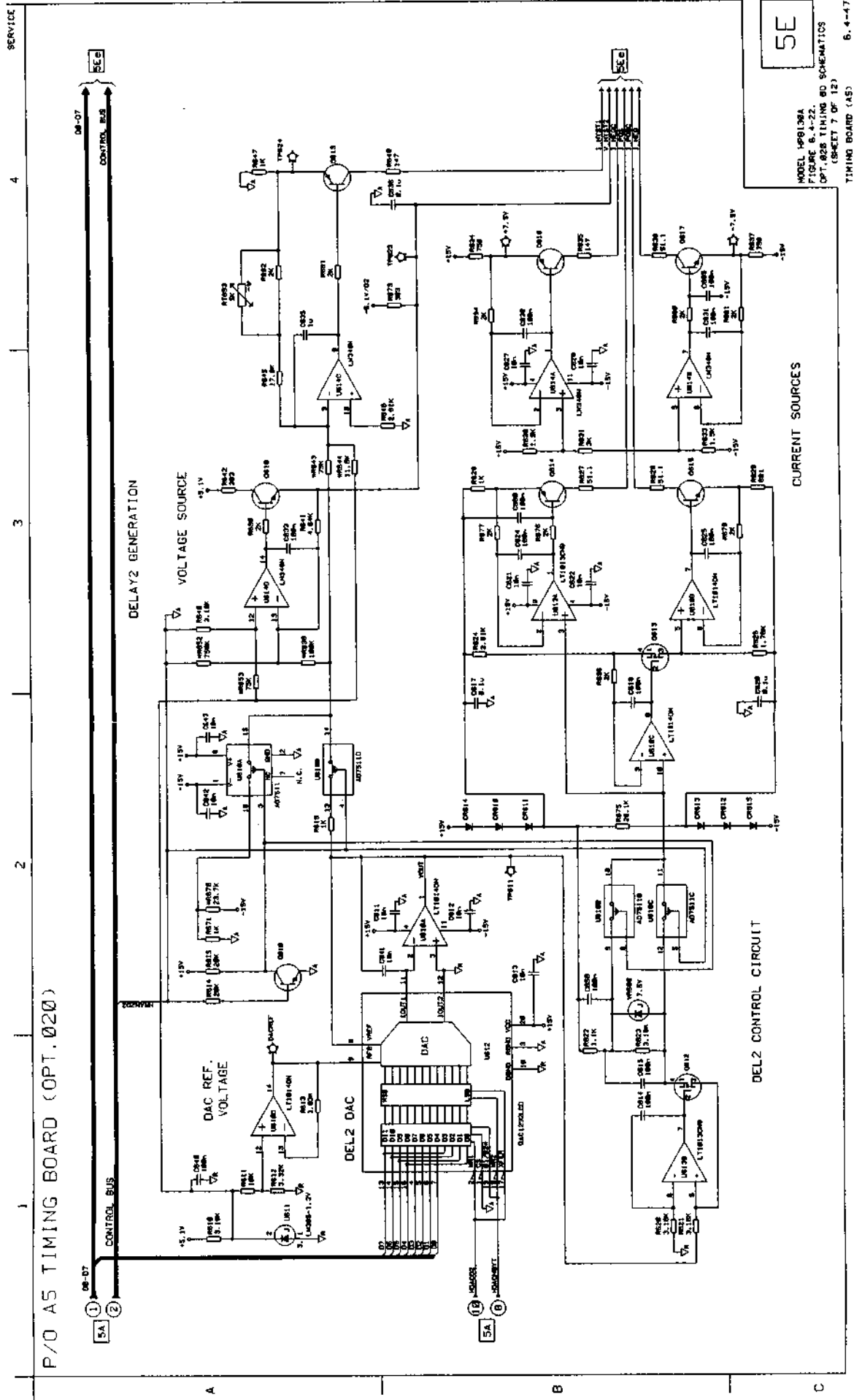


P/O A5 TIMING BOARD (OPT. 020)

5D

MODEL HP8138A
FIGURE 8-4-21
STANDARD TIMING BOARD SCHEMATICS
(SHEET 6 OF 12)

B-4-45
TIMING BOARD (A5)

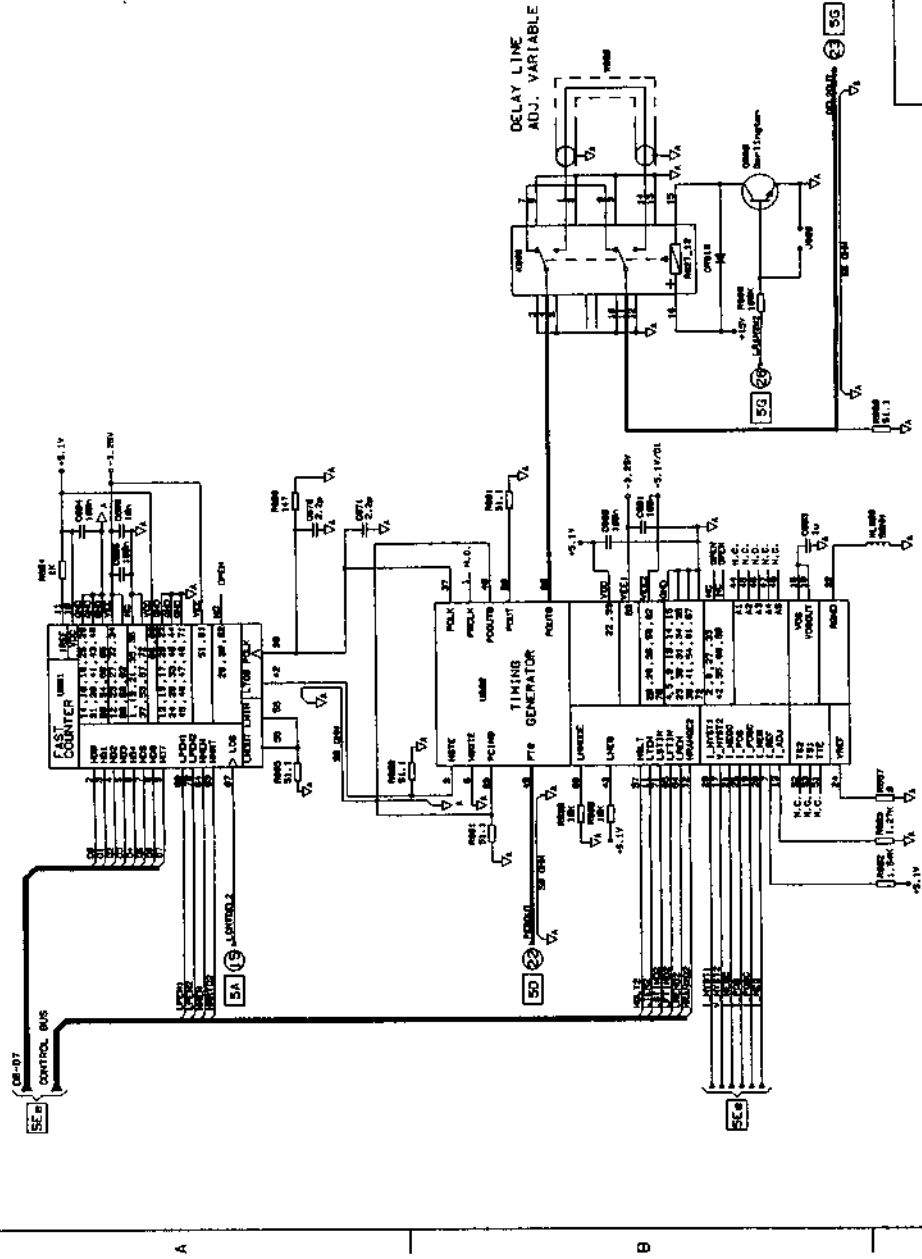


5E

MODEL 499130A
FIGURE 6-4-22
OPT. 020 TIMING BOARD SCHEMATICS
(SHEET 7 OF 12)

TIMING BOARD (AS) 6-4-47

P/O A5 TIMING BOARD (OPT. 020)



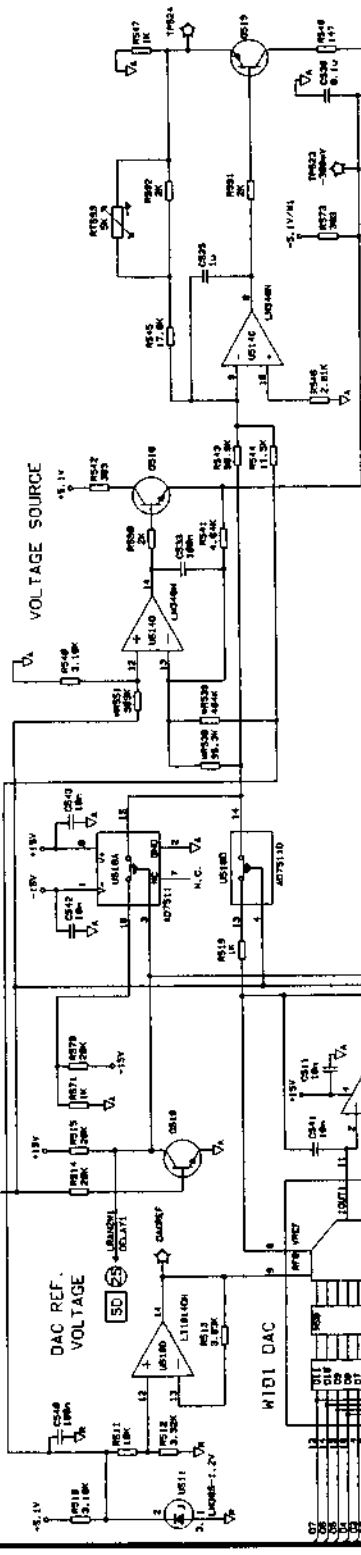
5E

MODEL HP8130A
 FIGURE 6-4-23.
 OPT. 020 TIMING BOARD SCHEMATICS
 (SHEET 9 OF 12)
 TIMING BOARD (A5)

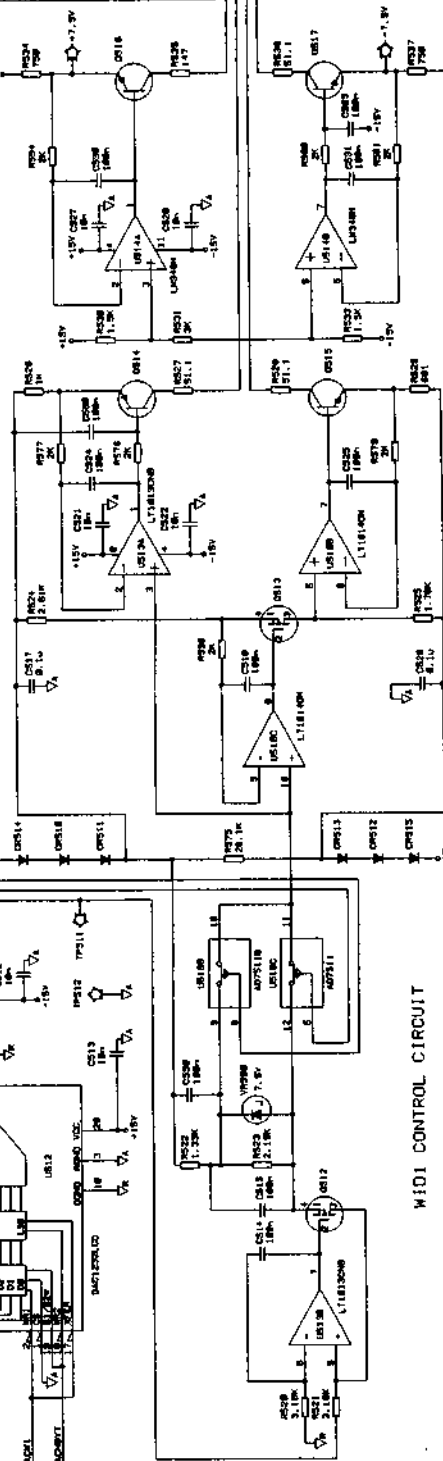
P/O A5 TIMING BOARD (OPT.020)



WIDTH GENERATION



WIDTH CONTROL CIRCUIT



CURRENT SOURCES

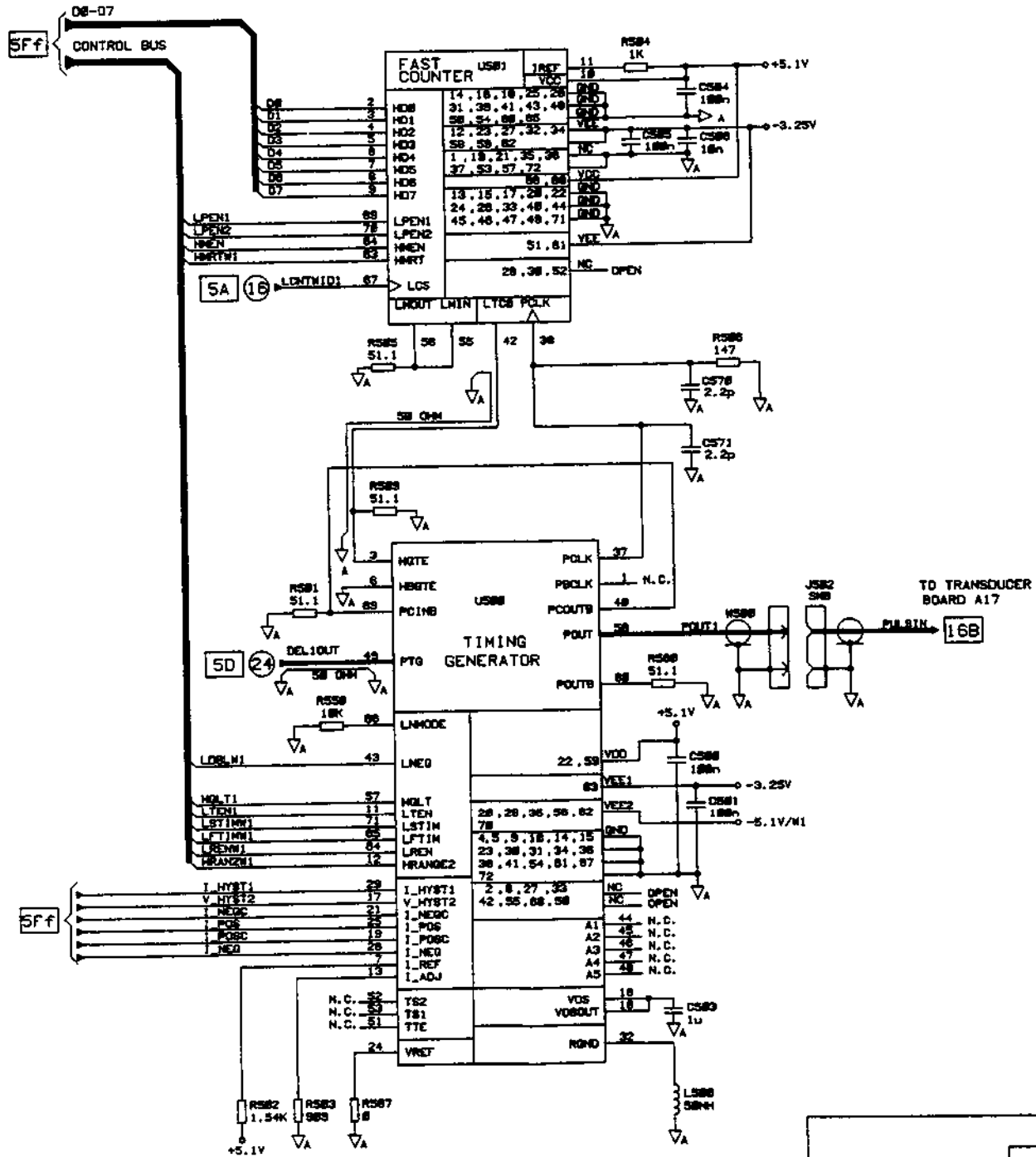


5F

MODEL 499138A
FIGURE 6-4-53
OPT. 020 TIMING BOARD SCHEMATICS
(SHEET 9 OF 12)

6-4-51
TIMING BOARD (A5)

P/O A5 TIMING BOARD (OPT. 020)



5F

MODEL HPB130A
 FIGURE 6.4-25.
 OPT. 020 TIMING BOARD SCHEMATICS
 (SHEET 10 OF 12)
 TIMING BOARD (A5) 6.4-53

P/O A5 TIMING BOARD (OPT. 020)



WIDTH2 GENERATION

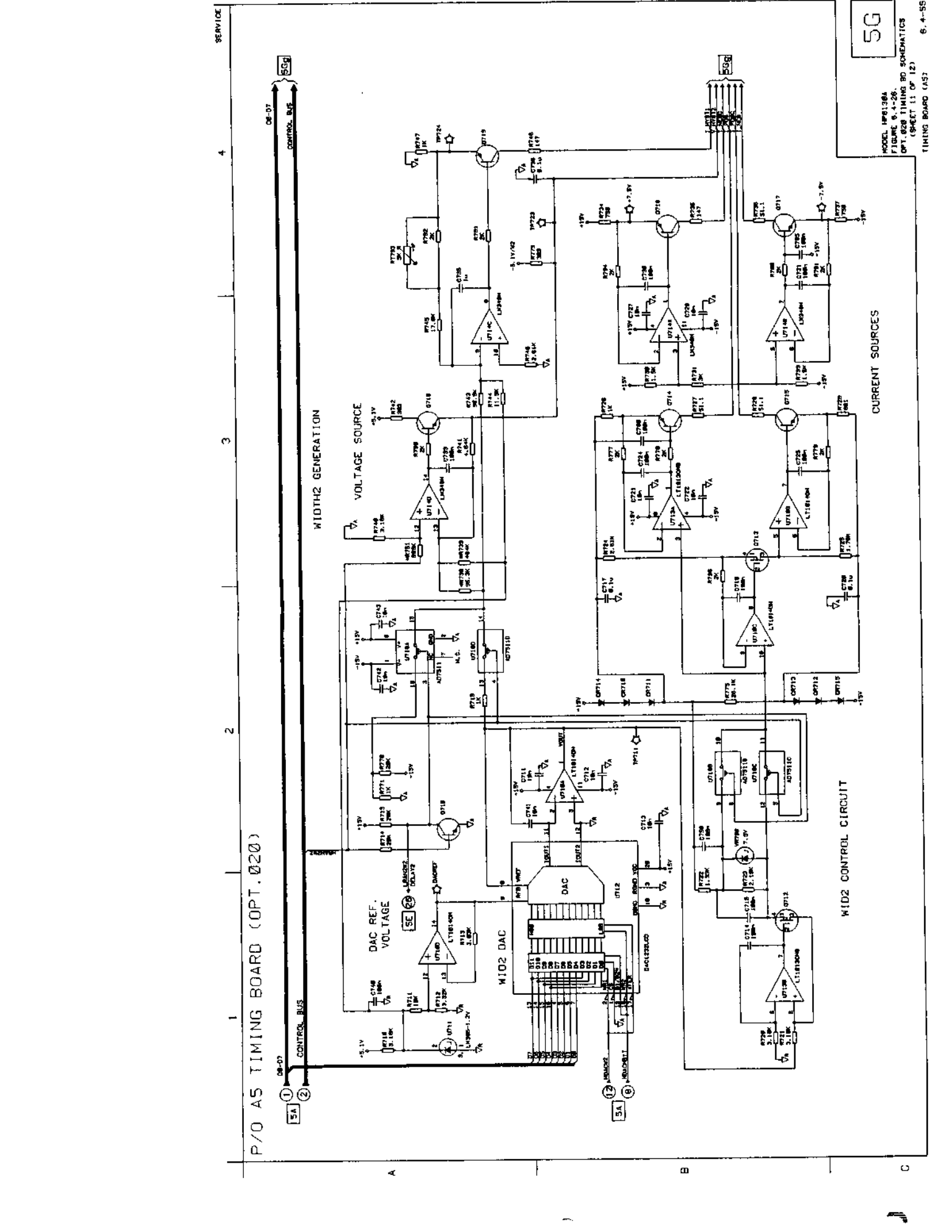
VOLTAGE SOURCE

DAC REF. VOLTAGE

WIDTH2 DAC

WIDTH2 CONTROL CIRCUIT

CURRENT SOURCES

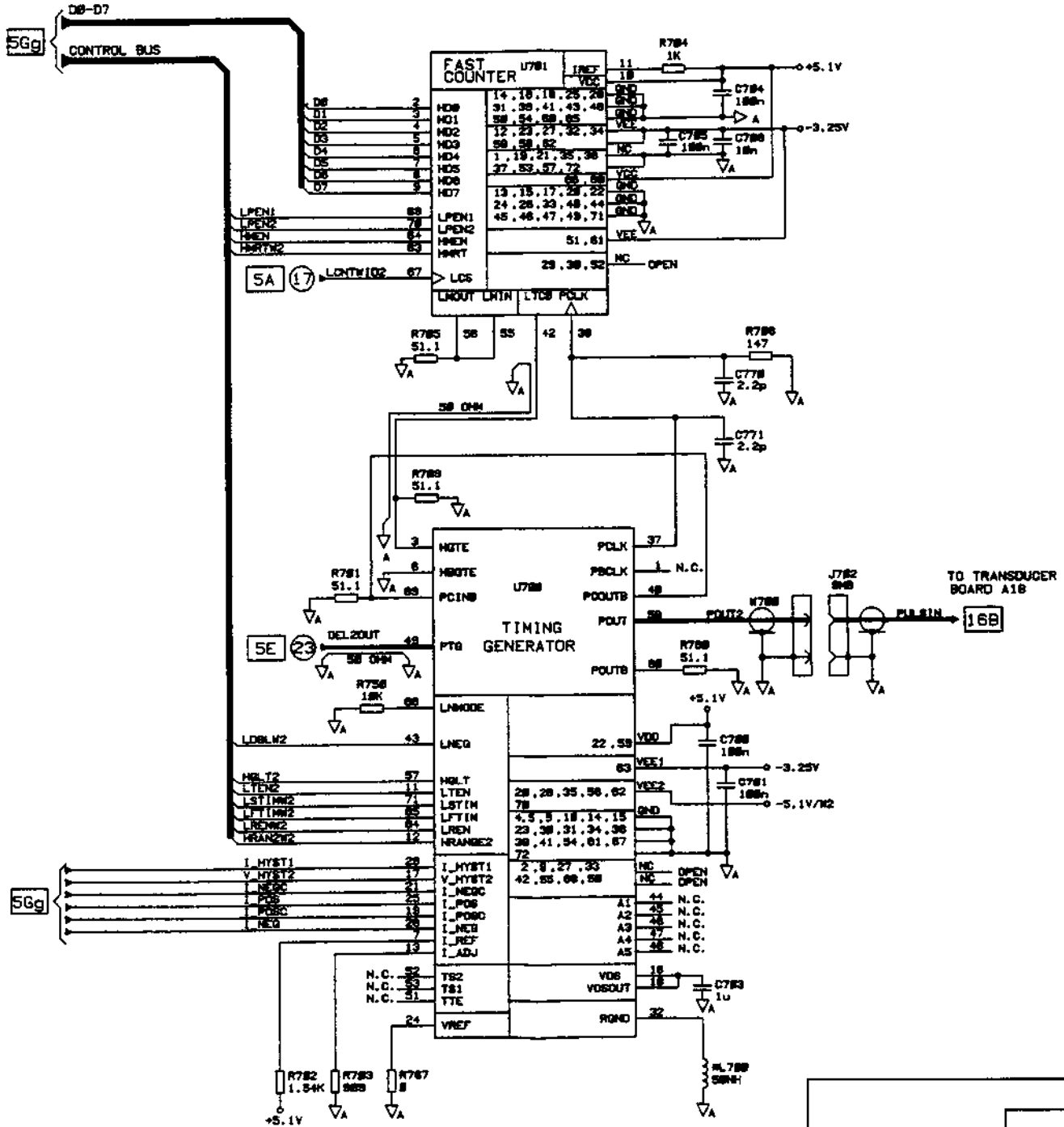


P/O A5 TIMING BOARD (OPT. 020)

A

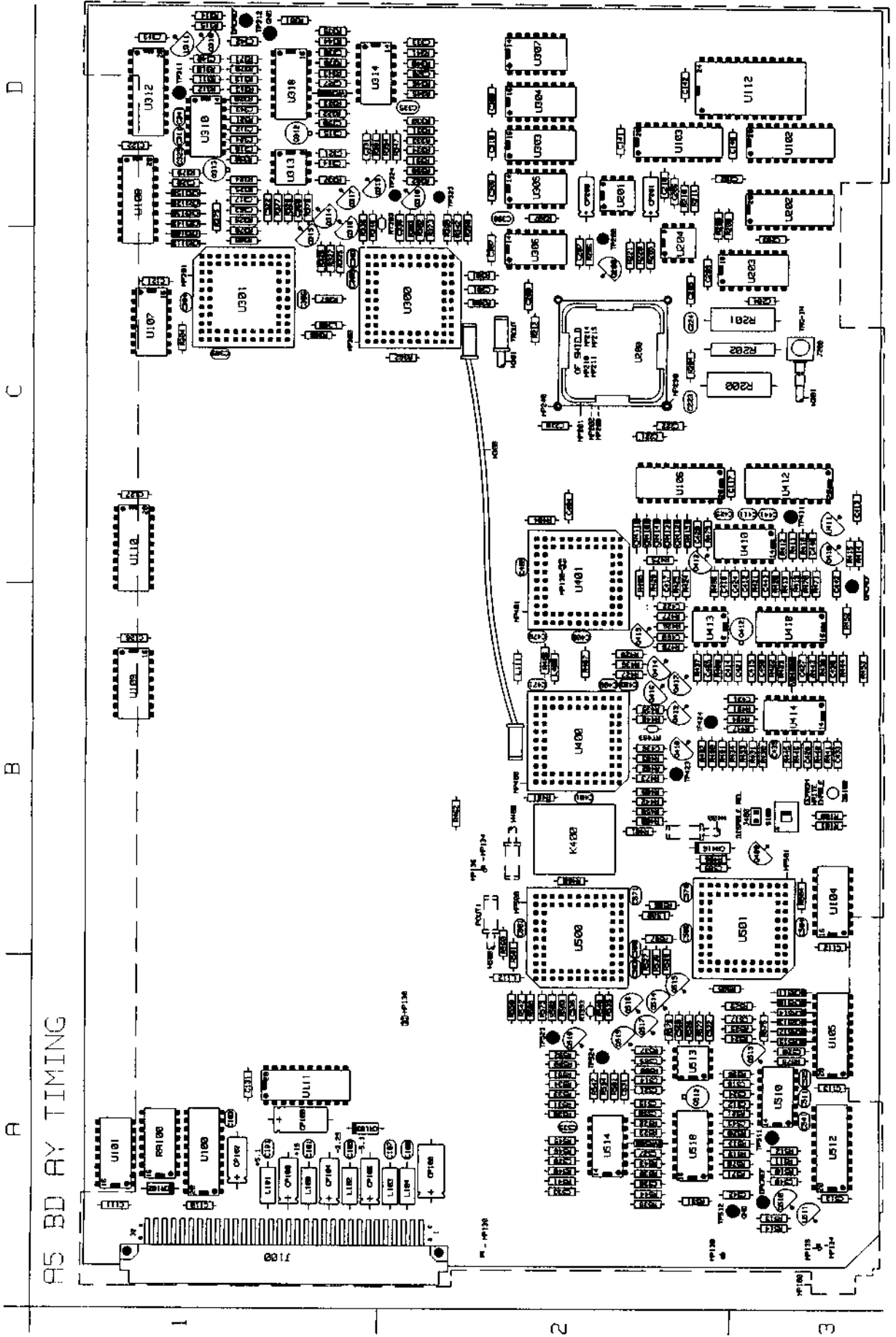
B

C



5G

MODEL HP8138A
 FIGURE B.4-27.
 OPT. 020 TIMING BOARD SCHEMATICS
 (SHEET 12 OF 12)
 TIMING BOARD (A5) 6.4-57



95 BD BY TIMING

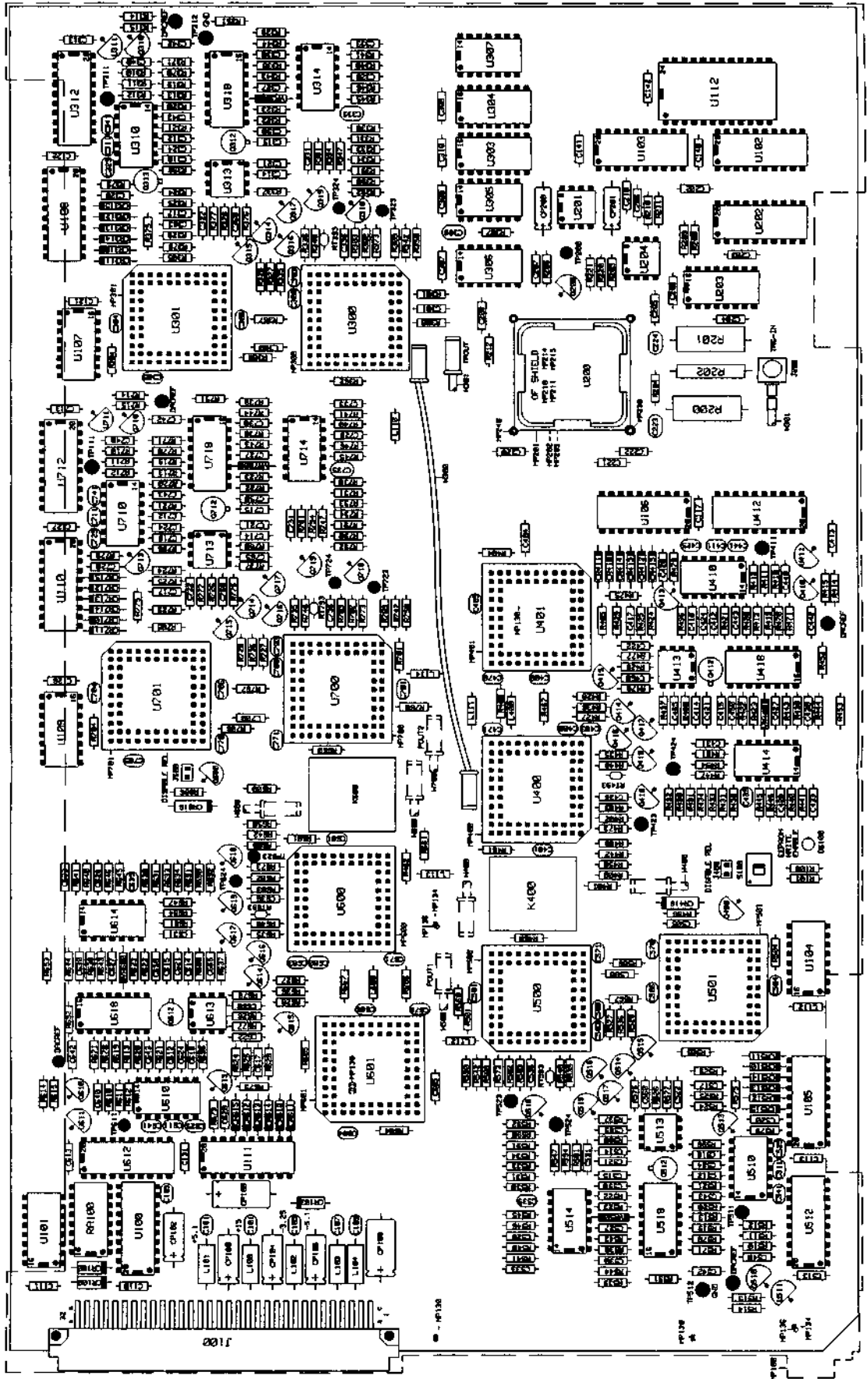
A B C D

1 2 3

MODEL HP8131A
STANDARD TIMING BOARD
COMPONENT LAYOUT

A B C D

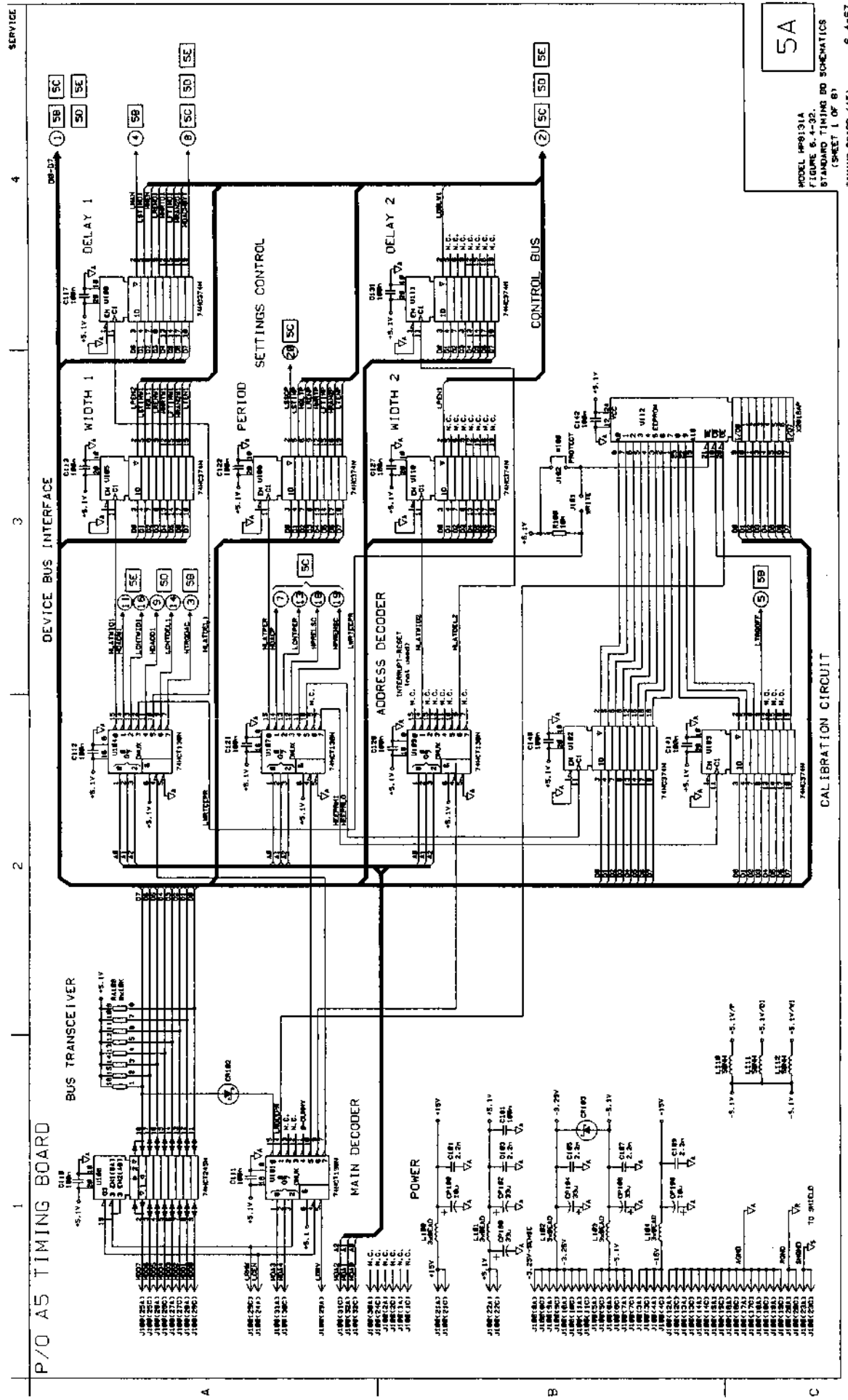
P5 BD AY TIMING OPT. 020



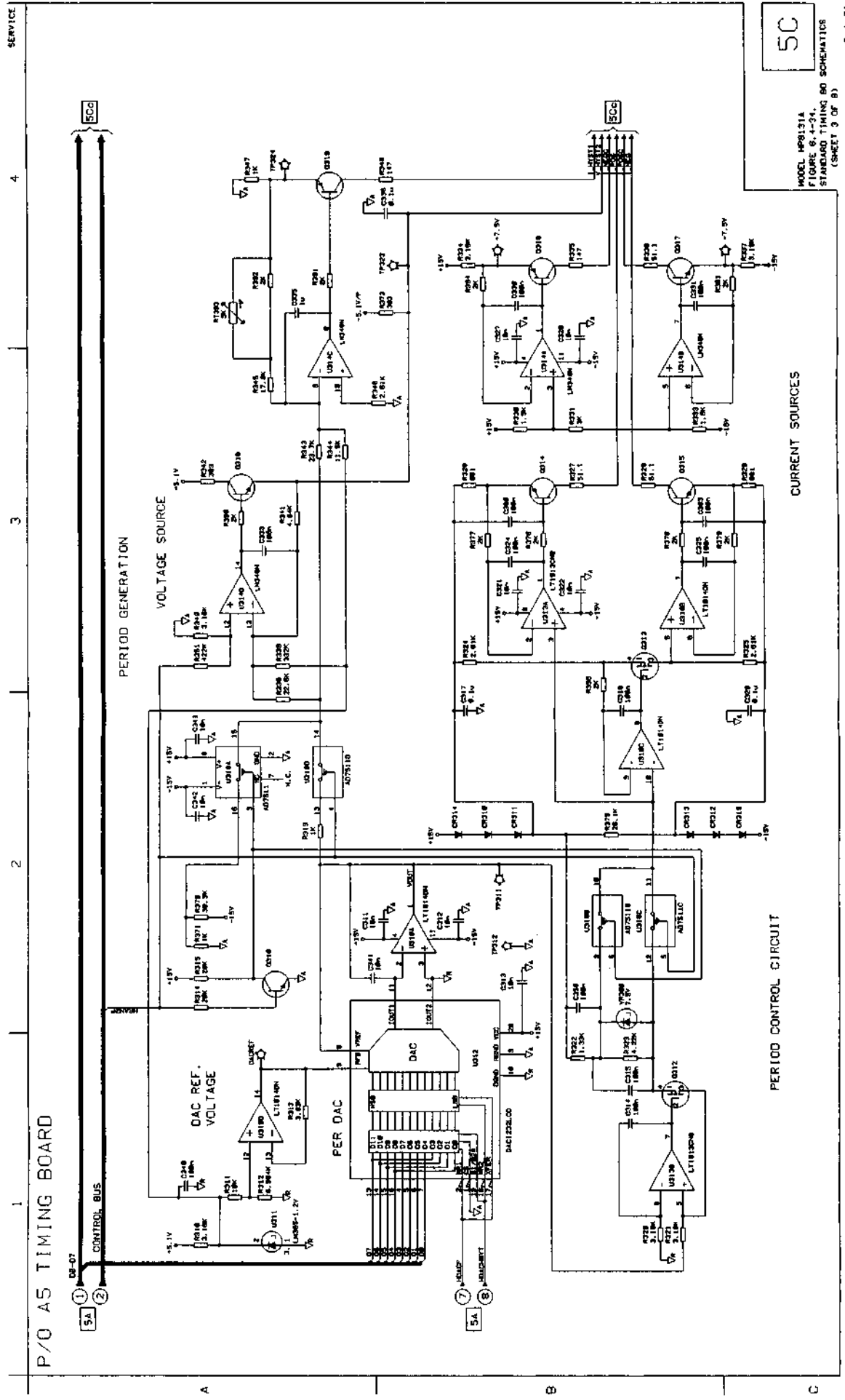
MODEL: MP9131R
OPT. 020 TIMING BOARD
COMPONENT LAYOUT

FIGURE 5.4-30.

TIMING BD (P5) 5.4-63

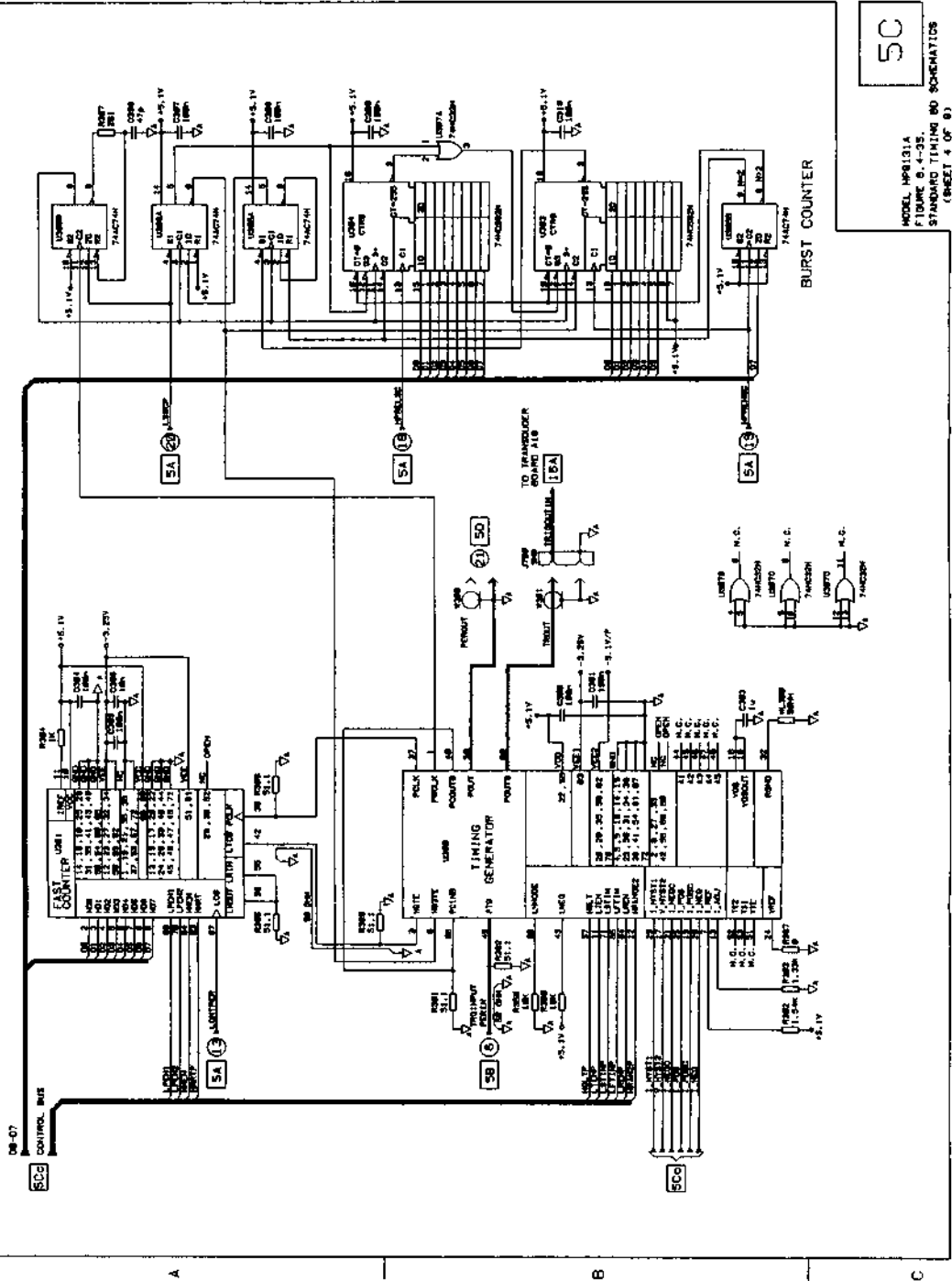


5A
 MODEL HP9131A
 FIGURE 6.4-32.
 STANDARD TIMING BOARD SCHEMATICS
 (SHEET 1 OF 8)
 TIMING BOARD (AS)



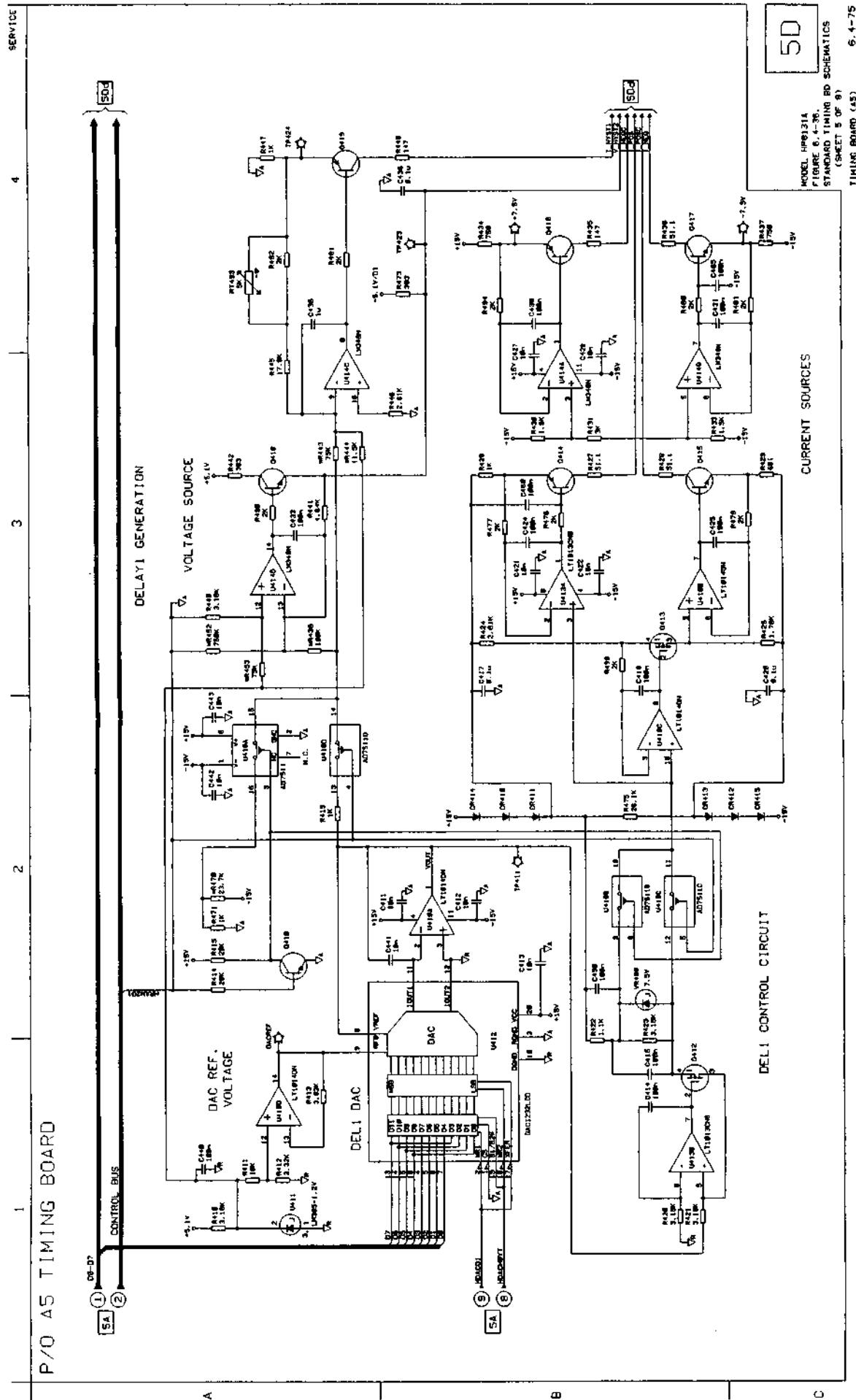
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 MODEL HP8131A
 FIGURE 6, 4-31,
 STANDARD TIMING BOARD SCHEMATICS
 (SHEET 3 OF 8)
 TIMING BOARD (AS)

P/O A5 TIMING BOARD



50

MODEL HP8131A
 FIGURE 6-4-35
 STANDARD TIMING BOARD SCHEMATICS
 (SHEET 4 OF 8)
 TIMING BOARD (A5)



SD

MODEL HPE1314
FIGURE 6.4-36.
STANDARD TIMING BD SCHEMATICS
(SHEET 5 OF 9)
TIMING BOARD (45)

CURRENT SOURCES

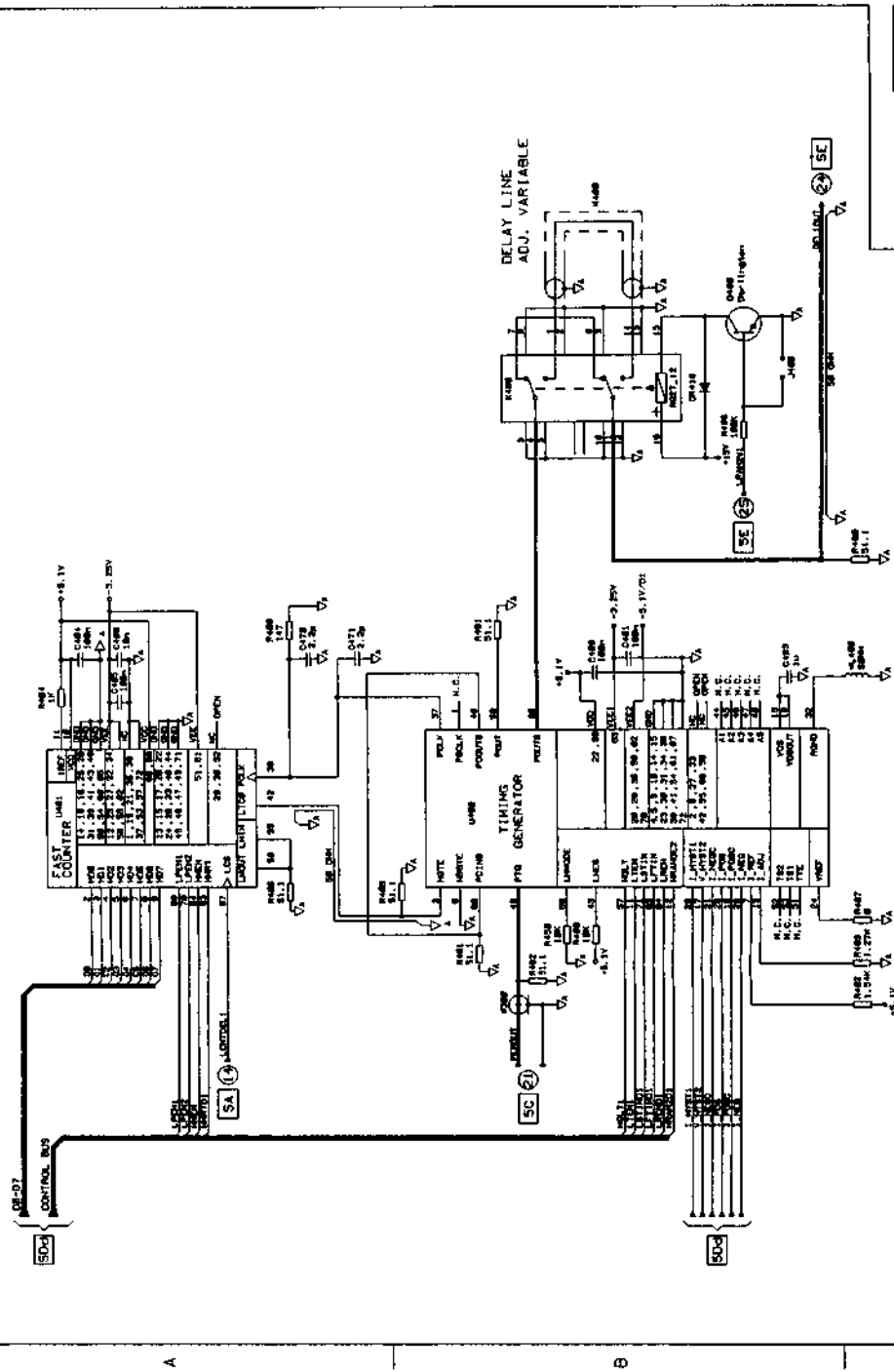
DEL1 CONTROL CIRCUIT

DELAY GENERATION

DAC REF. VOLTAGE

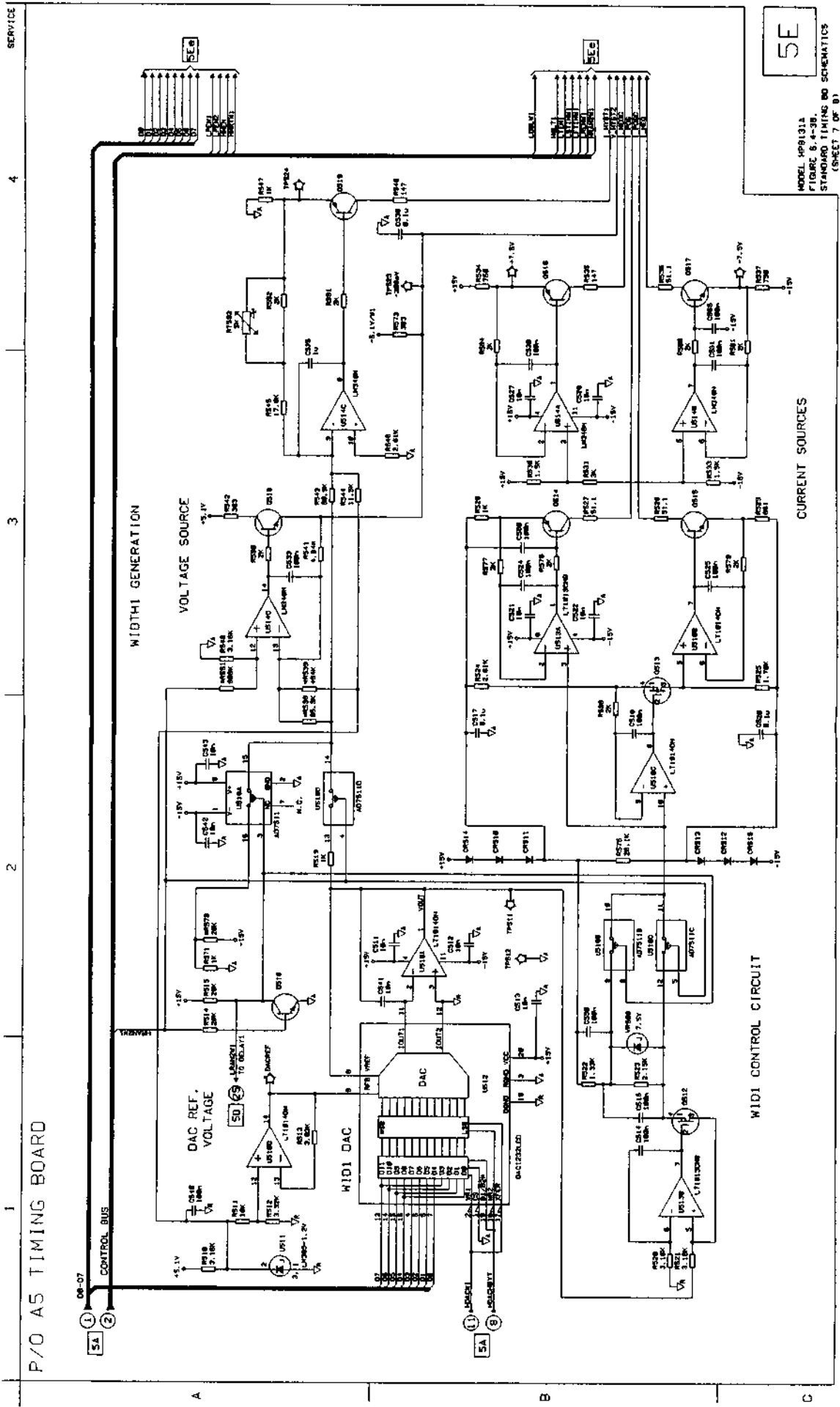
DEL1 DAC

P/O A5 TIMING BOARD



5D

MODEL MP8131A
 FIGURE 6-4-37.
 STANDARD TIMING BOARD SCHEMATICS
 (SHEET 8 OF 9)
 TIMING BOARD (A5)



MODEL HP9131A
 FIGURE 8, 4-38
 STANDARD TIMING BOARD SCHEMATICS
 (SHEET 7 OF 8)
 TIMING BOARD (45)

5E

P/O A5 TIMING BOARD
 SERVICE
 1 2 3 4

WIDTH GENERATION

VOLTAGE SOURCE

WIDTH CONTROL CIRCUIT

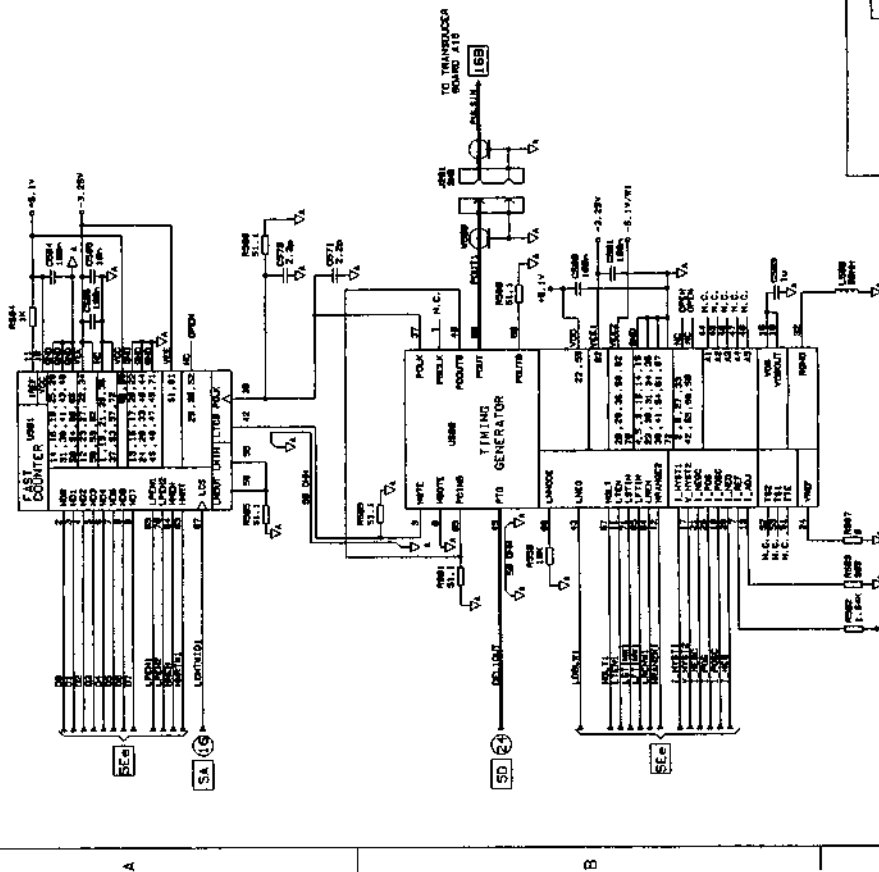
CURRENT SOURCES

5A (1) 5A (2)

5A (1) 5A (2)

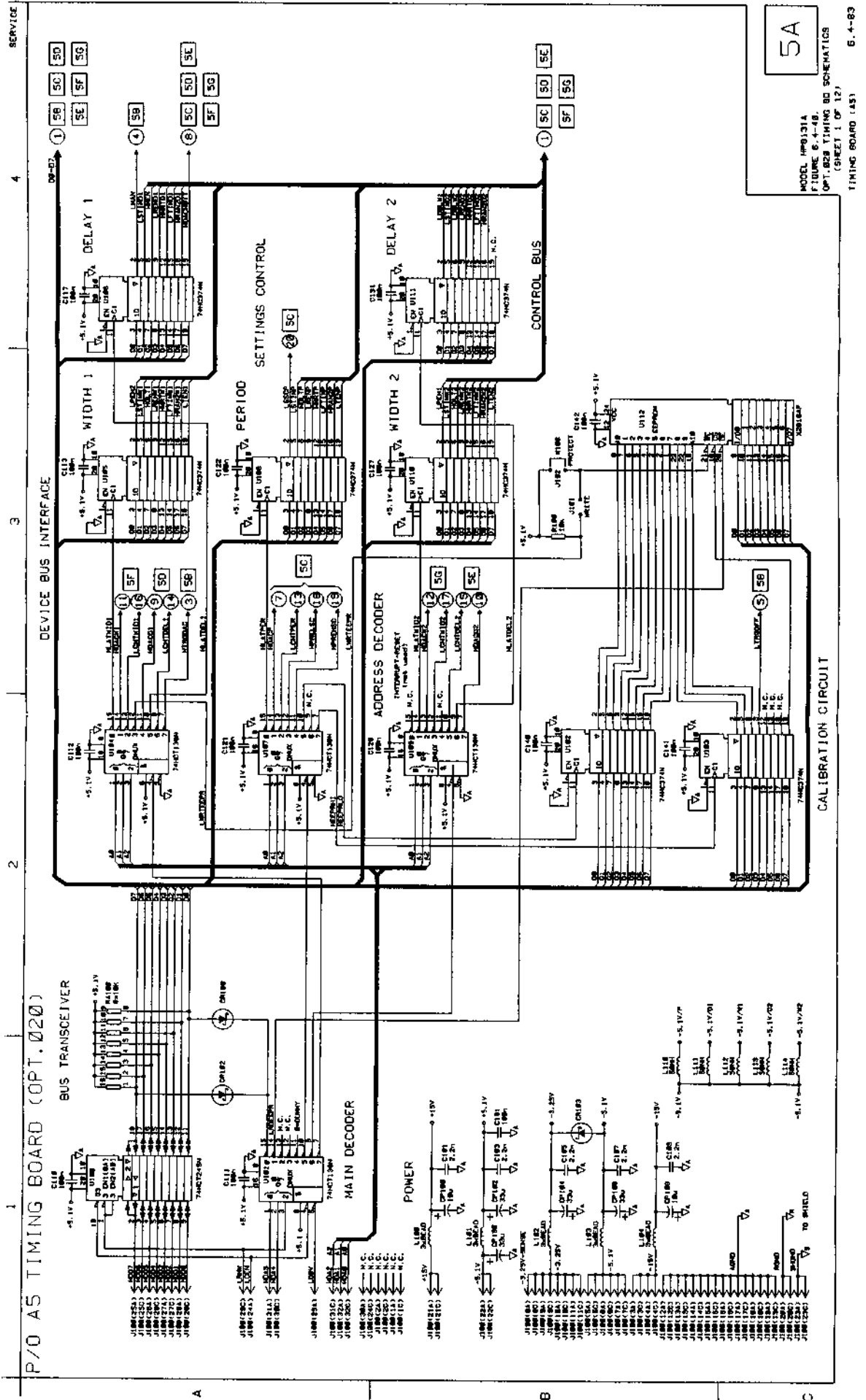
J

P/O A5 TIMING BOARD



5E

MODEL HP8131A
 FIGURE 6-4-29
 STANDARD TIMING BOARD SCHEMATICS
 (SHEET 8 OF 8)
 TIMING BOARD (A5)



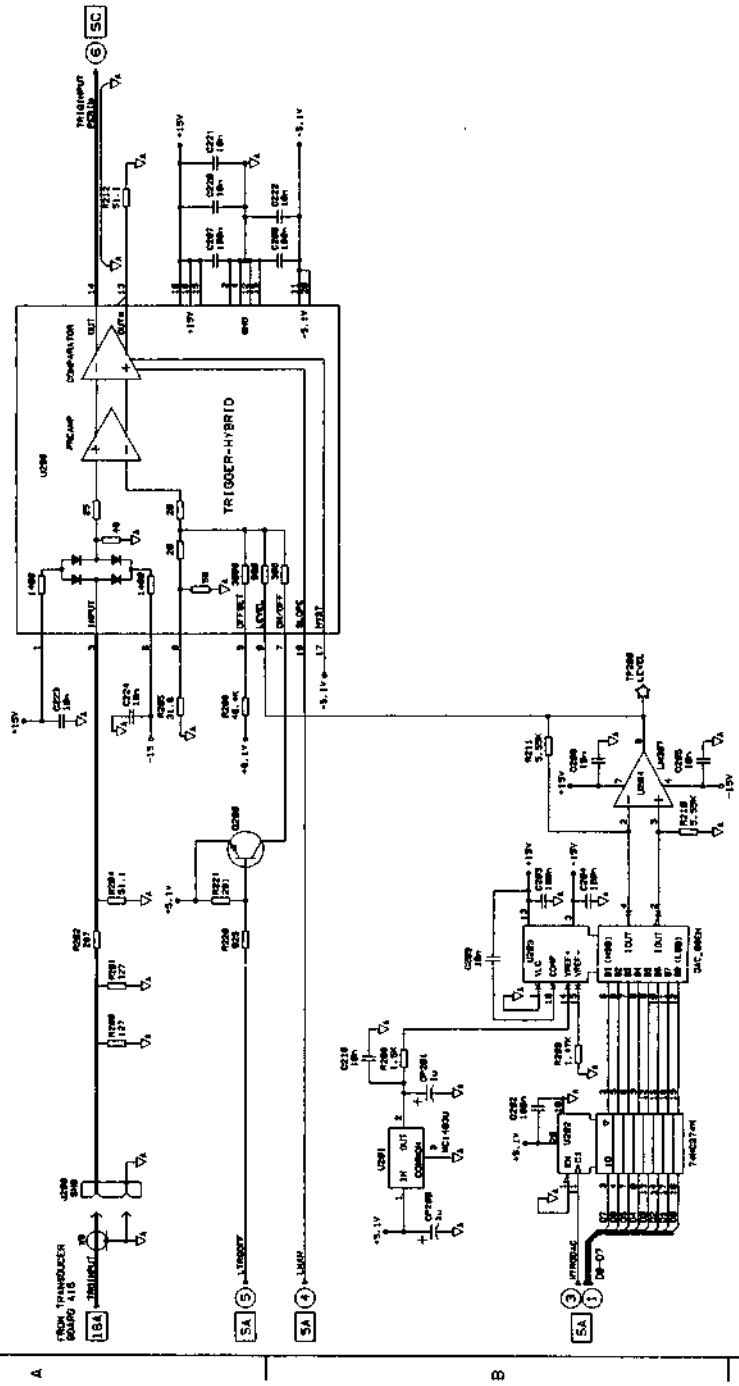
5A

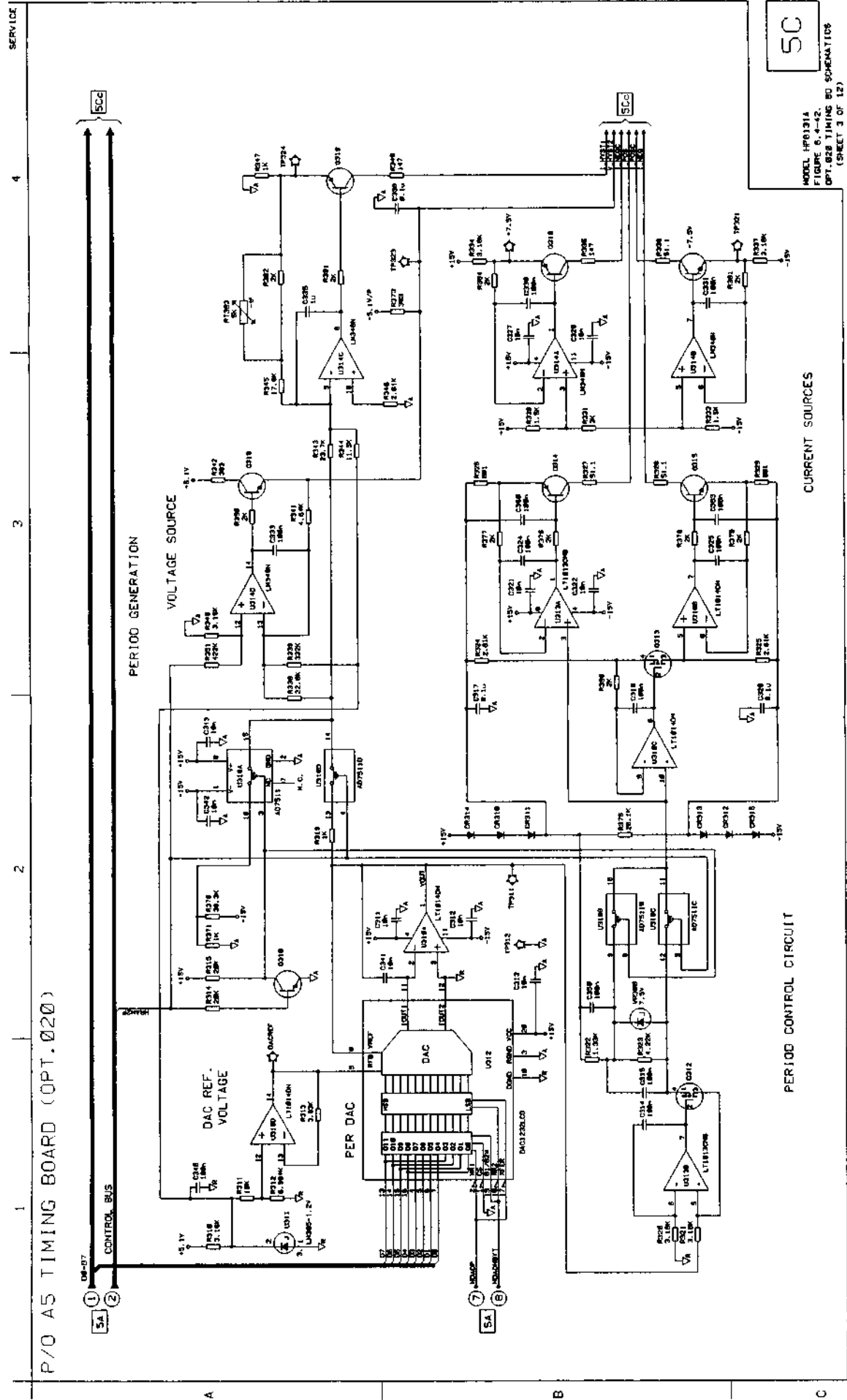
MODEL HP0131A
 FIGURE 6.4-4B
 OPT. 020 TIMING BOARD SCHEMATICS
 (SHEET 1 OF 12)

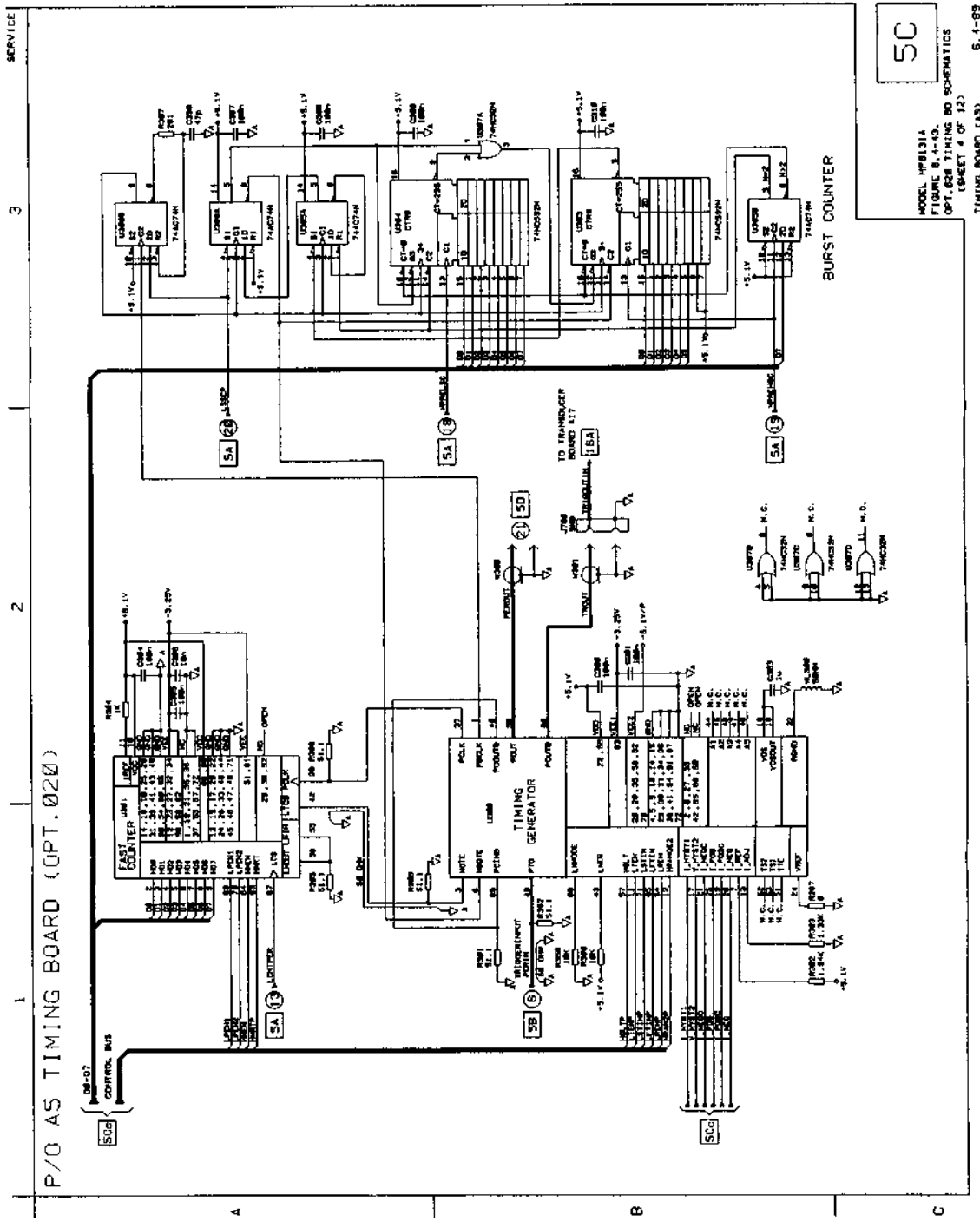
6.4-83

TIMING BOARD (AS)

P/O A5 TIMING BOARD (OPT. Ø2Ø)







P/O AS TIMING BOARD (OPT. 020)

SERVICE

3

2

1

50

MODEL HP8131A
FIGURE 6.4-43.
OPT. 020 TIMING BOARD SCHEMATICS
(SHEET 4 OF 12)

TIMING BOARD (AS) 6.4-89

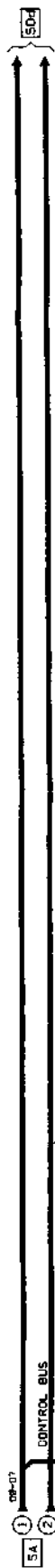
P/O A5 TIMING BOARD (OPT. Ø20)

1

2

3

4



DELAY GENERATION

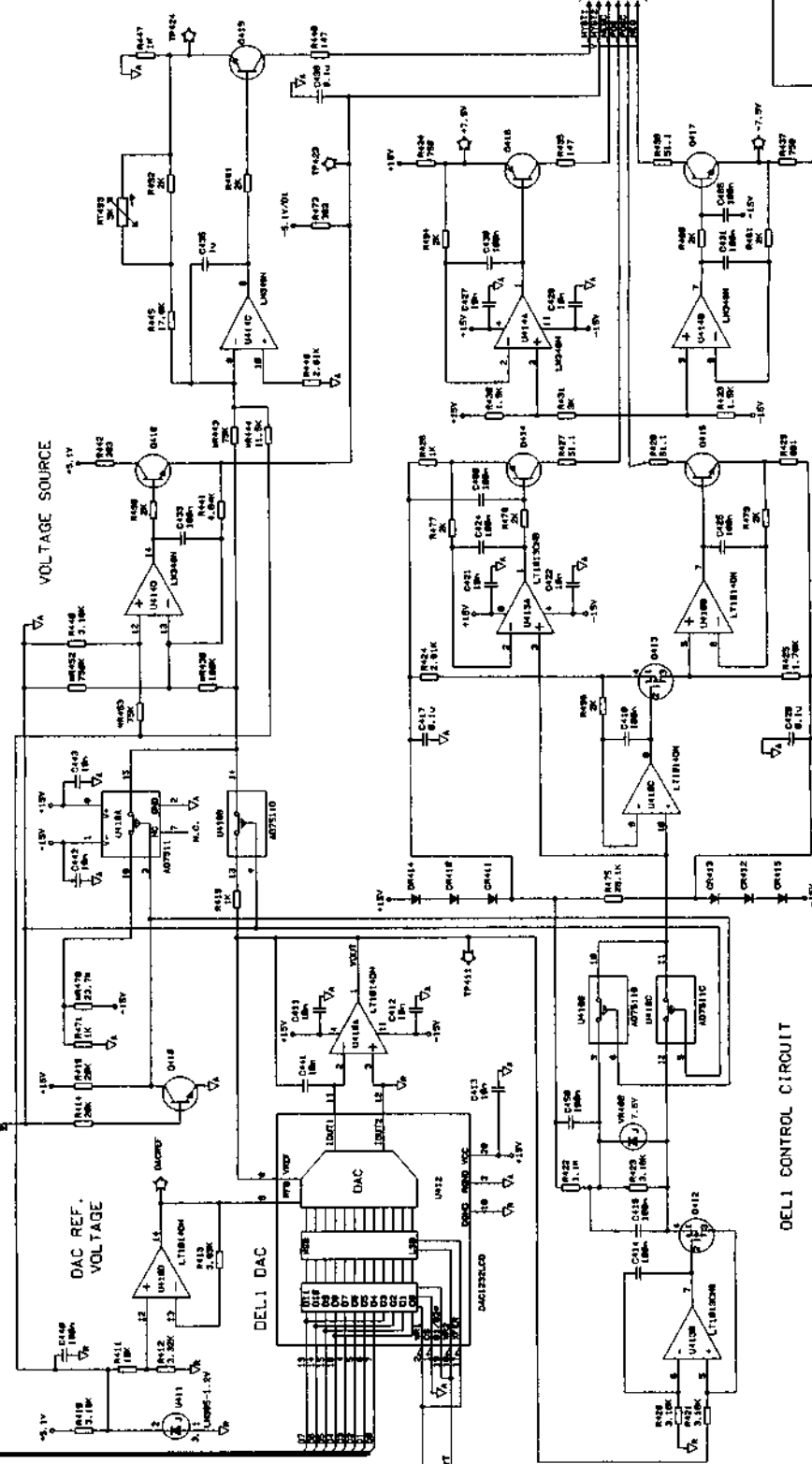
VOLTAGE SOURCE

DAC REF. VOLTAGE

DEL1 DAC

DEL1 CONTROL CIRCUIT

CURRENT SOURCES



50

MODEL HP8131A
GROUP 8
OPT. Ø20 TIMING BOARD SCHEMATICS
(SHEET 5 OF 12)

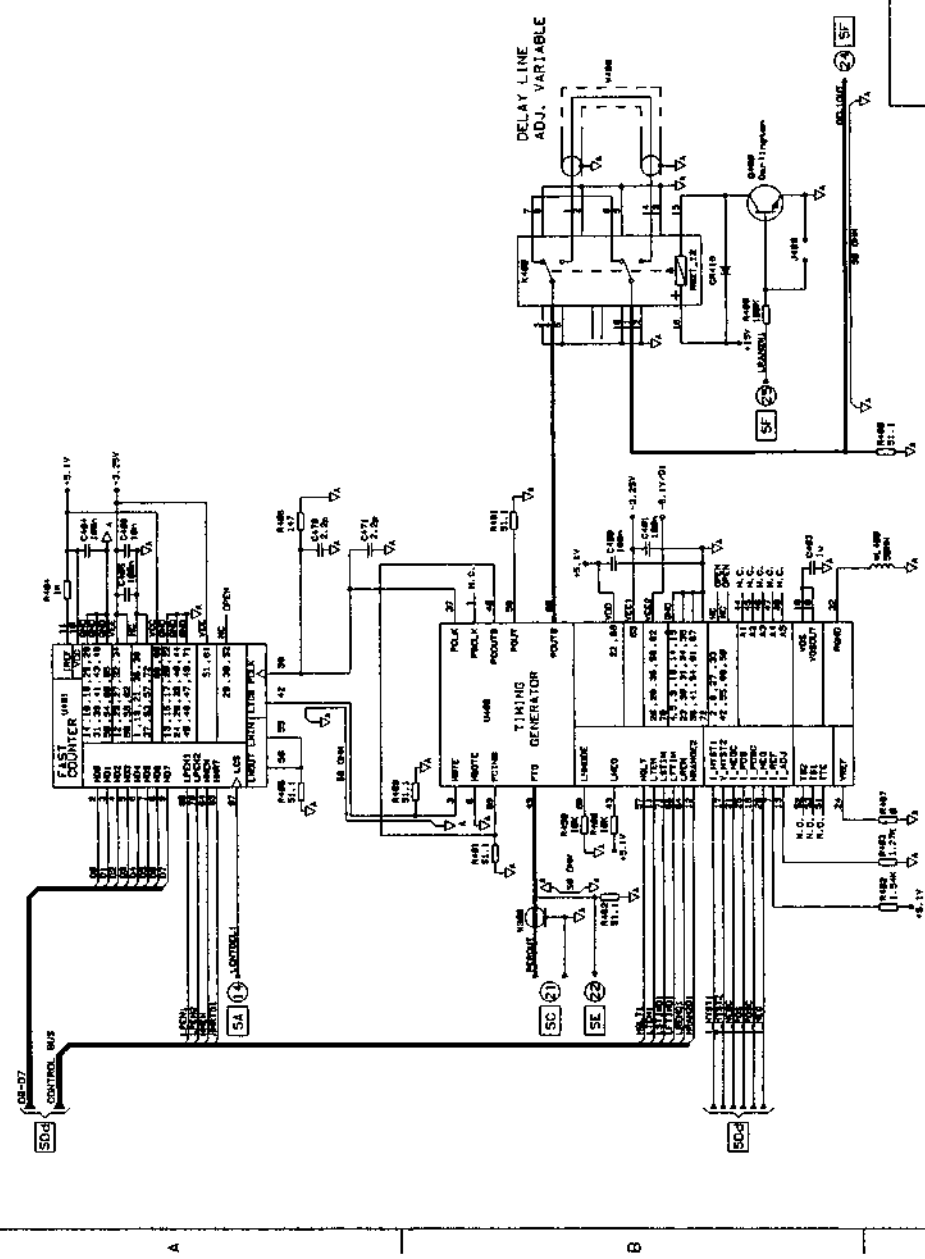
TIMING BOARD (A5) 5.4-51

A

B

C

P/O A5 TIMING BOARD (OPT. 020)



50

MODEL HP8131A
 FIGURE 6.4-45
 OPT. 020 TIMING BOARD SCHEMATICS
 (SHEET 6 OF 12)

TIMING BOARD (A5) 6.4-93

P/O A5 TIMING BOARD (OPT. Ø20)



DELAY2 GENERATION

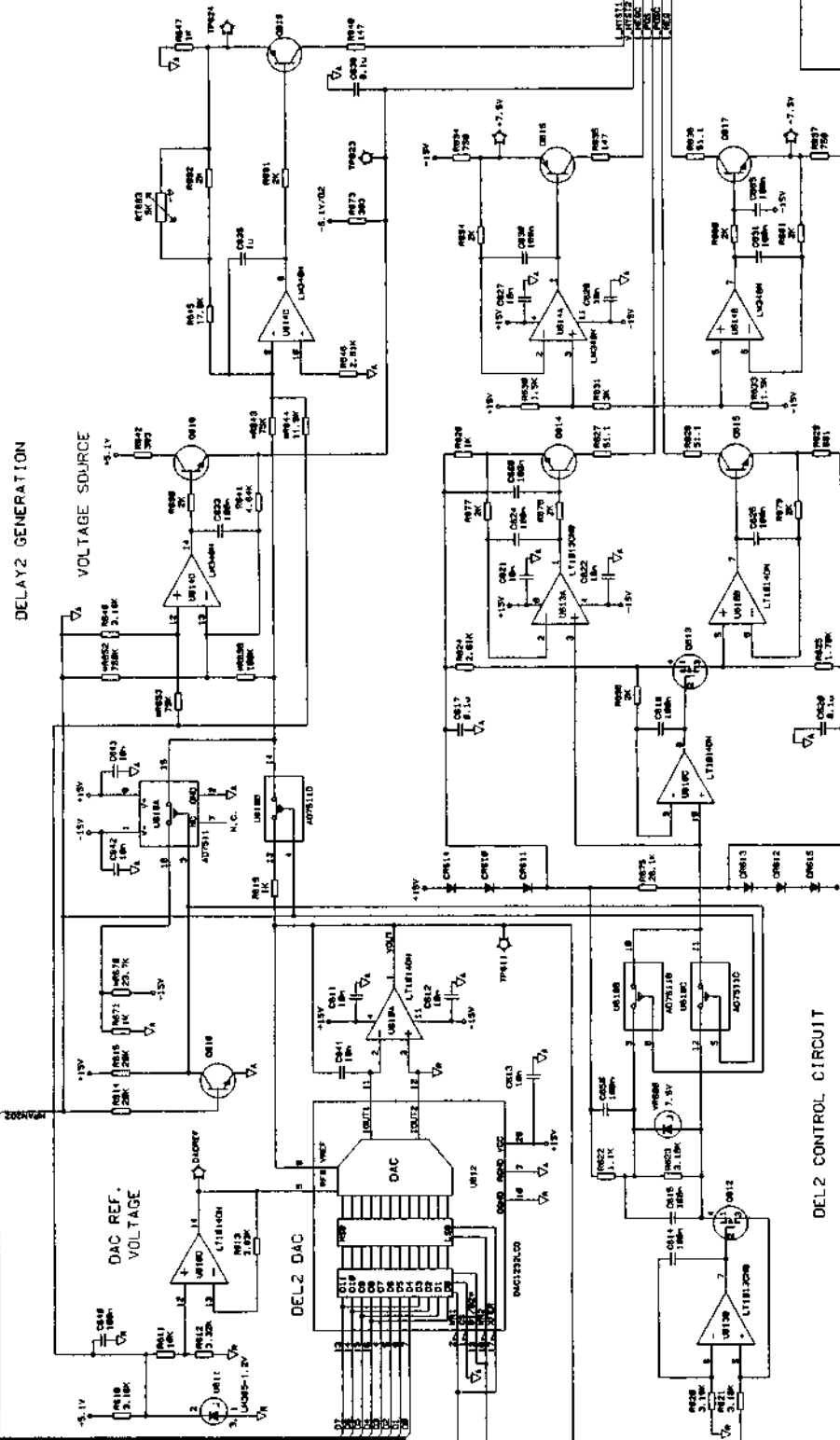
VOLTAGE SOURCE

DAC REF. VOLTAGE

DEL2 DAC

DEL2 CONTROL CIRCUIT

CURRENT SOURCES

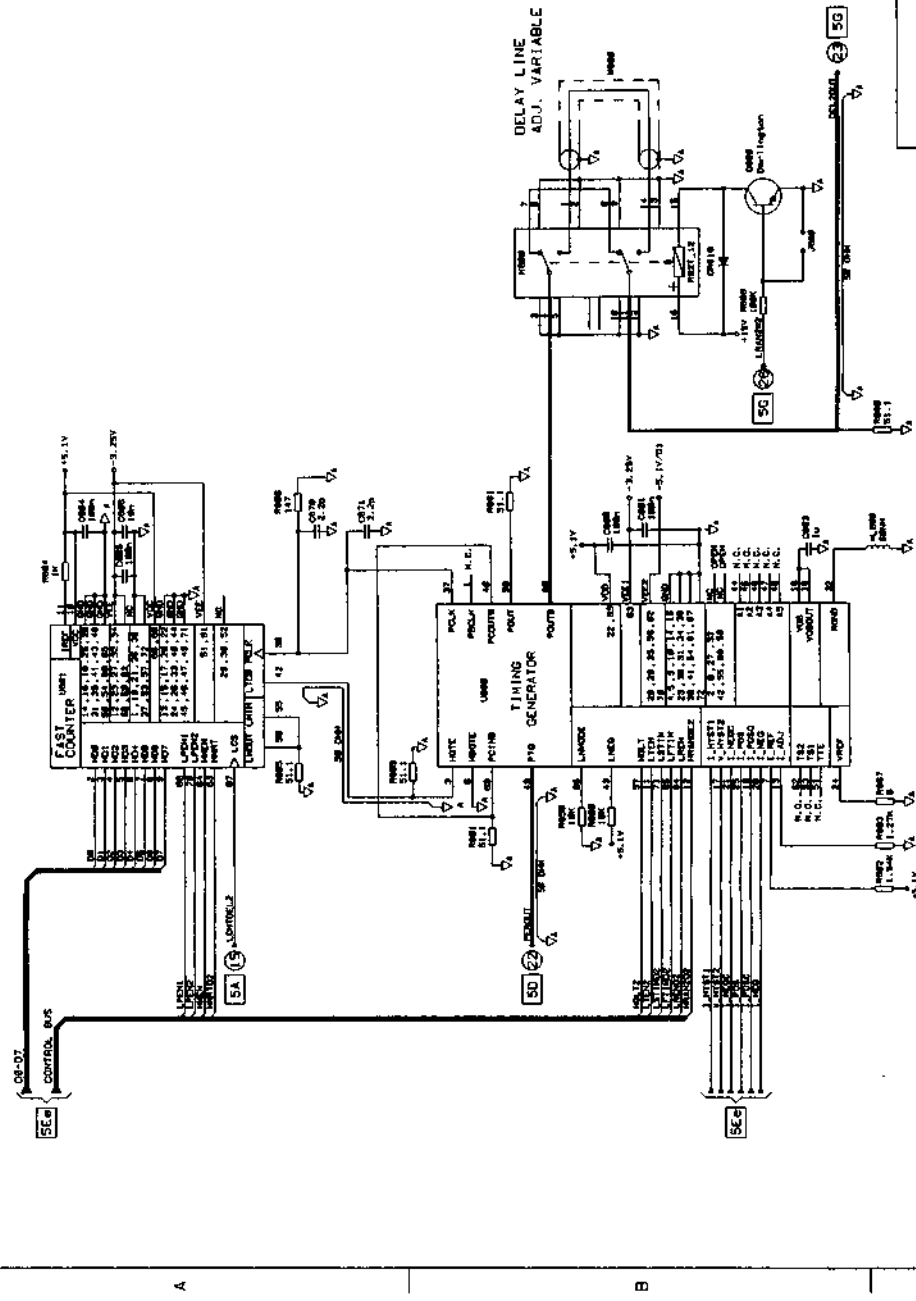


5E

MODEL NP01371A
 FIGURE 5-4-45
 OPT. Ø20 TIMING BOARD SCHEMATICS
 (SHEET 7 OF 12)

