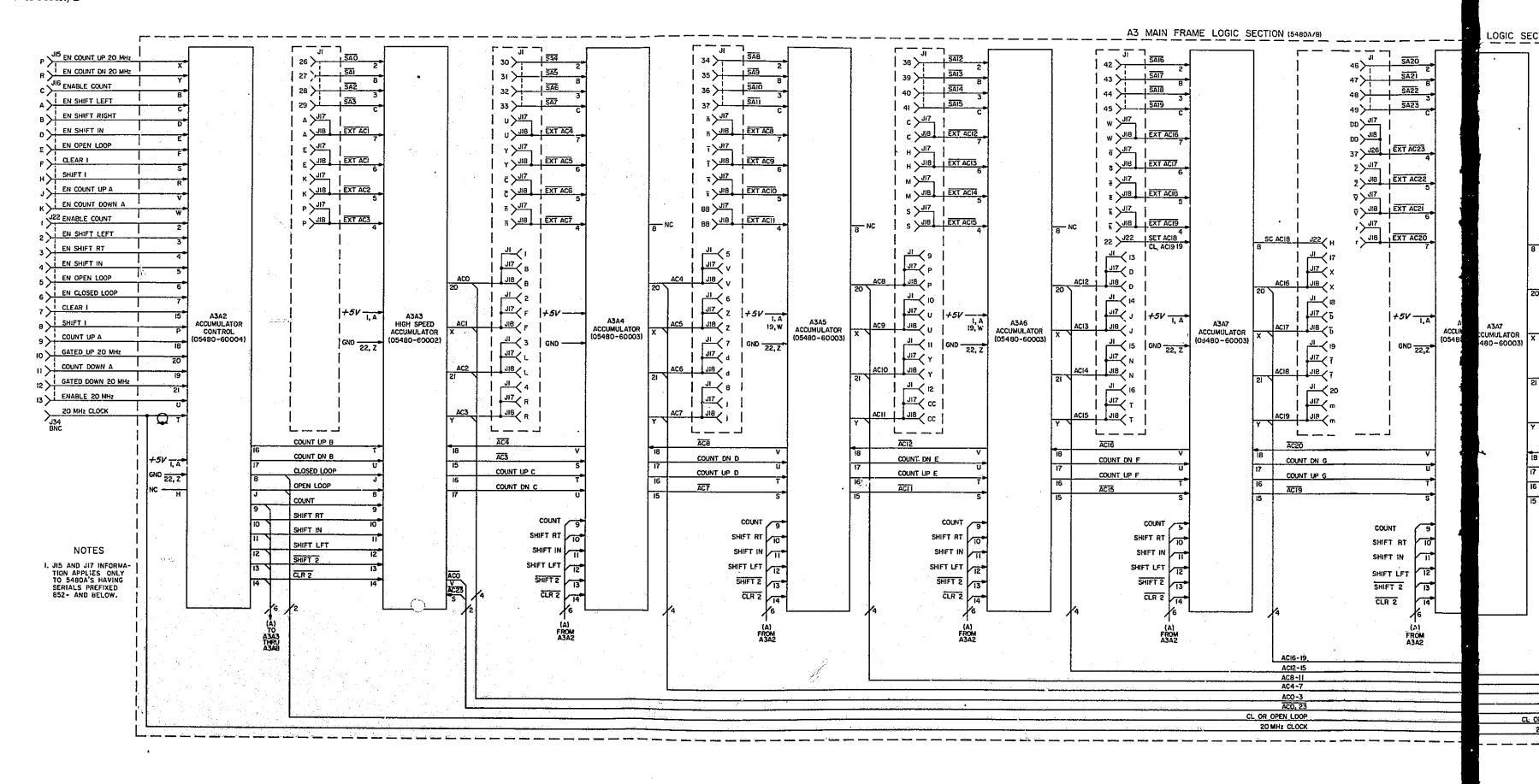
Model 5480A/B Signal Analyzer System Serial Pfx - All Operating and Service Manual ---HEWLETT in PACKARD ---05480-90025 (Fiche) 05480-90021 (Manual) 5 of 5 June 1975

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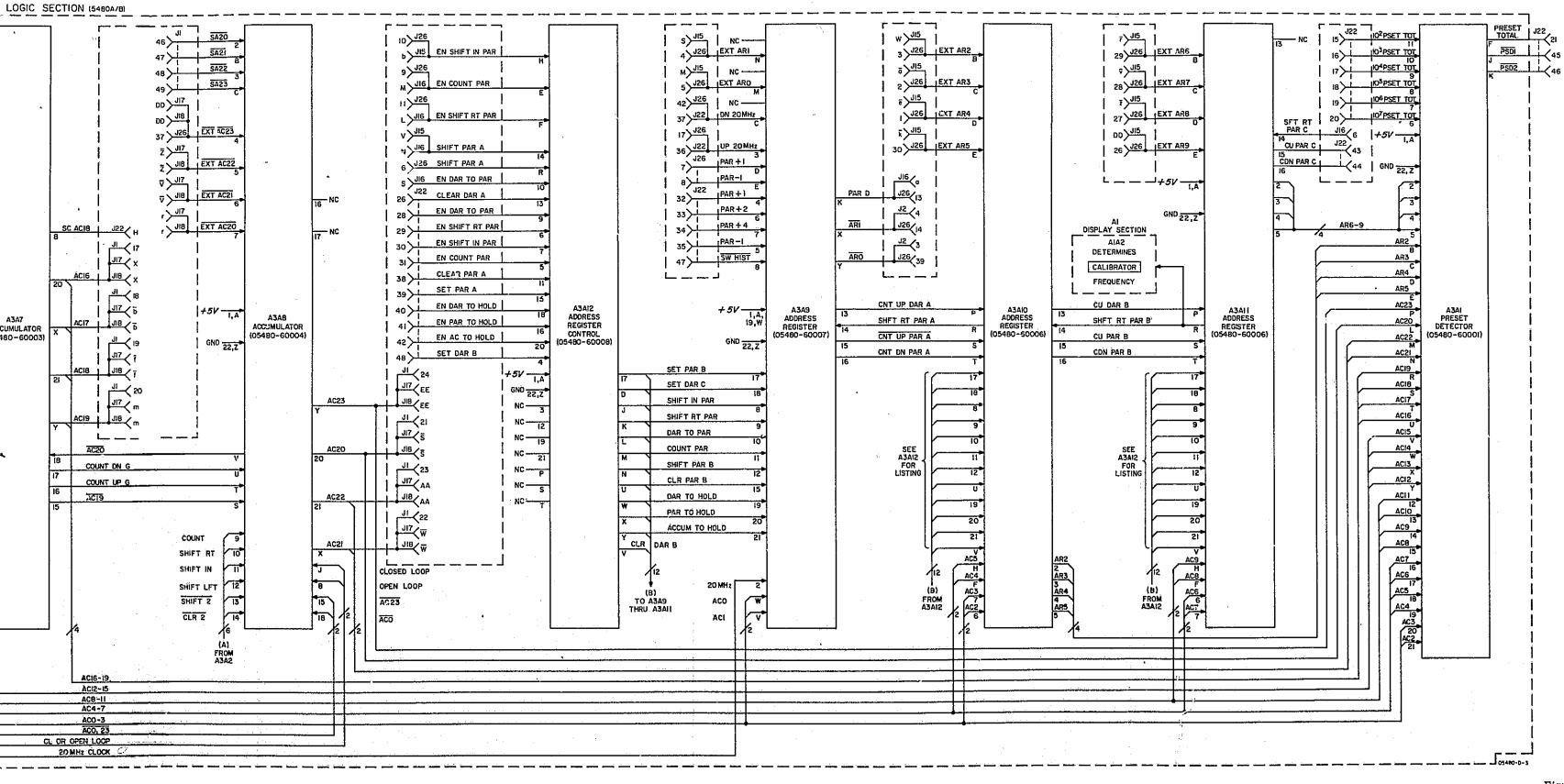


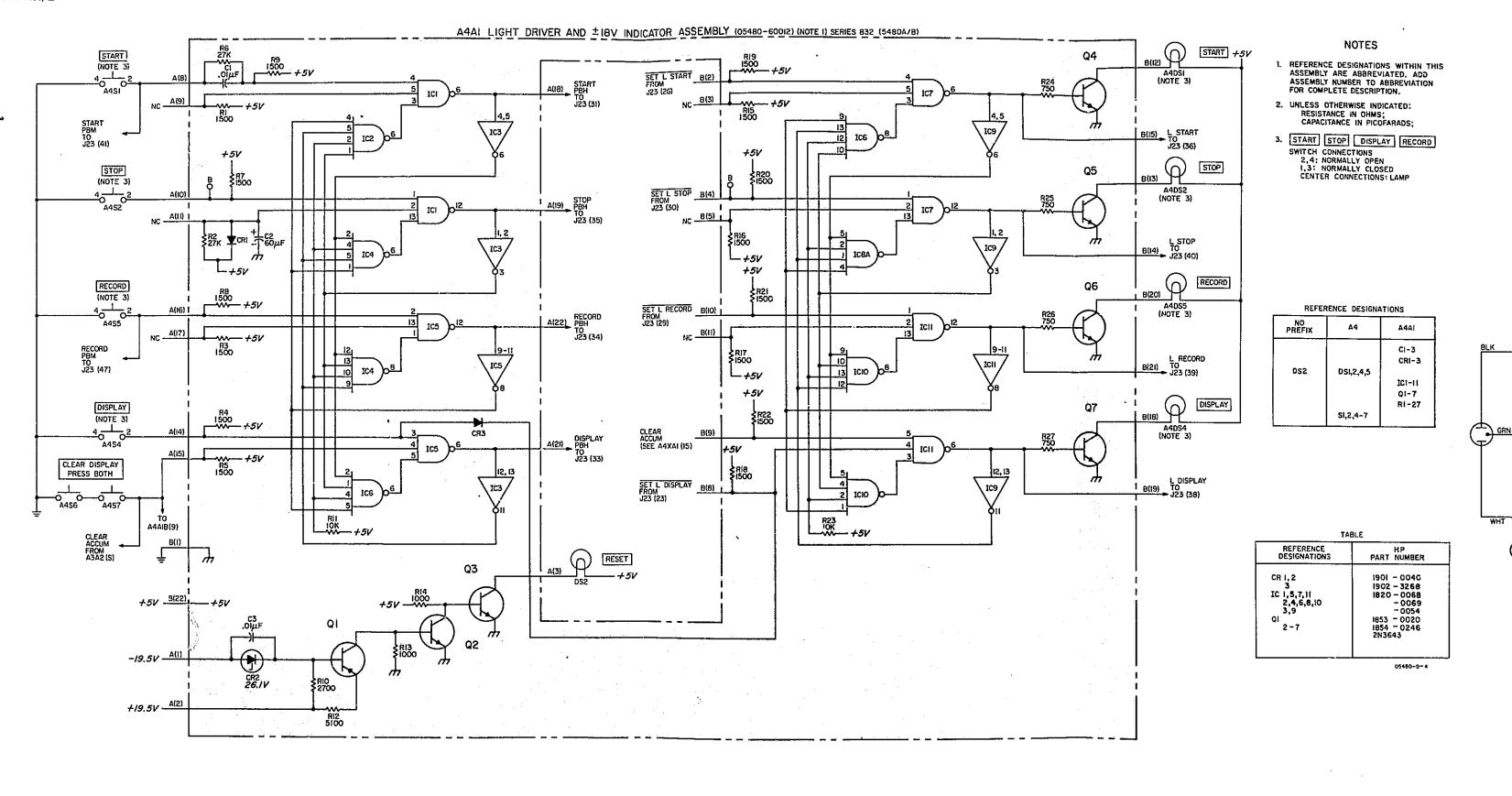
Figure 4-9
5480A/B (Main Frame Logic A3)
Wiring List: Table 4-2, Part D

Main Frame Logic Section (A3) is located at the lower left-hand rear corner of the 5480A/B. Board assemblies are numbered, in order, from the rear to the front of the instrument; there is a vacant (spare) board location between A1 and A3.