TIMING BOARD (AS) 5-4-95

P/O A5 TIMING BOARD (OPT. 020)

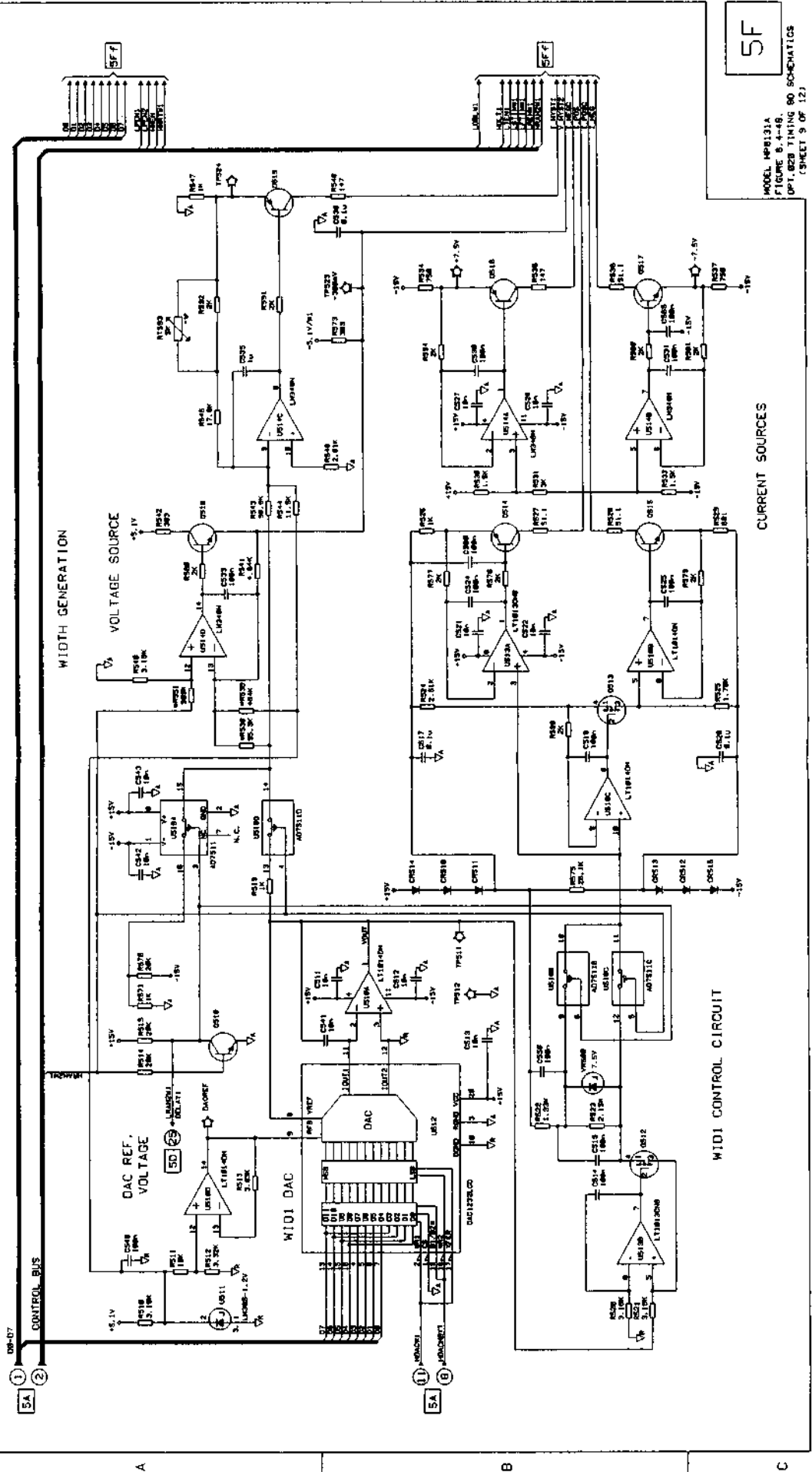


5E

MODEL: MP8131A
FIGURE 6.4-47.
OPT. 020 TIMING BU SCHEMATICS
(SHEET 8 OF 12)

6.4-97
TIMING BOARD (45)

P/O A5 TIMING BOARD (OPT. 020)



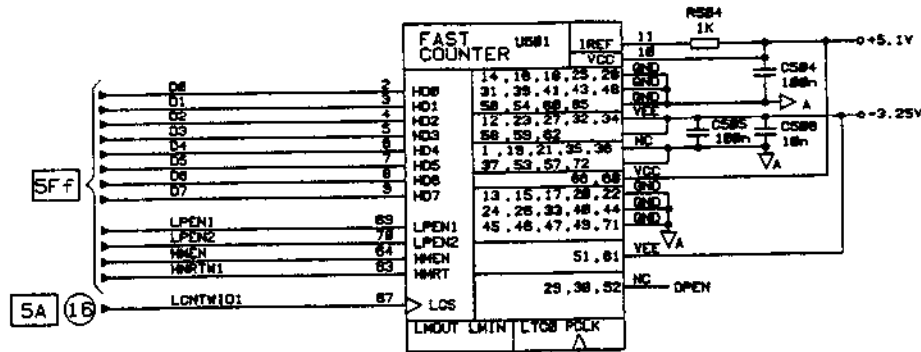
5F

MODEL 400131A
FIGURE 5 - TIMING BOARD SCHEMATICS
(SHEET 9 OF 12)

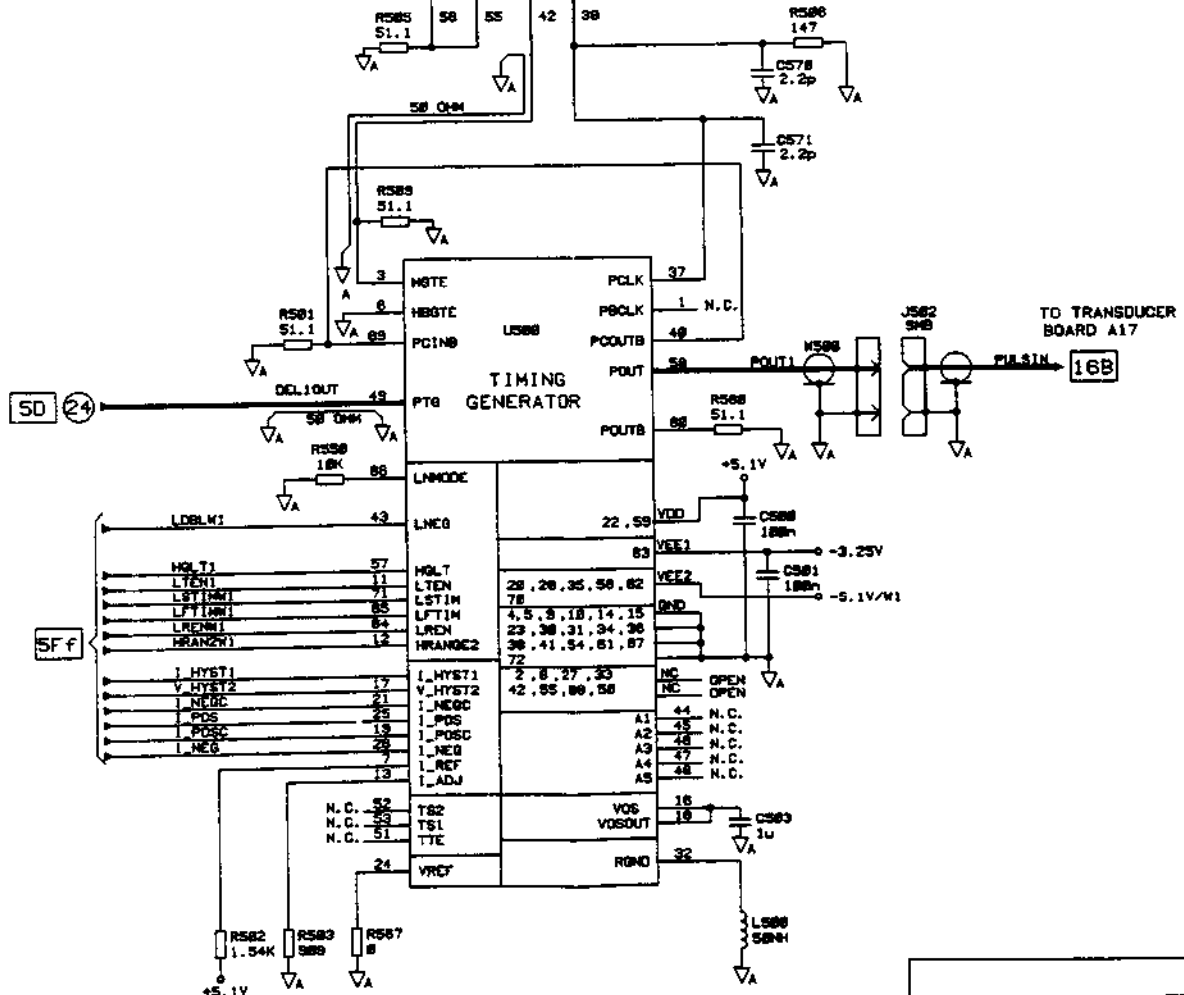
TIMING BOARD (45) 5.4-99

P/O A5 TIMING BOARD (OPT. 020)

A



B

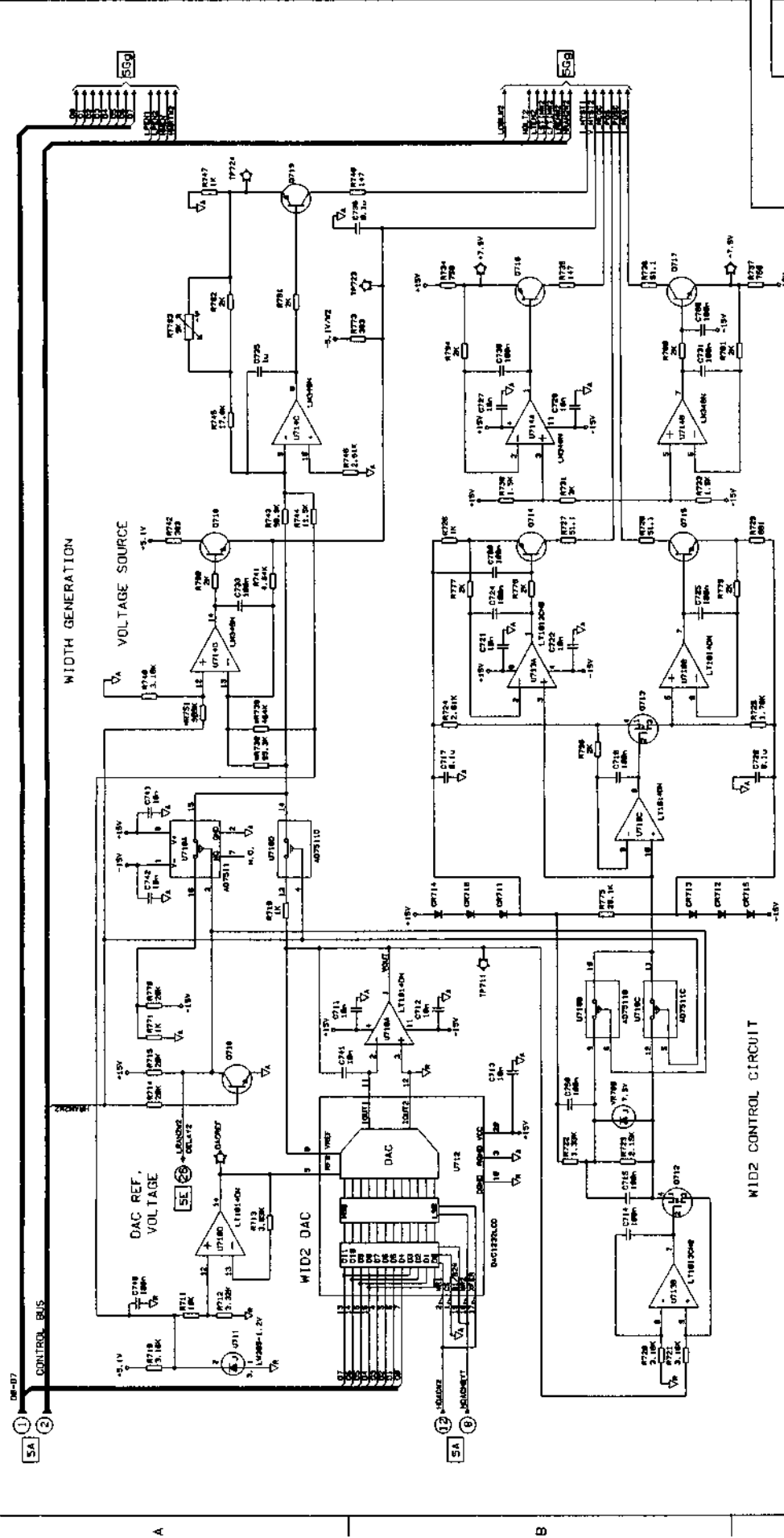


C

5F

MODEL HP8131A
 FIGURE 6.4-49.
 OPT.020 TIMING BOARD SCHEMATICS
 (SHEET 10 OF 12)

P/O A5 TIMING BOARD (OPT. 020)



5G

MODEL HP8131A
FIGURE 6.4-56.
OPT. 020 TIMING BOARD SCHEMATICS
(SHEET 11 OF 12)

6.4-103
TIMING BOARD (AS)

WIDTH GENERATION

VOLTAGE SOURCE

DAC REF. VOLTAGE

WID2 DAC

WID2 CONTROL CIRCUIT

CURRENT SOURCES

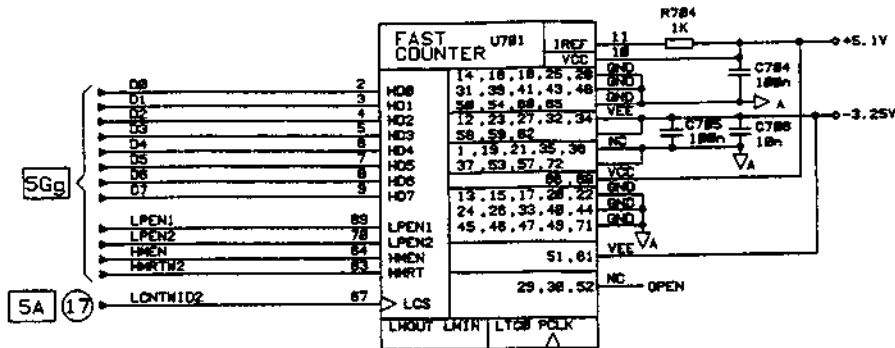
CONTROL BUS

5A

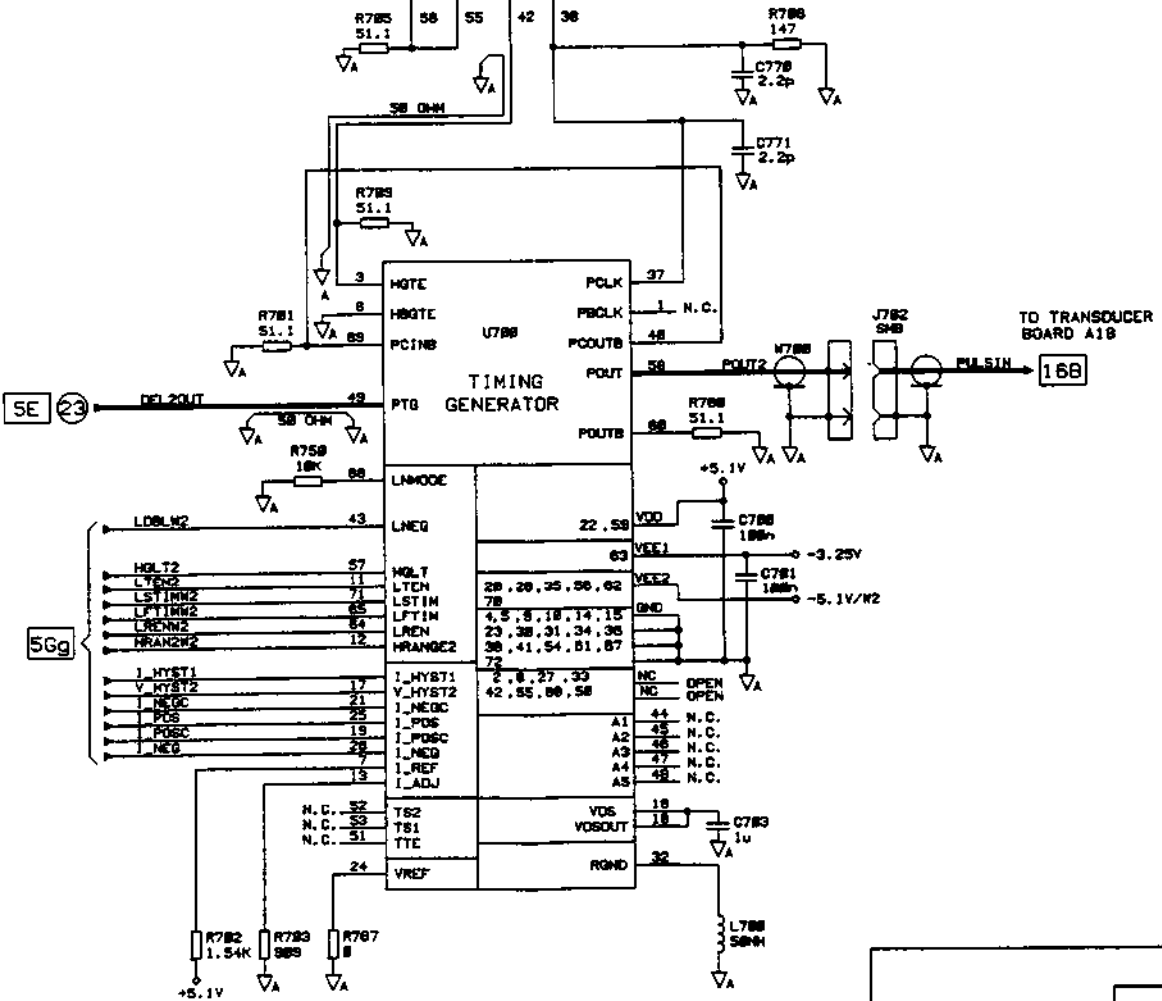
5A

P/O A5 TIMING BOARD (OPT. 020)

A



B



C

5G

MODEL HP8131A
 FIGURE 6.4-51.
 OPT. 020 TIMING BOARD SCHEMATICS
 (SHEET 12 OF 12)

HP 8130A Output Board (A26; option 020 - A27)

Block Theory of Operation

Introduction

This section provides a basic block level theory of operation. A more detailed theory of operation follows this section.

Slope Generation

The main function of the output board is slope generation, the resultant output is passed to the output amplifier. The slope generator circuit is divided into four main blocks:

- input buffer
- fast slope generator and slow slope interface
- slow slope generator
- level shift and impedance converter

The purpose of the slope generator is to generate a signal which combines stable amplitude with variable rise and fall times. The incoming signal from the timing board is single ended and has an EECL format.

The output signal to the output amplifier has programmable rise and fall times from 600 ps to 100 μ s. Output amplitude can be adjusted between 1.5 V to 1.8 V.

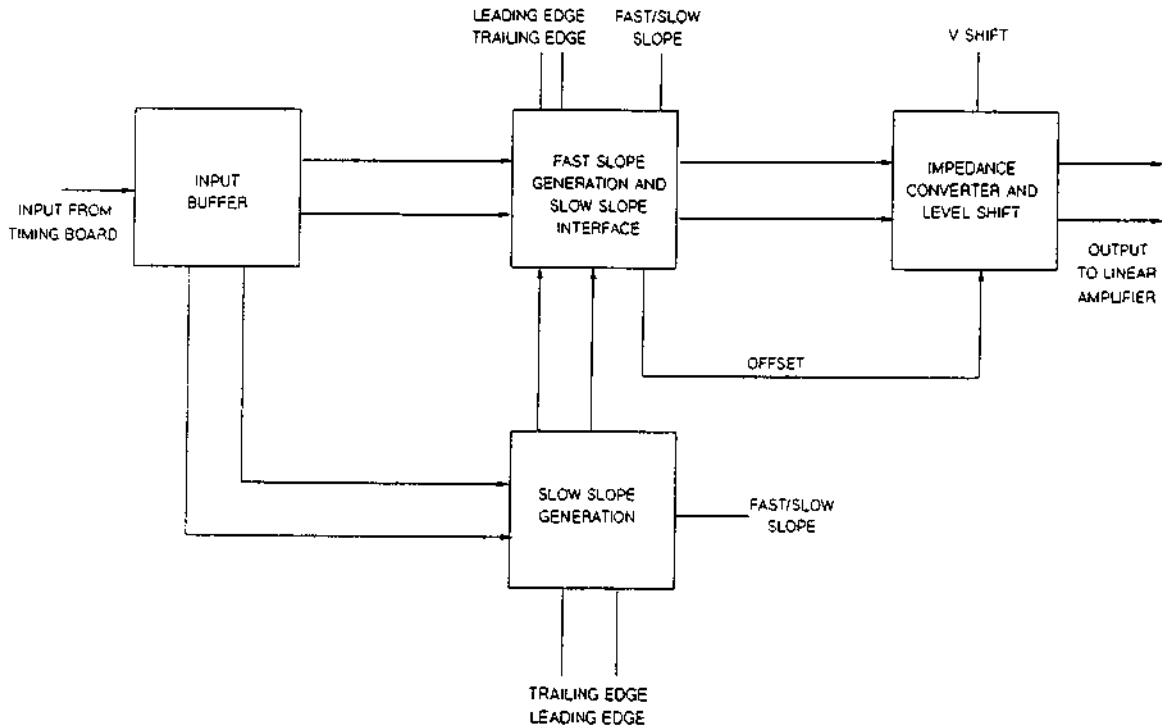


Figure 6-5-1. Slope Generator Module Block Diagram

Output Amplifier

The output amplifier and offset generator are used to amplify the slope generator output signals to the required level. They are also used to add the necessary output offset as determined by the HIL and LOL requirements.

To avoid breakdown of the linear amplifier a Gallium Arsenide (GaAs) chip, serving as a cascode and having a breakdown voltage > 10 V, was added to the amplifier outputs.

Fast Slope Generator

The fast slopes are generated by a fully customized GaAs IC. The IC consists of:

- two fully switched directly coupled differential amplifiers
- a diode bridge
- two sense diodes
- two diodes to input the slow slope signal
- source followers at the output

The IC is mounted on a thick film hybrid.

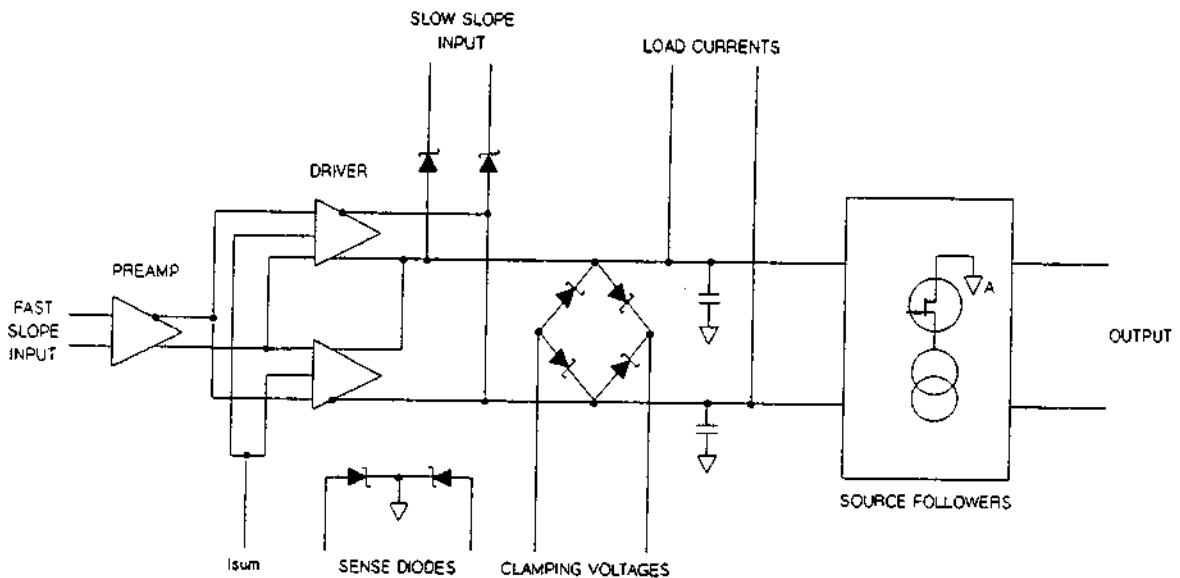


Figure 6-5-2. Fast Slope Generation

The driver consists of two fully switched differential amplifiers connected in parallel and scaled by 1:3. For slopes below 2 ns, both differential amplifiers will operate. For transition times between 2 ns and 10 ns, the “small” amplifier will switch the sum of the load currents. Slower transition times are generated on the board and both amplifiers are turned off.

Theory of Fast Slope Generation

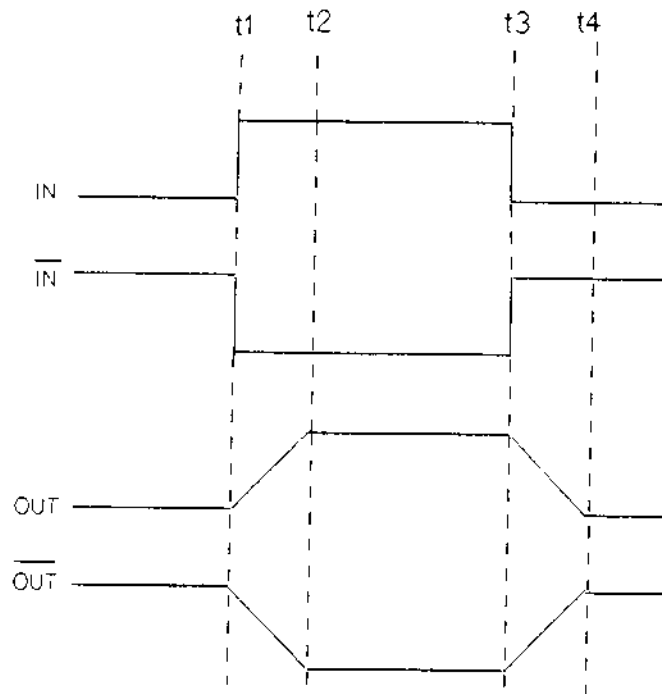
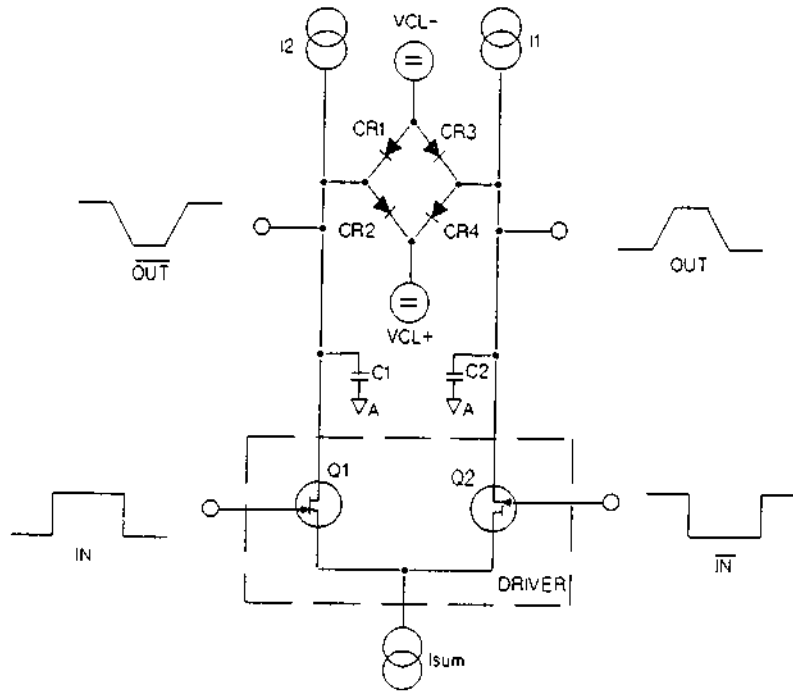


Figure 6-5-3. Fast Slope Theory of Operation

6-5-4 HP 8130A Output Board (A26; option 020 - A27)

Currents I1 and I2 determine the leading and trailing edge of the slopes respectively; Isum being the sum of I1 and I2. As shown in the Figure above, at time t1 Q1 turns ON and Q2 turns OFF. The constant current discharging from C1 being determined by:

$$\begin{aligned} I(C1)[t1,t2] &= I2 - Isum \\ &= -I1 \end{aligned}$$

This provides the slopes of \overline{OUT} from t1 to t2. Once the voltage has dropped to the level at t2, CR1 starts to conduct and prevents the voltage at \overline{OUT} from falling any further. The clamping voltage is:

$$V(\overline{OUT})[t2;t3] = V_{CL-} - V_{CR1}$$

Where VCR1 is the forward voltage across CR1.

At time t3 Q1 turns OFF and Q2 turns ON. Isum flows through Q2 and the current that recharges C1 from t3 to t4 is:

$$I(C1)[t3;t4] = I2$$

At t4 CR2 starts to conduct and prevents the voltage at \overline{OUT} from rising further than:

$$V(\overline{OUT})[>t4] = V_{CL+} + V_{CR2}$$

A similar procedure to that described above produces the different voltage levels at OUT by:

$$\begin{aligned} I(C2)[t1,t2] &= I1 \\ V(OUT)[t2;t3] &= V_{CL+} + V_{CR4} \\ I(C2)[t3;t4] &= -I2 \\ V(OUT)[>t4] &= V_{CL-} - V_{CR3} \end{aligned}$$

To obtain an output voltage independent of the forward voltages of the clamping diodes; two further sense diodes, CR11 and CR12, have been integrated on the IC. The voltages VCL- and VCL+ are:

$$\begin{aligned} V_{CL-} &= V1 + V(CR11) \\ V_{CL+} &= V2 - V(CR12) \end{aligned}$$

The output amplitude is:

$$V_{amp} = V_2 - V_1$$

The differential offset at the output is:

$$V_{off} = V(CRI1) - V(CRI2)$$

To avoid level shift offset at the input of the linear amplifier, V_{off} is fed as an additional control signal. The result is that the difference between the shift voltages of OUT and \overline{OUT} is V_{off} . The output voltage swing is adjustable, from 1.5 V to 1.8 V, by varying the negative clamp voltage.

Slow Slope/Fast Slope Interface

This interface is responsible for feeding the slow slope signal path into the fast slope signal path. It consists of two Schottky diodes (see Figure below). The diodes are reversed biased when the fast slope is in operation; if the fast slopes are not in operation the diodes are forward biased thus enabling the slow slopes. Enabling of the slow slopes causes the driver of the fast slopes to be turned OFF. The load currents I_1 and I_2 of the fast slope generator are equal, and bias the interface diodes.

Slow Slope Generator

Introduction

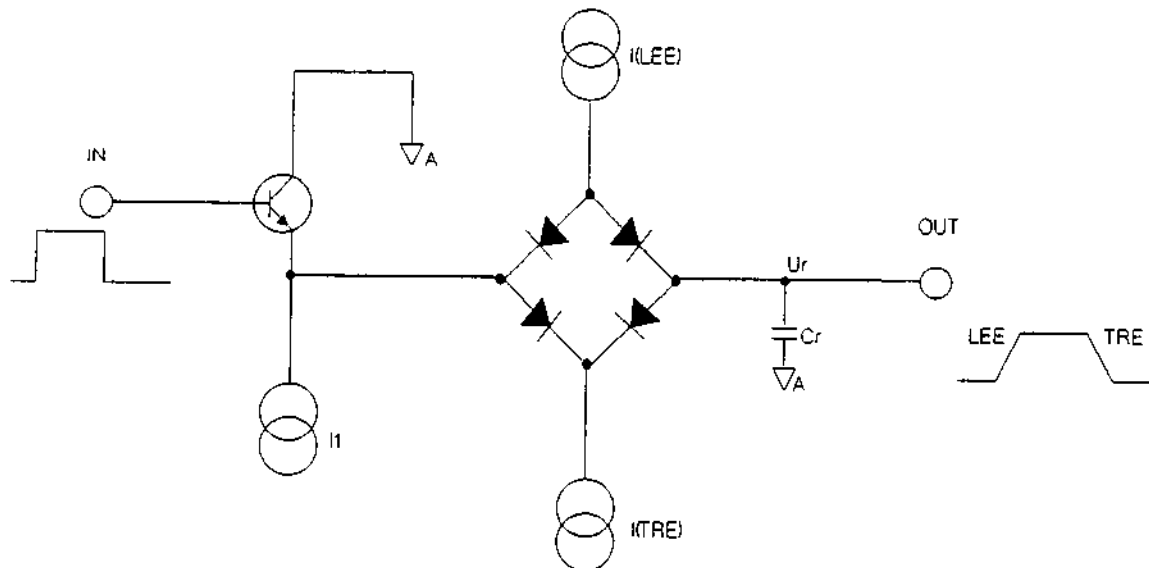


Figure 6-5-4. Basic Slope Generator

Normally, slopes are generated by charging a capacitor with a constant current. Thus, the charging current $I(\text{LEE})$ corresponds to the leading edge (LEE) of a pulse and the discharging current $I(\text{TRE})$ to the trailing edge (TRE).

To avoid overloading the ramp capacitor (C_r), a diode bridge is placed in front. This bridge serves as a switch controlled by the input signal's step and is in balance when voltage V_r has reached its input level. The output of the signal source must have a low impedance to avoid exponential transition times, for this reason an emitter-follower output has been used.

Elimination of Offset

The generated ramp is first decoupled by an impedance converter (see Figure below) to remove any errors caused by leakage and/or base currents.

The ramp is then fed to a differential amplifier with current feedback. Feedback in this stage is large enough to allow linear operation without degrading the slopes. The reference input of the differential amplifier is held at DC. Thus the single-ended input voltage is converted to differential output currents.

Any offset caused by series resistance in the bridge diodes, can be removed by varying $I(\text{LEE})$ and $I(\text{TRE})$. The other input to the differential amplifier, via the second diode bridge, (DC-side) is controlled in a similar manner. The remaining common mode offset at the amplifier inputs will not effect the outputs.

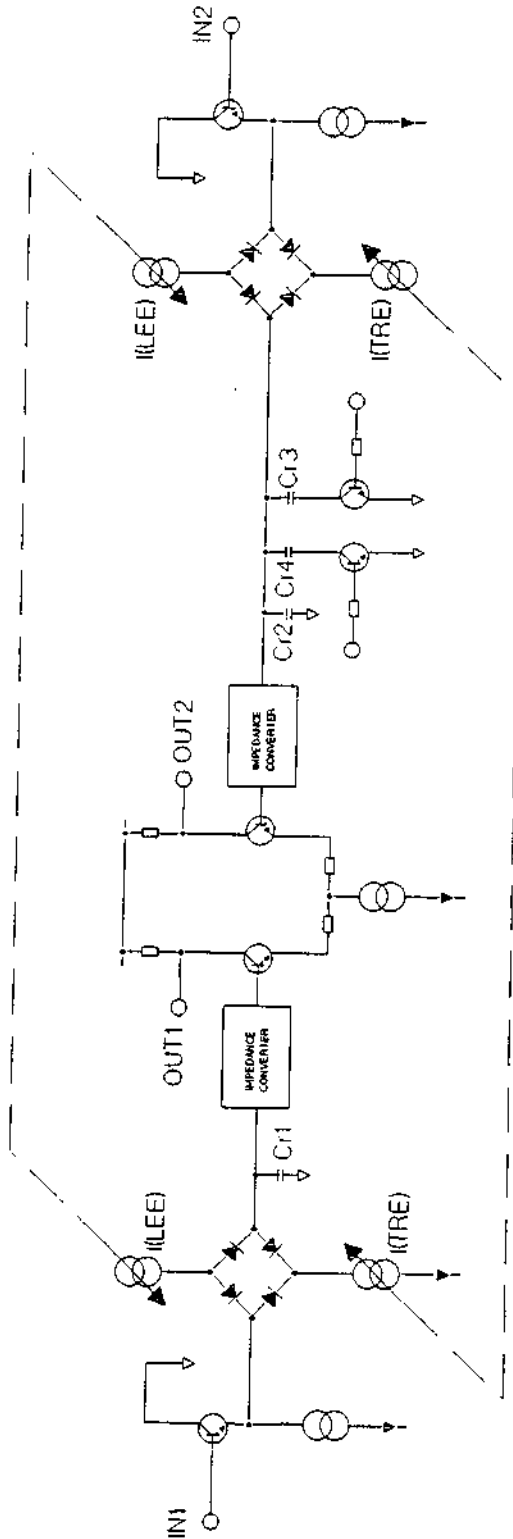


Figure 6-5-5. Elimination of Offset

6-5-8 HP 8130A Output Board (A26; option 020 - A27)

Minimum Transition at Optimum Performance

To keep parasitics (series inductances, parallel stray-capacitances) low the circuit was engineered in SMD technology.

The time taken for the ramp capacitor, C_r , to be charged by a current I to some voltage V is given by:

$$t = (C_r \times V) \div I$$

All three parameters (C_r , V , and I) contribute to the quality of a ramp.

The ramp can never be faster than the original input signal as this would cause the bridge to balance and the voltage at the ramp node would then follow the input signal. Satisfactory values of the three parameters were found to be:

$C_r = 30 \text{ pF}$, $V = 2.4 \text{ V}$, $I = 12.5 \text{ mA}$ which gives

$$t_r = (0.8 \times 30 \times 2.4) \div 12.5 \text{ ns} = 4.6 \text{ ns}$$

Transitions are measured between 10% and 90% of amplitude, giving a duty factor of 0.8.

The complete slope range of 5 ns to 100 μs is generated by switching additional capacitors. Each successive range is 10 times higher than the previous one, thus the additional capacitor is also 10 times larger. An edge ratio of 1:20 within one range, can be achieved by setting the load currents to a ratio of 1:20, this leads to an overlap of the ranges by a factor of two.

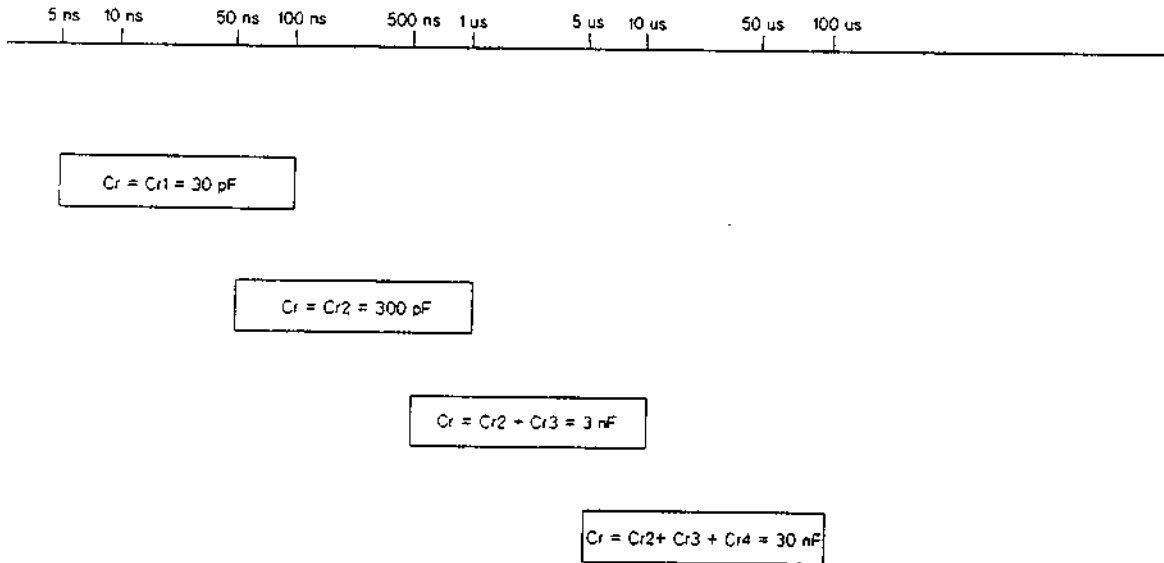


Figure 6-5-6. Slow Slope Range Assignment and Associated Ramp Capacitance

The additional capacitors are switched into the circuit by transistors. To keep the parasitic part of the residual ramp capacitor as low as possible the switches are connected at a non-sensitive node, namely the second diode bridge.

Slopes from 5 ns to 100 ns have the input signal applied to the slope generator's fast input, IN1, keeping the slow input, IN2, at DC. Slopes from 50 ns to 100 μs have the input signal applied to IN2 with IN1 kept at DC. Additional range switching is done at the slow input IN2.

Capacitive Step

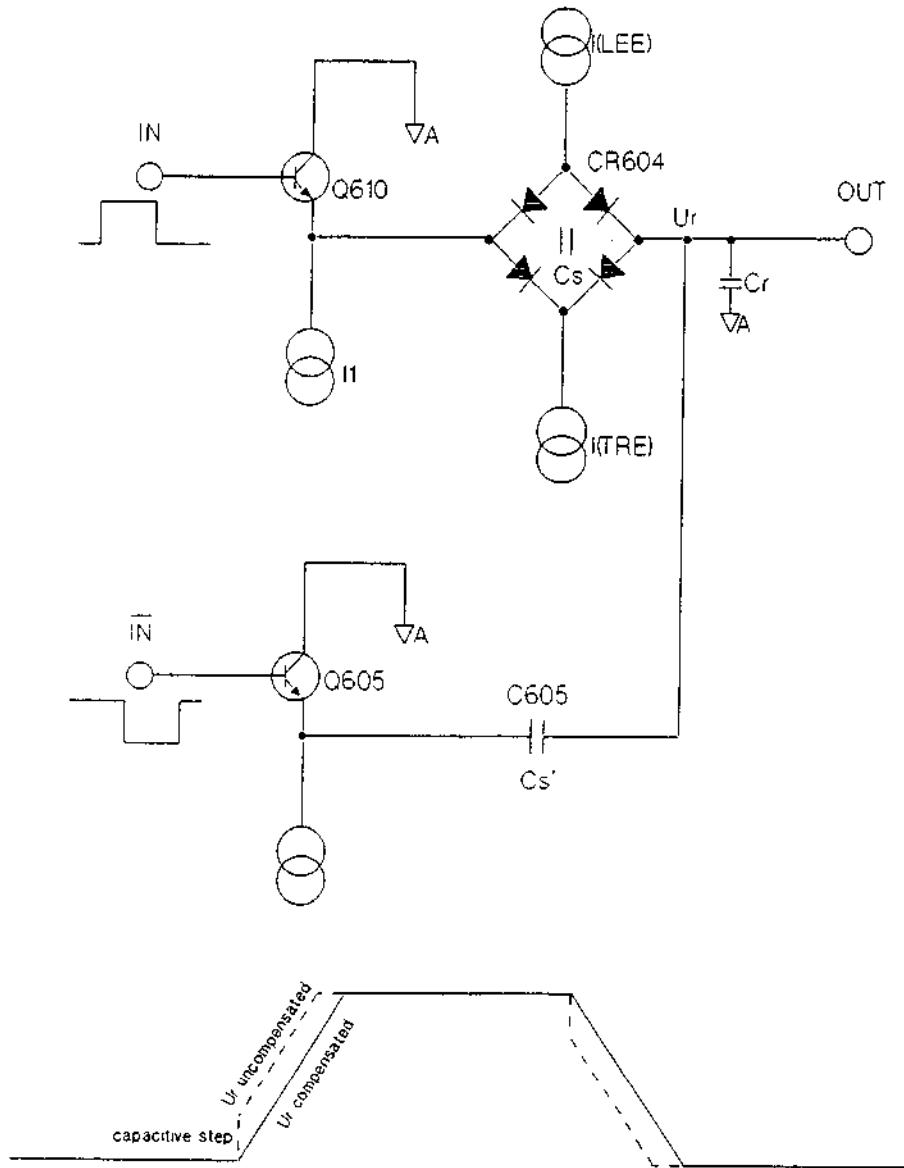


Figure 6-5-7. Compensation for Capacitive step

The diode bridge has across it some parasitic capacitance caused by the capacitance of each diode and the stray capacitance of the board. This capacitance causes the step as shown by the above Figure and is given by:

$$V_c = [C_s \div (C_s + C_r)] \times V_{in}$$

Suitable values are: $C_s = 3 \text{ pF}$, $C_r = 30 \text{ pF} \implies V_c = 10\% \text{ of } V_{in}$

To compensate for this effect the complement input signal is coupled directly to the ramp node via a capacitor having the same value as C_s .

Level Shift and Impedance Converter

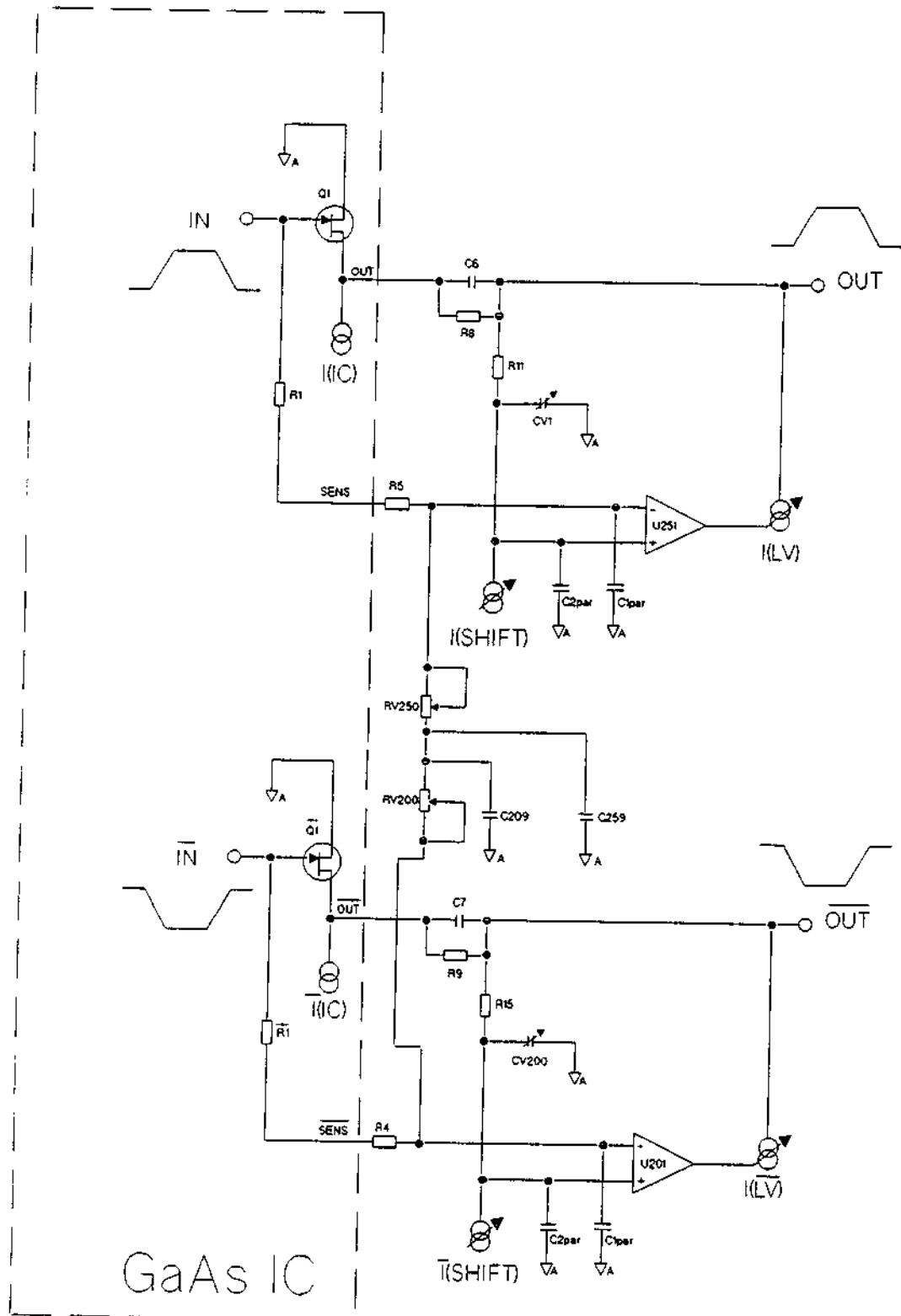


Figure 6-5-8. Level Shift

HP 8130A Output Board (A26; option 020 - A27) 6-5-11

Because the output amplifier is floating a level shift with a variable shift voltage was required. The input to the Level Shift is an FET used as a source follower. In order to achieve stable working conditions most of the source current flows through the on-chip current source. The current through R8 can be adjusted to provide variable shift voltages. The shift voltage is given by:

$$\begin{aligned}V_{\text{shift}} &= V(R8) + V_{\text{GS}}(Q1) \\ &= I(\text{shift}) \times R11\end{aligned}$$

The voltage drop across R1 and R5 can be neglected.

U251 forces a differential input voltage of 0 V at its inputs by controlling the current source, I(LV). The path R1, R5, RV250, RV200, R4, and $\bar{R}1$ has its input voltage divided by RHFA (RHFA is the Reciprocal of the source follower's High Frequency Amplification factor). This is necessary, otherwise U251 would cause, by varying I(LV), the output swing to equal the input swing at low frequencies. U251 adjusts the low frequency amplification factor to that of the high frequency amplification factor of the level shift. In order to reduce distortions at the frequency at which U251 starts to operate, CV1 has been included in the circuit. It is adjusted to:

$$[R1 + R5] \times C1_{\text{par}} = R11 \times [C2_{\text{par}} + CV1]$$

This means the time constants of both the operational amplifier inputs are equal.

C1par and C2par represent the parasitic capacitance caused by the board, U251, the hybrid and the current source. Because (R1 + R5) is larger than R11, an additional capacitor is always necessary at the negative input of U251 to equalize the time constants. C6 was necessary to reduce the dynamic output resistance at high frequencies. R1 was needed to decouple the signal path at high frequencies and to avoid parasitic oscillations. Because R1 on the IC varies with temperature an additional resistor, R5, ten times larger, was necessary to make RHFA more stable.

Output Amplifier

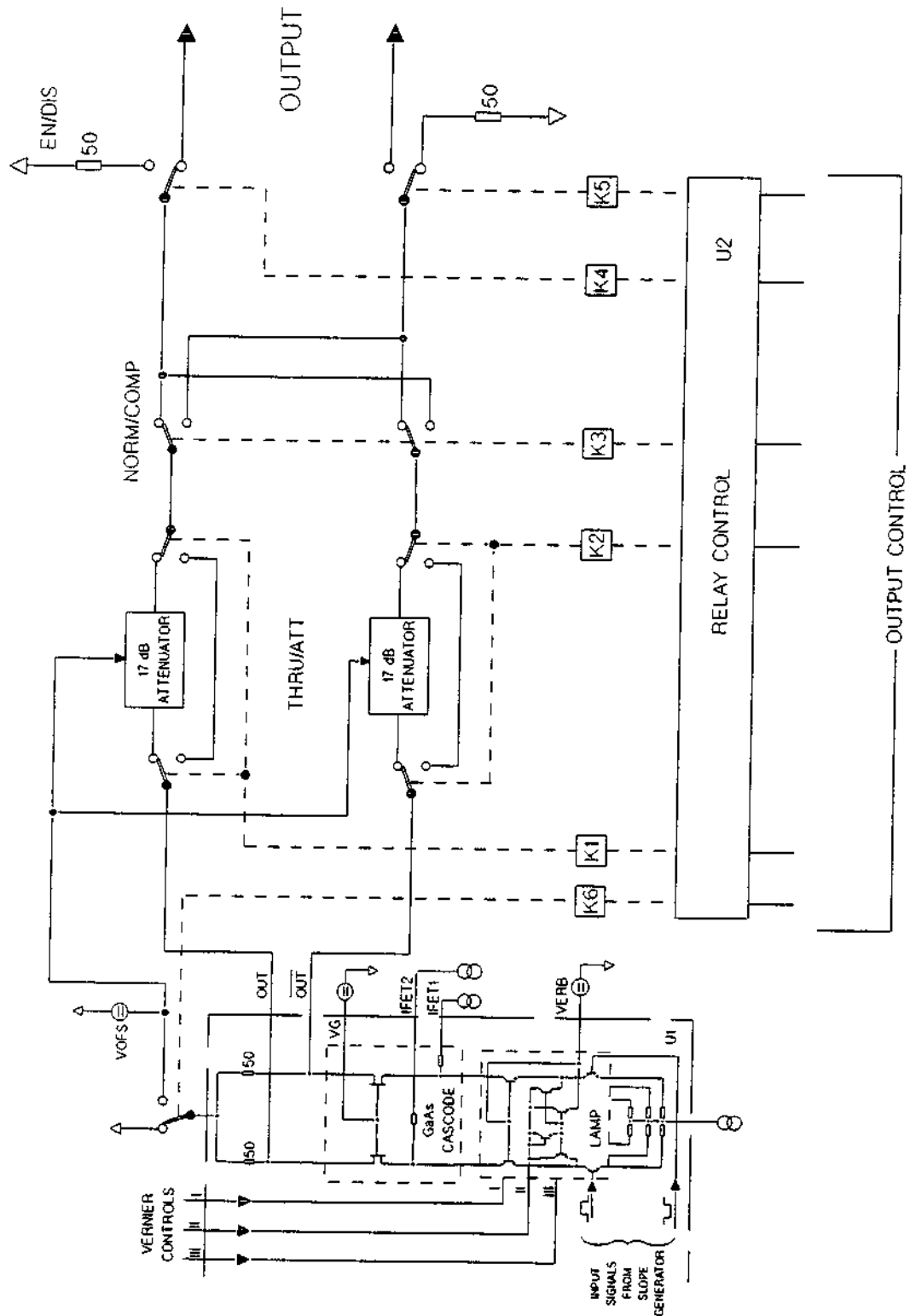


Figure 6-5-9. Output Amplifier Block Diagram

Introduction

The output amplifier and offset generator are used to amplify the slope generator's output signals to the required level. They are also used to add the necessary output offset as determined by the HIL and LOL requirements.

To avoid breakdown of the linear amplifier a GaAs chip, serving as a cascode and having a breakdown voltage > 10 V, was added to the amplifier's outputs.

Linear Amplifier

The linear amplifier is responsible for generating the signals that appear at the instrument's output terminals.

Current Handling at Speed

The output pulses must be input to a $50\ \Omega$ external load in parallel with a $50\ \Omega$ back termination in the instrument. This means the amplifier must be able to produce output current swings of up to 200 mA. The additional offset (up to 5 V) can be generated by adding an offset voltage at the common node of the back termination. Thus, the IC only has to deal with the pulse part of the instrument's output.

Just as in earlier HP pulse generators, the HP 8130A's output amplifier is configured as a transconductance amplifier, i.e. turning an input voltage into an output current.

Amplitude Variation Range

The linear amplifier is configured as an emitter-degenerated differential pair with a two-quadrant multiplier cell on top (see figure below). Its output amplitude is varied by sourcing a DC current into the multiplier cell's control input port, I_v . Any current fed into I_v is subtracted from the differential pair's collector currents on their way to the outputs OUT and OUT .

Three binary-weighted amplifier/multiplier combinations are used in parallel. Each one runs at a gain of either 0 (OFF) or about 1/3 (ON). Their currents are 4/7, 2/7 and 1/7 of the 200 mA total. All three together cover amplitudes of 5 V to 2.16 V.

If the largest amplifier is switched off, amplitudes of $3/7 \times 5\text{ V} = 2.15\text{ V}$ to 0.72 V are obtainable; with only the smallest one switched on amplitudes of $5\text{ V}/7 = 0.71$ to 0.3 V are obtainable. An external attenuator produces the amplitudes down to the minimum amplitude of 0.1 V .

Amplitude/multiplier stages are switched OFF by sourcing enough current into their multiplier's control inputs to make their gain equal to 0.

Differential Amplifier.

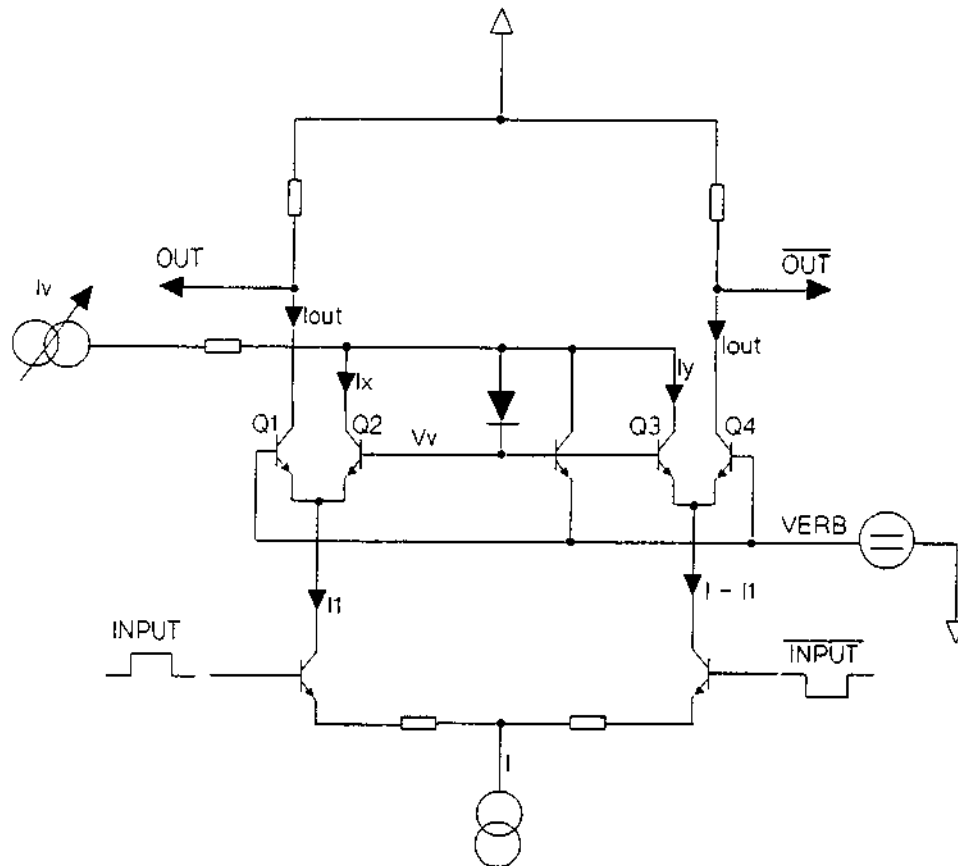


Figure 6-5-10. Differential Amplifier

In a differential amplifier the current flowing in each collector is proportional to the potential difference between the two bases. Thus, by varying the potential V_v on the base of one of the transistors, the current I_{out} can be controlled. However, because of the characteristic of the base-emitter voltage of each transistor, the attenuation has a logarithmic characteristic.

The input signal controls the share of current source I , which flows through each input transistor. Similarly, V_v controls the current in both attenuator transistors Q_1 , Q_2 or Q_3 , Q_4 .

Suppose that V_v sets an attenuation factor of 2 and, for simplicity, $I = 1$ mA. If the input is such that I is shared equally, then $I_1 = 0.5$ mA and $I - I_1 = 0.5$ mA. Also $I_x = 0.5I_1 = 0.25$ mA and $I_y = 0.5(I - I_1) = 0.25$ mA. Now, suppose that the input changes the sharing of current I , so that $I_1 = 0.2$ mA, and $I - I_1 = 0.8$ mA, then, $I_y = 0.4$ mA and $I_x = 0.1$ mA.

In either case, the sum $(I_x + I_y)$ remains constant, this is true for all input signals and attenuation ratios. Therefore a constant current source (controlled by the amplitude setting) can be used to supply the current $(I_y + I_x)$.

$$\text{If } I_v = I, \text{ then } I_{out} = \overline{I_{out}} = 0$$

$$\text{Of } I_v = 0, \text{ then } I_{out} = \overline{I_{out}} = 0.5 \times I$$

Vernier Control Currents

A variable reference voltage corresponding to the output amplitude is generated from a DAC. This is then converted by Q408 into a current which generates a secondary reference voltage across (R441 + R497). This voltage controls the current sources Q409, Q410 and Q411.

Digital signals HV1OFF, HV2OFF and HV3OFF, from the latch U160, control the MUX U405. This enables a fixed voltage across (RV401 + R488), that can be switched to the reference inputs of the current sources, depending on which one of the verniers in the linear amplifier is switched off.

Output Control

Table 6-5-1. U2 Signal Definitions

Signal	Description
HRELG	High RELay to Ground; switches the back termination to ground instead of to VOFS
HTHRU	High THRU (normal output); bypasses post attenuator on the OUT terminal
HPATT*	High Post ATTenuator (inverted output); adds post attenuator on the $\overline{\text{OUT}}$ terminal
HCOMP	High COMPLEMENT; activates complement mode
HENOUT	High ENable OUTput; enables the OUT terminal
$\overline{\text{HENOUT}}$	High ENable $\overline{\text{OUT}}$ put; enables the $\overline{\text{OUT}}$ terminal

Note Signals on inputs of U2: H > 0 V; L < -10 V.



Table 6-5-2. Amplitude Range Truth Table

Amplitude Range	HV1OFF	HV2OFF	HV3OFF	HTHRU	HPATT*	HRELG
1 : 5.00 to 2.16 V	L	L	L	H	L	L
2 : 2.15 to 0.72 V	H	L	L	H	L	L
3 : 0.71 to 0.30 V	H	H	L	H	L	L
4 : 0.29 to 0.10 V	H	L	L	L	H	H

Note On range 4:



- The post attenuators of both OUT and $\overline{\text{OUT}}$ are activated
- The linear amplifier runs as in range 2
- The common node of the back terminations is switched to ground
- The output offset is controlled at the post attenuator.

Floating Output Amplifier

Due to power dissipation/thermal considerations and to avoid breakdown, the output amplifier's supply voltages are floated simultaneously with the output offset. Only half the 10V window needs to be floated.

The output levels are set by controlling high level (HIL) and amplitude (AMP). HIL is derived from the offset voltage VOFS, where for external 50 Ω.

$$\text{HIL} = 0.5 \times (\text{VOFS} - 1.5 \text{ V})$$

The primary reference VSHLAMP for all floating voltages is taken from VOFS (see figure below).

Note



VSHLAMP is clamped for $\text{HIL} \leq 0 \text{ V}$; i.e. floating is only effective if $\text{HIL} > 0 \text{ V}$.

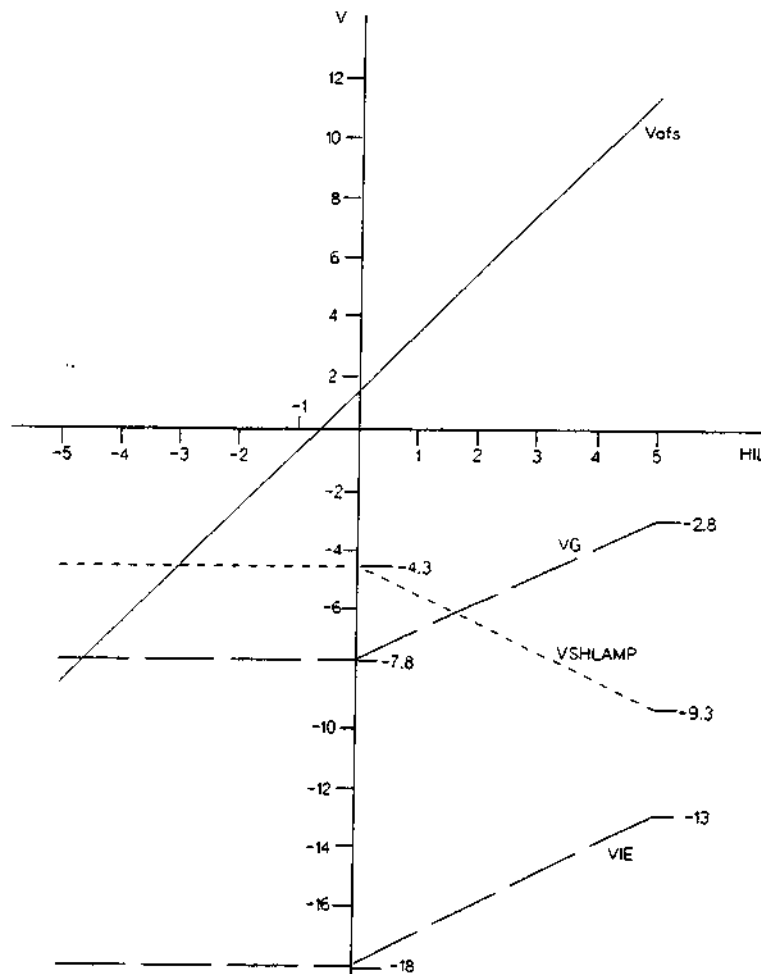
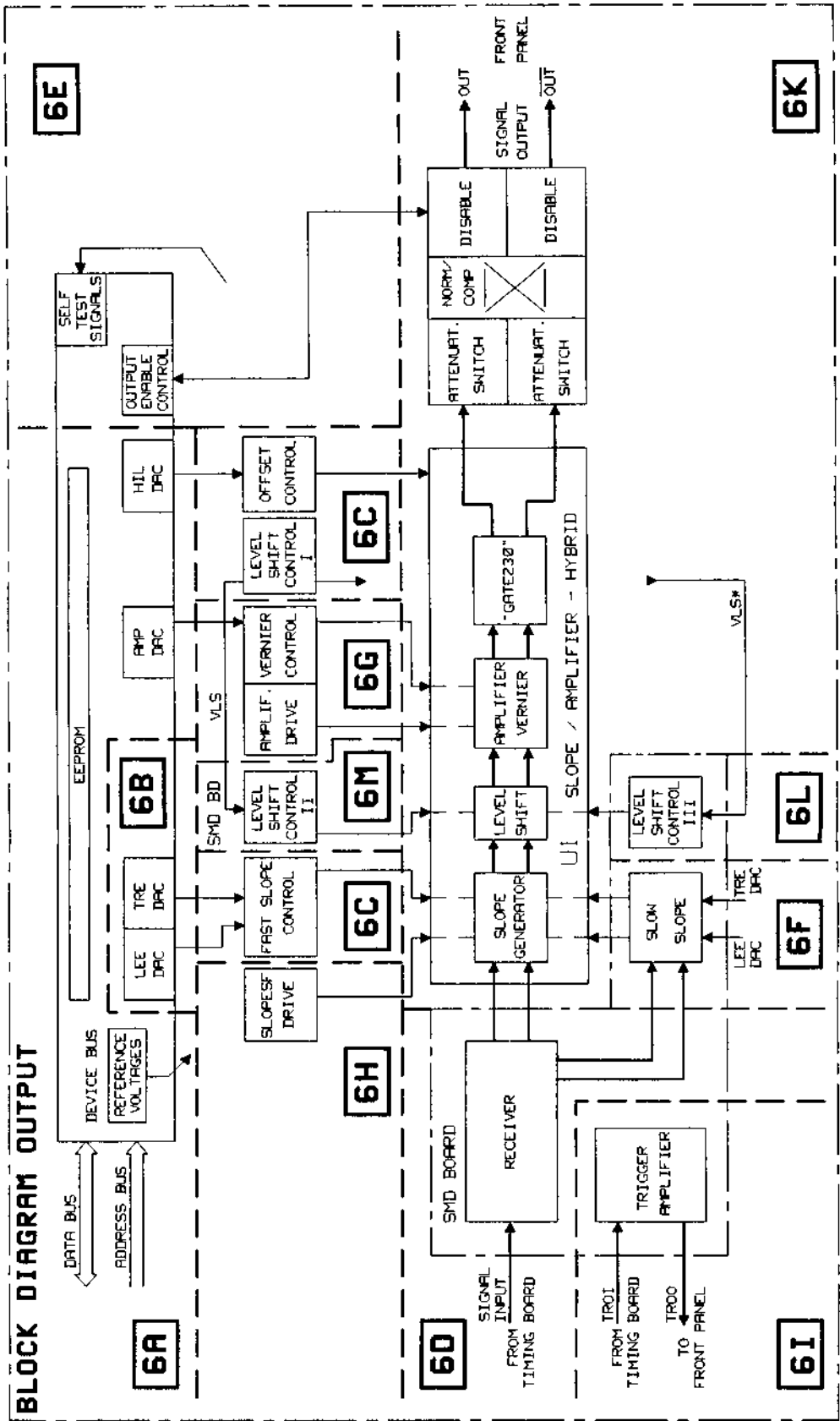
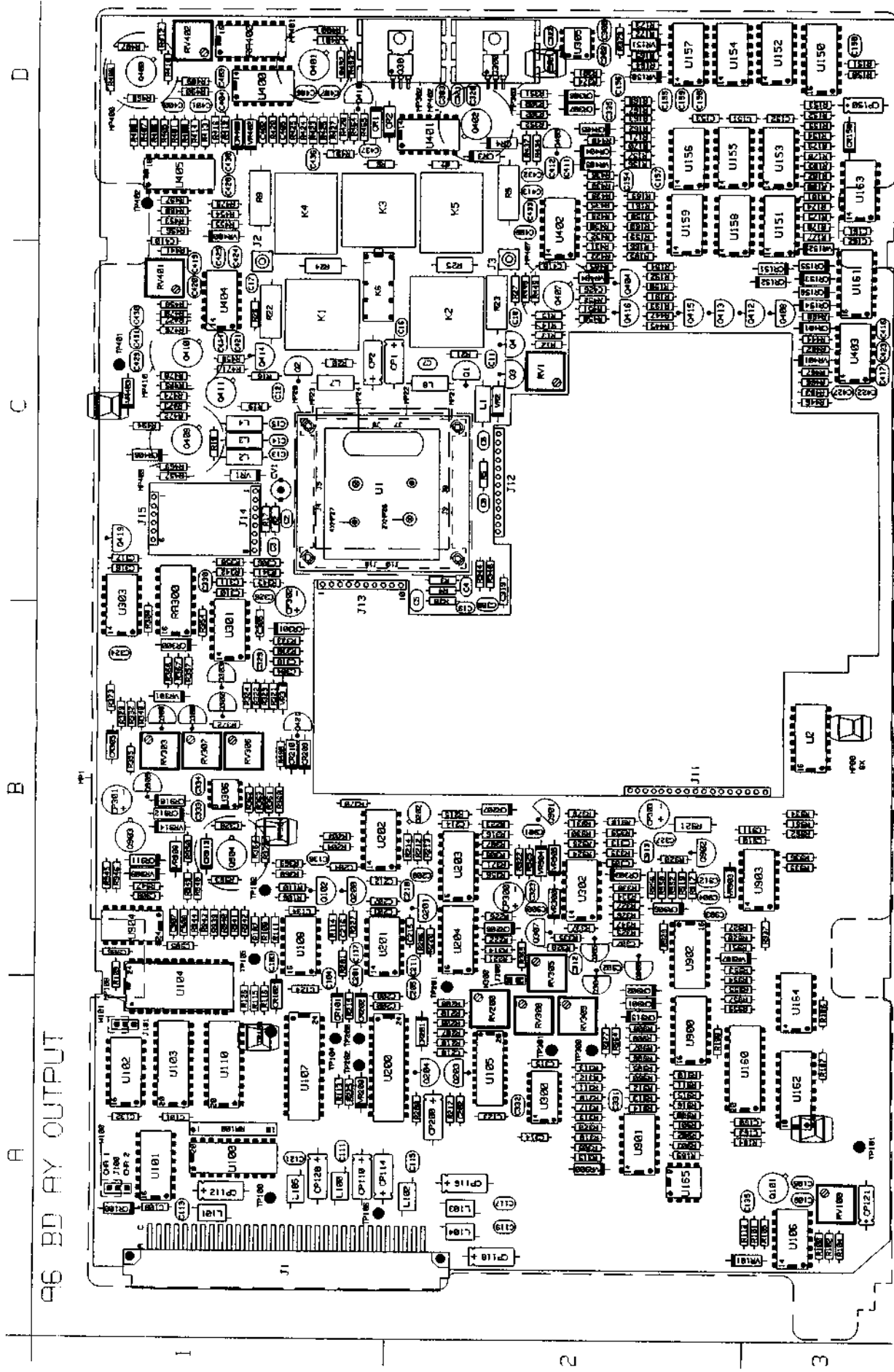


Figure 6-5-11. Floating Supplies

BLOCK DIAGRAM OUTPUT



MODEL HF9130A
 OUTPUT BOARD BLOCK DIAGRAM
 OUTPUT BD (P26 OPT. 020-027) 6.5-19

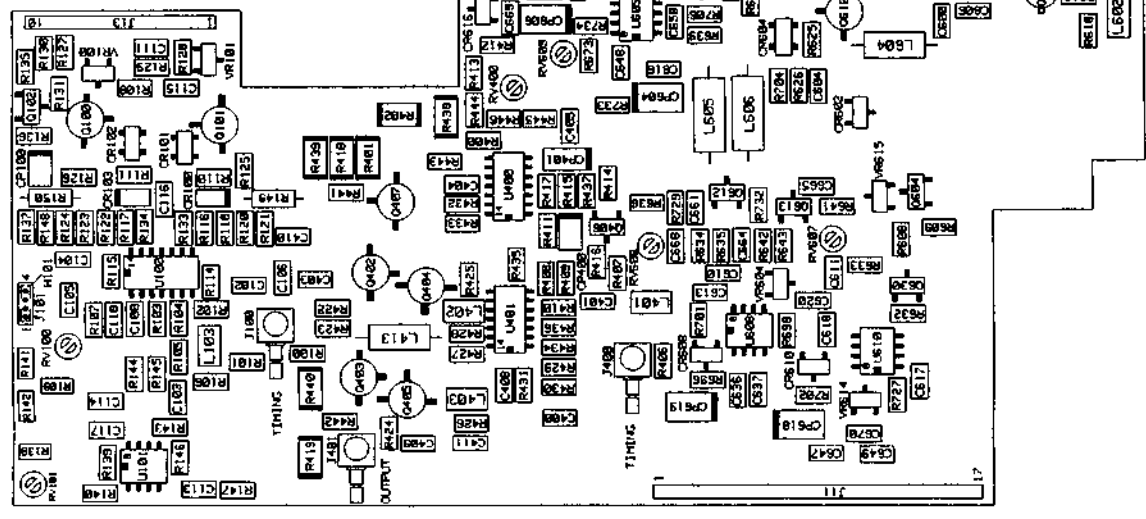


MODEL -FB130A
 OUTPUT BOARD (SEE OPT-020-R27)

FIGURE 6.5-13.
 OUTPUT BOARD (SEE OPT-020-R27) 6.5-21

A B

A16 BD AY SMD



1

2

MODEL: MP81309
 CHANNEL 1 SMD BOARD COMPONENT LAYOUT
 OUTPUT BD (R26 OPT. B26-R27)

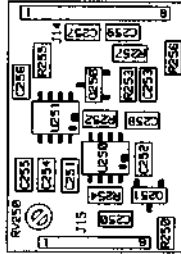
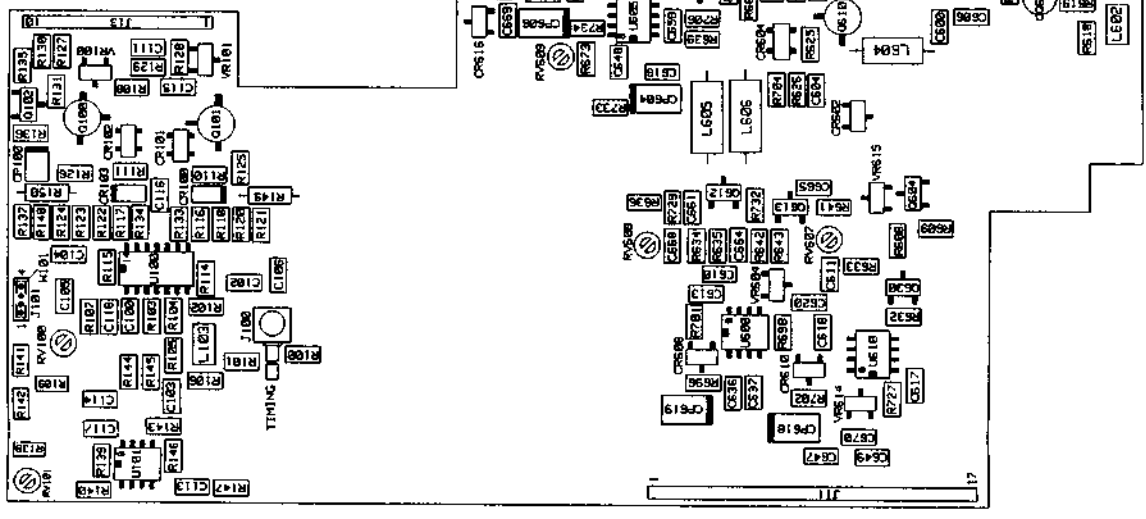
FIGURE 6.5-15.

6.5-25

A

B

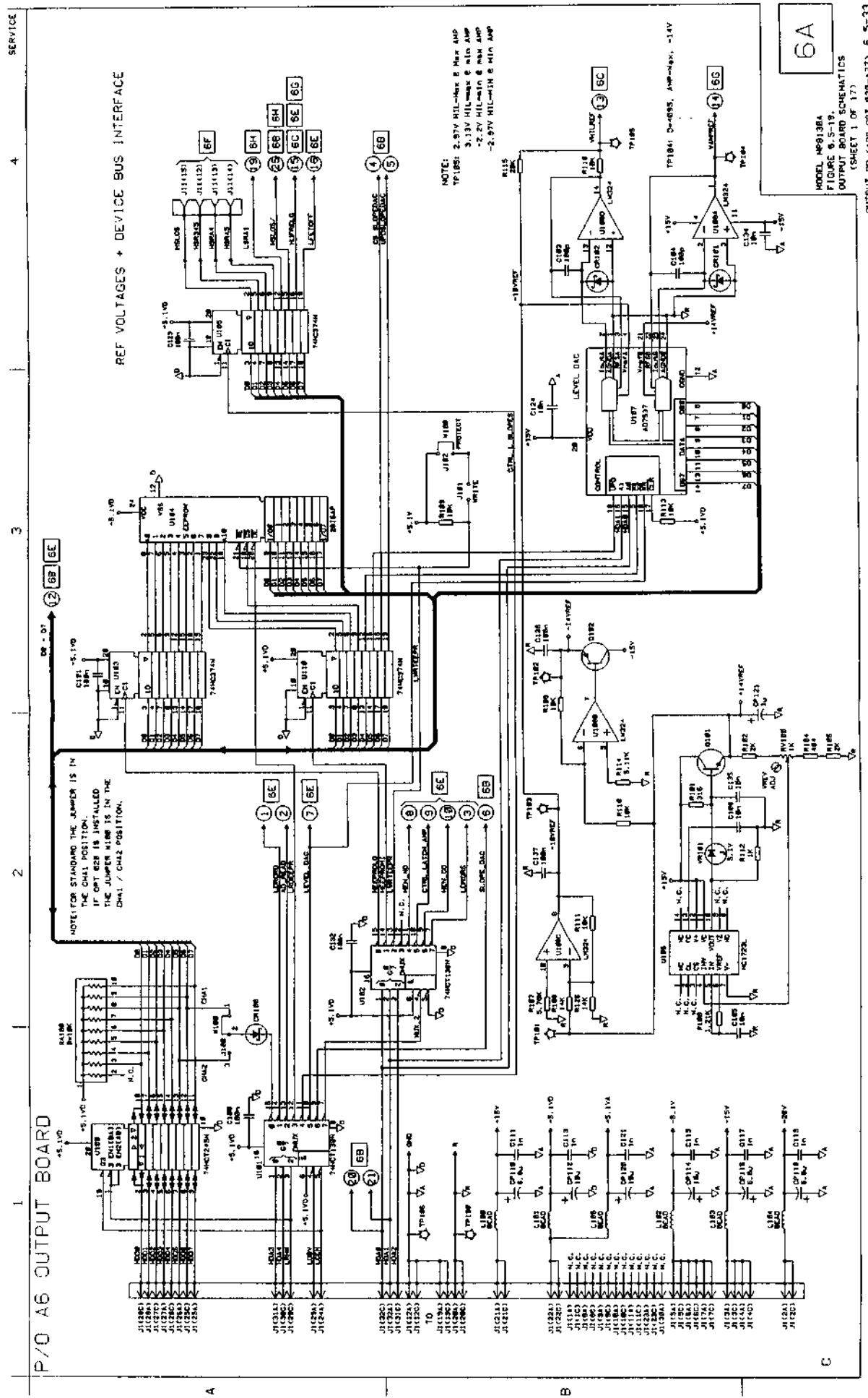
A17 BD AY SMD



MODEL HP9130A
 CHANNEL 2 SMD BOARD COMPONENT LAYOUT
 OUTPUT BD (RGS OPT. 320-P27) 6.5-29

REF. DES.	GRID LOC.	REF. DES.	GRID LOC.	REF. DES.	GRID LOC.	REF. DES.	GRID LOC.	REF. DES.	GRID LOC.	REF. DES.	GRID LOC.	REF. DES.	GRID LOC.
C100	A1	C635	B1	CR610	A2	R100	A1	R254	B1	R670	B2	RV100	A1
C102	A1	C636	A2	CR611	B2	R101	A1	R255	B1	R671	B2	RV101	A1
C103	A1	C637	A2	CR616	A1	R102	A1	R256	B1	R673	A2	RV200	B1
C104	A1	C638	B2			R103	A1	R257	B1	R676	B2	RV250	B1
C105	A1	C639	B2	CV200	B1	R104	A1	R602	B2	R677	B2	RV601	B2
				J11	A2							RV603	B2
C106	A1	C640	B2	J12	B1	R105	A1	R605	B2	R678	B2	RV607	A2
C111	A1	C641	B2	J13	A1	R106	A1	R606	A2	R679	B2	RV608	A2
C113	A1	C645	A2	J14	B1	R107	A1	R608	A2	R680	B2	RV609	A2
C114	A1	C647	A2	J15	B1	R108	A1	R609	A2	R681	B2	U100	A1
C115	A1	C648	A2			R109	A1	R611	B2	R682	B2	U101	A1
				J100	A1							U200	B2
C116	A1	C649	A2	J101	A1	R110	A1	R612	B2	R683	B2	U201	B2
C117	A1	C650	B2	J600	B1	R111	A1	R613	B2	R684	B2	U250	B1
C118	A1	C651	B2			R114	A1	R614	A2	R685	B2	U251	B1
C200	B1	C652	B2	K600	B2	R115	A1	R617	B2	R686	B2	U603	B1
C201	B1	C654	A2			R116	A1	R618	A2	R687	B2	U605	A2
				L103	A1							U607	B2
C202	B2	C655	B2	L600	B2	R117	A1	R619	A2	R689	B2	U608	A2
C203	B1	C656	A2	L502	A2	R118	A1	R620	B2	R690	B2	U609	B2
C204	B2	C657	B2	L603	B2	R120	A1	R621	B2	R692	B2	U610	A2
C205	B2	C658	A2	L604	A2	R121	A1	R622	B2	R693	B2		
C206	B2	C659	B2	L605	A2	R122	A1	R623	B2	R694	A2		
				L606	A2								
C207	B1	C660	B2	L607	B2	R123	A1	R624	A2	R695	B2	VR100	A1
C208	B2	C661	A2	L608	B2	R124	A1	R625	A2	R696	A2	VR101	A1
C209	B1	C662	B2	L608	B2	R125	A1	R626	A2	R697	B2	VR604	A2
C250	B1	C663	B2	L609	B2	R126	A1	R630	B2	R698	A2	VR606	B2
C251	B1	C664	A2			R127	A1	R631	B2	R699	B2	VR614	A2
				L610	B2							VR615	A2
C252	B1	C665	A2	L611	B2	R128	A1	R632	A2			W101	A1
C253	B1	C666	B2	L612	B2	R129	A1	R633	A2	R700	B2		
C254	B1	C667	B2			R130	A1	R634	A2	R701	A2		
C255	B1	C668	A2	Q100	A1	R131	A1	R635	A2	R702	A2		
C256	B1	C669	A1	Q101	A1	R133	A1	R636	A2	R703	B2		
				Q102	A1					R704	A2		
C257	B1	C670	A2	Q200	B1	R134	A1	R637	B2				
C258	B1	C671	B2	Q201	B2	R135	A1	R638	A2	R706	A2		
C259	B1	C672	B2			R136	A1	R639	A2	R708	B2		
C600	A2	C673	B2	Q250	B1	R137	A1	R641	A2	R711	B2		
C603	B2	C674	B2	Q251	B1	R138	A1	R642	A2	R712	B2		
				Q600	B2					R714	B2		
C604	A2	C675	B2	Q602	B2	R139	A1	R643	A2				
C605	B2	C700	A2	Q603	A2	R140	A1	R644	A2				
C606	A2	CP100	A1	Q604	A2	R141	A1	R647	B1	R715	B2		
C610	A2	CP600	A2	Q605	B2	R142	A1	R650	B2	R716	B2		
C611	A2	CP601	B2	Q606	B2	R143	A1	R651	A1	R719	B2		
		CP604	A2	Q610	A2					R720	B2		
C613	A2	CP605	B2	Q612	A2	R144	A1	R652	A2	R721	B2		
C617	A2	CP606	A2	Q613	A2	R145	A1	R653	A2				
C618	A2	CP617	B2	Q616	A2	R146	A1	R654	B1	R722	B2		
C620	A2	CP618	A2	Q617	B2	R147	A1	R655	B1	R723	B2		
		CP619	A2	Q618	A1	R148	A1	R656	B2	R724	B2		
C621	B1	CP620	B2	Q621	B2					R725	B2		
C622	B2					R149	A1	R657	B2	R726	B2		
C623	B2	CR100	A1	Q623	B2	R150	A1	R658	B2				
C624	B2	CR101	A1	Q624	B2	R200	B1	R659	B2	R727	A2		
C625	B2	CR102	A1	Q625	B2	R201	B1	R660	B2	R728	B2		
		CR103	A1	Q626	B2	R202	B1	R661	B2	R729	A2		
C627	B2	CR602	A2	Q627	B2					R730	B2		
C628	B2			Q628	B2	R203	B2	R662	B2	R731	B2		
C629	B2	CR603	B2	Q629	B2	R205	B1	R664	B2				
C631	B2	CR604	A2	Q629	B2	R206	B2	R665	B2	R732	A2		
C632	B2	CR606	B2	Q630	A2	R250	B1	R666	B2	R733	A2		
		CR608	A2	Q631	B2	R252	B1	R667	A2	R734	A2		
C633	B2	CR609	B2			R253	B1	R668	B2	R735	B2		

MODEL HP8130A FIGURE 6.5-18.
CHANNEL 2 SMD BD COMPONENT LOCATION CHART
OUTPUT BD (A26 OPT.020-A27) 6.5-31



SERVICE 4 3 2 1

P/O A6 OUTPUT BOARD

REF VOLTAGES + DEVICE BUS INTERFACE

NOTE: FOR STANDARD THE JUMPER IS IN THE CH1 POSITION.
IF OPT 62B IS INSTALLED THE JUMPER WIRE IS IN THE CH1 / CH2 POSITION.

NOTE: 2.97V HIL-MAX 8 MAX AMP
3.13V HIL-MAX 8 MIN AMP
-2.27V HIL-MIN 8 MAX AMP
-2.97V HIL-MIN 8 MIN AMP

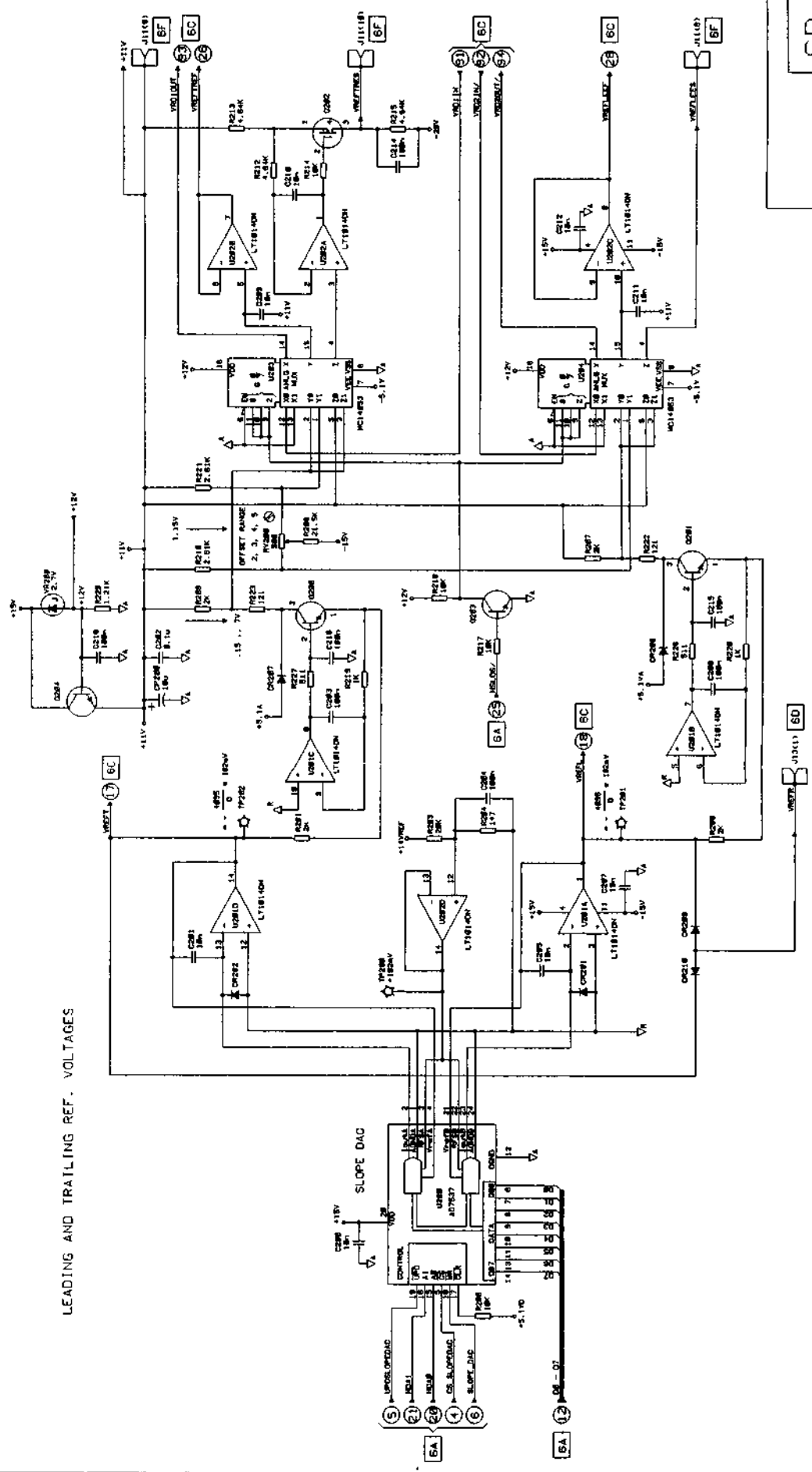
6A

MODEL 460138A
FIGURE 6.5-19.
OUTPUT BOARD SCHEMATICS
(SHEET 1 OF 17)

OUTPUT BD (428 OPT. 028-427) 6.5-33

P/O A6 OUTPUT BOARD

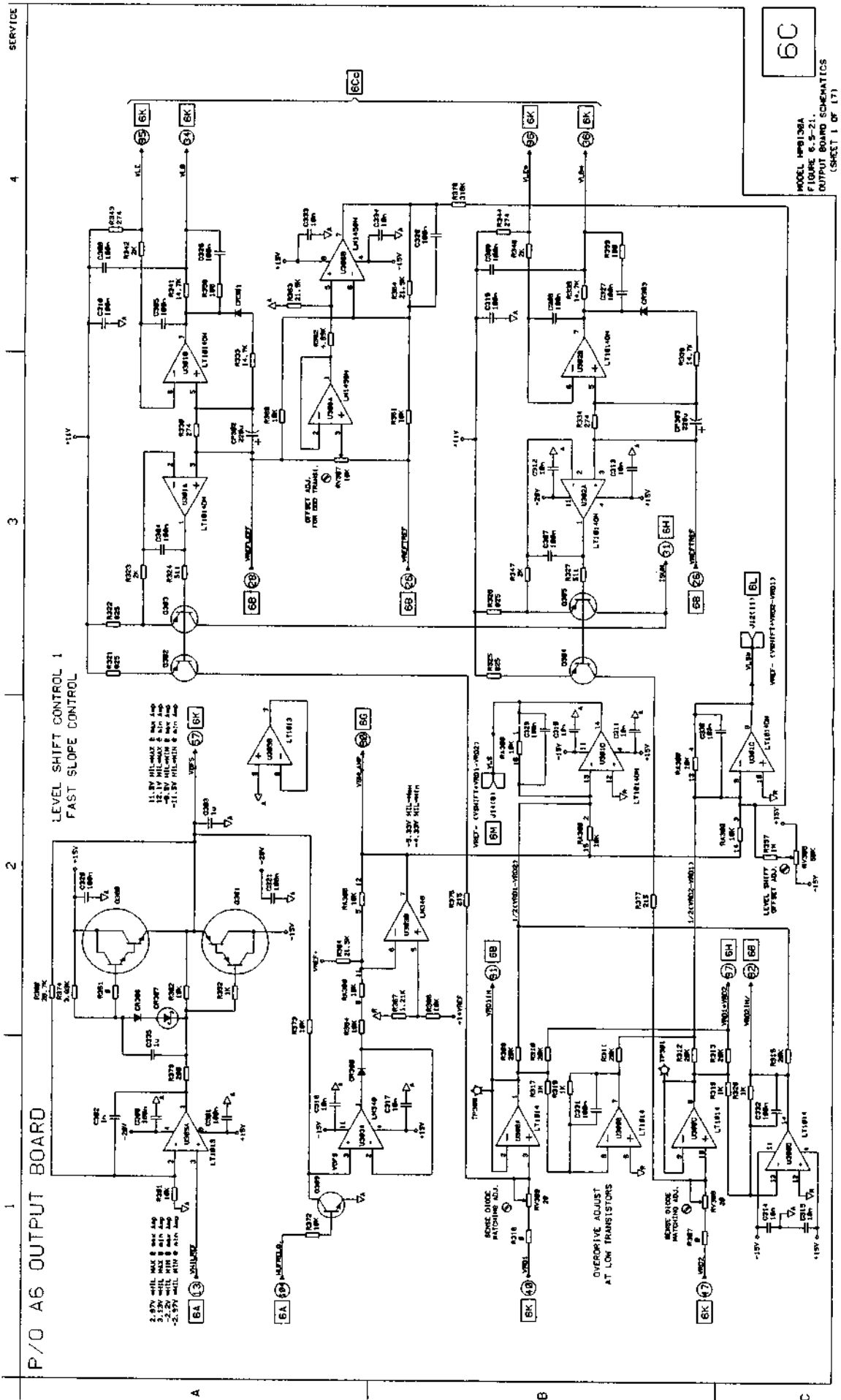
LEADING AND TRAILING REF. VOLTAGES



6B

MODEL HP8138A
 FIGURE 6.5-28
 OUTPUT BOARD SCHEMATICS
 (SHEET 2 OF 17)

OUTPUT BD (426 OPT. 826-427) 6.5-35

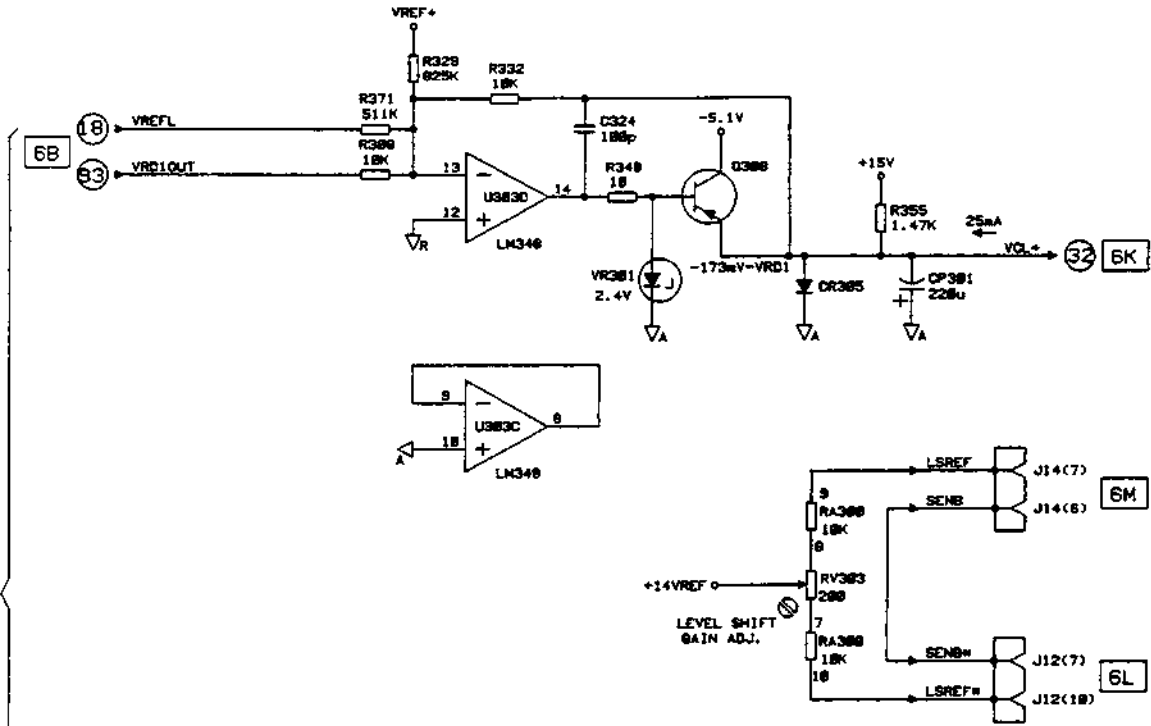


60

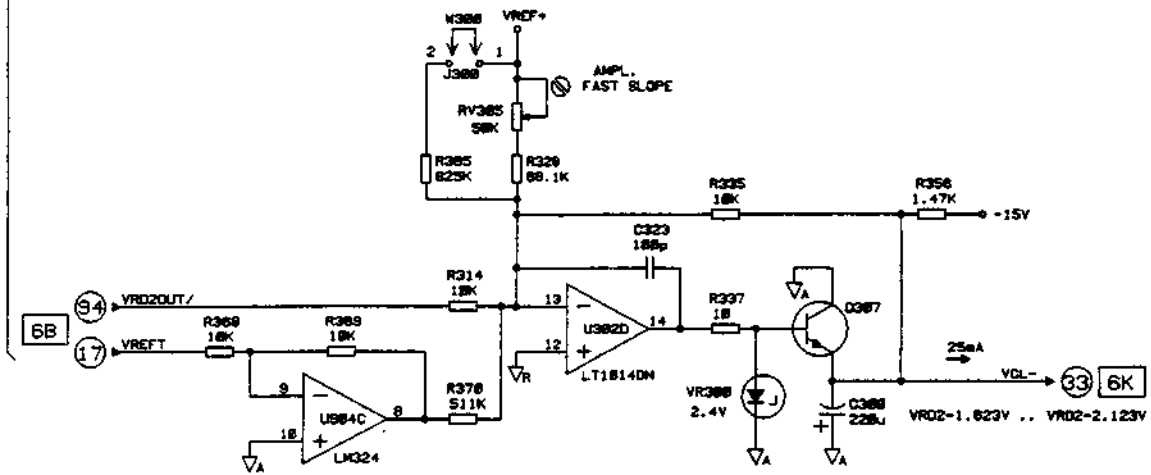
P/O A6 OUTPUT BOARD

A

6Cc



B

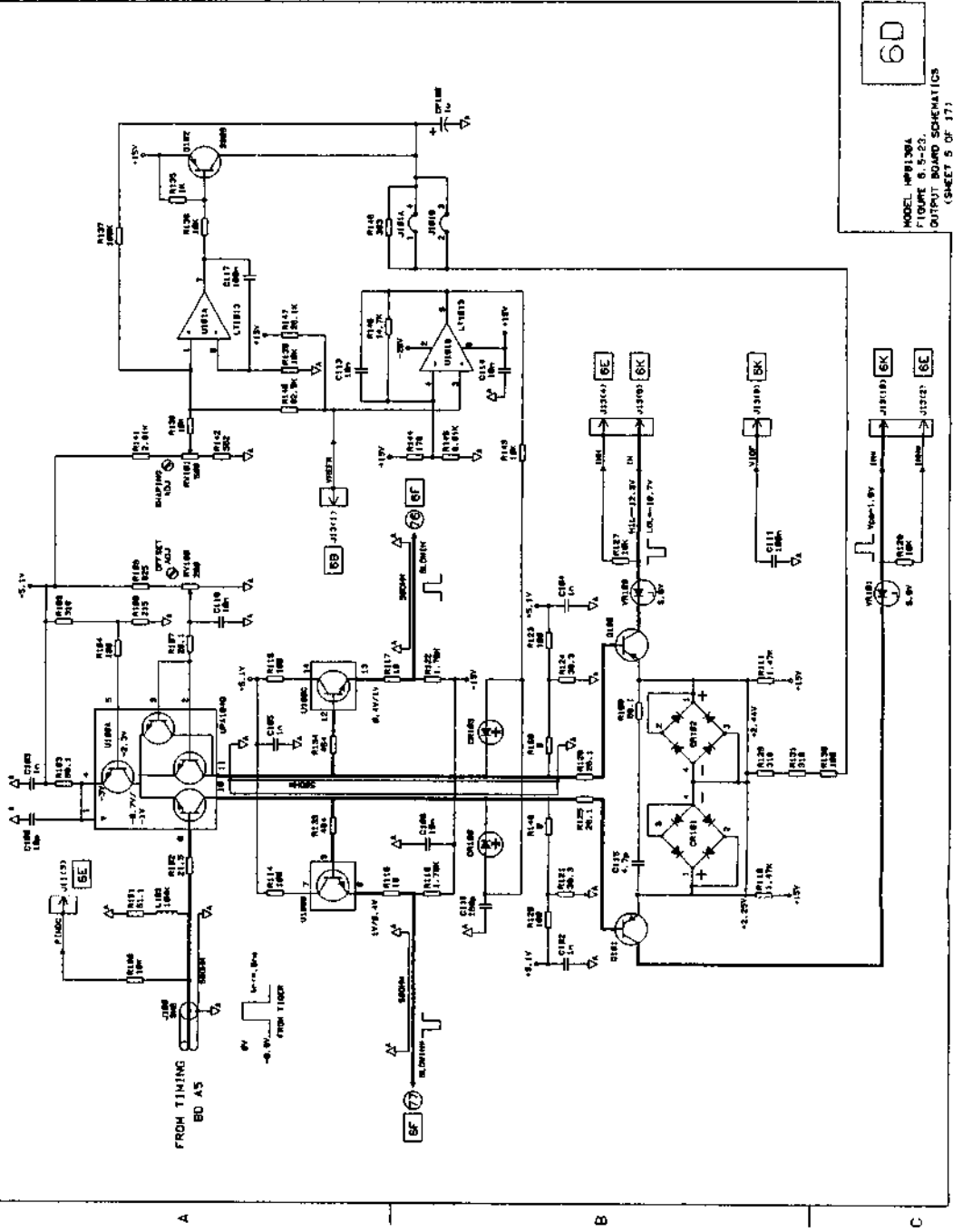


C

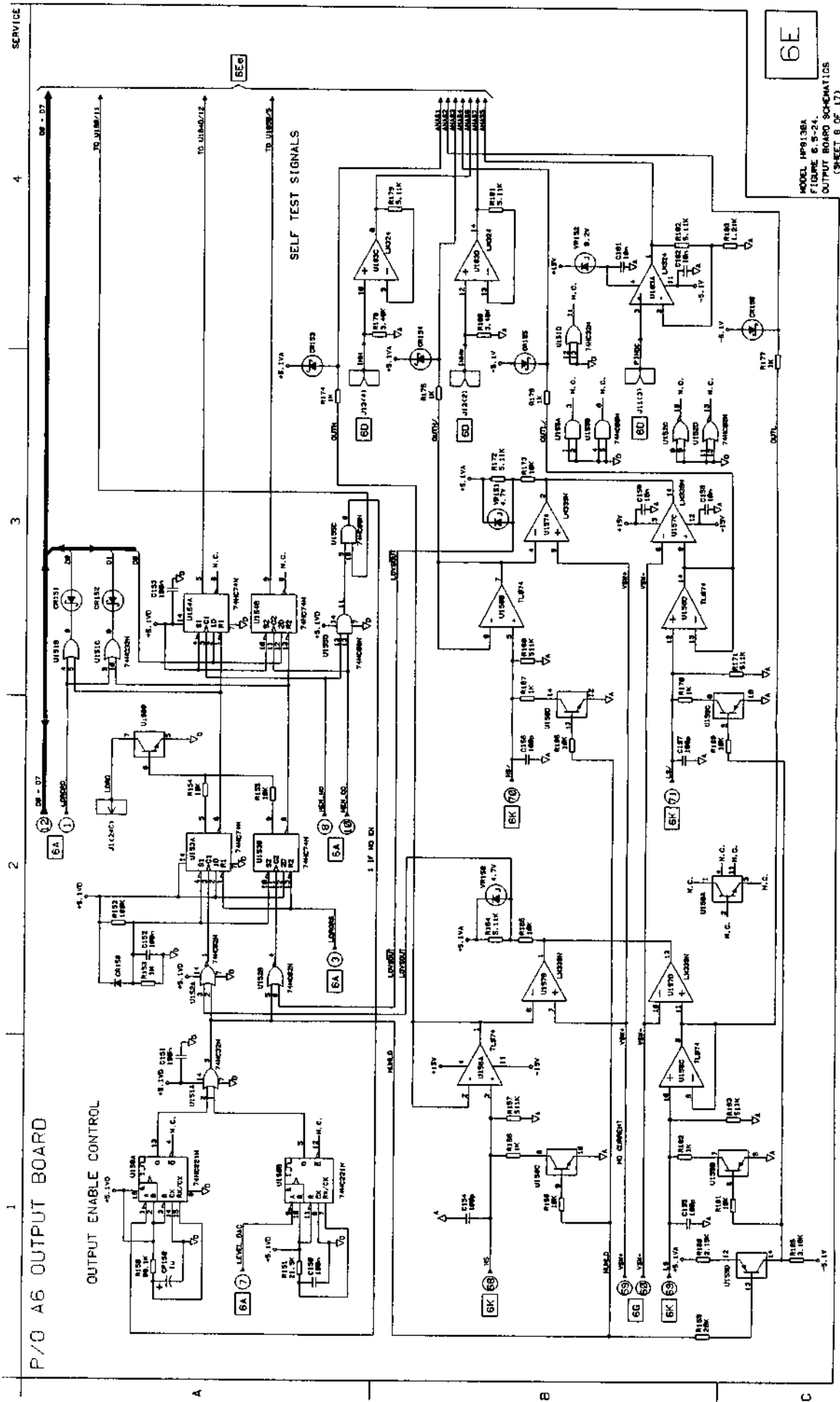
6C

MODEL HPB139A
 FIGURE 6.5-22.
 OUTPUT BOARD SCHEMATICS
 (SHEET 1 OF 17)

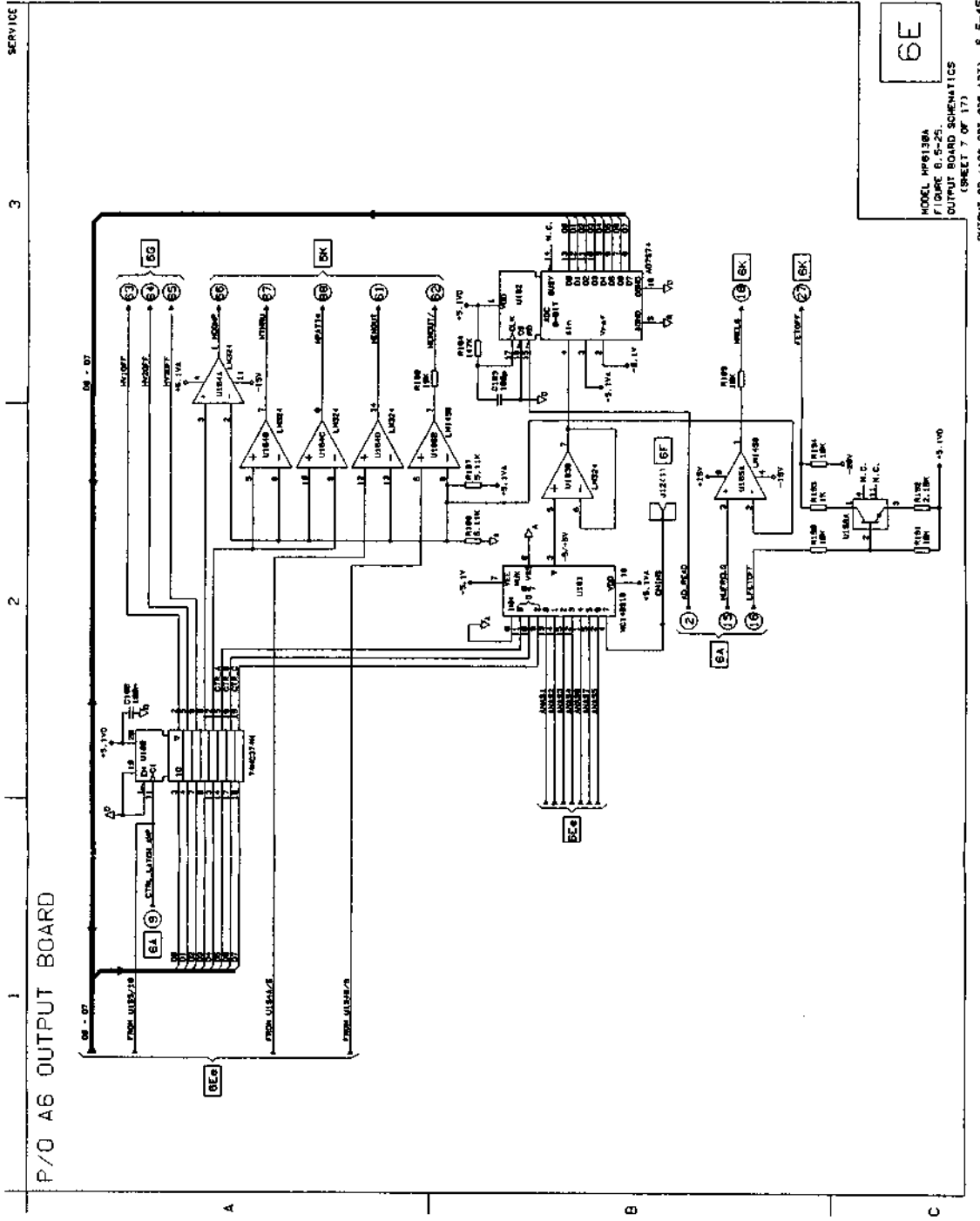
P/O A16 SLOPE SMD BOARD



MODEL HP8130A
 FIGURE 6.5-25
 OUTPUT BOARD SCHEMATICS
 (SHEET 5 OF 17)

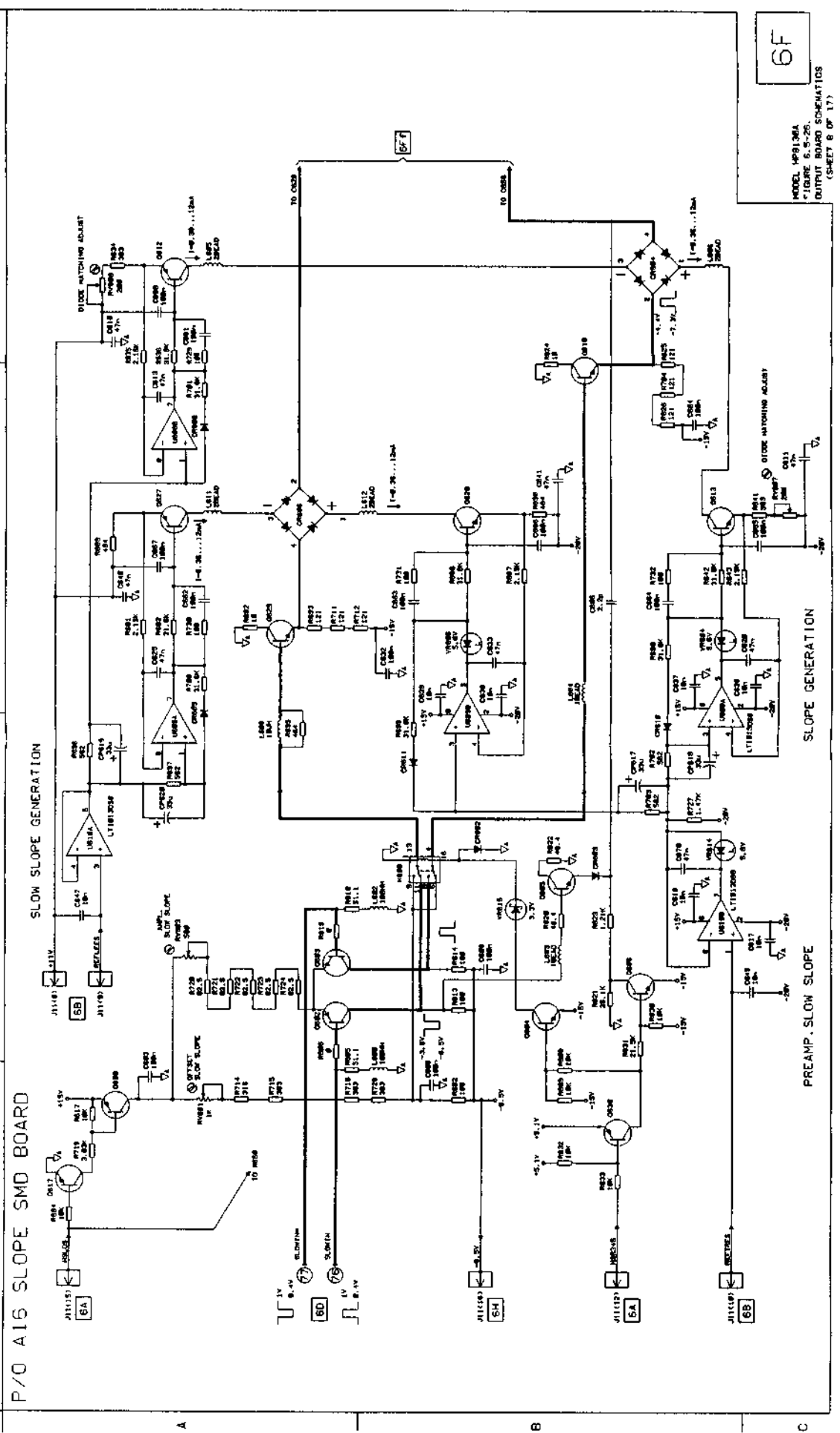


MODEL HP8138A
FIGURE 6-5-24.
OUTPUT BOARD SCHEMATIC
(SHEET 6 OF 17)

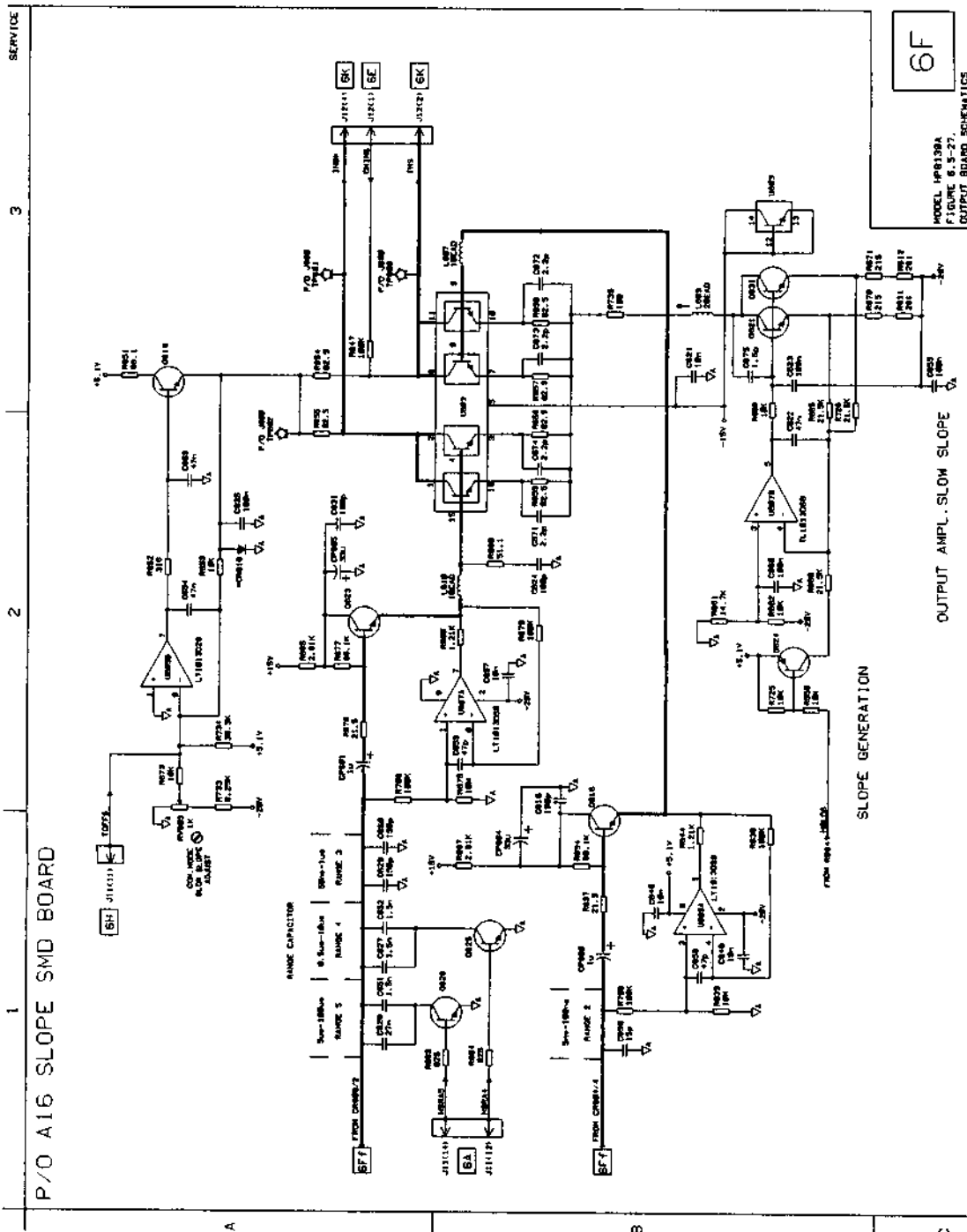


MODEL HP6138A
 FIGURE 6.5-25
 OUTPUT BOARD SCHEMATICS
 (SHEET 7 OF 17)

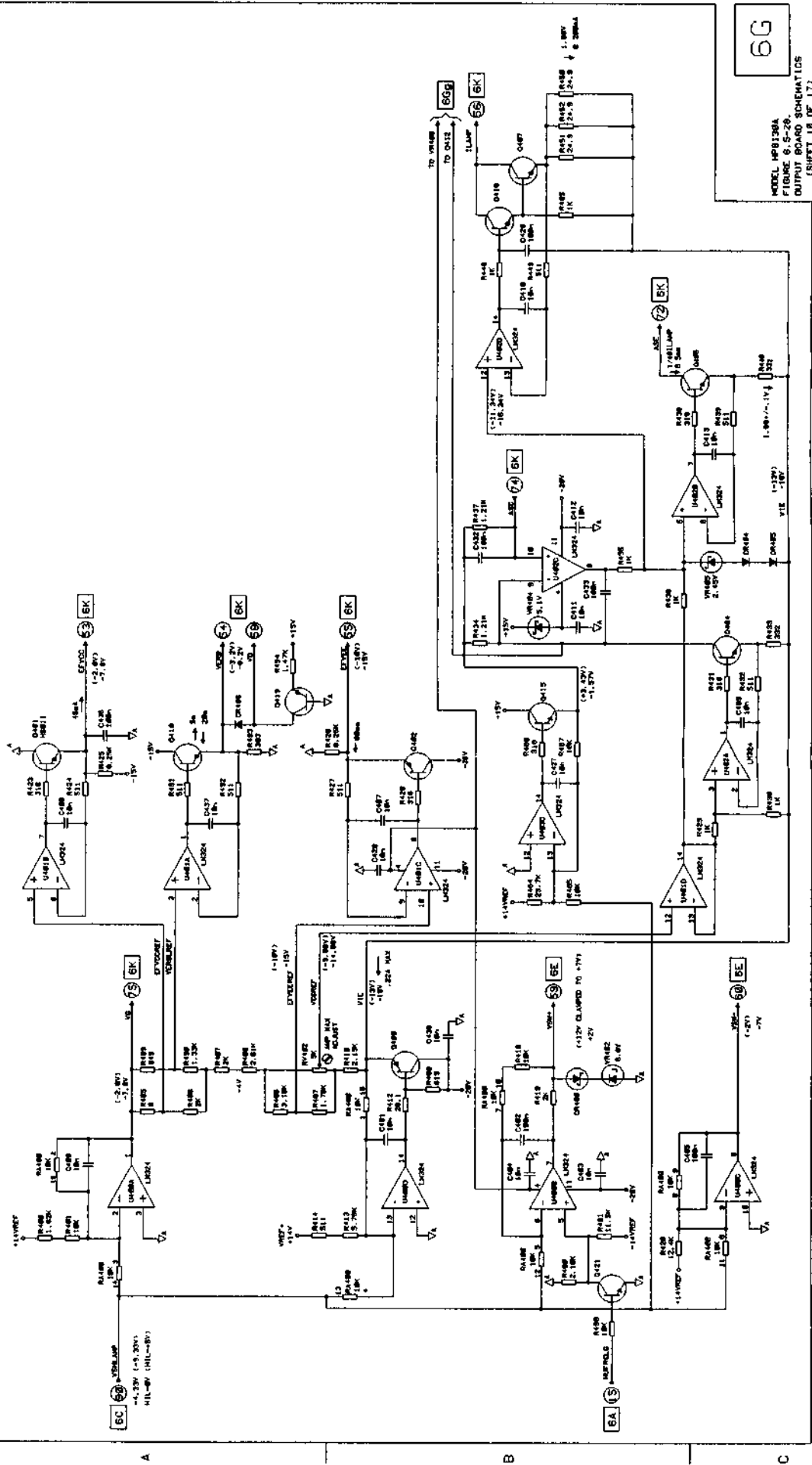
OUTPUT 8D (A26 OPT. 626-427) 6.5-45



MODEL HP9136A
 FIGURE 6.5-25
 OUTPUT BOARD SCHEMATICS
 (SHEET 8 OF 17)



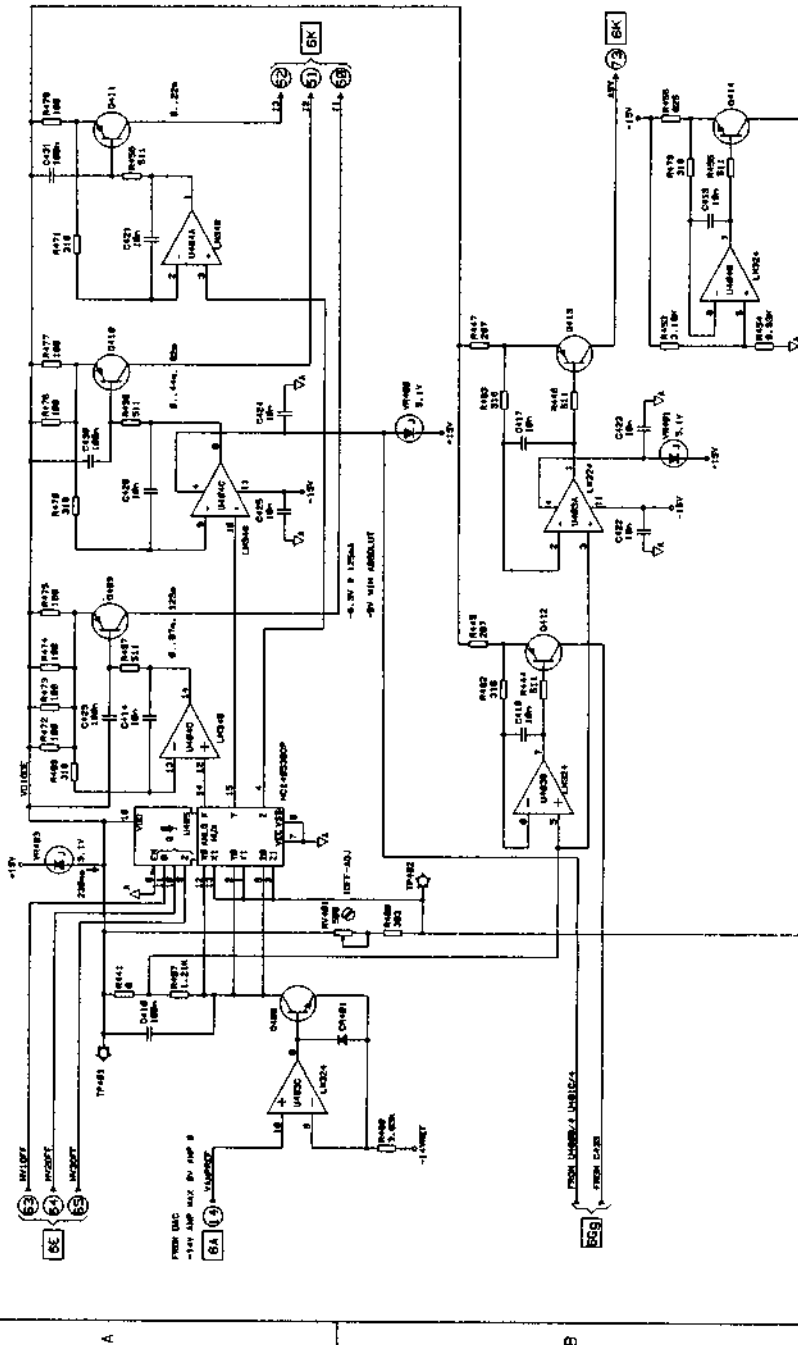
P/O A6 OUTPUT BOARD



6G

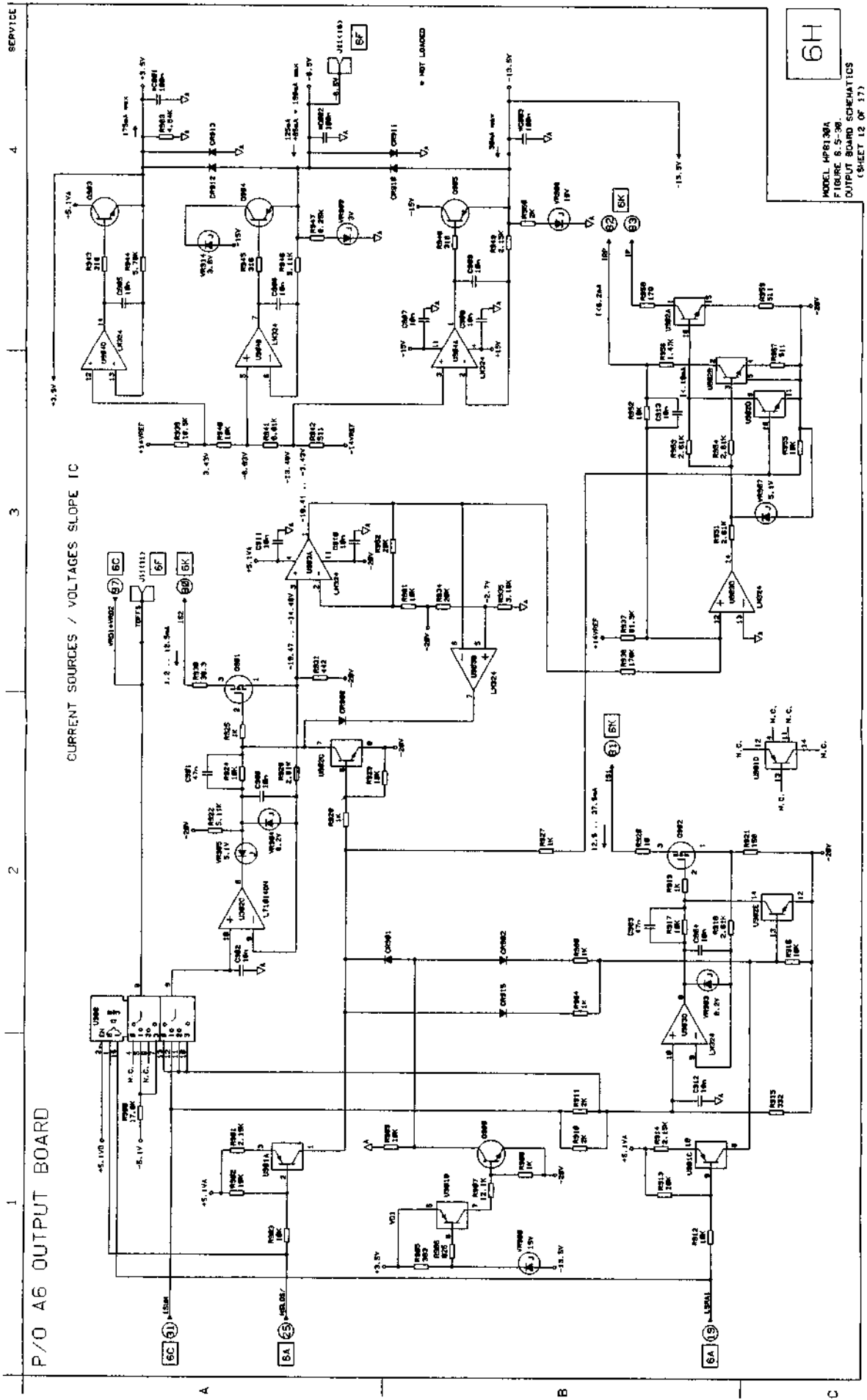
MODEL HP8138A
FIGURE 6.5-28
OUTPUT BOARD SCHEMATICS
(SHEET 18 OF 17)

P/O A6 OUTPUT BOARD

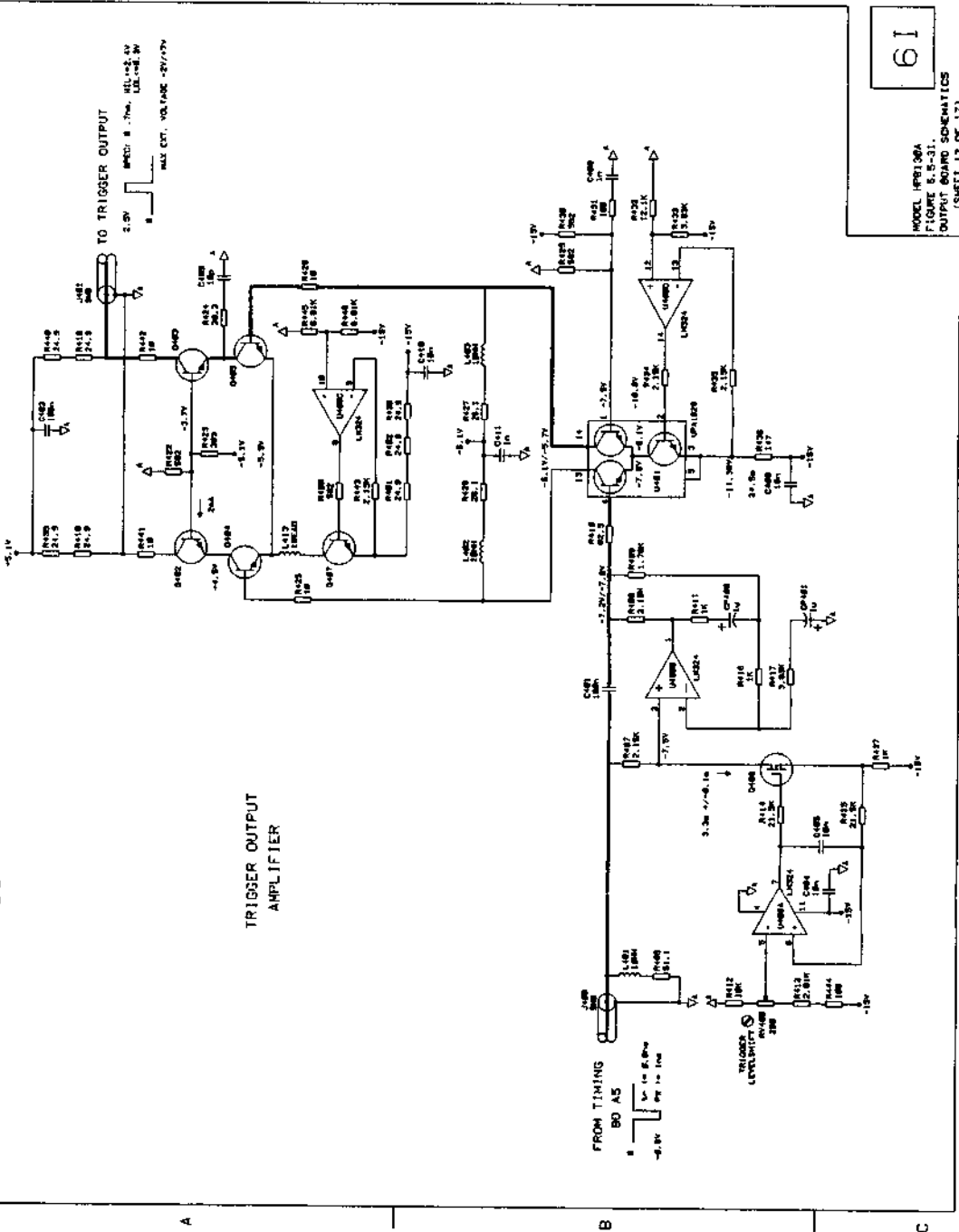


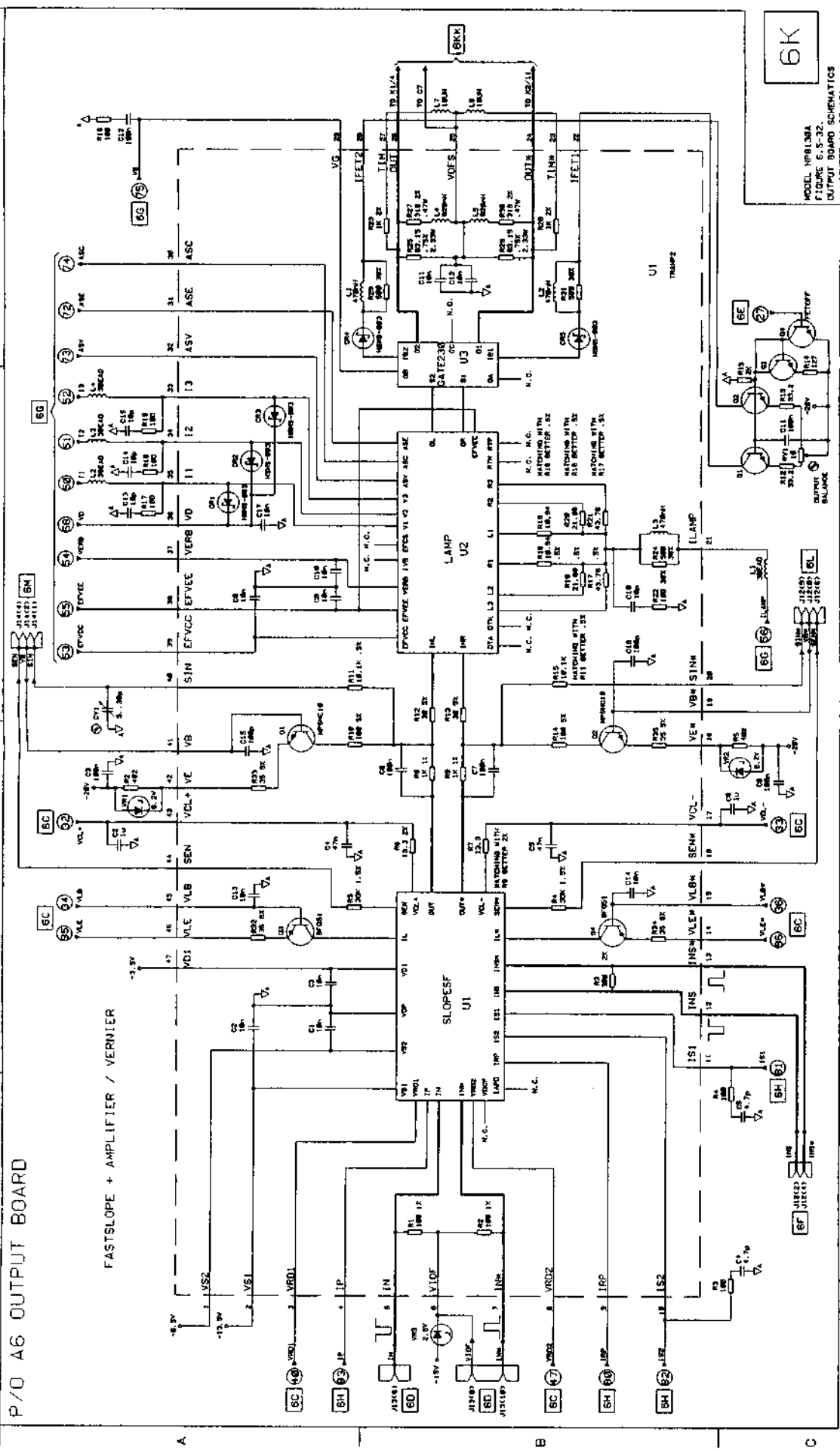
66

MODEL HPB130A
 FIGURE 6-5-29
 OUTPUT BOARD SCHEMATICS
 (SHEET 11 OF 17)
 OUTPUT BG (428 OPT. 628-427) 6-5-53



P/O A16 SLOPE SMD BOARD





P/O A6 OUTPUT BOARD

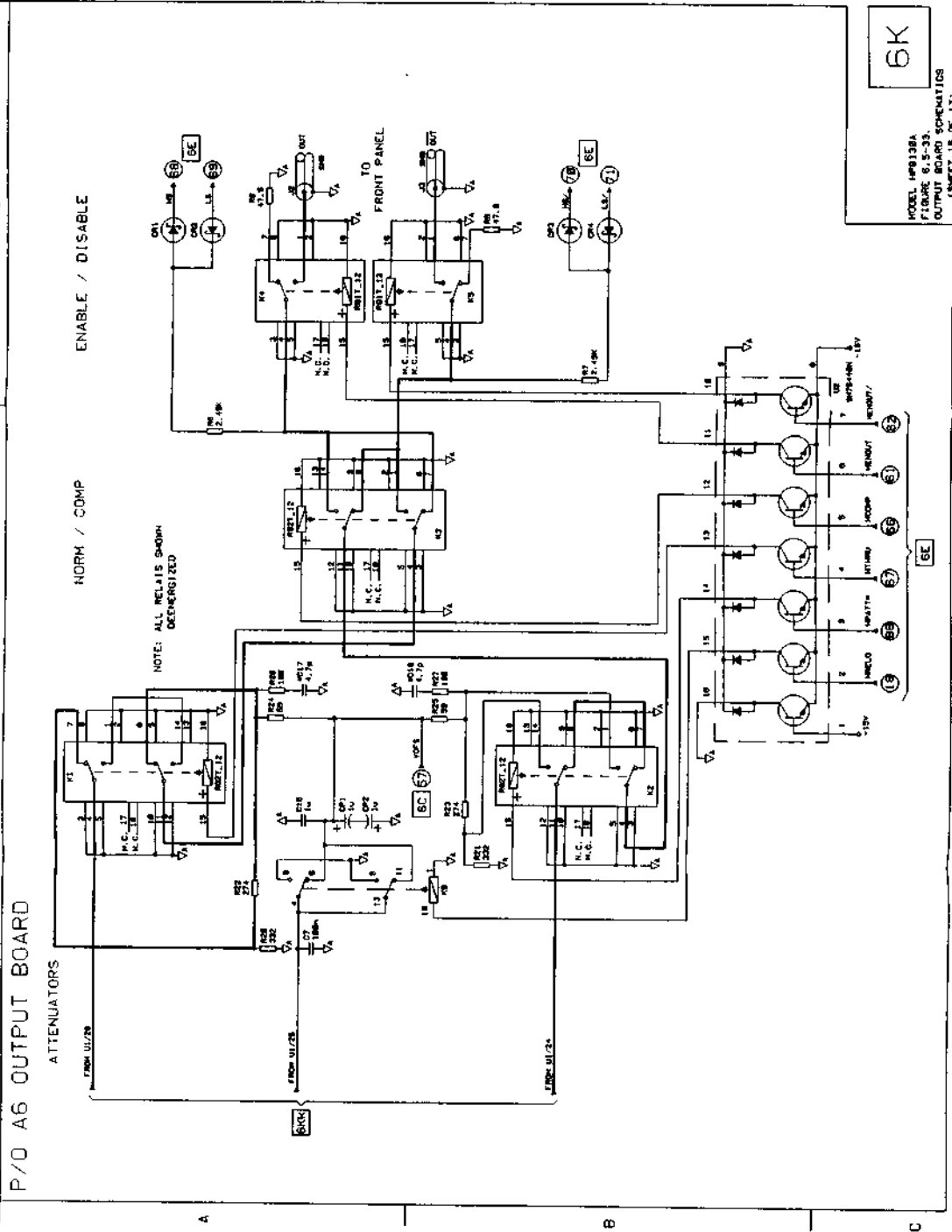
FASTSLOPE + AMPLIFIER / VERNIER

SLOPESF

TRAMPZ

6K

MODEL NP8130A
FIGURE 6.5-32
OUTPUT BOARD SCHEMATICS
(SHEET 14 OF 17)



P/O A6 OUTPUT BOARD

ATTENUATORS

NORM / COMP

ENABLE / DISABLE

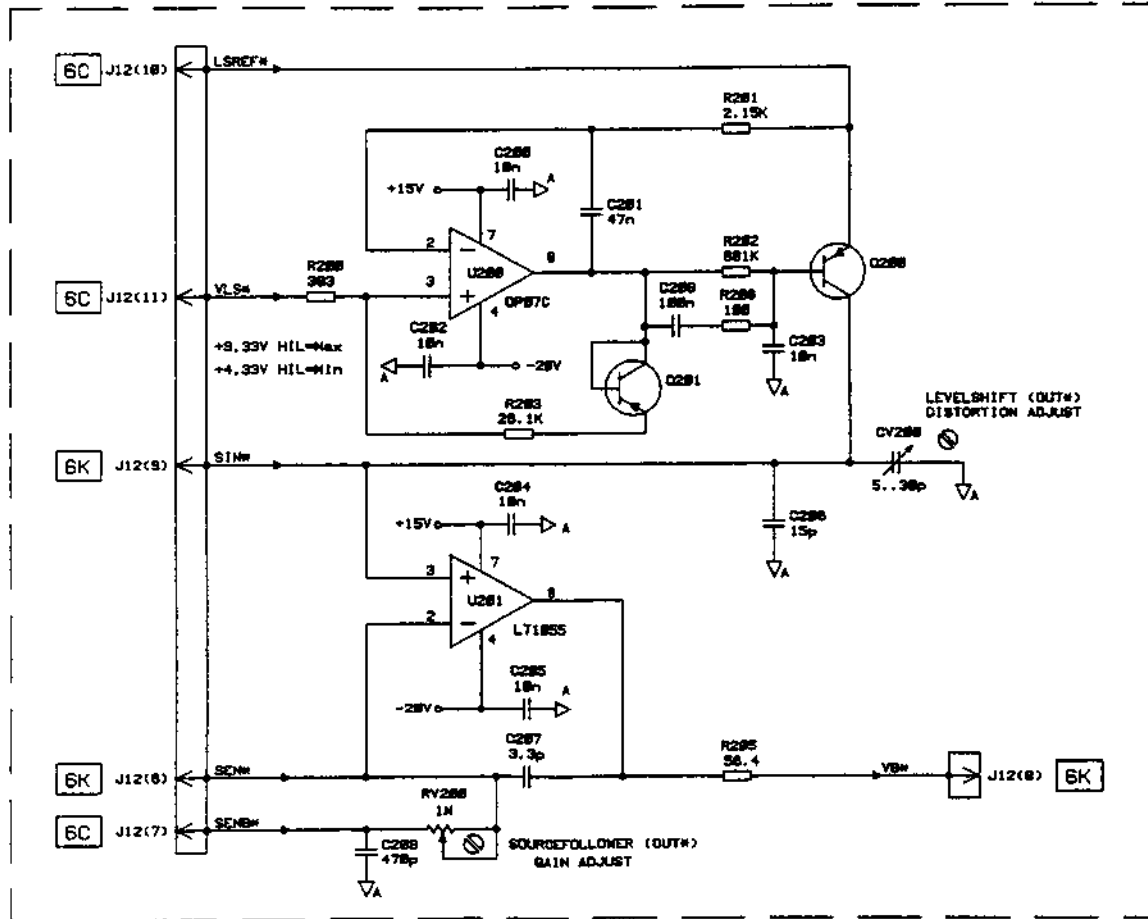
NOTE: ALL RELAYS SHOWN DEENERGIZED

6K

MODEL MPB138A
FIGURE 6.5-33
OUTPUT BOARD SCHEMATICS
(SHEET 13 OF 17)

P/O A16 SLOPE SMD BOARD

LEVELSHIFT CONTROL 3 (OUT*)

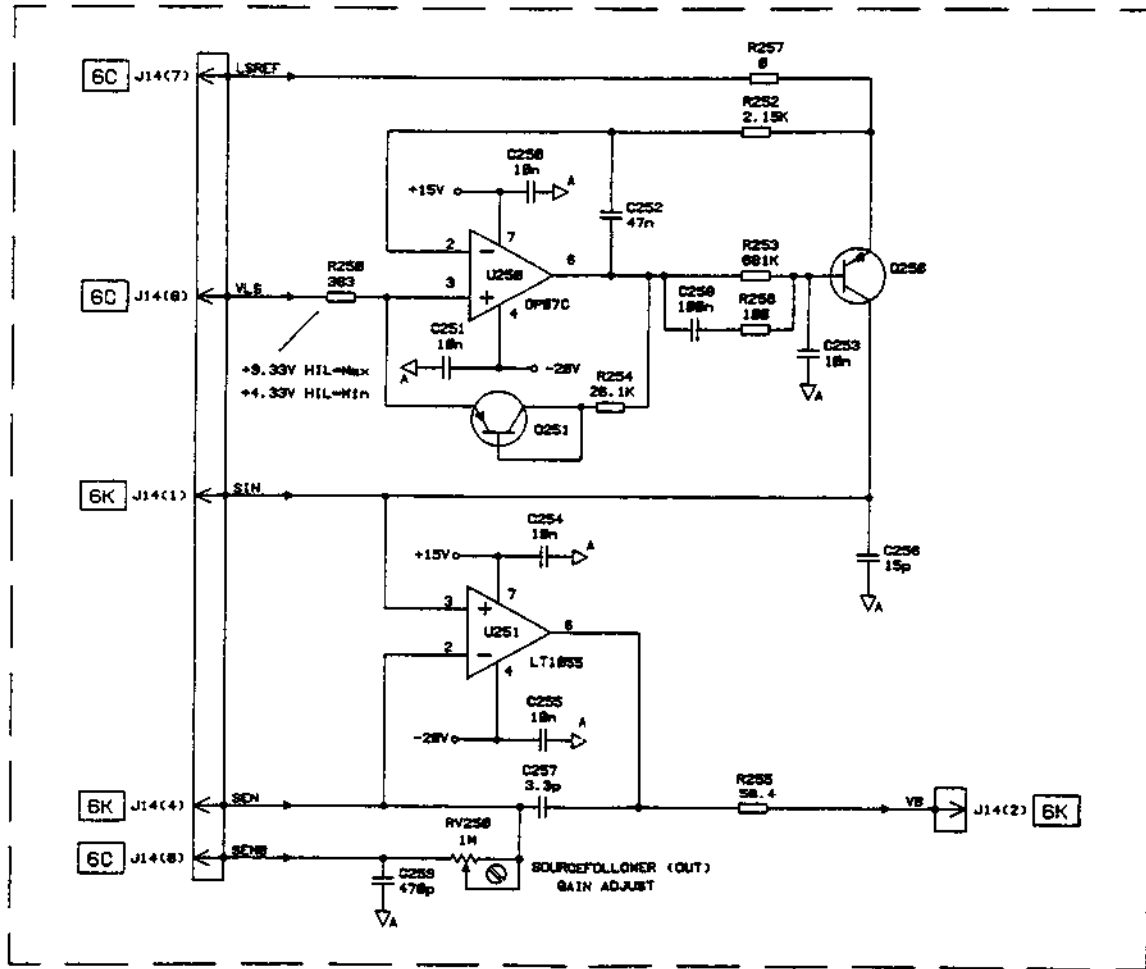


6L

MODEL HP8130A
FIGURE 6.5-34.
OUTPUT BOARD SCHEMATICS
(SHEET 16 OF 17)

P/O A16 SLOPE SMD BOARD

LEVELSHIFT CONTROL 1(OUT)



6M

MODEL HP9130A
FIGURE 6.5-35.
OUTPUT BOARD SCHEMATICS
(SHEET 17 OF 17)

HP 8131A Output Board (A26; option 020 - A27/A28)

Introduction

The output board consists of:

- the transducer board
- the output amplifier hybrid (GaAs, IC U401)
- the enable/disable switch

The input signal (PULSE IN) together with the period, delay, and width parameters is amplified by the transducer board and the output amplifier hybrid, to determine the output levels and the fixed fast transition time.

For a programmed width of less than 1 ns the transducer board reduces the input width by 500 ps. The normal/complement switch is part of the transducer board.

Block Theory of Operation

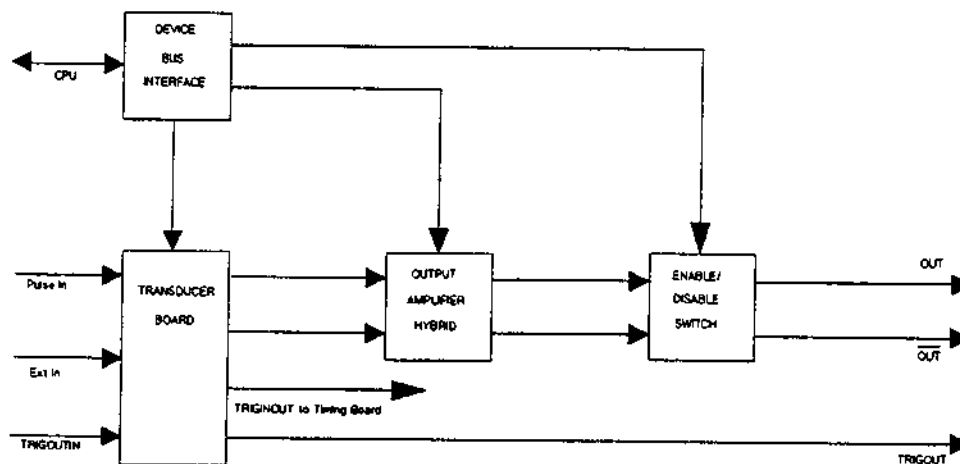


Figure 6-6-1. Module Block Diagram

Transducer Board

The transducer board is the interface between the timing board and the output amplifier. The transducer board provides the following functions:

- shaping and refreshing of the input signals from the timing board
- normal/complement switching
- generation of a pulse width less than 1 ns
- restoration of an external sinewave signal (in transducer mode)

Output Amplifier Hybrid

This block is responsible for producing the final output signal at the HP 8131A front panel. The input signal, (from the transducer board) is amplified and shaped by the cascade of a bipolar differential amplifier and the Gallium Arsenide (GaAs) IC U401. The output amplitude is determined by control currents and the output High Level (HIL) by a control voltage.

The bipolar differential amplifier and the IC U401 are AC coupled. The level shift control circuit bypasses the low frequency part of the signal spectrum including the negative DC offset voltage from the IC U401 inputs.

Enable/Disable Switch

During power-on, the hardware ensures the relays are disabled.

Transducer Board

Transducer Mode

In the transducer mode, the timing board input is switched out. A sinewave signal from the external signal is applied to the transducer, which comprises two cascaded differential amplifiers, used as pre-shapers. A diode clamping circuit is used to protect the transducer input from a high voltage input. The shaped signal output from the transducer is applied to one input of a NOR-gate. The output of the NOR-gate is then processed by successive differential amplifier stages. These five stages ensure the output amplifier hybrid receives a rectangular signal with a transition time of less than 300 ps.

Short Pulse Mode

In this mode, pulses with a width between 500 ps and 990 ps can be generated.

The signal from the timing board (between 1.5 ns and 1 ns) is divided into two parts. The first part is fed directly to the first input of a NOR-gate. The second part is fed to the second input of the NOR-gate via a 500 ps delay line. Thus, the output from the NOR-gate is 500 ps shorter than the input from the timing board. The NOR-gate output is refreshed by two differential amplifier stages (see figure overleaf).

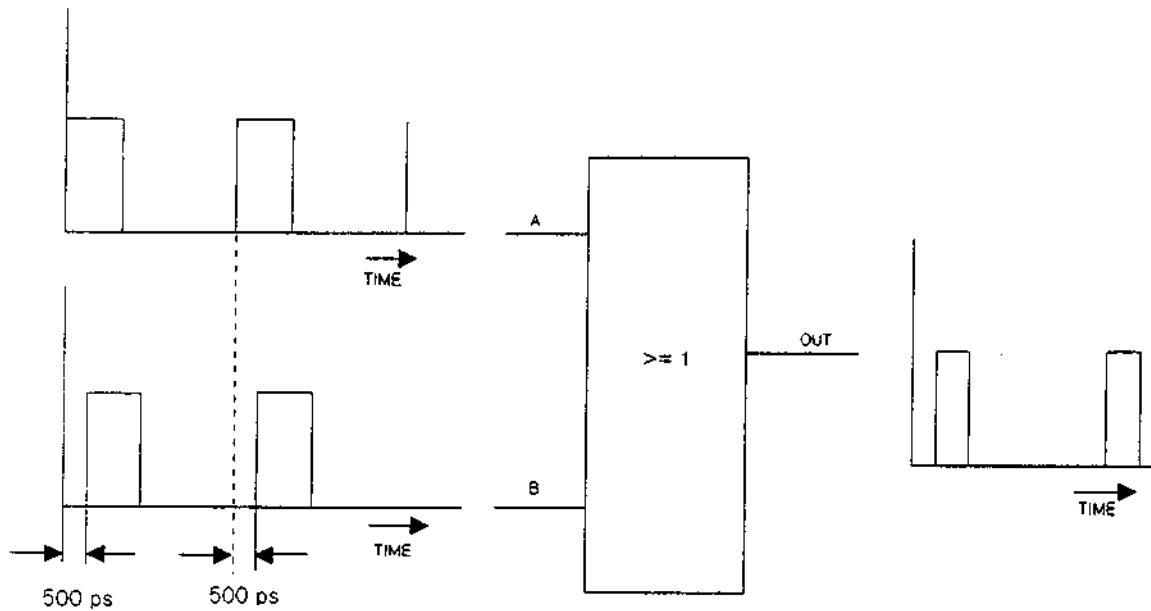


Figure 6-6-2. Short Pulse Mode

Norm/Complement Switch

After the NOR-gate mentioned above the signal can be switched from the normal mode to the complement mode by means of a relay.

Trigger Output Amplifier

This circuit refreshes the trigger signal from the timing board and drives an external 50Ω load with EECL levels ($0.6 V_{p-p}$). The output is voltage protected against external voltages that exceed a $\pm 5 V$ window. This is accomplished by a diode bridge.

Output Amplifier Hybrid

Introduction

This block is responsible for producing the final output signal at the HP 8131A front panel. The input signal, (from the transducer board) is amplified and shaped by the cascade of a bipolar differential amplifier and the GaAs IC U401. The output amplitude is determined by control currents and the output High Level (HIL) by a control voltage.

The ALADIN consists of three parts:

- **PREAMPLIFIER:** The differential input signal ($1.2 V_{p-p}/350 ps$) is amplified by a fully switched differential amplifier to obtain the logic levels ($3.5 V_{p-p}/350 ps$).
- **SHAPER:** A fully switched differential amplifier shapes the signal to provide $4 V_{p-p}/150 ps$.

- **LINE DRIVER:** There are two line drivers in parallel, scaled by 1:7. For large amplitudes (5 V to 0.63 V) both drivers switch the drive current. For small amplitudes only the small amplifier switches the drive current.

Amplitude Control

The output amplitude is controlled by the large driver current (ID1) and the small driver current (ID2) within two ranges:

- **Range 1:**
 - $V_{out} = 5 \text{ V to } 0.630 \text{ V}$, 50 Ω external load
 - $ID1 = 175 \text{ mA to } 22.1 \text{ mA}$
 - $ID2 = 25 \text{ mA to } 3.2 \text{ mA}$
- **Range 2:**
 - $V_{out} = 0.620 \text{ V to } 0.100 \text{ V}$, 50 Ω external load
 - $ID1 = 0$
 - $ID2 = 25 \text{ mA to } 2 \text{ mA}$

The preamplifier and shaper voltage swings are reduced with the output amplitude to keep overdrive and output overshoot reasonably constant. The preamplifier voltage is controlled by the current I_P and, that of the shaper by I_S . They are both determined by the programmed amplitude and the on-chip resistors. The following figure shows the voltage swing as a function of the programmed amplitude.

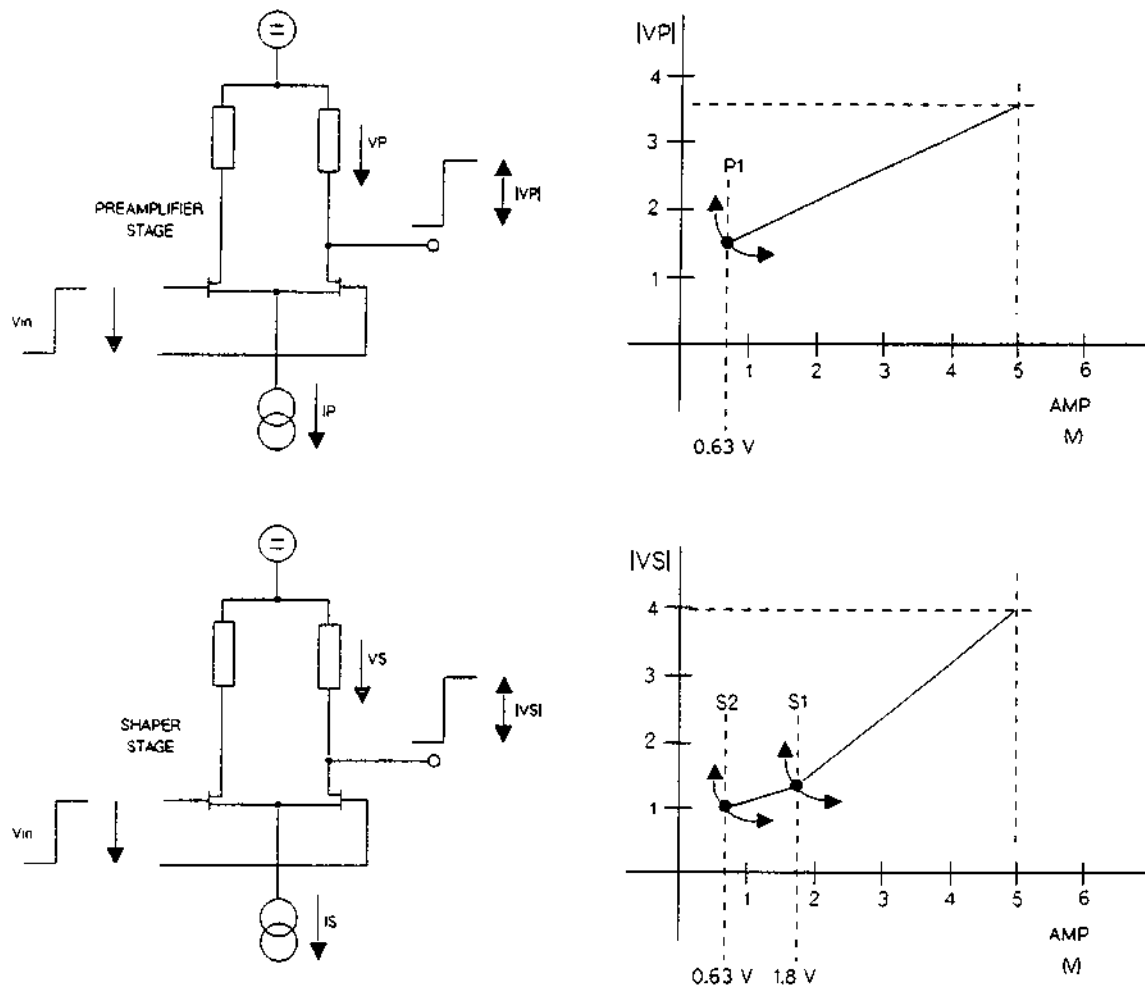


Figure 6-6-3. Preampifier and Shaper Voltage Swings

To eliminate the influence of the on-chip resistors, a monitor resistor is biased with a reference current, (controlled by an operational amplifier) to obtain the desired voltage drop at the monitor resistor. This voltage drop and the programmed amplitude, control I_P and I_S .

During power-on the currents I_P , I_S , I_{D1} , and I_{D2} are switched off until the difference between the most positive and most negative voltages of the hybrid ($V_{D1} - V_{S1}$) is larger than 16 V (final value: 17 V). This is to avoid damage to the hybrid; during power-off the opposite is true.

Power-on forces the hybrid to stay in amplitude range 2 (time constant approximately 10 ms) to avoid a HIL of -4.9 V and an AMP of 5 V due to random DAC data. After the 10 ms time constant the microprocessor is able to control the AMP-DAC and HIL-DAC.

High Level Control (HIL)

HIL is determined by controlling the voltage at the common node of the output resistors; for $HIL > 0\text{ V}$ all IC U401 voltages must float with the output HIL.

Over voltage Protection

The outputs are protected against voltages which exceed the permitted window. The over voltages can be caused by external currents, external voltages or loads other than $50\ \Omega$.

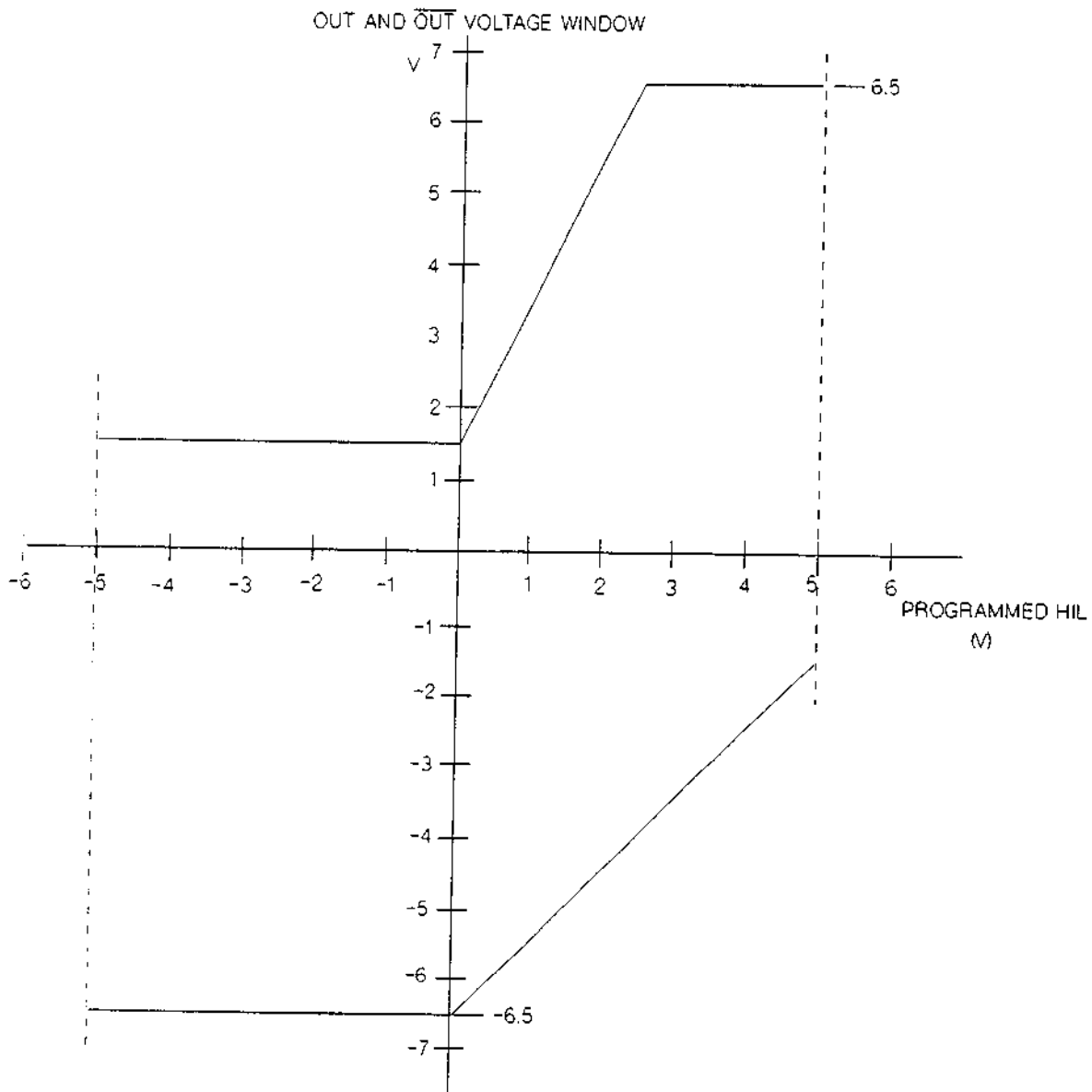


Figure 6-6-4. Over voltage Diagram

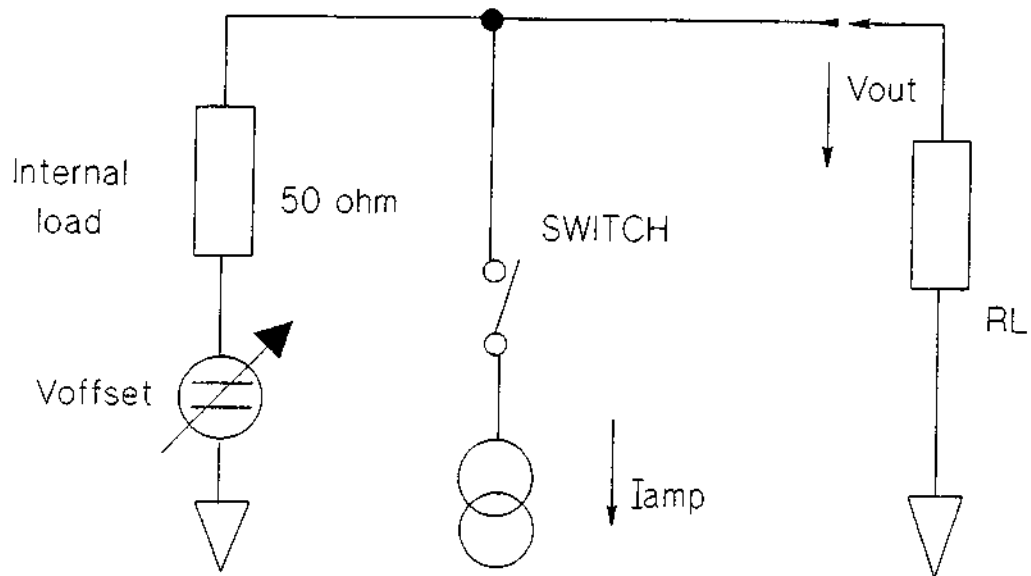


Figure 6-6-5. Load vs AMP/HIL

internal $50 \Omega \parallel RL = 50 \Omega$

$I_{AMP} = 4 \text{ mA} - V_{out} = 100 \text{ mV}$

$I_{AMP} = 200 \text{ mA}; V_{out} = 5 \text{ V}$ at

$V_{out} = (50 \Omega \parallel RL) \times I_{amp}$

$HIL = (V_{offset} \times RL) \div (50 \Omega + RL)$

$LOL = HIL - V_{out}$

The output peak detector disables the output if over voltage occurs. Over voltage detection will be suppressed during programming ENABLE (relay switch time). During reduction of the HIL the peak detectors will be discharged and again over voltage is suppressed.

Overshoot Adjust

The overshoot of the hybrid, is a function of amplitude, duty cycle, and differential offset of the shaper and driver stages. The effect of the amplitude is compensated for by reducing the voltage swings of the shaper and preamplifier with amplitude.

The effect of the duty cycle is compensated by controlling the differential offset at the driver stage vs duty cycle.

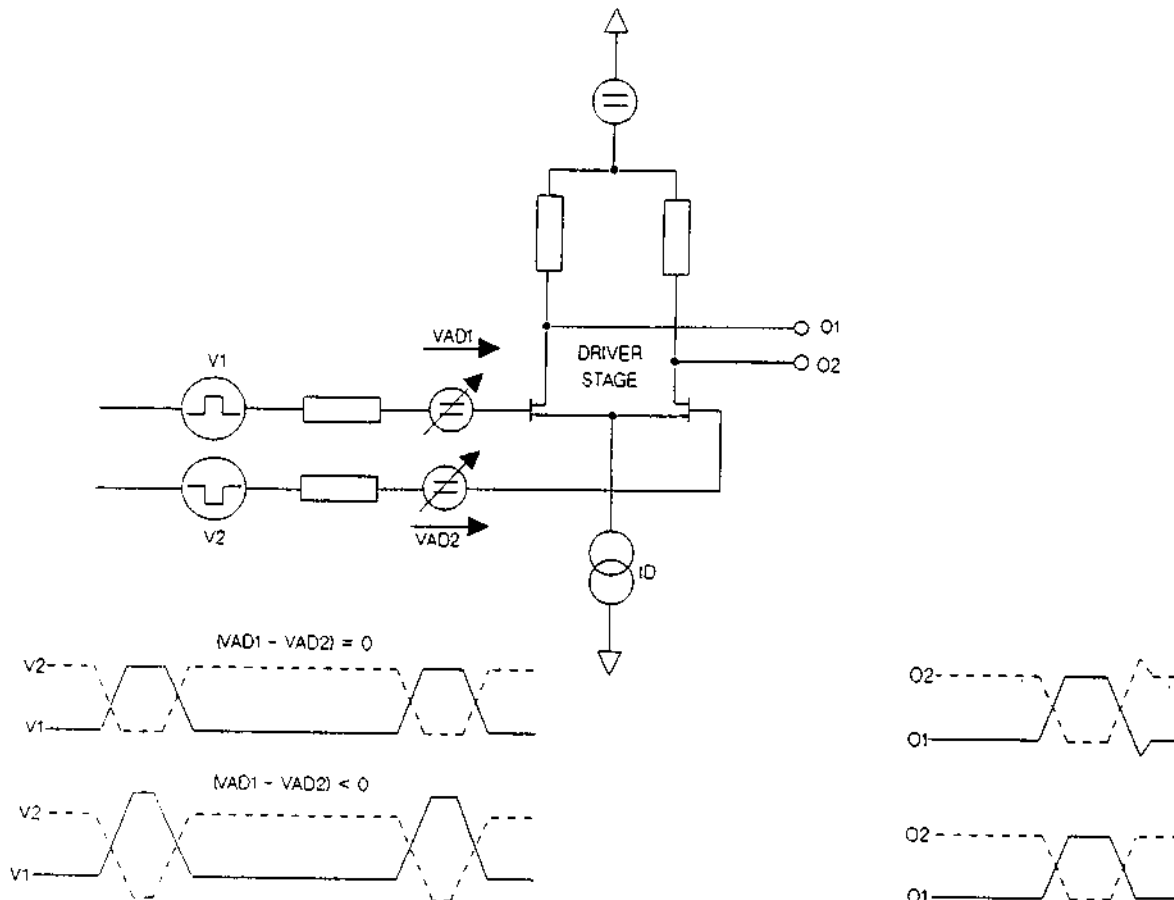


Figure 6-6-6. Duty Cycle Diagram

The differential offset of both driver and shaper stages has to be adjusted for small amplitudes.

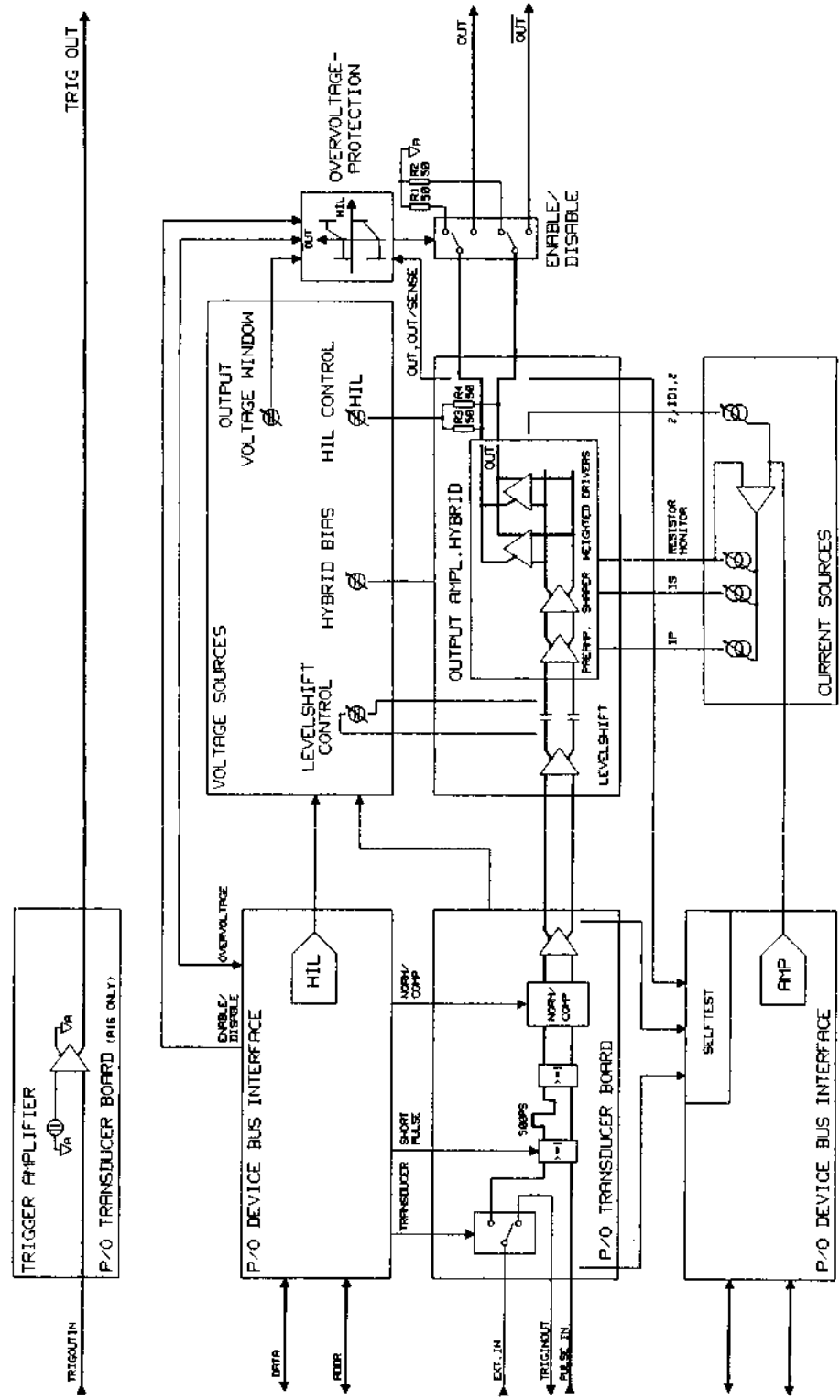
Enable/Disable Switch

During power-on the hardware ensures the relays are disabled.

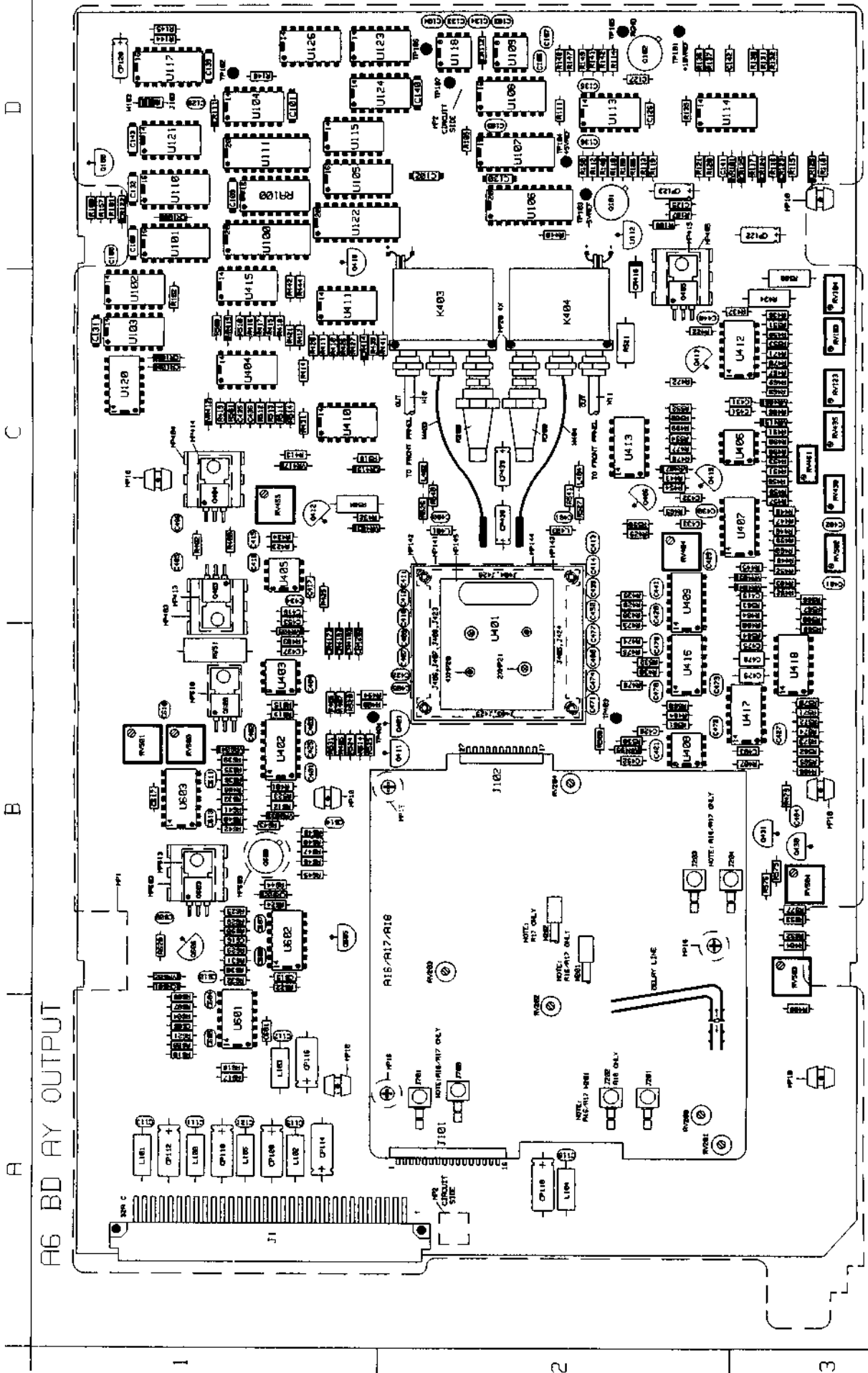
Before enable/disable is processed the microprocessor forces the output OFFSET to 0 V and the AMP to 0.1 V to ensure cold switching. After 20 ms (switch time) the old levels will be set. This level reduction occurs on both, the normal and complement output of the channel, even if only one relay enables/disables.