Figure 4-9

5480A/B (MAIN FRAME LOGIC A3)

Wiring List: Table 4-2, Part D



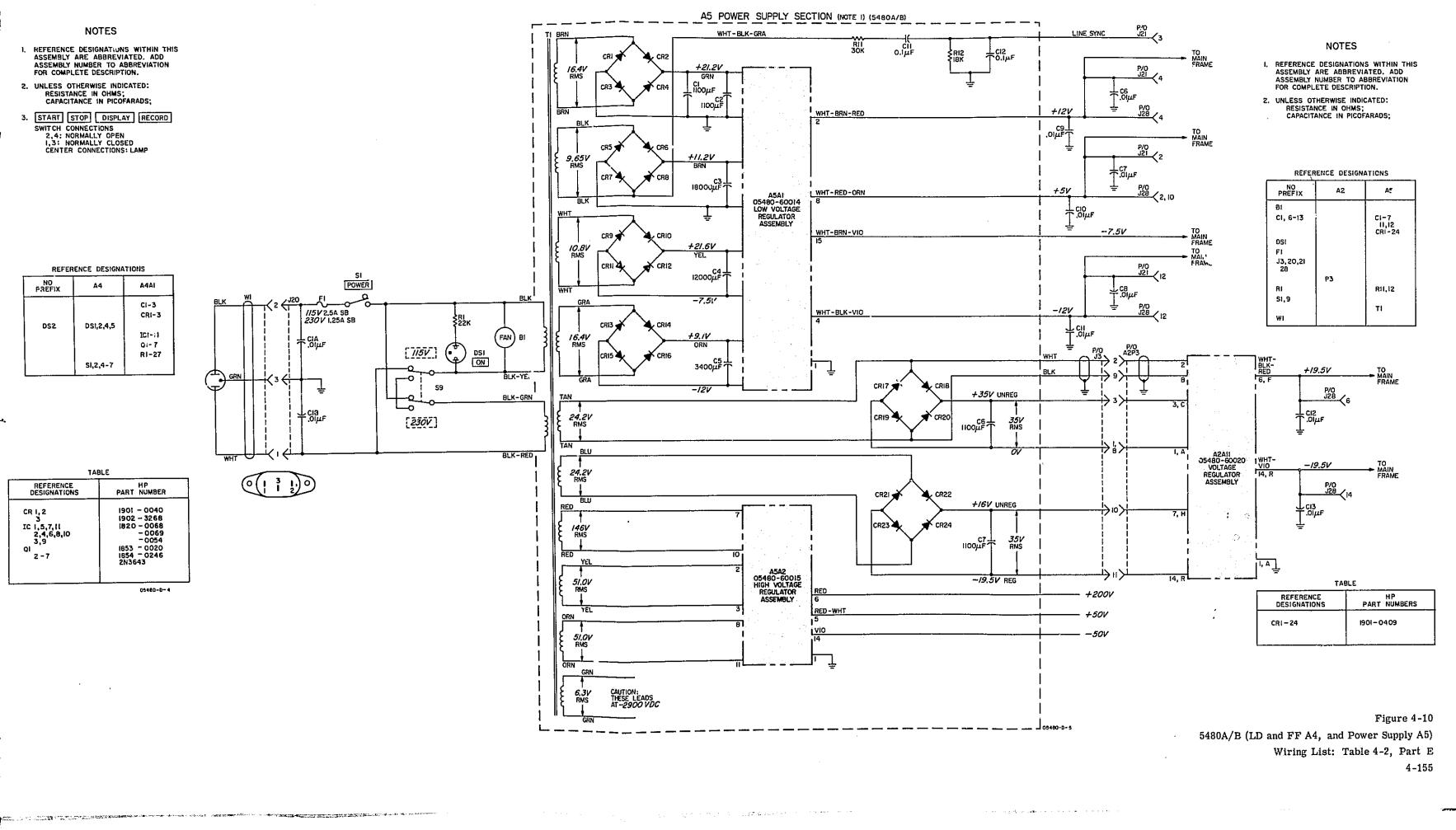
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REFER CR 1, 2 3 IC 1,5,7, 2,4,6, 3,9



NOTES:

- 1. A4 (A4A1) is located immediately behind the 5480A/B front-panel section on which the illuminated pushbuttons are mounted. For access to this section, remove top cover, and swing memory section deck out of the way.
- 2. A5 (Power Supply Section) is located at lower right-hand rear corner of 5480A/B unit. For access to boards in this section, remove top cover and swing memory section deck out of the way. For access to board sockets, remove bottom cover.

Wiring List: Table 4-2, Part E

5480A/B (LD and FF A4, and POWER SUPPLY A5)

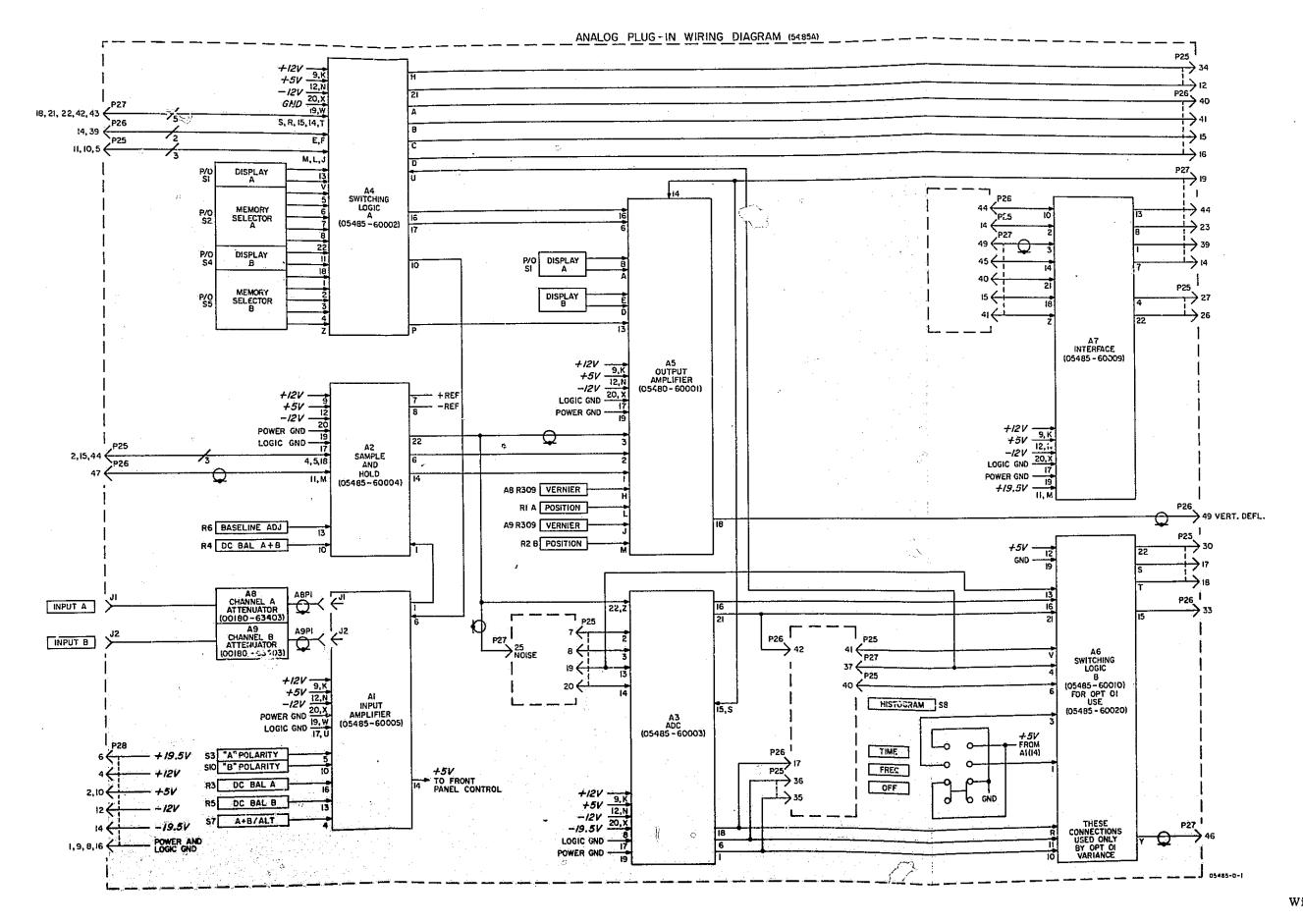
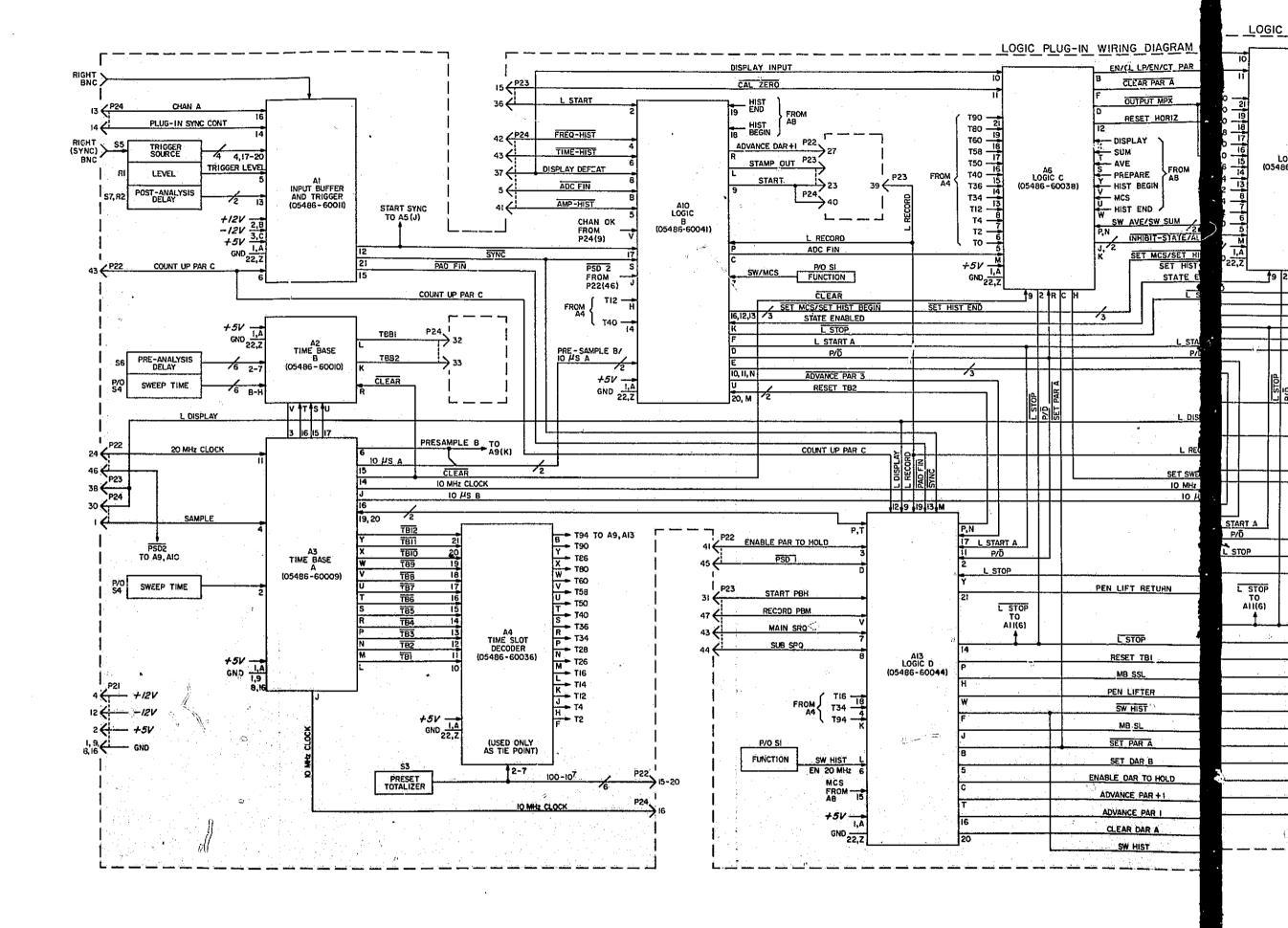