In the HPIB mode, the microprocessor waits for about 40 ms until a second relay has been energized. This is to reduce the current peaks caused by the switching on of two relays.

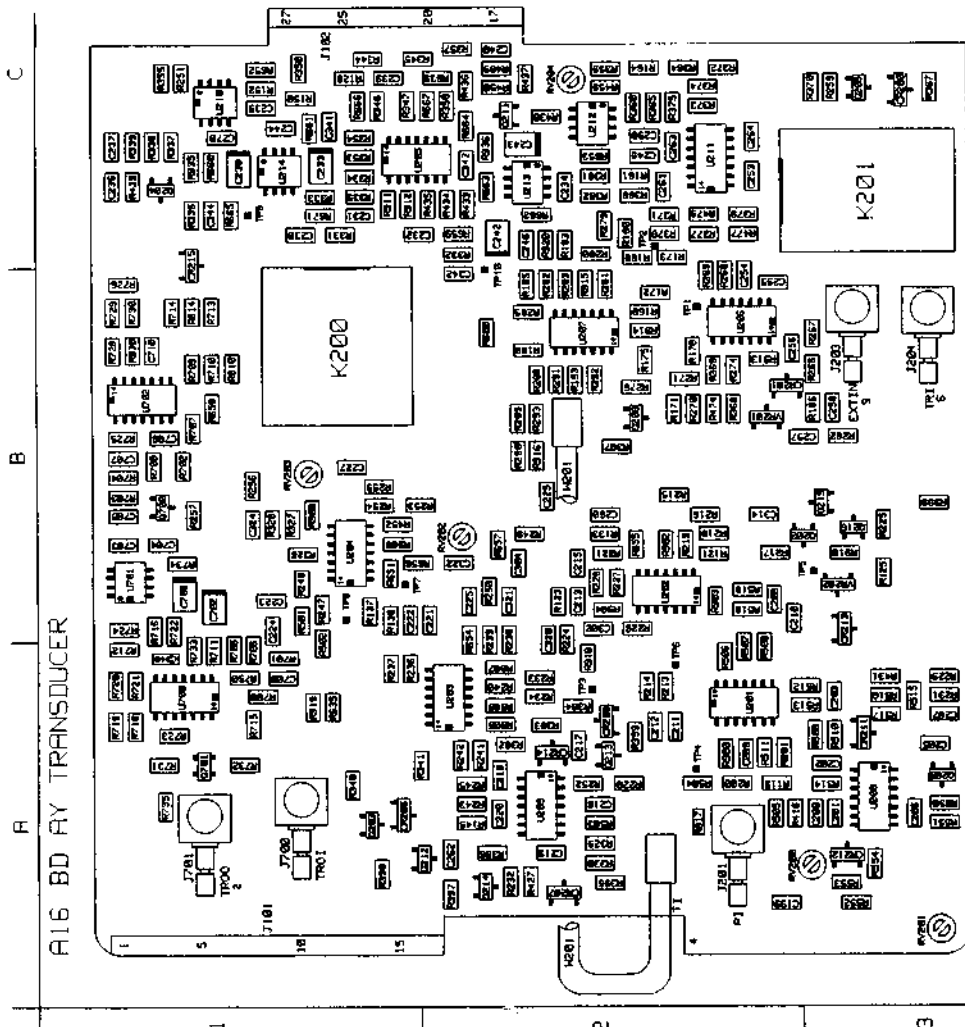
BLOCK DIAGRAM OUTPUT BOARD



MODEL #P8131A
 OUTPUT BOARD BLOCK DIAGRAM
 OUTPUT BD (RES OPT. 020-RE7/028)



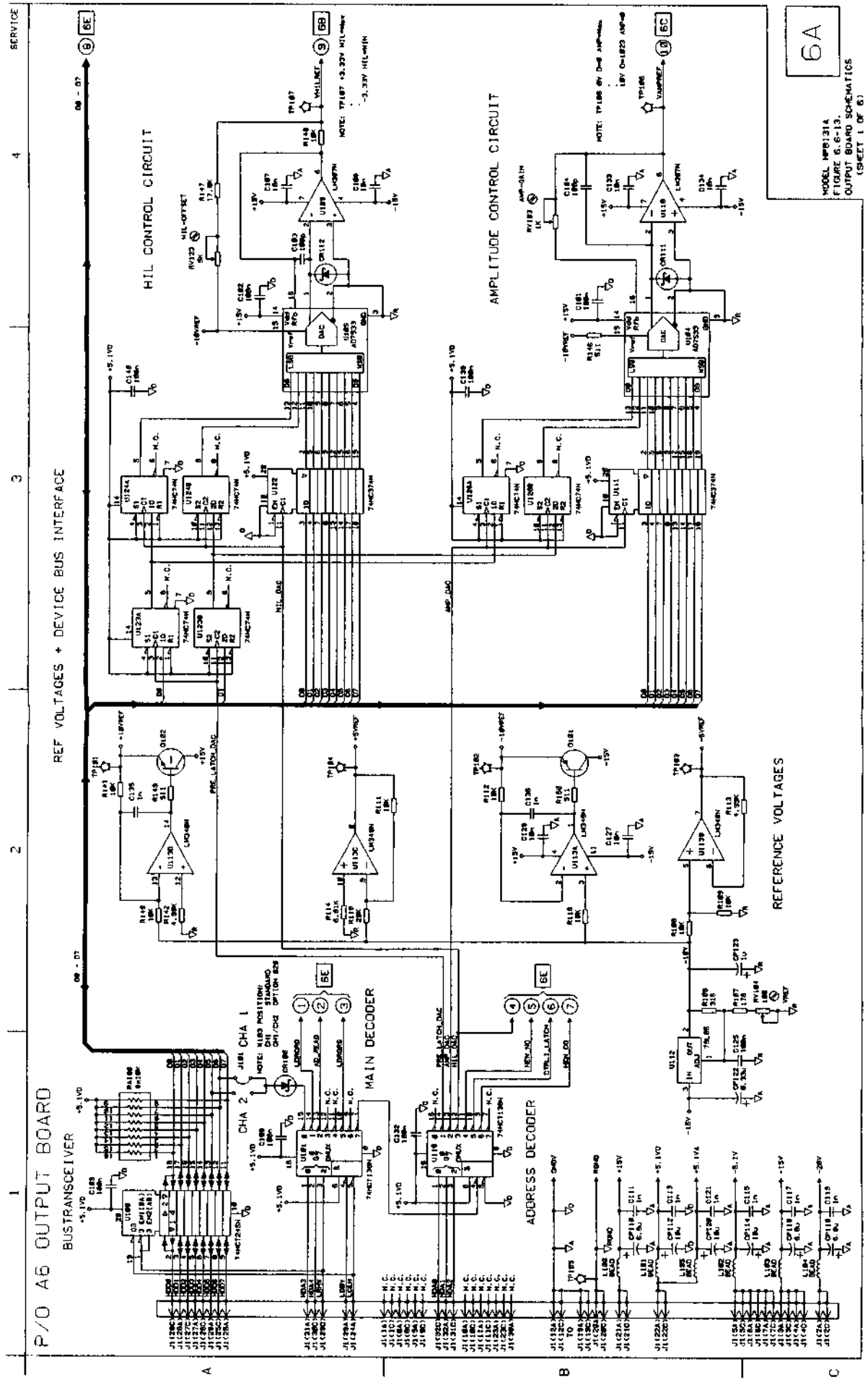
MODEL HP8131A
 OUTPUT BD COMPONENT LAYOUT
 OUTPUT BD (PES OPT. 020-027-028)



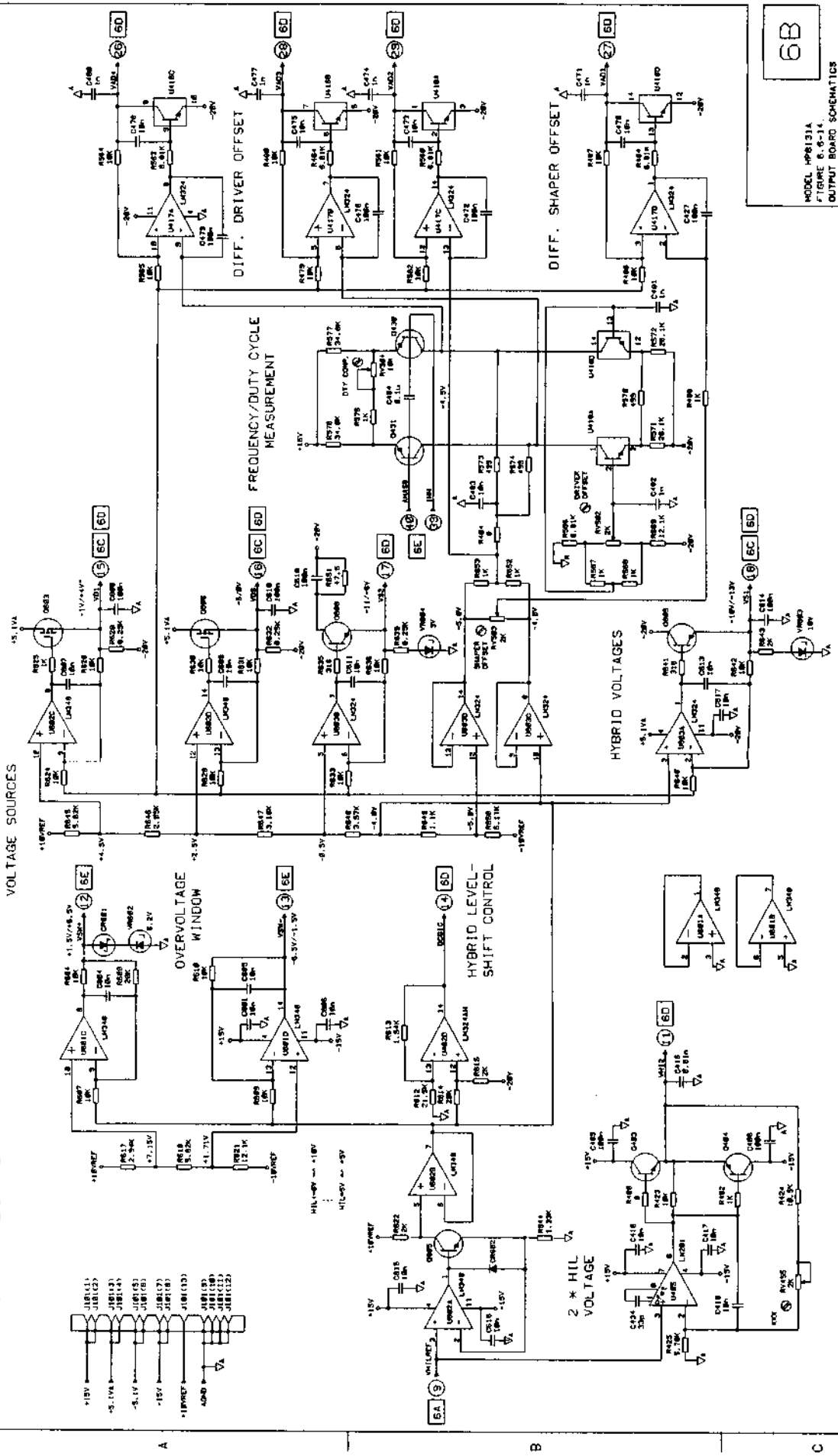
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C889	R2	C283	C2	Q215	B3	R239	B3	A292	S1	R338	S1	R336	S1	R336	S1
C195	R3	C350	C1	Q216	B3	R240	B3	R238	R2	R339	R2	R337	R2	R337	R2
C300	R3	C351	C3	Q217	B3	R241	B3	R241	R2	R340	R2	R338	R2	R338	R2
C202	R3	C304	D2	Q201	R1	R242	R1	R242	R1	R341	R1	R339	R1	R339	R1
C205	R3	C314	B2	R119	R2	R243	R2	R243	R2	R342	R2	R340	R2	R340	R2
C206	R3	C320	B2	R123	B2	R244	B2	R244	B2	R343	B2	R341	B2	R341	B2
C207	R3	C321	B2	R125	B3	R246	B3	R246	B3	R344	B3	R342	B3	R342	B3
C208	B2	C322	B2	R126	C1	R247	C1	R247	C1	R345	C1	R343	C1	R343	C1
C210	R2	C348	B1	R133	B2	R248	B2	R248	B2	R346	B2	R344	B2	R344	B2
C212	R2	C349	R1	R137	R1	R251	R1	R251	R1	R347	R1	R345	R1	R345	R1
C213	R2	C341	C2	R138	B1	R252	B1	R252	B1	R348	B1	R346	B1	R346	B1
C215	B2	C343	C2	R150	C1	R253	C1	R253	C1	R349	C1	R347	C1	R347	C1
C216	R2	C344	C1	R152	C1	R255	C1	R255	C1	R350	C1	R348	C1	R348	C1
C217	R2	C700	A1	R161	C2	R256	C2	R256	C2	R351	C2	R349	C2	R349	C2
C218	R2	C702	B1	R165	B2	R258	B2	R258	B2	R352	B2	R350	B2	R350	B2
C219	R2	C703	B1	R168	B2	R266	B2	R266	B2	R353	B2	R351	B2	R351	B2
C220	R2	C705	B1	R169	B2	R271	B2	R271	B2	R354	B2	R352	B2	R352	B2
C221	B2	C706	B1	R170	B2	R267	B2	R267	B2	R355	B2	R353	B2	R353	B2
C222	B1	C737	B1	R172	B2	R269	B2	R269	B2	R356	B2	R354	B2	R354	B2
C223	B1	C738	B1	R173	B2	R270	B2	R270	B2	R357	B2	R355	B2	R355	B2
C224	B1	C710	B1	R175	B2	R274	B2	R274	B2	R358	B2	R356	B2	R356	B2
C225	B2	C8200	C3	R180	B/C2	R276	B/C2	R276	B/C2	R359	B2	R357	B2	R357	B2
C227	B1	C8201	R1	R183	B2	R279	B2	R279	B2	R360	B2	R358	B2	R358	B2
C229	C1	C8202	R2	R185	B2	R281	B2	R281	B2	R361	B2	R359	B2	R359	B2
C230	C1	C8203	R2	R189	B2	R288	B2	R288	B2	R362	B2	R360	B2	R360	B2
C231	C1	C8206	R2	R193	B2	R290	B2	R290	B2	R363	B2	R361	B2	R361	B2
C232	C1/2	C8211	R3	R200	R1/2	R291	R1/2	R291	R1/2	R364	B2	R362	B2	R362	B2
C233	C1	C8212	R2	R219	R2	R292	B2	R292	B2	R365	B2	R363	B2	R363	B2
C234	C1	C8213	B3	R218	B2	R293	B2	R293	B2	R366	B2	R364	B2	R364	B2
C235	C1	C8214	B3	R219	B2	R294	B2	R294	B2	R367	B2	R365	B2	R365	B2
C237	C1	C8215	B1	R215	B2	R295	B2	R295	B2	R368	B2	R366	B2	R366	B2
C239	C1	J101	R1	R221	B2	R296	B2	R296	B2	R369	B2	R367	B2	R367	B2
C238	C1	J102	R1/2	R224	B2	R298	B2	R298	B2	R370	B2	R368	B2	R368	B2
C240	C2	J201	R2	R225	B3	R299	B2	R299	B2	R371	B2	R369	B2	R369	B2
C242	C2	J204	B3	R226	B3	R300	B2	R300	B2	R372	B2	R370	B2	R370	B2
C243	C2	J205	R1	R227	B2	R302	B2	R302	B2	R373	B2	R371	B2	R371	B2
C244	C1/2	K200	B2/3	R228	R2/3	R303	B2	R303	B2	R374	B2	R372	B2	R372	B2
C246	C2	K201	C2	R229	B2	R304	B2	R304	B2	R375	B2	R373	B2	R373	B2
C249	C2	C450	C2	R230	B2	R305	B2	R305	B2	R376	B2	R374	B2	R374	B2
C253	C2	C453	C2	R232	B2	R306	B2	R306	B2	R377	B2	R375	B2	R375	B2
C254	B2	C204	C3	R233	B2	R307	B2	R307	B2	R378	B2	R376	B2	R376	B2
C255	B2	C205	C3	R234	B2	R308	B2	R308	B2	R379	B2	R377	B2	R377	B2
C256	B2	C206	C3	R235	B2	R309	B2	R309	B2	R380	B2	R378	B2	R378	B2
C258	B2	C208	B3	R236	B2	R310	B2	R310	B2	R381	B2	R379	B2	R379	B2
C260	B2	C211	R2	R237	B2	R311	B2	R311	B2	R382	B2	R380	B2	R380	B2
C262	R2	C212	R2	R238	B2	R312	B2	R312	B2	R383	B2	R381	B2	R381	B2
		C213	R2	R239	B2	R313	B2	R313	B2	R384	B2	R382	B2	R382	B2
		C214	R2	R240	B2	R314	B2	R314	B2	R385	B2	R383	B2	R383	B2

MODEL HF8131A
STANDARD TRANSDUCER BOARD
OUTPUT BD (A26 OPT.020-A27/A28)

FIGURE 5.5-10.



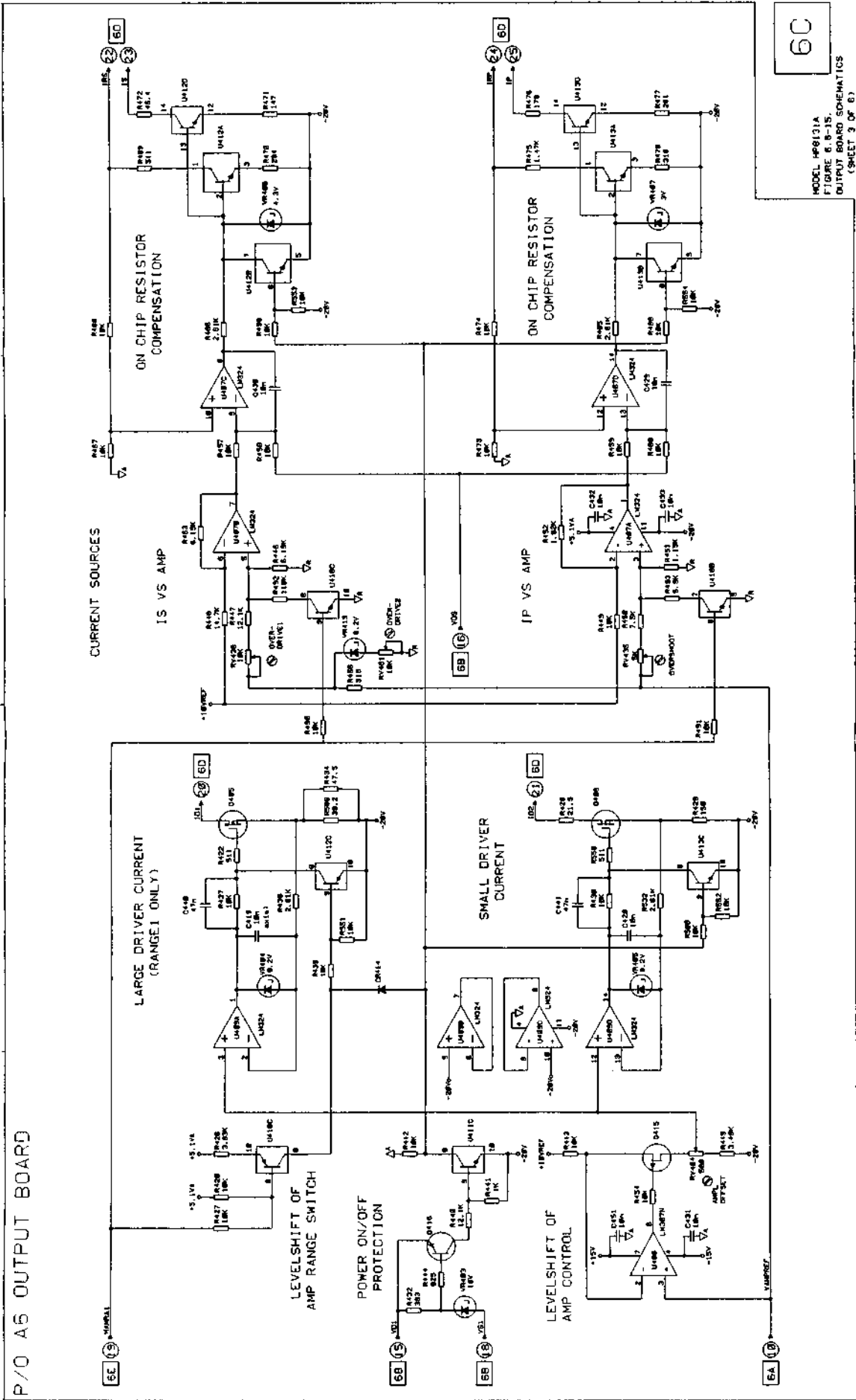
P/O A6 OUTPUT BOARD



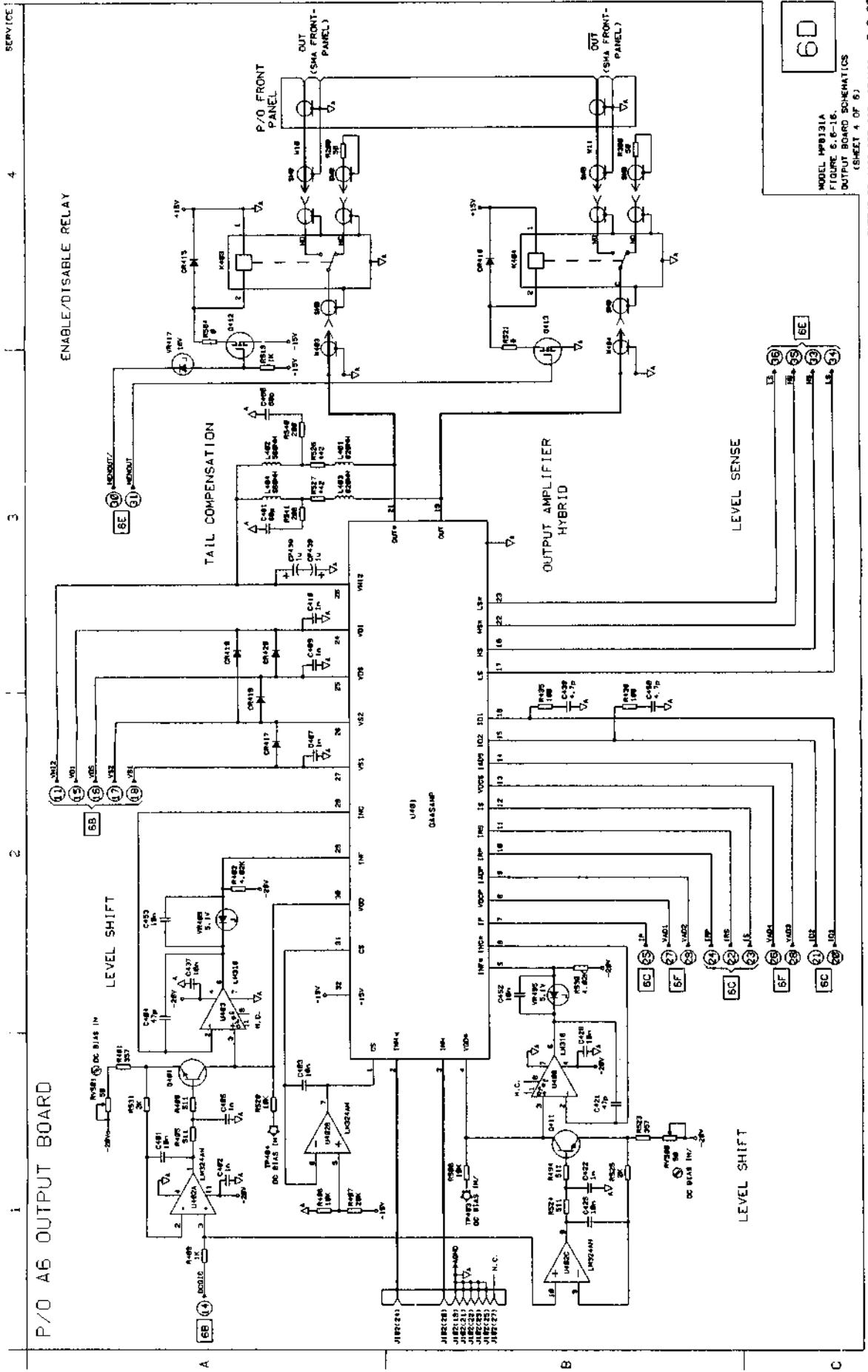
6B

MODEL MPR131A
FIGURE 6.6-14
OUTPUT BOARD SCHEMATICS
(SHEET 2 OF 6)

P/O A5 OUTPUT BOARD

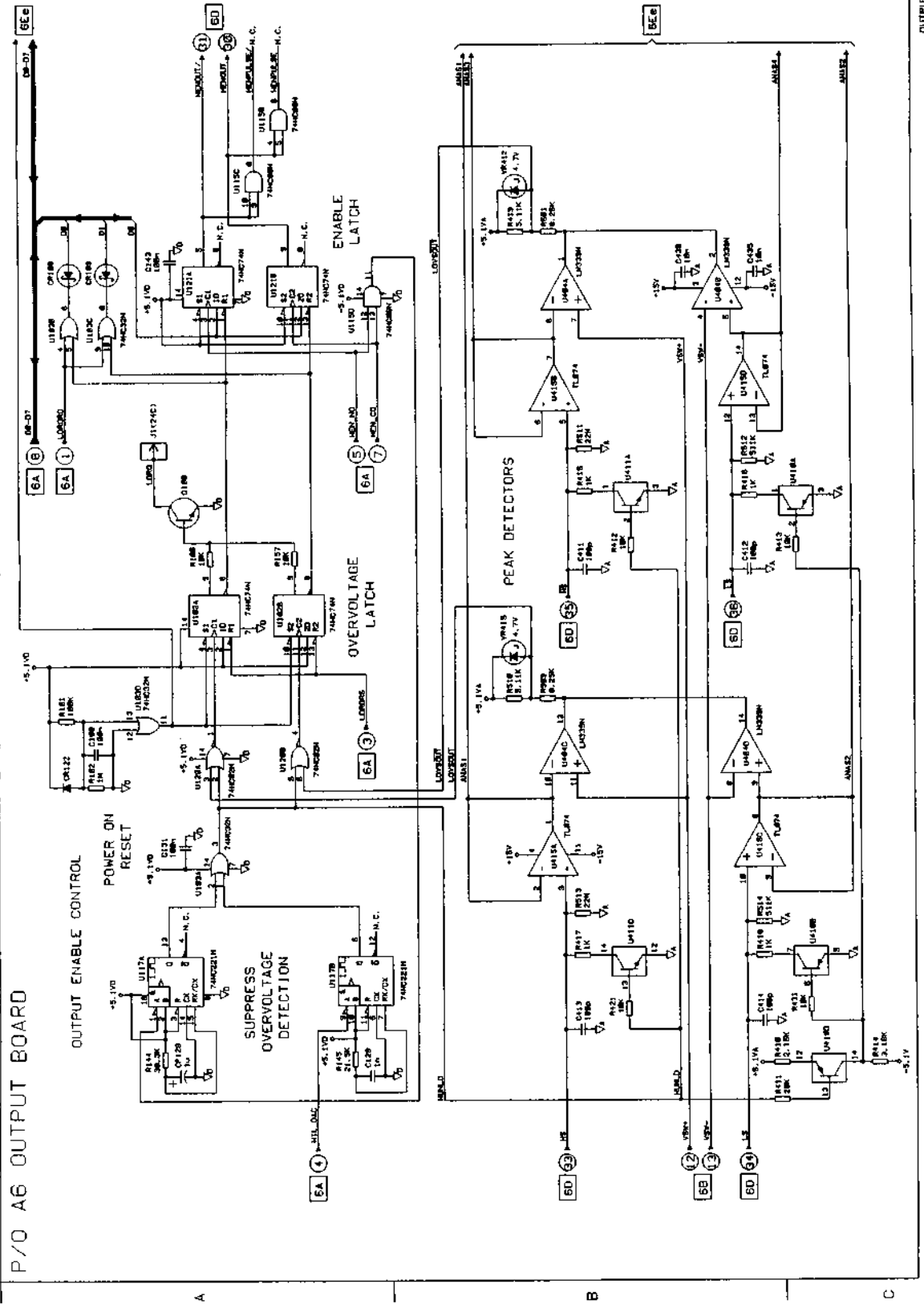


MODEL #06131A
 FIGURE 6.6-15
 OUTPUT BOARD SCHEMATICS
 (SHEET 3 OF 6)



60
 MODEL WPL31A
 FIGURE 6-6-16
 OUTPUT BOARD SCHEMATICS
 (SHEET 4 OF 6)

P/O A6 OUTPUT BOARD



6E

MODEL HP8131A
FIGURE 2 OF 7
OUTPUT BOARD SCHEMATICS
(SHEET 5 OF 6)

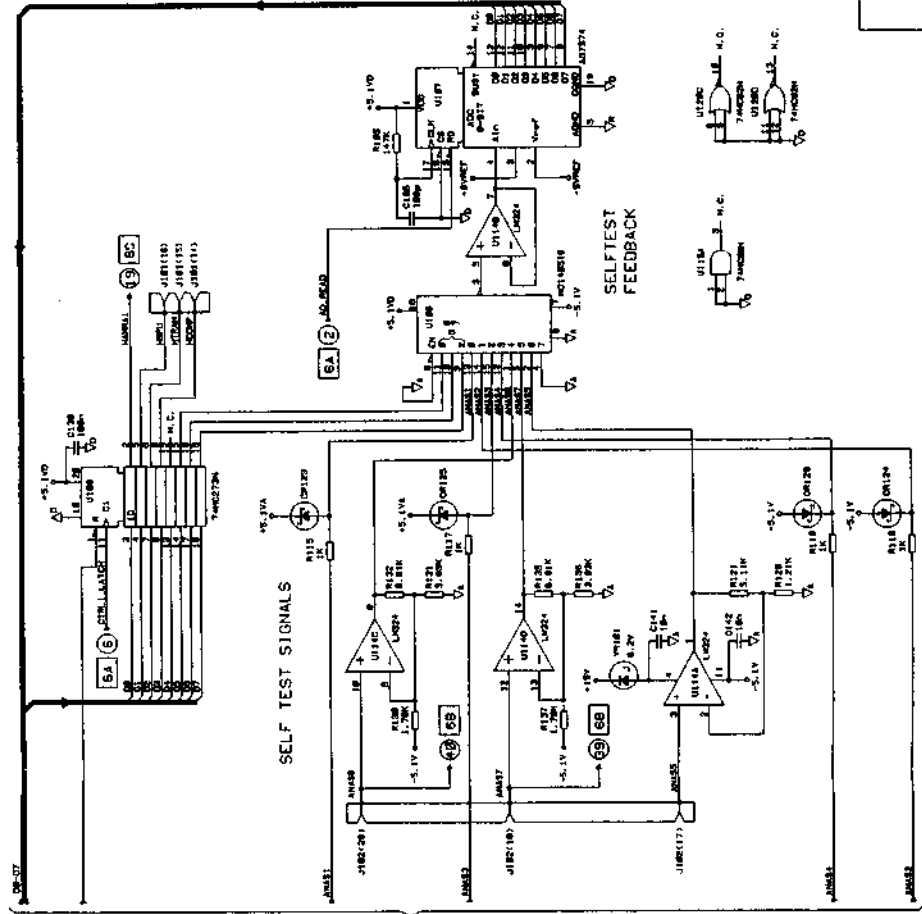
SERVICE

3

2

1

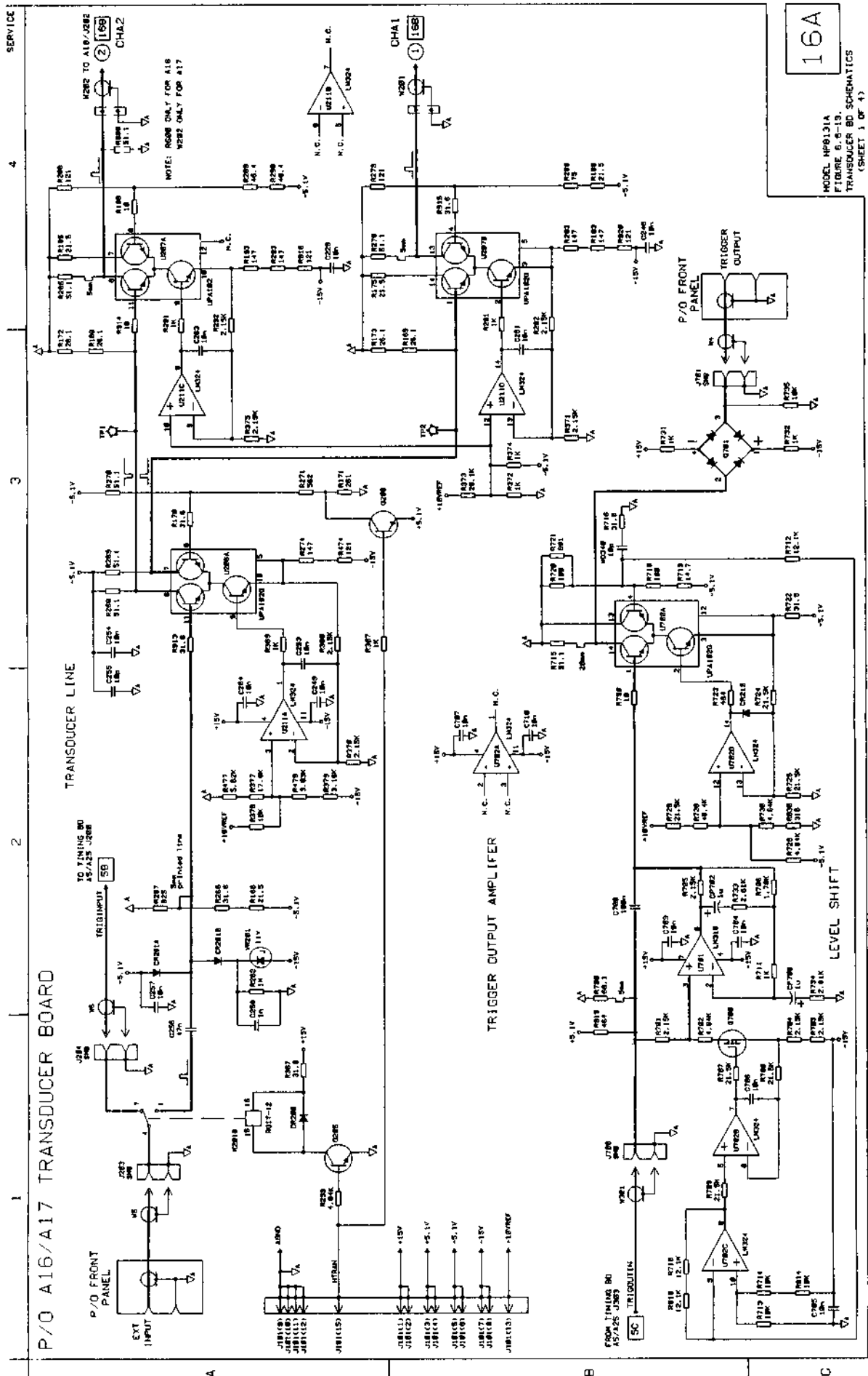
P/O A6 OUTPUT BOARD



6E

MODEL 440131A
FIGURE 8.6-18
OUTPUT BOARD SCHEMATICS
(SHEET 6 OF 6)

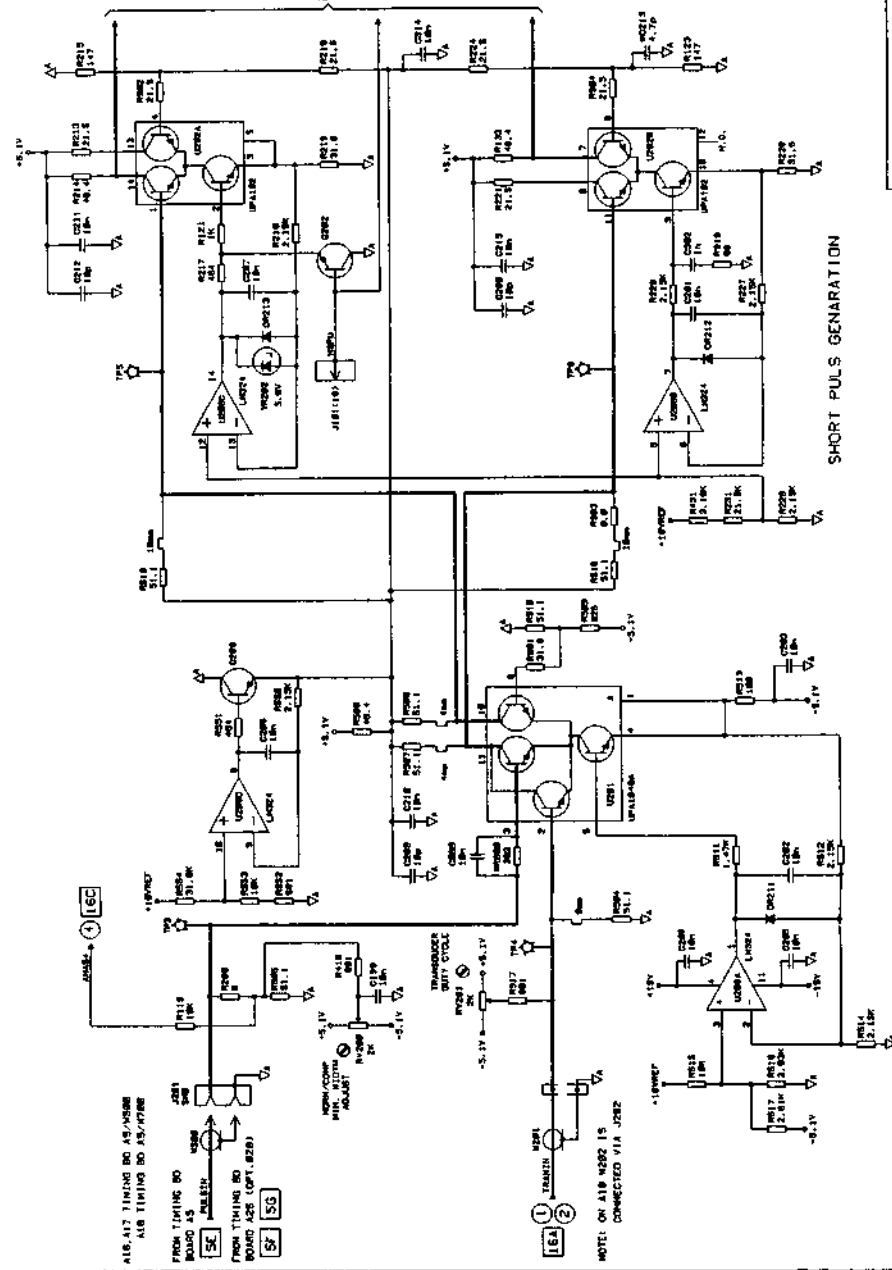
OUTPUT BD (425 OPT. 427/428) 6.6-31



16A

MODEL NP0131A
FIGURE 6.8-19
TRANSDUCER BOARD SCHEMATICS
(SHEET 1 OF 4)

P/O A16/A17/A18 TRANSDUCER BOARD



SHORT PULS GENERATION

16B

MODEL W49131A
FIGURE 6.6-21
TRANSDUCER BOARD
(SHEET 2 OF 4)

OUTPUT 80 (A29 OPT. 8208-A27-A28) 6.6-25

A16 A17 TIMING 80 AS/AS208
A18 TIMING 80 AS/AS208

FROM TIMING 80
BOARD AS

FROM TIMING 80
BOARD A28 (OPT. 828)

TRANSFORMER
500V/0.5A
500V/0.5A

TRANSFORMER
500V/0.5A
500V/0.5A

TRANSFORMER
500V/0.5A
500V/0.5A

TRANSFORMER
500V/0.5A
500V/0.5A

TRANSFORMER
500V/0.5A
500V/0.5A

TRANSFORMER
500V/0.5A
500V/0.5A

TRANSFORMER
500V/0.5A
500V/0.5A

TRANSFORMER
500V/0.5A
500V/0.5A

TRANSFORMER
500V/0.5A
500V/0.5A

TRANSFORMER
500V/0.5A
500V/0.5A

TRANSFORMER
500V/0.5A
500V/0.5A

TRANSFORMER
500V/0.5A
500V/0.5A

TRANSFORMER
500V/0.5A
500V/0.5A

TRANSFORMER
500V/0.5A
500V/0.5A

TRANSFORMER
500V/0.5A
500V/0.5A

TRANSFORMER
500V/0.5A
500V/0.5A

TRANSFORMER
500V/0.5A
500V/0.5A

TRANSFORMER
500V/0.5A
500V/0.5A

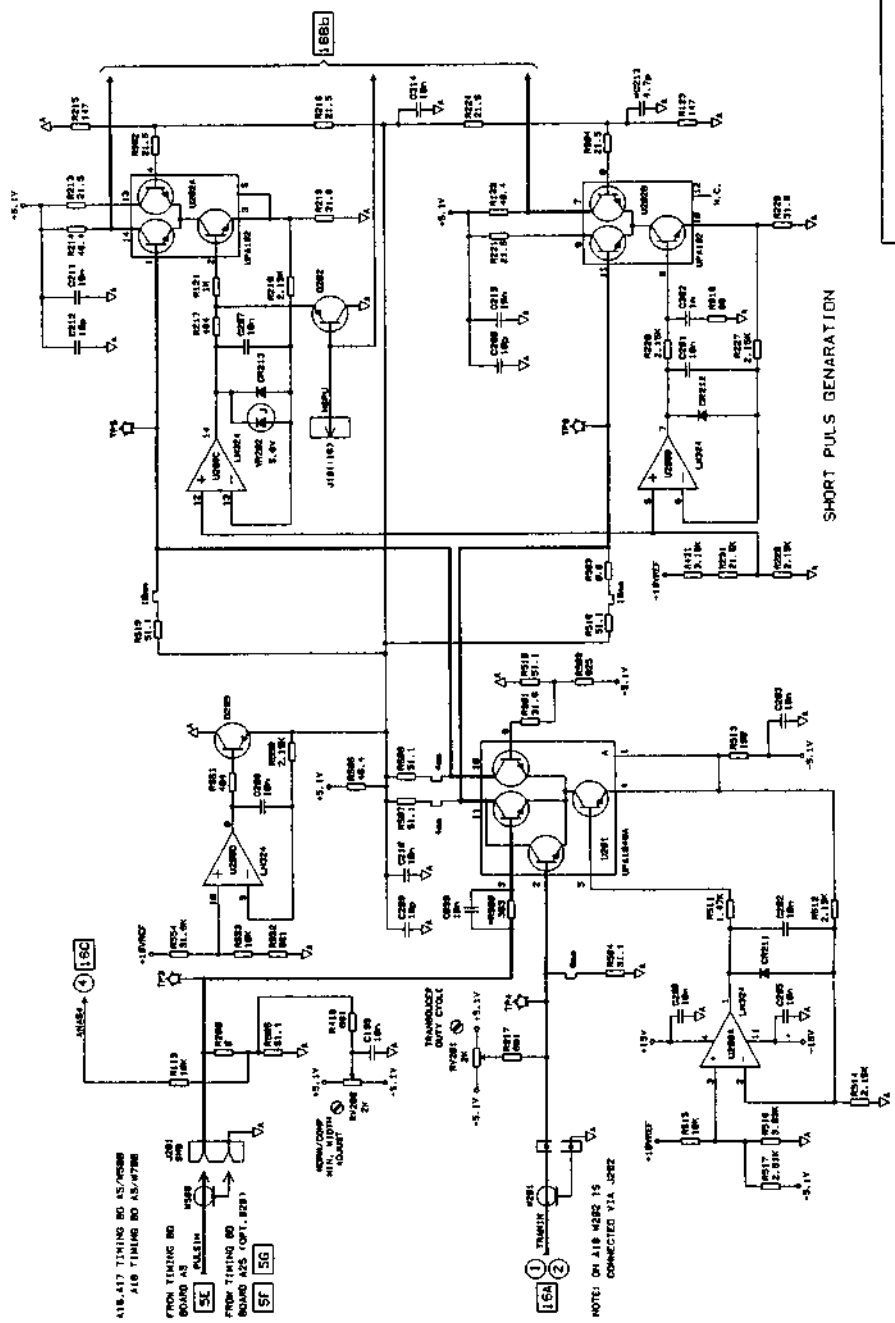
TRANSFORMER
500V/0.5A
500V/0.5A

TRANSFORMER
500V/0.5A
500V/0.5A

TRANSFORMER
500V/0.5A
500V/0.5A

TRANSFORMER
500V/0.5A
500V/0.5A

P/O A16/A17/A18 TRANSDUCER BOARD



A18-417 TIMING NETWORK AS SHOWN
A18 TIMING NETWORK AS SHOWN

FROM TIMING BOARD AS SHOWN

FROM TIMING BOARD AS SHOWN

FROM TIMING BOARD AS SHOWN

FROM TIMING BOARD AS SHOWN

FROM TIMING BOARD AS SHOWN

FROM TIMING BOARD AS SHOWN

FROM TIMING BOARD AS SHOWN

FROM TIMING BOARD AS SHOWN

FROM TIMING BOARD AS SHOWN

FROM TIMING BOARD AS SHOWN

FROM TIMING BOARD AS SHOWN

FROM TIMING BOARD AS SHOWN

FROM TIMING BOARD AS SHOWN

FROM TIMING BOARD AS SHOWN

FROM TIMING BOARD AS SHOWN

FROM TIMING BOARD AS SHOWN

FROM TIMING BOARD AS SHOWN

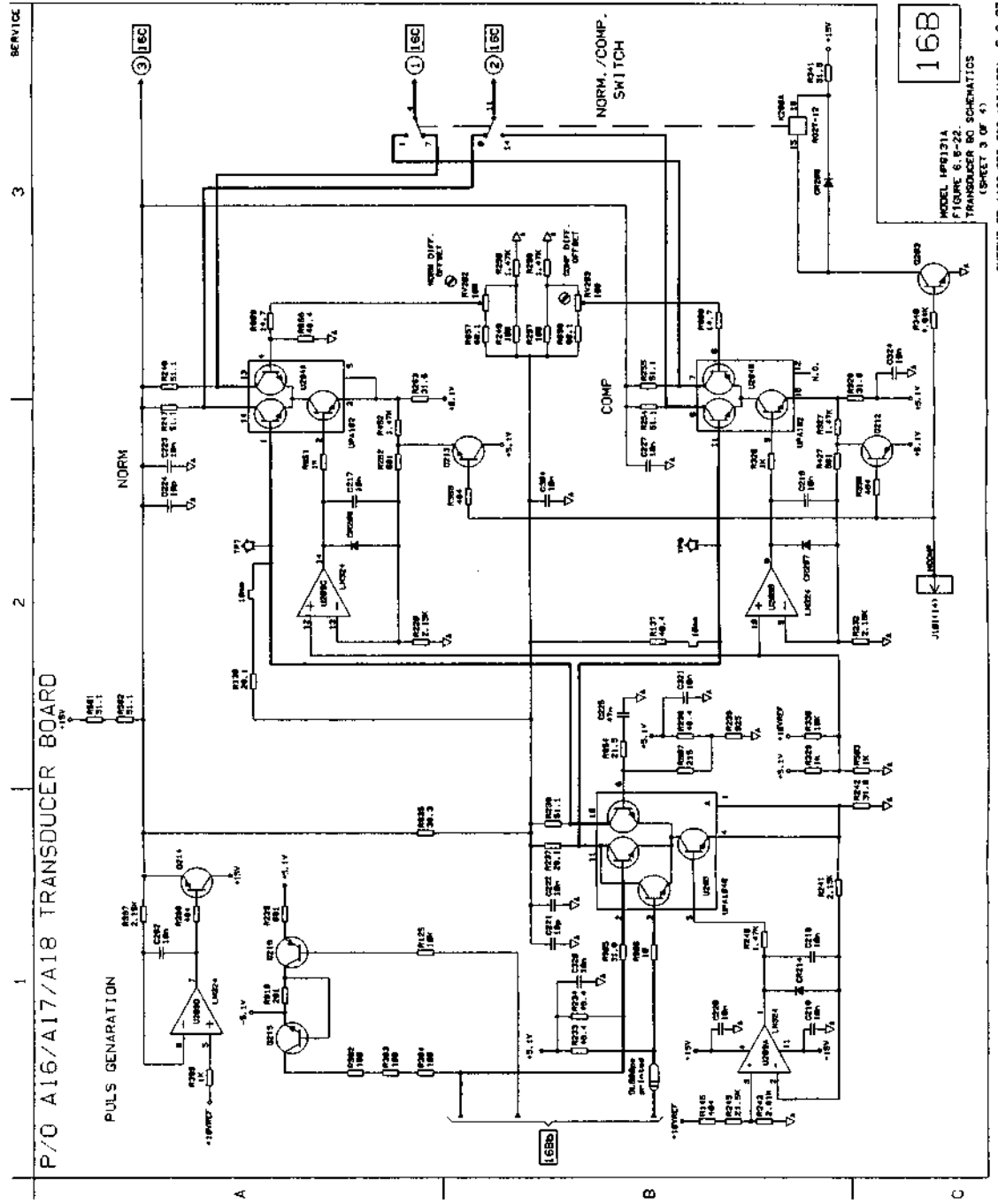
FROM TIMING BOARD AS SHOWN

FROM TIMING BOARD AS SHOWN

FROM TIMING BOARD AS SHOWN

NOTE: ON A18 W282 IS
CONNECTED VIA J282

SHORT PULSE GENERATION

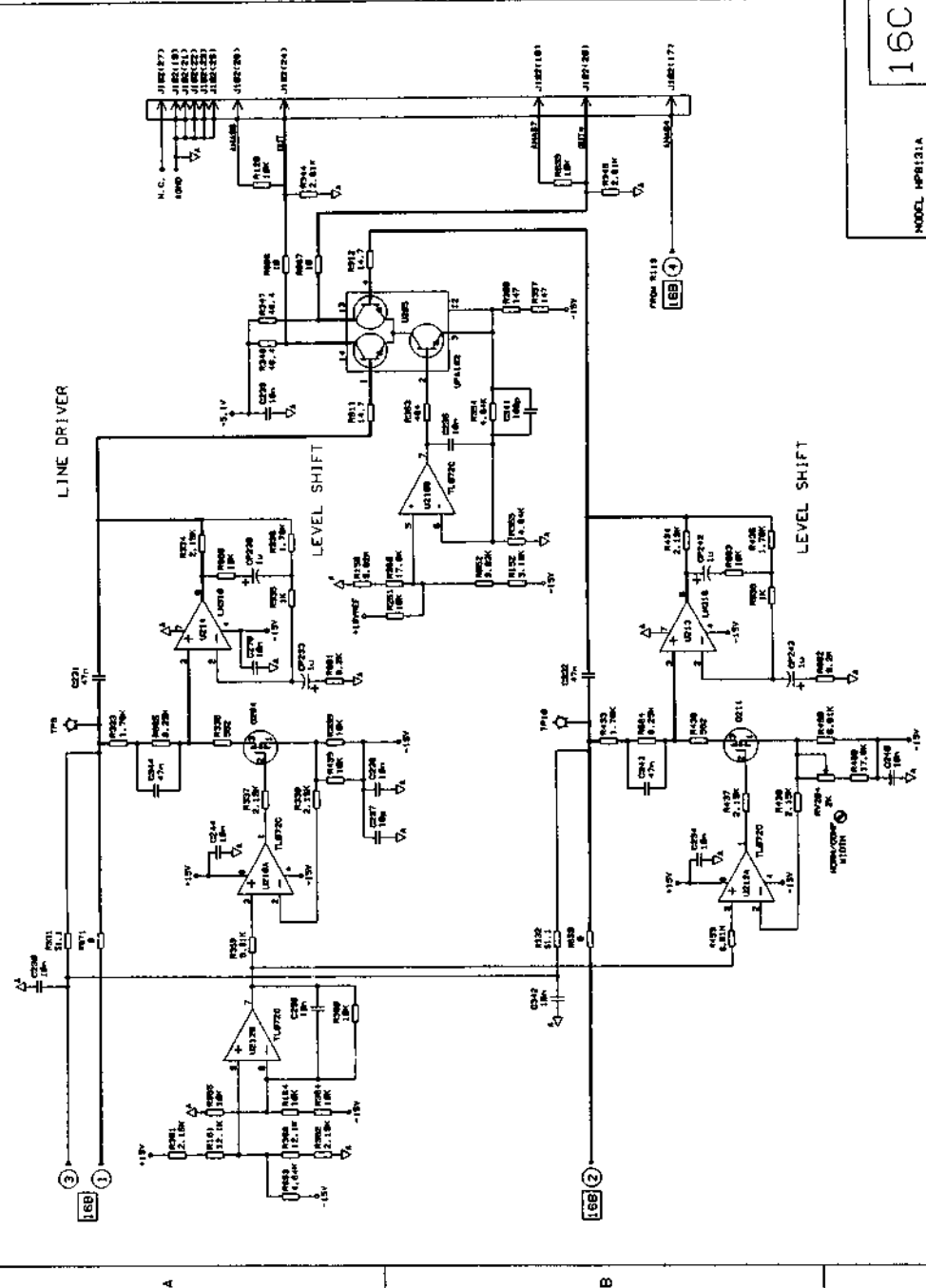


P/O A16/A17/A18 TRANSDUCER BOARD

3

2

1



LINE DRIVER

LEVEL SHIFT

LEVEL SHIFT

①

②

16C

MODEL MP8131A
FIGURE 6-6-23
TRANSDUCER BOARD SCHEMATICS
(SHEET 4 OF 4)

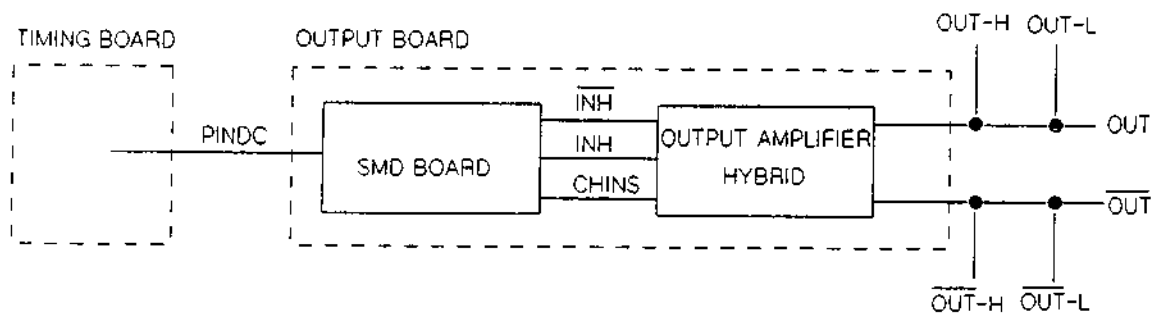
Troubleshooting

HP 8130A Self-test

After power-on the HP 8130A's self-test circuit checks the following:

- Microprocessor board:
 - keyboard controller
 - static RAM
 - ROM
 - timer cycle
 - device bus
- Timing board
 - EEPROM (contains the adjust values for the timing parameter)
- Output board
 - input levels from the timing board
 - the SMD board output levels
 - the hybrid output levels.
 - EEPROM (contains the adjust values for the level/slope parameter)

The following four pages of flow diagrams show the logical route followed by the program to derive particular error displays. These diagrams should assist in locating the cause of a fault.



SIGNAL	TYPE	SENSE NODE
OUT-H	HYBRID OUTPUT, HIGH	J2
OUT-L	HYBRID OUTPUT, LOW	J2
OUT-H	HYBRID OUTPUT, HIGH	J3
OUT-L	HYBRID OUTPUT, LOW	J3
PINDC	SMD BOARD INPUT	J201
INH	HYBRID INPUT, FAST	U1/5
INH	HYBRID INPUT, FAST	U1/7
CHINS	HYBRID INPUT, SLOW	U1/12

SET	EXPECT
HIL = +2.5 V	OUT-H = +2.5 V
LOL = -2.5 V	OUT-L
TRE = 0.67 ns	OUT-H
NORM	OUT-L = -2.5 V
EWID	PINDC = 0 V
THRE = 0 V	INH = -3 V
	INH = -2.7 V
	CHINS

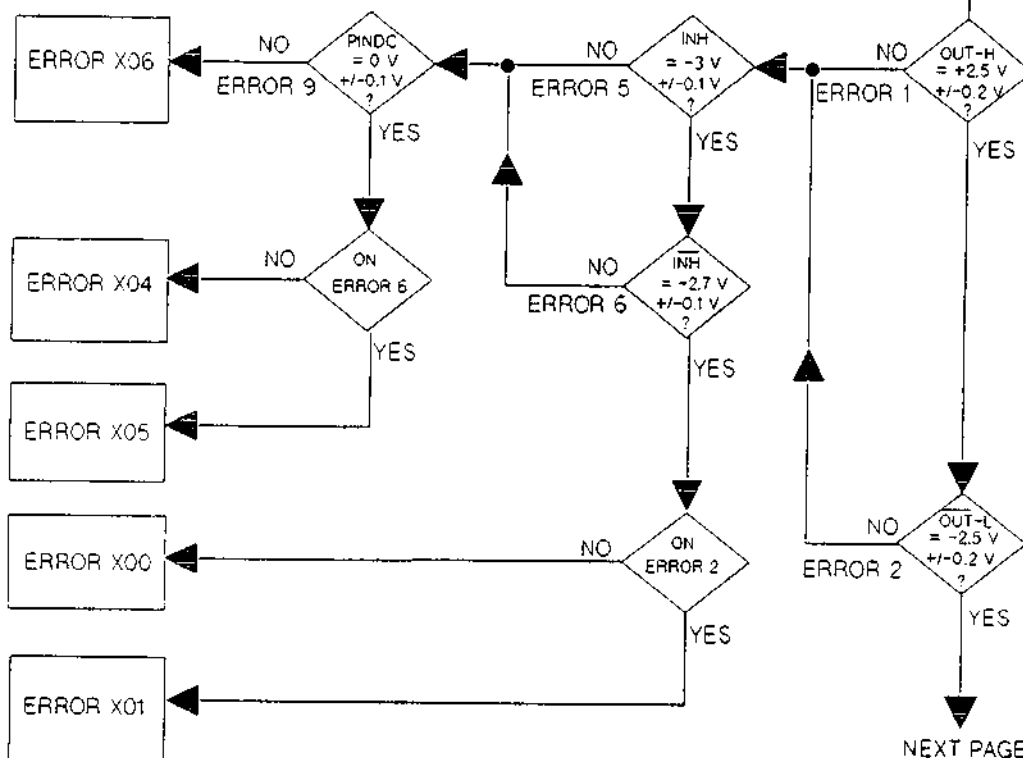
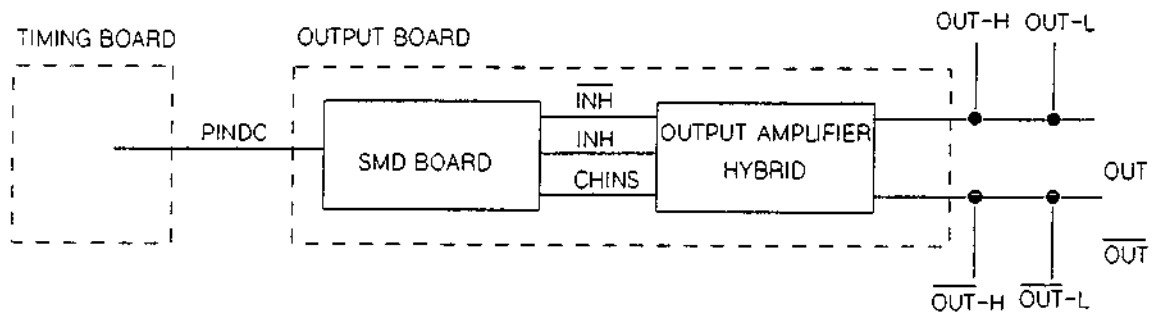


Figure 6-7-1. HP 8130A Flowchart - Part 1

6-7-2 Troubleshooting



FROM PREVIOUS PAGE

SIGNAL	TYPE	SENSE NODE
OUT-H	HYBRID OUTPUT, HIGH	J2
OUT-L	HYBRID OUTPUT, LOW	J2
OUT-H	HYBRID OUTPUT, HIGH	J3
OUT-L	HYBRID OUTPUT, LOW	J3
PINDC	SMD BOARD INPUT	J201
INH	HYBRID INPUT, FAST	U1/5
INH	HYBRID INPUT, FAST	U1/7
CHINS	HYBRID INPUT, SLOW	U1/12

SET	EXPECT
HIL = +2.5 V	OUT-H
LOL = -2.5 V	OUT-L = -2.5 V
TRE = 0.67 ns	OUT-H = +2.5 V
NORM	OUT-L
EWID	PINDC = -3.2 V
THRE = 0 V	INH = -2.7 V
	INH = -3 V
	CHINS

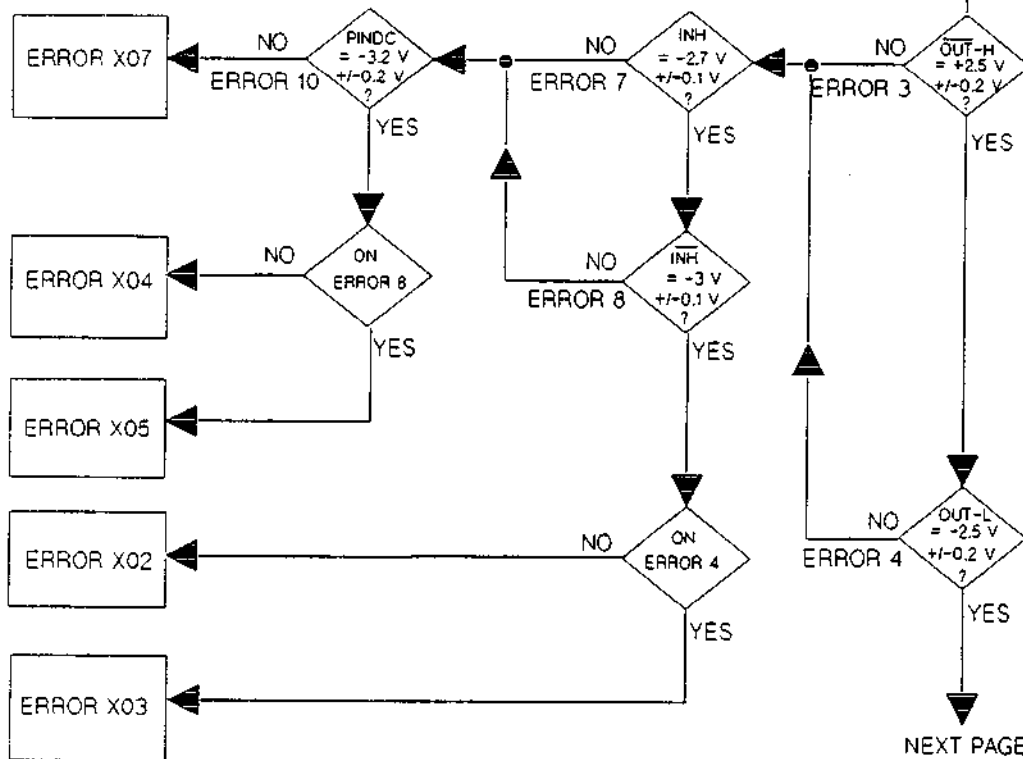
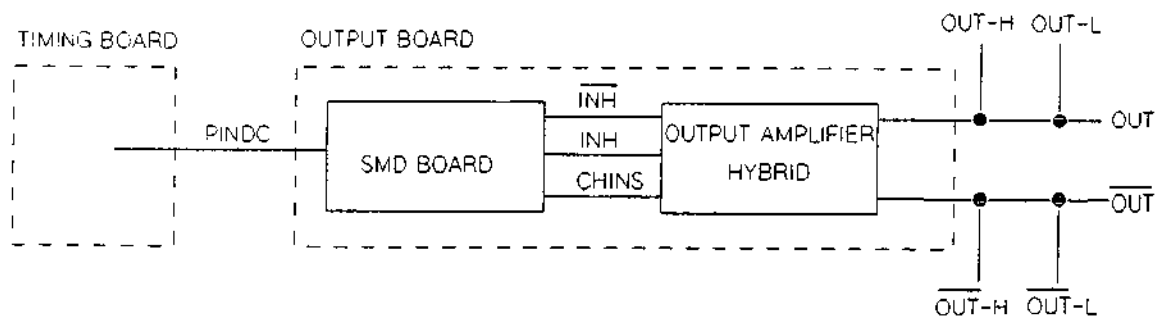


Figure 6-7-2. HP 8130A Flowchart - Part 2



SIGNAL	TYPE	SENSE NODE
OUT-H	HYBRID OUTPUT, HIGH	J2
OUT-L	HYBRID OUTPUT, LOW	J2
OUT-H	HYBRID OUTPUT, HIGH	J3
OUT-L	HYBRID OUTPUT, LOW	J3
PINDC	SMD BOARD INPUT	J201
INH	HYBRID INPUT, FAST	U1/5
INH	HYBRID INPUT, FAST	U1/7
CHINS	HYBRID INPUT, SLOW	U1/12

FROM PREVIOUS PAGE

SET	EXPECT
HIL = +2.5 V	OUT-H = +2.5 V
LOL = -2.5 V	OUT-L
TRE = 20 ns	OUT-H
LEE = 20 ns	OUT-L = -2.5 V
NORM	PINDC = 0 V
EWID	INH
THRE = 0 V	INH
	CHINS = -2.6 V

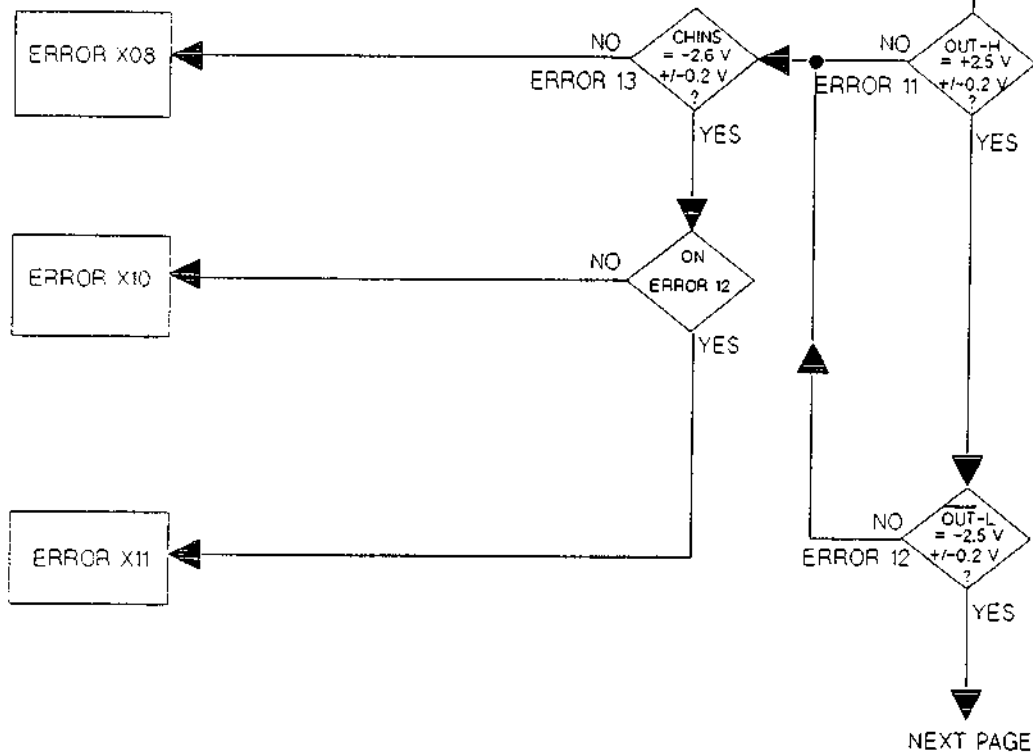
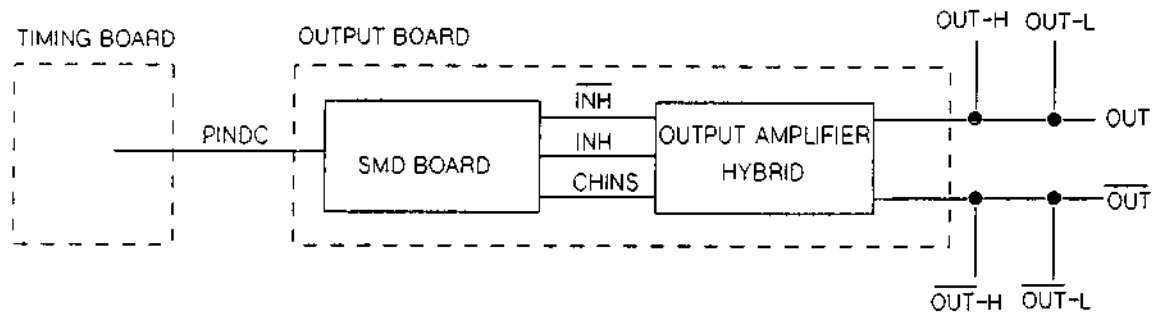


Figure 6-7-3. HP 8130A Flowchart - Part 3

6-7-4 Troubleshooting



FROM PREVIOUS PAGE

SIGNAL	TYPE	SENSE NODE
OUT-H	HYBRID OUTPUT, HIGH	J2
OUT-L	HYBRID OUTPUT, LOW	J2
OUT-H-bar	HYBRID OUTPUT, HIGH	J3
OUT-L-bar	HYBRID OUTPUT, LOW	J3
PINDC	SMD BOARD INPUT	J201
INH	HYBRID INPUT, FAST	U1/5
INH-bar	HYBRID INPUT, FAST	U1/7
CHINS	HYBRID INPUT, SLOW	U1/12

SET	EXPECT
HIL = +2.5 V	OUT-H
LOL = -2.5 V	OUT-L = -2.5 V
TRE = 20 ns	OUT-H-bar = +2.5 V
LEE = 20 ns	OUT-L-bar
NORM	PINDC = -3.2 V
EWID	INH
THRE = 0 V	INH-bar
	CHINS = -0.6 V

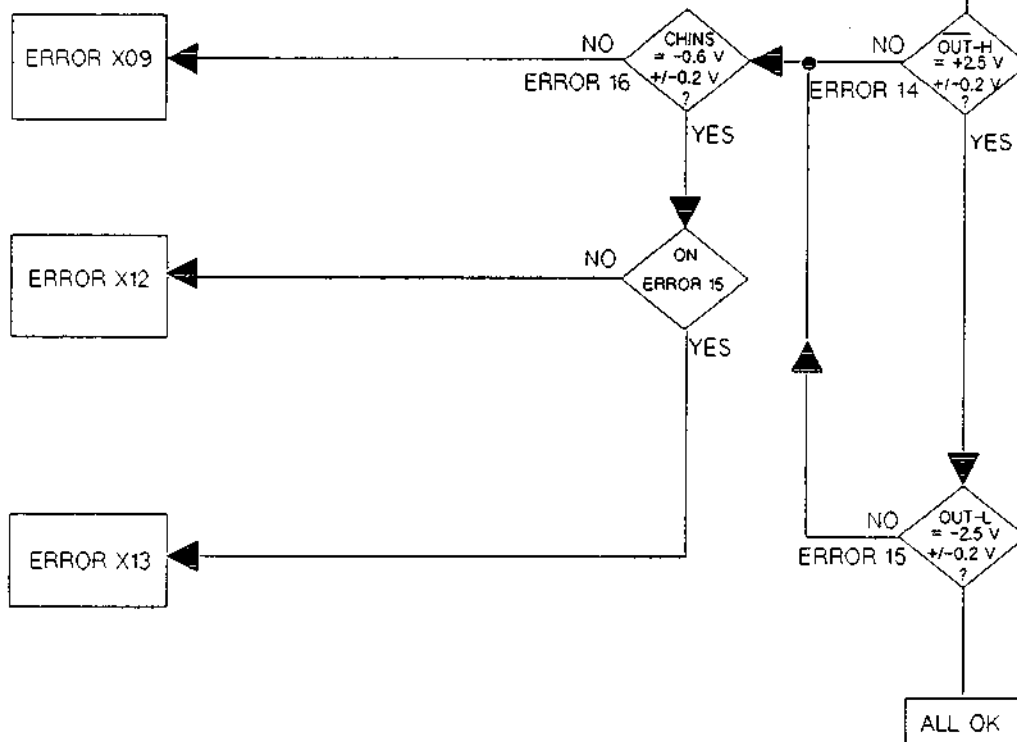


Figure 6-7-4. HP 8130A Flowchart - Part 4

Error Messages

The HP 8130A carries out its self-test at power-on. During this series of tests all the front panel LEDs are lit. If an error is detected an error message is indicated on the front panel display.

The first digit (left-hand side) of the error display is a letter:

- **F** - displayed indicates a FATAL ERROR; the HP 8130A ceases operation
- **E** - displayed indicates a MINOR ERROR; the HP 8130A continues to function with some restrictions. These restrictions are dependent on the type of fault.

The second digit has the following significance:

- **1** - indicates an error on the CPU board
- **2** - indicates an error on the timing board
- **3** - indicates an error on the output board 1
- **4** - indicates an error on the output board 2
- **5** - indicates a configuration error.

The third and fourth digits provide information about the exact fault.

Fatal Error Messages

Table 6-7-1. Power-On Self-Test Errors

Error Code	CPU Board Error Message
F100	Static RAM (number 2) error
F101	Static RAM (number 1) error
F102	EPROM (number 2) error
F103	EPROM (number 1) error
F104	Timer cycle error
F105	Keyboard controller error
F106	Device bus error
F500	Configuration error
	An incorrect combination of timing and output boards has been installed in the instrument.

Minor Error Messages

Error Code	Timing Board Error Message
E200	The adjust values on the EEPROM have been destroyed. Correct parametric timing is not possible.

Channel 1 Error Code	Channel 2 Error Code	Output Board Error Message
E300	E400	The high-level of the normal output (differential signal) of the hybrid board has failed (fast slope input).
E301	E401	The low-level of the complement output (differential signal) of the hybrid board has failed (fast slope input).
E302	E402	The high-level of the complement output (differential signal) of the hybrid board has failed (fast slope input).
E303	E403	The low-level of the normal output (differential signal) of the hybrid board has failed (fast slope input).
E304	E404	The fast slope normal output of the SMD board has failed.
E305	E405	The fast slope complement output of the SMD board has failed.
E306	E406	The high-level of the SMD board input signal has failed.
E307	E407	The low-level of the SMD board input signal has failed.
E308	E408	The low-level of the slow slope output from the SMD board has failed.
E309	E409	The high-level of the slow slope output from the SMD board has failed.

Channel 1 Error Code	Channel 2 Error Code	Output Board Error Message
E310	E410	The high-level of the normal output (differential signal) of the hybrid board has failed (slow slope input).
E311	E411	The low-level of the complement output (differential signal) of the hybrid board has failed (slow slope input).
E312	E412	The high-level of the complement output (differential signal) of the hybrid board has failed (slow slope input).
E313	E413	The low-level of the normal output (differential signal) of the hybrid board has failed (slow slope input).
E350	E450	The adjust value on the EEPROM have been destroyed. Correct slopes and levels are not possible.

Error Code	Configuration Error Message
E500	Dual Channel Instrument Each output board contains a trigger amplifier. The trigger amplifier is required in channel 1 and is not needed in channel 2.
E501	Dual Channel Instrument Neither output board contains trigger amplifier capability.
E502	Single Channel Instrument The output board does not contain trigger amplifier capability.
E504	The Instrument Contains a dual channel timing board but only one output board.

HP 8131A Self-test

Structure

The self-test measures:

- the amplifier hybrid output levels (in disable mode).
- the transducer board output level
- the output board input level

The self-test program can recognize hybrid errors, transducer board errors, and input errors that cause the measured levels to exceed the allowed tolerance band. The following three pages of flow diagrams show the logical route followed by the program to derive particular error displays. These diagrams should assist in locating the cause of a fault.

General

Check at the sense node. Are the voltages are OK? => self test circuit.

Self-test Multiplexer (U108) Voltages

Table 6-7-2. U108 Voltages for First Page of Flow Diagram - NORM

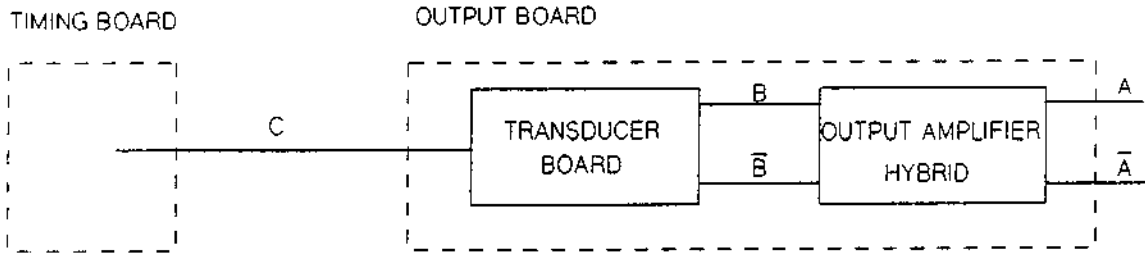
U108 signal	Voltage
ANAS1	-
ANAS2	-2.2 ±0.3 V
ANAS3	+2.2 ±0.3 V
ANAS4	-
ANAS5	0 ±0.7 V
ANAS6	3 ±0.8 V
ANAS7	0.4 ±0.8 V

Table 6-7-3. U108 Voltages for Second Page of Flow Diagram - COMP

U108 signal	Voltage
ANAS1	+2.2 ±0.3 V
ANAS2	-
ANAS3	-
ANAS4	-2.2 ±0.3 V
ANAS5	0 ±0.7 V
ANAS6	0.4 V ±0.8 V
ANAS7	3 V ±0.8 V

Table 6-7-4. U108 Voltages for Third Page of Flow Diagram - THRE = -5 V

U108 signal	Voltage
ANAS1	-
ANAS2	-2.2 \pm 0.3 V
ANAS3	+2.2 \pm 0.3 V
ANAS4	-
ANAS5	-2.6 \pm 1.2 V
ANAS6	3 V \pm 0.8 V
ANAS7	0.4 \pm 0.8 V



SIGNAL	TYPE	SENSE NODE
A	HYBRID OUTPUT	U401/21
\bar{A}	HYBRID OUTPUT	U401/19
B	TRANSDUCER OUTPUT	J102/24
\bar{B}	TRANSDUCER OUTPUT	J102/20
C	TRANSDUCER INPUT	J201

HIL = +2.5 V	\bar{A} = +2.5 V
LOL = -2.5 V	\bar{A} = -2.5 V
NORM	B = -2.5 V
E. WIDTH	\bar{B} = -2.9 V
THRE = 5 V	C = 0 V

X = 3: CHANNEL 1
X = 4: CHANNEL 2

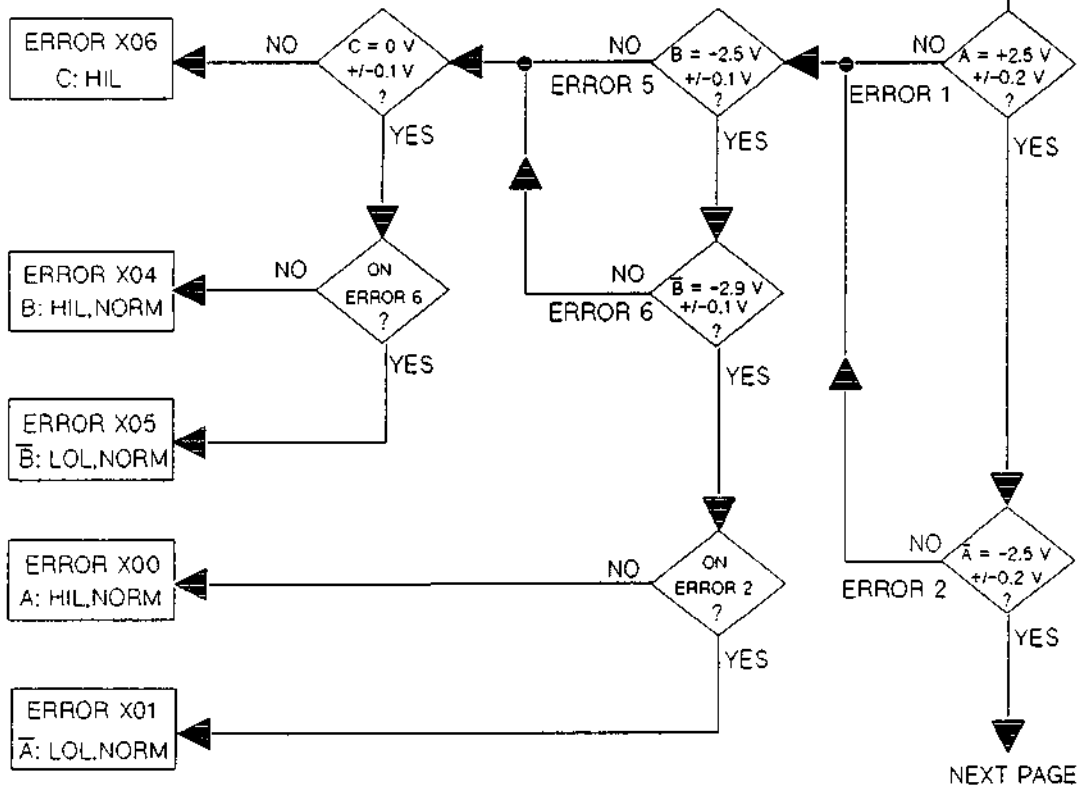
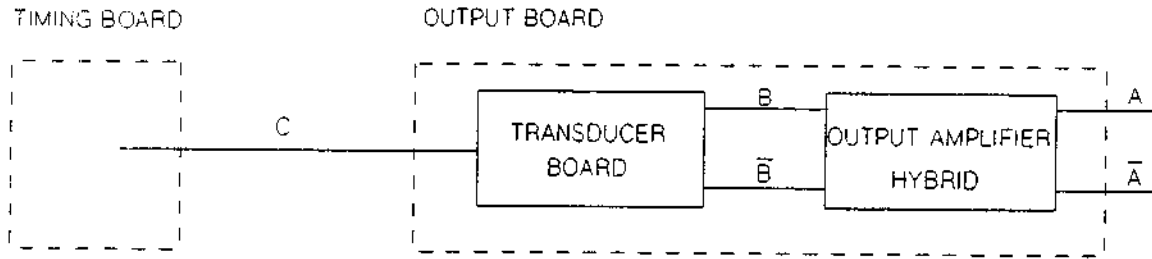


Figure 6-7-5. HP 8131A Flowchart - Part 1



SIGNAL	TYPE	SENSE NODE
A	HYBRID OUTPUT	U401/21
\bar{A}	HYBRID OUTPUT	U401/19
B	TRANSUCER OUTPUT	J102/24
\bar{B}	TRANSUCER OUTPUT	J102/20
C	TRANSUCER INPUT	J201

PREVIOUS PAGE

HIL = +2.5 V	A = -2.5 V
LOL = -2.5 V	\bar{A} = +2.5 V
COMP	B = -2.9 V
E. WIDTH	\bar{B} = -2.5 V
THRE = 5 V	C = 0 V

X = 3: CHANNEL 1
X = 4: CHANNEL 2

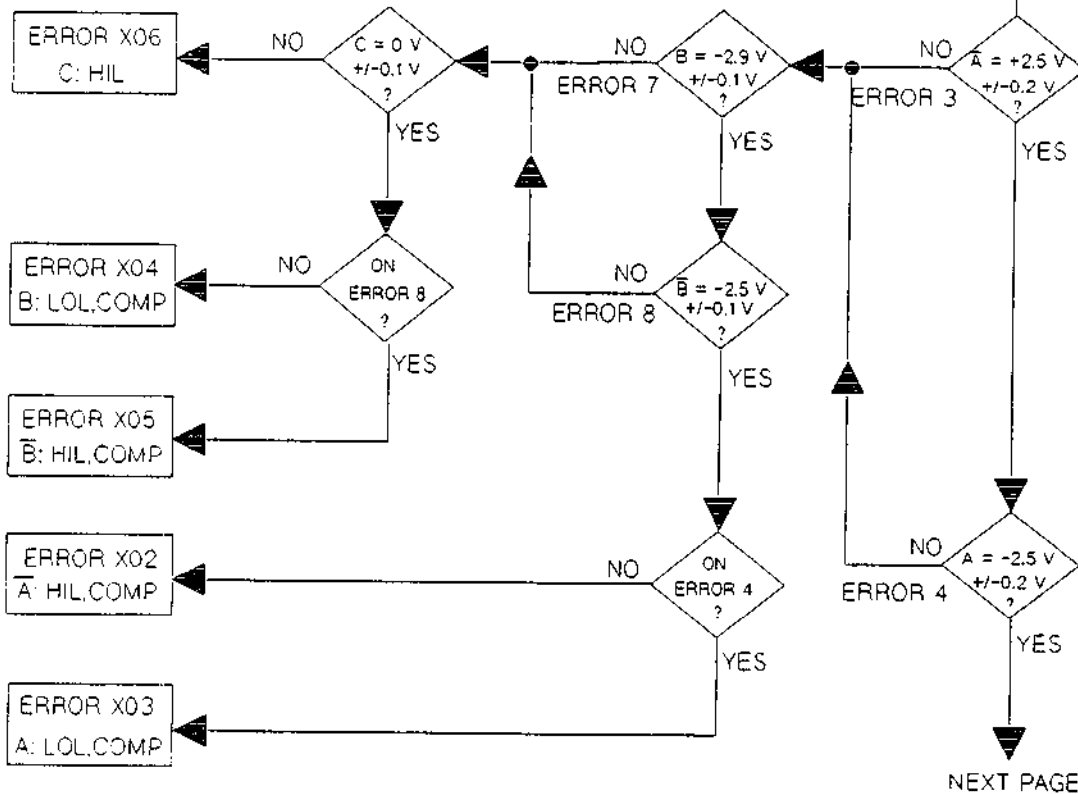
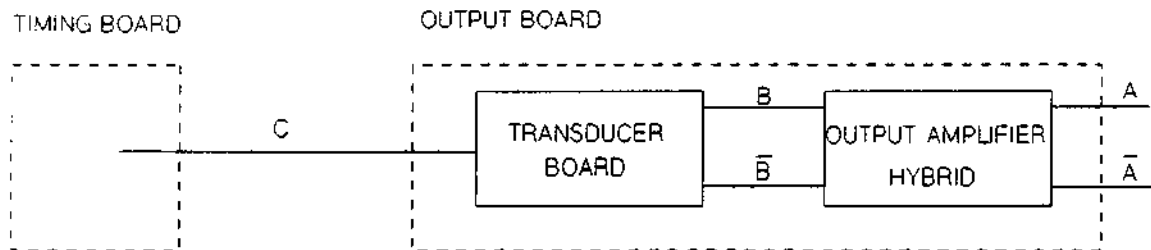


Figure 6-7-6. HP 8131A Flowchart - Part 2



SIGNAL	TYPE	SENSE NODE
A	HYBRID OUTPUT	U401/21
\bar{A}	HYBRID OUTPUT	U401/19
B	TRANSDUCER OUTPUT	J102/24
\bar{B}	TRANSDUCER OUTPUT	J102/20
C	TRANSDUCER INPUT	J201

PREVIOUS PAGE

HIL = +2.5 V	A = +2.5 V
LOL = -2.5 V	\bar{A} = -2.5 V
COMP	B = -2.5 V
E. WIDTH	\bar{B} = -2.9 V
THRE = -5 V	C = 0 V

X = 3: CHANNEL 1
X = 4: CHANNEL 2

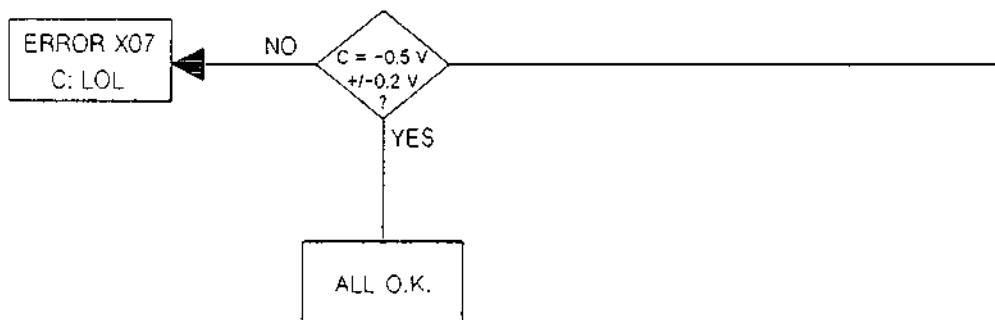


Figure 6-7-7. HP 8131A Flowchart - Part 3

Errors

Errors X00 to X03

1. If the instrument functions correctly, but the voltages are wrong: check HIL adjustment and AMP adjustment.
2. Interconnecting frame failing?
3. Damaged pins on mother board connector?
4. Voltages on the hybrid pins are correct (see Table below)?
5. Check to see if ERROR is due to hybrid or circuit board.

Table 6-7-5. Hybrid Pin Voltages

Pin	Mnemonic	Voltage	Pin	Mnemonic	Voltage
1	CB	-4.4 ±0.2 V	2	$\overline{\text{INH}}$	-2.5 ±0.1 V
3	INH	-2.3 ±0.1 V	4	$\overline{\text{VGD}}$	-15.2 ±0.2 V
5	$\overline{\text{ING}}$	-15.2 ±0.2 V	6	$\overline{\text{INF}}$	-15.2 ±0.2 V
7	IP	-15.5 ±0.5 V	8	VAD1	-13 ±1 V
9	VAD2	-13 ±1 V	10	IRP	-6.6 ±0.2 V
11	IRS	-9.2 ±0.2 V	12	IS	-13.7 ±0.5 V
13	VAD4	-13 ±1 V	14	VAD3	-13 ±1 V
15	ID2	-13.8 ±0.5 V	16	ID1	-13.8 ±0.5 V
17	LS	-4.5 ±0.3 V	18	HS	0 ±0.3 V
21	$\overline{\text{OUT}}$	0 ±0.1 V	22	$\overline{\text{HS}}$	0 ±0.3 V
23	$\overline{\text{LS}}$	0 ±0.3 V	24	VD1	-1 ±0.2 V
25	VDS	-5 ±0.2 V	26	VS2	-11 ±0.4 V
27	VS1	-18 ±0.4 V	28	INC	-16.4 ±0.2 V
29	INF	-16.4 ±0.2 V	30	VGD	-16.4 ±0.2 V
31	CS	-5 ±0.2 V	32	VS3	-15 ±0.5 V

Errors X04 and X05

Check transducer board pins.

Errors X06 and X07

1. Check that the timing cable is correctly connected.
2. Check timing board.

Error Messages

The HP 8131A carries out its self-test at power-on. During this series of tests all the front panel LEDs are lit. If an error is detected an error message is indicated on the front panel display.

The first digit (left-hand side) of the error display is a letter:

- F - displayed indicates a FATAL ERROR; the HP 8131A ceases operation
- E - displayed indicates a MINOR ERROR; the HP 8131A continues to function with some restrictions. These restrictions are dependent on the type of fault.

The second digit has the following significance:

- 1 - indicates an error on the CPU board
- 2 - indicates an error on the timing board
- 3 - indicates an error on the output board 1
- 4 - indicates an error on the output board 2
- 5 - indicates a configuration error.

The third and fourth digits provide information about the exact fault.

Fatal Error Messages

Table 6-7-6. Power-On Self-Test Errors

<u>Error Code</u>	<u>CPU Board Error Message</u>
F100	Static RAM (number 2) error
F101	Static RAM (number 1) error
F102	EPROM (number 2) error
F103	EPROM (number 1) error
F104	Timer cycle error
F105	Keyboard controller error
F106	Device bus error
F500	Configuration error
	An incorrect combination of timing and output boards has been installed in the instrument.

Minor Error Messages

<u>Error Code</u>	<u>Timing Board Error Message</u>
E200	The adjust values on the EEPROM have been destroyed. Correct parametric timing is not possible.

Channel 1 Error Code	Channel 2 Error Code	Output Board Error Message
E300	E400	OUTPUT channel: polarity error (normal path) on the output board.
E301	E401	OUTPUT channel: polarity error (complement path) on the output board.
E302	E402	$\overline{\text{OUTPUT}}$ channel: polarity error (complement path) on the output board.
E303	E403	$\overline{\text{OUTPUT}}$ channel: polarity error (normal path) on the output board.
E304	E404	OUTPUT/ $\overline{\text{OUTPUT}}$ channel: polarity error on the transducer board.
E305	E405	OUTPUT/ $\overline{\text{OUTPUT}}$ channel: polarity error (complement path) on the transducer board.
E306	E406	Polarity error at the input to the transducer board.
E307	E407	Polarity error at the input to the transducer board.

Error Code	Configuration Error Message
E500	Dual Channel Instrument Each output board contains a transducer. The transducer is required in channel 1 and is not needed in channel 2.
E501	Dual Channel Instrument Neither output board has a transducer board.
E502	Single Channel Instrument The output board does not have a transducer board.
E504	The Instrument Contains a dual channel timing board but only one output board.

HP 8130A Parts Lists

Introduction

The parts lists are divided into two groups:

1. A parts list for the standard instrument, followed by a parts lists for each of the electrical assemblies within it.
2. A parts list for the two-channel instrument (Option 020) listing the additional/alternative parts fitted, followed by a parts list for each of the additional/alternative electrical assemblies.

The parts in each list are listed by reference designator.

Reference Designators

Reference designators are alphanumeric names for parts. Examples are given below.

1. A1 = electrical assembly number 1
2. MP1 = mechanical part number 1
3. A5R9 = resistor 9 on assembly 5

Parts Information

The following information is provided for each part in the parts list table:

1. Reference Designator
2. HP Part Number
3. CD = Check Digit
4. Description
5. Manufacturer's reference number. Table B-1 lists the manufacturers' names against their reference numbers.
6. Manufacturer's part number

Ordering Information

Parts are ordered from the nearest Hewlett-Packard Sales and Support Office.

A Sales and Support Office Directory is provided in Appendix A of this manual.

1. Provide the following information when ordering parts listed in the parts table.
 - a. Reference Designator
 - b. Hewlett-Packard part number
 - c. Check Digit
 - d. Quantity required.
2. Provide the following information when ordering parts not listed in the parts table.
 - a. Instrument model number
 - b. Instrument serial number
 - c. A physical description of the part
 - d. A functional description of the part
 - e. Quantity required.

Table B-1. HP 8130A Parts Manufacturers

Reference	Name	Reference	Name
00039	NEC ELECTRONICS INC	03285	ANALOG DEVICES INC
00046	UNITRODE CORP	03394	METHODE ELECTRONICS INC
00075	ARIZONA COIL INC	03406	NATIONAL SEMICONDUCTOR CORP
00359	O'HARA METAL PRODUCTS CO	03418	MOLEX INC
00493	UNITED CHEMI-CON INC		
		03647	INSTRUMENT SPECIALTIES CO INC
00746	ROHM CORP	03744	BOURNS INC
01074	HOLSWORTHY ELECTRONICS LTD	03799	HARRIS CORP
01125	LEWIS SCREW CO	03811	INTEL CORP
01339	GETTIG ENGRG & MFG CO INC	03981	PENN ENGINEERING & MFG CORP
01380	AMP INC		
		04129	ARIES ELECTRONICS INC
01417	NEL FREQUENCY CONTROLS INC	04147	FLUOROCARBON CO THE
01486	MABI CO THE	04200	SPRAGUE ELECTRIC CO
01542	HP DIV 01 SAN JOSE COMPONENTS	04225	THOMAS & BETTS CORP
01607	ALLEN-BRADLEY CO INC	04486	ITT CORP
01698	TEXAS INSTRUMENTS INC		
		04703	LITTELFUSE INC
01850	AROMAT CORP	04726	3M CO
02010	AVX CORP	04880	ZIERICK MFG CO
02037	MOTOROLA INC	04939	SCHNITZER ALLOY PRODUCTS CO
02062	HP DIV 65 MSD	05098	VICTORY ENGINEERING CORP
02121	LYN-TRON INC		
		05447	BERGQUIST CO
02170	AMATOM ELEK HARDWARE DIV OF MITE	05524	DALE ELECTRONICS INC
02414	BURNDY CORP	05610	CAMCAR SCREW & MFG CO
02419	CELLOTAPE INC	05769	ITT SEAELECTRO CORP
02483	CTS CORP	05879	AMPHENOL CORPORATION
02499	IRC INC		
		05947	ASSMANN F W UND SOEHNE
02531	CHICAGO RIVET & MACHINE CO	06113	HIPP ESSLINGEN
02608	THERMALLOY INC	06118	ROEDERSTEIN/RESISTA GMBH
02805	COOPER INDUSTRIES INC	06121	SIEMENS AG
02883	SILICONIX INC	06137	HANS KOLB WELLPAPPENWERKE
02910	SIGNETICS CORP		
		06313	WOELCO
02946	DUPONT E I DE NEMOURS & CO	06352	TDK CORPORATION OF AMERICA
02995	NORTH AMERICAN PHILIPS CORP	06354	TOSEIBA CORP
03000	AVDEL DIV OF NEWMAN IND LTD	06653	KLAR
03038	INTL RECTIFIER CORP	06665	SAMTEC
03232	PRODUCT COMPONENT CORP		
03273	GOWANDA ELECTRONICS CORP		

Table B-1. HP 8130A Parts Manufacturers (continued)

Reference	Name	Reference	Name
06691	HOUSE OF METRICS LTD	10385	WACKER GMBH
07029	R BLESSING	10572	XICOR, INC
08623	WOLFLE & CO	10803	ADVANCED INTERCONNECT
08674	FELLER AND NEUMAYER	10858	LINEAR TECHNOLOGY CORP
08709	PANASONIC INDUSTRIAL CO	11192	HEYCO MOLDED PRODUCTS GMBH
09538	TUSONIX	11808	KITAGAWA INDUSTRIES CO LTD
09809	MATSUSHITA ELECTRIC WORKS LTD	28480	HEWLETT PACKARD COMPANY
09922	SHIN-ETSU POLYMER CO LTD		
10194	PAP-O-PHAN		
10358	VOGT AG		

Standard Instrument Parts Lists

Master List

Table B-2. 8130A Standard Instrument Parts List

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A0 A1	08130-66501	3	1	BD AY KEY STD	28480	08130-66501
A0 A2	08131-66502	5	1	BD AY MOTHER	28480	08131-66502
A0 A3	08130-66503	5	1	BD AY UPCR	28480	08130-66503
A0 A4	08131-66504	7	1	BD AY PWR CTL	28480	08131-66504
A0 A5	08130-66505	7	1	BD AY TIMING STD	28480	08130-66505
A0 A14	08131-66514	9	1	BD AY PWR MAIN	28480	08131-66514
A0 A26	08130-66526	2	1	BD AY CHAN 1	28480	08130-66526
A0 F1	2110-0304	4	1	FUSE 1.5A 250V	02805	MDX-1-1/2A
A0 F1	2110-0029	0	1	FUSE 3A 250V	02805	
A0 MP1	08130-00101	1	1	CHASSIS MAIN	28480	08130-00101
A0 MP2	08131-00111	4	1	ANGLE PWR	28480	08131-00111
A0 MP3	08130-00202	3	1	SUB PANEL	28480	08130-00202
A0 MP4	08130-00203	4	1	REAR PANEL	28480	08130-00203
A0 MP5	08131-01212	8	1	BRKT FAN	28480	08131-01212
A0 MP6	08130-04101	9	1	CVR TOP CARD CAGE	28480	08130-04101
A0 MP7	08131-04102	1	1	CVR TOP CABINET	28480	08131-04102
A0 MP8	08131-04103	2	1	CVR TOP INSTRUMEN	28480	08131-04103
A0 MP9	08131-04107	6	2	BOARD-KEEPER	28480	08131-04107
A0 MP10	08131-04501	4	1	CARD CAGE	28480	08131-04501
A0 MP11	08131-05402	6	1	INSULATOR,BOTT	28480	08131-05402
A0 MP13	08130-40204	9	1	PANEL FRONT ST	28480	08130-40204
A0 MP14	08131-60110	9	1	CAGE AY PWR	28480	08131-60110
A0 MP15	08131-68502		1	FAN AY	28480	08131-68502
A0 MP16	08180-47401	2	1	KEY CAP	28480	08180-47401
A0 MP19	1460-1345	5	2	TILT STAND	00359	
A0 MP20	5001-0539	9	2	SIDE TRIM	28480	5001-0539
A0 MP21	5021-5804	3	1	FRAME REAR 132	28480	5021-5804
A0 MP22	5021-5837	2	4	STRUT CRNR 437	28480	5021-5837
A0 MP23	5021-8403	4	1	FRAME FRNT 132	28480	5021-8403
A0 MP24	5040-0478	7	2	SLEEVE-BLUE	28480	5040-0478
A0 MP25	5040-9319	3	1	SHAFT PWR SWITC	28480	5040-9319
A0 MP26	5041-8801	8	4	FOOT	28480	5041-8801

Table B-2. 8130A Standard Instrument Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A0 MP27	5041-8802	9	1	TRIM STRIP TOP	28480	5041-8802
A0 MP28	5041-8819	8	1	STP HNDL FRNT	28480	5041-8819
A0 MP29	5041-8820	1	1	STP HNDL REAR	28480	5041-8820
A0 MP30	5041-8821	2	4	FOOT REAR	28480	5041-8821
A0 MP31	5062-3704	4	1	STRAP HNDL 497	28480	5062-3704
A0 MP32	5062-3747	5	1	CVR BOTTOM 497	28480	5062-3747
A0 MP33	5062-3812	5	1	COVER SIDE PERF	28480	5062-3812
A0 MP34	5062-3837	4	1	COVER SIDE PERF	28480	5062-3837
A0 MP36	7120-6153	9	1	LABEL-WARNING	06653	
A0 MP37	0363-0125	0	2	RFI STRP-FINGERS	03647	97-555
A0 MP38	0363-0170	5	1	RFI STRP-FINGERS	03647	97-520-A
A0 MP39	8160-0392	1	1	RFI STRP-FINGERS	03647	97-500-SNPB
A0 MP100	08131-00602	8	1	SHIELD	28480	08131-00602
A0 MP210	08131-21104	9	1	H-SINK	28480	08131-21104
A0 MP214	0340-0433	5	1	INSUL-FLG-BSHG	03232	
A0 MP215	0340-1212	0	1	INSULATOR	28480	0340-1212
A0 S1	3101-2992	2	1	SW 4A/80A 250V	04486	
A0 T1	9100-4739	3	1	XFMR BV382149B	28480	9100-4739
A0 W1	5180-2462	9	1	CBL HP-IB	28480	5180-2462
A0 W3	08130-61604	7	1	CBL AY TRIG OUT	28480	08130-61604
A0 W5	08130-61605	8	1	CBL AY EXT INP	28480	08130-61605
A0 W10	08130-61603	6	1	CBL AY OUTPUT	28480	08130-61603
A0 W11	08130-61603	6	1	CBL AY OUTPUT	28480	08130-61603

Keyboard

Table B-3. 8130A Standard Keyboard Parts List

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A1	08130-66501	3	1	BD AY KEY STD	28480	08130-66501
A1 C2	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A1 C3	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A1 C4	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A1 CP1	0180-2207	5	1	CAP 100uF 10 V	04200	150D107X9010R2-DYS
A1 DS1	1990-1253	7	1	DISPLAY-NUM-SEG	01542	HDSP-H101
A1 DS2	1990-1253	7	1	DISPLAY-NUM-SEG	01542	HDSP-H101
A1 DS3	1990-1253	7	1	DISPLAY-NUM-SEG	01542	HDSP-H101
A1 DS4	1990-1253	7	1	DISPLAY-NUM-SEG	01542	HDSP-H101
A1 DS5	1990-1252	6	1	LED-LT BAR	01542	HLCP-B100
A1 DS6	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS7	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS8	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS10	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS11	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS12	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS13	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS14	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS15	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS16	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS17	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS18	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS19	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS21	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS22	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS24	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS27	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS28	1990-1278	6	1	LED-LMP	01542	HLMP-K155

Table B-3. 8130A Standard Keyboard Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A1 DS51	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS52	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS53	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS55	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS56	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS57	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS61	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS62	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS63	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS64	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS65	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS71	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS72	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS73	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS74	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS75	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS76	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS77	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS81	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS82	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS83	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS84	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 J1	1252-0217	7	1	CONN-POST-TP-HDR	04726	3429-5202
A1 MP1	5041-4707	5	8	QTR COBLK	28480	5041-4707
A1 MP2	5041-0318	6	5	LK CAP PTY GRAY	28480	5041-0318
A1 MP3	5041-0309	5	5	CAP KEY QUARTER	28480	5041-0309
A1 MP4	5041-0507	5	1	QTR WGRN	28480	5041-0507
A1 MP5	5041-0726	0	1	KEY CAP LCL	28480	5041-0726
A1 MP6	1200-0654	7	1	SKT-IC 40-CONT	01380	2-641606-1
A1 MP7	1200-0899	2	1	SKT-STRP 8-CONT	04129	8-0511-10

Table B-3. 8130A Standard Keyboard Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A1 RA1	1810-0325	2	1	NETWORK-RES DIP	02483	761-3-R150
A1 RA2	1810-0338	7	1	NETWORK-RES DIP	02483	761-3-R100
A1 RA3	1810-0338	7	1	NETWORK-RES DIP	02483	761-3-R100
A1 RA4	1810-0275	1	1	NETWORK-RES SIP	02483	750-101
A1 RA5	1810-0275	1	1	NETWORK-RES SIP	02483	750-101
A1 S1	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S2	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S3	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S4	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S5	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S6	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S7	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S8	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S20	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S21	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S22	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S23	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S24	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S25	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S26	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S27	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S28	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S29	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S41	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S42	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S43	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S44	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S45	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S46	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S47	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436

Table B-3. 8130A Standard Keyboard Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A1 S48	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S51	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S52	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S53	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S54	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 U1	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A1 U2	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A1 U3	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A1 U4	1820-3456	7	1	IC-MM74HCT244N	01698	SN74HCT244N
A1 U5	1820-3456	7	1	IC-MM74HCT244N	01698	SN74HCT244N
A1 U6	1858-0014	6	1	XSTR ARY 14P-DIP	02037	
A1 U7	1858-0014	6	1	XSTR ARY 14P-DIP	02037	
A1 U8	1858-0014	6	1	XSTR ARY 14P-DIP	02037	
A1 U9	1858-0014	6	1	XSTR ARY 14P-DIP	02037	

Motherboard

Table B-4. 8130A Motherboard Parts List

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A2	08131-66502	5	1	BD AY MOTHER	28480	08131-66502
A2 J1	1251-8320	7	1	CONN-POST-TP-SKT	04225	FC064-031-2
A2 J2	1251-8320	7	1	CONN-POST-TP-SKT	04225	FC064-031-2
A2 J3	1251-8320	7	1	CONN-POST-TP-SKT	04225	FC064-031-2
A2 J4	1251-8320	7	1	CONN-POST-TP-SKT	04225	FC064-031-2
A2 J5	1251-8320	7	1	CONN-POST-TP-SKT	04225	FC064-031-2
A2 J6	1252-0027	7	1	CONN-POST-TP-SKT	05879	706-C143-CO96F-23A-204
A2 MP11	8160-0392	1		RFI STRP-FINGERS	03647	97-500-SNPB
A2 MP12	8160-0392	1		RFI STRP-FINGERS	03647	97-500-SNPB
A2 MP13	8160-0392	1		RFI STRP-FINGERS	03647	97-500-SNPB
A2 MP14	8160-0392	1		RFI STRP-FINGERS	03647	97-500-SNPB
A2 U1	1826-0760	2	1	IC 335	03406	LM335AZ
A2 W1	08131-61601	5	1	CBL CONN KEY	28480	08131-61601

Microprocessor Board

Table B-5. 8130A Microprocessorboard Parts List

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A3	08130-66503	5	1	BD AY-UPCR	28480	08130-66503
A3 BT100	1420-0273	2	1	BAT 3V	08709	BR-2/3AT2P
A3 C3	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A3 C4	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A3 C100	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C101	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C102	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C103	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C104	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C105	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C106	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C107	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C202	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C203	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C204	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C205	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C301	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C302	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C303	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C304	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C400	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C401	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C402	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C404	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C406	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C408	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH

Table B-5. 8130A Microprocessorboard Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A3 C409	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C410	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C500	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C501	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C504	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C505	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C506	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 CP1	0180-2207	5	1	CAP 100uF 10 V	04200	150D107X9010R2-DYS
A3 CP2	0180-2207	5	1	CAP 100uF 10 V	04200	150D107X9010R2-DYS
A3 CR200	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A3 CR400	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A3 CR401	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A3 DS100	1990-0485	5	1	LED-LMP	01542	HLMP-1503
A3 J1	1251-8324	1	1	CONN-POST-TP-HDR	04486	G06M96P4BEBL-004-715
A3 J2	1252-1979	0	1	CONN-POST-TP-HDR	04726	3627-5202
A3 J400	1251-4682	6	1	CONN-POST-TP-HDR	03394	1102-1-103-02
A3 J501	1251-7745	8	1	CONN-POST-TP-HDR	03418	22-12-2024
A3 L1	9100-3139	5	1	L 75UH +-15%	00075	
A3 MP5	1200-0654	7	1	SKT-IC 40-CONT	01380	2-641606-1
A3 MP6	1200-0654	7	1	SKT-IC 40-CONT	01380	2-641606-1
A3 MP7	1200-0654	7	1	SKT-IC 40-CONT	01380	2-641606-1
A3 MP8	1200-0567	1	1	SKT-IC 28-CONT	01380	2-641605-1
A3 MP9	1200-0567	1	1	SKT-IC 28-CONT	01380	2-641605-1
A3 MP10	1400-0824	7	1	STRAP-CABLE	04225	TY-23M
A3 Q100	1854-0583	6	1	XSTR NPN SI	02037	MPS-A18
A3 Q200	1853-0281	9	1	XSTR PNP 2N2907A	02037	2N2907A
A3 R100	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A3 R101	0698-3161	9	1	RES 38.3K 1% .12	00746	CRB14 OR CRB25
A3 R102	0757-0407	6	1	RES 200 1% .125W	00746	CRB14 OR CRB25
A3 R200	0698-3156	2	1	RES 14.7K 1% .12	00746	CRB14 OR CRB25

Table B-5. 8130A Microprocessorboard Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A3 R201	0757-0419	0	1	RES 681 1% .125W	00746	CRB14 OR CRB25
A3 R202	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A3 R203	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A3 R204	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A3 R206	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A3 R400	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A3 R401	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A3 R500	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A3 RA100	1810-0243	3	1	NETWORK-RES DIP	02483	761-3-R6.8K
A3 RA101	1810-0503	8	1	NETWORK-RES DIP	02483	761-3-R3.3K
A3 RA200	1810-0316	1	1	NETWORK-RES DIP	02483	761-3-R10K
A3 RA201	1810-0316	1	1	NETWORK-RES DIP	02483	761-3-R10K
A3 RA300	1810-0316	1	1	NETWORK-RES DIP	02483	761-3-R10K
A3 RA301	1810-0316	1	1	NETWORK-RES DIP	02483	761-3-R10K
A3 RA400	1810-0470	8	1	NETWORK-RES DIP	02483	761-3-R2.2K
A3 RA401	1810-0316	1	1	NETWORK-RES DIP	02483	761-3-R10K
A3 U100	1820-3456	7	1	IC-MM74HCT244N	01698	SN74HCT244N
A3 U101	1820-2698	7	1	IC-74F240PC	02910	74F240N
A3 U102	1820-2150	6	1	IC-8279-5	03811	D8279-5
A3 U103	1820-2861	6	1	IC-74F138PC	01698	SN74F138N
A3 U104	1820-2701	3	1	IC-74F374PC	01698	SN74F374N
A3 U105	1820-2795	5	1	IC-74F244PC	01698	SN74F244N
A3 U106	1820-3294	1	1	IC-SN74ALS374N	01698	SN74ALS374N
A3 U107	1820-3294	1	1	IC-SN74ALS374N	01698	SN74ALS374N
A3 U202	1818-3760	1	1	IC TC5564APL-15	06354	TC5564APL-15
A3 U203	1818-3760	1	1	IC TC5564APL-15	06354	TC5564APL-15
A3 U204	08130-13701	4	1	EPROM 1	28480	08130-13701
A3 U205	08130-13702	5	1	EPROM 2	28480	08130-13702
A3 U206	1858-0053	3	1	XSTR ARY 14P-DIP	02037	
A3 U207	1820-2506	6	1	IC-74F04PC	01698	SN74F04N

Table B-5. 8130A Microprocessorboard Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A3 U208	1820-2656	7	1	IC-SN74ALS00AN	01698	SN74ALS00AN
A3 U300	1820-3629	6	1	IC-MM74HCT04N	03406	MM74HCT04N
A3 U301	1820-3173	5	1	IC-MM74HC112N	02037	MC74HC112N
A3 U302	1820-2775	1	1	IC-SN74ALS10AN	01698	SN74ALS10AN
A3 U303	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A3 U304	1820-3796	8	1	IC-MM74HCT139N	02910	74HCT139N
A3 U305	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A3 U306	1820-5111	5	1	IC-74HCT21N	02910	74HCT21N
A3 U400	1820-3183	7	1	IC-MC74HC03N	02037	MC74HC03N
A3 U401	1820-3848	1	1	IC-MM74HCT374N	01698	SN74HCT374N
A3 U402	1820-4086	1	1	IC-74HCT273N	02910	74HCT273N
A3 U403	1820-3505	7	1	IC-SN74ALS191N	01698	SN74ALS191N
A3 U404	1820-4086	1	1	IC-74HCT273N	02910	74HCT273N
A3 U405	1820-2690	9	1	IC-74F32PC	01698	SN74F32N
A3 U406	1820-3665	0	1	IC-MM74HCT245N	01698	SN74HCT245N
A3 U407	1820-3940	4	1	IC-CD74HCT174E	03799	CD74HCT174E
A3 U408	1820-2854	7	1	IC-68B09ES	02037	MC68B09ES
A3 U409	1820-3940	4	1	IC-CD74HCT174E	03799	CD74HCT174E
A3 U410	1820-3940	4	1	IC-CD74HCT174E	03799	CD74HCT174E
A3 U500	1820-3348	6	1	IC-74F163APC	02910	74F163AN
A3 U501	1820-2694	3	1	IC-74F112PC	01698	SN74F112N
A3 U502	1820-2686	3	1	IC-74F08PC	01698	SN74F08
A3 U503	1820-3664	9	1	IC-MM74HCT00N	02910	74HCT00N
A3 U504	1820-2548	6	1	IC-9914	01698	
A3 U505	1820-3431	8	1	IC-INTERFACE	03406	DS75160AN
A3 U506	1820-3518	2	1	IC-INTERFACE	03406	DS75162AN
A3 W1	1258-0141	8	1	JUMPER-REM	01380	530153-2
A3 Y500	1813-0285	9	1	CLK-OSC-XTAL	01417	HS-100-20MHZ

Power Control Board

Table B-6. 8130A Power Control Board Parts List

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A4	08131-66504	7	1	BD AY PWR CTL	28480	08131-66504
A4 C2	0160-4822	2	1	CAP 1000pF 100 V	02010	SA201A102JAAH
A4 C5	0160-4822	2	1	CAP 1000pF 100 V	02010	SA201A102JAAH
A4 C6	0160-4822	2	1	CAP 1000pF 100 V	02010	SA201A102JAAH
A4 C8	0160-4822	2	1	CAP 1000pF 100 V	02010	SA201A102JAAH
A4 C10	0160-4822	2	1	CAP 1000pF 100 V	02010	SA201A102JAAH
A4 C12	0160-4822	2	1	CAP 1000pF 100 V	02010	SA201A102JAAH
A4 C14	0160-4822	2	1	CAP 1000pF 100 V	02010	SA201A102JAAH
A4 CP1	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A4 CP4	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A4 CP7	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A4 CP9	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A4 CP11	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A4 CP13	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A4 CP15	0180-0116	1	1	CAP 6.8uF 35 V	04200	150D685X9035B2-DYS
A4 CP16	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A4 CP17	0180-2690	0	1	CAP 3.3uF 15 V	04200	150D335X9015A2
A4 CP18	0180-2690	0	1	CAP 3.3uF 15 V	04200	150D335X9015A2
A4 CR1	1901-1098	1	1	DIO-1N4150	00746	
A4 CR2	1901-1098	1	1	DIO-1N4150	00746	
A4 CR3	1901-1098	1	1	DIO-1N4150	00746	
A4 CR4	1901-1098	1	1	DIO-1N4150	00746	
A4 CR5	1901-1098	1	1	DIO-1N4150	00746	
A4 CR6	1901-1098	1	1	DIO-1N4150	00746	
A4 CR7	1901-1098	1	1	DIO-1N4150	00746	
A4 CR8	1901-1098	1	1	DIO-1N4150	00746	
A4 CR9	1901-1098	1	1	DIO-1N4150	00746	
A4 CR10	1901-1098	1	1	DIO-1N4150	00746	

Table B-6. 8130A Power Control Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A4 CR11	1901-1098	1	1	DIO-1N4150	00746	
A4 CR12	1901-1098	1	1	DIO-1N4150	00746	
A4 CR13	1901-1098	1	1	DIO-1N4150	00746	
A4 CR14	1901-1098	1	1	DIO-1N4150	00746	
A4 CR15	1901-1098	1	1	DIO-1N4150	00746	
A4 CR16	1901-1098	1	1	DIO-1N4150	00746	
A4 CR17	1901-1098	1	1	DIO-1N4150	00746	
A4 CR18	1901-1098	1	1	DIO-1N4150	00746	
A4 CR19	1901-1098	1	1	DIO-1N4150	00746	
A4 CR20	1901-1098	1	1	DIO-1N4150	00746	
A4 J2	1252-1506	9	1	CONN-POST-TP-SKT	01380	1-166592-0
A4 J3	1252-1506	9	1	CONN-POST-TP-SKT	01380	1-166592-0
A4 Q1	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A4 Q2	1854-0583	6	1	XSTR NPN SI	02037	MPS-A18
A4 Q4	1854-0583	6	1	XSTR NPN SI	02037	MPS-A18
A4 Q5	1854-0583	6	1	XSTR NPN SI	02037	MPS-A18
A4 Q6	1854-0583	6	1	XSTR NPN SI	02037	MPS-A18
A4 Q7	1853-0569	6	1	XSTR PNP SI	02037	
A4 Q8	1853-0569	6	1	XSTR PNP SI	02037	
A4 Q9	1853-0569	6	1	XSTR PNP SI	02037	
A4 Q10	1853-0569	6	1	XSTR PNP SI	02037	
A4 Q11	1853-0569	6	1	XSTR PNP SI	02037	
A4 Q12	1853-0569	6	1	XSTR PNP SI	02037	
A4 Q13	1853-0569	6	1	XSTR PNP SI	02037	
A4 Q14	1853-0569	6	1	XSTR PNP SI	02037	
A4 Q15	1854-0637	1	1	XSTR NPN 2N2219A	02037	2N2219A
A4 Q16	1854-0583	6	1	XSTR NPN SI	02037	MPS-A18
A4 Q17	1853-0569	6	1	XSTR PNP SI	02037	
A4 Q18	1853-0569	6	1	XSTR PNP SI	02037	
A4 Q20	1853-0569	6	1	XSTR PNP SI	02037	

Table B-6. 8130A Power Control Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A4 R1	0757-0278	9	1	RES 1.78K 1% .12	00746	CRB14 OR CRB25
A4 R2	0698-3160	8	1	RES 31.6K 1% .12	00746	CRB14 OR CRB25
A4 R3	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A4 R4	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A4 R5	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A4 R6	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A4 R7	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A4 R8	0757-0472	5	1	RES 200K 1% .125	00746	CRB14 OR CRB25
A4 R9	0698-6620	1	1	RES 150K .1% .12	00746	CRB14 OR CRB25
A4 R10	0698-6353	7	1	RES 50K .1% .125	00746	CRB14 OR CRB25
A4 R11	0698-4483	0	1	RES 18.7K 1% .12	00746	CRB14 OR CRB25
A4 R12	0757-0472	5	1	RES 200K 1% .125	00746	CRB14 OR CRB25
A4 R13	0757-0444	1	1	RES 12.1K 1% .12	00746	CRB14 OR CRB25
A4 R14	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A4 R15	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A4 R16	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A4 R17	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A4 R18	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A4 R19	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A4 R20	0698-4425	0	1	RES 1.54K 1% .12	00746	CRB14 OR CRB25
A4 R21	0757-0472	5	1	RES 200K 1% .125	00746	CRB14 OR CRB25
A4 R22	0757-0465	6	1	RES 100K 1% .125	00746	CRB14 OR CRB25
A4 R23	0699-0844	1	1	RES 51.1K .1% .1	00746	CRB14 OR CRB25
A4 R24	0698-6353	7	1	RES 50K .1% .125	00746	CRB14 OR CRB25
A4 R25	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A4 R26	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A4 R27	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A4 R28	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A4 R29	0757-0472	5	1	RES 200K 1% .125	00746	CRB14 OR CRB25
A4 R30	0698-4435	2	1	RES 2.49K 1% .12	00746	CRB14 OR CRB25

Table B-6. 8130A Power Control Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A4 R31	0757-0465	6	1	RES 100K 1% .125	00746	CRB14 OR CRB25
A4 R32	0698-6353	7	1	RES 50K .1% .125	00746	CRB14 OR CRB25
A4 R33	0699-0721	3	1	RES 33K .1% .125	00746	CRB14 OR CRB25
A4 R34	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A4 R35	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A4 R36	0757-0444	1	1	RES 12.1K 1% .12	00746	CRB14 OR CRB25
A4 R37	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A4 R38	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A4 R39	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A4 R40	0757-0472	5	1	RES 200K 1% .125	00746	CRB14 OR CRB25
A4 R41	0757-0422	5	1	RES 909 1% .125W	00746	CRB14 OR CRB25
A4 R42	0757-0465	6	1	RES 100K 1% .125	00746	CRB14 OR CRB25
A4 R43	0698-6353	7	1	RES 50K .1% .125	00746	CRB14 OR CRB25
A4 R44	0699-0844	1	1	RES 51.1K .1% .1	00746	CRB14 OR CRB25
A4 R45	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A4 R46	0698-3160	8	1	RES 31.6K 1% .12	00746	CRB14 OR CRB25
A4 R47	0757-0421	4	1	RES 825 1% .125W	00746	CRB14 OR CRB25
A4 R48	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A4 R49	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A4 R50	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A4 R51	0757-0472	5	1	RES 200K 1% .125	00746	CRB14 OR CRB25
A4 R52	0757-0274	5	1	RES 1.21K 1% .12	00746	CRB14 OR CRB25
A4 R53	0698-6353	7	1	RES 50K .1% .125	00746	CRB14 OR CRB25
A4 R54	0698-6620	1	1	RES 150K .1% .12	00746	CRB14 OR CRB25
A4 R55	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A4 R56	0698-3161	9	1	RES 38.3K 1% .12	00746	CRB14 OR CRB25
A4 R57	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A4 R58	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A4 R59	0698-3156	2	1	RES 14.7K 1% .12	00746	CRB14 OR CRB25
A4 R60	0757-0441	8	1	RES 8.25K 1% .12	00746	CRB14 OR CRB25

Table B-6. 8130A Power Control Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A4 R61	0757-0472	5	1	RES 200K 1% .125	00746	CRB14 OR CRB25
A4 R62	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A4 R63	0698-6353	7	1	RES 50K .1% .125	00746	CRB14 OR CRB25
A4 R64	0698-6376	4	1	RES 200K .1% .12	00746	CRB14 OR CRB25
A4 R65	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A4 R66	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A4 R67	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A4 R68	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A4 R69	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A4 R70	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A4 R71	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A4 R72	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A4 R73	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A4 TP1	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A4 TP2	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A4 TP3	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A4 TP4	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A4 TP5	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A4 U1	1826-0346	0	1	IC 358	03406	LM358N
A4 U2	1826-0346	0	1	IC 358	03406	LM358N
A4 U3	1826-0346	0	1	IC 358	03406	LM358N
A4 U4	1826-0346	0	1	IC 358	03406	LM358N
A4 U5	1826-0346	0	1	IC 358	03406	LM358N
A4 U6	1826-0346	0	1	IC 358	03406	LM358N
A4 U7	1826-0718	0	1	IC MC1404U5	02037	MC1404U5
A4 U8	1826-0161	7	1	IC 324	02037	LM324N
A4 VR1	1902-0964	0	1	DIO-ZNR 18V 5%	02037	
A4 VR2	1902-0955	9	1	DIO-ZNR 7.5V 5%	02037	

Timing Board

Table B-7. 8130A Standard Timing Board Parts List

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5	08130-66505	7	1	BD AY TIMING STD	28480	08130-66505
A5 C101	0160-5750	7	1	CAP 2200pF 100 V	06121	B37981-J1222-M034
A5 C103	0160-5750	7	1	CAP 2200pF 100 V	06121	B37981-J1222-M034
A5 C105	0160-5750	7	1	CAP 2200pF 100 V	06121	B37981-J1222-M034
A5 C107	0160-5750	7	1	CAP 2200pF 100 V	06121	B37981-J1222-M034
A5 C109	0160-5750	7	1	CAP 2200pF 100 V	06121	B37981-J1222-M034
A5 C110	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C111	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C112	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C113	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C117	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C121	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C122	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C126	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C127	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C131	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C140	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C141	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C142	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C181	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C202	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C203	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C204	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C205	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C206	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH

Table B-7. 8130A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 C207	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C208	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C209	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C210	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C220	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C221	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C222	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C223	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C224	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C300	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C301	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C303	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C304	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C305	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C306	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C307	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C308	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C309	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C310	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C311	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C312	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C313	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C314	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C315	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C317	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C318	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C320	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C321	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C322	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C324	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH

Table B-7. 8130A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 C325	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C327	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C328	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C330	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C331	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C333	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C335	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C336	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C340	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C341	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C342	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C343	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C350	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C360	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C363	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C399	0160-5741	6	1	CAP 47pF 100 V	06121	B37979-J1470-J034
A5 C400	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C401	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C403	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C404	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C405	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C406	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C411	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C412	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C413	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C414	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C415	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C417	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C418	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C420	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH

Table B-7. 8130A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 C421	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C422	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C424	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C425	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C427	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C428	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C430	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C431	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C433	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C435	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C436	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C440	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C441	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C442	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C443	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C450	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C460	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C465	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C470	0160-3872	0	1	CAP 2.2pF 200 V	06352	FD12C0G2D2R2C
A5 C471	0160-3872	0	1	CAP 2.2pF 200 V	06352	FD12C0G2D2R2C
A5 C500	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C501	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C503	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C504	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C505	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C506	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C511	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C512	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C513	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C514	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH

Table B-7. 8130A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 C515	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C517	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C518	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C520	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C521	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C522	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C524	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C525	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C527	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C528	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C530	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C531	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C533	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C535	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C536	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C540	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C541	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C542	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C543	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C550	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C560	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C565	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C570	0160-3872	0	1	CAP 2.2pF 200 V	06352	FD12C0G2D2R2C
A5 C571	0160-3872	0	1	CAP 2.2pF 200 V	06352	FD12C0G2D2R2C
A5 CP100	0180-1974	1	1	CAP 10uF 35 V	04200	150D106X9035R2-DYS
A5 CP102	0180-0229	7	1	CAP 33uF 10 V	04200	150D336X9010B2-DYS
A5 CP104	0180-0229	7	1	CAP 33uF 10 V	04200	150D336X9010B2-DYS
A5 CP106	0180-0229	7	1	CAP 33uF 10 V	04200	150D336X9010B2-DYS
A5 CP108	0180-1974	1	1	CAP 10uF 35 V	04200	150D106X9035R2-DYS
A5 CP180	0180-0229	7	1	CAP 33uF 10 V	04200	150D336X9010B2-DYS

Table B-7. 8130A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 CP200	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A5 CP201	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A5 CR102	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A5 CR103	1901-0734	0	1	DIO-1N5818	02037	1N5818
A5 CR310	1901-1098	1	1	DIO-1N4150	00746	
A5 CR311	1901-1098	1	1	DIO-1N4150	00746	
A5 CR312	1901-1098	1	1	DIO-1N4150	00746	
A5 CR313	1901-1098	1	1	DIO-1N4150	00746	
A5 CR314	1901-1098	1	1	DIO-1N4150	00746	
A5 CR315	1901-1098	1	1	DIO-1N4150	00746	
A5 CR410	1901-1098	1	1	DIO-1N4150	00746	
A5 CR411	1901-1098	1	1	DIO-1N4150	00746	
A5 CR412	1901-1098	1	1	DIO-1N4150	00746	
A5 CR413	1901-1098	1	1	DIO-1N4150	00746	
A5 CR414	1901-1098	1	1	DIO-1N4150	00746	
A5 CR415	1901-1098	1	1	DIO-1N4150	00746	
A5 CR416	1901-0731	7	1	DIO-PWR RECT	02037	SR3010-3RL
A5 CR510	1901-1098	1	1	DIO-1N4150	00746	
A5 CR511	1901-1098	1	1	DIO-1N4150	00746	
A5 CR512	1901-1098	1	1	DIO-1N4150	00746	
A5 CR513	1901-1098	1	1	DIO-1N4150	00746	
A5 CR514	1901-1098	1	1	DIO-1N4150	00746	
A5 CR515	1901-1098	1	1	DIO-1N4150	00746	
A5 J100	1251-8324	1	1	CONN-POST-TP-HDR	04486	G06M96P4BEBL-004-715
A5 J101	1251-5380	3	1	CONN-POST-TP-HDR	02946	68000-602
A5 J102	1251-5380	3	1	CONN-POST-TP-HDR	02946	68000-602
A5 J200	1250-0543	8	1	CONN-RF SM-SNP	05769	51-053-0349-BE8
A5 J400	1251-5380	3	1	CONN-POST-TP-HDR	02946	68000-602
A5 K400	0490-1667	6	1	RLY 2C 12VDC	09809	RG2T-12V
A5 L100	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B

Table B-7. 8130A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A5 L101	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A5 L102	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A5 L103	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A5 L104	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A5 L110	9100-2891	4	1	L 50NH +10%	03273	10M050K-1
A5 L111	9100-2891	4	1	L 50NH +10%	03273	10M050K-1
A5 L112	9100-2891	4	1	L 50NH +10%	03273	10M050K-1
A5 L300	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A5 L400	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A5 L400	9100-2891	4		L 50NH +10%	03273	10M050K-1
A5 L500	9100-2891	4	1	L 50NH +10%	03273	10M050K-1
A5 MP130	1400-1437	0	3	CLAMP-CABLE	11808	
A5 MP134	1400-0082	9	2	CLMP-CA	02414	HP-2N
A5 MP136	3050-0891	7	2	WASHER-FL MTLC 3	06691	
A5 MP201	54100-29104	5	1	SPRING	28480	54100-29104
A5 MP202	54100-29101	2	1	CLAMP	28480	54100-29101
A5 MP209	54100-21103	8	1	SPRING	28480	54100-21103
A5 MP214	0340-0433	5	1	INSUL-FLG-BSHG	03232	
A5 MP215	0340-1212	0	1	INSULATOR	28480	0340-1212
A5 MP230	0380-1731	2	4	SPCR-PRS-IN	03981	YC3-4564
A5 MP240	0515-0659	8	4	SCR-MACHINE	05610	
A5 MP300	1200-1468	3	1	SOCKET RGA72 CN	10803	1KS072-33TT
A5 MP301	1200-1410	5	1	SOCKET PGA 72PI	10803	1KS072-33TG
A5 MP400	1200-1468	3	1	SOCKET RGA72 CN	10803	1KS072-33TT
A5 MP401	1200-1410	5	1	SOCKET PGA 72PI	10803	1KS072-33TG
A5 MP500	1200-1468	3	1	SOCKET RGA72 CN	10803	1KS072-33TT
A5 MP501	1200-1410	5	1	SOCKET PGA 72PI	10803	1KS072-33TG
A5 Q200	1853-0563	0	1	XSTR PNP SI	02037	2N3906(SEL)
A5 Q310	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A5 Q312	1855-0309	6	1	MOSFET 2N4352 P-	02037	2N4352

Table B-7. 8130A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 Q313	1855-0309	6	1	MOSFET 2N4352 P-	02037	2N4352
A5 Q314	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q315	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q316	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q317	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q318	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q319	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q410	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A5 Q412	1855-0309	6	1	MOSFET 2N4352 P-	02037	2N4352
A5 Q413	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q414	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q415	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q416	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q417	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q418	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q419	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q480	1854-0472	2	1	XSTR NPN SI DARL	02037	MPS-A14
A5 Q510	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A5 Q512	1855-0309	6	1	MOSFET 2N4352 P-	02037	2N4352
A5 Q513	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q514	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q515	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q516	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q517	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q518	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q519	1853-0569	6	1	XSTR PNP SI	02037	
A5 R100	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R200	0699-1206	1	1	RES 127 1% 2W MO	02499	GS-3
A5 R201	0699-1206	1	1	RES 127 1% 2W MO	02499	GS-3
A5 R202	0698-4855	0	1	RES 267 1% .5W T	01074	H2

Table B-7. 8130A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R204	0698-7205	0	1	RES 51.1 1% .05W	00746	CRB20
A5 R205	0757-0180	2	1	RES 31.6 1% .125	00746	CRB14 OR CRB25
A5 R206	0698-3162	0	1	RES 46.4K 1% .12	00746	CRB14 OR CRB25
A5 R208	0698-6347	9	1	RES 1.5K 1% .12	00746	CRB14 OR CRB25
A5 R209	0757-1094	9	1	RES 1.47K 1% .12	00746	CRB14 OR CRB25
A5 R210	0698-6963	5	1	RES 5.55K 1% .1	00746	CRB14 OR CRB25
A5 R211	0698-6963	5	1	RES 5.55K 1% .1	00746	CRB14 OR CRB25
A5 R212	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R220	0757-0421	4	1	RES 825 1% .125W	00746	CRB14 OR CRB25
A5 R221	0698-3132	4	1	RES 261 1% .125W	00746	CRB14 OR CRB25
A5 R300	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R301	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R302	0698-4425	0	1	RES 1.54K 1% .12	00746	CRB14 OR CRB25
A5 R303	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R304	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R305	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R306	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R307	0698-3132	4	1	RES 261 1% .125W	00746	CRB14 OR CRB25
A5 R309	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R310	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R311	0698-6360	6	1	RES 10K 1% .125	00746	CRB14 OR CRB25
A5 R312	0699-1100	4	1	RES 6.984K 1% .	01074	H8
A5 R313	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A5 R314	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R315	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R319	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R320	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R321	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R322	0757-0317	7	1	RES 1.33K 1% .12	00746	CRB14 OR CRB25
A5 R323	0698-3154	0	1	RES 4.22K 1% .12	00746	CRB14 OR CRB25

Table B-7. 8130A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A5 R324	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R325	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R326	0757-0419	0	1	RES 681 1% .125W	00746	CRB14 OR CRB25
A5 R327	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R328	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R329	0757-0419	0	1	RES 681 1% .125W	00746	CRB14 OR CRB25
A5 R330	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R331	0698-6348	0	1	RES 3K .1% .125W	00746	CRB14 OR CRB25
A5 R333	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R334	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R335	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R336	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R337	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R338	0757-0349	5	1	RES 22.6K 1% .12	00746	CRB14 OR CRB25
A5 R339	0757-0477	0	1	RES 332K 1% .125	00746	CRB14 OR CRB25
A5 R340	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R341	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A5 R342	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R343	0698-3158	4	1	RES 23.7K 1% .12	00746	CRB14 OR CRB25
A5 R344	0698-3268	7	1	RES 11.5K 1% .12	00746	CRB14 OR CRB25
A5 R345	0698-3136	8	1	RES 17.8K 1% .12	00746	CRB14 OR CRB25
A5 R346	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R347	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R348	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R350	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R351	0698-3460	1	1	RES 422K 1% .125	00746	CRB14 OR CRB25
A5 R362	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R367	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A5 R370	0698-3161	9	1	RES 38.3K 1% .12	00746	CRB14 OR CRB25
A5 R371	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25

Table B-7. 8130A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R373	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R375	0698-3159	5	1	RES 26.1K 1% .12	00746	CRB14 OR CRB25
A5 R376	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R377	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R378	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R379	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R381	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R390	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R391	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R392	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R394	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R396	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R400	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R401	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R402	0698-4425	0	1	RES 1.54K 1% .12	00746	CRB14 OR CRB25
A5 R403	0698-4422	7	1	RES 1.27K 1% .12	00746	CRB14 OR CRB25
A5 R404	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R405	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R406	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R409	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R410	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R411	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A5 R412	0699-1011	6	1	RES 3.32K .1% .1	00746	CRB14 OR CRB25
A5 R413	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A5 R414	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R415	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R419	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R420	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R421	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R422	0757-0424	7	1	RES 1.1K 1% .125	00746	CRB14 OR CRB25

Table B-7. 8130A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R423	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R424	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R425	0757-0278	9	1	RES 1.78K 1% .12	00746	CRB14 OR CRB25
A5 R426	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R427	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R428	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R429	0757-0419	0	1	RES 681 1% .125W	00746	CRB14 OR CRB25
A5 R430	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R431	0698-6348	0	1	RES 3K .1% .125W	00746	CRB14 OR CRB25
A5 R433	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R434	0698-6616	5	1	RES 750 .1% .125	00746	CRB14 OR CRB25
A5 R435	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R436	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R437	0698-6616	5	1	RES 750 .1% .125	00746	CRB14 OR CRB25
A5 R438	0757-0465	6		RES 100K 1% .125	00746	CRB14 OR CRB25
A5 R438*	0757-0463	4	1	RES 82.5K 1% .12	00746	CRB14 OR CRB25
A5 R440	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R441	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A5 R442	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R443	0757-0462	3	1	RES 75K 1% .125W	00746	CRB14 OR CRB25
A5 R444	0698-3268	7	1	RES 11.5K 1% .12	00746	CRB14 OR CRB25
A5 R445	0698-3136	8	1	RES 17.8K 1% .12	00746	CRB14 OR CRB25
A5 R446	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R447	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R448	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R450	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R453	0757-0462	3		RES 75K 1% .125W	00746	CRB14 OR CRB25
A5 R453*	0698-3243	8	1	RES 178K 1% .125	00746	CRB14 OR CRB25
A5 R460	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R461	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25

Table B-7. 8130A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A5 R462	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R467	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A5 R470	0698-3158	4	1	RES 23.7K 1% .12	00746	CRB14 OR CRB25
A5 R471	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R473	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R475	0698-3159	5	1	RES 26.1K 1% .12	00746	CRB14 OR CRB25
A5 R476	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R477	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R479	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R480	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R481	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R486	0757-0465	6	1	RES 100K 1% .125	00746	CRB14 OR CRB25
A5 R490	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R491	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R492	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R494	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R496	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R501	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R502	0698-4425	0	1	RES 1.54K 1% .12	00746	CRB14 OR CRB25
A5 R503	0757-0422	5	1	RES 909 1% .125W	00746	CRB14 OR CRB25
A5 R504	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R505	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R506	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R509	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R510	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R511	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A5 R512	0699-1011	6	1	RES 3.32K .1% .1	00746	CRB14 OR CRB25
A5 R513	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A5 R514	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R515	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25

Table B-7. 8130A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R519	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R520	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R521	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R522	0757-0317	7	1	RES 1.33K 1% .12	00746	CRB14 OR CRB25
A5 R523	0698-0084	9	1	RES 2.15K 1% .12	00746	CRB14 OR CRB25
A5 R524	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R525	0757-0278	9	1	RES 1.78K 1% .12	00746	CRB14 OR CRB25
A5 R526	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R527	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R528	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R529	0757-0419	0	1	RES 681 1% .125W	00746	CRB14 OR CRB25
A5 R530	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R531	0698-6348	0	1	RES 3K .1% .125W	00746	CRB14 OR CRB25
A5 R533	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R534	0698-6616	5	1	RES 750 .1% .125	00746	CRB14 OR CRB25
A5 R535	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R536	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R537	0698-6616	5	1	RES 750 .1% .125	00746	CRB14 OR CRB25
A5 R538	0757-0978	6	1	RES 95.3K 1% .12	00746	CRB14 OR CRB25
A5 R539	0698-3260	9	1	RES 464K 1% .125	00746	CRB14 OR CRB25
A5 R540	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R541	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A5 R542	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R543	0757-0464	5	1	RES 90.9K 1% .12	00746	CRB14 OR CRB25
A5 R544	0698-3268	7	1	RES 11.5K 1% .12	00746	CRB14 OR CRB25
A5 R545	0698-3136	8	1	RES 17.8K 1% .12	00746	CRB14 OR CRB25
A5 R546	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R547	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R548	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R550	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25

Table B-7. 8130A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R551	0698-8961	7	1	RES 909K 1% .125	00746	CRB14 OR CRB25
A5 R560	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R567	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A5 R570	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R571	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R573	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R575	0698-3159	5	1	RES 26.1K 1% .12	00746	CRB14 OR CRB25
A5 R576	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R577	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R579	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R580	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R581	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R590	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R591	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R592	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R594	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R596	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 RA100	1810-0316	1	1	NETWORK-RES DIP	02483	761-3-R10K
A5 RT393	0837-0035	6	1	THERMISTOR DISC	05098	35D24
A5 RT493	0837-0035	6	1	THERMISTOR DISC	05098	35D24
A5 RT593	0837-0035	6	1	THERMISTOR DISC	05098	35D24
A5 TP200	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP311	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP312	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP323	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP324	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP411	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP423	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP424	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP511	0360-2264	6	1	TERM.-TEST POINT	10358	1095D

Table B-7. 8130A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 TP512	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP523	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP524	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 U100	1820-3665	0	1	IC-MM74HCT245N	01698	SN74HCT245N
A5 U101	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A5 U102	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U103	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U104	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A5 U105	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U106	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U107	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A5 U108	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U109	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A5 U110	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U111	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U112	1818-3164	9	1	IC X2816BP	10572	X2816BP
A5 U200	1NB7-8008	1	1		28480	1NB7-8008
A5 U201	1826-0544	0	1	IC-V RGLTR	02037	
A5 U202	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U203	1826-0550	8	1	D/A 8-BIT	02910	DAC08EN
A5 U204	1820-0493	6	1	IC 307	03406	LM307N
A5 U300	1DP9-0002	0	1	IC T1671	28480	1DP9-0002
A5 U301	1DP6-0001	3	1	IC COUNTER 200M	28480	1DP6-0001
A5 U303	1820-4995	1	1	IC-TC74HC592P	06354	TC74HC592P
A5 U304	1820-4995	1	1	IC-TC74HC592P	06354	TC74HC592P
A5 U305	1820-5067	0	1	IC-74AC74PC	03406	74AC74PC
A5 U306	1820-5067	0	1	IC-74AC74PC	03406	74AC74PC
A5 U307	1820-3298	5	1	IC-MM74HC32N	02037	MC74HC32N
A5 U310	1826-1553	3	1	IC 1014	10858	LT1014DN
A5 U311	1826-0774	8	1	IC LM385BZ-1.2	03406	LM385BZ-1.2

Table B-7. 8130A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 U312	1826-1341	7	1	D/A 12-DGT	03406	DAC1232LCD
A5 U313	1826-1409	8	1	IC 1013	10858	LT1013CN8
A5 U314	1826-0315	3	1	IC 348	03406	LM348N
A5 U318	1826-0916	0	1	ANLG SW AD7511DI	03285	AD7511DIKN
A5 U400	1DP9-0001	9	1	IC TIMG GEN 500	28480	1DP9-0001
A5 U401	1DP6-0001	3	1	IC COUNTER 200M	28480	1DP6-0001
A5 U410	1826-1553	3	1	IC 1014	10858	LT1014DN
A5 U411	1826-0774	8	1	IC LM385BZ-1.2	03406	LM385BZ-1.2
A5 U412	1826-1341	7	1	D/A 12-DGT	03406	DAC1232LCD
A5 U413	1826-1409	8	1	IC 1013	10858	LT1013CN8
A5 U414	1826-0315	3	1	IC 348	03406	LM348N
A5 U418	1826-0916	0	1	ANLG SW AD7511DI	03285	AD7511DIKN
A5 U500	1DP9-0001	9	1	IC TIMG GEN 500	28480	1DP9-0001
A5 U501	1DP6-0001	3	1	IC COUNTER 200M	28480	1DP6-0001
A5 U510	1826-1553	3	1	IC 1014	10858	LT1014DN
A5 U511	1826-0774	8	1	IC LM385BZ-1.2	03406	LM385BZ-1.2
A5 U512	1826-1341	7	1	D/A 12-DGT	03406	DAC1232LCD
A5 U513	1826-1409	8	1	IC 1013	10858	LT1013CN8
A5 U514	1826-0315	3	1	IC 348	03406	LM348N
A5 U518	1826-0916	0	1	ANLG SW AD7511DI	03285	AD7511DIKN
A5 VR300	1902-0955	9	1	DIO-ZNR 7.5V 5%	02037	
A5 VR400	1902-0955	9	1	DIO-ZNR 7.5V 5%	02037	
A5 VR500	1902-0955	9	1	DIO-ZNR 7.5V 5%	02037	
A5 W100	1258-0141	8	1	JUMPER-REM	01380	530153-2
A5 W300	08131-61650	4	1	CBL AY PC 15CM	28480	08131-61650
A5 W301	08130-61655	8	1	CBL AY TOUTIN	28480	08130-61655
A5 W400	08131-61672	0	1	CBL SET DELAY A	28480	08131-61672
A5 W500	08130-61670	7	1	CBL SET OUT 30-	28480	08130-61670

Main Power Board

Table B-8. 8130A Main Power Board Parts List

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A14	08131-66514	9	1	BD AY PWR MAIN	28480	08131-66514
A14C118	0180-3651	5	1	CAP 100uF 50 V	00493	KM50VB101M
A14C119	0180-3651	5	1	CAP 100uF 50 V	00493	KM50VB101M
A14C121	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A14C122	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A14C123	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A14CP101	0180-3411	5	1	CAP 25 V	08709	ECET 25R 153SW
A14CP102	0180-3411	5	1	CAP 25 V	08709	ECET 25R 153SW
A14CP103	0180-4049	7	1	CAP 16 V	00493	KME16VNSN27000M30X50
A14CP104	0180-4049	7	1	CAP 16 V	00493	KME16VNSN27000M30X50
A14CP105	0180-4050	0	1	CAP 10 V	00493	KME10VNSN39000M30X50
A14CP106	0180-4050	0	1	CAP 10 V	00493	KME10VNSN39000M30X50
A14CP107	0180-4049	7	1	CAP 16 V	00493	KME16VNSN27000M30X50
A14CP108	0180-4049	7	1	CAP 16 V	00493	KME16VNSN27000M30X50
A14CP109	0180-3411	5	1	CAP 25 V	08709	ECET 25R 153SW
A14CP110	0180-3411	5	1	CAP 25 V	08709	ECET 25R 153SW
A14CP111	0180-3006	4	1	CAP 35 V	00493	NM35VB10000Q
A14CP112	0180-3006	4	1	CAP 35 V	00493	NM35VB10000Q
A14CP113	0180-3469	3	1	CAP 100uF 25 V	00493	KMC25VB101M8X11LL
A14CP114	0180-3469	3	1	CAP 100uF 25 V	00493	KMC25VB101M8X11LL
A14CP115	0180-3469	3	1	CAP 100uF 25 V	00493	KMC25VB101M8X11LL
A14CP116	0180-3469	3	1	CAP 100uF 25 V	00493	KMC25VB101M8X11LL
A14CP117	0180-3469	3	1	CAP 100uF 25 V	00493	KMC25VB101M8X11LL

Table B-8. 8130A Main Power Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A14CP120	0180-2690	0	1	CAP 3.3uF 15 V	04200	150D335X9015A2
A14CR101	1901-1267	6	1	DIO-PWR RECT	03038	50SQ080
A14CR102	1901-1267	6	1	DIO-PWR RECT	03038	50SQ080
A14CR103	1901-1267	6	1	DIO-PWR RECT	03038	50SQ080
A14CR104	1901-1267	6	1	DIO-PWR RECT	03038	50SQ080
A14CR105	1906-0265	2	1	DIO-CT-RECT 45V	03038	12CTQ045
A14CR106	1906-0265	2	1	DIO-CT-RECT 45V	03038	12CTQ045
A14CR107	1901-0935	3	1	DIO-PWR RECT	03038	
A14CR108	1901-0935	3	1	DIO-PWR RECT	03038	
A14CR109	1901-0935	3	1	DIO-PWR RECT	03038	
A14CR110	1901-0935	3	1	DIO-PWR RECT	03038	
A14CR111	1901-0935	3	1	DIO-PWR RECT	03038	
A14CR112	1901-0935	3	1	DIO-PWR RECT	03038	
A14CR113	1901-0935	3	1	DIO-PWR RECT	03038	
A14CR114	1901-0935	3	1	DIO-PWR RECT	03038	
A14CR115	1901-1267	6	1	DIO-PWR RECT	03038	50SQ080
A14CR116	1901-1267	6	1	DIO-PWR RECT	03038	50SQ080
A14CR117	1901-1267	6	1	DIO-PWR RECT	03038	50SQ080
A14CR118	1901-1267	6	1	DIO-PWR RECT	03038	50SQ080
A14CR119	1901-1267	6	1	DIO-PWR RECT	03038	50SQ080
A14CR120	1901-1267	6	1	DIO-PWR RECT	03038	50SQ080
A14CR121	1901-1267	6	1	DIO-PWR RECT	03038	50SQ080
A14CR122	1901-1267	6	1	DIO-PWR RECT	03038	50SQ080
A14CR123	1901-0731	7	1	DIO-PWR RECT	02037	SR3010-3RL
A14CR124	1901-0731	7	1	DIO-PWR RECT	02037	SR3010-3RL
A14CR125	1901-1098	1	1	DIO-1N4150	00746	
A14F102	2110-0713	9	1	FU-SUBMIN 10A 12	04703	R251010T1
A14F103	2110-0713	9	1	FU-SUBMIN 10A 12	04703	R251010T1
A14F104	2110-0713	9	1	FU-SUBMIN 10A 12	04703	R251010T1
A14F105	2110-0713	9	1	FU-SUBMIN 10A 12	04703	R251010T1

Table B-8. 8130A Main Power Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A14F106	2110-0713	9	1	FU-SUBMIN 10A 12	04703	R251010T1
A14F107	2110-0713	9	1	FU-SUBMIN 10A 12	04703	R251010T1
A14F108	2110-0713	9	1	FU-SUBMIN 10A 12	04703	R251010T1
A14F109	2110-0713	9	1	FU-SUBMIN 10A 12	04703	R251010T1
A14J1	1251-8324	1	1	CONN-POST-TP-HDR	04486	G06M96P4BEBL-004-715
A14J2	1251-4547	2	1	CONN-POST-TP-HDR	01380	1-87227-0
A14J3	1251-4547	2	1	CONN-POST-TP-HDR	01380	1-87227-0
A14J4	1251-5153	8	1	CONN-SGL CONT	04880	836
A14J5	1251-5153	8	1	CONN-SGL CONT	04880	836
A14J6	1251-3751	8	1	CONN-POST-TP-HDR	03418	26-60-1080
A14J7	1251-3751	8	1	CONN-POST-TP-HDR	03418	26-60-1080
A14J8	1251-5383	6	1	CONN-POST-TP-HDR	03394	1102-8-102-01
A14MP101	08131-21103	8	1	H-SINK	28480	08131-21103
A14MP102	08131-21103	8	1	H-SINK	28480	08131-21103
A14MP103	08131-45401	9	1	INS 8XTO 220	28480	08131-45401
A14MP104	08131-45401	9	1	INS 8XTO 220	28480	08131-45401
A14Q101	1855-0499	5	1	MOSFET P-CHAN	03038	IRF9531
A14Q102	1855-0499	5	1	MOSFET P-CHAN	03038	IRF9531
A14Q103	1855-0645	3	1	MOSFET N-CHAN	02037	BUZ11
A14Q104	1855-0645	3	1	MOSFET N-CHAN	02037	BUZ11
A14Q105	1855-0645	3	1	MOSFET N-CHAN	02037	BUZ11
A14Q106	1855-0645	3	1	MOSFET N-CHAN	02037	BUZ11
A14Q107	1855-0548	5	1	MOSFET N-CHAN	02037	BUZ71A
A14Q108	1855-0548	5	1	MOSFET N-CHAN	02037	BUZ71A
A14Q109	1855-0645	3	1	MOSFET N-CHAN	02037	BUZ11
A14Q110	1855-0645	3	1	MOSFET N-CHAN	02037	BUZ11
A14Q111	1855-0548	5	1	MOSFET N-CHAN	02037	BUZ71A
A14Q112	1855-0548	5	1	MOSFET N-CHAN	02037	BUZ71A
A14R101	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A14R102	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25

Table B-8. 8130A Main Power Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A14R103	0757-0465	6	1	RES 100K 1% .125	00746	CRB14 OR CRB25
A14R104	0757-0465	6	1	RES 100K 1% .125	00746	CRB14 OR CRB25
A14R105	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A14R106	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A14R107	0698-3156	2	1	RES 14.7K 1% .12	00746	CRB14 OR CRB25
A14R108	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A14R109	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A14R110	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A14R111	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A14R112	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A14R113	0812-0111	7	1	RES .05 3% 3W PW	05524	RS-2B
A14R114	0812-0111	7	1	RES .05 3% 3W PW	05524	RS-2B
A14R115	0812-0111	7	1	RES .05 3% 3W PW	05524	RS-2B
A14R116	0812-0111	7	1	RES .05 3% 3W PW	05524	RS-2B
A14R117	0812-0111	7	1	RES .05 3% 3W PW	05524	RS-2B
A14R118	0811-3470	5	1	RES .1 3% 3W PWI	05524	CW-2B-39
A14R119	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A14R120	0757-0466	7	1	RES 110K 1% .125	00746	CRB14 OR CRB25
A14R121	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A14R122	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A14R123	0698-3160	8	1	RES 31.6K 1% .12	00746	CRB14 OR CRB25
A14R124	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A14R125	0698-6348	0	1	RES 3K .1% .125W	00746	CRB14 OR CRB25
A14R126	0757-0465	6	1	RES 100K 1% .125	00746	CRB14 OR CRB25
A14R127	0698-0063	4	1	RES 5.23K 1% .12	00746	CRB14 OR CRB25
A14R128	0698-3132	4	1	RES 261 1% .125W	00746	CRB14 OR CRB25
A14R129	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A14TP101	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A14TP102	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A14U101	1826-1245	0	1	IC TL7702A	01698	TL7702A

Table B-8. 8130A Main Power Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A14U103	1826-0346	0	1	IC 358	03406	LM358N
A14U104	1826-0393	7	1	IC LM317T	01698	LM317KC
A14VR101	1902-0964	0	1	DIO-ZNR 18V 5%	02037	
A14VR102	1902-0964	0	1	DIO-ZNR 18V 5%	02037	
A14VR103	1902-0959	3	1	DIO-ZNR 11V 5%	02037	
A14VR104	1902-0968	4	1	DIO-ZNR 27V 5%	02037	

Channel 1 Board

Table B-9. 8130A Channel 1 Board Parts List

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26	08130-66526	8	1	BD AY CHAN 1	28480	08130-66526
A26A16	08130-66416	8	1	BD AY SLOPE SMD	28480	08130-66416
A26C2	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A26C3	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C4	0160-3873	1	1	CAP 4.7pF 200 V	06352	FD12C0G2D4R7D
A26C5	0160-3873	1	1	CAP 4.7pF 200 V	06352	FD12C0G2D4R7D
A26C6	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C7	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C8	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A26C11	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C12	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C13	0160-5735	8	1	CAP 10pF 100 V	06121	B37979-J1100-J34
A26C14	0160-5735	8	1	CAP 10pF 100 V	06121	B37979-J1100-J34
A26C15	0160-5735	8	1	CAP 10pF 100 V	06121	B37979-J1100-J34
A26C16	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A26C17*	0160-3873	1		CAP 4.7pF 200 V	06352	FD12C0G2D4R7D
A26C18*	0160-3873	1		CAP 4.7pF 200 V	06352	FD12C0G2D4R7D
A26C101	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C103	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A26C104	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034

Table B-9. 8130A Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26C105	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C106	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C108	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C111	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C113	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C115	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C117	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C119	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C121	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C123	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C124	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C132	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C134	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C135	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C136	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C137	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C150	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C151	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C152	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C153	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C154	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A26C155	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A26C156	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A26C157	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A26C158	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C159	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C160	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C161	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C162	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C163	0160-4801	7	1	CAP 100pF 100 V	02010	SA102A101JAAH

Table B-9. 8130A Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26C200	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C201	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C202	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C203	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C204	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C205	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C207	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C208	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C209	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C210	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C211	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C212	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C214	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C215	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C216	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C218	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C300	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C301	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C302	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C303	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A26C304	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C305	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C306	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C307	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C308	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C309	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C310	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C311	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C312	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C313	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH

Table B-9. 8130A Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26C314	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C315	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C316	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C317	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C318	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C319	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C320	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C321	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C323	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A26C324	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A26C326	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C327	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C328	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C329	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C330	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C331	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C332	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C333	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C334	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C335	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A26C400	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C401	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C402	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C403	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C404	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C405	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C406	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C407	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C409	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C410	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH

Table B-9. 8130A Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26C411	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C412	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C413	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C414	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C416	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C417	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C418	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C419	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C420	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C421	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C422	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C423	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C424	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C425	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C426	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C427	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C428	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C429	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C430	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C431	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C432	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C433	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C436	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C437	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C438	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C900	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C901	0160-5747	2	1	CAP 0.047uF 50 V	06121	B37987-J5473-M034
A26C902	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C903	0160-5747	2	1	CAP 0.047uF 50 V	06121	B37987-J5473-M034
A26C904	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034

Table B-9. 8130A Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26C905	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C906	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C907	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C908	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C909	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C910	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C911	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C912	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C913	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26CP1	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A26CP2	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A26CP110	0180-0116	1	1	CAP 6.8uF 35 V	04200	150D685X9035B2-DYS
A26CP112	0180-0374	3	1	CAP 10uF 20 V	04200	150D106X9020B2-DYS
A26CP114	0180-0374	3	1	CAP 10uF 20 V	04200	150D106X9020B2-DYS
A26CP116	0180-0116	1	1	CAP 6.8uF 35 V	04200	150D685X9035B2-DYS
A26CP118	0180-0116	1	1	CAP 6.8uF 35 V	04200	150D685X9035B2-DYS
A26CP120	0180-0374	3	1	CAP 10uF 20 V	04200	150D106X9020B2-DYS
A26CP121	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A26CP150	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A26CP200	0180-0374	3	1	CAP 10uF 20 V	04200	150D106X9020B2-DYS
A26CP300	0180-2979	8	1	CAP 220uF 16 V	00493	SM16VB221M10X12
A26CP301	0180-2979	8	1	CAP 220uF 16 V	00493	SM16VB221M10X12
A26CP302	0180-2979	8	1	CAP 220uF 16 V	00493	SM16VB221M10X12
A26CP303	0180-2979	8	1	CAP 220uF 16 V	00493	SM16VB221M10X12
A26CR1	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR2	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR3	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR4	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR100	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR101	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511

Table B-9. 8130A Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26CR102	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR150	1901-0033	2	1	DIO-GEN PRP	03406	
A26CR151	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR152	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR153	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR154	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR155	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR156	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR201	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR202	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR206	1901-0376	6	1	DIO-GEN PRP	00046	1N3595
A26CR207	1901-0376	6	1	DIO-GEN PRP	00046	1N3595
A26CR209	1901-0376	6	1	DIO-GEN PRP	00046	1N3595
A26CR210	1901-0376	6	1	DIO-GEN PRP	00046	1N3595
A26CR300	1901-1098	1	1	DIO-1N4150	00746	
A26CR301	1901-1098	1	1	DIO-1N4150	00746	
A26CR303	1901-1098	1	1	DIO-1N4150	00746	
A26CR305	1901-1098	1	1	DIO-1N4150	00746	
A26CR306	1901-0033	2	1	DIO-GEN PRP	03406	
A26CR307	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR400	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR401	1901-1098	1	1	DIO-1N4150	00746	
A26CR404	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR405	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR406	1901-0047	8	1	DIO-SWITCHING	03406	
A26CR901	1901-1098	1	1	DIO-1N4150	00746	
A26CR902	1901-1098	1	1	DIO-1N4150	00746	
A26CR906	1901-0033	2	1	DIO-GEN PRP	03406	
A26CR910	1901-1098	1	1	DIO-1N4150	00746	
A26CR911	1901-1098	1	1	DIO-1N4150	00746	

Table B-9. 8130A Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26CR912	1901-1098	1	1	DIO-1N4150	00746	
A26CR913	1901-1098	1	1	DIO-1N4150	00746	
A26CR915	1901-1098	1	1	DIO-1N4150	00746	
A26CV1	0121-0491	1	1	CAP 30pF 5pF 50	09538	518-003 A 5-30
A26J1	1251-8324	1	1	CONN-POST-TP-HDR	04486	G06M96P4BEBL-004-715
A26J2	1250-2066	4	1	CONN-RF SMB	05769	51-051-0359
A26J3	1250-2066	4	1	CONN-RF SMB	05769	51-051-0359
A26J4	1252-3245	7	1	CONN ELAST 38	09922	NE 0.2P 38.5L 3.0H 3.6W
A26J5	1252-3244	6	1	CONN ELAST 38	09922	NE 0.4P 38.5L 3.5H 4.2W
A26J6	1252-2649	3	1	CONN ELAST 43LG	09922	NE 0.2P 43.0L 3.0H 3.6W
A26J7	1252-2647	1	1	CONN ELAST 0.4P	09922	NE 0.4P 43.0L 3.5H 4.2W
A26J8	1252-3244	6	1	CONN ELAST 38	09922	NE 0.4P 38.5L 3.5H 4.2W
A26J9	1252-3245	7	1	CONN ELAST 38	09922	NE 0.2P 38.5L 3.0H 3.6W
A26J10	1252-2647	1	1	CONN ELAST 0.4P	09922	NE 0.4P 43.0L 3.5H 4.2W
A26J11	1200-1475	2	1	SKT-STRP 17-CONT	06665	SL-117-T-12
A26J12	1200-1474	1	1	SKT-STRP 13-CONT	06665	SL-113-T-12
A26J13	1200-1473	0	1	SKT-STRP 10-CONT	06665	SL-110-T-12
A26J14	1200-1472	9	1	SKT-STRP 8-CONT	06665	SL-108-T-12
A26J15	1200-1471	8	1	SKT-STRP 6-CONT	06665	SL-106-T-12
A26J16	1252-2649	3	1	CONN ELAST 43LG	09922	NE 0.2P 43.0L 3.0H 3.6W
A26J100	1251-4682	6	1	CONN-POST-TP-HDR	03394	1102-1-103-02
A26J101	1251-4682	6	1	CONN-POST-TP-HDR	03394	1102-1-103-02
A26J300	1251-5380	3	1	CONN-POST-TP-HDR	02946	68000-602
A26K1	0490-1667	6	1	RLY 2C 12VDC	09809	RG2T-12V
A26K2	0490-1667	6	1	RLY 2C 12VDC	09809	RG2T-12V
A26K3	0490-1667	6	1	RLY 2C 12VDC	09809	RG2T-12V
A26K4	0490-1665	4	1	RLY 1C 12VDC	01850	RG1ET-12V
A26K5	0490-1665	4	1	RLY 1C 12VDC	01850	RG1ET-12V
A26K6	0490-1405	0	1	RLY 2C 12VDC	01850	DS2E-S-DC12V-C-H118
A26L1	5081-1973	5	1	INDUCTANCE 3BEA	28480	5081-1973

Table B-9. 8130A Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A26L2	5081-1973	5	1	INDUCTANCE 3BEA	28480	5081-1973
A26L3	5081-1973	5	1	INDUCTANCE 3BEA	28480	5081-1973
A26L4	5081-1973	5	1	INDUCTANCE 3BEA	28480	5081-1973
A26L7	9140-0114	4	1	L 10UH +10%	03273	15M102K
A26L8	9140-0114	4	1	L 10UH +10%	03273	15M102K
A26L100	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A26L101	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A26L102	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A26L103	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A26L104	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A26L105	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A26MP1	08130-00601	6	1	SHLD OUTP BD	28480	08130-00601
A26MP20	08130-21101	5	1	HEAT SINK	28480	08130-21101
A26MP21	08130-40502	0	1	HYBRID FRAME	28480	08130-40502
A26MP23	0340-1236	8	1	INSULATOR	28480	0340-1236
A26MP26	3050-0960	1	2	WASHER-SHLDR 3.0	05947	V5359
A26MP27	0515-0659	8	4	SCR-MACHINE	05610	
A26MP80	1400-1437	0	6	CLAMP-CABLE	11808	
A26MP108	1200-0541	1	1	SKT-IC-DIP 24-CO	01380	2-641604-1
A26MP302	1205-0295	2	1	HEAT SINK	02608	6107B-14
A26MP303	1205-0295	2	1	HEAT SINK	02608	6107B-14
A26MP304	0340-1074	2	1	INSUL-XSTR	05447	3223-07FR-58-AC
A26MP305	0340-1074	2	1	INSUL-XSTR	05447	3223-07FR-58-AC
A26MP400	1205-0213	4	1	HEAT SINK	02608	2228B
A26MP401	1205-0213	4	1	HEAT SINK	02608	2228B
A26MP402	1205-0213	4	1	HEAT SINK	02608	2228B
A26MP403	1205-0011	0	1	HEAT SINK	02608	2226B
A26MP407	1205-0213	4	1	HEAT SINK	02608	2228B
A26MP409	1205-0213	4	1	HEAT SINK	02608	2228B
A26MP904	1205-0213	4	1	HEAT SINK	02608	2228B

Table B-9. 8130A Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26Q1	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A26Q2	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A26Q3	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A26Q4	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A26Q101	1854-0039	7	1	XSTR NPN 2N3053S	02037	2N3053S
A26Q102	1853-0569	6	1	XSTR PNP SI	02037	
A26Q200	1854-0583	6	1	XSTR NPN SI	02037	MPS-A18
A26Q201	1854-0583	6	1	XSTR NPN SI	02037	MPS-A18
A26Q202	1855-0309	6	1	MOSFET 2N4352 P-	02037	2N4352
A26Q203	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A26Q204	1854-0477	7	1	XSTR NPN 2N2222A	02037	2N2222A
A26Q300	1854-0828	2	1	XSTR NPN SI	00039	NTD560
A26Q301	1853-0468	4	1	XSTR PNP SI DARL	02037	TIP-127
A26Q302	1853-0569	6	1	XSTR PNP SI	02037	
A26Q303	1853-0569	6	1	XSTR PNP SI	02037	
A26Q304	1853-0569	6	1	XSTR PNP SI	02037	
A26Q305	1853-0569	6	1	XSTR PNP SI	02037	
A26Q307	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A26Q308	1853-0563	0	1	XSTR PNP SI	02037	2N3906(SEL)
A26Q309	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A26Q400	1853-0051	1	1	XSTR PNP 2N4037	03799	2N4037
A26Q401	1854-0637	1	1	XSTR NPN 2N2219A	02037	2N2219A
A26Q402	1853-0314	9	1	XSTR PNP 2N2905A	02037	2N2905A
A26Q404	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A26Q405	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A26Q407	1854-0597	2	1	XSTR NPN 2N5943	02037	2N5943
A26Q408	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A26Q409	1853-0314	9	1	XSTR PNP 2N2905A	02037	2N2905A
A26Q410	1853-0314	9	1	XSTR PNP 2N2905A	02037	2N2905A
A26Q411	1853-0314	9	1	XSTR PNP 2N2905A	02037	2N2905A

Table B-9. 8130A Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A26Q412	1853-0569	6	1	XSTR PNP SI	02037	
A26Q413	1853-0569	6	1	XSTR PNP SI	02037	
A26Q414	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A26Q415	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A26Q416	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A26Q418	1853-0563	0	1	XSTR PNP SI	02037	2N3906(SEL)
A26Q419	1853-0569	6	1	XSTR PNP SI	02037	
A26Q421	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A26Q900	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A26Q901	1855-0751	2	1	MOSFET N-CHAN	02883	VN0808M
A26Q902	1855-0751	2	1	MOSFET N-CHAN	02883	VN0808M
A26Q903	1854-0637	1	1	XSTR NPN 2N2219A	02037	2N2219A
A26Q904	1853-0051	1	1	XSTR PNP 2N4037	03799	2N4037
A26Q905	1853-0563	0	1	XSTR PNP SI	02037	2N3906(SEL)
A26R2	0698-4453	4	1	RES 402 1% .125W	00746	CRB14 OR CRB25
A26R3	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25
A26R4	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25
A26R5	0698-4453	4	1	RES 402 1% .125W	00746	CRB14 OR CRB25
A26R6	0698-4435	2	1	RES 2.49K 1% .12	00746	CRB14 OR CRB25
A26R7	0698-4435	2	1	RES 2.49K 1% .12	00746	CRB14 OR CRB25
A26R8	0757-0999	1	1	RES 47.5 1% .5W	01074	H2
A26R9	0757-0999	1	1	RES 47.5 1% .5W	01074	H2
A26R12	0757-0389	3	1	RES 33.2 1% .125	00746	CRB14 OR CRB25
A26R13	0757-0389	3	1	RES 33.2 1% .125	00746	CRB14 OR CRB25
A26R14	0698-4409	0	1	RES 127 1% .125W	00746	CRB14 OR CRB25
A26R15	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A26R16	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25
A26R17	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25
A26R18	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25
A26R19	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25

Table B-9. 8130A Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26R20	0757-0411	2	1	RES 332 1% .125W	00746	CRB14 OR CRB25
A26R21	0757-0411	2	1	RES 332 1% .125W	00746	CRB14 OR CRB25
A26R22	0757-0807	0	1	RES 274 1% .5W T	01074	H2
A26R23	0757-0807	0	1	RES 274 1% .5W T	01074	H2
A26R24	0699-2732	0	1	RES 59 1% 2W TF	05524	CPF-2 5900 F T-1
A26R25	0699-2732	0	1	RES 59 1% 2W TF	05524	CPF-2 5900 F T-1
A26R26	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25
A26R27	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25
A26R100	0757-0274	5	1	RES 1.21K 1% .12	00746	CRB14 OR CRB25
A26R101	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A26R102	0698-6624	5	1	RES 2K .1% .125W	00746	CRB14 OR CRB25
A26R104	0698-0082	7	1	RES 464 1% .125W	00746	CRB14 OR CRB25
A26R105	0698-6624	5	1	RES 2K .1% .125W	00746	CRB14 OR CRB25
A26R106	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A26R107	0698-4445	4	1	RES 5.76K 1% .12	00746	CRB14 OR CRB25
A26R108	0698-4479	4	1	RES 14K 1% .125W	00746	CRB14 OR CRB25
A26R109	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R110	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A26R111	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R112	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R113	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R114	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A26R115	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A26R116	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R126	0698-4479	4	1	RES 14K 1% .125W	00746	CRB14 OR CRB25
A26R150	0757-0461	2	1	RES 68.1K 1% .12	00746	CRB14 OR CRB25
A26R151	0757-0199	3	1	RES 21.5K 1% .12	00746	CRB14 OR CRB25
A26R152	0757-0465	6	1	RES 100K 1% .125	00746	CRB14 OR CRB25
A26R153	0698-8827	4	1	RES 1M 1% .125W	00746	CRB14 OR CRB25
A26R154	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25

Table B-9. 8130A Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26R155	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R156	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R157	0698-8958	2	1	RES 511K 1% .125	00746	CRB14 OR CRB25
A26R158	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R159	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A26R160	0698-0084	9	1	RES 2.15K 1% .12	00746	CRB14 OR CRB25
A26R161	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R162	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R163	0698-8958	2	1	RES 511K 1% .125	00746	CRB14 OR CRB25
A26R164	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A26R165	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R166	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R167	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R168	0698-8958	2	1	RES 511K 1% .125	00746	CRB14 OR CRB25
A26R169	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R170	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R171	0698-8958	2	1	RES 511K 1% .125	00746	CRB14 OR CRB25
A26R172	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A26R173	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R174	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R175	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R176	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R177	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R178	0698-3152	8	1	RES 3.48K 1% .12	00746	CRB14 OR CRB25
A26R179	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A26R180	0698-3152	8	1	RES 3.48K 1% .12	00746	CRB14 OR CRB25
A26R181	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A26R182	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A26R183	0757-0274	5	1	RES 1.21K 1% .12	00746	CRB14 OR CRB25
A26R184	0698-3452	1	1	RES 147K 1% .125	00746	CRB14 OR CRB25

Table B-9. 8130A Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	ManuFr	Part #
A26R185	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A26R186	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A26R187	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A26R188	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R189	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R190	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R191	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R192	0698-0084	9	1	RES 2.15K 1% .12	00746	CRB14 OR CRB25
A26R193	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R194	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R200	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R201	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A26R203	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A26R204	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A26R206	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A26R207	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A26R208	0757-0199	3	1	RES 21.5K 1% .12	00746	CRB14 OR CRB25
A26R209	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A26R210	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A26R212	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A26R213	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A26R214	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R215	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A26R217	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R218	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R219	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R220	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R221	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A26R222	0757-0403	2	1	RES 121 1% .125W	00746	CRB14 OR CRB25
A26R223	0757-0403	2	1	RES 121 1% .125W	00746	CRB14 OR CRB25

Table B-9. 8130A Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26R225	0757-0274	5	1	RES 1.21K 1% .12	00746	CRB14 OR CRB25
A26R226	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R227	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R276	0698-3441	8	1	RES 215 1% .125W	00746	CRB14 OR CRB25
A26R300	0698-3449	6	1	RES 28.7K 1% .12	00746	CRB14 OR CRB25
A26R301	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R302	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R304	0698-8799	9	1	RES 21.5K .1% .1	00746	CRB14 OR CRB25
A26R307	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A26R308	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R309	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A26R310	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A26R311	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A26R312	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A26R313	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A26R314	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R315	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A26R316	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A26R317	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R318	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R319	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R320	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R321	0757-0421	4	1	RES 825 1% .125W	00746	CRB14 OR CRB25
A26R322	0699-1056	9	1	RES 825 .1% .125	00746	CRB14 OR CRB25
A26R323	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A26R324	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R325	0757-0421	4	1	RES 825 1% .125W	00746	CRB14 OR CRB25
A26R326	0699-1056	9	1	RES 825 .1% .125	00746	CRB14 OR CRB25
A26R327	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R328	0757-0461	2	1	RES 68.1K 1% .12	00746	CRB14 OR CRB25

Table B-9. 8130A Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26R329	0698-8826	3	1	RES 825K 1% .125	00746	CRB14 OR CRB25
A26R330	0757-0409	8	1	RES 274 1% .125W	00746	CRB14 OR CRB25
A26R332	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R333	0698-3156	2	1	RES 14.7K 1% .12	00746	CRB14 OR CRB25
A26R334	0757-0409	8	1	RES 274 1% .125W	00746	CRB14 OR CRB25
A26R335	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R337	0757-0346	2	1	RES 10 1% .125W	00746	CRB14 OR CRB25
A26R338	0698-3156	2	1	RES 14.7K 1% .12	00746	CRB14 OR CRB25
A26R339	0698-3156	2	1	RES 14.7K 1% .12	00746	CRB14 OR CRB25
A26R340	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A26R341	0698-3156	2	1	RES 14.7K 1% .12	00746	CRB14 OR CRB25
A26R342	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A26R343	0699-2683	0	1	RES 274 .1% .125	00746	CRB14
A26R344	0699-2683	0	1	RES 274 .1% .125	00746	CRB14
A26R347	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A26R348	0757-0346	2	1	RES 10 1% .125W	00746	CRB14 OR CRB25
A26R351	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A26R352	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R354	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A26R355	0757-1094	9	1	RES 1.47K 1% .12	00746	CRB14 OR CRB25
A26R356	0757-1094	9	1	RES 1.47K 1% .12	00746	CRB14 OR CRB25
A26R357	0698-8827	4	1	RES 1M 1% .125W	00746	CRB14 OR CRB25
A26R358	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25
A26R359	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25
A26R360	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R361	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R362	0698-3279	0	1	RES 4.99K 1% .12	00746	CRB14 OR CRB25
A26R363	0757-0199	3	1	RES 21.5K 1% .12	00746	CRB14 OR CRB25
A26R364	0757-0199	3	1	RES 21.5K 1% .12	00746	CRB14 OR CRB25
A26R365	0698-8826	3	1	RES 825K 1% .125	00746	CRB14 OR CRB25

Table B-9. 8130A Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26R366	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R367	0757-0274	5	1	RES 1.21K 1% .12	00746	CRB14 OR CRB25
A26R368	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R369	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R370	0698-8958	2	1	RES 511K 1% .125	00746	CRB14 OR CRB25
A26R371	0698-8958	2	1	RES 511K 1% .125	00746	CRB14 OR CRB25
A26R372	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R373	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R374	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A26R377	0698-3441	8	1	RES 215 1% .125W	00746	CRB14 OR CRB25
A26R378	0698-3457	6	1	RES 316K 1% .125	00746	CRB14 OR CRB25
A26R379	0757-0407	6	1	RES 200 1% .125W	00746	CRB14 OR CRB25
A26R400	0757-0428	1	1	RES 1.62K 1% .12	00746	CRB14 OR CRB25
A26R401	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R405	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A26R406	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A26R407	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A26R408	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A26R410	0698-0084	9	1	RES 2.15K 1% .12	00746	CRB14 OR CRB25
A26R412	0698-3432	7	1	RES 26.1 1% .125	00746	CRB14 OR CRB25
A26R413	0698-4445	4	1	RES 5.76K 1% .12	00746	CRB14 OR CRB25
A26R414	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R416	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R419	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A26R420	0698-3519	1	1	RES 12.4K 1% .12	00746	CRB14 OR CRB25
A26R423	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A26R424	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R425	0757-0441	8	1	RES 8.25K 1% .12	00746	CRB14 OR CRB25
A26R426	0757-0441	8	1	RES 8.25K 1% .12	00746	CRB14 OR CRB25
A26R427	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25

Table B-9. 8130A Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26R428	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A26R429	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R430	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R431	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A26R432	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R433	0757-0411	2	1	RES 332 1% .125W	00746	CRB14 OR CRB25
A26R434	0757-0274	5	1	RES 1.21K 1% .12	00746	CRB14 OR CRB25
A26R435	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R436	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R437	0757-0274	5	1	RES 1.21K 1% .12	00746	CRB14 OR CRB25
A26R438	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A26R439	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R440	0757-0411	2	1	RES 332 1% .125W	00746	CRB14 OR CRB25
A26R441	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A26R444	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R445	0698-3443	0	1	RES 287 1% .125W	00746	CRB14 OR CRB25
A26R446	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R447	0698-3443	0	1	RES 287 1% .125W	00746	CRB14 OR CRB25
A26R448	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R449	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R450	0757-0291	6	1	RES 24.9 1% .125	00746	CRB14 OR CRB25
A26R451	0757-0291	6	1	RES 24.9 1% .125	00746	CRB14 OR CRB25
A26R452	0757-0291	6	1	RES 24.9 1% .125	00746	CRB14 OR CRB25
A26R453	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A26R454	0698-4020	1	1	RES 9.53K 1% .12	00746	CRB14 OR CRB25
A26R455	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R456	0757-0421	4	1	RES 825 1% .125W	00746	CRB14 OR CRB25
A26R457	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R458	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R459	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25