Figure 4-11 5485A Wiring List: Table 4-2, Part G

4-157

Model 54k04 /R

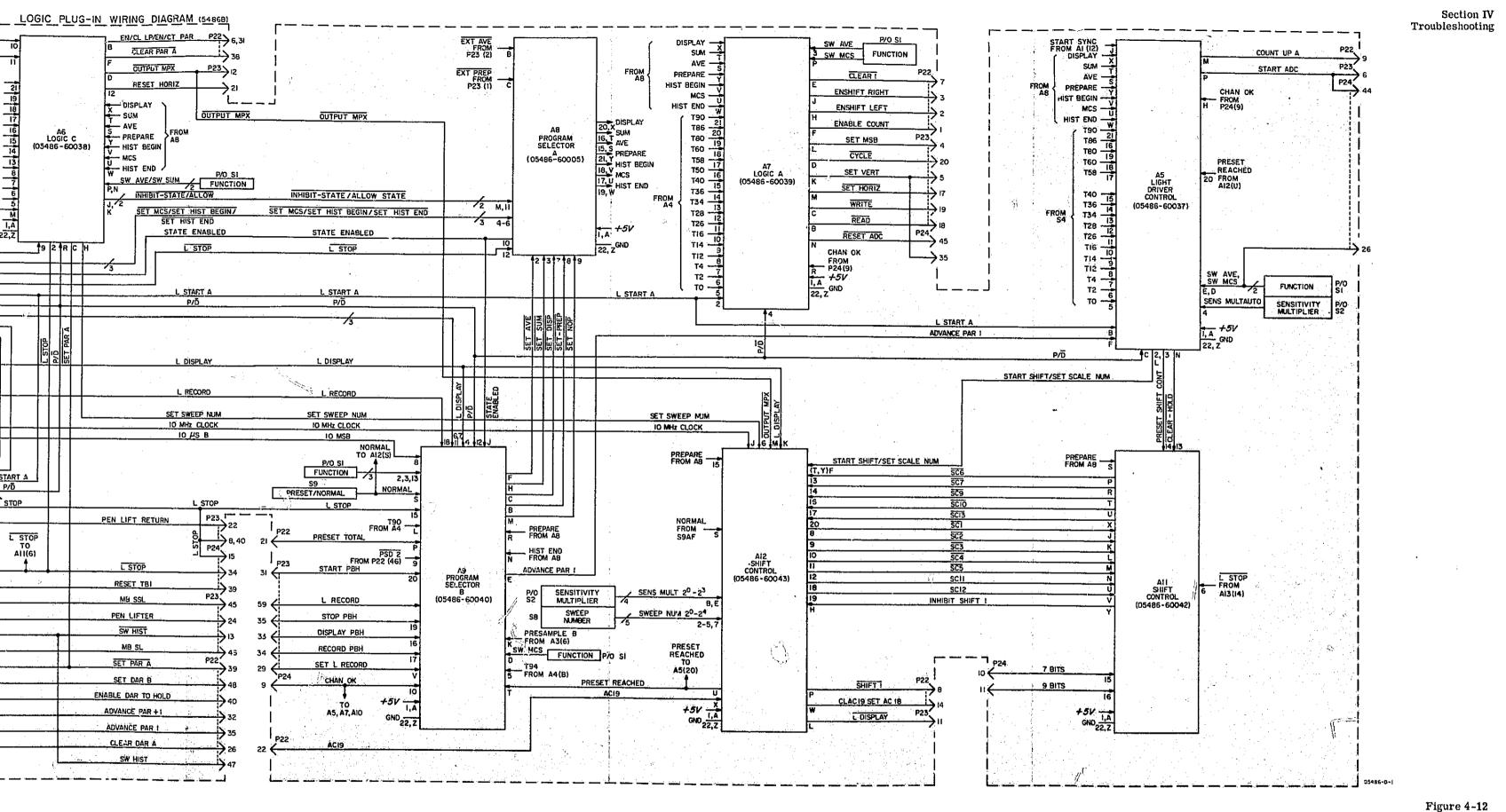


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Model 5480A/B

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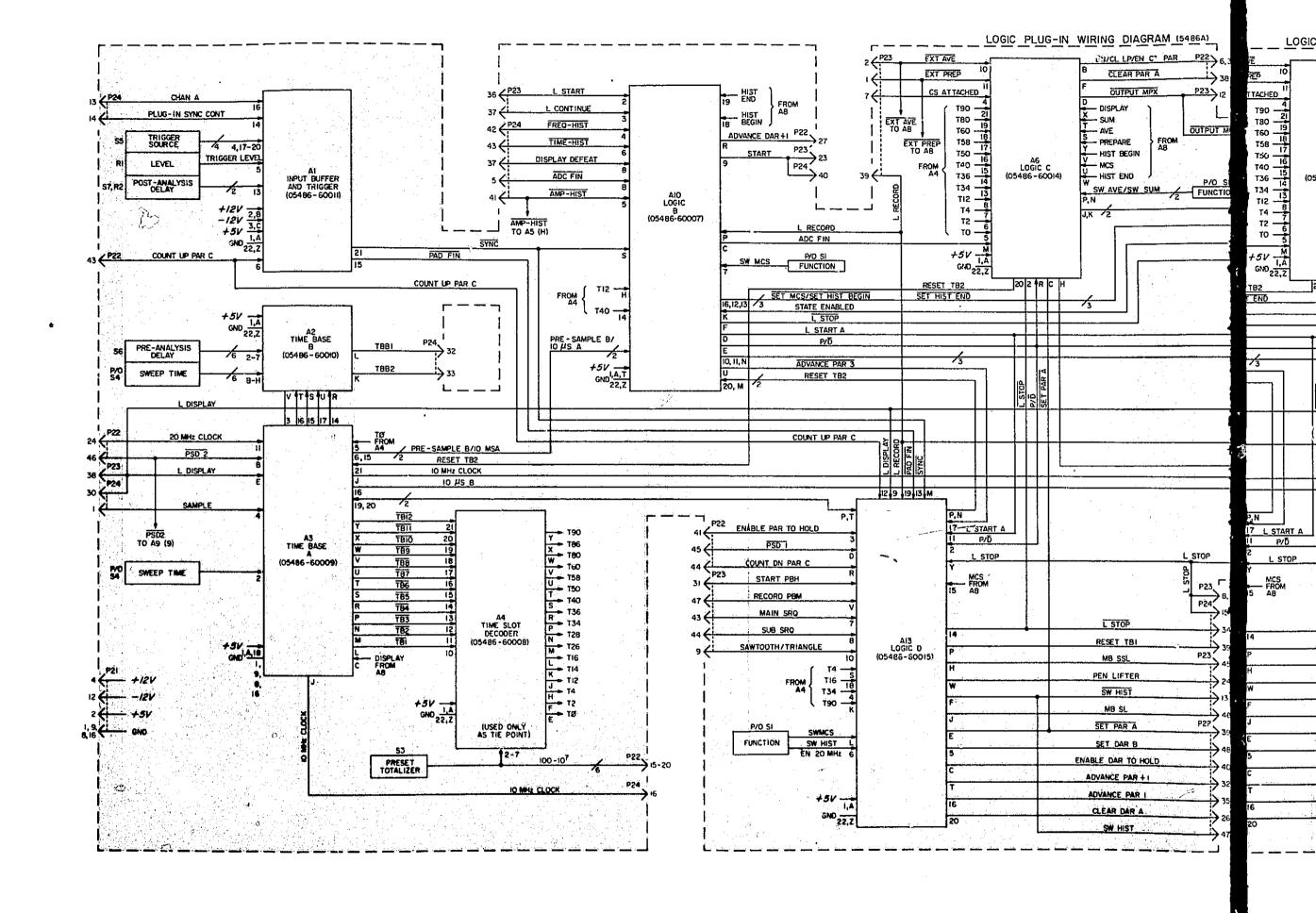


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Figure 4-12 5486A/B (Sheet 1 of 2) Wiring List: Table 4-2, Part H 4-159

Model 5480A /R



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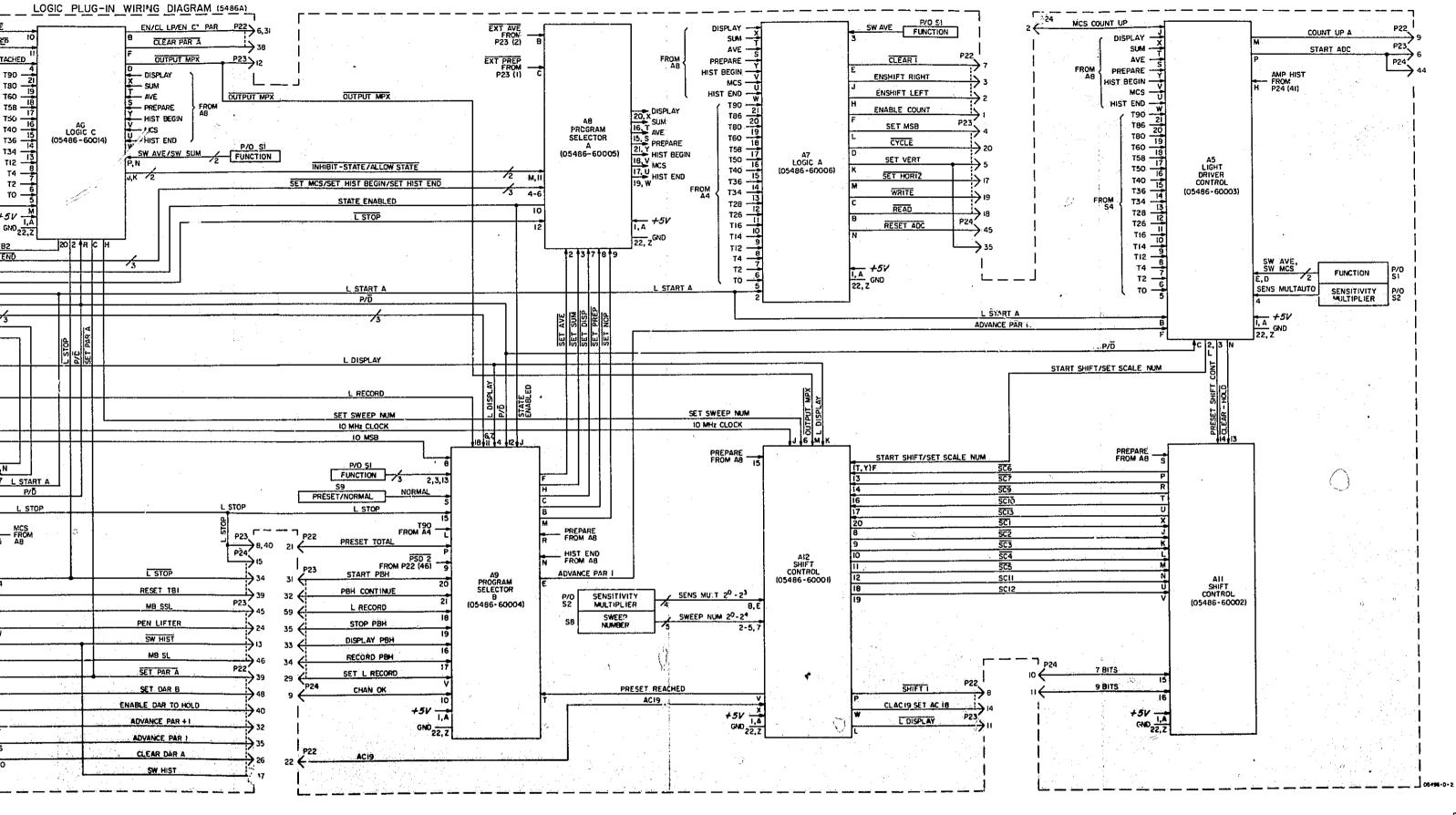


Figure 4-12

5486A/B (Sheet 2 of 2)

Wiring List: Table 4-2, Part H

4-161

Model 5480A/B

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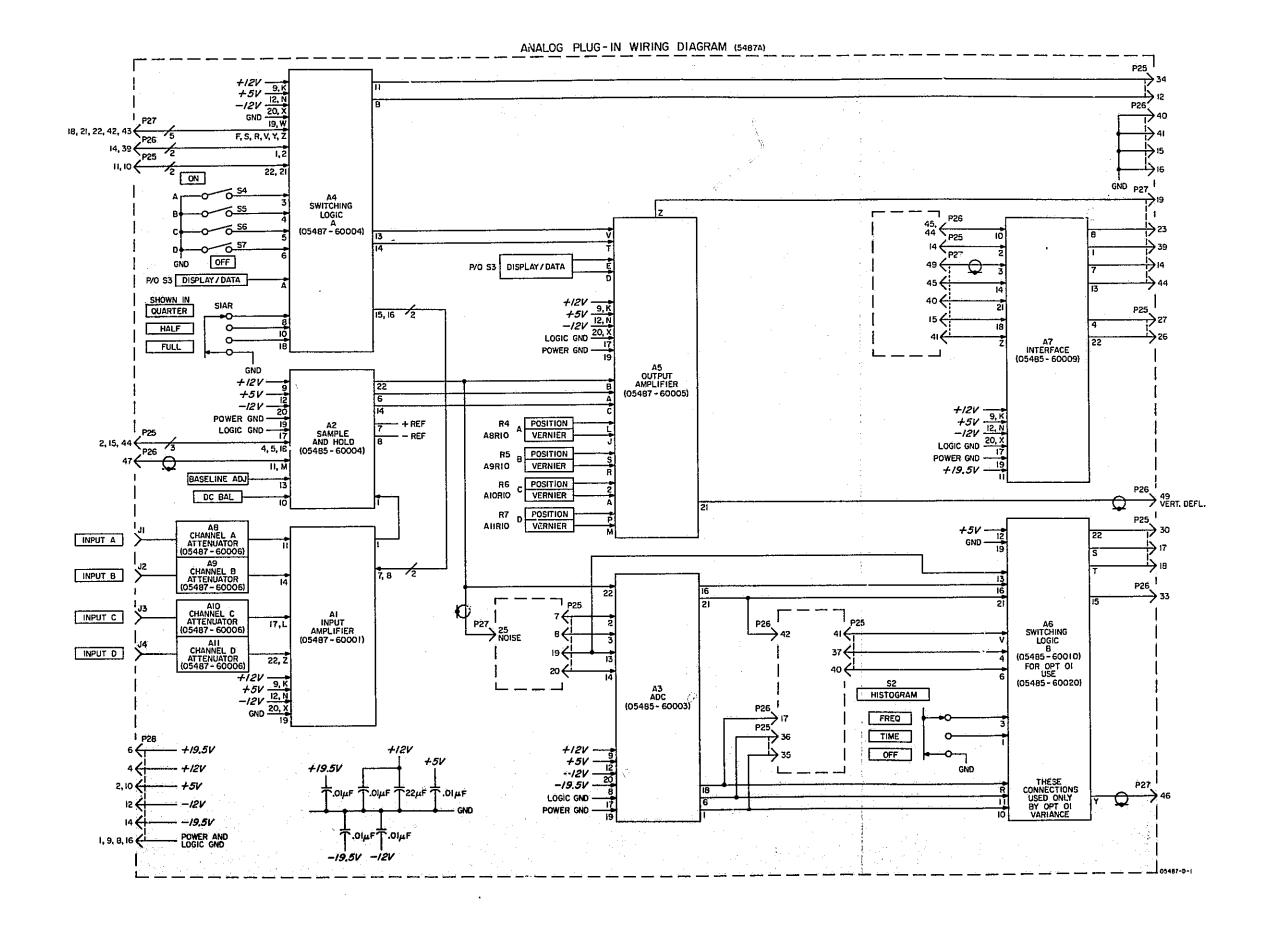


Figure 4-13

5487A

Wiring List: Table 4-2, Part I

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Model 5480A/B

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Model 54804 /B

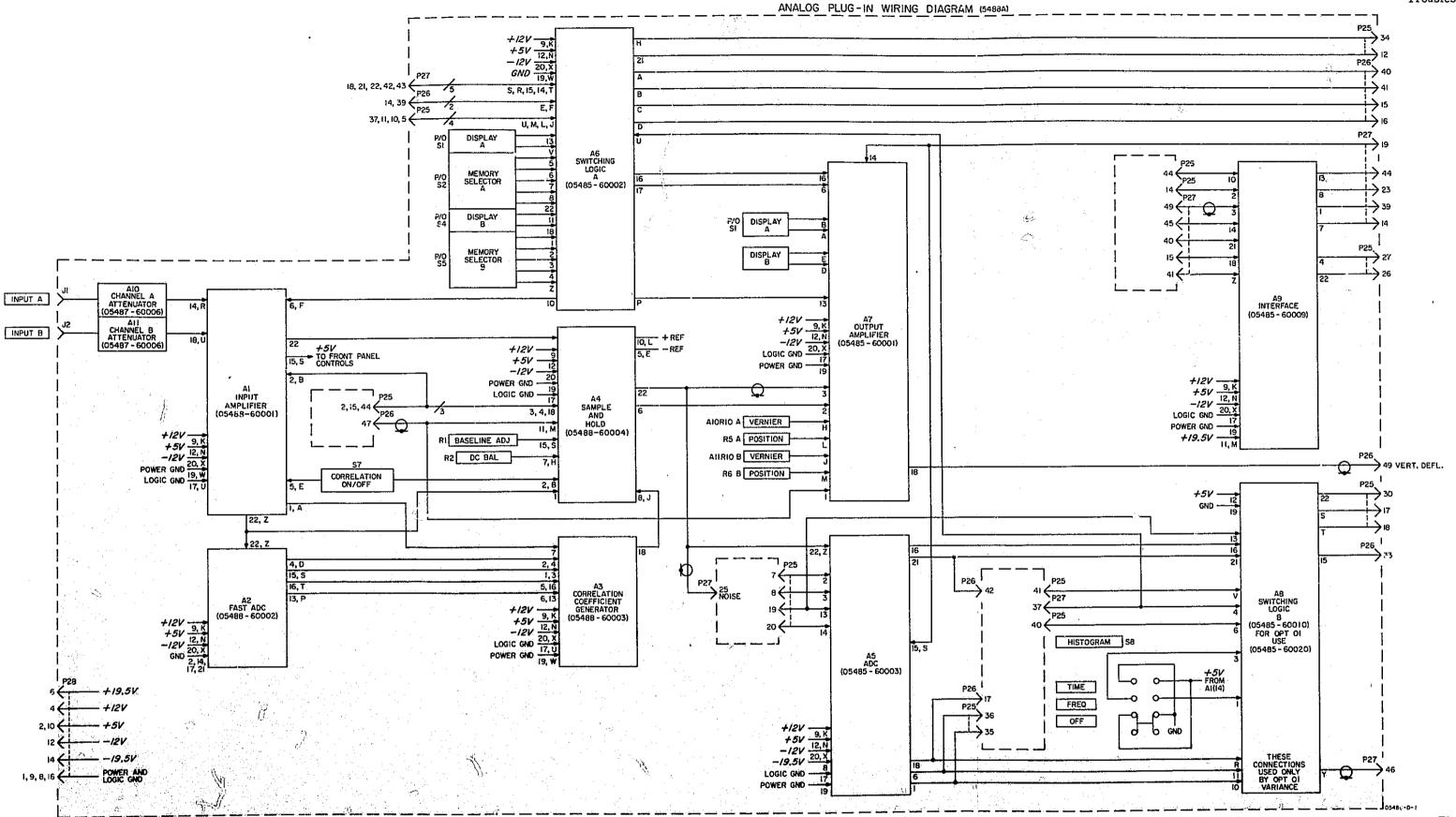


Figure 4-14 5488A

Wiring List: Table 4-2, Part J

Table 4-3. Replacing Pushbutton Indicator Lamps

DESCRIPTION

This table describes how to replace the lamps in the 5480 PROCESS START, PROCESS STOP, OUTPUT DISPLAY, or OUTPUT RECORD pushbuttons.

LAMP PART NUMBER

The pushbuttons named above use an incandescent 6.0 V, T 1-3/4 bulb (2140-0039)

REPLACEMENT PROCEDURE

Normally, the pushbutton may be removed from the front of the 5480 without removing the instrument top cover. Simply grasp two opposite sides of the button with your fingers, and pull the button out; the indicator lamp will come out with it. Remove lamp from button by holding button and pulling on lamp flange. Install new lamp in button, then replace button on switch; be sure to press button firmly onto switch.

If the pushbutton cannot be removed using the procedure described above, use the following procedure:

- a. Remove 5480 top cover.
- b. Open memory deck.
- c. Remove plug-in card A4A1, located immediately behind the pushbuttons.
- d. Using a phillips or pozi-drive screwdriver, remove the pushbutton switch mounting plate.
- e. Remove pushbutton from switch.
- f. Replace lamp as described above.
- g. Reverse procedure of steps a through d to re-assemble 5480.

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NOTE: For detailed listing, see Service Manual Volume for specific unit.

FUSE: LINE, 115V: 2.5A, SB, (2110-0015)

LINE, 230V: 1.25A, SB, (2110-0021)

+5V SUPPLY (only on 5480B and 5480A Serial Prefix 920- and higher): 10 Amp (2110-0051).