Table B-9. 8130A Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26R460	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A26R464	0698-3158	4	1	RES 23.7K 1% .12	00746	CRB14 OR CRB25
A26R465	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R466	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A26R467	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R468	0757-0418	9	1	RES 619 1% .125W	00746	CRB14 OR CRB25
A26R469	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A26R470	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A26R471	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A26R472	0698-6323	1	1	RES 100 .1% .125	00746	CRB14 OR CRB25
A26R473	0698-6323	1	1	RES 100 .1% .125	00746	CRB14 OR CRB25
A26R474	0698-6323	1	1	RES 100 .1% .125	00746	CRB14 OR CRB25
A26R475	0698-6323	1	1	RES 100 .1% .125	00746	CRB14 OR CRB25
A26R476	0698-6323	1	1	RES 100 .1% .125	00746	CRB14 OR CRB25
A26R477	0698-6323	1	1	RES 100 .1% .125	00746	CRB14 OR CRB25
A26R478	0698-6323	1	1	RES 100 .1% .125	00746	CRB14 OR CRB25
A26R479	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A26R480	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A26R481	0698-3268	7	1	RES 11.5K 1% .12	00746	CRB14 OR CRB25
A26R482	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A26R483	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A26R485	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R486	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A26R487	0757-0278	9	1	RES 1.78K 1% .12	00746	CRB14 OR CRB25
A26R488	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A26R489	0698-4460	3	1	RES 649 1% .125W	00746	CRB14 OR CRB25
A26R490	0757-0317	7	1	RES 1.33K 1% .12	00746	CRB14 OR CRB25
A26R491	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R492	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R493	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25

Table B-9. 8130A Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26R494	0757-1094	9	1	RES 1.47K 1% .12	00746	CRB14 OR CRB25
A26R497	0757-0274	5	1	RES 1.21K 1% .12	00746	CRB14 OR CRB25
A26R498	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R900	0698-3136	8	1	RES 17.8K 1% .12	00746	CRB14 OR CRB25
A26R901	0698-0084	9	1	RES 2.15K 1% .12	00746	CRB14 OR CRB25
A26R902	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R903	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R905	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A26R906	0757-0421	4	1	RES 825 1% .125W	00746	CRB14 OR CRB25
A26R907	0757-0444	1	1	RES 12.1K 1% .12	00746	CRB14 OR CRB25
A26R908	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R909	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R910	0698-6624	5	1	RES 2K .1% .125W	00746	CRB14 OR CRB25
A26R911	0698-6624	5	1	RES 2K .1% .125W	00746	CRB14 OR CRB25
A26R912	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R913	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R914	0698-0084	9	1	RES 2.15K 1% .12	00746	CRB14 OR CRB25
A26R915	0699-2684	1	1	RES 332 .1% .125	00746	CRB14
A26R916	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R917	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R918	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A26R919	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R920	0757-0346	2	1	RES 10 1% .125W	00746	CRB14 OR CRB25
A26R921	0757-0715	9	1	RES 150 1% .25W	01074	H4
A26R922	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A26R924	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R925	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R926	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A26R927	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R928	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25

Table B-9. 8130A Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A26R929	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R930	0698-3435	0	1	RES 38.3 1% .125	00746	CRB14 OR CRB25
A26R931	0699-2731	9	1	RES 442 .1% .125	06118	MK2
A26R934	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A26R935	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A26R936	0698-3243	8	1	RES 178K 1% .125	00746	CRB14 OR CRB25
A26R937	0757-0460	1	1	RES 61.9K 1% .12	00746	CRB14 OR CRB25
A26R939	0698-4477	2	1	RES 10.5K 1% .12	00746	CRB14 OR CRB25
A26R940	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R941	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A26R942	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R943	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A26R944	0698-4445	4	1	RES 5.76K 1% .12	00746	CRB14 OR CRB25
A26R945	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A26R946	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A26R947	0757-0441	8	1	RES 8.25K 1% .12	00746	CRB14 OR CRB25
A26R948	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A26R949	0698-0084	9	1	RES 2.15K 1% .12	00746	CRB14 OR CRB25
A26R950	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A26R951	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A26R952	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R953	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A26R954	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A26R955	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R956	0757-1094	9	1	RES 1.47K 1% .12	00746	CRB14 OR CRB25
A26R957	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R958	0698-3439	4	1	RES 178 1% .125W	00746	CRB14 OR CRB25
A26R959	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R960	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R961	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25

Table B-9. 8130A Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26R962	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A26R963	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A26R964	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26RA100	1810-0280	8	1	NETWORK-RES SIP	02483	750-101
A26RA300	1810-0691	5	1	NETWORK-RES DIP	01607	F16B103B
A26RA400	1810-0316	1	1	NETWORK-RES DIP	02483	761-3-R10K
A26RV1	2100-3345	8	1	RES-TRMR 10 10%	03744	3386P-Y46-100
A26RV100	2100-3211	7	1	RES-TRMR 1K 10%	03744	3386P-Y46-102
A26RV200	2100-0554	5	1	RES-TRMR 500 10%	03744	3386P-Y46-501
A26RV303	2100-3212	8	1	RES-TRMR 200 10%	03744	3386P-Y46-201
A26RV305	2100-3253	7	1	RES-TRMR 50K 10%	03744	3386P-Y46-503
A26RV306	2100-3253	7	1	RES-TRMR 50K 10%	03744	3386P-Y46-503
A26RV307	2100-3210	6	1	RES-TRMR 10K 10%	03744	3386P-Y46-103
A26RV308	2100-3409	5	1	RES-TRMR 20 10%	03744	3386P-Y46-200
A26RV309	2100-3409	5	1	RES-TRMR 20 10%	03744	3386P-Y46-200
A26RV401	2100-0554	5	1	RES-TRMR 500 10%	03744	3386P-Y46-501
A26RV402	2100-3252	6	1	RES-TRMR 5K 10%	03744	3386P-Y46-502
A26TP100	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP101	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP102	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP103	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP104	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP105	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP106	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP108	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP109	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP110	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP111	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP112	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP200	0360-2264	6	1	TERM.-TEST POINT	10358	1095D

Table B-9. 8130A Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26TP201	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP202	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP300	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP301	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP401	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP402	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26U1	1NB7-8201	6	1		28480	1NB7-8201
A26U2	1820-2111	9	1	IC-INTERFACE	01698	SN75468N
A26U100	1820-3665	0	1	IC-MM74HCT245N	01698	SN74HCT245N
A26U101	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A26U102	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A26U103	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A26U104	1818-3164	9	1	IC X2816BP	10572	X2816BP
A26U105	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A26U106	1826-0409	6	1	IC MC1723L	02037	MC1723L
A26U107	1826-1869	4	1	D/A 12-BIT	03285	AD7537JN
A26U108	1826-0161	7	1	IC 324	02037	LM324N
A26U110	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A26U150	1820-3373	7	1	IC-MM74HC221AN	03406	MM74HC221AN
A26U151	1820-3298	5	1	IC-MM74HC32N	02037	MC74HC32N
A26U152	1820-2924	2	1	IC-MC74HC02N	01698	SN74HC02N
A26U153	1820-3081	4	1	IC-MC74HC74N	01698	SN74HC74N
A26U154	1820-3081	4	1	IC-MC74HC74N	01698	SN74HC74N
A26U155	1820-3097	2	1	IC-MM74HC08N	02037	MC74HC08N
A26U156	1826-0600	9	1	IC 074A	01698	TL074ACN
A26U157	1826-0138	8	1	IC 339	01698	LM339N
A26U158	1858-0053	3	1	XSTR ARY 14P-DIP	02037	
A26U159	1858-0058	8	1	XSTR ARY 14P-DIP	02037	MPQ3906
A26U160	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A26U161	1820-1315	3	1	ANLG MUXR MC1405	02037	MC14051BCP

Table B-9. 8130A Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26U162	1826-0877	2	1	A/D 8-BIT	03285	AD7574KN
A26U163	1826-0161	7	1	IC 324	02037	LM324N
A26U164	1826-0161	7	1	IC 324	02037	LM324N
A26U165	1826-0139	9	1	IC 1458	02037	MC1458P1
A26U200	1826-1869	4	1	D/A 12-BIT	03285	AD7537JN
A26U201	1826-1553	3	1	IC 1014	10858	LT1014DN
A26U202	1826-1553	3	1	IC 1014	10858	LT1014DN
A26U203	1826-0501	9	1	ANLG MUXR MC1405	02037	MC14053BCP
A26U204	1826-0501	9	1	ANLG MUXR MC1405	02037	MC14053BCP
A26U300	1826-1553	3	1	IC 1014	10858	LT1014DN
A26U301	1826-1553	3	1	IC 1014	10858	LT1014DN
A26U302	1826-1553	3	1	IC 1014	10858	LT1014DN
A26U303	1826-0315	3	1	IC 348	03406	LM348N
A26U305	1826-1409	8	1	IC 1013	10858	LT1013CN8
A26U306	1826-0139	9	1	IC 1458	02037	MC1458P1
A26U400	1826-0161	7	1	IC 324	02037	LM324N
A26U401	1826-0161	7	1	IC 324	02037	LM324N
A26U402	1826-0161	7	1	IC 324	02037	LM324N
A26U403	1826-0161	7	1	IC 324	02037	LM324N
A26U404	1826-0161	7	1	IC 324	02037	LM324N
A26U405	1826-0501	9	1	ANLG MUXR MC1405	02037	MC14053BCP
A26U900	1826-1617	0	1	ANLG MUXR DG509A	02883	DG509ABK
A26U901	1858-0058	8	1	XSTR ARY 14P-DIP	02037	MPQ3906
A26U902	1858-0021	5	1	XSTR ARY 16P-DIP	03799	CA3083
A26U903	1826-0161	7	1	IC 324	02037	LM324N
A26U904	1826-0161	7	1	IC 324	02037	LM324N
A26VR1	1902-0953	7	1	DIO-ZNR 6.2V 5%	02037	SZ30035-11RL
A26VR2	1902-0953	7	1	DIO-ZNR 6.2V 5%	02037	SZ30035-11RL
A26VR3	1902-0944	6	1	DIO-ZNR 2.7V 5%	02037	
A26VR101	1902-0951	5	1	DIO-ZNR 5.1V 5%	02037	SZ30035-9RL

Table B-9. 8130A Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26VR150	1902-0950	4	1	DIO-ZNR 4.7V 5%	02037	
A26VR151	1902-0950	4	1	DIO-ZNR 4.7V 5%	02037	
A26VR152	1902-0956	0	1	DIO-ZNR 8.2V 5%	02037	
A26VR200	1902-0944	6	1	DIO-ZNR 2.7V 5%	02037	
A26VR300	1902-0943	5	1	DIO-ZNR 2.4V 5%	02037	
A26VR301	1902-0943	5	1	DIO-ZNR 2.4V 5%	02037	
A26VR400	1902-0951	5	1	DIO-ZNR 5.1V 5%	02037	SZ30035-9RL
A26VR401	1902-0951	5	1	DIO-ZNR 5.1V 5%	02037	SZ30035-9RL
A26VR402	1902-0954	8	1	DIO-ZNR 6.8V 5%	02037	
A26VR403	1902-0935	5	1	DIO-ZNR 9.1V 5%	02037	
A26VR404	1902-0951	5	1	DIO-ZNR 5.1V 5%	02037	SZ30035-9RL
A26VR405	1902-0943	5	1	DIO-ZNR 2.4V 5%	02037	
A26VR900	1902-0962	8	1	DIO-ZNR 15V 5%	02037	
A26VR903	1902-0956	0	1	DIO-ZNR 8.2V 5%	02037	
A26VR904	1902-0956	0	1	DIO-ZNR 8.2V 5%	02037	
A26VR905	1902-0951	5	1	DIO-ZNR 5.1V 5%	02037	SZ30035-9RL
A26VR907	1902-0951	5	1	DIO-ZNR 5.1V 5%	02037	SZ30035-9RL
A26VR908	1902-0958	2	1	DIO-ZNR 10V 5%	02037	
A26VR909	1902-0945	7	1	DIO-ZNR 3V 5%	02037	SZ0035-3RL
A26VR914	1902-1378	2	1	DIO-ZNR 3.6V 5%	02037	
A26W100	1258-0141	8	1	JUMPER-REM	01380	530153-2
A26W101	1258-0141	8	1	JUMPER-REM	01380	530153-2
A26W300	1258-0141	8	1	JUMPER-REM	01380	530153-2

Dual-channel Instrument Parts Lists

Master List
Option 020

Table B-10. 8130A Option 020 Instrument Parts List

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A0	8130A #	0	1	PULSE GEN 2CHAN	28480	8130A #020
A0 A1	08130-66521	7	1	BD AY KEY OPT	28480	08130-66521
A0 A5	08130-66525	1	1	BD AY TIMING OPT	28480	08130-66525
A0 A27	08130-66527	3	1	BD AY CHAN 2	28480	08130-66527
A0 MP13	08130-40201	6	1	PANEL FRONT OPT	28480	08130-40201
A0 W12	08130-61603	6	1	CBL AY OUTPUT	28480	08130-61603
A0 W13	08130-61603	6	1	CBL AY OUTPUT	28480	08130-61603

**Keyboard
Option 020**

Table B-11. 8130A Option 020 Keyboard Parts List

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A1	08130-66521	7	1	BD AY KEY OPT	28480	08130-66521
A1 C2	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A1 C3	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A1 C4	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A1 CP1	0180-2207	5	1	CAP 100uF 10 V	04200	150D107X9010R2-DYS
A1 DS1	1990-1253	7	1	DISPLAY-NUM-SEG	01542	HDSP-H101
A1 DS2	1990-1253	7	1	DISPLAY-NUM-SEG	01542	HDSP-H101
A1 DS3	1990-1253	7	1	DISPLAY-NUM-SEG	01542	HDSP-H101
A1 DS4	1990-1253	7	1	DISPLAY-NUM-SEG	01542	HDSP-H101
A1 DS5	1990-1252	6	1	LED-LT BAR	01542	HLCP-B100
A1 DS6	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS7	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS8	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS10	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS11	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS12	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS13	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS14	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS15	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS16	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS17	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS18	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS19	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS21	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS22	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS24	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS27	1990-1278	6	1	LED-LMP	01542	HLMP-K155

Table B-11. 8130A Option 020 Keyboard Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A1 DS28	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS30	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS31	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS32	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS33	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS34	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS35	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS36	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS37	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS38	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS39	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS41	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS42	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS44	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS47	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS48	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS51	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS52	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS53	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS55	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS56	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS57	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS61	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS62	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS63	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS64	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS65	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS71	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS72	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS73	1990-1278	6	1	LED-LMP	01542	HLMP-K155

Table B-11. 8130A Option 020 Keyboard Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A1 DS74	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS75	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS76	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS77	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS81	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS82	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS83	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS84	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS91	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS92	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS93	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS94	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 J1	1252-0217	7	1	CONN-POST-TP-HDR	04726	3429-5202
A1 MP1	5041-4707	5	8	QTR COBLK	28480	5041-4707
A1 MP2	5041-0318	6	5	LK CAP PTY GRAY	28480	5041-0318
A1 MP3	5041-0309	5	5	CAP KEY QUARTER	28480	5041-0309
A1 MP4	5041-0507	5	1	QTR WGRN	28480	5041-0507
A1 MP5	5041-0726	0	1	KEY CAP LCL	28480	5041-0726
A1 MP6	1200-0654	7	1	SKT-IC 40-CONT	01380	2-641606-1
A1 MP7	1200-0899	2	1	SKT-STRP 8-CONT	04129	8-0511-10
A1 RA1	1810-0325	2	1	NETWORK-RES DIP	02483	761-3-R150
A1 RA2	1810-0338	7	1	NETWORK-RES DIP	02483	761-3-R100
A1 RA3	1810-0338	7	1	NETWORK-RES DIP	02483	761-3-R100
A1 RA4	1810-0275	1	1	NETWORK-RES SIP	02483	750-101
A1 RA5	1810-0275	1	1	NETWORK-RES SIP	02483	750-101
A1 S1	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S2	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S3	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S4	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S5	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436

Table B-11. 8130A Option 020 Keyboard Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A1 S6	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S7	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S8	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S10	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S11	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S12	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S13	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S14	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S15	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S16	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S17	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S18	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S19	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S20	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S21	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S22	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S23	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S24	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S25	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S26	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S27	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S28	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S29	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S41	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S42	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S43	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S44	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S45	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S46	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S47	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436

Table B-11. 8130A Option 020 Keyboard Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A1 S48	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S51	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S52	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S53	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S54	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 U1	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A1 U2	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A1 U3	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A1 U4	1820-3456	7	1	IC-MM74HCT244N	01698	SN74HCT244N
A1 U5	1820-3456	7	1	IC-MM74HCT244N	01698	SN74HCT244N
A1 U6	1858-0014	6	1	XSTR ARY 14P-DIP	02037	
A1 U7	1858-0014	6	1	XSTR ARY 14P-DIP	02037	
A1 U8	1858-0014	6	1	XSTR ARY 14P-DIP	02037	
A1 U9	1858-0014	6	1	XSTR ARY 14P-DIP	02037	

**Timing Board
Option 020**

Table B-12. 8130A Option 020 Timing Board Parts List

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5	08130-66525	1	1	BD AY TIMING OPT	28480	08130-66525
A5 C101	0160-5750	7	1	CAP 2200pF 100 V	06121	B37981-J1222-M034
A5 C103	0160-5750	7	1	CAP 2200pF 100 V	06121	B37981-J1222-M034
A5 C105	0160-5750	7	1	CAP 2200pF 100 V	06121	B37981-J1222-M034
A5 C107	0160-5750	7	1	CAP 2200pF 100 V	06121	B37981-J1222-M034
A5 C109	0160-5750	7	1	CAP 2200pF 100 V	06121	B37981-J1222-M034
A5 C110	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C111	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C112	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C113	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C117	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C121	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C122	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C126	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C127	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C131	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C140	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C141	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C142	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C181	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C202	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C203	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C204	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C205	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH

Table B-12. 8130A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 C206	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C207	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C208	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C209	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C210	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C220	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C221	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C222	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C223	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C224	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C300	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C301	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C303	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C304	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C305	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C306	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C307	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C308	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C309	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C310	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C311	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C312	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C313	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C314	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C315	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C317	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C318	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C320	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C321	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C322	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH

Table B-12. 8130A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 C324	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C325	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C327	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C328	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C330	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C331	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C333	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C335	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C336	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C340	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C341	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C342	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C343	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C350	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C360	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C363	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C399	0160-5741	6	1	CAP 47pF 100 V	06121	B37979-J1470-J034
A5 C400	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C401	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C403	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C404	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C405	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C406	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C411	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C412	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C413	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C414	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C415	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C417	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C418	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH

Table B-12. 8130A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A5 C420	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C421	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C422	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C424	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C425	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C427	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C428	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C430	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C431	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C433	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C435	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C436	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C440	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C441	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C442	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C443	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C450	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C460	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C465	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C470	0160-3872	0	1	CAP 2.2pF 200 V	06352	FD12C0G2D2R2C
A5 C471	0160-3872	0	1	CAP 2.2pF 200 V	06352	FD12C0G2D2R2C
A5 C500	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C501	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C503	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C504	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C505	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C506	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C511	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C512	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C513	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH

Table B-12. 8130A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 C514	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C515	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C517	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C518	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C520	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C521	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C522	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C524	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C525	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C527	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C528	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C530	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C531	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C533	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C535	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C536	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C540	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C541	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C542	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C543	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C550	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C560	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C565	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C570	0160-3872	0	1	CAP 2.2pF 200 V	06352	FD12C0G2D2R2C
A5 C571	0160-3872	0	1	CAP 2.2pF 200 V	06352	FD12C0G2D2R2C
A5 C600	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C601	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C603	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C604	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C605	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH

Table B-12. 8130A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 C606	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C611	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C612	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C613	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C614	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C615	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C617	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C618	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C620	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C621	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C622	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C624	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C625	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C627	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C628	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C630	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C631	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C633	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C635	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C636	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C640	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C641	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C642	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C643	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C650	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C660	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C665	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C670	0160-3872	0	1	CAP 2.2pF 200 V	06352	FD12C0G2D2R2C
A5 C671	0160-3872	0	1	CAP 2.2pF 200 V	06352	FD12C0G2D2R2C
A5 C700	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11

Table B-12. 8130A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A5 C701	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C703	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C704	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C705	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C706	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C711	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C712	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C713	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C714	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C715	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C717	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C718	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C720	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C721	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C722	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C724	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C725	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C727	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C728	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C730	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C731	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C733	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C735	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C736	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C740	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C741	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C742	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C743	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C750	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C760	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH

Table B-12. 8130A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 C765	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C770	0160-3872	0	1	CAP 2.2pF 200 V	06352	FD12C0G2D2R2C
A5 C771	0160-3872	0	1	CAP 2.2pF 200 V	06352	FD12C0G2D2R2C
A5 CP100	0180-1974	1	1	CAP 10uF 35 V	04200	150D106X9035R2-DYS
A5 CP102	0180-0229	7	1	CAP 33uF 10 V	04200	150D336X9010B2-DYS
A5 CP104	0180-0229	7	1	CAP 33uF 10 V	04200	150D336X9010B2-DYS
A5 CP106	0180-0229	7	1	CAP 33uF 10 V	04200	150D336X9010B2-DYS
A5 CP108	0180-1974	1	1	CAP 10uF 35 V	04200	150D106X9035R2-DYS
A5 CP180	0180-0229	7	1	CAP 33uF 10 V	04200	150D336X9010B2-DYS
A5 CP200	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A5 CP201	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A5 CR100	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A5 CR102	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A5 CR103	1901-0734	0	1	DIO-1N5818	02037	1N5818
A5 CR310	1901-1098	1	1	DIO-1N4150	00746	
A5 CR311	1901-1098	1	1	DIO-1N4150	00746	
A5 CR312	1901-1098	1	1	DIO-1N4150	00746	
A5 CR313	1901-1098	1	1	DIO-1N4150	00746	
A5 CR314	1901-1098	1	1	DIO-1N4150	00746	
A5 CR315	1901-1098	1	1	DIO-1N4150	00746	
A5 CR410	1901-1098	1	1	DIO-1N4150	00746	
A5 CR411	1901-1098	1	1	DIO-1N4150	00746	
A5 CR412	1901-1098	1	1	DIO-1N4150	00746	
A5 CR413	1901-1098	1	1	DIO-1N4150	00746	
A5 CR414	1901-1098	1	1	DIO-1N4150	00746	
A5 CR415	1901-1098	1	1	DIO-1N4150	00746	
A5 CR416	1901-0731	7	1	DIO-PWR RECT	02037	SR3010-3RL
A5 CR510	1901-1098	1	1	DIO-1N4150	00746	
A5 CR511	1901-1098	1	1	DIO-1N4150	00746	
A5 CR512	1901-1098	1	1	DIO-1N4150	00746	

Table B-12. 8130A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 CR513	1901-1098	1	1	DIO-1N4150	00746	
A5 CR514	1901-1098	1	1	DIO-1N4150	00746	
A5 CR515	1901-1098	1	1	DIO-1N4150	00746	
A5 CR610	1901-1098	1	1	DIO-1N4150	00746	
A5 CR611	1901-1098	1	1	DIO-1N4150	00746	
A5 CR612	1901-1098	1	1	DIO-1N4150	00746	
A5 CR613	1901-1098	1	1	DIO-1N4150	00746	
A5 CR614	1901-1098	1	1	DIO-1N4150	00746	
A5 CR615	1901-1098	1	1	DIO-1N4150	00746	
A5 CR616	1901-0731	7	1	DIO-PWR RECT	02037	SR3010-3RL
A5 CR710	1901-1098	1	1	DIO-1N4150	00746	
A5 CR711	1901-1098	1	1	DIO-1N4150	00746	
A5 CR712	1901-1098	1	1	DIO-1N4150	00746	
A5 CR713	1901-1098	1	1	DIO-1N4150	00746	
A5 CR714	1901-1098	1	1	DIO-1N4150	00746	
A5 CR715	1901-1098	1	1	DIO-1N4150	00746	
A5 J100	1251-8324	1	1	CONN-POST-TP-HDR	04486	G06M96P4BEBL-004-715
A5 J101	1251-5380	3	1	CONN-POST-TP-HDR	02946	68000-602
A5 J102	1251-5380	3	1	CONN-POST-TP-HDR	02946	68000-602
A5 J200	1250-0543	8	1	CONN-RF SM-SNP	05769	51-053-0349-BE8
A5 J400	1251-5380	3	1	CONN-POST-TP-HDR	02946	68000-602
A5 J600	1251-5380	3	1	CONN-POST-TP-HDR	02946	68000-602
A5 K400	0490-1667	6	1	RLY 2C 12VDC	09809	RG2T-12V
A5 K600	0490-1667	6	1	RLY 2C 12VDC	09809	RG2T-12V
A5 L100	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A5 L101	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A5 L102	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A5 L103	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A5 L104	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A5 L110	9100-2891	4	1	L 50NH +-10%	03273	10M050K-1

Table B-12. 8130A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 L111	9100-2891	4	1	L 50NH +10%	03273	10M050K-1
A5 L112	9100-2891	4	1	L 50NH +10%	03273	10M050K-1
A5 L113	9100-2891	4	1	L 50NH +10%	03273	10M050K-1
A5 L114	9100-2891	4	1	L 50NH +10%	03273	10M050K-1
A5 L300	9100-2891	4	1	L 50NH +10%	03273	10M050K-1
A5 L400	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A5 L400	9100-2891	4		L 50NH +10%	03273	10M050K-1
A5 L500	9100-2891	4	1	L 50NH +10%	03273	10M050K-1
A5 L600	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A5 L600	9100-2891	4		L 50NH +10%	03273	10M050K-1
A5 L700	9100-2891	4	1	L 50NH +10%	03273	10M050K-1
A5 MP130	1400-1437	0	4	CLAMP-CABLE	11808	
A5 MP134	1400-0082	9	1	CLMP-CA	02414	HP-2N
A5 MP136	3050-0891	7	1	WASHER-FL MTLC 3	06691	
A5 MP201	54100-29104	5	1	SPRING	28480	54100-29104
A5 MP202	54100-29101	2	1	CLAMP	28480	54100-29101
A5 MP209	54100-21103	8	1	SPRING	28480	54100-21103
A5 MP230	0380-1731	2	4	SPCR-PRS-IN	03981	YC3-4564
A5 MP240	0515-0659	8	4	SCR-MACHINE	05610	
A5 MP300	1200-1468	3	1	SOCKET RGA72 CN	10803	1KS072-33TT
A5 MP301	1200-1410	5	1	SOCKET PGA 72PI	10803	1KS072-33TG
A5 MP400	1200-1468	3	1	SOCKET RGA72 CN	10803	1KS072-33TT
A5 MP401	1200-1410	5	1	SOCKET PGI 72PI	10803	1KS072-33TG
A5 MP500	1200-1468	3	1	SOCKET RGA72 CN	10803	1KS072-33TT
A5 MP501	1200-1410	5	1	SOCKET PGI 72PI	10803	1KS072-33TG
A5 MP600	1200-1468	3	1	SOCKET RGA72 CN	10803	1KS072-33TT
A5 MP601	1200-1410	5	1	SOCKET PGI 72PI	10803	1KS072-33TG
A5 MP700	1200-1468	3	1	SOCKET RGA72 CN	10803	1KS072-33TT
A5 MP701	1200-1410	5	1	SOCKET PGI 72PI	10803	1KS072-33TG
A5 Q200	1853-0563	0	1	XSTR PNP SI	02037	2N3906(SEL)

Table B-12. 8130A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 Q310	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A5 Q312	1855-0309	6	1	MOSFET 2N4352 P-	02037	2N4352
A5 Q313	1855-0309	6	1	MOSFET 2N4352 P-	02037	2N4352
A5 Q314	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q315	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q316	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q317	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q318	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q319	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q410	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A5 Q412	1855-0309	6	1	MOSFET 2N4352 P-	02037	2N4352
A5 Q413	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q414	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q415	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q416	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q417	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q418	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q419	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q480	1854-0472	2	1	XSTR NPN SI DARL	02037	MPS-A14
A5 Q510	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A5 Q512	1855-0309	6	1	MOSFET 2N4352 P-	02037	2N4352
A5 Q513	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q514	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q515	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q516	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q517	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q518	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q519	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q610	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A5 Q612	1855-0309	6	1	MOSFET 2N4352 P-	02037	2N4352

Table B-12. 8130A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 Q613	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q614	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q615	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q616	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q617	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q618	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q619	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q680	1854-0472	2	1	XSTR NPN SI DARL	02037	MPS-A14
A5 Q710	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A5 Q712	1855-0309	6	1	MOSFET 2N4352 P-	02037	2N4352
A5 Q713	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q714	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q715	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q716	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q717	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q718	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q719	1853-0569	6	1	XSTR PNP SI	02037	
A5 R100	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R200	0699-1206	1	1	RES 127 1% 2W MO	02499	GS-3
A5 R201	0699-1206	1	1	RES 127 1% 2W MO	02499	GS-3
A5 R202	0698-4855	0	1	RES 267 1% .5W T	01074	H2
A5 R204	0698-7205	0	1	RES 51.1 1% .05W	00746	CRB20
A5 R205	0757-0180	2	1	RES 31.6 1% .125	00746	CRB14 OR CRB25
A5 R206	0698-3162	0	1	RES 46.4K 1% .12	00746	CRB14 OR CRB25
A5 R208	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R209	0757-1094	9	1	RES 1.47K 1% .12	00746	CRB14 OR CRB25
A5 R210	0698-6963	5	1	RES 5.55K .1% .1	00746	CRB14 OR CRB25
A5 R211	0698-6963	5	1	RES 5.55K .1% .1	00746	CRB14 OR CRB25
A5 R212	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R220	0757-0421	4	1	RES 825 1% .125W	00746	CRB14 OR CRB25

Table B-12. 8130A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R221	0698-3132	4	1	RES 261 1% .125W	00746	CRB14 OR CRB25
A5 R300	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R301	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R302	0698-4425	0	1	RES 1.54K 1% .12	00746	CRB14 OR CRB25
A5 R303	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R304	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R305	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R306	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R307	0698-3132	4	1	RES 261 1% .125W	00746	CRB14 OR CRB25
A5 R309	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R310	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R311	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A5 R312	0699-1100	4	1	RES 6.984K .1% .	01074	H8
A5 R313	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A5 R314	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R315	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R319	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R320	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R321	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R322	0757-0317	7	1	RES 1.33K 1% .12	00746	CRB14 OR CRB25
A5 R323	0698-3154	0	1	RES 4.22K 1% .12	00746	CRB14 OR CRB25
A5 R324	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R325	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R326	0757-0419	0	1	RES 681 1% .125W	00746	CRB14 OR CRB25
A5 R327	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R328	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R329	0757-0419	0	1	RES 681 1% .125W	00746	CRB14 OR CRB25
A5 R330	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R331	0698-6348	0	1	RES 3K .1% .125W	00746	CRB14 OR CRB25
A5 R333	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25

Table B-12. 8130A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R334	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R335	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R336	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R337	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R338	0757-0349	5	1	RES 22.6K 1% .12	00746	CRB14 OR CRB25
A5 R339	0757-0477	0	1	RES 332K 1% .125	00746	CRB14 OR CRB25
A5 R340	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R341	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A5 R342	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R343	0698-3158	4	1	RES 23.7K 1% .12	00746	CRB14 OR CRB25
A5 R344	0698-3268	7	1	RES 11.5K 1% .12	00746	CRB14 OR CRB25
A5 R345	0698-3136	8	1	RES 17.8K 1% .12	00746	CRB14 OR CRB25
A5 R346	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R347	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R348	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R350	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R351	0698-3460	1	1	RES 422K 1% .125	00746	CRB14 OR CRB25
A5 R362	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R367	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A5 R370	0698-3161	9	1	RES 38.3K 1% .12	00746	CRB14 OR CRB25
A5 R371	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R373	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R375	0698-3159	5	1	RES 26.1K 1% .12	00746	CRB14 OR CRB25
A5 R376	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R377	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R378	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R379	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R381	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R390	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R391	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25

Table B-12. 8130A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A5 R392	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R394	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R396	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R400	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R401	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R402	0698-4425	0	1	RES 1.54K 1% .12	00746	CRB14 OR CRB25
A5 R403	0698-4422	7	1	RES 1.27K 1% .12	00746	CRB14 OR CRB25
A5 R404	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R405	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R406	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R409	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R410	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R411	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A5 R412	0699-1011	6	1	RES 3.32K .1% .1	00746	CRB14 OR CRB25
A5 R413	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A5 R414	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R415	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R419	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R420	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R421	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R422	0757-0424	7	1	RES 1.1K 1% .125	00746	CRB14 OR CRB25
A5 R423	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R424	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R425	0757-0278	9	1	RES 1.78K 1% .12	00746	CRB14 OR CRB25
A5 R426	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R427	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R428	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R429	0757-0419	0	1	RES 681 1% .125W	00746	CRB14 OR CRB25
A5 R430	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R431	0698-6348	0	1	RES 3K .1% .125W	00746	CRB14 OR CRB25

Table B-12. 8130A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R433	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R434	0698-6616	5	1	RES 750 .1% .125	00746	CRB14 OR CRB25
A5 R435	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R436	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R437	0698-6616	5	1	RES 750 .1% .125	00746	CRB14 OR CRB25
A5 R438 10	0757-0465	6		RES 100K 1% .125	00746	CRB14 OR CRB25
A5 R438*	0757-0463	4	1	RES 82.5K 1% .12	00746	CRB14 OR CRB25
A5 R440	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R441	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A5 R442	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R443	0757-0462	3	1	RES 75K 1% .125W	00746	CRB14 OR CRB25
A5 R444	0698-3268	7	1	RES 11.5K 1% .12	00746	CRB14 OR CRB25
A5 R445	0698-3136	8	1	RES 17.8K 1% .12	00746	CRB14 OR CRB25
A5 R446	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R447	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R448	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R450	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R453	0757-0462	3		RES 75K 1% .125W	00746	CRB14 OR CRB25
A5 R453*	0698-3243	8	1	RES 178K 1% .125	00746	CRB14 OR CRB25
A5 R460	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R461	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R462	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R467	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A5 R470	0698-3158	4	1	RES 23.7K 1% .12	00746	CRB14 OR CRB25
A5 R471	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R473	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R475	0698-3159	5	1	RES 26.1K 1% .12	00746	CRB14 OR CRB25
A5 R476	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R477	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R479	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25

Table B-12. 8130A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R480	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R481	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R486	0757-0465	6	1	RES 100K 1% .125	00746	CRB14 OR CRB25
A5 R490	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R491	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R492	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R494	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R496	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R501	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R502	0698-4425	0	1	RES 1.54K 1% .12	00746	CRB14 OR CRB25
A5 R503	0757-0422	5	1	RES 909 1% .125W	00746	CRB14 OR CRB25
A5 R504	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R505	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R506	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R509	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R510	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R511	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A5 R512	0699-1011	6	1	RES 3.32K .1% .1	00746	CRB14 OR CRB25
A5 R513	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A5 R514	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R515	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R519	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R520	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R521	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R522	0757-0317	7	1	RES 1.33K 1% .12	00746	CRB14 OR CRB25
A5 R523	0698-0084	9	1	RES 2.15K 1% .12	00746	CRB14 OR CRB25
A5 R524	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R525	0757-0278	9	1	RES 1.78K 1% .12	00746	CRB14 OR CRB25
A5 R526	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R527	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25

Table B-12. 8130A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R528	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R529	0757-0419	0	1	RES 681 1% .125W	00746	CRB14 OR CRB25
A5 R530	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R531	0698-6348	0	1	RES 3K .1% .125W	00746	CRB14 OR CRB25
A5 R533	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R534	0698-6616	5	1	RES 750 .1% .125	00746	CRB14 OR CRB25
A5 R535	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R536	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R537	0698-6616	5	1	RES 750 .1% .125	00746	CRB14 OR CRB25
A5 R538	0757-0978	6	1	RES 95.3K 1% .12	00746	CRB14 OR CRB25
A5 R539	0698-3260	9	1	RES 464K 1% .125	00746	CRB14 OR CRB25
A5 R540	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R541	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A5 R542	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R543	0757-0464	5	1	RES 90.9K 1% .12	00746	CRB14 OR CRB25
A5 R544	0698-3268	7	1	RES 11.5K 1% .12	00746	CRB14 OR CRB25
A5 R545	0698-3136	8	1	RES 17.8K 1% .12	00746	CRB14 OR CRB25
A5 R546	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R547	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R548	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R550	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R551	0698-8961	7	1	RES 909K 1% .125	00746	CRB14 OR CRB25
A5 R560	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R567	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A5 R570	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R571	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R573	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R575	0698-3159	5	1	RES 26.1K 1% .12	00746	CRB14 OR CRB25
A5 R576	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R577	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25

Table B-12. 8130A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R579	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R580	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R581	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R590	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R591	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R592	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R594	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R596	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R600	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R601	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R602	0698-4425	0	1	RES 1.54K 1% .12	00746	CRB14 OR CRB25
A5 R603	0698-4422	7	1	RES 1.27K 1% .12	00746	CRB14 OR CRB25
A5 R604	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R605	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R606	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R609	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R610	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R611	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A5 R612	0699-1011	6	1	RES 3.32K .1% .1	00746	CRB14 OR CRB25
A5 R613	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A5 R614	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R615	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R619	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R620	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R621	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R622	0757-0424	7	1	RES 1.1K 1% .125	00746	CRB14 OR CRB25
A5 R623	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R624	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R625	0757-0278	9	1	RES 1.78K 1% .12	00746	CRB14 OR CRB25
A5 R626	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25

Table B-12. 8130A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R627	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R628	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R629	0757-0419	0	1	RES 681 1% .125W	00746	CRB14 OR CRB25
A5 R630	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R631	0698-6348	0	1	RES 3K .1% .125W	00746	CRB14 OR CRB25
A5 R633	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R634	0698-6616	5	1	RES 750 .1% .125	00746	CRB14 OR CRB25
A5 R635	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R636	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R637	0698-6616	5	1	RES 750 .1% .125	00746	CRB14 OR CRB25
A5 R638	0757-0465	6		RES 100K 1% .125	00746	CRB14 OR CRB25
A5 R638*	0757-0463	4	1	RES 82.5K 1% .12	00746	CRB14 OR CRB25
A5 R640	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R641	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A5 R642	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R643	0757-0462	3	1	RES 75K 1% .125W	00746	CRB14 OR CRB25
A5 R644	0698-3268	7	1	RES 11.5K 1% .12	00746	CRB14 OR CRB25
A5 R645	0698-3136	8	1	RES 17.8K 1% .12	00746	CRB14 OR CRB25
A5 R646	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R647	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R648	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R650	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R653	0757-0462	3		RES 75K 1% .125W	00746	CRB14 OR CRB25
A5 R653*	0698-3243	8	1	RES 178K 1% .125	00746	CRB14 OR CRB25
A5 R660	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R661	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R667	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A5 R670	0698-3158	4	1	RES 23.7K 1% .12	00746	CRB14 OR CRB25
A5 R671	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R673	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25

Table B-12. 8130A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R675	0698-3159	5	1	RES 26.1K 1% .12	00746	CRB14 OR CRB25
A5 R676	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R677	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R679	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R680	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R681	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R686	0757-0465	6	1	RES 100K 1% .125	00746	CRB14 OR CRB25
A5 R690	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R691	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R692	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R694	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R696	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R701	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R702	0698-4425	0	1	RES 1.54K 1% .12	00746	CRB14 OR CRB25
A5 R703	0757-0422	5	1	RES 909 1% .125W	00746	CRB14 OR CRB25
A5 R704	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R705	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R706	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R709	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R710	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R711	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A5 R712	0699-1011	6	1	RES 3.32K .1% .1	00746	CRB14 OR CRB25
A5 R713	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A5 R714	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R715	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R719	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R720	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R721	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R722	0757-0317	7	1	RES 1.33K 1% .12	00746	CRB14 OR CRB25
A5 R723	0698-0084	9	1	RES 2.15K 1% .12	00746	CRB14 OR CRB25

Table B-12. 8130A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R724	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R725	0757-0278	9	1	RES 1.78K 1% .12	00746	CRB14 OR CRB25
A5 R726	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R727	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R728	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R729	0757-0419	0	1	RES 681 1% .125W	00746	CRB14 OR CRB25
A5 R730	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R731	0698-6348	0	1	RES 3K .1% .125W	00746	CRB14 OR CRB25
A5 R733	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R734	0698-6616	5	1	RES 750 .1% .125	00746	CRB14 OR CRB25
A5 R735	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R736	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R737	0698-6616	5	1	RES 750 .1% .125	00746	CRB14 OR CRB25
A5 R738	0757-0978	6	1	RES 95.3K 1% .12	00746	CRB14 OR CRB25
A5 R739	0698-3260	9	1	RES 464K 1% .125	00746	CRB14 OR CRB25
A5 R740	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R741	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A5 R742	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R743	0757-0464	5	1	RES 90.9K 1% .12	00746	CRB14 OR CRB25
A5 R744	0698-3268	7	1	RES 11.5K 1% .12	00746	CRB14 OR CRB25
A5 R745	0698-3136	8	1	RES 17.8K 1% .12	00746	CRB14 OR CRB25
A5 R746	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R747	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R748	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R750	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R751	0698-8961	7	1	RES 909K 1% .125	00746	CRB14 OR CRB25
A5 R760	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R767	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A5 R770	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R771	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25

Table B-12. 8130A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A5 R773	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R775	0698-3159	5	1	RES 26.1K 1% .12	00746	CRB14 OR CRB25
A5 R776	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R777	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R779	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R780	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R781	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R790	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R791	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R792	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R794	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R796	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 RA100	1810-0316	1	1	NETWORK-RES DIP	02483	761-3-R10K
A5 RT393	0837-0035	6	1	THERMISTOR DISC	05098	35D24
A5 RT493	0837-0035	6	1	THERMISTOR DISC	05098	35D24
A5 RT593	0837-0035	6	1	THERMISTOR DISC	05098	35D24
A5 RT693	0837-0035	6	1	THERMISTOR DISC	05098	35D24
A5 RT793	0837-0035	6	1	THERMISTOR DISC	05098	35D24
A5 TP200	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP311	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP312	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP323	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP324	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP411	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP423	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP424	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP511	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP512	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP523	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP524	0360-2264	6	1	TERM.-TEST POINT	10358	1095D

Table B-12. 8130A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 TP611	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP623	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP624	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP711	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP723	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP724	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 U100	1820-3665	0	1	IC-MM74HCT245N	01698	SN74HCT245N
A5 U101	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A5 U102	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U103	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U104	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A5 U105	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U106	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U107	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A5 U108	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U109	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A5 U110	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U111	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U112	1818-3164	9	1	IC X2816BP	10572	X2816BP
A5 U200	1NB7-8008	1	1	SYNC COMP HYBRID	28480	1NB7-8008
A5 U201	1826-0544	0	1	IC-V RGLTR	02037	
A5 U202	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U203	1826-0550	8	1	D/A 8-BIT	02910	DAC08EN
A5 U204	1820-0493	6	1	IC 307	03406	LM307N
A5 U300	1DP9-0002	0	1	IC T1671	28480	1DP9-0002
A5 U301	1DP6-0001	3	1	IC COUNTER 200M	28480	1DP6-0001
A5 U303	1820-4995	1	1	IC-TC74HC592P	06354	TC74HC592P
A5 U304	1820-4995	1	1	IC-TC74HC592P	06354	TC74HC592P
A5 U305	1820-5067	0	1	IC-74AC74PC	03406	74AC74PC
A5 U306	1820-5067	0	1	IC-74AC74PC	03406	74AC74PC

Table B-12. 8130A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A5 U307	1820-3298	5	1	IC-MM74HC32N	02037	MC74HC32N
A5 U310	1826-1553	3	1	IC 1014	10858	LT1014DN
A5 U311	1826-0774	8	1	IC LM385BZ-1.2	03406	LM385BZ-1.2
A5 U312	1826-1341	7	1	D/A 12-DGT	03406	DAC1232LCD
A5 U313	1826-1409	8	1	IC 1013	10858	LT1013CN8
A5 U314	1826-0315	3	1	IC 348	03406	LM348N
A5 U318	1826-0916	0	1	ANLG SW AD7511DI	03285	AD7511DIKN
A5 U400	1DP9-0001	9	1	IC TIMG GEN 500	28480	1DP9-0001
A5 U401	1DP6-0001	3	1	IC COUNTER 200M	28480	1DP6-0001
A5 U410	1826-1553	3	1	IC 1014	10858	LT1014DN
A5 U411	1826-0774	8	1	IC LM385BZ-1.2	03406	LM385BZ-1.2
A5 U412	1826-1341	7	1	D/A 12-DGT	03406	DAC1232LCD
A5 U413	1826-1409	8	1	IC 1013	10858	LT1013CN8
A5 U414	1826-0315	3	1	IC 348	03406	LM348N
A5 U418	1826-0916	0	1	ANLG SW AD7511DI	03285	AD7511DIKN
A5 U500	1DP9-0001	9	1	IC TIMG GEN 500	28480	1DP9-0001
A5 U501	1DP6-0001	3	1	IC COUNTER 200M	28480	1DP6-0001
A5 U510	1826-1553	3	1	IC 1014	10858	LT1014DN
A5 U511	1826-0774	8	1	IC LM385BZ-1.2	03406	LM385BZ-1.2
A5 U512	1826-1341	7	1	D/A 12-DGT	03406	DAC1232LCD
A5 U513	1826-1409	8	1	IC 1013	10858	LT1013CN8
A5 U514	1826-0315	3	1	IC 348	03406	LM348N
A5 U518	1826-0916	0	1	ANLG SW AD7511DI	03285	AD7511DIKN
A5 U600	1DP9-0001	9	1	IC TIMG GEN 500	28480	1DP9-0001
A5 U601	1DP6-0001	3	1	IC COUNTER 200M	28480	1DP6-0001
A5 U610	1826-1553	3	1	IC 1014	10858	LT1014DN
A5 U611	1826-0774	8	1	IC LM385BZ-1.2	03406	LM385BZ-1.2
A5 U612	1826-1341	7	1	D/A 12-DGT	03406	DAC1232LCD
A5 U613	1826-1409	8	1	IC 1013	10858	LT1013CN8
A5 U614	1826-0315	3	1	IC 348	03406	LM348N

Table B-12. 8130A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 U618	1826-0916	0	1	ANLG SW AD7511DI	03285	AD7511DIKN
A5 U700	1DP9-0001	9	1	IC TIMG GEN 500	28480	1DP9-0001
A5 U701	1DP6-0001	3	1	IC COUNTER 200M	28480	1DP6-0001
A5 U710	1826-1553	3	1	IC 1014	10858	LT1014DN
A5 U711	1826-0774	8	1	IC LM385BZ-1.2	03406	LM385BZ-1.2
A5 U712	1826-1341	7	1	D/A 12-DGT	03406	DAC1232LCD
A5 U713	1826-1409	8	1	IC 1013	10858	LT1013CN8
A5 U714	1826-0315	3	1	IC 348	03406	LM348N
A5 U718	1826-0916	0	1	ANLG SW AD7511DI	03285	AD7511DIKN
A5 VR300	1902-0955	9	1	DIO-ZNR 7.5V 5%	02037	
A5 VR400	1902-0955	9	1	DIO-ZNR 7.5V 5%	02037	
A5 VR500	1902-0955	9	1	DIO-ZNR 7.5V 5%	02037	
A5 VR600	1902-0955	9	1	DIO-ZNR 7.5V 5%	02037	
A5 VR700	1902-0955	9	1	DIO-ZNR 7.5V 5%	02037	
A5 W100	1258-0141	8	1	JUMPER-REM	01380	530153-2
A5 W300	08131-61650	4	1	CBL AY PC 15CM	28480	08131-61650
A5 W301	08130-61655	8	1	CBL AY TOUTIN	28480	08130-61655
A5 W400	08131-61672	0	1	CBL SET DELAY A	28480	08131-61672
A5 W500	08130-61670	7	1	CBL SET OUT 30-	28480	08130-61670
A5 W600	08131-61672	0	1	CBL SET DELAY A	28480	08131-61672
A5 W700	08130-61671	8	1	CBL SET DEL27-3	28480	08130-61671

**Channel 2 Board
Option 020**

Table B-13. 8130A Option 020 Channel 2 Board Parts List

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A27	08130-66527	3	1	BD AY CHAN 2 SET	28480	08130-66527
A27A417	08130-66417	0	1	BD AY SLP SMD O	28480	08130-66417
A27C2	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A27C3	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A27C4	0160-3873	1	1	CAP 4.7pF 200 V	06352	FD12C0G2D4R7D
A27C5	0160-3873	1	1	CAP 4.7pF 200 V	06352	FD12C0G2D4R7D
A27C6	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A27C7	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A27C8	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A27C11	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A27C12	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A27C13	0160-5735	8	1	CAP 10pF 100 V	06121	B37979-J1100-J34
A27C14	0160-5735	8	1	CAP 10pF 100 V	06121	B37979-J1100-J34
A27C15	0160-5735	8	1	CAP 10pF 100 V	06121	B37979-J1100-J34
A27C16	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A27C17*	0160-3873	1		CAP 4.7pF 200 V	06352	FD12C0G2D4R7D
A27C18*	0160-3873	1		CAP 4.7pF 200 V	06352	FD12C0G2D4R7D
A27C101	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C103	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A27C104	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034

Table B-13. 8130A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A27C105	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C106	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C108	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C111	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A27C113	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A27C115	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A27C117	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A27C119	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A27C121	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A27C123	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C124	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A27C132	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C134	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A27C135	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C136	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A27C137	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A27C150	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A27C151	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C152	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C153	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C154	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A27C155	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A27C156	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A27C157	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A27C158	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C159	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C160	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C161	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A27C162	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A27C163	0160-4801	7	1	CAP 100pF 100 V	02010	SA102A101JAAH

Table B-13. 8130A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A27C200	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A27C201	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C202	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C203	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C204	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C205	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C207	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A27C208	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C209	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C210	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C211	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C212	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A27C214	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C215	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C216	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C218	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C300	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A27C301	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A27C302	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A27C303	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A27C304	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C305	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C306	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C307	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C308	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A27C309	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C310	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A27C311	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A27C312	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C313	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH

Table B-13. 8130A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A27C314	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A27C315	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A27C316	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A27C317	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A27C318	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C319	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C320	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A27C321	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A27C323	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A27C324	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A27C326	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A27C327	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A27C328	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C329	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A27C330	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A27C331	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A27C332	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A27C333	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C334	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C335	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A27C400	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C401	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C402	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C403	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C404	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C405	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C406	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C407	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C409	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C410	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH

Table B-13. 8130A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A27C411	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C412	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C413	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C414	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C416	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C417	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C418	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A27C419	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C420	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C421	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C422	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C423	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C424	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C425	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C426	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A27C427	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C428	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C429	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A27C430	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A27C431	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A27C432	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A27C433	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A27C436	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A27C437	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C438	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C900	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C901	0160-5747	2	1	CAP 0.047uF 50 V	06121	B37987-J5473-M034
A27C902	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C903	0160-5747	2	1	CAP 0.047uF 50 V	06121	B37987-J5473-M034
A27C904	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034

Table B-13. 8130A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A27C905	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A27C906	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A27C907	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A27C908	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A27C909	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A27C910	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A27C911	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A27C912	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27C913	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A27CP1	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A27CP2	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A27CP110	0180-0116	1	1	CAP 6.8uF 35 V	04200	150D685X9035B2-DYS
A27CP112	0180-0374	3	1	CAP 10uF 20 V	04200	150D106X9020B2-DYS
A27CP114	0180-0374	3	1	CAP 10uF 20 V	04200	150D106X9020B2-DYS
A27CP116	0180-0116	1	1	CAP 6.8uF 35 V	04200	150D685X9035B2-DYS
A27CP118	0180-0116	1	1	CAP 6.8uF 35 V	04200	150D685X9035B2-DYS
A27CP120	0180-0374	3	1	CAP 10uF 20 V	04200	150D106X9020B2-DYS
A27CP121	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A27CP150	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A27CP200	0180-0374	3	1	CAP 10uF 20 V	04200	150D106X9020B2-DYS
A27CP300	0180-2979	8	1	CAP 220uF 16 V	00493	SM16VB221M10X12
A27CP301	0180-2979	8	1	CAP 220uF 16 V	00493	SM16VB221M10X12
A27CP302	0180-2979	8	1	CAP 220uF 16 V	00493	SM16VB221M10X12
A27CP303	0180-2979	8	1	CAP 220uF 16 V	00493	SM16VB221M10X12
A27CR1	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A27CR2	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A27CR3	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A27CR4	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A27CR100	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A27CR101	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511

Table B-13. 8130A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A27CR102	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A27CR150	1901-0033	2	1	DIO-GEN PRP	03406	
A27CR151	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A27CR152	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A27CR153	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A27CR154	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A27CR155	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A27CR156	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A27CR201	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A27CR202	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A27CR206	1901-0376	6	1	DIO-GEN PRP	00046	1N3595
A27CR207	1901-0376	6	1	DIO-GEN PRP	00046	1N3595
A27CR209	1901-0376	6	1	DIO-GEN PRP	00046	1N3595
A27CR210	1901-0376	6	1	DIO-GEN PRP	00046	1N3595
A27CR300	1901-1098	1	1	DIO-1N4150	00746	
A27CR301	1901-1098	1	1	DIO-1N4150	00746	
A27CR303	1901-1098	1	1	DIO-1N4150	00746	
A27CR305	1901-1098	1	1	DIO-1N4150	00746	
A27CR306	1901-0033	2	1	DIO-GEN PRP	03406	
A27CR307	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A27CR400	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A27CR401	1901-1098	1	1	DIO-1N4150	00746	
A27CR404	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A27CR405	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A27CR406	1901-0047	8	1	DIO-SWITCHING	03406	
A27CR901	1901-1098	1	1	DIO-1N4150	00746	
A27CR902	1901-1098	1	1	DIO-1N4150	00746	
A27CR906	1901-0033	2	1	DIO-GEN PRP	03406	
A27CR910	1901-1098	1	1	DIO-1N4150	00746	
A27CR911	1901-1098	1	1	DIO-1N4150	00746	

Table B-13. 8130A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A27CR912	1901-1098	1	1	DIO-1N4150	00746	
A27CR913	1901-1098	1	1	DIO-1N4150	00746	
A27CR915	1901-1098	1	1	DIO-1N4150	00746	
A27CV1	0121-0491	1	1	CAP 30pF 5pF 50	09538	518-003 A 5-30
A27J1	1251-8324	1	1	CONN-POST-TP-HDR	04486	G06M96P4BEBL-004-715
A27J2	1250-2066	4	1	CONN-RF SMB	05769	51-051-0359
A27J3	1250-2066	4	1	CONN-RF SMB	05769	51-051-0359
A27J4	1252-3245	7	1	CONN ELAST 38	09922	NE 0.2P 38.5L 3.0H 3.6W
A27J5	1252-3244	6	1	CONN ELAST 38	09922	NE 0.4P 38.5L 3.5H 4.2W
A27J6	1252-2649	3	1	CONN ELAST 43LG	09922	NE 0.2P 43.0L 3.0H 3.6W
A27J7	1252-2647	1	1	CONN ELAST 0.4P	09922	NE 0.4P 43.0L 3.5H 4.2W
A27J8	1252-3244	6	1	CONN ELAST 38	09922	NE 0.4P 38.5L 3.5H 4.2W
A27J9	1252-3245	7	1	CONN ELAST 38	09922	NE 0.2P 38.5L 3.0H 3.6W
A27J10	1252-2647	1	1	CONN ELAST 0.4P	09922	NE 0.4P 43.0L 3.5H 4.2W
A27J11	1200-1475	2	1	SKT-STRP 17-CONT	06665	SL-117-T-12
A27J12	1200-1474	1	1	SKT-STRP 13-CONT	06665	SL-113-T-12
A27J13	1200-1473	0	1	SKT-STRP 10-CONT	06665	SL-110-T-12
A27J14	1200-1472	9	1	SKT-STRP 8-CONT	06665	SL-108-T-12
A27J15	1200-1471	8	1	SKT-STRP 6-CONT	06665	SL-106-T-12
A27J16	1252-2649	3	1	CONN ELAST 43LG	09922	NE 0.2P 43.0L 3.0H 3.6W
A27J100	1251-4682	6	1	CONN-POST-TP-HDR	03394	1102-1-103-02
A27J101	1251-4682	6	1	CONN-POST-TP-HDR	03394	1102-1-103-02
A27J300	1251-5380	3	1	CONN-POST-TP-HDR	02946	68000-602
A27K1	0490-1667	6	1	RLY 2C 12VDC	09809	RG2T-12V
A27K2	0490-1667	6	1	RLY 2C 12VDC	09809	RG2T-12V
A27K3	0490-1667	6	1	RLY 2C 12VDC	09809	RG2T-12V
A27K4	0490-1665	4	1	RLY 1C 12VDC	01850	RG1ET-12V
A27K5	0490-1665	4	1	RLY 1C 12VDC	01850	RG1ET-12V
A27K6	0490-1405	0	1	RLY 2C 12VDC	01850	DS2E-S-DC12V-C-H118
A27L1	5081-1973	5	1	INDUCTANCE 3BEA	28480	5081-1973

Table B-13. 8130A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A27L2	5081-1973	5	1	INDUCTANCE 3BEA	28480	5081-1973
A27L3	5081-1973	5	1	INDUCTANCE 3BEA	28480	5081-1973
A27L4	5081-1973	5	1	INDUCTANCE 3BEA	28480	5081-1973
A27L7	9140-0114	4	1	L 10UH +-10%	03273	15M102K
A27L8	9140-0114	4	1	L 10UH +-10%	03273	15M102K
A27L100	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A27L101	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A27L102	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A27L103	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A27L104	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A27L105	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A27MP1	08130-00601	6	1	SHLD OUTP BD	28480	08130-00601
A27MP20	08130-21101	5	1	HEAT SINK	28480	08130-21101
A27MP21	08130-40502	0	1	HYBRID FRAME	28480	08130-40502
A27MP23	0340-1236	8	1	INSULATOR	28480	0340-1236
A27MP26	3050-0960	1	2	WASHER-SHLDR 3.0	05947	V5359
A27MP27	0515-0659	8	4	SCR-MACHINE	05610	
A27MP80	1400-1437	0	6	CLAMP-CABLE	11808	
A27MP108	1200-0541	1	1	SKT-IC-DIP 24-CO	01380	2-641604-1
A27MP302	1205-0295	2	1	HEAT SINK	02608	6107B-14
A27MP303	1205-0295	2	1	HEAT SINK	02608	6107B-14
A27MP304	0340-1074	2	1	INSUL-XSTR	05447	3223-07FR-58-AC
A27MP305	0340-1074	2	1	INSUL-XSTR	05447	3223-07FR-58-AC
A27MP400	1205-0213	4	1	HEAT SINK	02608	2228B
A27MP401	1205-0213	4	1	HEAT SINK	02608	2228B
A27MP402	1205-0213	4	1	HEAT SINK	02608	2228B
A27MP403	1205-0011	0	1	HEAT SINK	02608	2226B
A27MP407	1205-0213	4	1	HEAT SINK	02608	2228B
A27MP409	1205-0213	4	1	HEAT SINK	02608	2228B
A27MP904	1205-0213	4	1	HEAT SINK	02608	2228B

Table B-13. 8130A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A27Q1	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A27Q2	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A27Q3	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A27Q4	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A27Q101	1854-0039	7	1	XSTR NPN 2N3053S	02037	2N3053S
A27Q102	1853-0569	6	1	XSTR PNP SI	02037	
A27Q200	1854-0583	6	1	XSTR NPN SI	02037	MPS-A18
A27Q201	1854-0583	6	1	XSTR NPN SI	02037	MPS-A18
A27Q202	1855-0309	6	1	MOSFET 2N4352 P-	02037	2N4352
A27Q203	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A27Q204	1854-0477	7	1	XSTR NPN 2N2222A	02037	2N2222A
A27Q300	1854-0828	2	1	XSTR NPN SI	00039	NTD560
A27Q301	1853-0468	4	1	XSTR PNP SI DARL	02037	TIP-127
A27Q302	1853-0569	6	1	XSTR PNP SI	02037	
A27Q303	1853-0569	6	1	XSTR PNP SI	02037	
A27Q304	1853-0569	6	1	XSTR PNP SI	02037	
A27Q305	1853-0569	6	1	XSTR PNP SI	02037	
A27Q307	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A27Q308	1853-0563	0	1	XSTR PNP SI	02037	2N3906(SEL)
A27Q309	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A27Q400	1853-0051	1	1	XSTR PNP 2N4037	03799	2N4037
A27Q401	1854-0637	1	1	XSTR NPN 2N2219A	02037	2N2219A
A27Q402	1853-0314	9	1	XSTR PNP 2N2905A	02037	2N2905A
A27Q404	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A27Q405	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A27Q407	1854-0597	2	1	XSTR NPN 2N5943	02037	2N5943
A27Q408	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A27Q409	1853-0314	9	1	XSTR PNP 2N2905A	02037	2N2905A
A27Q410	1853-0314	9	1	XSTR PNP 2N2905A	02037	2N2905A
A27Q411	1853-0314	9	1	XSTR PNP 2N2905A	02037	2N2905A

Table B-13. 8130A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A27Q412	1853-0569	6	1	XSTR PNP SI	02037	
A27Q413	1853-0569	6	1	XSTR PNP SI	02037	
A27Q414	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A27Q415	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A27Q416	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A27Q418	1853-0563	0	1	XSTR PNP SI	02037	2N3906(SEL)
A27Q419	1853-0569	6	1	XSTR PNP SI	02037	
A27Q421	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A27Q900	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A27Q901	1855-0751	2	1	MOSFET N-CHAN	02883	VN0808M
A27Q902	1855-0751	2	1	MOSFET N-CHAN	02883	VN0808M
A27Q903	1854-0637	1	1	XSTR NPN 2N2219A	02037	2N2219A
A27Q904	1853-0051	1	1	XSTR PNP 2N4037	03799	2N4037
A27Q905	1853-0563	0	1	XSTR PNP SI	02037	2N3906(SEL)
A27R2	0698-4453	4	1	RES 402 1% .125W	00746	CRB14 OR CRB25
A27R3	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25
A27R4	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25
A27R5	0698-4453	4	1	RES 402 1% .125W	00746	CRB14 OR CRB25
A27R6	0698-4435	2	1	RES 2.49K 1% .12	00746	CRB14 OR CRB25
A27R7	0698-4435	2	1	RES 2.49K 1% .12	00746	CRB14 OR CRB25
A27R8	0757-0999	1	1	RES 47.5 1% .5W	01074	H2
A27R9	0757-0999	1	1	RES 47.5 1% .5W	01074	H2
A27R12	0757-0389	3	1	RES 33.2 1% .125	00746	CRB14 OR CRB25
A27R13	0757-0389	3	1	RES 33.2 1% .125	00746	CRB14 OR CRB25
A27R14	0698-4409	0	1	RES 127 1% .125W	00746	CRB14 OR CRB25
A27R15	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A27R16	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25
A27R17	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25
A27R18	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25
A27R19	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25

Table B-13. 8130A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A27R20	0757-0411	2	1	RES 332 1% .125W	00746	CRB14 OR CRB25
A27R21	0757-0411	2	1	RES 332 1% .125W	00746	CRB14 OR CRB25
A27R22	0757-0807	0	1	RES 274 1% .5W T	01074	H2
A27R23	0757-0807	0	1	RES 274 1% .5W T	01074	H2
A27R24	0699-2732	0	1	RES 59 1% 2W TF	05524	CPF-2 5900 F T-1
A27R25	0699-2732	0	1	RES 59 1% 2W TF	05524	CPF-2 5900 F T-1
A27R26	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25
A27R27	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25
A27R100	0757-0274	5	1	RES 1.21K 1% .12	00746	CRB14 OR CRB25
A27R101	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A27R102	0698-6624	5	1	RES 2K .1% .125W	00746	CRB14 OR CRB25
A27R104	0698-0082	7	1	RES 464 1% .125W	00746	CRB14 OR CRB25
A27R105	0698-6624	5	1	RES 2K .1% .125W	00746	CRB14 OR CRB25
A27R106	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A27R107	0698-4445	4	1	RES 5.76K 1% .12	00746	CRB14 OR CRB25
A27R108	0698-4479	4	1	RES 14K 1% .125W	00746	CRB14 OR CRB25
A27R109	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R110	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A27R111	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R112	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R113	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R114	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A27R115	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A27R116	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R126	0698-4479	4	1	RES 14K 1% .125W	00746	CRB14 OR CRB25
A27R150	0757-0461	2	1	RES 68.1K 1% .12	00746	CRB14 OR CRB25
A27R151	0757-0199	3	1	RES 21.5K 1% .12	00746	CRB14 OR CRB25
A27R152	0757-0465	6	1	RES 100K 1% .125	00746	CRB14 OR CRB25
A27R153	0698-8827	4	1	RES 1M 1% .125W	00746	CRB14 OR CRB25
A27R154	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25

Table B-13. 8130A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A27R155	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R156	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R157	0698-8958	2	1	RES 511K 1% .125	00746	CRB14 OR CRB25
A27R158	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R159	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A27R160	0698-0084	9	1	RES 2.15K 1% .12	00746	CRB14 OR CRB25
A27R161	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R162	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R163	0698-8958	2	1	RES 511K 1% .125	00746	CRB14 OR CRB25
A27R164	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A27R165	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R166	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R167	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R168	0698-8958	2	1	RES 511K 1% .125	00746	CRB14 OR CRB25
A27R169	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R170	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R171	0698-8958	2	1	RES 511K 1% .125	00746	CRB14 OR CRB25
A27R172	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A27R173	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R174	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R175	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R176	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R177	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R178	0698-3152	8	1	RES 3.48K 1% .12	00746	CRB14 OR CRB25
A27R179	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A27R180	0698-3152	8	1	RES 3.48K 1% .12	00746	CRB14 OR CRB25
A27R181	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A27R182	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A27R183	0757-0274	5	1	RES 1.21K 1% .12	00746	CRB14 OR CRB25
A27R184	0698-3452	1	1	RES 147K 1% .125	00746	CRB14 OR CRB25

Table B-13. 8130A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A27R185	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A27R186	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A27R187	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A27R188	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R189	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R190	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R191	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R192	0698-0084	9	1	RES 2.15K 1% .12	00746	CRB14 OR CRB25
A27R193	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R194	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R200	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R201	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A27R203	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A27R204	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A27R206	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A27R207	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A27R208	0757-0199	3	1	RES 21.5K 1% .12	00746	CRB14 OR CRB25
A27R209	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A27R210	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A27R212	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A27R213	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A27R214	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R215	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A27R217	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R218	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R219	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R220	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R221	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A27R222	0757-0403	2	1	RES 121 1% .125W	00746	CRB14 OR CRB25
A27R223	0757-0403	2	1	RES 121 1% .125W	00746	CRB14 OR CRB25

Table B-13. 8130A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A27R225	0757-0274	5	1	RES 1.21K 1% .12	00746	CRB14 OR CRB25
A27R226	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A27R227	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A27R276	0698-3441	8	1	RES 215 1% .125W	00746	CRB14 OR CRB25
A27R300	0698-3449	6	1	RES 28.7K 1% .12	00746	CRB14 OR CRB25
A27R301	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R302	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R304	0698-8799	9	1	RES 21.5K .1% .1	00746	CRB14 OR CRB25
A27R307	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A27R308	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R309	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A27R310	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A27R311	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A27R312	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A27R313	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A27R314	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R315	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A27R316	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A27R317	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R318	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R319	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R320	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R321	0757-0421	4	1	RES 825 1% .125W	00746	CRB14 OR CRB25
A27R322	0699-1056	9	1	RES 825 .1% .125	00746	CRB14 OR CRB25
A27R323	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A27R324	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A27R325	0757-0421	4	1	RES 825 1% .125W	00746	CRB14 OR CRB25
A27R326	0699-1056	9	1	RES 825 .1% .125	00746	CRB14 OR CRB25
A27R327	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A27R328	0757-0461	2	1	RES 68.1K 1% .12	00746	CRB14 OR CRB25

Table B-13. 8130A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A27R329	0698-8826	3	1	RES 825K 1% .125	00746	CRB14 OR CRB25
A27R330	0757-0409	8	1	RES 274 1% .125W	00746	CRB14 OR CRB25
A27R332	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R333	0698-3156	2	1	RES 14.7K 1% .12	00746	CRB14 OR CRB25
A27R334	0757-0409	8	1	RES 274 1% .125W	00746	CRB14 OR CRB25
A27R335	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R337	0757-0346	2	1	RES 10 1% .125W	00746	CRB14 OR CRB25
A27R338	0698-3156	2	1	RES 14.7K 1% .12	00746	CRB14 OR CRB25
A27R339	0698-3156	2	1	RES 14.7K 1% .12	00746	CRB14 OR CRB25
A27R340	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A27R341	0698-3156	2	1	RES 14.7K 1% .12	00746	CRB14 OR CRB25
A27R342	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A27R343	0699-2683	0	1	RES 274 .1% .125	00746	CRB14
A27R344	0699-2683	0	1	RES 274 .1% .125	00746	CRB14
A27R347	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A27R348	0757-0346	2	1	RES 10 1% .125W	00746	CRB14 OR CRB25
A27R351	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A27R352	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R354	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A27R355	0757-1094	9	1	RES 1.47K 1% .12	00746	CRB14 OR CRB25
A27R356	0757-1094	9	1	RES 1.47K 1% .12	00746	CRB14 OR CRB25
A27R357	0698-8827	4	1	RES 1M 1% .125W	00746	CRB14 OR CRB25
A27R358	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25
A27R359	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25
A27R360	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R361	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R362	0698-3279	0	1	RES 4.99K 1% .12	00746	CRB14 OR CRB25
A27R363	0757-0199	3	1	RES 21.5K 1% .12	00746	CRB14 OR CRB25
A27R364	0757-0199	3	1	RES 21.5K 1% .12	00746	CRB14 OR CRB25
A27R365	0698-8826	3	1	RES 825K 1% .125	00746	CRB14 OR CRB25

Table B-13. 8130A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A27R366	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R367	0757-0274	5	1	RES 1.21K 1% .12	00746	CRB14 OR CRB25
A27R368	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R369	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R370	0698-8958	2	1	RES 511K 1% .125	00746	CRB14 OR CRB25
A27R371	0698-8958	2	1	RES 511K 1% .125	00746	CRB14 OR CRB25
A27R372	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R373	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R374	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A27R377	0698-3441	8	1	RES 215 1% .125W	00746	CRB14 OR CRB25
A27R378	0698-3457	6	1	RES 316K 1% .125	00746	CRB14 OR CRB25
A27R379	0757-0407	6	1	RES 200 1% .125W	00746	CRB14 OR CRB25
A27R400	0757-0428	1	1	RES 1.62K 1% .12	00746	CRB14 OR CRB25
A27R401	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R405	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A27R406	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A27R407	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A27R408	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A27R410	0698-0084	9	1	RES 2.15K 1% .12	00746	CRB14 OR CRB25
A27R412	0698-3432	7	1	RES 26.1 1% .125	00746	CRB14 OR CRB25
A27R413	0698-4445	4	1	RES 5.76K 1% .12	00746	CRB14 OR CRB25
A27R414	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A27R416	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R419	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A27R420	0698-3519	1	1	RES 12.4K 1% .12	00746	CRB14 OR CRB25
A27R423	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A27R424	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A27R425	0757-0441	8	1	RES 8.25K 1% .12	00746	CRB14 OR CRB25
A27R426	0757-0441	8	1	RES 8.25K 1% .12	00746	CRB14 OR CRB25
A27R427	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25

Table B-13. 8130A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A27R428	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A27R429	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R430	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R431	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A27R432	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A27R433	0757-0411	2	1	RES 332 1% .125W	00746	CRB14 OR CRB25
A27R434	0757-0274	5	1	RES 1.21K 1% .12	00746	CRB14 OR CRB25
A27R435	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R436	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R437	0757-0274	5	1	RES 1.21K 1% .12	00746	CRB14 OR CRB25
A27R438	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A27R439	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A27R440	0757-0411	2	1	RES 332 1% .125W	00746	CRB14 OR CRB25
A27R441	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A27R444	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A27R445	0698-3443	0	1	RES 287 1% .125W	00746	CRB14 OR CRB25
A27R446	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A27R447	0698-3443	0	1	RES 287 1% .125W	00746	CRB14 OR CRB25
A27R448	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R449	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A27R450	0757-0291	6	1	RES 24.9 1% .125	00746	CRB14 OR CRB25
A27R451	0757-0291	6	1	RES 24.9 1% .125	00746	CRB14 OR CRB25
A27R452	0757-0291	6	1	RES 24.9 1% .125	00746	CRB14 OR CRB25
A27R453	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A27R454	0698-4020	1	1	RES 9.53K 1% .12	00746	CRB14 OR CRB25
A27R455	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A27R456	0757-0421	4	1	RES 825 1% .125W	00746	CRB14 OR CRB25
A27R457	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A27R458	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A27R459	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25

Table B-13. 8130A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A27R460	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A27R464	0698-3158	4	1	RES 23.7K 1% .12	00746	CRB14 OR CRB25
A27R465	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R466	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A27R467	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R468	0757-0418	9	1	RES 619 1% .125W	00746	CRB14 OR CRB25
A27R469	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A27R470	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A27R471	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A27R472	0698-6323	1	1	RES 100 .1% .125	00746	CRB14 OR CRB25
A27R473	0698-6323	1	1	RES 100 .1% .125	00746	CRB14 OR CRB25
A27R474	0698-6323	1	1	RES 100 .1% .125	00746	CRB14 OR CRB25
A27R475	0698-6323	1	1	RES 100 .1% .125	00746	CRB14 OR CRB25
A27R476	0698-6323	1	1	RES 100 .1% .125	00746	CRB14 OR CRB25
A27R477	0698-6323	1	1	RES 100 .1% .125	00746	CRB14 OR CRB25
A27R478	0698-6323	1	1	RES 100 .1% .125	00746	CRB14 OR CRB25
A27R479	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A27R480	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A27R481	0698-3268	7	1	RES 11.5K 1% .12	00746	CRB14 OR CRB25
A27R482	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A27R483	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A27R485	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R486	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A27R487	0757-0278	9	1	RES 1.78K 1% .12	00746	CRB14 OR CRB25
A27R488	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A27R489	0698-4460	3	1	RES 649 1% .125W	00746	CRB14 OR CRB25
A27R490	0757-0317	7	1	RES 1.33K 1% .12	00746	CRB14 OR CRB25
A27R491	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A27R492	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A27R493	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25

Table B-13. 8130A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A27R494	0757-1094	9	1	RES 1.47K 1% .12	00746	CRB14 OR CRB25
A27R497	0757-0274	5	1	RES 1.21K 1% .12	00746	CRB14 OR CRB25
A27R498	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R900	0698-3136	8	1	RES 17.8K 1% .12	00746	CRB14 OR CRB25
A27R901	0698-0084	9	1	RES 2.15K 1% .12	00746	CRB14 OR CRB25
A27R902	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R903	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R905	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A27R906	0757-0421	4	1	RES 825 1% .125W	00746	CRB14 OR CRB25
A27R907	0757-0444	1	1	RES 12.1K 1% .12	00746	CRB14 OR CRB25
A27R908	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R909	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R910	0698-6624	5	1	RES 2K .1% .125W	00746	CRB14 OR CRB25
A27R911	0698-6624	5	1	RES 2K .1% .125W	00746	CRB14 OR CRB25
A27R912	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R913	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R914	0698-0084	9	1	RES 2.15K 1% .12	00746	CRB14 OR CRB25
A27R915	0699-2684	1	1	RES 332 .1% .125	00746	CRB14
A27R916	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R917	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R918	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A27R919	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R920	0757-0346	2	1	RES 10 1% .125W	00746	CRB14 OR CRB25
A27R921	0757-0715	9	1	RES 150 1% .25W	01074	H4
A27R922	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A27R924	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R925	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R926	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A27R927	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R928	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25

Table B-13. 8130A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A27R929	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R930	0698-3435	0	1	RES 38.3 1% .125	00746	CRB14 OR CRB25
A27R931	0699-2731	9	1	RES 442 .1% .125	06118	MK2
A27R934	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A27R935	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A27R936	0698-3243	8	1	RES 178K 1% .125	00746	CRB14 OR CRB25
A27R937	0757-0460	1	1	RES 61.9K 1% .12	00746	CRB14 OR CRB25
A27R939	0698-4477	2	1	RES 10.5K 1% .12	00746	CRB14 OR CRB25
A27R940	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R941	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A27R942	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A27R943	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A27R944	0698-4445	4	1	RES 5.76K 1% .12	00746	CRB14 OR CRB25
A27R945	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A27R946	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A27R947	0757-0441	8	1	RES 8.25K 1% .12	00746	CRB14 OR CRB25
A27R948	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A27R949	0698-0084	9	1	RES 2.15K 1% .12	00746	CRB14 OR CRB25
A27R950	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A27R951	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A27R952	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R953	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A27R954	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A27R955	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A27R956	0757-1094	9	1	RES 1.47K 1% .12	00746	CRB14 OR CRB25
A27R957	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A27R958	0698-3439	4	1	RES 178 1% .125W	00746	CRB14 OR CRB25
A27R959	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A27R960	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27R961	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25

Table B-13. 8130A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A27R962	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A27R963	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A27R964	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A27RA100	1810-0280	8	1	NETWORK-RES SIP	02483	750-101
A27RA300	1810-0691	5	1	NETWORK-RES DIP	01607	F16B103B
A27RA400	1810-0316	1	1	NETWORK-RES DIP	02483	761-3-R10K
A27RV1	2100-3345	8	1	RES-TRMR 10 10%	03744	3386P-Y46-100
A27RV100	2100-3211	7	1	RES-TRMR 1K 10%	03744	3386P-Y46-102
A27RV200	2100-0554	5	1	RES-TRMR 500 10%	03744	3386P-Y46-501
A27RV303	2100-3212	8	1	RES-TRMR 200*10%	03744	3386P-Y46-201
A27RV305	2100-3253	7	1	RES-TRMR 50K 10%	03744	3386P-Y46-503
A27RV306	2100-3253	7	1	RES-TRMR 50K 10%	03744	3386P-Y46-503
A27RV307	2100-3210	6	1	RES-TRMR 10K 10%	03744	3386P-Y46-103
A27RV308	2100-3409	5	1	RES-TRMR 20 10%	03744	3386P-Y46-200
A27RV309	2100-3409	5	1	RES-TRMR 20 10%	03744	3386P-Y46-200
A27RV401	2100-0554	5	1	RES-TRMR 500 10%	03744	3386P-Y46-501
A27RV402	2100-3252	6	1	RES-TRMR 5K 10%	03744	3386P-Y46-502
A27TP100	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A27TP101	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A27TP102	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A27TP103	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A27TP104	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A27TP105	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A27TP106	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A27TP108	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A27TP109	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A27TP110	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A27TP111	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A27TP112	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A27TP200	0360-2264	6	1	TERM.-TEST POINT	10358	1095D

Table B-13. 8130A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A27TP201	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A27TP202	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A27TP300	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A27TP301	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A27TP401	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A27TP402	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A27U1	1NB7-8201	6	1		28480	1NB7-8201
A27U2	1820-2111	9	1	IC-INTERFACE	01698	SN75468N
A27U100	1820-3665	0	1	IC-MM74HCT245N	01698	SN74HCT245N
A27U101	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A27U102	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A27U103	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A27U104	1818-3164	9	1	IC X2816BP	10572	X2816BP
A27U105	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A27U106	1826-0409	6	1	IC MC1723L	02037	MC1723L
A27U107	1826-1869	4	1	D/A 12-BIT	03285	AD7537JN
A27U108	1826-0161	7	1	IC 324	02037	LM324N
A27U110	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A27U150	1820-3373	7	1	IC-MM74HC221AN	03406	MM74HC221AN
A27U151	1820-3298	5	1	IC-MM74HC32N	02037	MC74HC32N
A27U152	1820-2924	2	1	IC-MC74HC02N	01698	SN74HC02N
A27U153	1820-3081	4	1	IC-MC74HC74N	01698	SN74HC74N
A27U154	1820-3081	4	1	IC-MC74HC74N	01698	SN74HC74N
A27U155	1820-3097	2	1	IC-MM74HC08N	02037	MC74HC08N
A27U156	1826-0600	9	1	IC 074A	01698	TL074ACN
A27U157	1826-0138	8	1	IC 339	01698	LM339N
A27U158	1858-0053	3	1	XSTR ARY 14P-DIP	02037	
A27U159	1858-0058	8	1	XSTR ARY 14P-DIP	02037	MPQ3906
A27U160	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A27U161	1820-1315	3	1	ANLG MUXR MC1405	02037	MC14051BCP

Table B-13. 8130A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A27U162	1826-0877	2	1	A/D 8-BIT	03285	AD7574KN
A27U163	1826-0161	7	1	IC 324	02037	LM324N
A27U164	1826-0161	7	1	IC 324	02037	LM324N
A27U165	1826-0139	9	1	IC 1458	02037	MC1458P1
A27U200	1826-1869	4	1	D/A 12-BIT	03285	AD7537JN
A27U201	1826-1553	3	1	IC 1014	10858	LT1014DN
A27U202	1826-1553	3	1	IC 1014	10858	LT1014DN
A27U203	1826-0501	9	1	ANLG MUXR MC1405	02037	MC14053BCP
A27U204	1826-0501	9	1	ANLG MUXR MC1405	02037	MC14053BCP
A27U300	1826-1553	3	1	IC 1014	10858	LT1014DN
A27U301	1826-1553	3	1	IC 1014	10858	LT1014DN
A27U302	1826-1553	3	1	IC 1014	10858	LT1014DN
A27U303	1826-0315	3	1	IC 348	03406	LM348N
A27U305	1826-1409	8	1	IC 1013	10858	LT1013CN8
A27U306	1826-0139	9	1	IC 1458	02037	MC1458P1
A27U400	1826-0161	7	1	IC 324	02037	LM324N
A27U401	1826-0161	7	1	IC 324	02037	LM324N
A27U402	1826-0161	7	1	IC 324	02037	LM324N
A27U403	1826-0161	7	1	IC 324	02037	LM324N
A27U404	1826-0161	7	1	IC 324	02037	LM324N
A27U405	1826-0501	9	1	ANLG MUXR MC1405	02037	MC14053BCP
A27U900	1826-1617	0	1	ANLG MUXR DG509A	02883	DG509ABK
A27U901	1858-0058	8	1	XSTR ARY 14P-DIP	02037	MPQ3906
A27U902	1858-0021	5	1	XSTR ARY 16P-DIP	03799	CA3083
A27U903	1826-0161	7	1	IC 324	02037	LM324N
A27U904	1826-0161	7	1	IC 324	02037	LM324N
A27VR1	1902-0953	7	1	DIO-ZNR 6.2V 5%	02037	SZ30035-11RL
A27VR2	1902-0953	7	1	DIO-ZNR 6.2V 5%	02037	SZ30035-11RL
A27VR3	1902-0944	6	1	DIO-ZNR 2.7V 5%	02037	
A27VR101	1902-0951	5	1	DIO-ZNR 5.1V 5%	02037	SZ30035-9RL

Table B-13. 8130A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A27VR150	1902-0950	4	1	DIO-ZNR 4.7V 5%	02037	
A27VR151	1902-0950	4	1	DIO-ZNR 4.7V 5%	02037	
A27VR152	1902-0956	0	1	DIO-ZNR 8.2V 5%	02037	
A27VR200	1902-0944	6	1	DIO-ZNR 2.7V 5%	02037	
A27VR300	1902-0943	5	1	DIO-ZNR 2.4V 5%	02037	
A27VR301	1902-0943	5	1	DIO-ZNR 2.4V 5%	02037	
A27VR400	1902-0951	5	1	DIO-ZNR 5.1V 5%	02037	SZ30035-9RL
A27VR401	1902-0951	5	1	DIO-ZNR 5.1V 5%	02037	SZ30035-9RL
A27VR402	1902-0954	8	1	DIO-ZNR 6.8V 5%	02037	
A27VR403	1902-0935	5	1	DIO-ZNR 9.1V 5%	02037	
A27VR404	1902-0951	5	1	DIO-ZNR 5.1V 5%	02037	SZ30035-9RL
A27VR405	1902-0943	5	1	DIO-ZNR 2.4V 5%	02037	
A27VR900	1902-0962	8	1	DIO-ZNR 15V 5%	02037	
A27VR903	1902-0956	0	1	DIO-ZNR 8.2V 5%	02037	
A27VR904	1902-0956	0	1	DIO-ZNR 8.2V 5%	02037	
A27VR905	1902-0951	5	1	DIO-ZNR 5.1V 5%	02037	SZ30035-9RL
A27VR907	1902-0951	5	1	DIO-ZNR 5.1V 5%	02037	SZ30035-9RL
A27VR908	1902-0958	2	1	DIO-ZNR 10V 5%	02037	
A27VR909	1902-0945	7	1	DIO-ZNR 3V 5%	02037	SZ0035-3RL
A27VR914	1902-1378	2	1	DIO-ZNR 3.6V 5%	02037	
A27W100	1258-0141	8	1	JUMPER-REM	01380	530153-2
A27W101	1258-0141	8	1	JUMPER-REM	01380	530153-2
A27W300	1258-0141	8	1	JUMPER-REM	01380	530153-2

HP 8131A Parts Lists

Introduction

The parts lists are divided into two groups:

1. A parts list for the standard instrument, followed by a parts lists for each of the electrical assemblies within it.
2. A parts list for the dual-channel instrument (Option 020) listing the additional/alternative parts fitted, followed by a parts list for each of the additional/alternative electrical assemblies.

The parts in each list are listed by reference designator.

Reference Designators

Reference designators are alphanumeric names for parts. Examples are given below.

1. A1 = electrical assembly number 1
2. MP1 = mechanical part number 1
3. A5R9 = resistor 9 on assembly 5

Parts Information

The following information is provided for each part in the parts list table:

1. Reference Designator
2. HP Part Number
3. CD = Check Digit
4. Description
5. Manufacturer's reference number. Table C-1 lists the manufacturers' names against their reference numbers.
6. Manufacturer's part number

Ordering Information

Parts are ordered from the nearest Hewlett-Packard Sales and Support Office.

A Sales and Support Office Directory is provided in Appendix A of this manual.

1. Provide the following information when ordering parts listed in the parts table.
 - a. Reference Designator
 - b. Hewlett-Packard part number
 - c. Check Digit
 - d. Quantity required.
2. Provide the following information when ordering parts not listed in the parts table.
 - a. Instrument model number
 - b. Instrument serial number
 - c. A physical description of the part
 - d. A functional description of the part
 - e. Quantity required.