LAMP: For pushbuttons: Incandescent 6.0V, T1-3/4 bulb (2140-0039)

P31 Phosphor, Internal Graticule, (5083-1853) CORD, LINE: (8120-0078)

KIT, RACK MOUNT: (5060-0779)

Boards 5480A/B				
Reference Designation	HP Stock No.	<u>Note</u>	Description	
A1A1	05480-60013		Deflection Amplifier	
A1A2	05480-60025		Calibrator Assembly	
A1A3	01200-66505		High Voltage Transformer & Rectifier	
A1A4	01200-66515	A, B	High Voltage Oscillator & Regulator	
A2A1	05421-6001		Sense Amplifier	
A2A2	05421-6002	-	Inhibit Generator	
A2A3	05421-6001		Sense Amplifier	
A2A4	05421-6002		Inhibit Generator	
A2A5	05421-6003		"X" Decoder Gate	
A2A6	05421-6003		"Y" Decoder Gate	
A2A7	05421-6004		"X" Read-Write Generator	
A2A8	05421-6004		"Y" Read-Write Generator	
A2A9	05480-60010		Horizontal DAC	
A2A10	05480-60009		Vertical DAC	
A2A11	05480-60020	1	±19V Regulator	
A2A12	05480-60073	A, C	20 MHz Time Base	
A2A13	05480-60011		Memory Time Decoder	
A2A14	05480-60022		Memory Logic	
A3A1	05480-60001		Preset Detector	
A3A2	05480-60004		Accumulator Control	
A3A3	05430-60002	Į	Accumulator Bits 0-3	
A3A4	05480-60003	1	Accumulator Bits 4-7	
A3A5	05480-60003		Accumulator Bits 8-11	
A3A6	05480-60003		Accumulator Bits 12-15	
A3A7	05480-60003	l l	Accumulator Bits 16-19	
A3A8	05480-60005	[Accumulator Bits 20-23	
A3A9	05480-60077	A, E	Address Register Bits 0-1	
A3A10	05480-60006	Į	Address Register Bits 2-5	
A3A11	05480-60006	_ 1	Address Register Bits 6-9	
A3A12	05480-60075	D	Address Control Board	
A4A1	05480-60012		Light Driver Assembly	
A5A1	05480-60014		Power Supply "A"	
A5A2	05480-60015		Power Supply "B"	

- A. Current Board is preferred replacement.
 B. 01200-66506 in older instruments.
 C. 05480-60021 in older instruments.
 D. 05480-60008 in 5480A.

- E. 05480-60007 in 5480A.

Model 5480A/B

Section IV Troubleshooting

Table 4-4. Replacement Parts (Cont'd)

Boards 5485A			
Reference Designation	HP Stock No.	Description	
A1 A2 A3 A4 A5 *A6 *A6	05485-60005 05485-60004 05485-60003 05485-60002 05485-60010 05485-60020 05485-60009	Input Amplifier Sample & Hold Analog-to-Digital Converter Switching Logic Output Amplifier Switching Logic B Variance Option Interface	

*NOTE: A6 assembly may be either 60010 or 60020 board, depending on customer order.

Boards 5486A/B

Reference Designation	HP Stock No.	Description
A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13	05486-60011 05486-60010 05486-60009 05486-60036 05486-60037 05486-60039 05486-60005 05486-60040 05486-60041 05486-60042 05486-60043 05486-60044	Sync and Delay Time Base "B" Time Base "A" Time Slot Decoder Light Driver Control Logic Matrix "C" Logic Matrix "A" Program Selection "A" Program Selector "B" Logic Matrix "B" Shift Control "B" Shift Control "A" Logic Matrix "D"

The A4-7 and A9-13 assemblies are not interchangeable between 5486A and B models.

Reference Designation	HP Stock No.	Description
A1	05487-60001	Four Channel Input
A2	05485-60004	Sample and Hold
A3	05485-60003	Analog-to-Digital Converter
A4	05487-60004	Four-Channel Logic
A5	05487-60005	Four-Channel Output Amplifier
A6	05485-60010	Switching Logic B
	or 05485-60020	Variance Option (Option 01)
A7	05485-60009	Interface

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Table 4-4. Replacement Parts (Cont'd)

Boards 5488A				
Reference Designation	HP Part No.	Description		
A1	05488-60001	Input Amplifier		
A2	05488-60002	Fast ADC		
A3	05488-60003	Correlation Coefficient Generator		
A4	05488-60004	Sample and Hold		
A5	05485-60003	Analog-to-Digital Converter		
A6	05485-60002 Switching Logic A			
A7	05485-60001 Output Amplifier			
A8	05485-60010	Switching Logic B		
	or 05485-60020	Variance Option		
A9	05485-60009	Interface		

Table 4-5. Service Kit

GENERAL

A comprehensive service kit for the 5480 system is available under HP Part Number 10646A. It contains one each of subordinate kits which may be ordered separately using the HP Part Number shown. Boards in the kit will be for Models 5480B, 5485A, and 5486B.* Other kits for extender cables and isolated spares are identical for both models.

Plug-in Models 5487A and 5488A require a mixture of 5485A boards and boards unique to the particular model. The unique boards are available as separate kits.

*Model 5480A and Model 5486A boards are compatible in most cases with the 5480B and 5486B boards, respectively. Substitution of non-compatible 5480A, 5486A boards will be made upon request. Refer to Table 4-6 for cross reference list of non-compatible boards.

Description	HP Part Number
Comprehensive Kit containing:	10646A
Replacement Board Kit Isolated Spares Kit Extender Cable Kit for Plug-ins	
Replacement Board	10646-60001
Contains one each boards for Models 5480B, 5485A, and 5486B.* These are listed separately below. Where both new and rebuilt boards are available, the kit may contain either board but not both.	10040-00001
Isolated Spares Kit:	10646-60002
Includes replacement transistors, IC's, diodes and lamps for one year's isolated service of the 5480 system. These parts are listed below.	
Extender Cable Kit:	10646-60003
Includes 3 only 05480-60052 cables, and 1 only 05480-60051 cable. Allows operation of the 5485A or 5486A/B outsider plug-in compartment.	

REPLACEMENT BOARD KIT (10646-60001):

Includes one each of the following boards

5480B

Reference Designator	Board Assembly Description	HP Part Number
A1A1	Deflection Amplifier	05480-60013 (new); 05480-60067 (rebuilt)
A1A2	Calibrator Assembly	05480-60025 (new)
A1A3	High Voltage Transformer and	, , ,
	Rectifier	01200-66505 (new)
A1A4	High Voltage Oscillator	, - · · ·
	and Regulator	01200-66515 (new)
A2A1, A2A3	Sense Amplifiers	05421-6001 (new); 05421-6039 (rebuilt)
A2A2, A2A4	Inhibit Generators	05421-6002 (new); 05421-6040 (rebuilt)
A2A5, A2A6	"X" and "Y" Decoder Gates	05421-6003 (new); 05421-6041 (rebuilt)
A2A7, A2A8	"X" and "Y" Read-Write	·
•	Generators	05421-6004 (new); 05421-6042 (rebuilt)
A2A9	Horizontal DAC	05480-60010 (new); 05480-60084 (rebuilt)

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Table 4-5. Service Kit (Cont'd)

Reference Designator	Board Assembly Description	HP Part Number
A2A10	Vertical DAC	05480-60009 (new); 05480-60063 (rebuilt)
A2A11	±19V Regulator	05480-60020 (new); 05480-60070 (rebuilt)
A2A12	20 MHz Time Base	05480-60073 (new);
A2A13	Memory Time Decoder	05480-60011 (new); 05480-60065 (rebuilt)
A2A14	Memory Logic	05480-60022 (new); 05480-60072 (rebuilt)
A3A1	Preset Detector	05480-60001 (new); 05480-60055 (rebuilt)
A3A2	Accumulator Control	05480-60004 (new); 05480-60058 (rebuilt)
A3A3	Accumulator Bits 0-3	05480-60002 (new); 05480-60056 (rebuilt)
A3A4, A3A5	Accumulator Bits 4-7, 8-11,	05480-60003 (new); 05480-60057 (rebuilt)
A3A6, A3A7	12-15, 16-19	
A3A8	Accumulator Bits 20-23	05480-60005 (new); 05480-60059 (rebuilt)
A3A9	Address Register Bits 0-1	05480-60077 (new); 05480-60061 (rebuilt)
A3A10, A3A11	Address Register Bits 2-5, 6-9	05480-60006 (new); 05480-60060 (rebuilt)
A3A12	Address Control Board	05480-60075 (new); 05480-60076 (rebuilt)
A4A1	Light Driver Assembly	05480-60012 (new); 05480-60066 (rebuilt)
A5A1	Power Supply "A"	05480-60014 (new); 05480-60068 (rebuilt)
A5A2	Power Supply "B"	05480-60015 (new); 05480-60069 (rebuilt)
85A		
A1	Input Amplifier	05485-60005 (new); 05485-60025 (rebuilt)
A2	Sample and Hold	05485-60004 (new); 05485-60024 (rebuilt)
A3	A to D Converter	05485-60003 (new); 05485-60023 (rebuilt)
A4	Switching Logic A	05485-60002 (new); 05485-60022 (rebuilt)
A5	Output Amplifier	05435-60001 (new); 05485-60021 (rebuilt)
A6	Switching Logic B	05485-60010 (new); 05485-60027 (rebuilt)
A7	Interface	05485-60009 (new); 05485-60026 (rebuilt)
86B		
A1	Sync and Delay	05486-60011 (new); 05486-60033 (rebuilt)
A2	Time Base "B"	05486-60010 (new); 05486-60032 (rebuilt)
A3	Time Base "A"	05486-00009 (new); 05486-60031 (rebuilt)
A4	Time Slot Decoder	05486-60036 (new); 05486-60045 (rebuilt)
A5	Light Driver Control	05486-60037 (new); 05486-60046 (rebuilt)
A6	Logic Matrix "C"	05486-60038 (new); 05486-60047 (rebuilt)
A7	Logic Matrix "A"	05486-60039 (new); 05486-60048 (rebuilt)
A8	Program Selector "A"	05486-60005 (new); 05486-60027 (rebuilt)
A9	Program Selector "B"	05486-60040 (new); 05486-60049 (rebuilt)
A10	Logic Matrix "B"	05486-60041 (new); 05486-60050 (rebuilt)
A11	Shift Control "B"	05486-60042 (new); 05486-60051 (rebuilt)
A12	Shift Control "A"	05486-60043 (new); 0546-60052 (rebuilt)
A13	Logic Matrix "D"	05486-60044 (new); 0546-60053 (rebuilt)

ISOLATED SPARES KIT (10646-60002):

Includes replacement components as listed below.

Res	istors
Part No.	Quantity
0698-6224	2
0698-6225	2
0811-1397	2
0811-1398	2
0698-3146	2
0698-5131	2
0698-5132	2

Table 4-5. Service Kit (Cont'd)

	Table 4-5. Serv	vice Kit (Cont'd)	
ISOLATED SPARES KIT	Capac	itors	
(1064660002	Part No.	Quantity	
(Cont'd)	0180-0042 0180-0268	1 1	
	0180-1809	i	
	0180-1871	1	
	0180-1968 0180-2130	1 1	
		· · · · · · · · · · · · · · · · · · ·	
		mps	
	Part No.	Quantity	
	2140-0021 2140-0039	1 2	
	<u> </u>	ses	
	Part No.	Quantity	
	2110-0015 2110-0021	1 1	
	Dioc	des	
Part No.	Quantity	Part No.	Quantity
1901-0025	2	1902-0064	1
1901-0026	2	1902-0071	1
1901-0028 1901-0033	2 1	1902-0126 1902-0210	1
1901-0039	5	1902-0210	î
1901-0040	5 ·	1902-3002	1
1901-0045	1	1902-3003	1
1901-0049	1	1902-3059	1
1901-5179 1901-0341	2 1	1902-3070	2 1
1901-0376	1	1902-3094 1902-3104	1
1901-0409	2	1902-3290	ĩ
1902-0041	2	1902-3256	1
1902-0049	1	1902-3268	1
1902-0052 1902-0057	1 1	1902-3337 1910-0034	1
	Trans	istors	
Part No.	Quantity	Part No.	Quantity
1853-0001	i	1854-0071	2
1853-0015	1	1854-0072	1
1853-0016	4	1854-0092	2 2
1853-0020 1853-0034	4	1854-0094 1854-0221	2
1853-0036	1 2	1854-0246	2 4
1853-0037	1	1854-0330	i i
1854-0005	4	1855-0020	1
1854-0009	1	1855-0049	1
1854-0019	1	1855-0050	1
1854-0022	1	1855-0057	1 1
1854-0039 1854-0045	2 1	1884-0046 1884-0054	1
1854-0063	1	7001-0001	*
			· -

Table 4-5. Service Kit (Cont'd)

646-60003)(Cont'd)	Integrate	d Circuits	
Part No.	Quantity	Part No.	Quantity
1820-0054	2	1820-0085	2
1820-0055	2	1820-0304] 1
1820-0063	ĩ	1820-0370	2
	, 2	1820-0371	2
1820-0068	9	1820-0373	1
1820-0069	2	1820-0375	1
1820-0070	2	1820-0376	1
1820-0071	2	1820-0378	1
1820-0072	2	1820-0380	1
1820-0074	2	1820-0381	i i
1820-0075	1		1 1
1820-0077	2	1820-0383	1 5
1820-0084	2	1820-0387	1 4

REPLACEMENT BOARD KIT (19646-60004):

Includes one each of the following boards, unique to the 5487A.

Reference Designator	Board Assembly Description	HP Part Number
A1 A4 A5	Four Channel Input Amplifier Four Channel Logic Four Channel Output	05487-60001 (new); 05487-60012 (rebuilt) 05487-60004 (new); 05487-60013 (rebuilt) 05487-60005 (new); 05487-60014 (rebuilt)

REPLACEMENT BOARD KIT (10646-60005):

Includes one each of the following boards, unique to the 5488A.

Reference Designator	Board Assembly Description	HP Part Number
A1	Input Amplifier	05488-60001 (new); 05488-60012 (rebuilt)
A2	Fast ADC	05488-60002 (new); 05488-60013 (rebuilt)
A3	Correlation Coefficient Generator	05488-60003 (new); 05488-60014 (rebuilt)
A4	Sample and Hold	05488-60004 (new); 05488-60015 (rebuilt)

Table 4-6. Non-Compatible Board Number Cross Reference List* (Models 5480A/5486A to 5480B/5486B)

Reference Designator	5480A Board <u>Number</u>	5480B Board <u>Number</u>
A2A12	05480-60021 (below Serial #928-0176)	05480-60073**
A3A12	05480-60008	05480~60075

5486 Logic Plug-in

Reference Designator	5486A Board <u>Number</u>	5486B Board <u>Number</u>
A4	05486-60008	05486-60036
A5	05486-60003	05486-60037
A6	05486-60014	05486-60038
A7	05486-60006	05486-60039
A9	05486-60004	05486-60040
A10	05486-60007	05486-60041
A11	05486-60002	05486-60042
A12	05486-60001	05486-60043
A13	05486-60015	05486-60044

*These boards are not directly interchangeable
**Substitution requires the wiring of +5V to pin 15

Figure 4-15. 5480A/B Rear Panel Connections

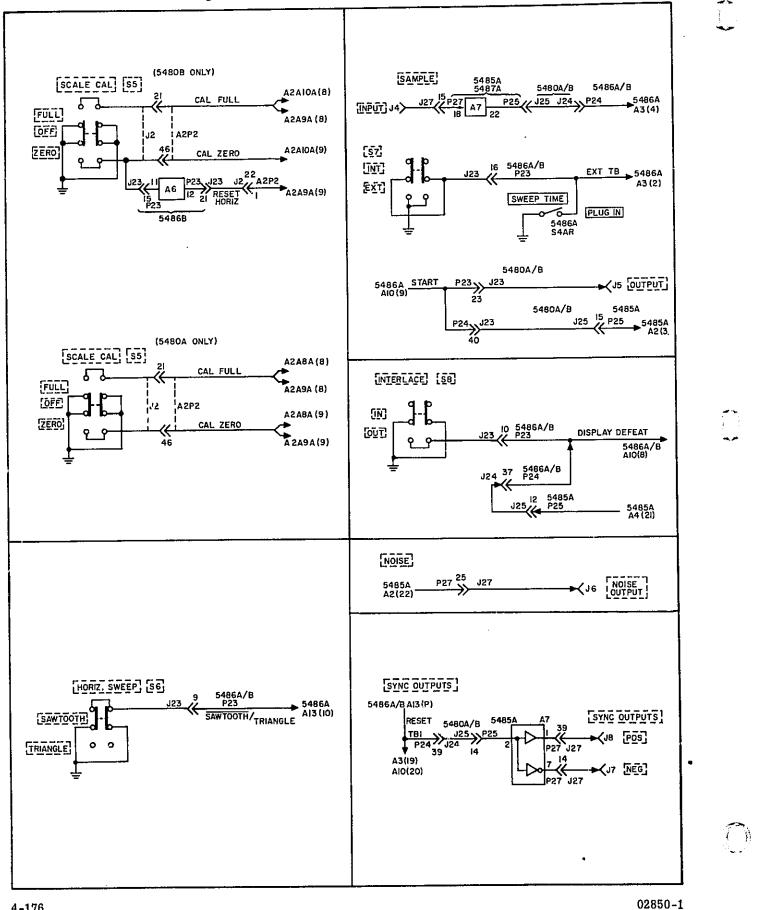
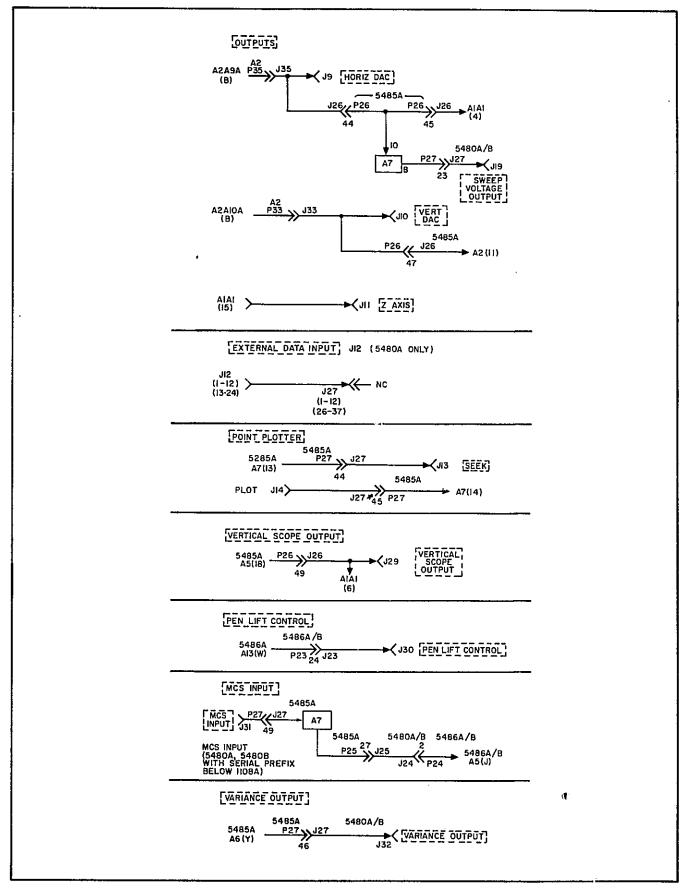


Figure 4-15. 5480A/B Rear Panel Connections (Cont'd)



The Board Exchange Program described in this table provides the quickest way to achieve "on-site" repair/replacement of bad boards in the 5480A/B System. START Locate bad board. Refer to Table 4-1 for troubleshooting. Replace bad board with good board good board from stock YES available (either or kit. Keep bad board in stock or servavailable for return to ice kit)? Hewlett-Packard. Rebuilt replacement boards are shipped individually in boxes like Order rebuilt replacethe one shown at right. In addition ment board from HP, to the board, the box contains: refer to Table 4-2 for Module repair report part numbers. Return address label Tape for re-sealing box Open shipping box carefully; it will be used to return bad board to HP. Complete module repair report; place it and Swap replacement bad board in box as shown in board and bad board. photo at right. Be sure to remove return address label before sealing box. Moisten back of return address label and place it over address Return board to HP. already on box. Return box to HP. We pay postage if box is mailed in United States. END

Model 5480A

CATHODE RAY TUBE WARRANTY

The cathode ray tube (CRT) supplied in the Hewlett-Packard 5480A, and replacement CRTs purchased from HP, are guaranteed by the Hewlett-Packard Company against electrical failure for a period of one year from date of sale. Broken tubes or tubes with burned phosphor are not included under this guarantee. If the CRT is broken when received, a claim should be made with the responsible carrier.

Your nearest Hewlett-Packard Sales and Service office (listed at rear of instrument manual) maintains a stock of replacement tubes and will assist in processing the warranty claim.

In order to ensure credit for a CRT under the warranty period, the reverse side of this sheet should be filled out completely and returned with the defective tube to the nearest HP Sales and Service office. To avoid damage to the tube while in shipment, carefully follow the shipping instructions listed on the reverse side of this sheet; credit is not allowed on broken tubes.

CRT WARRANTY CLAIM

SHIPPING INSTRUCTIONS

- Carefully wrap the tube in 1/4 inch thick cotton batting or other soft padding material.
- 2. Wrap the above in heavy kraft paper.
- Pack wrapped tube in a rigid container which is at least 4 inches larger than the tube in each dimension.
- Surround the tube with at least 4 inches of packed excelsior or similar shock absorbing material; be sure the packing is tight all around the tube.

FRO	DATE
NAN	1E
COM	1PANY
ADD	DRESS
NA M	additional information, contact: ME
ADD	DRESS
2. 3. 4. 3	hp Instrument a) Model b) Serial No CRT a) Type (on bulb) b) Serial No. (on CRT base) Is defective tube original? YES NO Date purchased (if available)
5.	Describe nature and/or symptoms of trouble.
	Describe operation conditions prior to and at time of failure. (Please estimate CRT "on-time" since purchase.)