Table C-1. HP 8131A Parts Manufacturers

Reference	Name	Reference	Name
00039	NEC ELECTRONICS INC	03000	AVDEL DIV OF NEWMAN IND LTD
00075	ARIZONA COIL INC	03038	INTL RECTIFIER CORP
00359	O'HARA METAL PRODUCTS CO	03232	PRODUCT COMPONENT CORP
00493	UNITED CHEMI-CON INC	03273	GOWANDA ELECTRONICS CORP
00746	ROHM CORP	03285	ANALOG DEVICES INC
01074	HOLSWORTHY ELECTRONICS LTD	03394	METHODE ELECTRONICS INC
01075	ITT POMONA ELECTRONICS	03406	NATIONAL SEMICONDUCTOR CORP
01125	LEWIS SCREW CO	03418	MOLEX INC
01339	GETTIG ENGRG & MFG CO INC	03647	INSTRUMENT SPECIALTIES CO INC
01380	AMP INC	03744	BOURNS INC
01417	NEL FREQUENCY CONTROLS INC	03799	HARRIS CORP
01542	HP DIV 01 SAN JOSE COMPONENTS	03811	INTEL CORP
01607	ALLEN-BRADLEY CO INC	03981	PENN ENGINEERING & MFG CORP
01698	TEXAS INSTRUMENTS INC	04129	ARIES ELECTRONICS INC
01806	SMALL PARTS INC	04200	SPRAGUE ELECTRIC CO
02010	AVX CORP	04213	STIMPSON EDWIN B CO INC
02037	MOTOROLA INC	04225	THOMAS & BETTS CORP
02062	HP DIV 05 MSD	04486	ITT CORP
02121	LYN-TRON INC	04604	FEDERAL SCREW PRODUCTS CO
02145	RAYCHEM CORP	04703	LITTELFUSE INC
02170	AMATOM ELEK HARDWARE DIV OF MITE	04726	3M CO
02414	BURNDY CORP	04775	NATIONAL LOCK WASHER CO
02419	CELLOTAPE INC	04880	ZIERICK MFG CO
02483	CTS CORP	04939	SCHNITZER ALLOY PRODUCTS CO
02499	IRC INC	05098	VICTORY ENGINEERING CORP
02531	CHICAGO RIVET & MACHINE CO	05313	SEASTROM MFG CO
02556	MONTROSE PRODUCTS CO	05447	BERGQUIST CO
02574	RLC ELECTRONICS INS	05524	DALE ELECTRONICS INC
02608	THERMALLOY INC	05610	CAMCAR SCREW & MFG CO
02738	METRIC & MULTISTANDARD CMPNT CORP	05769	ITT SEAELECTRO CORP
02805	COOPER INDUSTRIES INC	05879	AMPHENOL CORPORATION
02883	SILICONIX INC	05947	ASSMANN F W UND SOEHNE
02910	SIGNETICS CORP	06113	HIPP ESSLINGEN
02946	DUPONT E I DE NEMOURS & CO	06121	SIEMENS AG
02995	NORTH AMERICAN PHILIPS CORP	06313	WOELCO

Table C-1. HP 8131A Parts Manufacturers (continued)

Reference	Name	Reference	Name
06352	TDK CORPORATION OF AMERICA	10572	XICOR, INC
06354	TOSHIBA CORP	10803	ADVANCED INTERCONNECT
06653	KLAR	10858	LINEAR TECHNOLOGY CORP
06691	HOUSE OF METRICS LTD	11040	PRECISION PLASTICS & GRAPHICS
07029	R BLESSING	11192	HEYCO MOLDED PRODUCTS GMBH
08623	WOLFLE & CO	11808	KITAGAWA INDUSTRIES CO LTD
08709	PANASONIC INDUSTRIAL CO	12236	PACK & LOEDE GMBH
09809	MATSUSHITA ELECTRIC WORKS LTD	28480	HEWLETT PACKARD COMPANY
09922	SHIN-ETSU POLYMER CO LTD		
10358	VOGT AG		

Standard Instrument Parts Lists

Master List

Table C-2. 8131A Standard Instrument Parts List

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A0 A1	08131-66501	4	1	BD AY KEY STD	28480	08131-66501
A0 A2	08131-66502	5	1	BD AY MOTHER	28480	08131-66502
A0 A3	08131-66503	6	1	BD AY UPCR	28480	08131-66503
A0 A4	08131-66504	7	1	BD AY PWR CTL	28480	08131-66504
A0 A5	08131-66505	8	1	BD AY TIMING STD	28480	08131-66505
A0 A14	08131-66514	9	1	BD AY PWR MAIN	28480	08131-66514
A0 A26	08131-66526	3	1	BD AY CHAN 1	28480	08131-66526
A0 F1	2110-0304	4	1	FUSE 1.5A 250V	02805	MDX-1-1/2A
A0 F1	2110-0029	0	1	FUSE 3A 250V	02805	
A0 MP1	08131-00101	2	1	CHASSIS MAIN	28480	08131-00101
A0 MP2	08131-00111	4	1	ANGLE PWR	28480	08131-00111
A0 MP3	08131-00202	4	1	SUB PANEL	28480	08131-00202
A0 MP4	08130-00203	4	1	REAR PANEL	28480	08130-00203
A0 MP5	08131-01212	8	1	BRKT FAN	28480	08131-01212
A0 MP6	08130-04101	9	1	CVR TOP CARD CAGE	28480	08130-04101
A0 MP7	08131-04102	1	1	CVR TOP CABINET	28480	08131-04102
A0 MP8	08131-04103	2	1	CVR TOP INSTRUMEN	28480	08131-04103
A0 MP9	08131-04107	6	2	BOARD KEEPER	28480	08131-04107
A0 MP10	08131-04501	4	1	CARD CAGE	28480	08131-04501
A0 MP11	08131-05402	6	1	INSULATOR BOTTOM	28480	08131-05402
A0 MP12	08131-21701	2	4	SMA-BUSHING	28480	08131-21701
A0 MP13	08131-40204	0	1	FRONT PANEL STD	28480	08131-40204
A0 MP14	08131-60110	9	1	CAGE AY PWR	28480	08131-60110
A0 MP15	08131-68502	8	1	FAN AY	28480	08131-68502
A0 MP16	08180-47401	2	1	KEY CAP	28480	08180-47401
A0 MP18	1401-0202	7	4	CAP-PROT STR	11040	.234-5
A0 MP19	1460-1345	5	2	TILT STAND	00359	
A0 MP20	5001-0539	9	2	SIDE TRIM	28480	5001-0539
A0 MP21	5021-5804	3	1	FRAME REAR 132	28480	5021-5804
A0 MP22	5021-5837	2	4	STRUT CRNR 497	28480	5021-5837
A0 MP23	5021-8403	4	1	FRAME FRNT 132	28480	5021-8403
A0 MP24	5040-0478	7	2	SLEEVE BLUE	28480	5040-0478

Table C-2. 8131A Standard Instrument Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A0 MP25	5040-9319	3	1	SHAFT PWR SWIT	28480	5040-9319
A0 MP26	5041-8801	8	4	FOOT	28480	5041-8801
A0 MP27	5041-8802	9	1	TRIM STRIP TOP	28480	5041-8802
A0 MP28	5041-8819	8	1	STP HNDL FRNT	28480	5041-8819
A0 MP29	5041-8820	1	1	STP HNDL REAR	28480	5041-8820
A0 MP30	5041-8821	2	4	FOOT REAR	28480	5041-8821
A0 MP31	5062-3704	4	1	STRAP HNDL 497	28480	5062-3704
A0 MP32	5062-3747	5	1	CVR BOTTOM 497	28480	5062-3747
A0 MP33	5062-3812	5	1	COVER SIDE PERF	28480	5062-3812
A0 MP34	5062-3837	4	1	COVER SIDE PERF	28480	5062-3837
A0 MP35	6960-0006	8	6	PLUG-HOLE	04213	D-2587-LCS
A0 MP36	7120-6153	9	1	LABEL-WARNING	06653	
A0 MP37	0363-0125	0	2	RFI STRP-FINGERS	03647	97-555
A0 MP38	0363-0170	5	1	RFI STRP-FINGERS	03647	97-520-A
A0 MP39	8160-0392	1	1	RFI STRP-FINGERS	03647	97-500-SNPB
A0 MP100	08131-00602	8	1	SHIELD	28480	08131-00602
A0 MP210	08131-21104	9	1	H-SINK	28480	08131-21104
A0 MP214	0340-0433	5	1	INSUL-FLG-BSHG	03232	
A0 MP215	0340-1212	0	1	INSULATOR	28480	0340-1212
A0 S1	3101-2992	2	1	SW 4A/80A 250V	04486	
A0 T1	9100-4739	3	1	XFMR BV382149B	28480	9100-4739
A0 W1	5180-2462	9	1	CBL HP-IB	28480	5180-2462
A0 W4	08131-61604	8	1	CBL AY TRIG INP	28480	08131-61604
A0 W5	08131-61605	9	1	CBL AY EXT INP	28480	08131-61605
A0 W6	08131-61651	5	1	CBL AY TRIG OUT	28480	08131-61651
A0 W10	08131-61603	7	1	CBL AY OUTPUT	28480	08131-61603
A0 W11	08131-61603	7	1	CBL AY OUTPUT	28480	08131-61603

Keyboard

Table C-3. 8131A Standard Keyboard Parts List

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A1	08131-66501	4	1	BD AY KEY STD	28480	08131-66501
A1 C2	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A1 C3	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A1 C4	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A1 CP1	0180-2207	5	1	CAP 100uF 10 V	04200	150D107X9010R2-DYS
A1 DS1	1990-1253	7	1	DISPLAY-NUM-SEG	01542	HDSP-H101
A1 DS2	1990-1253	7	1	DISPLAY-NUM-SEG	01542	HDSP-H101
A1 DS3	1990-1253	7	1	DISPLAY-NUM-SEG	01542	HDSP-H101
A1 DS4	1990-1253	7	1	DISPLAY-NUM-SEG	01542	HDSP-H101
A1 DS5	1990-1252	6	1	LED-LT BAR	01542	HLCP-B100
A1 DS6	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS7	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS8	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS11	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS12	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS13	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS14	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS15	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS16	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS17	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS18	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS21	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS22	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS23	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS24	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS25	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS26	1990-1278	6	1	LED-LMP	01542	HLMP-K155

Table C-3. 8131A Standard Keyboard Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A1 DS27	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS28	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS51	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS52	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS53	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS54	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS55	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS56	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS57	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS61	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS62	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS63	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS64	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS65	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS71	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS72	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS73	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS74	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS75	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS76	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS77	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 J1	1252-0217	7	1	CONN-POST-TP-HDR	04726	3429-5202
A1 MP1	5041-4707	5	8	QTR COBLK	28480	5041-4707
A1 MP2	5041-0318	6	3	LK CAP PTY GRAY	28480	5041-0318
A1 MP3	5041-0309	5	5	CAP KEY QUARTER	28480	5041-0309
A1 MP4	5041-0507	5	1	QTR WGRN	28480	5041-0507
A1 MP5	5041-0726	0	1	KEY CAP LCL	28480	5041-0726
A1 MP6	1200-0654	7	1	SKT-IC 40-CONT	01380	2-641606-1
A1 MP7	1200-0899	2	1	SKT-STRP 8-CONT	04129	8-0511-10
A1 RA1	1810-0325	2	1	NETWORK-RES DIP	02483	761-3-R150

Table C-3. 8131A Standard Keyboard Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A1 RA2	1810-0338	7	1	NETWORK-RES DIP	02483	761-3-R100
A1 RA3	1810-0338	7	1	NETWORK-RES DIP	02483	761-3-R100
A1 RA4	1810-0275	1	1	NETWORK-RES SIP	02483	750-101
A1 RA5	1810-0275	1	1	NETWORK-RES SIP	02483	750-101
A1 S1	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S2	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S3	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S4	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S5	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S6	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S7	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S8	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S21	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S22	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S23	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S24	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S25	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S26	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S27	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S28	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S41	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S42	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S43	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S44	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S45	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S46	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S47	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S48	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S51	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S52	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436

Table C-3. 8131A Standard Keyboard Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A1 S53	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S54	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 U1	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A1 U2	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A1 U3	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A1 U4	1820-3456	7	1	IC-MM74HCT244N	01698	SN74HCT244N
A1 U5	1820-3456	7	1	IC-MM74HCT244N	01698	SN74HCT244N
A1 U6	1858-0014	6	1	XSTR ARY 14P-DIP	02037	
A1 U7	1858-0014	6	1	XSTR ARY 14P-DIP	02037	
A1 U8	1858-0014	6	1	XSTR ARY 14P-DIP	02037	

Motherboard

Table C-4. 8131A Motherboard Parts List

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A2	08131-66502	5	1	BD AY MOTHER	28480	08131-66502
A2 J1	1251-8320	7	1	CONN-POST-TP-SKT	04225	FC064-031-2
A2 J2	1251-8320	7	1	CONN-POST-TP-SKT	04225	FC064-031-2
A2 J3	1251-8320	7	1	CONN-POST-TP-SKT	04225	FC064-031-2
A2 J4	1251-8320	7	1	CONN-POST-TP-SKT	04225	FC064-031-2
A2 J5	1251-8320	7	1	CONN-POST-TP-SKT	04225	FC064-031-2
A2 J6	1252-0027	7	1	CONN-POST-TP-SKT	05879	706-C143-CO96F-23A-204
A2 MP11	8160-0392	1		RFI STRP-FINGERS	03647	97-500-SNPB
A2 MP12	8160-0392	1		RFI STRP-FINGERS	03647	97-500-SNPB
A2 MP13	8160-0392	1		RFI STRP-FINGERS	03647	97-500-SNPB
A2 MP14	8160-0392	1		RFI STRP-FINGERS	03647	97-500-SNPB
A2 U1	1826-0760	2	1	IC 335	03406	LM335AZ
A2 W1	08131-61601	5	1	CBL CONN KEY	28480	08131-61601

Microprocessor Board

Table C-5. 8131A Microprocessorboard Parts List

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A3	08131-66503	6	1	BD AY UPCR	28480	08131-66503
A3 BT100	1420-0273	2	1	BAT 3V	08709	BR-2/3AT2P
A3 C3	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A3 C4	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A3 C100	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C101	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C102	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C103	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C104	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C105	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C106	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C107	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C202	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C203	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C204	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C205	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C301	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C302	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C303	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C304	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C400	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C401	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C402	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C404	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C406	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH

Table C-5. 8131A Microprocessorboard Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A3 C408	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C409	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C410	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C500	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C501	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C504	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C505	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 C506	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A3 CP1	0180-2207	5	1	CAP 100uF 10 V	04200	150D107X9010R2-DYS
A3 CP2	0180-2207	5	1	CAP 100uF 10 V	04200	150D107X9010R2-DYS
A3 CR200	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A3 CR400	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A3 CR401	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A3 DS100	1990-0485	5	1	LED-LMP	01542	HLMP-1503
A3 J1	1251-8324	1	1	CONN-POST-TP-HDR	04486	G06M96P4BEBL-004-715
A3 J2	1252-1979	0	1	CONN-POST-TP-HDR	04726	3627-5202
A3 J400	1251-4682	6	1	CONN-POST-TP-HDR	03394	1102-1-103-02
A3 J501	1251-7745	8	1	CONN-POST-TP-HDR	03418	22-12-2024
A3 L1	9100-3139	5	1	L 75UH +-15%	00075	
A3 MP5	1200-0654	7	1	SKT-IC 40-CONT	01380	2-641606-1
A3 MP6	1200-0654	7	1	SKT-IC 40-CONT	01380	2-641606-1
A3 MP7	1200-0654	7	1	SKT-IC 40-CONT	01380	2-641606-1
A3 MP8	1200-0567	1	1	SKT-IC 28-CONT	01380	2-641605-1
A3 MP9	1200-0567	1	1	SKT-IC 28-CONT	01380	2-641605-1
A3 MP10	1400-0824	7	1	STRAP-CABLE	04225	TY-23M
A3 Q100	1854-0583	6	1	XSTR NPN SI	02037	MPS-A18
A3 Q200	1853-0281	9	1	XSTR PNP 2N2907A	02037	2N2907A
A3 R100	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A3 R101	0698-3161	9	1	RES 38.3K 1% .12	00746	CRB14 OR CRB25
A3 R102	0757-0407	6	1	RES 200 1% .125W	00746	CRB14 OR CRB25

Table C-5. 8131A Microprocessorboard Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A3 R200	0698-3156	2	1	RES 14.7K 1% .12	00746	CRB14 OR CRB25
A3 R201	0757-0419	0	1	RES 881 1% .125W	00746	CRB14 OR CRB25
A3 R202	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A3 R203	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A3 R204	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A3 R206	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A3 R400	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A3 R401	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A3 R500	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A3 RA100	1810-0243	3	1	NETWORK-RES DIP	02483	761-3-R6.8K
A3 RA101	1810-0503	8	1	NETWORK-RES DIP	02483	761-3-R3.3K
A3 RA200	1810-0316	1	1	NETWORK-RES DIP	02483	761-3-R10K
A3 RA201	1810-0316	1	1	NETWORK-RES DIP	02483	761-3-R10K
A3 RA300	1810-0316	1	1	NETWORK-RES DIP	02483	761-3-R10K
A3 RA301	1810-0316	1	1	NETWORK-RES DIP	02483	761-3-R10K
A3 RA400	1810-0470	8	1	NETWORK-RES DIP	02483	761-3-R2.2K
A3 RA401	1810-0316	1	1	NETWORK-RES DIP	02483	761-3-R10K
A3 U100	1820-3456	7	1	IC-MM74HCT244N	01698	SN74HCT244N
A3 U101	1820-2698	7	1	IC-74F240PC	02910	74F240N
A3 U102	1820-2150	6	1	IC-8279-5	03811	D8279-5
A3 U103	1820-2861	6	1	IC-74F138PC	01698	SN74F138N
A3 U104	1820-2701	3	1	IC-74F374PC	01698	SN74F374N
A3 U105	1820-2795	5	1	IC-74F244PC	01698	SN74F244N
A3 U106	1820-3294	1	1	IC-SN74ALS374N	01698	SN74ALS374N
A3 U107	1820-3294	1	1	IC-SN74ALS374N	01698	SN74ALS374N
A3 U202	1818-3760	1	1	IC TC5564APL-15	06354	TC5564APL-15
A3 U203	1818-3760	1	1	IC TC5564APL-15	06354	TC5564APL-15
A3 U204	08131-13707	1	1	EPROM 1	28480	08131-13707
A3 U205	08131-13708	2	1	EPROM 2	28480	08131-13708
A3 U206	1858-0053	3	1	XSTR ARY 14P-DIP	02037	

Table C-5. 8131A Microprocessorboard Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A3 U207	1820-2506	6	1	IC-74F04PC	01698	SN74F04N
A3 U208	1820-2656	7	1	IC-SN74ALS00AN	01698	SN74ALS00AN
A3 U300	1820-3629	6	1	IC-MM74HCT04N	03406	MM74HCT04N
A3 U301	1820-3173	5	1	IC-MM74HC112N	02037	MC74HC112N
A3 U302	1820-2775	1	1	IC-SN74ALS10AN	01698	SN74ALS10AN
A3 U303	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A3 U304	1820-3796	8	1	IC-MM74HCT139N	02910	74HCT139N
A3 U305	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A3 U306	1820-5111	5	1	IC-74HCT21N	02910	74HCT21N
A3 U400	1820-3183	7	1	IC-MC74HC03N	02037	MC74HC03N
A3 U401	1820-3848	1	1	IC-MM74HCT374N	01698	SN74HCT374N
A3 U402	1820-4086	1	1	IC-74HCT273N	02910	74HCT273N
A3 U403	1820-3505	7	1	IC-SN74ALS191N	01698	SN74ALS191N
A3 U404	1820-4086	1	1	IC-74HCT273N	02910	74HCT273N
A3 U405	1820-2690	9	1	IC-74F32PC	01698	SN74F32N
A3 U406	1820-3665	0	1	IC-MM74HCT245N	01698	SN74HCT245N
A3 U407	1820-3940	4	1	IC-CD74HCT174E	03799	CD74HCT174E
A3 U408	1820-2854	7	1	IC-68B09ES	02037	MC68B09ES
A3 U409	1820-3940	4	1	IC-CD74HCT174E	03799	CD74HCT174E
A3 U410	1820-3940	4	1	IC-CD74HCT174E	03799	CD74HCT174E
A3 U500	1820-3348	6	1	IC-74F163APC	02910	74F163AN
A3 U501	1820-2694	3	1	IC-74F112PC	01698	SN74F112N
A3 U502	1820-2686	3	1	IC-74F08PC	01698	SN74F08
A3 U503	1820-3664	9	1	IC-MM74HCT00N	02910	74HCT00N
A3 U504	1820-2548	6	1	IC-9914	01698	
A3 U505	1820-3431	8	1	IC-INTERFACE	03406	DS75160AN
A3 U506	1820-3518	2	1	IC-INTERFACE	03406	DS75162AN
A3 W1	1258-0141	8	1	JUMPER-REM	01380	530153-2
A3 Y500	1813-0285	9	1	CLK-OSC-XTAL	01417	HS-100-20MHZ

Power Control Board

Table C-6. 8131A Power Control Board Parts List

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A4	08131-66504	7	1	BD AY PWR CTL	28480	08131-66504
A4 C2	0160-4822	2	1	CAP 1000pF 100 V	02010	SA201A102JAAH
A4 C5	0160-4822	2	1	CAP 1000pF 100 V	02010	SA201A102JAAH
A4 C6	0160-4822	2	1	CAP 1000pF 100 V	02010	SA201A102JAAH
A4 C8	0160-4822	2	1	CAP 1000pF 100 V	02010	SA201A102JAAH
A4 C10	0160-4822	2	1	CAP 1000pF 100 V	02010	SA201A102JAAH
A4 C12	0160-4822	2	1	CAP 1000pF 100 V	02010	SA201A102JAAH
A4 C14	0160-4822	2	1	CAP 1000pF 100 V	02010	SA201A102JAAH
A4 CP1	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A4 CP4	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A4 CP7	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A4 CP9	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A4 CP11	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A4 CP13	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A4 CP15	0180-0116	1	1	CAP 6.8uF 35 V	04200	150D685X9035B2-DYS
A4 CP16	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A4 CP17	0180-2690	0	1	CAP 3.3uF 15 V	04200	150D335X9015A2
A4 CP18	0180-2690	0	1	CAP 3.3uF 15 V	04200	150D335X9015A2
A4 CR1	1901-1098	1	1	DIO-1N4150	00746	
A4 CR2	1901-1098	1	1	DIO-1N4150	00746	
A4 CR3	1901-1098	1	1	DIO-1N4150	00746	
A4 CR4	1901-1098	1	1	DIO-1N4150	00746	
A4 CR5	1901-1098	1	1	DIO-1N4150	00746	
A4 CR6	1901-1098	1	1	DIO-1N4150	00746	
A4 CR7	1901-1098	1	1	DIO-1N4150	00746	
A4 CR8	1901-1098	1	1	DIO-1N4150	00746	
A4 CR9	1901-1098	1	1	DIO-1N4150	00746	
A4 CR10	1901-1098	1	1	DIO-1N4150	00746	

Table C-6. 8131A Power Control Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A4 CR11	1901-1098	1	1	DIO-1N4150	00746	
A4 CR12	1901-1098	1	1	DIO-1N4150	00746	
A4 CR13	1901-1098	1	1	DIO-1N4150	00746	
A4 CR14	1901-1098	1	1	DIO-1N4150	00746	
A4 CR15	1901-1098	1	1	DIO-1N4150	00746	
A4 CR16	1901-1098	1	1	DIO-1N4150	00746	
A4 CR17	1901-1098	1	1	DIO-1N4150	00746	
A4 CR18	1901-1098	1	1	DIO-1N4150	00746	
A4 CR19	1901-1098	1	1	DIO-1N4150	00746	
A4 CR20	1901-1098	1	1	DIO-1N4150	00746	
A4 J2	1252-1506	9	1	CONN-POST-TP-SKT	01380	1-166592-0
A4 J3	1252-1506	9	1	CONN-POST-TP-SKT	01380	1-166592-0
A4 Q1	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A4 Q2	1854-0583	6	1	XSTR NPN SI	02037	MPS-A18
A4 Q4	1854-0583	6	1	XSTR NPN SI	02037	MPS-A18
A4 Q5	1854-0583	6	1	XSTR NPN SI	02037	MPS-A18
A4 Q6	1854-0583	6	1	XSTR NPN SI	02037	MPS-A18
A4 Q7	1853-0569	6	1	XSTR PNP SI	02037	
A4 Q8	1853-0569	6	1	XSTR PNP SI	02037	
A4 Q9	1853-0569	6	1	XSTR PNP SI	02037	
A4 Q10	1853-0569	6	1	XSTR PNP SI	02037	
A4 Q11	1853-0569	6	1	XSTR PNP SI	02037	
A4 Q12	1853-0569	6	1	XSTR PNP SI	02037	
A4 Q13	1853-0569	6	1	XSTR PNP SI	02037	
A4 Q14	1853-0569	6	1	XSTR PNP SI	02037	
A4 Q15	1854-0637	1	1	XSTR NPN 2N2219A	02037	2N2219A
A4 Q16	1854-0583	6	1	XSTR NPN SI	02037	MPS-A18
A4 Q17	1853-0569	6	1	XSTR PNP SI	02037	
A4 Q18	1853-0569	6	1	XSTR PNP SI	02037	
A4 Q20	1853-0569	6	1	XSTR PNP SI	02037	

Table C-6. 8131A Power Control Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A4 R1	0757-0278	9	1	RES 1.78K 1% .12	00746	CRB14 OR CRB25
A4 R2	0698-3160	8	1	RES 31.6K 1% .12	00746	CRB14 OR CRB25
A4 R3	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A4 R4	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A4 R5	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A4 R6	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A4 R7	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A4 R8	0757-0472	5	1	RES 200K 1% .125	00746	CRB14 OR CRB25
A4 R9	0698-6620	1	1	RES 150K .1% .12	00746	CRB14 OR CRB25
A4 R10	0698-6353	7	1	RES 50K .1% .125	00746	CRB14 OR CRB25
A4 R11	0698-4483	0	1	RES 18.7K 1% .12	00746	CRB14 OR CRB25
A4 R12	0757-0472	5	1	RES 200K 1% .125	00746	CRB14 OR CRB25
A4 R13	0757-0444	1	1	RES 12.1K 1% .12	00746	CRB14 OR CRB25
A4 R14	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A4 R15	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A4 R16	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A4 R17	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A4 R18	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A4 R19	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A4 R20	0698-4425	0	1	RES 1.54K 1% .12	00746	CRB14 OR CRB25
A4 R21	0757-0472	5	1	RES 200K 1% .125	00746	CRB14 OR CRB25
A4 R22	0757-0465	6	1	RES 100K 1% .125	00746	CRB14 OR CRB25
A4 R23	0699-0844	1	1	RES 51.1K .1% .1	00746	CRB14 OR CRB25
A4 R24	0698-6353	7	1	RES 50K .1% .125	00746	CRB14 OR CRB25
A4 R25	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A4 R26	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A4 R27	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A4 R28	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A4 R29	0757-0472	5	1	RES 200K 1% .125	00746	CRB14 OR CRB25
A4 R30	0698-4435	2	1	RES 2.49K 1% .12	00746	CRB14 OR CRB25

Table C-6. 8131A Power Control Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A4 R31	0757-0465	6	1	RES 100K 1% .125	00746	CRB14 OR CRB25
A4 R32	0698-6353	7	1	RES 50K .1% .125	00746	CRB14 OR CRB25
A4 R33	0699-0721	3	1	RES 33K .1% .125	00746	CRB14 OR CRB25
A4 R34	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A4 R35	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A4 R36	0757-0444	1	1	RES 12.1K 1% .12	00746	CRB14 OR CRB25
A4 R37	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A4 R38	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A4 R39	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A4 R40	0757-0472	5	1	RES 200K 1% .125	00746	CRB14 OR CRB25
A4 R41	0757-0422	5	1	RES 909 1% .125W	00746	CRB14 OR CRB25
A4 R42	0757-0465	6	1	RES 100K 1% .125	00746	CRB14 OR CRB25
A4 R43	0698-6353	7	1	RES 50K .1% .125	00746	CRB14 OR CRB25
A4 R44	0699-0844	1	1	RES 51.1K .1% .1	00746	CRB14 OR CRB25
A4 R45	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A4 R46	0698-3160	8	1	RES 31.6K 1% .12	00746	CRB14 OR CRB25
A4 R47	0757-0421	4	1	RES 825 1% .125W	00746	CRB14 OR CRB25
A4 R48	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A4 R49	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A4 R50	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A4 R51	0757-0472	5	1	RES 200K 1% .125	00746	CRB14 OR CRB25
A4 R52	0757-0274	5	1	RES 1.21K 1% .12	00746	CRB14 OR CRB25
A4 R53	0698-6353	7	1	RES 50K .1% .125	00746	CRB14 OR CRB25
A4 R54	0698-6620	1	1	RES 150K .1% .12	00746	CRB14 OR CRB25
A4 R55	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A4 R56	0698-3161	9	1	RES 38.3K 1% .12	00746	CRB14 OR CRB25
A4 R57	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A4 R58	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A4 R59	0698-3156	2	1	RES 14.7K 1% .12	00746	CRB14 OR CRB25
A4 R60	0757-0441	8	1	RES 8.25K 1% .12	00746	CRB14 OR CRB25

Table C-6. 8131A Power Control Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A4 R61	0757-0472	5	1	RES 200K 1% .125	00746	CRB14 OR CRB25
A4 R62	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A4 R63	0698-6353	7	1	RES 50K .1% .125	00746	CRB14 OR CRB25
A4 R64	0698-6376	4	1	RES 200K .1% .12	00746	CRB14 OR CRB25
A4 R65	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A4 R66	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A4 R67	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A4 R68	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A4 R69	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A4 R70	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A4 R71	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A4 R72	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A4 R73	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A4 TP1	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A4 TP2	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A4 TP3	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A4 TP4	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A4 TP5	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A4 U1	1826-0346	0	1	IC 358	03406	LM358N
A4 U2	1826-0346	0	1	IC 358	03406	LM358N
A4 U3	1826-0346	0	1	IC 358	03406	LM358N
A4 U4	1826-0346	0	1	IC 358	03406	LM358N
A4 U5	1826-0346	0	1	IC 358	03406	LM358N
A4 U6	1826-0346	0	1	IC 358	03406	LM358N
A4 U7	1826-0718	0	1	IC MC1404U5	02037	MC1404U5
A4 U8	1826-0161	7	1	IC 324	02037	LM324N
A4 VR1	1902-0964	0	1	DIO-ZNR 18V 5%	02037	
A4 VR2	1902-0955	9	1	DIO-ZNR 7.5V 5%	02037	

Timing Board

Table C-7. 8131A Standard Timing Board Parts List

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A5	08131-66505	8	1	BD AY TIMING STD	28480	08131-66505
A5 C101	0160-5750	7	1	CAP 2200pF 100 V	06121	B37981-J1222-M034
A5 C103	0160-5750	7	1	CAP 2200pF 100 V	06121	B37981-J1222-M034
A5 C105	0160-5750	7	1	CAP 2200pF 100 V	06121	B37981-J1222-M034
A5 C107	0160-5750	7	1	CAP 2200pF 100 V	06121	B37981-J1222-M034
A5 C109	0160-5750	7	1	CAP 2200pF 100 V	06121	B37981-J1222-M034
A5 C110	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C111	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C112	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C113	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C117	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C121	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C122	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C126	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C127	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C131	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C140	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C141	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C142	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C181	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C202	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C203	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C204	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C205	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH

Table C-7. 8131A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 C206	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C207	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C208	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C209	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C210	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C220	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C221	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C222	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C223	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C224	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C300	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C301	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C303	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C304	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C305	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C306	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C307	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C308	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C309	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C310	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C311	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C312	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C313	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C314	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C315	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C317	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C318	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C320	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C321	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C322	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH

Table C-7. 8131A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A5 C324	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C325	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C327	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C328	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C330	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C331	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C333	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C335	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C336	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C340	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C341	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C342	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C343	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C350	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C360	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C363	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C399	0160-5741	6	1	CAP 47pF 100 V	06121	B37979-J1470-J034
A5 C400	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C401	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C403	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C404	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C405	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C406	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C411	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C412	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C413	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C414	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C415	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C417	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C418	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH

Table C-7. 8131A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 C420	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C421	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C422	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C424	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C425	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C427	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C428	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C430	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C431	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C433	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C435	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C436	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C440	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C441	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C442	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C443	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C450	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C460	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C465	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C470	0160-3872	0	1	CAP 2.2pF 200 V	06352	FD12C0G2D2R2C
A5 C471	0160-3872	0	1	CAP 2.2pF 200 V	06352	FD12C0G2D2R2C
A5 C500	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C501	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C503	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C504	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C505	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C506	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C511	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C512	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C513	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH

Table C-7. 8131A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 C514	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C515	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C517	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C518	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C520	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C521	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C522	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C524	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C525	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C527	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C528	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C530	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C531	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C533	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C535	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C536	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C540	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C541	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C542	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C543	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C550	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C560	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C565	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C570	0160-3872	0	1	CAP 2.2pF 200 V	06352	FD12C0G2D2R2C
A5 C571	0160-3872	0	1	CAP 2.2pF 200 V	06352	FD12C0G2D2R2C
A5 CP100	0180-1974	1	1	CAP 10uF 35 V	04200	150D106X9035R2-DYS
A5 CP102	0180-0229	7	1	CAP 33uF 10 V	04200	150D336X9010B2-DYS
A5 CP104	0180-0229	7	1	CAP 33uF 10 V	04200	150D336X9010B2-DYS
A5 CP106	0180-0229	7	1	CAP 33uF 10 V	04200	150D336X9010B2-DYS
A5 CP108	0180-1974	1	1	CAP 10uF 35 V	04200	150D106X9035R2-DYS

Table C-7. 8131A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A5 CP180	0180-0229	7	1	CAP 33uF 10 V	04200	150D336X9010E2-DYS
A5 CP200	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A5 CP201	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A5 CR102	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A5 CR103	1901-0734	0	1	DIO-1N5818	02037	1N5818
A5 CR310	1901-1098	1	1	DIO-1N4150	00746	
A5 CR311	1901-1098	1	1	DIO-1N4150	00746	
A5 CR312	1901-1098	1	1	DIO-1N4150	00746	
A5 CR313	1901-1098	1	1	DIO-1N4150	00746	
A5 CR314	1901-1098	1	1	DIO-1N4150	00746	
A5 CR315	1901-1098	1	1	DIO-1N4150	00746	
A5 CR410	1901-1098	1	1	DIO-1N4150	00746	
A5 CR411	1901-1098	1	1	DIO-1N4150	00746	
A5 CR412	1901-1098	1	1	DIO-1N4150	00746	
A5 CR413	1901-1098	1	1	DIO-1N4150	00746	
A5 CR414	1901-1098	1	1	DIO-1N4150	00746	
A5 CR415	1901-1098	1	1	DIO-1N4150	00746	
A5 CR416	1901-0731	7	1	DIO-PWR RECT	02037	SR3010-3RL
A5 CR510	1901-1098	1	1	DIO-1N4150	00746	
A5 CR511	1901-1098	1	1	DIO-1N4150	00746	
A5 CR512	1901-1098	1	1	DIO-1N4150	00746	
A5 CR513	1901-1098	1	1	DIO-1N4150	00746	
A5 CR514	1901-1098	1	1	DIO-1N4150	00746	
A5 CR515	1901-1098	1	1	DIO-1N4150	00746	
A5 J100	1251-8324	1	1	CONN-POST-TP-HDR	04486	G06M96P4BEBL-004-715
A5 J101	1251-5380	3	1	CONN-POST-TP-HDR	02946	68000-602
A5 J102	1251-5380	3	1	CONN-POST-TP-HDR	02946	68000-602
A5 J200	1250-0543	8	1	CONN-RF SM-SNP	05769	51-053-0349-BE8
A5 J400	1251-5380	3	1	CONN-POST-TP-HDR	02946	68000-602
A5 K400	0490-1667	6	1	RLY 2C 12VDC	09809	RG2T-12V

Table C-7. 8131A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 L100	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A5 L101	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A5 L102	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A5 L103	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A5 L104	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A5 L110	9100-2891	4	1	L 50NH +-10%	03273	10M050K-1
A5 L111	9100-2891	4	1	L 50NH +-10%	03273	10M050K-1
A5 L112	9100-2891	4	1	L 50NH +-10%	03273	10M050K-1
A5 L300*	9100-2891	4	1	L 50NH +-10%	03273	10M050K-1
A5 L400	9100-2891	4		L 50NH +-10%	03273	10M050K-1
A5 L400	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A5 L500	9100-2891	4	1	L 50NH +-10%	03273	10M050K-1
A5 MP130	1400-1437	0	3	CLAMP-CABLE	11808	
A5 MP134	1400-0082	9	1	CLMP-CA	02414	HP-2N
A5 MP136	3050-0891	7	1	WASHER-FL MTLC 3	06691	
A5 MP201	54100-29104	5	1	SPRING	28480	54100-29104
A5 MP202	54100-29101	2	1	CLAMP	28480	54100-29101
A5 MP209	54100-21103	8	1	SPRING	28480	54100-21103
A5 MP230	0380-1731	2	4	SPCR-PRS-IN	03981	YC3-4564
A5 MP240	0515-0659	8	4	SCR-MACHINE	05610	
A5 MP300	1200-1468	3	1	SOCKET RGA72 CN	10803	1KS072-33TT
A5 MP301	1200-1410	5	1	SOCKET PGA 72PI	10803	1KS072-33TG
A5 MP400	1200-1468	3	1	SOCKET RGA72 CN	10803	1KS072-33TT
A5 MP401	1200-1410	5	1	SOCKET RGA 72PI	10803	1KS072-33TG
A5 MP500	1200-1468	3	1	SOCKET PGA72 CN	10803	1KS072-33TT
A5 MP501	1200-1410	5	1	SOCKET RGA72 PI	10803	1KS072-33TG
A5 Q200	1853-0563	0	1	XSTR PNP SI	02037	2N3906(SEL)
A5 Q310	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A5 Q312	1855-0309	6	1	MOSFET 2N4352 P-	02037	2N4352
A5 Q313	1855-0309	6	1	MOSFET 2N4352 P-	02037	2N4352

Table C-7. 8131A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 Q314	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q315	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q316	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q317	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q318	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q319	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q410	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A5 Q412	1855-0309	6	1	MOSFET 2N4352 P-	02037	2N4352
A5 Q413	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q414	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q415	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q416	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q417	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q418	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q419	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q480	1854-0472	2	1	XSTR NPN SI DARL	02037	MPS-A14
A5 Q510	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A5 Q512	1855-0309	6	1	MOSFET 2N4352 P-	02037	2N4352
A5 Q513	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q514	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q515	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q516	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q517	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q518	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q519	1853-0569	6	1	XSTR PNP SI	02037	
A5 R100	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R200	0699-1206	1	1	RES 127 1% 2W MO	02499	GS-3
A5 R201	0699-1206	1	1	RES 127 1% 2W MO	02499	GS-3
A5 R202	0698-4855	0	1	RES 267 1% .5W T	01074	H2
A5 R204	0698-7205	0	1	RES 51.1 1% .05W	00746	CRB20

Table C-7. 8131A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A5 R205	0757-0180	2	1	RES 31.6 1% .125	00746	CRB14 OR CRB25
A5 R206	0698-3162	0	1	RES 46.4K 1% .12	00746	CRB14 OR CRB25
A5 R208	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R209	0757-1094	9	1	RES 1.47K 1% .12	00746	CRB14 OR CRB25
A5 R210	0698-6963	5	1	RES 5.55K .1% .1	00746	CRB14 OR CRB25
A5 R211	0698-6963	5	1	RES 5.55K .1% .1	00746	CRB14 OR CRB25
A5 R212	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R220	0757-0421	4	1	RES 825 1% .125W	00746	CRB14 OR CRB25
A5 R221	0698-3132	4	1	RES 261 1% .125W	00746	CRB14 OR CRB25
A5 R300	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R301	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R302	0698-4425	0	1	RES 1.54K 1% .12	00746	CRB14 OR CRB25
A5 R303	0757-0317	7	1	RES 1.33K 1% .12	00746	CRB14 OR CRB25
A5 R304	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R305	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R306	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R307	0698-3132	4	1	RES 261 1% .125W	00746	CRB14 OR CRB25
A5 R309	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R310	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R311	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A5 R312	0699-1100	4	1	RES 6.984K .1% .	01074	H8
A5 R313	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A5 R314	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R315	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R319	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R320	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R321	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R322	0757-0317	7	1	RES 1.33K 1% .12	00746	CRB14 OR CRB25
A5 R323	0698-3154	0	1	RES 4.22K 1% .12	00746	CRB14 OR CRB25
A5 R324	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25

Table C-7. 8131A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R325	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R326	0757-0419	0	1	RES 681 1% .125W	00746	CRB14 OR CRB25
A5 R327	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R328	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R329	0757-0419	0	1	RES 681 1% .125W	00746	CRB14 OR CRB25
A5 R330	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R331	0698-6348	0	1	RES 3K .1% .125W	00746	CRB14 OR CRB25
A5 R333	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R334	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R335	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R336	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R337	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R338	0757-0349	5	1	RES 22.6K 1% .12	00746	CRB14 OR CRB25
A5 R339	0757-0477	0	1	RES 332K 1% .125	00746	CRB14 OR CRB25
A5 R340	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R341	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A5 R342	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R343	0698-3158	4	1	RES 23.7K 1% .12	00746	CRB14 OR CRB25
A5 R344	0698-3268	7	1	RES 11.5K 1% .12	00746	CRB14 OR CRB25
A5 R345	0698-3136	8	1	RES 17.8K 1% .12	00746	CRB14 OR CRB25
A5 R346	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R347	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R348	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R350	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R351	0698-3460	1	1	RES 422K 1% .125	00746	CRB14 OR CRB25
A5 R362	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R367	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A5 R370	0698-3161	9	1	RES 38.3K 1% .12	00746	CRB14 OR CRB25
A5 R371	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R373	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25

Table C-7. 8131A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R375	0698-3159	5	1	RES 26.1K 1% .12	00746	CRB14 OR CRB25
A5 R376	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R377	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R378	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R379	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R381	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R390	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R391	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R392	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R394	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R396	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R400	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R401	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R402	0698-4425	0	1	RES 1.54K 1% .12	00746	CRB14 OR CRB25
A5 R403	0698-4422	7	1	RES 1.27K 1% .12	00746	CRB14 OR CRB25
A5 R404	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R405	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R406	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R409	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R410	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R411	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A5 R412	0699-1011	6	1	RES 3.32K .1% .1	00746	CRB14 OR CRB25
A5 R413	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A5 R414	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R415	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R419	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R420	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R421	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R422	0757-0424	7	1	RES 1.1K 1% .125	00746	CRB14 OR CRB25
A5 R423	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25

Table C-7. 8131A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R424	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R425	0757-0278	9	1	RES 1.78K 1% .12	00746	CRB14 OR CRB25
A5 R426	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R427	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R428	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R429	0757-0419	0	1	RES 681 1% .125W	00746	CRB14 OR CRB25
A5 R430	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R431	0698-6348	0	1	RES 3K .1% .125W	00746	CRB14 OR CRB25
A5 R433	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R434	0698-6616	5	1	RES 750 .1% .125	00746	CRB14 OR CRB25
A5 R435	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R436	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R437	0698-6616	5	1	RES 750 .1% .125	00746	CRB14 OR CRB25
A5 R438	0757-0465	6		RES 100K 1% .125	00746	CRB14 OR CRB25
A5 R438*	0757-0463	4	1	RES 82.5K 1% .12	00746	CRB14 OR CRB25
A5 R440	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R441	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A5 R442	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R443	0757-0462	3	1	RES 75K 1% .125W	00746	CRB14 OR CRB25
A5 R444	0698-3268	7	1	RES 11.5K 1% .12	00746	CRB14 OR CRB25
A5 R445	0698-3136	8	1	RES 17.8K 1% .12	00746	CRB14 OR CRB25
A5 R446	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R447	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R448	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R450	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R453	0757-0462	3		RES 75K 1% .125W	00746	CRB14 OR CRB25
A5 R453*	0698-3243	8	1	RES 178K 1% .125	00746	CRB14 OR CRB25
A5 R460	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R461	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R462	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25

Table C-7. 8131A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A5 R467	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A5 R470	0698-3158	4	1	RES 23.7K 1% .12	00746	CRB14 OR CRB25
A5 R471	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R473	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R475	0698-3159	5	1	RES 26.1K 1% .12	00746	CRB14 OR CRB25
A5 R476	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R477	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R479	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R480	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R481	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R486	0757-0465	6	1	RES 100K 1% .125	00746	CRB14 OR CRB25
A5 R490	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R491	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R492	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R494	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R496	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R501	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R502	0698-4425	0	1	RES 1.54K 1% .12	00746	CRB14 OR CRB25
A5 R503	0757-0422	5	1	RES 909 1% .125W	00746	CRB14 OR CRB25
A5 R504	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R505	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R506	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R509	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R510	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R511	0698-6360	.6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A5 R512	0699-1011	6	1	RES 3.32K .1% .1	00746	CRB14 OR CRB25
A5 R513	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A5 R514	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R515	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R519	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25

Table C-7. 8131A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R520	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R521	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R522	0757-0317	7	1	RES 1.33K 1% .12	00746	CRB14 OR CRB25
A5 R523	0698-0084	9	1	RES 2.15K 1% .12	00746	CRB14 OR CRB25
A5 R524	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R525	0757-0278	9	1	RES 1.78K 1% .12	00746	CRB14 OR CRB25
A5 R526	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R527	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R528	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R529	0757-0419	0	1	RES 681 1% .125W	00746	CRB14 OR CRB25
A5 R530	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R531	0698-6348	0	1	RES 3K .1% .125W	00746	CRB14 OR CRB25
A5 R533	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R534	0698-6616	5	1	RES 750 .1% .125	00746	CRB14 OR CRB25
A5 R535	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R536	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R537	0698-6616	5	1	RES 750 .1% .125	00746	CRB14 OR CRB25
A5 R538	0757-0978	6	1	RES 95.3K 1% .12	00746	CRB14 OR CRB25
A5 R539	0698-3260	9	1	RES 464K 1% .125	00746	CRB14 OR CRB25
A5 R540	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R541	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A5 R542	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R543	0757-0464	5	1	RES 90.9K 1% .12	00746	CRB14 OR CRB25
A5 R544	0698-3268	7	1	RES 11.5K 1% .12	00746	CRB14 OR CRB25
A5 R545	0698-3136	8	1	RES 17.8K 1% .12	00746	CRB14 OR CRB25
A5 R546	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R547	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R548	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R550	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R551	0698-8961	7	1	RES 909K 1% .125	00746	CRB14 OR CRB25

Table C-7. 8131A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R560	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R567	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A5 R570	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R571	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R573	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R575	0698-3159	5	1	RES 26.1K 1% .12	00746	CRB14 OR CRB25
A5 R576	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R577	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R579	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R580	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R581	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R590	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R591	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R592	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R594	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R596	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 RA100	1810-0316	1	1	NETWORK-RES DIP	02483	761-3-R10K
A5 RT393	0837-0035	6	1	THERMISTOR DISC	05098	35D24
A5 RT493	0837-0035	6	1	THERMISTOR DISC	05098	35D24
A5 RT593	0837-0035	6	1	THERMISTOR DISC	05098	35D24
A5 TP200	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP311	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP312	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP323	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP324	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP411	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP423	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP424	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP511	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP512	0360-2264	6	1	TERM.-TEST POINT	10358	1095D

Table C-7. 8131A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 TP523	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP524	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 U100	1820-3665	0	1	IC-MM74HCT245N	01698	SN74HCT245N
A5 U101	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A5 U102	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U103	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U104	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A5 U105	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U106	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U107	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A5 U108	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U109	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A5 U110	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U111	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U112	1818-3164	9	1	IC X2816BP	10572	X2816BP
A5 U200	1NB7-8008	1	1	SYNC COMP HYBRID	28480	1NB7-8008
A5 U201	1826-0544	0	1	IC-V RGLTR	02037	
A5 U202	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U203	1826-0550	8	1	D/A 8-BIT	02910	DAC08EN
A5 U204	1820-0493	6	1	IC 307	03406	LM307N
A5 U300	1DP9-0002	0	1	IC T1671	28480	1DP9-0002
A5 U301	1DP6-0001	3	1	IC COUNTER 200M	28480	1DP6-0001
A5 U303	1820-4995	1	1	IC-TC74HC592P	06354	TC74HC592P
A5 U304	1820-4995	1	1	IC-TC74HC592P	06354	TC74HC592P
A5 U305	1820-5067	0	1	IC-74AC74PC	03406	74AC74PC
A5 U306	1820-5067	0	1	IC-74AC74PC	03406	74AC74PC
A5 U307	1820-3298	5	1	IC-MM74HC32N	02037	MC74HC32N
A5 U310	1826-1553	3	1	IC 1014	10858	LT1014DN
A5 U311	1826-0774	8	1	IC LM385BZ-1.2	03406	LM385BZ-1.2
A5 U312	1826-1341	7	1	D/A 12-DGT	03406	DAC1232LCD

Table C-7. 8131A Standard Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 U313	1826-1409	8	1	IC 1013	10858	LT1013CN8
A5 U314	1826-0315	3	1	IC 348	03406	LM348N
A5 U318	1826-0916	0	1	ANLG SW AD7511DI	03285	AD7511DIKN
A5 U400	1DP9-0001	9	1	IC TIMG GEN 500M	28480	1DP9-0001
A5 U401	1DP6-0001	3	1	IC COUNTER 200M	28480	1DP6-0001
A5 U410	1826-1553	3	1	IC 1014	10858	LT1014DN
A5 U411	1826-0774	8	1	IC LM385BZ-1.2	03406	LM385BZ-1.2
A5 U412	1826-1341	7	1	D/A 12-DGT	03406	DAC1232LCD
A5 U413	1826-1409	8	1	IC 1013	10858	LT1013CN8
A5 U414	1826-0315	3	1	IC 348	03406	LM348N
A5 U418	1826-0916	0	1	ANLG SW AD7511DI	03285	AD7511DIKN
A5 U500	1DP9-0001	9	1	IC TIMG GEN 500M	28480	1DP9-0001
A5 U501	1DP6-0001	3	1	IC COUNTER 200M	28480	1DP6-0001
A5 U510	1826-1553	3	1	IC 1014	10858	LT1014DN
A5 U511	1826-0774	8	1	IC LM385BZ-1.2	03406	LM385BZ-1.2
A5 U512	1826-1341	7	1	D/A 12-DGT	03406	DAC1232LCD
A5 U513	1826-1409	8	1	IC 1013	10858	LT1013CN8
A5 U514	1826-0315	3	1	IC 348	03406	LM348N
A5 U518	1826-0916	0	1	ANLG SW AD7511DI	03285	AD7511DIKN
A5 VR300	1902-0955	9	1	DIO-ZNR 7.5V 5%	02037	
A5 VR400	1902-0955	9	1	DIO-ZNR 7.5V 5%	02037	
A5 VR500	1902-0955	9	1	DIO-ZNR 7.5V 5%	02037	
A5 W100	1258-0141	8	1	JUMPER-REM	01380	530153-2
A5 W300	08131-61650	4	1	CBL AY PC 15CM	28480	08131-61650
A5 W301	08131-61655	9	1	CBL AY TROUT45C	28480	08131-61655
A5 W400	08131-61672	0	1	CBL SET DELAY A	28480	08131-61672
A5 W500	08131-61670	8	1	CBL SET OUT30-5	28480	08131-61670

Main Power Board

Table C-8. 8131A Main Power Board Parts List

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A14	08131-66514	9	1	BD AY PWR MAIN	28480	08131-66514
A14C118	0180-3651	5	1	CAP 100uF 50 V	00493	KM50VB101M
A14C119	0180-3651	5	1	CAP 100uF 50 V	00493	KM50VB101M
A14C121	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A14C122	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A14C123	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A14CP101	0180-3411	5	1	CAP 25 V	08709	ECET 25R 153SW
A14CP102	0180-3411	5	1	CAP 25 V	08709	ECET 25R 153SW
A14CP103	0180-4049	7	1	CAP 16 V	00493	KME16VNSN27000M30X50
A14CP104	0180-4049	7	1	CAP 16 V	00493	KME16VNSN27000M30X50
A14CP105	0180-4050	0	1	CAP 10 V	00493	KME10VNSN39000M30X50
A14CP106	0180-4050	0	1	CAP 10 V	00493	KME10VNSN39000M30X50
A14CP107	0180-4049	7	1	CAP 16 V	00493	KME16VNSN27000M30X50
A14CP108	0180-4049	7	1	CAP 16 V	00493	KME16VNSN27000M30X50
A14CP109	0180-3411	5	1	CAP 25 V	08709	ECET 25R 153SW
A14CP110	0180-3411	5	1	CAP 25 V	08709	ECET 25R 153SW
A14CP111	0180-3006	4	1	CAP 35 V	00493	NM35VB10000Q
A14CP112	0180-3006	4	1	CAP 35 V	00493	NM35VB10000Q
A14CP113	0180-3469	3	1	CAP 100uF 25 V	00493	KMC25VB101M8X11LL
A14CP114	0180-3469	3	1	CAP 100uF 25 V	00493	KMC25VB101M8X11LL
A14CP115	0180-3469	3	1	CAP 100uF 25 V	00493	KMC25VB101M8X11LL
A14CP116	0180-3469	3	1	CAP 100uF 25 V	00493	KMC25VB101M8X11LL
A14CP117	0180-3469	3	1	CAP 100uF 25 V	00493	KMC25VB101M8X11LL

Table C-8. 8131A Main Power Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A14CP120	0180-2690	0	1	CAP 3.3uF 15 V	04200	150D335X9015A2
A14CR101	1901-1267	6	1	DIO-PWR RECT	03038	50SQ080
A14CR102	1901-1267	6	1	DIO-PWR RECT	03038	50SQ080
A14CR103	1901-1267	6	1	DIO-PWR RECT	03038	50SQ080
A14CR104	1901-1267	6	1	DIO-PWR RECT	03038	50SQ080
A14CR105	1906-0265	2	1	DIO-CT-RECT 45V	03038	12CTQ045
A14CR106	1906-0265	2	1	DIO-CT-RECT 45V	03038	12CTQ045
A14CR107	1901-0935	3	1	DIO-PWR RECT	03038	
A14CR108	1901-0935	3	1	DIO-PWR RECT	03038	
A14CR109	1901-0935	3	1	DIO-PWR RECT	03038	
A14CR110	1901-0935	3	1	DIO-PWR RECT	03038	
A14CR111	1901-0935	3	1	DIO-PWR RECT	03038	
A14CR112	1901-0935	3	1	DIO-PWR RECT	03038	
A14CR113	1901-0935	3	1	DIO-PWR RECT	03038	
A14CR114	1901-0935	3	1	DIO-PWR RECT	03038	
A14CR115	1901-1267	6	1	DIO-PWR RECT	03038	50SQ080
A14CR116	1901-1267	6	1	DIO-PWR RECT	03038	50SQ080
A14CR117	1901-1267	6	1	DIO-PWR RECT	03038	50SQ080
A14CR118	1901-1267	6	1	DIO-PWR RECT	03038	50SQ080
A14CR119	1901-1267	6	1	DIO-PWR RECT	03038	50SQ080
A14CR120	1901-1267	6	1	DIO-PWR RECT	03038	50SQ080
A14CR121	1901-1267	6	1	DIO-PWR RECT	03038	50SQ080
A14CR122	1901-1267	6	1	DIO-PWR RECT	03038	50SQ080
A14CR123	1901-0731	7	1	DIO-PWR RECT	02037	SR3010-3RL
A14CR124	1901-0731	7	1	DIO-PWR RECT	02037	SR3010-3RL
A14CR125	1901-1098	1	1	DIO-1N4150	00746	
A14F102	2110-0713	9	1	FU-SUBMIN 10A 12	04703	R251010T1
A14F103	2110-0713	9	1	FU-SUBMIN 10A 12	04703	R251010T1
A14F104	2110-0713	9	1	FU-SUBMIN 10A 12	04703	R251010T1
A14F105	2110-0713	9	1	FU-SUBMIN 10A 12	04703	R251010T1

Table C-8. 8131A Main Power Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A14F106	2110-0713	9	1	FU-SUBMIN 10A 12	04703	R251010T1
A14F107	2110-0713	9	1	FU-SUBMIN 10A 12	04703	R251010T1
A14F108	2110-0713	9	1	FU-SUBMIN 10A 12	04703	R251010T1
A14F109	2110-0713	9	1	FU-SUBMIN 10A 12	04703	R251010T1
A14J1	1251-8324	1	1	CONN-POST-TP-HDR	04486	G06M96P4BEBL-004-715
A14J2	1251-4547	2	1	CONN-POST-TP-HDR	01380	1-87227-0
A14J3	1251-4547	2	1	CONN-POST-TP-HDR	01380	1-87227-0
A14J4	1251-5153	8	1	CONN-SGL CONT	04880	836
A14J5	1251-5153	8	1	CONN-SGL CONT	04880	836
A14J6	1251-3751	8	1	CONN-POST-TP-HDR	03418	26-60-1080
A14J7	1251-3751	8	1	CONN-POST-TP-HDR	03418	26-60-1080
A14J8	1251-5383	6	1	CONN-POST-TP-HDR	03394	1102-8-102-01
A14MP101	08131-21103	8	1	H-SINK	28480	08131-21103
A14MP102	08131-21103	8	1	H-SINK	28480	08131-21103
A14MP103	08131-45401	9	1	INS 8XTO 220	28480	08131-45401
A14MP104	08131-45401	9	1	INS 8XTO 220	28480	08131-45401
A14Q101	1855-0499	5	1	MOSFET P-CHAN	03038	IRF9531
A14Q102	1855-0499	5	1	MOSFET P-CHAN	03038	IRF9531
A14Q103	1855-0645	3	1	MOSFET N-CHAN	02037	BUZ11
A14Q104	1855-0645	3	1	MOSFET N-CHAN	02037	BUZ11
A14Q105	1855-0645	3	1	MOSFET N-CHAN	02037	BUZ11
A14Q106	1855-0645	3	1	MOSFET N-CHAN	02037	BUZ11
A14Q107	1855-0548	5	1	MOSFET N-CHAN	02037	BUZ71A
A14Q108	1855-0548	5	1	MOSFET N-CHAN	02037	BUZ71A
A14Q109	1855-0645	3	1	MOSFET N-CHAN	02037	BUZ11
A14Q110	1855-0645	3	1	MOSFET N-CHAN	02037	BUZ11
A14Q111	1855-0548	5	1	MOSFET N-CHAN	02037	BUZ71A
A14Q112	1855-0548	5	1	MOSFET N-CHAN	02037	BUZ71A
A14R101	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A14R102	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25

Table C-8. 8131A Main Power Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A14R103	0757-0465	6	1	RES 100K 1% .125	00746	CRB14 OR CRB25
A14R104	0757-0465	6	1	RES 100K 1% .125	00746	CRB14 OR CRB25
A14R105	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A14R106	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A14R107	0698-3156	2	1	RES 14.7K 1% .12	00746	CRB14 OR CRB25
A14R108	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A14R109	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A14R110	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A14R111	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A14R112	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A14R113	0812-0111	7	1	RES .05 3% 3W PW	05524	RS-2B
A14R114	0812-0111	7	1	RES .05 3% 3W PW	05524	RS-2B
A14R115	0812-0111	7	1	RES .05 3% 3W PW	05524	RS-2B
A14R116	0812-0111	7	1	RES .05 3% 3W PW	05524	RS-2B
A14R117	0812-0111	7	1	RES .05 3% 3W PW	05524	RS-2B
A14R118	0811-3470	5	1	RES .1 3% 3W PWI	05524	CW-2B-39
A14R119	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A14R120	0757-0466	7	1	RES 110K 1% .125	00746	CRB14 OR CRB25
A14R121	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A14R122	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A14R123	0698-3160	8	1	RES 31.6K 1% .12	00746	CRB14 OR CRB25
A14R124	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A14R125	0698-6348	0	1	RES 3K .1% .125W	00746	CRB14 OR CRB25
A14R126	0757-0465	6	1	RES 100K 1% .125	00746	CRB14 OR CRB25
A14R127	0698-0063	4	1	RES 5.23K 1% .12	00746	CRB14 OR CRB25
A14R128	0698-3132	4	1	RES 261 1% .125W	00746	CRB14 OR CRB25
A14R129	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A14TP101	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A14TP102	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A14U101	1826-1245	0	1	IC TL7702A	01698	TL7702A

Table C-8. 8131A Main Power Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A14U103	1826-0346	0	1	IC 358	03406	LM358N
A14U104	1826-0393	7	1	IC LM317T	01698	LM317KC
A14VR101	1902-0964	0	1	DIO-ZNR 18V 5%	02037	
A14VR102	1902-0964	0	1	DIO-ZNR 18V 5%	02037	
A14VR103	1902-0959	3	1	DIO-ZNR 11V 5%	02037	
A14VR104	1902-0968	4	1	DIO-ZNR 27V 5%	02037	

Channel 1 Board

Table C-9. 8131A Standard Channel 1 Board Parts List

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A26	08131-66526	3	1	BD AY CHAN 1	28480	08131-66526
A26A416	08131-66416	0	1	BD AY TRANSDUCE	28480	08131-66416
A26C100	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C101	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A26C102	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A26C103	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A26C104	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A26C105	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A26C106	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C107	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C108	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A26C109	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A26C111	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C113	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C115	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034

Table C-9. 8131A Standard Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26C117	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C119	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C121	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C125	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C126	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C127	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C129	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C130	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A26C131	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A26C132	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A26C133	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C134	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C135	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C136	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C139	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A26C140	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A26C141	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C142	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C143	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A26C401	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C402	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C403	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C404	0160-5741	6	1	CAP 47pF 100 V	06121	B37979-J1470-J034
A26C405	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C407	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C409	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C410	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C411	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A26C412	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A26C413	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034

Table C-9. 8131A Standard Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26C414	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A26C415	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C416	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C417	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C418	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C419	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C420	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C421	0160-5741	6	1	CAP 47pF 100 V	06121	B37979-J1470-J034
A26C422	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C425	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C426	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C427	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C429	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C430	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C431	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C432	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C433	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C434	0160-5740	5	1	CAP 33pF 100 V	06121	B37979-J1330-J034
A26C435	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C436	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C437	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C439	0160-3873	1	1	CAP 4.7pF 200 V	06352	FD12C0G2D4R7D
A26C440	0160-5747	2	1	CAP 0.047uF 50 V	06121	B37987-J5473-M034
A26C441	0160-5747	2	1	CAP 0.047uF 50 V	06121	B37987-J5473-M034
A26C450	0160-3873	1	1	CAP 4.7pF 200 V	06352	FD12C0G2D4R7D
A26C451	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C452	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C453	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C460	0160-5737	0	1	CAP 68pF 100 V	06121	B37979-J1680-J034
A26C461	0160-5737	0	1	CAP 68pF 100 V	06121	B37979-J1680-J034

Table C-9. 8131A Standard Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A26C470	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C471	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C472	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C473	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C474	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C475	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C476	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C477	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C478	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C479	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C480	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C481	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C482	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C483	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C484	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C485	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C486	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C601	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C604	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C605	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C606	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C607	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C608	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C609	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C610	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C611	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C613	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C614	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C615	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C616	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH

Table C-9. 8131A Standard Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26C617	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C618	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26CP110	0180-0116	1	1	CAP 6.8uF 35 V	04200	150D685X9035B2-DYS
A26CP112	0180-0374	3	1	CAP 10uF 20 V	04200	150D106X9020B2-DYS
A26CP114	0180-0374	3	1	CAP 10uF 20 V	04200	150D106X9020B2-DYS
A26CP116	0180-0116	1	1	CAP 6.8uF 35 V	04200	150D685X9035B2-DYS
A26CP118	0180-0116	1	1	CAP 6.8uF 35 V	04200	150D685X9035B2-DYS
A26CP120	0180-0374	3	1	CAP 10uF 20 V	04200	150D106X9020B2-DYS
A26CP122	0180-2205	3	1	CAP 0.33uF 35 V	04200	150D334X9035A2-DYS
A26CP123	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A26CP128	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A26CP438	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A26CP439	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A26CR100	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR108	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR109	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR111	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR112	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR122	1901-0033	2	1	DIO-GEN PRP	03406	
A26CR123	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR124	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR125	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR126	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR414	1901-0033	2	1	DIO-GEN PRP	03406	
A26CR415	1901-0732	8	1	DIO-PWR RECT	02037	SR3010-4RL
A26CR416	1901-0732	8	1	DIO-PWR RECT	02037	SR3010-4RL
A26CR417	1901-1098	1	1	DIO-1N4150	00746	
A26CR418	1901-1098	1	1	DIO-1N4150	00746	
A26CR419	1901-1098	1	1	DIO-1N4150	00746	
A26CR420	1901-1098	1	1	DIO-1N4150	00746	

Table C-9. 8131A Standard Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26CR601	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR602	1901-1098	1	1	DIO-1N4150	00746	
A26J1	1251-8324	1	1	CONN-POST-TP-HDR	04486	G06M96P4BEBL-004-715
A26J101	1251-1556	7	4	CONN-SGL CONT	01075	006-4844-00-0-990
A26J102	1251-1556	7	4	CONN-SGL CONT	01075	006-4844-00-0-990
A26J103	1251-4682	6	1	CONN-POST-TP-HDR	03394	1102-1-103-02
A26J403	1252-2649	3	1	CONN ELAST 43LG	09922	NE 0.2P 43.0L 3.0H 3.6W
A26J404	1252-2649	3	1	CONN ELAST 43LG	09922	NE 0.2P 43.0L 3.0H 3.6W
A26J405	1252-2650	6	1	CONN ELAST 30LG	09922	NE 0.2P 30.0L 3.0H 3.6W
A26J406	1252-2651	7	1	CONN ELAST 5LG	09922	NE 0.2P 5.0L 3.0H 3.6W
A26J407	1252-2651	7	1	CONN ELAST 5LG	09922	NE 0.2P 5.0L 3.0H 3.6W
A26J408	1252-2651	7	1	CONN ELAST 5LG	09922	NE 0.2P 5.0L 3.0H 3.6W
A26J423	1252-2648	2	1	CONN ELAST 30LG	09922	NE 0.4P 30.0L 3.5H 4.2W
A26J424	1252-2648	2	1	CONN ELAST 30LG	09922	NE 0.4P 30.0L 3.5H 4.2W
A26J425	1252-2647	1	1	CONN ELAST 0.4P	09922	NE 0.4P 43.0L 3.5H 4.2W
A26J426	1252-2647	1	1	CONN ELAST 0.4P	09922	NE 0.4P 43.0L 3.5H 4.2W
A26K403	0955-0452	1	1	CONN-RF SMB	02574	S-4845
A26K404	0955-0452	1	1	CONN-RF SMB	02574	S-4845
A26L100	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A26L101	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A26L102	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A26L103	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A26L104	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A26L105	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A26L401	9100-2257	6	1	L 820NH +-10%	03273	10M820K
A26L402	9100-2256	5	1	L 560NH +-10%	03273	10M560K
A26L403	9100-2257	6	1	L 820NH +-10%	03273	10M820K
A26L404	9100-2256	5	1	L 560NH +-10%	03273	10M560K
A26MP1	08131-00601	7	1		28480	08131-00601
A26MP2	0403-0285	9	2	BMPR FT-ADH MTG	04726	SJ-5018 GRAY

Table C-9. 8131A Standard Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26MP16	3050-0152	3	3	WSHR-SHLDR	04604	1462
A26MP20	0515-0659	8	4	SCR-MACHINE	05610	
A26MP21	3050-0960	1	2	WASHER-SHLDR 3.0	05947	V5359
A26MP22	3050-0098	6	2	WSHR-FL MTLT	04939	AN960 C2
A26MP141	0340-1212	0	1	INSULATOR	28480	0340-1212
A26MP142	08131-21101	6	1	HEATSINK TUB	28480	08131-21101
A26MP143	08131-40503	2	1	FRAME PLASTIC	28480	08131-40503
A26MP144	08131-04104	3	1	COVER	28480	08131-04104
A26MP145	08131-05401	5	1	DUST HYBRD COV	28480	08131-05401
A26MP403	1205-0295	2	1	HEAT SINK	02608	6107B-14
A26MP404	1205-0295	2	1	HEAT SINK	02608	6107B-14
A26MP405	1205-0295	2	1	HEAT SINK	02608	6107B-14
A26MP413	0340-1074	2	1	INSUL-XSTR	05447	3223-07FR-58-AC
A26MP414	0340-1074	2	1	INSUL-XSTR	05447	3223-07FR-58-AC
A26MP415	0340-1074	2	1	INSUL-XSTR	05447	3223-07FR-58-AC
A26MP603	1205-0295	2	1	HEAT SINK	02608	6107B-14
A26MP609	1205-0011	0	1	HEAT SINK	02608	2226B
A26MP613	0340-1074	2	1	INSUL-XSTR	05447	3223-07FR-58-AC
A26MP618	0340-1074	2	1	INSUL-XSTR	05447	3223-07FR-58-AC
A26Q100	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A26Q101	1853-0314	9	1	XSTR PNP 2N2905A	02037	2N2905A
A26Q102	1854-0637	1	1	XSTR NPN 2N2219A	02037	2N2219A
A26Q401	1854-0583	6	1	XSTR NPN SI	02037	MPS-A18
A26Q403	1854-0828	2	1	XSTR NPN SI	00039	NTD560
A26Q404	1853-0468	4	1	XSTR PNP SI DARL	02037	TIP-127
A26Q405	1855-0548	5	1	MOSFET N-CHAN	02037	BUZ71A
A26Q406	1855-0751	2	1	MOSFET N-CHAN	02883	VN0808M
A26Q411	1854-0583	6	1	XSTR NPN SI	02037	MPS-A18
A26Q412	1855-0751	2	1	MOSFET N-CHAN	02883	VN0808M
A26Q413	1855-0751	2	1	MOSFET N-CHAN	02883	VN0808M
A26Q415	1855-0689	5	1	J-FET CHIP P-CHA	02037	2N5461

Table C-9. 8131A Standard Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A26Q416	1853-0563	0	1	XSTR PNP SI	02037	2N3906(SEL)
A26Q430	1853-0563	0	1	XSTR PNP SI	02037	2N3906(SEL)
A26Q431	1853-0563	0	1	XSTR PNP SI	02037	2N3906(SEL)
A26Q603	1855-0548	5	1	MOSFET N-CHAN	02037	BUZ71A
A26Q605	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A26Q606	1855-0751	2	1	MOSFET N-CHAN	02883	VN0808M
A26Q608	1853-0509	4	1	XSTR PNP	01698	TIP42A
A26Q609	1853-0314	9	1	XSTR PNP 2N2905A	02037	2N2905A
A26R100	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R101	0757-0465	6	1	RES 100K 1% .125	00746	CRB14 OR CRB25
A26R102	0698-8827	4	1	RES 1M 1% .125W	00746	CRB14 OR CRB25
A26R105	0698-3452	1	1	RES 147K 1% .125	00746	CRB14 OR CRB25
A26R106	0698-3132	4	1	RES 261 1% .125W	00746	CRB14 OR CRB25
A26R107	0698-3439	4	1	RES 178 1% .125W	00746	CRB14 OR CRB25
A26R108	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A26R109	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A26R110	0698-6630	3	1	RES 20K .1% .125	00746	CRB14 OR CRB25
A26R111	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A26R112	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R113	0698-3279	0	1	RES 4.99K 1% .12	00746	CRB14 OR CRB25
A26R114	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A26R115	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R116	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R117	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R118	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R119	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R120	0757-0274	5	1	RES 1.21K 1% .12	00746	CRB14 OR CRB25
A26R121	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A26R130	0757-0278	9	1	RES 1.78K 1% .12	00746	CRB14 OR CRB25
A26R131	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25

Table C-9. 8131A Standard Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26R132	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A26R135	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A26R136	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A26R137	0757-0278	9	1	RES 1.78K 1% .12	00746	CRB14 OR CRB25
A26R140	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A26R141	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A26R142	0698-3279	0	1	RES 4.99K 1% .12	00746	CRB14 OR CRB25
A26R144	0698-3161	9	1	RES 38.3K 1% .12	00746	CRB14 OR CRB25
A26R145	0757-0199	3	1	RES 21.5K 1% .12	00746	CRB14 OR CRB25
A26R146	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R147	0698-3136	8	1	RES 17.8K 1% .12	00746	CRB14 OR CRB25
A26R148	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R149	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R150	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R157	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R200	1250-2206	4	1	TERM 50 OHM	28480	1250-2206
A26R300	1250-2206	4	1	TERM 50 OHM	28480	1250-2206
A26R400	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A26R401	0698-3242	7	1	RES 357 1% .125W	00746	CRB14 OR CRB25
A26R402	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R403	0698-3558	8	1	RES 4.02K 1% .12	00746	CRB14 OR CRB25
A26R404	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A26R405	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R406	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R407	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A26R408	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R410	0698-0084	9	1	RES 2.15K 1% .12	00746	CRB14 OR CRB25
A26R411	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A26R412	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R413	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25

Table C-9. 8131A Standard Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26R414	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A26R415	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R416	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R417	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R418	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R419	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A26R420	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R421	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R422	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R423	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R424	0698-4477	2	1	RES 10.5K 1% .12	00746	CRB14 OR CRB25
A26R425	0698-4445	4	1	RES 5.76K 1% .12	00746	CRB14 OR CRB25
A26R426	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A26R427	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R428	0698-3430	5	1	RES 21.5 1% .125	00746	CRB14 OR CRB25
A26R429	0757-0284	7	1	RES 150 1% .125W	00746	CRB14 OR CRB25
A26R430	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R431	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R432	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A26R434	0757-0999	1	1	RES 47.5 1% .5W	01074	H2
A26R435	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25
A26R436	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A26R437	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R438	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25
A26R439	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R440	0757-0444	1	1	RES 12.1K 1% .12	00746	CRB14 OR CRB25
A26R441	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R442	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R443	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R444	0757-0421	4	1	RES 825 1% .125W	00746	CRB14 OR CRB25

Table C-9. 8131A Standard Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26R445	0698-3152	8	1	RES 3.48K 1% .12	00746	CRB14 OR CRB25
A26R446	0757-0290	5	1	RES 6.19K 1% .12	00746	CRB14 OR CRB25
A26R447	0757-0444	1	1	RES 12.1K 1% .12	00746	CRB14 OR CRB25
A26R448	0698-3156	2	1	RES 14.7K 1% .12	00746	CRB14 OR CRB25
A26R449	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R450	0757-0440	7	1	RES 7.5K 1% .125	00746	CRB14 OR CRB25
A26R451	0698-4469	2	1	RES 1.15K 1% .12	00746	CRB14 OR CRB25
A26R452	0757-0428	1	1	RES 1.62K 1% .12	00746	CRB14 OR CRB25
A26R453	0757-0290	5	1	RES 6.19K 1% .12	00746	CRB14 OR CRB25
A26R454	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R456	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A26R457	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R458	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R459	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R460	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R464	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A26R465	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A26R466	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A26R467	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R468	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R469	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R470	0698-4448	7	1	RES 294 1% .125W	00746	CRB14 OR CRB25
A26R471	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A26R472	0698-4037	0	1	RES 46.4 1% .125	00746	CRB14 OR CRB25
A26R473	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R474	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R475	0757-1094	9	1	RES 1.47K 1% .12	00746	CRB14 OR CRB25
A26R476	0698-3439	4	1	RES 178 1% .125W	00746	CRB14 OR CRB25
A26R477	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A26R478	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25

Table C-9. 8131A Standard Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A26R479	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R480	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R484	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A26R486	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R487	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R488	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R489	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R490	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R491	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R492	0757-0466	7	1	RES 110K 1% .125	00746	CRB14 OR CRB25
A26R493	0698-3515	7	1	RES 5.9K 1% .125	00746	CRB14 OR CRB25
A26R494	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R498	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R499	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R500	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R501	0757-0441	8	1	RES 8.25K 1% .12	00746	CRB14 OR CRB25
A26R504	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A26R508	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R509	0757-0441	8	1	RES 8.25K 1% .12	00746	CRB14 OR CRB25
A26R510	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A26R511	0683-2265	1	1	RES 22M 5% .25W	01607	CB2265
A26R512	0698-8958	2	1	RES 511K 1% .125	00746	CRB14 OR CRB25
A26R513	0683-2265	1	1	RES 22M 5% .25W	01607	CB2265
A26R514	0698-8958	2	1	RES 511K 1% .125	00746	CRB14 OR CRB25
A26R519	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R520	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R521	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A26R523	0698-3242	7	1	RES 357 1% .125W	00746	CRB14 OR CRB25
A26R524	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R525	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25

Table C-9. 8131A Standard Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A26R526	0698-3488	3	1	RES 442 1% .125W	00746	CRB14 OR CRB25
A26R527	0698-3488	3	1	RES 442 1% .125W	00746	CRB14 OR CRB25
A26R530	0698-3558	8	1	RES 4.02K 1% .12	00746	CRB14 OR CRB25
A26R531	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A26R532	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A26R540	0757-0407	6	1	RES 200 1% .125W	00746	CRB14 OR CRB25
A26R541	0757-0407	6	1	RES 200 1% .125W	00746	CRB14 OR CRB25
A26R550	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R551	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R552	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R553	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R554	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R560	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A26R561	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R562	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R563	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A26R564	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R565	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R566	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A26R567	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R568	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R569	0757-0444	1	1	RES 12.1K 1% .12	00746	CRB14 OR CRB25
A26R570	0698-4123	5	1	RES 499 1% .125W	00746	CRB14 OR CRB25
A26R571	0698-3159	5	1	RES 26.1K 1% .12	00746	CRB14 OR CRB25
A26R572	0698-3159	5	1	RES 26.1K 1% .12	00746	CRB14 OR CRB25
A26R573	0698-4123	5	1	RES 499 1% .125W	00746	CRB14 OR CRB25
A26R574	0698-4123	5	1	RES 499 1% .125W	00746	CRB14 OR CRB25
A26R575	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R576	0757-0123	3	1	RES 34.8K 1% .12	00746	CRB14 OR CRB25
A26R577	0757-0123	3	1	RES 34.8K 1% .12	00746	CRB14 OR CRB25

Table C-9. 8131A Standard Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26R588	0757-0997	9	1	RES 39.2 1% .5W	01074	H2
A26R600	0698-7205	0	1	RES 51.1 1% .05W	00746	CRB20
A26R604	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R607	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R608	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A26R609	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R610	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R612	0757-0199	3	1	RES 21.5K 1% .12	00746	CRB14 OR CRB25
A26R613	0698-4425	0	1	RES 1.54K 1% .12	00746	CRB14 OR CRB25
A26R614	0698-6630	3	1	RES 20K .1% .125	00746	CRB14 OR CRB25
A26R615	0698-6624	5	1	RES 2K .1% .125W	00746	CRB14 OR CRB25
A26R617	0698-4437	4	1	RES 2.94K 1% .12	00746	CRB14 OR CRB25
A26R618	0757-0200	7	1	RES 5.62K 1% .12	00746	CRB14 OR CRB25
A26R621	0757-0444	1	1	RES 12.1K 1% .12	00746	CRB14 OR CRB25
A26R622	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A26R624	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R625	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R626	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R628	0757-0441	8	1	RES 8.25K 1% .12	00746	CRB14 OR CRB25
A26R629	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R630	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R631	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R632	0757-0441	8	1	RES 8.25K 1% .12	00746	CRB14 OR CRB25
A26R633	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R635	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A26R636	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R639	0757-0441	8	1	RES 8.25K 1% .12	00746	CRB14 OR CRB25
A26R640	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R641	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A26R642	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R643	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25

Table C-9. 8131A Standard Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26R644	0757-0317	7	1	RES 1.33K 1% .12	00746	CRB14 OR CRB25
A26R645	0757-0200	7	1	RES 5.62K 1% .12	00746	CRB14 OR CRB25
A26R646	0698-4431	8	1	RES 2.05K 1% .12	00746	CRB14 OR CRB25
A26R647	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A26R648	0698-3496	3	1	RES 3.57K 1% .12	00746	CRB14 OR CRB25
A26R649	0757-0424	7	1	RES 1.1K 1% .125	00746	CRB14 OR CRB25
A26R650	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A26R651	0757-0999	1	1	RES 47.5 1% .5W	01074	H2
A26R652	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R653	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R999	0699-1503	1	1	RES .05 100% TKF	00746	MCR18EZHW00E0
A26RA100	1810-0316	1	1	NETWORK-RES DIP	02483	761-3-R10K
A26RV103	2100-3352	7	1	RES-TRMR 1K 10%	03744	3386X-Y46-102
A26RV104	2100-3349	2	1	RES-TRMR 100 10%	03744	3386X-Y46-101
A26RV123	2100-3207	1	1	RES-TRMR 5K 10%	03744	3386X-Y46-502
A26RV404	2100-0554	5	1	RES-TRMR 500 10%	03744	3386P-Y46-501
A26RV435	2100-3207	1	1	RES-TRMR 5K 10%	03744	3386X-Y46-502
A26RV438	2100-3274	2	1	RES-TRMR 10K 10%	03744	3386X-Y46-103
A26RV455	2100-0567	0	1	RES-TRMR 2K 10%	03744	3386P-Y46-202
A26RV461	2100-3274	2	1	RES-TRMR 10K 10%	03744	3386X-Y46-103
A26RV500	2100-3383	4	1	RES-TRMR 50 10%	03744	3386P-Y46-500
A26RV501	2100-3383	4	1	RES-TRMR 50 10%	03744	3386P-Y46-500
A26RV502	2100-3273	1	1	RES-TRMR 2K 10%	03744	3386X-Y46-202
A26RV503	2100-0567	0	1	RES-TRMR 2K 10%	03744	3386P-Y46-202
A26RV504	2100-3210	6	1	RES-TRMR 10K 10%	03744	3386P-Y46-103
A26TP101	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP102	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP103	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP104	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP105	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP106	0360-2264	6	1	TERM.-TEST POINT	10358	1095D

Table C-9. 8131A Standard Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26TP107	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP403	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP404	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26U100	1820-3665	0	1	IC-MM74HCT245N	01698	SN74HCT245N
A26U101	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A26U102	1820-3081	4	1	IC-MC74HC74N	01698	SN74HC74N
A26U103	1820-3298	5	1	IC-MM74HC32N	02037	MC74HC32N
A26U104	1826-0861	4	1	D/A 10-BIT	03285	AD7533LN
A26U105	1826-0861	4	1	D/A 10-BIT	03285	AD7533LN
A26U106	1820-3399	7	1	IC-MC74HC273N	01698	SN74HC273N
A26U107	1826-0877	2	1	A/D 8-BIT	03285	AD7574KN
A26U108	1820-1315	3	1	ANLG MUXR MC1405	02037	MC14051BCP
A26U109	1820-0493	6	1	IC 307	03406	LM307N
A26U110	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A26U111	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A26U112	1826-0285	6	1	IC MC79L05ACP	02037	MC79L05ACP
A26U113	1826-0315	3	1	IC 348	03406	LM348N
A26U114	1826-0161	7	1	IC 324	02037	LM324N
A26U115	1820-3097	2	1	IC-MM74HC08N	02037	MC74HC08N
A26U117	1820-3373	7	1	IC-MM74HC221AN	03406	MM74HC221AN
A26U118	1820-0493	6	1	IC 307	03406	LM307N
A26U120	1820-2924	2	1	IC-MC74HC02N	01698	SN74HC02N
A26U121	1820-3081	4	1	IC-MC74HC74N	01698	SN74HC74N
A26U122	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A26U123	1820-3081	4	1	IC-MC74HC74N	01698	SN74HC74N
A26U124	1820-3081	4	1	IC-MC74HC74N	01698	SN74HC74N
A26U126	1820-3081	4	1	IC-MC74HC74N	01698	SN74HC74N
A26U401	1NB7-8179	7	1	HYRIDS	28480	1NB7-8179
A26U402	1826-0524	6	1	IC 324A	03406	LM324AN
A26U403	1826-0207	2	1	IC 318	01698	LM318P

Table C-9. 8131A Standard Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26U404	1826-0138	8	1	IC 339	01698	LM339N
A26U405	1826-1460	1	1	IC 201	03406	LM201AN
A26U406	1820-0493	6	1	IC 307	03406	LM307N
A26U407	1826-0161	7	1	IC 324	02037	LM324N
A26U408	1826-0207	2	1	IC 318	01698	LM318P
A26U409	1826-0161	7	1	IC 324	02037	LM324N
A26U410	1858-0058	8	1	XSTR ARY 14P-DIP	02037	MPQ3906
A26U411	1858-0087	3	1	XSTR ARY 14P-DIP	02037	MPQ3904
A26U412	1858-0087	3	1	XSTR ARY 14P-DIP	02037	MPQ3904
A26U413	1858-0087	3	1	XSTR ARY 14P-DIP	02037	MPQ3904
A26U415	1826-0600	9	1	IC 074A	01698	TL074ACN
A26U416	1858-0087	3	1	XSTR ARY 14P-DIP	02037	MPQ3904
A26U417	1826-0161	7	1	IC 324	02037	LM324N
A26U418	1858-0087	3	1	XSTR ARY 14P-DIP	02037	MPQ3904
A26U601	1826-0315	3	1	IC 348	03406	LM348N
A26U602	1826-0315	3	1	IC 348	03406	LM348N
A26U603	1826-0161	7	1	IC 324	02037	LM324N
A26VR101	1902-0956	0	1	DIO-ZNR 8.2V 5%	02037	
A26VR403	1902-0963	9	1	DIO-ZNR 16V 5%	02037	SZ30035-21RL
A26VR404	1902-0956	0	1	DIO-ZNR 8.2V 5%	02037	
A26VR405	1902-0956	0	1	DIO-ZNR 8.2V 5%	02037	
A26VR406	1902-0949	1	1	DIO-ZNR 4.3V 5%	02037	
A26VR407	1902-0945	7	1	DIO-ZNR 3V 5%	02037	SZ0035-3RL
A26VR409	1902-0951	5	1	DIO-ZNR 5.1V 5%	02037	SZ30035-9RL
A26VR412	1902-0950	4	1	DIO-ZNR 4.7V 5%	02037	
A26VR415	1902-0950	4	1	DIO-ZNR 4.7V 5%	02037	
A26VR417	1902-0963	9	1	DIO-ZNR 16V 5%	02037	SZ30035-21RL
A26VR419	1902-0953	7	1	DIO-ZNR 6.2V 5%	02037	SZ30035-11RL
A26VR495	1902-0951	5	1	DIO-ZNR 5.1V 5%	02037	SZ30035-9RL
A26VR602	1902-0953	7	1	DIO-ZNR 6.2V 5%	02037	SZ30035-11RL

Table C-9. 8131A Standard Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A26VR603	1902-0958	2	1	DIO-ZNR 10V 5%	02037	
A26VR604	1902-0945	7	1	DIO-ZNR 3V 5%	02037	SZ0035-3RL
A26W103	1258-0141	8	1	JUMPER-REM	01380	530153-2
A26W201	08131-61681	1	1	CBL AY TRAN 1	28480	08131-61681
A26W403	08131-61607	1	1	CBL SEMI RIGID	28480	08131-61607
A26W404	08131-61607	1	1	CBL SEMI RIGID	28480	08131-61607

Dual-channel Instrument Parts Lists

Master List Option 020

Table C-10. 8131A Option 020 Instrument Parts List

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A0 A1	08131-66521	8	1	BD AY KEY OPT	28480	08131-66521
A0 A5	08131-66525	2	1	BD AY TIMING OPT	28480	08131-66525
A0 A26	08131-66527	4	1	BD AY CHAN 1	28480	08131-66527
A0 A28	08131-66528	5	1	BD AY CHAN 2	28480	08131-66528
A0 MP12	08131-21701	2	2	SMA-BUSHING	28480	08131-21701
A0 MP13	08131-40201	7	1	FRONT PANEL OPT	28480	08131-40201
A0 W12	08131-61603	7	1	CBL AY OUTPUT	28480	08131-61603
A0 W13	08131-61603	7	1	CBL AY OUTPUT	28480	08131-61603

**Keyboard
Option 020**

Table C-11. 8131A Option 020 Keyboard Parts List

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A1	08131-66521	8	1	BD AY KEY OPT	28480	08131-66521
A1 C2	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A1 C3	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A1 C4	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A1 CP1	0180-2207	5	1	CAP 100uF 10 V	04200	150D107X9010R2-DYS
A1 DS1	1990-1253	7	1	DISPLAY-NUM-SEG	01542	HDSP-H101
A1 DS2	1990-1253	7	1	DISPLAY-NUM-SEG	01542	HDSP-H101
A1 DS3	1990-1253	7	1	DISPLAY-NUM-SEG	01542	HDSP-H101
A1 DS4	1990-1253	7	1	DISPLAY-NUM-SEG	01542	HDSP-H101
A1 DS5	1990-1252	6	1	LED-LT BAR	01542	HLCP-B100
A1 DS6	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS7	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS8	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS11	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS12	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS13	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS14	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS15	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS16	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS17	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS18	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS21	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS22	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS23	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS24	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS25	1990-1278	6	1	LED-LMP	01542	HLMP-K155

Table C-11. 8131A Option 020 Keyboard Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A1 DS26	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS27	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS28	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS31	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS32	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS33	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS34	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS35	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS36	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS37	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS38	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS41	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS42	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS43	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS44	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS45	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS46	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS47	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS48	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS51	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS52	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS53	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS54	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS55	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS56	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS57	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS61	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS62	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS63	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED
A1 DS64	1990-1254	8	1	LED-LMP	01542	HLMP-Q150 SELECTED

Table C-11. 8131A Option 020 Keyboard Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A1 DS65	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS71	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS72	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS73	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS74	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS75	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS76	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 DS77	1990-1278	6	1	LED-LMP	01542	HLMP-K155
A1 J1	1252-0217	7	1	CONN-POST-TP-HDR	04726	3429-5202
A1 MP1	5041-4707	5	8	QTR COBLK	28480	5041-4707
A1 MP2	5041-0318	6	1	LK CAP PTY GRAY	28480	5041-0318
A1 MP3	5041-0309	5	5	CAP KEY QUARTER	28480	5041-0309
A1 MP4	5041-0507	5	1	QTR WGRN	28480	5041-0507
A1 MP5	5041-0726	0	1	KEY CAP LCL	28480	5041-0726
A1 MP6	1200-0654	7	1	SKT-IC 40-CONT	01380	2-641606-1
A1 MP7	1200-0899	2	1	SKT-STRP 8-CONT	04129	8-0511-10
A1 RA1	1810-0325	2	1	NETWORK-RES DIP	02483	761-3-R150
A1 RA2	1810-0338	7	1	NETWORK-RES DIP	02483	761-3-R100
A1 RA3	1810-0338	7	1	NETWORK-RES DIP	02483	761-3-R100
A1 RA4	1810-0275	1	1	NETWORK-RES SIP	02483	750-101
A1 RA5	1810-0275	1	1	NETWORK-RES SIP	02483	750-101
A1 S1	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S2	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S3	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S4	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S5	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S6	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S7	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S8	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S11	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436

Table C-11. 8131A Option 020 Keyboard Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A1 S12	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S13	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S14	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S15	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S16	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S17	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S18	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S21	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S22	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S23	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S24	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S25	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S26	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S27	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S28	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S41	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S42	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S43	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S44	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S45	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S46	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S47	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S48	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S51	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S52	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S53	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 S54	5060-9436	7	1	SW-PB SPST NO	04486	5560-9436
A1 U1	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A1 U2	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A1 U3	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N

Table C-11. 8131A Option 020 Keyboard Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A1 U4	1820-3456	7	1	IC-MM74HCT244N	01698	SN74HCT244N
A1 U5	1820-3456	7	1	IC-MM74HCT244N	01698	SN74HCT244N
A1 U6	1858-0014	6	1	XSTR ARY 14P-DIP	02037	
A1 U7	1858-0014	6	1	XSTR ARY 14P-DIP	02037	
A1 U8	1858-0014	6	1	XSTR ARY 14P-DIP	02037	

**Timing Board
Option 020**

Table C-12. 8131A Option 020 Timing Board Parts List

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5	08131-66525	2	1	BD AY TIMING OPT	28480	08131-66525
A5 C101	0160-5750	7	1	CAP 2200pF 100 V	06121	B37981-J1222-M034
A5 C103	0160-5750	7	1	CAP 2200pF 100 V	06121	B37981-J1222-M034
A5 C105	0160-5750	7	1	CAP 2200pF 100 V	06121	B37981-J1222-M034
A5 C107	0160-5750	7	1	CAP 2200pF 100 V	06121	B37981-J1222-M034
A5 C109	0160-5750	7	1	CAP 2200pF 100 V	06121	B37981-J1222-M034
A5 C110	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C111	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C112	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C113	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C117	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C121	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C122	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C126	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C127	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C131	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C140	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C141	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C142	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C181	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C202	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C203	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C204	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C205	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH

Table C-12. 8131A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A5 C206	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C207	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C208	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C209	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C210	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C220	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C221	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C222	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C223	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C224	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C300	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C301	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C303	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C304	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C305	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C306	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C307	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C308	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C309	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C310	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C311	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C312	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C313	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C314	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C315	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C317	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C318	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C320	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C321	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C322	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH

Table C-12. 8131A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 C324	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C325	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C327	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C328	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C330	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C331	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C333	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C335	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C336	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C340	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C341	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C342	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C343	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C350	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C360	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C363	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C399	0160-5741	6	1	CAP 47pF 100 V	06121	B37979-J1470-J034
A5 C400	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C401	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C403	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C404	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C405	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C406	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C411	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C412	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C413	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C414	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C415	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C417	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C418	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH

Table C-12. 8131A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A5 C420	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C421	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C422	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C424	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C425	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C427	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C428	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C430	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C431	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C433	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C435	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C436	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C440	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C441	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C442	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C443	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C450	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C460	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C465	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C470	0160-3872	0	1	CAP 2.2pF 200 V	06352	FD12C0G2D2R2C
A5 C471	0160-3872	0	1	CAP 2.2pF 200 V	06352	FD12C0G2D2R2C
A5 C500	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C501	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C503	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C504	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C505	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C506	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C511	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C512	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C513	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH

Table C-12. 8131A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 C514	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C515	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C517	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C518	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C520	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C521	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C522	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C524	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C525	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C527	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C528	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C530	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C531	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C533	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C535	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C536	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C540	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C541	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C542	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C543	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C550	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C560	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C565	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C570	0160-3872	0	1	CAP 2.2pF 200 V	06352	FD12C0G2D2R2C
A5 C571	0160-3872	0	1	CAP 2.2pF 200 V	06352	FD12C0G2D2R2C
A5 C600	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C601	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C603	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C604	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C605	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH

Table C-12. 8131A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 C606	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C611	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C612	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C613	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C614	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C615	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C617	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C618	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C620	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C621	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C622	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C624	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C625	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C627	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C628	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C630	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C631	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C633	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C635	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C636	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C640	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C641	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C642	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C643	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C650	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C660	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C665	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C670	0160-3872	0	1	CAP 2.2pF 200 V	06352	FD12C0G2D2R2C
A5 C671	0160-3872	0	1	CAP 2.2pF 200 V	06352	FD12C0G2D2R2C
A5 C700	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11

Table C-12. 8131A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A5 C701	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C703	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C704	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C705	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C706	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C711	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C712	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C713	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C714	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C715	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C717	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C718	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C720	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C721	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C722	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C724	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C725	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A5 C727	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C728	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C730	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C731	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C733	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C735	0160-4535	4	1	CAP 1uF 50 V	02010	SR305C105KAAH
A5 C736	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C740	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C741	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A5 C742	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C743	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A5 C750	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C760	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH

Table C-12. 8131A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 C765	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A5 C770	0160-3872	0	1	CAP 2.2pF 200 V	06352	FD12C0G2D2R2C
A5 C771	0160-3872	0	1	CAP 2.2pF 200 V	06352	FD12C0G2D2R2C
A5 CP100	0180-1974	1	1	CAP 10uF 35 V	04200	150D106X9035R2-DYS
A5 CP102	0180-0229	7	1	CAP 33uF 10 V	04200	150D336X9010B2-DYS
A5 CP104	0180-0229	7	1	CAP 33uF 10 V	04200	150D336X9010B2-DYS
A5 CP106	0180-0229	7	1	CAP 33uF 10 V	04200	150D336X9010B2-DYS
A5 CP108	0180-1974	1	1	CAP 10uF 35 V	04200	150D106X9035R2-DYS
A5 CP180	0180-0229	7	1	CAP 33uF 10 V	04200	150D336X9010B2-DYS
A5 CP200	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A5 CP201	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A5 CR100	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A5 CR102	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A5 CR103	1901-0734	0	1	DIO-1N5818	02037	1N5818
A5 CR310	1901-1098	1	1	DIO-1N4150	00746	
A5 CR311	1901-1098	1	1	DIO-1N4150	00746	
A5 CR312	1901-1098	1	1	DIO-1N4150	00746	
A5 CR313	1901-1098	1	1	DIO-1N4150	00746	
A5 CR314	1901-1098	1	1	DIO-1N4150	00746	
A5 CR315	1901-1098	1	1	DIO-1N4150	00746	
A5 CR410	1901-1098	1	1	DIO-1N4150	00746	
A5 CR411	1901-1098	1	1	DIO-1N4150	00746	
A5 CR412	1901-1098	1	1	DIO-1N4150	00746	
A5 CR413	1901-1098	1	1	DIO-1N4150	00746	
A5 CR414	1901-1098	1	1	DIO-1N4150	00746	
A5 CR415	1901-1098	1	1	DIO-1N4150	00746	
A5 CR416	1901-0731	7	1	DIO-PWR RECT	02037	SR3010-3RL
A5 CR510	1901-1098	1	1	DIO-1N4150	00746	
A5 CR511	1901-1098	1	1	DIO-1N4150	00746	
A5 CR512	1901-1098	1	1	DIO-1N4150	00746	

Table C-12. 8131A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 CR513	1901-1098	1	1	DIO-1N4150	00746	
A5 CR514	1901-1098	1	1	DIO-1N4150	00746	
A5 CR515	1901-1098	1	1	DIO-1N4150	00746	
A5 CR610	1901-1098	1	1	DIO-1N4150	00746	
A5 CR611	1901-1098	1	1	DIO-1N4150	00746	
A5 CR612	1901-1098	1	1	DIO-1N4150	00746	
A5 CR613	1901-1098	1	1	DIO-1N4150	00746	
A5 CR614	1901-1098	1	1	DIO-1N4150	00746	
A5 CR615	1901-1098	1	1	DIO-1N4150	00746	
A5 CR616	1901-0731	7	1	DIO-PWR RECT	02037	SR3010-3RL
A5 CR710	1901-1098	1	1	DIO-1N4150	00746	
A5 CR711	1901-1098	1	1	DIO-1N4150	00746	
A5 CR712	1901-1098	1	1	DIO-1N4150	00746	
A5 CR713	1901-1098	1	1	DIO-1N4150	00746	
A5 CR714	1901-1098	1	1	DIO-1N4150	00746	
A5 CR715	1901-1098	1	1	DIO-1N4150	00746	
A5 J100	1251-8324	1	1	CONN-POST-TP-HDR	04486	G06M96P4BEBL-004-715
A5 J101	1251-5380	3	1	CONN-POST-TP-HDR	02946	68000-602
A5 J102	1251-5380	3	1	CONN-POST-TP-HDR	02946	68000-602
A5 J200	1250-0543	8	1	CONN-RF SM-SNP	05769	51-053-0349-BE8
A5 J400	1251-5380	3	1	CONN-POST-TP-HDR	02946	68000-602
A5 J600	1251-5380	3	1	CONN-POST-TP-HDR	02946	68000-602
A5 K400	0490-1667	6	1	RLY 2C 12VDC	09809	RG2T-12V
A5 K600	0490-1667	6	1	RLY 2C 12VDC	09809	RG2T-12V
A5 L100	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A5 L101	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A5 L102	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A5 L103	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A5 L104	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A5 L110	9100-2891	4	1	L 50NH +-10%	03273	10M050K-1

Table C-12. 8131A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 L111	9100-2891	4	1	L 50NH +10%	03273	10M050K-1
A5 L112	9100-2891	4	1	L 50NH +10%	03273	10M050K-1
A5 L113	9100-2891	4	1	L 50NH +10%	03273	10M050K-1
A5 L114	9100-2891	4	1	L 50NH +10%	03273	10M050K-1
A5 L300	9100-2891	4	1	L 50NH +10%	03273	10M050K-1
A5 L300*	9100-2891	4	1	L 50NH +10%	03273	10M050K-1
A5 L400	9100-2891	4		L 50NH +10%	03273	10M050K-1
A5 L400	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A5 L500	9100-2891	4	1	L 50NH +10%	03273	10M050K-1
A5 L600	9100-2891	4		L 50NH +10%	03273	10M050K-1
A5 L600	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A5 L700	9100-2891	4	1	L 50NH +10%	03273	10M050K-1
A5 MP130	1400-1437	0	4	CLAMP-CABLE	11808	
A5 MP134	1400-0082	9	1	CLMP-CA	02414	HP-2N
A5 MP136	3050-0891	7	1	WASHER-FL MTLC 3	06691	
A5 MP201	54100-29104	5	1	SPRING	28480	54100-29104
A5 MP202	54100-29101	2	1	CLAMP	28480	54100-29101
A5 MP209	54100-21103	8	1	SPRING	28480	54100-21103
A5 MP230	0380-1731	2	4	SPCR-PRS-IN	03981	YC3-4564
A5 MP240	0515-0659	8	4	SCR-MACHINE	05610	
A5 MP300	1200-1468	3	1	SOCKET RGA72 CN	10803	1KS072-33TT
A5 MP301	1200-1410	5	1	SOCKET PGA 72PI	10803	1KS072-33TG
A5 MP400	1200-1468	3	1	SOCKET RGA72 CN	10803	1KS072-33TT
A5 MP401	1200-1410	5	1	SOCKET PGA 72PI	10803	1KS072-33TG
A5 MP500	1200-1468	3	1	SOCKET RGA72 CN	10803	1KS072-33TT
A5 MP501	1200-1410	5	1	SOCKET PGA 72PI	10803	1KS072-33TG
A5 MP600	1200-1468	3	1	SOCKET RGA72 CN	10803	1KS072-33TT
A5 MP601	1200-1410	5	1	SOCKET PGA 72PI	10803	1KS072-33TG
A5 MP700	1200-1468	3	1	SOCKET RGA72 CN	10803	1KS072-33TT
A5 MP701	1200-1410	5	1	SOCKET PGA 72PI	10803	1KS072-33TG

Table C-12. 8131A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A5 Q200	1853-0563	0	1	XSTR PNP SI	02037	2N3906(SEL)
A5 Q310	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A5 Q312	1855-0309	6	1	MOSFET 2N4352 P-	02037	2N4352
A5 Q313	1855-0309	6	1	MOSFET 2N4352 P-	02037	2N4352
A5 Q314	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q315	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q316	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q317	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q318	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q319	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q410	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A5 Q412	1855-0309	6	1	MOSFET 2N4352 P-	02037	2N4352
A5 Q413	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q414	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q415	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q416	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q417	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q418	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q419	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q480	1854-0472	2	1	XSTR NPN SI DARL	02037	MPS-A14
A5 Q510	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A5 Q512	1855-0309	6	1	MOSFET 2N4352 P-	02037	2N4352
A5 Q513	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q514	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q515	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q516	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q517	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q518	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q519	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q610	1854-1028	6	1	XSTR NPN SI	02037	2N3904

Table C-12. 8131A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 Q612	1855-0309	6	1	MOSFET 2N4352 P-	02037	2N4352
A5 Q613	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q614	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q615	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q616	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q617	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q618	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q619	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q680	1854-0472	2	1	XSTR NPN SI DARL	02037	MPS-A14
A5 Q710	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A5 Q712	1855-0309	6	1	MOSFET 2N4352 P-	02037	2N4352
A5 Q713	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q714	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q715	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q716	1853-0569	6	1	XSTR PNP SI	02037	
A5 Q717	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q718	1854-0392	5	1	XSTR NPN SI	02037	2N5088
A5 Q719	1853-0569	6	1	XSTR PNP SI	02037	
A5 R100	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R200	0699-1206	1	1	RES 127 1% 2W MO	02499	GS-3
A5 R201	0699-1206	1	1	RES 127 1% 2W MO	02499	GS-3
A5 R202	0698-4855	0	1	RES 267 1% .5W T	01074	H2
A5 R204	0698-7205	0	1	RES 51.1 1% .05W	00746	CRB20
A5 R205	0757-0180	2	1	RES 31.6 1% .125	00746	CRB14 OR CRB25
A5 R206	0698-3162	0	1	RES 46.4K 1% .12	00746	CRB14 OR CRB25
A5 R208	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R209	0757-1094	9	1	RES 1.47K 1% .12	00746	CRB14 OR CRB25
A5 R210	0698-6963	5	1	RES 5.55K .1% .1	00746	CRB14 OR CRB25
A5 R211	0698-6963	5	1	RES 5.55K .1% .1	00746	CRB14 OR CRB25
A5 R212	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25

Table C-12. 8131A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R220	0757-0421	4	1	RES 825 1% .125W	00746	CRB14 OR CRB25
A5 R221	0698-3132	4	1	RES 261 1% .125W	00746	CRB14 OR CRB25
A5 R300	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R301	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R302	0698-4425	0	1	RES 1.54K 1% .12	00746	CRB14 OR CRB25
A5 R303	0757-0317	7	1	RES 1.33K 1% .12	00746	CRB14 OR CRB25
A5 R304	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R305	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R306	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R307	0698-3132	4	1	RES 261 1% .125W	00746	CRB14 OR CRB25
A5 R309	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R310	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R311	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A5 R312	0699-1100	4	1	RES 6.984K .1% .	01074	H8
A5 R313	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A5 R314	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R315	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R319	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R320	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R321	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R322	0757-0317	7	1	RES 1.33K 1% .12	00746	CRB14 OR CRB25
A5 R323	0698-3154	0	1	RES 4.22K 1% .12	00746	CRB14 OR CRB25
A5 R324	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R325	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R326	0757-0419	0	1	RES 681 1% .125W	00746	CRB14 OR CRB25
A5 R327	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R328	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R329	0757-0419	0	1	RES 681 1% .125W	00746	CRB14 OR CRB25
A5 R330	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R331	0698-6348	0	1	RES 3K .1% .125W	00746	CRB14 OR CRB25

Table C-12. 8131A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A5 R333	0698-6347	9	1	RES 1.5K 1% .12	00746	CRB14 OR CRB25
A5 R334	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R335	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R336	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R337	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R338	0757-0349	5	1	RES 22.6K 1% .12	00746	CRB14 OR CRB25
A5 R339	0757-0477	0	1	RES 332K 1% .125	00746	CRB14 OR CRB25
A5 R340	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R341	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A5 R342	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R343	0698-3158	4	1	RES 23.7K 1% .12	00746	CRB14 OR CRB25
A5 R344	0698-3268	7	1	RES 11.5K 1% .12	00746	CRB14 OR CRB25
A5 R345	0698-3136	8	1	RES 17.8K 1% .12	00746	CRB14 OR CRB25
A5 R346	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R347	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R348	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R350	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R351	0698-3460	1	1	RES 422K 1% .125	00746	CRB14 OR CRB25
A5 R362	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R367	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A5 R370	0698-3161	9	1	RES 38.3K 1% .12	00746	CRB14 OR CRB25
A5 R371	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R373	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R375	0698-3159	5	1	RES 26.1K 1% .12	00746	CRB14 OR CRB25
A5 R376	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R377	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R378	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R379	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R381	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R390	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25

Table C-12. 8131A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R391	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R392	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R394	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R396	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R400	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R401	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R402	0698-4425	0	1	RES 1.54K 1% .12	00746	CRB14 OR CRB25
A5 R403	0698-4422	7	1	RES 1.27K 1% .12	00746	CRB14 OR CRB25
A5 R404	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R405	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R406	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R409	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R410	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R411	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A5 R412	0699-1011	6	1	RES 3.32K .1% .1	00746	CRB14 OR CRB25
A5 R413	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A5 R414	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R415	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R419	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R420	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R421	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R422	0757-0424	7	1	RES 1.1K 1% .125	00746	CRB14 OR CRB25
A5 R423	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R424	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R425	0757-0278	9	1	RES 1.78K 1% .12	00746	CRB14 OR CRB25
A5 R426	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R427	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R428	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R429	0757-0419	0	1	RES 681 1% .125W	00746	CRB14 OR CRB25
A5 R430	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25

Table C-12. 8131A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R431	0698-6348	0	1	RES 3K .1% .125W	00746	CRB14 OR CRB25
A5 R433	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R434	0698-6616	5	1	RES 750 .1% .125	00746	CRB14 OR CRB25
A5 R435	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R436	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R437	0698-6616	5	1	RES 750 .1% .125	00746	CRB14 OR CRB25
A5 R438	0757-0465	6		RES 100K 1% .125	00746	CRB14 OR CRB25
A5 R438*	0757-0463	4	1	RES 82.5K 1% .12	00746	CRB14 OR CRB25
A5 R440	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R441	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A5 R442	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R443	0757-0462	3	1	RES 75K 1% .125W	00746	CRB14 OR CRB25
A5 R444	0698-3268	7	1	RES 11.5K 1% .12	00746	CRB14 OR CRB25
A5 R445	0698-3136	8	1	RES 17.8K 1% .12	00746	CRB14 OR CRB25
A5 R446	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R447	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R448	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R450	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R453	0757-0462	3		RES 75K 1% .125W	00746	CRB14 OR CRB25
A5 R453*	0698-3243	8	1	RES 178K 1% .125	00746	CRB14 OR CRB25
A5 R460	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R461	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R462	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R467	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A5 R470	0698-3158	4	1	RES 23.7K 1% .12	00746	CRB14 OR CRB25
A5 R471	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R473	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R475	0698-3159	5	1	RES 26.1K 1% .12	00746	CRB14 OR CRB25
A5 R476	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R477	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25

Table C-12. 8131A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R479	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R480	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R481	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R486	0757-0465	6	1	RES 100K 1% .125	00746	CRB14 OR CRB25
A5 R490	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R491	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R492	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R494	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R496	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R501	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R502	0698-4425	0	1	RES 1.54K 1% .12	00746	CRB14 OR CRB25
A5 R503	0757-0422	5	1	RES 909 1% .125W	00746	CRB14 OR CRB25
A5 R504	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R505	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R506	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R509	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R510	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R511	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A5 R512	0699-1011	6	1	RES 3.32K .1% .1	00746	CRB14 OR CRB25
A5 R513	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A5 R514	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R515	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R519	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R520	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R521	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R522	0757-0317	7	1	RES 1.33K 1% .12	00746	CRB14 OR CRB25
A5 R523	0698-0084	9	1	RES 2.15K 1% .12	00746	CRB14 OR CRB25
A5 R524	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R525	0757-0278	9	1	RES 1.78K 1% .12	00746	CRB14 OR CRB25
A5 R526	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25

Table C-12. 8131A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R527	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R528	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R529	0757-0419	0	1	RES 681 1% .125W	00746	CRB14 OR CRB25
A5 R530	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R531	0698-6348	0	1	RES 3K .1% .125W	00746	CRB14 OR CRB25
A5 R533	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R534	0698-6616	5	1	RES 750 .1% .125	00746	CRB14 OR CRB25
A5 R535	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R536	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R537	0698-6616	5	1	RES 750 .1% .125	00746	CRB14 OR CRB25
A5 R538	0757-0978	6	1	RES 95.3K 1% .12	00746	CRB14 OR CRB25
A5 R539	0698-3260	9	1	RES 464K 1% .125	00746	CRB14 OR CRB25
A5 R540	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R541	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A5 R542	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R543	0757-0464	5	1	RES 90.9K 1% .12	00746	CRB14 OR CRB25
A5 R544	0698-3268	7	1	RES 11.5K 1% .12	00746	CRB14 OR CRB25
A5 R545	0698-3136	8	1	RES 17.8K 1% .12	00746	CRB14 OR CRB25
A5 R546	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R547	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R548	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R550	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R551	0698-8961	7	1	RES 909K 1% .125	00746	CRB14 OR CRB25
A5 R560	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R567	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A5 R570	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R571	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R573	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R575	0698-3159	5	1	RES 26.1K 1% .12	00746	CRB14 OR CRB25
A5 R576	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25

Table C-12. 8131A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R577	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R579	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R580	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R581	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R590	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R591	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R592	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R594	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R596	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R600	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R601	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R602	0698-4425	0	1	RES 1.54K 1% .12	00746	CRB14 OR CRB25
A5 R603	0698-4422	7	1	RES 1.27K 1% .12	00746	CRB14 OR CRB25
A5 R604	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R605	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R606	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R609	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R610	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R611	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A5 R612	0699-1011	6	1	RES 3.32K .1% .1	00746	CRB14 OR CRB25
A5 R613	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A5 R614	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R615	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R619	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R620	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R621	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R622	0757-0424	7	1	RES 1.1K 1% .125	00746	CRB14 OR CRB25
A5 R623	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R624	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R625	0757-0278	9	1	RES 1.78K 1% .12	00746	CRB14 OR CRB25

Table C-12. 8131A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R626	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R627	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R628	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R629	0757-0419	0	1	RES 681 1% .125W	00746	CRB14 OR CRB25
A5 R630	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R631	0698-6348	0	1	RES 3K .1% .125W	00746	CRB14 OR CRB25
A5 R633	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R634	0698-6616	5	1	RES 750 .1% .125	00746	CRB14 OR CRB25
A5 R635	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R636	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R637	0698-6616	5	1	RES 750 .1% .125	00746	CRB14 OR CRB25
A5 R638	0757-0465	6		RES 100K 1% .125	00746	CRB14 OR CRB25
A5 R638*	0757-0463	4	1	RES 82.5K 1% .12	00746	CRB14 OR CRB25
A5 R640	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R641	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A5 R642	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R643	0757-0462	3	1	RES 75K 1% .125W	00746	CRB14 OR CRB25
A5 R644	0698-3268	7	1	RES 11.5K 1% .12	00746	CRB14 OR CRB25
A5 R645	0698-3136	8	1	RES 17.8K 1% .12	00746	CRB14 OR CRB25
A5 R646	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R647	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R648	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R650	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R653	0757-0462	3		RES 75K 1% .125W	00746	CRB14 OR CRB25
A5 R653*	0698-3243	8	1	RES 178K 1% .125	00746	CRB14 OR CRB25
A5 R660	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R661	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R667	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A5 R670	0698-3158	4	1	RES 23.7K 1% .12	00746	CRB14 OR CRB25
A5 R671	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25

Table C-12. 8131A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R673	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R675	0698-3159	5	1	RES 26.1K 1% .12	00746	CRB14 OR CRB25
A5 R676	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R677	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R679	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R680	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R681	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R686	0757-0465	6	1	RES 100K 1% .125	00746	CRB14 OR CRB25
A5 R690	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R691	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R692	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R694	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R696	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R701	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R702	0698-4425	0	1	RES 1.54K 1% .12	00746	CRB14 OR CRB25
A5 R703	0757-0422	5	1	RES 909 1% .125W	00746	CRB14 OR CRB25
A5 R704	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R705	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R706	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R709	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R710	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R711	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A5 R712	0699-1011	6	1	RES 3.32K .1% .1	00746	CRB14 OR CRB25
A5 R713	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A5 R714	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R715	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A5 R719	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R720	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R721	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R722	0757-0317	7	1	RES 1.33K 1% .12	00746	CRB14 OR CRB25

Table C-12. 8131A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R723	0698-0084	9	1	RES 2.15K 1% .12	00746	CRB14 OR CRB25
A5 R724	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R725	0757-0278	9	1	RES 1.78K 1% .12	00746	CRB14 OR CRB25
A5 R726	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R727	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R728	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R729	0757-0419	0	1	RES 681 1% .125W	00746	CRB14 OR CRB25
A5 R730	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R731	0698-6348	0	1	RES 3K .1% .125W	00746	CRB14 OR CRB25
A5 R733	0698-6347	9	1	RES 1.5K .1% .12	00746	CRB14 OR CRB25
A5 R734	0698-6616	5	1	RES 750 .1% .125	00746	CRB14 OR CRB25
A5 R735	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R736	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R737	0698-6616	5	1	RES 750 .1% .125	00746	CRB14 OR CRB25
A5 R738	0757-0978	6	1	RES 95.3K 1% .12	00746	CRB14 OR CRB25
A5 R739	0698-3260	9	1	RES 464K 1% .125	00746	CRB14 OR CRB25
A5 R740	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A5 R741	0698-3155	1	1	RES 4.64K 1% .12	00746	CRB14 OR CRB25
A5 R742	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R743	0757-0464	5	1	RES 90.9K 1% .12	00746	CRB14 OR CRB25
A5 R744	0698-3268	7	1	RES 11.5K 1% .12	00746	CRB14 OR CRB25
A5 R745	0698-3136	8	1	RES 17.8K 1% .12	00746	CRB14 OR CRB25
A5 R746	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A5 R747	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R748	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A5 R750	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A5 R751	0698-8961	7	1	RES 909K 1% .125	00746	CRB14 OR CRB25
A5 R760	0757-0394	0	1	RES 51.1 1% .125	00746	CRB14 OR CRB25
A5 R767	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A5 R770	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25

Table C-12. 8131A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 R771	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A5 R773	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A5 R775	0698-3159	5	1	RES 26.1K 1% .12	00746	CRB14 OR CRB25
A5 R776	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R777	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R779	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R780	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R781	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R790	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R791	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R792	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R794	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 R796	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A5 RA100	1810-0316	1	1	NETWORK-RES DIP	02483	761-3-R10K
A5 RT393	0837-0035	6	1	THERMISTOR DISC	05098	35D24
A5 RT493	0837-0035	6	1	THERMISTOR DISC	05098	35D24
A5 RT593	0837-0035	6	1	THERMISTOR DISC	05098	35D24
A5 RT693	0837-0035	6	1	THERMISTOR DISC	05098	35D24
A5 RT793	0837-0035	6	1	THERMISTOR DISC	05098	35D24
A5 TP200	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP311	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP312	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP323	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP324	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP411	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP423	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP424	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP511	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP512	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP523	0360-2264	6	1	TERM.-TEST POINT	10358	1095D

Table C-12. 8131A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 TP524	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP611	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP623	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP624	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP711	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP723	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 TP724	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A5 U100	1820-3665	0	1	IC-MM74HCT245N	01698	SN74HCT245N
A5 U101	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A5 U102	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U103	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U104	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A5 U105	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U106	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U107	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A5 U108	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U109	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A5 U110	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U111	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U112	1818-3164	9	1	IC X2816BP	10572	X2816BP
A5 U200	1NB7-8008	1	1	SYNC COMP HYBRI	28480	1NB7-8008
A5 U201	1826-0544	0	1	IC-V RGLTR	02037	
A5 U202	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A5 U203	1826-0550	8	1	D/A 8-BIT	02910	DAC08EN
A5 U204	1820-0493	6	1	IC 307	03406	LM307N
A5 U300	1DP9-0002	0	1	IC T1671	28480	1DP9-0002
A5 U301	1DP6-0001	3	1	IC COUNTER 200M	28480	1DP6-0001
A5 U303	1820-4995	1	1	IC-TC74HC592P	06354	TC74HC592P
A5 U304	1820-4995	1	1	IC-TC74HC592P	06354	TC74HC592P
A5 U305	1820-5067	0	1	IC-74AC74PC	03406	74AC74PC

Table C-12. 8131A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A5 U306	1820-5067	0	1	IC-74AC74PC	03406	74AC74PC
A5 U307	1820-3298	5	1	IC-MM74HC32N	02037	MC74HC32N
A5 U310	1826-1553	3	1	IC 1014	10858	LT1014DN
A5 U311	1826-0774	8	1	IC LM385BZ-1.2	03406	LM385BZ-1.2
A5 U312	1826-1341	7	1	D/A 12-DGT	03406	DAC1232LCD
A5 U313	1826-1409	8	1	IC 1013	10858	LT1013CN8
A5 U314	1826-0315	3	1	IC 348	03406	LM348N
A5 U318	1826-0916	0	1	ANLG SW AD7511DI	03285	AD7511DIKN
A5 U400	1DP9-0001	9	1	IC TIMG GEN 500	28480	1DP9-0001
A5 U401	1DP6-0001	3	1	IC COUNTER 200M	28480	1DP6-0001
A5 U410	1826-1553	3	1	IC 1014	10858	LT1014DN
A5 U411	1826-0774	8	1	IC LM385BZ-1.2	03406	LM385BZ-1.2
A5 U412	1826-1341	7	1	D/A 12-DGT	03406	DAC1232LCD
A5 U413	1826-1409	8	1	IC 1013	10858	LT1013CN8
A5 U414	1826-0315	3	1	IC 348	03406	LM348N
A5 U418	1826-0916	0	1	ANLG SW AD7511DI	03285	AD7511DIKN
A5 U500	1DP9-0001	9	1	IC TIMG GEN 500	28480	1DP9-0001
A5 U501	1DP6-0001	3	1	IC COUNTER 200M	28480	1DP6-0001
A5 U510	1826-1553	3	1	IC 1014	10858	LT1014DN
A5 U511	1826-0774	8	1	IC LM385BZ-1.2	03406	LM385BZ-1.2
A5 U512	1826-1341	7	1	D/A 12-DGT	03406	DAC1232LCD
A5 U513	1826-1409	8	1	IC 1013	10858	LT1013CN8
A5 U514	1826-0315	3	1	IC 348	03406	LM348N
A5 U518	1826-0916	0	1	ANLG SW AD7511DI	03285	AD7511DIKN
A5 U600	1DP9-0001	9	1	IC TIMG GEN 500	28480	1DP9-0001
A5 U601	1DP6-0001	3	1	IC COUNTER 200M	28480	1DP6-0001
A5 U610	1826-1553	3	1	IC 1014	10858	LT1014DN
A5 U611	1826-0774	8	1	IC LM385BZ-1.2	03406	LM385BZ-1.2
A5 U612	1826-1341	7	1	D/A 12-DGT	03406	DAC1232LCD
A5 U613	1826-1409	8	1	IC 1013	10858	LT1013CN8

Table C-12. 8131A Option 020 Timing Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A5 U614	1826-0315	3	1	IC 348	03406	LM348N
A5 U618	1826-0916	0	1	ANLG SW AD7511DI	03285	AD7511DIKN
A5 U700	1DP9-0001	9	1	IC TIMG GEN 500	28480	1DP9-0001
A5 U701	1DP6-0001	3	1	IC COUNTER 200M	28480	1DP6-0001
A5 U710	1826-1553	3	1	IC 1014	10858	LT1014DN
A5 U711	1826-0774	8	1	IC LM385BZ-1.2	03406	LM385BZ-1.2
A5 U712	1826-1341	7	1	D/A 12-DGT	03406	DAC1232LCD
A5 U713	1826-1409	8	1	IC 1013	10858	LT1013CN8
A5 U714	1826-0315	3	1	IC 348	03406	LM348N
A5 U718	1826-0916	0	1	ANLG SW AD7511DI	03285	AD7511DIKN
A5 VR300	1902-0955	9	1	DIO-ZNR 7.5V 5%	02037	
A5 VR400	1902-0955	9	1	DIO-ZNR 7.5V 5%	02037	
A5 VR500	1902-0955	9	1	DIO-ZNR 7.5V 5%	02037	
A5 VR600	1902-0955	9	1	DIO-ZNR 7.5V 5%	02037	
A5 VR700	1902-0955	9	1	DIO-ZNR 7.5V 5%	02037	
A5 W100	1258-0141	8	1	JUMPER-REM	01380	530153-2
A5 W300	08131-61650	4	1	CBL AY PC 15CM	28480	08131-61650
A5 W301	08131-61655	9	1	CBL AY TROUT45C	28480	08131-61655
A5 W400	08131-61672	0	1	CBL SET DELAY A	28480	08131-61672
A5 W500	08131-61670	8	1	CBL SET OUT30-5	28480	08131-61670
A5 W600	08131-61672	0	1	CBL SET DELAY A	28480	08131-61672
A5 W700	08131-61671	9	1	CBL SET DEL27-3	28480	08131-61671

**Channel 1 Board
Option 020**

Table C-13. 8131A Option 020 Channel 1 Board Parts List

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A26	08131-66527	4	1	BD AY CHAN 1	28480	08131-66527
A26A416	08131-66417	0	1	BD AY TRANSDUCE	28480	08131-66416
A26C100	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C101	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A26C102	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A26C103	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A26C104	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A26C105	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A26C106	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C107	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C108	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A26C109	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A26C111	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C113	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C115	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034

Table C-13. 8131A Option 020 Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26C117	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C119	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C121	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C125	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C126	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C127	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C129	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C130	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A26C131	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A26C132	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A26C133	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C134	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C135	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C136	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C139	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A26C140	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A26C141	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C142	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C143	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A26C401	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C402	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C403	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C404	0160-5741	6	1	CAP 47pF 100 V	06121	B37979-J1470-J034
A26C405	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C407	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C409	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C410	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C411	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A26C412	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A26C413	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034

Table C-13. 8131A Option 020 Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26C414	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A26C415	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C416	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C417	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C418	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C419	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C420	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C421	0160-5741	6	1	CAP 47pF 100 V	06121	B37979-J1470-J034
A26C422	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C425	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C426	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C427	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C429	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C430	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C431	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C432	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C433	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C434	0160-5740	5	1	CAP 33pF 100 V	06121	B37979-J1330-J034
A26C435	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C436	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C437	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C439	0160-3873	1	1	CAP 4.7pF 200 V	06352	FD12C0G2D4R7D
A26C440	0160-5747	2	1	CAP 0.047uF 50 V	06121	B37987-J5473-M034
A26C441	0160-5747	2	1	CAP 0.047uF 50 V	06121	B37987-J5473-M034
A26C450	0160-3873	1	1	CAP 4.7pF 200 V	06352	FD12C0G2D4R7D
A26C451	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C452	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C453	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C460	0160-5737	0	1	CAP 68pF 100 V	06121	B37979-J1680-J034
A26C461	0160-5737	0	1	CAP 68pF 100 V	06121	B37979-J1680-J034

Table C-13. 8131A Option 020 Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26C470	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C471	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C472	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C473	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C474	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C475	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C476	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C477	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C478	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C479	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A26C480	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C481	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C482	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A26C483	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C484	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C485	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C486	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C601	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C604	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C605	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C606	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C607	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C608	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C609	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C610	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C611	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C613	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A26C614	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26C615	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C616	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH

Table C-13. 8131A Option 020 Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A26C617	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A26C618	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A26CP110	0180-0116	1	1	CAP 6.8uF 35 V	04200	150D685X9035B2-DYS
A26CP112	0180-0374	3	1	CAP 10uF 20 V	04200	150D106X9020B2-DYS
A26CP114	0180-0374	3	1	CAP 10uF 20 V	04200	150D106X9020B2-DYS
A26CP116	0180-0116	1	1	CAP 6.8uF 35 V	04200	150D685X9035B2-DYS
A26CP118	0180-0116	1	1	CAP 6.8uF 35 V	04200	150D685X9035B2-DYS
A26CP120	0180-0374	3	1	CAP 10uF 20 V	04200	150D106X9020B2-DYS
A26CP122	0180-2205	3	1	CAP 0.33uF 35 V	04200	150D334X9035A2-DYS
A26CP123	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A26CP128	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A26CP438	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A26CP439	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A26CR100	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR108	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR109	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR111	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR112	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR122	1901-0033	2	1	DIO-GEN PRP	03406	
A26CR123	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR124	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR125	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR126	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR414	1901-0033	2	1	DIO-GEN PRP	03406	
A26CR415	1901-0732	8	1	DIO-PWR RECT	02037	SR3010-4RL
A26CR416	1901-0732	8	1	DIO-PWR RECT	02037	SR3010-4RL
A26CR417	1901-1098	1	1	DIO-1N4150	00746	
A26CR418	1901-1098	1	1	DIO-1N4150	00746	
A26CR419	1901-1098	1	1	DIO-1N4150	00746	
A26CR420	1901-1098	1	1	DIO-1N4150	00746	

Table C-13. 8131A Option 020 Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26CR601	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A26CR602	1901-1098	1	1	DIO-1N4150	00746	
A26J1	1251-8324	1	1	CONN-POST-TP-HDR	04486	G06M96P4BEBL-004-715
A26J101	1251-1556	7	4	CONN-SGL CONT	01075	006-4844-00-0-990
A26J102	1251-1556	7	4	CONN-SGL CONT	01075	006-4844-00-0-990
A26J103	1251-4682	6	1	CONN-POST-TP-HDR	03394	1102-1-103-02
A26J403	1252-2649	3	1	CONN ELAST 43LG	09922	NE 0.2P 43.0L 3.0H 3.6W
A26J404	1252-2649	3	1	CONN ELAST 43LG	09922	NE 0.2P 43.0L 3.0H 3.6W
A26J405	1252-2650	6	1	CONN ELAST 30LG	09922	NE 0.2P 30.0L 3.0H 3.6W
A26J406	1252-2651	7	1	CONN ELAST 5LG	09922	NE 0.2P 5.0L 3.0H 3.6W
A26J407	1252-2651	7	1	CONN ELAST 5LG	09922	NE 0.2P 5.0L 3.0H 3.6W
A26J408	1252-2651	7	1	CONN ELAST 5LG	09922	NE 0.2P 5.0L 3.0H 3.6W
A26J423	1252-2648	2	1	CONN ELAST 30LG	09922	NE 0.4P 30.0L 3.5H 4.2W
A26J424	1252-2648	2	1	CONN ELAST 30LG	09922	NE 0.4P 30.0L 3.5H 4.2W
A26J425	1252-2647	1	1	CONN ELAST 0.4P	09922	NE 0.4P 43.0L 3.5H 4.2W
A26J426	1252-2647	1	1	CONN ELAST 0.4P	09922	NE 0.4P 43.0L 3.5H 4.2W
A26K403	0955-0452	1	1	SW-COAX SMA	02574	S-4845
A26K404	0955-0452	1	1	SW-COAX SMA	02574	S-4845
A26L100	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A26L101	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A26L102	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A26L103	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A26L104	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A26L105	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A26L401	9100-2257	6	1	L 820NH +-10%	03273	10M820K
A26L402	9100-2256	5	1	L 560NH +-10%	03273	10M560K
A26L403	9100-2257	6	1	L 820NH +-10%	03273	10M820K
A26L404	9100-2256	5	1	L 560NH +-10%	03273	10M560K
A26MP1	08131-00601	7	1	SHIELD	28480	08131-00601
A26MP2	0403-0285	9	2	BMPR FT-ADH MTG	04726	SJ-5018 GRAY
A26MP16	3050-0152	3	3	WSHR-SHLDR	04604	1462

Table C-13. 8131A Option 020 Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A26MP20	0515-0659	8	4	SCR-MACHINE	05610	
A26MP21	3050-0960	1	2	WASHER-SHLDR 3.0	05947	V5359
A26MP22	3050-0098	6	2	WSHR-FL MTLC	04939	AN960 C2
A26MP141	0340-1212	0	1	INSULATOR	28480	0340-1212
A26MP142	08131-21101	6	1	HEATSINK TUB	28480	08131-21101
A26MP143	08131-40503	2	1	FRAME PLASTIC	28480	08131-40503
A26MP144	08131-04104	3	1	COVER	28480	08131-04104
A26MP145	08131-05401	5	1	DUST HYBRD COVE	28480	08131-05401
A26MP403	1205-0295	2	1	HEAT SINK	02608	6107B-14
A26MP404	1205-0295	2	1	HEAT SINK	02608	6107B-14
A26MP405	1205-0295	2	1	HEAT SINK	02608	6107B-14
A26MP413	0340-1074	2	1	INSUL-XSTR	05447	3223-07FR-58-AC
A26MP414	0340-1074	2	1	INSUL-XSTR	05447	3223-07FR-58-AC
A26MP415	0340-1074	2	1	INSUL-XSTR	05447	3223-07FR-58-AC
A26MP603	1205-0295	2	1	HEAT SINK	02608	6107B-14
A26MP609	1205-0011	0	1	HEAT SINK	02608	2226B
A26MP613	0340-1074	2	1	INSUL-XSTR	05447	3223-07FR-58-AC
A26MP618	0340-1074	2	1	INSUL-XSTR	05447	3223-07FR-58-AC
A26Q100	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A26Q101	1853-0314	9	1	XSTR PNP 2N2905A	02037	2N2905A
A26Q102	1854-0637	1	1	XSTR NPN 2N2219A	02037	2N2219A
A26Q401	1854-0583	6	1	XSTR NPN SI	02037	MPS-A18
A26Q403	1854-0828	2	1	XSTR NPN SI	00039	NTD560
A26Q404	1853-0468	4	1	XSTR PNP SI DARL	02037	TIP-127
A26Q405	1855-0548	5	1	MOSFET N-CHAN	02037	BUZ71A
A26Q406	1855-0751	2	1	MOSFET N-CHAN	02883	VN0808M
A26Q411	1854-0583	6	1	XSTR NPN SI	02037	MPS-A18
A26Q412	1855-0751	2	1	MOSFET N-CHAN	02883	VN0808M
A26Q413	1855-0751	2	1	MOSFET N-CHAN	02883	VN0808M
A26Q415	1855-0689	5	1	J-FET CHIP P-CHA	02037	2N5461

Table C-13. 8131A Option 020 Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A26Q416	1853-0563	0	1	XSTR PNP SI	02037	2N3906(SEL)
A26Q430	1853-0563	0	1	XSTR PNP SI	02037	2N3906(SEL)
A26Q431	1853-0563	0	1	XSTR PNP SI	02037	2N3906(SEL)
A26Q603	1855-0548	5	1	MOSFET N-CHAN	02037	BUZ71A
A26Q605	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A26Q606	1855-0751	2	1	MOSFET N-CHAN	02883	VN0808M
A26Q608	1853-0509	4	1	XSTR PNP	01698	TIP42A
A26Q609	1853-0314	9	1	XSTR PNP 2N2905A	02037	2N2905A
A26R100	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R101	0757-0465	6	1	RES 100K 1% .125	00746	CRB14 OR CRB25
A26R102	0698-8827	4	1	RES 1M 1% .125W	00746	CRB14 OR CRB25
A26R105	0698-3452	1	1	RES 147K 1% .125	00746	CRB14 OR CRB25
A26R106	0698-3132	4	1	RES 261 1% .125W	00746	CRB14 OR CRB25
A26R107	0698-3439	4	1	RES 178 1% .125W	00746	CRB14 OR CRB25
A26R108	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A26R109	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A26R110	0698-6630	3	1	RES 20K .1% .125	00746	CRB14 OR CRB25
A26R111	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A26R112	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R113	0698-3279	0	1	RES 4.99K 1% .12	00746	CRB14 OR CRB25
A26R114	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A26R115	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R116	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R117	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R118	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R119	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R120	0757-0274	5	1	RES 1.21K 1% .12	00746	CRB14 OR CRB25
A26R121	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A26R130	0757-0278	9	1	RES 1.78K 1% .12	00746	CRB14 OR CRB25
A26R131	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25

Table C-13. 8131A Option 020 Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26R132	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A26R135	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A26R136	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A26R137	0757-0278	9	1	RES 1.78K 1% .12	00746	CRB14 OR CRB25
A26R140	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A26R141	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A26R142	0698-3279	0	1	RES 4.99K 1% .12	00746	CRB14 OR CRB25
A26R144	0698-3161	9	1	RES 38.3K 1% .12	00746	CRB14 OR CRB25
A26R145	0757-0199	3	1	RES 21.5K 1% .12	00746	CRB14 OR CRB25
A26R146	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R147	0698-3136	8	1	RES 17.8K 1% .12	00746	CRB14 OR CRB25
A26R148	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R149	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R150	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R157	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R200	1250-2206	4	1	TERM 50 OHM	28480	1250-2206
A26R300	1250-2206	4	1	TERM 50 OHM	28480	1250-2206
A26R400	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A26R401	0698-3242	7	1	RES 357 1% .125W	00746	CRB14 OR CRB25
A26R402	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R403	0698-3558	8	1	RES 4.02K 1% .12	00746	CRB14 OR CRB25
A26R404	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A26R405	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R406	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R407	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A26R408	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R410	0698-0084	9	1	RES 2.15K 1% .12	00746	CRB14 OR CRB25
A26R411	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A26R412	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R413	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25

Table C-13. 8131A Option 020 Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26R414	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A26R415	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R416	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R417	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R418	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R419	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A26R420	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R421	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R422	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R423	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R424	0698-4477	2	1	RES 10.5K 1% .12	00746	CRB14 OR CRB25
A26R425	0698-4445	4	1	RES 5.76K 1% .12	00746	CRB14 OR CRB25
A26R426	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A26R427	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R428	0698-3430	5	1	RES 21.5 1% .125	00746	CRB14 OR CRB25
A26R429	0757-0284	7	1	RES 150 1% .125W	00746	CRB14 OR CRB25
A26R430	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R431	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R432	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A26R434	0757-0999	1	1	RES 47.5 1% .5W	01074	H2
A26R435	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25
A26R436	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A26R437	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R438	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25
A26R439	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R440	0757-0444	1	1	RES 12.1K 1% .12	00746	CRB14 OR CRB25
A26R441	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R442	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R443	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R444	0757-0421	4	1	RES 825 1% .125W	00746	CRB14 OR CRB25

Table C-13. 8131A Option 020 Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A26R445	0698-3152	8	1	RES 3.48K 1% .12	00746	CRB14 OR CRB25
A26R446	0757-0290	5	1	RES 6.19K 1% .12	00746	CRB14 OR CRB25
A26R447	0757-0444	1	1	RES 12.1K 1% .12	00746	CRB14 OR CRB25
A26R448	0698-3156	2	1	RES 14.7K 1% .12	00746	CRB14 OR CRB25
A26R449	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R450	0757-0440	7	1	RES 7.5K 1% .125	00746	CRB14 OR CRB25
A26R451	0698-4469	2	1	RES 1.15K 1% .12	00746	CRB14 OR CRB25
A26R452	0757-0428	1	1	RES 1.62K 1% .12	00746	CRB14 OR CRB25
A26R453	0757-0290	5	1	RES 6.19K 1% .12	00746	CRB14 OR CRB25
A26R454	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R456	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A26R457	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R458	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R459	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R460	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R464	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A26R465	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A26R466	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A26R467	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R468	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R469	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R470	0698-4448	7	1	RES 294 1% .125W	00746	CRB14 OR CRB25
A26R471	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A26R472	0698-4037	0	1	RES 46.4 1% .125	00746	CRB14 OR CRB25
A26R473	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R474	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R475	0757-1094	9	1	RES 1.47K 1% .12	00746	CRB14 OR CRB25
A26R476	0698-3439	4	1	RES 178 1% .125W	00746	CRB14 OR CRB25
A26R477	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A26R478	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25

Table C-13. 8131A Option 020 Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26R479	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R480	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R484	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A26R486	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R487	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R488	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R489	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R490	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R491	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R492	0757-0466	7	1	RES 110K 1% .125	00746	CRB14 OR CRB25
A26R493	0698-3515	7	1	RES 5.9K 1% .125	00746	CRB14 OR CRB25
A26R494	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R498	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R499	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R500	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R501	0757-0441	8	1	RES 8.25K 1% .12	00746	CRB14 OR CRB25
A26R504	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A26R508	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R509	0757-0441	8	1	RES 8.25K 1% .12	00746	CRB14 OR CRB25
A26R510	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A26R511	0683-2265	1	1	RES 22M 5% .25W	01607	CB2265
A26R512	0698-8958	2	1	RES 511K 1% .125	00746	CRB14 OR CRB25
A26R513	0683-2265	1	1	RES 22M 5% .25W	01607	CB2265
A26R514	0698-8958	2	1	RES 511K 1% .125	00746	CRB14 OR CRB25
A26R519	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R520	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R521	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A26R523	0698-3242	7	1	RES 357 1% .125W	00746	CRB14 OR CRB25
A26R524	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R525	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25

Table C-13. 8131A Option 020 Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26R526	0698-3488	3	1	RES 442 1% .125W	00746	CRB14 OR CRB25
A26R527	0698-3488	3	1	RES 442 1% .125W	00746	CRB14 OR CRB25
A26R530	0698-3558	8	1	RES 4.02K 1% .12	00746	CRB14 OR CRB25
A26R531	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A26R532	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A26R540	0757-0407	6	1	RES 200 1% .125W	00746	CRB14 OR CRB25
A26R541	0757-0407	6	1	RES 200 1% .125W	00746	CRB14 OR CRB25
A26R550	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A26R551	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R552	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R553	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R554	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R560	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A26R561	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R562	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R563	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A26R564	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R565	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R566	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A26R567	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R568	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R569	0757-0444	1	1	RES 12.1K 1% .12	00746	CRB14 OR CRB25
A26R570	0698-4123	5	1	RES 499 1% .125W	00746	CRB14 OR CRB25
A26R571	0698-3159	5	1	RES 26.1K 1% .12	00746	CRB14 OR CRB25
A26R572	0698-3159	5	1	RES 26.1K 1% .12	00746	CRB14 OR CRB25
A26R573	0698-4123	5	1	RES 499 1% .125W	00746	CRB14 OR CRB25
A26R574	0698-4123	5	1	RES 499 1% .125W	00746	CRB14 OR CRB25
A26R575	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R576	0757-0123	3	1	RES 34.8K 1% .12	00746	CRB14 OR CRB25
A26R577	0757-0123	3	1	RES 34.8K 1% .12	00746	CRB14 OR CRB25

Table C-13. 8131A Option 020 Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A26R588	0757-0997	9	1	RES 39.2 1% .5W	01074	H2
A26R604	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R607	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R608	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A26R609	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R610	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R612	0757-0199	3	1	RES 21.5K 1% .12	00746	CRB14 OR CRB25
A26R613	0698-4425	0	1	RES 1.54K 1% .12	00746	CRB14 OR CRB25
A26R614	0698-6630	3	1	RES 20K .1% .125	00746	CRB14 OR CRB25
A26R615	0698-6624	5	1	RES 2K .1% .125W	00746	CRB14 OR CRB25
A26R617	0698-4437	4	1	RES 2.94K 1% .12	00746	CRB14 OR CRB25
A26R618	0757-0200	7	1	RES 5.62K 1% .12	00746	CRB14 OR CRB25
A26R621	0757-0444	1	1	RES 12.1K 1% .12	00746	CRB14 OR CRB25
A26R622	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A26R624	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R625	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R626	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R628	0757-0441	8	1	RES 8.25K 1% .12	00746	CRB14 OR CRB25
A26R629	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R630	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R631	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R632	0757-0441	8	1	RES 8.25K 1% .12	00746	CRB14 OR CRB25
A26R633	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R635	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A26R636	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R639	0757-0441	8	1	RES 8.25K 1% .12	00746	CRB14 OR CRB25
A26R640	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R641	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A26R642	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A26R643	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25

Table C-13. 8131A Option 020 Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26R644	0757-0317	7	1	RES 1.33K 1% .12	00746	CRB14 OR CRB25
A26R645	0757-0200	7	1	RES 5.62K 1% .12	00746	CRB14 OR CRB25
A26R646	0698-4431	8	1	RES 2.05K 1% .12	00746	CRB14 OR CRB25
A26R647	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A26R648	0698-3496	3	1	RES 3.57K 1% .12	00746	CRB14 OR CRB25
A26R649	0757-0424	7	1	RES 1.1K 1% .125	00746	CRB14 OR CRB25
A26R650	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A26R651	0757-0999	1	1	RES 47.5 1% .5W	01074	H2
A26R652	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R653	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A26R999	0699-1503	1	1	RES .05 100% TKF	00746	MCR18EZHZW00E0
A26RA100	1810-0316	1	1	NETWORK-RES DIP	02483	761-3-R10K
A26RV103	2100-3352	7	1	RES-TRMR 1K 10%	03744	3386X-Y46-102
A26RV104	2100-3349	2	1	RES-TRMR 100 10%	03744	3386X-Y46-101
A26RV123	2100-3207	1	1	RES-TRMR 5K 10%	03744	3386X-Y46-502
A26RV404	2100-0554	5	1	RES-TRMR 500 10%	03744	3386P-Y46-501
A26RV435	2100-3207	1	1	RES-TRMR 5K 10%	03744	3386X-Y46-502
A26RV438	2100-3274	2	1	RES-TRMR 10K 10%	03744	3386X-Y46-103
A26RV455	2100-0567	0	1	RES-TRMR 2K 10%	03744	3386P-Y46-202
A26RV461	2100-3274	2	1	RES-TRMR 10K 10%	03744	3386X-Y46-103
A26RV500	2100-3383	4	1	RES-TRMR 50 10%	03744	3386P-Y46-500
A26RV501	2100-3383	4	1	RES-TRMR 50 10%	03744	3386P-Y46-500
A26RV502	2100-3273	1	1	RES-TRMR 2K 10%	03744	3386X-Y46-202
A26RV503	2100-0567	0	1	RES-TRMR 2K 10%	03744	3386P-Y46-202
A26RV504	2100-3210	6	1	RES-TRMR 10K 10%	03744	3386P-Y46-103
A26TP101	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP102	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP103	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP104	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP105	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP106	0360-2264	6	1	TERM.-TEST POINT	10358	1095D

Table C-13. 8131A Option 020 Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26TP107	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP403	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26TP404	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A26U100	1820-3665	0	1	IC-MM74HCT245N	01698	SN74HCT245N
A26U101	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A26U102	1820-3081	4	1	IC-MC74HC74N	01698	SN74HC74N
A26U103	1820-3298	5	1	IC-MM74HC32N	02037	MC74HC32N
A26U104	1826-0861	4	1	D/A 10-BIT	03285	AD7533LN
A26U105	1826-0861	4	1	D/A 10-BIT	03285	AD7533LN
A26U106	1820-3399	7	1	IC-MC74HC273N	01698	SN74HC273N
A26U107	1826-0877	2	1	A/D 8-BIT	03285	AD7574KN
A26U108	1820-1315	3	1	ANLG MUXR MC1405	02037	MC14051BCP
A26U109	1820-0493	6	1	IC 307	03406	LM307N
A26U110	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A26U111	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A26U112	1826-0285	6	1	IC MC79L05ACP	02037	MC79L05ACP
A26U113	1826-0315	3	1	IC 348	03406	LM348N
A26U114	1826-0161	7	1	IC 324	02037	LM324N
A26U115	1820-3097	2	1	IC-MM74HC08N	02037	MC74HC08N
A26U117	1820-3373	7	1	IC-MM74HC221AN	03406	MM74HC221AN
A26U118	1820-0493	6	1	IC 307	03406	LM307N
A26U120	1820-2924	2	1	IC-MC74HC02N	01698	SN74HC02N
A26U121	1820-3081	4	1	IC-MC74HC74N	01698	SN74HC74N
A26U122	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A26U123	1820-3081	4	1	IC-MC74HC74N	01698	SN74HC74N
A26U124	1820-3081	4	1	IC-MC74HC74N	01698	SN74HC74N
A26U126	1820-3081	4	1	IC-MC74HC74N	01698	SN74HC74N
A26U401	1NB7-8179	7	1	HYRIDS	28480	1NB7-8179
A26U402	1826-0524	6	1	IC 324A	03406	LM324AN
A26U403	1826-0207	2	1	IC 318	01698	LM318P

Table C-13. 8131A Option 020 Channel 1 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26U404	1826-0138	8	1	IC 339	01698	LM339N
A26U405	1826-1460	1	1	IC 201	03406	LM201AN
A26U406	1820-0493	6	1	IC 307	03406	LM307N
A26U407	1826-0161	7	1	IC 324	02037	LM324N
A26U408	1826-0207	2	1	IC 318	01698	LM318P
A26U409	1826-0161	7	1	IC 324	02037	LM324N
A26U410	1858-0058	8	1	XSTR ARY 14P-DIP	02037	MPQ3906
A26U411	1858-0087	3	1	XSTR ARY 14P-DIP	02037	MPQ3904
A26U412	1858-0087	3	1	XSTR ARY 14P-DIP	02037	MPQ3904
A26U413	1858-0087	3	1	XSTR ARY 14P-DIP	02037	MPQ3904
A26U415	1826-0600	9	1	IC 074A	01698	TL074ACN
A26U416	1858-0087	3	1	XSTR ARY 14P-DIP	02037	MPQ3904
A26U417	1826-0161	7	1	IC 324	02037	LM324N
A26U418	1858-0087	3	1	XSTR ARY 14P-DIP	02037	MPQ3904
A26U601	1826-0315	3	1	IC 348	03406	LM348N
A26U602	1826-0315	3	1	IC 348	03406	LM348N
A26U603	1826-0161	7	1	IC 324	02037	LM324N
A26VR101	1902-0956	0	1	DIO-ZNR 8.2V 5%	02037	
A26VR403	1902-0963	9	1	DIO-ZNR 16V 5%	02037	SZ30035-21RL
A26VR404	1902-0956	0	1	DIO-ZNR 8.2V 5%	02037	
A26VR405	1902-0956	0	1	DIO-ZNR 8.2V 5%	02037	
A26VR406	1902-0949	1	1	DIO-ZNR 4.3V 5%	02037	
A26VR407	1902-0945	7	1	DIO-ZNR 3V 5%	02037	SZ0035-3RL
A26VR409	1902-0951	5	1	DIO-ZNR 5.1V 5%	02037	SZ30035-9RL
A26VR412	1902-0950	4	1	DIO-ZNR 4.7V 5%	02037	
A26VR415	1902-0950	4	1	DIO-ZNR 4.7V 5%	02037	
A26VR417	1902-0963	9	1	DIO-ZNR 16V 5%	02037	SZ30035-21RL
A26VR419	1902-0953	7	1	DIO-ZNR 6.2V 5%	02037	SZ30035-11RL
A26VR495	1902-0951	5	1	DIO-ZNR 5.1V 5%	02037	SZ30035-9RL
A26VR602	1902-0953	7	1	DIO-ZNR 6.2V 5%	02037	SZ30035-11RL

Table C-13. 8131A Option 020 Channel 1 Board Parts List (continued).

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A26VR603	1902-0958	2	1	DIO-ZNR 10V 5%	02037	
A26VR604	1902-0945	7	1	DIO-ZNR 3V 5%	02037	SZ0035-3RL
A26W103	1258-0141	8	1	JUMPER-REM	01380	530153-2
A26W403	08131-61607	1	1	CBL SEMI RIGID	28480	08131-61607
A26W404	08131-61607	1	1	CBL SEMI RIGID	28480	08131-61607

**Channel 2 Board
Option 020**

Table C-14. 8131A Option 020 Channel 2 Board Parts List

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A28	08131-66528	4	1	BD AY CHAN 2	28480	08131-66528
A28A418	08131-66418	0	1	BD AY TRANSDUCE	28480	08131-66418
A28C100	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A28C101	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A28C102	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A28C103	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A28C104	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A28C105	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A28C106	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A28C107	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A28C108	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A28C109	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A28C111	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A28C113	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A28C115	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034

Table C-14. 8131A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A28C117	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A28C119	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A28C121	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A28C125	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A28C126	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A28C127	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A28C129	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A28C130	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A28C131	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A28C132	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A28C133	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A28C134	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A28C135	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A28C136	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A28C139	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A28C140	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A28C141	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A28C142	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A28C143	0160-5332	1	1	CAP 0.1uF 50 V	02010	MD015C104MABH
A28C401	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A28C402	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A28C403	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A28C404	0160-5741	6	1	CAP 47pF 100 V	06121	B37979-J1470-J034
A28C405	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A28C407	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A28C409	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A28C410	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A28C411	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A28C412	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A28C413	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034

Table C-14. 8131A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A28C414	0160-5730	3	1	CAP 100pF 100 V	06121	B37979-J1101-J034
A28C415	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A28C416	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A28C417	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A28C418	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A28C419	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A28C420	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A28C421	0160-5741	6	1	CAP 47pF 100 V	06121	B37979-J1470-J034
A28C422	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A28C425	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A28C426	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A28C427	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A28C429	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A28C430	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A28C431	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A28C432	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A28C433	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A28C434	0160-5740	5	1	CAP 33pF 100 V	06121	B37979-J1330-J034
A28C435	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A28C436	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A28C437	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A28C439	0160-3873	1	1	CAP 4.7pF 200 V	06352	FD12C0G2D4R7D
A28C440	0160-5747	2	1	CAP 0.047uF 50 V	06121	B37987-J5473-M034
A28C441	0160-5747	2	1	CAP 0.047uF 50 V	06121	B37987-J5473-M034
A28C450	0160-3873	1	1	CAP 4.7pF 200 V	06352	FD12C0G2D4R7D
A28C451	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A28C452	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A28C453	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A28C460	0160-5737	0	1	CAP 68pF 100 V	06121	B37979-J1680-J034
A28C461	0160-5737	0	1	CAP 68pF 100 V	06121	B37979-J1680-J034

Table C-14. 8131A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A28C470	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A28C471	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A28C472	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A28C473	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A28C474	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A28C475	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A28C476	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A28C477	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A28C478	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A28C479	0160-6623	5	1	CAP 0.1uF 50 V	02010	SA115C104MAAH
A28C480	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A28C481	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A28C482	0160-5728	9	1	CAP 1000pF 100 V	06121	B37986-J1102-J034
A28C483	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A28C484	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A28C485	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A28C486	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A28C601	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A28C604	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A28C605	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A28C606	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A28C607	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A28C608	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A28C609	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A28C610	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A28C611	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A28C613	0160-5726	7	1	CAP 0.01uF 100 V	06121	B37987-J1103-M034
A28C614	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A28C615	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A28C616	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH

Table C-14. 8131A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A28C617	0160-6500	7	1	CAP 0.01uF 100 V	02010	SA101C103KAAH
A28C618	0160-5746	1	1	CAP 0.1uF 50 V	06121	B37987-T5104-M11
A28CP110	0180-0116	1	1	CAP 6.8uF 35 V	04200	150D685X9035B2-DYS
A28CP112	0180-0374	3	1	CAP 10uF 20 V	04200	150D106X9020B2-DYS
A28CP114	0180-0374	3	1	CAP 10uF 20 V	04200	150D106X9020B2-DYS
A28CP116	0180-0116	1	1	CAP 6.8uF 35 V	04200	150D685X9035B2-DYS
A28CP118	0180-0116	1	1	CAP 6.8uF 35 V	04200	150D685X9035B2-DYS
A28CP120	0180-0374	3	1	CAP 10uF 20 V	04200	150D106X9020B2-DYS
A28CP122	0180-2205	3	1	CAP 0.33uF 35 V	04200	150D334X9035A2-DYS
A28CP123	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A28CP128	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A28CP438	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A28CP439	0180-4129	4	1	CAP 1uF 35 V	04200	173D105X9035V
A28CR100	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A28CR108	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A28CR109	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A28CR111	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A28CR112	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A28CR122	1901-0033	2	1	DIO-GEN PRP	03406	
A28CR123	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A28CR124	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A28CR125	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A28CR126	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A28CR414	1901-0033	2	1	DIO-GEN PRP	03406	
A28CR415	1901-0732	8	1	DIO-PWR RECT	02037	SR3010-4RL
A28CR416	1901-0732	8	1	DIO-PWR RECT	02037	SR3010-4RL
A28CR417	1901-1098	1	1	DIO-1N4150	00746	
A28CR418	1901-1098	1	1	DIO-1N4150	00746	
A28CR419	1901-1098	1	1	DIO-1N4150	00746	
A28CR420	1901-1098	1	1	DIO-1N4150	00746	

Table C-14. 8131A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A28CR601	1901-0535	9	1	DIO- SCHOTTKY SM	02062	50825511
A28CR602	1901-1098	1	1	DIO-1N4150	00746	
A28J1	1251-8324	1	1	CONN-POST-TP-HDR	04486	G06M96P4BEBL-004-715
A28J101	1251-1556	7	4	CONN-SGL CONT	01075	006-4844-00-0-990
A28J102	1251-1556	7	4	CONN-SGL CONT	01075	006-4844-00-0-990
A28J103	1251-4682	6	1	CONN-POST-TP-HDR	03394	1102-1-103-02
A28J403	1252-2649	3	1	CONN ELAST 43LG	09922	NE 0.2P 43.0L 3.0H 3.6W
A28J404	1252-2649	3	1	CONN ELAST 43LG	09922	NE 0.2P 43.0L 3.0H 3.6W
A28J405	1252-2650	6	1	CONN ELAST 30LG	09922	NE 0.2P 30.0L 3.0H 3.6W
A28J406	1252-2651	7	1	CONN ELAST 5LG	09922	NE 0.2P 5.0L 3.0H 3.6W
A28J407	1252-2651	7	1	CONN ELAST 5LG	09922	NE 0.2P 5.0L 3.0H 3.6W
A28J408	1252-2651	7	1	CONN ELAST 5LG	09922	NE 0.2P 5.0L 3.0H 3.6W
A28J423	1252-2648	2	1	CONN ELAST 30LG	09922	NE 0.4P 30.0L 3.5H 4.2W
A28J424	1252-2648	2	1	CONN ELAST 30LG	09922	NE 0.4P 30.0L 3.5H 4.2W
A28J425	1252-2647	1	1	CONN ELAST 0.4P	09922	NE 0.4P 43.0L 3.5H 4.2W
A28J426	1252-2647	1	1	CONN ELAST 0.4P	09922	NE 0.4P 43.0L 3.5H 4.2W
A28K403	0955-0452	1	1	SW-COAX SMA	02574	S-4845
A28K404	0955-0452	1	1	SW-COAX SMA	02574	S-4845
A28L100	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A28L101	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A28L102	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A28L103	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A28L104	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A28L105	9100-1788	6	1	CORE-FERRITE	02995	VK200 20/4B
A28L401	9100-2257	6	1	L 820NH +-10%	03273	10M820K
A28L402	9100-2256	5	1	L 560NH +-10%	03273	10M560K
A28L403	9100-2257	6	1	L 820NH +-10%	03273	10M820K
A28L404	9100-2256	5	1	L 560NH +-10%	03273	10M560K
A28MP1	08131-00601	7	1	SHIELD	28480	08131-00601
A28MP2	0403-0285	9	2	BMPR FT-ADH MTG	04726	SJ-5018 GRAY
A28MP16	3050-0152	3	3	WSHR-SHLDR	04604	1462

Table C-14. 8131A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A28MP20	0515-0659	8	4	SCR-MACHINE	05610	
A28MP21	3050-0960	1	2	WASHER-SHLDR 3.0	05947	V5359
A28MP22	3050-0098	6	2	WSHR-FL MTLC	04939	AN960 C2
A28MP141	0340-1212	0	1	INSULATOR	28480	0340-1212
A28MP142	08131-21101	6	1	HEATSINK TUB	28480	08131-21101
A28MP143	08131-40503	2	1	FRAME PLASTIC	28480	08131-40503
A28MP144	08131-04104	3	1	COVER	28480	08131-04104
A28MP145	08131-05401	5	1	DUST HYBRD COVE	28480	08131-05401
A28MP403	1205-0295	2	1	HEAT SINK	02608	6107B-14
A28MP404	1205-0295	2	1	HEAT SINK	02608	6107B-14
A28MP405	1205-0295	2	1	HEAT SINK	02608	6107B-14
A28MP413	0340-1074	2	1	INSUL-XSTR	05447	3223-07FR-58-AC
A28MP414	0340-1074	2	1	INSUL-XSTR	05447	3223-07FR-58-AC
A28MP415	0340-1074	2	1	INSUL-XSTR	05447	3223-07FR-58-AC
A28MP603	1205-0295	2	1	HEAT SINK	02608	6107B-14
A28MP609	1205-0011	0	1	HEAT SINK	02608	2226B
A28MP613	0340-1074	2	1	INSUL-XSTR	05447	3223-07FR-58-AC
A28MP618	0340-1074	2	1	INSUL-XSTR	05447	3223-07FR-58-AC
A28Q100	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A28Q101	1853-0314	9	1	XSTR PNP 2N2905A	02037	2N2905A
A28Q102	1854-0637	1	1	XSTR NPN 2N2219A	02037	2N2219A
A28Q401	1854-0583	6	1	XSTR NPN SI	02037	MPS-A18
A28Q403	1854-0828	2	1	XSTR NPN SI	00039	NTD560
A28Q404	1853-0468	4	1	XSTR PNP SI DARL	02037	TIP-127
A28Q405	1855-0548	5	1	MOSFET N-CHAN	02037	BUZ71A
A28Q406	1855-0751	2	1	MOSFET N-CHAN	02883	VN0808M
A28Q411	1854-0583	6	1	XSTR NPN SI	02037	MPS-A18
A28Q412	1855-0751	2	1	MOSFET N-CHAN	02883	VN0808M
A28Q413	1855-0751	2	1	MOSFET N-CHAN	02883	VN0808M
A28Q415	1855-0689	5	1	J-FET CHIP P-CHA	02037	2N5461

Table C-14. 8131A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A28Q416	1853-0563	0	1	XSTR PNP SI	02037	2N3906(SEL)
A28Q430	1853-0563	0	1	XSTR PNP SI	02037	2N3906(SEL)
A28Q431	1853-0563	0	1	XSTR PNP SI	02037	2N3906(SEL)
A28Q603	1855-0548	5	1	MOSFET N-CHAN	02037	BUZ71A
A28Q605	1854-1028	6	1	XSTR NPN SI	02037	2N3904
A28Q606	1855-0751	2	1	MOSFET N-CHAN	02883	VN0808M
A28Q608	1853-0509	4	1	XSTR PNP	01698	TIP42A
A28Q609	1853-0314	9	1	XSTR PNP 2N2905A	02037	2N2905A
A28R100	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R101	0757-0465	6	1	RES 100K 1% .125	00746	CRB14 OR CRB25
A28R102	0698-8827	4	1	RES 1M 1% .125W	00746	CRB14 OR CRB25
A28R105	0698-3452	1	1	RES 147K 1% .125	00746	CRB14 OR CRB25
A28R106	0698-3132	4	1	RES 261 1% .125W	00746	CRB14 OR CRB25
A28R107	0698-3439	4	1	RES 178 1% .125W	00746	CRB14 OR CRB25
A28R108	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A28R109	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A28R110	0698-6630	3	1	RES 20K .1% .125	00746	CRB14 OR CRB25
A28R111	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A28R112	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R113	0698-3279	0	1	RES 4.99K 1% .12	00746	CRB14 OR CRB25
A28R114	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A28R115	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A28R116	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A28R117	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A28R118	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A28R119	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R120	0757-0274	5	1	RES 1.21K 1% .12	00746	CRB14 OR CRB25
A28R121	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A28R130	0757-0278	9	1	RES 1.78K 1% .12	00746	CRB14 OR CRB25
A28R131	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25

Table C-14. 8131A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A28R132	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A28R135	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A28R136	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A28R137	0757-0278	9	1	RES 1.78K 1% .12	00746	CRB14 OR CRB25
A28R140	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A28R141	0698-6360	6	1	RES 10K .1% .125	00746	CRB14 OR CRB25
A28R142	0698-3279	0	1	RES 4.99K 1% .12	00746	CRB14 OR CRB25
A28R144	0698-3161	9	1	RES 38.3K 1% .12	00746	CRB14 OR CRB25
A28R145	0757-0199	3	1	RES 21.5K 1% .12	00746	CRB14 OR CRB25
A28R146	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A28R147	0698-3136	8	1	RES 17.8K 1% .12	00746	CRB14 OR CRB25
A28R148	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R149	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A28R150	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A28R157	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R200	1250-2206	4	1	TERM 50 OHM	28480	1250-2206
A28R300	1250-2206	4	1	TERM 50 OHM	28480	1250-2206
A28R400	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A28R401	0698-3242	7	1	RES 357 1% .125W	00746	CRB14 OR CRB25
A28R402	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A28R403	0698-3558	8	1	RES 4.02K 1% .12	00746	CRB14 OR CRB25
A28R404	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A28R405	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A28R406	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R407	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A28R408	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A28R410	0698-0084	9	1	RES 2.15K 1% .12	00746	CRB14 OR CRB25
A28R411	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A28R412	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R413	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25

Table C-14. 8131A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A28R414	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A28R415	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A28R416	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A28R417	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A28R418	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A28R419	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A28R420	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R421	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R422	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A28R423	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R424	0698-4477	2	1	RES 10.5K 1% .12	00746	CRB14 OR CRB25
A28R425	0698-4445	4	1	RES 5.76K 1% .12	00746	CRB14 OR CRB25
A28R426	0698-3153	9	1	RES 3.83K 1% .12	00746	CRB14 OR CRB25
A28R427	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R428	0698-3430	5	1	RES 21.5 1% .125	00746	CRB14 OR CRB25
A28R429	0757-0284	7	1	RES 150 1% .125W	00746	CRB14 OR CRB25
A28R430	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R431	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R432	0698-3446	3	1	RES 383 1% .125W	00746	CRB14 OR CRB25
A28R434	0757-0999	1	1	RES 47.5 1% .5W	01074	H2
A28R435	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25
A28R436	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A28R437	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R438	0757-0401	0	1	RES 100 1% .125W	00746	CRB14 OR CRB25
A28R439	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R440	0757-0444	1	1	RES 12.1K 1% .12	00746	CRB14 OR CRB25
A28R441	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A28R442	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R443	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R444	0757-0421	4	1	RES 825 1% .125W	00746	CRB14 OR CRB25

Table C-14. 8131A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A28R445	0698-3152	8	1	RES 3.48K 1% .12	00746	CRB14 OR CRB25
A28R446	0757-0290	5	1	RES 6.19K 1% .12	00746	CRB14 OR CRB25
A28R447	0757-0444	1	1	RES 12.1K 1% .12	00746	CRB14 OR CRB25
A28R448	0698-3156	2	1	RES 14.7K 1% .12	00746	CRB14 OR CRB25
A28R449	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R450	0757-0440	7	1	RES 7.5K 1% .125	00746	CRB14 OR CRB25
A28R451	0698-4469	2	1	RES 1.15K 1% .12	00746	CRB14 OR CRB25
A28R452	0757-0428	1	1	RES 1.62K 1% .12	00746	CRB14 OR CRB25
A28R453	0757-0290	5	1	RES 6.19K 1% .12	00746	CRB14 OR CRB25
A28R454	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R456	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A28R457	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R458	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R459	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R460	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R464	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A28R465	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A28R466	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A28R467	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R468	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R469	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A28R470	0698-4448	7	1	RES 294 1% .125W	00746	CRB14 OR CRB25
A28R471	0698-3438	3	1	RES 147 1% .125W	00746	CRB14 OR CRB25
A28R472	0698-4037	0	1	RES 46.4 1% .125	00746	CRB14 OR CRB25
A28R473	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R474	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R475	0757-1094	9	1	RES 1.47K 1% .12	00746	CRB14 OR CRB25
A28R476	0698-3439	4	1	RES 178 1% .125W	00746	CRB14 OR CRB25
A28R477	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A28R478	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25

Table C-14. 8131A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A28R479	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R480	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R484	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A28R486	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R487	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R488	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A28R489	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A28R490	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R491	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R492	0757-0466	7	1	RES 110K 1% .125	00746	CRB14 OR CRB25
A28R493	0698-3515	7	1	RES 5.9K 1% .125	00746	CRB14 OR CRB25
A28R494	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A28R498	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R499	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R500	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R501	0757-0441	8	1	RES 8.25K 1% .12	00746	CRB14 OR CRB25
A28R504	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A28R508	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R509	0757-0441	8	1	RES 8.25K 1% .12	00746	CRB14 OR CRB25
A28R510	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A28R511	0683-2265	1	1	RES 22M 5% .25W	01607	CB2265
A28R512	0698-8958	2	1	RES 511K 1% .125	00746	CRB14 OR CRB25
A28R513	0683-2265	1	1	RES 22M 5% .25W	01607	CB2265
A28R514	0698-8958	2	1	RES 511K 1% .125	00746	CRB14 OR CRB25
A28R519	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A28R520	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R521	8159-0005	0	1	RES-ZERO OHMS	01339	L-2007-1
A28R523	0698-3242	7	1	RES 357 1% .125W	00746	CRB14 OR CRB25
A28R524	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A28R525	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25

Table C-14. 8131A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A28R526	0698-3488	3	1	RES 442 1% .125W	00746	CRB14 OR CRB25
A28R527	0698-3488	3	1	RES 442 1% .125W	00746	CRB14 OR CRB25
A28R530	0698-3558	8	1	RES 4.02K 1% .12	00746	CRB14 OR CRB25
A28R531	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A28R532	0698-0085	0	1	RES 2.61K 1% .12	00746	CRB14 OR CRB25
A28R540	0757-0407	6	1	RES 200 1% .125W	00746	CRB14 OR CRB25
A28R541	0757-0407	6	1	RES 200 1% .125W	00746	CRB14 OR CRB25
A28R550	0757-0416	7	1	RES 511 1% .125W	00746	CRB14 OR CRB25
A28R551	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R552	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R553	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R554	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R560	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A28R561	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R562	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R563	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A28R564	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R565	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R566	0757-0439	4	1	RES 6.81K 1% .12	00746	CRB14 OR CRB25
A28R567	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A28R568	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A28R569	0757-0444	1	1	RES 12.1K 1% .12	00746	CRB14 OR CRB25
A28R570	0698-4123	5	1	RES 499 1% .125W	00746	CRB14 OR CRB25
A28R571	0698-3159	5	1	RES 26.1K 1% .12	00746	CRB14 OR CRB25
A28R572	0698-3159	5	1	RES 26.1K 1% .12	00746	CRB14 OR CRB25
A28R573	0698-4123	5	1	RES 499 1% .125W	00746	CRB14 OR CRB25
A28R574	0698-4123	5	1	RES 499 1% .125W	00746	CRB14 OR CRB25
A28R575	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A28R576	0757-0123	3	1	RES 34.8K 1% .12	00746	CRB14 OR CRB25
A28R577	0757-0123	3	1	RES 34.8K 1% .12	00746	CRB14 OR CRB25

Table C-14. 8131A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A28R588	0757-0997	9	1	RES 39.2 1% .5W	01074	H2
A28R604	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R607	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R608	0757-0449	6	1	RES 20K 1% .125W	00746	CRB14 OR CRB25
A28R609	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R610	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R612	0757-0199	3	1	RES 21.5K 1% .12	00746	CRB14 OR CRB25
A28R613	0698-4425	0	1	RES 1.54K 1% .12	00746	CRB14 OR CRB25
A28R614	0698-6630	3	1	RES 20K .1% .125	00746	CRB14 OR CRB25
A28R615	0698-6624	5	1	RES 2K .1% .125W	00746	CRB14 OR CRB25
A28R617	0698-4437	4	1	RES 2.94K 1% .12	00746	CRB14 OR CRB25
A28R618	0757-0200	7	1	RES 5.62K 1% .12	00746	CRB14 OR CRB25
A28R621	0757-0444	1	1	RES 12.1K 1% .12	00746	CRB14 OR CRB25
A28R622	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25
A28R624	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R625	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A28R626	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R628	0757-0441	8	1	RES 8.25K 1% .12	00746	CRB14 OR CRB25
A28R629	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R630	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R631	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R632	0757-0441	8	1	RES 8.25K 1% .12	00746	CRB14 OR CRB25
A28R633	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R635	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A28R636	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R639	0757-0441	8	1	RES 8.25K 1% .12	00746	CRB14 OR CRB25
A28R640	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R641	0698-3444	1	1	RES 316 1% .125W	00746	CRB14 OR CRB25
A28R642	0757-0442	9	1	RES 10K 1% .125W	00746	CRB14 OR CRB25
A28R643	0757-0283	6	1	RES 2K 1% .125W	00746	CRB14 OR CRB25

Table C-14. 8131A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A28R644	0757-0317	7	1	RES 1.33K 1% .12	00746	CRB14 OR CRB25
A28R645	0757-0200	7	1	RES 5.62K 1% .12	00746	CRB14 OR CRB25
A28R646	0698-4431	8	1	RES 2.05K 1% .12	00746	CRB14 OR CRB25
A28R647	0757-0279	0	1	RES 3.16K 1% .12	00746	CRB14 OR CRB25
A28R648	0698-3496	3	1	RES 3.57K 1% .12	00746	CRB14 OR CRB25
A28R649	0757-0424	7	1	RES 1.1K 1% .125	00746	CRB14 OR CRB25
A28R650	0757-0438	3	1	RES 5.11K 1% .12	00746	CRB14 OR CRB25
A28R651	0757-0999	1	1	RES 47.5 1% .5W	01074	H2
A28R652	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A28R653	0757-0280	3	1	RES 1K 1% .125W	00746	CRB14 OR CRB25
A28R999	0699-1503	1	1	RES .05 100% TKF	00746	MCR18EZHJW00E0
A28RA100	1810-0316	1	1	NETWORK-RES DIP	02483	761-3-R10K
A28RV103	2100-3352	7	1	RES-TRMR 1K 10%	03744	3386X-Y46-102
A28RV104	2100-3349	2	1	RES-TRMR 100 10%	03744	3386X-Y46-101
A28RV123	2100-3207	1	1	RES-TRMR 5K 10%	03744	3386X-Y46-502
A28RV404	2100-0554	5	1	RES-TRMR 500 10%	03744	3386P-Y46-501
A28RV435	2100-3207	1	1	RES-TRMR 5K 10%	03744	3386X-Y46-502
A28RV438	2100-3274	2	1	RES-TRMR 10K 10%	03744	3386X-Y46-103
A28RV455	2100-0567	0	1	RES-TRMR 2K 10%	03744	3386P-Y46-202
A28RV461	2100-3274	2	1	RES-TRMR 10K 10%	03744	3386X-Y46-103
A28RV500	2100-3383	4	1	RES-TRMR 50 10%	03744	3386P-Y46-500
A28RV501	2100-3383	4	1	RES-TRMR 50 10%	03744	3386P-Y46-500
A28RV502	2100-3273	1	1	RES-TRMR 2K 10%	03744	3386X-Y46-202
A28RV503	2100-0567	0	1	RES-TRMR 2K 10%	03744	3386P-Y46-202
A28RV504	2100-3210	6	1	RES-TRMR 10K 10%	03744	3386P-Y46-103
A28TP101	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A28TP102	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A28TP103	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A28TP104	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A28TP105	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A28TP106	0360-2264	6	1	TERM.-TEST POINT	10358	1095D

Table C-14. 8131A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A28TP107	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A28TP403	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A28TP404	0360-2264	6	1	TERM.-TEST POINT	10358	1095D
A28U100	1820-3665	0	1	IC-MM74HCT245N	01698	SN74HCT245N
A28U101	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A28U102	1820-3081	4	1	IC-MC74HC74N	01698	SN74HC74N
A28U103	1820-3298	5	1	IC-MM74HC32N	02037	MC74HC32N
A28U104	1826-0861	4	1	D/A 10-BIT	03285	AD7533LN
A28U105	1826-0861	4	1	D/A 10-BIT	03285	AD7533LN
A28U106	1820-3399	7	1	IC-MC74HC273N	01698	SN74HC273N
A28U107	1826-0877	2	1	A/D 8-BIT	03285	AD7574KN
A28U108	1820-1315	3	1	ANLG MUXR MC1405	02037	MC14051BCP
A28U109	1820-0493	6	1	IC 307	03406	LM307N
A28U110	1820-3847	0	1	IC-MM74HCT138N	01698	SN74HCT138N
A28U111	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A28U112	1826-0285	6	1	IC MC79L05ACP	02037	MC79L05ACP
A28U113	1826-0315	3	1	IC 348	03406	LM348N
A28U114	1826-0161	7	1	IC 324	02037	LM324N
A28U115	1820-3097	2	1	IC-MM74HC08N	02037	MC74HC08N
A28U117	1820-3373	7	1	IC-MM74HC221AN	03406	MM74HC221AN
A28U118	1820-0493	6	1	IC 307	03406	LM307N
A28U120	1820-2924	2	1	IC-MC74HC02N	01698	SN74HC02N
A28U121	1820-3081	4	1	IC-MC74HC74N	01698	SN74HC74N
A28U122	1820-3082	5	1	IC-MC74HC374N	01698	SN74HC374N
A28U123	1820-3081	4	1	IC-MC74HC74N	01698	SN74HC74N
A28U124	1820-3081	4	1	IC-MC74HC74N	01698	SN74HC74N
A28U126	1820-3081	4	1	IC-MC74HC74N	01698	SN74HC74N
A28U401	1NB7-8179	7	1	HYRIDS	28480	1NB7-8179
A28U402	1826-0524	6	1	IC 324A	03406	LM324AN
A28U403	1826-0207	2	1	IC 318	01698	LM318P

Table C-14. 8131A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manufr	Part #
A28U404	1826-0138	8	1	IC 339	01698	LM339N
A28U405	1826-1460	1	1	IC 201	03406	LM201AN
A28U406	1820-0493	6	1	IC 307	03406	LM307N
A28U407	1826-0161	7	1	IC 324	02037	LM324N
A28U408	1826-0207	2	1	IC 318	01698	LM318P
A28U409	1826-0161	7	1	IC 324	02037	LM324N
A28U410	1858-0058	8	1	XSTR ARY 14P-DIP	02037	MPQ3906
A28U411	1858-0087	3	1	XSTR ARY 14P-DIP	02037	MPQ3904
A28U412	1858-0087	3	1	XSTR ARY 14P-DIP	02037	MPQ3904
A28U413	1858-0087	3	1	XSTR ARY 14P-DIP	02037	MPQ3904
A28U415	1826-0600	9	1	IC 074A	01698	TL074ACN
A28U416	1858-0087	3	1	XSTR ARY 14P-DIP	02037	MPQ3904
A28U417	1826-0161	7	1	IC 324	02037	LM324N
A28U418	1858-0087	3	1	XSTR ARY 14P-DIP	02037	MPQ3904
A28U601	1826-0315	3	1	IC 348	03406	LM348N
A28U602	1826-0315	3	1	IC 348	03406	LM348N
A28U603	1826-0161	7	1	IC 324	02037	LM324N
A28VR101	1902-0956	0	1	DIO-ZNR 8.2V 5%	02037	SZ30035-21RL
A28VR403	1902-0963	9	1	DIO-ZNR 16V 5%	02037	
A28VR404	1902-0956	0	1	DIO-ZNR 8.2V 5%	02037	
A28VR405	1902-0956	0	1	DIO-ZNR 8.2V 5%	02037	
A28VR406	1902-0949	1	1	DIO-ZNR 4.3V 5%	02037	SZ0035-3RL
A28VR407	1902-0945	7	1	DIO-ZNR 3V 5%	02037	
A28VR409	1902-0951	5	1	DIO-ZNR 5.1V 5%	02037	
A28VR412	1902-0950	4	1	DIO-ZNR 4.7V 5%	02037	
A28VR415	1902-0950	4	1	DIO-ZNR 4.7V 5%	02037	SZ30035-21RL
A28VR417	1902-0963	9	1	DIO-ZNR 16V 5%	02037	
A28VR419	1902-0953	7	1	DIO-ZNR 6.2V 5%	02037	
A28VR495	1902-0951	5	1	DIO-ZNR 5.1V 5%	02037	
A28VR602	1902-0953	7	1	DIO-ZNR 6.2V 5%	02037	SZ30035-9RL
						SZ30035-11RL

Table C-14. 8131A Option 020 Channel 2 Board Parts List (continued)

Reference	HP Part #	CD	Qty	Description	Manuf'r	Part #
A28VR603	1902-0958	2	1	DIO-ZNR 10V 5%	02037	
A28VR604	1902-0945	7	1	DIO-ZNR 3V 5%	02037	SZ0035-3RL
A28W103	1258-0141	8	1	JUMPER-REM	01380	530153-2
A28W403	08131-61607	1	1	CBL SEMI RIGID	28480	08131-61607
A28W404	08131-61607	1	1	CBL SEMI RIGID	28480	08131-61607

Backdating

Introduction

This appendix contains backdating information, which adapts this manual to instruments with serial numbers as shown below.

Changes are listed in the serial number order that they occurred in the manufacture of the instrument.

HP 8130A

Instruments with serial numbers lower than 2905G00321 may show the following differences:

Table D-1. Timing Board

			08130-66505 (Std)	08130-66525 (Opt. 020)	
L-Fix	50 μ H	9100-2891	L400	L400	L600
R-Fix	100k Ω	0757-0465	R438	R438	R638
R-Fix	750k Ω	0698-8960	R452	R452	R652
R-Fix	75k Ω	0757-0462	R453	R453	R653
R-Fix*	1.47k Ω	0757-1094	R101	R101	
LED Lamp*		1990-1278	DS100	DS100	
Switch DIP*		3101-0408	S100	S100	
*Connected between U104/12 and U112/21 on line LWRTEEPR					

Table D-2. Output Board

			08130-66506
R-Fix*	1.47k Ω	0757-1094	R127
LED Lamp*		1990-1278	DS100
Switch DIP*		3101-0408	S101
R-Fix	301	0757-0410	R30
C-Fix	10pF	0160-5735	C19
*Connected between U102/12 and U104/21 on line LWRTEEPR			

HP 8131A

Instruments with serial numbers lower than 2839G00781 may show the following differences:

Table D-3. Timing Board

			08131-66505 (Std)	08131-66525 (Opt. 020)	
L-Fix	50 μ H	9100-2891	L400	L400	L600
R-Fix	100k Ω	0757-0465	R438	R438	R638
R-Fix	750k Ω	0698-8960	R452	R452	R652
R-Fix	75k Ω	0757-0462	R453	R453	R653
R-Fix	464k Ω	0698-3260	R539	R539	R739
R-Fix	909k Ω	0698-8961	R551	R551	R751
R-Fix*	1.47k Ω	0757-1094	R101	R101	
Conn.Post*		1251-5380	J400	J400	J600
LED Lamp*		1990-1278	DS100	DS100	
Switch DIP*		3101-0408	S100	S100	
R-Fix*	1.47k Ω	0757-1094	R322	R322	
R-Fix	4.02k Ω	0698-3558	R323	R739	
Coil-MLD	50nH	9100-7891	L300	L300	
R-Fix	1k Ω	0757-0280	R303	R739	
*Connected between U104/12 and U112/21 on line LWRTEEPR					

Table D-4. Output Board

	08130-66506
R-Fix 15.4k Ω 0698-3540	R424
R-Fix 8.25k Ω 0757-0441	R425
R-Fix 100k Ω 0757-0465	R508, R520
R-Fix 18.2 Ω 0698-7833	R504, R506, R521, R522

Table D-5. CPU Board

	08130-66503
EPROM1 08131-13701	
08131-13703	U204
EPROM2 08131-13702	
08131-13704	U205