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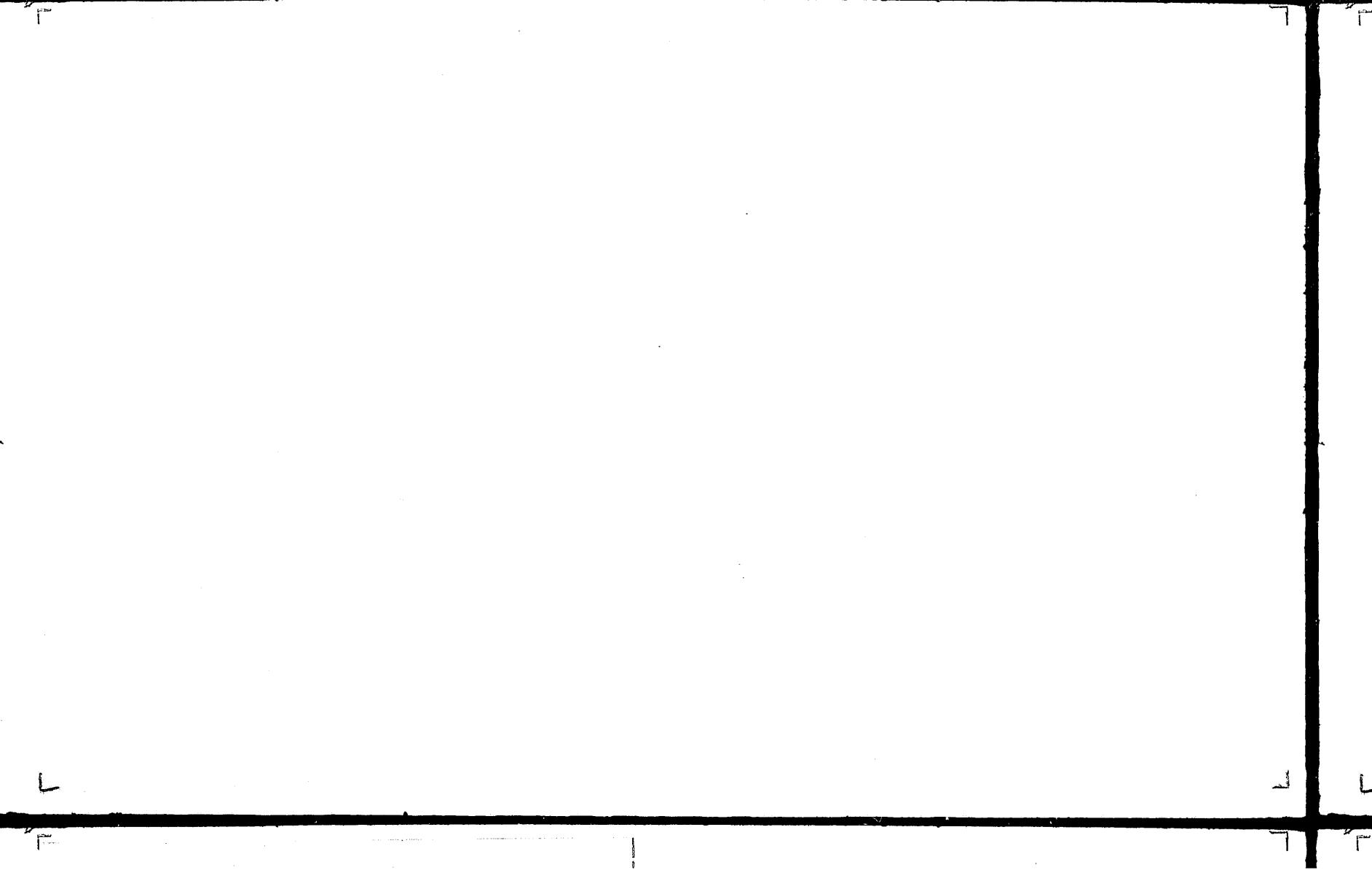
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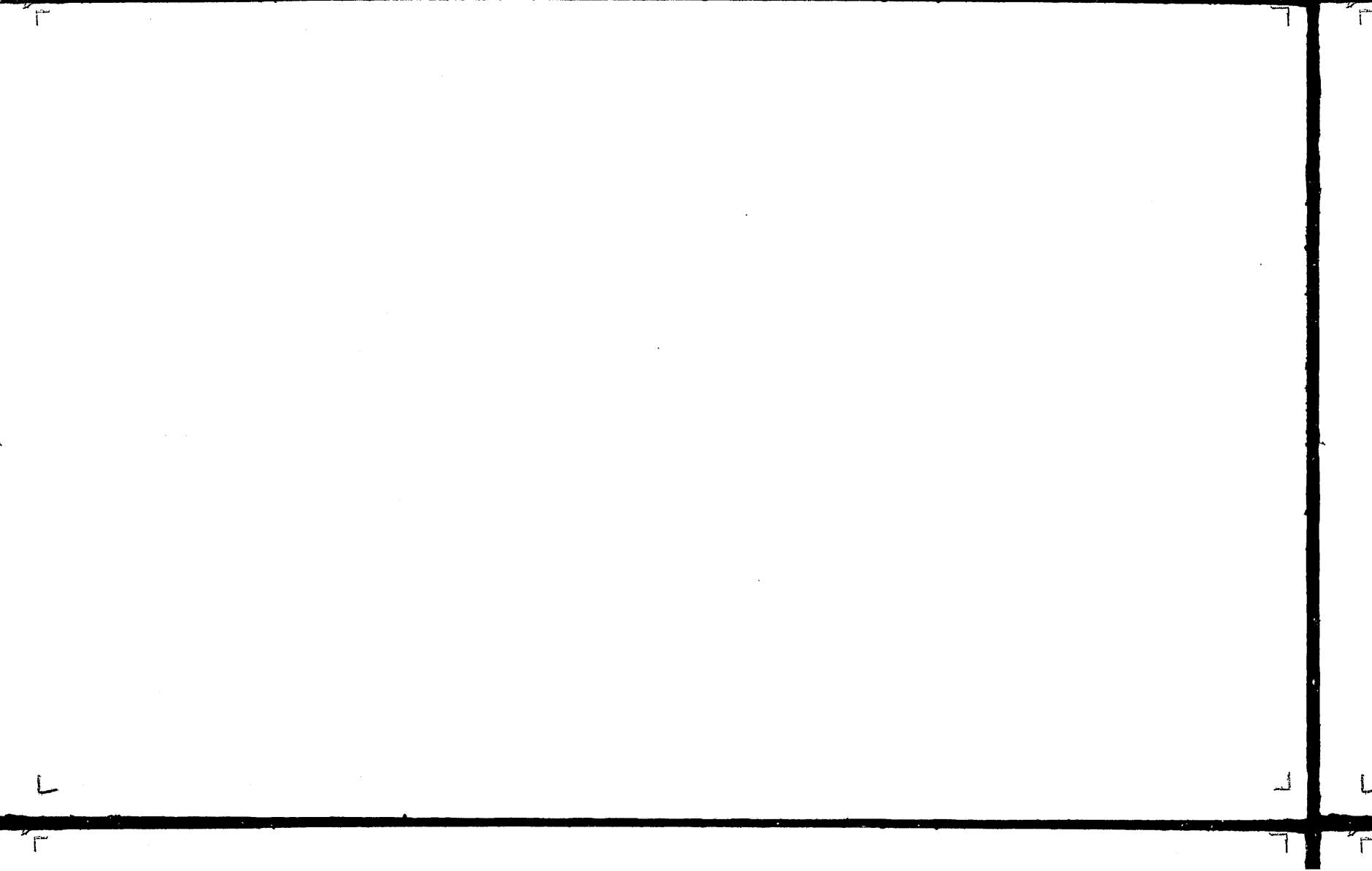
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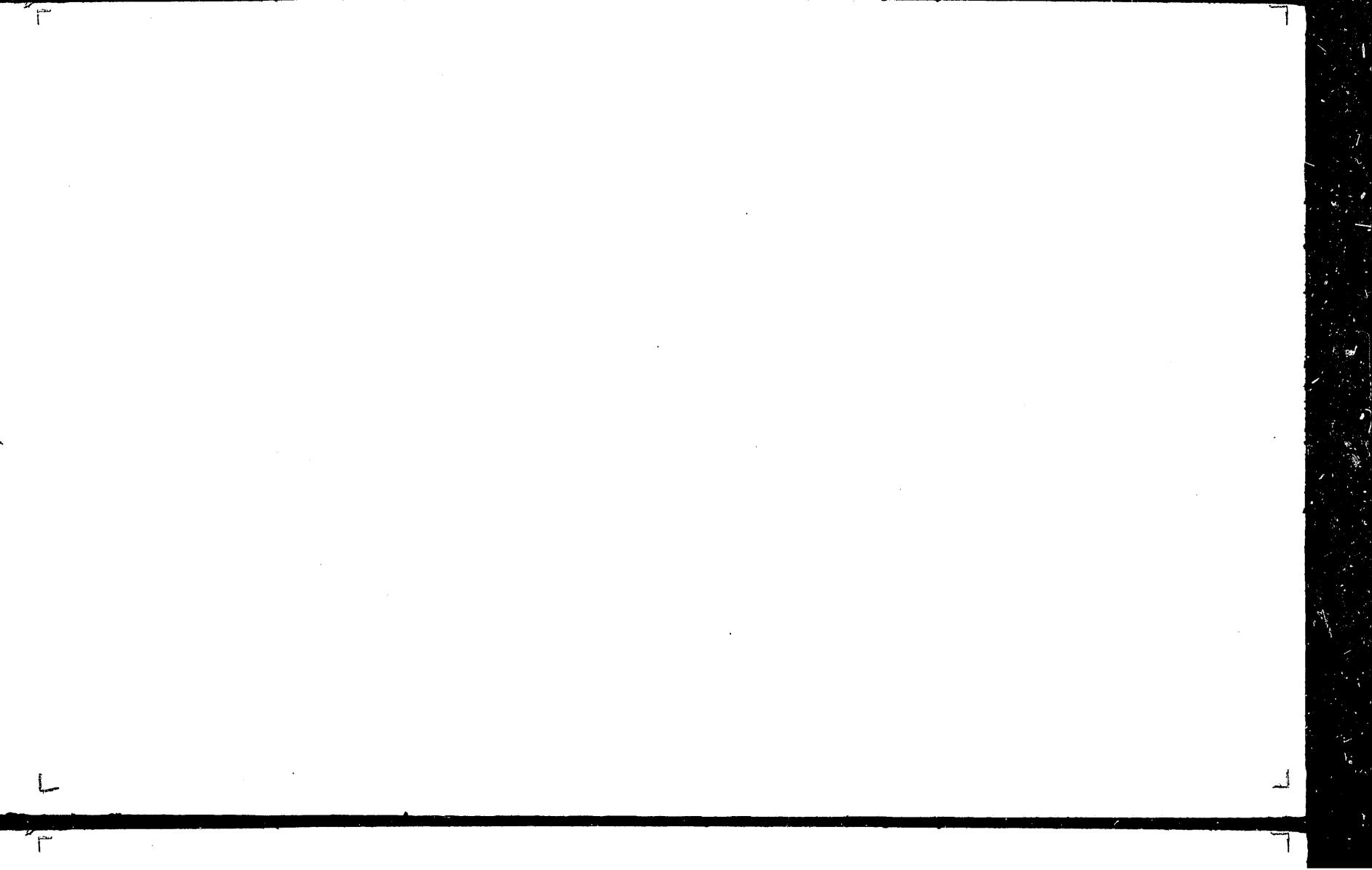
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NOTEC

5480A-1A SERVICE NOTE

SUPERSEDES:

5480A-1

HP MODEL 5480A SIGNAL ANALYZER
Serial Nos. below 928-00176
20 MHz TIME BASE REPLACEMENT

The Time Base Board (A2A12) has a new design for improved reliability and the elimination of two adjustments.

The installation of the new board requires the wiring of +5V to A2XA12 from the adjacent socket A2XA11 The old board should not be replaced unless it becomes defective.

PARTS AFFECTED BY CHANGE

Old No.: 05480-60021 New No.: 05480-60073

INSTALLATION PROCEDURE

- 1. Remove top cover of 5480A.
- 2. Using #18 buss, 11/16" (1.8 cm) long, wire between terminal 15 of A2XA11 and A2XA12.
- 3. Swing out A2 memory deck and replace 05480-60021 board with the 05480-60073 board. Replace deck to its normal position.
- 4. Turn on power and check for 20 MHz sine wave (3V amplitude at A2XA12 (2).

WH/sg/WO

1/70-2

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Supersedes:

None

HP MODEL 5480A SIGNAL ANALYZER

All Serial Nos.

IMPROVED A3A9 ADDRESS REGISTER

Operation of the 5480A with peripheral recording equipment can be improved by using a new A3A9 board, which was designed for the 5480B signal analyzer, or modifying the present board. Previously, holding the RECORD button (or applying a long external RECORD PBM signal) would cause fast recycling through channels 1 to 4 of the memory.

Releasing the button or completing the external control pulse would then start the record operation as it was designed to do. The recycling is not noticeable with all recording equipment but in some cases it may be annoying.

The problem can be completely cleared up with the new 5480B board or the old board may be easily modified. The new circuit requires an additional signal line which is very easy to install. It takes the "CLEAR DAR B" signal from A3A10 (V) and applies it to A3A9(S).

PARTS AFFECTED BY CHANGE

Old No: 05480-60007

New No: 05480-60077

Updated Rebuilt No: 05480-60061 (for board exchange program).

INSTALLATION PROCEDURE

- Remove left side panel, bottom and top covers of the 5480A.
- 2. Locate the A3 Section at the left rear of the mainframe. Find A3XA9 which is the 9th socket from the rear, with the instrument right side up.
- 3. Using a 3/4" (2 cm) shielded hook-up wire, jumper between A3XA9(S) and A3XA10 (V).

WH/sg/WN

- 4. Turn 5480A upside down and find board A3A9. Pull out board 05480-60007 and replace with rebuilt board No. 05579-60061; or with new board No. 05480-60077; or modified present board as described below.
- 5. Turn instrument right side up. Turn on power and test

MODIFICATION OF 05480-60007

- 1. Drill holes with No. 64 drill bit as follows from foil side of board. (Refer to Parts Locator diagram, Figure 1.)
 - a. Hole(s) 1/8" above IC16 (12); hole(t) 3" to left of the IC16 (12) hole and 1/8" from top of board; hole(u) 3/16" up from board terminal "S" and just to right of foil.
 - b. Hole(v) 1/8" above IC16 (13); hole(w) 3/8" to right of IC16 (14); hole(x) 5/8" down from previous hole and through foil of lead going to terminal "18".
 - c. Hole(y) 3/16" above IC17 (13); and hole(z) 1/8" left of IC16 (8).
- 2. Cut foil with No. 60 drill bitat point 3/16" downward from IC17 (1) to break connection.
- 3. Cut lengths of No. 24 bare hook-up wire as specified and connect as follows (lengths are sufficient for small hook around IC terminal):
 - a. (8") Solder to IC16 (12), run through hole(s) to hole(t) run through this hole and straight down to hole(u) for board terminal "S". Push lead through hole(u), bend over on top for strength, and solder to foil. Use insulation, 3" on top of board, and 4" on bottom of board.

3/70-2



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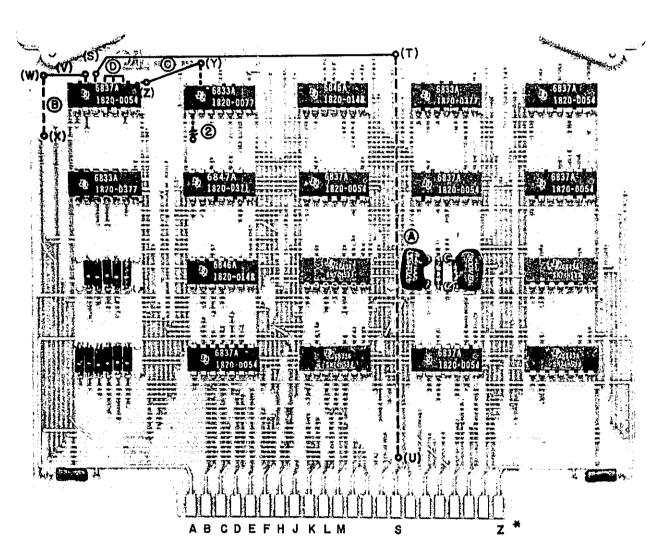
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- b. (1-5/8") Solder to IC 16 (13), run through hole(v) to hole(w) and through it, run wire down to hole(x) through it and the foil going to terminal 18, push end through hole, bend over for strength, solder to foil. Use 3/8" insulation on top of board.
- c. (1-3/8") Solder to IC17 (13) and run through hole(y) to hole(z) and through to terminal IC16 (8). Solder both ends. Use 9/16" insulation on top of board.
- d. (1/4") Solder across IC16 (9, 10, 11).
- Fasten down long leads with Duco Cement and clean board.

TEST PROCEDURE

 Set up front panel controls as for Averaging operation. Use INTERNAL TRIGGER SOURCE.

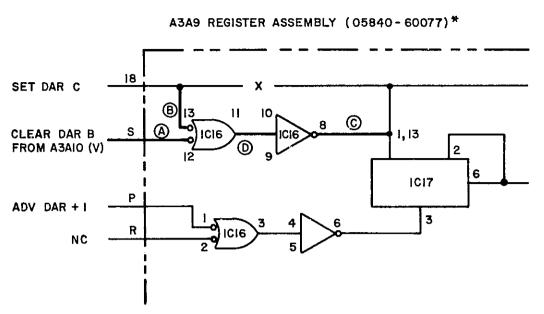
- 2. Set SWEEP TIME to 100 msec/cm.
- Apply front panel CALIBRATOR signal to Analog Plug-in input.
- 4. Throw DC/GND/AC switch to AC.
- 5. Press CLEAR DISPLAY buttons.
- 6. Push START. Trace should deflect almost equally above and below center line.
- 7. Push DISPLAY. DISPLAY button should light and oscillogram should hold steady.
- 8. Depress RECORD button. While depressed, a single dot should appear on left of CRT screen.
- Release RECORD button and trace moves across CRT once. STOP light comes on at end of sweep.



NOTE: LETTER AND NUMBER CALLOUTS REFER TO TEXT. SOLID LINES FRONT, DASHED FOR BACK OF BOARD. * TERMINALS LETTERED FOR BACK SIDE OF BOARD.

Figure 1.

A Company of the Comp



* PARTIAL SCHEMATIC: "X" SHOWS BREAK NECESSARY TO MODIFY 05840-60007 BOARD.

HEAVY LINES INDICATE ADDED JUMPERS TO MODIFY 05480-60007 BOARD.

Figure 2

SUPERSEDES:

None

5480A

PLOTTER INTERFACE PROBLEMS

Several problems have arisen when attempting to Interface a 5480A with any type of Plotter. A problem/cure synopsis is provided in this memo for your information.

Probiem

Record Mode, with SWEEPTIME set to EXT, does not begin when RECORD button pressed.

Remedy

Replace A7 INTERFACE ASSEMBLY (05485-60009) with current series 964.

Problem

5480A instruments with serial number prefix 928 and lower plot the first four memory channels repeatedly when the RECORD button is pressed, until it is released.

Remedy

Modify the A3A9 (05480-60007) board as per instructions in Service Note 5480A-2.

Problem

Non-compatibility of 5480A units. serial numbers 852-00175 and below and Interface cable 10640B. The older 5480A units have a 24 pin blue ribbon connector and two BNC connectors labeled SEEK and PLOT. The new 5480B and 5480A with serial numbers 928-00176 and above have a 14 pin Blue ribbon connector labeled PLOTTER and has eliminated the two BNC connectors. Obviously, a compatability problem exists.

Remedy

Order Interface cable 10640B for 5480B for 5480A along with special Interface adapter box K07-5480A.

The K07-5480A Adapter Box connects to the rear panel of the 5480A and couples signals necessary to a 14 pin Blue ribbon connector for the 10640B cable.

Problem

Some plotters require different voltage levels for operating PEN LIFT. The 5480A provided only a TTL level to command this operation. With plotters having 35 volts on the PEN LIFT line the TTL gate was destroyed.

Remedy

Correction was made by adding a relay to the 5485A INTERFACE board. Replacing the old A13 board in the 5485A eliminates the PEN LIFT problem, but may add an additional problem as the circuitry for UP/DN sweep in MCS is eliminated. For customers not concerned with UP/DN sweep in the MCS mode, order board 05486-60044. For customers using UP/DN sweep mode, order special board 05486-60080. This board mounts to the side frame of the 5480A and is electrically connected between the old PEN LIFT signal from A13 and the BNC on the 5480A rear panel. Wiring procedures accompany the board assembly.

Problem

5480A will cause plotter to "Buzz" when servos are left on during an accumulation mode. Problem caused by not having signal L RECORD brought out to the rear panel.

Remedy

User must manually arm the recorder servo during OUTPUT RECORD and disarm at all other times.



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5480A B-4

SERVICE NOTE

None

Supersedes:

HP MODEL 5480A/B SIGNAL ANALYZER

All serial numbers below 1248A00231 except 1132A00220/1132A00221
HIGH FREQUENCY OSCILLATIONS

High frequency oscillations (1 MHz) have caused the oscilloscope trace to be much thicker than desirable. This effect sometimes becomes intolerable with the use of the 5487A Four Channel Plug-in.

A 0.1 μF capacitor (0160-3094) should be added to the A5A1 (05480-60014) low voltage power supply. The capacitor should be inserted from the base of Q1 to ground.

5480B's Serial Number 1132A00220/1132A00221 and all serial numbers 1248A00231 and above have this change.

RL/d1/WN

1/74-2



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SERVICE NOTE

Superse

None

5480A/B SIGNAL ANALYZER

All Serial Numbers

REQUIREMENTS FOR AVERAGING

Several questions have arisen about interpreting the 5480A/B Operating and Service manuals, particularly concerning Averaging Modes; Summation and Average.

The manuals fail to emphasize the following three requirements necessary to utilize the 5480 Average Modes.

- 1. The waveform <u>must be</u> repetitive (not necessarily periodic).
- 2. A Sync" pulse <u>must be</u> available to signal the beginning of each repetition.
- 3. The highest frequency component of the input <u>must be</u> less than 50 KHz.

The second requirement causes the most concern because the 5480 Operating and Service manuals do not exclude the use of the "internal" or "line" trigger source. Please keep in mind that averaging can be done with the trigger source in either of the above positions, provided the following conditions are met:

- A. "Internal " the input signal you wish to average is in "Sync" with the 5480 Internal Clock.
- B. "Line" the input signal you wish to average is in "Sync" with the Line frequency.

Since these restrictions can be satisfied only in special cases, we recommend that "Internal" or "Line" trigger source not be used when using the 5480's Averaging or Summation Mode.

RL/d1/WN

10/72-2



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